

HUAWEI NE40E Universal Service Router

Hardware Description

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Contents

1 About This Document	1
2 Overview	4
3 Technical Specifications.....	5
4 Product Compatibility	15
5 Product Signal Flow Overview.....	61
5.1 General Service Process Overview.....	61
5.2 Signal Flow on the Control Plane.....	63
5.3 Signal Flow on the Data Plane	65
5.4 Signal Flow on the Monitoring Plane	67
6 Chassis	69
6.1 NE40E-X3	69
6.2 NE40E-X3A.....	75
6.3 NE40E-X8	79
6.4 NE40E-X8A.....	84
6.5 NE40E-X16	90
6.6 NE40E-X16A.....	95
7 Power	102
7.1 NE40E-X3 Power Supply System	102
7.1.1 Architecture of the Power Supply System.....	102
7.1.2 PEM.....	103
7.1.3 AC Power Box.....	104
7.2 NE40E-X3A Power Supply System	107
7.2.1 Architecture of the Power Supply System.....	107
7.2.2 PEM.....	107
7.2.3 AC Power Supply module.....	109
7.3 NE40E-X8 Power Supply System	111
7.3.1 Architecture of the Power Supply System.....	111
7.3.2 70A PEM.....	113
7.3.3 EPS200-4850A.....	115
7.3.4 EPS200-4850B	118

7.4 NE40E-X8A Power Supply System	120
7.4.1 Architecture of the Power Supply System	120
7.4.2 DC PM.....	126
7.4.3 2700 W AC PM	129
7.4.4 3000 W AC&HVDC PM.....	131
7.5 NE40E-X16 Power Supply System	134
7.5.1 Architecture of the Power Supply System	134
7.5.2 70A PEM.....	135
7.5.3 EPS200-4850A.....	137
7.5.4 EPS200-4850B.....	140
7.6 NE40E-X16A Power Supply System.....	143
7.6.1 Architecture of the Power Supply System.....	143
7.6.2 DC PM.....	148
7.6.3 2700 W AC PM	150
7.6.4 3000 W AC&HVDC PM.....	153
8 Fan	156
8.1 Heat Dissipation System of the NE40E-X3	156
8.1.1 System Air Channel	156
8.1.2 Fan Speed Adjustment	157
8.1.3 Fan Module	158
8.1.4 Air Filter.....	160
8.2 Heat Dissipation System of the NE40E-X3A.....	161
8.2.1 System Air Channel	161
8.2.2 Fan Speed Adjustment	161
8.2.3 Fan Module	162
8.2.4 Air Filter.....	164
8.3 Heat Dissipation System of the NE40E-X8	164
8.3.1 System Air Channel	164
8.3.2 Fan Speed Adjustment	165
8.3.3 Fan Module	165
8.3.4 Air Filter.....	167
8.4 Heat Dissipation System of the NE40E-X8A.....	168
8.4.1 System Air Channel	168
8.4.2 Fan Speed Adjustment	169
8.4.3 Fan Module	169
8.4.4 Air filter	171
8.5 Heat Dissipation System of the NE40E-X16	172
8.5.1 System Air Channel	172
8.5.2 Fan Speed Adjustment	172
8.5.3 Fan Module	173
8.5.4 Air Filter.....	175

8.6 Heat Dissipation System of the NE40E-X16A.....	176
8.6.1 System Air Channel.....	176
8.6.2 Fan Speed Adjustment.....	177
8.6.3 Fan Module.....	178
8.6.4 Air Filter.....	180
9 Boards.....	182
9.1 Overview.....	183
9.1.1 Board Structure.....	183
9.1.2 Board and Subcard Specifications.....	185
9.1.3 Filler Panel.....	189
9.1.4 Rules for Numbering Slots and Interfaces.....	190
9.1.5 Bar Code for Boards.....	194
9.2 Control Plane.....	195
9.2.1 Introduction to the Control Plane.....	195
9.2.2 Main Processing Unit D2(Including 2G Memory and 2G USB).....	196
9.2.3 Main Processing Unit D3(Including 4G Memory and 2G USB).....	199
9.2.4 Main Processing Unit D4.....	203
9.2.5 Main Processing Unit D4(16G Memory).....	207
9.2.6 Switch and Route Processing Unit A5.....	211
9.2.7 Switch and Route Processing Unit A7.....	215
9.2.8 Switch and Route Processing Unit B5.....	219
9.2.9 Switch and Route Processing Unit A8.....	223
9.2.10 Switch and Route Processing Unit A8(16G Memory).....	227
9.2.11 Switch and Route Processing Unit A9.....	231
9.2.12 Switch and Route Processing Unit A9(16G Memory).....	234
9.2.13 Main Processing Unit B4.....	238
9.2.14 Main Processing Unit B5.....	242
9.2.15 Main Processing Unit B5(16G Memory).....	246
9.2.16 Main Processing Unit B6.....	250
9.3 Switching Network.....	254
9.3.1 Introduction to the Switching Network.....	254
9.3.2 200Gbps Switch Fabric Unit C(SFUI-200-C).....	255
9.3.3 480Gbps Switch Fabric Unit C(SFUI-480-C).....	257
9.3.4 1Tbps Switch Fabric Unit C(SFUI-1T-C).....	259
9.3.5 200Gbps Switch Fabric Unit B(SFUI-200-B).....	261
9.3.6 480Gbps Switch Fabric Unit B(SFUI-480-B).....	263
9.3.7 1Tbps Switch Fabric Unit B(SFUI-1T-B).....	265
9.4 VSUF.....	267
9.4.1 Flexible Card Versatile Service Unit 160(VSUF-160).....	267
9.4.2 Flexible Card Versatile Service Unit 80(VSUF-80).....	269
9.4.3 Versatile Service Flexible Card(SP160).....	271

9.4.4 Versatile Service Flexible Card(SP80).....	273
9.4.5 Integrated Versatile Service Unit 160(VSUI-160-E).....	275
9.5 LPUI-21-L	277
9.5.1 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit L(LPUI-21-L)	277
9.5.2 1-Port 10GBase LAN/WAN-SFP+ + 16-Port 100/1000Base-X-SFP Integrated Line Processing Unit L(LPUI-21-L)	280
9.6 LPUF-50	283
9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots)	283
9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots).....	285
9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory).....	287
9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	289
9.6.5 8-Port OC-3c/STM-1c POS-SFP Flexible Card	292
9.6.6 4-Port OC-3c/STM-1c POS-SFP Flexible Card	296
9.6.7 2-Port OC-3c/STM-1c POS-SFP Flexible Card	300
9.6.8 8-Port 100/1000Base-X-SFP Flexible Card A(P10-A,Supporting 1588v2)	303
9.6.9 2-Port 10GBase WAN/LAN-SFP+ Flexible Card A	307
9.6.10 4-Port Channelized STM-1 POS-SFP Flexible Card(P50).....	311
9.6.11 8-Port Channelized STM-1 POS-SFP Flexible Card(P50)	315
9.6.12 2-Port Channelized STM-1c POS-SFP Flexible Card(P50)	318
9.6.13 24-Port Channelized E1/T1-DB100 Flexible Card	322
9.6.14 8-Port OC-12c/STM-4c POS-SFP Flexible Card.....	326
9.6.15 1-Port OC-192c/STM-64c POS-XFP Flexible Card(Occupy two slots)	330
9.6.16 2-Port OC-48c/STM-16c POS-SFP Flexible Card.....	333
9.6.17 4-Port OC-48c/STM-16c POS-SFP Flexible Card.....	337
9.6.18 8-Channel CWDM Multiplexing & Demultiplexing (1471/1491/1511/1531/1551/1571/1591/1611nm) Flexible Card(P50)	341
9.7 LPUF-51	345
9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots).....	345
9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B	347
9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E.....	349
9.7.4 24-Port 100/1000Base-X-SFP Flexible Card A(P51-A).....	351
9.7.5 2-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P51-A).....	354
9.7.6 5-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P51-A, Occupy two sub-slots).....	358
9.7.7 20-Port 10/100/1000Base-RJ45 Flexible Card A(P51-A)	361
9.7.8 2-Port OC-192c/STM-64c POS-XFP Flexible Card(P51-A).....	365
9.7.9 24-Port 1000Base-X-SFP Flexible Card E(P51-E).....	369
9.7.10 24-Port 1000Base-X-SFP Flexible Card E(P52-E)	372
9.7.11 5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P51-E, Occupy two sub-slots).....	375
9.7.12 2-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P51-E)	378
9.7.13 5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P52-E, Occupy two sub-slots).....	380
9.7.14 2-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P52-E)	383
9.7.15 2-Port 10GBase LAN/WAN-SFP+ Flexible Card H(P51-H).....	386

9.8 LPUI-51	389
9.8.1 5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-51)	389
9.8.2 4-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-51)	392
9.8.3 48-Port 100/1000Base-X-SFP Integrated Line Processing Unit (LPUI-51)	395
9.8.4 2-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit (LPUI-51)	397
9.8.5 5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-51-B)	401
9.8.6 4-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-51-B)	404
9.8.7 48-Port 100/1000Base-X-SFP Integrated Line Processing Unit B(LPUI-51-B)	407
9.8.8 2-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit B(LPUI-51-B)	409
9.8.9 5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-51-L)	413
9.8.10 48-Port 100/1000Base-X-SFP Integrated Line Processing Unit L(LPUI-51-L)	416
9.8.11 2-Port 10GBase LAN/WAN-SFP+ + 32-Port 100/1000Base-X-SFP Integrated Line Processing Unit L(LPUI-51-L)	419
9.8.12 4-Port 10GBase LAN/WAN-SFP+ + 12-Port 100/1000Base-X-SFP Integrated Line Processing Unit L(LPUI-51-L)	422
9.9 LPUI-51-E	425
9.9.1 2-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit E(LPUI-51-E)	425
9.9.2 5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit E(LPUI-51-E)	428
9.9.3 2-Port 10GBase LAN/WAN-SFP+ + 24-Port 1000Base-X-SFP Integrated Line Processing Unit E(LPUI-51-E,Enhanced HQos)	431
9.9.4 2-Port 10GBase LAN/WAN-SFP+ +24-Port 1000Base-X-SFP Integrated Line Processing Unit E(LPUI-52-E,Enhanced HQos)	434
9.9.5 5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit E(LPUI-51-E,Enhanced HQos)	437
9.9.6 5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit E(LPUI-52-E,Enhanced HQos)	440
9.9.7 48-Port 100/1000Base-X-SFP Integrated Line Processing Unit E(LPUI-51-E)	443
9.9.8 5-Port 10GBase LAN/WAN-SFP+ Line Processing Unit S(LPUI-51-S)	445
9.9.9 2-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit S(LPUI-51-S)	448
9.9.10 48-Port 100/1000Base-X-SFP Line Processing Unit S(LPUI-51-S)	452
9.9.11 48-Port 100/1000Base-X-SFP Integrated Line Processing Unit CM(LPUI-51-CM)	454
9.10 LPUS-51	457
9.10.1 5-Port 10GBase LAN/WAN-SFP+ Line Processing Unit S(LPUS-51)	457
9.10.2 4-Port 10GBase LAN/WAN-SFP+ Line Processing Unit S(LPUS-51)	460
9.10.3 48-Port 100/1000Base-X-SFP Line Processing Unit S(LPUS-51)	463
9.10.4 2-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Line Processing Unit S(LPUS-51)	466
9.11 LPUF-101	469
9.11.1 Flexible Card Line Processing Unit(LPUF-101)	469
9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	471
9.11.3 24-Port 100/1000Base-X-SFP Flexible Card A(P101-A)	473
9.11.4 5-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P101-A)	478
9.11.5 1-Port 40GBase LAN-CFP Flexible Card A(P101-A)	482

9.12 LPUI-101	486
9.12.1 2-Port 40GBase LAN-CFP Integrated Line Processing Unit (LPUI-101).....	486
9.12.2 10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-101)	489
9.12.3 2-Port 40GBase LAN-CFP Integrated Line Processing Unit B(LPUI-101-B)	492
9.12.4 10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-101-B)	494
9.13 LPUS-101	497
9.13.1 2-Port 40GBase LAN-CFP Line Processing Unit S(LPUS-101)	497
9.13.2 10-Port 10GBase LAN/WAN-SFP+ Line Processing Unit S(LPUS-101).....	500
9.14 LPUF-102	503
9.14.1 6-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P120-A).....	503
9.14.2 1-Port 100GBase-CFP Flexible Card A(P120-A)	506
9.14.3 1-Port 100GBase-CFP2 Flexible Card A(P120-A)	510
9.14.4 1-Port 40GBase LAN-CFP Flexible Card A(P101-A)	513
9.14.5 12-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P120-A).....	516
9.14.6 8-Port OC-48c/STM-16c POS-SFP Flexible Card(P120)	520
9.14.7 24-Port 100/1000Base-X-SFP Flexible Card A(P101-A).....	523
9.14.8 5-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P101-A).....	528
9.14.9 2-Port OC-192c/STM-64c POS-XFP Flexible Card(P51-A).....	532
9.14.10 6-Port OTU2-SFP+ Flexible Card(P120).....	536
9.14.11 12-Port OTU2-SFP+ Flexible Card(P240)	539
9.14.12 24-Port 1000Base-X-SFP Flexible Card E(P51-E)	543
9.14.13 20-Port 10/100/1000Base-RJ45 Flexible Card A(P51-A)	546
9.14.14 24-Port 1000Base-X-SFP Flexible Card E(P52-E)	550
9.14.15 5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P101-E).....	553
9.14.16 5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P120-E).....	556
9.14.17 5-Port 10GBase LAN/WAN-SFP+ Flexible Card H(P120-H).....	559
9.15 LPUF-120	562
9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	562
9.15.2 Flexible Card Line Processing Unit(LPUF-120)	564
9.15.3 Flexible Card Line Processing Unit(LPUF-120) B.....	566
9.15.4 6-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P120-A).....	568
9.15.5 1-Port 100GBase-CFP Flexible Card A(P120-A)	571
9.15.6 1-Port 100GBase-CFP2 Flexible Card A(P120-A)	574
9.15.7 1-Port 40GBase LAN-CFP Flexible Card A(P101-A)	577
9.15.8 12-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P120-A).....	581
9.15.9 8-Port OC-48c/STM-16c POS-SFP Flexible Card(P120)	584
9.15.10 24-Port 100/1000Base-X-SFP Flexible Card A(P101-A).....	588
9.15.11 5-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P101-A).....	592
9.15.12 2-Port OC-192c/STM-64c POS-XFP Flexible Card(P51-A).....	596
9.15.13 6-Port OTU2-SFP+ Flexible Card(P120).....	600
9.15.14 12-Port OTU2-SFP+ Flexible Card(P240)	603
9.15.15 20-Port 10/100/1000Base-RJ45 Flexible Card A(P51-A)	607

9.15.16 24-Port 1000Base-X-SFP Flexible Card E(P51-E)	611
9.15.17 24-Port 1000Base-X-SFP Flexible Card E(P52-E)	614
9.15.18 5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P101-E).....	617
9.15.19 5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P120-E).....	620
9.15.20 5-Port 10GBase LAN/WAN-SFP+ Flexible Card H(P120-H).....	623
9.16 LPUI-120	626
9.16.1 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit(LPUI-120)	626
9.16.2 2-Port 40GBase LAN-CFP Integrated Line Processing Unit(LPUI-120).....	629
9.16.3 1-Port 100GBase-CFP Integrated Line Processing Unit (LPUI-120).....	631
9.16.4 1-Port 100GBase-CFP2 Integrated Line Processing Unit (LPUI-120).....	634
9.16.5 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-120-B)	637
9.16.6 2-Port 40GBase LAN-CFP Integrated Line Processing Unit B(LPUI-120-B)	640
9.16.7 1-Port 100GBase-CFP Integrated Line Processing Unit B(LPUI-120-B)	642
9.16.8 1-Port 100GBase-CFP2 Integrated Line Processing Unit B(LPUI-120-B)	645
9.16.9 12-Port OTU2-SFP+ Integrated Line Processing Unit (LPUI-120).....	648
9.16.10 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-120-L).....	651
9.16.11 10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit E(LPUI-102-E).....	654
9.16.12 10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit E(LPUI-120-E).....	657
9.16.13 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit CM(LPUI-120-CM)	659
9.16.14 6-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit CM(LPUI-120-CM)	662
9.17 LPUF-200	665
9.17.1 Flexible Card Line Processing Unit(LPUF-200)	665
9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	667
9.17.3 1-Port 100GBase-CFP Flexible Card A(P240-A)	669
9.17.4 1-Port 100GBase-CFP2 Flexible Card A(P240-A)	672
9.17.5 10-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P240-A).....	676
9.17.6 12-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P240-A).....	679
9.18 LPUI-200	683
9.18.1 2-Port 100GE Tunable DWDM Integrated Line Processing Unit (LPUI-200)	683
9.18.2 2-Port 100GBase-CFP Integrated Line Processing Unit(LPUI-200).....	686
9.18.3 20-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit(LPUI-200)	688
9.18.4 1-Port 100GBase-CFP + 10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit(LPUI-200)	691
9.18.5 2-Port 100GBase-CFP Integrated Line Processing Unit L(LPUI-200-L).....	693
9.18.6 20-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-200-L)	696
9.18.7 1-Port 100GBase-CFP + 10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-200-L).....	699
9.19 LPUF-240	702
9.19.1 Flexible Card Line Processing Unit(LPUF-240-E).....	702
9.19.2 Flexible Card Line Processing Unit(LPUF-240)	704
9.19.3 Flexible Card Line Processing Unit(LPUF-240-B).....	706
9.19.4 1-Port 100GBase-CFP Flexible Card A(P240-A)	708
9.19.5 1-Port 100GBase-CFP2 Flexible Card A(P240-A)	711

9.19.6 12-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P240-A).....	714
9.19.7 12-Port OTU2-SFP+ Flexible Card(P240).....	718
9.19.8 3-Port 40GBase-QSFP+ Flexible Card(P240-A).....	722
9.19.9 10-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P240-E).....	725
9.19.10 24-Port 100/1000Base-X-SFP Flexible Card A(P101-A).....	728
9.19.11 10-Port 10GBase LAN/WAN-SFP+ Flexible Card H(P240-H).....	732
9.19.12 24-Port 1000Base-X-SFP Flexible Card E(P52-E).....	735
9.20 LPUI-240.....	738
9.20.1 2-Port 100GBase-CFP Integrated Line Processing Unit (LPUI-240).....	738
9.20.2 2-Port 100GBase-CFP2 Integrated Line Processing Unit (LPUI-240).....	741
9.20.3 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-240).....	744
9.20.4 1-Port 100GBase-CFP + 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-240).....	747
9.20.5 1-Port 100GBase-CFP2 + 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-240).....	750
9.20.6 2-Port 100GBase LAN-CFP Integrated Line Processing Unit B(LPUI-240-B).....	753
9.20.7 2-Port 100GBase LAN-CFP2 Integrated Line Processing Unit B(LPUI-240-B).....	756
9.20.8 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-240-B).....	758
9.20.9 1-Port 100GBase-CFP + 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-240-B).....	761
9.20.10 1-Port 100GBase-CFP2 + 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-240-B).....	764
9.20.11 24-Port OTU2-SFP+ Integrated Line Processing Unit (LPUI-240).....	767
9.20.12 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-240-L).....	770
9.20.13 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit CM(LPUI-240-CM).....	773
9.20.14 6-Port 40GBase-QSFP+ Integrated Line Processing Unit (LPUI-240).....	776
9.20.15 6-Port 40GBase-QSFP+ Integrated Line Processing Unit (LPUI-240-B).....	779
9.21 LPUF-480.....	782
9.21.1 Flexible Card Line Processing Unit(LPUF-480).....	782
9.21.2 Flexible Card Line Processing Unit E(LPUF-480-E).....	784
9.21.3 Flexible Card Line Processing Unit B(LPUF-480-B).....	786
9.21.4 24-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P480-A).....	788
9.21.5 2-Port 100GBase-CFP2 Flexible Card A(P480-A).....	791
9.21.6 2-Port 100GBase-CFP2 Flexible Card E(P480-E).....	793
9.21.7 20-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P480-E).....	796
9.22 LPUI-480.....	799
9.22.1 48-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-480).....	799
9.22.2 2-Port 100GBase-CFP2 + 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-480).....	801
9.22.3 2-Port 100GBase-QSFP28 + 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-480).....	804
9.22.4 4-Port 100GBase-CFP2 Integrated Line Processing Unit (LPUI-480).....	807
9.22.5 4-Port 100GBase-QSFP28 Integrated Line Processing Unit(LPUI-480).....	809
9.22.6 48-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-480-B).....	811
9.22.7 2-Port 100GBase-CFP2 + 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-480-B).....	814

9.22.8 4-Port 100GBase-CFP2 Integrated Line Processing Unit B(LPUI-480-B)	817
9.22.9 48-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-480-L)	820
9.22.10 2-Port 100GBase-CFP2 + 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-480-L)	822
9.22.11 4-Port 100GBase-CFP2 Integrated Line Processing Unit L(LPUI-480-L)	825
9.22.12 4-Port 100G ETH/DWDM-CFP2 Integrated Line Processing Unit(LPUI-480)	828
9.22.13 4-Port 100G ETH/DWDM-CFP2 Integrated Line Processing Unit CM(LPUI-480-CM)	830
9.23 LPUI-1T.....	833
9.23.1 8-Port 100GBase-CFP2 Integrated Line Processing Unit (LPUI-1T)	833
9.23.2 8-Port 100GBase-CFP2 Integrated Line Processing Unit B(LPUI-1T-B)	836
9.23.3 8-Port 100GBase-CFP2 Integrated Line Processing Unit L(LPUI-1T-L)	839
9.23.4 8-Port 100G ETH/DWDM-CFP2 Integrated Line Processing Unit(LPUI-1T).....	842
9.23.5 8-Port 100G ETH/DWDM-CFP2 Integrated Line Processing Unit CM(LPUI-1T-CM).....	845
10 Optical Module.....	849
10.1 Instructions on How to Use an Optical Module.....	850
10.2 Configuring an Optical Attenuator	856
10.3 155Mbps eSFP Optical Module.....	858
10.3.1 155Mbps-eSFP-MMF-1310nm-2km-commercial	858
10.3.2 155Mbps-eSFP-SMF-1310nm-15km-commercial.....	859
10.3.3 155Mbps-eSFP-SMF-1310nm-40km-commercial.....	860
10.3.4 155Mbps-eSFP-SMF-1550nm-80km-commercial.....	861
10.4 155Mbps eSFP BIDI Optical Module.....	863
10.4.1 155Mbps-eSFP-SM-1310nm-15km-commercial.....	863
10.4.2 155Mbps-eSFP-SM-1550nm-15km-commercial.....	864
10.5 622Mbps eSFP Optical Module.....	865
10.5.1 622Mbps-eSFP-SMF-1310nm-15km-commercial.....	866
10.5.2 622Mbps-eSFP-SMF-1310nm-40km-commercial.....	867
10.5.3 622Mbps-eSFP-SMF-1550nm-80km-commercial.....	868
10.6 1Gbps Electrical Transceiver.....	869
10.6.1 1Gbps-SFP-100m-industry.....	869
10.7 1.25Gbps eSFP Optical Module	870
10.7.1 1.25Gbps-eSFP-MMF-850nm-500m-extended	870
10.7.2 1.25Gbps-eSFP-SMF-1310nm-10km-commercial	871
10.7.3 1.25Gbps-eSFP-SMF-1310nm-40km-commercial	872
10.7.4 1.25Gbps-eSFP-SMF-1550nm-80km-commercial	873
10.7.5 1.25Gbps-eSFP-SMF-1550nm-100km-commercial	875
10.8 1.25Gbps eSFP BIDI Optical Module.....	876
10.8.1 1.25Gbps-eSFP-SMF-1310nm-10km-commercial	876
10.8.2 1.25Gbps-eSFP-SMF-1490nm-10km-commercial	877
10.8.3 1.25Gbps-eSFP-SMF-1310nm-40km-commercial	878
10.8.4 1.25Gbps-eSFP-SMF-1550nm-40km-commercial	879
10.8.5 1.25Gbps-eSFP-SMF-1490nm-40km-commercial	880

10.8.6 1.25Gbps-eSFP-SMF-1310nm-40km-commercial	882
10.8.7 1.25Gbps-eSFP-SMF-1570nm-80km-commercial	883
10.8.8 1.25Gbps-eSFP-SMF-1490nm-80km-commercial	884
10.9 1.25Gbps eSFP CWDM Optical Module	885
10.9.1 1.25Gbps-eSFP-SMF-1571nm-80km-commercial	885
10.9.2 1.25Gbps-eSFP-SMF-1591nm-80km-commercial	886
10.9.3 1.25Gbps-eSFP-SMF-1551nm-80km-commercial	887
10.9.4 1.25Gbps-eSFP-SMF-1511nm-80km-commercial	889
10.9.5 1.25Gbps-eSFP-SMF-1611nm-80km-commercial	890
10.9.6 1.25Gbps-eSFP-SMF-1491nm-80km-commercial	891
10.9.7 1.25Gbps-eSFP-SMF-1531nm-80km-commercial	892
10.9.8 1.25Gbps-eSFP-SMF-1471nm-80km-commercial	893
10.10 2.5Gbps eSFP Optical Module	894
10.10.1 2.5Gbps-eSFP-SMF-1310nm-2km-commercial	894
10.10.2 2.5Gbps-eSFP-SMF-1310nm-15km-commercial	896
10.10.3 2.5Gbps-eSFP-SMF-1310nm-40km-commercial	897
10.10.4 2.5Gbps-eSFP-SMF-1550nm-80km-commercial	898
10.11 125M~2.67Gbps eSFP DWDM Optical Module	899
10.11.1 125M~2.67Gbps-eSFP-SMF-1560.61nm-120km-commercial	899
10.11.2 125M~2.67Gbps-eSFP-SMF-1559.79nm-120km-commercial	900
10.11.3 125M~2.67Gbps-eSFP-SMF-1558.98nm-120km-commercial	901
10.11.4 125M~2.67Gbps-eSFP-SMF-1558.17nm-120km-commercial	902
10.11.5 125M~2.67Gbps-eSFP-SMF-1557.36nm-120km-commercial	904
10.11.6 125M~2.67Gbps-eSFP-SMF-1556.55nm-120km-commercial	905
10.11.7 125M~2.67Gbps-eSFP-SMF-1555.75nm-120km-commercial	906
10.11.8 125M~2.67Gbps-eSFP-SMF-1554.94nm-120km-commercial	907
10.11.9 125M~2.67Gbps-eSFP-SMF-1554.13nm-120km-commercial	908
10.11.10 125M~2.67Gbps-eSFP-SMF-1553.33nm-120km-commercial	909
10.11.11 125M~2.67Gbps-eSFP-SMF-1552.52nm-120km-commercial	910
10.11.12 125M~2.67Gbps-eSFP-SMF-1551.72nm-120km-commercial	911
10.11.13 125M~2.67Gbps-eSFP-SMF-1550.92nm-120km-commercial	912
10.11.14 125M~2.67Gbps-eSFP-SMF-1550.12nm-120km-commercial	914
10.11.15 125M~2.67Gbps-eSFP-SMF-1549.32nm-120km-commercial	915
10.11.16 125M~2.67Gbps-eSFP-SMF-1548.51nm-120km-commercial	916
10.11.17 125M~2.67Gbps-eSFP-SMF-1547.72nm-120km-commercial	917
10.11.18 125M~2.67Gbps-eSFP-SMF-1546.92nm-120km-commercial	918
10.11.19 125M~2.67Gbps-eSFP-SMF-1546.12nm-120km-commercial	919
10.11.20 125M~2.67Gbps-eSFP-SMF-1545.32nm-120km-commercial	920
10.11.21 125M~2.67Gbps-eSFP-SMF-1544.53nm-120km-commercial	921
10.11.22 125M~2.67Gbps-eSFP-SMF-1543.73nm-120km-commercial	923
10.11.23 125M~2.67Gbps-eSFP-SMF-1542.94nm-120km-commercial	924
10.11.24 125M~2.67Gbps-eSFP-SMF-1542.14nm-120km-commercial	925

10.11.25 125M~2.67Gbps-eSFP-SMF-1541.35nm-120km-commercial	926
10.11.26 125M~2.67Gbps-eSFP-SMF-1540.56nm-120km-commercial	927
10.11.27 125M~2.67Gbps-eSFP-SMF-1539.77nm-120km-commercial	928
10.11.28 125M~2.67Gbps-eSFP-SMF-1538.98nm-120km-commercial	929
10.11.29 125M~2.67Gbps-eSFP-SMF-1538.19nm-120km-commercial	930
10.11.30 125M~2.67Gbps-eSFP-SMF-1537.40nm-120km-commercial	932
10.11.31 125M~2.67Gbps-eSFP-SMF-1536.61nm-120km-commercial	933
10.11.32 125M~2.67Gbps-eSFP-SMF-1535.82nm-120km-commercial	934
10.11.33 125M~2.67Gbps-eSFP-SMF-1535.04nm-120km-commercial	935
10.11.34 125M~2.67Gbps-eSFP-SMF-1534.25nm-120km-commercial	936
10.11.35 125M~2.67Gbps-eSFP-SMF-1533.47nm-120km-commercial	937
10.11.36 125M~2.67Gbps-eSFP-SMF-1532.68nm-120km-commercial	938
10.11.37 125M~2.67Gbps-eSFP-SMF-1531.90nm-120km-commercial	939
10.11.38 125M~2.67Gbps-eSFP-SMF-1531.12nm-120km-commercial	941
10.11.39 125M~2.67Gbps-eSFP-SMF-1530.33nm-120km-commercial	942
10.11.40 125M~2.67Gbps-eSFP-SMF-1529.55nm-120km-commercial	943
10.12 10Gbps SFP+ Optical Module.....	944
10.12.1 10Gbps-SFP+-MMF-850nm-0.3km-commercial	944
10.12.2 10Gbps-SFP+-SMF-1310nm-10km-commercial.....	945
10.12.3 10Gbps-SFP+-SMF-1550nm-40km-commercial.....	947
10.12.4 10Gbps-SFP+-SMF-1550nm-80km-commercial.....	948
10.13 10Gbps SFP+ CWDM Optical Module	949
10.13.1 10Gbps-SFP+-SMF-1511nm-70km-commercial	949
10.13.2 10Gbps-SFP+-SMF-1471nm-70km-commercial.....	950
10.13.3 10Gbps-SFP+-SMF-1491nm-70km-commercial.....	951
10.13.4 10Gbps-SFP+-SMF-1531nm-70km-commercial.....	953
10.13.5 10Gbps-SFP+-SMF-1551nm-70km-commercial.....	954
10.13.6 10Gbps-SFP+-SMF-1571nm-70km-commercial.....	955
10.13.7 10Gbps-SFP+-SMF-1591nm-70km-commercial.....	956
10.13.8 10Gbps-SFP+-SMF-1611nm-70km-commercial.....	957
10.14 10Gbps SFP+ BIDI Optical Module.....	958
10.14.1 10Gbps-SFP+-SMF-1270nm-10km-industry	958
10.14.2 10Gbps-SFP+-SMF-1330nm-10km-industry	959
10.14.3 10Gbps-SFP+-SMF-1270nm-40km-commercial.....	961
10.14.4 10Gbps-SFP+-SMF-1330nm-40km-commercial.....	962
10.15 10Gbps SFP+ DWDM Optical Module	963
10.15.1 10Gbps-SFP+-SMF-1528nm~1568nm-80km-commercial	963
10.16 10Gbps SFP+ OTN Optical Module.....	965
10.16.1 10Gbps-SFP+-SMF-1528nm~1568nm-80km-commercial	965
10.16.2 10Gbps-SFP+-SMF-1310nm-10km-commercial.....	966
10.16.3 10Gbps-SFP+-SMF-1550nm-40km-commercial.....	967
10.17 10Gbps XFP Optical Module	969

10.17.1 10Gbps-XFP-MMF-850nm-0.3km-commercial	969
10.17.2 10Gbps-XFP-SMF-1310nm-10km-commercial	970
10.17.3 10Gbps-XFP-SMF-1550nm-40km-commercial	971
10.17.4 10Gbps-XFP-SMF-1550nm-80km-commercial	972
10.18 10Gbps XFP CWDM Optical Module	974
10.18.1 10Gbps-XFP-SMF-1611nm-70km-commercial	974
10.18.2 10Gbps-XFP-SMF-1591nm-70km-commercial	975
10.18.3 10Gbps-XFP-SMF-1571nm-70km-commercial	976
10.18.4 10Gbps-XFP-SMF-1551nm-70km-commercial	977
10.18.5 10Gbps-XFP-SMF-1531nm-70km-commercial	978
10.18.6 10Gbps-XFP-SMF-1511nm-70km-commercial	980
10.18.7 10Gbps-XFP-SMF-1491nm-70km-commercial	981
10.18.8 10Gbps-XFP-SMF-1471nm-70km-commercial	982
10.19 40Gbps CFP Optical Module	983
10.19.1 40Gbps(4*10.3)-CFP-SMF-1271~1331nm-10km-commercial	983
10.19.2 40Gbps(4*10.3)-CFP-SMF-1271~1331nm-40km-commercial	985
10.19.3 40Gbps(4*10.3)-CFP-SMF-1531.12~1550.12nm-80km-commercial	986
10.20 40Gbps QSFP+ Optical Module.....	987
10.20.1 40Gbps(4*10.3)-QSFP+-SMF-1271~1331nm-10km-commercial	988
10.20.2 40Gbps(4*10.3)-QSFP+-MMF-850nm-0.1km-commercial.....	989
10.20.3 40Gbps(4*10.3)-QSFP+-SMF-1310nm-10km-commercial	990
10.21 100Gbps CFP Optical Modules	991
10.21.1 100Gbps(4*25.7)-CFP-SMF-1295.56~1309.14nm-10km-commercial	992
10.21.2 100Gbps(4*25.7)-CFP-SMF-1295.56~1309.14nm-40km-commercial	993
10.21.3 100Gbps(10*10.3)-CFP-SMF-1523~1595nm-10km-commercial	994
10.21.4 100Gbps(10*10.3)-CFP-MMF-850nm-0.1km-commercial	996
10.21.5 100Gbps(4*25.7)-CFP-SMF-1295.56~1309.14nm-80km-commercial	997
10.22 100Gbps CFP2 Optical Module.....	999
10.22.1 100Gbps(4*25.7)-CFP2-SMF-1295.56~1309.14nm-10km-commercial.....	999
10.22.2 100Gbps(4*25.7)-CFP2-SMF-1295.56~1309.14nm-40km-commercial.....	1000
10.22.3 100Gbps(10*10.3)-CFP2-MMF-850nm-0.1km-commercial.....	1002
10.23 100Gbps CFP2 Optical DWDM Module	1003
10.23.1 118Gbps(4*25.78/4*27.95)-CFP2-SMF-192.1-196.05THz-1200km-commercial	1003
10.24 100Gbps QSFP28 Optical Module	1005
10.24.2 100Gbps(4*25.7)-QSFP28-MMF-850nm-0.07km-commercial	1005
10.24.3 100Gbps(4*25.7)-QSFP28-SMF-1295.56~1309.14nm-10km-commercial	1006
10.25 AE 905S Module	1007
11 DPD300-4-12 Power Distribution Box, Dual-Two Inputs.....	1014
11.1 Product Description	1014
11.2 Power Distribution Instance	1018
11.3 Installing the Power Distribution Box into a Cabinet	1021

11.4 Circuit Breaker Maintenance.....	1026
12 Fiber Breakout	1029
12.1 Breakout Fibers	1029
12.2 Breakout Boxes	1032
12.2.1 Product Overview	1032
12.2.2 4-Port-MPO-24-40-Port-LC-Breakout Box(multi-mode)	1033
12.2.3 10-Port-MPO-12-40-Port-LC-Breakout Box(single-mode)	1037
12.3 Breakout Box and Optical Fiber Maintenance	1040
13 Conversion Box.....	1041
13.1 Conversion Box.....	1041
14 More Conference	1043

1 About This Document

Purpose

This document describes hardware features of the NE40E, which helps intended readers obtain detailed information about each chassis, board, and cable, and rapidly locate specific information through lists of components.



NOTE

The pictures in this document are for your reference only, the hardware components please make the object as the standard.

Related Version

The following table lists the product version related to this document.

Product Name	Version
NE40E Series	V800R010C00
U2000	V200R017C60

Intended Audience

This document is intended for:

- Network planning engineers
- Hardware installation engineers
- Commissioning engineers
- On-site maintenance engineers
- System maintenance engineers

Security Declaration

- Encryption algorithm declaration

The encryption algorithms DES/3DES/SKIPJACK/RC2/RSA (RSA-1024 or lower)/MD2/MD4/MD5 (in digital signature scenarios and password encryption)/SHA1 (in digital signature scenarios) have a low security, which may bring security risks. If

protocols allowed, using more secure encryption algorithms, such as AES/RSA (RSA-2048 or higher)/SHA2/HMAC-SHA2 is recommended.

- Password configuration declaration
 - Do not set both the start and end characters of a password to "%^%#". This causes the password to be displayed directly in the configuration file.
 - To further improve device security, periodically change the password.
- Personal data declaration

Your purchased products, services, or features may use users' some personal data during service operation or fault locating. You must define user privacy policies in compliance with local laws and take proper measures to fully protect personal data.
- Feature declaration
 - The NetStream feature may be used to analyze the communication information of terminal customers for network traffic statistics and management purposes. Before enabling the NetStream feature, ensure that it is performed within the boundaries permitted by applicable laws and regulations. Effective measures must be taken to ensure that information is securely protected.
 - The mirroring feature may be used to analyze the communication information of terminal customers for a maintenance purpose. Before enabling the mirroring function, ensure that it is performed within the boundaries permitted by applicable laws and regulations. Effective measures must be taken to ensure that information is securely protected.
 - The packet header obtaining feature may be used to collect or store some communication information about specific customers for transmission fault and error detection purposes. Huawei cannot offer services to collect or store this information unilaterally. Before enabling the function, ensure that it is performed within the boundaries permitted by applicable laws and regulations. Effective measures must be taken to ensure that information is securely protected.
- Reliability design declaration

Network planning and site design must comply with reliability design principles and provide device- and solution-level protection. Device-level protection includes planning principles of dual-network and inter-board dual-link to avoid single point or single link of failure. Solution-level protection refers to a fast convergence mechanism, such as FRR and VRRP.






Special Declaration

- This document serves only as a guide. The content is written based on device information gathered under lab conditions. The content provided by this document is intended to be taken as general guidance, and does not cover all scenarios. The content provided by this document may be different from the information on user device interfaces due to factors such as version upgrades and differences in device models, board restrictions, and configuration files. The actual user device information takes precedence over the content provided by this document. The preceding differences are beyond the scope of this document.
- The maximum values provided in this document are obtained in specific lab environments (for example, only a certain type of board or protocol is configured on a tested device). The actually obtained maximum values may be different from the maximum values provided in this document due to factors such as differences in hardware configurations and carried services.
- Interface numbers used in this document are examples. Use the existing interface numbers on devices for configuration.

- The pictures of hardware in this document are for reference only.

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
 DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
 NOTICE	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury.
 NOTE	Calls attention to important information, best practices and tips. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

Change History

Updates between document issues are cumulative. Therefore, the latest document issue contains all updates made in previous issues.

- **Changes in Issue 01 (2017-09-10)**
This issue is the first official release. The software version of this issue is V800R010C00.

2 Overview

This section describes the position and the features of the device.

HUAWEI NetEngine40E Universal Service Router s (NE40E for short) are Huawei high-end network products. NE40Es are mainly deployed on edges of the large-scale IP network, IP backbone network, IP bearer network, and IP Metropolitan Area Network (MAN). NE40Es can be connected to NE5000Es, CX600s, and ME60s to provide complete and hierarchical IP network solutions.

Based on the powerful Versatile Routing Platform (VRP), the NE40E features the following:

- Rich services
- Large capacity
- High performance
- High availability

3 Technical Specifications

Item	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
Dimensions (H x W x D)	<ul style="list-style-type: none"> DC: 175 mm x 442 mm x 650 mm (6.89 in. x 17.4 in. x 25.59 in.)(4 U) AC: 220 mm x 442 mm x 650 mm (8.66 in. x 17.4 in. x 25.59 in.)(5 U) 	<ul style="list-style-type: none"> 620 mm x 442 mm x 650 mm (24.41 in. x 17.4 in. x 25.59 in.)(14 U) (chassis body) 620 mm x 442 mm x 770 mm (24.41 in. x 17.4 in. x 30.31 in.)(14 U) (including the chassis front and rear decorating parts and cable tray) 	<ul style="list-style-type: none"> 1420 mm x 442 mm x 650 mm (55.91 in. x 17.4 in. x 25.59 in.)(32 U) (chassis body) 1420 mm x 442 mm x 770 mm (55.91 in. x 17.4 in. x 30.31 in.)(32 U) (including the chassis front and rear decorating parts and cable tray) 	<ul style="list-style-type: none"> 264 mm x 442 mm x 710 mm (10.39 in. x 17.4 in. x 27.95 in.)(chassis body) (6 U) DC: 264 mm x 442 mm x 758 mm (10.39 in. x 17.4 in. x 29.84 in.)(including the chassis front and rear decorating parts and cable tray) (6 U) AC: 264 mm x 442 	<ul style="list-style-type: none"> 930 mm x 442 mm x 650 mm (36.61 in. x 17.4 in. x 25.59 in.)(21 U) (chassis body) 930 mm x 442 mm x 750 mm (36.61 in. x 17.4 in. x 29.53 in.)(21 U) (including the chassis front and rear decorating parts and cable tray) 	<ul style="list-style-type: none"> 1778 mm x 442 mm x 650 mm (70 in. x 17.4 in. x 25.59 in.)(40 U) (chassis body) 1778 mm x 442 mm x 750 mm (70 in. x 17.4 in. x 29.53 in.)(40 U) (including the chassis front and rear decorating parts and cable tray)

Item	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
				mm x 770 mm (10.39 in. x 17.4 in. x 30.31 in.)(including the chassis front and rear decorating parts and cable tray) (6 U)		
Weight (empty)	<ul style="list-style-type: none"> DC:12 kg (26.46 lb) AC:20 kg (44.1 lb) 	25.8 kg (56.89 lb) (56.90 lb)	69.6 kg (153.47 lb) (excluding the boards and filler panels)	26 kg (57.33 lb)	<ul style="list-style-type: none"> DC:68.1 kg (150.16 lb) (excluding the boards and filler panels) HVDC & AC:63.7 kg (140.46 lb) (excluding the boards and filler panels) 	<ul style="list-style-type: none"> DC:120.5 kg (265.7 lb) (excluding the boards and filler panels) HVDC & AC:111.7 kg (246.3 lb) (excluding the boards and filler panels)
Weight (full configuration)	<ul style="list-style-type: none"> DC:42 kg (92.61 lb) AC:52 kg (114.66 lb) 	136 kg (299.88 lb)	279 kg (615.2 lb)	<ul style="list-style-type: none"> DC:72.1 kg (158.98 lb) AC:74.7 kg (164.71 lb) 	<ul style="list-style-type: none"> [400G bundle] DC:186.1 kg (410.35 lb) [400G bundle] HVDC & AC:184.3 kg 	<ul style="list-style-type: none"> [400G bundle] DC:356 kg (784.98 lb) [400G bundle] HVDC & AC:350.7 kg

Item	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
					(406.38 lb) • [1T bundle] DC:209 kg (460.84 lb) • [1T bundle] HVDC &AC:206.5 kg (455.33 lb)	(773.29 lb) • [1T bundle] DC:399.4 kg (880.68 lb) • [1T bundle] HVDC &AC:395.1 kg (871.2 lb)
Cabinet installation standard	Can be installed in a 19-inch 800 mm-deep standard cabinet. The default cabinet is the Huawei 2.2 m-high N68E cabinet.	Can be installed in a 19-inch 800 mm-deep standard cabinet. The default cabinet is the Huawei 2.2 m-high N68E cabinet.	Can be installed in a 19-inch 800 mm-deep standard cabinet. The default cabinet is the Huawei 2.2 m-high N68E cabinet.	Can be installed in a 19-inch 800 mm-deep standard cabinet. The default cabinet is the Huawei 2.2 m-high N68E cabinet.	Can be installed in a 19-inch 800 mm-deep standard cabinet. The default cabinet is the Huawei 2.2 m-high N68E cabinet.	Can be installed in a 19-inch 800 mm-deep standard cabinet. The default cabinet is the Huawei 2.2 m-high N68E cabinet.
Typical power consumption	<ul style="list-style-type: none"> DC: 800 W (fully configured with LPUF-51s) AC: 950 W (fully configured with LPUF-51s) DC: 920 W (fully configured with LPUF-120s) 	3220 W (fully configured with LPUF-240s)	6210 W (fully configured with LPUF-240s)	1120 W (fully configured with LPUF-200s)	<ul style="list-style-type: none"> 4110 W (fully configured with LPUF-240s) 4770 W (fully configured with LPUF-480s) 6520 W (fully configured with LPUI-1Ts) 	<ul style="list-style-type: none"> 7720 W (fully configured with LPUF-240s) 9040 W (fully configured with LPUF-480s) 12390 W (fully configured with LPUI-1Ts)

Item	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
	<ul style="list-style-type: none"> AC: 1070 W (fully configured with LPUF-120s) 					
Typical heat dissipation	<ul style="list-style-type: none"> DC: 2595.5 BTU/hour (fully configured with LPUF-51s) AC: 3082.2 BTU/hour (fully configured with LPUF-51s) DC: 2984.9 BTU/hour (fully configured with LPUF-120s) AC: 3471.5 BTU/hour (fully configured with LPUF-120s) 	10447 BTU/hour (fully configured with LPUF-240s)	20147.9 BTU/hour (fully configured with LPUF-240s)	3633.8 BTU/hour (fully configured with LPUF-200s)	<ul style="list-style-type: none"> 13334.6 BTU/hour (fully configured with LPUF-240s) 15475.9 BTU/hour (fully configured with LPUF-480s) 21153.6 BTU/hour (fully configured with LPUI-1Ts) 	<ul style="list-style-type: none"> 25046.9 BTU/hour (fully configured with LPUF-240s) 29329.6 BTU/hour (fully configured with LPUF-480s) 40198.4 BTU/hour (fully configured with LPUI-1Ts)
DC input voltage	<ul style="list-style-type: none"> input voltage range: -38.4 to -72V input rated voltage: -48V/-60V 	<ul style="list-style-type: none"> input voltage range: -38.4 to -72V input rated voltage: -48V/-60V 	<ul style="list-style-type: none"> input voltage range: -38.4 to -72V input rated voltage: -48V/-60V 	<ul style="list-style-type: none"> input voltage range: -38.4 to -72V input rated voltage: -48V/-60V 	<ul style="list-style-type: none"> input voltage range: -38.4 to -72V input rated voltage: -48V/-60V 	<ul style="list-style-type: none"> input voltage range: -38.4 to -72V input rated voltage: -48V/-60V

Item	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
AC input voltage	<ul style="list-style-type: none"> input voltage range: 180V to 264V input rated voltage: 200V to 240V 	<ul style="list-style-type: none"> input voltage range: 180V to 264V input rated voltage: 200V to 240V 	<ul style="list-style-type: none"> input voltage range: 180V to 264V input rated voltage: 200V to 240V 	<ul style="list-style-type: none"> input voltage range: 180V to 264V input rated voltage: 200V to 240V 	<ul style="list-style-type: none"> input voltage range: 180V to 264V input rated voltage: 200V to 240V 	<ul style="list-style-type: none"> input voltage range: 180V to 264V input rated voltage: 200V to 240V
MTBF	27.44 years	21.91 years	21.66 years	22.85 years	22.32 years	22.33 years
MTTR	0.5 hours	0.5 hours	0.5 hours	0.5 hours	0.5 hours	0.5 hours
Availability	0.99999792	0.999997395	0.999997365	0.999997502	0.999997443	0.999997444
Slot quantity	5	11	22	5	12	22
Processing unit	<ul style="list-style-type: none"> Main Processing Unit D2: 1.2 GHz (single-core) Main Processing Unit D3: 1.2 GHz (single-core) 	<ul style="list-style-type: none"> SRU A5: 1.5 GHz (dual-core) SRU B5: 2.0 GHz (quad-core) SRU A7: 1.5 GHz (dual-core) 	<ul style="list-style-type: none"> Main Processing Unit B4: 1.5 GHz (dual-core) Main Processing Unit B5: 2.0 GHz (quad-core) Main Processing Unit B5 (16G memory): 2.0 GHz (quad-core) 	<ul style="list-style-type: none"> Main Processing Unit D4: 2.0 GHz (quad-core) Main Processing Unit D4 (16G memory): 2.0 GHz (quad-core) 	<ul style="list-style-type: none"> Main Processing Unit A8: 2.0 GHz (quad-core) Main Processing Unit A8 (16G memory): 2.0 GHz (quad-core) Main Processing Unit A9: 2.0 GHz (quad-core) 	<ul style="list-style-type: none"> Main Processing Unit B5: 2.0 GHz (quad-core) Main Processing Unit B5 (16G memory): 2.0 GHz (quad-core)

Item	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
					A9 (16G memory): 2.0 GHz (quad-core)	
Flash	<ul style="list-style-type: none"> Main Processing Unit D2: 16 MB Main Processing Unit D3: 16 MB 	<ul style="list-style-type: none"> SRU A5: 16 MB x 2 SRU B5: 16 MB SRU A7: 16 MB x 2 	<ul style="list-style-type: none"> Main Processing Unit B4: 16 MB x 2 Main Processing Unit B5: 16 MB Main Processing Unit B5 (16G memory): 16 MB 	<ul style="list-style-type: none"> Main Processing Unit D4: 16 MB Main Processing Unit D4 (16G memory): 16 MB 	<ul style="list-style-type: none"> Main Processing Unit A8: 16 MB Main Processing Unit A8 (16G memory): 16 MB Main Processing Unit A9: 16 MB Main Processing Unit A9 (16G memory): 16 MB 	<ul style="list-style-type: none"> Main Processing Unit B5: 16 MB Main Processing Unit B5 (16G memory): 16 MB
SDR AM	<ul style="list-style-type: none"> Main Processing Unit D2: 2 GB Main Processing Unit D3: 4 GB 	<ul style="list-style-type: none"> SRU A5: 2 GB x 2 SRU B5: 8 GB x 2 SRU A7: 2 GB x 2 	<ul style="list-style-type: none"> Main Processing Unit B4: 2 GB x 2 Main Processing Unit B5: 8 GB x 1 Main Processing Unit B5 (16G memory) 	<ul style="list-style-type: none"> Main Processing Unit D4: 8 GB x 1 Main Processing Unit D4 (16G memory): 8 GB x 2 	<ul style="list-style-type: none"> Main Processing Unit A8: 8 GB x 1 Main Processing Unit A8 (16G memory): 8 GB x 2 Main Processing Unit 	<ul style="list-style-type: none"> Main Processing Unit B5: 8 GB x 1 Main Processing Unit B5 (16G memory): 8 GB x 2

Item	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
			y): 8 GB x 2		A9: 8 GB x 1 • Main Processing Unit A9 (16G memory): 8 GB x 2	
Storage	<ul style="list-style-type: none"> • Main Processing Unit D2: 2 GB • Main Processing Unit D3: 2 GB 	<ul style="list-style-type: none"> • SRU A5: 2 GB x 2 • SRU B5: 8 GB • SRU A7: 2 GB x 2 	<ul style="list-style-type: none"> • Main Processing Unit B4: 2 GB x 2 • Main Processing Unit B5: 8 GB • Main Processing Unit B5 (16G memory): 8 GB 	<ul style="list-style-type: none"> • Main Processing Unit D4: 8 GB • Main Processing Unit D4 (16G memory): 8 GB 	<ul style="list-style-type: none"> • Main Processing Unit A8: 8 GB • Main Processing Unit A8 (16G memory): 8 GB • Main Processing Unit A9: 8 GB • Main Processing Unit A9 (16G memory): 8 GB 	<ul style="list-style-type: none"> • Main Processing Unit B5: 8 GB • Main Processing Unit B5 (16G memory): 8 GB
Redundant MPUs	1:1	1:1	1:1	1:1	1:1	1:1
Redundant Switch fabrics	None	2+1	3+1	None	3+1	3+1
Redundant	The device can work	• Two fan	• Two fan	The device can work	• [400G bundle]	• [400G bundle]

Item	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
fans	properly for a short time at 40 °C if a single fan fails.	assemblies <ul style="list-style-type: none"> The device can work properly for a short time at 40 °C if a single fan assembly fails. 	partition. <ul style="list-style-type: none"> Two fan assemblies/partition. The device can work properly for a short time at 40 °C if a single fan assembly fails. 	properly for a short time at 40 °C if a single fan fails.	Two fan assemblies. The device can work properly for a short time at 40 °C if a single fan assembly fails. <ul style="list-style-type: none"> [1T bundle] Three fan assemblies. The device can work properly for a short time at 40 °C if a single fan assembly fails. 	Two fan partition, two fan assemblies/partition. The device can work properly for a short time at 40 °C if a single fan assembly fails. <ul style="list-style-type: none"> [1T bundle] Two fan partition, three fan assemblies/partition. The device can work properly for a short time at 40 °C if a single fan assembly fails.
Redundant power supply	1+1	2+2	4+4	1+1	<ul style="list-style-type: none"> [400G bundle] DC: 3+1 [400G bundle] HVDC 	<ul style="list-style-type: none"> [400G bundle] DC: 6+1 [400G bundle] HVDC

Item	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
					&AC: 3+3 • [1T bundle] DC: 5+1 • [1T bundle] HVDC &AC: 4+4	&AC: 5+5 • [1T bundle] DC: 9+1 • [1T bundle] HVDC &AC: 7+7
Forwarding performance	<ul style="list-style-type: none"> 225 Mpps (LPUF-51) 360 Mpps (LPUF-120) 	2880 Mpps (LPUF-240)	5760 Mpps (LPUF-240)	900 Mpps (LPUF-200)	2880 Mpps (LPUF-240)	5760 Mpps (LPUF-240)
Switching capacity	1.08 Tbps	7.08 Tbps (LPUF-240 /LPUI-240)	12.58 Tbps (LPUF-240 /LPUI-240)	2.79 Tbps	25.16 Tbps (LPUI-1T)	50.32 Tbps (LPUI-1T)
Operating temperature	<ul style="list-style-type: none"> Long-term: 0 °C to 45 °C (32 °F to 113 °F) Short-term: -5 °C to 55 °C (23 °F to 131 °F) Remark: Restriction on the temperature variation rate: 30 °C/hour 	<ul style="list-style-type: none"> Long-term: 0 °C to 45 °C (32 °F to 113 °F) Short-term: -5 °C to 55 °C (23 °F to 131 °F) Remark: Restriction on the temperature variation rate: 30 °C/hour 	<ul style="list-style-type: none"> Long-term: 0 °C to 45 °C (32 °F to 113 °F) Short-term: -5 °C to 55 °C (23 °F to 131 °F) Remark: Restriction on the temperature variation rate: 30 °C/hour 	<ul style="list-style-type: none"> Long-term: 0 °C to 45 °C (32 °F to 113 °F) Short-term: -5 °C to 55 °C (23 °F to 131 °F) Remark: Restriction on the temperature variation rate: 30 °C/hour 	<ul style="list-style-type: none"> Long-term: 0 °C to 45 °C (32 °F to 113 °F) Short-term: -5 °C to 55 °C (23 °F to 131 °F) Remark: Restriction on the temperature variation rate: 30 °C/hour 	<ul style="list-style-type: none"> Long-term: 0 °C to 45 °C (32 °F to 113 °F) Short-term: -5 °C to 55 °C (23 °F to 131 °F) Remark: Restriction on the temperature variation rate: 30 °C/hour
Storage	-40 °C to 70 °C	-40 °C to 70 °C	-40 °C to 70 °C	-40 °C to 70 °C	-40 °C to 70 °C	-40 °C to 70 °C

Item	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
temperature	(-40 ℉ to 158 ℉)	(-40 ℉ to 158 ℉)	(-40 ℉ to 158 ℉)	(-40 ℉ to 158 ℉)	(-40 ℉ to 158 ℉)	(-40 ℉ to 158 ℉)
Relative operating humidity	<ul style="list-style-type: none"> Long term: 5% to 85% RH, non-condensing Short term: 5% to 95% RH, non-condensing 	<ul style="list-style-type: none"> Long term: 5% to 85% RH, non-condensing Short term: 5% to 95% RH, non-condensing 	<ul style="list-style-type: none"> Long term: 5% to 85% RH, non-condensing Short term: 5% to 95% RH, non-condensing 	<ul style="list-style-type: none"> Long term: 5% to 85% RH, non-condensing Short term: 5% to 95% RH, non-condensing 	<ul style="list-style-type: none"> Long term: 5% to 85% RH, non-condensing Short term: 5% to 95% RH, non-condensing 	<ul style="list-style-type: none"> Long term: 5% to 85% RH, non-condensing Short term: 5% to 95% RH, non-condensing
Relative storage humidity	5% to 95% RH, non-condensing	5% to 95% RH, non-condensing	5% to 95% RH, non-condensing	5% to 95% RH, non-condensing	5% to 95% RH, non-condensing	5% to 95% RH, non-condensing
Long-term operating altitude	≤ 4000 m (If the altitude is between 1800 m and 4000 m, the device operating temperature must decrease by 1 ℃ each time the altitude increases by 220 m.)	≤ 4000 m (If the altitude is between 1800 m and 4000 m, the device operating temperature must decrease by 1 ℃ each time the altitude increases by 220 m.)	≤ 4000 m (If the altitude is between 1800 m and 4000 m, the device operating temperature must decrease by 1 ℃ each time the altitude increases by 220 m.)	≤ 4000 m (If the altitude is between 1800 m and 4000 m, the device operating temperature must decrease by 1 ℃ each time the altitude increases by 220 m.)	≤ 4000 m (If the altitude is between 1800 m and 4000 m, the device operating temperature must decrease by 1 ℃ each time the altitude increases by 220 m.)	≤ 4000 m (If the altitude is between 1800 m and 4000 m, the device operating temperature must decrease by 1 ℃ each time the altitude increases by 220 m.)
Storage altitude	Lower than 5000 m (16404 ft)	Lower than 5000 m (16404 ft)	Lower than 5000 m (16404 ft)	Lower than 5000 m (16404 ft)	Lower than 5000 m (16404 ft)	Lower than 5000 m (16404 ft)

4 Product Compatibility

The supported items of boards list in the Table 4-1 ("●" indicates supported items, "-" indicates unsupported items).

Table 4-1 Mapping products and versions

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
03055778	CR5D0MPUB570	9.2.14 Main Processing Unit B5	-	-	●	-	-	●
03057244	CR5D0MPUB571	9.2.15 Main Processing Unit B5(16G Memory)	-	-	●	-	-	●
03056097	CR5D0SRUA870	9.2.9 Switch and Route Processing Unit A8	-	-	-	-	●	-
03057257	CR5D0SRUA871	9.2.10 Switch and Route Processing	-	-	-	-	●	-

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		Unit A8(16 G Memory)						
03056096	CR5D0SRUA970	9.2.11 Switch and Route Processing Unit A9	-	-	-	-	●	-
03057261	CR5D0SRUA971	9.2.12 Switch and Route Processing Unit A9(16 G Memory)	-	-	-	-	●	-
03056581	CR5D0MPUD470	9.2.4 Main Processing Unit D4	-	-	-	●	-	-
03057248	CR5D0MPUD471	9.2.5 Main Processing Unit D4(16 G Memory)	-	-	-	●	-	-
03030JTW	CR5D0MPUB460	9.2.13 Main Processing Unit B4	-	-	●	-	-	-
03053549	CR5D0SRUA570	9.2.6 Switch and	-	●	-	-	-	-

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		Route Processing Unit A5						
03057054	CR5D0SRUB570	9.2.8 Switch and Route Processing Unit B5	-	●	-	-	-	-
03054207	CR5D0SRUA770	9.2.7 Switch and Route Processing Unit A7	-	●	-	-	-	-
03054206	CR5D0MPUD170	9.2.2 Main Processing Unit D2(Including 2G Memory and 2G USB)	●	-	-	-	-	-
03055705	CR5D0MPUD270	9.2.3 Main Processing Unit D3(Including 4G Memory and 2G USB)	●	-	-	-	-	-
03057366	CR5DMPUX8670	9.2.16 Main Processing	-	-	-	-	-	●

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		Unit B6						
03055780	CR5DS FUIM07B	9.3.6 480Gbps Switch Fabric Unit B(SFUI-480-B)	-	-	-	-	-	●
03056091	CR5DS FUIU07B	9.3.7 1Tbps Switch Fabric Unit B(SFUI-1T-B)	-	-	-	-	-	●
03056095	CR5DS FUIM07C	9.3.3 480Gbps Switch Fabric Unit C(SFUI-480-C)	-	-	-	-	●	-
03056094	CR5DS FUIU07C	9.3.4 1Tbps Switch Fabric Unit C(SFUI-1T-C)	-	-	-	-	●	-
03053547	CR5DS FUIE07B	9.3.5 200Gbps Switch Fabric Unit B(SFUI-200-B)	-	-	●	-	-	-
03053548	CR5DS FUIE07C	9.3.2 200Gbps Switch Fabric Unit C(SFUI-200-C)	-	●	-	-	-	-

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
03054532	CR5D0EFGFA73	9.5.1 24-Port 100/100Base-X-SFP Integrated Line Processing Unit L(LPUI-21-L)	•	•	•	•	•	•
03054535	CR5DL1XEDG70	9.5.2 1-Port 10GBase LAN/WAN-SFP++ 16-Port 100/100Base-X-SFP Integrated Line Processing Unit L(LPUI-21-L)	•	•	•	•	•	•
03054447	CR5DLPUF5070	9.6.1 Flexible Card Line Processing Unit(L PUF-50 ,four sub-slots)	•	•	•	•	•	•
03056487	CR5DLPUF507L	9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		four sub-slots)						
03057436	CR5DL PUF5071	9.6.3 Flexible Card Line Processing Unit(L PUF-50 ,four sub-slots,4G Memory)	•	•	•	•	•	•
03057437	CR5DL PUF507M	9.6.4 Flexible Card Line Processing Unit L(LPU F-50-L, four sub-slots,4G Memory)	•	•	•	•	•	•
03030KNE	CR5M0E8GFA30	9.6.8 8-Port 100/100Base-X-SFP Flexible Card A(P10-A,Supporting 1588v2)	•	•	•	•	•	•
03030NSK	CR5D0L2XF70	9.6.9 2-Port 10GBase WAN/LAN-SFP+	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		Flexible Card A						
03030JUA	CR53-P10-8x POS/S TM1-S FP	9.6.5 8-Port OC-3c/ STM-1c POS-S FP Flexible Card	•	•	•	•	•	•
03030JTY	CR53-P10-4x POS/S TM1-S FP	9.6.6 4-Port OC-3c/ STM-1c POS-S FP Flexible Card	•	•	•	•	•	•
03031JYH	CR5D00P2CF70	9.6.7 2-Port OC-3c/ STM-1c POS-S FP Flexible Card	•	•	•	•	•	•
03030KHP	CR53-P10-24xcE1/c T1-DB100	9.6.13 24-Port Channelized E1/T1-DB100 Flexible Card	•	•	•	•	•	•
03031JYK	CR5D00C2CF70	9.6.12 2-Port Channelized STM-1c POS-S FP Flexible Card(P	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		50)						
03030P VG	CR5D00C4CF70	9.6.10 4-Port Channelized STM-1 POS-SFP Flexible Card(P50)	•	•	•	•	•	•
03030P TB	CR5D00C8CF71	9.6.11 8-Port Channelized STM-1 POS-SFP Flexible Card(P50)	•	•	•	•	•	•
03030J UB	CR53-P10-8x POS/S TM4-SFP	9.6.14 8-Port OC-12c /STM-4c POS-SFP Flexible Card	•	•	•	•	•	•
03030 HNJ	CR53-P10-2x POS/S TM16-SFP	9.6.16 2-Port OC-48c /STM-16c POS-SFP Flexible Card	•	•	•	•	•	•
03030J CX	CR53-P10-4x POS/S TM16-SFP	9.6.17 4-Port OC-48c /STM-16c POS-SFP Flexible	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		e Card						
03030FSL	CR53-P10-1x POS/S TM64-XFP	9.6.15 1-Port OC-192c/STM-64c POS-XFP Flexible Card(Occupy two slots)	•	•	•	•	•	•
03030WGV	CR5D00MD8A70	9.6.18 8-Channel CWD MMultiplexing & Demultiplexing (1471/1491/1511/1531/1551/1571/1591/1611nm) Flexible Card(P50)	•	•	•	•	•	•
03054393	CR5DL PUF5170	9.7.1 Flexible Card Line Processing Unit(L PUF-51,2 sub-slots)	•	•	•	•	•	•
03054483	CR5DL PUF51	9.7.2 Flexibl	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
	7B	Flexible Card Line Processing Unit(L PUF-51,2 sub-slots) B						
03055189	CR5DL PUF517E	9.7.3 Flexible Card Line Processing Unit(L PUF-51,2 sub-slots) E	•	•	•	•	•	•
03030PMA	CR5D0 EFGFA70	9.7.4 24-Port 100/1000Base-X-SFP Flexible Card A(P51-A)	•	•	•	•	•	•
03030PYE	CR5D0 EFGFE70	9.7.9 24-Port 1000Base-X-SFP Flexible Card E(P51-E)	•	•	•	•	•	•
03030PMC	CR5D0 L5XFA70	9.7.6 5-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P51-A,	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		Occupy two sub-slots)						
03030PYG	CR5D0L5XFE70	9.7.11 5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P51-E, Occupy two sub-slots)	•	•	•	•	•	•
03030PYF	CR5D0L2XFE70	9.7.12 2-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P51-E)	•	•	•	•	•	•
03030PME	CR5D0L2XFA71	9.7.5 2-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P51-A)	•	•	•	•	•	•
03030QKN	CR5D0EEGEA70	9.7.7 20-Port 10/100/1000Base-RJ45 Flexible Card	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		A(P51-A)						
03031L UU	CR5D0 0P2XX 72	9.15.12 2-Port OC-19 2c/ST M-64c POS-X FP Flexible Card(P 51-A)	•	•	•	•	•	•
03031 XQJ	CR5D0 EFGFE 71	9.7.10 24-Port 1000Ba se-X-S FP Flexible Card E(P52- E)	•	•	•	•	•	•
03031 XPT	CR5D0 L5XFE 74	9.7.13 5-Port 10GBa se LAN/ WAN- SFP+ Flexible Card E(P52- E, Occupy two sub-slot s)	•	•	•	•	•	•
03031 XQD	CR5D0 L2XFE 75	9.7.14 2-Port 10GBa se LAN/ WAN- SFP+ Flexible Card E(P52- E)	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
03031EAW	CR5D0L2XFH70	9.7.15 2-Port 10GBa se LAN/ WAN- SFP+ Flexibl e Card H(P51- H)	•	•	•	•	•	•
03054395	CR5D0L5XFA71	9.8.1 5-Port 10GBa se LAN/ WAN- SFP+ Integrat ed Line Process ing Unit (LPUI- 51)	•	•	•	•	•	•
03054397	CR5D0L4XFA70	9.8.2 4-Port 10GBa se LAN/ WAN- SFP+ Integrat ed Line Process ing Unit (LPUI- 51)	•	•	•	•	•	•
03054400	CR5D0EMGFA70	9.8.3 48-Port 100/10 00Base -X-SFP Integrat ed Line Process ing Unit (LPUI-	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		51)						
03054412	CR5DL2XEFG7A	9.8.4 2-Port 10GBa se LAN/ WAN-SFP+ + 24-Port 100/1000Base -X-SFP Integrated Line Processing Unit (LPUI-51)	•	•	•	•	•	•
03054485	CR5D0L5XFA7B	9.8.5 5-Port 10GBa se LAN/ WAN-SFP+ Integrated Line Processing Unit B(LPUI-51-B)	•	•	•	•	•	•
03054486	CR5D0L4XFA7B	9.8.6 4-Port 10GBa se LAN/ WAN-SFP+ Integrated Line Processing Unit B(LPUI-51-B)	•	•	•	•	•	•
03054488	CR5D0EMGF	9.8.7 48-Port	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
	A7B	100/100Base-X-SFP Integrated Line Processing Unit B(LPUI-51-B)						
03054489	CR5DL2XEFG7B	9.8.8 2-Port 10GBase LAN/WAN-SFP++ 24-Port 100/100Base-X-SFP Integrated Line Processing Unit B(LPUI-51-B)	•	•	•	•	•	•
03054520	CR5D0L5XFA7L	9.8.9 5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-51-L)	•	•	•	•	•	•
03054528	CR5D0EMGF A7L	9.8.10 48-Port 100/100Base-X-SFP Integrated Line Process	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		ing Unit L(LPUI-51-L)						
03055716	CR5DL4XEBG7L	9.8.12 4-Port 10GBase LAN/WAN-SFP+ + 12-Port 100/1000Base-X-SFP Integrated Line Processing Unit L(LPUI-51-L)	•	•	•	•	•	•
03054525	CR5DL2XEIG7L	9.8.11 2-Port 10GBase LAN/WAN-SFP+ + 32-Port 100/1000Base-X-SFP Integrated Line Processing Unit L(LPUI-51-L)	•	•	•	•	•	•
03055052	CR5DL2XEFG7J	9.9.1 2-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		-X-SFP Integrated Line Processing Unit E(LPUI-51-E)						
03055051	CR5D0L5XFA7J	9.9.2 5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit E(LPUI-51-E)	•	•	•	•	•	•
03054625	CR5DL2XEFG7E	9.9.3 2-Port 10GBase LAN/WAN-SFP+ + 24-Port 1000Base-X-SFP Integrated Line Processing Unit E(LPUI-51-E,Enhanced HQos)	•	•	•	•	•	•
03054626	CR5D0L5XFA7E	9.9.5 5-Port 10GBase LAN/WAN-SFP+	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		Integrated Line Processing Unit E(LPUI-51-E,Enhanced HQos)						
03055053	CR5D0EMGFA7J	9.9.7 48-Port 100/100Base-X-SFP Integrated Line Processing Unit E(LPUI-51-E)	•	•	•	•	•	•
03056737	CR5D0L5XF73	9.9.8 5-Port 10GBa se LAN/WAN-SFP+ Line Processing Unit S(LPUI-51-S)	•	•	•	•	•	•
03056736	CR5D00EMGF74	9.9.10 48-Port 100/100Base-X-SFP Line Processing Unit S(LPUI-51-S)	•	•	•	•	•	•
03056738	CR5DL2XEFG73	9.9.9 2-Port 10GBa	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		se LAN/ WAN- SFP+ + 24-Port 100/10 00Base -X-SFP Integrat ed Line Process ing Unit S(LPUI -51-S)						
030570 85	CR5D0 L5XFA 7F	9.9.6 5-Port 10GBa se LAN/ WAN- SFP+ Integrat ed Line Process ing Unit E(LPUI -52-E,E nhance d HQos)	•	•	•	•	•	•
030570 86	CR5DL 2XFFG 7E	9.9.4 2-Port 10GBa se LAN/ WAN- SFP+ +24-Po rt 1000Ba se-X-S FP Integrat ed Line Process ing Unit E(LPUI -52-E,E	-	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		Enhanced HQos)						
03057688	CR5D0EMGF A7P	9.9.11 48-Port 100/1000Base-X-SFP Integrated Line Processing Unit CM(LP UI-51-CM)	-	•	•	•	•	•
03054396	CR5D00L5XF72	9.10.1 5-Port 10GBase LAN/WAN-SFP+ Line Processing Unit S(LPU S-51)	•	•	•	•	•	•
03054398	CR5D00L4XF71	9.10.2 4-Port 10GBase LAN/WAN-SFP+ Line Processing Unit S(LPU S-51)	•	•	•	•	•	•
03054401	CR5D00EMGF73	9.10.3 48-Port 100/1000Base-X-SFP Line Processing	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		ing Unit S(LPU S-51)						
03054413	CR5DL2XEFG72	9.10.4 2-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Line Processing Unit S(LPU S-51)	•	•	•	•	•	•
03054402	CR5DLPUFA071	9.11.1 Flexible Card Line Processing Unit(L PUF-101)	•	•	•	•	•	•
03054490	CR5DLPUFA07B	9.11.2 Flexible Card Line Processing Unit(L PUF-101) B	•	•	•	•	•	•
03030PMN	CR5D0EFGFA71	9.11.3 24-Port 100/1000Base-X-SFP Flexible Card A(P101-A)	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
03030P MK	CR5D0 L5XFA 72	9.11.4 5-Port 10GBa se LAN/ WAN- SFP+ Flexibl e Card A(P101 -A)	•	•	•	•	•	•
03030 QKM	CR5D0 L5XFE 71	9.15.18 5-Port 10GBa se LAN/ WAN- SFP+ Flexibl e Card E(P101 -E)	•	•	•	•	•	•
03030P MQ	CR5D0 0E1MC 70	9.11.5 1-Port 40GBa se LAN-C FP Flexibl e Card A(P101 -A)	•	•	•	•	•	•
030544 05	CR5D0 0E2MC 70	9.12.1 2-Port 40GBa se LAN-C FP Integrat ed Line Process ing Unit (LPUI- 101)	•	•	•	•	•	•
030544 08	CR5D0 LAXF A71	9.12.2 10-Port 10GBa se	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-101)						
03054491	CR5D00E2MC7B	9.12.3 2-Port 40GBase LAN-CFP Integrated Line Processing Unit B(LPUI-101-B)	•	•	•	•	•	•
03054492	CR5D0LAXFA7B	9.12.4 10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-101-B)	•	•	•	•	•	•
03054406	CR5D00E2MC71	9.13.1 2-Port 40GBase LAN-CFP Line Processing Unit S(LPUI-101-S)	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		S-101)						
03054407	CR5D0LAXFA72	9.13.2 10-Port 10GBa se LAN/WAN-SFP+ Line Processing Unit S(LPU S-101)	•	•	•	•	•	•
03030QDE	CR5D0L6XFA70	9.15.4 6-Port 10GBa se LAN/WAN-SFP+ Flexibl e Card A(P120-A)	•	•	•	•	•	•
03030PYU	CR5D00E1NC75	9.15.5 1-Port 100GB ase-CF P Flexibl e Card A(P120-A)	•	•	•	•	•	•
03030NVF	CR5D00LBXF72	9.15.8 12-Port 10GBa se LAN/WAN-SFP+ Flexibl e Card A(P120-A)	•	•	•	•	•	•
03031XPV	CR5D0L5XFE76	9.15.19 5-Port 10GBa se	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		LAN/WAN-SFP+ Flexible Card E(P120-E)						
03031C LM	CR5D0 L5XFH 70	9.15.20 5-Port 10GBase LAN/WAN-SFP+ Flexible Card H(P120-H)	•	•	•	•	•	•
03030R XS	CR5D0 0P8UF 70	9.15.9 8-Port OC-48c /STM-16c POS-SFP Flexible Card(P120)	•	•	•	•	•	•
03030 WHA	CR5D0 0T6XF 70	9.15.13 6-Port OTU2-SFP+ Flexible Card(P120)	•	•	•	•	•	•
03030 WGY	CR5D0 0TBXF 70	9.19.7 12-Port OTU2-SFP+ Flexible Card(P240)	•	•	•	•	•	•
030546 79	CR5DL PUFBO 70	9.15.2 Flexible Card Line	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		Processing Unit(L PUF-120)						
03054680	CR5DL PUFB07B	9.15.3 Flexible Card Line Processing Unit(L PUF-120) B	•	•	•	•	•	•
03054628	CR5DL PUFB07E	9.15.1 Flexible Card Line Processing Unit(L PUF-120) E	•	•	•	•	•	•
03032GKY	CR5D00E1NC77	9.15.6 1-Port 100GB Base-CF P2 Flexible Card A(P120-A)	•	•	•	•	•	•
03054681	CR5D0LBXFA70	9.16.1 12-Port 10GBa se LAN/WAN-SFP+ Integrated Line Processing Unit(L PUI-120)	•	•	•	•	•	•
03054682	CR5D0E2MC	9.16.2 2-Port 40GBa	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
	A70	se LAN-C FP Integrat ed Line Process ing Unit(L PUI-12 0)						
03054683	CR5D0 0E1NC 76	9.16.3 1-Port 100GB ase-CF P Integrat ed Line Process ing Unit (LPUI- 120)	•	•	•	•	•	•
03056743	CR5D0 0TBXF 71	9.16.9 12-Port OTU2- SFP+ Integrat ed Line Process ing Unit (LPUI- 120)	•	•	•	•	•	•
03054684	CR5D0 LBXF A7B	9.16.5 12-Port 10GBa se LAN/ WAN- SFP+ Integrat ed Line Process ing Unit B(LPU I-120-B)	•	•	•	•	•	•
030546	CR5D0	9.16.6	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
85	E2MCA7B	2-Port 40GBase LAN-CFP Integrated Line Processing Unit B(LPUI-120-B)						
03054686	CR5D00E1NC7B	9.16.7 1-Port 100GBase-CFP Integrated Line Processing Unit B(LPUI-120-B)	•	•	•	•	•	•
03056586	CR5D00LBXF7L	9.16.10 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-120-L)	•	•	•	•	•	•
03054627	CR5DLAXFAJ7E	9.16.11 10-Port 10GBase LAN/WAN-SFP+ Integrated Line Process	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		ing Unit E(LPUI-102-E)						
03057087	CR5DLAXFAJ7F	9.16.12 10-Port 10GBa se LAN/ WAN- SFP+ Integrat ed Line Process ing Unit E(LPUI-120-E)	•	•	•	•	•	•
03057445	CR5D00E1NC78	9.16.4 1-Port 100GB ase-CF P2 Integrat ed Line Process ing Unit (LPUI-120)	•	•	•	•	•	•
03057446	CR5D00E1NC7C	9.16.8 1-Port 100GB ase-CF P2 Integrat ed Line Process ing Unit B(LPU I-120-B)	•	•	•	•	•	•
03057689	CR5D00LBXF7P	9.16.13 12-Port 10GBa se LAN/ WAN-	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		SFP+ Integrated Line Processing Unit CM(LPUI-120-CM)						
03057690	CR5DL6XEFG7P	9.16.14 6-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit CM(LPUI-120-CM)	-	•	•	•	•	•
03056595	CR5D00D2NT70	9.18.1 2-Port 100GE Tunable DWD M Integrated Line Processing Unit (LPUI-200)	-	-	-	•	•	•
03056862	CR5D00E2NC76	9.18.2 2-Port 100GBase-CFP Integrated Line Process	-	-	-	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		ing Unit(L PUI-200)						
03056863	CR5D00LEXF76	9.18.3 20-Port 10GBa se LAN/ WAN-SFP+ Integrat ed Line Process ing Unit(L PUI-200)	-	-	-	•	•	•
03056864	CR5DE1NLA X76	9.18.4 1-Port 100GB ase-CF P + 10-Port 10GBa se LAN/ WAN-SFP+ Integrat ed Line Process ing Unit(L PUI-200)	-	-	-	•	•	•
03056865	CR5D00E2NC75	9.18.5 2-Port 100GB ase-CF P Integrat ed Line Process ing Unit (LPUI-200-L)	-	-	-	•	•	•
030568	CR5D0	9.18.6	-	-	-	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
66	0LEXF75	20-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-200-L)						
03056867	CR5DE1NLA X75	9.18.7 1-Port 100GBase-CFP + 10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-200-L)	-	-	-	•	•	•
03056598	CR5DLPUFE070	9.17.1 Flexible Card Line Processing Unit(LPUF-200)	-	-	-	•	•	•
03057713	CR5DLPUFE07B	9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	-	-	-	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
03030 QDF	CR5D00E1NC74	9.19.4 1-Port 100GB Base-CFP Flexible Card A(P240-A)	•	•	-	•	•	•
03030T UL	CR5D00LAXF70	9.17.5 10-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P240-A)	-	-	-	•	•	•
03032 GLA	CR5D00E1NC7A	9.19.5 1-Port 100GB Base-CFP2 Flexible Card A(P240-A)	•	•	-	•	•	•
03030 QDD	CR5D00LBXF71	9.19.6 12-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P240-A)	•	•	-	•	•	•
03054690	CR5DLPUFF070	9.19.2 Flexible Card Line Processing Unit(LPUF-240)	-	•	•	-	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
03054698	CR5DL PUFF07B	9.19.3 Flexible Card Line Processing Unit(L PUF-240-B)	-	•	•	-	•	•
03055720	CR5DL PUFF07E	9.19.1 Flexible Card Line Processing Unit(L PUF-240-E)	-	•	•	-	•	•
03030TUQ	CR5D0 LAXFE70	9.19.9 10-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P240-E)	-	•	•	-	•	•
03030WGT	CR5D0 E3MFA70	9.19.8 3-Port 40GBase-QSFP+ Flexible Card(P240-A)	-	•	•	-	•	•
03030YEU	CR5D0 LAXFH70	9.19.11 10-Port 10GBase LAN/WAN-SFP+ Flexible Card H(P240-H)	-	•	•	-	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
03054691	CR5D00E2NC70	9.20.1 2-Port 100GB Base-CFP Integrated Line Processing Unit (LPUI-240)	-	•	•	-	•	•
03054692	CR5D00LFXF70	9.20.3 24-Port 10GBa se LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-240)	-	•	•	-	•	•
03054693	CR5DE2NLBX70	9.20.4 1-Port 100GB Base-CFP + 12-Port 10GBa se LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-240)	-	•	•	-	•	•
03056745	CR5D00TFXF71	9.20.11 24-Port OTU2-SFP+ Integrated Line	-	•	•	-	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		Processing Unit (LPUI-240)						
03056105	CR5D0E6MFA70	9.20.14 6-Port 40GBase-QSFP+ Integrated Line Processing Unit (LPUI-240)	-	•	•	-	•	•
03054694	CR5D00E2NC73	9.20.6 2-Port 100GBase LAN-CFP Integrated Line Processing Unit B(LPUI-240-B)	-	•	•	-	•	•
03054695	CR5D00LFXF73	9.20.8 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-240-B)	-	•	•	-	•	•
03054696	CR5DE2NLBX73	9.20.9 1-Port 100GB	-	•	•	-	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		ase-CF P + 12-Port 10GBa se LAN/ WAN-SFP+ Integrat ed Line Process ing Unit B(LPU I-240-B)						
03056106	CR5D0E6MFA71	9.20.15 6-Port 40GBa se-QSF P+ Integrat ed Line Process ing Unit (LPUI-240-B)	-	•	•	-	•	•
03056587	CR5D00LFXF7L	9.20.12 24-Port 10GBa se LAN/ WAN-SFP+ Integrat ed Line Process ing Unit L(LPUI-240-L)	-	•	•	-	•	•
03057447	CR5D00E2NC71	9.20.2 2-Port 100GBa se-CF P2 Integrat ed Line Process	-	•	•	-	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		ing Unit (LPUI-240)						
03057448	CR5DE1NLBX70	9.20.51-Port 100GB ase-CF P2 + 12-Port 10GBa se LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-240)	-	•	•	-	•	•
03057449	CR5D00E2NC74	9.20.72-Port 100GB ase LAN-C FP2 Integrated Line Processing Unit B(LPUI-240-B)	-	•	•	-	•	•
03057450	CR5DE1NLBX71	9.20.101-Port 100GB ase-CF P2 + 12-Port 10GBa se LAN/WAN-SFP+ Integrated Line Process	-	•	•	-	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		ing Unit B(LPUI-240-B)						
03057692	CR5D00LFXF7P	9.20.13 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit CM(LPUI-240-CM)	-	•	•	-	•	•
03055820	CR5DLPUFM070	9.21.1 Flexible Card Line Processing Unit(LPUF-480)	-	-	-	-	•	•
03057035	CR5DLPUFM07B	9.21.3 Flexible Card Line Processing Unit B(LPUF-480-B)	-	-	-	-	•	•
03057313	CR5DLPUFME70	9.21.2 Flexible Card Line Processing Unit E(LPUF-480-E)	-	-	-	-	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
03030S WH	CR5D0 0E2NC 72	9.21.5 2-Port 100GB Base-CF P2 Flexible Card A(P480 -A)	-	-	-	-	•	•
03030S WL	CR5D0 0LFXF 74	9.21.4 24-Port 10GBa se LAN/ WAN- SFP+ Flexible Card A(P480 -A)	-	-	-	-	•	•
03032 DJE	CR5D0 E2NCE 70	9.21.6 2-Port 100GB Base-CF P2 Flexible Card E(P480 -E)	-	-	-	-	•	•
03032 DJH	CR5D0 LEXFE 70	9.21.7 20-Port 10GBa se LAN/ WAN- SFP+ Flexible Card E(P480 -E)	-	-	-	-	•	•
030558 21	CR5D0 0LMX F70	9.22.1 48-Port 10GBa se LAN/ WAN- SFP+ Integrat ed Line	-	-	-	-	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		Processing Unit (LPUI-480)						
03055838	CR5DE2NLFX70	9.22.2 2-Port 100GB Base-CF P2 + 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-480)	-	-	-	-	•	•
03056318	CR5D00E4NC70	9.22.4 4-Port 100GB Base-CF P2 Integrated Line Processing Unit (LPUI-480)	-	-	-	-	•	•
03057036	CR5D00LMXF7B	9.22.6 48-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPU I-480-B)	-	-	-	-	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
03057037	CR5DE2NLFX7B	9.22.7 2-Port 100GB base-CF P2 + 24-Port 10GBa se LAN/ WAN- SFP+ Integrat ed Line Process ing Unit B(LPU I-480-B)	-	-	-	-	•	•
03057039	CR5D00E4NC7B	9.22.8 4-Port 100GB base-CF P2 Integrat ed Line Process ing Unit B(LPU I-480-B)	-	-	-	-	•	•
03057040	CR5D00LMXF7C	9.22.9 48-Port 10GBa se LAN/ WAN- SFP+ Integrat ed Line Process ing Unit L(LPUI -480-L)	-	-	-	-	•	•
03057041	CR5DE2NLFX7C	9.22.10 2-Port 100GB base-CF	-	-	-	-	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		P2 + 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-480-L)						
03057042	CR5D00E4NC7C	9.22.11 4-Port 100GBase-CFP2 Integrated Line Processing Unit L(LPUI-480-L)	-	-	-	-	•	•
03057675	CR5D00D4NT70	9.22.12 4-Port 100G ETH/D WDM-CFP2 Integrated Line Processing Unit(LPUI-480)	-	-	-	-	•	•
03057753	CR5D00E4NC7P	9.22.13 4-Port 100G ETH/D WDM-CFP2 Integrated Line Processing Unit	-	-	-	-	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		CM(LPUI-480-CM)						
03056088	CR5D00E8NC70	9.23.1 8-Port 100GB Base-CFP2 Integrated Line Processing Unit (LPUI-1T)	-	-	-	-	•	•
03056888	CR5D00E8NC7B	9.23.2 8-Port 100GB Base-CFP2 Integrated Line Processing Unit B(LPUI-1T-B)	-	-	-	-	•	•
03057043	CR5D00E8NC7C	9.23.3 8-Port 100GB Base-CFP2 Integrated Line Processing Unit L(LPUI-1T-L)	-	-	-	-	•	•
03057693	CR5D00E8NC7P	9.23.5 8-Port 100G ETH/D WDM-CFP2 Integrated Line Processing	-	-	-	-	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		Unit CM(LP UI-1T-CM)						
03057725	CR5D0D8NC70	9.23.4 8-Port 100G ETH/D WDM-CFP2 Integrated Line Processing Unit(LPUI-1T)	-	-	-	-	•	•
03056533	CR5DVSUID010	9.4.5 Integrated Versatile Service Unit 160(VSUI-160-E)	-	•	•	-	•	•
03054421	CR5DVSUFD010	9.4.1 Flexible Card Versatile Service Unit 160(VSUF-160)	-	•	•	-	•	•
03030PTF	CR5D0SPD010	9.4.3 Versatile Service Flexible Card(SPI60)	-	•	•	-	•	•
03054425	CR5DVSUF8010	9.4.2 Flexible Card Versatile	•	•	•	•	•	•

BOM	Module	Description	NE40E-X3	NE40E-X8	NE40E-X16	NE40E-X3A	NE40E-X8A	NE40E-X16A
		Service Unit 80(VS UF-80)						
03030PLN	CR5D00SP810	9.4.4 Versatile Service Flexible Card(S P80)	•	•	•	•	•	•

5 Product Signal Flow Overview

About This Chapter

This section describes how component units on a device process and forward signal flows. This section demonstrates how data packets enter a device and how the device forwards the data packets.

[5.1 General Service Process Overview](#)

[5.2 Signal Flow on the Control Plane](#)

[5.3 Signal Flow on the Data Plane](#)

[5.4 Signal Flow on the Monitoring Plane](#)

5.1 General Service Process Overview

Concept Analogy

A router is a device that searches for paths to transmit IP packets on the Internet. The router functions as a post office. IP packets are to the router as mails to the post office. The core function of a router is addressing and forwarding.

A post office must meet the following conditions before mails can be properly delivered:

- Has a mail collection center that collects all mails.
- Has a mail query and distribution center that queries addresses of the mails and distributes these mails to their addresses.

A mail collection center, similar to the data plane on a router, delivers mails. A mail query and distribution center, similar to the control plane on the router, searches for paths and forwards mails along the paths to various addresses.

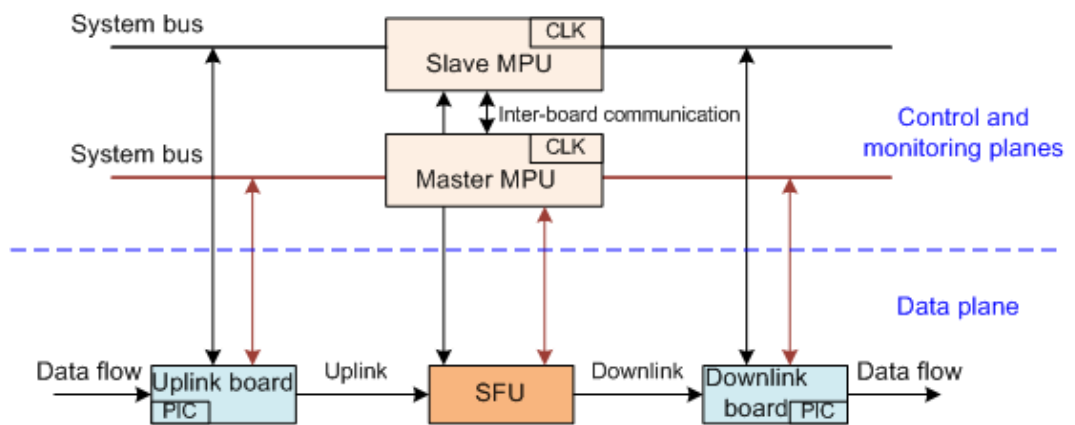
Logical Architecture

A router consists of the data and control planes, which implements addressing and forwarding. In addition, the router has a monitoring plane, which helps ensure stable addressing and forwarding performance. The three planes provide the following functions:

- Data plane: Similar to a mail collection center, the data plane provides interfaces that send and receive packets on a router, whereas processing the packets at a high speed and switching data packets inside the router. The data plane encapsulates packets, decapsulates packets, processes Ethernet, Multiprotocol Label Switching (MPLS), IPv4, and IPv6 packets, implements quality of service (QoS), schedules packets, and provides various statistics.
- Control plane: Similar to the mail query and distribution center, the control plane is the central nervous system on a router. It uses system buses to control system units and provide various functions. These functions allow the router to calculate routes, generate LSPs, build multicast, unicast, and MPLS forwarding tables, processes protocols and signalings, configure the routes, maintain the route status, monitor the system status, and generate the system status report.
- Monitoring plane: monitors the system environment and helps the data and control plane operate stably and securely. The monitoring plane measures the power voltage, controls the system power-on and power-off, monitors temperatures, and controls fan modules. In addition, the monitoring plane isolates a fault if a unit fails to prevent the fault from affecting other units on the router.

Figure 5-1 illustrates the logical architecture of a router.

Figure 5-1 Logical architecture



NOTE

The arrow in the figure indicates the direction in which data flows are forwarded.

Physical Architecture

The physical architectures of the data, control, and monitoring planes on a router are as follows:

- The data plane's forwarding function is implemented by the uplink and downlink line processing units (LPUs) and a switch fabric unit (SFU) on the router.
- Control and monitoring plane functions are implemented by control units on the main processing units (MPUs) and LPUs.

5.2 Signal Flow on the Control Plane

The control plane, functioning as the nerve center, integrates control and management functions and uses buses to control system units.

The control plane consists of control units on MPUs and those on other boards. Each MPU is comprised of the following three functional units:

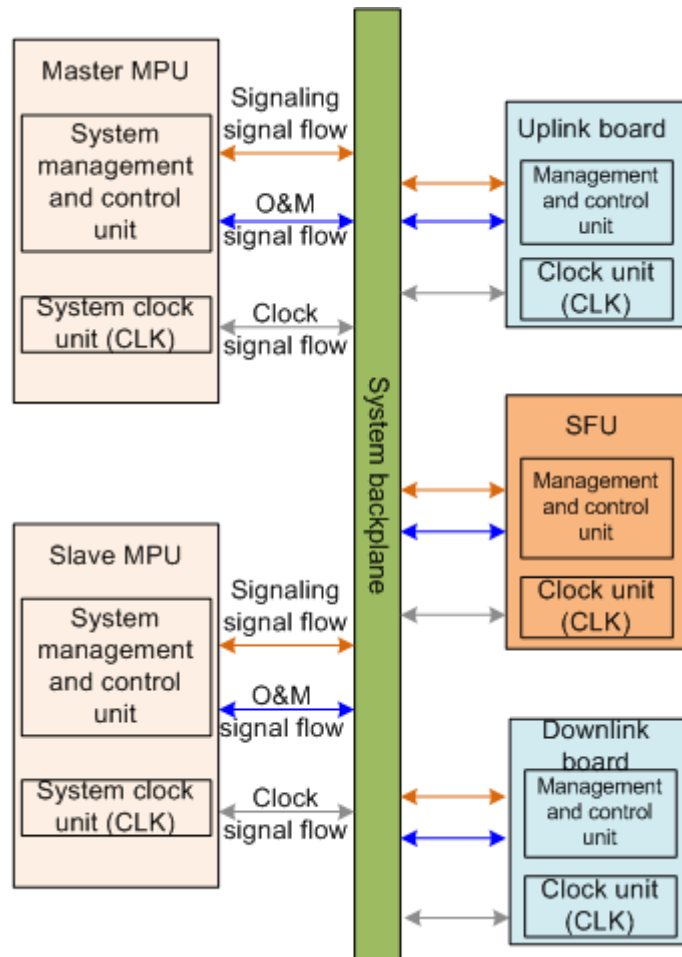
- System management and control unit and system clock unit: work on the control plane.
- System maintenance unit: works on the monitoring plane. For more information, see section "Signal Flow on the Monitoring Plane" in this document.

MPU units and board units communicate through system buses and the SFU.

Signal Flow on the Control Plane

Figure 5-2 illustrates the principles of signal flow transmission on the control plane.

Figure 5-2 Signal flow transmission on the control plane



The control plane processes the following signal flows:

- Singling signal flow and operation and maintenance signal flow: processed by the system management and control unit.
- Clock signal flow: processed by the system clock unit.

The signal flow on the control plane is bidirectional.

- Signal flow contains host packets carrying signals, for example, routing protocols.
 - Board-to-MPU signal flow: calculates data. Therefore, a board sends these packets to the MPU, and the management and control unit on the MPU parses these packets. Then the MPU delivers signaling to the data plane so that they can be identified by the data plane.
 - MPU-to-board signal flow: used to update entries in forwarding tables. After the MPU delivers parsed data to a board, the board uses the data to forward packets on the data plane.

In the following example, routing calculation is used. A packet arrives at an interface of a board. The network processor (NP) on the board identifies the packet that needs to be sent to the MPU. The NP sends the packet to the MPU. The MPU calculates the packet and delivers the destination IP address and the next-hop IP address to the routing table on the NP. The data plane forwards the packet to the next-hop address over a route to the destination IP address.

- Operation and maintenance signal flow: Operation data includes configuration, debugging, and query data. Maintenance data includes system-generating data, such as logs and alarms.
 - Board-to-MPU signal flow: contains maintenance signals. The system management and control unit uses the system buses to collect maintenance information, such as logs and alarms that are generated by modules and saves the information in an information center. The maintenance data helps query and maintain the device.

For example, when a user wants to query active alarms, the user runs the **display alarm active** command. The control plane parses this command and instructs the information center to display all collected active alarms.
 - MPU-to-board signal flow: contains operation signals. The control plane provides software interfaces to communicate with other devices, communication interfaces to communicate with host software, and LAN switch interfaces to communicate with other boards and modules. These interfaces form a logical network. Operation commands are configured on the control plane. The control plane then sorts information based on types and priorities and sends the information through interfaces along various channels to various modules.

For example, a user runs the **power off slot 1** command to power off a board in slot 1. The control plane parses the command and delivers the command through an outband interface to the board in slot 1.
- Clock signal flow: contains synchronization Ethernet or 1588v2 (also called IEEE Standard for a Precision Clock Synchronization Protocol for Networked Measurement and Control Systems) signals.
 - Board-to-MPU signal flow: used to obtain clock signals. An uplink board obtains clock frequency signals from packets and sends them to the system clock unit on an MPU. The system clock unit then selects a clock source.
 - MPU-to-board signal flow: used to restore the system clock frequency and time. After the MPU selects a clock source, it restores the synchronous system clock and delivers it to all boards so that a device forwards packets all carrying the synchronous signals to downstream devices through outbound interfaces.

Reliability

Both the MPUs and clocks are working in 1:1 redundancy mode. The master and slave MPUs communicate and monitor each other's status. If the master MPU fails, the slave MPU automatically takes over packets and becomes the new master MPU, which improves device reliability.

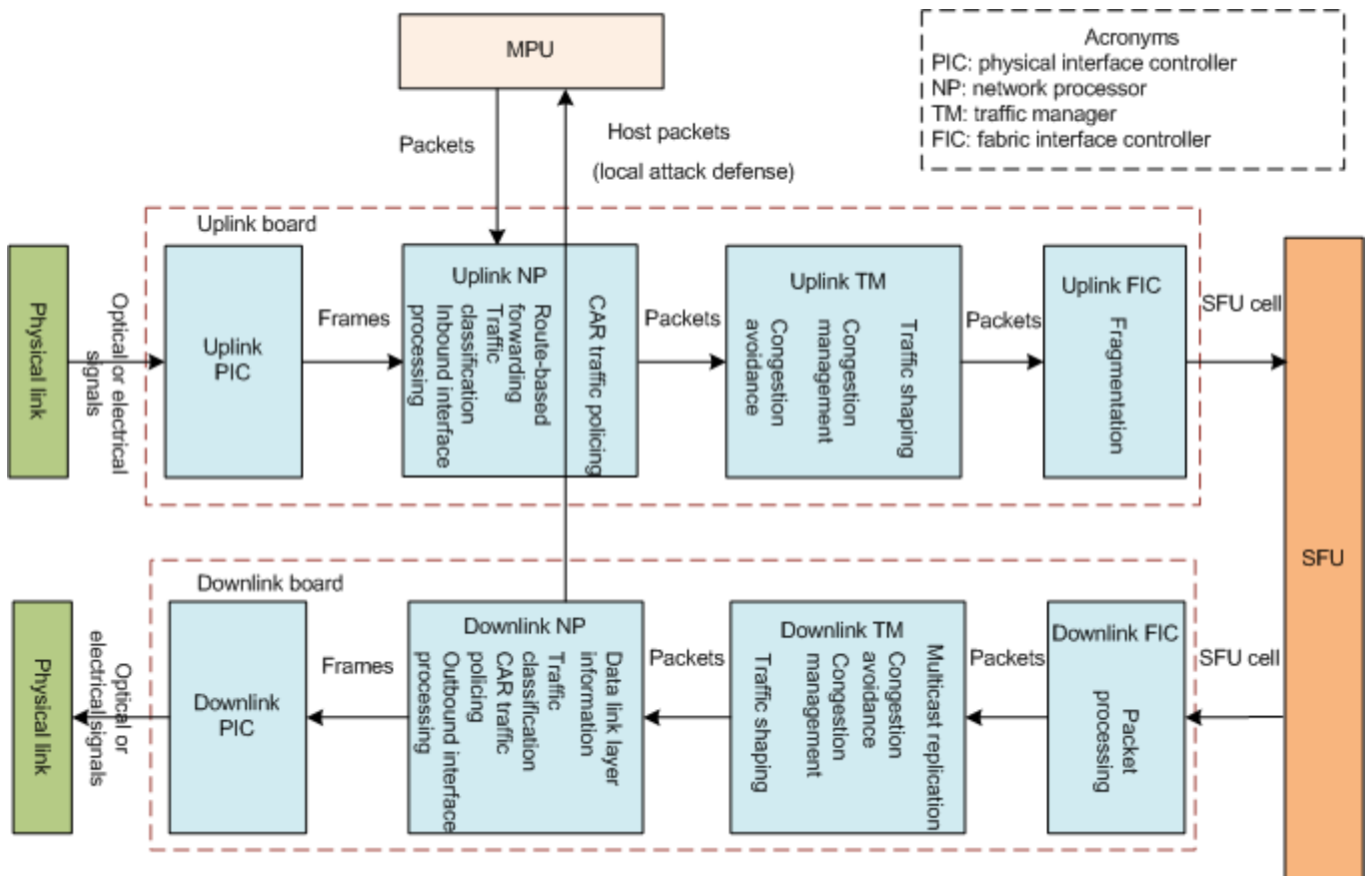
5.3 Signal Flow on the Data Plane

The data plane processes and forwards data packets at a high speed. The signal flow in the data plane is primarily service data signals.

Signals on the data plane flow through a physical link, an uplink board, an SFU, a downlink board, and another physical link.

Figure 5-3 illustrates the processing and forwarding of a signal flow on the data plane.

Figure 5-3 Processing and forwarding of a signal flow on the data plane



NOTE

The processing and forwarding of a signal flow on the different uplink board and downlink board may differ. For more information, see "Overall QoS Process" in the *HUAWEI NetEngine40E Universal Service Router Feature Description - QoS*.

The processing of an incoming signal flow is as follows:

1. An uplink physical interface card (PIC) provides an inbound interface for a signal flow. Optical and electrical signals transmitted along a physical link enter the uplink PIC. The PIC obtains the physical layer clock frequency and performs data layer link protocol negotiation. Then the PIC encapsulates packets into Ethernet frames and sends the frames to the uplink NP.



NOTE

A PIC can receive high-speed services, such as packet over synchronous digital hierarchy (SDH)/synchronous optical network (SONET) (POS) and Ethernet packets and low-speed services, such as asynchronous transfer mode (ATM), time division multiplexing (TDM), and Point-to-Point Protocol (PPP) packets. Services before they are encapsulated are not described here.

2. The uplink NP searches a forwarding table for an outbound interface for the signal flow. The processing is as follows:
 - a. Inbound interface processing: Upon receipt of the signal flow, the inbound interface of the NP parses the data link layer protocol carried in the packets and obtains the packet types.
 - b. Traffic classification: The uplink NP prioritized packets, performs traffic classification, and re-marks them.
 - c. Packet forwarding based on the forwarding table: The uplink NP searches for forwarding entries based on destination MAC addresses, destination IP addresses, and MPLS labels and obtains outbound interface names or next-hop IP addresses contained in matching entries.



NOTE

Data packets are classified as Layer 2 MAC address-based packets, Layer 2.5 MPLS label-based packets, and Layer 3 IP address-based packets. The processing module on the inbound interface identifies packet types and searches forwarding tables based on these types so that the outbound interface names or next-hop IP addresses for all types of packets can be found.

- d. Traffic policing: The uplink NP limits the rate at which incoming packets are sent based on the committed access rate (CAR) parameters configured on the inbound interface or those configured in the incoming traffic classification profile. If the forwarding behavior is to discard packets, the uplink NP discards them before performing the CAR function.
3. The uplink traffic management (TM) chip processes the signal flow as follows:
 - Congestion management and avoidance: The uplink TM monitors network resource usage. If traffic congestion worsens, the uplink TM discards packets and adjusts traffic to relieve network overload.
 - Traffic shaping: If traffic congestion occurs, the uplink TM caches packets in queues and uses a specific scheduling algorithm to prioritize packets before forwarding them.

After the uplink TM processes packets using QoS functions, it sends them to the uplink flexible interface card (FIC).

4. The uplink FIC fragments the signal flows. The SFU switches packets based on a fixed cell length. Before packets are sent to the SFU, the uplink FIC fragments the packets that are longer than the fixed cell length. The upstream FIC encapsulates the fragments into cells before sending them to the SFU.

The SFU switches data between LPUs. Upon receipt of the cells, the SFU caches and schedules them before sending them to the switching unit. The switching unit balances the cells using multiple switching planes, which improves the fault tolerance capability. The switching unit sends data packets through outbound interfaces to a downlink board.

The processing of an outgoing signal flow is as follows:

1. Switched network cell assembly on the downstream FIC: The downstream FIC assembles switched network cells into packets after switched network cells flow from the SFU to the downlink FIC.
2. Queuing and scheduling on the downlink TM: The downstream TM puts packets of the signal flow in queues and schedules them based on the traffic shaping, policing, congestion avoidance parameters. Then it sends the packets to the downstream NP.



NOTE

The downlink TM also replicates multicast packets before sending them through several outbound interfaces.

3. Forwarding table lookup and data layer link information query: The downlink NP obtains data link layer encapsulation information, processes packets using a signal flow processing module and outbound interface-specific processing modules. The processing is as follows:
 - a. The downstream NP obtains data link layer encapsulation information and encapsulates packets. The encapsulation process varies according to packet types. For example:
 - For Layer 2 802.1q-in-802.1q (QinQ) packets, the downlink NP adds a virtual local area network (VLAN) tag to each packet.
 - For MPLS packets, the downlink NP adds an MPLS label to each packet.
 - For IP packets, the downlink NP searches for Address Resolution Protocol (ARP) entries and adds MAC addresses mapped to ARP entries to the packets.
 - b. The flow processing module performs traffic classification and re-marks packets based on priorities configured on outbound interfaces.
 - c. The downstream NP limits the rate limit at which outgoing packets are sent based on CAR parameters configured on the outbound interface or those in the outgoing traffic classification profile.
 - d. Host packets destined for the MPU are sent to an MPU, and packets to be forwarded are sent to the outbound interface-specific processing modules.



NOTE

Due to limited CPU processing capability on an MPU, the limit on packets destined for the CPU must be configured. This prevents attack or defective packets from being sent to the MPU and causing high CPU usage, which improves device security. The packets are verified, and only valid packets are sent to the CPU at a specified rate, which defends against attacks on the CPU.

- e. The outbound interface-specific processing module adds a Layer 2 header to each packet and forwards the packets to the downlink PIC.
4. The downlink PIC converts data packets into optical and electrical signals and forwards them through outbound interfaces connected to physical links.

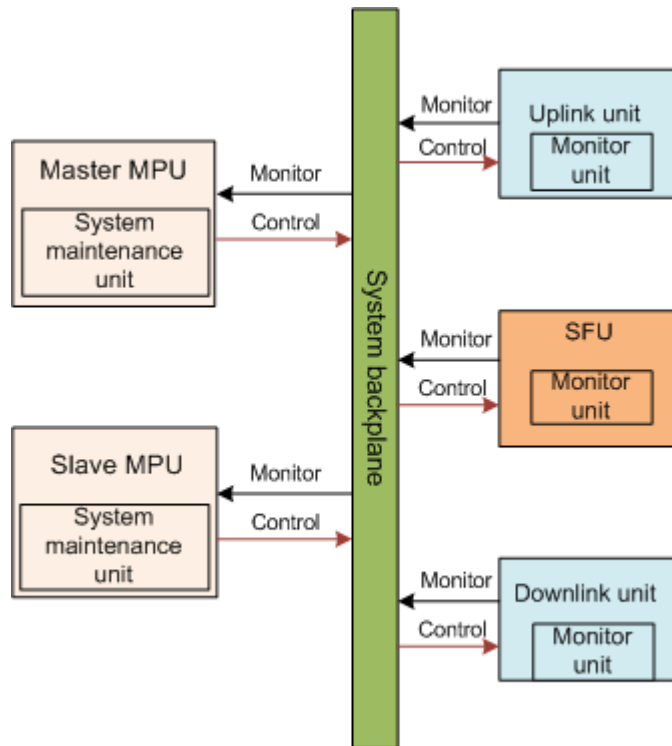
5.4 Signal Flow on the Monitoring Plane

The monitoring plane monitors the system environment. If a fault occurs on a unit, the monitoring plane isolates the fault to prevent it from affecting other units on the device. The control and monitoring planes are working together to support the operation and maintenance of a device and improve performance stability.

Both the control plane and monitoring plane consist of the system operation and maintenance unit and the monitoring units on LPUs and an SFU. Inter-board communication is implemented using the system backplane.

Figure 5-4 illustrates the principles of signal flow transmission on the monitoring plane.

Figure 5-4 Signal flow transmission on the monitoring plane



The monitoring plane, like the control plane, supports bidirectional signal flows.

- Board-to-LPU signal flow: implements monitoring. The system maintenance unit on each LPU uses a MonitorBus to collect operating information on system units and generates control information based on the unit-specific operating status.
- LPU-to-board signal flow: implements control. An LPU delivers control information to modules to monitor board information, such as the installation and operating status and fan speed. The LPU also loads a bus to locally or remotely test or upgrade system units.

6 Chassis

About This Chapter

- 6.1 NE40E-X3
- 6.2 NE40E-X3A
- 6.3 NE40E-X8
- 6.4 NE40E-X8A
- 6.5 NE40E-X16
- 6.6 NE40E-X16A

6.1 NE40E-X3

Overview

Table 6-1 Device attributes

Product Type	Description	BOM	Model	Earliest Software Version
NE40E-X3 DC	Integrated DC Chassis Components(N E40E-X3)-4U,I ncluding Dual DC Power	02351596	CR52-BKPE-4 U-DC	V800R007C00
NE40E-X3 AC	NE40E-X3 Integrated AC Chassis Components, (Including Dual AC Power)	02355250	CR5B0BKP037 0	V800R007C00

Appearance

Figure 6-1 Appearance (DC)

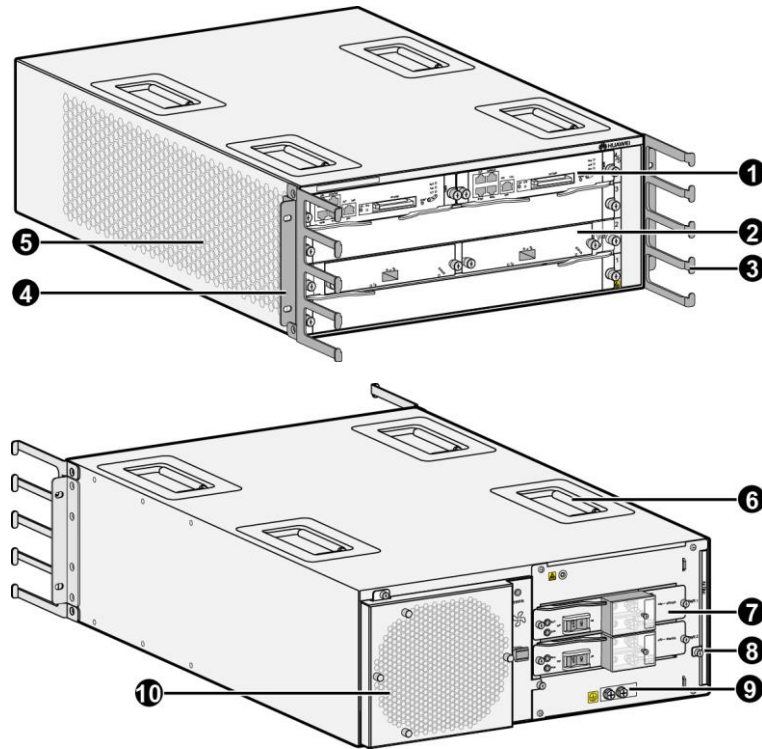


Figure 6-2 Appearance (AC)



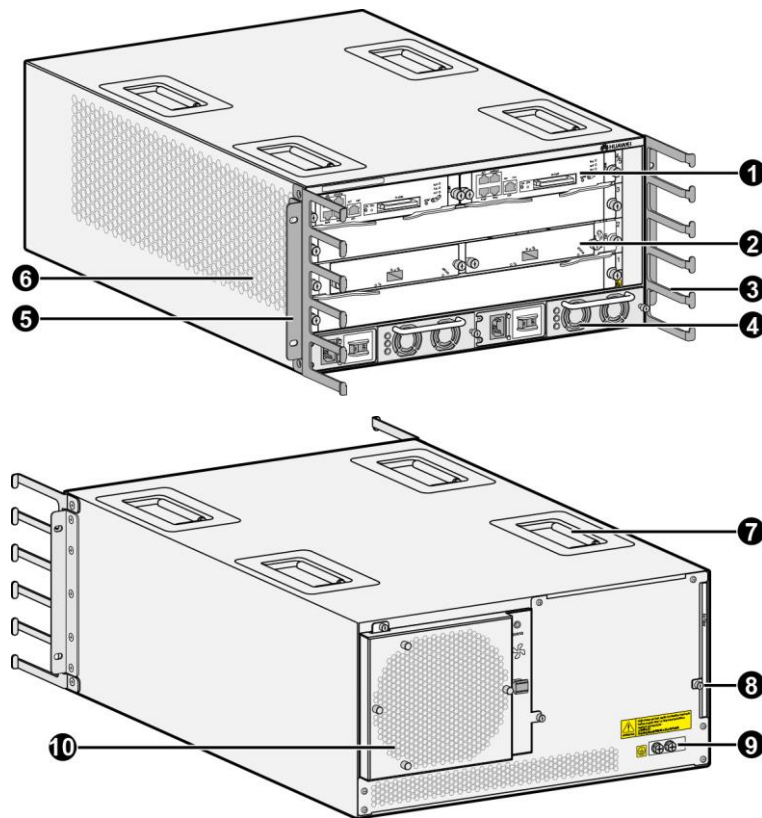
Components

Figure 6-3 Components (DC)



- | | | | |
|--------------------|-----------|--------------------|----------------------|
| 1. MPU | 2. LPU | 3. Cable tray | 4. Rack-mounting ear |
| 5. Air intake vent | 6. Handle | 7. DC Power module | 8. Air filter |
| 9. Ground terminal | 10. Fan | | |

Figure 6-4 Components (AC)



- | | | | |
|----------------------|--------------------|---------------|--------------------|
| 1. MPU | 2. LPU | 3. Cable tray | 4. AC Power module |
| 5. Rack-mounting ear | 6. Air intake vent | 7. Handle | 8. Air filter |
| 9. Ground terminal | 10. Fan | | |

Slot Layout

Figure 6-5 Slot layout

MPU 4	MPU 5
LPU 3	
LPU 2	
LPU 1	

Table 6-2 Description of slot layout

Slot Name	Slot Quantity	Slot ID	Remarks
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Slot Name	Slot Quantity	Slot ID	Remarks
LPU	3	1 to 3	These slots hold LPUs.
MPU	2	4 to 5	These slots hold MPUs.

Interface Numbering

An interface is numbered in the format of slot number/card number/port number

NOTE

Slot number: The slots of LPUs are numbered from 1 to 3. The slot number increases from bottom to top, facing the front panel of the NE40E (there are corresponding marks on the panel).

Card number: The cards of LPUs are numbered from right to left and from bottom to top beginning with 0. If there is no card on a board, the card number is set to 0.

Port number: The ports of LPUs are numbered from top to bottom and from right to left beginning with 0.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> DC: 175 mm x 442 mm x 650 mm (6.89 in. x 17.4 in. x 25.59 in.)(4 U) AC: 220 mm x 442 mm x 650 mm (8.66 in. x 17.4 in. x 25.59 in.)(5 U)
Weight (empty)	<ul style="list-style-type: none"> DC:12 kg (26.46 lb) AC:20 kg (44.1 lb)
Weight (full configuration)	<ul style="list-style-type: none"> DC:42 kg (92.61 lb) AC:52 kg (114.66 lb)
Cabinet installation standard	Can be installed in a 19-inch 800 mm-deep standard cabinet. The default cabinet is the Huawei 2.2 m-high N68E cabinet.
Typical power consumption	<ul style="list-style-type: none"> DC: 800 W (fully configured with LPUF-51s) AC: 950 W (fully configured with LPUF-51s) DC: 920 W (fully configured with LPUF-120s) AC: 1070 W (fully configured with LPUF-120s)
Typical heat dissipation	<ul style="list-style-type: none"> DC: 2595.5 BTU/hour (fully configured with LPUF-51s) AC: 3082.2 BTU/hour (fully configured with LPUF-51s) DC: 2984.9 BTU/hour (fully configured with LPUF-120s) AC: 3471.5 BTU/hour (fully configured with

Item	Specification
	LPUF-120s)
DC input voltage	<ul style="list-style-type: none"> input voltage range: -38.4 to -72V input rated voltage: -48V/-60V
AC input voltage	<ul style="list-style-type: none"> input voltage range: 180V to 264V input rated voltage: 200V to 240V
MTBF	27.44 years
MTTR	0.5 hours
Availability	0.99999792
Slot quantity	5
Processing unit	<ul style="list-style-type: none"> Main Processing Unit D2: 1.2 GHz (single-core) Main Processing Unit D3: 1.2 GHz (single-core)
Flash	<ul style="list-style-type: none"> Main Processing Unit D2: 16 MB Main Processing Unit D3: 16 MB
SDRAM	<ul style="list-style-type: none"> Main Processing Unit D2: 2 GB Main Processing Unit D3: 4 GB
Storage	<ul style="list-style-type: none"> Main Processing Unit D2: 2 GB Main Processing Unit D3: 2 GB
Redundant MPUs	1:1
Redundant Switch fabrics	None
Redundant fans	The device can work properly for a short time at 40 °C if a single fan fails.
Redundant power supply	1+1
Forwarding performance	<ul style="list-style-type: none"> 225 Mpps (LPUF-51) 360 Mpps (LPUF-120)
Switching capacity	1.08 Tbps
Operating temperature	<ul style="list-style-type: none"> Long-term: 0 °C to 45 °C (32 °F to 113 °F) Short-term: -5 °C to 55 °C (23 °F to 131 °F) Remark: Restriction on the temperature variation rate: 30 °C/hour
Storage temperature	-40 °C to 70 °C (-40 °F to 158 °F)
Relative operating humidity	<ul style="list-style-type: none"> Long term: 5% to 85% RH, non-condensing Short term: 5% to 95% RH, non-condensing
Relative storage humidity	5% to 95% RH, non-condensing
Long-term operating altitude	≤ 4000 m (If the altitude is between 1800 m and 4000 m, the device operating temperature must decrease by

Item	Specification
	1 °C each time the altitude increases by 220 m.)
Storage altitude	Lower than 5000 m (16404 ft)

6.2 NE40E-X3A

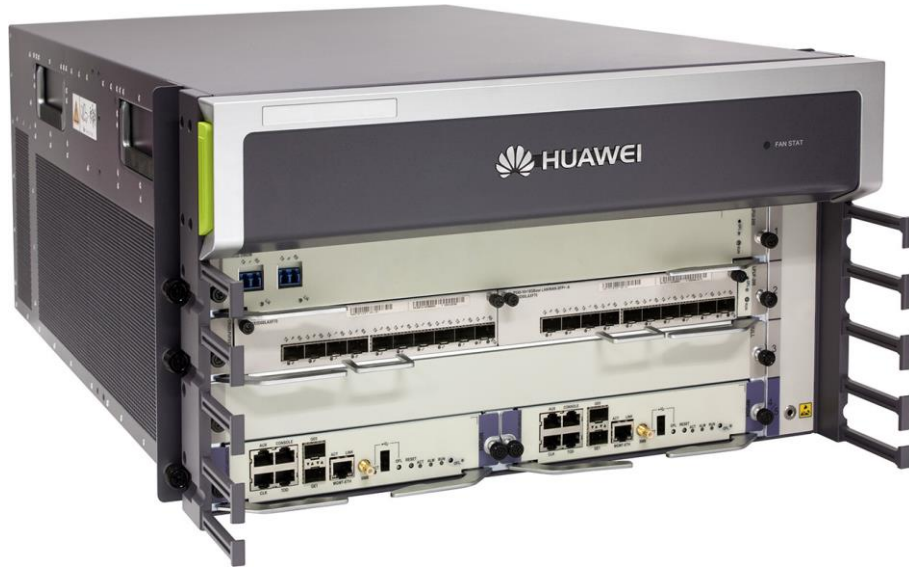
Overview

Table 6-3 Device attributes

Product Type	Description	BOM	Model	Earliest Software Version
NE40E-X3A DC	NE40E-X3A Integrated DC Chassis Components (Including Dual DC Power)	02350FMK	CR5B0BKP037 3	V800R007C00
NE40E-X3A AC	NE40E-X3A Integrated AC Chassis Components (Including Dual AC Power)	02350FML	CR5B0BKP037 4	V800R007C00

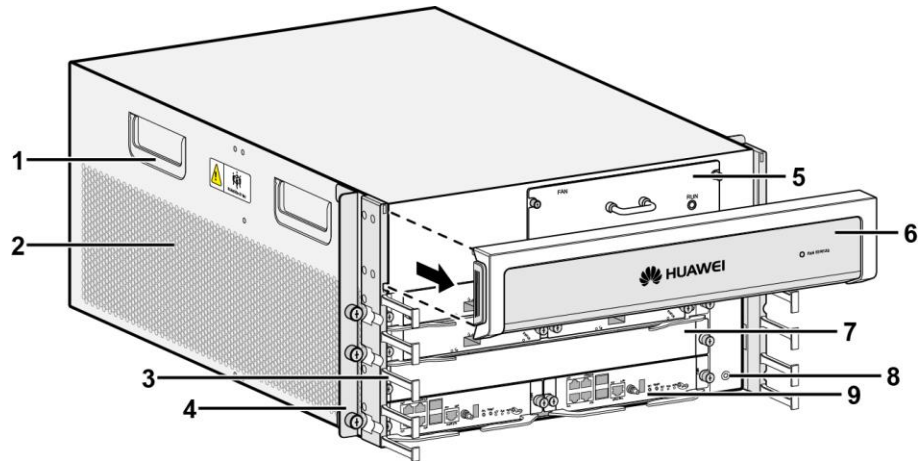
Appearance

Figure 6-6 Appearance



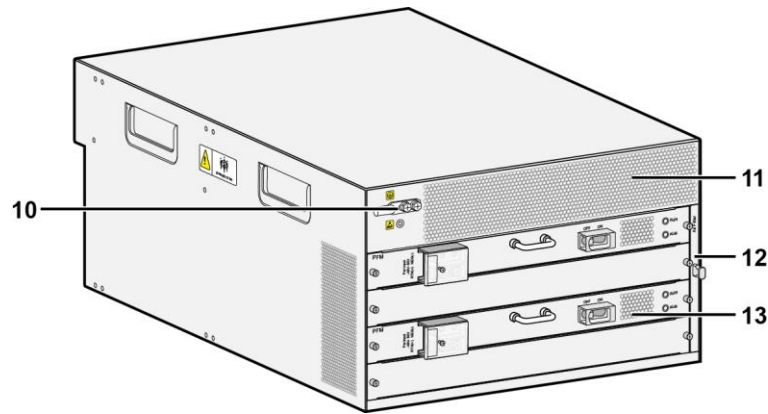
Components

Figure 6-7 Components (front view)



- | | | | |
|-----------|--------------------------|-----------------|--------------------------|
| 1. Handle | 2. Air intake vent | 3. Cabling rack | 4. Rack-mounting ear MPU |
| 5. Fan | 6. Fan module cage cover | 7. LPU | 8. ESD jack |
| 9. MPU | | | |

Figure 6-8 Components (rear view)



10. Ground terminal 11. Air exhaust vent 12. Air filter 13. Power module

Slot Layout

Figure 6-9 Slot layout

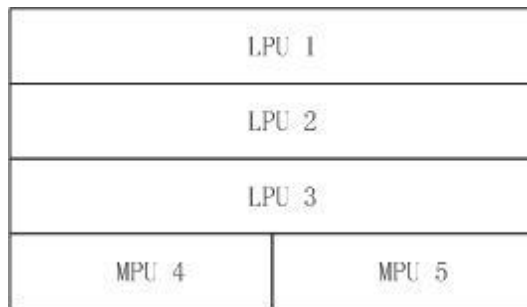


Table 6-4 Description of slot layout

Slot Name	Slot Quantity	Slot ID	Remarks
LPU	3	1 to 3	These slots hold LPUs.
MPU	2	4 to 5	These slots hold MPUs.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> 264 mm x 442 mm x 710 mm (10.39 in. x 17.4 in. x 27.95 in.)(chassis body) (6 U) DC: 264 mm x 442 mm x 758 mm (10.39 in. x 17.4

Item	Specification
	<p>in. x 29.84 in.)(including the chassis front and rear decorating parts and cable tray) (6 U)</p> <ul style="list-style-type: none"> AC: 264 mm x 442 mm x 770 mm (10.39 in. x 17.4 in. x 30.31 in.)(including the chassis front and rear decorating parts and cable tray) (6 U)
Weight (empty)	26 kg (57.33 lb)
Weight (full configuration)	<ul style="list-style-type: none"> DC:72.1 kg (158.98 lb) AC:74.7 kg (164.71 lb)
Cabinet installation standard	Can be installed in a 19-inch 800 mm-deep standard cabinet. The default cabinet is the Huawei 2.2 m-high N68E cabinet.
Typical power consumption	1120 W (fully configured with LPUF-200s)
Typical heat dissipation	3633.8 BTU/hour (fully configured with LPUF-200s)
DC input voltage	<ul style="list-style-type: none"> input voltage range: -38.4 to -72V input rated voltage: -48V/-60V
AC input voltage	<ul style="list-style-type: none"> input voltage range: 180V to 264V input rated voltage: 200V to 240V
MTBF	22.85 years
MTTR	0.5 hours
Availability	0.999997502
Slot quantity	5
Processing unit	<ul style="list-style-type: none"> Main Processing Unit D4: 2.0 GHz (quad-core) Main Processing Unit D4 (16G memory): 2.0 GHz (quad-core)
Flash	<ul style="list-style-type: none"> Main Processing Unit D4: 16 MB Main Processing Unit D4 (16G memory): 16 MB
SDRAM	<ul style="list-style-type: none"> Main Processing Unit D4: 8 GB x 1 Main Processing Unit D4 (16G memory): 8 GB x 2
Storage	<ul style="list-style-type: none"> Main Processing Unit D4: 8 GB Main Processing Unit D4 (16G memory): 8 GB
Redundant MPUs	1:1
Redundant Switch fabrics	None
Redundant fans	The device can work properly for a short time at 40 °C if a single fan fails.
Redundant power supply	1+1
Forwarding performance	900 Mpps (LPUF-200)

Item	Specification
Switching capacity	2.79 Tbps
Operating temperature	<ul style="list-style-type: none"> Long-term: 0 °C to 45 °C (32 °F to 113 °F) Short-term: -5 °C to 55 °C (23 °F to 131 °F) Remark: Restriction on the temperature variation rate: 30 °C/hour
Storage temperature	-40 °C to 70 °C (-40 °F to 158 °F)
Relative operating humidity	<ul style="list-style-type: none"> Long term: 5% to 85% RH, non-condensing Short term: 5% to 95% RH, non-condensing
Relative storage humidity	5% to 95% RH, non-condensing
Long-term operating altitude	≤ 4000 m (If the altitude is between 1800 m and 4000 m, the device operating temperature must decrease by 1 °C each time the altitude increases by 220 m.)
Storage altitude	Lower than 5000 m (16404 ft)

6.3 NE40E-X8

Overview

Table 6-5 Device attributes

Product Type	Description	BOM	Model	Earliest Software Version
NE40E-X8	NE40E-X8 Integrated Chassis Components (Including 4 DC Power)	02351930	CR5B0BKP0870	V800R006C200

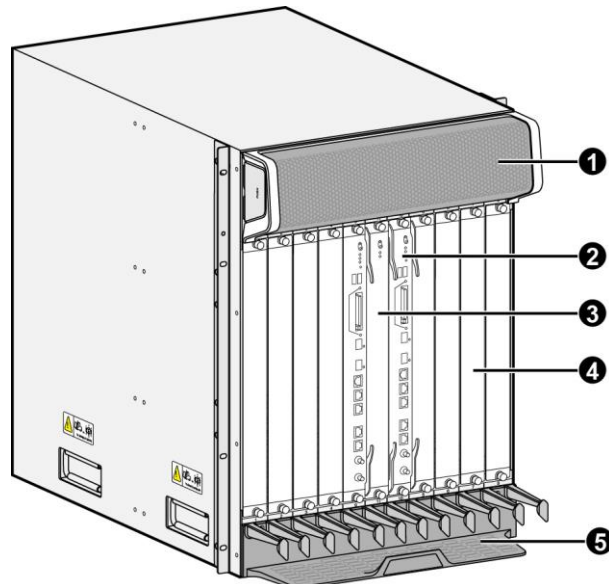
Appearance

Figure 6-10 Appearance



Components

Figure 6-11 Components (front view)



1. Air intake vent

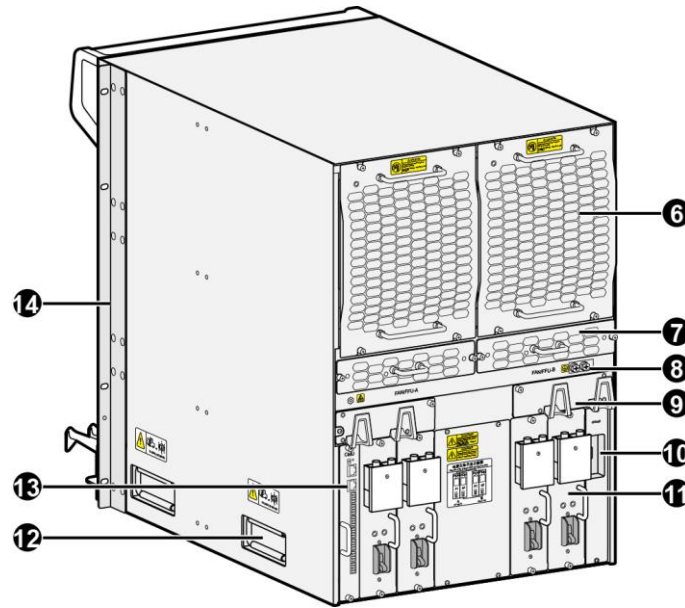
2. SRU

3. SFU

4. LPU

5. Cable tray

Figure 6-12 Components (rear view)



- 6. Fan
- 7. Filler Panel
- 8. Ground terminal
- 9. Rear cable trough
- 10. Power management interface
- 11. DC power module
- 12. Handle
- 13. Central monitoring module (Optional)
- 14. Mounting ear

Slot Layout

Figure 6-13 Slot layout

1	2	3	4	9	11	10	5	6	7	8
L	L	L	L	S	S	S	L	L	L	L
P	P	P	P	R	F	R	P	P	P	P
U	U	U	U	U	U	U	U	U	U	U
1	2	3	4	9	11	10	5	6	7	8

Table 6-6 Description of slot layout

Slot Name	Slot Quantity	Slot ID	Remarks
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Slot Name	Slot Quantity	Slot ID	Remarks
LPU	8	1 to 8	These slots hold LPUs.
SRU	2	9 to 10	These slots hold SRUs.
SFU	1	11	These slots hold SFUs.

Interface Numbering

An interface is numbered in the format of Slot number/card number/Port number

NOTE

Slot number: The slots of LPUs are numbered from 1 to 8. The slot number increases from left to right facing the front panel of the NE40E (there are corresponding marks on the panel).

Card number: The cards of LPUs are numbered from top to bottom and from right to left beginning with 0. If there is no card on a board, the card number is set to 0.

Port number: The ports of LPUs are numbered from left to right and from top to bottom beginning with 0.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> 620 mm x 442 mm x 650 mm (24.41 in. x 17.4 in. x 25.59 in.)(14 U) (chassis body) 620 mm x 442 mm x 770 mm (24.41 in. x 17.4 in. x 30.31 in.)(14 U) (including the chassis front and rear decorating parts and cable tray)
Weight (empty)	25.8 kg (56.89 lb) (56.90 lb)
Weight (full configuration)	136 kg (299.88 lb)
Cabinet installation standard	Can be installed in a 19-inch 800 mm-deep standard cabinet. The default cabinet is the Huawei 2.2 m-high N68E cabinet.
Typical power consumption	3220 W (fully configured with LPUF-240s)
Typical heat dissipation	10447 BTU/hour (fully configured with LPUF-240s)
DC input voltage	<ul style="list-style-type: none"> input voltage range: -38.4 to -72V input rated voltage: -48V/-60V
AC input voltage	<ul style="list-style-type: none"> input voltage range: 180V to 264V input rated voltage: 200V to 240V
MTBF	21.91 years
MTTR	0.5 hours

Item	Specification
Availability	0.999997395
Slot quantity	11
Processing unit	<ul style="list-style-type: none"> • SRU A5: 1.5 GHz (dual-core) • SRU B5: 2.0 GHz (quad-core) • SRU A7: 1.5 GHz (dual-core)
Flash	<ul style="list-style-type: none"> • SRU A5: 16 MB x 2 • SRU B5: 16 MB • SRU A7: 16 MB x 2
SDRAM	<ul style="list-style-type: none"> • SRU A5: 2 GB x 2 • SRU B5: 8 GB x 2 • SRU A7: 2 GB x 2
Storage	<ul style="list-style-type: none"> • SRU A5: 2 GB x 2 • SRU B5: 8 GB • SRU A7: 2 GB x 2
Redundant MPUs	1:1
Redundant Switch fabrics	2+1
Redundant fans	<ul style="list-style-type: none"> • Two fan assemblies • The device can work properly for a short time at 40 °C if a single fan assembly fails.
Redundant power supply	2+2
Forwarding performance	2880 Mpps (LPUF-240)
Switching capacity	7.08 Tbps (LPUF-240/LPUI-240)
Operating temperature	<ul style="list-style-type: none"> • Long-term: 0 °C to 45 °C (32 °F to 113 °F) • Short-term: -5 °C to 55 °C (23 °F to 131 °F) • Remark: Restriction on the temperature variation rate: 30 °C/hour
Storage temperature	-40 °C to 70 °C (-40 °F to 158 °F)
Relative operating humidity	<ul style="list-style-type: none"> • Long term: 5% to 85% RH, non-condensing • Short term: 5% to 95% RH, non-condensing
Relative storage humidity	5% to 95% RH, non-condensing
Long-term operating altitude	≤ 4000 m (If the altitude is between 1800 m and 4000 m, the device operating temperature must decrease by 1 °C each time the altitude increases by 220 m.)
Storage altitude	Lower than 5000 m (16404 ft)

6.4 NE40E-X8A

Overview

Table 6-7 Device attributes

Product Type	Description	BOM	Model	Earliest Software Version
NE40E-X8A DC	NE40E-X8A Integrated Chassis DC Components(Including 2 Fan Tray)	02350AFW	CR5B0BKP087 1	V800R006C20
NE40E-X8A AC	NE40E-X8A Integrated Chassis AC Components(Including 2 Fan Tray)	02350AFX	CR5B0BKP087 2	V800R006C20
NE40E-X8A HVDC	NE40E-X8A Integrated Chassis HVDC Components(Including 2 Fan Tray)	02351CCF	CR5B0BKP087 3	V800R009C10

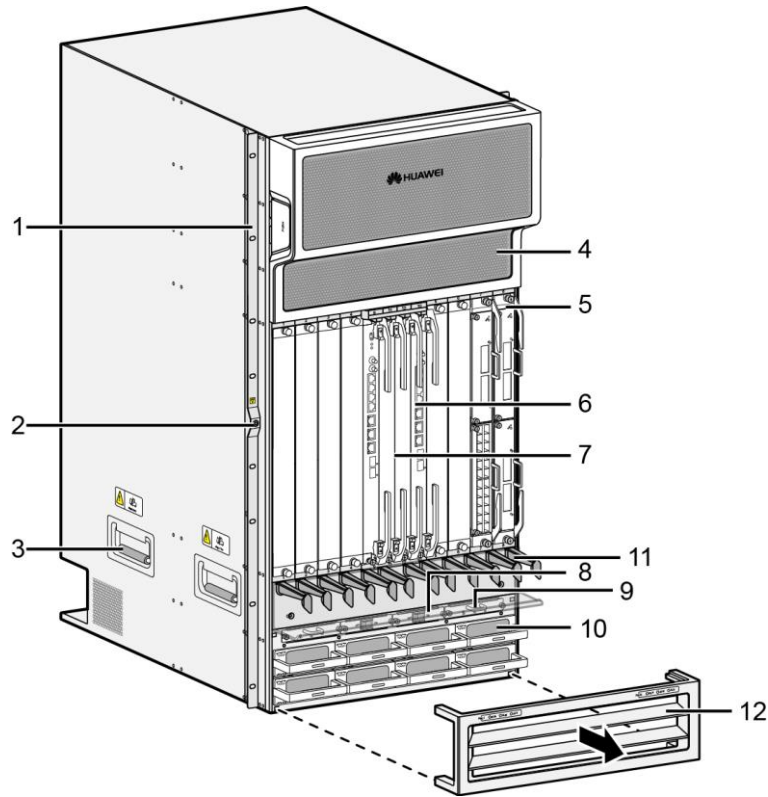
Appearance

Figure 6-14 Appearance



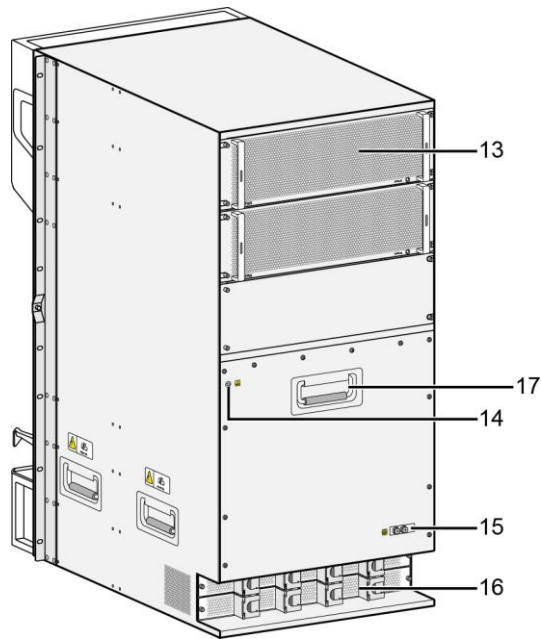
Components

Figure 6-15 Components (front view)



- | | | | |
|----------------------------------|-----------------------|-------------------|---------------------------------------|
| 1. Rack-mounting ear | 2. ESD jack | 3. Lifting handle | 4. Air intake frame (With air filter) |
| 5. LPU | 6. SRU | 7. SFU | 8. Switch module |
| 9. Power monitoring module (PMU) | 10. Power module (PM) | 11. Cabling tray | 12. Power module cover |

Figure 6-16 Components (rear view)



- 13. Fan module
- 14. ESD jack
- 15. Ground terminal
- 16. Power entry module (PEM)
- 17. Non-lifting handle

Slot Layout

Figure 6-17 Slot layout

1	2	3	4	9	11	12	10	5	6	7	8
L	L	L	L	S	S	S	S	L	L	L	L
P	P	P	P	R	R	R	R	P	P	P	P
U	U	U	U	U	U	U	U	U	U	U	U
1	2	3	4	9	11	12	10	5	6	7	8

Table 6-8 Description of slot layout

Slot Name	Slot Quantity	Slot ID	Remarks
LPU	8	1 to 8	These slots hold LPUs.
SRU	2	9 to 10	These slots hold SRUs.

Slot Name	Slot Quantity	Slot ID	Remarks
SFU	2	11 to 12	These slots hold SFUs.

Interface Numbering

An interface is numbered in the format of slot number/subcard number/port number.



NOTE

Slot number: The slots of LPUs are numbered from top to bottom and from left to right (marked on the panel), in the range of 1 to 8.

Subcard number: The subcards are numbered from top to bottom and from left to right, starting from 0. If an LPU does not have any subcard, the subcard number is 0.

Port number: The ports are numbered from top to bottom and from left to right, starting from 0.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> 930 mm x 442 mm x 650 mm (36.61 in. x 17.4 in. x 25.59 in.)(21U) (chassis body) 930 mm x 442 mm x 750 mm (36.61 in. x 17.4 in. x 29.53 in.)(21U) (including the chassis front and rear decorating parts and cable tray)
Weight (empty)	<ul style="list-style-type: none"> DC:68.1 kg (150.16 lb) (excluding the boards and filler panels) HVDC&AC:63.7 kg (140.46 lb) (excluding the boards and filler panels)
Weight (full configuration)	<ul style="list-style-type: none"> [400G bundle] DC:186.1 kg (410.35 lb) [400G bundle] HVDC&AC:184.3 kg (406.38 lb) [1T bundle] DC:209 kg (460.84 lb) [1T bundle] HVDC&AC:206.5 kg (455.33 lb)
Cabinet installation standard	Can be installed in a 19-inch 800 mm-deep standard cabinet. The default cabinet is the Huawei 2.2 m-high N68E cabinet.
Typical power consumption	<ul style="list-style-type: none"> 4110 W (fully configured with LPUF-240s) 4770 W (fully configured with LPUF-480s) 6520 W (fully configured with LPUI-1Ts)
Typical heat dissipation	<ul style="list-style-type: none"> 13334.6 BTU/hour (fully configured with LPUF-240s) 15475.9 BTU/hour (fully configured with LPUF-480s) 21153.6 BTU/hour (fully configured with LPUI-1Ts)

Item	Specification
DC input voltage	<ul style="list-style-type: none"> input voltage range: -38.4 to -72V input rated voltage: -48V/-60V
AC input voltage	<ul style="list-style-type: none"> input voltage range: 180V to 264V input rated voltage: 200V to 240V
MTBF	22.32 years
MTTR	0.5 hours
Availability	0.999997443
Slot quantity	12
Processing unit	<ul style="list-style-type: none"> Main Processing Unit A8: 2.0 GHz (quad-core) Main Processing Unit A8 (16G memory): 2.0 GHz (quad-core) Main Processing Unit A9: 2.0 GHz (quad-core) Main Processing Unit A9 (16G memory): 2.0 GHz (quad-core)
Flash	<ul style="list-style-type: none"> Main Processing Unit A8: 16 MB Main Processing Unit A8 (16G memory): 16 MB Main Processing Unit A9: 16 MB Main Processing Unit A9 (16G memory): 16 MB
SDRAM	<ul style="list-style-type: none"> Main Processing Unit A8: 8 GB x 1 Main Processing Unit A8 (16G memory): 8 GB x 2 Main Processing Unit A9: 8 GB x 1 Main Processing Unit A9 (16G memory): 8 GB x 2
Storage	<ul style="list-style-type: none"> Main Processing Unit A8: 8 GB Main Processing Unit A8 (16G memory): 8 GB Main Processing Unit A9: 8 GB Main Processing Unit A9 (16G memory): 8 GB
Redundant MPUs	1:1
Redundant Switch fabrics	3+1
Redundant fans	<ul style="list-style-type: none"> [400G bundle] Two fan assemblies. The device can work properly for a short time at 40 °C if a single fan assembly fails. [1T bundle] Three fan assemblies. The device can work properly for a short time at 40 °C if a single fan assembly fails.
Redundant power supply	<ul style="list-style-type: none"> [400G bundle] DC: 3+1 [400G bundle] HVDC&AC: 3+3 [1T bundle] DC: 5+1

Item	Specification
	<ul style="list-style-type: none"> [1T bundle] HVDC&AC: 4+4
Forwarding performance	2880 Mpps (LPUF-240)
Switching capacity	25.16 Tbps (LPUI-1T)
Operating temperature	<ul style="list-style-type: none"> Long-term: 0 °C to 45 °C (32 °F to 113 °F) Short-term: -5 °C to 55 °C (23 °F to 131 °F) Remark: Restriction on the temperature variation rate: 30 °C/hour
Storage temperature	-40 °C to 70 °C (-40 °F to 158 °F)
Relative operating humidity	<ul style="list-style-type: none"> Long term: 5% to 85% RH, non-condensing Short term: 5% to 95% RH, non-condensing
Relative storage humidity	5% to 95% RH, non-condensing
Long-term operating altitude	≤ 4000 m (If the altitude is between 1800 m and 4000 m, the device operating temperature must decrease by 1 °C each time the altitude increases by 220 m.)
Storage altitude	Lower than 5000 m (16404 ft)

6.5 NE40E-X16

Overview

Table 6-9 Device attributes

Product Type	Description	BOM	Model	Earliest Software Version
NE40E-X16	NE40E-X16 Integrated Chassis Components (Including 8 DC Power)	02351931	CR5B0BKP1670	V800R006C20

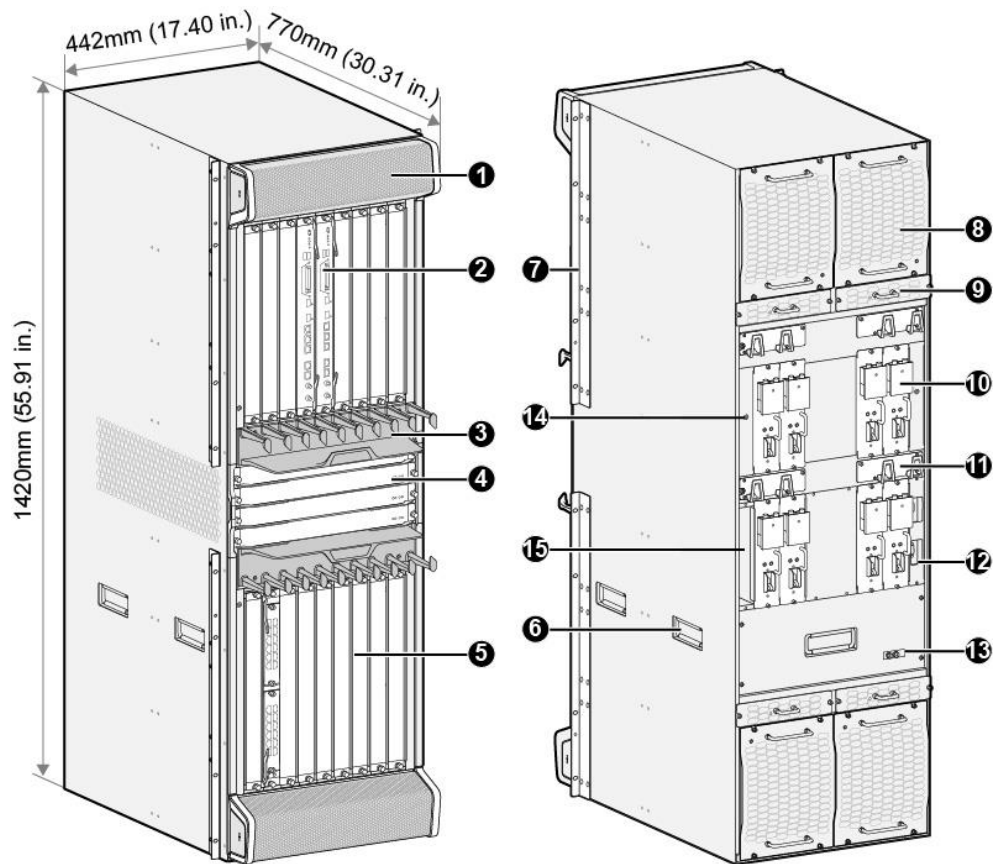
Appearance

Figure 6-18 Appearance



Components

Figure 6-19 Components



1. Air intake frame

2. MPU

3. Front cable trough

4. SFU

5. LPU

6. Handle

7. Mounting ear

8. Fan module

9. Filler Panel

10. Power entry module (PEM)

NOTE

A DC PEM is used as an example here.

11. Rear cable trough

12. Power management interface

13. Ground terminal

14. ESD jack (rear)

15. Central monitoring module (Optional)

Slot Layout

Figure 6-20 Slot layout

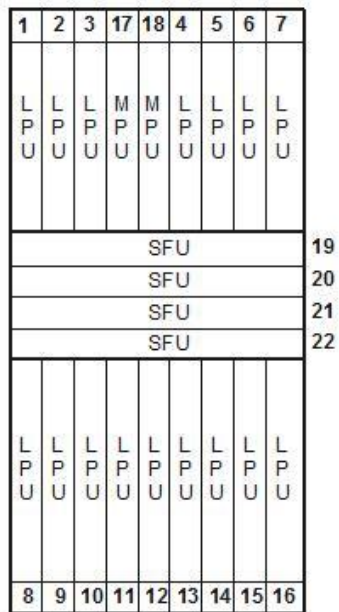


Table 6-10 Description of slot layout

Slot Name	Slot Quantity	Slot ID	Remarks
LPU	16	1 to 16	These slots hold LPUs.
MPU	2	17 to 18	These slots hold MPUs.
SFU	4	19 to 22	These slots hold SFUs.

Interface Numbering

An interface is numbered in the format of slot number/card number/port number

 **NOTE**

Slot number: The slots of LPUs are numbered from 1 to 16. The slot number increases from left to right and from top to bottom, facing the front panel of the NE40E (there are corresponding marks on the panel).

Card number:

- Upper chassis
- The cards of LPUs are numbered from top to bottom and from right to left beginning with 0. If there is no card on a board, the card number is set to 0.
- Lower chassis

- The cards of LPUs are numbered from bottom to top and from left to right beginning with 0. If there is no card on a board, the card number is set to 0.

Port number:

- Upper chassis
- The ports of LPUs are numbered from left to right and from top to bottom beginning with 0.
- Lower chassis
- The ports of LPUs are numbered from right to left and from bottom to top beginning with 0.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> • 1420 mm x 442 mm x 650 mm (55.91 in. x 17.4 in. x 25.59 in.)(32 U) (chassis body) • 1420 mm x 442 mm x 770 mm (55.91 in. x 17.4 in. x 30.31 in.)(32 U) (including the chassis front and rear decorating parts and cable tray)
Weight (empty)	69.6 kg (153.47 lb) (excluding the boards and filler panels)
Weight (full configuration)	279 kg (615.2 lb)
Cabinet installation standard	Can be installed in a 19-inch 800 mm-deep standard cabinet. The default cabinet is the Huawei 2.2 m-high N68E cabinet.
Typical power consumption	6210 W (fully configured with LPUF-240s)
Typical heat dissipation	20147.9 BTU/hour (fully configured with LPUF-240s)
DC input voltage	<ul style="list-style-type: none"> • input voltage range: -38.4 to -72V • input rated voltage: -48V/-60V
AC input voltage	<ul style="list-style-type: none"> • input voltage range: 180V to 264V • input rated voltage: 200V to 240V
MTBF	21.66 years
MTTR	0.5 hours
Availability	0.999997365
Slot quantity	22
Processing unit	<ul style="list-style-type: none"> • Main Processing Unit B4: 1.5 GHz (dual-core) • Main Processing Unit B5: 2.0 GHz (quad-core) • Main Processing Unit B5 (16G memory): 2.0 GHz (quad-core)
Flash	<ul style="list-style-type: none"> • Main Processing Unit B4: 16 MB x 2 • Main Processing Unit B5: 16 MB • Main Processing Unit B5 (16G memory): 16 MB
SDRAM	<ul style="list-style-type: none"> • Main Processing Unit B4: 2 GB x 2

Item	Specification
	<ul style="list-style-type: none"> Main Processing Unit B5: 8 GB x 1 Main Processing Unit B5 (16G memory): 8 GB x 2
Storage	<ul style="list-style-type: none"> Main Processing Unit B4: 2 GB x 2 Main Processing Unit B5: 8 GB Main Processing Unit B5 (16G memory): 8 GB
Redundant MPUs	1:1
Redundant Switch fabrics	3+1
Redundant fans	<ul style="list-style-type: none"> Two fan partition. Two fan assemblies/partition. The device can work properly for a short time at 40 °C if a single fan assembly fails.
Redundant power supply	4+4
Forwarding performance	5760 Mpps (LPUF-240)
Switching capacity	12.58 Tbps (LPUF-240/LPUI-240)
Operating temperature	<ul style="list-style-type: none"> Long-term: 0 °C to 45 °C (32 °F to 113 °F) Short-term: -5 °C to 55 °C (23 °F to 131 °F) Remark: Restriction on the temperature variation rate: 30 °C/hour
Storage temperature	-40 °C to 70 °C (-40 °F to 158 °F)
Relative operating humidity	<ul style="list-style-type: none"> Long term: 5% to 85% RH, non-condensing Short term: 5% to 95% RH, non-condensing
Relative storage humidity	5% to 95% RH, non-condensing
Long-term operating altitude	≤ 4000 m (If the altitude is between 1800 m and 4000 m, the device operating temperature must decrease by 1 °C each time the altitude increases by 220 m.)
Storage altitude	Lower than 5000 m (16404 ft)

6.6 NE40E-X16A

Overview

Table 6-11 Device attributes

Product Type	Description	BOM	Model	Earliest Software Version

Product Type	Description	BOM	Model	Earliest Software Version
NE40E-X16A DC	NE40E-X16A Integrated DC Chassis Components(Including 4 Fan Tray)	02359914	CR5B0BKP167 3	V800R006C20
NE40E-X16A AC	NE40E-X16A Integrated AC Chassis Components(Including 4 Fan Tray)	02359915	CR5B0BKP167 4	V800R006C20
NE40E-X16A HVDC	NE40E-X16A Integrated HVDC Chassis Components(Including 4 Fan Tray)	02351CBD	CR5B0BKP167 5	V800R009C10

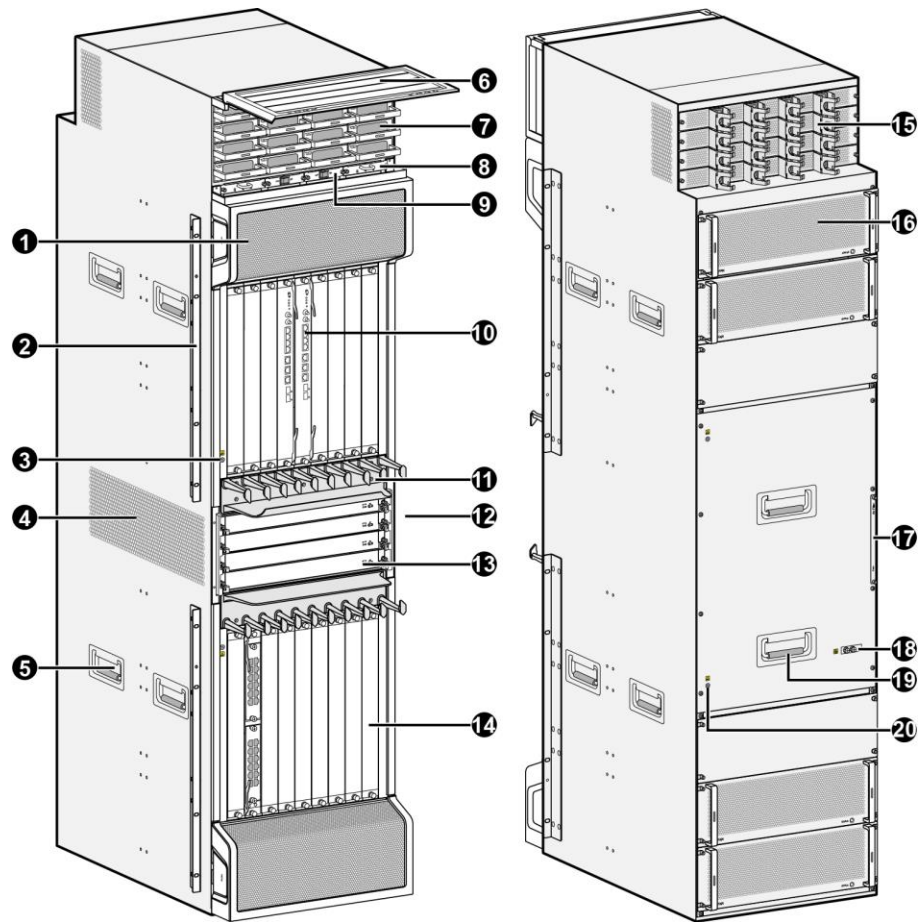
Appearance

Figure 6-21 Appearance



Components

Figure 6-22 Components



1. Air intake frame (Air Filter)	2. Mounting ear	3. ESD jack (front)	4. Air intake vent in the SFU area	5. Handle
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6. Power module cover	7. Power module (PM)	8. Power monitoring module (PMU)	9. Switch module	10. MPU
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11. Cable tray	12. Cable guide for switch and fabric units (SFUs)	13. SFU	14. LPU
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15. Power entry module (PEM)

NOTE

An AC PEM is used as an example here. The DC PEM is also supported.

16. Fan Module	17. Air filter	18. Ground terminal	19. Non-lifting handle	20. ESD jack (rear)
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Slot Layout

Figure 6-23 Slot layout

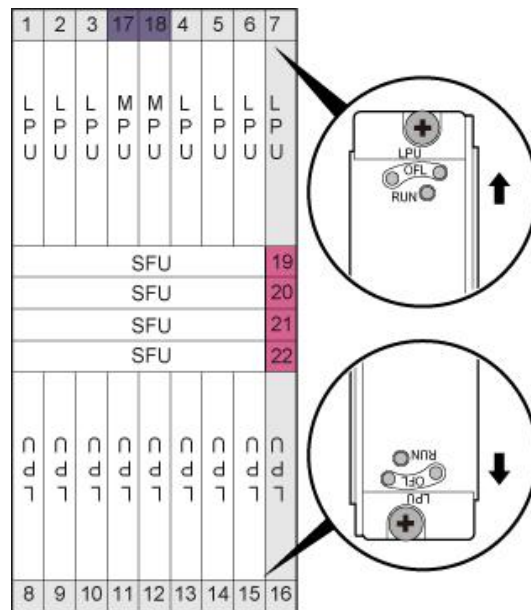


Table 6-12 Description of slot layout

Slot Name	Slot Quantity	Slot ID	Remarks
LPU	16	1 to 16	These slots hold LPUs.
MPU	2	17 to 18	These slots hold MPUs.
SFU	4	19 to 22	These slots hold SFUs.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	<ul style="list-style-type: none"> 1778 mm x 442 mm x 650 mm (70 in. x 17.4 in. x 25.59 in.)(40 U) (chassis body) 1778 mm x 442 mm x 750 mm (70 in. x 17.4 in. x 29.53 in.)(40 U) (including the chassis front and rear decorating parts and cable tray)
Weight (empty)	<ul style="list-style-type: none"> DC:120.5 kg (265.7 lb) (excluding the boards and filler panels) HVDC&AC:111.7 kg (246.3 lb) (excluding the boards and filler panels)

Item	Specification
Weight (full configuration)	<ul style="list-style-type: none"> [400G bundle] DC:356 kg (784.98 lb) [400G bundle] HVDC&AC:350.7 kg (773.29 lb) [1T bundle] DC:399.4 kg (880.68 lb) [1T bundle] HVDC&AC:395.1 kg (871.2 lb)
Cabinet installation standard	Can be installed in a 19-inch 800 mm-deep standard cabinet. The default cabinet is the Huawei 2.2 m-high N68E cabinet.
Typical power consumption	<ul style="list-style-type: none"> 7720 W (fully configured with LPUF-240s) 9040 W (fully configured with LPUF-480s) 12390 W (fully configured with LPUI-1Ts)
Typical heat dissipation	<ul style="list-style-type: none"> 25046.9 BTU/hour (fully configured with LPUF-240s) 29329.6 BTU/hour (fully configured with LPUF-480s) 40198.4 BTU/hour (fully configured with LPUI-1Ts)
DC input voltage	<ul style="list-style-type: none"> input voltage range: -38.4 to -72V input rated voltage: -48V/-60V
AC input voltage	<ul style="list-style-type: none"> input voltage range: 180V to 264V input rated voltage: 200V to 240V
MTBF	22.33 years
MTTR	0.5 hours
Availability	0.9999974444
Slot quantity	22
Processing unit	<ul style="list-style-type: none"> Main Processing Unit B5: 2.0 GHz (quad-core) Main Processing Unit B5 (16G memory): 2.0 GHz (quad-core)
Flash	<ul style="list-style-type: none"> Main Processing Unit B5: 16 MB Main Processing Unit B5 (16G memory): 16 MB
SDRAM	<ul style="list-style-type: none"> Main Processing Unit B5: 8 GB x 1 Main Processing Unit B5 (16G memory): 8 GB x 2
Storage	<ul style="list-style-type: none"> Main Processing Unit B5: 8 GB Main Processing Unit B5 (16G memory): 8 GB
Redundant MPUs	1:1
Redundant Switch fabrics	3+1
Redundant fans	<ul style="list-style-type: none"> [400G bundle] Two fan partition, two fan assemblies/partition. The device can work properly

Item	Specification
	for a short time at 40 °C if a single fan assembly fails. <ul style="list-style-type: none"> • [1T bundle] Two fan partition, three fan assemblies/partition. The device can work properly for a short time at 40 °C if a single fan assembly fails.
Redundant power supply	<ul style="list-style-type: none"> • [400G bundle] DC: 6+1 • [400G bundle] HVDC&AC: 5+5 • [1T bundle] DC: 9+1 • [1T bundle] HVDC&AC: 7+7
Forwarding performance	5760 Mpps (LPUF-240)
Switching capacity	50.32 Tbps (LPUI-1T)
Operating temperature	<ul style="list-style-type: none"> • Long-term: 0 °C to 45 °C (32 °F to 113 °F) • Short-term: -5 °C to 55 °C (23 °F to 131 °F) • Remark: Restriction on the temperature variation rate: 30 °C/hour
Storage temperature	-40 °C to 70 °C (-40 °F to 158 °F)
Relative operating humidity	<ul style="list-style-type: none"> • Long term: 5% to 85% RH, non-condensing • Short term: 5% to 95% RH, non-condensing
Relative storage humidity	5% to 95% RH, non-condensing
Long-term operating altitude	≤ 4000 m (If the altitude is between 1800 m and 4000 m, the device operating temperature must decrease by 1 °C each time the altitude increases by 220 m.)
Storage altitude	Lower than 5000 m (16404 ft)

7 Power

About This Chapter

- 7.1 NE40E-X3 Power Supply System
- 7.2 NE40E-X3A Power Supply System
- 7.3 NE40E-X8 Power Supply System
- 7.4 NE40E-X8A Power Supply System
- 7.5 NE40E-X16 Power Supply System
- 7.6 NE40E-X16A Power Supply System

7.1 NE40E-X3 Power Supply System

7.1.1 Architecture of the Power Supply System

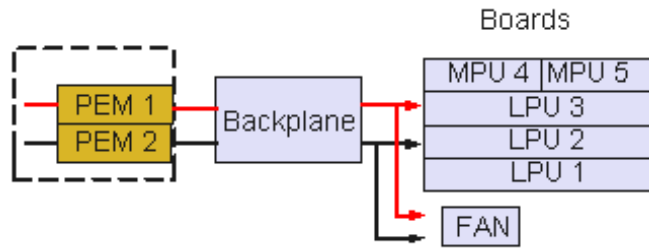
The NE40E-X3 supports either DC or AC power supply.

Power modules convert the input voltage into -48 V DC voltage to supply power for the entire system. The power supply system has the following features:

- The power supply system consists of two AC power modules or two DC power modules working in 1+1 backup mode.
- Both AC power modules and DC power modules support alarm functions. DC power modules support I²C communications and AC power modules support RS485 communications.

Two AC power modules or two DC power modules work in 1+1 backup mode to improve the reliability of power supply. Figure 7-1 shows the power supply system.

Figure 7-1 Diagram of the DC power supply system



7.1.2 PEM

The PEM is a 48V DC power entry module.

Overview

Table 7-1 Power attributes

Attribute	Description
Description	48V DC Power Entry Module
BOM	02120529
Model	CR52-PEMA

Table 7-2 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00

Appearance



Panel

Table 7-3 Indicators

Indicator	Color	Description
RUN	Green	Indicates normal power output. If the indicator is steady on,

Indicator	Color	Description
		the power output is normal.
ALM	Red	Power failure indicator. If the indicator is steady on, it indicates the following: <ul style="list-style-type: none"> The lightning protection link of the power module failed. The power modules do not have input power.

Function

The PEM of the has one straight-through power input that provides the following functions:

- Surge protection, filtering, and short circuit protection
- Alarm function

Technical Specifications

Item	Specification
Dimensions (H x W x D)	60 mm x 220 mm x 90 mm(2.36 in. x 8.66 in. x 3.54 in.)
Weight	0.7 kg (1.54 lb)
Rated voltage	-48 V DC / -60 V DC
Voltage range	-38.4 V DC to -72 V DC
Maximum current	42 A
Typical power consumption	1.0 W
Typical heat dissipation	3.2 BTU/hour

7.1.3 AC Power Box

The AC power box converts AC power into regulated DC.

Overview

Table 7-4 Power attributes

Attribute	Description
Description	Box Module,AC power,548.9mm*217.6mm*41.2mm,sheet metal
BOM	02310MKG
Model	CR5MPWRBX070

Table 7-5 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00



Appearance


Figure 7-2 Appearance of the AC power box



Panel

Table 7-6 Indicators

Indicator	Color	Status	Description	Measures
Power indicator 	Green	Steady on	The rectifier is supplied with alternating current (AC) input power.	The rectifier runs properly, and no measure is required.
		Off	The rectifier is not supplied with AC input power.	Replace the rectifier if the AC input is normal.
			The rectifier is faulty.	Replace the rectifier.
		Blinking at 0.5 Hz	The rectifier is being queried.	No measure is required.
Alarm indicator 	Yellow	Off	No alarm is generated.	The rectifier runs properly, and no measure is required.
		Steady on	The rectifier generates a prewarning for power limiting due to overtemperature. The rectifier generates an alarm for shutdown	Check that the air vent is not blocked and the ambient temperature is within a normal range.

Indicator	Color	Status	Description	Measures
			due to ambient overtemperature or undertemperature protection.	
			The rectifier generates an alarm due to AC input overvoltage or undervoltage protection.	Check that the electrical grid voltage is within a normal range.
			The rectifier is hibernated.	No measure is required.
				Blinking at 0.5 Hz
Fault indicator 	Red	Off	The rectifier is not faulty.	No measure is required.
		Steady on	The rectifier is locked due to output overvoltage.	Pull out the rectifier and reinsert it after 1 minute.
			There is no output because the rectifier is faulty.	Replace the rectifier.

Function

The AC power box provides the following functions:

- Protection against overvoltage of input power
- Protection against undervoltage of input power
- Protection against overvoltage of output power
- Protection against current-limiting of output power
- Protection against short circuit
- Protection against overtemperature

Technical Specifications

Item	Specification
Dimensions (H x W x D)	AC power box: 41.2 mm x 217.6 mm x 548.9 mm (1.62 in. x 8.57 in. x 21.61 in.) Power module: 40.8 mm x 105 mm x 281 mm (1.61 in. x 4.13 in. x 11.06 in.)
Weight	AC power box: 3.8 kg (8.38 lb)

Item	Specification
	Power module: 1.8 kg (3.97 lb)
Rated voltage	200 V AC to 240 V AC
Voltage range	180 V AC to 264 V AC
Maximum current	16 A
Typical power consumption	AC power box: 1.0 W AC power box: 128.8 W
Typical heat dissipation	AC power box: 3.2 BTU/hour AC power box: 417.9 BTU/hour



NOTE

The AC power system supports 200-240 V AC power. It supports 110 V dual-live-wire inputs but not 110 V AC single-phase inputs. If 110 V dual-live-wire inputs are used, the voltage must range from 180 V to 264 V.

7.2 NE40E-X3A Power Supply System

7.2.1 Architecture of the Power Supply System

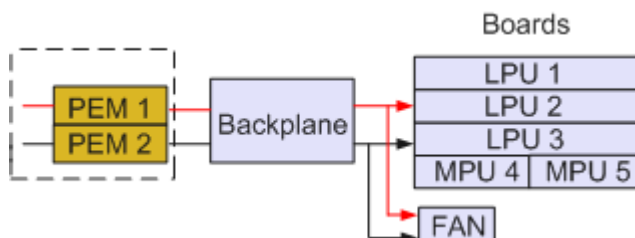
The NE40E-X3A supports either DC or AC power supply.

Power modules convert the input voltage into -48 V DC voltage to supply power for the entire system. The power supply system has the following features:

- The power supply system consists of two AC power modules or two DC power modules working in 1+1 backup mode.
- Both AC power modules and DC power modules support alarm functions. Both DC power modules and AC power modules support IIC communications.

Two AC power modules or two DC power modules work in 1+1 backup mode to improve the reliability of power supply. Figure 7-3 shows the diagram of the power supply system.

Figure 7-3 Diagram of the power supply system



7.2.2 PEM

The PEM is a 48V DC power entry module.

Overview

Table 7-7 Power attributes

Attribute	Description
Description	48V DC Power Entry Module
BOM	02121615
Model	CR5B0PWRDC71

Table 7-8 Mapping products and versions

Product	Earliest Software Version
NE40E-X3A	V800R007C00

Appearance



Panel

Table 7-9 Indicators

Indicator	Color	Description
RUN	Green	It indicates the running status. If it is steady on, it indicates that the power module is running normally.
ALM	Red	It indicates power failure. If it is steady on: <ul style="list-style-type: none"> Lightning-proof circuits on the power module become faulty. The power modules are off. The power modules does not have input power.
REVERSE	Red	It indicates the status of power cables. If it is steady on, it indicates that the power cables are reversed.

Function

The PEM has one straight-through power input that provides the following functions:

- Surge protection, filtering, and short circuit protection

- Alarm function

Technical Specifications

Item	Specification
Dimensions (H x W x D)	43 mm x 424.3 mm x 80 mm (1.69 in. x 16.70 in. x 3.15 in.)
Weight	1.2 kg (2.65 lb)
Rated voltage	-48 V DC / -60 V DC
Voltage range	-40 V DC to -72 V DC
Maximum current	63 A
Typical power consumption	1.0 W
Typical heat dissipation	3.2 BTU/hour

7.2.3 AC Power Supply module

The AC power supply module converts AC power into regulated DC.

Overview

Table 7-10 Power attributes

Attribute	Description
Description	3000W AC&HVDC Power Module
BOM	02131177
Model	CR5B0PWRAC71

Table 7-11 Mapping products and versions

Product	Earliest Software Version
NE40E-X3A	V800R007C00

Appearance

Figure 7-4 Appearance of the AC power supply module



Panel

Table 7-12 Indicators

Indicator	Color	Normal Status	Abnormal Status	Cause of the Abnormality
Input	Green	On	Blinking	<ul style="list-style-type: none"> Input power outage protection
			Off	<ul style="list-style-type: none"> Input undervoltage protection Input overvoltage protection
Output	Green	On	Off	<ul style="list-style-type: none"> Input undervoltage protection Input power outage protection Input overvoltage protection Overtemperature protection Output overvoltage protection Fan failure Output overcurrent protection or short-circuit Software loading on the power module

Indicator	Color	Normal Status	Abnormal Status	Cause of the Abnormality
Alarm	Red	Off	On	<ul style="list-style-type: none"> • Fan failure • Overtemperature protection • Output overvoltage protection • Output overcurrent protection or short-circuit • Severe uneven current on the power module

Technical Specifications

Item	Specification
Dimensions (H x W x D)	43 mm x 424.3 mm x 80 mm (1.69 in. x 16.70 in. x 3.15 in.)
Weight	2.5 kg (5.51 lb)
Rated voltage	200 V AC to 240 V AC
Voltage range	180 V AC to 264 V AC
Maximum current	16 A
Typical power consumption	67.9 W
Typical heat dissipation	220.2 BTU/hour



NOTE

The AC power system supports 200-240 V AC power. It supports 110 V dual-live-wire inputs but not 110 V AC single-phase inputs. If 110 V dual-live-wire inputs are used, the voltage must range from 180 V to 264 V.

7.3 NE40E-X8 Power Supply System

7.3.1 Architecture of the Power Supply System

The NE40E-X8 supports either DC or AC power supply.

DC power supply

In the case of a DC power supply system, four 70 A Power Entry Modules (PEMs) are inserted at the rear of the chassis, working in 2+2 backup mode. Two -48 V power inputs are joined on the board. Figure 7-5 shows details of the DC power supply system.

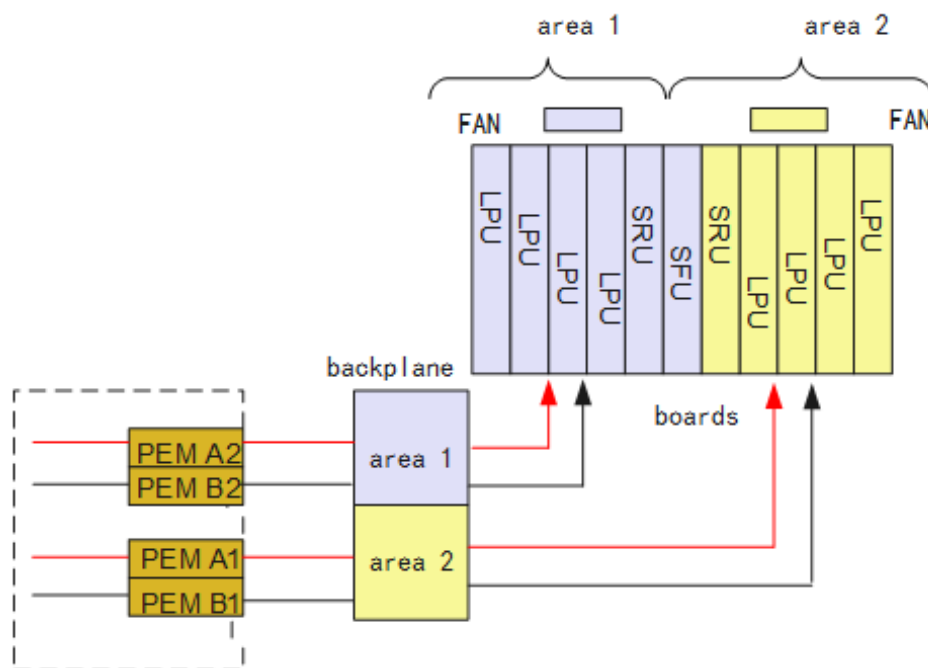


NOTE

In Figure 7-5, each DC power input contains one -48 V power input and one RTN input. Two separated RTN inputs are joined on the board.

PEM A1 and PEM B1 work in 1+1 backup mode, PEM A2 and PEM B2 work in 1+1 backup mode.

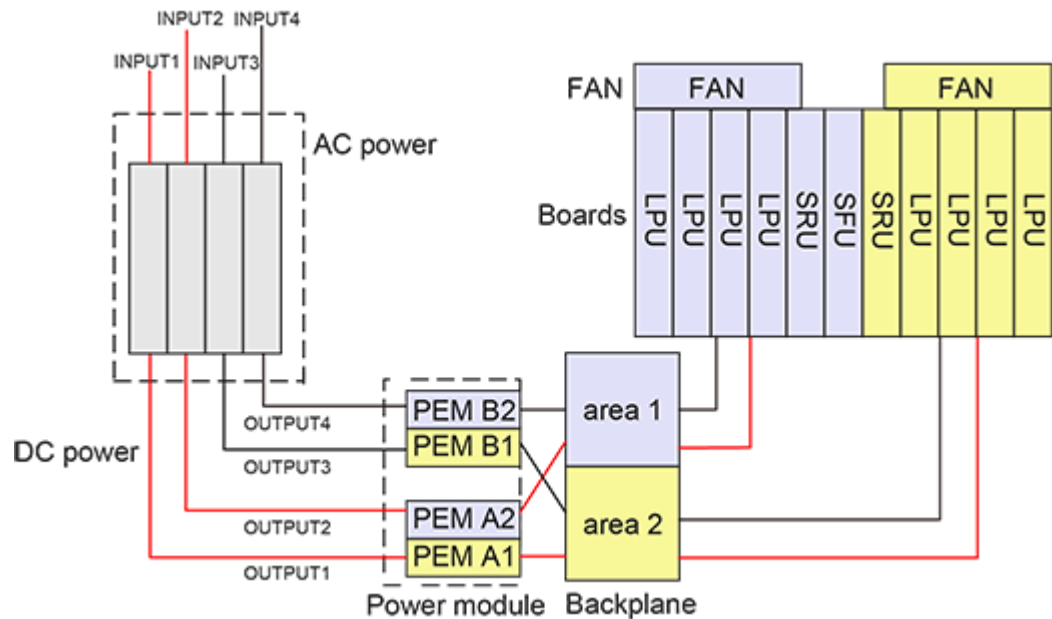
Figure 7-5 Architecture of the NE40E-X8 DC power supply system



AC power supply

In the case of an AC power supply system, an AC power frame is placed outside the chassis and installed with rectifier modules based on system power. The AC power frame is then connected to the input terminals on the DC-PEMs to supply power for the system. (In short, an external AC power frame is added to the DC power supply system to constitute an AC power supply system.) Figure 7-6 shows the AC power supply system of the NE40E-X8.

Figure 7-6 Architecture of the NE40E-X8 AC power supply system



Installing the AC power module in the same cabinet as the chassis is recommended. If the AC power module cannot be installed in the same cabinet as the chassis, place it near the cabinet and ensure correct cabling. Each power module provides four circuit breakers and four AC power inputs.

7.3.2 70A PEM

The PEM is a 48V DC power entry module.

Overview

Table 7-13 Power attributes

Attribute	Description
Description	48V DC Power Entry Module
BOM	02120560
Model	CR5M000PEM60

Table 7-14 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20

Appearance



Panel

Table 7-15 Indicators

Indicator	Color	Description
RUN	Green	Indicates normal power output. If the indicator is steady on, the power output is normal.
ALM	Red	Power failure indicator. If the indicator is steady on, it indicates the following: <ul style="list-style-type: none"> The lightning protection link of the power module failed. The power modules do not have input power.

Table 7-16 Interfaces

Interface Name	Description
NEG(-)	-48 V power input interface
RTN(+)	BGND power input interface

Table 7-17 Switches

Switch Name	Description
ON OFF	Rated current of the air-break: 60A. Used to control AC power input.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	220 mm x 105 mm x 58 mm(8.66 in x 4.13 in x 2.83 in)
Weight	1.1 kg(2.43 lb)
Rated voltage	-48 V/-60 V
Voltage range	-38.4 VDC to -72 VDC
Maximum current	70 A
Typical power consumption	1.0 W
Typical heat dissipation	3.2 BTU/hour

7.3.3 EPS200-4850A

AC power input is converted into regulated DC power by an AC/DC converter.

Overview

Table 7-18 Power attributes

Attribute	Description
Description	Power Distribution Cabinet,220V,50/60HZ,72000mA,EPS200-4850A
BOM	02400376
Model	CR5B0PWRBX60

Table 7-19 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20

Appearance

Figure 7-7 Appearance of the EPS200-4850A



Panel

Table 7-20 Indicators

Indicator	Color	Normal Status	Abnormal Status	Reason
Operation indicator	Green	On	Off	Mains is faulty (no AC input, or overvoltage/undervoltage of the AC input), or the power module does not have AC output.
Protection indicator	Yellow	Off	On	A temperature alarm is generated. (If the temperature exceeds 65 °C [149 °F], the device will be powered off due to overtemperature.) The device is in the dormant state (only the indicator is On and no alarm is generated).

Indicator	Color	Normal Status	Abnormal Status	Reason
Fault indicator	Red	Off	On	The device is powered off due to over-output-voltage or overtemperature, or fans are faulty, or the power module does not output power due to an internal fault.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	Power distribution cabinet: 86.1 mm x 442 mm x 580 mm (3.39 in. x 17.40 in. x 22.83 in.) Power module: 89 mm x 103 mm x 243 mm (3.50 in. x 4.06 in x 9.57 in.)
Weight	EPS200-4850A: 10 kg (22.1 lb) Power module: 2.8 kg (6.17 lb)
Number of AC power input channels	4
Rated AC input voltage	200 V AC to 240 V AC
AC input voltage range	180 V AC to 264 V AC
Maximum AC input current	16 A
Number of DC output channels	4
DC output voltage	53.5 VDC
Maximum DC output current	55 A/module
Typical power consumption	138 W/module
Typical heat dissipation	447.7 BTU/hour



NOTE

The AC power system supports 200-240 V AC power. It supports 110 V dual-live-wire inputs but not 110 V AC single-phase inputs. If 110 V dual-live-wire inputs are used, the voltage must range from 180 V to 264 V.

7.3.4 EPS200-4850B

AC power input is converted into regulated DC power by an AC/DC converter.

Overview

Table 7-21 Power attributes

Attribute	Description
Description	Embedded Power, EPS200, 220Vac Single-Phase, 200A, Back Cabling, Width 19inch, Height 2U
BOM	02400739
Model	CR5B0PWRBX62

Table 7-22 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00

Appearance

Figure 7-8 Appearance of the EPS200-4850B



Panel

Table 7-23 Indicators

Indicator	Color	Normal Status	Abnormal Status	Reason
Operation indicator	Green	On	Off	Mains is faulty (no AC input, or

Indicator	Color	Normal Status	Abnormal Status	Reason
				overvoltage/undervoltage of the AC input), or the power module does not have AC output.
Protection indicator	Yellow	Off	On	A temperature alarm is generated. (If the temperature exceeds 65 °C [149 °F], the device will be powered off due to overtemperature.) The device is in the dormant state (only the indicator is On and no alarm is generated).
Fault indicator	Red	Off	On	The device is powered off due to over-output-voltage or overtemperature, or fans are faulty, or the power module does not output power due to an internal fault.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	Power distribution cabinet: 86.1 mm x 442 mm x 580 mm (3.39 in. x 17.40 in. x 22.83 in.) Power module: 89 mm x 103 mm x 243 mm (3.50 in. x 4.06 in. x 9.57 in.)
Weight	Power distribution cabinet: 10 kg (22.1 lb) Power module: 2.8 kg (6.17 lb)

Item	Specification
Number of AC power input channels	4
Rated AC input voltage	200 V AC to 240 V AC
AC input voltage range	180 V AC to 264 V AC
Maximum AC input current	16 A
Number of DC output channels	4
DC output voltage	53.5 VDC
Maximum DC output current	55 A/module
Typical power consumption	138 W/module
Typical heat dissipation	447.7 BTU/hour



NOTE

The AC power system supports 200-240 V AC power. It supports 110 V dual-live-wire inputs but not 110 V AC single-phase inputs. If 110 V dual-live-wire inputs are used, the voltage must range from 180 V to 264 V.

7.4 NE40E-X8A Power Supply System

7.4.1 Architecture of the Power Supply System

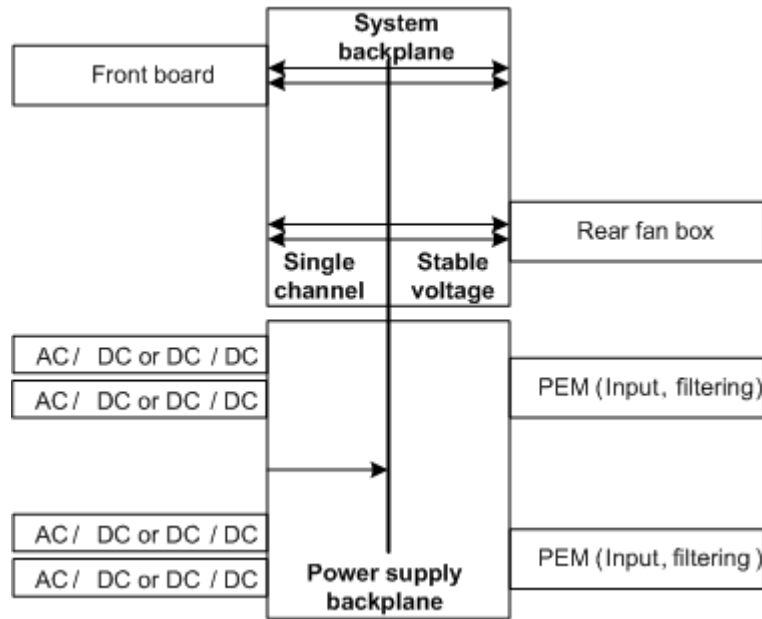
The NE40E-X8A supports both DC and AC power supply systems.

The power supply system has the following features:

- The DC power supply system consists of maximum 8 DC-DC PMs and 2 PEMs.
- The AC power supply system consists of maximum 8 AC-DC PMs and 2 PEMs.
- The HVDC power supply system consists of maximum 8 HVDC-DC PMs and 2 PEMs.
- Enables flexible configuration and provides dynamic management and voltage and current detection functions.
- Providing alarm functions for power modules and supporting CAN communications.

As shown in Figure 7-9, the NE40E-X8A has a non-partitioned backplane and uses a single plane to provide power.

Figure 7-9 Schematic diagram of the power supply for the NE40E-X8A

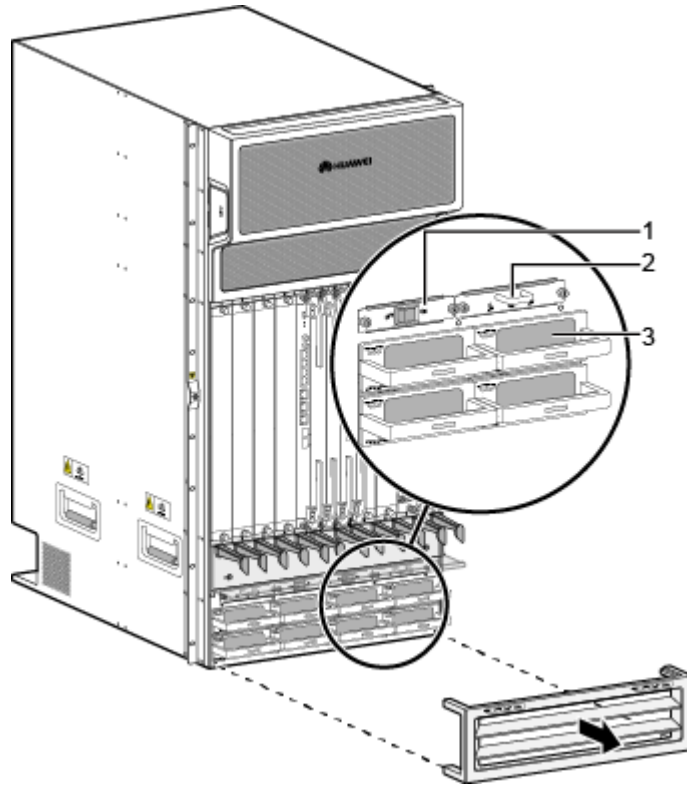


DC power supply

The NE40E-X8A uses non-partitioned power supply, which consists of PEMs, PMs, PMUs, and switches. In the DC power distribution mode, the DC PEM and DC PM are used. The PM smoothens the current and stabilizes the voltage before providing power for the device.

There are two power supply switches on a device. When one or two switches are on, the device powers on. When two switches are off, the device powers off. To ensure power supply for a running device, ensure that two switches are on, if there is a power supply switch is off, it will be generated an alarm in PM.

Figure 7-10 Main components of the DC power supply system



1. Switch
2. PMU
3. DC PM
4. DC PEM

You can configure PMs based on the board power consumption on the NE40E-X8A. PMs work in N+1 backup mode. The PMs that back up each other obtain power from different power sources so that one can provide power when the other becomes faulty. When the power supply system is fully configured with 7+1 PMs, a maximum of 15400 W power is provided.

PEMs connect to PMs in the chassis. The mappings between PMs and PEM wiring terminals are as follows.

Figure 7-11 Mappings between PEMs and PMs

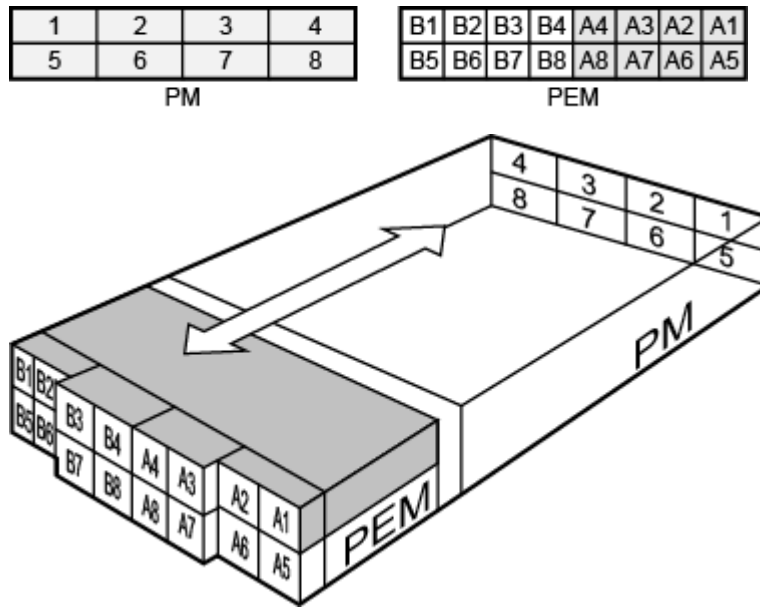
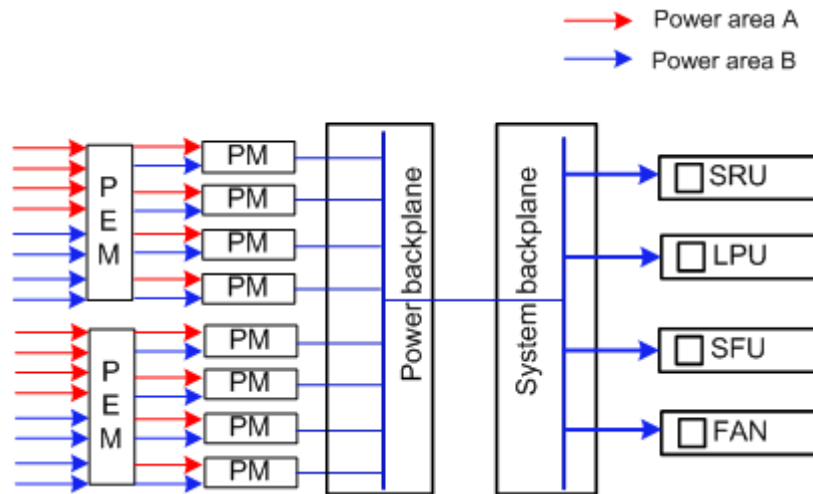


Table 7-24 Mappings between PEMs and PMs

PEM	PM
A1, B1	1
A2, B2	2
A3, B3	3
.....
A8, B8	8

As shown in Figure 7-12, the DC power supply system of the NE40E-X8A consists of PEMs and PMs. After the external power is input to PMs through PEMs, the PMs perform current equalization and regulation and output the power to the power supply backplane. Each PEM provides eight channels of power inputs for four PMs.

Figure 7-12 Architecture of the NE40E-X8A DC power supply system

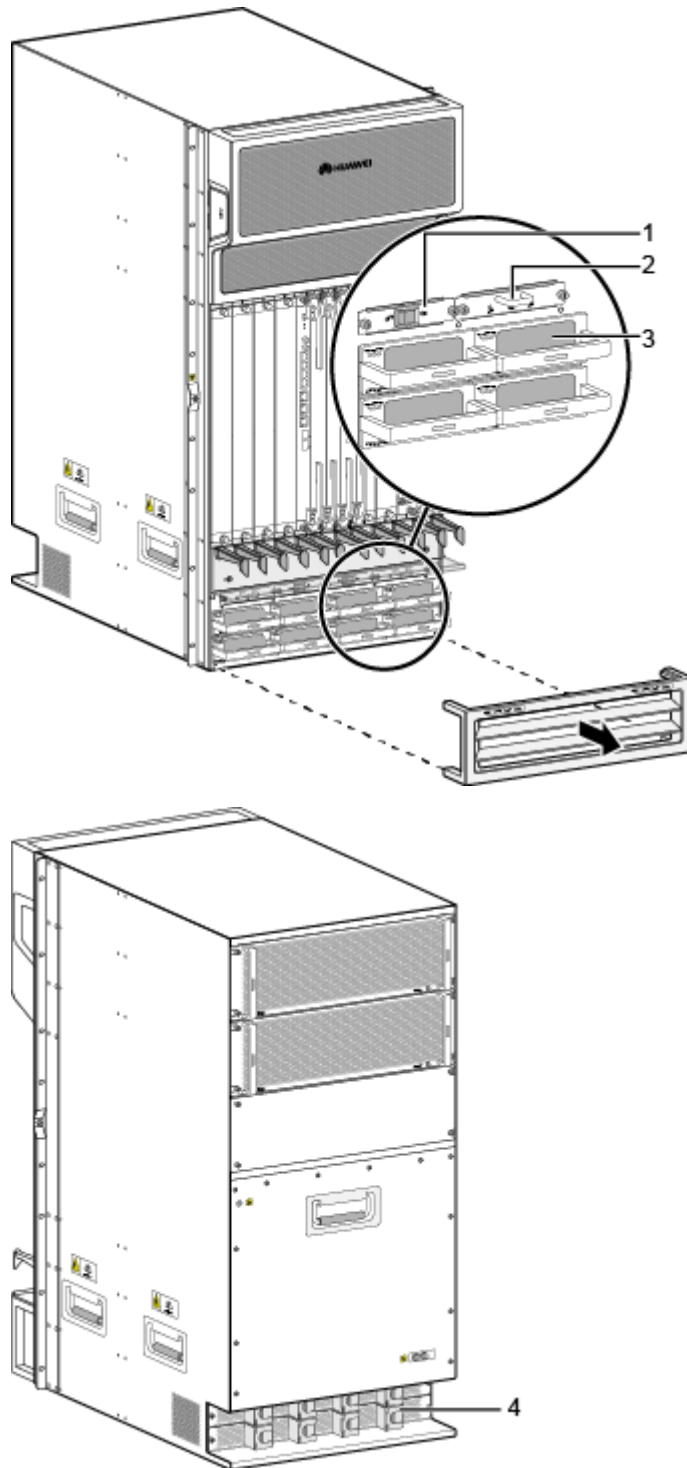


HVDC and AC power supply

The NE40E-X8A uses non-partitioned power supply, which consists of PEMs, PMs, PMUs, and switches. A high-voltage direct current (HVDC) power system is equipped with HVDC PEMs and PMs. Power is supplied to PMs through PEMs. The PMs equalize the current and regulate the voltage before supplying power to the entire device. In the AC power distribution mode, the AC PEM and AC PM are used. The PEM connects to the PM in the chassis. Power is input into the PM through the PEM. The PM converts the AC power into DC power before providing power for the device.

There are two power supply switches on a device. When one or two switches are on, the device powers on. When two switches are off, the device powers off. To ensure power supply for a running device, ensure that two switches are on, if there is a power supply switch is off, it will be generated an alarm in PM.

Figure 7-13 Main components of the AC power supply system



- 1. Switch
- 2. PMU
- 3. AC PM
- 4. AC PEM



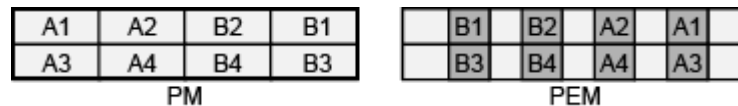
NOTE

The power system has 240 V/380 V HVDC and 220 V AC power supply based on different PEMs. Figure 7-10 uses AC power supply as an example.

You can configure PMs based on the board power consumption on the NE40E-X8A. PMs work in N+N backup mode. The PMs that back up each other obtains power from different power sources so that one can provide power when the other becomes faulty. When the power supply system is fully configured with 4 pairs of PMs (8 PMs), it can output a maximum of 10800 W (2700 W PM) or 12000 W (3000 W PM) in the case of 220 V AC input. The power supply system supports 110 V double-live wire inputs but not 110 V AC single-phase inputs.

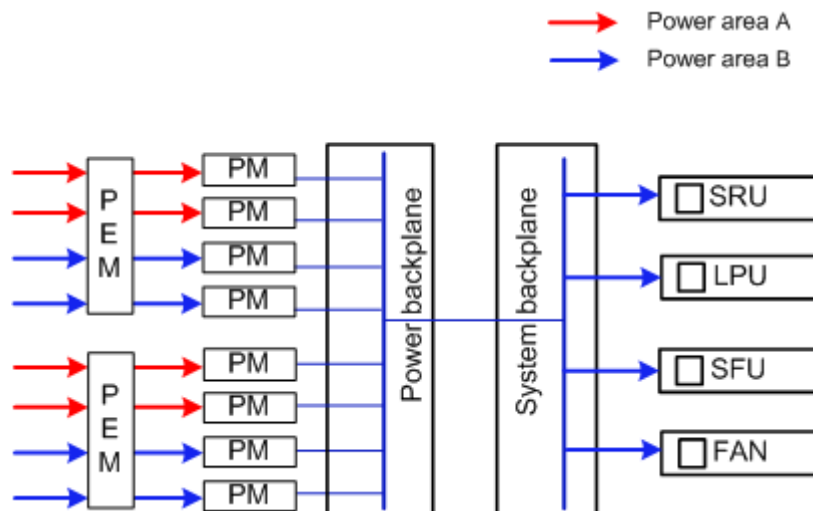
PEMs connect to PMs in the chassis. The mappings between PMs and PEM wiring terminals are as follows.

Figure 7-14 Mappings between PEMs and PMs



As shown in Figure 7-15, the AC power supply system of the NE40E-X8A consists of PEMs and PMs. Each PEM provides four channels of power inputs (with power area A and power area B) for four PMs.

Figure 7-15 Architecture of the NE40E-X8A HVDC and AC power supply system



7.4.2 DC PM

The external power is input to PMs through PEMs, the PMs perform current equalization and regulation and output the power to the power supply backplane.

Overview

Table 7-25 Power attributes

Attribute	Description
Description	PM2200W DC Power Supply

Attribute	Description
BOM	02311CNP
Model	PDC-2200WB

Table 7-26 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance

Figure 7-16 shows the appearance of a DC PM module.

Figure 7-16 Appearance of the DC PM module



The external power is input to PMs through PEMs, the PMs perform current equalization and regulation and output the power to the power supply backplane. Each PEM provides four channels of power inputs (with two planes of A and B) for four PMs. Figure 7-17 shows the appearance of a DC PEM module.

Figure 7-17 Appearance of the DC PEM module



Panel

Table 7-27 Indicators

Indicator	Color	Normal Status	Abnormal Status	Abnormal Reason
Input	Green	On	Blinking	The input voltage exceeds the preset

Indicator	Color	Normal Status	Abnormal Status	Abnormal Reason
				operating voltage range.
			Off	No DC input.
Output	Green	On	off	The power module does not have DC output.
Alarm	Red	Off	On	<ul style="list-style-type: none"> Fans are faulty. The device is powered off due to overtemperature. The device is powered off due to over-output-voltage. The device is powered off due to overcurrent or short circuit. The current of modules is seriously imbalanced.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	41 mm x 106.5 mm x 485 mm(1.61 in x 4.19 in x 19.09 in)
Weight	2.4 kg(5.29 lb)
Rated input voltage	-48 V/-60 V
Input voltage range	-40 VDC to -72 VDC
Maximum input current	63 A
Maximum output power	2200 W
Typical power consumption	148.5 W

Item	Specification
Typical heat dissipation	481.8 BTU/hour

7.4.3 2700 W AC PM

The PM accesses external AC power through PEMs, the PMs convert AC power into regulated DC power and output the power to the power supply backplane.

Overview

Table 7-28 Power attributes

Attribute	Description
Description	2700W AC Power module
BOM	02310SHP
Model	PAC-2700WB

Table 7-29 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R006C10
NE40E-X16A	V800R006C10

Appearance

Figure 7-18 shows the appearance of a AC PM module.

Figure 7-18 Appearance of the AC PM module



The external power is input to AC PMs through AC PEMs. Each PEM provides four channels of power inputs (with two planes of A and B) for four PMs. Figure 7-19 shows the appearance of a AC PEM module.

Figure 7-19 Appearance of the AC PEM module



Panel

Table 7-30 Indicators

Indicator	Color	Normal Status	Abnormal Status	Abnormal Reason
Input	Green	On	Off	No AC input.
Output	Green	On	Off	The power module does not have AC output.
Alarm	Red	Off	On	<ul style="list-style-type: none"> • Fans are faulty • The device is powered off due to overtemperature. • The device is powered off due to over-output-voltage. • The device is powered off due to overcurrent or short circuit. • The current of modules is seriously imbalanced.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	41.5 mm x 107 mm x 437 mm(1.63 in x 4.21 in x 17.2 in)
Weight	2.0 kg(4.41 lb)

Item	Specification
Rated input voltage	200V AC to 240V AC (220V)
Input voltage range	180 V AC to 264 V AC
Maximum input current	16 A
Maximum output power	2700 W
Typical power consumption	127.8 W
Typical heat dissipation	441.6 BTU/hour



NOTE

The AC power system supports 200-240 V AC power. It supports 110 V dual-live-wire inputs but not 110 V AC single-phase inputs. If 110 V dual-live-wire inputs are used, the voltage must range from 180 V to 264 V.

7.4.4 3000 W AC&HVDC PM

The external power is input to PMs through PEMs, the PMs convert AC power into regulated DC power and output the power to the power supply backplane.

Overview

Table 7-31 Power attributes

Attribute	Description
Description	3000W AC&HVDC Power Module
BOM	02310VMA
Model	PHD-3000WA

Table 7-32 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance

Figure 7-20 shows the appearance of a PM module.

Figure 7-20 Appearance of the PM module



The external power is input to PMs through AC PEMs. Figure 7-21 shows the appearance of an AC PEM module, and Figure 7-22 shows the appearance of an HVDC PEM module.

Figure 7-21 Appearance of the AC PEM module



Figure 7-22 Appearance of an HVDC PEM module



Panel

Figure 7-23 Front panel of a PM module

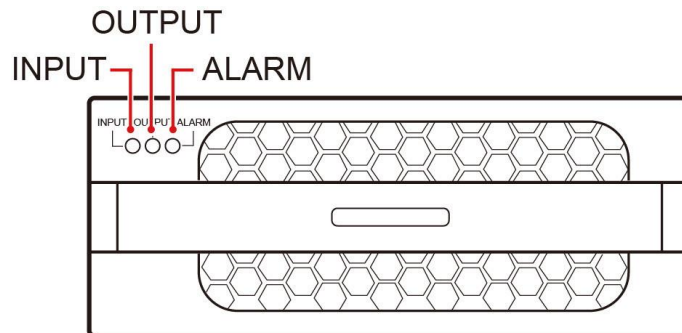


Table 7-33 Indicators

Indicator	Color	Normal Status	Abnormal Status	Abnormal Reason
Input	Green	On	Off	No AC input.
Output	Green	On	Off	The power module does not have AC

Indicator	Color	Normal Status	Abnormal Status	Abnormal Reason
				output.
Alarm	Red	Off	On	<ul style="list-style-type: none"> Fans are faulty The device is powered off due to overtemperature. The device is powered off due to over-output-voltage. The device is powered off due to overcurrent or short circuit. The current of modules is seriously imbalanced.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	41.5 mm x 107 mm x 437 mm(1.63 in x 4.21 in x 17.2 in)
Weight	2.0 kg(4.41 lb)
Rated input voltage	200 V AC to 240 V AC (220V) 240V DC/380V DC
Input voltage range	180 V AC to 264 V AC 192V DC to 400V DC
Maximum input current	16 A
Maximum output power	3000 W
Typical power consumption	182 W
Typical heat dissipation	590.5 BTU/hour

NOTE

The AC power system supports 200-240 V AC power. It supports 110 V dual-live-wire inputs but not 110 V AC single-phase inputs. If 110 V dual-live-wire inputs are used, the voltage must range from 180 V to 264 V.

240V HVDC power system, the input voltage range from 192 V to 288 V DC. 380V HVDC power system, the input voltage range from 260 V to 400 V.

7.5 NE40E-X16 Power Supply System

7.5.1 Architecture of the Power Supply System

The NE40E-X16 supports either DC or AC power supply.

DC power supply

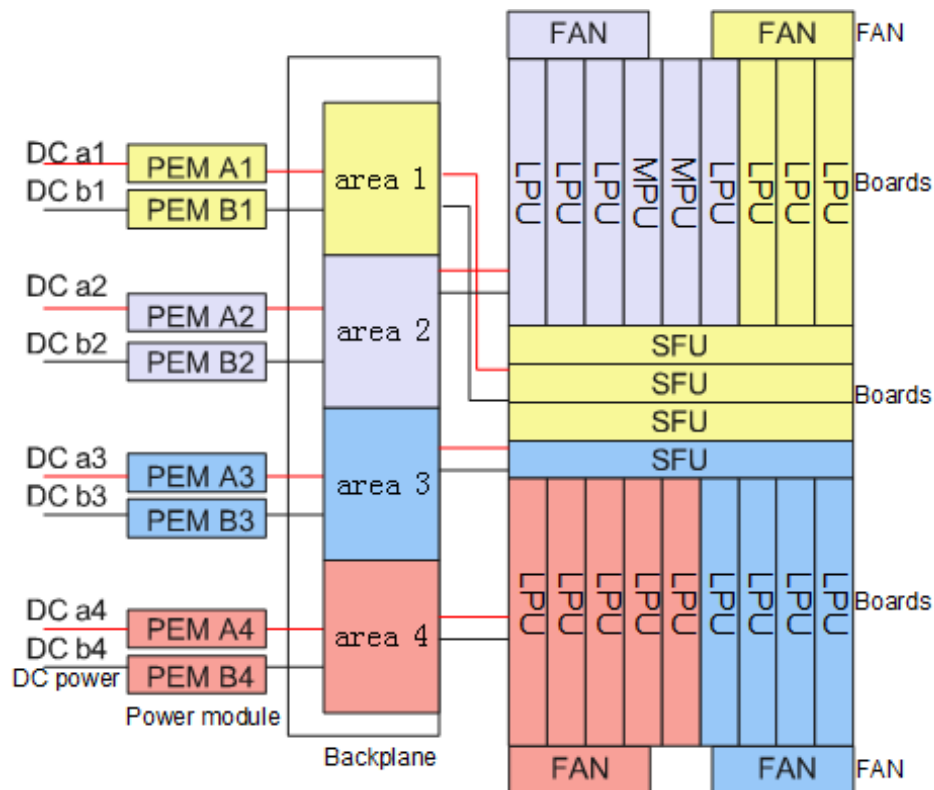
In the case of a DC power supply system, eight 70 A Power Entry Modules (PEMs) are inserted at the rear of the chassis, working in 4+4 backup mode. Figure 7-24 shows details of the DC power supply system.

NOTE

In Figure 7-24, each DC power input contains one -48 V power input and one RTN input. Two separated RTN inputs are joined on the board.

PEM A1 and PEM B1 work in 1+1 backup mode, PEM A2 and PEM B2 work in 1+1 backup mode, PEM A3 and PEM B3 work in 1+1 backup mode, PEM A4 and PEM B4 work in 1+1 backup mode.

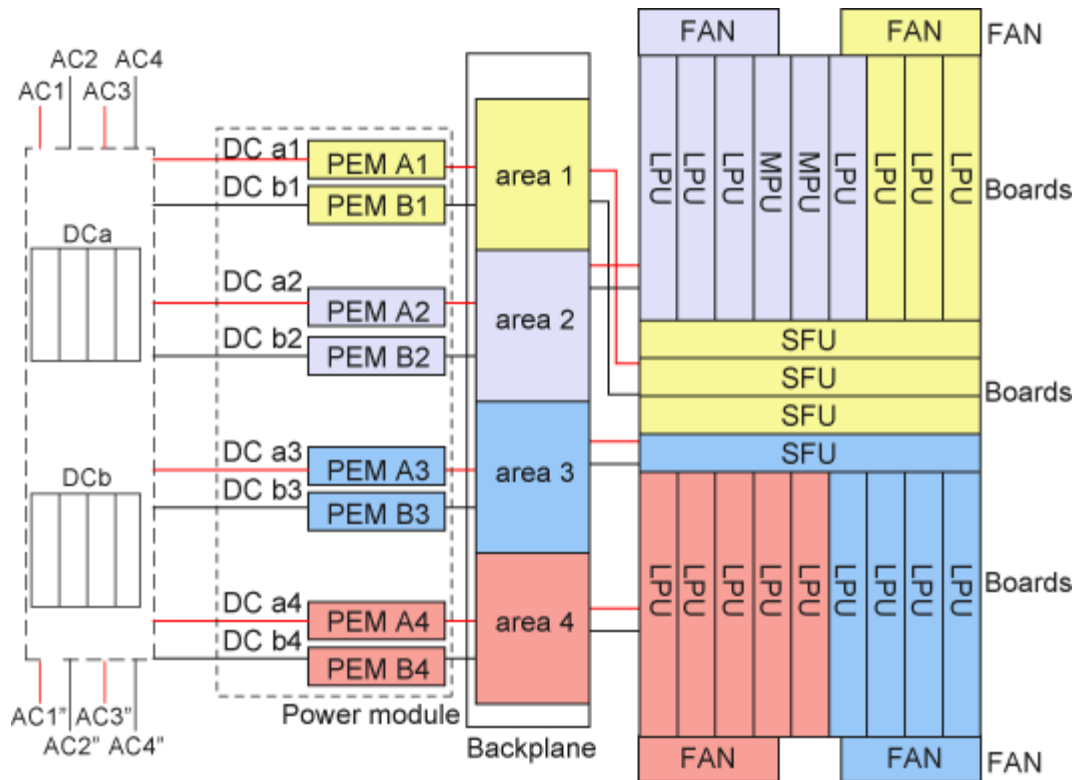
Figure 7-24 Architecture of the NE40E-X16 DC power supply system



AC power supply

In the case of an AC power supply system, two AC power frames are placed outside the chassis and installed with rectifier modules based on system power. The AC power frames are then connected to the input terminals on the DC-PEMs to supply power for the system. (In short, external AC power frames are added to the DC power supply system to constitute an AC power supply system.) Figure 7-25 shows the AC power supply system of the NE40E-X16.

Figure 7-25 Architecture of the NE40E-X16 AC power supply system



Installing the AC power module in the same cabinet as the chassis is recommended. If the AC power module cannot be installed in the same cabinet as the chassis, place it near the cabinet and ensure correct cabling. Two AC power modules work in 1+1 backup mode. Each power module provides four circuit breakers and eight AC power inputs.

7.5.2 70A PEM

The PEM is a 48V DC power entry module.

Overview

Table 7-34 Power attributes

Attribute	Description
Description	48V DC Power Entry Module

Attribute	Description
BOM	02120560
Model	CR5M000PEM60

Table 7-35 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20

Appearance



Panel

Table 7-36 Indicators

Indicator	Color	Description
-----------	-------	-------------

Indicator	Color	Description
RUN	Green	Indicates normal power output. If the indicator is steady on, the power output is normal.
ALM	Red	Power failure indicator. If the indicator is steady on, it indicates the following: <ul style="list-style-type: none"> The lightning protection link of the power module failed. The power modules do not have input power.

Table 7-37 Interfaces

Interface Name	Description
NEG(-)	-48 V power input interface
RTN(+)	BGND power input interface

Table 7-38 Switches

Switch Name	Description
ON OFF	Rated current of the air-break: 60A. Used to control AC power input.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	220 mm x 105 mm x 58 mm(8.66 in x 4.13 in x 2.83 in)
Weight	1.1 kg(2.43 lb)
Rated voltage	-48 V/-60 V
Voltage range	-38.4 VDC to -72 VDC
Maximum current	70 A
Typical power consumption	1.0 W
Typical heat dissipation	3.2 BTU/hour

7.5.3 EPS200-4850A

AC power input is converted into regulated DC power by an AC/DC converter.

Overview

Table 7-39 Power attributes

Attribute	Description
Description	Power Distribution Cabinet,220V,50/60HZ,72000mA,EPS200-4850A
BOM	02400376
Model	CR5B0PWRBX60

Table 7-40 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20

Appearance

Figure 7-26 Appearance of the EPS200-4850A



Panel

Table 7-41 Indicators

Indicator	Color	Normal Status	Abnormal Status	Reason
Operation indicator	Green	On	Off	Mains is faulty (no AC input, or overvoltage/undervoltage of the AC input), or

Indicator	Color	Normal Status	Abnormal Status	Reason
				the power module does not have AC output.
Protection indicator	Yellow	Off	On	A temperature alarm is generated. (If the temperature exceeds 65 °C [149 F], the device will be powered off due to overtemperature.) The device is in the dormant state (only the indicator is On and no alarm is generated).
Fault indicator	Red	Off	On	The device is powered off due to over-output-voltage or overtemperature, or fans are faulty, or the power module does not output power due to an internal fault.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	Power distribution cabinet: 86.1 mm x 442 mm x 580 mm (3.39 in. x 17.40 in. x 22.83 in.) Power module: 89 mm x 103 mm x 243 mm (3.50 in. x 4.06 in x 9.57 in.)
Weight	EPS200-4850A: 10 kg (22.1 lb) Power module: 2.8 kg (6.17 lb)
Number of AC power input channels	4

Item	Specification
Rated AC input voltage	200 V AC to 240 V AC
AC input voltage range	180 V AC to 264 V AC
Maximum AC input current	16 A
Number of DC output channels	4
DC output voltage	53.5 VDC
Maximum DC output current	55 A/module
Typical power consumption	138 W/module
Typical heat dissipation	447.7 BTU/hour



NOTE

The AC power system supports 200-240 V AC power. It supports 110 V dual-live-wire inputs but not 110 V AC single-phase inputs. If 110 V dual-live-wire inputs are used, the voltage must range from 180 V to 264 V.

7.5.4 EPS200-4850B

AC power input is converted into regulated DC power by an AC/DC converter.

Overview

Table 7-42 Power attributes

Attribute	Description
Description	Embedded Power, EPS200, 220Vac Single-Phase, 200A, Back Cabling, Width 19inch, Height 2U
BOM	02400739
Model	CR5B0PWRBX62

Table 7-43 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00

Appearance

Figure 7-27 Appearance of the EPS200-4850B



Panel

Table 7-44 Indicators

Indicator	Color	Normal Status	Abnormal Status	Reason
Operation indicator	Green	On	Off	Mains is faulty (no AC input, or overvoltage/undervoltage of the AC input), or the power module does not have AC output.
Protection indicator	Yellow	Off	On	A temperature alarm is generated. (If the temperature exceeds 65 °C [149 °F], the device will be powered off due to overheating.) The device is in the dormant state (only the indicator is On and no alarm is generated).
Fault indicator	Red	Off	On	The device is powered off due to

Indicator	Color	Normal Status	Abnormal Status	Reason
				over-output-voltage or overtemperature, or fans are faulty, or the power module does not output power due to an internal fault.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	Power distribution cabinet: 86.1 mm x 442 mm x 580 mm (3.39 in. x 17.40 in. x 22.83 in.) Power module: 89 mm x 103 mm x 243 mm (3.50 in. x 4.06 in x 9.57 in.)
Weight	Power distribution cabinet: 10 kg (22.1 lb) Power module: 2.8 kg (6.17 lb)
Number of AC power input channels	4
Rated AC input voltage	200 V AC to 240 V AC
AC input voltage range	180 V AC to 264 V AC
Maximum AC input current	16 A
Number of DC output channels	4
DC output voltage	53.5 VDC
Maximum DC output current	55 A/module
Typical power consumption	138 W/module
Typical heat dissipation	447.7 BTU/hour



NOTE

The AC power system supports 200-240 V AC power. It supports 110 V dual-live-wire inputs but not 110 V AC single-phase inputs. If 110 V dual-live-wire inputs are used, the voltage must range from 180 V to 264 V.

7.6 NE40E-X16A Power Supply System

7.6.1 Architecture of the Power Supply System

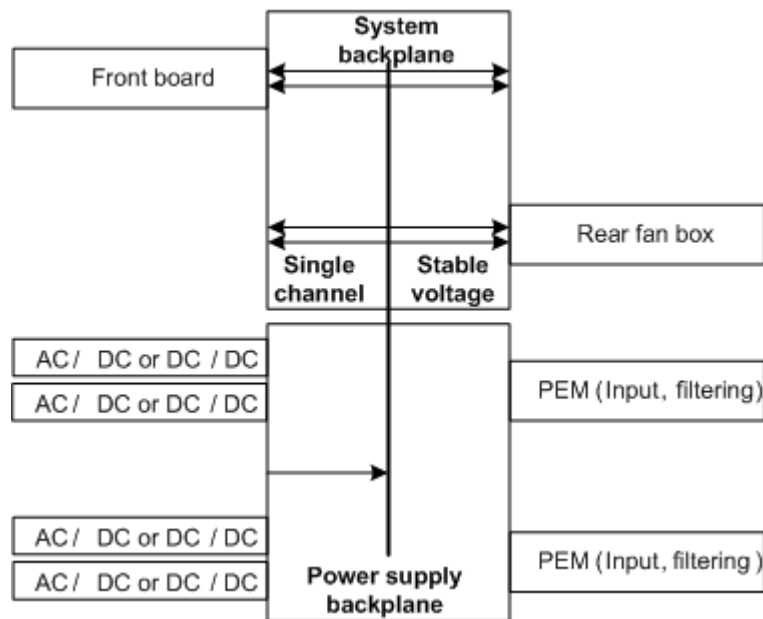
The NE40E-X16A supports both DC and AC power supply systems.

The NE40E-X16A power supply system has the following features:

- The DC power supply system consists of maximum 16 DC-DC PMs working in N+1 backup mode.
- The AC power supply system consists of maximum 16 AC-DC PMs working in N+N backup mode.
- The HVDC power supply system consists of maximum 16 HVDC-DC PMs working in N+N backup mode.
- Enables flexible configuration and provides dynamic management and voltage and current detection functions.
- Providing alarm functions for power modules and supporting CAN communications.

As shown in Figure 7-28, the NE40E-X16A has a non-partitioned backplane.

Figure 7-28 Schematic diagram of the power supply for the NE40E-X16A



The NE40E-X16A supports both DC and AC power supply systems. The DC power supply system uses a single plane to provide power and the AC power supply system uses a single plane to provide power.

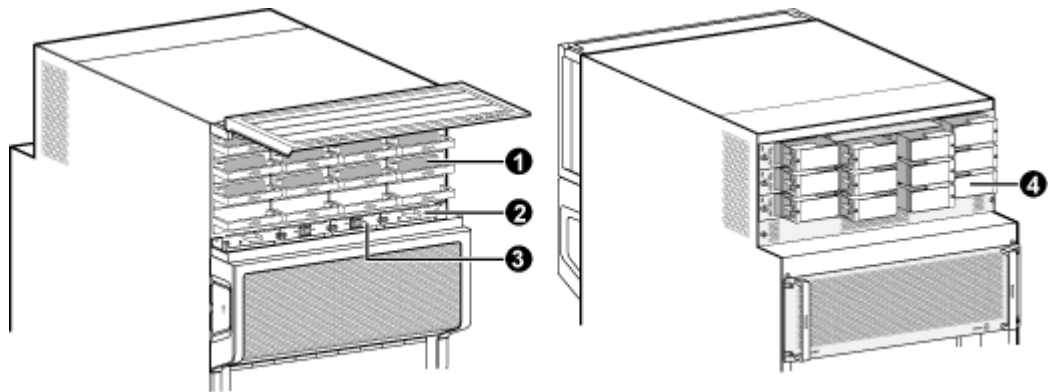
As shown in Figure 7-31, the power supply system of the NE40E-X16A consists of PEMs and PMs. After the external power is input to PMs through PEMs, the PMs perform current equalization and regulation and output the power to the power supply backplane. Each PEM provides eight channels of power inputs (with two planes of A and B) for four PMs. The device has four PEMs and 16 PMs.

DC power supply

The NE40E-X16A uses non-partitioned power supply, which consists of PEMs, PMs, PMUs, and switches. In the DC power distribution mode, the DC PEM and DC PM are used. The PEM connects to the PM in the chassis. Power is input into the PM through the PEM. The PM smoothens the current and stabilizes the voltage before providing power for the device.

There are two power supply switches on a device. When one or two switches are on, the device powers on. When two switches are off, the device powers off. To ensure power supply for a running device, ensure that two switches are on, if there is a power supply switch is off, it will be generated an alarm in PM.

Figure 7-29 Main components of the DC power supply system



- 1. DC PM
- 2. PMU
- 3. Switch
- 4. DC PEM

You can configure PMs based on the board power consumption on the NE40E-X16A. PMs work in N+1 backup mode. The PMs that back up each other obtains power from different power sources so that one can provide power when the other becomes faulty.

PEMs connect to PMs in the chassis. The mappings between PMs and PEM wiring terminals are as follows.

Figure 7-30 PEM and PM numbers

1	2	3	4	B1	B2	B3	B4	A4	A3	A2	A1
5	6	7	8	B5	B6	B7	B8	A8	A7	A6	A5
9	10	11	12	B9	B10	B11	B12	A12	A11	A10	A9
13	14	15	16	B13	B14	B15	B16	A16	A15	A14	A13
PM				PEM							

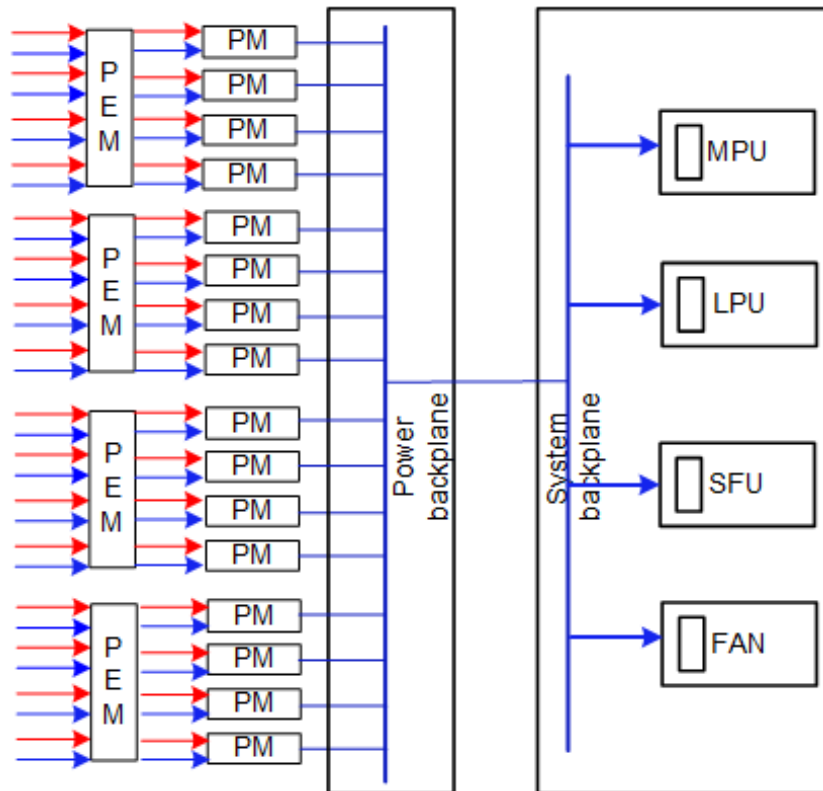
Table 7-45 Mappings between PEMs and PMs

PEM	PM
A1, B1	1
A2, B2	2

PEM	PM
A3, B3	3
.....
A16, B16	16

As shown in Figure 7-31, the power supply system of the NE40E-X16A consists of PEMs and PMs. After the external power is input to PMs through PEMs, the PMs perform current equalization and regulation and output the power to the power supply backplane. Each PEM provides eight channels of power inputs (with two planes of A and B) for four PMs. The device has four PEMs and 16 PMs.

Figure 7-31 Architecture of the NE40E-X16A DC power supply system

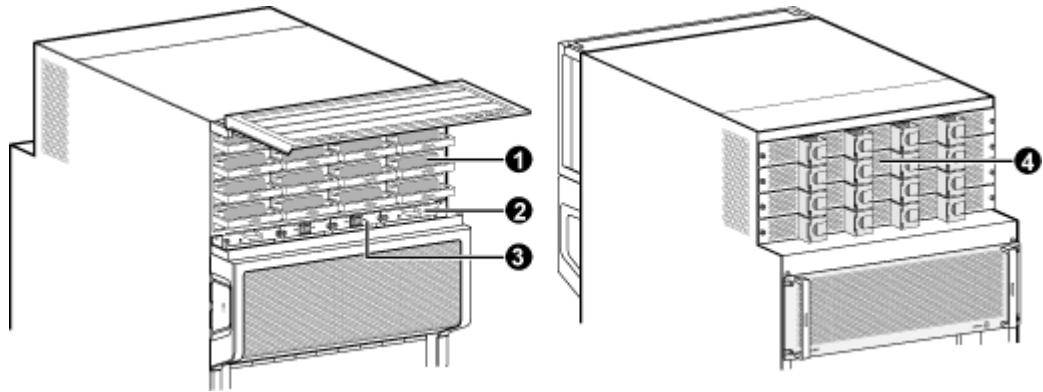


HVDC and AC power supply

The device uses non-partitioned power supply, which consists of PEMs, PMs, PMUs, and switches. An HVDC power system is equipped with HVDC PEMs and PMs. Power is supplied to PMs through PEMs. The PMs equalize the current and regulate the voltage before supplying power to the entire device. In the AC power distribution mode, the AC PEM and AC PM are used. The PEM connects to the PM in the chassis. Power is input into the PM through the PEM. The PM converts the AC power into DC power before providing power for the device.

There are two power supply switches on a device. When one or two switches are on, the device powers on. When two switches are off, the device powers off. To ensure power supply for a running device, ensure that two switches are on, if there is a power supply switch is off, it will be generated an alarm in PM.

Figure 7-32 Main components of the AC power supply system



- | | | | |
|----------|--------|-----------|-----------|
| 1. AC PM | 2. PMU | 3. Switch | 4. AC PEM |
|----------|--------|-----------|-----------|



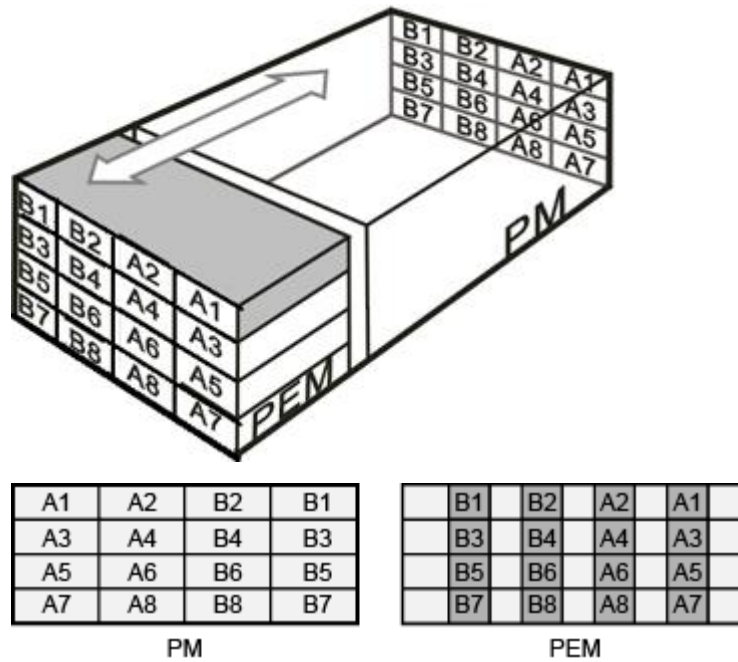
NOTE

The power system has 240 V/380 V HVDC and 220 V AC power supply based on different PEMs. Figure 7-32 uses AC power supply as an example.

You can configure PMs based on the board power consumption on the device. PMs work in N+N backup mode. The PMs that back up each other obtains power from different power sources so that one can provide power when the other becomes faulty. When the power supply system is fully configured with 8 pairs of PMs (16 PMs), it can output a maximum of 21600 W (2700 W PM) or 24000 W (3000 W PM) in the case of 220 V AC input. The power supply system supports 110 V double-live wire inputs but not 110 V AC single-phase inputs.

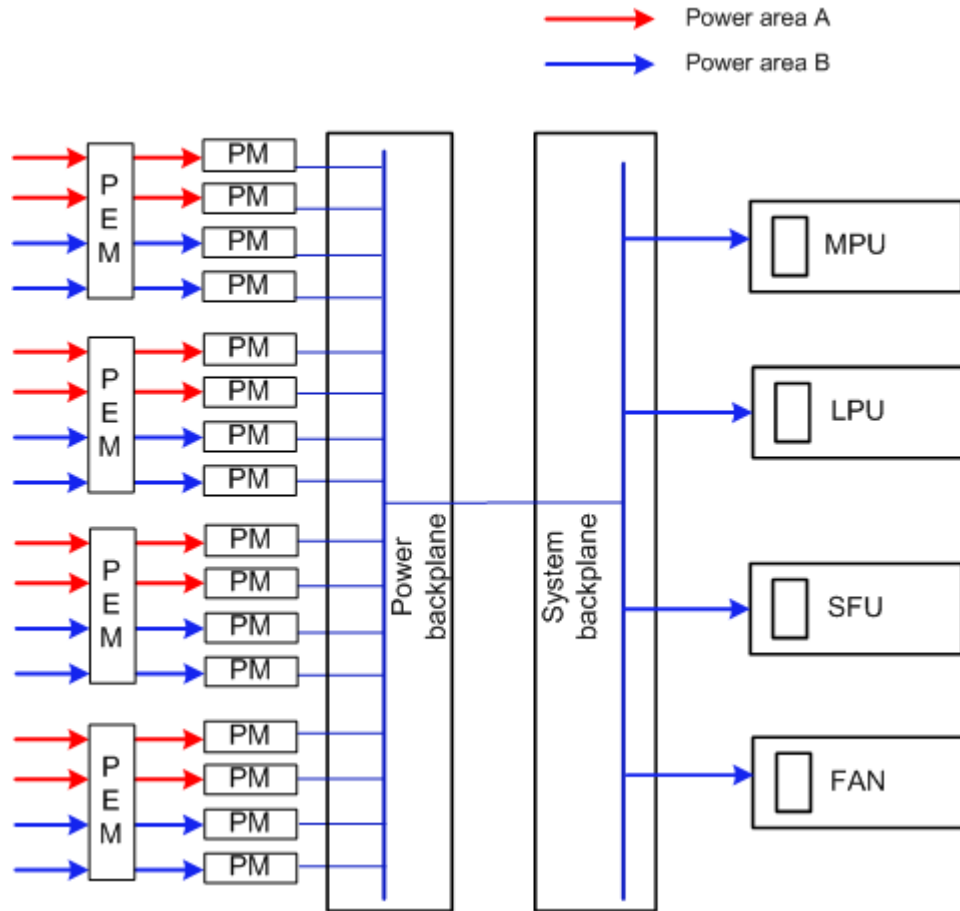
PEMs connect to PMs in the chassis. The mappings between PMs and PEM wiring terminals are as follows.

Figure 7-33 Mappings between PEMs and PMs



As shown in Figure 7-34, the power supply system of the NE40E-X16A consists of PEMs and PMs. After the external power is input to PMs through PEMs, Each PEM provides four channels of power inputs (with two planes of A and B) for four PMs. The device has four PEMs and 16 PMs.

Figure 7-34 Architecture of the NE40E-X16A HVDC and AC power supply system



7.6.2 DC PM

The external power is input to PMs through PEMs, the PMs perform current equalization and regulation and output the power to the power supply backplane.

Overview

Table 7-46 Power attributes

Attribute	Description
Description	PM2200W DC Power Supply
BOM	02311CNP
Model	PDC-2200WB

Table 7-47 Mapping products and versions

Product	Earliest Software Version
---------	---------------------------

Product	Earliest Software Version
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance

Figure 7-35 shows the appearance of a DC PM module.

Figure 7-35 Appearance of the DC PM module



The external power is input to PMs through PEMs, the PMs perform current equalization and regulation and output the power to the power supply backplane. Each PEM provides four channels of power inputs (with two planes of A and B) for four PMs. Figure 7-36 shows the appearance of a DC PEM module.

Figure 7-36 Appearance of the DC PEM module



Panel

Table 7-48 Indicators

Indicator	Color	Normal Status	Abnormal Status	Abnormal Reason
Input	Green	On	Blinking	The input voltage exceeds the preset operating voltage range.
			Off	No DC input.
Output	Green	On	off	The power module does not have DC output.

Indicator	Color	Normal Status	Abnormal Status	Abnormal Reason
Alarm	Red	Off	On	<ul style="list-style-type: none"> Fans are faulty. The device is powered off due to overtemperature. The device is powered off due to over-output-voltage. The device is powered off due to overcurrent or short circuit. The current of modules is seriously imbalanced.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	41 mm x 106.5 mm x 485 mm(1.61 in x 4.19 in x 19.09 in)
Weight	2.4 kg(5.29 lb)
Rated input voltage	-48 V/-60 V
Input voltage range	-40 VDC to -72 VDC
Maximum input current	63 A
Maximum output power	2200 W
Typical power consumption	148.5 W
Typical heat dissipation	481.8 BTU/hour

7.6.3 2700 W AC PM

The PM accesses external AC power through PEMs, the PMs convert AC power into regulated DC power and output the power to the power supply backplane.

Overview

Table 7-49 Power attributes

Attribute	Description
Description	2700W AC Power module
BOM	02310SHP
Model	PAC-2700WB

Table 7-50 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R006C10
NE40E-X16A	V800R006C10

Appearance

Figure 7-37 shows the appearance of a AC PM module.

Figure 7-37 Appearance of the AC PM module



The external power is input to AC PMs through AC PEMs. Each PEM provides four channels of power inputs (with two planes of A and B) for four PMs. Figure 7-38 shows the appearance of a AC PEM module.

Figure 7-38 Appearance of the AC PEM module



Panel

Table 7-51 Indicators

Indicator	Color	Normal Status	Abnormal Status	Abnormal Reason
Input	Green	On	Off	No AC input.
Output	Green	On	Off	The power module does not have AC output.
Alarm	Red	Off	On	<ul style="list-style-type: none"> • Fans are faulty • The device is powered off due to overtemperature. • The device is powered off due to over-output-voltage. • The device is powered off due to overcurrent or short circuit. • The current of modules is seriously imbalanced.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	41.5 mm x 107 mm x 437 mm(1.63 in x 4.21 in x 17.2 in)
Weight	2.0 kg(4.41 lb)
Rated input voltage	200V AC to 240V AC (220V)
Input voltage range	180 V AC to 264 V AC
Maximum input current	16 A
Maximum output power	2700 W

Item	Specification
Typical power consumption	127.8 W
Typical heat dissipation	441.6 BTU/hour



NOTE

The AC power system supports 200-240 V AC power. It supports 110 V dual-live-wire inputs but not 110 V AC single-phase inputs. If 110 V dual-live-wire inputs are used, the voltage must range from 180 V to 264 V.

7.6.4 3000 W AC&HVDC PM

The external power is input to PMs through PEMs, the PMs convert AC power into regulated DC power and output the power to the power supply backplane.

Overview

Table 7-52 Power attributes

Attribute	Description
Description	3000W AC&HVDC Power Module
BOM	02310VMA
Model	PHD-3000WA

Table 7-53 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance

Figure 7-39 shows the appearance of a PM module.

Figure 7-39 Appearance of the PM module



The external power is input to PMs through AC PEMs. Figure 7-40 shows the appearance of an AC PEM module, and Figure 7-41 shows the appearance of an HVDC PEM module.

Figure 7-40 Appearance of the AC PEM module



Figure 7-41 Appearance of an HVDC PEM module



Panel

Figure 7-42 Front panel of a PM module

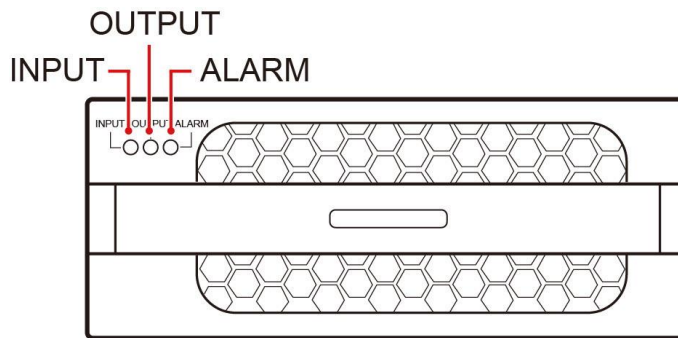


Table 7-54 Indicators

Indicator	Color	Normal Status	Abnormal Status	Abnormal Reason
Input	Green	On	Off	No AC input.
Output	Green	On	Off	The power module does not have AC output.
Alarm	Red	Off	On	<ul style="list-style-type: none"> Fans are faulty The device is powered off due to overtemperature. The device is powered

Indicator	Color	Normal Status	Abnormal Status	Abnormal Reason
				off due to over-output-voltage. <ul style="list-style-type: none"> The device is powered off due to overcurrent or short circuit. The current of modules is seriously imbalanced.

Technical Specifications

Item	Specification
Dimensions (H x W x D)	41.5 mm x 107 mm x 437 mm(1.63 in x 4.21 in x 17.2 in)
Weight	2.0 kg(4.41 lb)
Rated input voltage	200 V AC to 240 V AC (220V) 240V DC/380V DC
Input voltage range	180 V AC to 264 V AC 192V DC to 400V DC
Maximum input current	16 A
Maximum output power	3000 W
Typical power consumption	182 W
Typical heat dissipation	590.5 BTU/hour



NOTE

The AC power system supports 200-240 V AC power. It supports 110 V dual-live-wire inputs but not 110 V AC single-phase inputs. If 110 V dual-live-wire inputs are used, the voltage must range from 180 V to 264 V.

240V HVDC power system, the input voltage range from 192 V to 288 V DC. 380V HVDC power system, the input voltage range from 260 V to 400 V.

8 Fan

About This Chapter

This section describes the appearance, functions, and technical specifications of the fan module.

- [8.1 Heat Dissipation System of the NE40E-X3](#)
- [8.2 Heat Dissipation System of the NE40E-X3A](#)
- [8.3 Heat Dissipation System of the NE40E-X8](#)
- [8.4 Heat Dissipation System of the NE40E-X8A](#)
- [8.5 Heat Dissipation System of the NE40E-X16](#)
- [8.6 Heat Dissipation System of the NE40E-X16A](#)

8.1 Heat Dissipation System of the NE40E-X3

8.1.1 System Air Channel

The NE40E-X3 supports one fan module. Each fan module consists of two fans.

The NE40E-X3 draws in air from the left and exhausts air from the rear. The air intake vent is located at the left side of the chassis and the air exhaust vent is located at the rear of the chassis.

The fan module of the NE40E-X3 is located at the air exhaust vent. The system draws in air for heat dissipation, as shown in Figure 8-1 and Figure 8-2.

Figure 8-1 Air flow in the NE40E-X3 DC chassis

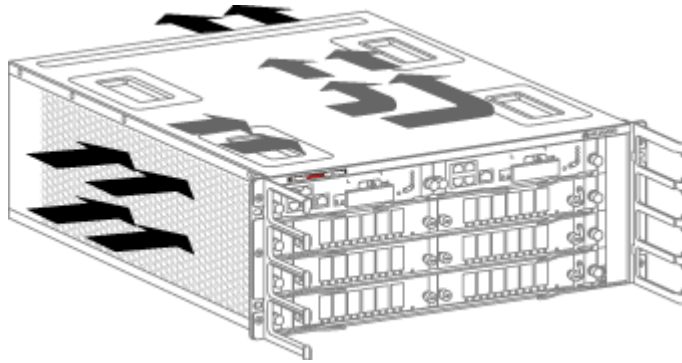
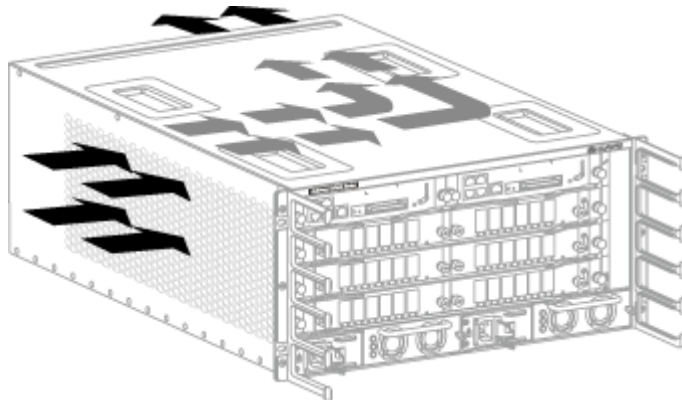


Figure 8-2 Air flow in the NE40E-X3 AC chassis



The heat dissipation system consists of the following components:

- One fan module
- An air intake vent and an air exhaust vent
- An air filter
- Fans on power modules

8.1.2 Fan Speed Adjustment

When the system is fully configured, temperatures reported by the temperature sensors on the Interface boards and MPUs serve as the basis for fan speed adjustment. Table 8-1 lists general principles.

Table 8-1 Fan Speed Adjustment Principles

Ambient Temperature	Rotational Speed	Noise and Dissipation StandardsSR
-5 °C - +27 °C (23 °F -	Low speed (50% rotational speed)	When fans rotate at a constantly low speed, the noises meet the ETSI standard and the fans meet heat dissipation requirements of a fully configured system.

Ambient Temperature	Rotational Speed	Noise and Dissipation StandardsSR
80.6 ℉)		
27 ℃ - 45 ℃ (80.6 ℉ - 113 ℉)	Linear variation	The fan speed is adjusted smoothly in linear mode, without a sharp increase in noises.
Over 45 ℃ (113 ℉)	High speed (100% rotational speed)	Fans rotate at high speed to meet heat dissipation requirements.

8.1.3 Fan Module

The fan module is located in the rear of the chassis, used for ventilation and heat dissipation of boards. The fan module consists of a fan tray, two fans, and a fan control board (FCB). If a single fan fails, the system can still work for a short period of time at an ambient temperature of 40 ℃.

Overview

Table 8-2 Fan attributes

Attribute	Description
Description	Fan Box
BOM	02120514
Model	CR5M000FBX61

Table 8-3 Mapping products and versions

Product	Earliest Software Version
X3	V800R007C00

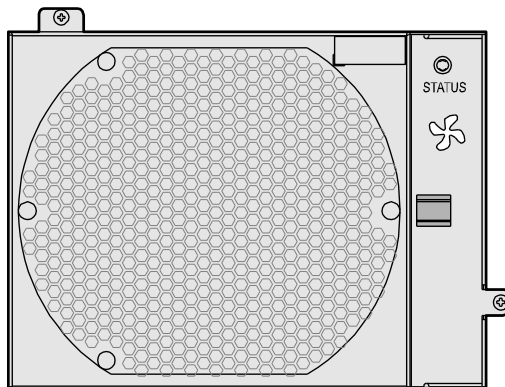
Appearance

Figure 8-3 Appearance of the fan module on the NE40E-X3



Figure 8-4 shows the panel of the fan module on the NE40E-X3

Figure 8-4 Panel of the fan module on the NE40E-X3



Indicators

Table 8-4 Description of indicators on the fan module

Item	Status Description
STATUS	Green If the indicator blinks, the fan module is working properly.
	Red If the indicator blinks, the fan module or PEM fails.

Technical Specifications

Table 8-5 Technical specifications

Item	Specification
Dimensions (H x W x D)	223.4mm x 170.4mm x 115.2mm (8.79 in. x 6.70 in. x 4.53 in.)
Weight	1.5kg (3.30 lb)
Fan quantity	2
Power consumption	55 °C Ambient temperature: 210W 25 °C Ambient temperature: 55W
Noise	Meets the ETSI requirements (<72dBA @ 23 °C)

8.1.4 Air Filter

The air filter of the NE40E-X3 is located on the left rear of the chassis, as shown in Figure 8-5.

Figure 8-5 Air filter on the NE40E-X3 air intake frame



 **NOTE**

The air filter of the NE40E-X3 can be bent, which facilitates the maintenance within a limited space in the rear of the chassis.

8.2 Heat Dissipation System of the NE40E-X3A

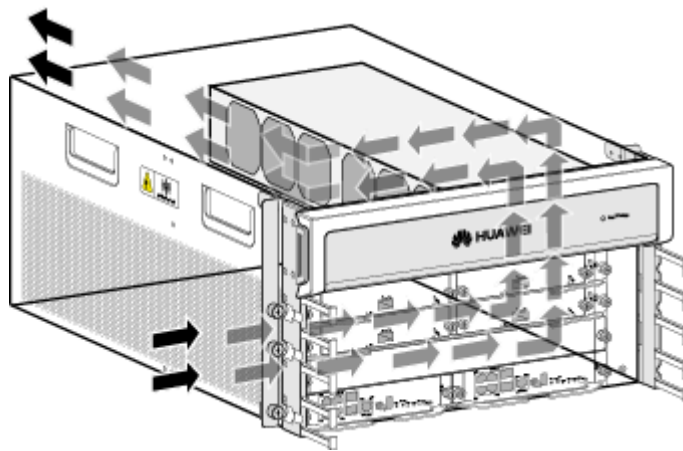
8.2.1 System Air Channel

The NE40E-X3A supports one fan module. Each fan module consists of six fans.

The NE40E-X3A draws in air from the left and exhausts air from the rear. The air intake vent is located at the left side of the chassis and the air exhaust vent is located at the rear of the chassis.

The fan module of the NE40E-X3A is located at the air exhaust vent. The system draws in air for heat dissipation, as shown in Figure 8-6.

Figure 8-6 Air flow in the NE40E-X3A chassis



The heat dissipation system consists of the following components:

- One fan module
- An air intake vent and an air exhaust vent
- An air filter

8.2.2 Fan Speed Adjustment

When the system is fully configured, temperatures reported by the temperature sensors on the Interface boards and MPUs serve as the basis for fan speed adjustment. Table 8-6 lists general principles.

Table 8-6 Fan Speed Adjustment Principles

Ambient Temperature	Rotational Speed	Noise and Dissipation Standards
-5 °C-+27 °C (23 °F - 80.6 °F)	Low speed (35% rotational speed)	When fans rotate at a constantly low speed, the noises meet the NEBS standard and the fans meet heat dissipation requirements of a fully configured system.
27 °C-45 °C (80.6 °F)	Linear variation	The fan speed is adjusted smoothly in linear mode,

Ambient Temperature	Rotational Speed	Noise and Dissipation Standards
-113 ℱ)		without a sharp increase in noises.
Over 45 ℃ (113 ℱ)	High speed (100% rotational speed)	Fans rotate at high speed to meet heat dissipation requirements.

8.2.3 Fan Module

The fan modules, which are located at the top of the device, perform heat dissipation and ventilation for the entire system. When a single fan fails, the system can still work normally for a short period of time at ambient temperature of 40 ℃ (104 ℱ).

Overview

Table 8-7 Fan attributes

Attribute	Description
Description	Fan Box
BOM	02121143
Model	CR5M000FBX71

Table 8-8 Mapping products and versions

Product	Earliest Software Version
X3A	V800R007C00

Appearance



Indicators

Table 8-9 Description of indicators on the fan module

Item	Status Description
STATUS	Green If the indicator blinks, the fan module is working properly.
	Red If the indicator blinks, the fan module fails.

Technical Specifications

Table 8-10 Technical specifications

Item	Specification
Dimensions (H x W x D)	88.7 mm x 215.6 mm x 558.0 mm (3.49 in. x 8.49 in. x 21.97 in.)
Weight	6 kg (13.23 lb)
Fan quantity	6
Power consumption	55 °C Ambient temperature: 548W 25 °C Ambient temperature: 100W
Noise	Meets the NEBS requirements (<78dBA @ 27 °C)

8.2.4 Air Filter

The air filter of the NE40E-X3A is located on the left rear of the chassis, as shown in Figure 8-7.

Figure 8-7 Air filter on the NE40E-X3A air intake frame



NOTE

The air filter of the NE40E-X3A can be bent, which facilitates the maintenance within a limited space in the rear of the chassis.

Placing a black sponge air filter at the air intake vent helps to prevent dust from entering the system. It is recommended that the air filter be removed and cleaned once every three months.

8.3 Heat Dissipation System of the NE40E-X8

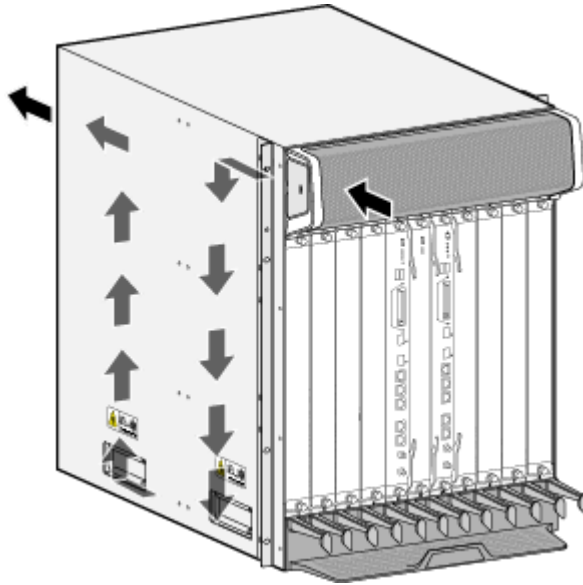
8.3.1 System Air Channel

The NE40E-X8 supports two fan modules. Each fan module consists of one fan.

The NE40E-X8 draws in air from the front and exhausts air from the rear. The air intake vent is located above the board area on the front chassis; the air exhaust vent is located above the board area on the rear chassis.

The two fan modules of the NE40E-X8 are located side by side on the air exhaust vent, with each module containing one fan. The entire system dissipates heat by drawing in air, as shown in Figure 8-8.

Figure 8-8 Air flow in the NE40E-X8



8.3.2 Fan Speed Adjustment

When the system is fully configured, temperatures reported by the temperature sensors on the Interface boards, SFUs, and MPUs serve as the basis for fan speed adjustment. Table 8-11 lists general principles.

Table 8-11 Fan Speed Adjustment Principles

Ambient Temperature	Rotational Speed	Noise and Dissipation Standards
-5 °C - +27 °C (23 °F - 80.6 °F)	Low speed (50%)	When fans rotate at a constantly low speed, the noises meet the standard and the fans meet heat dissipation requirements of a fully configured system.
27 °C - 40 °C (80.6 °F - 104 °F)	Linear variation	The fan speed is adjusted smoothly in linear mode, without a sharp increase in noises.
Over 40 °C (104 °F)	High speed (100%)	Fans rotate at high speed to meet heat dissipation requirements.

8.3.3 Fan Module

The fan modules, each containing one fan, are located side by side at the air exhaust vent. If a single fan fails, the system can still work normally at an ambient temperature of 40 °C (104 °F) for a short period of time.

Overview

Table 8-12 Fan attributes

Attribute	Description
Description	Fan Box
BOM	02120562
Model	CR5M000FBX60

Table 8-13 Mapping products and versions

Product	Earliest Software Version
X8	V800R006C20
X16	V800R006C20

Appearance



Indicators

Table 8-14 Description of indicators on the fan module

Item	Status Description
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Item	Status Description
STATUS	Green If the indicator blinks, the fan module is working properly.
	Red If the indicator blinks, the fan module or PEM fails.

Technical Specifications

Table 8-15 Technical specifications

Item	Specification
Dimensions (H x W x D)	270.7 mm x 212.2 mm x 105 mm (10.65 in. x 8.35 in. x 4.13 in.)
Weight	3.3kg (7.27 lb)
Fan quantity	1
Power consumption	55 °C Ambient temperature: 200W 25 °C Ambient temperature: 30W
Noise	Meets the NEBS requirements (<78dBA @ 27 °C)

8.3.4 Air Filter

The NE40E-X8 draws in air from the front top and exhausts air from the rear top. There is a 3 U space in the upper part of the chassis and an air filter on the front of the chassis. To maximize air intake, the filter is fully perforated. The air filter is fixed to the chassis by a fastener to facilitate filter removal and replacement. Figure 8-9 shows the appearance of an air filter.

Figure 8-9 An air filter





NOTE

Placing a black sponge air filter on the air intake vent helps to prevent dust from entering the system. Cleaning the air filter once every three months is recommended.

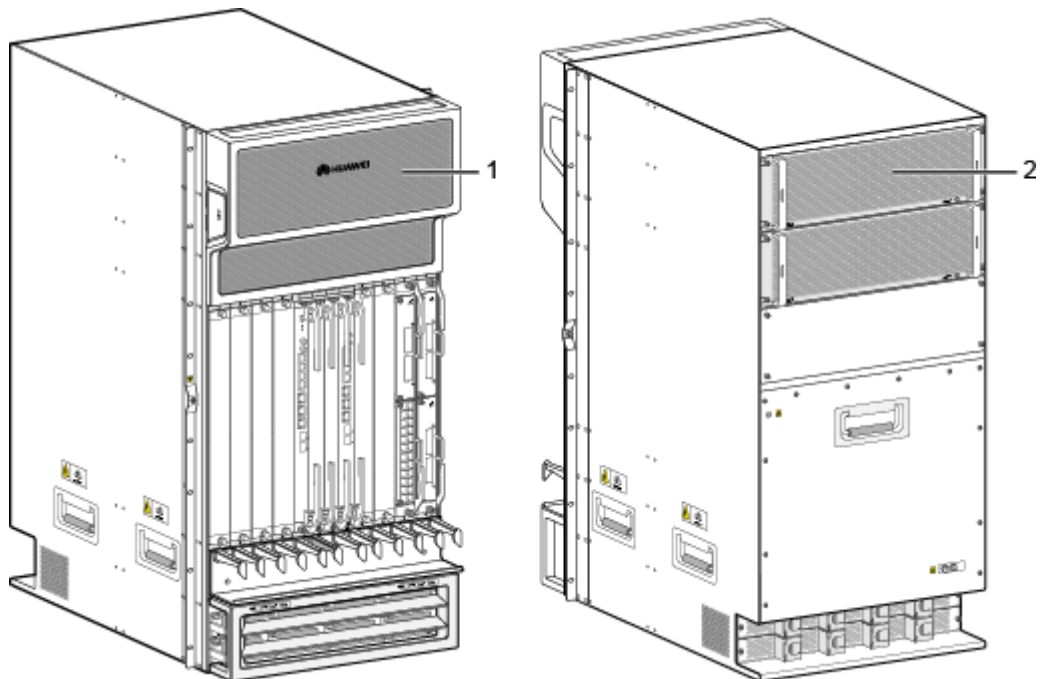
8.4 Heat Dissipation System of the NE40E-X8A

8.4.1 System Air Channel

The NE40E-X8A supports a maximum of three fan modules. For a platform with forwarding capacity as 400 Gbit/s or below, only two fan modules need to be configured. For a platform with forwarding capacity as 1 Tbit/s, three fan modules need to be configured. Each fan module consists of six fans.

Figure 8-10 shows the locations of the fan module and air intake vent on the NE40E-X8A.

Figure 8-10 Air channel on the NE40E-X8A



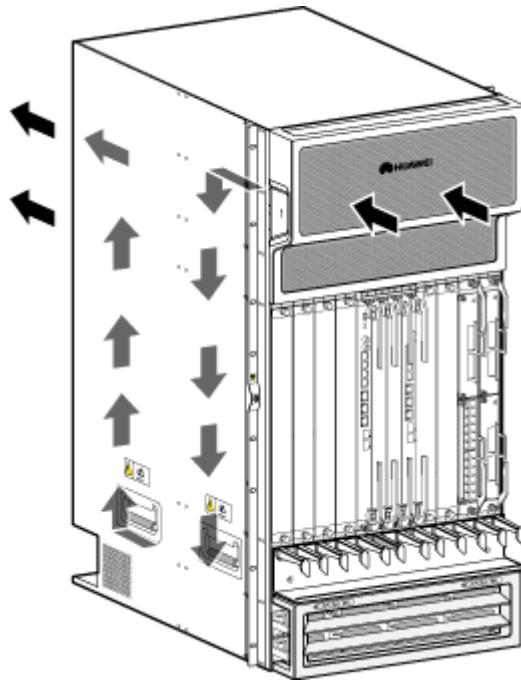
1. Air intake vent

2. Fan module

The system draws air from the front and discharges air from the back. The air intake vent resides above the board area on the front chassis; the air exhaust vent resides above the board area on the rear chassis. The system draws air for heat dissipation. Figure 8-11 shows air flows.

The air filters on the air intake vents are vertically installed and featured with the curved face, large area, and small windage resistance, helping to improve the heat dissipation efficiency.

Figure 8-11 Diagram of air flows



8.4.2 Fan Speed Adjustment

When the system is configured to the largest capacity, the fan rotation speeds are adjusted based on the temperatures reported by the sensors on the SRUs, Interface boards, and SFUs.

Ambient Temperature	Rotational Speed	Noise/Heat Control
Below 27 °C (75.2 °F)	Low rotation speed (35%)	When the ambient temperature is below 27 °C (75.2 °F), fans rotate at a fixed low speed, which meets the noise requirement and the heat dissipation requirement.
27 °C-40 °C (75.2 °F-104 °F)	Linear speed adjustment	When the ambient temperature is between 27 °C (75.2 °F) and 40 °C (104 °F), the fan rotation speeds are adjusted smoothly in linear mode, and the fan noise does not change violently.
Above 40 °C (104 °F)	High rotation speed (100%)	When the ambient temperature is above 45 °C (104 °F), fans rotate at a fixed high speed, which meets heat dissipation requirements.

8.4.3 Fan Module

The fan module is located on the air exhaust vent. When a single fan fails, the heat dissipation system enables the system to work for a short period of time at an ambient temperature of 40 °C (104 °F).

Overview

Table 8-16 Fan attributes

Attribute	Description
Description	Fan Box
BOM	02120866
Model	E000FBX08

Table 8-17 Mapping products and versions

Product	Earliest Software Version
X8A	V800R006C20
X16A	V800R006C20

Appearance



Indicators

Table 8-18 Description of indicators on the fan module

Item	Status Description
STATUS	<p>Green:</p> <ul style="list-style-type: none"> If the indicator blinks once every two seconds (0.5 Hz), the fan module is working properly. If the indicator blinks four times every second (4 Hz), the fan module is registering. <p>Red:</p> <ul style="list-style-type: none"> If the indicator blinks once every two seconds (0.5 Hz), the fan module is faulty. <p>Orange:</p> <ul style="list-style-type: none"> If the indicator is steady on, the fan module is faulty.

Technical Specifications

Table 8-19 Technical specifications

Item	Specification
Dimensions (H x W x D)	131 mm x 440 mm x 120 mm (5.16 in. x 17.32 in. x 4.72 in.)
Weight	5.4 kg (11.90 lb)
Fan quantity	6
Power consumption	55 °C Ambient temperature: 500W 25 °C Ambient temperature: 48W
Noise	Meets the NEBS requirements (<78dBA @ 27 °C)

8.4.4 Air filter

Figure 8-12 Shows the appearance of the air filter.

Figure 8-12 Air filter



 **NOTE**

The black sponge air filter on the air intake vent is used to prevent dust from getting into the system. Cleaning the air filter once every three months is recommended.

8.5 Heat Dissipation System of the NE40E-X16

8.5.1 System Air Channel

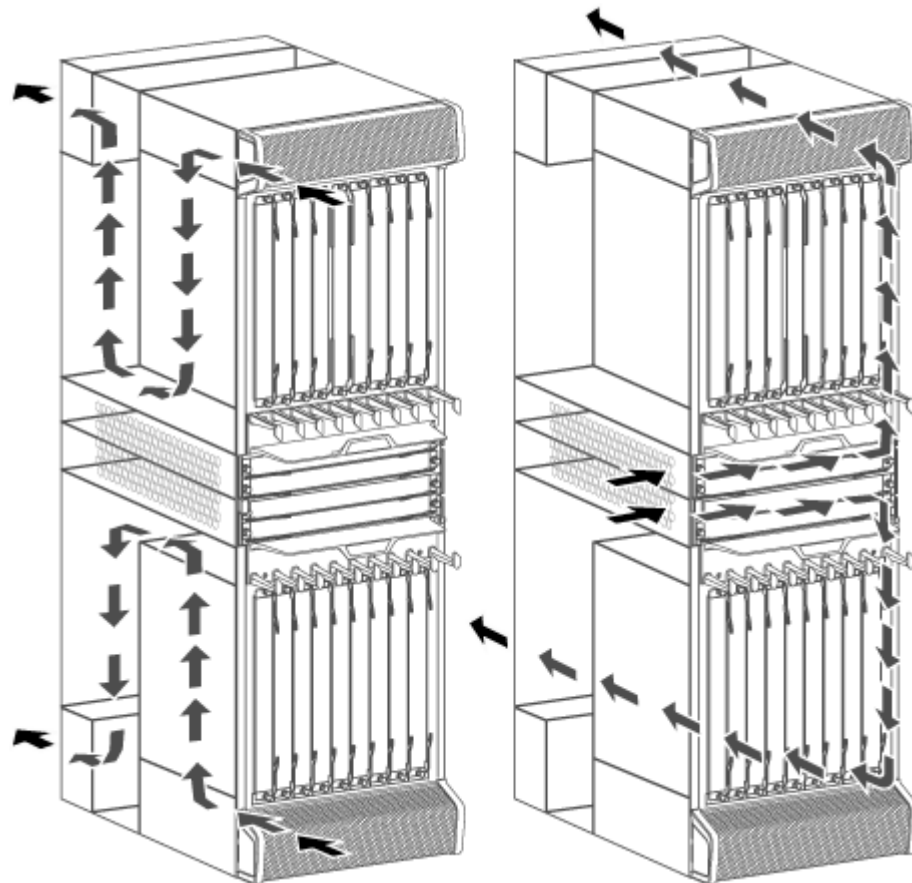
The NE40E-X16 supports four fan modules. Each fan module consists of one fan.

The NE40E-X16 is divided into an upper chassis and a lower chassis; it draws in air from the front and exhausts air from the rear. The air intake vent on the upper chassis is located above the board area on the front chassis; the air exhaust vent is located above the board area on the rear chassis. The lower chassis and the upper chassis are opposites. The upper chassis and the lower chassis also have separate heat dissipation systems.

The middle area of the NE40E-X16 is for SFU slots. The air intake vent of this area is located on the left of the chassis. Two upper SFU slots in the area draw in air from the left. When flowing to the right, the air joins the air from the upper chassis. Two lower SFU slots in the area also draw in air from the left. When flowing to the right, the air joins the air from the lower chassis.

Figure 8-13 shows the air flow in the NE40E-X16.

Figure 8-13 Air flow in the NE40E-X16



8.5.2 Fan Speed Adjustment

This section describes the fan speed adjustment.

When the system is fully configured, temperatures reported by the temperature sensors on the LPUs, SFUs, and MPUs serve as the basis for fan speed adjustment. Table 8-20 lists general principles.

Table 8-20 Fan Speed Adjustment Principles

Ambient Temperature	Rotational Speed	Noise and Dissipation Standards
-5 °C - +27 °C (23 °F - 80.6 °F)	Low speed (50%)	When fans rotate at a constantly low speed and the fans meet heat dissipation requirements of a fully configured system.
27 °C - 40 °C (80.6 °F - 104 °F)	Linear variation	The fan speed is adjusted smoothly in linear mode, without a sharp increase in noises.
Over 40 °C (104 °F)	High speed (100%)	Fans rotate at high speed to meet heat dissipation requirements.

8.5.3 Fan Module

The fan modules, each containing one fan, are located side by side at the air exhaust vent. If a single fan fails, the system can still work normally at an ambient temperature of 40 °C (104 °F) for a short period of time.

Overview

Table 8-21 Fan attributes

Attribute	Description
Description	Fan Box
BOM	02120562
Model	CR5M000FBX60

Table 8-22 Mapping products and versions

Product	Earliest Software Version
X8	V800R006C20
X16	V800R006C20

Appearance



Indicators

Table 8-23 Description of indicators on the fan module

Item	Status Description
STATUS	Green If the indicator blinks, the fan module is working properly.
	Red If the indicator blinks, the fan module or PEM fails.

Technical Specifications

Table 8-24 Technical specifications

Item	Specification
Dimensions (H x W x D)	270.7 mm x 212.2 mm x 105 mm (10.65 in. x 8.35 in. x 4.13 in.)
Weight	3.3kg (7.27 lb)
Fan quantity	1
Power consumption	55 °C Ambient temperature: 200W 25 °C Ambient temperature: 30W

Item	Specification
Noise	Meets the NEBS requirements (<78dBA @ 27 °C)

8.5.4 Air Filter

The NE40E-X16 draws in air from the front and exhausts air from the rear. The two air filters on the upper and lower chassis are identical. To maximize air intake, the filters are fully perforated. Air filters are fixed to the chassis by fasteners to facilitate filter removal and replacement. Figure 8-14 shows the appearance of an air filter.

Figure 8-14 An air filter



The air channel in the SFU slot area is located on the left of the chassis. The air filter uses front access. The depth of the air filter is the same as that of an SFU and the height of the air filter is four times the height of an SFU as shown in Figure 8-15.

Figure 8-15 An air filter in the SFU slot area



Placing a black sponge air filter on the air intake vent helps to prevent dust from entering the system. Cleaning air filters at least once every three months is recommended.

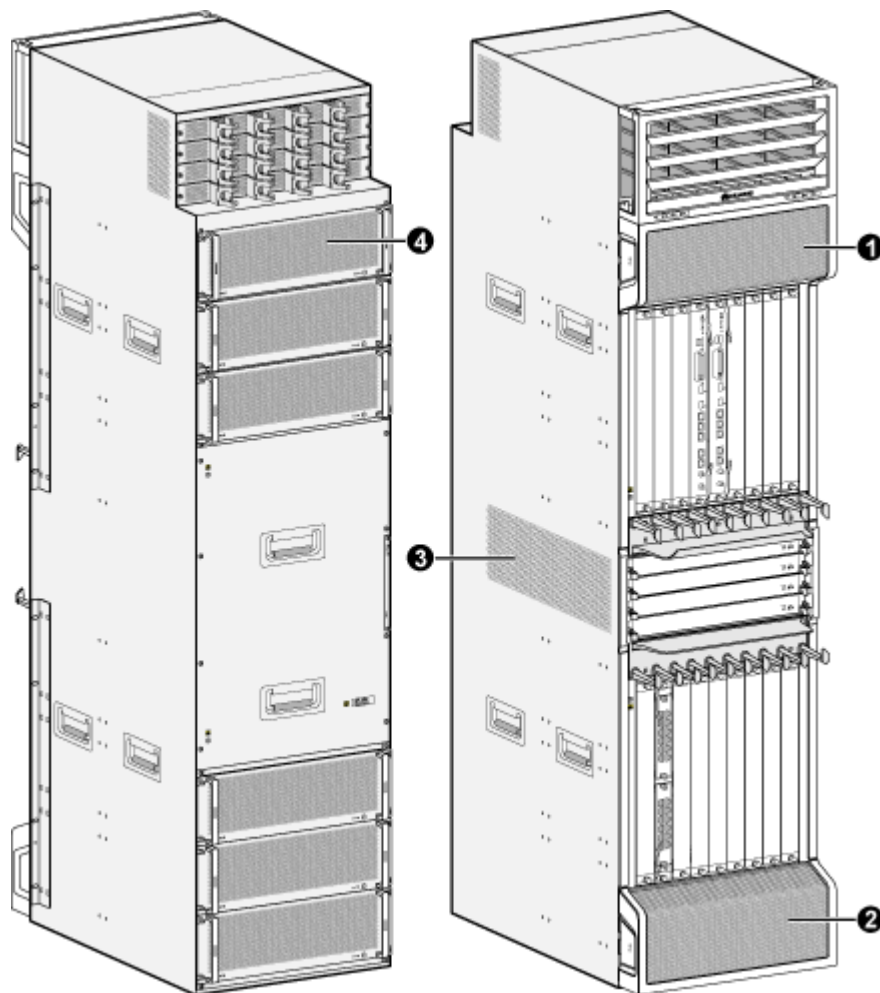
8.6 Heat Dissipation System of the NE40E-X16A

8.6.1 System Air Channel

The NE40E-X16A supports a maximum of six fan modules. For a platform with forwarding capacity as 400 Gbit/s or below, only four fan modules need to be configured. For a platform with forwarding capacity as 1 Tbit/s, six fan modules need to be configured. Each fan module consists of six fans.

Figure 8-16 shows the locations of the fan module and the air intake vent.

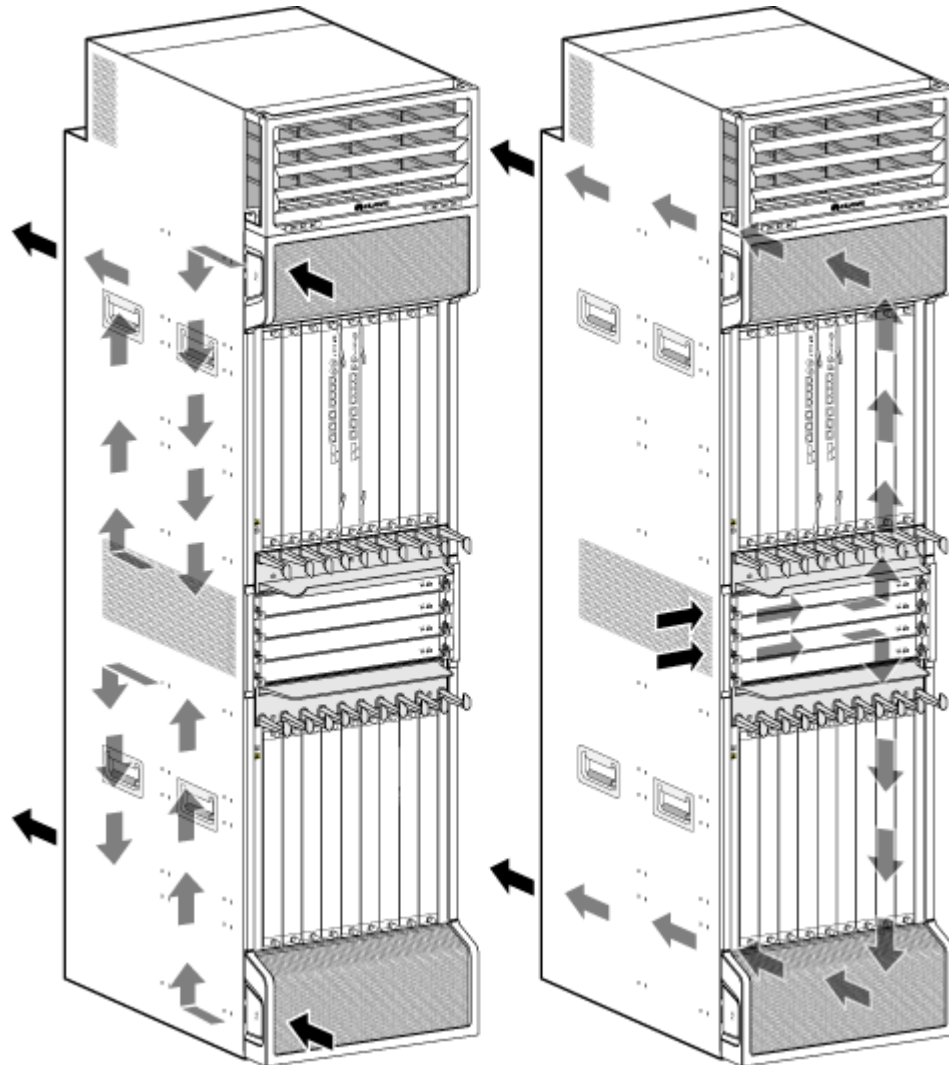
Figure 8-16 Locations of the fan module and the air channel



1. Upper air intake vent	2. Lower air intake vent	3. Air intake vent in the SFU area	4. Fan module
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The NE40E-X16A provides three air channels. Each of the upper board cage and the lower board cage has an air channel. Both air channels draw air from the front and exhausts air from the rear. The SFU slot area has an air channel. The air channel draws air from the left and exhausts air from the rear top and rear bottom. The system draws air for heat dissipation. Figure 8-17 shows air flows.

Figure 8-17 Diagram of air flows



8.6.2 Fan Speed Adjustment

This section describes the fan Speed adjustment.

When the system is in full configuration, the temperatures reported by the temperature sensors on the LPUs, SFUs, and MPUs serve as the basis for fan speed adjustment. General rules are listed as follows:

Table 8-25 Fan Speed Adjustment Principles

Ambient Temperature	Rotational Speed	Noise and Dissipation Standards
-5 °C - +27 °C (23 °F - 80.6 °F)	Low rotation speed (35%)	When fans rotate at a constantly low speed and the fans meet heat dissipation requirements of a fully configured system.
27 °C - 40 °C (80.6 °F - 104 °F)	Linear variation	The fan speed is adjusted smoothly in linear mode, without a sharp increase in noises.
Over 40 °C (104 °F)	High speed (100%)	Fans rotate at high speed to meet heat dissipation requirements.

8.6.3 Fan Module

The fan module is located on the air exhaust vent. When a single fan fails, the heat dissipation system enables the system to work for a short period of time at an ambient temperature of 40 °C (104 °F).

Overview

Table 8-26 Fan attributes

Attribute	Description
Description	Fan Box
BOM	02120866
Model	E000FBX08

Table 8-27 Mapping products and versions

Product	Earliest Software Version
X8A	V800R006C20
X16A	V800R006C20

Appearance



Indicators

Table 8-28 Description of indicators on the fan module

Item	Status Description
STATUS	<p>Green:</p> <ul style="list-style-type: none"> If the indicator blinks once every two seconds (0.5 Hz), the fan module is working properly. If the indicator blinks four times every second (4 Hz), the fan module is registering. <p>Red:</p> <ul style="list-style-type: none"> If the indicator blinks once every two seconds (0.5 Hz), the fan module is faulty. <p>Orange:</p> <ul style="list-style-type: none"> If the indicator is steady on, the fan module is faulty.

Technical Specifications

Table 8-29 Technical specifications

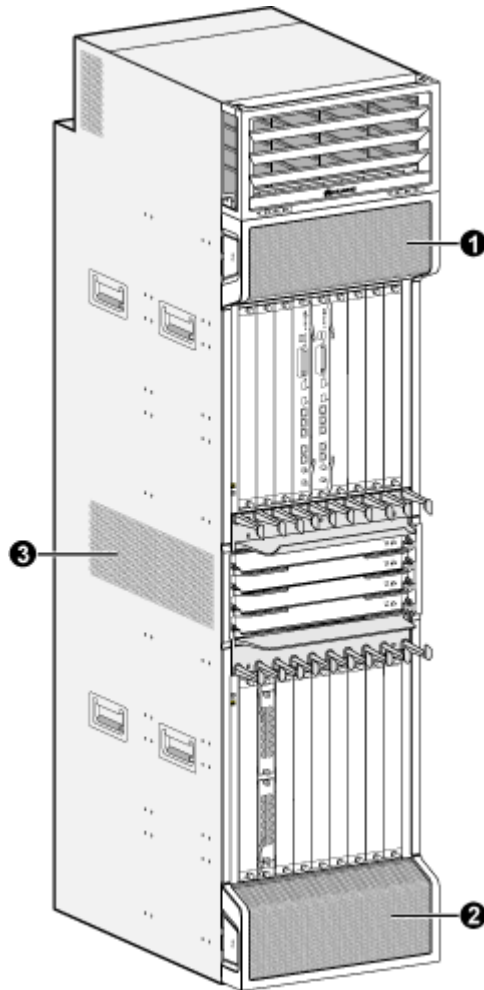
Item	Specification
Dimensions (H x W x D)	131 mm x 440 mm x 120 mm (5.16 in. x 17.32 in. x 4.72 in.)
Weight	5.4 kg (11.90 lb)
Fan quantity	6
Power consumption	55 °C Ambient temperature: 500W 25 °C Ambient temperature: 48W
Noise	Meets the NEBS requirements (<78dBA @ 27 °C)

8.6.4 Air Filter

A black sponge air filter on the air intake vent prevents dust from getting into the system. The air filter can be removed and cleaned. Cleaning air filters once every three months is recommended.

The NE40E-X16A has three air filters, the locations of which are shown in Figure 8-18.

Figure 8-18 Location of air filters



1. Upper air filter	2. Lower air filter	3. Air filter in the SFU area
---------------------	---------------------	-------------------------------

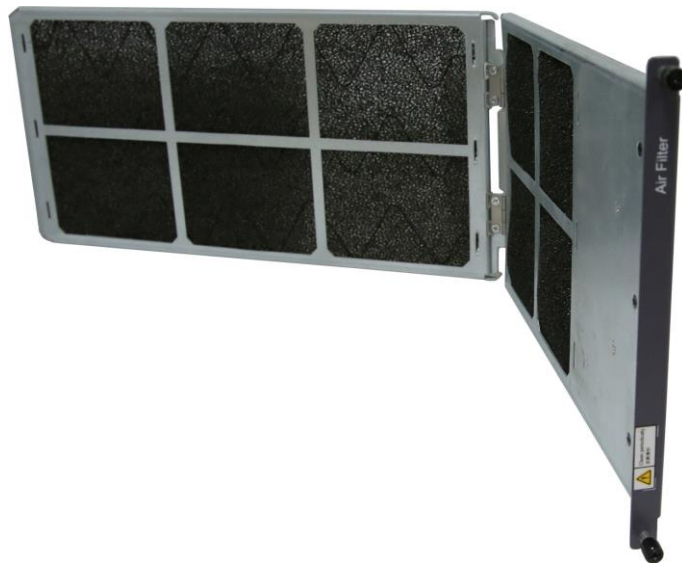
The appearance of the air filter is shown in Figure 8-19.

Figure 8-19 Appearance of the air filter



The appearance of the air filter in the SFU slot area is shown in Figure 8-20.

Figure 8-20 Appearance of the air filter in the SFU slot area



9 Boards

About This Chapter

This chapter describes the boards of the device.

9.1 Overview

This chapter describes the appearance and structure of boards and subcards, filler panel, board and subcard specifications, rules for numbering slots and interfaces.

9.2 Control Plane

9.3 Switching Network

9.4 VSUF

9.5 LPUI-21-L

9.6 LPUF-50

9.7 LPUF-51

9.8 LPUI-51

9.9 LPUI-51-E

9.10 LPUS-51

9.11 LPUF-101

9.12 LPUI-101

9.13 LPUS-101

9.14 LPUF-102

9.15 LPUF-120

9.16 LPUI-120

9.17 LPUF-200

9.18 LPUI-200

9.19 LPUF-240

9.20 LPUI-240

- 9.21 LPUF-480
- 9.22 LPUI-480
- 9.23 LPUI-1T

9.1 Overview

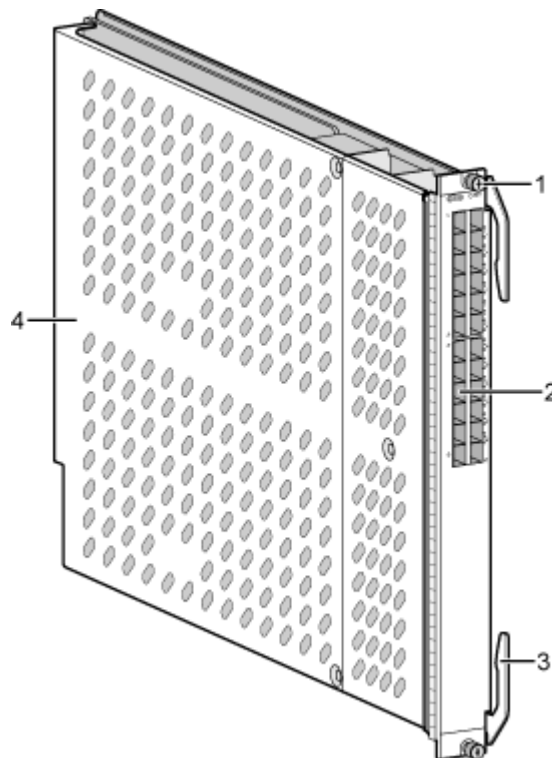
This chapter describes the appearance and structure of boards and subcards, filler panel, board and subcard specifications, rules for numbering slots and interfaces.

9.1.1 Board Structure

This section describes the appearance and structure of boards and subcards.

- Structure of the integrated board
The integrated board on the NE40E is a plug-in board and consists of the circuit board, connector, heat sinks, interface panel, ejector lever, and captive screws, as shown in Figure 9-1.

Figure 9-1 Structure of the integrated board



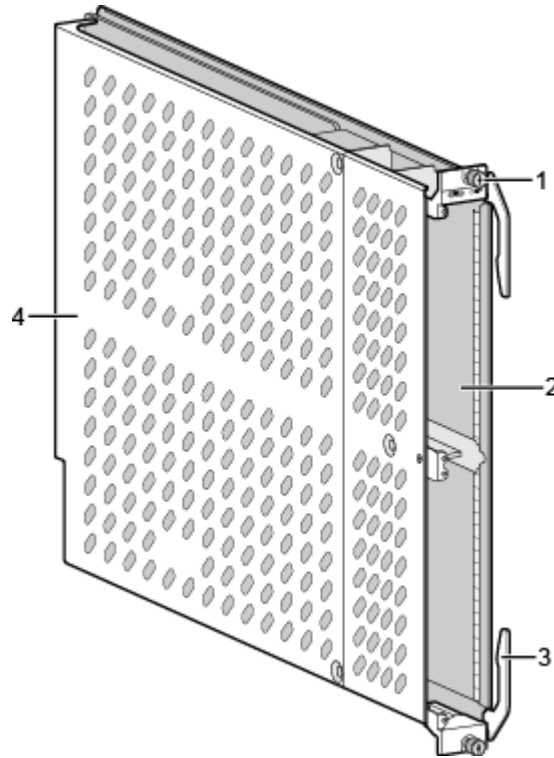
1. Captive screw 2. Interfaces 3. Ejector lever 4. Protection cover

- Structure of the flexible board
A flexible board consists of two parts:
 - Motherboard

- Flexible subcard
- Structure of the motherboard

The flexible board is a plug-in board and consists of the circuit board, connector, heat sinks, interface panel, ejector lever, and captive screws, as shown in Figure 9-2.

Figure 9-2 Structure of the flexible board

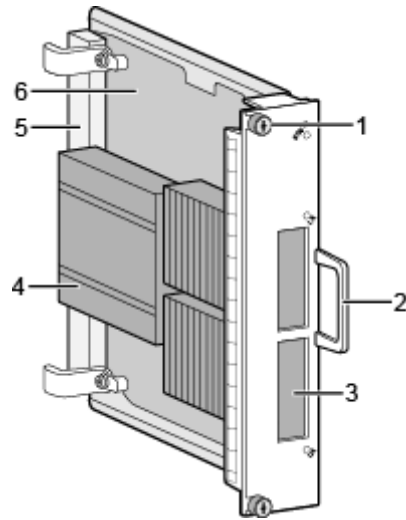


1. Captive screw 2. Subcard slots 3. Ejector lever 4. Protection cover

- Flexible subcard

The flexible subcard is a plug-in board and consists of the circuit board, connector, heat sinks, interface panel, ejector lever, and captive screws, as shown in Figure 9-3.

Figure 9-3 Structure of the flexible subcard



- | | | | | | |
|------------------|------------------|---------------|---------------|--------------|------------------|
| 1. Captive screw | 2. Ejector lever | 3. Interfaces | 4. Heat sinks | 5. Connector | 6. Circuit board |
|------------------|------------------|---------------|---------------|--------------|------------------|

9.1.2 Board and Subcard Specifications

This section describes the board and subcard specifications.

Height, Width, and Depth

Figure 9-4 and Figure 9-5 show the height, width, and depth.

Figure 9-4 Board

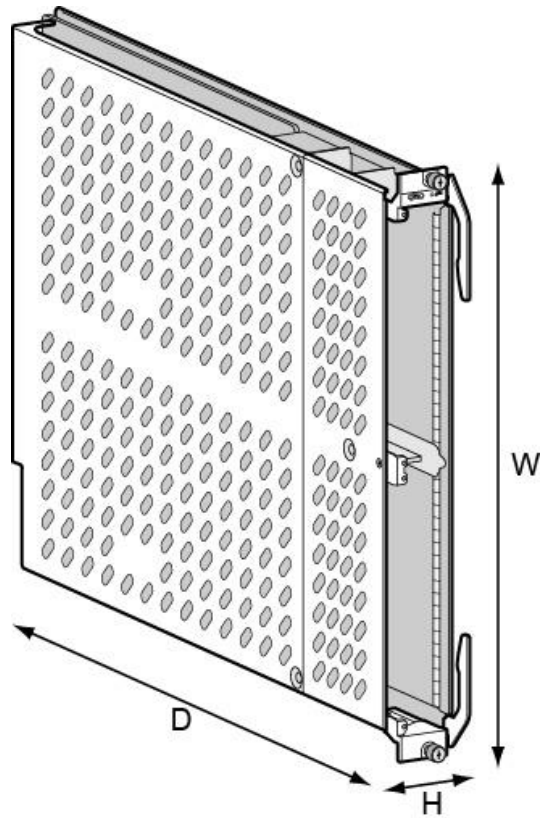
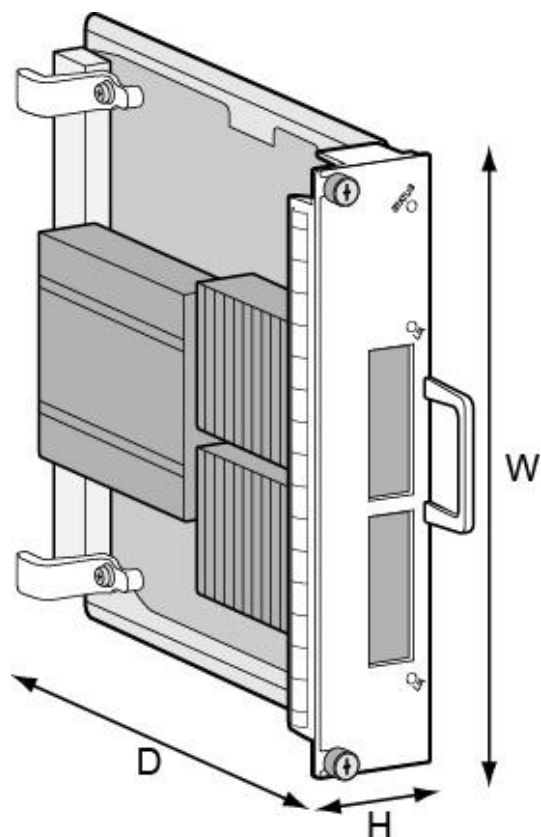


Figure 9-5 Subcard

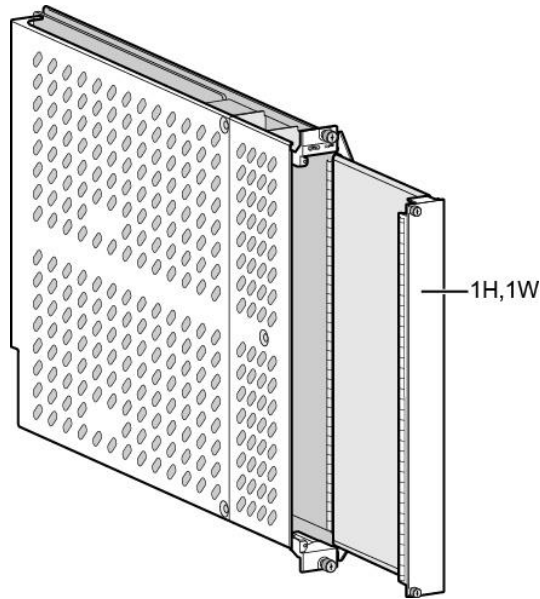


Subcard Specifications

There are three subcard specifications.

- Full-dimensional subcard (1H, 1W)
Only one full-dimensional subcard (1H, 1W) can be installed on an LPU motherboard, as shown in Figure 9-6.

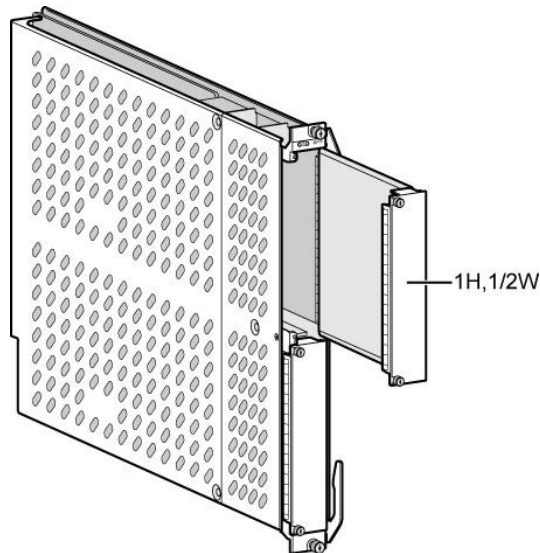
Figure 9-6 Full-dimensional subcard (1H, 1W)



- Full-height half-width subcard (1H, 1/2W)

Two full-height half-width subcards (1H, 1/2W) can be installed on an LPU motherboard, as shown in Figure 9-7.

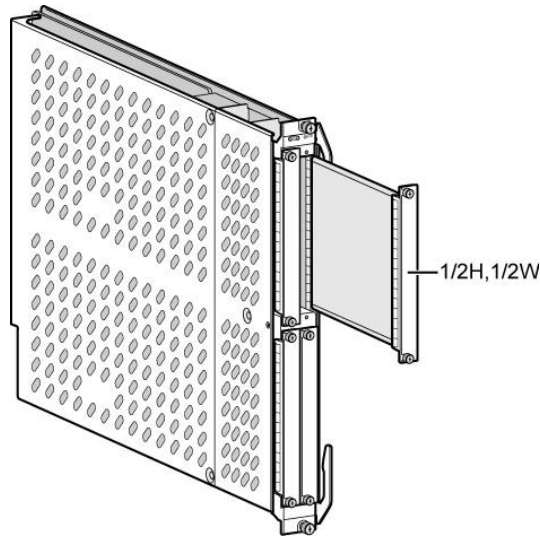
Figure 9-7 Full-height half-width subcard (1H, 1/2W)



- Half-height half-width subcard (1/2H, 1/2W)

Four half-height half-width subcards (1/2H, 1/2W) can be installed on an LPU motherboard, as shown in Figure 9-8.

Figure 9-8 Half-height half-width subcard (1/2H, 1/2W)



9.1.3 Filler Panel

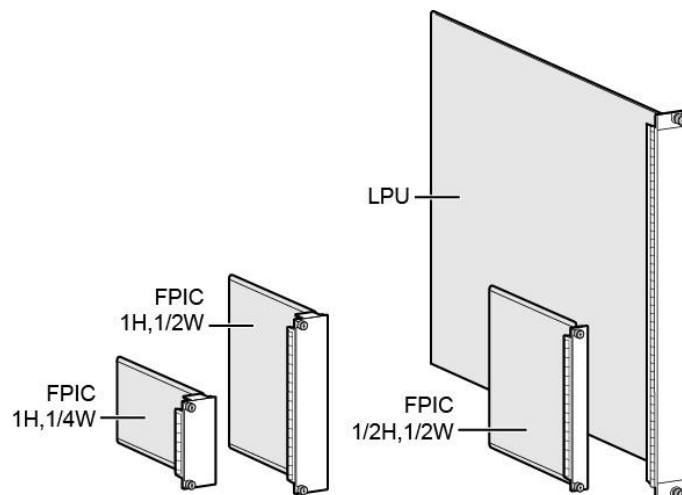
The filler panel can be used to fill the idle board or subcard slots to ensure normal device operations.

Filler Panel Appearance

A filler panel does not house any indicators, interfaces, circuit boards, heat sinks, or connectors.

Figure 9-9 shows the appearance of various board and subcard filler panels.

Figure 9-9 Filler panel appearance



Filler Panel Functions

The main functions of a filler panel are described as follows:

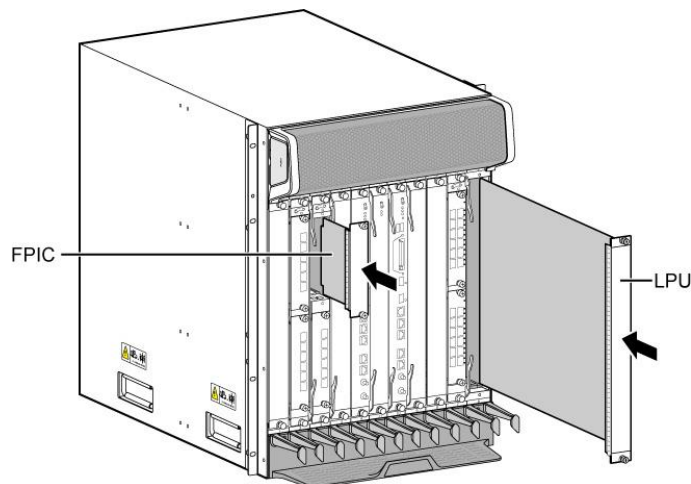
- Provides electromagnetic shielding performance to protect the chassis against electromagnetic radiation.
- Fills the idle slots to ensure normal operation of the heat dissipation system.
- Frees the chassis from dust.
- Covers the internal circuits.

Example

All the LPU slots on the chassis are equipped with filler panels by default. One filler panel is removed only when a board is to be installed in the slot.

Use the NE40E-X8 as an example. Figure 9-10 shows how filler panels are installed on the chassis.

Figure 9-10 Filler panels on the NE40E-X8



9.1.4 Rules for Numbering Slots and Interfaces

This section describes the rules for numbering slots and interfaces.

Numbering rules

- Slots are numbered in left-right and top-down order. The slot number is marked on the slots.

Use the NE40E-X8 as an example. Slot numbers start from 1 and range from 1 to 8, as shown in Figure 9-11.

Figure 9-11 Slot layout on the NE40E-X8

1	2	3	4	9	11	10	5	6	7	8
L P U	L P U	L P U	L P U	S R U	S F U	S R U	L P U	L P U	L P U	L P U
1	2	3	4	9	11	10	5	6	7	8

- Slot numbers
 The slot numbers start from 0. Figure 9-12, Figure 9-13, and Figure 9-14 show the numbering rules.

Figure 9-12 Numbering rules for the full-dimensional subcard (1H, 1W)

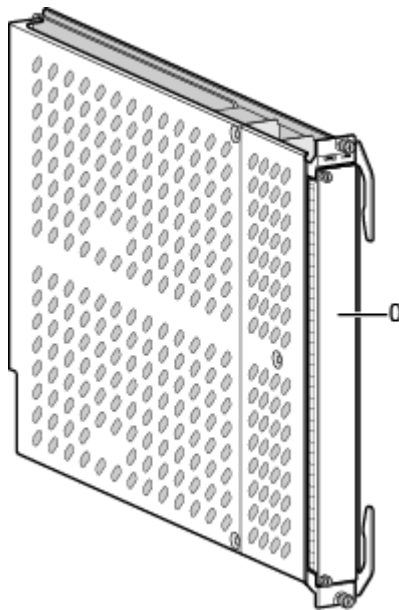


Figure 9-13 Numbering rules for the full-height half-width subcard (1H, 1/2W)

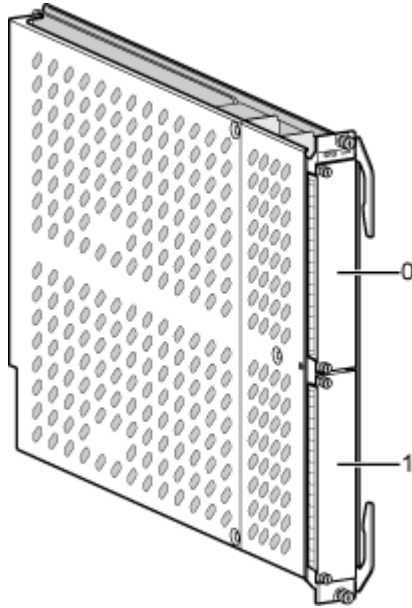
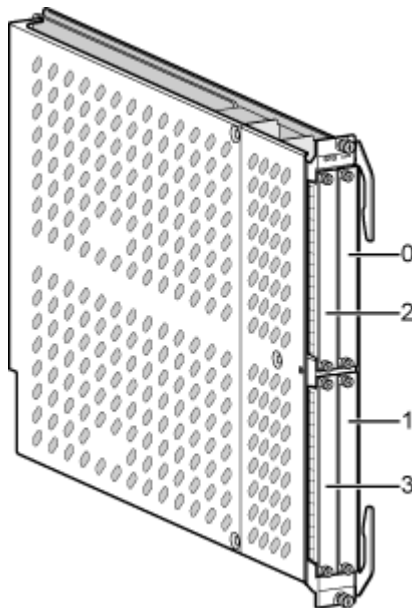
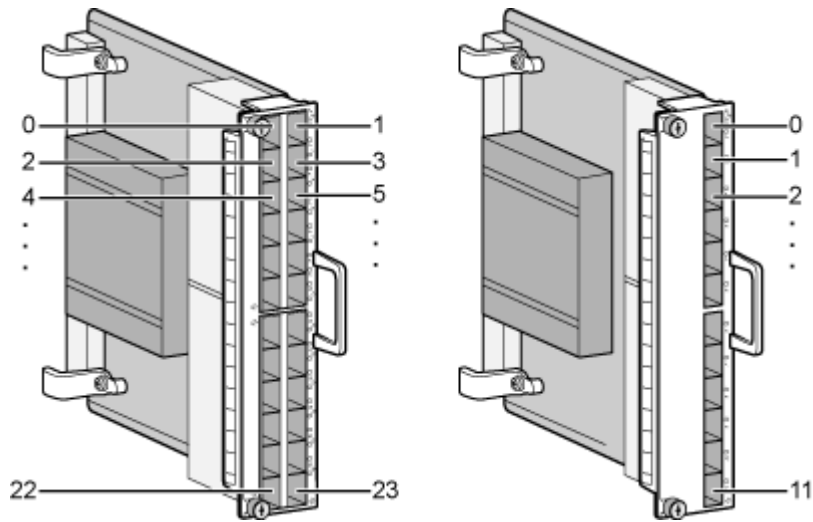


Figure 9-14 Numbering rules for the half-height half-width subcard (1/2H, 1/2W)



- **Interface number**
Interfaces are numbered from 0 in left-right and top-down order.
Interfaces are arranged in a single row or two rows. Figure 9-15 shows how interfaces are numbered.

Figure 9-15 Interface numbers

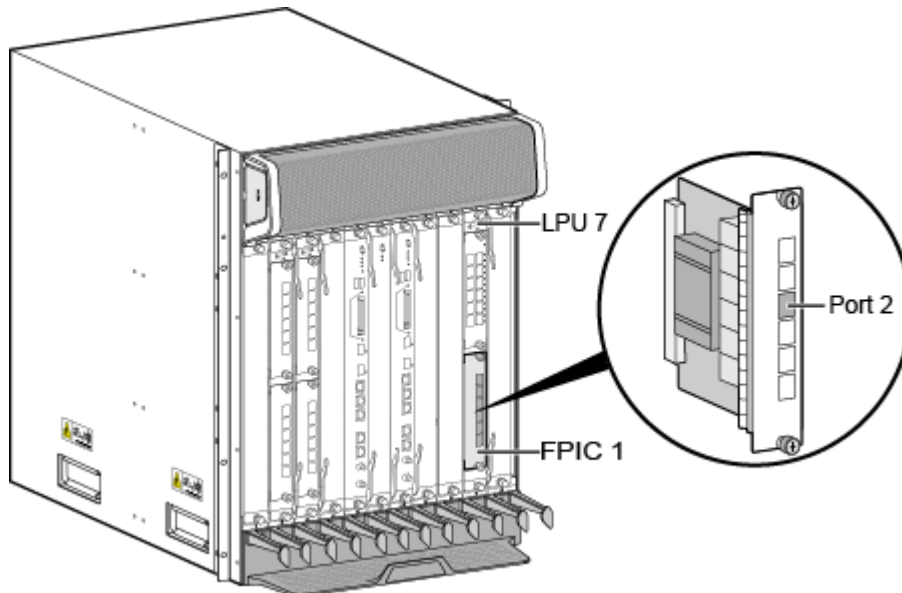


Example for Naming Interfaces

Interfaces are named in the format of LPU slot/FPIC slot/interface number.

Use the NE40E-X8 as an example. As shown in Figure 9-16, the LPU slot number is 7, the FPIC slot number is 1, and the interface number is 2. Therefore, the interface is named 7/1/2.

Figure 9-16 Interface numbers



 **NOTE**

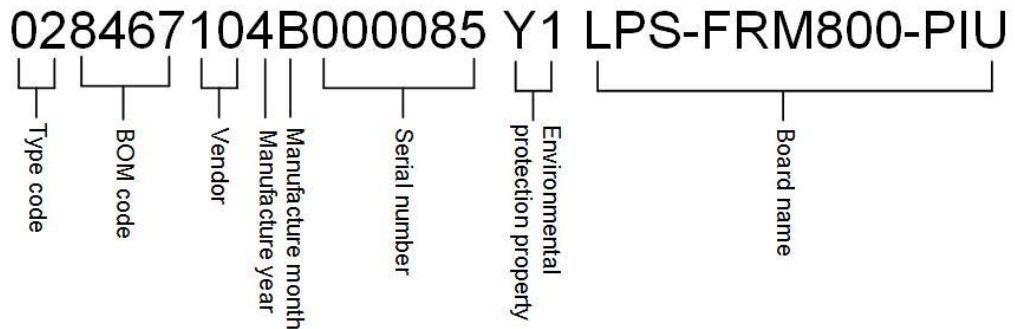
- If the LPU is a fixed interface board, the FPIC slot number is considered 0.
- If the LPU slot number is special, use the actual board information to name the interface.

9.1.5 Bar Code for Boards

The bar code of a board is provided on the front panel of the board and contains the basic information about the board, including the BOM code and delivery time.

The bar code of a board provides the feature information about the board and varies according to boards. Figure 9-17 shows a bar code and Table 9-1 provides the description of the bar code.

Figure 9-17 Bar code of a board



NOTE

The bar code in the figure is only an example and it may differ in practice.

Table 9-1 Description of the bar code of a board

Item	Description
Type Code	Indicates whether a board is a manufactured or finished board. "02" indicates a manufactured board and "03" indicates a finished board.
BOM Code	Indicates the last four digits of the BOM code of a board.
Vendor	Indicates the vendor of a board. "10" indicates Huawei.
Manufacture Year	Indicates the last digit of the year when a board is manufactured. For example, "4" indicates 2004. From 2010 onwards, a letter is used to indicate the manufacture year. For example, the letter A indicates 2010, the letter B indicates 2011, and so on.
Manufacture Month	Indicates the month when a board is manufactured. The value is expressed in hexadecimal format. For example, the letter B indicates November.
Serial Number	Indicates the production serial number of a board. The value ranges from 000001 to 999999.
Environmental Protection Property	Indicates the environmental protection property of a board.
Board Name	Indicates the name and associated information about a board.

9.2 Control Plane

9.2.1 Introduction to the Control Plane

This section describes the functions of the control plane.

The control plane of the NE40E-X16A is separated from the data plane and the monitoring plane.

The MPU on the NE40E-X16A is responsible for system control and management, including route calculation, device management and maintenance, and device monitoring.

System Control and Management Unit

As the system control and management unit, the MPU provides the following functions on the system control panel:

- **Route calculation:** All routing protocol packets are sent by the forwarding engine to the MPU for processing. In addition, the MPU broadcasts and filters packets, and downloads routing policies from the policy server.
- **Outband communication between boards:** The LAN switch modules integrated on the MPU provide outband communications between boards. In this manner, messages can be controlled, maintained, and exchanged between SFUs and LPUs.
- **Device management and maintenance:** Devices can be managed and maintained through the management interfaces (serial interfaces) provided by the MPU.
- **Data configuration:** The MPU stores configuration data, startup files, charging information, upgrade software, and system logs.

System Clock Unit

As the system clock unit, the MPU provides accurate and reliable SDH clock signals for LPUs. The MPU can provide three-channel 2.048 MHz synchronous clock signals for the downstream devices, or receive 2.048 MHz or 2.048 Mbit/s external reference clock signals.

To support IEEE 1588v2, that is, the Precision Time Protocol (PTP), the SDH clock interface can input time information in multiple formats by selecting specific software.

System Maintenance Unit

As the system maintenance unit, the MPU collects monitored information to test system units locally or remotely or perform in-service upgrades on system units.

The MPU periodically collects information about the operation of system units through the monitor bus. The MPU then generates related control information based on the collected information, for example, information collected by detecting board installations and adjusting fan speed. Through the joint test action group (JTAG) bus, the MPU remotely or locally tests system units or performs in-service upgrades on system units.

Reliability

The main control modules, clock modules, and LAN switch modules on the MPU work in 1:1 hot backup mode, thus improving system reliability.

The two MPUs work in 1:1 backup mode. Each MPU monitors the status of the other. If the master MPU is faulty, the slave MPU automatically becomes the master MPU.

9.2.2 Main Processing Unit D2(Including 2G Memory and 2G USB)

Overview

Table 9-2 Board attributes

Attribute	Description
Board name silkscreen	MPU
Description	Main Processing Unit D2(Including 2G Memory and 2G USB)
BOM	03054206
Model	CR5D0MPUD170

Table 9-3 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00

Appearance



Panel

Table 9-4 Buttons

Name	Description
OFL	Before removing a board, press and hold the OFL button for about 6 seconds until the OFL indicator turns on. Then, you can remove the

Name	Description
	board. This button takes effect only on the slave MPU.
RESET	When this button is pressed, the board is reset.

Table 9-5 Indicators

Name	Description
OFL (red)	If this indicator is on, you can remove the board.
RUN (green)	Before the board is powered on and registers, this indicator status changes in the following sequence: off > blinks quickly > steady on > blinks quickly > steady on > blinks slowly (0.5 Hz). After the board is powered on and registers, if this indicator blinks at 0.5 Hz, the system is working properly.
ALM (red)	If this indicator is steady on, an alarm is generated. If this indicator is off, no alarm is generated.
ACT (green)	If this indicator is steady on, the board functions as the master one. If this indicator is off, the board functions as the slave one.
MGMT-ETH LINK (green)(on Ethernet network interfaces)	If this indicator is steady on, the link is Up. If this indicator is off, the link is Down.
MGMT-ETH ACT (yellow)(on Ethernet network interfaces)	If this indicator is blinking, data is being transmitted and received. If this indicator is off, no data is being transmitted or received.

Table 9-6 Management interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
MGMT-ETH	Ethernet interface (10M/100M/1000M Base-TX autonegotiation)	RJ45	It connects to an NMS and can work in half-duplex or full-duplex mode.	Super category 5 shielded twisted pair
Console	RS-232 serial	RJ45	It connects to the console for	8-core shielded cable

Interface Name	Interface Type	Connector Type	Description	Cable
	interface		on-site system configuration. Baud rate: 9600 bit/s (default value), which is configurable.	
AUX	RS-232 serial interface	RJ45	It connects to the modem for remote maintenance by means of dial-up. Baud rate: 9600 bit/s (default value), which is configurable. Currently the device cannot be managed through the AUX interface. The AUX interface is reserved for further expansion.	8-core shielded cable
CLK	External synchronization interface	RJ45	Used to input or output external synchronization clock signals.	120-ohm clock cable
TOD	External synchronization interface	RJ45	Used to input or output external synchronization time signals.	120-ohm clock cable

Functional Specifications

Table 9-7 Functions and features

Functions and Features	Remarks
Reliability and availability	1:1 backup mode

Technical Specifications

Table 9-8 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 199.2 mm x 535.6 mm (1.58 in. x 7.84 in. x 21.09 in.)
Typical power consumption	32.0 W
Typical heat dissipation	103.8 BTU/hour
Weight	1.7 kg (3.75 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)
Processing unit	Single-core 1.2GHZ
SDRAM	2 GB(9*2Gb)
Flash	16 MB
Storage	eUSB:2 GB

9.2.3 Main Processing Unit D3(Including 4G Memory and 2G USB)

Overview

Table 9-9 Board attributes

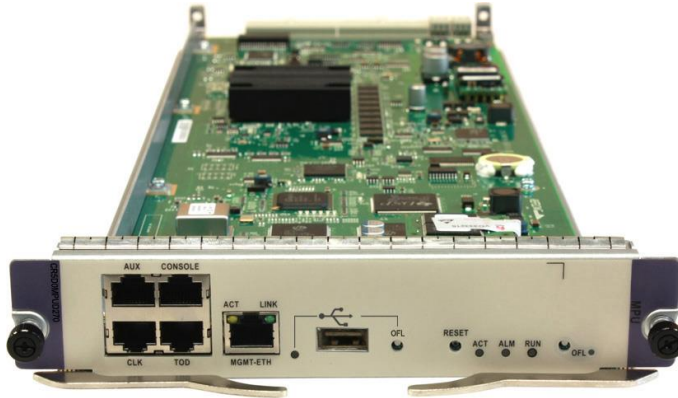
Attribute	Description
Board name silkscreen	MPU
Description	Main Processing Unit D3(Including 4G Memory and 2G USB)
BOM	03055705
Model	CR5D0MPUD270

Table 9-10 Mapping products and versions

Product	Earliest Software Version
---------	---------------------------

Product	Earliest Software Version
NE40E-X3	V800R007C00

Appearance



Panel

Table 9-11 Buttons

Name	Description
OFL	Before removing a board, press and hold the OFL button for about 6 seconds until the OFL indicator turns on. Then, you can remove the board. This button takes effect only on the slave MPU.
RESET	When this button is pressed, the board is reset.
USB OFL	Reserved.

Table 9-12 Indicators

Name	Description
OFL (red)	If this indicator is on, you can remove the board.
RUN (green)	Before the board is powered on and registers, this indicator status changes in the following sequence: off > blinks quickly > steady on > blinks quickly > steady on > blinks slowly (0.5 Hz). After the board is powered on and registers, if this indicator blinks at 0.5 Hz, the system is working properly.
ALM (red)	If this indicator is steady on, an alarm is generated. If this indicator is off, no alarm is generated.

Name	Description
ACT (green)	If this indicator is steady on, the board functions as the master one. If this indicator is off, the board functions as the slave one.
MGMT-ETH LINK (green)	If this indicator is steady on, the link is Up. If this indicator is off, the link is Down.
MGMT-ETH ACT (yellow)	If this indicator is blinking, data is being transmitted and received. If this indicator is off, no data is being transmitted or received.
USB OFL	Reserved.

Table 9-13 Management interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
MGMT-ETH	Ethernet interface (10M/100M/1000M Base-TX autonegotiation)	RJ45	It connects to an NMS and can work in half-duplex or full-duplex mode.	Super category 5 shielded twisted pair
Console	RS-232 serial interface	RJ45	It connects to the console for on-site system configuration. Baud rate: 9600 bit/s (default value), which is configurable.	8-core shielded cable
AUX	RS-232 serial interface	RJ45	It connects to the modem for remote maintenance by means of dial-up. Baud rate: 9600 bit/s (default value), which is configurable. Currently the device cannot be managed through the AUX interface. The AUX	8-core shielded cable

Interface Name	Interface Type	Connector Type	Description	Cable
			interface is reserved for further expansion.	
CLK	External synchronization interface	RJ45	Used to input or output external synchronization clock signals.	120-ohm clock cable
TOD	External synchronization interface	RJ45	Used to input or output external synchronization time signals.	120-ohm clock cable
USB	USB 2.0	USB Type A	The USB interface functions are available and reserved.	-

Functional Specifications

Table 9-14 Functions and features

Functions and Features	Remarks
Reliability and availability	1:1 backup mode

Technical Specifications

Table 9-15 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 199.2 mm x 535.6 mm (1.58 in. x 7.84 in. x 21.09 in.)
Typical power consumption	33.0 W
Typical heat dissipation	107.1 BTU/hour
Weight	1.7 kg (3.75 lb)

Item	Specification
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)
Processing unit	Single-core 1.2GHZ
SDRAM	4 GB(9*4Gb)
Flash	16 MB
Storage	eUSB:2 GB

9.2.4 Main Processing Unit D4

Overview

Table 9-16 Board attributes

Attribute	Description
Board name silkscreen	MPUD4
Description	Main Processing Unit D4
BOM	03056581
Model	CR5D0MPUD470

Table 9-17 Mapping products and versions

Product	Earliest Software Version
NE40E-X3A	V800R007C00

Appearance



Panel

Table 9-18 Buttons

Name	Description
OFL	Before removing a board, press and hold the OFL button for about 6 seconds until the OFL indicator turns on. Then, you can remove the board. This button takes effect only on the slave MPU.
RESET	When this button is pressed, the board is reset.
USB OFL	Reserved.

Table 9-19 Indicators

Name	Description
OFL (red)	If this indicator is on, you can remove the board.
RUN (green)	Before the board is powered on and registers, this indicator status changes in the following sequence: off > blinks quickly > steady on > blinks quickly > steady on > blinks slowly (0.5 Hz). After the board is powered on and registers, if this indicator blinks at 0.5 Hz, the system is working properly.
ALM (red)	If this indicator is steady on, an alarm is generated. If this indicator is off, no alarm is generated.
ACT (green)	If this indicator is steady on, the board functions as the master one. If this indicator is off, the board functions as the slave one.
GE	Reserved.
MGMT-ETH	If this indicator is steady on, the link is Up.

Name	Description
LINK (green)	If this indicator is off, the link is Down.
MGMT-ETH ACT (yellow)	If this indicator is blinking, data is being transmitted and received. If this indicator is off, no data is being transmitted or received.
USB OFL	If this green indicator is on, the USB device can be plugged out.

Table 9-20 Management interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
MGMT-ETH	Ethernet interface (10M/100M/1000M Base-TX autonegotiation)	RJ45	It connects to an NMS and can work in half-duplex or full-duplex mode.	Super category 5 shielded twisted pair
Console	RS-232 serial interface	RJ45	It connects to the console for on-site system configuration. Baud rate: 9600 bit/s (default value), which is configurable.	8-core shielded cable
AUX	RS-232 serial interface	RJ45	It connects to the modem for remote maintenance by means of dial-up. Baud rate: 9600 bit/s (default value), which is configurable. Currently the device cannot be managed through the AUX interface. The AUX interface is reserved for further expansion.	8-core shielded cable

Interface Name	Interface Type	Connector Type	Description	Cable
GE0, GE1	GE	SFP	Reserved cascading interface.	optical fiber
CLK	ExterN/AI synchronization interface	RJ45	Used to input or output exterN/AI synchronization clock signals.	120-ohm clock cable
TOD	ExterN/AI synchronization interface	RJ45	Used to input or output exterN/AI synchronization time signals.	120-ohm clock cable
USB	USB 2.0	USB Type A	The USB interface functions are uN/Available and reserved.	-

Functional Specifications

Table 9-21 Functions and features

Functions and Features	Remarks
Reliability and availability	1:1 backup mode

Technical Specifications

Table 9-22 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 199.2 mm x 535.6 mm (1.58 in. x 7.84 in. x 21.09 in.)
Typical power consumption	59.0 W
Typical heat dissipation	191.4 BTU/hour
Weight	2.4 kg (5.18 lb)

Item	Specification
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)
Processing unit	Quad-core 2.0GHz
SDRAM	8 GB x 1
Flash	16 MB
Storage	SSD card:8 GB

9.2.5 Main Processing Unit D4(16G Memory)

Overview

Table 9-23 Board attributes

Attribute	Description
Board name silkscreen	MPUD4
Description	Main Processing Unit D4(16G Memory)
BOM	03057248
Model	CR5D0MPUD471

Table 9-24 Mapping products and versions

Product	Earliest Software Version
NE40E-X3A	V800R008C10

Appearance



Panel

Table 9-25 Buttons

Name	Description
OFL	Before removing a board, press and hold the OFL button for about 6 seconds until the OFL indicator turns on. Then, you can remove the board. This button takes effect only on the slave MPU.
RST	When this button is pressed, the board is reset.
USB OFL	Reserved.

Table 9-26 Indicators

Name	Description
OFL (red)	If this indicator is on, you can remove the board.
RUN (green)	Before the board is powered on and registers, this indicator status changes in the following sequence: off > blinks quickly > steady on > blinks quickly > steady on > blinks slowly (0.5 Hz). After the board is powered on and registers, if this indicator blinks at 0.5 Hz, the system is working properly.
ALM (red)	If this indicator is steady on, an alarm is generated. If this indicator is off, no alarm is generated.
ACT (green)	If this indicator is steady on, the board functions as the master one. If this indicator is off, the board functions as the slave one.
GE	Reserved.
MGMT-ETH	If this indicator is steady on, the link is Up.

Name	Description
LINK (green)	If this indicator is off, the link is Down.
MGMT-ETH ACT (yellow)	If this indicator is blinking, data is being transmitted and received. If this indicator is off, no data is being transmitted or received.
USB OFL	If this green indicator is on, the USB device can be plugged out.

Table 9-27 Management interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
MGMT-ETH	Ethernet interface (10M/100M/1000M Base-TX autonegotiation)	RJ45	It connects to an NMS and can work in half-duplex or full-duplex mode.	Super category 5 shielded twisted pair
Console	RS-232 serial interface	RJ45	It connects to the console for on-site system configuration. Baud rate: 9600 bit/s (default value), which is configurable.	8-core shielded cable
AUX	RS-232 serial interface	RJ45	It connects to the modem for remote maintenance by means of dial-up. Baud rate: 9600 bit/s (default value), which is configurable. Currently the device cannot be managed through the AUX interface. The AUX interface is reserved for further expansion.	8-core shielded cable

Interface Name	Interface Type	Connector Type	Description	Cable
GE0, GE1	GE	SFP	Reserved cascading interface.	optical fiber
CLK	ExterN/AI synchronization interface	RJ45	Used to input or output exterN/AI synchronization clock signals.	120-ohm clock cable
TOD	ExterN/AI synchronization interface	RJ45	Used to input or output exterN/AI synchronization time signals.	120-ohm clock cable
USB	USB 2.0	USB Type A	The USB interface functions are uN/Available and reserved.	-

Functional Specifications

Table 9-28 Functions and features

Functions and Features	Remarks
Reliability and availability	1:1 backup mode

Technical Specifications

Table 9-29 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 199.2 mm x 535.6 mm (1.58 in. x 7.84 in. x 21.09 in.)
Typical power consumption	61.0 W
Typical heat dissipation	197.9 BTU/hour
Weight	2.4 kg (5.18 lb)

Item	Specification
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)
Processing unit	Quad-core 2.0GHz
SDRAM	8 GB x 2
Flash	16 MB
Storage	SSD card:8 GB

9.2.6 Switch and Route Processing Unit A5

Overview

Table 9-30 Board attributes

Attribute	Description
Board name silkscreen	SRUA5-200
Description	Switch and Route Processing Unit A5
BOM	03053549
Model	CR5D0SRUA570

Table 9-31 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R006C20

Appearance



Panel

Table 9-32 Buttons

Name	Description
OFL	Before removing a board, press and hold the OFL button for about 6 seconds until the OFL indicator turns on. Then, you can remove the board. This button takes effect only on the slave MPU.
RESET	When this button is pressed, the board is reset.
CF OFL	The button is used to power off the CF card. When this button is pressed, all CF card operations are ended, and the CF card is powered off.

Table 9-33 Indicators

Name	Description
OFL (red)	If this indicator is on, you can remove the board.
RUN (green)	Before the board is powered on and registers, this indicator status changes in the following sequence: off > blinks quickly > steady on > blinks quickly > steady on > blinks slowly (0.5 Hz). After the board is powered on and registers, if this indicator blinks at 0.5 Hz, the system is working properly.
ALM (red)	If this indicator is steady on, an alarm is generated. If this indicator is off, no alarm is generated.
ACT (green)	If this indicator is steady on, the board functions as the master one. If this indicator is off, the board functions as the slave one.
CF ACT (green)	If this indicator is steady on, the CF card is properly installed. If this indicator is blinking, data is being read or written. If this indicator is off, you can remove the CF card or the CF card is not installed.
CTL-ETH-SFP LINK/ACT	Reserved.
MGMT-ETH LINK (green)	If this indicator is steady on, the link is Up. If this indicator is off, the link is Down.
MGMT-ETH ACT (yellow)	If this indicator is blinking, data is being transmitted and received. If this indicator is off, no data is being transmitted or received.

Table 9-34 Management interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
USB	USB 2.0	USB Type A	The USB interface functions are uN/Available and reserved.	-
CF SLOT	CF card	TYPE II standard (compatible with TYPE I standard)	It is used to hold a CF card as a mass storage device.	-
CTL-ETH-SFP0, CTL-ETH-SFP1	GE	SFP	Reserved cascading interface.	-
MGMT-ETH	Ethernet interface (10M/100M/1000M Base-TX autonegotiation)	RJ45	It connects to an NMS and can work in half-duplex or full-duplex mode.	Super category 5 shielded twisted pair
Console	RS-232 serial interface	RJ45	It connects to the console for on-site system configuration. Baud rate: 9600 bit/s (default value), which is configurable.	8-core shielded cable
AUX	RS-232 serial interface	RJ45	It connects to the modem for remote maintenance by means of dial-up. Baud rate: 9600 bit/s (default value), which is configurable. Currently the device cannot be managed through the	8-core shielded cable

Interface Name	Interface Type	Connector Type	Description	Cable
			AUX interface. The AUX interface is reserved for further expansion.	
CLK/TOD 0, CLK/TOD 1	External synchronization interface	RJ45	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, 1pps+ASCII time signals, or two channels of DCLS time signals.	120-ohm clock cable
CLK/1PPS	External synchronization interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or 1 PPS signals.	75-ohm clock cable
CLK/Serial	External synchronization interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or RS-232 signals.	75-ohm clock cable

Functional Specifications

Table 9-35 Functions and features

Functions and Features	Remarks
Reliability and availability	1:1 backup mode

Technical Specifications

Table 9-36 Board specifications

Item	Specification
Dimensions (H x W x D)	35.1 mm x 399.2 mm x 535.6 mm (1.38 in. x 15.72 in. x 21.09 in.)
Typical power consumption	149.0 W
Typical heat dissipation	483.4 BTU/hour
Weight	4.8 kg (10.58 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)
Processing unit	Dual-core 1.5GHz
SDRAM	2 GB x 2
Flash	16 MB x 2
Storage	CF card:4 GB (2GB x2)

9.2.7 Switch and Route Processing Unit A7

Overview

Table 9-37 Board attributes

Attribute	Description
Board name silkscreen	SRUA
Description	Switch and Route Processing Unit A7
BOM	03054207
Model	CR5D0SRUA770

Table 9-38 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R008C10

Appearance



Panel

Table 9-39 Buttons

Name	Description
OFL	Before removing a board, press and hold the OFL button for about 6 seconds until the OFL indicator turns on. Then, you can remove the board. This button takes effect only on the slave MPU.
RESET	When this button is pressed, the board is reset.
CF OFL	The button is used to power off the CF card. When this button is pressed, all CF card operations are ended, and the CF card is powered off.

Table 9-40 Indicators

Name	Description
OFL (red)	If this indicator is on, you can remove the board.
RUN (green)	Before the board is powered on and registers, this indicator status changes in the following sequence: off > blinks quickly > steady on > blinks quickly > steady on > blinks slowly (0.5 Hz). After the board is powered on and registers, if this indicator blinks at 0.5 Hz, the system is working properly.
ALM (red)	If this indicator is steady on, an alarm is generated. If this indicator is off, no alarm is generated.
ACT (green)	If this indicator is steady on, the board functions as the master one. If this indicator is off, the board functions as the slave one.
CF ACT (green)	If this indicator is steady on, the CF card is properly installed. If this indicator is blinking, data is being read or written. If this indicator is off, you can remove the CF card or the CF card is not installed.

Name	Description
CTL-ETH-SFP LINK/ACT	Reserved.
MGMT-ETH LINK (green)	If this indicator is steady on, the link is Up. If this indicator is off, the link is Down.
MGMT-ETH ACT (yellow)	If this indicator is blinking, data is being transmitted and received. If this indicator is off, no data is being transmitted or received.

Table 9-41 Management interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
USB	USB 2.0	USB Type A	The USB interface functions are uN/Available and reserved.	-
CF SLOT	CF card	TYPE II standard (compatible with TYPE I standard)	It is used to hold a CF card as a mass storage device.	-
CTL-ETH-SFP0, CTL-ETH-SFP1	GE	SFP	Reserved cascading interface.	-
MGMT-ETH	Ethernet interface (10M/100M/1000M Base-TX autonegotiation)	RJ45	It connects to an NMS and can work in half-duplex or full-duplex mode.	Super category 5 shielded twisted pair
Console	RS-232 serial interface	RJ45	It connects to the console for on-site system configuration. Baud rate: 9600 bit/s (default value), which is configurable.	8-core shielded cable

Interface Name	Interface Type	Connector Type	Description	Cable
AUX	RS-232 serial interface	RJ45	It connects to the modem for remote maintenance by means of dial-up. Baud rate: 9600 bit/s (default value), which is configurable. Currently the device cannot be managed through the AUX interface. The AUX interface is reserved for further expansion.	8-core shielded cable
CLK/TOD0, CLK/TOD1	External synchronization interface	RJ45	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, 1pps+ASCII time signals, or two channels of DCLS time signals.	120-ohm clock cable
CLK/1PPS	External synchronization interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or 1 PPS signals.	75-ohm clock cable
CLK/Serial	External synchronization interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or RS-232 signals.	75-ohm clock cable

Functional Specifications

Table 9-42 Functions and features

Functions and Features	Remarks
Reliability and availability	1:1 backup mode

Technical Specifications

Table 9-43 Board specifications

Item	Specification
Dimensions (H x W x D)	35.1 mm x 399.2 mm x 535.6 mm (1.38 in. x 15.72 in. x 21.09 in.)
Typical power consumption	125.0 W
Typical heat dissipation	405.6 BTU/hour
Weight	4.8 kg (10.58 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)
Processing unit	Dual-core 1.5GHz
SDRAM	2 GB x 2
Flash	16 MB x 2
Storage	CF card:4 GB (2GB x2)

9.2.8 Switch and Route Processing Unit B5

Overview

Table 9-44 Board attributes

Attribute	Description
Board name silkscreen	SRUB5-200
Description	Switch and Route Processing Unit B5
BOM	03057054
Model	CR5D0SRUB570

Table 9-45 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R008C10

Appearance



Panel

Table 9-46 Buttons

Name	Description
OFL	Before removing a board, press and hold the OFL button for about 6 seconds until the OFL indicator turns on. Then, you can remove the board. This button takes effect only on the slave MPU.
RST	When this button is pressed, the board is reset.

Table 9-47 Indicators

Name	Description
OFL (red)	If this indicator is on, you can remove the board.
RUN (green)	Before the board is powered on and registers, this indicator status changes in the following sequence: off > blinks quickly > steady on > blinks quickly > steady on > blinks slowly (0.5 Hz). After the board is powered on and registers, if this indicator blinks at 0.5 Hz, the system is working properly.
ALM (red)	If this indicator is steady on, an alarm is generated. If this indicator is off, no alarm is generated.
ACT (green)	If this indicator is steady on, the board functions as the master one. If this indicator is off, the board functions as the slave one.
Optical interface L/A	Reserved.

Name	Description
MGMT-ETH LINK (green)	If this indicator is steady on, the link is Up. If this indicator is off, the link is Down.
MGMT-ETH ACT (yellow)	If this indicator is blinking, data is being transmitted and received. If this indicator is off, no data is being transmitted or received.

Table 9-48 Management interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
FSP0, FSP1	Serial interface	RJ45	Reserved. It functions as an interface for fast chassis switchovers.	-
GE/10GE	GE/10GE	SFP+/SFP	Reserved cascading interface.	-
MGMT-ETH	Ethernet interface (10M/100M/1000M Base-TX autonegotiation)	RJ45	It connects to an NMS and can work in half-duplex or full-duplex mode.	Super category 5 shielded twisted pair
Console	RS-232 serial interface	RJ45	It connects to the console for on-site system configuration. Baud rate: 9600 bit/s (default value), which is configurable.	8-core shielded cable
AUX	RS-232 serial interface	RJ45	It connects to the modem for remote maintenance by means of dial-up. Baud rate: 9600 bit/s (default value), which is configurable. Currently the device cannot	8-core shielded cable

Interface Name	Interface Type	Connector Type	Description	Cable
			be maN/Aged through the AUX interface. The AUX interface is reserved for further expansion.	
CLK/TOD0, CLK/TOD1	External synchronization interface	RJ45	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, 1pps+ASCII time signals, or two channels of DCLS time signals.	120-ohm clock cable
CLK/1PPS	External synchronization interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or 1 PPS signals.	75-ohm clock cable
CLK/Serial	External synchronization interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or RS-232 signals.	75-ohm clock cable

Functional Specifications

Table 9-49 Functions and features

Functions and Features	Remarks
Reliability and availability	1:1 backup mode

Technical Specifications

Table 9-50 Board specifications

Item	Specification
Dimensions (H x W x D)	35.1 mm x 399.2 mm x 535.6 mm (1.38 in. x 15.72 in. x 21.09 in.)
Typical power consumption	177.0 W
Typical heat dissipation	574.3 BTU/hour
Weight	5.1 kg (11.25 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)
Processing unit	Quad-core 2.0GHz
SDRAM	8 GB x 2
Flash	16 MB
Storage	SSD card:8 GB

9.2.9 Switch and Route Processing Unit A8

Overview

Table 9-51 Board attributes

Attribute	Description
Board name silkscreen	SRUA-480-A
Description	Switch and Route Processing Unit A8
BOM	03056097
Model	CR5D0SRUA870

Table 9-52 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R006C20

Appearance



Panel

Table 9-53 Buttons

Name	Description
RST	When this button is pressed, the board is reset.

Table 9-54 Indicators

Name	Description
RUN (green)	Before the board is powered on and registers, this indicator status changes in the following sequence: off > blinks quickly > steady on > blinks quickly > steady on > blinks slowly (0.5 Hz). After the board is powered on and registers, if this indicator blinks at 0.5 Hz, the system is working properly.
ALM (red)	If this indicator is steady on, an alarm is generated. If this indicator is off, no alarm is generated.
ACT (green)	If this indicator is steady on, the board functions as the master one. If this indicator is off, the board functions as the slave one.
Optical interface L/A	Reserved.
MGMT-ETH LINK (green)	If this indicator is steady on, the link is Up. If this indicator is off, the link is Down.
MGMT-ETH ACT (yellow)	If this indicator is blinking, data is being transmitted and received. If this indicator is off, no data is being transmitted or received.

Table 9-55 Management interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
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Interface Name	Interface Type	Connector Type	Description	Cable
FSP0, FSP1	Serial interface	RJ45	Reserved. It functions as an interface for fast chassis switchovers.	-
GE/10GE	GE/10GE	SFP+/SFP	Reserved cascading interface.	-
MGMT-ETH	Ethernet interface (10M/100M/1000M Base-TX autonegotiation)	RJ45	It connects to an NMS and can work in half-duplex or full-duplex mode.	Super category 5 shielded twisted pair
Console	RS-232 serial interface	RJ45	It connects to the console for on-site system configuration. Baud rate: 9600 bit/s (default value), which is configurable.	8-core shielded cable
AUX	RS-232 serial interface	RJ45	It connects to the modem for remote maintenance by means of dial-up. Baud rate: 9600 bit/s (default value), which is configurable. Currently the device cannot be managed through the AUX interface. The AUX interface is reserved for further expansion.	8-core shielded cable
CLK/TOD0, CLK/TOD	External synchronous	RJ45	Used to input or output 2-Mbit/s clock	120-ohm clock cable

Interface Name	Interface Type	Connector Type	Description	Cable
1	zation interface		signals, 2-MHz clock signals, 1pps+ASCII time signals, or two channels of DCLS time signals.	
CLK/1PPS	ExterN/A l synchroni zation interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or 1 PPS signals.	75-ohm clock cable
CLK/Serial	ExterN/A l synchroni zation interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or RS-232 signals.	75-ohm clock cable

Functional Specifications

Table 9-56 Functions and features

Functions and Features	Remarks
Reliability and availability	1:1 backup mode

Technical Specifications

Table 9-57 Board specifications

Item	Specification
Dimensions (H x W x D)	30 mm x 386.8 mm x 534.3 mm (1.18 in. x 15.23 in. x 21.04 in.)
Typical power consumption	200.0 W
Typical heat dissipation	648.9 BTU/hour

Item	Specification
Weight	6.3 kg (13.89 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)
Processing unit	Quad-core 2.0GHz
SDRAM	8 GB x 1
Flash	16 MB
Storage	SSD card:8 GB

9.2.10 Switch and Route Processing Unit A8(16G Memory)

Overview

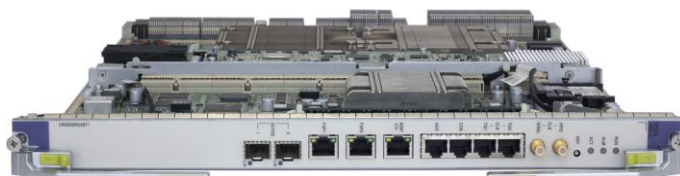
Table 9-58 Board attributes

Attribute	Description
Board name silkscreen	SRUA-480-A
Description	Switch and Route Processing Unit A8(16G Memory)
BOM	03057257
Model	CR5D0SRUA871

Table 9-59 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R008C10

Appearance



Panel

Table 9-60 Buttons

Name	Description
RST	When this button is pressed, the board is reset.

Table 9-61 Indicators

Name	Description
RUN (green)	Before the board is powered on and registers, this indicator status changes in the following sequence: off > blinks quickly > steady on > blinks quickly > steady on > blinks slowly (0.5 Hz). After the board is powered on and registers, if this indicator blinks at 0.5 Hz, the system is working properly.
ALM (red)	If this indicator is steady on, an alarm is generated. If this indicator is off, no alarm is generated.
ACT (green)	If this indicator is steady on, the board functions as the master one. If this indicator is off, the board functions as the slave one.
Optical interface L/A	Reserved.
MGMT-ETH LINK (green)	If this indicator is steady on, the link is Up. If this indicator is off, the link is Down.
MGMT-ETH ACT (yellow)	If this indicator is blinking, data is being transmitted and received. If this indicator is off, no data is being transmitted or received.

Table 9-62 Management interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
FSP0, FSP1	Serial interface	RJ45	Reserved. It functions as an interface for fast chassis switchovers.	-
GE/10GE	GE/10GE	SFP+/SFP	Reserved cascading interface.	-
MGMT-ETH	Ethernet interface	RJ45	It connects to an NMS and	Super category 5 shielded twisted pair

Interface Name	Interface Type	Connector Type	Description	Cable
	(10M/100M/1000M Base-TX autonegotiation)		can work in half-duplex or full-duplex mode.	
Console	RS-232 serial interface	RJ45	It connects to the console for on-site system configuration. Baud rate: 9600 bit/s (default value), which is configurable.	8-core shielded cable
AUX	RS-232 serial interface	RJ45	It connects to the modem for remote maintenance by means of dial-up. Baud rate: 9600 bit/s (default value), which is configurable. Currently the device cannot be managed through the AUX interface. The AUX interface is reserved for further expansion.	8-core shielded cable
CLK/TOD0, CLK/TOD1	External synchronization interface	RJ45	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, 1pps+ASCII time signals, or two channels of DCLS time signals.	120-ohm clock cable
CLK/1PPS	External synchronization	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz	75-ohm clock cable

Interface Name	Interface Type	Connector Type	Description	Cable
	interface		clock signals, or 1 PPS signals.	
CLK/Serial	External synchronization interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or RS-232 signals.	75-ohm clock cable

Functional Specifications

Table 9-63 Functions and features

Functions and Features	Remarks
Reliability and availability	1:1 backup mode

Technical Specifications

Table 9-64 Board specifications

Item	Specification
Dimensions (H x W x D)	30 mm x 386.8 mm x 534.3 mm (1.18 in. x 15.23 in. x 21.04 in.)
Typical power consumption	203.0 W
Typical heat dissipation	658.6 BTU/hour
Weight	6.3 kg (13.89 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)
Processing unit	Quad-core 2.0GHz
SDRAM	8 GB x 2
Flash	16 MB
Storage	SSD card:8 GB

9.2.11 Switch and Route Processing Unit A9

Overview

Table 9-65 Board attributes

Attribute	Description
Board name silkscreen	SRUA-1T-A
Description	Switch and Route Processing Unit A9
BOM	03056096
Model	CR5D0SRUA970

Table 9-66 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R006C20

Appearance



Panel

Table 9-67 Buttons

Name	Description
RST	When this button is pressed, the board is reset.

Table 9-68 Indicators

Name	Description
RUN (green)	Before the board is powered on and registers, this indicator status

Name	Description
	changes in the following sequence: off > blinks quickly > steady on > blinks quickly > steady on > blinks slowly (0.5 Hz). After the board is powered on and registers, if this indicator blinks at 0.5 Hz, the system is working properly.
ALM (red)	If this indicator is steady on, an alarm is generated. If this indicator is off, no alarm is generated.
ACT (green)	If this indicator is steady on, the board functions as the master one. If this indicator is off, the board functions as the slave one.
Optical interface L/A	Reserved.
MGMT-ETH LINK (green)	If this indicator is steady on, the link is Up. If this indicator is off, the link is Down.
MGMT-ETH ACT (yellow)	If this indicator is blinking, data is being transmitted and received. If this indicator is off, no data is being transmitted or received.

Table 9-69 Management interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
FSP0, FSP1	Serial interface	RJ45	Reserved. It functions as an interface for fast chassis switchovers.	-
GE/10GE	GE/10GE	SFP+/SFP	Reserved cascading interface.	-
MGMT-ETH	Ethernet interface (10M/100M/1000M Base-TX autonegotiation)	RJ45	It connects to an NMS and can work in half-duplex or full-duplex mode.	Super category 5 shielded twisted pair
Console	RS-232 serial interface	RJ45	It connects to the console for on-site system configuration. Baud rate: 9600 bit/s (default value), which is	8-core shielded cable

Interface Name	Interface Type	Connector Type	Description	Cable
			configurable.	
AUX	RS-232 serial interface	RJ45	It connects to the modem for remote maintenance by means of dial-up. Baud rate: 9600 bit/s (default value), which is configurable. Currently the device cannot be managed through the AUX interface. The AUX interface is reserved for further expansion.	8-core shielded cable
CLK/TOD0, CLK/TOD1	External synchronization interface	RJ45	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, 1pps+ASCII time signals, or two channels of DCLS time signals.	120-ohm clock cable
CLK/1PPS	External synchronization interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or 1 PPS signals.	75-ohm clock cable
CLK/Serial	External synchronization interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or RS-232 signals.	75-ohm clock cable

Functional Specifications

Table 9-70 Functions and features

Functions and Features	Remarks
Reliability and availability	1:1 backup mode

Technical Specifications

Table 9-71 Board specifications

Item	Specification
Dimensions (H x W x D)	30 mm x 386.8 mm x 534.3 mm (1.18 in. x 15.23 in. x 21.04 in.)
Typical power consumption	240.0 W
Typical heat dissipation	778.7 BTU/hour
Weight	6.3 kg (13.89 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)
Processing unit	Quad-core 2.0GHz
SDRAM	8 GB x 1
Flash	16 MB
Storage	SSD card:8 GB

9.2.12 Switch and Route Processing Unit A9(16G Memory)

Overview

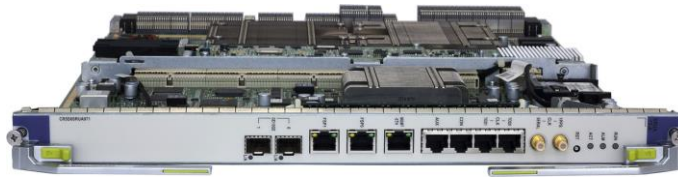
Table 9-72 Board attributes

Attribute	Description
Board name silkscreen	SRUA-1T-A
Description	Switch and Route Processing Unit A9(16G Memory)
BOM	03057261
Model	CR5D0SRUA971

Table 9-73 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R008C10

Appearance



Panel

Table 9-74 Buttons

Name	Description
RST	When this button is pressed, the board is reset.

Table 9-75 Indicators

Name	Description
RUN (green)	Before the board is powered on and registers, this indicator status changes in the following sequence: off > blinks quickly > steady on > blinks quickly > steady on > blinks slowly (0.5 Hz). After the board is powered on and registers, if this indicator blinks at 0.5 Hz, the system is working properly.
ALM (red)	If this indicator is steady on, an alarm is generated. If this indicator is off, no alarm is generated.
ACT (green)	If this indicator is steady on, the board functions as the master one. If this indicator is off, the board functions as the slave one.
Optical interface L/A	Reserved.
MGMT-ETH LINK (green)	If this indicator is steady on, the link is Up. If this indicator is off, the link is Down.
MGMT-ETH ACT (yellow)	If this indicator is blinking, data is being transmitted and received. If this indicator is off, no data is being transmitted or received.

Table 9-76 Management interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
FSP0, FSP1	Serial interface	RJ45	Reserved. It functions as an interface for fast chassis switchovers.	-
GE/10GE	GE/10GE	SFP+/SFP	Reserved cascading interface.	-
MGMT-ETH	Ethernet interface (10M/100M/1000M Base-TX autonegotiation)	RJ45	It connects to an NMS and can work in half-duplex or full-duplex mode.	Super category 5 shielded twisted pair
Console	RS-232 serial interface	RJ45	It connects to the console for on-site system configuration. Baud rate: 9600 bit/s (default value), which is configurable.	8-core shielded cable
AUX	RS-232 serial interface	RJ45	It connects to the modem for remote maintenance by means of dial-up. Baud rate: 9600 bit/s (default value), which is configurable. Currently the device cannot be managed through the AUX interface. The AUX interface is reserved for further expansion.	8-core shielded cable

Interface Name	Interface Type	Connector Type	Description	Cable
CLK/TOD0, CLK/TOD1	ExterN/A1 synchronization interface	RJ45	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, 1pps+ASCII time signals, or two channels of DCLS time signals.	120-ohm clock cable
CLK/1PPS	ExterN/A1 synchronization interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or 1 PPS signals.	75-ohm clock cable
CLK/Serial	ExterN/A1 synchronization interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or RS-232 signals.	75-ohm clock cable

Functional Specifications

Table 9-77 Functions and features

Functions and Features	Remarks
Reliability and availability	1:1 backup mode

Technical Specifications

Table 9-78 Board specifications

Item	Specification
Dimensions (H x W x D)	30 mm x 386.8 mm x 534.3 mm (1.18 in. x 15.23 in. x 21.04 in.)

Item	Specification
Typical power consumption	243.0 W
Typical heat dissipation	788.4 BTU/hour
Weight	6.3 kg (13.89 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)
Processing unit	Quad-core 2.0GHz
SDRAM	8 GB x 2
Flash	16 MB
Storage	SSD card:8 GB

9.2.13 Main Processing Unit B4

Overview

Table 9-79 Board attributes

Attribute	Description
Board name silkscreen	MPUB
Description	Main Processing Unit B4
BOM	03030JTW
Model	CR5D0MPUB460

Table 9-80 Mapping products and versions

Product	Earliest Software Version
NE40E-X16	V800R006C20

Appearance



Panel

Table 9-81 Buttons

Name	Description
OFL	Before removing a board, press and hold the OFL button for about 6 seconds until the OFL indicator turns on. Then, you can remove the board. This button takes effect only on the slave MPU.
RESET	When this button is pressed, the board is reset.
CF OFL	The button is used to power off the CF card. When this button is pressed, all CF card operations are ended, and the CF card is powered off.

Table 9-82 Indicators

Name	Description
OFL (red)	If this indicator is on, you can remove the board.
RUN (green)	Before the board is powered on and registers, this indicator status changes in the following sequence: off > blinks quickly > steady on > blinks quickly > steady on > blinks slowly (0.5 Hz). After the board is powered on and registers, if this indicator blinks at 0.5 Hz, the system is working properly.
ALM (red)	If this indicator is steady on, an alarm is generated. If this indicator is off, no alarm is generated.
ACT (green)	If this indicator is steady on, the board functions as the master one. If this indicator is off, the board functions as the slave one.
CF ACT (green)	If this indicator is steady on, the CF card is properly installed. If this indicator is blinking, data is being read or written. If this indicator is off, you can remove the CF card or the CF card is not installed.
CTL-ETH-SFP	Reserved.

Name	Description
LINK/ACT	
MGMT-ETH LINK (green)	If this indicator is steady on, the link is Up. If this indicator is off, the link is Down.
MGMT-ETH ACT (yellow)	If this indicator is blinking, data is being transmitted and received. If this indicator is off, no data is being transmitted or received.

Table 9-83 Management interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
USB	USB 2.0	USB Type A	The USB interface functions are uN/Available and reserved.	-
CF SLOT	CF card	TYPE II standard (compatible with TYPE I standard)	It is used to hold a CF card as a mass storage device.	-
CTL-ETH-SFP0, CTL-ETH-SFP1	GE	SFP	Reserved cascading interface.	-
MGMT-ETH	Ethernet interface (10M/100M/1000M Base-TX autonegotiation)	RJ45	It connects to an NMS and can work in half-duplex or full-duplex mode.	Super category 5 shielded twisted pair
Console	RS-232 serial interface	RJ45	It connects to the console for on-site system configuration. Baud rate: 9600 bit/s (default value), which is configurable.	8-core shielded cable
AUX	RS-232 serial	RJ45	It connects to the modem for	8-core shielded cable

Interface Name	Interface Type	Connector Type	Description	Cable
	interface		remote maintenance by means of dial-up. Baud rate: 9600 bit/s (default value), which is configurable. Currently the device cannot be managed through the AUX interface. The AUX interface is reserved for further expansion.	
CLK/TOD0, CLK/TOD1	External synchronization interface	RJ45	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, 1pps+ASCII time signals, or two channels of DCLS time signals.	120-ohm clock cable
CLK/1PPS	External synchronization interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or 1 PPS signals.	75-ohm clock cable
CLK/Serial	External synchronization interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or RS-232 signals.	75-ohm clock cable

Functional Specifications

Table 9-84 Functions and features

Functions and Features	Remarks
Reliability and availability	1:1 backup mode

Technical Specifications

Table 9-85 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	85.0 W
Typical heat dissipation	275.8 BTU/hour
Weight	4.2 kg (9.26 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)
Processing unit	Dual-core 1.5GHz
SDRAM	2 GB x 2
Flash	16 MB x 2
Storage	CF card:4 GB (2GB x2)

9.2.14 Main Processing Unit B5

Overview

Table 9-86 Board attributes

Attribute	Description
Board name silkscreen	MPUB
Description	Main Processing Unit B5
BOM	03055778
Model	CR5D0MPUB570

Table 9-87 Mapping products and versions

Product	Earliest Software Version
NE40E-X16	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-88 Buttons

Name	Description
OFL	Before removing a board, press and hold the OFL button for about 6 seconds until the OFL indicator turns on. Then, you can remove the board. This button takes effect only on the slave MPU.
RST	When this button is pressed, the board is reset.

Table 9-89 Indicators

Name	Description
OFL (red)	If this indicator is on, you can remove the board.
RUN (green)	Before the board is powered on and registers, this indicator status changes in the following sequence: off > blinks quickly > steady on > blinks quickly > steady on > blinks slowly (0.5 Hz). After the board is powered on and registers, if this indicator blinks at 0.5 Hz, the system is working properly.
ALM (red)	If this indicator is steady on, an alarm is generated. If this indicator is off, no alarm is generated.
ACT (green)	If this indicator is steady on, the board functions as the master one.

Name	Description
	If this indicator is off, the board functions as the slave one.
Optical interface L/A	Reserved.
MGMT-ETH LINK (green)	If this indicator is steady on, the link is Up. If this indicator is off, the link is Down.
MGMT-ETH ACT (yellow)	If this indicator is blinking, data is being transmitted and received. If this indicator is off, no data is being transmitted or received.

Table 9-90 Management interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
FSP0, FSP1	Serial interface	RJ45	Reserved. It functions as an interface for fast chassis switchovers.	-
GE/10GE	GE/10GE	SFP+/SFP	Reserved cascading interface.	-
MGMT-ETH	Ethernet interface (10M/100M/1000M Base-TX autonegotiation)	RJ45	It connects to an NMS and can work in half-duplex or full-duplex mode.	Super category 5 shielded twisted pair
Console	RS-232 serial interface	RJ45	It connects to the console for on-site system configuration. Baud rate: 9600 bit/s (default value), which is configurable.	8-core shielded cable
AUX	RS-232 serial interface	RJ45	It connects to the modem for remote maintenance by means of dial-up. Baud rate: 9600 bit/s (default value),	8-core shielded cable

Interface Name	Interface Type	Connector Type	Description	Cable
			which is configurable. Currently the device cannot be managed through the AUX interface. The AUX interface is reserved for further expansion.	
CLK/TOD0, CLK/TOD1	External synchronization interface	RJ45	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, 1pps+ASCII time signals, or two channels of DCLS time signals.	120-ohm clock cable
CLK/1PPS	External synchronization interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or 1 PPS signals.	75-ohm clock cable
CLK/Serial	External synchronization interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or RS-232 signals.	75-ohm clock cable

Functional Specifications

Table 9-91 Functions and features

Functions and Features	Remarks
Reliability and availability	1:1 backup mode

Technical Specifications

Table 9-92 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	90.0 W
Typical heat dissipation	292.0 BTU/hour
Weight	4.5 kg (9.92 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)
Processing unit	Quad-core 2.0GHz
SDRAM	8 GB x 1
Flash	16 MB
Storage	SSD card:8 GB

9.2.15 Main Processing Unit B5(16G Memory)

Overview

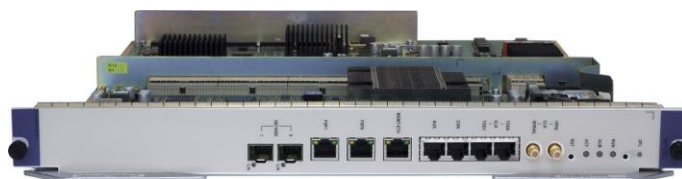
Table 9-93 Board attributes

Attribute	Description
Board name silkscreen	MPUB5
Description	Main Processing Unit B5(16G Memory)
BOM	03057244
Model	CR5D0MPUB571

Table 9-94 Mapping products and versions

Product	Earliest Software Version
NE40E-X16	V800R008C10
NE40E-X16A	V800R008C10

Appearance



Panel

Table 9-95 Buttons

Name	Description
OFL	Before removing a board, press and hold the OFL button for about 6 seconds until the OFL indicator turns on. Then, you can remove the board. This button takes effect only on the slave MPU.
RST	When this button is pressed, the board is reset.

Table 9-96 Indicators

Name	Description
OFL (red)	If this indicator is on, you can remove the board.
RUN (green)	Before the board is powered on and registers, this indicator status changes in the following sequence: off > blinks quickly > steady on > blinks quickly > steady on > blinks slowly (0.5 Hz). After the board is powered on and registers, if this indicator blinks at 0.5 Hz, the system is working properly.
ALM (red)	If this indicator is steady on, an alarm is generated. If this indicator is off, no alarm is generated.
ACT (green)	If this indicator is steady on, the board functions as the master one. If this indicator is off, the board functions as the slave one.
Optical interface L/A	Reserved.
MGMT-ETH LINK (green)	If this indicator is steady on, the link is Up. If this indicator is off, the link is Down.
MGMT-ETH ACT (yellow)	If this indicator is blinking, data is being transmitted and received. If this indicator is off, no data is being transmitted or received.

Table 9-97 Management interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
FSP0, FSP1	Serial interface	RJ45	Reserved. It functions as an interface for fast chassis switchovers.	-
GE/10GE	GE/10GE	SFP+/SFP	Reserved cascading interface.	-
MGMT-ETH	Ethernet interface (10M/100M/1000M Base-TX autonegotiation)	RJ45	It connects to an NMS and can work in half-duplex or full-duplex mode.	Super category 5 shielded twisted pair
Console	RS-232 serial interface	RJ45	It connects to the console for on-site system configuration. Baud rate: 9600 bit/s (default value), which is configurable.	8-core shielded cable
AUX	RS-232 serial interface	RJ45	It connects to the modem for remote maintenance by means of dial-up. Baud rate: 9600 bit/s (default value), which is configurable. Currently the device cannot be managed through the AUX interface. The AUX interface is reserved for further expansion.	8-core shielded cable
CLK/TOD0,	External	RJ45	Used to input or output	120-ohm clock cable

Interface Name	Interface Type	Connector Type	Description	Cable
CLK/TOD 1	synchronization interface		2-Mbit/s clock signals, 2-MHz clock signals, 1pps+ASCII time signals, or two channels of DCLS time signals.	
CLK/1PPS	ExterN/A 1 synchronization interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or 1 PPS signals.	75-ohm clock cable
CLK/Serial	ExterN/A 1 synchronization interface	SMB	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, or RS-232 signals.	75-ohm clock cable

Functional Specifications

Table 9-98 Functions and features

Functions and Features	Remarks
Reliability and availability	1:1 backup mode

Technical Specifications

Table 9-99 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	93.0 W

Item	Specification
Typical heat dissipation	301.7 BTU/hour
Weight	4.5 kg (9.92 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 F to 113 F) Short terms: -5 °C to 55 °C (23 F to 131 F)
Processing unit	Quad-core 2.0GHz
SDRAM	8 GB x 2
Flash	16 MB
Storage	SSD card:8 GB

9.2.16 Main Processing Unit B6

Overview

Table 9-100 Board attributes

Attribute	Description
Board name silkscreen	MPUB6
Description	Main Processing Unit B6
BOM	03057366
Model	CR5DMPUX8670

Table 9-101 Mapping products and versions

Product	Earliest Software Version
NE40E-X16A	V800R009C10

Appearance



Panel

Table 9-102 Buttons

Name	Description
OFL	Before removing a board, press and hold the OFL button for about 6 seconds until the OFL indicator turns on. Then, you can remove the board. This button takes effect only on the slave MPU.
RST	When this button is pressed, the board is reset.
USB OFL	USB OFL button, reserved for further expansion.

Table 9-103 Indicators

Name	Description
OFL (red)	If this indicator is on, you can remove the board.
RUN (green)	Before the board is powered on and registers, this indicator status changes in the following sequence: off > blinks quickly > steady on > blinks quickly > steady on > blinks slowly (0.5 Hz). After the board is powered on and registers, if this indicator blinks at 0.5 Hz, the system is working properly.
ALM (red)	If this indicator is steady on, an alarm is generated. If this indicator is off, no alarm is generated.
ACT (green)	If this indicator is steady on, the board functions as the master one. If this indicator is off, the board functions as the slave one.
Optical interface L/A	If this indicator is steady on, the link is Up. If this indicator is blinking, data is being transmitted and received. If this indicator is off, the link is Down.
MGMT-ETH LINK (green)	If this indicator is steady on, the link is Up. If this indicator is off, the link is Down.
MGMT-ETH ACT (yellow)	If this indicator is blinking, data is being transmitted and received. If this indicator is off, no data is being transmitted or received.
USB OFL	USB OFL indicator, reserved for further expansion.

Table 9-104 Management interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
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Interface Name	Interface Type	Connector Type	Description	Cable
FSP0, FSP1	Serial interface	RJ45	Reserved. It functions as an interface for fast chassis switchovers.	8-core shielded cable
GE/10GE	GE/10GE	SFP+/SFP	Reserved cascading interface.	Super category 5 shielded twisted pair
MGMT-ETH	Ethernet interface (10M/100M/1000M Base-TX autonegotiation)	RJ45	It connects to an NMS and can work in half-duplex or full-duplex mode.	Super category 5 shielded twisted pair
CON	RS-232 serial interface	RJ45	It connects to the console for on-site system configuration. Baud rate: 9600 bit/s (default value), which is configurable.	8-core shielded cable
AUX	RS-232 serial interface	RJ45	It connects to the modem for remote maintenance by means of dial-up. Baud rate: 9600 bit/s (default value), which is configurable. Currently the device cannot be managed through the AUX interface. The AUX interface is reserved for further expansion.	-
CLK	External synchronous	RJ45	Used to input or output 2-Mbit/s clock	120-ohm clock cable

Interface Name	Interface Type	Connector Type	Description	Cable
	ynchronization interface		signals, 2-MHz clock signals, 1pps time signals.	
TOD	ExterN/AI synchronization interface	RJ45	Used to input or output 1pps+ASCII time signals, or two channels of DCLS time signals.	120-ohm clock cable
CLK-INT	ExterN/AI synchronization interface	RJ45	Used to input or output 2-Mbit/s clock signals, 2-MHz clock signals, 1pps+ASCII time signals, or two channels of DCLS time signals.	120-ohm clock cable
SMB	ExterN/AI synchronization interface	SMB	Used to exterN/AI synchronization interface.	75-ohm clock cable
USB	Reserved for further expansion	USB	USB Type A	-

Functional Specifications

Table 9-105 Functions and features

Functions and Features	Remarks
Reliability and availability	1:1 backup mode.

Technical Specifications

Table 9-106 Board specifications

Item	Specification
Dimensions (H x W x D)	41 mm x 398 mm x 554 mm (1.61 in. x 15.67 in. x 21.81 in.)
Typical power consumption	170.0 W
Typical heat dissipation	551.6 BTU/hour
Weight	7.5 kg (16.54 lb)
Ambient temperature	Long terms: 0 °C to 40 °C (32 °F to 104 °F) Short terms: -5 °C to 50 °C (23 °F to 122 °F)
Processing unit	Octa-core 2.3GHZ
SDRAM	32 GB
Flash	16 MB
Storage	SSD card: 32GB

9.3 Switching Network

9.3.1 Introduction to the Switching Network

This section describes the principle of the SFU.

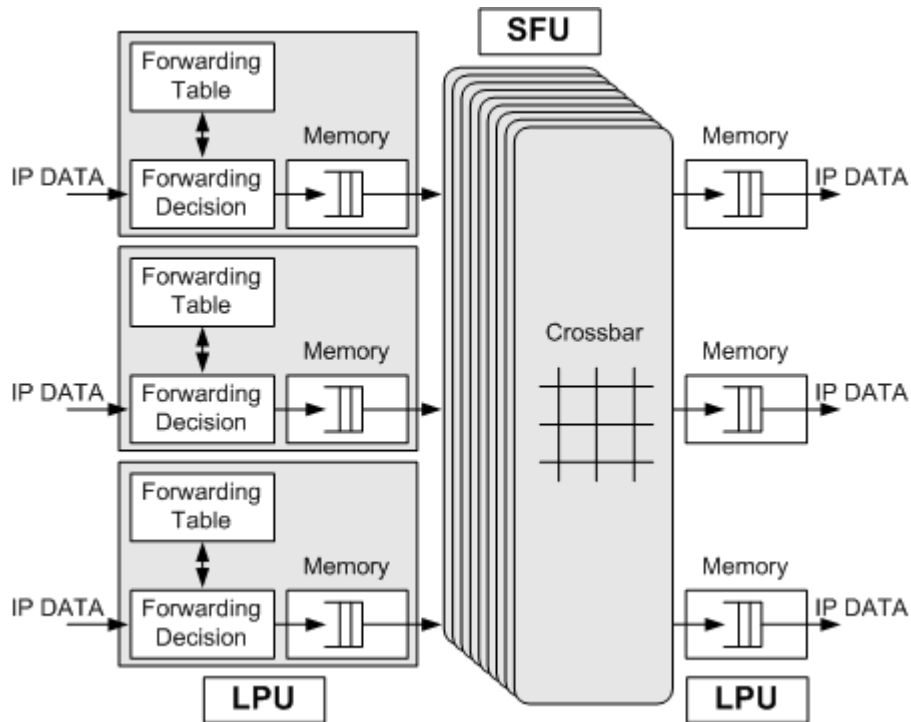
The switching network responsible for exchanging data between LPUs is a key component of the NE40E. The NE40E uses switching chips developed by Huawei and Memory-Crossbar-Memory (M-C-M) to provide a three-level switching mode. Level-1 and level-3 switching use a shared-memory model and are performed on LPUs; level-2 switching uses a Crossbar model and is performed on SFUs. Figure 9-18 shows the switching network of the NE40E.

The level-1 switching chip on one LPU is fully connected to the level-2 switching chips on SFUs. The level-2 switching chips on the SFUs are also fully connected to the level-3 switching chip on another LPU. In addition, the level-2 crossbar switching chips work in load balancing mode on multiple switching planes. The entire switching network is unblocked. The following describes how data packets are transmitted across the switching network.

1. Data packets enter an LPU through physical interfaces and are fragmented into cells of a fixed length. These cells are then sent to the level-1 switching chips. After being buffered and scheduled, the cells enter the crossbar switching chips on the SFU. The level-1 switching chip on an LPU is fully connected with all of the level-2 switching chips. As a result, the same number of cells can be distributed to each level-2 switching plane. This implements load balancing on switching planes and facilitates fault tolerance.
2. After the cells reach the crossbar switching chips, the crossbar switching chips schedule the cells to the corresponding outbound interfaces according to the destination interfaces

- of the data packets. The cells are then sent to the level-3 switching chips on another LPU. At this time, the switching of the cells by the level-2 switching chips is completed.
- After the cells reach the level-3 switching chips on another LPU, the system searches for the destination interfaces. Once found, the cells are reassembled and sent out through physical interfaces. At this time, switching of the data packets is completed.

Figure 9-18 Switching network of the NE40E



Reliability

The device has four SFUs that work in 3+1 load balancing mode. The four SFUs load balance services at the same time. When one SFU is faulty or being replaced, the other three SFUs automatically take over the services on the faulty one to prevent service interruption, thus improving system reliability.

9.3.2 200Gbps Switch Fabric Unit C(SFUI-200-C)

Overview

Table 9-107 Board attributes

Attribute	Description
Board name silkscreen	SFUI-200-C
Description	200Gbps Switch Fabric Unit C(SFUI-200-C)
BOM	03053548

Attribute	Description
Model	CR5DSFUIE07C

Table 9-108 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R006C20

Appearance



Panel

Table 9-109 Buttons

Name	Description
OFL	Before removing a board, press and hold the OFL button for about 6 seconds until the OFL indicator turns on. Then, you can remove the board.

Table 9-110 Indicators

Name	Description
RUN	Before the board is powered on and registers, this indicator blinks slowly (2 Hz). After the board is powered on and registers, if this indicator blinks at 0.5 Hz, the system is working properly.
ACT	If this indicator is steady green, the board is working properly; if this indicator is off, the board is faulty.
OFL	When the board is working properly, the OFL red indicator is off. After the OFL button is pressed to power off the board, the OFL red indicator is on.

Functional Specifications

Table 9-111 Functions and features

Functions and Features	Remarks
Reliability and availability	The 2+1 backup mode is used. The three SFUs balance services at the same time (Two SFUs integrate on two MPUs). If one SFU is faulty or replaced, the other two SFUs automatically take over its services to prevent service interruptions.

Technical Specifications

Table 9-112 Board specifications

Item	Specification
Dimensions (H x W x D)	35.1 mm x 399.2 mm x 535.6 mm (1.38 in. x 15.72 in. x 21.09 in.)
Typical power consumption	77.0 W
Typical heat dissipation	249.8 BTU/hour
Weight	3.8 kg (8.38 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.3.3 480Gbps Switch Fabric Unit C(SFUI-480-C)

Overview

Table 9-113 Board attributes

Attribute	Description
Board name silkscreen	SFUI-480-C
Description	480Gbps Switch Fabric Unit C(SFUI-480-C)
BOM	03056095
Model	CR5DSFUIM07C

Table 9-114 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R006C20

Appearance



Panel

Table 9-115 Buttons

Name	Description
OFL	Before removing a board, press and hold the OFL button for about 6 seconds until the OFL indicator turns on. Then, you can remove the board.

Table 9-116 Indicators

Name	Description
RUN	Before the board registration: The green indicator blinks twice every second (2 Hz). After the registration of the board: If the green indicator blinks once every two seconds (0.5 Hz), the system is working properly.
OFL	If the red indicator is off, the board is working properly. If the red indicator is on, the board is powered off.

Functional Specifications

Table 9-117 Functions and features

Functions and Features	Remarks
Reliability and availability	The 3+1 backup mode is used. The four SFUs balance services at the same time (Two SFUs integrate on two MPUs). If one SFU is faulty or replaced, the other three SFUs automatically take over its services

Functions and Features	Remarks
	to prevent service interruptions.

Technical Specifications

Table 9-118 Board specifications

Item	Specification
Dimensions (H x W x D)	24.9 mm x 386.8 mm x 534.3 mm (0.98 in. x 15.23 in. x 21.04 in.)
Typical power consumption	120.0 W
Typical heat dissipation	389.3 BTU/hour
Weight	5 kg (11.02 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.3.4 1Tbps Switch Fabric Unit C(SFUI-1T-C)

Overview

Table 9-119 Board attributes

Attribute	Description
Board name silkscreen	SFUI-1T-C
Description	1Tbps Switch Fabric Unit C(SFUI-1T-C)
BOM	03056094
Model	CR5DSFUIU07C

Table 9-120 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R006C20

Appearance



Panel

Table 9-121 Buttons

Name	Description
OFL	Before removing a board, press and hold the OFL button for about 6 seconds until the OFL indicator turns on. Then, you can remove the board.

Table 9-122 Indicators

Name	Description
RUN	Before the board registration: The green indicator blinks twice every second (2 Hz). After the registration of the board: If the green indicator blinks once every two seconds (0.5 Hz), the system is working properly.
OFL	If the red indicator is off, the board is working properly. If the red indicator is on, the board is powered off.

Functional Specifications

Table 9-123 Functions and features

Functions and Features	Remarks
Reliability and availability	The 3+1 backup mode is used. The four SFUs balance services at the same time (Two SFUs integrate on two MPUs). If one SFU is faulty or replaced, the other three SFUs automatically take over its services to prevent service interruptions.

Technical Specifications

Table 9-124 Board specifications

Item	Specification
Dimensions (H x W x D)	24.9 mm x 386.8 mm x 534.3 mm (0.98 in. x 15.23 in. x 21.04 in.)
Typical power consumption	160.0 W
Typical heat dissipation	519.1 BTU/hour
Weight	5 kg (11.02 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.3.5 200Gbps Switch Fabric Unit B(SFUI-200-B)

Overview

Table 9-125 Board attributes

Attribute	Description
Board name silkscreen	SFUI-200-B
Description	200Gbps Switch Fabric Unit B(SFUI-200-B)
BOM	03053547
Model	CR5DSFUIE07B

Table 9-126 Mapping products and versions

Product	Earliest Software Version
NE40E-X16	V800R006C20

Appearance



Panel

Table 9-127 Buttons

Name	Description
OFL	Before removing a board, press and hold the OFL button for about 6 seconds until the OFL indicator turns on. Then, you can remove the board.

Table 9-128 Indicators

Name	Description
RUN	Before the board is powered on and registers, this indicator blinks slowly (2 Hz). After the board is powered on and registers, if this indicator blinks at 0.5 Hz, the system is working properly.
ACT	If this indicator is steady green, the board is working properly; if this indicator is off, the board is faulty.
OFL	When the board is working properly, the OFL red indicator is off. After the OFL button is pressed to power off the board, the OFL red indicator is on.

Functional Specifications

Table 9-129 Functions and features

Functions and Features	Remarks
Reliability and availability	The 3+1 backup mode is used. The four SFUs balance services at the same time. If one SFU is faulty or replaced, the other three SFUs automatically take over its services to prevent service interruptions.

Technical Specifications

Table 9-130 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 411 mm x 535.6 mm (1.58 in. x 16.18 in. x 21.09 in.)
Typical power consumption	90.0 W
Typical heat dissipation	292.0 BTU/hour
Weight	4.3 kg (9.48 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.3.6 480Gbps Switch Fabric Unit B(SFUI-480-B)

Overview

Table 9-131 Board attributes

Attribute	Description
Board name silkscreen	SFUI-480-B
Description	480Gbps Switch Fabric Unit B(SFUI-480-B)
BOM	03055780
Model	CR5DSFUIM07B

Table 9-132 Mapping products and versions

Product	Earliest Software Version
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-133 Buttons

Name	Description
OFL	Before removing a board, press and hold the OFL button for about 6 seconds until the OFL indicator turns on. Then, you can remove the board.

Table 9-134 Indicators

Name	Description
RUN	Before the board registration: The green indicator blinks twice every second (2 Hz). After the registration of the board: If the green indicator blinks once every two seconds (0.5 Hz), the system is working properly.
OFL	If the red indicator is off, the board is working properly. If the red indicator is on, the board is powered off.

Functional Specifications

Table 9-135 Functions and features

Functions and Features	Remarks
Reliability and availability	The 3+1 backup mode is used. The four SFUs balance services at the same time. If one SFU is faulty or replaced, the other three SFUs automatically take over its services to prevent service interruptions.

Technical Specifications

Table 9-136 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 409.3 mm x 534.3 mm (1.58 in. x 16.11 in. x 21.04 in.)
Typical power consumption	190.0 W
Typical heat dissipation	616.4 BTU/hour
Weight	9.5 kg (20.95 lb)

Item	Specification
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.3.7 1Tbps Switch Fabric Unit B(SFUI-1T-B)

Overview

Table 9-137 Board attributes

Attribute	Description
Board name silkscreen	SFUI-1T-B
Description	1Tbps Switch Fabric Unit B(SFUI-1T-B)
BOM	03056091
Model	CR5DSFUIU07B

Table 9-138 Mapping products and versions

Product	Earliest Software Version
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-139 Buttons

Name	Description
OFL	Before removing a board, press and hold the OFL button for about 6 seconds until the OFL indicator turns on. Then, you can remove the board.

Table 9-140 Indicators

Name	Description
RUN	Before the board registration: The green indicator blinks twice every second (2 Hz). After the registration of the board: If the green indicator blinks once every two seconds (0.5 Hz), the system is working properly.
OFL	If the red indicator is off, the board is working properly. If the red indicator is on, the board is powered off.

Functional Specifications

Table 9-141 Functions and features

Functions and Features	Remarks
Reliability and availability	The 3+1 backup mode is used. The four SFUs balance services at the same time. If one SFU is faulty or replaced, the other three SFUs automatically take over its services to prevent service interruptions.

Technical Specifications

Table 9-142 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 409.3 mm x 534.3 mm (1.58 in. x 16.11 in. x 21.04 in.)
Typical power consumption	270.0 W
Typical heat dissipation	876.0 BTU/hour
Weight	9.5 kg (20.95 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.4 VSUF

9.4.1 Flexible Card Versatile Service Unit 160(VSUF-160)

Overview

Table 9-143 Board attributes

Attribute	Description
Board name silkscreen	VSUF-160
Description	Flexible Card Versatile Service Unit 160(VSUF-160)
BOM	03054421
Model	CR5DVSUFD010

Table 9-144 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-145 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-146 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-147 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 160G line-rate processing of universal services.
Slot information	The board provides a maximum of two half-width slots and each slot can hold one universal service card.
Reliability and availability	Hot swappable
Restrictions and remarks	To facilitate heat dissipation, on the X8, installing a VSUF-160 in slot 3, 4, 5, or 6 is recommended; on the X16, installing a VSUF-160 in slot 3, 4, 5, 10, 11, 12, 13, or 14 is recommended. .

Technical Specifications

Table 9-148 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	312.0 W
Typical heat dissipation	1012.3 BTU/hour
Weight	7.4 kg (16.43 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.4.2 Flexible Card Versatile Service Unit 80(VSUF-80)

Overview

Table 9-149 Board attributes

Attribute	Description
Board name silkscreen	VSUF-80
Description	Flexible Card Versatile Service Unit 80(VSUF-80)
BOM	03054425
Model	CR5DVSUF8010

Table 9-150 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R008C00
NE40E-X8	V800R008C00
NE40E-X16	V800R008C00
NE40E-X3A	V800R008C00
NE40E-X8A	V800R008C00
NE40E-X16A	V800R008C00

Appearance



Panel

Table 9-151 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove

Name	Description
	the board.

Table 9-152 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-153 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 80G line-rate processing of universal services.
Slot information	The board provides one card slot and the slot can hold one universal service card.
Reliability and availability	Hot swappable.
Restrictions and remarks	To facilitate heat dissipation, on the X8, installing a VSUF-80 in slot 3, 4, 5, or 6 is recommended; on the X16, installing a VSUF-80 in slot 3, 4, 5, 10, 11, 12, 13, or 14 is recommended. .

Technical Specifications

Table 9-154 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	182.0 W
Typical heat dissipation	590.5 BTU/hour
Weight	7.4 kg (16.43 lb)

Item	Specification
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.4.3 Versatile Service Flexible Card(SP160)

Overview

Table 9-155 Board attributes

Attribute	Description
Board name silkscreen	SP-160
Description	Versatile Service Flexible Card(SP160)
BOM	03030PTF
Model	CR5D00SPD010

Table 9-156 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8	9.4.1 Flexible Card Versatile Service Unit 160(VSUF-160)	V800R007C00
NE40E-X16	9.4.1 Flexible Card Versatile Service Unit 160(VSUF-160)	V800R007C00
NE40E-X8A	9.4.1 Flexible Card Versatile Service Unit 160(VSUF-160)	V800R007C00
NE40E-X16A	9.4.1 Flexible Card Versatile Service Unit 160(VSUF-160)	V800R007C00

Appearance



Panel

Table 9-157 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-158 Indicators

Name	Description
OFL (red)	If the indicator turns off 3s after turning on, the board can be removed.
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-159 Functions and features

Functions and Features	Remarks
Line-Rate capability	The SP160 is used for VSUF-160 capacity expansion. The capacity of an SP160 is 40G.
Slot information	A maximum of two SP160s can be installed on each VSUF-160.
Reliability and availability	Hot swappable

Technical Specifications

Table 9-160 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	81.0 W
Typical heat dissipation	262.8 BTU/hour
Weight	1 kg (2.2 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.4.4 Versatile Service Flexible Card(SP80)

Overview

Table 9-161 Board attributes

Attribute	Description
Board name silkscreen	SP-80
Description	Versatile Service Flexible Card(SP80)
BOM	03030PLN
Model	CR5D00SP8010

Table 9-162 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.4.2 Flexible Card Versatile Service Unit 80(VSUF-80)	V800R008C00
NE40E-X8	9.4.2 Flexible Card Versatile Service Unit 80(VSUF-80)	V800R008C00
NE40E-X16	9.4.2 Flexible Card Versatile Service Unit 80(VSUF-80)	V800R008C00
NE40E-X3A	9.4.2 Flexible Card Versatile Service Unit 80(VSUF-80)	V800R008C00

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8A	9.4.2 Flexible Card Versatile Service Unit 80(VSUF-80)	V800R008C00
NE40E-X16A	9.4.2 Flexible Card Versatile Service Unit 80(VSUF-80)	V800R008C00

Appearance



Panel

Table 9-163 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-164 Indicators

Name	Description
OFL (red)	If the indicator turns off 3s after turning on, the board can be removed.
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-165 Functions and features

Functions and Features	Remarks
Line-Rate capability	The SP80 is used for VSUF-80 capacity expansion. The capacity of an SP80 is 40G.
Slot information	A maximum of one SP80 can be installed on each VSUF-80.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-166 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	81.0 W
Typical heat dissipation	262.8 BTU/hour
Weight	1 kg (2.2 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.4.5 Integrated Versatile Service Unit 160(VSUI-160-E)

Overview

Table 9-167 Board attributes

Attribute	Description
Board name silkscreen	VSUI-160-E
Description	Integrated Versatile Service Unit 160(VSUI-160-E)
BOM	03056533
Model	CR5DVSUID010

Table 9-168 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R008C10
NE40E-X16	V800R008C10
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance



Panel

Table 9-169 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-170 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-171 Functions and features

Functions and Features	Remarks

Functions and Features	Remarks
Line-Rate capability	Provides a maximum of 160 Gbit/s value-added service processing capability.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-172 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	474.0 W
Typical heat dissipation	1537.9 BTU/hour
Weight	9.4 kg (20.84 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.5 LPUI-21-L

9.5.1 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit L(LPUI-21-L)

Overview

Table 9-173 Board attributes

Attribute	Description
Board name silkscreen	LPUI-21-L 24xFE/GE-SFP-A
Description	24-Port 100/1000Base-X-SFP Integrated Line Processing Unit L(LPUI-21-L)
BOM	03054532
Model	CR5D0EFGFA73

Table 9-174 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R008C00
NE40E-X8	V800R008C00
NE40E-X16	V800R008C00
NE40E-X3A	V800R008C00
NE40E-X8A	V800R008C00
NE40E-X16A	V800R008C00

Appearance



Panel

Table 9-175 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-176 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-177 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 23	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-178 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports twenty-four GE interfaces line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces 0 to 11 support only GE optical modules, and interfaces 12 to 23 support both FE and GE optical modules.

Technical Specifications

Table 9-179 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-180 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	155.0 W
Typical heat dissipation	502.9 BTU/hour
Weight	5.6 kg (12.3 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.5.2 1-Port 10GBase LAN/WAN-SFP+ + 16-Port 100/1000Base-X-SFP Integrated Line Processing Unit L(LPUI-21-L)

Overview

Table 9-181 Board attributes

Attribute	Description
Board name silkscreen	LPUI-21-L 1x10GBase LAN/WAN-SFP+ -16xFE/GE-SFP-A
Description	1-Port 10GBase LAN/WAN-SFP+ + 16-Port 100/1000Base-X-SFP Integrated Line Processing Unit L(LPUI-21-L)
BOM	03054535
Model	CR5DL1XEDG70

Table 9-182 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R008C00
NE40E-X8	V800R008C00
NE40E-X16	V800R008C00
NE40E-X3A	V800R008C00
NE40E-X8A	V800R008C00
NE40E-X16A	V800R008C00

Appearance



Panel

Table 9-183 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-184 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-185 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber and twisted pair
1 to 4	GE	SFP	Interface for inputting and outputting GE	Optical fiber and twisted pair

Interface Name	Interface Type	Connector Type	Description	Cable
			optical signals	
5 to 16	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-186 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 26G line-rate forwarding. It provides one 10G interface, and sixteen GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces working in WAN mode can function only as master interfaces. The interfaces 1 to 4 support only GE optical modules. The interfaces 5 to 16 support both FE and GE optical modules.

Technical Specifications

Table 9-187 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module

Attribute	Description
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-188 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	150.0 W
Typical heat dissipation	486.7 BTU/hour
Weight	5.6 kg (12.28 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.6 LPUF-50

9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots)

Overview

Table 9-189 Board attributes

Attribute	Description
Board name silkscreen	LPUF-50
Description	Flexible Card Line Processing Unit(LPUF-50,four sub-slots)
BOM	03054447
Model	CR5DLPUF5070

Table 9-190 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-191 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-192 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-193 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate processing.
Slot information	The board provides a maximum of four half-width and half-high slots and each slot can hold one FPIC card.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-194 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	169.0 W
Typical heat dissipation	548.3 BTU/hour
Weight	8.2 kg (18.08 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots)

Overview

Table 9-195 Board attributes

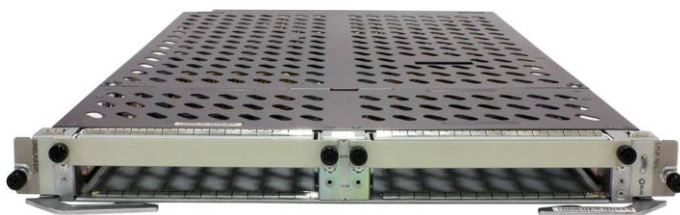
Attribute	Description
Board name silkscreen	LPUF-50-L
Description	Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots)
BOM	03056487

Attribute	Description
Model	CR5DLPUF507L

Table 9-196 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-197 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-198 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-199 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate processing.
Slot information	The board provides a maximum of four half-width and half-high slots and each slot can hold one FPIC card.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-200 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	169.0 W
Typical heat dissipation	548.3 BTU/hour
Weight	8.2 kg (18.08 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory)

Overview

Table 9-201 Board attributes

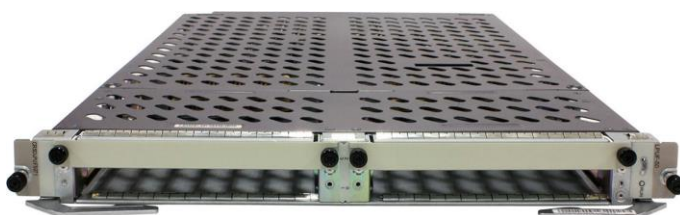
Attribute	Description
Board name silkscreen	LPUF-50
Description	Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory)

Attribute	Description
BOM	03057436
Model	CR5DLPUF5071

Table 9-202 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R009C00
NE40E-X8	V800R009C00
NE40E-X16	V800R009C00
NE40E-X3A	V800R009C00
NE40E-X8A	V800R009C00
NE40E-X16A	V800R009C00

Appearance



Panel

Table 9-203 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-204 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running

Name	Description
	properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-205 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate processing.
Slot information	The board provides a maximum of four half-width and half-high slots and each slot can hold one FPIC card
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-206 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	171.0 W
Typical heat dissipation	554.8 BTU/hour
Weight	8.2 kg (18.08 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.6.4 Flexible Card Line Processing Unit L (LPUF-50-L, four sub-slots, 4G Memory)

Overview

Table 9-207 Board attributes

Attribute	Description
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Attribute	Description
Board name silkscreen	LPUF-50-L
Description	Flexible Card Line Processing Unit L(LPUF-50-L, four sub-slots, 4G Memory)
BOM	03057437
Model	CR5DLPUF507M

Table 9-208 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R009C00
NE40E-X8	V800R009C00
NE40E-X16	V800R009C00
NE40E-X3A	V800R009C00
NE40E-X8A	V800R009C00
NE40E-X16A	V800R009C00

Appearance



Panel

Table 9-209 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-210 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-211 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate processing.
Slot information	The board provides a maximum of four half-width and half-high slots and each slot can hold one FPIC card.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-212 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	171.0 W
Typical heat dissipation	554.8 BTU/hour
Weight	8.2 kg (18.08 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.6.5 8-Port OC-3c/STM-1c POS-SFP Flexible Card

Overview

Table 9-213 Board attributes

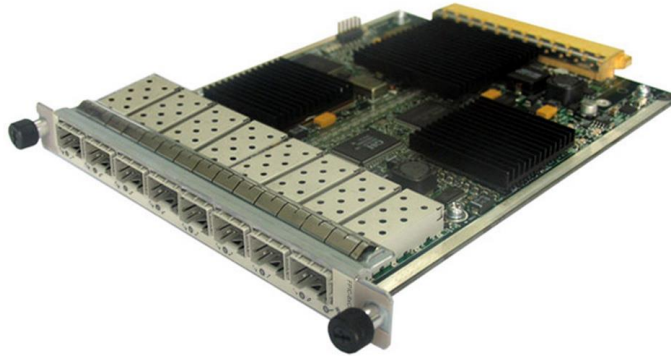
Attribute	Description
Board name silkscreen	FPIC-8xOC3-POS
Description	8-Port OC-3c/STM-1c POS-SFP Flexible Card
BOM	03030JUA
Model	CR53-P10-8xPOS/STM1-SFP

Table 9-214 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X8	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X16	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	
NE40E-X3A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X8A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X16A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00

Appearance



Panel

Table 9-215 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-216 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 7	155M POS	SFP	Interface for inputting and outputting 155M POS optical signals	Optical fiber

Functional Specifications

Table 9-217 Functions and features

Functions and Features	Remarks
Line-Rate	Provides eight 155M POS interfaces for line-rate transmitting and

Functions and Features	Remarks
capability	receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Link protocol	PPP, HDLC

Technical Specifications

Table 9-218 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	PPP and HDLC

Table 9-219 Board specifications

Item	Specification
Dimensions (H x W x D)	18.4 mm x 169 mm x 189.9 mm (0.72 in. x 6.65 in. x 7.48 in.)
Typical power consumption	19.5 W
Typical heat dissipation	63.3 BTU/hour
Weight	0.5 kg (1.17 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.6.6 4-Port OC-3c/STM-1c POS-SFP Flexible Card

Overview

Table 9-220 Board attributes

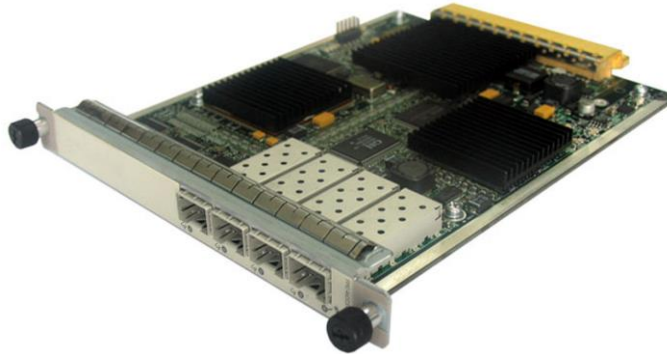
Attribute	Description
Board name silkscreen	FPIC-4xOC3-POS
Description	4-Port OC-3c/STM-1c POS-SFP Flexible Card
BOM	03030JTY
Model	CR53-P10-4xPOS/STM1-SFP

Table 9-221 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X8	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X16	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	
NE40E-X3A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X8A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X16A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00

Appearance



Panel

Table 9-222 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-223 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 3	155M POS	SFP	Interface for inputting and outputting 155M POS optical signals	Optical fiber

Functional Specifications

Table 9-224 Functions and features

Functions and Features	Remarks
Line-Rate	Provides four 155M POS interfaces for line-rate transmitting and

Functions and Features	Remarks
capability	receiving.
Slot information	The board occupies one half-width flexible card slot
Reliability and availability	Hot swappable.
Link protocol	PPP, HDLC

Technical Specifications

Table 9-225 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	PPP and HDLC

Table 9-226 Board specifications

Item	Specification
Dimensions (H x W x D)	18.4 mm x 169 mm x 189.9 mm (0.72 in. x 6.65 in. x 7.48 in.)
Typical power consumption	16.6 W
Typical heat dissipation	53.9 BTU/hour
Weight	0.5 kg (1.15 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.6.7 2-Port OC-3c/STM-1c POS-SFP Flexible Card

Overview

Table 9-227 Board attributes

Attribute	Description
Board name silkscreen	FPIC-2xOC3-POS
Description	2-Port OC-3c/STM-1c POS-SFP Flexible Card
BOM	03031JYH
Model	CR5D00P2CF70

Table 9-228 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X8	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X16	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	
NE40E-X3A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X8A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X16A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00

Appearance



Panel

Table 9-229 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-230 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 1	155M POS	SFP	Interface for inputting and outputting 155M POS optical signals	Optical fiber

Functional Specifications

Table 9-231 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides two 155M POS interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one flexible card slot.
Reliability and	Hot swappable.

Functions and Features	Remarks
availability	
Link protocol	PPP, HDLC

Technical Specifications

Table 9-232 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	PPP and HDLC

Table 9-233 Board specifications

Item	Specification
Dimensions (H x W x D)	18.4 mm x 169 mm x 189.9 mm (0.72 in. x 6.65 in. x 7.48 in.)
Typical power consumption	16.6 W
Typical heat dissipation	53.9 BTU/hour
Weight	0.5 kg (1.15 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.6.8 8-Port 100/1000Base-X-SFP Flexible Card A(P10-A,Supporting 1588v2)

Overview

Table 9-234 Board attributes

Attribute	Description
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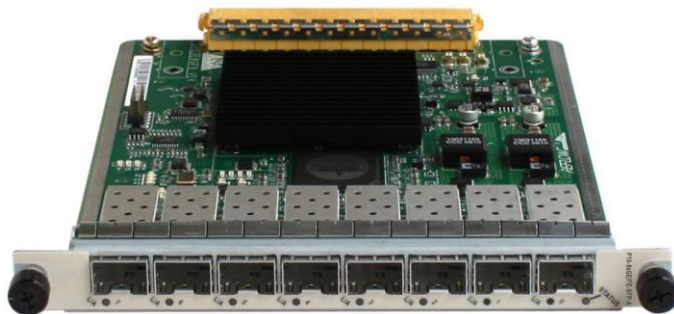
Attribute	Description
Board name silkscreen	P10-8xGE/FE-SFP-A
Description	8-Port 100/1000Base-X-SFP Flexible Card A(P10-A,Supporting 1588v2)
BOM	03030KNE
Model	CR5M0E8GFA30

Table 9-235 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X8	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X16	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X3A	9.6.1 Flexible Card Line Processing	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	
NE40E-X8A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X16A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00

Appearance



Panel

Table 9-236 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-237 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 7	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-238 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides eight FE/GE interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-239 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module

Attribute	Description
	10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-240 Board specifications

Item	Specification
Dimensions (H x W x D)	18.4 mm x 169 mm x 189.9 mm (0.72 in. x 6.65 in. x 7.48 in.)
Typical power consumption	19.5 W
Typical heat dissipation	63.3 BTU/hour
Weight	0.5 kg (1.17 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.6.9 2-Port 10GBase WAN/LAN-SFP+ Flexible Card A

Overview

Table 9-241 Board attributes

Attribute	Description
Board name silkscreen	P50-2x10GBase LAN/WAN-SFP+ -A
Description	2-Port 10GBase WAN/LAN-SFP+ Flexible Card A
BOM	03030NSK
Model	CR5D0L2XFA70

Table 9-242 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X8	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X16	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X3A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X8A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots)	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	
NE40E-X16A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00

Appearance



Panel

Table 9-243 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-244 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 1	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-245 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides two 10GE interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one flexible card slot.
Reliability and availability	Hot swappable.
Restrictions and remarks	The card can only be installed in slot 0 or 1 on an LPUF-50.

Technical Specifications

Table 9-246 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-247 Board specifications

Item	Specification
Dimensions (H x W x D)	18.4 mm x 169 mm x 189.9 mm (0.72 in. x 6.65 in. x 7.48 in.)
Typical power consumption	18.4 W
Typical heat dissipation	59.7 BTU/hour
Weight	0.5 kg (1.1 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.6.10 4-Port Channelized STM-1 POS-SFP Flexible Card(P50)

Overview

Table 9-248 Board attributes

Attribute	Description
Board name silkscreen	P50-4xSTM1 cPOS-SFP
Description	4-Port Channelized STM-1 POS-SFP Flexible Card(P50)
BOM	03030PVG
Model	CR5D00C4CF70

Table 9-249 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X8	9.6.1 Flexible Card Line Processing	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	
NE40E-X16	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X3A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X8A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X16A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	

Appearance



Panel

Table 9-250 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-251 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 3	155M CPOS	SFP	Interface for inputting and outputting 155M CPOS optical signals	Optical fiber

Functional Specifications

Table 9-252 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides four channelized 155M POS interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Link protocol	PPP, MP, ATM, IMA, TDM

Technical Specifications

Table 9-253 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module
Working mode	Full-duplex
Compliant standard	IMA 1.1, RFC4717, RFC4385, RFC4816, RFC5086, RFC4553_SATOP, RFC1662
Frame format	The 155M interface supports SDH; the channelized e1 supports non-framed, CRC4, and NO-CRC4.

Table 9-254 Board specifications

Item	Specification
Dimensions (H x W x D)	18.4 mm x 169 mm x 189.9 mm (0.72 in. x 6.65 in. x 7.48 in.)
Typical power consumption	18.0 W
Typical heat dissipation	58.4 BTU/hour
Weight	0.5 kg (1.1 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.6.11 8-Port Channelized STM-1 POS-SFP Flexible Card(P50)

Overview

Table 9-255 Board attributes

Attribute	Description
Board name silkscreen	P50-8xSTM1 cPOS-SFP
Description	8-Port Channelized STM-1 POS-SFP Flexible Card(P50)
BOM	03030PTB
Model	CR5D00C8CF71

Table 9-256 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X8	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X16	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	
NE40E-X3A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X8A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X16A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00

Appearance



Panel

Table 9-257 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-258 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 7	155M CPOS	SFP	Interface for inputting and outputting 155M CPOS optical signals	Optical fiber

Functional Specifications

Table 9-259 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides eight channelized 155M POS interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and	Hot swappable.

Functions and Features	Remarks
availability	
Link protocol	PPP, MP, ATM, IMA, TDM

Technical Specifications

Table 9-260 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module
Working mode	Full-duplex
Compliant standard	IMA 1.1, RFC4717, RFC4385, RFC4816, RFC5086, RFC4553_SATOP, RFC1662
Frame format	The 155M interface supports SDH; the channelized e1 supports non-framed, CRC4, and NO-CRC4.

Table 9-261 Board specifications

Item	Specification
Dimensions (H x W x D)	18.4 mm x 169 mm x 189.9 mm (0.72 in. x 6.65 in. x 7.48 in.)
Typical power consumption	22.4 W
Typical heat dissipation	72.7 BTU/hour
Weight	0.6 kg (1.43 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 F to 113 F) Short terms: -5 °C to 55 °C (23 F to 131 F)

9.6.12 2-Port Channelized STM-1c POS-SFP Flexible Card(P50)

Overview

Table 9-262 Board attributes

Attribute	Description
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Attribute	Description
Board name silkscreen	P50-2xSTM1 cPOS-SFP
Description	2-Port Channelized STM-1c POS-SFP Flexible Card(P50)
BOM	03031JYK
Model	CR5D00C2CF70

Table 9-263 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X8	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X16	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X3A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots)	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	
NE40E-X8A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X16A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00

Appearance



Panel

Table 9-264 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-265 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 1	155M CPOS	SFP	Interface for inputting and outputting 155M CPOS optical signals	Optical fiber

Functional Specifications

Table 9-266 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides two channelized serial interfaces with the rate of 155 Mbit/s.
Slot information	The board occupies one flexible card slot.
Reliability and availability	Hot swappable.
Link protocol	PPP, MP, TDM, ATM, IMA

Technical Specifications

Table 9-267 Interface specifications

Attribute	Description
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Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module
Working mode	Full-duplex
Compliant standard	IMA 1.1, RFC4717, RFC4385, RFC4816, RFC5086, RFC4553_SATOP, RFC1662
Frame format	The 155M interface supports SDH; the channelized e1 supports non-framed, CRC4, and NO-CRC4.

Table 9-268 Board specifications

Item	Specification
Dimensions (H x W x D)	18.4 mm x 169 mm x 189.9 mm (0.72 in. x 6.65 in. x 7.48 in.)
Typical power consumption	18.0 W
Typical heat dissipation	58.4 BTU/hour
Weight	0.5 kg (1.1 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.6.13 24-Port Channelized E1/T1-DB100 Flexible Card

Overview

Table 9-269 Board attributes

Attribute	Description
Board name silkscreen	24xcE1/cT1-DB100
Description	24-Port Channelized E1/T1-DB100 Flexible Card
BOM	03030KHP
Model	CR53-P10-24xcE1/cT1-DB100

Table 9-270 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X8	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X16	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X3A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00
NE40E-X8A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots)	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	
NE40E-X16A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R007C00

Appearance



Panel

Table 9-271 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
LINK/ACT (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-272 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 23	E1/T1	DB100	24 interfaces for inputting and outputting E1/T1 data signals	100-ohm cable

Functional Specifications

Table 9-273 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides 24-channel E1/T1 physical interfaces.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interface connector type is DB100, which cannot be directly used by users. A dedicated 24E1 converter is needed. Interfaces on the card need to be channelized into serial interfaces.
Link protocol	HDLC, PPP, MP

Technical Specifications

Table 9-274 Interface specifications

Attribute	Description
Working mode	Full-duplex
Compliant standard	RFC1662
Frame format	Supports E1/CE1, which supports non-framed, CRC4, and NO-CRC4.

Table 9-275 Board specifications

Item	Specification
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Item	Specification
Dimensions (H x W x D)	18.4 mm x 169 mm x 189.9 mm (0.72 in. x 6.65 in. x 7.48 in.)
Typical power consumption	26.7 W
Typical heat dissipation	86.6 BTU/hour
Weight	0.5 kg (1.15 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.6.14 8-Port OC-12c/STM-4c POS-SFP Flexible Card

Overview

Table 9-276 Board attributes

Attribute	Description
Board name silkscreen	FPIC-8xOC12-POS
Description	8-Port OC-12c/STM-4c POS-SFP Flexible Card
BOM	03030JUB
Model	CR53-P10-8xPOS/STM4-SFP

Table 9-277 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00
NE40E-X8	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots)	V800R008C00

Product	Motherboard	Earliest Software Version for Flexible Card
	9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	
NE40E-X16	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00
NE40E-X3A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00
NE40E-X8A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00
NE40E-X16A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G	V800R008C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	

Appearance



Panel

Table 9-278 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-279 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 7	622M POS	SFP	Interface for inputting and outputting 622M POS optical signals	Optical fiber

Functional Specifications

Table 9-280 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides eight 622M POS interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one flexible card slot.
Reliability and availability	Hot swappable.
Link protocol	PPP, HDLC

Technical Specifications

Table 9-281 Interface specifications

Attribute	Description
Optical type supported	10.5 622Mbps eSFP Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	PPP and HDLC

Table 9-282 Board specifications

Item	Specification
Dimensions (H x W x D)	18.4 mm x 169 mm x 189.9 mm (0.72 in. x 6.65 in. x 7.48 in.)
Typical power consumption	22.4 W
Typical heat dissipation	72.7 BTU/hour
Weight	0.5 kg (1.17 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.6.15 1-Port OC-192c/STM-64c POS-XFP Flexible Card(Occupy two slots)

Overview

Table 9-283 Board attributes

Attribute	Description
Board name silkscreen	FPIC-1xOC192-POS
Description	1-Port OC-192c/STM-64c POS-XFP Flexible Card(Occupy two slots)
BOM	03030FSL
Model	CR53-P10-1xPOS/STM64-XFP

Table 9-284 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00
NE40E-X8	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00
NE40E-X16	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots)	V800R008C00

Product	Motherboard	Earliest Software Version for Flexible Card
	9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	
NE40E-X3A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00
NE40E-X8A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00
NE40E-X16A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00

Appearance



Panel

Table 9-285 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
LINK/ACT (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-286 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0	10G POS	XFP	Interface for inputting and outputting 10G POS optical signals	Optical fiber

Functional Specifications

Table 9-287 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides one 10G POS interfaces for line-rate transmitting and receiving.
Slot information	The board occupies two half-width flexible card slot.

Functions and Features	Remarks
Reliability and availability	Hot swappable.
Link protocol	PPP, HDLC

Technical Specifications

Table 9-288 Interface specifications

Attribute	Description
Optical type supported	10.17 10Gbps XFP Optical Module 10.18 10Gbps XFP CWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	PPP and HDLC

Table 9-289 Board specifications

Item	Specification
Dimensions (H x W x D)	38.0 mm x 169 mm x 189.9 mm (1.5 in. x 6.65 in. x 7.48 in.)
Typical power consumption	20.0 W
Typical heat dissipation	64.9 BTU/hour
Weight	0.6 kg (1.23 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.6.16 2-Port OC-48c/STM-16c POS-SFP Flexible Card

Overview

Table 9-290 Board attributes

Attribute	Description
Board name silkscreen	FPIC-2xOC48-POS

Attribute	Description
Description	2-Port OC-48c/STM-16c POS-SFP Flexible Card
BOM	03030HNJ
Model	CR53-P10-2xPOS/STM16-SFP

Table 9-291 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00
NE40E-X8	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00
NE40E-X16	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00
NE40E-X3A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots)	V800R008C00

Product	Motherboard	Earliest Software Version for Flexible Card
	9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	
NE40E-X8A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00
NE40E-X16A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00

Appearance



Panel

Table 9-292 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running

Name	Description
	properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-293 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 1	2.5G POS	SFP	Interface for inputting and outputting 2.5G POS optical signals	Optical fiber

Functional Specifications

Table 9-294 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides two 2.5GE POS interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one flexible card slot.
Reliability and availability	Hot swappable.
Link protocol	PPP, HDLC

Technical Specifications

Table 9-295 Interface specifications

Attribute	Description
Optical type supported	10.10 2.5Gbps eSFP Optical Module
Working mode	Full-duplex
Compliant	IEEE 802.3

Attribute	Description
standard	
Frame format	PPP and HDLC

Table 9-296 Board specifications

Item	Specification
Dimensions (H x W x D)	18.4 mm x 169 mm x 189.9 mm (0.72 in. x 6.65 in. x 7.48 in.)
Typical power consumption	17.3 W
Typical heat dissipation	56.1 BTU/hour
Weight	0.5 kg (1.12 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.6.17 4-Port OC-48c/STM-16c POS-SFP Flexible Card

Overview

Table 9-297 Board attributes

Attribute	Description
Board name silkscreen	FPIC-4xOC48-POS
Description	4-Port OC-48c/STM-16c POS-SFP Flexible Card
BOM	03030JCX
Model	CR53-P10-4xPOS/STM16-SFP

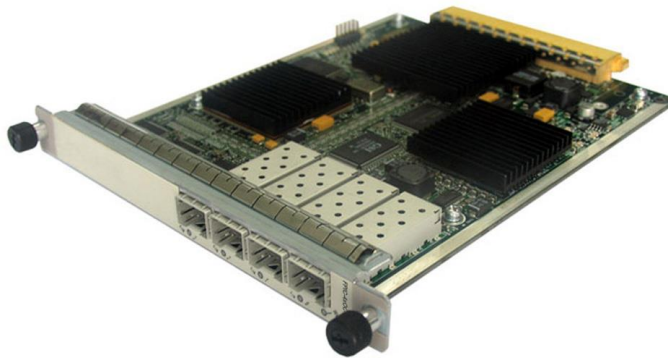
Table 9-298 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots)	V800R008C00

Product	Motherboard	Earliest Software Version for Flexible Card
	9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	
NE40E-X8	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00
NE40E-X16	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00
NE40E-X3A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00
NE40E-X8A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing	V800R008C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Unit L(LPUF-50-L,four sub-slots,4G Memory)	
NE40E-X16A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R008C00

Appearance



Panel

Table 9-299 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-300 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 3	2.5G POS	SFP	Interface for inputting and outputting 2.5G POS optical signals	Optical fiber

Functional Specifications

Table 9-301 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides four 2.5G POS interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Link protocol	PPP, HDLC

Technical Specifications

Table 9-302 Interface specifications

Attribute	Description
Optical type supported	10.10 2.5Gbps eSFP Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	PPP and HDLC

Table 9-303 Board specifications

Item	Specification
Dimensions (H x W x D)	18.4 mm x 169 mm x 189.9 mm (0.72 in. x 6.65 in. x 7.48)

Item	Specification
	in.)
Typical power consumption	20.3 W
Typical heat dissipation	65.9 BTU/hour
Weight	0.5 kg (1.15 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.6.18 8-Channel CWDM Multiplexing & Demultiplexing (1471/1491/1511/1531/1551/1571/1591/1611nm) Flexible Card(P50)

Overview

Table 9-304 Board attributes

Attribute	Description
Board name silkscreen	P50-MD8A-CWDM
Description	8-Channel CWDM Multiplexing & Demultiplexing (1471/1491/1511/1531/1551/1571/1591/1611nm) Flexible Card(P50)
BOM	03030WGV
Model	CR5D00MD8A70

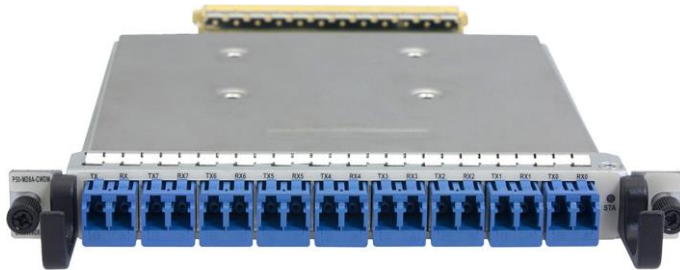
Table 9-305 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R009C10

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R009C10
NE40E-X16	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R009C10
NE40E-X3A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R009C10
NE40E-X8A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	V800R009C10
NE40E-X16A	9.6.1 Flexible Card Line Processing Unit(LPUF-50,four sub-slots) 9.6.2 Flexible Card Line Processing	V800R009C10

Product	Motherboard	Earliest Software Version for Flexible Card
	Unit L(LPUF-50-L,four sub-slots) 9.6.3 Flexible Card Line Processing Unit(LPUF-50,four sub-slots,4G Memory) 9.6.4 Flexible Card Line Processing Unit L(LPUF-50-L,four sub-slots,4G Memory)	

Appearance



Panel

Table 9-306 Indicators

Name	Description
STA (green)	If the indicator blinks green slowly (0.5 Hz), the board is working properly. If the indicator is steady green, the board is powered on. If the indicator is steady off, the board is not powered on or registered.

Table 9-307 Service interfaces

Interface Name	Interface Type	Description	Cable
TX0/RX0 to TX7/RX7	Optical signal multiplexer /demultiplexer	Optical signal multiplexer/demultiplexer	Optical fiber
TX/RX	Interface for inputting and	Interface for inputting and outputting multiplexed/demu	Optical fiber

Interface Name	Interface Type	Description	Cable
	outputting multiplexed/demultiplexed optical signals	Multiplexed optical signals	

Functional Specifications

Table 9-308 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides 8-channel CWDM Multiplexing and Demultiplexing (1471/1491/1511/1531/1551/1571/1591/1611nm), occupies one half-width and half-high flexible card slot.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-309 Interface specifications

Attribute	Description
Compliant standard	CWDM

Table 9-310 Board specifications

Item	Specification
Dimensions (H x W x D)	18.4 mm x 169 mm x 189.9 mm (0.72 in. x 6.65 in. x 7.48 in.)
Typical power consumption	1.0 W
Typical heat dissipation	3.2 BTU/hour
Weight	0.5 kg (1.1 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.7 LPUF-51

9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots)

Overview

Table 9-311 Board attributes

Attribute	Description
Board name silkscreen	LPUF-51
Description	Flexible Card Line Processing Unit(LPUF-51,2 sub-slots)
BOM	03054393
Model	CR5DLPUF5170

Table 9-312 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-313 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-314 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-315 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate processing and provides low-cost and customized solutions.
Slot information	The board provides a maximum of two half-width slots and each slot can hold one FPIC card.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-316 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	180.0 W
Typical heat dissipation	584.0 BTU/hour

Item	Specification
Weight	6.6 kg (14.44 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B

Overview

Table 9-317 Board attributes

Attribute	Description
Board name silkscreen	LPUF-51-B
Description	Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B
BOM	03054483
Model	CR5DLPUF517B

Table 9-318 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-319 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-320 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-321 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate processing.
Slot information	The board provides a maximum of two half-width slots and each slot can hold one FPIC card.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-322 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	180.0 W
Typical heat dissipation	584.0 BTU/hour

Item	Specification
Weight	6.6 kg (14.44 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E

Overview

Table 9-323 Board attributes

Attribute	Description
Board name silkscreen	LPUF-51-E
Description	Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E
BOM	03055189
Model	CR5DLPUF517E

Table 9-324 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X3A	V800R007C00
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-325 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-326 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-327 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate processing and provides low-cost and customized solutions.
Slot information	The board provides a maximum of two half-width slots and each slot can hold one FPIC card.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-328 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	180.0 W
Typical heat dissipation	584.0 BTU/hour

Item	Specification
Weight	7.2 kg (15.77 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.7.4 24-Port 100/1000Base-X-SFP Flexible Card A(P51-A)

Overview

Table 9-329 Board attributes

Attribute	Description
Board name silkscreen	P51-24xFE/GE-SFP-A
Description	24-Port 100/1000Base-X-SFP Flexible Card A(P51-A)
BOM	03030PMA
Model	CR5D0EFGFA70

Table 9-330 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X8	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R006C20
NE40E-X16	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R006C20

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X8A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R006C20
NE40E-X16A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R006C20

Appearance



Panel

Table 9-331 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is

Name	Description
	Down.

Table 9-332 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 23	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-333 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twenty-four FE/GE interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-334 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex

Attribute	Description
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-335 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	37.0 W
Typical heat dissipation	120.0 BTU/hour
Weight	1 kg (2.2 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.7.5 2-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P51-A)

Overview

Table 9-336 Board attributes

Attribute	Description
Board name silkscreen	P51-2x10GBase LAN/WAN-SFP+ -A
Description	2-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P51-A)
BOM	03030PME
Model	CR5D0L2XFA71

Table 9-337 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots)	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	
NE40E-X8	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R006C20
NE40E-X16	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R006C20
NE40E-X3A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X8A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R006C20
NE40E-X16A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R006C20

Appearance



Panel

Table 9-338 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-339 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 1	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-340 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides two 10GE interfaces for line-rate transmitting and receiving.

Functions and Features	Remarks
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-341 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-342 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	25.0 W
Typical heat dissipation	81.1 BTU/hour

Item	Specification
Weight	0.9 kg (1.94 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.7.6 5-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P51-A, Occupy two sub-slots)

Overview

Table 9-343 Board attributes

Attribute	Description
Board name silkscreen	P51-5x10GBase LAN/WAN-SFP+ -A
Description	5-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P51-A, Occupy two sub-slots)
BOM	03030PMC
Model	CR5D0L5XFA70

Table 9-344 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X8	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X16	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	
NE40E-X3A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X8A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X16A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00

Appearance



Panel

Table 9-345 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks,

Name	Description
	data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-346 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 4	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-347 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides five 10GE interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-348 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module

Attribute	Description
	10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-349 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 358.2 mm x 193.3 mm (1.46 in. x 14.1 in. x 7.61 in.)
Typical power consumption	29.0 W
Typical heat dissipation	94.1 BTU/hour
Weight	0.9 kg (1.98 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.7.7 20-Port 10/100/1000Base-RJ45 Flexible Card A(P51-A)

Overview

Table 9-350 Board attributes

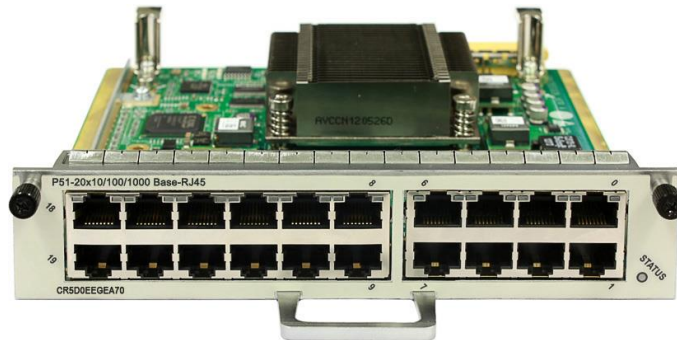
Attribute	Description
Board name silkscreen	P51-20x10/100/1000 Base-RJ45
Description	20-Port 10/100/1000Base-RJ45 Flexible Card A(P51-A)
BOM	03030QKN
Model	CR5D0EEGEA70

Table 9-351 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X8	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X16	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X3A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X8A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X16A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X3	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X8A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10

Appearance



Panel

Table 9-352 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 19 (green or orange)	L/A indicators are at the upper left and right corners of each upper interface row. An L/A indicator at the upper right corner indicates the status of an interface in an upper row, and an L/A indicator at the upper left corner indicates the status of an interface in a lower row. If an L/A indicator is steady green, a link is Up. If an L/A indicator blinks orange, data is being transmitted or received. If an L/A indicator is off, a link is Down.

Table 9-353 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 19	10/100/1000M	RJ45	Interface for inputting and outputting 10/100/1000M electrical signals	Twisted pair

Functional Specifications

Table 9-354 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides 20 interfaces for line-rate line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable
Restrictions and remarks	It does not support the half-duplex mode.

Technical Specifications

Table 9-355 Interface specifications

Attribute	Description
Working mode	10M/100M/1000M auto-sensing, supports the full-duplex mode.
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-356 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)

Item	Specification
Typical power consumption	31.0 W
Typical heat dissipation	100.6 BTU/hour
Weight	0.6 kg (1.43 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.7.8 2-Port OC-192c/STM-64c POS-XFP Flexible Card(P51-A)

Overview

Table 9-357 Board attributes

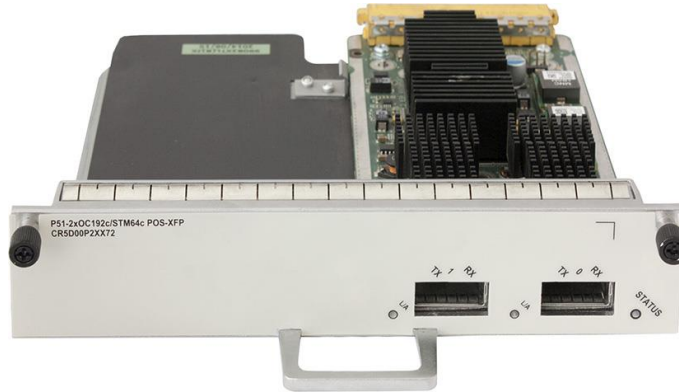
Attribute	Description
Board name silkscreen	P51-2xOC192c/STM64c POS-XFP
Description	2-Port OC-192c/STM-64c POS-XFP Flexible Card(P51-A)
BOM	03031LUU
Model	CR5D00P2XX72

Table 9-358 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X8	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X16	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X3A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X8A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X16A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00

Appearance



Panel

Table 9-359 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-360 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 1	10G POS	XFP	Interface for inputting and outputting 10G POS optical signals	Optical fiber

Functional Specifications

Table 9-361 Functions and features

Functions and Features	Remarks
Line-Rate	Provides two 10GE POS interfaces for line-rate transmitting and

Functions and Features	Remarks
capability	receiving.
Slot information	The board occupies one half-width flexible card slot
Reliability and availability	Hot swappable
Link protocol	HDLC, PPP

Technical Specifications

Table 9-362 Interface specifications

Attribute	Description
Optical type supported	10.17 10Gbps XFP Optical Module 10.18 10Gbps XFP CWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	PPP and HDLC

Table 9-363 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	24.7 W
Typical heat dissipation	80.1 BTU/hour
Weight	0.5 kg (1.1 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.7.9 24-Port 1000Base-X-SFP Flexible Card E(P51-E)

Overview

Table 9-364 Board attributes

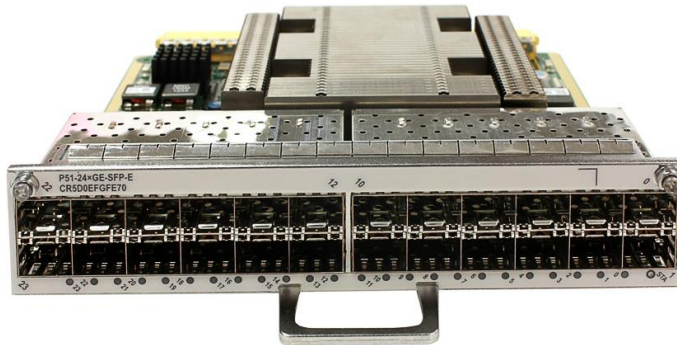
Attribute	Description
Board name silkscreen	P51-24xGE-SFP-E
Description	24-Port 1000Base-X-SFP Flexible Card E(P51-E)
BOM	03030PYE
Model	CR5D0EFGFE70

Table 9-365 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X8	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X16	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X3A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X8A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X16A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X3	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10
NE40E-X8A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10

Appearance



Panel

Table 9-366 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-367 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 23	GE	SFP	Interface for inputting and outputting GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-368 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twenty-four FE/GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-369 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-370 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	55.0 W
Typical heat dissipation	178.4 BTU/hour
Weight	1.2 kg (2.54 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.7.10 24-Port 1000Base-X-SFP Flexible Card E(P52-E)

Overview

Table 9-371 Board attributes

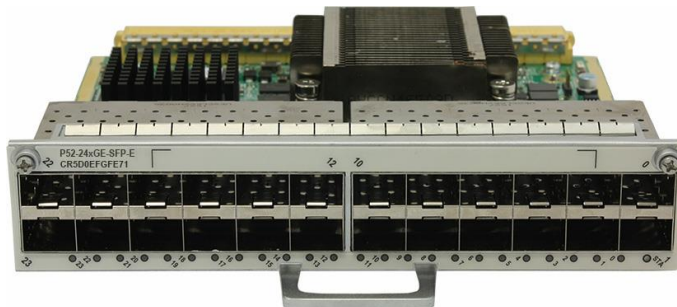
Attribute	Description
Board name silkscreen	P52-24xGE-SFP-E
Description	24-Port 1000Base-X-SFP Flexible Card E(P52-E)
BOM	03031XQJ
Model	CR5D0EFGFE71

Table 9-372 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X16	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X3A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X8A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X16A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X8A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X8	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X16	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10
NE40E-X8A	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10
NE40E-X16A	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10

Appearance



Panel

Table 9-373 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-374 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 23	GE	SFP	Interface for inputting and outputting GE optical signals	Optical fiber and twisted pair

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 23	GE	SFP	Interface for inputting and outputting GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-375 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twenty-four FE/GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot.
Reliability and availability	Hot swappable
Restrictions and remarks	Supports GE optical interfaces but not 100M optical interfaces if a GE optical module is used. Does not support synchronous Ethernet. Does not support the LPUF-51 and LPUF-51-B.

Technical Specifications

Table 9-376 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-377 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	77.1 W
Typical heat dissipation	250.2 BTU/hour
Weight	1.2 kg (2.65 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.7.11 5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P51-E, Occupy two sub-slots)

Overview

Table 9-378 Board attributes

Attribute	Description
Board name silkscreen	P51-5x10GBase LAN/WAN-SFP+ -E
Description	5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P51-E, Occupy two sub-slots)
BOM	03030PYG
Model	CR5D0L5XFE70

Table 9-379 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X8	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X16	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X3A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X16A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10

Appearance



Panel

Table 9-380 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-381 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 4	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-382 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides five 10GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies two half-width flexible card slots.

Technical Specifications

Table 9-383 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-384 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 358.2 mm x 193.3 mm (1.46 in. x 14.1 in. x 7.61 in.)
Typical power consumption	57.0 W
Typical heat dissipation	184.9 BTU/hour
Weight	1 kg (2.32 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.7.12 2-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P51-E)

Overview

Table 9-385 Board attributes

Attribute	Description
Board name silkscreen	P51-2x10GBase LAN/WAN-SFP+ -E
Description	2-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P51-E)
BOM	03030PYF
Model	CR5D0L2XFE70

Table 9-386 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X8	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X16	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X3A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X8A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X16A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10

Appearance



Panel

Table 9-387 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-388 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 1	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-389 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides two 10GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot.

Technical Specifications

Table 9-390 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-391 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	47.0 W
Typical heat dissipation	152.5 BTU/hour
Weight	0.9 kg (1.98 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.7.13 5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P52-E, Occupy two sub-slots)

Overview

Table 9-392 Board attributes

Attribute	Description
Board name silkscreen	P52-5x10GBase LAN/WAN-SFP+ -E
Description	5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P52-E, Occupy two sub-slots)

Attribute	Description
BOM	03031XPT
Model	CR5D0L5XFE74

Table 9-393 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X8	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X16	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X3A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X8A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X16A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00

Appearance



Panel

Table 9-394 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-395 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 4	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-396 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides five 10GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies two half-width flexible card slots
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-397 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-398 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 357.8 mm x 193.3 mm (1.46 in. x 14.09 in. x 7.61 in.)
Typical power consumption	65.0 W
Typical heat dissipation	210.9 BTU/hour
Weight	1 kg (2.2 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.7.14 2-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P52-E)

Overview

Table 9-399 Board attributes

Attribute	Description
Board name silkscreen	P52-2x10GBase LAN/WAN-SFP+ -E
Description	2-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P52-E)
BOM	03031XQD
Model	CR5D0L2XFE75

Table 9-400 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X8	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X16	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X3A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X8A	9.7.3 Flexible Card Line Processing	V800R009C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Unit(LPUF-51,2 sub-slots) E	
NE40E-X16A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00

Appearance



Panel

Table 9-401 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-402 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 1	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-403 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides two 10GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-404 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-405 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	59.0 W
Typical heat dissipation	191.4 BTU/hour
Weight	1 kg (2.2 lb)

Item	Specification
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.7.15 2-Port 10GBase LAN/WAN-SFP+ Flexible Card H(P51-H)

Overview

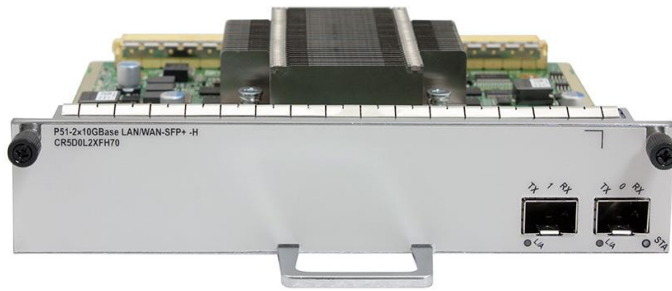
Table 9-406 Board attributes

Attribute	Description
Board name silkscreen	P51-2x10GBase LAN/WAN-SFP+ -H
Description	2-Port 10GBase LAN/WAN-SFP+ Flexible Card H(P51-H)
BOM	03031EAW
Model	CR5D0L2XFH70

Table 9-407 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X8	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X16	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X3A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X8A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X16A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00

Appearance



Panel

Table 9-408 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-409 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 1	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-410 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides two 10GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot

Functions and Features	Remarks
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-411 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-412 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	65.0 W
Typical heat dissipation	210.9 BTU/hour
Weight	1 kg (2.2 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.8 LPUI-51

9.8.1 5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-51)

Overview

Table 9-413 Board attributes

Attribute	Description
Board name silkscreen	LPUI-51 5x10GBase LAN/WAN-SFP+ -A
Description	5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-51)
BOM	03054395
Model	CR5D0L5XFA71

Table 9-414 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-415 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-416 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-417 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/4	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-418 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding.
Reliability and availability	Hot swappable.

Functions and Features	Remarks
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-419 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-420 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	209.0 W
Typical heat dissipation	678.1 BTU/hour
Weight	7.4 kg (16.43 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.8.2 4-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-51)

Overview

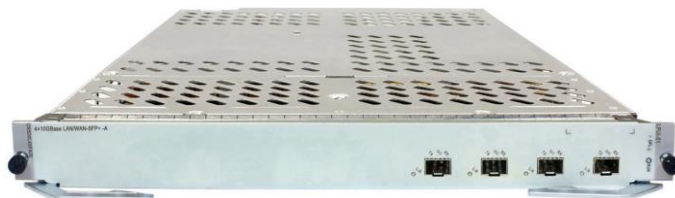
Table 9-421 Board attributes

Attribute	Description
Board name silkscreen	LPUI-51 4x10GBase LAN/WAN-SFP+ -A
Description	4-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-51)
BOM	03054397
Model	CR5D0L4XFA70

Table 9-422 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-423 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-424 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-425 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/3	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-426 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding.
Reliability and availability	Hot swappable.

Functions and Features	Remarks
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-427 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-428 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	200.0 W
Typical heat dissipation	648.9 BTU/hour
Weight	7.4 kg (16.43 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.8.3 48-Port 100/1000Base-X-SFP Integrated Line Processing Unit (LPUI-51)

Overview

Table 9-429 Board attributes

Attribute	Description
Board name silkscreen	LPUI-51 48xFE/GE-SFP-A
Description	48-Port 100/1000Base-X-SFP Integrated Line Processing Unit (LPUI-51)
BOM	03054400
Model	CR5D0EMGFA70

Table 9-430 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-431 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-432 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-433 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/23 1/0 to 1/23	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-434 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-435 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-436 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	253.0 W
Typical heat dissipation	820.8 BTU/hour
Weight	9.4 kg (20.73 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.8.4 2-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit (LPUI-51)

Overview

Table 9-437 Board attributes

Attribute	Description
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Attribute	Description
Board name silkscreen	LPUI-51 2x10GBase LAN/WAN-SFP+ -24xFE/GE-SFP-A
Description	2-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit (LPUI-51)
BOM	03054412
Model	CR5DL2XEFG7A

Table 9-438 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-439 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-440 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green) 0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-441 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/1	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber and twisted pair
1/0 to 1/23	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-442 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding. Two types of interfaces are available. One supports 2 x 10G line-rate forwarding. The other provides 24 GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-443 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-444 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	242.0 W
Typical heat dissipation	785.1 BTU/hour
Weight	8.3 kg (18.26 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.8.5 5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-51-B)

Overview

Table 9-445 Board attributes

Attribute	Description
Board name silkscreen	LPUI-51-B 5x10GBase LAN/WAN-SFP+ -A
Description	5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-51-B)
BOM	03054485
Model	CR5D0L5XFA7B

Table 9-446 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-447 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-448 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-449 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/4	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-450 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding. The board provides 5 x 10GE interfaces.
Reliability and availability	Hot swappable.

Functions and Features	Remarks
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The 10G interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-451 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-452 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	209.0 W
Typical heat dissipation	678.1 BTU/hour
Weight	7.4 kg (16.43 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.8.6 4-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-51-B)

Overview

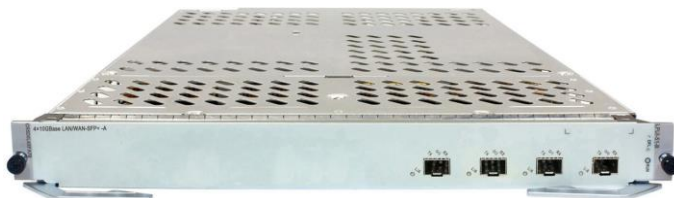
Table 9-453 Board attributes

Attribute	Description
Board name silkscreen	LPUI-51-B 4x10GBase LAN/WAN-SFP+ -A
Description	4-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-51-B)
BOM	03054486
Model	CR5D0L4XFA7B

Table 9-454 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-455 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-456 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-457 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/3	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-458 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding. The board provides 4 x 10GE interfaces.
Reliability and availability	Hot swappable.

Functions and Features	Remarks
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The 10G interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-459 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-460 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	200.0 W
Typical heat dissipation	648.9 BTU/hour
Weight	7.4 kg (16.43 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.8.7 48-Port 100/1000Base-X-SFP Integrated Line Processing Unit B(LPUI-51-B)

Overview

Table 9-461 Board attributes

Attribute	Description
Board name silkscreen	LPUI-51-B 48xFE/GE-SFP-A
Description	48-Port 100/1000Base-X-SFP Integrated Line Processing Unit B(LPUI-51-B)
BOM	03054488
Model	CR5D0EMGFA7B

Table 9-462 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-463 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-464 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-465 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/23 1/0 to 1/23	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-466 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding. It provides forty-eight GE interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-467 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-468 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	253.0 W
Typical heat dissipation	820.8 BTU/hour
Weight	8.4 kg (18.52 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.8.8 2-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit B(LPUI-51-B)

Overview

Table 9-469 Board attributes

Attribute	Description
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Attribute	Description
Board name silkscreen	LPUI-51-B 2x10GBase LAN/WAN-SFP+ -24xFE/GE-SFP-A
Description	2-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit B(LPUI-51-B)
BOM	03054489
Model	CR5DL2XEFG7B

Table 9-470 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-471 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-472 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green) 0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-473 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/1	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber and twisted pair
1/0 to 1/23	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-474 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding. Two types of interfaces are available. One supports 2 x 10G line-rate forwarding. The other provides 24 GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-475 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-476 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	242.0 W
Typical heat dissipation	785.1 BTU/hour
Weight	8.3 kg (18.26 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.8.9 5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-51-L)

Overview

Table 9-477 Board attributes

Attribute	Description
Board name silkscreen	LPUI-51-L 5x10GBase LAN/WAN-SFP+ -A
Description	5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-51-L)
BOM	03054520
Model	CR5D0L5XFA7L

Table 9-478 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-479 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-480 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-481 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 4	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-482 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding. The board provides 5 x 10GE interfaces.
Reliability and availability	Hot swappable.

Functions and Features	Remarks
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The 10G interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-483 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-484 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	157.0 W
Typical heat dissipation	509.4 BTU/hour
Weight	5.6 kg (12.24 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.8.10 48-Port 100/1000Base-X-SFP Integrated Line Processing Unit L(LPUI-51-L)

Overview

Table 9-485 Board attributes

Attribute	Description
Board name silkscreen	LPUI-51-L 48xFE/GE-SFP-A
Description	48-Port 100/1000Base-X-SFP Integrated Line Processing Unit L(LPUI-51-L)
BOM	03054528
Model	CR5D0EMGFA7L

Table 9-486 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-487 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-488 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-489 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 23	GE	SFP	Interface for inputting and outputting GE optical signals	Optical fiber and twisted pair
24 to 47	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-490 Functions and features

Functions and Features	Remarks
Line-Rate	Supports 50G line-rate forwarding. It provides forty-eight GE

Functions and Features	Remarks
capability	interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces 0 to 23 support only the 1000Base-X mode and support only GE optical modules, and interfaces 24 to 47 support both the 100Base-X and 1000Base-X modes and support both FE and GE optical modules.

Technical Specifications

Table 9-491 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-492 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	177.0 W
Typical heat dissipation	574.3 BTU/hour
Weight	5.8 kg (12.68 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.8.11 2-Port 10GBase LAN/WAN-SFP+ + 32-Port 100/1000Base-X-SFP Integrated Line Processing Unit L(LPUI-51-L)

Overview

Table 9-493 Board attributes

Attribute	Description
Board name silkscreen	LPUI-51-L 2x10GBase LAN/WAN-SFP+ -32xFE/GE-SFP-A
Description	2-Port 10GBase LAN/WAN-SFP+ + 32-Port 100/1000Base-X-SFP Integrated Line Processing Unit L(LPUI-51-L)
BOM	03054525
Model	CR5DL2XEIG7L

Table 9-494 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-495 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-496 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-497 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 1	10G LAN/WAN or GE	SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair
2 to 9	GE	SFP	Interface for inputting and outputting GE optical signals	Optical fiber and twisted pair
10 to 33	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-498 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding. Two types of interfaces are available. One supports 2 x 10G line-rate forwarding. The other provides 32 GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces 0 and 1 support the LAN and WAN modes. (The interfaces working in WAN mode can function only as master interfaces.) The interfaces 2 to 9 support the 1000Base-X mode. The interfaces 10 to 33 support both the 100Base-X and 1000Base-X mode modes. Except interface 1, all interfaces with odd numbers support electrical modules. A maximum of 16 electrical modules are supported. The interfaces 2 to 9 support only GE optical modules, and the interfaces 10 to 33 support both FE and GE optical modules.
GE/10GE autonegotiation supported	The 10G interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-499 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-500 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	166.0 W
Typical heat dissipation	538.6 BTU/hour
Weight	5.7 kg (12.57 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.8.12 4-Port 10GBase LAN/WAN-SFP+ + 12-Port 100/1000Base-X-SFP Integrated Line Processing Unit L(LPUI-51-L)

Overview

Table 9-501 Board attributes

Attribute	Description
Board name silkscreen	LPUI-51-L 4x10GBase LAN/WAN-SFP+ -12xFE/GE-SFP-A
Description	4-Port 10GBase LAN/WAN-SFP+ + 12-Port 100/1000Base-X-SFP Integrated Line Processing Unit L(LPUI-51-L)
BOM	03055716
Model	CR5DL4XEBG7L

Table 9-502 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R008C10
NE40E-X8	V800R008C10
NE40E-X16	V800R008C10
NE40E-X3A	V800R008C10
NE40E-X8A	V800R008C10

Product	Earliest Software Version
NE40E-X16A	V800R008C10

Appearance



Panel

Table 9-503 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-504 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-505 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 3	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN	Optical fiber and twisted pair

Interface Name	Interface Type	Connector Type	Description	Cable
			optical signals	
4 to 15	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-506 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding. It provides four 10G interfaces, and twelve GE interfaces.
Restrictions and remarks	The 10G interfaces 0 to 3 support the LAN and WAN modes. The interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-507 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3

Attribute	Description
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-508 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	160.0 W
Typical heat dissipation	519.1 BTU/hour
Weight	5 kg (11.02 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.9 LPUI-51-E

9.9.1 2-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit E(LPUI-51-E)

Overview

Table 9-509 Board attributes

Attribute	Description
Board name silkscreen	LPUI-51-E 2x10GBase LAN/WAN-SFP+ -24xGE-SFP-A
Description	2-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit E(LPUI-51-E)
BOM	03055052
Model	CR5DL2XEFG7J

Table 9-510 Mapping products and versions

Product	Earliest Software Version
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Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X3A	V800R007C00
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-511 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-512 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green) 0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-513 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/1	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber and twisted pair
1/0 to 1/23	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-514 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-515 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module

Attribute	Description
	10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-516 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	241.5 W
Typical heat dissipation	783.5 BTU/hour
Weight	9 kg (19.91 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.9.2 5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit E(LPUI-51-E)

Overview

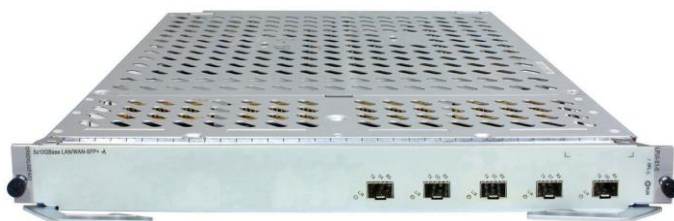
Table 9-517 Board attributes

Attribute	Description
Board name silkscreen	LPUI-51-E 5x10GBase LAN/WAN-SFP+ -A
Description	5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit E(LPUI-51-E)
BOM	03055051
Model	CR5D0L5XFA7J

Table 9-518 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-519 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-520 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-521 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/4	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-522 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-523 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module

Attribute	Description
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-524 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	209.0 W
Typical heat dissipation	678.1 BTU/hour
Weight	8 kg (17.75 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.9.3 2-Port 10GBase LAN/WAN-SFP+ + 24-Port 1000Base-X-SFP Integrated Line Processing Unit E(LPUI-51-E,Enhanced HQos)

Overview

Table 9-525 Board attributes

Attribute	Description
Board name silkscreen	LPUI-51-E 2x10GBase LAN/WAN-SFP+ -24xGE-SFP-E
Description	2-Port 10GBase LAN/WAN-SFP+ + 24-Port 1000Base-X-SFP Integrated Line Processing Unit E(LPUI-51-E,Enhanced HQos)
BOM	03054625
Model	CR5DL2XEFG7E

Table 9-526 Mapping products and versions

Product	Earliest Software Version
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Product	Earliest Software Version
NE40E-X3	V800R008C10
NE40E-X8	V800R008C10
NE40E-X16	V800R008C10
NE40E-X3A	V800R008C10
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance



Panel

Table 9-527 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-528 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green) 0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-529 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/23	GE	SFP	Interface for inputting and outputting GE optical signals	Optical fiber and twisted pair
1/0 to 1/1	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-530 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding. It provides two 10G interfaces, and twenty-four GE interfaces.

Technical Specifications

Table 9-531 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-532 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	282.0 W
Typical heat dissipation	914.9 BTU/hour
Weight	9.2 kg (20.29 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.9.4 2-Port 10GBase LAN/WAN-SFP+ +24-Port 1000Base-X-SFP Integrated Line Processing Unit E(LPUI-52-E,Enhanced HQos)

Overview

Table 9-533 Board attributes

Attribute	Description
Board name silkscreen	LPUI-52-E 2x10GBase LAN/WAN-SFP+ -24xGE-SFP-E
Description	2-Port 10GBase LAN/WAN-SFP+ +24-Port 1000Base-X-SFP Integrated Line Processing Unit E(LPUI-52-E,Enhanced HQos)
BOM	03057086
Model	CR5DL2XFFG7E

Table 9-534 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R009C00
NE40E-X16	V800R009C00
NE40E-X3A	V800R009C00
NE40E-X8A	V800R009C00
NE40E-X16A	V800R009C00

Appearance



Panel

Table 9-535 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-536 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green) 0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-537 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/23	GE	SFP	Interface for inputting and outputting GE optical signals	Optical fiber and twisted pair
1/0 to 1/1	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G	Optical fiber and twisted pair

Interface Name	Interface Type	Connector Type	Description	Cable
			LAN/WAN or GE optical signals	

Functional Specifications

Table 9-538 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The 10G interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-539 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module NOTE The 10G interface supports GE/10GE auto-sensing.
Working mode	Full-duplex

Attribute	Description
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-540 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	295.2 W
Typical heat dissipation	957.8 BTU/hour
Weight	9.2 kg (20.18 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.9.5 5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit E(LPUI-51-E,Enhanced HQos)

Overview

Table 9-541 Board attributes

Attribute	Description
Board name silkscreen	LPUI-51-E 5x10GBase LAN/WAN-SFP+ -E
Description	5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit E(LPUI-51-E,Enhanced HQos)
BOM	03054626
Model	CR5D0L5XFA7E

Table 9-542 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R008C10

Product	Earliest Software Version
NE40E-X8	V800R008C10
NE40E-X16	V800R008C10
NE40E-X3A	V800R008C10
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance



Panel

Table 9-543 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-544 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-545 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 4	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-546 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50GE (5 x 10GE) line-rate forwarding.

Technical Specifications

Table 9-547 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-548 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	237.0 W

Item	Specification
Typical heat dissipation	768.9 BTU/hour
Weight	8.2 kg (18.08 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 F to 113 F) Short terms: -5 °C to 55 °C (23 F to 131 F)

9.9.6 5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit E(LPUI-52-E,Enhanced HQos)

Overview

Table 9-549 Board attributes

Attribute	Description
Board name silkscreen	LPUI-52-E 5x10GBase LAN/WAN-SFP+-E
Description	5-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit E(LPUI-52-E,Enhanced HQos)
BOM	03057085
Model	CR5D0L5XFA7F

Table 9-550 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R009C00
NE40E-X8	V800R009C00
NE40E-X16	V800R009C00
NE40E-X3A	V800R009C00
NE40E-X8A	V800R009C00
NE40E-X16A	V800R009C00

Appearance



Panel

Table 9-551 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-552 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-553 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 4	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-554 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50GE (5 x 10GE) line-rate forwarding
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-555 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-556 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	215.2 W
Typical heat dissipation	698.2 BTU/hour
Weight	8.2 kg (17.97 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.9.7 48-Port 100/1000Base-X-SFP Integrated Line Processing Unit E(LPUI-51-E)

Overview

Table 9-557 Board attributes

Attribute	Description
Board name silkscreen	LPUI-51-E 48xFE/GE-SFP-A
Description	48-Port 100/1000Base-X-SFP Integrated Line Processing Unit E(LPUI-51-E)
BOM	03055053
Model	CR5D0EMGFA7J

Table 9-558 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X3A	V800R007C00
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-559 Buttons

Name	Description
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Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-560 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-561 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/23 1/0 to 1/23	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-562 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding. It provides forty-eight GE interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-563 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-564 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	254.0 W
Typical heat dissipation	824.1 BTU/hour
Weight	9.1 kg (20.15 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.9.8 5-Port 10GBase LAN/WAN-SFP+ Line Processing Unit S(LPUI-51-S)

Overview

Table 9-565 Board attributes

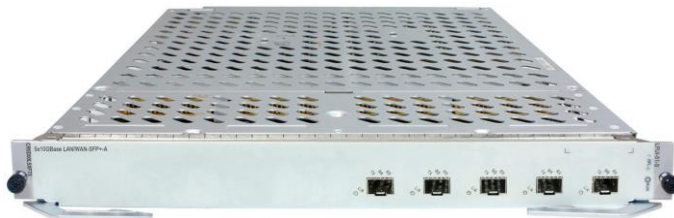
Attribute	Description
Board name silkscreen	LPUI-51-S 5x10GBase LAN/WAN-SFP+ -A

Attribute	Description
Description	5-Port 10GBase LAN/WAN-SFP+ Line Processing Unit S(LPUI-51-S)
BOM	03056737
Model	CR5D00L5XF73

Table 9-566 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-567 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-568 Indicators

Name	Description
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Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-569 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/4	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-570 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-571 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-572 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	209.0 W
Typical heat dissipation	678.1 BTU/hour
Weight	8 kg (17.75 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.9.9 2-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit S(LPUI-51-S)

Overview

Table 9-573 Board attributes

Attribute	Description
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Attribute	Description
Board name silkscreen	LPUI-51-S 2x10GBase LAN/WAN-SFP+-24xGE-SFP-A
Description	2-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit S(LPUI-51-S)
BOM	03056738
Model	CR5DL2XEFG73

Table 9-574 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-575 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-576 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green) 0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-577 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/1	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber and twisted pair
1/0 to 1/23	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-578 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding. One supports 2 x 10G line-rate forwarding. The other provides 24 GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-579 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-580 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	241.5 W
Typical heat dissipation	783.5 BTU/hour
Weight	9 kg (19.91 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.9.10 48-Port 100/1000Base-X-SFP Line Processing Unit S(LPUI-51-S)

Overview

Table 9-581 Board attributes

Attribute	Description
Board name silkscreen	LPUI-51-S 48xFE/GE-SFP-A
Description	48-Port 100/1000Base-X-SFP Line Processing Unit S(LPUI-51-S)
BOM	03056736
Model	CR5D00EMGF74

Table 9-582 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-583 Buttons

Name	Description
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Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-584 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-585 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/23 1/0 to 1/23	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-586 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding. It provides forty-eight GE interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-587 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-588 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	254.0 W
Typical heat dissipation	824.1 BTU/hour
Weight	9.1 kg (20.15 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.9.11 48-Port 100/1000Base-X-SFP Integrated Line Processing Unit CM(LPUI-51-CM)

Overview

Table 9-589 Board attributes

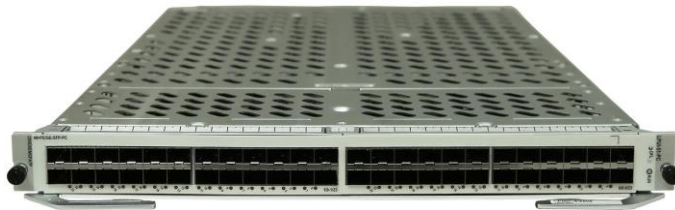
Attribute	Description
Board name silkscreen	LPUI-51-PC 48×FE/GE-SFP-PC

Attribute	Description
Description	48-Port 100/1000Base-X-SFP Integrated Line Processing Unit CM(LPUI-51-CM)
BOM	03057688
Model	CR5D0EMGFA7P

Table 9-590 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R009C10
NE40E-X16	V800R009C10
NE40E-X3A	V800R009C10
NE40E-X8A	V800R009C10
NE40E-X16A	V800R009C10

Appearance



Panel

Table 9-591 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-592 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.

Name	Description
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-593 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/23 1/0 to 1/23	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-594 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding. It provides forty-eight GE interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-595 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module

Attribute	Description
	10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-596 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	304.4 W
Typical heat dissipation	987.6 BTU/hour
Weight	9.6 kg (21.17 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.10 LPUS-51

9.10.1 5-Port 10GBase LAN/WAN-SFP+ Line Processing Unit S(LPUS-51)

Overview

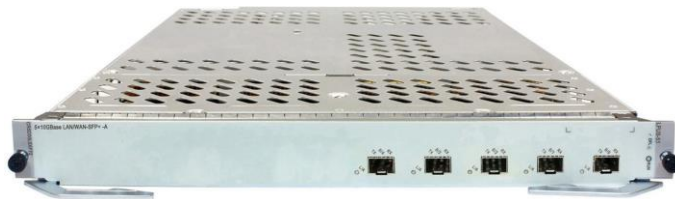
Table 9-597 Board attributes

Attribute	Description
Board name silkscreen	LPUS-51 5x10GBase LAN/WAN-SFP+ -A
Description	5-Port 10GBase LAN/WAN-SFP+ Line Processing Unit S(LPUS-51)
BOM	03054396
Model	CR5D00L5XF72

Table 9-598 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-599 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-600 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-601 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/4	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-602 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding, the board provides 5 x 10GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-603 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module

Attribute	Description
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-604 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	209.0 W
Typical heat dissipation	678.1 BTU/hour
Weight	7.4 kg (16.43 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.10.2 4-Port 10GBase LAN/WAN-SFP+ Line Processing Unit S(LPUS-51)

Overview

Table 9-605 Board attributes

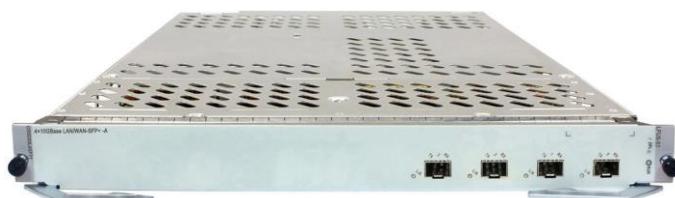
Attribute	Description
Board name silkscreen	LPUS-51 4x10GBase LAN/WAN-SFP+ -A
Description	4-Port 10GBase LAN/WAN-SFP+ Line Processing Unit S(LPUS-51)
BOM	03054398
Model	CR5D00L4XF71

Table 9-606 Mapping products and versions

Product	Earliest Software Version
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Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-607 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-608 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-609 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/3	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-610 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding, the board provides 4 x 10GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-611 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex

Attribute	Description
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-612 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	209.0 W
Typical heat dissipation	678.1 BTU/hour
Weight	7.4 kg (16.43 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.10.3 48-Port 100/1000Base-X-SFP Line Processing Unit S(LPUS-51)

Overview

Table 9-613 Board attributes

Attribute	Description
Board name silkscreen	LPUS-51 48xFE/GE-SFP-A
Description	48-Port 100/1000Base-X-SFP Line Processing Unit S(LPUS-51)
BOM	03054401
Model	CR5D00EMGF73

Table 9-614 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00

Product	Earliest Software Version
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-615 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-616 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-617 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/23 1/0 to 1/23	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-618 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-619 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-620 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	253.0 W
Typical heat dissipation	820.8 BTU/hour
Weight	8.4 kg (18.52 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.10.4 2-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Line Processing Unit S(LPUS-51)

Overview

Table 9-621 Board attributes

Attribute	Description
Board name silkscreen	LPUS-51 2x10GBase LAN/WAN-SFP+ -24xGE-SFP-A
Description	2-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Line Processing Unit S(LPUS-51)
BOM	03054413
Model	CR5DL2XEFG72

Table 9-622 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-623 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-624 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green) 0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-625 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/1	FE/GE	SFP/SFP+	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair
1/0 to 1/23	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical	Optical fiber and twisted pair

Interface Name	Interface Type	Connector Type	Description	Cable
			signals	

Functional Specifications

Table 9-626 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 50G line-rate forwarding. Two types of interfaces are available. One supports 2 x 10G line-rate forwarding. The other provides 24 GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-627 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant	IEEE 802.3

Attribute	Description
standard	
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-628 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	242.0 W
Typical heat dissipation	785.1 BTU/hour
Weight	8.3 kg (18.26 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.11 LPUF-101

9.11.1 Flexible Card Line Processing Unit(LPUF-101)

Overview

Table 9-629 Board attributes

Attribute	Description
Board name silkscreen	LPUF-101
Description	Flexible Card Line Processing Unit(LPUF-101)
BOM	03054402
Model	CR5DLPUFA071

Table 9-630 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00

Product	Earliest Software Version
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-631 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-632 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-633 Functions and features

Functions and Features	Remarks
------------------------	---------

Functions and Features	Remarks
Line-Rate capability	Supports 100G line-rate forwarding and provides low-cost.
Slot information	The board provides a maximum of two half-width slots and each slot can hold one FPIC card.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-634 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	260.0 W
Typical heat dissipation	843.5 BTU/hour
Weight	6.8 kg (14.99 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.11.2 Flexible Card Line Processing Unit(LPUF-101) B

Overview

Table 9-635 Board attributes

Attribute	Description
Board name silkscreen	LPUF-101-B
Description	Flexible Card Line Processing Unit(LPUF-101) B
BOM	03054490
Model	CR5DLPUFA07B

Table 9-636 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-637 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-638 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-639 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 100G line-rate forwarding.
Slot information	The board provides a maximum of two half-width slots and each slot can hold one FPIC card.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-640 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	260.0 W
Typical heat dissipation	843.5 BTU/hour
Weight	6.8 kg (14.99 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.11.3 24-Port 100/1000Base-X-SFP Flexible Card A(P101-A)

Overview

Table 9-641 Board attributes

Attribute	Description
Board name silkscreen	P101-24xFE/GE-SFP-A
Description	24-Port 100/1000Base-X-SFP Flexible Card A(P101-A)
BOM	03030PMN
Model	CR5D0EFGFA71

Table 9-642 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X3A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120)	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00
NE40E-X16	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00
NE40E-X8A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00
NE40E-X16A	9.19.2 Flexible Card Line	V800R009C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	

Appearance



Panel

Table 9-643 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-644 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 23	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-645 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twenty-four FE/GE interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable

Technical Specifications

Table 9-646 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-647 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	37.0 W
Typical heat dissipation	120.0 BTU/hour
Weight	1 kg (2.2 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms:

Item	Specification
	-5 °C to 55 °C (23 °F to 131 °F)

9.11.4 5-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P101-A)

Overview

Table 9-648 Board attributes

Attribute	Description
Board name silkscreen	P101-5x10GBase LAN/WAN-SFP+ -A
Description	5-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P101-A)
BOM	03030PMK
Model	CR5D0L5XFA72

Table 9-649 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X3A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8A	9.11.1 Flexible Card Line Processing Unit(LPUF-101)	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	
NE40E-X16A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-120) E	

Appearance



Panel

Table 9-650 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-651 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 4	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-652 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides five 10GE interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-653 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-654 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61

Item	Specification
	in.)
Typical power consumption	29.0 W
Typical heat dissipation	94.1 BTU/hour
Weight	0.9 kg (1.98 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.11.5 1-Port 40GBase LAN-CFP Flexible Card A(P101-A)

Overview

Table 9-655 Board attributes

Attribute	Description
Board name silkscreen	P101-1x40GBase LAN-CFP-A
Description	1-Port 40GBase LAN-CFP Flexible Card A(P101-A)
BOM	03030PMQ
Model	CR5D00E1MC70

Table 9-656 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-120) E	
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00

Appearance



Panel

Table 9-657 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-658 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
None	40GE	CFP	Interface for inputting and outputting 40GE optical	Optical fiber

Interface Name	Interface Type	Connector Type	Description	Cable
			signals	

Functional Specifications

Table 9-659 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides one 40G interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable

Technical Specifications

Table 9-660 Interface specifications

Attribute	Description
Optical type supported	10.19 40Gbps CFP Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-661 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	28.0 W
Typical heat dissipation	90.8 BTU/hour
Weight	1.2 kg (2.65 lb)

Item	Specification
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.12 LPUI-101

9.12.1 2-Port 40GBase LAN-CFP Integrated Line Processing Unit (LPUI-101)

Overview

Table 9-662 Board attributes

Attribute	Description
Board name silkscreen	LPUI-101 2x40GBase LAN-CFP-A
Description	2-Port 40GBase LAN-CFP Integrated Line Processing Unit (LPUI-101)
BOM	03054405
Model	CR5D00E2MC70

Table 9-663 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-664 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-665 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-666 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 2/0	40GE	CFP	Interface for inputting and outputting 40GE optical signals	Optical fiber

Functional Specifications

Table 9-667 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 100G line-rate forwarding, it supports two 40G interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-668 Interface specifications

Attribute	Description
Optical type supported	10.19 40Gbps CFP Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-669 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	316.0 W
Typical heat dissipation	1025.2 BTU/hour
Weight	9 kg (19.96 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.12.2 10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-101)

Overview

Table 9-670 Board attributes

Attribute	Description
Board name silkscreen	LPUI-101 10x10GBase LAN/WAN-SFP+ -A
Description	10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-101)
BOM	03054408
Model	CR5D0LAXFA71

Table 9-671 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-672 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-673 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-674 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/4 2/0 to 2/4	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-675 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 100GE (10 x 10GE) line-rate forwarding.
Reliability and availability	Hot swappable.

Functions and Features	Remarks
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-676 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-677 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	318.0 W
Typical heat dissipation	1031.7 BTU/hour
Weight	8.4 kg (18.63 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.12.3 2-Port 40GBase LAN-CFP Integrated Line Processing Unit B(LPUI-101-B)

Overview

Table 9-678 Board attributes

Attribute	Description
Board name silkscreen	LPUI-101-B 2x40GBase LAN-CFP-A
Description	2-Port 40GBase LAN-CFP Integrated Line Processing Unit B(LPUI-101-B)
BOM	03054491
Model	CR5D00E2MC7B

Table 9-679 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-680 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-681 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-682 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 2/0	40GE	CFP	Interface for inputting and outputting 40GE optical signals	Optical fiber

Functional Specifications

Table 9-683 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 100G line-rate forwarding. It supports two 40G interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-684 Interface specifications

Attribute	Description
Optical type supported	10.19 40Gbps CFP Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-685 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	316.0 W
Typical heat dissipation	1025.2 BTU/hour
Weight	9 kg (19.96 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.12.4 10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-101-B)

Overview

Table 9-686 Board attributes

Attribute	Description
Board name silkscreen	LPUI-101-B 10x10GBase LAN/WAN-SFP+ -A
Description	10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-101-B)
BOM	03054492

Attribute	Description
Model	CR5D0LAXFA7B

Table 9-687 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-688 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-689 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Name	Description
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-690 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/4 2/0 to 2/4	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-691 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 100GE (10 x 10GE) line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The 10G interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-692 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module

Attribute	Description
	10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-693 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	318.0 W
Typical heat dissipation	1031.7 BTU/hour
Weight	8.4 kg (18.63 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.13 LPUS-101

9.13.1 2-Port 40GBase LAN-CFP Line Processing Unit S(LPUS-101)

Overview

Table 9-694 Board attributes

Attribute	Description
Board name silkscreen	LPUS-101 2x40GBase LAN-CFP-A
Description	2-Port 40GBase LAN-CFP Line Processing Unit S(LPUS-101)

Attribute	Description
BOM	03054406
Model	CR5D00E2MC71

Table 9-695 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-696 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-697 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board

Name	Description
	is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-698 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 2/0	40GE	CFP	Interface for inputting and outputting 40GE optical signals	Optical fiber

Functional Specifications

Table 9-699 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 100G line-rate forwarding, it supports two 40G interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-700 Interface specifications

Attribute	Description
Optical type supported	10.19 40Gbps CFP Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-701 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	316.0 W
Typical heat dissipation	1025.2 BTU/hour
Weight	9 kg (19.96 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.13.2 10-Port 10GBase LAN/WAN-SFP+ Line Processing Unit S(LPUS-101)

Overview

Table 9-702 Board attributes

Attribute	Description
Board name silkscreen	LPUS-101 10x10GBase LAN/WAN-SFP+ -A
Description	10-Port 10GBase LAN/WAN-SFP+ Line Processing Unit S(LPUS-101)
BOM	03054407
Model	CR5D0LAXFA72

Table 9-703 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-704 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-705 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-706 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/4 2/0 to 2/4	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-707 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 100GE (10 x 10GE) line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-708 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-709 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)

Item	Specification
Typical power consumption	318.0 W
Typical heat dissipation	1031.7 BTU/hour
Weight	8.4 kg (18.63 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.14 LPUF-102

9.14.1 6-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P120-A)

Overview

Table 9-710 Board attributes

Attribute	Description
Board name silkscreen	P101-6x10GBase LAN/WAN-SFP+ -A
Description	6-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P120-A)
BOM	03030QDE
Model	CR5D0L6XFA70

Table 9-711 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line	V800R006C20

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20

Appearance



Panel

Table 9-712 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 5 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-713 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 5	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-714 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides six 10GE interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-715 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-716 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	34.0 W
Typical heat dissipation	110.3 BTU/hour
Weight	0.6 kg (1.43 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.14.2 1-Port 100GBase-CFP Flexible Card A(P120-A)

Overview

Table 9-717 Board attributes

Attribute	Description
Board name silkscreen	P120-1x100GBase LAN-CFP-A

Attribute	Description
Description	1-Port 100GBase-CFP Flexible Card A(P120-A)
BOM	03030PYU
Model	CR5D00E1NC75

Table 9-718 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120)	V800R006C20

Product	Motherboard	Earliest Software Version for Flexible Card
	9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	

Appearance



Panel

Table 9-719 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-720 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
None	100GE	CFP	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-721 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides one 100G interface for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-722 Interface specifications

Attribute	Description
Optical type supported	10.21 100Gbps CFP Optical Modules
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-723 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	51.0 W
Typical heat dissipation	165.5 BTU/hour
Weight	1.3 kg (2.87 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.14.3 1-Port 100GBase-CFP2 Flexible Card A(P120-A)

Overview

Table 9-724 Board attributes

Attribute	Description
Board name silkscreen	P120-1x100GBase-CFP2-A
Description	1-Port 100GBase-CFP2 Flexible Card A(P120-A)
BOM	03032GKY
Model	CR5D00E1NC77

Table 9-725 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X8A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10

Appearance



Panel

Table 9-726 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-727 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
None	100GE	CFP2	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-728 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides one 100GE interface for line-rate transmitting and receiving.

Functions and Features	Remarks
Slot information	Occupies one half-width flexible card slot
Reliability and availability	Hot swappable.
Restrictions and remarks	The interface cannot go Up if its FEC does not match its peer's.

Technical Specifications

Table 9-729 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE When optical modules with the BOM number 02311LYG are used, 2x40G and 10x10G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-730 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	40.0 W
Typical heat dissipation	129.7 BTU/hour
Weight	0.8 kg (1.76 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.14.4 1-Port 40GBase LAN-CFP Flexible Card A(P101-A)

Overview

Table 9-731 Board attributes

Attribute	Description
Board name silkscreen	P101-1x40GBase LAN-CFP-A
Description	1-Port 40GBase LAN-CFP Flexible Card A(P101-A)
BOM	03030PMQ
Model	CR5D00E1MC70

Table 9-732 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X3A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00

Appearance



Panel

Table 9-733 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-734 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
None	40GE	CFP	Interface for inputting and outputting 40GE optical signals	Optical fiber

Functional Specifications

Table 9-735 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides one 40G interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.

Functions and Features	Remarks
Reliability and availability	Hot swappable

Technical Specifications

Table 9-736 Interface specifications

Attribute	Description
Optical type supported	10.19 40Gbps CFP Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-737 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	28.0 W
Typical heat dissipation	90.8 BTU/hour
Weight	1.2 kg (2.65 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.14.5 12-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P120-A)

Overview

Table 9-738 Board attributes

Attribute	Description
Board name silkscreen	P120-12x10GBase LAN/WAN-SFP+ -A

Attribute	Description
Description	12-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P120-A)
BOM	03030NVF
Model	CR5D00LBXF72

Table 9-739 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X16A	9.15.2 Flexible Card Line	V800R006C20

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	

Appearance



Panel

Table 9-740 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 11 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-741 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 11	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-742 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twelve 10GE interfaces for transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces. A 12-port 10GBase LAN/WAN-SFP+ flexible card A(P120-A) can only be installed on the same board as a 24-port 100/1000Base-X-SFP flexible card A(P101-A).
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-743 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-744 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	52.0 W
Typical heat dissipation	168.7 BTU/hour
Weight	0.8 kg (1.65 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.14.6 8-Port OC-48c/STM-16c POS-SFP Flexible Card(P120)

Overview

Table 9-745 Board attributes

Attribute	Description
Board name silkscreen	P120-8xOC48c/STM16c POS-SFP
Description	8-Port OC-48c/STM-16c POS-SFP Flexible Card(P120)
BOM	03030RXS
Model	CR5D00P8UF70

Table 9-746 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line	V800R006C20

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-120) E	
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20

Appearance



Panel

Table 9-747 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 7 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-748 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 7	2.5G POS	SFP	Interface for inputting and outputting 2.5G POS optical signals	Optical fiber

Functional Specifications

Table 9-749 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides eight 2.5GE POS interfaces (can be auto-adapted to 622M) for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Link protocol	HDLC, PPP

Technical Specifications

Table 9-750 Interface specifications

Attribute	Description
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Attribute	Description
Optical type supported	10.10 2.5Gbps eSFP Optical Module
Working mode	Full-duplex
Compliant standard	ITU-T G.707
Frame format	PPP and HDLC

Table 9-751 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	33.4 W
Typical heat dissipation	108.4 BTU/hour
Weight	0.9 kg (1.98 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.14.7 24-Port 100/1000Base-X-SFP Flexible Card A(P101-A)

Overview

Table 9-752 Board attributes

Attribute	Description
Board name silkscreen	P101-24xFE/GE-SFP-A
Description	24-Port 100/1000Base-X-SFP Flexible Card A(P101-A)
BOM	03030PMN
Model	CR5D0EFGFA71

Table 9-753 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X3A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-120) E	
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00
NE40E-X16	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00
NE40E-X8A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00
NE40E-X16A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B)	V800R009C00

Product	Motherboard	Earliest Software Version for Flexible Card
	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	

Appearance



Panel

Table 9-754 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-755 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 23	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-756 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twenty-four FE/GE interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable

Technical Specifications

Table 9-757 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-758 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	37.0 W
Typical heat dissipation	120.0 BTU/hour
Weight	1 kg (2.2 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms:

Item	Specification
	-5 °C to 55 °C (23 °F to 131 °F)

9.14.8 5-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P101-A)

Overview

Table 9-759 Board attributes

Attribute	Description
Board name silkscreen	P101-5x10GBase LAN/WAN-SFP+ -A
Description	5-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P101-A)
BOM	03030PMK
Model	CR5D0L5XFA72

Table 9-760 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X3A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8A	9.11.1 Flexible Card Line Processing Unit(LPUF-101)	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	
NE40E-X16A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-120) E	

Appearance



Panel

Table 9-761 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-762 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 4	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-763 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides five 10GE interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-764 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-765 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61

Item	Specification
	in.)
Typical power consumption	29.0 W
Typical heat dissipation	94.1 BTU/hour
Weight	0.9 kg (1.98 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.14.9 2-Port OC-192c/STM-64c POS-XFP Flexible Card(P51-A)

Overview

Table 9-766 Board attributes

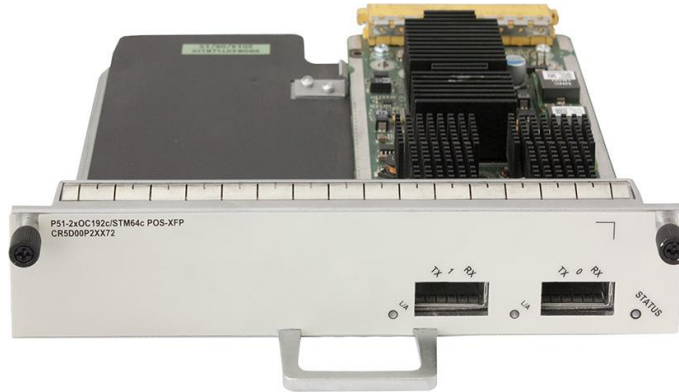
Attribute	Description
Board name silkscreen	P51-2xOC192c/STM64c POS-XFP
Description	2-Port OC-192c/STM-64c POS-XFP Flexible Card(P51-A)
BOM	03031LUU
Model	CR5D00P2XX72

Table 9-767 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X8	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X16	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X3A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X8A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X16A	9.7.3 Flexible Card Line Processing	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Unit(LPUF-51,2 sub-slots) E	
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00

Appearance



Panel

Table 9-768 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-769 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 1	10G POS	XFP	Interface for inputting and outputting 10G POS optical signals	Optical fiber

Functional Specifications

Table 9-770 Functions and features

Functions and Features	Remarks
Line-Rate	Provides two 10GE POS interfaces for line-rate transmitting and

Functions and Features	Remarks
capability	receiving.
Slot information	The board occupies one half-width flexible card slot
Reliability and availability	Hot swappable
Link protocol	HDLC, PPP

Technical Specifications

Table 9-771 Interface specifications

Attribute	Description
Optical type supported	10.17 10Gbps XFP Optical Module 10.18 10Gbps XFP CWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	PPP and HDLC

Table 9-772 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	24.7 W
Typical heat dissipation	80.1 BTU/hour
Weight	0.5 kg (1.1 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.14.10 6-Port OTU2-SFP+ Flexible Card(P120)

Overview

Table 9-773 Board attributes

Attribute	Description
Board name silkscreen	P120-6x10G OTU2-SFP+
Description	6-Port OTU2-SFP+ Flexible Card(P120)
BOM	03030WHA
Model	CR5D00T6XF70

Table 9-774 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00

Appearance



Panel

Table 9-775 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 5 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-776 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
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Interface Name	Interface Type	Connector Type	Description	Cable
0 to 5	10G LAN/10G OTN	SFP+	Interface for inputting and outputting 10G LAN/10G OTN optical signals	Optical fiber

Functional Specifications

Table 9-777 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides six 10GE OTN interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Restrictions and remarks	The mix use of enhanced-i-4 and enhanced-i-7 for interfaces on the same card is not supported.

Technical Specifications

Table 9-778 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.16 10Gbps SFP+ OTN Optical Module 10.15 10Gbps SFP+ DWDM Optical Module NOTE When the OTN rate is used, 10 Gbps SFP+ DWDM optical modules and 10 Gbps SFP+ OTN optical modules are supported. When the LAN rate is used, 10 Gbps SFP+ BIDI optical modules, 10 Gbps SFP+ CWDM optical modules, 10 Gbps SFP+ optical modules, and 10 Gbps SFP+ DWDM optical modules are supported.
Working mode	Full-duplex
Compliant standard	ITU-T G.709, ITU-T G.798, ITU-T G.806, ITU-T G.975, ITU-T G.Sup43

Attribute	Description
Frame format	10G base-R(GFP-F)<->OPU2<->ODU2<->OTU2, 10G base-R(GFP-F)<->OPU2e<->ODU2<->OTU2 and 10G base-R(GFP)<->OPU2<->ODU2<->OTU2

Table 9-779 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	47.0 W
Typical heat dissipation	152.5 BTU/hour
Weight	0.6 kg (1.43 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.14.11 12-Port OTU2-SFP+ Flexible Card(P240)

Overview

Table 9-780 Board attributes

Attribute	Description
Board name silkscreen	P240-12x10G OTU2-SFP+
Description	12-Port OTU2-SFP+ Flexible Card(P240)
BOM	03030WGY
Model	CR5D00TBXF70

Table 9-781 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R007C00
NE40E-X16	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	
NE40E-X8A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R007C00
NE40E-X16A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R007C00

Appearance



Panel

Table 9-782 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 11 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-783 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 11	10G LAN/10G OTN	SFP+	Interface for inputting and outputting 10G LAN/10G OTN optical signals	Optical fiber

Functional Specifications

Table 9-784 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twelve 10GE OTN interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Restrictions and remarks	Each LPUF-120 supports only one such card, and each LPUF-240 supports two such cards. The mix use of enhanced-i-4 and enhanced-i-7 for interfaces on the same card is not supported.

Technical Specifications

Table 9-785 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.16 10Gbps SFP+ OTN Optical Module 10.15 10Gbps SFP+ DWDM Optical Module NOTE When the OTN rate is used, 10 Gbps SFP+ DWDM optical modules and 10 Gbps SFP+ OTN optical modules are supported. When the LAN rate is used, 10 Gbps SFP+ BIDI optical modules, 10 Gbps SFP+ CWDM optical modules, 10 Gbps SFP+ optical modules, and 10 Gbps SFP+ DWDM optical modules are supported.
Working mode	Full-duplex

Attribute	Description
Compliant standard	ITU-T G.709, ITU-T G.798, ITU-T G.806, ITU-T G.975, ITU-T G.Sup43
Frame format	10G base-R(GFP-F)<->OPU2<->ODU2<->OTU2, 10G base-R(GFP-F)<->OPU2e<->ODU2<->OTU2 and 10G base-R(GFP)<->OPU2<->ODU2<->OTU2

Table 9-786 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	56.0 W
Typical heat dissipation	181.7 BTU/hour
Weight	0.8 kg (1.65 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.14.12 24-Port 1000Base-X-SFP Flexible Card E(P51-E)

Overview

Table 9-787 Board attributes

Attribute	Description
Board name silkscreen	P51-24xGE-SFP-E
Description	24-Port 1000Base-X-SFP Flexible Card E(P51-E)
BOM	03030PYE
Model	CR5D0EFGFE70

Table 9-788 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.7.3 Flexible Card Line Processing	V800R008C10

Product	Motherboard	Earliest Software Version for Flexible Card
	Unit(LPUF-51,2 sub-slots) E	
NE40E-X8	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X16	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X3A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X8A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X16A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X3	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10
NE40E-X8A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10

Appearance



Panel

Table 9-789 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-790 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 23	GE	SFP	Interface for inputting and outputting GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-791 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twenty-four FE/GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-792 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module

Attribute	Description
	10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-793 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	55.0 W
Typical heat dissipation	178.4 BTU/hour
Weight	1.2 kg (2.54 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.14.13 20-Port 10/100/1000Base-RJ45 Flexible Card A(P51-A)

Overview

Table 9-794 Board attributes

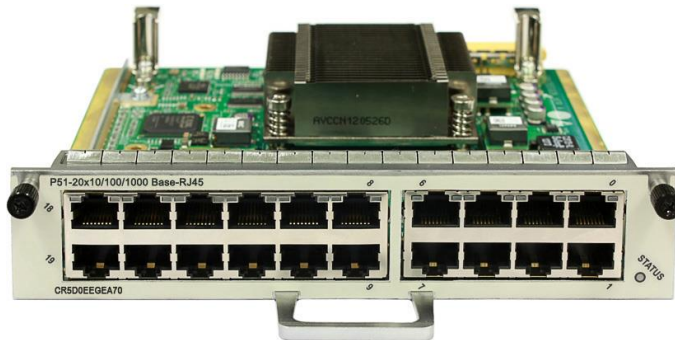
Attribute	Description
Board name silkscreen	P51-20x10/100/1000 Base-RJ45
Description	20-Port 10/100/1000Base-RJ45 Flexible Card A(P51-A)
BOM	03030QKN
Model	CR5D0EEGEA70

Table 9-795 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X8	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X16	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X3A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X8A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X16A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X3	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X8A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10

Appearance



Panel

Table 9-796 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 19 (green or orange)	L/A indicators are at the upper left and right corners of each upper interface row. An L/A indicator at the upper right corner indicates the status of an interface in an upper row, and an L/A indicator at the upper left corner indicates the status of an interface in a lower row. If an L/A indicator is steady green, a link is Up. If an L/A indicator blinks orange, data is being transmitted or received. If an L/A indicator is off, a link is Down.

Table 9-797 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 19	10/100/1000M	RJ45	Interface for inputting and outputting 10/100/1000M electrical signals	Twisted pair

Functional Specifications

Table 9-798 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides 20 interfaces for line-rate line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable
Restrictions and remarks	It does not support the half-duplex mode.

Technical Specifications

Table 9-799 Interface specifications

Attribute	Description
Working mode	10M/100M/1000M auto-sensing, supports the full-duplex mode.
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-800 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)

Item	Specification
Typical power consumption	31.0 W
Typical heat dissipation	100.6 BTU/hour
Weight	0.6 kg (1.43 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.14.14 24-Port 1000Base-X-SFP Flexible Card E(P52-E)

Overview

Table 9-801 Board attributes

Attribute	Description
Board name silkscreen	P52-24xGE-SFP-E
Description	24-Port 1000Base-X-SFP Flexible Card E(P52-E)
BOM	03031XQJ
Model	CR5D0EFGFE71

Table 9-802 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X16	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X3A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X8A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X16A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X8A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X8	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10
NE40E-X16	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10
NE40E-X8A	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10
NE40E-X16A	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10

Appearance



Panel

Table 9-803 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is

Name	Description
	Down.

Table 9-804 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 23	GE	SFP	Interface for inputting and outputting GE optical signals	Optical fiber and twisted pair
0 to 23	GE	SFP	Interface for inputting and outputting GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-805 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twenty-four FE/GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot.
Reliability and availability	Hot swappable
Restrictions and remarks	Supports GE optical interfaces but not 100M optical interfaces if a GE optical module is used. Does not support synchronous Ethernet. Does not support the LPUF-51 and LPUF-51-B.

Technical Specifications

Table 9-806 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module

Attribute	Description
	10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-807 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	77.1 W
Typical heat dissipation	250.2 BTU/hour
Weight	1.2 kg (2.65 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.14.15 5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P101-E)

Overview

Table 9-808 Board attributes

Attribute	Description
Board name silkscreen	P101-5x10GBase LAN/WAN-SFP+-E
Description	5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P101-E)
BOM	03030QKM
Model	CR5D0L5XFE71

Table 9-809 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00

Appearance



Panel

Table 9-810 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-811 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 4	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-812 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides five 10GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-813 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-814 Board specifications

Item	Specification
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Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	57.0 W
Typical heat dissipation	184.9 BTU/hour
Weight	1 kg (2.32 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.14.16 5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P120-E)

Overview

Table 9-815 Board attributes

Attribute	Description
Board name silkscreen	P120-5x10GBase LAN/WAN-SFP+ -E
Description	5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P120-E)
BOM	03031XPV
Model	CR5D0L5XFE76

Table 9-816 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X8A	9.15.1 Flexible Card Line	V800R009C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-120) E	
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00

Appearance



Panel

Table 9-817 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-818 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 4	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-819 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides five 10GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-820 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-821 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	65.0 W
Typical heat dissipation	210.9 BTU/hour
Weight	1 kg (2.2 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.14.17 5-Port 10GBase LAN/WAN-SFP+ Flexible Card H(P120-H)

Overview

Table 9-822 Board attributes

Attribute	Description
Board name silkscreen	P120-5x10GBase LAN/WAN-SFP+ -H
Description	5-Port 10GBase LAN/WAN-SFP+ Flexible Card H(P120-H)
BOM	03031CLM
Model	CR5D0L5XFH70

Table 9-823 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X8A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00

Appearance



Panel

Table 9-824 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-825 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 4	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-826 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides five 10GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot

Functions and Features	Remarks
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-827 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-828 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	60.0 W
Typical heat dissipation	194.7 BTU/hour
Weight	1 kg (2.2 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15 LPUF-120

9.15.1 Flexible Card Line Processing Unit(LPUF-120) E

Overview

Table 9-829 Board attributes

Attribute	Description
Board name silkscreen	LPUF-120-E
Description	Flexible Card Line Processing Unit(LPUF-120) E
BOM	03054628
Model	CR5DLPUFB07E

Table 9-830 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R008C10
NE40E-X8	V800R008C10
NE40E-X16	V800R008C10
NE40E-X3A	V800R008C10
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance



Panel

Table 9-831 Buttons

Name	Description
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Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-832 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-833 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 120G line-rate forwarding.
Slot information	The board provides a maximum of two half-width slots and each slot can hold one FPIC card.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-834 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	150.2 W
Typical heat dissipation	487.3 BTU/hour
Weight	7.2 kg (15.77 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.2 Flexible Card Line Processing Unit(LPUF-120)

Overview

Table 9-835 Board attributes

Attribute	Description
Board name silkscreen	LPUF-120
Description	Flexible Card Line Processing Unit(LPUF-120)
BOM	03054679
Model	CR5DLPUFB070

Table 9-836 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X3A	V800R007C00
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-837 Buttons

Name	Description
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Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-838 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-839 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 120G line-rate forwarding.
Slot information	The board provides a maximum of two half-width slots and each slot can hold one FPIC card.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-840 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	150.2 W
Typical heat dissipation	487.3 BTU/hour
Weight	7.2 kg (15.77 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.3 Flexible Card Line Processing Unit(LPUF-120) B

Overview

Table 9-841 Board attributes

Attribute	Description
Board name silkscreen	LPUF-120-B
Description	Flexible Card Line Processing Unit(LPUF-120) B
BOM	03054680
Model	CR5DLPUFB07B

Table 9-842 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X3A	V800R007C00
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-843 Buttons

Name	Description
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Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-844 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-845 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 120G line-rate forwarding.
Slot information	The board provides a maximum of two half-width slots and each slot can hold one FPIC card.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-846 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	150.2 W
Typical heat dissipation	487.3 BTU/hour
Weight	7.2 kg (15.77 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.4 6-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P120-A)

Overview

Table 9-847 Board attributes

Attribute	Description
Board name silkscreen	P101-6x10GBase LAN/WAN-SFP+ -A
Description	6-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P120-A)
BOM	03030QDE
Model	CR5D0L6XFA70

Table 9-848 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20

Appearance



Panel

Table 9-849 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 5 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-850 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 5	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-851 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides six 10GE interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-852 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module

Attribute	Description
	10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-853 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	34.0 W
Typical heat dissipation	110.3 BTU/hour
Weight	0.6 kg (1.43 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.5 1-Port 100GBase-CFP Flexible Card A(P120-A)

Overview

Table 9-854 Board attributes

Attribute	Description
Board name silkscreen	P120-1x100GBase LAN-CFP-A
Description	1-Port 100GBase-CFP Flexible Card A(P120-A)
BOM	03030PYU
Model	CR5D00E1NC75

Table 9-855 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
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Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20

Appearance



Panel

Table 9-856 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-857 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
None	100GE	CFP	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-858 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides one 100G interface for line-rate transmitting and receiving.

Functions and Features	Remarks
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-859 Interface specifications

Attribute	Description
Optical type supported	10.21 100Gbps CFP Optical Modules
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-860 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	51.0 W
Typical heat dissipation	165.5 BTU/hour
Weight	1.3 kg (2.87 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.6 1-Port 100GBase-CFP2 Flexible Card A(P120-A)

Overview

Table 9-861 Board attributes

Attribute	Description
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Attribute	Description
Board name silkscreen	P120-1x100GBase-CFP2-A
Description	1-Port 100GBase-CFP2 Flexible Card A(P120-A)
BOM	03032GKY
Model	CR5D00E1NC77

Table 9-862 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X8A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10

Appearance



Panel

Table 9-863 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-864 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
None	100GE	CFP2	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-865 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides one 100GE interface for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot
Reliability and availability	Hot swappable.
Restrictions and remarks	The interface cannot go Up if its FEC does not match its peer's.

Technical Specifications

Table 9-866 Interface specifications

Attribute	Description
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Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE When optical modules with the BOM number 02311LYG are used, 2x40G and 10x10G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-867 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	40.0 W
Typical heat dissipation	129.7 BTU/hour
Weight	0.8 kg (1.76 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.7 1-Port 40GBase LAN-CFP Flexible Card A(P101-A)

Overview

Table 9-868 Board attributes

Attribute	Description
Board name silkscreen	P101-1x40GBase LAN-CFP-A
Description	1-Port 40GBase LAN-CFP Flexible Card A(P101-A)
BOM	03030PMQ
Model	CR5D00E1MC70

Table 9-869 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X3A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00

Appearance



Panel

Table 9-870 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Name	Description
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-871 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
None	40GE	CFP	Interface for inputting and outputting 40GE optical signals	Optical fiber

Functional Specifications

Table 9-872 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides one 40G interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable

Technical Specifications

Table 9-873 Interface specifications

Attribute	Description
Optical type supported	10.19 40Gbps CFP Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-874 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	28.0 W
Typical heat dissipation	90.8 BTU/hour
Weight	1.2 kg (2.65 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.8 12-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P120-A)

Overview

Table 9-875 Board attributes

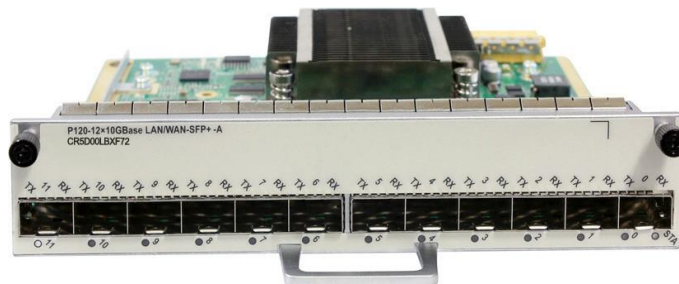
Attribute	Description
Board name silkscreen	P120-12x10GBase LAN/WAN-SFP+ -A
Description	12-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P120-A)
BOM	03030NVF
Model	CR5D00LBXF72

Table 9-876 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line	V800R006C20

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20

Appearance



Panel

Table 9-877 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 11 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-878 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 11	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-879 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twelve 10GE interfaces for transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces. A 12-port 10GBase LAN/WAN-SFP+ flexible card A(P120-A) can only be installed on the same board as a 24-port 100/1000Base-X-SFP flexible card A(P101-A).
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-880 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-881 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	52.0 W
Typical heat dissipation	168.7 BTU/hour
Weight	0.8 kg (1.65 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.9 8-Port OC-48c/STM-16c POS-SFP Flexible Card(P120)

Overview

Table 9-882 Board attributes

Attribute	Description
Board name silkscreen	P120-8xOC48c/STM16c POS-SFP

Attribute	Description
Description	8-Port OC-48c/STM-16c POS-SFP Flexible Card(P120)
BOM	03030RXS
Model	CR5D00P8UF70

Table 9-883 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R006C20
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120)	V800R006C20

Product	Motherboard	Earliest Software Version for Flexible Card
	9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	

Appearance



Panel

Table 9-884 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 7 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-885 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 7	2.5G POS	SFP	Interface for inputting and outputting 2.5G POS optical signals	Optical fiber

Functional Specifications

Table 9-886 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides eight 2.5GE POS interfaces (can be auto-adapted to 622M) for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Link protocol	HDLC, PPP

Technical Specifications

Table 9-887 Interface specifications

Attribute	Description
Optical type supported	10.10 2.5Gbps eSFP Optical Module
Working mode	Full-duplex
Compliant standard	ITU-T G.707
Frame format	PPP and HDLC

Table 9-888 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	33.4 W
Typical heat dissipation	108.4 BTU/hour
Weight	0.9 kg (1.98 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.10 24-Port 100/1000Base-X-SFP Flexible Card A(P101-A)

Overview

Table 9-889 Board attributes

Attribute	Description
Board name silkscreen	P101-24xFE/GE-SFP-A
Description	24-Port 100/1000Base-X-SFP Flexible Card A(P101-A)
BOM	03030PMN
Model	CR5D0EFGFA71

Table 9-890 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X3A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X16	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00
NE40E-X8A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00
NE40E-X16A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00

Appearance



Panel

Table 9-891 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is

Name	Description
	Down.

Table 9-892 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 23	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-893 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twenty-four FE/GE interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable

Technical Specifications

Table 9-894 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex

Attribute	Description
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-895 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	37.0 W
Typical heat dissipation	120.0 BTU/hour
Weight	1 kg (2.2 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.11 5-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P101-A)

Overview

Table 9-896 Board attributes

Attribute	Description
Board name silkscreen	P101-5x10GBase LAN/WAN-SFP+ -A
Description	5-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P101-A)
BOM	03030PMK
Model	CR5D0L5XFA72

Table 9-897 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.11.1 Flexible Card Line	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	
NE40E-X8	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X3A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00

Appearance



Panel

Table 9-898 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is

Name	Description
	Down.

Table 9-899 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 4	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-900 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides five 10GE interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-901 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module

Attribute	Description
	10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-902 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	29.0 W
Typical heat dissipation	94.1 BTU/hour
Weight	0.9 kg (1.98 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.12 2-Port OC-192c/STM-64c POS-XFP Flexible Card(P51-A)

Overview

Table 9-903 Board attributes

Attribute	Description
Board name silkscreen	P51-2xOC192c/STM64c POS-XFP
Description	2-Port OC-192c/STM-64c POS-XFP Flexible Card(P51-A)
BOM	03031LUU
Model	CR5D00P2XX72

Table 9-904 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X8	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X16	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X3A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X8A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X16A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00

Appearance



Panel

Table 9-905 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-906 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 1	10G POS	XFP	Interface for inputting and outputting 10G POS optical signals	Optical fiber

Functional Specifications

Table 9-907 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides two 10GE POS interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot
Reliability and availability	Hot swappable
Link protocol	HDLC, PPP

Technical Specifications

Table 9-908 Interface specifications

Attribute	Description
Optical type supported	10.17 10Gbps XFP Optical Module 10.18 10Gbps XFP CWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	PPP and HDLC

Table 9-909 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)

Item	Specification
	in.)
Typical power consumption	24.7 W
Typical heat dissipation	80.1 BTU/hour
Weight	0.5 kg (1.1 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.13 6-Port OTU2-SFP+ Flexible Card(P120)

Overview

Table 9-910 Board attributes

Attribute	Description
Board name silkscreen	P120-6x10G OTU2-SFP+
Description	6-Port OTU2-SFP+ Flexible Card(P120)
BOM	03030WHA
Model	CR5D00T6XF70

Table 9-911 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00

Appearance



Panel

Table 9-912 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board

Name	Description
	is starting and has not completed registration.
0 to 5 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-913 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 5	10G LAN/10G OTN	SFP+	Interface for inputting and outputting 10G LAN/10G OTN optical signals	Optical fiber

Functional Specifications

Table 9-914 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides six 10GE OTN interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Restrictions and remarks	The mix use of enhanced-i-4 and enhanced-i-7 for interfaces on the same card is not supported.

Technical Specifications

Table 9-915 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.16 10Gbps SFP+ OTN Optical Module

Attribute	Description
	<p>10.15 10Gbps SFP+ DWDM Optical Module</p> <p>NOTE</p> <p>When the OTN rate is used, 10 Gbps SFP+ DWDM optical modules and 10 Gbps SFP+ OTN optical modules are supported.</p> <p>When the LAN rate is used, 10 Gbps SFP+ BIDI optical modules, 10 Gbps SFP+ CWDM optical modules, 10 Gbps SFP+ optical modules, and 10 Gbps SFP+ DWDM optical modules are supported.</p>
Working mode	Full-duplex
Compliant standard	ITU-T G.709, ITU-T G.798, ITU-T G.806, ITU-T G.975, ITU-T G.Sup43
Frame format	10G base-R(GFP-F)<->OPU2<->ODU2<->OTU2, 10G base-R(GFP-F)<->OPU2e<->ODU2<->OTU2 and 10G base-R(GFP)<->OPU2<->ODU2<->OTU2

Table 9-916 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	47.0 W
Typical heat dissipation	152.5 BTU/hour
Weight	0.6 kg (1.43 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.14 12-Port OTU2-SFP+ Flexible Card(P240)

Overview

Table 9-917 Board attributes

Attribute	Description
Board name silkscreen	P240-12x10G OTU2-SFP+
Description	12-Port OTU2-SFP+ Flexible Card(P240)
BOM	03030WGY
Model	CR5D00TBXF70

Table 9-918 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-240-E)	
NE40E-X16	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R007C00
NE40E-X8A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R007C00
NE40E-X16A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R007C00

Appearance



Panel

Table 9-919 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Name	Description
0 to 11 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-920 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 11	10G LAN/10G OTN	SFP+	Interface for inputting and outputting 10G LAN/10G OTN optical signals	Optical fiber

Functional Specifications

Table 9-921 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twelve 10GE OTN interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Restrictions and remarks	Each LPUF-120 supports only one such card, and each LPUF-240 supports two such cards. The mix use of enhanced-i-4 and enhanced-i-7 for interfaces on the same card is not supported.

Technical Specifications

Table 9-922 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.16 10Gbps SFP+ OTN Optical Module

Attribute	Description
	<p>10.15 10Gbps SFP+ DWDM Optical Module</p> <p>NOTE</p> <p>When the OTN rate is used, 10 Gbps SFP+ DWDM optical modules and 10 Gbps SFP+ OTN optical modules are supported.</p> <p>When the LAN rate is used, 10 Gbps SFP+ BIDI optical modules, 10 Gbps SFP+ CWDM optical modules, 10 Gbps SFP+ optical modules, and 10 Gbps SFP+ DWDM optical modules are supported.</p>
Working mode	Full-duplex
Compliant standard	ITU-T G.709, ITU-T G.798, ITU-T G.806, ITU-T G.975, ITU-T G.Sup43
Frame format	10G base-R(GFP-F)<->OPU2<->ODU2<->OTU2, 10G base-R(GFP-F)<->OPU2e<->ODU2<->OTU2 and 10G base-R(GFP)<->OPU2<->ODU2<->OTU2

Table 9-923 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	56.0 W
Typical heat dissipation	181.7 BTU/hour
Weight	0.8 kg (1.65 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.15 20-Port 10/100/1000Base-RJ45 Flexible Card A(P51-A)

Overview

Table 9-924 Board attributes

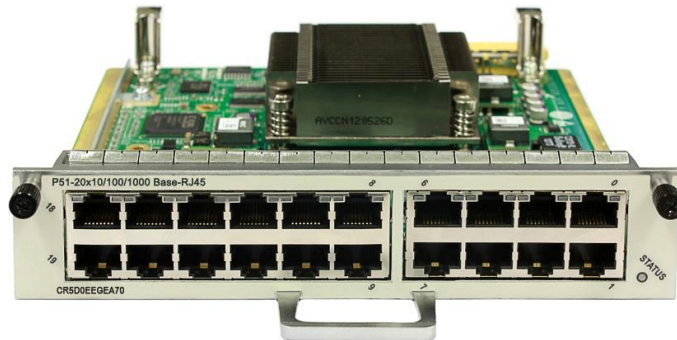
Attribute	Description
Board name silkscreen	P51-20x10/100/1000 Base-RJ45
Description	20-Port 10/100/1000Base-RJ45 Flexible Card A(P51-A)
BOM	03030QKN
Model	CR5D0EEGEA70

Table 9-925 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X8	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X16	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X3A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X8A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X16A	9.7.1 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) 9.7.2 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) B 9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R007C00
NE40E-X3	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X8A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C10

Appearance



Panel

Table 9-926 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 19 (green or orange)	L/A indicators are at the upper left and right corners of each upper interface row. An L/A indicator at the upper right corner indicates the status of an interface in an upper row, and an L/A indicator at the upper left corner indicates the status of an interface in a lower row. If an L/A indicator is steady green, a link is Up. If an L/A indicator blinks orange, data is being transmitted or received. If an L/A indicator is off, a link is Down.

Table 9-927 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 19	10/100/1000M	RJ45	Interface for inputting and outputting 10/100/1000M electrical signals	Twisted pair

Functional Specifications

Table 9-928 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides 20 interfaces for line-rate line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable
Restrictions and remarks	It does not support the half-duplex mode.

Technical Specifications

Table 9-929 Interface specifications

Attribute	Description
Working mode	10M/100M/1000M auto-sensing, supports the full-duplex mode.
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-930 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)

Item	Specification
Typical power consumption	31.0 W
Typical heat dissipation	100.6 BTU/hour
Weight	0.6 kg (1.43 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.16 24-Port 1000Base-X-SFP Flexible Card E(P51-E)

Overview

Table 9-931 Board attributes

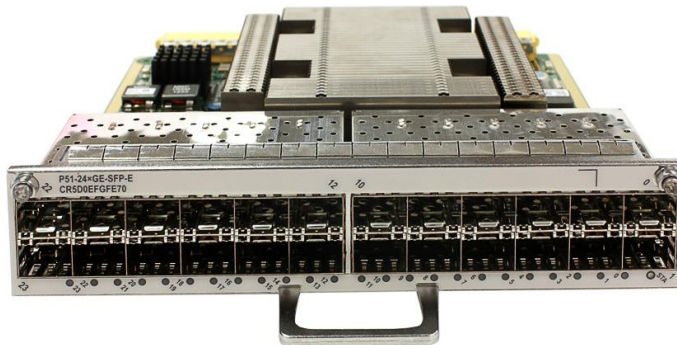
Attribute	Description
Board name silkscreen	P51-24xGE-SFP-E
Description	24-Port 1000Base-X-SFP Flexible Card E(P51-E)
BOM	03030PYE
Model	CR5D0EFGFE70

Table 9-932 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X8	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X16	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X3A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X8A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10
NE40E-X16A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R008C10

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10
NE40E-X8A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R008C10

Appearance



Panel

Table 9-933 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-934 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 23	GE	SFP	Interface for inputting and outputting GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-935 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twenty-four FE/GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-936 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-937 Board specifications

Item	Specification
------	---------------

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	55.0 W
Typical heat dissipation	178.4 BTU/hour
Weight	1.2 kg (2.54 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.17 24-Port 1000Base-X-SFP Flexible Card E(P52-E)

Overview

Table 9-938 Board attributes

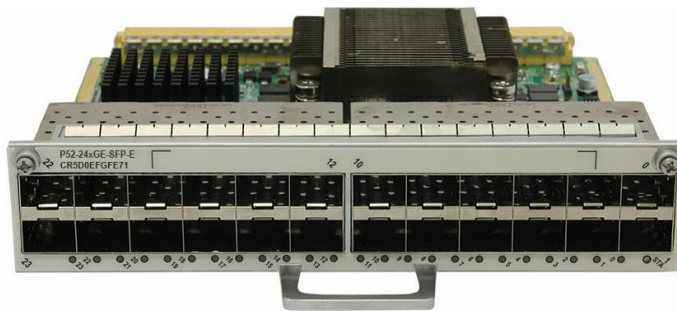
Attribute	Description
Board name silkscreen	P52-24xGE-SFP-E
Description	24-Port 1000Base-X-SFP Flexible Card E(P52-E)
BOM	03031XQJ
Model	CR5D0EFGFE71

Table 9-939 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X16	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X3A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X8A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X16A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X8A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X8	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10
NE40E-X16	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10
NE40E-X8A	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10
NE40E-X16A	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10

Appearance



Panel

Table 9-940 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Name	Description
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-941 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 23	GE	SFP	Interface for inputting and outputting GE optical signals	Optical fiber and twisted pair
0 to 23	GE	SFP	Interface for inputting and outputting GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-942 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twenty-four FE/GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot.
Reliability and availability	Hot swappable
Restrictions and remarks	Supports GE optical interfaces but not 100M optical interfaces if a GE optical module is used. Does not support synchronous Ethernet. Does not support the LPUF-51 and LPUF-51-B.

Technical Specifications

Table 9-943 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver

Attribute	Description
	10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-944 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	77.1 W
Typical heat dissipation	250.2 BTU/hour
Weight	1.2 kg (2.65 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.18 5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P101-E)

Overview

Table 9-945 Board attributes

Attribute	Description
Board name silkscreen	P101-5x10GBase LAN/WAN-SFP+ -E
Description	5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P101-E)
BOM	03030QKM
Model	CR5D0L5XFE71

Table 9-946 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00

Appearance



Panel

Table 9-947 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-948 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 4	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-949 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides five 10GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-950 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-951 Board specifications

Item	Specification
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Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	57.0 W
Typical heat dissipation	184.9 BTU/hour
Weight	1 kg (2.32 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.19 5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P120-E)

Overview

Table 9-952 Board attributes

Attribute	Description
Board name silkscreen	P120-5x10GBase LAN/WAN-SFP+ -E
Description	5-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P120-E)
BOM	03031XPV
Model	CR5D0L5XFE76

Table 9-953 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X8A	9.15.1 Flexible Card Line	V800R009C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-120) E	
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00

Appearance



Panel

Table 9-954 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-955 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 4	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-956 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides five 10GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-957 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-958 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	65.0 W
Typical heat dissipation	210.9 BTU/hour
Weight	1 kg (2.2 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.15.20 5-Port 10GBase LAN/WAN-SFP+ Flexible Card H(P120-H)

Overview

Table 9-959 Board attributes

Attribute	Description
Board name silkscreen	P120-5x10GBase LAN/WAN-SFP+ -H
Description	5-Port 10GBase LAN/WAN-SFP+ Flexible Card H(P120-H)
BOM	03031CLM
Model	CR5D0L5XFH70

Table 9-960 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X8A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00

Appearance



Panel

Table 9-961 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-962 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 4	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-963 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides five 10GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot

Functions and Features	Remarks
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-964 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-965 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	60.0 W
Typical heat dissipation	194.7 BTU/hour
Weight	1 kg (2.2 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.16 LPUI-120

9.16.1 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit(LPUI-120)

Overview

Table 9-966 Board attributes

Attribute	Description
Board name silkscreen	LPUI-120 12x10GBase LAN/WAN-SFP+ -A
Description	12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit(LPUI-120)
BOM	03054681
Model	CR5D0LBXFA70

Table 9-967 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X3A	V800R007C00
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-968 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-969 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 11 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-970 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 11	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-971 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 120G line-rate forwarding.
Reliability and availability	Hot swappable.

Functions and Features	Remarks
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-972 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-973 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	201.7 W
Typical heat dissipation	654.3 BTU/hour
Weight	7.9 kg (17.42 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.16.2 2-Port 40GBase LAN-CFP Integrated Line Processing Unit(LPUI-120)

Overview

Table 9-974 Board attributes

Attribute	Description
Board name silkscreen	LPUI-120 2x40GBase LAN-CFP-A
Description	2-Port 40GBase LAN-CFP Integrated Line Processing Unit(LPUI-120)
BOM	03054682
Model	CR5D0E2MCA70

Table 9-975 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X3A	V800R007C00
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-976 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-977 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-978 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 1/0	40GE	CFP	Interface for inputting and outputting 40GE optical signals	Optical fiber

Functional Specifications

Table 9-979 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 120G line-rate forwarding. It supports two 40G interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-980 Interface specifications

Attribute	Description
Optical type supported	10.19 40Gbps CFP Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-981 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	206.0 W
Typical heat dissipation	668.4 BTU/hour
Weight	9.6 kg (21.06 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.16.3 1-Port 100GBase-CFP Integrated Line Processing Unit (LPUI-120)

Overview

Table 9-982 Board attributes

Attribute	Description
Board name silkscreen	LPUI-120 1x100GBase LAN-CFP-A
Description	1-Port 100GBase-CFP Integrated Line Processing Unit (LPUI-120)
BOM	03054683

Attribute	Description
Model	CR5D00E1NC76

Table 9-983 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X3A	V800R007C00
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-984 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-985 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Name	Description
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-986 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
None	100GE	CFP	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-987 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 120G line-rate forwarding. It supports one 100G interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-988 Interface specifications

Attribute	Description
Optical type supported	10.21 100Gbps CFP Optical Modules
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-989 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	200.7 W
Typical heat dissipation	651.1 BTU/hour
Weight	7.9 kg (17.42 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.16.4 1-Port 100GBase-CFP2 Integrated Line Processing Unit (LPUI-120)

Overview

Table 9-990 Board attributes

Attribute	Description
Board name silkscreen	LPUI-120 1x100GBase-CFP2-A
Description	1-Port 100GBase-CFP2 Integrated Line Processing Unit (LPUI-120)
BOM	03057445
Model	CR5D00E1NC78

Table 9-991 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R009C10
NE40E-X8	V800R009C10
NE40E-X16	V800R009C10
NE40E-X3A	V800R009C10
NE40E-X8A	V800R009C10
NE40E-X16A	V800R009C10

Appearance



Panel

Table 9-992 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-993 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-994 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
None	100GE	CFP2	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-995 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports one 100G line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interface cannot go Up if its FEC does not match its peer's.

Technical Specifications

Table 9-996 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE When optical modules with the BOM number 02311LYG are used, 2x40G and 10x10G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-997 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	190.2 W
Typical heat dissipation	617.1 BTU/hour
Weight	8 kg (17.53 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.16.5 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-120-B)

Overview

Table 9-998 Board attributes

Attribute	Description
Board name silkscreen	LPUI-120-B 12x10GBase LAN/WAN-SFP+ -A
Description	12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-120-B)
BOM	03054684
Model	CR5D0LBXFA7B

Table 9-999 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X3A	V800R007C00
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-1000 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1001 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1002 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 11	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-1003 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 120G line-rate forwarding. It provides twelve 10GE interfaces.
Reliability and availability	Hot swappable.

Functions and Features	Remarks
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The 10G interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-1004 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1005 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	201.7 W
Typical heat dissipation	654.3 BTU/hour
Weight	7.9 kg (17.42 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.16.6 2-Port 40GBase LAN-CFP Integrated Line Processing Unit B(LPUI-120-B)

Overview

Table 9-1006 Board attributes

Attribute	Description
Board name silkscreen	LPUI-120-B 2x40GBase LAN-CFP-A
Description	2-Port 40GBase LAN-CFP Integrated Line Processing Unit B(LPUI-120-B)
BOM	03054685
Model	CR5D0E2MCA7B

Table 9-1007 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X3A	V800R007C00
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-1008 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1009 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1010 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 1/0	40GE	CFP	Interface for inputting and outputting 40GE optical signals	Optical fiber

Functional Specifications

Table 9-1011 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 120G line-rate forwarding. It supports two 40G interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1012 Interface specifications

Attribute	Description
Optical type supported	10.19 40Gbps CFP Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1013 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	206.0 W
Typical heat dissipation	668.4 BTU/hour
Weight	9.6 kg (21.06 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.16.7 1-Port 100GBase-CFP Integrated Line Processing Unit B(LPUI-120-B)

Overview

Table 9-1014 Board attributes

Attribute	Description
Board name silkscreen	LPUI-120-B 1x100GBase LAN-CFP-A
Description	1-Port 100GBase-CFP Integrated Line Processing Unit B(LPUI-120-B)
BOM	03054686

Attribute	Description
Model	CR5D00E1NC7B

Table 9-1015 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X3A	V800R007C00
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-1016 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1017 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Name	Description
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1018 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
None	100GE	CFP	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1019 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 120G line-rate forwarding. It supports one 100G interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1020 Interface specifications

Attribute	Description
Optical type supported	10.21 100Gbps CFP Optical Modules
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1021 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	200.7 W
Typical heat dissipation	651.1 BTU/hour
Weight	8.4 kg (18.63 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.16.8 1-Port 100GBase-CFP2 Integrated Line Processing Unit B(LPUI-120-B)

Overview

Table 9-1022 Board attributes

Attribute	Description
Board name silkscreen	LPUI-120-B 1x100GBase-CFP2-A
Description	1-Port 100GBase-CFP2 Integrated Line Processing Unit B(LPUI-120-B)
BOM	03057446
Model	CR5D00E1NC79

Table 9-1023 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R009C10
NE40E-X8	V800R009C10
NE40E-X16	V800R009C10
NE40E-X3A	V800R009C10
NE40E-X8A	V800R009C10
NE40E-X16A	V800R009C10

Appearance



Panel

Table 9-1024 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1025 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1026 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
None	100GE	CFP2	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1027 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 120G line-rate forwarding. It supports one 100G line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interface cannot go Up if its FEC does not match its peer's.

Technical Specifications

Table 9-1028 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE When optical modules with the BOM number 02311LYG are used, 2x40G and 10x10G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1029 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	190.2 W
Typical heat dissipation	617.1 BTU/hour
Weight	8 kg (17.53 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.16.9 12-Port OTU2-SFP+ Integrated Line Processing Unit (LPUI-120)

Overview

Table 9-1030 Board attributes

Attribute	Description
Board name silkscreen	LPUI-120 12x10G OTU2-SFP+
Description	12-Port OTU2-SFP+ Integrated Line Processing Unit (LPUI-120)
BOM	03056743
Model	CR5D00TBXF71

Table 9-1031 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-1032 Buttons

Name	Description
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Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1033 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1034 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/5 1/0 to 1/5	10G LAN/10 G OTN	SFP+	Interface for inputting and outputting 10G LAN/10G OTN optical signals	Optical fiber

Functional Specifications

Table 9-1035 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 120G (12 x 10G) line-rate forwarding, and uses SFP+ optical modules.
Reliability and availability	Hot swappable.
Restrictions and remarks	Two interconnected routers must use the same FEC type.

Technical Specifications

Table 9-1036 Interface specifications

Attribute	Description
Optical type supported	<p>10.12 10Gbps SFP+ Optical Module</p> <p>10.13 10Gbps SFP+ CWDM Optical Module</p> <p>10.14 10Gbps SFP+ BIDI Optical Module</p> <p>10.16 10Gbps SFP+ OTN Optical Module</p> <p>10.15 10Gbps SFP+ DWDM Optical Module</p> <p>NOTE</p> <p>When the OTN rate is used, 10 Gbps SFP+ DWDM optical modules and 10 Gbps SFP+ OTN optical modules are supported.</p> <p>When the LAN rate is used, 10 Gbps SFP+ BIDI optical modules, 10 Gbps SFP+ CWDM optical modules, 10 Gbps SFP+ optical modules, and 10 Gbps SFP+ DWDM optical modules are supported.</p>
Working mode	<p>Full-duplex.</p> <p>It supports Ethernet and OTN modes, the two modes support different FEC types.</p>
Compliant standard	ITU-T G.709, ITU-T G.798, ITU-T G.806, ITU-T G.975, ITU-T G.Sup43
Frame format	10G base-R(GFP-F)<->OPU2<->ODU2<->OTU2, 10G base-R(GFP-F)<->OPU2e<->ODU2<->OTU2 and 10G base-R(GFP)<->OPU2<->ODU2<->OTU2

Table 9-1037 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	244.2 W
Typical heat dissipation	792.3 BTU/hour
Weight	8.5 kg (18.74 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.16.10 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-120-L)

Overview

Table 9-1038 Board attributes

Attribute	Description
Board name silkscreen	LPUI-120-L 12x10GBase LAN/WAN-SFP+ -A
Description	12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-120-L)
BOM	03056586
Model	CR5D00LBXF7L

Table 9-1039 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R007C00
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-1040 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1041 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1042 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/11	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-1043 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 120G line-rate forwarding.
Reliability and availability	Hot swappable.

Functions and Features	Remarks
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-1044 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1045 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	201.7 W
Typical heat dissipation	654.3 BTU/hour
Weight	7.9 kg (17.42 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.16.11 10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit E(LPUI-102-E)

Overview

Table 9-1046 Board attributes

Attribute	Description
Board name silkscreen	LPUI-102-E 10x10GBase LAN/WAN-SFP+ -E
Description	10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit E(LPUI-102-E)
BOM	03054627
Model	CR5DLAXFAJ7E

Table 9-1047 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R008C10
NE40E-X8	V800R008C10
NE40E-X16	V800R008C10
NE40E-X3A	V800R008C10
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance



Panel

Table 9-1048 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1049 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1050 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/4 1/0 to 1/4	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-1051 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 100GE (10 x 10GE) line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and	The interfaces working in WAN mode can function only as master

Functions and Features	Remarks
remarks	interfaces. When the board is used on an X3 and installed with 02311GSA optical modules, the short-term ambient temperature of the optical modules is -5 °C to +50 °C.

Technical Specifications

Table 9-1052 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1053 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	309.0 W
Typical heat dissipation	1002.5 BTU/hour
Weight	7.9 kg (17.42 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.16.12 10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit E(LPUI-120-E)

Overview

Table 9-1054 Board attributes

Attribute	Description
Board name silkscreen	LPUI-120-E 10x10GBase LAN/WAN-SFP+ -E
Description	10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit E(LPUI-120-E)
BOM	03057087
Model	CR5DLAXFAJ7F

Table 9-1055 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R009C00
NE40E-X8	V800R009C00
NE40E-X16	V800R009C00
NE40E-X3A	V800R009C00
NE40E-X8A	V800R009C00
NE40E-X16A	V800R009C00

Appearance



Panel

Table 9-1056 Buttons

Name	Description
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Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1057 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-1058 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/4 1/0 to 1/4	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-1059 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 100GE (10 x 10GE) line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces. When the board is used on an X3 and installed with 02311GSA optical modules, the short-term ambient temperature of the optical modules is -5 °C to +50 °C.

Technical Specifications

Table 9-1060 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1061 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	280.2 W
Typical heat dissipation	909.1 BTU/hour
Weight	8.2 kg (17.97 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.16.13 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit CM(LPUI-120-CM)

Overview

Table 9-1062 Board attributes

Attribute	Description
Board name silkscreen	LPUI-120-CM 12×10GBase LAN/WAN-SFP+
Description	12-Port 10GBase LAN/WAN-SFP+ Integrated Line

Attribute	Description
	Processing Unit CM(LPUI-120-CM)
BOM	03057689
Model	CR5D00LBXF7P

Table 9-1063 Mapping products and versions

Product	Earliest Software Version
NE40E-X3	V800R009C10
NE40E-X8	V800R009C10
NE40E-X16	V800R009C10
NE40E-X3A	V800R009C10
NE40E-X8A	V800R009C10
NE40E-X16A	V800R009C10

Appearance



Panel

Table 9-1064 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1065 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.

Name	Description
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1066 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0~0/5 1/0~1/5	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-1067 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 120GE (12 x 10GE) line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces. When the board is used on an X3 and installed with 02311GSA optical modules, the short-term ambient temperature of the optical modules is -5 °C to +50 °C.

Technical Specifications

Table 9-1068 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module

Attribute	Description
	10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1069 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	284.2 W
Typical heat dissipation	922.1 BTU/hour
Weight	9.2 kg (20.29 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.16.14 6-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit CM(LPUI-120-CM)

Overview

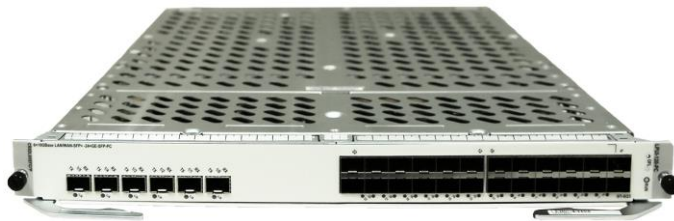
Table 9-1070 Board attributes

Attribute	Description
Board name silkscreen	LPUI-120-CM 6×10GBase LAN/WAN-SFP+ -24×GE-SFP
Description	6-Port 10GBase LAN/WAN-SFP+ + 24-Port 100/1000Base-X-SFP Integrated Line Processing Unit CM(LPUI-120-CM)
BOM	03057690
Model	CR5DL6XEFG7P

Table 9-1071 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R009C10
NE40E-X16	V800R009C10
NE40E-X3A	V800R009C10
NE40E-X8A	V800R009C10
NE40E-X16A	V800R009C10

Appearance



Panel

Table 9-1072 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1073 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
0 to 23 (green) L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-1074 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0~0/23	GE	SFP	Interface for inputting and outputting GE optical signals	Optical fiber and twisted pair
1/0~1/5	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-1075 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 100G line-rate forwarding. It provides six 10G interfaces, and twenty-four GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The 10G interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-1076 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module

Attribute	Description
	10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1077 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	294.3 W
Typical heat dissipation	954.8 BTU/hour
Weight	9.4 kg (20.73 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.17 LPUF-200

9.17.1 Flexible Card Line Processing Unit(LPUF-200)

Overview

Table 9-1078 Board attributes

Attribute	Description
Board name silkscreen	LPUF-200
Description	Flexible Card Line Processing Unit(LPUF-200)
BOM	03056598
Model	CR5DLPUFE070

Table 9-1079 Mapping products and versions

Product	Earliest Software Version
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-1080 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1081 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-1082 Functions and features

Functions and Features	Remarks
------------------------	---------

Functions and Features	Remarks
Line-Rate capability	Supports 200G line-rate forwarding.
Slot information	The board provides a maximum of two half-width slots and each slot can hold one FPIC.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1083 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	191.0 W
Typical heat dissipation	619.7 BTU/hour
Weight	8.4 kg (18.52 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)

Overview

Table 9-1084 Board attributes

Attribute	Description
Board name silkscreen	LPUF-200-B
Description	Flexible Card Line Processing Unit B(LPUF-200-B)
BOM	03057713
Model	CR5DLPUFE07B

Table 9-1085 Mapping products and versions

Product	Earliest Software Version
NE40E-X3A	V800R009C10
NE40E-X8A	V800R009C10
NE40E-X16A	V800R009C10

Appearance



Panel

Table 9-1086 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1087 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-1088 Functions and features

Functions and Features	Remarks
------------------------	---------

Functions and Features	Remarks
Line-Rate capability	Supports 200G line-rate forwarding.
Slot information	The board provides a maximum of two half-width slots.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1089 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	191.0 W
Typical heat dissipation	619.7 BTU/hour
Weight	8.4 kg (18.52 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.17.3 1-Port 100GBase-CFP Flexible Card A(P240-A)

Overview

Table 9-1090 Board attributes

Attribute	Description
Board name silkscreen	P240-1x100GBase LAN-CFP-A
Description	1-Port 100GBase-CFP Flexible Card A(P240-A)
BOM	03030QDF
Model	CR5D00E1NC74

Table 9-1091 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R007C00
NE40E-X8A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R007C00
NE40E-X16A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R007C00
NE40E-X8	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R007C00
NE40E-X16	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R007C00
NE40E-X8A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R007C00
NE40E-X16A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R007C00

Appearance



Panel

Table 9-1092 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1093 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
None	100GE	CFP	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1094 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides one 100G interface for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot.

Functions and Features	Remarks
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1095 Interface specifications

Attribute	Description
Optical type supported	10.21 100Gbps CFP Optical Modules
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1096 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	51.0 W
Typical heat dissipation	165.5 BTU/hour
Weight	1.3 kg (2.87 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.17.4 1-Port 100GBase-CFP2 Flexible Card A(P240-A)

Overview

Table 9-1097 Board attributes

Attribute	Description
Board name silkscreen	P240-1x100GBase-CFP2-A

Attribute	Description
Description	1-Port 100GBase-CFP2 Flexible Card A(P240-A)
BOM	03032GLA
Model	CR5D00E1NC7A

Table 9-1098 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R009C10
NE40E-X8A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R009C10
NE40E-X16A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R009C10
NE40E-X8	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10
NE40E-X16	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10
NE40E-X8A	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10
NE40E-X16A	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10

Appearance



Panel

Table 9-1099 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1100 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
None	100GE	CFP2	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1101 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides one 100GE interface for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot.

Functions and Features	Remarks
Reliability and availability	Hot swappable.
Restrictions and remarks	The interface cannot go Up if its FEC does not match its peer's.

Technical Specifications

Table 9-1102 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE When optical modules with the BOM number 02311LYG are used, 2x40G and 10x10G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1103 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	40.0 W
Typical heat dissipation	129.7 BTU/hour
Weight	0.8 kg (1.76 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.17.5 10-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P240-A)

Overview

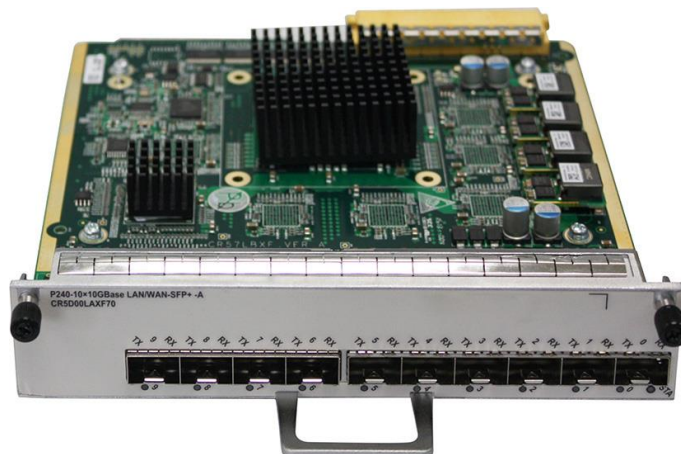
Table 9-1104 Board attributes

Attribute	Description
Board name silkscreen	P240-10x10GBase LAN/WAN-SFP+ -A
Description	10-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P240-A)
BOM	03030TUL
Model	CR5D00LAXF70

Table 9-1105 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R007C00
NE40E-X8A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R007C00
NE40E-X16A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R007C00

Appearance



Panel

Table 9-1106 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 9 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1107 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 9	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-1108 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides ten 10GE interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-1109 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1110 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61

Item	Specification
	in.)
Typical power consumption	52.0 W
Typical heat dissipation	168.7 BTU/hour
Weight	0.8 kg (1.65 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.17.6 12-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P240-A)

Overview

Table 9-1111 Board attributes

Attribute	Description
Board name silkscreen	P240-12x10GBase LAN/WAN-SFP+-A
Description	12-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P240-A)
BOM	03030QDD
Model	CR5D00LBXF71

Table 9-1112 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R009C10
NE40E-X8A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R009C10
NE40E-X16A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line	V800R009C10

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit B(LPUF-200-B)	
NE40E-X8	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R006C20
NE40E-X16	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R006C20
NE40E-X8A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R006C20
NE40E-X16A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R006C20

Appearance



Panel

Table 9-1113 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 11 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1114 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 11	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-1115 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twelve 10GE interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-1116 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1117 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	52.0 W
Typical heat dissipation	168.7 BTU/hour
Weight	0.8 kg (1.65 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.18 LPUI-200

9.18.1 2-Port 100GE Tunable DWDM Integrated Line Processing Unit (LPUI-200)

Overview

Table 9-1118 Board attributes

Attribute	Description
Board name silkscreen	LPUI-200 2x100GE-DWDM
Description	2-Port 100GE Tunable DWDM Integrated Line Processing Unit (LPUI-200)
BOM	03056595
Model	CR5D00D2NT70

Table 9-1119 Mapping products and versions

Product	Earliest Software Version
NE40E-X3A	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-1120 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove

Name	Description
	the board.
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1121 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1122 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 1	100GE	Transponder	Interface for inputting and outputting 100GE optical signals	Optical fiber
0 to 1	100GE	Transponder	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1123 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 200G line-rate forwarding. It supports two 100GE DWDM optical ports.
Reliability and availability	Hot swappable.
Restrictions and remarks	The two modes support different FEC types. Two interconnected routers must use the same FEC type.

Technical Specifications

Table 9-1124 Interface specifications

Attribute	Description
Working mode	Full-duplex. Supports LAN and OTN modes.
Compliant standard	IEEE 802.3
Frame format	100GE(GMP)<->ODU4<->OTU4

Table 9-1125 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	380.0 W
Typical heat dissipation	1232.9 BTU/hour
Weight	11 kg (24.26 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.18.2 2-Port 100GBase-CFP Integrated Line Processing Unit(LPUI-200)

Overview

Table 9-1126 Board attributes

Attribute	Description
Board name silkscreen	LPUI-200 2x100GE-LAN-CFP-A
Description	2-Port 100GBase-CFP Integrated Line Processing Unit(LPUI-200)
BOM	03056862
Model	CR5D00E2NC76

Table 9-1127 Mapping products and versions

Product	Earliest Software Version
NE40E-X3A	V800R008C00
NE40E-X8A	V800R008C00
NE40E-X16A	V800R008C00

Appearance



Panel

Table 9-1128 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1129 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1130 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 1/0	100GE	CFP	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1131 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 200G line-rate forwarding, it supports two 100G interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1132 Interface specifications

Attribute	Description
Optical type supported	10.21 100Gbps CFP Optical Modules
Working mode	Full-duplex

Attribute	Description
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1133 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	293.0 W
Typical heat dissipation	950.6 BTU/hour
Weight	11 kg (24.26 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.18.3 20-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit(LPUI-200)

Overview

Table 9-1134 Board attributes

Attribute	Description
Board name silkscreen	LPUI-200 20x10GE-LAN/WAN-SFP+ -A
Description	20-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit(LPUI-200)
BOM	03056863
Model	CR5D00LEXF76

Table 9-1135 Mapping products and versions

Product	Earliest Software Version
NE40E-X3A	V800R008C00

Product	Earliest Software Version
NE40E-X8A	V800R008C00
NE40E-X16A	V800R008C00

Appearance



Panel

Table 9-1136 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1137 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1138 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/9 1/0 to 1/9	10G LAN/WA	SFP/SFP+	Interface for inputting and	Optical fiber and twisted pair

Interface Name	Interface Type	Connector Type	Description	Cable
	N or GE		outputting 10G LAN/WAN or GE optical signals	

Functional Specifications

Table 9-1139 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 200G line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-1140 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3

Attribute	Description
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1141 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	295.0 W
Typical heat dissipation	957.1 BTU/hour
Weight	9.9 kg (21.83 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.18.4 1-Port 100GBase-CFP + 10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit(LPUI-200)

Overview

Table 9-1142 Board attributes

Attribute	Description
Board name silkscreen	LPUI-200 1x100GBase-CFP -10x10GBase LAN/WAN-SFP+ -A
Description	1-Port 100GBase-CFP + 10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit(LPUI-200)
BOM	03056864
Model	CR5DE1NLAX76

Table 9-1143 Mapping products and versions

Product	Earliest Software Version
NE40E-X3A	V800R008C00
NE40E-X8A	V800R008C00

Product	Earliest Software Version
NE40E-X16A	V800R008C00

Appearance



Panel

Table 9-1144 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1145 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-1146 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 200G line-rate forwarding.

Functions and Features	Remarks
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-1147 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	294.0 W
Typical heat dissipation	953.9 BTU/hour
Weight	10.4 kg (23.04 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.18.5 2-Port 100GBase-CFP Integrated Line Processing Unit L(LPUI-200-L)

Overview

Table 9-1148 Board attributes

Attribute	Description
Board name silkscreen	LPUI-200-L 2x100GBase LAN-CFP-A
Description	2-Port 100GBase-CFP Integrated Line Processing Unit L(LPUI-200-L)
BOM	03056865
Model	CR5D00E2NC75

Table 9-1149 Mapping products and versions

Product	Earliest Software Version
NE40E-X3A	V800R008C00
NE40E-X8A	V800R008C00
NE40E-X16A	V800R008C00

Appearance



Panel

Table 9-1150 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1151 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1152 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 1/0	100GE	CFP	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1153 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports two 100G interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1154 Interface specifications

Attribute	Description
Optical type supported	10.21 100Gbps CFP Optical Modules
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1155 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	293.0 W

Item	Specification
Typical heat dissipation	950.6 BTU/hour
Weight	11 kg (24.26 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 F to 113 F) Short terms: -5 °C to 55 °C (23 F to 131 F)

9.18.6 20-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-200-L)

Overview

Table 9-1156 Board attributes

Attribute	Description
Board name silkscreen	LPUI-200-L 20x10GE-LAN/WAN-SFP+ -A
Description	20-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-200-L)
BOM	03056866
Model	CR5D00LEXF75

Table 9-1157 Mapping products and versions

Product	Earliest Software Version
NE40E-X3A	V800R008C00
NE40E-X8A	V800R008C00
NE40E-X16A	V800R008C00

Appearance



Panel

Table 9-1158 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1159 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1160 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/9 1/0 to 1/9	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-1161 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports twenty 10GE interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Functions and Features	Remarks
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-1162 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module NOTE The interface supports GE/10GE auto-sensing.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1163 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	295.0 W
Typical heat dissipation	957.1 BTU/hour
Weight	9.9 kg (21.83 lb)

Item	Specification
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.18.7 1-Port 100GBase-CFP + 10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-200-L)

Overview

Table 9-1164 Board attributes

Attribute	Description
Board name silkscreen	LPUI-200-L 1x100GBase LAN-CFP -10x10GBase LAN/WAN-SFP+ -A
Description	1-Port 100GBase-CFP + 10-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-200-L)
BOM	03056867
Model	CR5DE1NLAX75

Table 9-1165 Mapping products and versions

Product	Earliest Software Version
NE40E-X3A	V800R008C00
NE40E-X8A	V800R008C00
NE40E-X16A	V800R008C00

Appearance



Panel

Table 9-1166 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1167 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-1168 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/9	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair
1/0	100GE	CFP	Interface for inputting and outputting 100GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-1169 Functions and features

Functions and Features	Remarks
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Functions and Features	Remarks
Line-Rate capability	Supports 200G line-rate forwarding. It provides one 100G interface, and ten 10GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The 10G interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-1170 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module 10.21 100Gbps CFP Optical Modules
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1171 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	294.0 W

Item	Specification
Typical heat dissipation	953.9 BTU/hour
Weight	10.4 kg (23.04 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 F to 113 F) Short terms: -5 °C to 55 °C (23 F to 131 F)

9.19 LPUF-240

9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)

Overview

Table 9-1172 Board attributes

Attribute	Description
Board name silkscreen	LPUF-240-E
Description	Flexible Card Line Processing Unit(LPUF-240-E)
BOM	03055720
Model	CR5DLPUFF07E

Table 9-1173 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R008C10
NE40E-X16	V800R008C10
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance



Panel

Table 9-1174 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1175 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-1176 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G line-rate processing of broadband services.
Slot information	The board provides a maximum of two half-width slots and each slot can hold one FPIC card.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1177 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	244.0 W
Typical heat dissipation	791.7 BTU/hour
Weight	8.5 kg (18.74 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.19.2 Flexible Card Line Processing Unit(LPUF-240)

Overview

Table 9-1178 Board attributes

Attribute	Description
Board name silkscreen	LPUF-240
Description	Flexible Card Line Processing Unit(LPUF-240)
BOM	03054690
Model	CR5DLPUFF070

Table 9-1179 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-1180 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1181 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-1182 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G line-rate processing of broadband services.
Slot information	The board provides a maximum of two half-width slots and each slot can hold one FPIC card.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1183 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	244.0 W
Typical heat dissipation	791.7 BTU/hour
Weight	8.5 kg (18.74 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.19.3 Flexible Card Line Processing Unit(LPUF-240-B)

Overview

Table 9-1184 Board attributes

Attribute	Description
Board name silkscreen	LPUF-240-B
Description	Flexible Card Line Processing Unit(LPUF-240-B)
BOM	03054698
Model	CR5DLPUFF07B

Table 9-1185 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-1186 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1187 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-1188 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G line-rate processing of broadband services.
Slot information	The board provides a maximum of two half-width slots and each slot can hold one FPIC card.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1189 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	244.0 W
Typical heat dissipation	791.7 BTU/hour
Weight	8.5 kg (18.74 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.19.4 1-Port 100GBase-CFP Flexible Card A(P240-A)

Overview

Table 9-1190 Board attributes

Attribute	Description
Board name silkscreen	P240-1x100GBase LAN-CFP-A
Description	1-Port 100GBase-CFP Flexible Card A(P240-A)
BOM	03030QDF
Model	CR5D00E1NC74

Table 9-1191 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R007C00
NE40E-X8A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X16A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R007C00
NE40E-X8	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R007C00
NE40E-X16	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R007C00
NE40E-X8A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R007C00
NE40E-X16A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R007C00

Appearance



Panel

Table 9-1192 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1193 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
None	100GE	CFP	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1194 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides one 100G interface for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1195 Interface specifications

Attribute	Description
Optical type supported	10.21 100Gbps CFP Optical Modules

Attribute	Description
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1196 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	51.0 W
Typical heat dissipation	165.5 BTU/hour
Weight	1.3 kg (2.87 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.19.5 1-Port 100GBase-CFP2 Flexible Card A(P240-A)

Overview

Table 9-1197 Board attributes

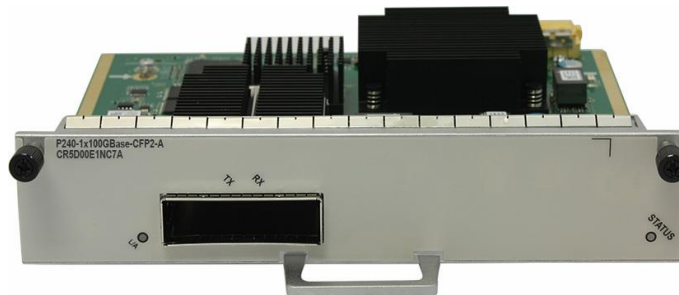
Attribute	Description
Board name silkscreen	P240-1x100GBase-CFP2-A
Description	1-Port 100GBase-CFP2 Flexible Card A(P240-A)
BOM	03032GLA
Model	CR5D00E1NC7A

Table 9-1198 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3A	9.17.1 Flexible Card Line Processing Unit(LPUF-200)	V800R009C10

Product	Motherboard	Earliest Software Version for Flexible Card
	9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	
NE40E-X8A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R009C10
NE40E-X16A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R009C10
NE40E-X8	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10
NE40E-X16	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10
NE40E-X8A	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10
NE40E-X16A	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10

Appearance



Panel

Table 9-1199 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks,

Name	Description
	data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1200 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
None	100GE	CFP2	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1201 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides one 100GE interface for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interface cannot go Up if its FEC does not match its peer's.

Technical Specifications

Table 9-1202 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE When optical modules with the BOM number 02311LYG are used, 2x40G and 10x10G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant	IEEE 802.3

Attribute	Description
standard	
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1203 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	40.0 W
Typical heat dissipation	129.7 BTU/hour
Weight	0.8 kg (1.76 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.19.6 12-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P240-A)

Overview

Table 9-1204 Board attributes

Attribute	Description
Board name silkscreen	P240-12x10GBase LAN/WAN-SFP+-A
Description	12-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P240-A)
BOM	03030QDD
Model	CR5D00LBF71

Table 9-1205 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line	V800R009C10

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit B(LPUF-200-B)	
NE40E-X8A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R009C10
NE40E-X16A	9.17.1 Flexible Card Line Processing Unit(LPUF-200) 9.17.2 Flexible Card Line Processing Unit B(LPUF-200-B)	V800R009C10
NE40E-X8	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R006C20
NE40E-X16	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R006C20
NE40E-X8A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R006C20
NE40E-X16A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R006C20

Appearance



Panel

Table 9-1206 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 11 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1207 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 11	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-1208 Functions and features

Functions and Features	Remarks

Functions and Features	Remarks
Line-Rate capability	Provides twelve 10GE interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-1209 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1210 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	52.0 W

Item	Specification
Typical heat dissipation	168.7 BTU/hour
Weight	0.8 kg (1.65 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 F to 113 F) Short terms: -5 °C to 55 °C (23 F to 131 F)

9.19.7 12-Port OTU2-SFP+ Flexible Card(P240)

Overview

Table 9-1211 Board attributes

Attribute	Description
Board name silkscreen	P240-12x10G OTU2-SFP+
Description	12-Port OTU2-SFP+ Flexible Card(P240)
BOM	03030WGY
Model	CR5D00TBXF70

Table 9-1212 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R007C00
NE40E-X16	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R007C00
NE40E-X8A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R007C00
NE40E-X16A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	

Appearance



Panel

Table 9-1213 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 11 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1214 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 11	10G LAN/10G OTN	SFP+	Interface for inputting and outputting 10G LAN/10G OTN optical signals	Optical fiber

Functional Specifications

Table 9-1215 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twelve 10GE OTN interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Restrictions and remarks	Each LPUF-120 supports only one such card, and each LPUF-240 supports two such cards. The mix use of enhanced-i-4 and enhanced-i-7 for interfaces on the same card is not supported.

Technical Specifications

Table 9-1216 Interface specifications

Attribute	Description
Optical type supported	<p>10.12 10Gbps SFP+ Optical Module</p> <p>10.13 10Gbps SFP+ CWDM Optical Module</p> <p>10.14 10Gbps SFP+ BIDI Optical Module</p> <p>10.16 10Gbps SFP+ OTN Optical Module</p> <p>10.15 10Gbps SFP+ DWDM Optical Module</p> <p>NOTE</p> <p>When the OTN rate is used, 10 Gbps SFP+ DWDM optical modules and 10 Gbps SFP+ OTN optical modules are supported.</p> <p>When the LAN rate is used, 10 Gbps SFP+ BIDI optical modules, 10 Gbps SFP+ CWDM optical modules, 10 Gbps SFP+ optical modules, and 10 Gbps SFP+ DWDM optical modules are supported.</p>
Working mode	Full-duplex
Compliant standard	ITU-T G.709, ITU-T G.798, ITU-T G.806, ITU-T G.975, ITU-T G.Sup43
Frame format	10G base-R(GFP-F)<->OPU2<->ODU2<->OTU2, 10G base-R(GFP-F)<->OPU2e<->ODU2<->OTU2 and 10G base-R(GFP)<->OPU2<->ODU2<->OTU2

Table 9-1217 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61

Item	Specification
	in.)
Typical power consumption	56.0 W
Typical heat dissipation	181.7 BTU/hour
Weight	0.8 kg (1.65 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.19.8 3-Port 40GBase-QSFP+ Flexible Card(P240-A)

Overview

Table 9-1218 Board attributes

Attribute	Description
Board name silkscreen	P240-3x40GBase-QSFP+ -A
Description	3-Port 40GBase-QSFP+ Flexible Card(P240-A)
BOM	03030WGT
Model	CR5D0E3MFA70

Table 9-1219 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R008C00
NE40E-X16	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R008C00
NE40E-X8A	9.19.2 Flexible Card Line	V800R008C00

Product	Motherboard	Earliest Software Version for Flexible Card
	Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	
NE40E-X16A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R008C00

Appearance



Panel

Table 9-1220 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1221 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 2	40GE	QSFP+	Interface for inputting and outputting 40GE optical signals	Optical fiber

Functional Specifications

Table 9-1222 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides three 40GE interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1223 Interface specifications

Attribute	Description
Optical type supported	10.20 40Gbps QSFP+ Optical Module NOTE Modules with the BOM number 02311NUA are not supported. When optical modules with the BOM number 02310WUU are used, 4x10G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1224 Board specifications

Item	Specification
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Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	50.0 W
Typical heat dissipation	162.2 BTU/hour
Weight	0.8 kg (1.87 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.19.9 10-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P240-E)

Overview

Table 9-1225 Board attributes

Attribute	Description
Board name silkscreen	P240-10x10GBase LAN/WAN-SFP+ -E
Description	10-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P240-E)
BOM	03030TUQ
Model	CR5D0LAXFE70

Table 9-1226 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R008C10
NE40E-X16	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R008C10
NE40E-X8A	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R008C10
NE40E-X16A	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R008C10

Appearance



Panel

Table 9-1227 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 9 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1228 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 9	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-1229 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides ten 10GE interfaces for line-rate transmitting and receiving.

Functions and Features	Remarks
Slot information	Occupies one half-width flexible card slot
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-1230 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1231 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	72.0 W
Typical heat dissipation	233.6 BTU/hour
Weight	1 kg (2.2 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.19.10 24-Port 100/1000Base-X-SFP Flexible Card A(P101-A)

Overview

Table 9-1232 Board attributes

Attribute	Description
Board name silkscreen	P101-24xFE/GE-SFP-A
Description	24-Port 100/1000Base-X-SFP Flexible Card A(P101-A)
BOM	03030PMN
Model	CR5D0EFGFA71

Table 9-1233 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X3A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X8A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00
NE40E-X16A	9.11.1 Flexible Card Line Processing Unit(LPUF-101) 9.11.2 Flexible Card Line Processing Unit(LPUF-101) B	V800R007C00

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X3	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X3A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X16A	9.15.2 Flexible Card Line Processing Unit(LPUF-120) 9.15.3 Flexible Card Line Processing Unit(LPUF-120) B 9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R007C00
NE40E-X8	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X16	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00
NE40E-X8A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00
NE40E-X16A	9.19.2 Flexible Card Line Processing Unit(LPUF-240) 9.19.3 Flexible Card Line Processing Unit(LPUF-240-B) 9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00

Appearance



Panel

Table 9-1234 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is

Name	Description
	Down.

Table 9-1235 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 23	FE/GE	SFP	Interface for inputting and outputting FE/GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-1236 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twenty-four FE/GE interfaces for line-rate transmitting and receiving.
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable

Technical Specifications

Table 9-1237 Interface specifications

Attribute	Description
Optical type supported	10.3 155Mbps eSFP Optical Module 10.4 155Mbps eSFP BIDI Optical Module 10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex

Attribute	Description
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1238 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	37.0 W
Typical heat dissipation	120.0 BTU/hour
Weight	1 kg (2.2 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.19.11 10-Port 10GBase LAN/WAN-SFP+ Flexible Card H(P240-H)

Overview

Table 9-1239 Board attributes

Attribute	Description
Board name silkscreen	P240-10x10GBase LAN/WAN-SFP+-H
Description	10-Port 10GBase LAN/WAN-SFP+ Flexible Card H(P240-H)
BOM	03030YEU
Model	CR5D0LAXFH70

Table 9-1240 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
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Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00
NE40E-X16	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00
NE40E-X8A	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00
NE40E-X16A	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C00

Appearance



Panel

Table 9-1241 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 9 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1242 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
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Interface Name	Interface Type	Connector Type	Description	Cable
0 to 9	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-1243 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides ten 10GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-1244 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1245 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	72.0 W
Typical heat dissipation	233.6 BTU/hour
Weight	1 kg (2.2 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.19.12 24-Port 1000Base-X-SFP Flexible Card E(P52-E)

Overview

Table 9-1246 Board attributes

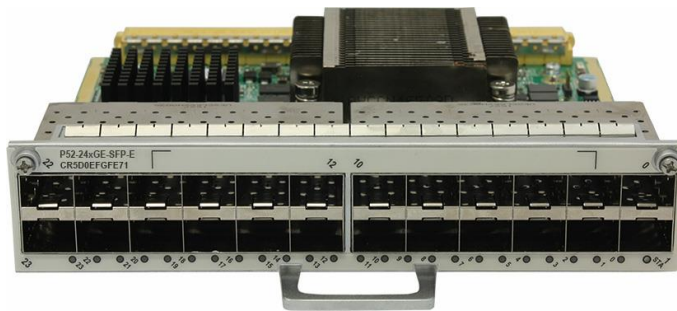
Attribute	Description
Board name silkscreen	P52-24xGE-SFP-E
Description	24-Port 1000Base-X-SFP Flexible Card E(P52-E)
BOM	03031XQJ
Model	CR5D0EFGFE71

Table 9-1247 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X16	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X3A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X8A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00
NE40E-X16A	9.7.3 Flexible Card Line Processing Unit(LPUF-51,2 sub-slots) E	V800R009C00

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X16	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X3A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X8A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X16A	9.15.1 Flexible Card Line Processing Unit(LPUF-120) E	V800R009C00
NE40E-X8	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10
NE40E-X16	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10
NE40E-X8A	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10
NE40E-X16A	9.19.1 Flexible Card Line Processing Unit(LPUF-240-E)	V800R009C10

Appearance



Panel

Table 9-1248 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Name	Description
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1249 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 23	GE	SFP	Interface for inputting and outputting GE optical signals	Optical fiber and twisted pair
0 to 23	GE	SFP	Interface for inputting and outputting GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-1250 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twenty-four FE/GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot.
Reliability and availability	Hot swappable
Restrictions and remarks	Supports GE optical interfaces but not 100M optical interfaces if a GE optical module is used. Does not support synchronous Ethernet. Does not support the LPUF-51 and LPUF-51-B.

Technical Specifications

Table 9-1251 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver

Attribute	Description
	10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1252 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	77.1 W
Typical heat dissipation	250.2 BTU/hour
Weight	1.2 kg (2.65 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.20 LPUI-240

9.20.1 2-Port 100GBase-CFP Integrated Line Processing Unit (LPUI-240)

Overview

Table 9-1253 Board attributes

Attribute	Description
Board name silkscreen	LPUI-240 2x100GBase LAN-CFP-A
Description	2-Port 100GBase-CFP Integrated Line Processing Unit (LPUI-240)
BOM	03054691

Attribute	Description
Model	CR5D00E2NC70

Table 9-1254 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-1255 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1256 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1257 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 1/0	100GE	CFP	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1258 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G line-rate forwarding. It provides two 100G interfaces.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1259 Interface specifications

Attribute	Description
Optical type supported	10.21 100Gbps CFP Optical Modules
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1260 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)

Item	Specification
Typical power consumption	345.0 W
Typical heat dissipation	1119.3 BTU/hour
Weight	11.1 kg (24.48 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.20.2 2-Port 100GBase-CFP2 Integrated Line Processing Unit (LPUI-240)

Overview

Table 9-1261 Board attributes

Attribute	Description
Board name silkscreen	LPUI-240 2x100GBase LAN-CFP2-A
Description	2-Port 100GBase-CFP2 Integrated Line Processing Unit (LPUI-240)
BOM	03057447
Model	CR5D00E2NC71

Table 9-1262 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R009C10
NE40E-X16	V800R009C10
NE40E-X8A	V800R009C10
NE40E-X16A	V800R009C10

Appearance



Panel

Table 9-1263 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1264 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1265 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 1/0	100GE	CFP2	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1266 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interface cannot go Up if its FEC does not match its peer's.

Technical Specifications

Table 9-1267 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE When optical modules with the BOM number 02311LYG are used, 2x40G and 10x10G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1268 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	324.0 W
Typical heat dissipation	1051.3 BTU/hour
Weight	10.1 kg (22.27 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.20.3 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-240)

Overview

Table 9-1269 Board attributes

Attribute	Description
Board name silkscreen	LPUI-240 24x10GBase LAN/WAN-SFP+ -A
Description	24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-240)
BOM	03054692
Model	CR5D00LFXF70

Table 9-1270 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-1271 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove

Name	Description
	the board.

Table 9-1272 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1273 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/11 1/0 to 1/11	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-1274 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-1275 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1276 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	347.0 W
Typical heat dissipation	1125.7 BTU/hour
Weight	10 kg (22.05 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.20.4 1-Port 100GBase-CFP + 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-240)

Overview

Table 9-1277 Board attributes

Attribute	Description
Board name silkscreen	LPUI-240 1x100GBase LAN-CFP -12x10GBase LAN/WAN-SFP+ -A
Description	1-Port 100GBase-CFP + 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-240)
BOM	03054693
Model	CR5DE2NLBX70

Table 9-1278 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-1279 Buttons

Name	Description
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Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1280 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-1281 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/11	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair
1/0	100GE	CFP	Interface for inputting and outputting 100GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-1282 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G line-rate forwarding. It provides one 100G line-rate forwarding and twelve 10GE interfaces.

Functions and Features	Remarks
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-1283 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module 10.21 100Gbps CFP Optical Modules
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1284 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	346.0 W
Typical heat dissipation	1122.5 BTU/hour

Item	Specification
Weight	10.6 kg (23.26 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.20.5 1-Port 100GBase-CFP2 + 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-240)

Overview

Table 9-1285 Board attributes

Attribute	Description
Board name silkscreen	LPUI-240 1x100GBase-CFP2-12x10GBase LAN/WAN-SFP+ -A
Description	1-Port 100GBase-CFP2 + 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-240)
BOM	03057448
Model	CR5DE1NLBX70

Table 9-1286 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R009C10
NE40E-X16	V800R009C10
NE40E-X8A	V800R009C10
NE40E-X16A	V800R009C10

Appearance



Panel

Table 9-1287 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1288 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-1289 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/11	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber
1/0	100GE	CFP2	Interface for inputting and outputting 100GE optical	Optical fiber

Interface Name	Interface Type	Connector Type	Description	Cable
			signals	

Functional Specifications

Table 9-1290 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G line-rate forwarding. It provides one 100G line-rate forwarding, and twelve 10GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces working in WAN mode can function only as master interfaces. The interface cannot go Up if its FEC does not match its peer's.

Technical Specifications

Table 9-1291 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module 10.22 100Gbps CFP2 Optical Module NOTE When optical modules with the BOM number 02311LYG are used, 2x40G and 10x10G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1292 Board specifications

Item	Specification
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Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	336.0 W
Typical heat dissipation	1090.2 BTU/hour
Weight	10 kg (22.16 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.20.6 2-Port 100GBase LAN-CFP Integrated Line Processing Unit B(LPUI-240-B)

Overview

Table 9-1293 Board attributes

Attribute	Description
Board name silkscreen	LPUI-240-B 2x100GBase LAN-CFP-A
Description	2-Port 100GBase LAN-CFP Integrated Line Processing Unit B(LPUI-240-B)
BOM	03054694
Model	CR5D00E2NC73

Table 9-1294 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-1295 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1296 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1297 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 1/0	100GE	CFP	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1298 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G line-rate forwarding. It provides two 100G interfaces.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1299 Interface specifications

Attribute	Description
Optical type supported	10.21 100Gbps CFP Optical Modules
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1300 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	345.0 W
Typical heat dissipation	1119.3 BTU/hour
Weight	11.1 kg (24.48 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.20.7 2-Port 100GBase LAN-CFP2 Integrated Line Processing Unit B(LPUI-240-B)

Overview

Table 9-1301 Board attributes

Attribute	Description
Board name silkscreen	LPUI-240-B 2x100GBase LAN-CFP2-A
Description	2-Port 100GBase LAN-CFP2 Integrated Line Processing Unit B(LPUI-240-B)
BOM	03057449
Model	CR5D00E2NC74

Table 9-1302 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R009C10
NE40E-X16	V800R009C10
NE40E-X8A	V800R009C10
NE40E-X16A	V800R009C10

Appearance



Panel

Table 9-1303 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove

Name	Description
	the board.

Table 9-1304 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-1305 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 1/0	100GE	CFP2	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1306 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G line-rate forwarding. It provides two 100GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interface cannot go Up if its FEC does not match its peer's.

Technical Specifications

Table 9-1307 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE When optical modules with the BOM number 02311LYG are used, 2x40G and 10x10G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1308 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	324.0 W
Typical heat dissipation	1051.3 BTU/hour
Weight	10.1 kg (22.27 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.20.8 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-240-B)

Overview

Table 9-1309 Board attributes

Attribute	Description
Board name silkscreen	LPUI-240-B 24x10GBase LAN/WAN-SFP+ -A
Description	24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-240-B)
BOM	03054695

Attribute	Description
Model	CR5D00LFXF73

Table 9-1310 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-1311 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1312 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1313 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/11 1/0 to 1/11	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-1314 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G line-rate forwarding. It provides twenty-four 10GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The 10G interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-1315 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module

Attribute	Description
	10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1316 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	347.0 W
Typical heat dissipation	1125.7 BTU/hour
Weight	10 kg (22.05 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.20.9 1-Port 100GBase-CFP + 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-240-B)

Overview

Table 9-1317 Board attributes

Attribute	Description
Board name silkscreen	LPUI-240-B 1x100GBase LAN-CFP -12x10GBase LAN/WAN-SFP+ -A
Description	1-Port 100GBase-CFP + 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-240-B)
BOM	03054696
Model	CR5DE2NLBX73

Table 9-1318 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R006C20
NE40E-X16	V800R006C20
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-1319 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1320 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-1321 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/11	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair
1/0	100GE	CFP	Interface for inputting and outputting 100GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-1322 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G line-rate forwarding. It provides one 100G line-rate forwarding, and twelve 10GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The 10G interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-1323 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module

Attribute	Description
	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module 10.21 100Gbps CFP Optical Modules
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1324 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	346.0 W
Typical heat dissipation	1122.5 BTU/hour
Weight	10.6 kg (23.26 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.20.10 1-Port 100GBase-CFP2 + 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-240-B)

Overview

Table 9-1325 Board attributes

Attribute	Description
Board name silkscreen	LPUI-240-B 1x100GBase-CFP2-12x10GBase LAN/WAN-SFP+ -A
Description	1-Port 100GBase-CFP2 + 12-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-240-B)
BOM	03057450

Attribute	Description
Model	CR5DE1NLBX71

Table 9-1326 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R009C10
NE40E-X16	V800R009C10
NE40E-X8A	V800R009C10
NE40E-X16A	V800R009C10

Appearance



Panel

Table 9-1327 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1328 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board

Name	Description
	is starting and has not completed registration.

Table 9-1329 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/11	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber
1/0	100GE	CFP2	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1330 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G line-rate forwarding. It provides one 100G line-rate forwarding, and twelve 10GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces working in WAN mode can function only as master interfaces. The interface cannot go Up if its FEC does not match its peer's.

Technical Specifications

Table 9-1331 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module

Attribute	Description
	10.15 10Gbps SFP+ DWDM Optical Module 10.22 100Gbps CFP2 Optical Module NOTE When optical modules with the BOM number 02311LYG are used, 2x40G and 10x10G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1332 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	359.0 W
Typical heat dissipation	1442.4 BTU/hour
Weight	10 kg (22.16 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.20.11 24-Port OTU2-SFP+ Integrated Line Processing Unit (LPUI-240)

Overview

Table 9-1333 Board attributes

Attribute	Description
Board name silkscreen	LPUI-240 2x10G OTU2-SFP+
Description	24-Port OTU2-SFP+ Integrated Line Processing Unit (LPUI-240)
BOM	03056745
Model	CR5D00TFXF71

Table 9-1334 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-1335 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1336 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1337 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/11 1/0 to 1/11	10G LAN/10G OTN	SFP+	Interface for inputting and outputting 10G LAN/10G OTN optical signals	Optical fiber

Functional Specifications

Table 9-1338 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G (24 x 10G) line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	Two interconnected routers must use the same FEC type.

Technical Specifications

Table 9-1339 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.16 10Gbps SFP+ OTN Optical Module 10.15 10Gbps SFP+ DWDM Optical Module NOTE When the OTN rate is used, 10 Gbps SFP+ DWDM optical modules and 10 Gbps SFP+ OTN optical modules are supported. When the LAN rate is used, 10 Gbps SFP+ BIDI optical modules, 10 Gbps SFP+ CWDM optical modules, 10 Gbps SFP+ optical modules, and 10 Gbps SFP+ DWDM optical modules are supported.
Working mode	Full-duplex. It supports Ethernet and OTN modes. The two modes support different FEC types.

Attribute	Description
Compliant standard	ITU-T G.709, ITU-T G.798, ITU-T G.806, ITU-T G.975, ITU-T G.Sup43
Frame format	10G base-R(GFP-F)<->OPU2<->ODU2<->OTU2, 10G base-R(GFP-F)<->OPU2e<->ODU2<->OTU2 and 10G base-R(GFP)<->OPU2<->ODU2<->OTU2

Table 9-1340 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	356.0 W
Typical heat dissipation	1155.1 BTU/hour
Weight	11.2 kg (24.81 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.20.12 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-240-L)

Overview

Table 9-1341 Board attributes

Attribute	Description
Board name silkscreen	LPUI-240-L 24x10GBase LAN/WAN-SFP+ -A
Description	24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-240-L)
BOM	03056587
Model	CR5D00LFXF7L

Table 9-1342 Mapping products and versions

Product	Earliest Software Version
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Product	Earliest Software Version
NE40E-X8	V800R007C00
NE40E-X16	V800R007C00
NE40E-X8A	V800R007C00
NE40E-X16A	V800R007C00

Appearance



Panel

Table 9-1343 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1344 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1345 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/11 1/0 to 1/11	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-1346 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-1347 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module

Attribute	Description
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1348 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	348.0 W
Typical heat dissipation	1129.1 BTU/hour
Weight	10 kg (22.05 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.20.13 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit CM(LPUI-240-CM)

Overview

Table 9-1349 Board attributes

Attribute	Description
Board name silkscreen	LPUI-240-CM 24×10GBase LAN/WAN-SFP+
Description	24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit CM(LPUI-240-CM)
BOM	03057692
Model	CR5D00LFXF7P

Table 9-1350 Mapping products and versions

Product	Earliest Software Version
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Product	Earliest Software Version
NE40E-X8	V800R009C10
NE40E-X16	V800R009C10
NE40E-X8A	V800R009C10
NE40E-X16A	V800R009C10

Appearance



Panel

Table 9-1351 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1352 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1353 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/11 1/0 to 1/11	10G LAN/WAN or GE	SFP/SFP+	Interface for inputting and outputting 10G LAN/WAN or GE optical signals	Optical fiber and twisted pair

Functional Specifications

Table 9-1354 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G line-rate forwarding. It provides twenty-four 10GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.
GE/10GE autonegotiation supported	The 10G interface supports GE/10GE auto-sensing.

Technical Specifications

Table 9-1355 Interface specifications

Attribute	Description
Optical type supported	10.6 1Gbps Electrical Transceiver 10.7 1.25Gbps eSFP Optical Module 10.9 1.25Gbps eSFP CWDM Optical Module 10.8 1.25Gbps eSFP BIDI Optical Module 10.11 125M~2.67Gbps eSFP DWDM Optical Module 10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module

Attribute	Description
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1356 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	394.0 W
Typical heat dissipation	1278.4 BTU/hour
Weight	10.5 kg (23.15 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.20.14 6-Port 40GBase-QSFP+ Integrated Line Processing Unit (LPUI-240)

Overview

Table 9-1357 Board attributes

Attribute	Description
Board name silkscreen	LPUI-240 6x40GBase-QSFP+ -A
Description	6-Port 40GBase-QSFP+ Integrated Line Processing Unit (LPUI-240)
BOM	03056105
Model	CR5D0E6MFA70

Table 9-1358 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R008C00

Product	Earliest Software Version
NE40E-X16	V800R008C00
NE40E-X8A	V800R008C00
NE40E-X16A	V800R008C00

Appearance



Panel

Table 9-1359 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1360 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1361 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
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Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/2 1/0 to 1/2	40GE	QSFP+	Interface for inputting and outputting 40GE optical signals	Optical fiber

Functional Specifications

Table 9-1362 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G line-rate forwarding, it supports six 40G interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1363 Interface specifications

Attribute	Description
Optical type supported	10.20 40Gbps QSFP+ Optical Module NOTE Modules with the BOM number 02311NUA are not supported. When optical modules with the BOM number 02310WUU are used, 4x10G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1364 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)

Item	Specification
Typical power consumption	344.0 W
Typical heat dissipation	1116.1 BTU/hour
Weight	10.2 kg (22.49 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.20.15 6-Port 40GBase-QSFP+ Integrated Line Processing Unit (LPUI-240-B)

Overview

Table 9-1365 Board attributes

Attribute	Description
Board name silkscreen	LPUI-240-B 6x40GBase-QSFP+ -A
Description	6-Port 40GBase-QSFP+ Integrated Line Processing Unit (LPUI-240-B)
BOM	03056106
Model	CR5D0E6MFA71

Table 9-1366 Mapping products and versions

Product	Earliest Software Version
NE40E-X8	V800R008C00
NE40E-X16	V800R008C00
NE40E-X8A	V800R008C00
NE40E-X16A	V800R008C00

Appearance



Panel

Table 9-1367 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1368 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1369 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/2 1/0 to 1/2	40GE	QSFP+	Interface for inputting and outputting 40GE optical signals	Optical fiber

Functional Specifications

Table 9-1370 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 240G line-rate forwarding, it supports six 40G interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1371 Interface specifications

Attribute	Description
Optical type supported	10.20 40Gbps QSFP+ Optical Module NOTE Modules with the BOM number 02311NUA are not supported. When optical modules with the BOM number 02310WUU are used, 4x10G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1372 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	344.0 W
Typical heat dissipation	1116.1 BTU/hour
Weight	10.2 kg (22.49 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.21 LPUF-480

9.21.1 Flexible Card Line Processing Unit(LPUF-480)

Overview

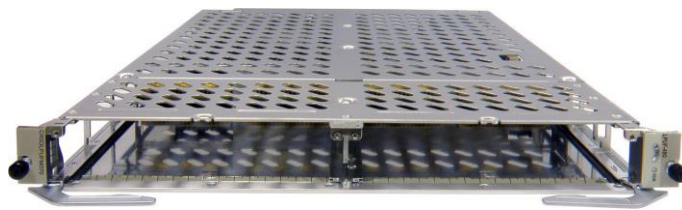
Table 9-1373 Board attributes

Attribute	Description
Board name silkscreen	LPUF-480
Description	Flexible Card Line Processing Unit(LPUF-480)
BOM	03055820
Model	CR5DLPUFM070

Table 9-1374 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-1375 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1376 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-1377 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 480G line-rate forwarding.
Slot information	The board provides a maximum of two half-width slots and each slot can hold one FPIC card.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1378 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	236.2 W
Typical heat dissipation	766.3 BTU/hour
Weight	7.6 kg (16.76 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.21.2 Flexible Card Line Processing Unit E(LPUF-480-E)

Overview

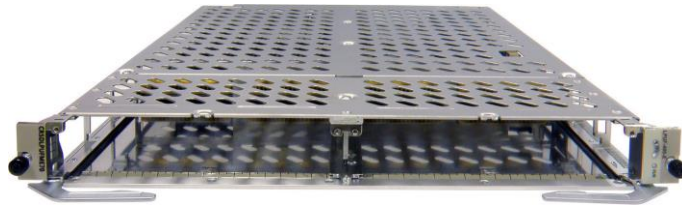
Table 9-1379 Board attributes

Attribute	Description
Board name silkscreen	LPUF-480-E
Description	Flexible Card Line Processing Unit E(LPUF-480-E)
BOM	03057313
Model	CR5DLPUFME70

Table 9-1380 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R009C00
NE40E-X16A	V800R009C00

Appearance



Panel

Table 9-1381 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1382 Indicators

Name	Description
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Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-1383 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 480G line-rate forwarding.
Slot information	The board provides a maximum of two half-width slots and each slot can hold one FPIC card.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1384 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	236.2 W
Typical heat dissipation	766.3 BTU/hour
Weight	7.6 kg (16.76 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.21.3 Flexible Card Line Processing Unit B(LPUF-480-B)

Overview

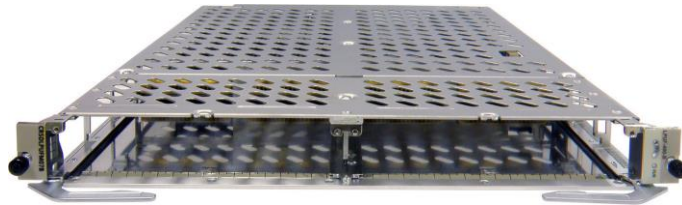
Table 9-1385 Board attributes

Attribute	Description
Board name silkscreen	LPUF-480-B
Description	Flexible Card Line Processing Unit B(LPUF-480-B)
BOM	03057035
Model	CR5DLPUFM07B

Table 9-1386 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance



Panel

Table 9-1387 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1388 Indicators

Name	Description
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Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Functional Specifications

Table 9-1389 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 480G line-rate forwarding.
Slot information	The board provides a maximum of two half-width slots and each slot can hold one FPIC card.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1390 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	236.2 W
Typical heat dissipation	766.3 BTU/hour
Weight	7.6 kg (16.76 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.21.4 24-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P480-A)

Overview

Table 9-1391 Board attributes

Attribute	Description
Board name silkscreen	P480-24x10G LAN/WAN-SFP+
Description	24-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P480-A)
BOM	03030SWL
Model	CR5D00LFXF74

Table 9-1392 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8A	9.21.1 Flexible Card Line Processing Unit(LPUF-480) 9.21.3 Flexible Card Line Processing Unit B(LPUF-480-B) 9.21.2 Flexible Card Line Processing Unit E(LPUF-480-E)	V800R006C20
NE40E-X16A	9.21.1 Flexible Card Line Processing Unit(LPUF-480) 9.21.3 Flexible Card Line Processing Unit B(LPUF-480-B) 9.21.2 Flexible Card Line Processing Unit E(LPUF-480-E)	V800R006C20

Appearance



Panel

Table 9-1393 Indicators

Name	Description
STA (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1394 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 23	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-1395 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twenty-four 10GE interfaces for line-rate transmitting and receiving.

Functions and Features	Remarks
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-1396 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1397 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	96.4 W
Typical heat dissipation	312.8 BTU/hour
Weight	0.9 kg (1.98 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.21.5 2-Port 100GBase-CFP2 Flexible Card A(P480-A)

Overview

Table 9-1398 Board attributes

Attribute	Description
Board name silkscreen	P480-2x100G LAN-CFP2
Description	2-Port 100GBase-CFP2 Flexible Card A(P480-A)
BOM	03030SWH
Model	CR5D00E2NC72

Table 9-1399 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8A	9.21.1 Flexible Card Line Processing Unit(LPUF-480) 9.21.3 Flexible Card Line Processing Unit B(LPUF-480-B) 9.21.2 Flexible Card Line Processing Unit E(LPUF-480-E)	V800R006C20
NE40E-X16A	9.21.1 Flexible Card Line Processing Unit(LPUF-480) 9.21.3 Flexible Card Line Processing Unit B(LPUF-480-B) 9.21.2 Flexible Card Line Processing Unit E(LPUF-480-E)	V800R006C20

Appearance



Panel

Table 9-1400 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1401 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 1	100GE	CFP2	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1402 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides two 100GE interfaces for line-rate transmitting and receiving.

Functions and Features	Remarks
Slot information	The board occupies one half-width flexible card slot.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1403 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE Modules with the BOM number 02311LYG are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1404 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	85.8 W
Typical heat dissipation	278.4 BTU/hour
Weight	0.9 kg (1.98 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.21.6 2-Port 100GBase-CFP2 Flexible Card E(P480-E)

Overview

Table 9-1405 Board attributes

Attribute	Description
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Attribute	Description
Board name silkscreen	P480-2x100G LAN-CFP2-E
Description	2-Port 100GBase-CFP2 Flexible Card E(P480-E)
BOM	03032DJE
Model	CR5D0E2NCE70

Table 9-1406 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8A	9.21.2 Flexible Card Line Processing Unit E(LPUF-480-E)	V800R009C00
NE40E-X16A	9.21.2 Flexible Card Line Processing Unit E(LPUF-480-E)	V800R009C00

Appearance



Panel

Table 9-1407 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1408 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 1	100GE	CFP2	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1409 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides two 100GE interfaces for line-rate transmitting and receiving.
Slot information	Occupies one half-width flexible card slot
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1410 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE Modules with the BOM number 02311LYG are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1411 Board specifications

Item	Specification
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Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	85.8 W
Typical heat dissipation	278.4 BTU/hour
Weight	0.9 kg (1.98 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.21.7 20-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P480-E)

Overview

Table 9-1412 Board attributes

Attribute	Description
Board name silkscreen	P480-20x10G LAN/WAN-SFP+ -E
Description	20-Port 10GBase LAN/WAN-SFP+ Flexible Card E(P480-E)
BOM	03032DJH
Model	CR5D0LEXFE70

Table 9-1413 Mapping products and versions

Product	Motherboard	Earliest Software Version for Flexible Card
NE40E-X8A	9.21.2 Flexible Card Line Processing Unit E(LPUF-480-E)	V800R009C00
NE40E-X16A	9.21.2 Flexible Card Line Processing Unit E(LPUF-480-E)	V800R009C00

Appearance



Panel

Table 9-1414 Indicators

Name	Description
STATUS (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 19 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1415 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 19	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-1416 Functions and features

Functions and Features	Remarks
Line-Rate capability	Provides twenty 10GE interfaces for line-rate transmitting and receiving.

Functions and Features	Remarks
Slot information	Occupies one half-width flexible card slot
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-1417 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1418 Board specifications

Item	Specification
Dimensions (H x W x D)	37.2 mm x 178.7 mm x 193.3 mm (1.46 in. x 7.04 in. x 7.61 in.)
Typical power consumption	93.4 W
Typical heat dissipation	303.0 BTU/hour
Weight	0.9 kg (1.98 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.22 LPUI-480

9.22.1 48-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-480)

Overview

Table 9-1419 Board attributes

Attribute	Description
Board name silkscreen	LPUI-480 48x10G LAN/WAN-SFP+
Description	48-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-480)
BOM	03055821
Model	CR5D00LMXF70

Table 9-1420 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-1421 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1422 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1423 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/23 1/0 to 1/23	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-1424 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 480GE (48 x 10GE) line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-1425 Interface specifications

Attribute	Description
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Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1426 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	429.0 W
Typical heat dissipation	1391.9 BTU/hour
Weight	9.4 kg (20.73 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.22.2 2-Port 100GBase-CFP2 + 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-480)

Overview

Table 9-1427 Board attributes

Attribute	Description
Board name silkscreen	LPUI-480 2x100G LAN-CFP2 -24x10G LAN/WAN-SFP+
Description	2-Port 100GBase-CFP2 + 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-480)
BOM	03055838
Model	CR5DE2NLFX70

Table 9-1428 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R006C20
NE40E-X16A	V800R006C20

Appearance



Panel

Table 9-1429 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1430 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green) 0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-1431 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/1	100GE	CFP2	Interface for inputting and outputting 100GE optical signals	Optical fiber
1/0 to 1/23	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-1432 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 480G line-rate forwarding. It provides two 100G interfaces, and twenty-four 10GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-1433 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module 10.22 100Gbps CFP2 Optical Module NOTE CFP2 optical module with the BOM number 02311LYG are not supported.
Working mode	Full-duplex

Attribute	Description
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1434 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	418.4 W
Typical heat dissipation	1357.5 BTU/hour
Weight	9.4 kg (20.73 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.22.3 2-Port 100GBase-QSFP28 + 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-480)

Overview

Table 9-1435 Board attributes

Attribute	Description
Board name silkscreen	LPUI-480 2x100G-QSFP28-24x10G LAN/WAN-SFP+
Description	2-Port 100GBase-QSFP28 + 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-480)
BOM	03057599
Model	CR5DE2NLFX71

Table 9-1436 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R010C00

Product	Earliest Software Version
NE40E-X16A	V800R010C00
NE40E-X8A	V800R010C00
NE40E-X16A	V800R010C00

Appearance



Panel

Table 9-1437 Buttons

Name	Description
100GE Breakout button	When you press the button, the Breakout indicators stop status cycling and remain in the current status. Then, each time you press the button, the Breakout indicators' status switches. If you do not press the button in 60s, the Breakout indicators automatically start status cycling.

Table 9-1438 Service interfaces

Interface Name	Interface Type	Connect or Type	Description	Cable
0/0 to 0/1	10G LAN/WAN or 40GE or 100GE	QSFP28/QSFP+/SFP+	Interface for inputting and outputting 10G LAN/WAN or 100GE optical signals	Optical fiber
1/0 to 1/23	10G LAN/WAN or 40GE or 100GE	QSFP28/QSFP+/SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber
0/0 to 0/1	10G LAN/WAN	QSFP28/QSFP+	Interface for inputting and outputting 10G LAN/WAN or 40	Optical fiber

Interface Name	Interface Type	Connect or Type	Description	Cable
	or 40GE or 100GE		GE or 100GE optical signals	
1/0 to 1/23	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-1439 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 480G line-rate forwarding. It provides two 100G interfaces, and twenty-four 10GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-1440 Interface specifications

Attribute	Description
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1441 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	409.6 W
Typical heat dissipation	1328.9 BTU/hour
Weight	9.7 kg (21.39 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms:

Item	Specification
	-5 °C to 55 °C (23 °F to 131 °F)

9.22.4 4-Port 100GBase-CFP2 Integrated Line Processing Unit (LPUI-480)

Overview

Table 9-1442 Board attributes

Attribute	Description
Board name silkscreen	LPUI-480 4x100G LAN-CFP2
Description	4-Port 100GBase-CFP2 Integrated Line Processing Unit (LPUI-480)
BOM	03056318
Model	CR5D00E4NC70

Table 9-1443 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R006C30
NE40E-X16A	V800R006C30

Appearance



Panel

Table 9-1444 Buttons

Name	Description
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Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1445 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Table 9-1446 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/1 1/0 to 1/1	100GE	CFP2	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1447 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 480G line-rate forwarding, it provides four 100GE interfaces.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1448 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE Modules with the BOM number 02311LYG are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1449 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	408.0 W
Typical heat dissipation	1323.7 BTU/hour
Weight	9.4 kg (20.73 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.22.5 4-Port 100GBase-QSFP28 Integrated Line Processing Unit(LPUI-480)

Overview

Table 9-1450 Board attributes

Attribute	Description
Board name silkscreen	LPUI-480 4x100GBase-QSFP28
Description	4-Port 100GBase-QSFP28 Integrated Line Processing Unit(LPUI-480)
BOM	03057936
Model	CR5D00E4NB70

Table 9-1451 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R010C00
NE40E-X16A	V800R010C00

Appearance



Panel

Table 9-1452 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.
100GE Breakout button	When you press the button, the Breakout indicators stop status cycling and remain in the current status. Then, each time you press the button, the Breakout indicators' status switches. If you do not press the button in 60s, the Breakout indicators automatically start status cycling.

Table 9-1453 Service interfaces

Interface Name	Interface Type	Connect or Type	Description	Cable
0/0 to 0/1 1/0 to 1/1	10G LAN/WAN or 40GE or 100GE	QSFP28/ QSFP+	Interface for inputting and outputting 10G LAN/WAN or 40GE or 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1454 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 480G line-rate forwarding, it provides four 100GE interfaces.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1455 Interface specifications

Attribute	Description
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1456 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	396.2 W
Typical heat dissipation	1285.4 BTU/hour
Weight	10.0 kg (22.05 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.22.6 48-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-480-B)

Overview

Table 9-1457 Board attributes

Attribute	Description
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Attribute	Description
Board name silkscreen	LPUI-480-B 48x10G LAN/WAN-SFP+ -A
Description	48-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-480-B)
BOM	03057036
Model	CR5D00LMXF7B

Table 9-1458 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance



Panel

Table 9-1459 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1460 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.

Name	Description
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1461 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/23 1/0 to 1/23	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-1462 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 480GE (48 x 10GE) line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-1463 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant	IEEE 802.3

Attribute	Description
standard	
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1464 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	429.0 W
Typical heat dissipation	1391.9 BTU/hour
Weight	9.4 kg (20.73 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.22.7 2-Port 100GBase-CFP2 + 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-480-B)

Overview

Table 9-1465 Board attributes

Attribute	Description
Board name silkscreen	LPUI-480-B 2x100G LAN-CFP2 -24x10G LAN/WAN-SFP+ -A
Description	2-Port 100GBase-CFP2 + 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit B(LPUI-480-B)
BOM	03057037
Model	CR5DE2NLFX7B

Table 9-1466 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance



Panel

Table 9-1467 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1468 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green) 0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1469 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/1	100GE	CFP2	Interface for inputting and outputting 100GE optical signals	Optical fiber
1/0 to 1/23	10G LAN/WA	SFP+	Interface for inputting and outputting 10G	Optical fiber

Interface Name	Interface Type	Connector Type	Description	Cable
	N		LAN/WAN optical signals	

Functional Specifications

Table 9-1470 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 480G line-rate forwarding. It provides two 100G interfaces, and twenty-four 10GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-1471 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module 10.22 100Gbps CFP2 Optical Module NOTE CFP2 optical module with the BOM number 02311LYG are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1472 Board specifications

Item	Specification
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Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	418.4 W
Typical heat dissipation	1357.5 BTU/hour
Weight	9.4 kg (20.73 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 F to 113 F) Short terms: -5 °C to 55 °C (23 F to 131 F)

9.22.8 4-Port 100GBase-CFP2 Integrated Line Processing Unit B(LPUI-480-B)

Overview

Table 9-1473 Board attributes

Attribute	Description
Board name silkscreen	LPUI-480-B 4x100G LAN-CFP2-A
Description	4-Port 100GBase-CFP2 Integrated Line Processing Unit B(LPUI-480-B)
BOM	03057039
Model	CR5D00E4NC7B

Table 9-1474 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance



Panel

Table 9-1475 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1476 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1477 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/1 1/0 to 1/1	100GE	CFP2	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1478 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 480GE line-rate forwarding. It provides four 100GE interfaces.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1479 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE Modules with the BOM number 02311LYG are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1480 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	408.0 W
Typical heat dissipation	1323.7 BTU/hour
Weight	9.4 kg (20.73 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.22.9 48-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-480-L)

Overview

Table 9-1481 Board attributes

Attribute	Description
Board name silkscreen	LPUI-480-L 48x10G LAN/WAN-SFP+ -A
Description	48-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-480-L)
BOM	03057040
Model	CR5D00LMXF7C

Table 9-1482 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance



Panel

Table 9-1483 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1484 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1485 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/23 1/0 to 1/23	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-1486 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 480GE (48 x 10GE) line-rate forwarding.
Reliability and availability	Hot swappable.
Restrictions and remarks	The interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-1487 Interface specifications

Attribute	Description
Optical type	10.12 10Gbps SFP+ Optical Module

Attribute	Description
supported	10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1488 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	429.0 W
Typical heat dissipation	1391.9 BTU/hour
Weight	9.4 kg (20.73 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.22.10 2-Port 100GBase-CFP2 + 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-480-L)

Overview

Table 9-1489 Board attributes

Attribute	Description
Board name silkscreen	LPUI-480-L 2x100G LAN-CFP2 -24x10G LAN/WAN-SFP+ -A
Description	2-Port 100GBase-CFP2 + 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit L(LPUI-480-L)
BOM	03057041
Model	CR5DE2NLFX7C

Table 9-1490 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance



Panel

Table 9-1491 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1492 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green) 0 to 23 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1493 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/1	100GE	CFP2	Interface for	Optical fiber

Interface Name	Interface Type	Connector Type	Description	Cable
			inputting and outputting 100GE optical signals	
1/0 to 1/23	10G LAN/WAN	SFP+	Interface for inputting and outputting 10G LAN/WAN optical signals	Optical fiber

Functional Specifications

Table 9-1494 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 480G line-rate forwarding. It provides two 100G interfaces, and twenty-four 10GE interfaces.
Reliability and availability	Hot swappable.
Restrictions and remarks	The 10G interfaces working in WAN mode can function only as master interfaces.

Technical Specifications

Table 9-1495 Interface specifications

Attribute	Description
Optical type supported	10.12 10Gbps SFP+ Optical Module 10.13 10Gbps SFP+ CWDM Optical Module 10.14 10Gbps SFP+ BIDI Optical Module 10.15 10Gbps SFP+ DWDM Optical Module 10.22 100Gbps CFP2 Optical Module NOTE CFP2 optical module with the BOM number 02311LYG are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3

Attribute	Description
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1496 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	418.4 W
Typical heat dissipation	1357.5 BTU/hour
Weight	9.4 kg (20.73 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.22.11 4-Port 100GBase-CFP2 Integrated Line Processing Unit L(LPUI-480-L)

Overview

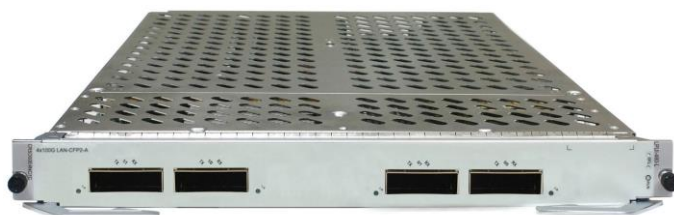
Table 9-1497 Board attributes

Attribute	Description
Board name silkscreen	LPUI-480-L 4x100G LAN-CFP2-A
Description	4-Port 100GBase-CFP2 Integrated Line Processing Unit L(LPUI-480-L)
BOM	03057042
Model	CR5D00E4NC7C

Table 9-1498 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance



Panel

Table 9-1499 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1500 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1501 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/1 1/0 to 1/1	100GE	CFP2	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1502 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 480GE line-rate forwarding. It provides four 100GE interfaces.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1503 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE Modules with the BOM number 02311LYG are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1504 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	408.0 W
Typical heat dissipation	1323.7 BTU/hour
Weight	9.4 kg (20.73 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.22.12 4-Port 100G ETH/DWDM-CFP2 Integrated Line Processing Unit(LPUI-480)

Overview

Table 9-1505 Board attributes

Attribute	Description
Board name silkscreen	LPUI-480 4x100G LAN-CFP2-A
Description	4-Port 100G ETH/DWDM-CFP2 Integrated Line Processing Unit(LPUI-480)
BOM	03057675
Model	CR5D00D4NC70

Table 9-1506 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R009C10
NE40E-X16A	V800R009C10

Appearance



Panel

Table 9-1507 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1508 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1509 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/1 1/0 to 1/1	100GE	CFP2	Interface for inputting and outputting 100GE optical signals	Optical fiber

Functional Specifications

Table 9-1510 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports four 100GE interfaces.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1511 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE Modules with the BOM number 02311LYG are not supported.

Attribute	Description
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1512 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	424.0 W
Typical heat dissipation	1375.6 BTU/hour
Weight	9.4 kg (20.73 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.22.13 4-Port 100G ETH/DWDM-CFP2 Integrated Line Processing Unit CM(LPUI-480-CM)

Overview

Table 9-1513 Board attributes

Attribute	Description
Board name silkscreen	LPUI-480-CM 4x100G ETH/DWDM-CFP2
Description	4-Port 100G ETH/DWDM-CFP2 Integrated Line Processing Unit CM(LPUI-480-CM)
BOM	03057753
Model	CR5D00E4NC7P

Table 9-1514 Mapping products and versions

Product	Earliest Software Version
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Product	Earliest Software Version
NE40E-X8A	V800R009C10
NE40E-X16A	V800R009C10

Appearance



Panel

Table 9-1515 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.

Table 9-1516 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
L/A (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.

Table 9-1517 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0/0 to 0/1 1/0 to 1/1	100GE	CFP2	Interface for inputting and	Optical fiber

Interface Name	Interface Type	Connector Type	Description	Cable
			outputting 100GE optical signals	

Functional Specifications

Table 9-1518 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 480GE line-rate forwarding. It provides four 100GE interfaces.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1519 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE Modules with the BOM number 02311LYG are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1520 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	424.0 W
Typical heat dissipation	1375.6 BTU/hour

Item	Specification
Weight	9.4 kg (20.73 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

9.23 LPUI-1T

9.23.1 8-Port 100GBase-CFP2 Integrated Line Processing Unit (LPUI-1T)

Overview

Table 9-1521 Board attributes

Attribute	Description
Board name silkscreen	LPUI-1T 8x100GBase-CFP2
Description	8-Port 100GBase-CFP2 Integrated Line Processing Unit (LPUI-1T)
BOM	03056088
Model	CR5D00E8NC70

Table 9-1522 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R006C30
NE40E-X16A	V800R006C30

Appearance



Panel

Table 9-1523 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.
100GE Breakout button	When you press the button, the Breakout indicators stop status cycling and remain in the current status. Then, each time you press the button, the Breakout indicators' status switches. If you do not press the button in 60s, the Breakout indicators automatically start status cycling.

Table 9-1524 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 7 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
0 to 9 100GE Breakout (green)	Breakout 0-9: breakout indicator. If breakout indicator X is on, the interface indicators are showing the running status of breakout channel X. For example, if breakout indicator 0 is on, interface indicators are showing the running status of breakout channel 0 (if an interface indicator is blinking, breakout channel 0 on this interface is receiving and transmitting data); if breakout indicator 1 is on, interface indicators are showing the running status of breakout channel 1. If the board has breakout interfaces, each breakout indicator for channels 0 to 9 turns on for 5s in sequence to indicate the status of the corresponding channel. To rapidly identify the running status of a specific breakout channel, press the Breakout button to switch to your desired indicator. For example, if you want to check the running status of breakout channel 1 on each interface, press the Breakout button to have breakout indicator 1 turns on.

Table 9-1525 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 7	100GE	CFP2	Interface for	Optical fiber

Interface Name	Interface Type	Connector Type	Description	Cable
			inputting and outputting 100GE optical signals	

Functional Specifications

Table 9-1526 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 1T line-rate forwarding, it supports eight 100G interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1527 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE When optical modules with the BOM number 02311LYG are used, 2x40G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1528 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	584.5 W

Item	Specification
Typical heat dissipation	1896.4 BTU/hour
Weight	11 kg (24.26 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 F to 113 F) Short terms: -5 °C to 55 °C (23 F to 131 F)

9.23.2 8-Port 100GBase-CFP2 Integrated Line Processing Unit B(LPUI-1T-B)

Overview

Table 9-1529 Board attributes

Attribute	Description
Board name silkscreen	LPUI-1T-B 8x100GBase-CFP2
Description	8-Port 100GBase-CFP2 Integrated Line Processing Unit B(LPUI-1T-B)
BOM	03056888
Model	CR5D00E8NC7B

Table 9-1530 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R008C00
NE40E-X16A	V800R008C00

Appearance



Panel

Table 9-1531 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.
100GE Breakout button	When you press the button, the Breakout indicators stop status cycling and remain in the current status. Then, each time you press the button, the Breakout indicators' status switches. If you do not press the button in 60s, the Breakout indicators automatically start status cycling.

Table 9-1532 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 7 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
0 to 9 100GE Breakout (green)	Breakout 0-9: breakout indicator. If breakout indicator X is on, the interface indicators are showing the running status of breakout channel X. For example, if breakout indicator 0 is on, interface indicators are showing the running status of breakout channel 0 (if an interface indicator is blinking, breakout channel 0 on this interface is receiving and transmitting data); if breakout indicator 1 is on, interface indicators are showing the running status of breakout channel 1. If the board has breakout interfaces, each breakout indicator for channels 0 to 9 turns on for 5s in sequence to indicate the status of the corresponding channel. To rapidly identify the running status of a specific breakout channel, press the Breakout button to switch to your desired indicator. For example, if you want to check the running status of breakout channel 1 on each interface, press the Breakout button to have breakout indicator 1 turns on.

Table 9-1533 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 7	100GE	CFP2	Interface for	Optical fiber

Interface Name	Interface Type	Connector Type	Description	Cable
			inputting and outputting 100GE optical signals	

Functional Specifications

Table 9-1534 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 1T line-rate forwarding. It supports eight 100G interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1535 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE When optical modules with the BOM number 02311LYG are used, 2x40G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1536 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	584.5 W

Item	Specification
Typical heat dissipation	1896.4 BTU/hour
Weight	11 kg (24.26 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 F to 113 F) Short terms: -5 °C to 55 °C (23 F to 131 F)

9.23.3 8-Port 100GBase-CFP2 Integrated Line Processing Unit L(LPUI-1T-L)

Overview

Table 9-1537 Board attributes

Attribute	Description
Board name silkscreen	LPUI-1T-L 8x100GBase-CFP2-A
Description	8-Port 100GBase-CFP2 Integrated Line Processing Unit L(LPUI-1T-L)
BOM	03057043
Model	CR5D00E8NC7C

Table 9-1538 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R008C10
NE40E-X16A	V800R008C10

Appearance



Panel

Table 9-1539 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.
100GE Breakout button	When you press the button, the Breakout indicators stop status cycling and remain in the current status. Then, each time you press the button, the Breakout indicators' status switches. If you do not press the button in 60s, the Breakout indicators automatically start status cycling.

Table 9-1540 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 7 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
0 to 9 100GE Breakout (green)	Breakout 0-9: breakout indicator. If breakout indicator X is on, the interface indicators are showing the running status of breakout channel X. For example, if breakout indicator 0 is on, interface indicators are showing the running status of breakout channel 0 (if an interface indicator is blinking, breakout channel 0 on this interface is receiving and transmitting data); if breakout indicator 1 is on, interface indicators are showing the running status of breakout channel 1. If the board has breakout interfaces, each breakout indicator for channels 0 to 9 turns on for 5s in sequence to indicate the status of the corresponding channel. To rapidly identify the running status of a specific breakout channel, press the Breakout button to switch to your desired indicator. For example, if you want to check the running status of breakout channel 1 on each interface, press the Breakout button to have breakout indicator 1 turns on.

Table 9-1541 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 7	100GE	CFP2	Interface for	Optical fiber

Interface Name	Interface Type	Connector Type	Description	Cable
			inputting and outputting 100GE optical signals	

Functional Specifications

Table 9-1542 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 1T line-rate forwarding. It supports eight 100G interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1543 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE When optical modules with the BOM number 02311LYG are used, 2x40G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1544 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	584.5 W

Item	Specification
Typical heat dissipation	1896.4 BTU/hour
Weight	11 kg (24.26 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 F to 113 F) Short terms: -5 °C to 55 °C (23 F to 131 F)

9.23.4 8-Port 100G ETH/DWDM-CFP2 Integrated Line Processing Unit(LPUI-1T)

Overview

Table 9-1545 Board attributes

Attribute	Description
Board name silkscreen	LPUI-1T 8x100G ETH/DWDM-CFP2
Description	8-Port 100G ETH/DWDM-CFP2 Integrated Line Processing Unit(LPUI-1T)
BOM	03057725
Model	CR5D00D8NC70

Table 9-1546 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R009C10
NE40E-X16A	V800R009C10

Appearance



Panel

Table 9-1547 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.
100GE Breakout button	When you press the button, the Breakout indicators stop status cycling and remain in the current status. Then, each time you press the button, the Breakout indicators' status switches. If you do not press the button in 60s, the Breakout indicators automatically start status cycling.

Table 9-1548 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 7 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
0 to 9 100GE Breakout (green)	Breakout 0-9: breakout indicator. If breakout indicator X is on, the interface indicators are showing the running status of breakout channel X. For example, if breakout indicator 0 is on, interface indicators are showing the running status of breakout channel 0 (if an interface indicator is blinking, breakout channel 0 on this interface is receiving and transmitting data); if breakout indicator 1 is on, interface indicators are showing the running status of breakout channel 1. If the board has breakout interfaces, each breakout indicator for channels 0 to 9 turns on for 5s in sequence to indicate the status of the corresponding channel. To rapidly identify the running status of a specific breakout channel, press the Breakout button to switch to your desired indicator. For example, if you want to check the running status of breakout channel 1 on each interface, press the Breakout button to have breakout indicator 1 turns on.

Table 9-1549 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 7	100GE	CFP2	Interface for	Optical fiber

Interface Name	Interface Type	Connector Type	Description	Cable
			inputting and outputting 100GE optical signals	

Functional Specifications

Table 9-1550 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports eight 100G interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1551 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE When optical modules with the BOM number 02311LYG are used, 2x40G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1552 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	584.5 W

Item	Specification
Typical heat dissipation	1896.4 BTU/hour
Weight	11 kg (24.26 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 F to 113 F) Short terms: -5 °C to 55 °C (23 F to 131 F)

9.23.5 8-Port 100G ETH/DWDM-CFP2 Integrated Line Processing Unit CM(LPUI-1T-CM)

Overview

Table 9-1553 Board attributes

Attribute	Description
Board name silkscreen	LPUI-1T-PC 8x100G ETH/DWDM-CFP2
Description	8-Port 100G ETH/DWDM-CFP2 Integrated Line Processing Unit CM(LPUI-1T-CM)
BOM	03057693
Model	CR5D00E8NC7P

Table 9-1554 Mapping products and versions

Product	Earliest Software Version
NE40E-X8A	V800R009C10
NE40E-X16A	V800R009C10

Appearance



Panel

Table 9-1555 Buttons

Name	Description
OFL	Board removal button. To remove a board, hold down the OFL button for about 6s until the OFL indicator turns on, and then remove the board.
100GE Breakout button	When you press the button, the Breakout indicators stop status cycling and remain in the current status. Then, each time you press the button, the Breakout indicators' status switches. If you do not press the button in 60s, the Breakout indicators automatically start status cycling.

Table 9-1556 Indicators

Name	Description
OFL (red)	If the indicator is steady on, the board can be removed.
RUN (green)	If the indicator blinks once every 2s (0.5 Hz), the system is running properly. If the indicator blinks twice every second (2 Hz), the board is starting and has not completed registration.
0 to 7 (green)	If the indicator is steady on, the link is Up. If this indicator blinks, data is being transmitted or received. If the indicator is off, the link is Down.
0 to 9 100GE Breakout (green)	Breakout 0-9: breakout indicator. If breakout indicator X is on, the interface indicators are showing the running status of breakout channel X. For example, if breakout indicator 0 is on, interface indicators are showing the running status of breakout channel 0 (if an interface indicator is blinking, breakout channel 0 on this interface is receiving and transmitting data); if breakout indicator 1 is on, interface indicators are showing the running status of breakout channel 1. If the board has breakout interfaces, each breakout indicator for channels 0 to 9 turns on for 5s in sequence to indicate the status of the corresponding channel. To rapidly identify the running status of a specific breakout channel, press the Breakout button to switch to your desired indicator. For example, if you want to check the running status of breakout channel 1 on each interface, press the Breakout button to have breakout indicator 1 turns on.

Table 9-1557 Service interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
0 to 7	100GE	CFP2	Interface for	Optical fiber

Interface Name	Interface Type	Connector Type	Description	Cable
			inputting and outputting 100GE optical signals	

Functional Specifications

Table 9-1558 Functions and features

Functions and Features	Remarks
Line-Rate capability	Supports 1T line-rate forwarding. It supports eight 100G interfaces for line-rate forwarding.
Reliability and availability	Hot swappable.

Technical Specifications

Table 9-1559 Interface specifications

Attribute	Description
Optical type supported	10.22 100Gbps CFP2 Optical Module NOTE When optical modules with the BOM number 02311LYG are used, 2x40G breakout optical fibers are not supported.
Working mode	Full-duplex
Compliant standard	IEEE 802.3
Frame format	Ethernet_II, Ethernet_SAP and Ethernet_SN/AP

Table 9-1560 Board specifications

Item	Specification
Dimensions (H x W x D)	40.1 mm x 399.2 mm x 535.6 mm (1.58 in. x 15.72 in. x 21.09 in.)
Typical power consumption	584.5 W

Item	Specification
Typical heat dissipation	1896.4 BTU/hour
Weight	11 kg (24.26 lb)
Ambient temperature	Long terms: 0 °C to 45 °C (32 °F to 113 °F) Short terms: -5 °C to 55 °C (23 °F to 131 °F)

10 Optical Module

About This Chapter

This chapter presents the optical module.

[10.1 Instructions on How to Use an Optical Module](#)

This section describes instructions on how to use an optical module.

[10.2 Configuring an Optical Attenuator](#)

This section describes how to configure an optical attenuator.

[10.3 155Mbps eSFP Optical Module](#)

[10.4 155Mbps eSFP BIDI Optical Module](#)

[10.5 622Mbps eSFP Optical Module](#)

[10.6 1Gbps Electrical Transceiver](#)

[10.7 1.25Gbps eSFP Optical Module](#)

[10.8 1.25Gbps eSFP BIDI Optical Module](#)

[10.9 1.25Gbps eSFP CWDM Optical Module](#)

[10.10 2.5Gbps eSFP Optical Module](#)

[10.11 125M~2.67Gbps eSFP DWDM Optical Module](#)

[10.12 10Gbps SFP+ Optical Module](#)

[10.13 10Gbps SFP+ CWDM Optical Module](#)

[10.14 10Gbps SFP+ BIDI Optical Module](#)

[10.15 10Gbps SFP+ DWDM Optical Module](#)

[10.16 10Gbps SFP+ OTN Optical Module](#)

[10.17 10Gbps XFP Optical Module](#)

[10.18 10Gbps XFP CWDM Optical Module](#)

[10.19 40Gbps CFP Optical Module](#)

[10.20 40Gbps QSFP+ Optical Module](#)

- [10.21 100Gbps CFP Optical Modules](#)
- [10.22 100Gbps CFP2 Optical Module](#)
- [10.23 100Gbps CFP2 Optical DWDM Module](#)
- [10.24 AE 905S Module](#)

10.1 Instructions on How to Use an Optical Module

This section describes instructions on how to use an optical module.

NOTE

Only optical modules matching Huawei products can be used. These optical modules are strictly tested by Huawei. If non-matching optical modules are used, device requirements may fail to be met, and services may fail to run properly. To replace optical modules, see Parts Replacement-Replacing an Optical Module.

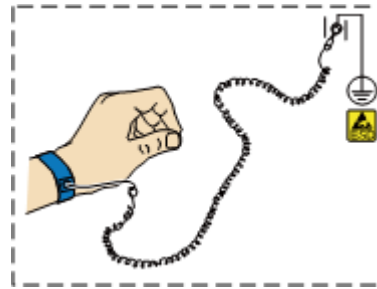
ESD-preventive Measures

Before touching any optical module, wear an ESD wrist strap or ESD gloves. Take full ESD-preventive measures when installing optical apparatus such as optical modules indoors or outdoors.

Methods of wearing ESD gloves



Methods of wearing ESD wrist strap

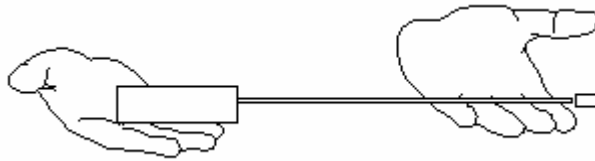


Placing Optical Apparatus and fibers

Do not touch pins or connecting fingers with bare hands. Handle the optical fibers gently. Use two fingers to hold the fiber connector instead of grasping the fiber or the fiber cover.

Do not apply axial or lateral fiber wallopp bumps on the fiber. Do not fold, twist, or crush the tail fiber. Do not drag the tail fiber or press the coupling point of the tail fiber. Figure 10-1 shows how to properly place optical apparatus and fibers.

Figure 10-1 Methods of placing optical apparatus and fibers



NOTE

Install the fiber in circles with diameter longer than 6 cm (0.20 ft).

Uninstalling Optical Apparatus

- Open the buckle and slowly take out the optical apparatus. Do not drag the optical fiber to forcibly take out the optical fiber. Ensure that the optical fiber is connected to and removed from the interface horizontally.

The tab is closed

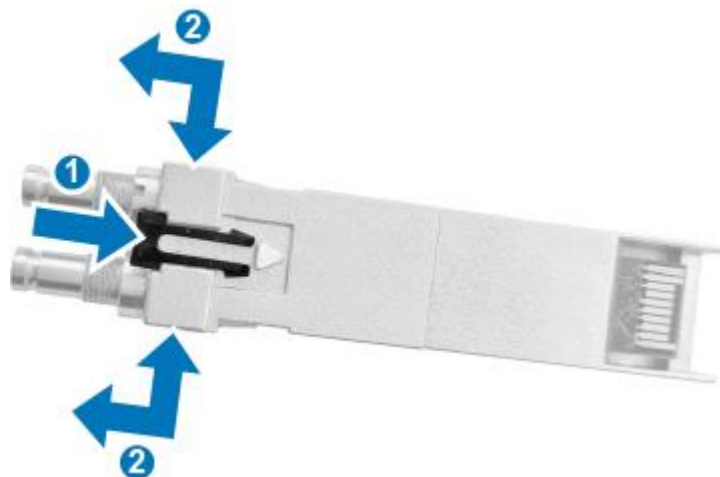


The tab is open



- 155Mbps SFP Electrical Transceiver, in Figure 10-2, (1) shows a black plastic latch. Press the latch to unlock the electrical module. As (2) indicates, hold the two sides of the electrical module to remove it.

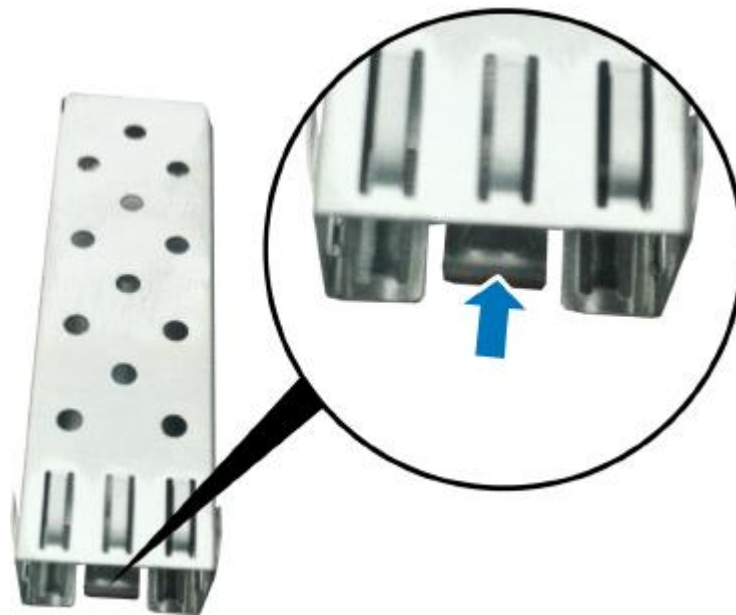
Figure 10-2 Removing a 155 Mbit/s electrical module



Please do not remove the black plastic latch when removing the electrical module.



If the black plastic latch falls off, use an auxiliary tool, such as a pair of tweezers, to press the cage buckle, as shown in the following figure. Then, hold the two sides of the electrical module to remove it.

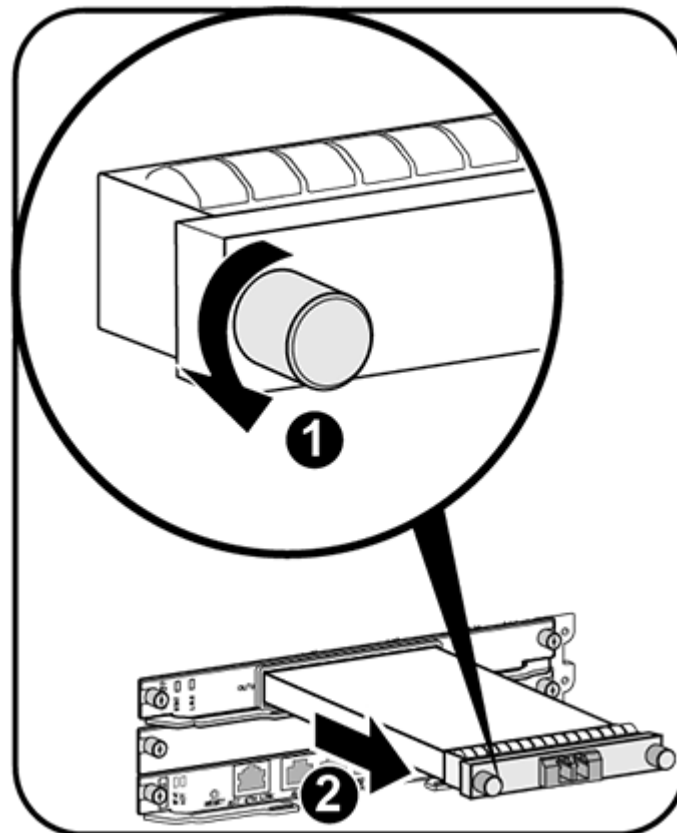


- CFP2 optical module(02311LYG), in Figure 10-3, Push the puller to the bottom until the latch shown in (1) automatically unlocks the optical module. Then, horizontally drag the puller to remove the optical module.

Figure 10-3 Removing a CFP2 optical module



- When removing a CFP optical module, loosen the two screw rods of the module and then remove the module slowly. Do not directly drag the optical fiber to pull out the optical module or forcibly pull out the optical module.



Precautions for the loosened optical module

- When installing an optical module, force it into position. If a crack sound is heard or a slight tremor is felt, it indicates that the latch boss is secured. When the latch boss is not secured, the connecting finger is unstably connected to the connector on the board, and the link may become Up. On the condition that the optical module tremors or collides with another object, however, the optical module will be loosened or the optical signals will be temporarily cut off.
- When inserting the optical module, make sure that the tab is closed. (At this time, the latch boss locks the optical module.) After the optical module is inserted, try pulling it out to see if it is installed in position. If the optical module cannot be pulled out, it is secured.
- If you cannot push the optical module into an optical module cage any longer, the optical module is in good contact with the board connector.
- The CFP optical module is in good contact with the board connector. By then, fasten the captive screws at both ends of the optical module at the same time. If you fasten the captive screws one by one, the optical module may fail to be securely installed.
- When installing a CFP optical module, push the module panel horizontally into the connector using even force with both thumbs. After the module is inserted, push the module slightly to ensure that it has reached the stop position.
- After the CFP optical module is securely inserted, tighten the two screw rods of the module alternately. To prevent the module from getting loosened due to vibration or collision, you are advised to use a screwdriver to tighten the screw rods.

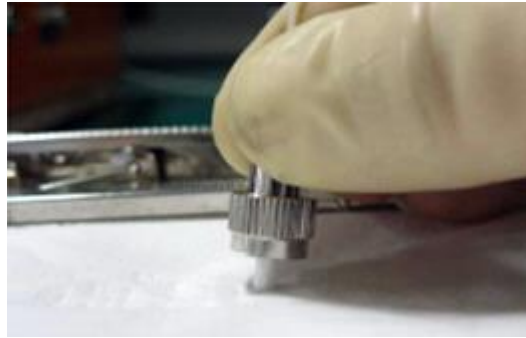
Precautions for receptacle contamination

- Clean tissues must be prepared for deployment on site. You need to clean the optical connector before inserting it in the receptacle. This protects the receptacle against the contamination.



NOTE

Use at least three cleaning tissues. Wipe the end of an optical connector horizontally in one direction, and then move the connector end to the unused part of the cleaning tissue to continue. Generally, one cleaning tissue is used for cleaning an optical connector.



- To prevent contamination, the optical module should be covered with either a dust cap or an optical connector.

Cover an optical module with a dust cap



Cover an optical module with an optical connector



- Lay the optical fibers on the Optical-fiber Distribution Frame (ODF) or coil them up in a fiber management tray. Make sure that the optical fibers are not squeezed.



- If a receptacle or an optical connector has not been used for a long time and has not been covered with a dust cap, you should clean it before using it. A cotton swab is used to clean a receptacle, and a cleaning tissue is used to clean an optical connector.

About optical connector cleaning please refer to *Cleaning Fiber Connectors and Cleaning MT Connectors (MTP/MTRJ) That Have Guide Pins*.

 **NOTE**

During the cleaning process, insert the cotton swab and turn it slowly in the receptacle. Do not use too much force, because the receptacle may be damaged.



- If, for no apparent reason, optical signals are lost during the operation of a device, use the preceding method to clean the receptacle or the optical connector. This will eliminate contamination as the cause of the signal loss.

Precautions for the overload-caused burnt optical module

- When using an OTDR to test the connectivity or the attenuation of optical signals, disconnect the optical connector from the optical module. Otherwise, the optical module may be burnt.
- When performing a self-loop test, use an optical attenuator. Do not loosen the optical connector.
- It is required that a long-distance optical module have an input optical power of less than -7 dBm. If the input optical power is larger than -7 dBm, you need to add an optical attenuator. For example, if the transmitting optical power is X dBm and the optical attenuation is Y dB, the receiving optical power is X-Y, which must be smaller than -7dBm ($X-Y < -7$ dBm).

Other precautions

- The optical connector should be horizontally inserted in the receptacle to avoid damages to the receptacle.



- Mixed use of multi-mode and single-mode optical fibers is prohibited. Otherwise, faults such as signal loss may occur.

Method of distinguishing optical modules in single mode and multi-mode.

Table 10-1 Method of distinguishing optical modules in single mode and multi-mode

Item	Single mode	Multi-mode
Transmission distance	10 km or longer	Below 0.5 km
Wavelength	Non-850 nm	850 nm
Information on the label	SM	MM

10.2 Configuring an Optical Attenuator

This section describes how to configure an optical attenuator.

Calculating the Optical Attenuation

You can calculate the optical attenuation based on the actual optical power.

P(in)min: worst sensitivity, that is, maximum value of the worst sensitivity.

P(out)max: maximum transmit optical power.

S: transmission distance.

A: attenuation coefficient. Note that the attenuation coefficient is related to optical fiber types and wavelengths. By default, the attenuation coefficient of a 1310-nm wavelength in a G.652 fiber is 0.45 dBm/km or 0.4 dBm/km; the attenuation coefficient

P(in)min: worst sensitivity, that is, maximum value of the worst sensitivity.

of a 1550-nm wavelength in a G.652 fiber is 0.235 dBm/km or 0.25 dBm/km.

P(in)max: maximum receive optical power, that is, minimum overload point.

The principle for determining whether an attenuator needs to be configured at a transmission point is as follows:

If $P(\text{out})_{\text{max}} - S \times \text{Attenuation coefficient} > P(\text{in})_{\text{max}}$, an attenuator needs to be configured.

The optical attenuation is calculated in the following formula: $T = P(\text{out})_{\text{max}} - S \times \text{Attenuation coefficient} - P(\text{in})_{\text{max}}$.

Table 10-2 Reference for configuring an attenuator

BOM Number	Description	P(out) max	P(out) min	P(in) min	P(in) max
34060276	eSFP,1310nm,STM1,LC,SM,15km	-8 dBm	-15 dBm	-31 dBm	-8 dBm



NOTE

If P(in)max of an optical module equals P(out)max, you do not need to configure an attenuator.

You can choose the 5 dBm and 10 dBm attenuators for optical modules on the device.

BOM Number and Description of Attenuators

Table 10-3 BOM number and description of attenuators

BOM Number	Description
45030021	Fixed Optical Attenuator,1260nm~1620nm-5dB-LC/PC-45dB
45030022	Fixed Optical Attenuator,1260nm~1620nm-10dB-LC/PC-45dB



NOTE

This table is for reference only. BOM numbers of attenuators vary with configuration documents.

10.3 155Mbps eSFP Optical Module

Figure 10-4 155Mbps eSFP Optical Module



10.3.1 155Mbps-eSFP-MMF-1310nm-2km-commercial

Table 10-4 Technical specifications

Item	Specification
BOM	S4015731
Model	SFP-FE-SX-MM1310
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-1
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	-
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M
Connector type	LC
Transmission distance (km)	2
Optical fiber type	MMF
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1270-1380

Item	Specification
Maximum sending optical power (AVG) (dBm)	-14
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-19
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1270-1380
Receiving sensitivity (AVG) (dBm)	-30
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-14
Minimum extinction ratio (dB)	10

10.3.2 155Mbps-eSFP-SMF-1310nm-15km-commercial

Table 10-5 Technical specifications

Item	Specification
BOM	S4015755
Model	eSFP-FE-LX-SM1310
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-1
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M
Connector type	LC
Transmission distance (km)	15
Optical fiber type	SMF

Item	Specification
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1261-1360
Maximum sending optical power (AVG) (dBm)	-8
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-15
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1580
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.3.3 155Mbps-eSFP-SMF-1310nm-40km-commercial

Table 10-6 Technical specifications

Item	Specification
BOM	S4015715
Model	eSFP-FE-LH40-SM1310
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-1
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M

Item	Specification
Connector type	LC
Transmission distance (km)	40
Optical fiber type	SMF
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1263-1360
Maximum sending optical power (AVG) (dBm)	0
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-5
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1263-1360
Receiving sensitivity (AVG) (dBm)	-34
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-10
Minimum extinction ratio (dB)	10.5

10.3.4 155Mbps-eSFP-SMF-1550nm-80km-commercial

Table 10-7 Technical specifications

Item	Specification
BOM	34060282
Model	eSFP-FE-LH80-SM1550
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-1
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS

Item	Specification
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1550
Working wavelength range of the optical transmitter (nm)	1480-1580
Maximum sending optical power (AVG) (dBm)	0
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-5
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1263-1580
Receiving sensitivity (AVG) (dBm)	-34
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-10
Minimum extinction ratio (dB)	10.5

10.4 155Mbps eSFP BIDI Optical Module

Figure 10-5 155Mbps eSFP BIDI Optical Module



10.4.1 155Mbps-eSFP-SM-1310nm-15km-commercial

Table 10-8 Technical specifications

Item	Specification
BOM	02310QNG
Model	OSC015B01
Encapsulation mode	eSFP
Interface standard	IEEE 802.3, 100BASE-BX10-U
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M
Connector type	LC
Transmission distance (km)	15
Optical fiber type	SMF
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1260-1360

Item	Specification
Maximum sending optical power (AVG) (dBm)	-8
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-14
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1480-1580
Receiving sensitivity (AVG) (dBm)	-32
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.5

10.4.2 155Mbps-eSFP-SM-1550nm-15km-commercial

Table 10-9 Technical specifications

Item	Specification
BOM	02310QNH
Model	OSC015B02
Encapsulation mode	eSFP
Interface standard	IEEE 802.3, 100BASE-BX10-D
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M
Connector type	LC
Transmission distance (km)	15
Optical fiber type	SMF

Item	Specification
Center wavelength (nm)	1550
Working wavelength range of the optical transmitter (nm)	1480-1580
Maximum sending optical power (AVG) (dBm)	-8
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-14
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1360
Receiving sensitivity (AVG) (dBm)	-32
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.5

10.5 622Mbps eSFP Optical Module

Figure 10-6 622Mbps eSFP Optical Module



10.5.1 622Mbps-eSFP-SMF-1310nm-15km-commercial

Table 10-10 Technical specifications

Item	Specification
BOM	S4015760
Model	OSH015N05
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-4
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	622M
Connector type	LC
Transmission distance (km)	15
Optical fiber type	SMF
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1274-1356
Maximum sending optical power (AVG) (dBm)	-8
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-15
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1580
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.5

10.5.2 622Mbps-eSFP-SMF-1310nm-40km-commercial

Table 10-11 Technical specifications

Item	Specification
BOM	34060280
Model	eSFP-1310nm-L-4.1
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-4
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	622M
Connector type	LC
Transmission distance (km)	40
Optical fiber type	SMF
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1296-1330
Maximum sending optical power (AVG) (dBm)	2
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-3
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1296-1330
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8

Item	Specification
Minimum extinction ratio (dB)	10.5

10.5.3 622Mbps-eSFP-SMF-1550nm-80km-commercial

Table 10-12 Technical specifications

Item	Specification
BOM	34060284
Model	eSFP-1550nm-L-4.2
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-4
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	622M
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1550
Working wavelength range of the optical transmitter (nm)	1480-1580
Maximum sending optical power (AVG) (dBm)	2
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-3
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1580

Item	Specification
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	10.5

10.6 1Gbps Electrical Transceiver

Figure 10-7 1Gbps Electrical Transceiver



10.6.1 1Gbps-SFP-100m-industry

Table 10-13 Technical specifications

Item	Specification
BOM	02310RAV
Model	OEGD01N01
Encapsulation mode	SFP
Interface standard	IEEE 802.3, 1000Base-T
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	-40 °C to 85 °C (-40 °F to 185 °F)
Digital diagnosis	-
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1

Item	Specification
ESD(HBM1) (V)	500
Transmission rate (bit/s)	10M/100M/1000M
Connector type	RJ45
Transmission distance (km)	0.1

10.7 1.25Gbps eSFP Optical Module

Figure 10-8 1.25Gbps eSFP Optical Module



10.7.1 1.25Gbps-eSFP-MMF-850nm-500m-extended

Table 10-14 Technical specifications

Item	Specification
BOM	34060286
Model	eSFP-850nm-1000Base-Sx/FC200MM
Encapsulation mode	eSFP
Interface standard	IEEE 802.3, 1000BASE-SX
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	-20 °C to 85 °C (-4 °F to 185 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1

Item	Specification
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	0.5(OM1)
Optical fiber type	MMF
Center wavelength (nm)	850
Working wavelength range of the optical transmitter (nm)	770-860
Maximum sending optical power (AVG) (dBm)	0
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-9.5
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	760-860
Receiving sensitivity (AVG) (dBm)	-17
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	0
Minimum extinction ratio (dB)	9

10.7.2 1.25Gbps-eSFP-SMF-1310nm-10km-commercial

Table 10-15 Technical specifications

Item	Specification
BOM	S4016067
Model	OSG010N05
Encapsulation mode	eSFP
Interface standard	IEEE 802.3, 1000BASE-LX10
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)

Item	Specification
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	10
Optical fiber type	SMF
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1270-1355
Maximum sending optical power (AVG) (dBm)	-3
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-9
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1270-1355
Receiving sensitivity (AVG) (dBm)	-20
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-3
Minimum extinction ratio (dB)	9.5

10.7.3 1.25Gbps-eSFP-SMF-1310nm-40km-commercial

Table 10-16 Technical specifications

Item	Specification
BOM	S4016954
Model	OSG040002
Encapsulation mode	eSFP

Item	Specification
Interface standard	IEEE 802.3, 1000BASE-EX
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	40
Optical fiber type	SMF
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1275-1350
Maximum sending optical power (AVG) (dBm)	0
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-5
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1580
Receiving sensitivity (AVG) (dBm)	-23
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-3
Minimum extinction ratio (dB)	9.5

10.7.4 1.25Gbps-eSFP-SMF-1550nm-80km-commercial

Table 10-17 Technical specifications

Item	Specification
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Item	Specification
BOM	34060360
Model	eSFP-1550nm-1000Base-Zx/FC100
Encapsulation mode	eSFP
Interface standard	IEEE 802.3, 1000BASE-ZX
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1550
Working wavelength range of the optical transmitter (nm)	1500-1580
Maximum sending optical power (AVG) (dBm)	5
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-2
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1580
Receiving sensitivity (AVG) (dBm)	-23
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-3
Minimum extinction ratio (dB)	9
Note	The interface standard is Huawei-specific.

10.7.5 1.25Gbps-eSFP-SMF-1550nm-100km-commercial

Table 10-18 Technical specifications

Item	Specification
BOM	34060295
Model	eSFP-GE-ZX100-SM1550
Encapsulation mode	eSFP
Interface standard	IEEE 802.3, 1000BASE-ZX
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	100
Optical fiber type	SMF
Center wavelength (nm)	1550
Working wavelength range of the optical transmitter (nm)	1500-1580
Maximum sending optical power (AVG) (dBm)	5
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1580
Receiving sensitivity (AVG) (dBm)	-30
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-9
Minimum extinction ratio (dB)	9.5

Item	Specification
Note	The interface standard is Huawei-specific.

10.8 1.25Gbps eSFP BIDI Optical Module

Figure 10-9 1.25Gbps eSFP BIDI Optical Module



10.8.1 1.25Gbps-eSFP-SMF-1310nm-10km-commercial

Table 10-19 Technical specifications

Item	Specification
BOM	34060470
Model	SFP-GE-LX-SM1310-BIDI
Encapsulation mode	eSFP
Interface standard	IEEE 802.3ah, 1000Base-BX10-U
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	10

Item	Specification
Optical fiber type	SMF
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1260-1360
Maximum sending optical power (AVG) (dBm)	-3
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-9
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1480-1500
Receiving sensitivity (AVG) (dBm)	-19.5
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-3
Minimum extinction ratio (dB)	6

10.8.2 1.25Gbps-eSFP-SMF-1490nm-10km-commercial

Table 10-20 Technical specifications

Item	Specification
BOM	34060475
Model	SFP-GE-LX-SM1490-BIDI
Encapsulation mode	eSFP
Interface standard	IEEE 802.3ah, 1000Base-BX10-D
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500

Item	Specification
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	10
Optical fiber type	SMF
Center wavelength (nm)	1490
Working wavelength range of the optical transmitter (nm)	1480-1500
Maximum sending optical power (AVG) (dBm)	-3
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-9
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1360
Receiving sensitivity (AVG) (dBm)	-19.5
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-3
Minimum extinction ratio (dB)	6

10.8.3 1.25Gbps-eSFP-SMF-1310nm-40km-commercial

Table 10-21 Technical specifications

Item	Specification
BOM	34060638
Model	eSFP-1310/1550-L1.1-BIDI
Encapsulation mode	eSFP
Interface standard	IEEE 802.3ah, 1000Base-BX40-U
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	-5 °C to 70 °C (23 °F to 158 °F)
Digital diagnosis	SFF-8472

Item	Specification
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	40
Optical fiber type	SMF
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1260-1360
Maximum sending optical power (AVG) (dBm)	2
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-3
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1480-1580
Receiving sensitivity (AVG) (dBm)	-25
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-3
Minimum extinction ratio (dB)	9

10.8.4 1.25Gbps-eSFP-SMF-1550nm-40km-commercial

Table 10-22 Technical specifications

Item	Specification
BOM	34060639
Model	eSFP-1550/1310-L1.1-BIDI
Encapsulation mode	eSFP
Interface standard	IEEE 802.3ah, 1000Base-BX40-D

Item	Specification
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	-5 °C to 70 °C (23 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	40
Optical fiber type	SMF
Center wavelength (nm)	1550
Working wavelength range of the optical transmitter (nm)	1530-1580
Maximum sending optical power (AVG) (dBm)	2
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-3
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1360
Receiving sensitivity (AVG) (dBm)	-25
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-3
Minimum extinction ratio (dB)	9

10.8.5 1.25Gbps-eSFP-SMF-1490nm-40km-commercial

Table 10-23 Technical specifications

Item	Specification
BOM	34060540

Item	Specification
Model	OGEBIDI40
Encapsulation mode	eSFP
Interface standard	IEEE 802.3ah, 1000Base-BX40-D
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	40
Optical fiber type	SMF
Center wavelength (nm)	1490
Working wavelength range of the optical transmitter (nm)	1480-1500
Maximum sending optical power (AVG) (dBm)	3
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-2
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1360
Receiving sensitivity (AVG) (dBm)	-
Receiving sensitivity (OMA) (dBm)	-23
Saturated optical power (dBm)	-3 -3(Stressed OMA, EOL)
Minimum extinction ratio (dB)	9

10.8.6 1.25Gbps-eSFP-SMF-1310nm-40km-commercial

Table 10-24 Technical specifications

Item	Specification
BOM	34060539
Model	OGEBIDI41
Encapsulation mode	eSFP
Interface standard	IEEE 802.3ah, 1000Base-BX40-U
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	40
Optical fiber type	SMF
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1260-1360
Maximum sending optical power (AVG) (dBm)	3
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-2
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1480-1500
Receiving sensitivity (AVG) (dBm)	-
Receiving sensitivity (OMA) (dBm)	-23
Saturated optical power (dBm)	-3 -3(Stressed OMA, EOL)

Item	Specification
Minimum extinction ratio (dB)	9

10.8.7 1.25Gbps-eSFP-SMF-1570nm-80km-commercial

Table 10-25 Technical specifications

Item	Specification
BOM	34060595
Model	OGEBIDI80
Encapsulation mode	eSFP
Interface standard	IEEE 802.3ah, 1000Base-BX80-D
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1570
Working wavelength range of the optical transmitter (nm)	1560-1580
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-2
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1480-1500

Item	Specification
Receiving sensitivity (AVG) (dBm)	-26
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-3
Minimum extinction ratio (dB)	9

10.8.8 1.25Gbps-eSFP-SMF-1490nm-80km-commercial

Table 10-26 Technical specifications

Item	Specification
BOM	34060596
Model	OGE8BI81
Encapsulation mode	eSFP
Interface standard	IEEE 802.3ah, 1000Base-BX80-U
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1490
Working wavelength range of the optical transmitter (nm)	1480-1500
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-2

Item	Specification
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1560-1580
Receiving sensitivity (AVG) (dBm)	-26
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-3
Minimum extinction ratio (dB)	9

10.9 1.25Gbps eSFP CWDM Optical Module

Figure 10-10 1.25Gbps eSFP CWDM Optical Module



10.9.1 1.25Gbps-eSFP-SMF-1571nm-80km-commercial

Table 10-27 Technical specifications

Item	Specification
BOM	34060476
Model	eSFP-LH80-SM1571
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-16
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)

Item	Specification
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1571
Working wavelength range of the optical transmitter (nm)	1564.5-1577.5
Maximum sending optical power (AVG) (dBm)	5
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1620
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-9
Minimum extinction ratio (dB)	8.5

10.9.2 1.25Gbps-eSFP-SMF-1591nm-80km-commercial

Table 10-28 Technical specifications

Item	Specification
BOM	34060477
Model	eSFP-LH80-SM1591
Encapsulation mode	eSFP

Item	Specification
Interface standard	ITU-T G.957, STM-16
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1591
Working wavelength range of the optical transmitter (nm)	1584.5-1597.5
Maximum sending optical power (AVG) (dBm)	5
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1620
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-9
Minimum extinction ratio (dB)	8.5

10.9.3 1.25Gbps-eSFP-SMF-1551nm-80km-commercial

Table 10-29 Technical specifications

Item	Specification
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Item	Specification
BOM	34060478
Model	eSFP-LH80-SM1551
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-16
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1551
Working wavelength range of the optical transmitter (nm)	1544.5-1557.5
Maximum sending optical power (AVG) (dBm)	5
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1620
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-9
Minimum extinction ratio (dB)	8.5

10.9.4 1.25Gbps-eSFP-SMF-1511nm-80km-commercial

Table 10-30 Technical specifications

Item	Specification
BOM	34060479
Model	eSFP-LH80-SM1511
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-16
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1511
Working wavelength range of the optical transmitter (nm)	1504.5-1517.5
Maximum sending optical power (AVG) (dBm)	5
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1620
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-9
Minimum extinction ratio (dB)	8.5

10.9.5 1.25Gbps-eSFP-SMF-1611nm-80km-commercial

Table 10-31 Technical specifications

Item	Specification
BOM	34060480
Model	eSFP-LH80-SM1611
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-16
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1611
Working wavelength range of the optical transmitter (nm)	1604.5-1617.5
Maximum sending optical power (AVG) (dBm)	5
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1620
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-9

Item	Specification
Minimum extinction ratio (dB)	8.5

10.9.6 1.25Gbps-eSFP-SMF-1491nm-80km-commercial

Table 10-32 Technical specifications

Item	Specification
BOM	34060481
Model	eSFP-LH80-SM1491
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-16
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1491
Working wavelength range of the optical transmitter (nm)	1484.5-1497.5
Maximum sending optical power (AVG) (dBm)	5
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1620

Item	Specification
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-9
Minimum extinction ratio (dB)	8.5

10.9.7 1.25Gbps-eSFP-SMF-1531nm-80km-commercial

Table 10-33 Technical specifications

Item	Specification
BOM	34060482
Model	eSFP-LH80-SM1531
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-16
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1531
Working wavelength range of the optical transmitter (nm)	1524.5-1537.5
Maximum sending optical power (AVG) (dBm)	5
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0

Item	Specification
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1620
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-9
Minimum extinction ratio (dB)	8.5

10.9.8 1.25Gbps-eSFP-SMF-1471nm-80km-commercial

Table 10-34 Technical specifications

Item	Specification
BOM	34060483
Model	eSFP-LH80-SM1471
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-16
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	1.25G
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1471
Working wavelength range of the optical transmitter (nm)	1464.5-1477.5
Maximum sending optical power (AVG) (dBm)	5

Item	Specification
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1620
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-9
Minimum extinction ratio (dB)	8.5

10.10 2.5Gbps eSFP Optical Module

Figure 10-11 2.5Gbps eSFP Optical Module



10.10.1 2.5Gbps-eSFP-SMF-1310nm-2km-commercial

Table 10-35 Technical specifications

Item	Specification
BOM	34060484
Model	eSFP-1310nm-155M-2.5G-LC-SM-2km

Item	Specification
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-16
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	2.5G
Connector type	LC
Transmission distance (km)	2
Optical fiber type	SMF
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1266-1360
Maximum sending optical power (AVG) (dBm)	-3
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-10
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1200-1650
Receiving sensitivity (AVG) (dBm)	-18
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-3
Minimum extinction ratio (dB)	8.5

10.10.2 2.5Gbps-eSFP-SMF-1310nm-15km-commercial

Table 10-36 Technical specifications

Item	Specification
BOM	34060485
Model	eSFP-SM1310-155M~2.5G-15km
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-16
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	2.5G
Connector type	LC
Transmission distance (km)	15
Optical fiber type	SMF
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1260-1360
Maximum sending optical power (AVG) (dBm)	0
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-5
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1250-1620
Receiving sensitivity (AVG) (dBm)	-18
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	0
Minimum extinction ratio (dB)	8.5

10.10.3 2.5Gbps-eSFP-SMF-1310nm-40km-commercial

Table 10-37 Technical specifications

Item	Specification
BOM	34060289
Model	eSFP-1310nm-L-16.1
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-16
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	2.5G
Connector type	LC
Transmission distance (km)	40
Optical fiber type	SMF
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1280-1335
Maximum sending optical power (AVG) (dBm)	3
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-2
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1580
Receiving sensitivity (AVG) (dBm)	-27
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-9

Item	Specification
Minimum extinction ratio (dB)	8.2

10.10.4 2.5Gbps-eSFP-SMF-1550nm-80km-commercial

Table 10-38 Technical specifications

Item	Specification
BOM	34060488
Model	eSFP-1550nm-L-16.2
Encapsulation mode	eSFP
Interface standard	ITU-T G.957, STM-16
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	2.5G
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1550
Working wavelength range of the optical transmitter (nm)	1500-1580
Maximum sending optical power (AVG) (dBm)	3
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-2
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1200-1650

Item	Specification
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-9
Minimum extinction ratio (dB)	8.2

10.11 125M~2.67Gbps eSFP DWDM Optical Module

Figure 10-12 125M~2.67Gbps eSFP DWDM Optical Module



10.11.1 125M~2.67Gbps-eSFP-SMF-1560.61nm-120km-commercial

Table 10-39 Technical specifications

Item	Specification
BOM	34060366
Model	eSFP-LH120-SM192.10
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1

Item	Specification
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1560.61
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.2 125M~2.67Gbps-eSFP-SMF-1559.79nm-120km-commercial

Table 10-40 Technical specifications

Item	Specification
BOM	34060372
Model	eSFP-LH120-SM192.20
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)

Item	Specification
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1559.79
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.3 125M~2.67Gbps-eSFP-SMF-1558.98nm-120km-commercial

Table 10-41 Technical specifications

Item	Specification
BOM	34060373
Model	eSFP-LH120-SM192.30
Encapsulation mode	eSFP

Item	Specification
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1558.98
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.4 125M~2.67Gbps-eSFP-SMF-1558.17nm-120km-commercial

Table 10-42 Technical specifications

Item	Specification
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Item	Specification
BOM	34060374
Model	eSFP-LH120-SM192.40
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1558.17
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.5 125M~2.67Gbps-eSFP-SMF-1557.36nm-120km-commercial

Table 10-43 Technical specifications

Item	Specification
BOM	34060375
Model	eSFP-LH120-SM192.50
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1557.36
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.6 125M~2.67Gbps-eSFP-SMF-1556.55nm-120km-commercial

Table 10-44 Technical specifications

Item	Specification
BOM	34060376
Model	eSFP-LH120-SM192.60
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1556.55
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8

Item	Specification
Minimum extinction ratio (dB)	8.2

10.11.7 125M~2.67Gbps-eSFP-SMF-1555.75nm-120km-commercial

Table 10-45 Technical specifications

Item	Specification
BOM	34060377
Model	eSFP-LH120-SM192.70
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1555.75
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570

Item	Specification
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.8 125M~2.67Gbps-eSFP-SMF-1554.94nm-120km-commercial

Table 10-46 Technical specifications

Item	Specification
BOM	34060378
Model	eSFP-LH120-SM192.80
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, igabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1554.94
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0

Item	Specification
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.9 125M~2.67Gbps-eSFP-SMF-1554.13nm-120km-commercial

Table 10-47 Technical specifications

Item	Specification
BOM	34060379
Model	eSFP-LH120-SM192.90
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1554.13
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4

Item	Specification
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.10 125M~2.67Gbps-eSFP-SMF-1553.33nm-120km-commercial 1

Table 10-48 Technical specifications

Item	Specification
BOM	34060380
Model	eSFP-LH120-SM193.00
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF

Item	Specification
Center wavelength (nm)	1553.33
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.11 125M~2.67Gbps-eSFP-SMF-1552.52nm-120km-commercial

Table 10-49 Technical specifications

Item	Specification
BOM	34060381
Model	eSFP-LH120-SM193.10
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500

Item	Specification
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1552.52
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.12 125M~2.67Gbps-eSFP-SMF-1551.72nm-120km-commercial

Table 10-50 Technical specifications

Item	Specification
BOM	34060382
Model	eSFP-LH120-SM193.20
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)

Item	Specification
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1551.72
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.13 125M~2.67Gbps-eSFP-SMF-1550.92nm-120km-commercial

Table 10-51 Technical specifications

Item	Specification
BOM	34060383
Model	eSFP-LH120-SM193.30

Item	Specification
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1550.92
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.14 125M~2.67Gbps-eSFP-SMF-1550.12nm-120km-commercial

Table 10-52 Technical specifications

Item	Specification
BOM	34060384
Model	eSFP-LH120-SM193.40
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1550.12
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8

Item	Specification
Minimum extinction ratio (dB)	8.2

10.11.15 125M~2.67Gbps-eSFP-SMF-1549.32nm-120km-commercial

Table 10-53 Technical specifications

Item	Specification
BOM	34060385
Model	eSFP-LH120-SM193.50
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1549.32
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical	1520-1570

Item	Specification
receiver (nm)	
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.16 125M~2.67Gbps-eSFP-SMF-1548.51nm-120km-commercial

Table 10-54 Technical specifications

Item	Specification
BOM	34060386
Model	eSFP-LH120-SM193.60
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1548.51
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-

Item	Specification
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.17 125M~2.67Gbps-eSFP-SMF-1547.72nm-120km-commercial 1

Table 10-55 Technical specifications

Item	Specification
BOM	34060387
Model	eSFP-LH120-SM193.70
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1547.72
Working wavelength range of the optical	-

Item	Specification
transmitter (nm)	
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.18 125M~2.67Gbps-eSFP-SMF-1546.92nm-120km-commercial 1

Table 10-56 Technical specifications

Item	Specification
BOM	34060388
Model	eSFP-LH120-SM193.80
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC

Item	Specification
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1546.92
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.19 125M~2.67Gbps-eSFP-SMF-1546.12nm-120km-commercial

Table 10-57 Technical specifications

Item	Specification
BOM	34060389
Model	eSFP-LH120-SM193.90
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS

Item	Specification
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1546.12
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.20 125M~2.67Gbps-eSFP-SMF-1545.32nm-120km-commercial

Table 10-58 Technical specifications

Item	Specification
BOM	34060390
Model	eSFP-LH120-SM194.00
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet

Item	Specification
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1545.32
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.21 125M~2.67Gbps-eSFP-SMF-1544.53nm-120km-commercial

Table 10-59 Technical specifications

Item	Specification
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Item	Specification
BOM	34060391
Model	eSFP-LH120-SM194.10
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1544.53
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.22 125M~2.67Gbps-eSFP-SMF-1543.73nm-120km-commercial

Table 10-60 Technical specifications

Item	Specification
BOM	34060392
Model	eSFP-LH120-SM194.20
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1543.73
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8

Item	Specification
Minimum extinction ratio (dB)	8.2

10.11.23 125M~2.67Gbps-eSFP-SMF-1542.94nm-120km-commercial

Table 10-61 Technical specifications

Item	Specification
BOM	34060393
Model	eSFP-LH120-SM194.30
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1542.94
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical	1520-1570

Item	Specification
receiver (nm)	
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.24 125M~2.67Gbps-eSFP-SMF-1542.14nm-120km-commercial

Table 10-62 Technical specifications

Item	Specification
BOM	34060394
Model	eSFP-LH120-SM194.40
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1542.14
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-

Item	Specification
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.25 125M~2.67Gbps-eSFP-SMF-1541.35nm-120km-commercial 1

Table 10-63 Technical specifications

Item	Specification
BOM	34060395
Model	eSFP-LH120-SM194.50
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1541.35
Working wavelength range of the optical	-

Item	Specification
transmitter (nm)	
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.26 125M~2.67Gbps-eSFP-SMF-1540.56nm-120km-commercial 1

Table 10-64 Technical specifications

Item	Specification
BOM	34060396
Model	eSFP-LH120-SM194.60
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC

Item	Specification
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1540.56
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.27 125M~2.67Gbps-eSFP-SMF-1539.77nm-120km-commercial

Table 10-65 Technical specifications

Item	Specification
BOM	34060397
Model	eSFP-LH120-SM194.70
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS

Item	Specification
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1539.77
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.28 125M~2.67Gbps-eSFP-SMF-1538.98nm-120km-commercial

Table 10-66 Technical specifications

Item	Specification
BOM	34060398
Model	eSFP-LH120-SM194.80
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet

Item	Specification
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1538.98
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.29 125M~2.67Gbps-eSFP-SMF-1538.19nm-120km-commercial

Table 10-67 Technical specifications

Item	Specification
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Item	Specification
BOM	34060399
Model	eSFP-LH120-SM194.90
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1538.19
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.30 125M~2.67Gbps-eSFP-SMF-1537.40nm-120km-commercial

Table 10-68 Technical specifications

Item	Specification
BOM	34060400
Model	eSFP-LH120-SM195.00
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1537.4
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8

Item	Specification
Minimum extinction ratio (dB)	8.2

10.11.31 125M~2.67Gbps-eSFP-SMF-1536.61nm-120km-commercial

Table 10-69 Technical specifications

Item	Specification
BOM	34060401
Model	eSFP-LH120-SM195.10
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1536.61
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical	1520-1570

Item	Specification
receiver (nm)	
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.32 125M~2.67Gbps-eSFP-SMF-1535.82nm-120km-commercial

Table 10-70 Technical specifications

Item	Specification
BOM	34060402
Model	eSFP-LH120-SM195.20
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1535.82
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-

Item	Specification
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.33 125M~2.67Gbps-eSFP-SMF-1535.04nm-120km-commercial 1

Table 10-71 Technical specifications

Item	Specification
BOM	34060403
Model	eSFP-LH120-SM195.30
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1535.04
Working wavelength range of the optical	-

Item	Specification
transmitter (nm)	
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.34 125M~2.67Gbps-eSFP-SMF-1534.25nm-120km-commercial 1

Table 10-72 Technical specifications

Item	Specification
BOM	34060404
Model	eSFP-LH120-SM195.40
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC

Item	Specification
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1534.25
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.35 125M~2.67Gbps-eSFP-SMF-1533.47nm-120km-commercial

Table 10-73 Technical specifications

Item	Specification
BOM	34060405
Model	eSFP-LH120-SM195.50
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS

Item	Specification
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1533.47
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.36 125M~2.67Gbps-eSFP-SMF-1532.68nm-120km-commercial

Table 10-74 Technical specifications

Item	Specification
BOM	34060406
Model	eSFP-LH120-SM195.60
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet

Item	Specification
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1532.68
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.37 125M~2.67Gbps-eSFP-SMF-1531.90nm-120km-commercial

Table 10-75 Technical specifications

Item	Specification
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Item	Specification
BOM	34060407
Model	eSFP-LH120-SM195.70
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1531.9
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.38 125M~2.67Gbps-eSFP-SMF-1531.12nm-120km-commercial

Table 10-76 Technical specifications

Item	Specification
BOM	34060408
Model	eSFP-LH120-SM195.80
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1531.12
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8

Item	Specification
Minimum extinction ratio (dB)	8.2

10.11.39 125M~2.67Gbps-eSFP-SMF-1530.33nm-120km-commercial

Table 10-77 Technical specifications

Item	Specification
BOM	34060409
Model	eSFP-LH120-SM195.90
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1530.33
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical	1520-1570

Item	Specification
receiver (nm)	
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.11.40 125M~2.67Gbps-eSFP-SMF-1529.55nm-120km-commercial

Table 10-78 Technical specifications

Item	Specification
BOM	34060410
Model	eSFP-LH120-SM196.00
Encapsulation mode	eSFP
Interface standard	SONET OC-48 LR-2, Gigabit Ethernet
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	155M~2.67G
Connector type	LC
Transmission distance (km)	120
Optical fiber type	SMF
Center wavelength (nm)	1529.55
Working wavelength range of the optical transmitter (nm)	-
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-

Item	Specification
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1520-1570
Receiving sensitivity (AVG) (dBm)	-28
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-8
Minimum extinction ratio (dB)	8.2

10.12 10Gbps SFP+ Optical Module

Figure 10-13 10Gbps SFP+ Optical Module



10.12.1 10Gbps-SFP+-MMF-850nm-0.3km-commercial

Table 10-79 Technical specifications

Item	Specification
BOM	S4017482
Model	OSX040N03
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-SR/SW
Bit Error Ratio (BER)	<1x10E-12

Item	Specification
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	0.3(OM3)
Optical fiber type	MMF
Center wavelength (nm)	850
Working wavelength range of the optical transmitter (nm)	840-860
Maximum sending optical power (AVG) (dBm)	-1
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-7.3
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	840-860
Receiving sensitivity (AVG) (dBm)	-9.9
Receiving sensitivity (OMA) (dBm)	-11.1
Saturated optical power (dBm)	-1
Minimum extinction ratio (dB)	3

10.12.2 10Gbps-SFP+-SMF-1310nm-10km-commercial

Table 10-80 Technical specifications

Item	Specification
BOM	S4017483
Model	OSX001002

Item	Specification
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-LR/LW
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	10
Optical fiber type	SMF
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1260-1355
Maximum sending optical power (AVG) (dBm)	0.5
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-8.2
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1355
Receiving sensitivity (AVG) (dBm)	-14.4
Receiving sensitivity (OMA) (dBm)	-12.6
Saturated optical power (dBm)	0.5
Minimum extinction ratio (dB)	3.5

10.12.3 10Gbps-SFP+-SMF-1550nm-40km-commercial

Table 10-81 Technical specifications

Item	Specification
BOM	S4017484
Model	OMXD30002
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-ER/EW
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	40
Optical fiber type	SMF
Center wavelength (nm)	1550
Working wavelength range of the optical transmitter (nm)	1530-1565
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-4.7
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1530-1565
Receiving sensitivity (AVG) (dBm)	-15.8
Receiving sensitivity (OMA) (dBm)	-14.1
Saturated optical power (dBm)	-1
Minimum extinction ratio (dB)	3

Item	Specification
Note	Self-loop is not supported. An optical attenuator must be added if self-loop is required.

10.12.4 10Gbps-SFP+-SMF-1550nm-80km-commercial

Table 10-82 Technical specifications

Item	Specification
BOM	02310PVU
Model	OSX080N04
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-ZR/ZW
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1550
Working wavelength range of the optical transmitter (nm)	1530-1565
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical	1260-1565

Item	Specification
receiver (nm)	
Receiving sensitivity (AVG) (dBm)	-24
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	9
Note	The interface standard is Huawei-specific. Self-loop is not supported. An optical attenuator must be added if self-loop is required.

10.13 10Gbps SFP+ CWDM Optical Module

Figure 10-14 10Gbps SFP+ CWDM Optical Module



10.13.1 10Gbps-SFP+-SMF-1511nm-70km-commercial

Table 10-83 Technical specifications

Item	Specification
BOM	34060686
Model	OSX070001
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-X
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)

Item	Specification
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	70
Optical fiber type	SMF
Center wavelength (nm)	1511
Working wavelength range of the optical transmitter (nm)	1504.5-1517.5
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1460-1620
Receiving sensitivity (AVG) (dBm)	-23
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	8.2

10.13.2 10Gbps-SFP+-SMF-1471nm-70km-commercial

Table 10-84 Technical specifications

Item	Specification
BOM	34060687
Model	OSX070002
Encapsulation mode	SFP+

Item	Specification
Interface standard	IEEE 802.3ae, 10GBASE-X
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	70
Optical fiber type	SMF
Center wavelength (nm)	1471
Working wavelength range of the optical transmitter (nm)	1464.5-1477.5
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1460-1620
Receiving sensitivity (AVG) (dBm)	-23
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	8.2

10.13.3 10Gbps-SFP+-SMF-1491nm-70km-commercial

Table 10-85 Technical specifications

Item	Specification
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Item	Specification
BOM	34060688
Model	OSX070003
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-X
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	70
Optical fiber type	SMF
Center wavelength (nm)	1491
Working wavelength range of the optical transmitter (nm)	1484.5-1497.5
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1460-1620
Receiving sensitivity (AVG) (dBm)	-23
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	8.2

10.13.4 10Gbps-SFP+-SMF-1531nm-70km-commercial

Table 10-86 Technical specifications

Item	Specification
BOM	34060689
Model	OSX070004
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-X
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	70
Optical fiber type	SMF
Center wavelength (nm)	1531
Working wavelength range of the optical transmitter (nm)	1524.5-1537.5
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1460-1620
Receiving sensitivity (AVG) (dBm)	-23
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	8.2

10.13.5 10Gbps-SFP+-SMF-1551nm-70km-commercial

Table 10-87 Technical specifications

Item	Specification
BOM	34060690
Model	OSX070005
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-X
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	70
Optical fiber type	SMF
Center wavelength (nm)	1551
Working wavelength range of the optical transmitter (nm)	1544.5-1557.5
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1460-1620
Receiving sensitivity (AVG) (dBm)	-23
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7

Item	Specification
Minimum extinction ratio (dB)	8.2

10.13.6 10Gbps-SFP+-SMF-1571nm-70km-commercial

Table 10-88 Technical specifications

Item	Specification
BOM	34060691
Model	OSX070006
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-X
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	70
Optical fiber type	SMF
Center wavelength (nm)	1571
Working wavelength range of the optical transmitter (nm)	1564.5-1577.5
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1460-1620

Item	Specification
Receiving sensitivity (AVG) (dBm)	-23
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	8.2

10.13.7 10Gbps-SFP+-SMF-1591nm-70km-commercial

Table 10-89 Technical specifications

Item	Specification
BOM	34060692
Model	OSX070007
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-X
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	70
Optical fiber type	SMF
Center wavelength (nm)	1591
Working wavelength range of the optical transmitter (nm)	1584.5-1597.5
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0

Item	Specification
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1460-1620
Receiving sensitivity (AVG) (dBm)	-21
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	8.2

10.13.8 10Gbps-SFP+-SMF-1611nm-70km-commercial

Table 10-90 Technical specifications

Item	Specification
BOM	34060693
Model	OSX070008
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-X
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	70
Optical fiber type	SMF
Center wavelength (nm)	1611
Working wavelength range of the optical transmitter (nm)	1604.5-1617.4
Maximum sending optical power (AVG) (dBm)	4

Item	Specification
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1460-1620
Receiving sensitivity (AVG) (dBm)	-21
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	8.2

10.14 10Gbps SFP+ BIDI Optical Module

Figure 10-15 10Gbps SFP+ BIDI Optical Module



10.14.1 10Gbps-SFP+-SMF-1270nm-10km-industry

Table 10-91 Technical specifications

Item	Specification
BOM	34060544-002
Model	OSX010B10
Encapsulation mode	SFP+

Item	Specification
Interface standard	IEEE 802.3ae, 10GBASE-BX10-U
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	-40 °C to 85 °C (-40 F to 185 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	10
Optical fiber type	SMF
Center wavelength (nm)	1270
Working wavelength range of the optical transmitter (nm)	1260-1280
Maximum sending optical power (AVG) (dBm)	0.5
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-8.2
Minimum sending optical power (OMA) (dBm)	-5.2
Working wavelength range of the optical receiver (nm)	1320-1340
Receiving sensitivity (AVG) (dBm)	-14.4
Receiving sensitivity (OMA) (dBm)	-10.3
Saturated optical power (dBm)	0.5
Minimum extinction ratio (dB)	3.5

10.14.2 10Gbps-SFP+-SMF-1330nm-10km-industry

Table 10-92 Technical specifications

Item	Specification
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Item	Specification
BOM	34060546-002
Model	OSX010B11
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-BX10-D
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	-40 °C to 85 °C (-40 °F to 185 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	10
Optical fiber type	SMF
Center wavelength (nm)	1330
Working wavelength range of the optical transmitter (nm)	1320-1340
Maximum sending optical power (AVG) (dBm)	0.5
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-8.2
Minimum sending optical power (OMA) (dBm)	-5.2
Working wavelength range of the optical receiver (nm)	1260-1280
Receiving sensitivity (AVG) (dBm)	-14.4
Receiving sensitivity (OMA) (dBm)	-12.6
Saturated optical power (dBm)	0.5
Minimum extinction ratio (dB)	3.5

10.14.3 10Gbps-SFP+-SMF-1270nm-40km-commercial

Table 10-93 Technical specifications

Item	Specification
BOM	02311JNF
Model	OSX040B10
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-BX-U
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	40
Optical fiber type	SMF
Center wavelength (nm)	1270
Working wavelength range of the optical transmitter (nm)	1260-1280
Maximum sending optical power (AVG) (dBm)	5
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1320-1340
Receiving sensitivity (AVG) (dBm)	-18
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-9
Minimum extinction ratio (dB)	3.5

10.14.4 10Gbps-SFP+-SMF-1330nm-40km-commercial

Table 10-94 Technical specifications

Item	Specification
BOM	02311JNQ
Model	OSX040B11
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-BX40-D
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	40
Optical fiber type	SMF
Center wavelength (nm)	1330
Working wavelength range of the optical transmitter (nm)	1320-1340
Maximum sending optical power (AVG) (dBm)	5
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1280
Receiving sensitivity (AVG) (dBm)	-18
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-9

Item	Specification
Minimum extinction ratio (dB)	3.5

10.15 10Gbps SFP+ DWDM Optical Module

Figure 10-16 10Gbps SFP+ DWDM Optical Module



10.15.1 10Gbps-SFP+-SMF-1528nm~1568nm-80km-commercial

Table 10-95 Technical specifications

Item	Specification
BOM	02311GSA
Model	OSX080C00
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-ZR/ZW, ITUT G.709
Bit Error Ratio (BER)	<1x10E-12(10GE) <1x10E-4(OTU2, OTU2e)
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G/11.1G

Item	Specification
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	-
Working wavelength range of the optical transmitter (nm)	1529.163-1560.606
Maximum sending optical power (AVG) (dBm)	3
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-1
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1600
Receiving sensitivity (AVG) (dBm)	-24(10GE 1e-12); -26(OTU2,OTU2e,1e-4)
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	9
Note	The interface standard is Huawei-specific.

10.16 10Gbps SFP+ OTN Optical Module

Figure 10-17 10Gbps SFP+ OTN Optical Module



10.16.1 10Gbps-SFP+-SMF-1528nm~1568nm-80km-commercial

Table 10-96 Technical specifications

Item	Specification
BOM	02311GSA
Model	OSX080C00
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-ZR/ZW, ITUT G.709
Bit Error Ratio (BER)	<1x10E-12(10GE) <1x10E-4(OTU2, OTU2e)
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G/11.1G
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	-

Item	Specification
Working wavelength range of the optical transmitter (nm)	1529.163-1560.606
Maximum sending optical power (AVG) (dBm)	3
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-1
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1600
Receiving sensitivity (AVG) (dBm)	-24(10GE 1e-12); -26(OTU2,OTU2e,1e-4)
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	9
Note	The interface standard is Huawei-specific.

10.16.2 10Gbps-SFP+-SMF-1310nm-10km-commercial

Table 10-97 Technical specifications

Item	Specification
BOM	34060613
Model	OSX010M00
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-LR/LW,ITU-T G.709
Bit Error Ratio (BER)	<1x10E-12(10GE) <1x10E-4(OTU2, OTU2e)
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1

Item	Specification
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G/11.1G
Connector type	LC
Transmission distance (km)	10
Optical fiber type	SMF
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1260-1355
Maximum sending optical power (AVG) (dBm)	-1
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-6
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1355
Receiving sensitivity (AVG) (dBm)	-14.4
Receiving sensitivity (OMA) (dBm)	-12.6
Saturated optical power (dBm)	0.5
Minimum extinction ratio (dB)	6

10.16.3 10Gbps-SFP+-SMF-1550nm-40km-commercial

Table 10-98 Technical specifications

Item	Specification
BOM	34060711-002
Model	OSX040M00
Encapsulation mode	SFP+
Interface standard	IEEE 802.3ae, 10GBASE-ER/EW, ITU-T G.709
Bit Error Ratio (BER)	<1x10E-12(10GE) <1x10E-4(OTU2, OTU2e)

Item	Specification
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8472
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G/11.1G
Connector type	LC
Transmission distance (km)	40
Optical fiber type	SMF
Center wavelength (nm)	1550
Working wavelength range of the optical transmitter (nm)	1530-1565
Maximum sending optical power (AVG) (dBm)	2
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-1
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1565
Receiving sensitivity (AVG) (dBm)	-15.8(10GE) -16(OTU2, OTU2e, fec enable)
Receiving sensitivity (OMA) (dBm)	-14.1(10G)
Saturated optical power (dBm)	-1
Minimum extinction ratio (dB)	8.2

10.17 10Gbps XFP Optical Module

Figure 10-18 10Gbps XFP Optical Module



10.17.1 10Gbps-XFP-MMF-850nm-0.3km-commercial

Table 10-99 Technical specifications

Item	Specification
BOM	S4015798
Model	XFP-850-FC10G/10GbE-0.3km
Encapsulation mode	XFP
Interface standard	IEEE 802.3ae, 10GBASE-SR/SW
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-INF-8077i
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	0.3(OM3)
Optical fiber type	MMF
Center wavelength (nm)	850

Item	Specification
Working wavelength range of the optical transmitter (nm)	840-860
Maximum sending optical power (AVG) (dBm)	-1
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-6.5
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	840-860
Receiving sensitivity (AVG) (dBm)	-11.1
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-1
Minimum extinction ratio (dB)	3

10.17.2 10Gbps-XFP-SMF-1310nm-10km-commercial

Table 10-100 Technical specifications

Item	Specification
BOM	S4015772
Model	OSX010N08
Encapsulation mode	XFP
Interface standard	IEEE 802.3ae, 10GBASE-LR/LW;STM64/OC-192
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-INF-8077i
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC

Item	Specification
Transmission distance (km)	10
Optical fiber type	SMF
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1290-1330
Maximum sending optical power (AVG) (dBm)	-1
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-6
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1270-1600
Receiving sensitivity (AVG) (dBm)	-14.4
Receiving sensitivity (OMA) (dBm)	-12.6
Saturated optical power (dBm)	-1
Minimum extinction ratio (dB)	6

10.17.3 10Gbps-XFP-SMF-1550nm-40km-commercial

Table 10-101 Technical specifications

Item	Specification
BOM	S4015776
Model	OSX040N09
Encapsulation mode	XFP
Interface standard	IEEE 802.3ae, 10GBASE-ER/EW; STM64/OC-192; ITU-T G.709 OTU2/2e
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-INF-8077i
Environment standard	RoHS

Item	Specification
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	40
Optical fiber type	SMF
Center wavelength (nm)	1550
Working wavelength range of the optical transmitter (nm)	1530-1565
Maximum sending optical power (AVG) (dBm)	2
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-1
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1270-1600
Receiving sensitivity (AVG) (dBm)	-14(STM64) -15.8(10GE) -16(OTU2, OTU2e, fec enable)
Receiving sensitivity (OMA) (dBm)	-14.1(10GE)
Saturated optical power (dBm)	-1
Minimum extinction ratio (dB)	8.2
Note	Self-loop is not supported. An optical attenuator must be added if self-loop is required.

10.17.4 10Gbps-XFP-SMF-1550nm-80km-commercial

Table 10-102 Technical specifications

Item	Specification
BOM	S4015794
Model	OSX080N06

Item	Specification
Encapsulation mode	XFP
Interface standard	IEEE 802.3ae, 10GBASE-ZR/ZW; STM64/OC-192
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-INF-8077i
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1550
Working wavelength range of the optical transmitter (nm)	1530-1565
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1270-1600
Receiving sensitivity (AVG) (dBm)	-24
Receiving sensitivity (OMA) (dBm)	-19.1
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	9
Note	The interface standard is Huawei-specific. Self-loop is not supported. An optical attenuator must be added if self-loop is required.

10.18 10Gbps XFP CWDM Optical Module

Figure 10-19 10Gbps XFP CWDM Optical Module



10.18.1 10Gbps-XFP-SMF-1611nm-70km-commercial

Table 10-103 Technical specifications

Item	Specification
BOM	34060554
Model	XFP-LH70-SM1611
Encapsulation mode	XFP
Interface standard	IEEE 802.3ae, 10GBASE-ZR/ZW; STM64/OC-192
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-INF-8077i
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	70
Optical fiber type	SMF
Center wavelength (nm)	1611

Item	Specification
Working wavelength range of the optical transmitter (nm)	1604.5-1617.5
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1460-1620
Receiving sensitivity (AVG) (dBm)	-21
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	8.2

10.18.2 10Gbps-XFP-SMF-1591nm-70km-commercial

Table 10-104 Technical specifications

Item	Specification
BOM	34060553
Model	XFP-LH70-SM1591
Encapsulation mode	XFP
Interface standard	IEEE 802.3ae, 10GBASE-ZR/ZW; STM64/OC-192
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-INF-8077i
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G

Item	Specification
Connector type	LC
Transmission distance (km)	70
Optical fiber type	SMF
Center wavelength (nm)	1591
Working wavelength range of the optical transmitter (nm)	1584.5-1597.5
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1460-1620
Receiving sensitivity (AVG) (dBm)	-21
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	8.2

10.18.3 10Gbps-XFP-SMF-1571nm-70km-commercial

Table 10-105 Technical specifications

Item	Specification
BOM	34060552
Model	XFP-LH70-SM1571
Encapsulation mode	XFP
Interface standard	IEEE 802.3ae, 10GBASE-ZR/ZW; STM64/OC-192
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-INF-8077i

Item	Specification
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	70
Optical fiber type	SMF
Center wavelength (nm)	1571
Working wavelength range of the optical transmitter (nm)	1564.5-1577.5
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1460-1620
Receiving sensitivity (AVG) (dBm)	-21
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	8.2

10.18.4 10Gbps-XFP-SMF-1551nm-70km-commercial

Table 10-106 Technical specifications

Item	Specification
BOM	34060551
Model	XFP-LH70-SM1551
Encapsulation mode	XFP
Interface standard	IEEE 802.3ae, 10GBASE-ZR/ZW;

Item	Specification
	STM64/OC-192
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-INF-8077i
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	70
Optical fiber type	SMF
Center wavelength (nm)	1551
Working wavelength range of the optical transmitter (nm)	1544.5-1557.5
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1460-1620
Receiving sensitivity (AVG) (dBm)	-23
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	8.2

10.18.5 10Gbps-XFP-SMF-1531nm-70km-commercial

Table 10-107 Technical specifications

Item	Specification
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Item	Specification
BOM	34060550
Model	XFP-LH70-SM1531
Encapsulation mode	XFP
Interface standard	IEEE 802.3ae, 10GBASE-ZR/ZW; STM64/OC-192
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-INF-8077i
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	70
Optical fiber type	SMF
Center wavelength (nm)	1531
Working wavelength range of the optical transmitter (nm)	1524.5-1537.5
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1460-1620
Receiving sensitivity (AVG) (dBm)	-23
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	8.2

10.18.6 10Gbps-XFP-SMF-1511nm-70km-commercial

Table 10-108 Technical specifications

Item	Specification
BOM	34060549
Model	XFP-LH70-SM1511
Encapsulation mode	XFP
Interface standard	IEEE 802.3ae, 10GBASE-ZR/ZW
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-INF-8077i
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	70
Optical fiber type	SMF
Center wavelength (nm)	1511
Working wavelength range of the optical transmitter (nm)	1504.5-1517.5
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1460-1620
Receiving sensitivity (AVG) (dBm)	-23
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	8.2

10.18.7 10Gbps-XFP-SMF-1491nm-70km-commercial

Table 10-109 Technical specifications

Item	Specification
BOM	34060548
Model	XFP-LH70-SM1491
Encapsulation mode	XFP
Interface standard	IEEE 802.3ae, 10GBASE-ZR/ZW; STM64/OC-192
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-INF-8077i
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	70
Optical fiber type	SMF
Center wavelength (nm)	1491
Working wavelength range of the optical transmitter (nm)	1484.5-1497.5
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1460-1620
Receiving sensitivity (AVG) (dBm)	-23
Receiving sensitivity (OMA) (dBm)	-

Item	Specification
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	8.2

10.18.8 10Gbps-XFP-SMF-1471nm-70km-commercial

Table 10-110 Technical specifications

Item	Specification
BOM	34060547
Model	XFP-LH70-SM1471
Encapsulation mode	XFP
Interface standard	IEEE 802.3ae, 10GBASE-ZR/ZW; STM64/OC-192
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-INF-8077i
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	9.953G/10.3125G
Connector type	LC
Transmission distance (km)	70
Optical fiber type	SMF
Center wavelength (nm)	1471
Working wavelength range of the optical transmitter (nm)	1464.5-1477.5
Maximum sending optical power (AVG) (dBm)	4
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	0
Minimum sending optical power (OMA) (dBm)	-

Item	Specification
Working wavelength range of the optical receiver (nm)	1460-1620
Receiving sensitivity (AVG) (dBm)	-23
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	-7
Minimum extinction ratio (dB)	8.2

10.19 40Gbps CFP Optical Module

Figure 10-20 40Gbps CFP Optical Module



10.19.1 40Gbps(4*10.3)-CFP-SMF-1271~1331nm-10km-commercial

Table 10-111 Technical specifications

Item	Specification
BOM	S4017471
Model	OSM010C02
Encapsulation mode	CFP
Interface standard	IEEE 802.3ba, 40GBASE-LR4
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	CFP MSA

Item	Specification
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	41.25G
Connector type	LC
Transmission distance (km)	10
Optical fiber type	SMF
Center wavelength (nm)	1271 1291 1311 1331
Working wavelength range of the optical transmitter (nm)	1264.5-1277.5 1284.5-1297.5 1304.5-1317.5 1324.5-1337.5
Maximum sending optical power (AVG) (dBm)	per lane:2.3
Maximum sending optical power (OMA) (dBm)	per lane:3.5
Minimum sending optical power (AVG) (dBm)	per lane:-7
Minimum sending optical power (OMA) (dBm)	per lane:-4
Working wavelength range of the optical receiver (nm)	1264.5-1277.5 1284.5-1297.5 1304.5-1317.5 1324.5-1337.5
Receiving sensitivity (AVG) (dBm)	-
Receiving sensitivity (OMA) (dBm)	per lane:-11.5
Saturated optical power (dBm)	per lane:2.3
Minimum extinction ratio (dB)	3.5
Note	The optical power calculation is based on the OMA value.

10.19.2 40Gbps(4*10.3)-CFP-SMF-1271~1331nm-40km-commercial

Table 10-112 Technical specifications

Item	Specification
BOM	02311BLM
Model	OSM040C01
Encapsulation mode	CFP
Interface standard	IEEE 802.3bm, 40GBASE-ER4
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	-5 °C to 70 °C (23 F to 158 F)
Digital diagnosis	CFP MSA
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	41.25G
Connector type	LC
Transmission distance (km)	40
Optical fiber type	SMF
Center wavelength (nm)	1271 1291 1311 1331
Working wavelength range of the optical transmitter (nm)	1264.5-1277.5 1284.5-1297.5 1304.5-1317.5 1324.5-1337.5
Maximum sending optical power (AVG) (dBm)	-
Maximum sending optical power (OMA) (dBm)	per lane:5
Minimum sending optical power (AVG) (dBm)	-
Minimum sending optical power (OMA) (dBm)	per lane:0.3
Working wavelength range of the optical receiver (nm)	1264.5-1277.5 1284.5-1297.5

Item	Specification
	1304.5-1317.5 1324.5-1337.5
Receiving sensitivity (AVG) (dBm)	-
Receiving sensitivity (OMA) (dBm)	per lane:-19
Saturated optical power (dBm)	per lane:-4
Minimum extinction ratio (dB)	5.5

10.19.3 40Gbps(4*10.3)-CFP-SMF-1531.12~1550.12nm-80km-commercial

Table 10-113 Technical specifications

Item	Specification
BOM	02311AYS
Model	OSX080N05
Encapsulation mode	CFP
Interface standard	IEEE 802.3bm, 40GBASE-ZR4
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	CFP MSA
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	41.25G
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1531.12 1537.4 1543.73 1550.12
Working wavelength range of the optical transmitter (nm)	1530.09-1532.15 1536.37-1538.43

Item	Specification
	1542.7-1544.75 1549.09-1551.15
Maximum sending optical power (AVG) (dBm)	per lane:4.5
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	per lane:0
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1530.09-1532.15 1536.37-1538.43 1542.7-1544.75 1549.09-1551.15
Receiving sensitivity (AVG) (dBm)	per lane:-20
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	per lane:4.5
Minimum extinction ratio (dB)	9
Note	The interface standard is Huawei-specific.

10.20 40Gbps QSFP+ Optical Module

Figure 10-21 40Gbps QSFP+ Optical Module



10.20.1 40Gbps(4*10.3)-QSFP+-SMF-1271~1331nm-10km-commercial

Table 10-114 Technical specifications

Item	Specification
BOM	02310WUT
Model	OMXD30009
Encapsulation mode	QSFP+
Interface standard	IEEE 802.3ba, 40GBASE-LR4
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8436
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	41.25G
Connector type	LC
Transmission distance (km)	10
Optical fiber type	SMF
Center wavelength (nm)	1271 1291 1311 1331
Working wavelength range of the optical transmitter (nm)	1264.5-1277.5 1284.5-1297.5 1304.5-1317.5 1324.5-1337.5
Maximum sending optical power (AVG) (dBm)	per lane:2.3
Maximum sending optical power (OMA) (dBm)	per lane:3.5
Minimum sending optical power (AVG) (dBm)	per lane:-7
Minimum sending optical power (OMA) (dBm)	per lane:-4

Item	Specification
Working wavelength range of the optical receiver (nm)	1264.5-1277.5 1284.5-1297.5 1304.5-1317.5 1324.5-1337.5
Receiving sensitivity (AVG) (dBm)	-
Receiving sensitivity (OMA) (dBm)	per lane:-11.5
Saturated optical power (dBm)	per lane:2.3
Minimum extinction ratio (dB)	3.5
Note	The optical power calculation is based on the OMA value.

10.20.2 40Gbps(4*10.3)-QSFP+-MMF-850nm-0.1km-commercial

Table 10-115 Technical specifications

Item	Specification
BOM	02310WUU
Model	OMXD30010
Encapsulation mode	QSFP+
Interface standard	IEEE 802.3ba, 40GBASE-SR4
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8436
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	41.25G
Connector type	MPO-12
Transmission distance (km)	0.1(OM3) 0.15(OM4)
Optical fiber type	MMF
Center wavelength (nm)	850
Working wavelength range of the optical transmitter (nm)	840-860

Item	Specification
Maximum sending optical power (AVG) (dBm)	per lane:0.5
Maximum sending optical power (OMA) (dBm)	per lane:3
Minimum sending optical power (AVG) (dBm)	per lane:-7.6
Minimum sending optical power (OMA) (dBm)	per lane:-5.6
Working wavelength range of the optical receiver (nm)	840-860
Receiving sensitivity (AVG) (dBm)	per lane:-9.5
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	per lane:0.5
Minimum extinction ratio (dB)	3
Note	The optical power calculation is based on the OMA value.

10.20.3 40Gbps(4*10.3)-QSFP+-SMF-1310nm-10km-commercial

Table 10-116 Technical specifications

Item	Specification
BOM	02311NUA
Model	OSM010N11
Encapsulation mode	QSFP+
Interface standard	-
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	SFF-8436
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	4x9.95328G/4x10.3125G
Connector type	MPO-12
Transmission distance (km)	10

Item	Specification
Optical fiber type	SMF
Center wavelength (nm)	1310
Working wavelength range of the optical transmitter (nm)	1260-1355
Maximum sending optical power (AVG) (dBm)	per lane:0.5
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	per lane:-8.2
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1260-1355
Receiving sensitivity (AVG) (dBm)	-
Receiving sensitivity (OMA) (dBm)	-12.6
Saturated optical power (dBm)	per lane:0.5
Minimum extinction ratio (dB)	3.5

10.21 100Gbps CFP Optical Modules

Figure 10-22 100Gbps CFP Optical Modules



10.21.1 100Gbps(4*25.7)-CFP-SMF-1295.56~1309.14nm-10km-commercial

Table 10-117 Technical specifications

Item	Specification
BOM	S4017456
Model	OSN010N04
Encapsulation mode	CFP
Interface standard	IEEE 802.3ba, 100GBASE-LR4
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	CFP MSA
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	103.125G
Connector type	LC
Transmission distance (km)	10
Optical fiber type	SMF
Center wavelength (nm)	1295.56 1300.05 1304.58 1309.14
Working wavelength range of the optical transmitter (nm)	1294.53-1296.59 1299.02-1301.09 1303.54-1305.63 1308.09-1310.19
Maximum sending optical power (AVG) (dBm)	-
Maximum sending optical power (OMA) (dBm)	per lane:4.5
Minimum sending optical power (AVG) (dBm)	-
Minimum sending optical power (OMA) (dBm)	per lane:-1.3

Item	Specification
Working wavelength range of the optical receiver (nm)	1294.53-1296.59 1299.02-1301.09 1303.54-1305.63 1308.09-1310.19
Receiving sensitivity (AVG) (dBm)	-
Receiving sensitivity (OMA) (dBm)	per lane:-8.6
Saturated optical power (dBm)	per lane:4.5
Minimum extinction ratio (dB)	4

10.21.2 100Gbps(4*25.7)-CFP-SMF-1295.56~1309.14nm-40km-commercial

Table 10-118 Technical specifications

Item	Specification
BOM	02310WUS
Model	OSN040N02
Encapsulation mode	CFP
Interface standard	IEEE 802.3ba, 100GBASE-ER4
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	CFP MSA
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	103.125G
Connector type	LC
Transmission distance (km)	40
Optical fiber type	SMF
Center wavelength (nm)	1295.56 1300.05 1304.58 1309.14

Item	Specification
Working wavelength range of the optical transmitter (nm)	1294.53-1296.59 1299.02-1301.09 1303.54-1305.63 1308.09-1310.19
Maximum sending optical power (AVG) (dBm)	per lane:2.9
Maximum sending optical power (OMA) (dBm)	per lane:4.5
Minimum sending optical power (AVG) (dBm)	per lane:-2.9
Minimum sending optical power (OMA) (dBm)	per lane:0.1
Working wavelength range of the optical receiver (nm)	1294.53-1296.59 1299.02-1301.09 1303.54-1305.63 1308.09-1310.19
Receiving sensitivity (AVG) (dBm)	-
Receiving sensitivity (OMA) (dBm)	per lane:-21.4
Saturated optical power (dBm)	per lane:4.5
Minimum extinction ratio (dB)	8
Note	The optical power calculation is based on the OMA value.

10.21.3 100Gbps(10*10.3)-CFP-SMF-1523~1595nm-10km-commercial

Table 10-119 Technical specifications

Item	Specification
BOM	S4017458
Model	OSN010N05
Encapsulation mode	CFP
Interface standard	IEEE 802.3ba, 100GBASE-LR10
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)

Item	Specification
Digital diagnosis	CFP MSA
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1M
ESD(HBM1) (V)	500
Transmission rate (bit/s)	103.125G
Connector type	LC
Transmission distance (km)	10
Optical fiber type	SMF
Center wavelength (nm)	1523 1531 1539 1547 1555 1563 1571 1579 1587 1595
Working wavelength range of the optical transmitter (nm)	1520-1526 1528-1534 1536-1542 1544-1550 1552-1558 1560-1566 1568-1574 1576-1582 1584-1590 1592-1598
Maximum sending optical power (AVG) (dBm)	-
Maximum sending optical power (OMA) (dBm)	per lane:3.5
Minimum sending optical power (AVG) (dBm)	-
Minimum sending optical power (OMA) (dBm)	per lane:-2.8

Item	Specification
Working wavelength range of the optical receiver (nm)	1521-1525 1529-1533 1537-1541 1545-1549 1553-1557 1561-1565 1569-1573 1577-1581 1585-1589 1593-1597
Receiving sensitivity (AVG) (dBm)	-
Receiving sensitivity (OMA) (dBm)	per lane:-8.8
Saturated optical power (dBm)	per lane:3.5
Minimum extinction ratio (dB)	2.5

10.21.4 100Gbps(10*10.3)-CFP-MMF-850nm-0.1km-commercial

Table 10-120 Technical specifications

Item	Specification
BOM	S4017457
Model	OSN010003
Encapsulation mode	CFP
Interface standard	IEEE 802.3ba, 100GBASE-SR10
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	CFP MSA
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	103.125G
Connector type	MPO-24
Transmission distance (km)	0.1(OM3) 0.15(OM4)
Optical fiber type	MMF

Item	Specification
Center wavelength (nm)	850
Working wavelength range of the optical transmitter (nm)	840-860
Maximum sending optical power (AVG) (dBm)	-
Maximum sending optical power (OMA) (dBm)	per lane:3
Minimum sending optical power (AVG) (dBm)	-
Minimum sending optical power (OMA) (dBm)	per lane:-5.6
Working wavelength range of the optical receiver (nm)	840-860
Receiving sensitivity (AVG) (dBm)	-
Receiving sensitivity (OMA) (dBm)	per lane:-8.7
Saturated optical power (dBm)	per lane:2.4
Minimum extinction ratio (dB)	3
Note	Querying the send and receive optical power is not supported.

10.21.5 100Gbps(4*25.7)-CFP-SMF-1295.56~1309.14nm-80km-commercial

Table 10-121 Technical specifications

Item	Specification
BOM	02311JNT
Model	OSN080N10
Encapsulation mode	CFP
Interface standard	IEEE 802.3ba, 100GBASE-ZR4
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	CFP MSA
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1M

Item	Specification
ESD(HBM1) (V)	500
Transmission rate (bit/s)	103.125G
Connector type	LC
Transmission distance (km)	80
Optical fiber type	SMF
Center wavelength (nm)	1295.56 1300.05 1304.58 1309.14
Working wavelength range of the optical transmitter (nm)	1294.53-1296.59 1299.02-1301.09 1303.54-1305.63 1308.09-1310.19
Maximum sending optical power (AVG) (dBm)	per lane:6.5
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	per lane:3
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	1294.53-1296.59 1299.02-1301.09 1303.54-1305.63 1308.09-1310.19
Receiving sensitivity (AVG) (dBm)	per lane:-30
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	per lane:-7
Minimum extinction ratio (dB)	8
Note	The interface standard is Huawei-specific.

10.22 100Gbps CFP2 Optical Module

Figure 10-23 100Gbps CFP2 Optical Module



10.22.1 100Gbps(4*25.7)-CFP2-SMF-1295.56~1309.14nm-10km-commercial

Table 10-122 Technical specifications

Item	Specification
BOM	02310WUR
Model	OSN010N09
Encapsulation mode	CFP2
Interface standard	IEEE 802.3ba, 100GBASE-LR4
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	CFP MSA
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	103.125G
Connector type	LC
Transmission distance (km)	10
Optical fiber type	SMF
Center wavelength (nm)	1295.56

Item	Specification
	1300.05 1304.58 1309.14
Working wavelength range of the optical transmitter (nm)	1294.53-1296.59 1299.02-1301.09 1303.54-1305.63 1308.09-1310.19
Maximum sending optical power (AVG) (dBm)	per lane:4.5
Maximum sending optical power (OMA) (dBm)	per lane:4.5
Minimum sending optical power (AVG) (dBm)	per lane:-4.3
Minimum sending optical power (OMA) (dBm)	per lane:-1.3
Working wavelength range of the optical receiver (nm)	1294.53-1296.59 1299.02-1301.09 1303.54-1305.63 1308.09-1310.19
Receiving sensitivity (AVG) (dBm)	-
Receiving sensitivity (OMA) (dBm)	per lane:-8.6
Saturated optical power (dBm)	per lane:4.5
Minimum extinction ratio (dB)	4
Note	The optical power calculation is based on the OMA value.

10.22.2 100Gbps(4*25.7)-CFP2-SMF-1295.56~1309.14nm-40km-commercial

Table 10-123 Technical specifications

Item	Specification
BOM	02311FAP
Model	OSN040N03
Encapsulation mode	CFP2
Interface standard	IEEE 802.3ba, 100GBASE-ER4

Item	Specification
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	CFP MSA
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	103.125G
Connector type	LC
Transmission distance (km)	40
Optical fiber type	SMF
Center wavelength (nm)	1295.56 1300.05 1304.58 1309.14
Working wavelength range of the optical transmitter (nm)	1294.53-1296.59 1299.02-1301.09 1303.54-1305.63 1308.09-1310.19
Maximum sending optical power (AVG) (dBm)	per lane:2.9
Maximum sending optical power (OMA) (dBm)	per lane:4.5
Minimum sending optical power (AVG) (dBm)	per lane:-2.9
Minimum sending optical power (OMA) (dBm)	per lane:0.1
Working wavelength range of the optical receiver (nm)	1294.53-1296.59 1299.02-1301.09 1303.54-1305.63 1308.09-1310.19
Receiving sensitivity (AVG) (dBm)	-
Receiving sensitivity (OMA) (dBm)	per lane:-21.4
Saturated optical power (dBm)	per lane:4.5
Minimum extinction ratio (dB)	8

Item	Specification
Note	The optical power calculation is based on the OMA value.

10.22.3 100Gbps(10*10.3)-CFP2-MMF-850nm-0.1km-commercial

Table 10-124 Technical specifications

Item	Specification
BOM	02311LYG
Model	OMND10N12
Encapsulation mode	CFP2
Interface standard	IEEE 802.3ba, 100GBASE-SR10
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 F to 158 F)
Digital diagnosis	CFP MSA
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	103.125G
Connector type	MPO-24
Transmission distance (km)	0.1(OM3) 0.15(OM4)
Optical fiber type	MMF
Center wavelength (nm)	850
Working wavelength range of the optical transmitter (nm)	840-860
Maximum sending optical power (AVG) (dBm)	-
Maximum sending optical power (OMA) (dBm)	per lane:3
Minimum sending optical power (AVG) (dBm)	-
Minimum sending optical power (OMA) (dBm)	per lane:-5.6
Working wavelength range of the optical receiver (nm)	840-860

Item	Specification
Receiving sensitivity (AVG) (dBm)	-
Receiving sensitivity (OMA) (dBm)	per lane:-8.6
Saturated optical power (dBm)	per lane:2.4
Minimum extinction ratio (dB)	3

10.23 100Gbps CFP2 Optical DWDM Module

Figure 10-24 100Gbps CFP2 Optical DWDM Module



10.23.1 118Gbps(4*25.78/4*27.95)-CFP2-SMF-192.1-196.05THz-1200 km-commercial

Table 10-125 Technical specifications

Item	Specification
BOM	02311URS
Model	OSNB00C02
Encapsulation mode	CFP2
Interface standard	IEEE 802.3ba, 100GBASE-LR4,ITU-T G.709/G.798
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	-5 °C to 70 °C (23 °F to 158 °F)
Digital diagnosis	CFP MSA

Item	Specification
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	103.125G/111.81G
Connector type	LC
Transmission distance (km)	1200
Optical fiber type	SMF
Center wavelength (nm)	C band
Working wavelength range of the optical transmitter (nm)	191.25~196.1THz
Maximum sending optical power (AVG) (dBm)	2
Maximum sending optical power (OMA) (dBm)	-
Minimum sending optical power (AVG) (dBm)	-3
Minimum sending optical power (OMA) (dBm)	-
Working wavelength range of the optical receiver (nm)	191.25~196.1THz
Receiving sensitivity (AVG) (dBm)	-18
Receiving sensitivity (OMA) (dBm)	-
Saturated optical power (dBm)	7
Minimum extinction ratio (dB)	0

10.24 100Gbps QSFP28 Optical Module

Figure 10-25 100Gbps QSFP28 Optical Module



10.24.2 100Gbps(4*25.7)-QSFP28-MMF-850nm-0.07km-commercial

Table 10-126 Technical specifications

Item	Specification
BOM	02311NTY
Model	OMND10N13
Encapsulation mode	QSFP28
Interface standard	IEEE 802.3bm, 100GBASE-SR4
Bit Error Ratio (BER)	<5x10E-5
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8636
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	103.125G
Connector type	MPO-12
Transmission distance (km)	0.07(OM3) 0.1(OM4)
Optical fiber type	MMF
Center wavelength (nm)	850
Working wavelength range of the optical transmitter (nm)	840-860
Maximum sending optical power (AVG)	per lane:2.4

Item	Specification
(dBm)	
Maximum sending optical power (OMA) (dBm)	per lane:3
Minimum sending optical power (AVG) (dBm)	per lane:-8.4
Minimum sending optical power (OMA) (dBm)	per lane:-6.4
Working wavelength range of the optical receiver (nm)	840-860
Receiving sensitivity (AVG) (dBm)	-
Receiving sensitivity (OMA) (dBm)	per lane:-8.5
Saturated optical power (dBm)	per lane:2.4
Minimum extinction ratio (dB)	2
Note	The board FEC function must be enabled. The optical power calculation is based on the OMA value.

10.24.3 100Gbps(4*25.7)-QSFP28-SMF-1295.56~1309.14nm-10km-c ommercial

Table 10-127 Technical specifications

Item	Specification
BOM	02311NTX
Model	OSN010N23
Encapsulation mode	QSFP28
Interface standard	IEEE 802.3ba, 100GBASE-LR4
Bit Error Ratio (BER)	<1x10E-12
Working case temperature (°C)	0 °C to 70 °C (32 °F to 158 °F)
Digital diagnosis	SFF-8636
Environment standard	RoHS
Security standard	FCC class B, IEC 60825-1 Class 1
ESD(HBM1) (V)	500
Transmission rate (bit/s)	103.125G
Connector type	LC

Item	Specification
Transmission distance (km)	10
Optical fiber type	SMF
Center wavelength (nm)	1295.56 1300.05 1304.58 1309.14
Working wavelength range of the optical transmitter (nm)	1294.53-1296.59 1299.02-1301.09 1303.54-1305.63 1308.09-1310.19
Maximum sending optical power (AVG) (dBm)	per lane:4.5
Maximum sending optical power (OMA) (dBm)	per lane:4.5
Minimum sending optical power (AVG) (dBm)	per lane:-4.3
Minimum sending optical power (OMA) (dBm)	per lane:-1.3
Working wavelength range of the optical receiver (nm)	1294.53-1296.59 1299.02-1301.09 1303.54-1305.63 1308.09-1310.19
Receiving sensitivity (AVG) (dBm)	-
Receiving sensitivity (OMA) (dBm)	per lane:-8.6
Saturated optical power (dBm)	per lane:4.5
Minimum extinction ratio (dB)	4
Note	The optical power calculation is based on the OMA value.

10.25 AE 905S Module

Description

Existing core network devices, which do not support 1588, cannot obtain clock signals from BITS servers. Upgrading core network devices to support 1588 is both complex and costly. To address this issue, the AE 905S module is developed. After having an AE 905S module

equipped, the NE40E will be able to support 1588v2. Figure 10-26 and Figure 10-27 illustrate the appearance of an AE 905S module.

Figure 10-26 AE 905S module (front view)



Figure 10-27 AE 905S module (back view)



NOTE

An AE 905S module must be inserted into a GE optical interface of SFP type.

The AE 905S module has a STAT indicator under the **HUAWEI** logo. Table 10-128 describes STAT indicator states.

Table 10-128 Description of STAT indicator states

State	Description
On (green)	The AE 905S module is operating properly.
On (red)	The AE 905S module has experienced a hardware fault or is overheated.
Blinking green once every second	No connection has been established on the GE interface.
Blinking red every second	The GPS frequency or time is out of lock.
Off	The AE 905S module is powered off or not operating.

The AE 905S module meets industrial-grade requirements. Table 10-129 lists its interface specifications.

Table 10-129 AE 905S module interface specifications

Item	Specification
BOM Number	03031TUX
Board Name for Order	ANPM000GPS01
Interface type	SMA
Encapsulation type	SFP
Input signal	An AE 905S module uses the SMA interface to receive GPS satellite signals.
Output signal	An AE 905S module uses the GE interface to provide synchronous Ethernet and 1588v2 for NE40E.

Installation



NOTICE

To meet heat dissipation requirements, leave interfaces around the AE 905S module empty. A maximum of two AE 905S modules can be installed on a device.

Figure 10-28 illustrates connections between the AE 905S module, surge protector, and antenna.

Figure 10-28 Connections between the AE 905S module, surge protector, and antenna



NOTE

The AE 905S module must be used with the GPS antenna and GPS surge protector and is connected to the GPS antenna and GPS surge protector through the GPS feeder.

The GPS antenna receives satellite signals from the GPS. A GPS surge protector can protect a device against the lightning strikes induced by the antenna feeder. Without the protection of a surge protector, a device may be damaged by surge currents or voltage in a lightning weather. The GPS feeder transmits GPS signals.

The image shown here is indicative only. If there is any inconsistency between the image and the actual product, the actual product shall govern.

Before inserting an AE 905S module into an interface, lock the latch. Before removing an AE 905S module from an optical interface, unlock the latch. For details, see Figure 10-29.

Figure 10-29 Latch

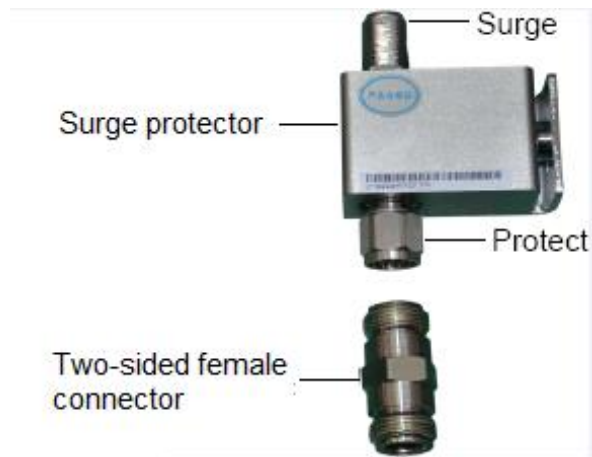


Installation Procedure

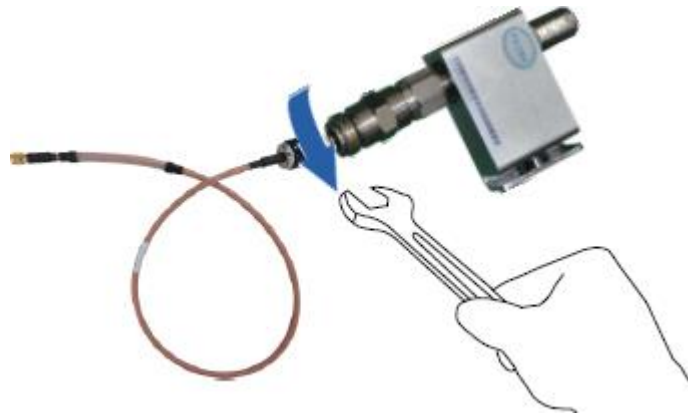
 **NOTE**

For details about how to install the GPS satellite antenna system, see the GPS quick installation guide.

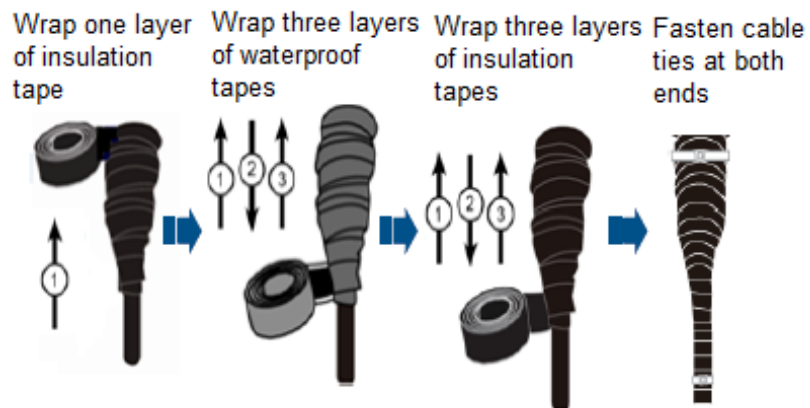
1. Connect a two-sided female connector to the Protect interface of the surge protector.



2. Connect one end of the coaxial cable to the Protect interface of the surge protector and fasten the joint with a wrench.



3. Implement 1+3+3 waterproof protection where the coaxial cable and the Protect interface of the surge protector are connected and fasten cable ties at both ends.



4. Fasten the surge protector to the GPS antenna support and use screws to secure it.



5. Fasten the GPS antenna support to the ground bar on the right of the device and use screws to secure it.



6. Install the ground cable of the surge protector. Connect one end of the ground cable to the GND interface of the surge protector and the other end of the cable to the ground bar.



NOTE

The surge protector must use OT M8 terminals.

7. Connect the GPS feeder to the AE 905S module.
8. Insert the AE 905S module into an optical interface of the NE40E with the latch of the AE 905S module locked.
9. Connect one end of the GPS feeder to the Surge interface of the surge protector and the other end of the GPS feeder to the GPS antenna. Fasten each connector with a wrench.
10. Implement 1+3+3 waterproof protection where the coaxial cable and the Protect interface of the surge protector are connected and fasten cable ties at both ends.
 - Implement waterproof protection where the feeder connector and the Surge interface of the surge protector are connected.
 - Implement waterproof protection where the feeder connector and the N joint of the GPS antenna are connected.



NOTE

For details about how to make a GPS feeder connector, see the GPS quick installation guide.

11

DPD300-4-12 Power Distribution Box, Dual-Two Inputs

About This Chapter

This chapter introduces the hardware architecture and features of the DPD300-4-12 power distribution box, and describes how to install and maintain the hardware on the device.

11.1 Product Description

This section describes the positioning, benefits, usage scenario, main components, physical parameters, and circuit principle of the product.

11.2 Power Distribution Instance

This section describes some power distribution instances.

11.3 Installing the Power Distribution Box into a Cabinet

This section describes how to install the power distribution box into a cabinet and install cables.

11.4 Circuit Breaker Maintenance

This section describes how to replace an air breaker.

11.1 Product Description

This section describes the positioning, benefits, usage scenario, main components, physical parameters, and circuit principle of the product.

Positioning

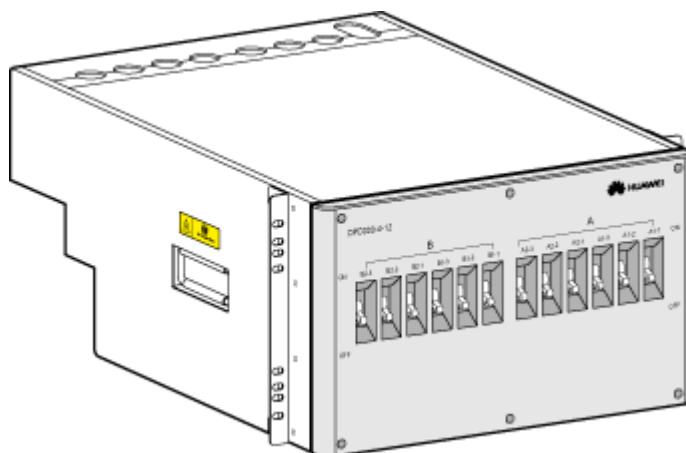
This product is designed to power devices that need a large number of power lines. It can convert input lines into more output lines so that a few input lines in the equipment room can meet power requirement. Therefore, this product increases power distribution flexibility.

Benefits

- This product is a 6 U (263.9 mm) power distribution box that complies with the IEC297 standard.

- It can convert 4 DC input lines into 12 DC output lines.
- It includes A and B power distribution areas. Each area has 2 DC input lines and each DC input line is converted into 3 output lines.
- It can be equipped with air breakers whose output current ranges from 20 A to 100 A. Air breaker ports are pluggable bolts and easy to replace.
- The grounding copper bar in the power distribution box can provide 2 input lines and 12 output lines.

Figure 11-1 DPD300-4-12 appearance



Usage Scenario

The power distribution box can convert 2 or 4 DC input lines into 12 output lines. It can be used in an equipment room that cannot provide enough power lines.

For example, the power distribution box is used to convert 4 input lines into 8 output lines to power the Huawei NE40E-X16 that is equipped with 8 PEM modules.

Main Components

Figure 11-2 DPD300-4-12 components

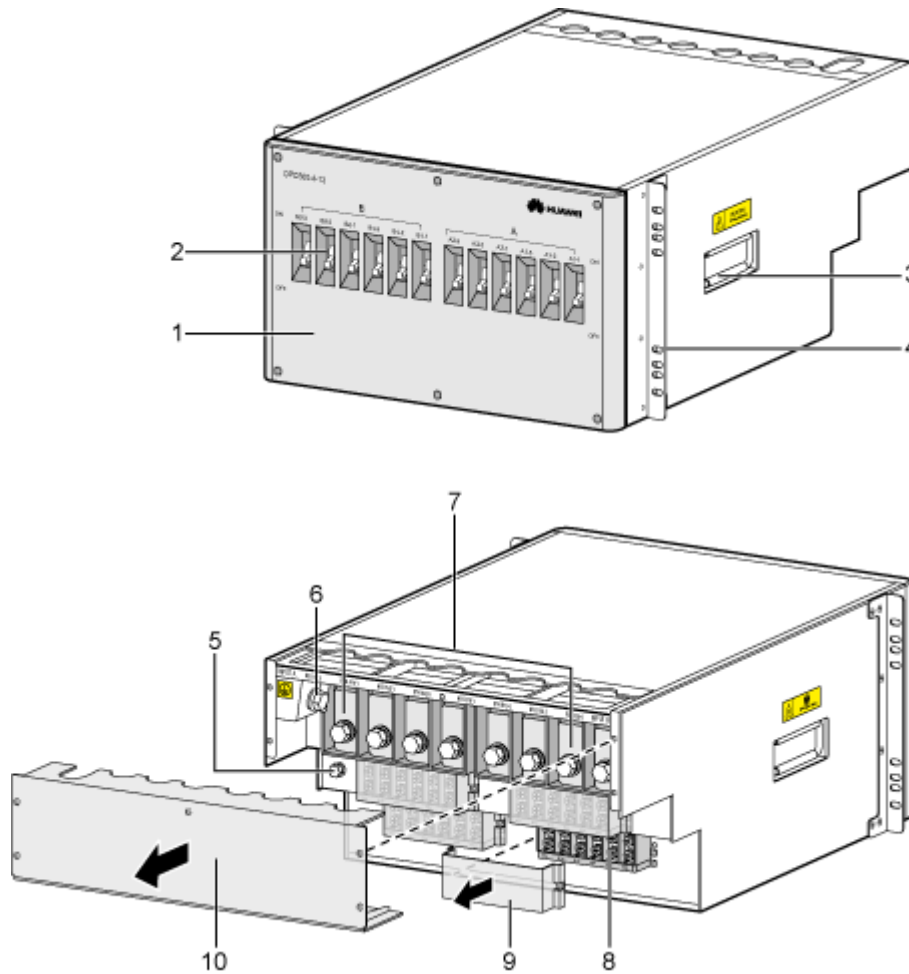


Table 11-1 list the DPD300-4-12 components and quantities.

Table 11-1 Components and Quantities

No.	Component	Quantity
1	Plastic panel	1
2	Circuit breaker	12
3	Handle	2
4	Mounting ear	2
5	Grounding terminal for connecting the cabinet grounding terminal	1
6	Grounding terminal for connecting the equipment room terminal	1

No.	Component	Quantity
7	Power input terminal	4
8	Power output terminal	12
9	Protective plate for power output terminals	4
10	Protective plate for power input terminals	1

Physical Parameters

Table 11-2 Physical parameters

Item	Description	
Dimensions (H x W x D)	264 mm x 442 mm x 639 mm(10.39 in x 17.4 in x 25.16 in)	
Installation platform	Huawei N68E cabinet	
Weight	30 kg(60.15 lb)	
DC input voltage	Rated voltage	-48 V
	Maximum voltage range	-72V — 40V
Input	Maximum current	300A
Output	Maximum current	12×100A (The default configuration of 80A circuit breaker)
Air breaker	Changeable	20A–100A
Ambient temperature	Long term	0 °C–40 °C
	Short term	-5 °C–50 °C
Storage temperature	-40 °C–70 °C	
Ambient humidity	Long term	5% RH to 85% RH, no condensing
	Short term	5% RH to 95% RH, no condensing
Relative storage humidity	0% RH to 95% RH, no condensing	

 **NOTE**

- Temperature and humidity are measured at 1.5 m (4.92 ft.) above the floor and 0.4 m (1.31 ft.) in front of the cabinet. There should be no protection board on the front or back of the cabinet.
- "Short-term" refers to continuous working time that does not exceed 96 hours and accumulated working time per year that does not exceed 15 days. If the working time exceeds either of these values, it is considered "long-term".

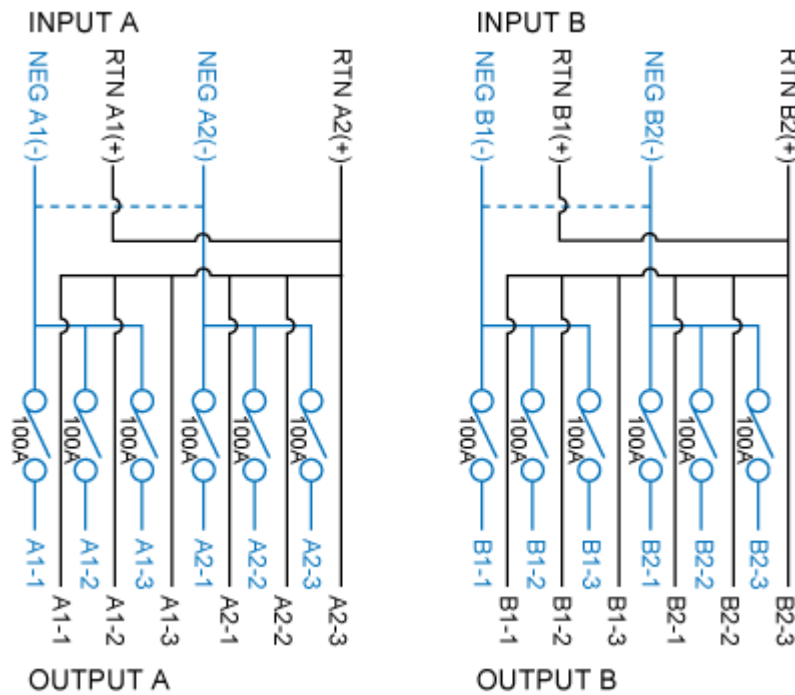
Circuit Principle



NOTE

- When NEG A1(-) is shorted-circuited to NEG A2(-) and NEG B1(-) is shorted-circuited to NEG B2(-), the power distribution box will provide two input lines and 12 output lines.
- The changed output power must be larger than or equal to the rated power of the device that is powered by the power distribution box.

Figure 11-3 Circuit principle



11.2 Power Distribution Instance

This section describes some power distribution instances.



NOTE

- This document describes the examples for installing NE40E-X series products.
- The number of each PEM module can be determined based on a product silkscreen and the primary and secondary power supply diagram.



CAUTION

To ensure power supply backup, connect PEM-As to the OUTPUT A area in the power distribution box, and connect PEM-Bs to the OUTPUT B area in the power distribution box.

Mapping between input lines and output lines in the power distribution box

Figure 11-4 Mapping between input lines and output lines in the power distribution box

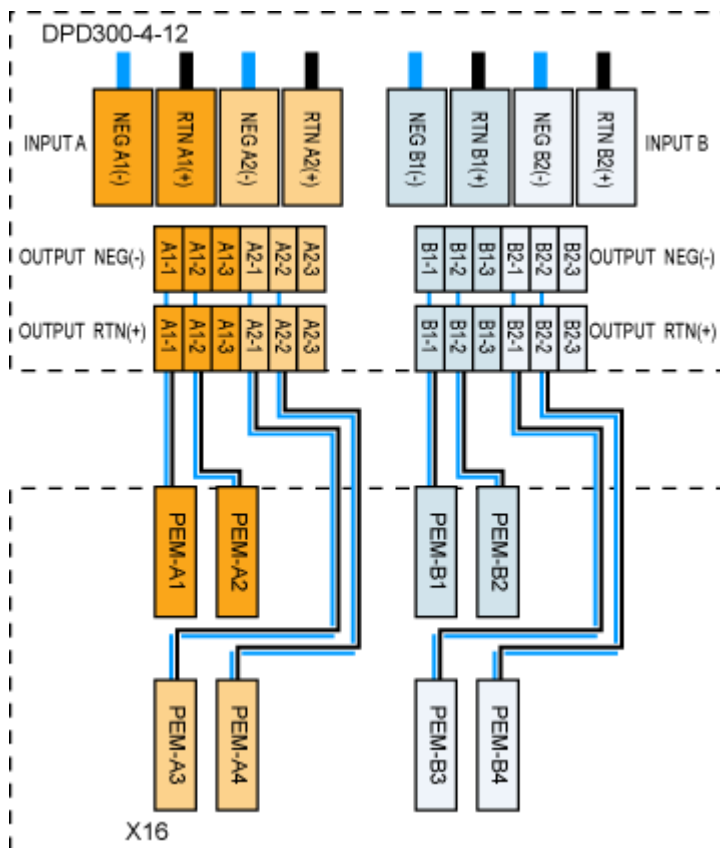


1. Scenario Where a Huawei NE40E-X16 Is Equipped with 8 PEM Modules

PEM-A1 and PEM-A2 are connected to A1-1 and A1-2 in the power distribution box, and PEM-A3 and PEM-A4 are connected to A2-1 and A2-2 in the power distribution box.

PEM-B1 and PEM-B2 are connected to B1-1 and B1-2 in the power distribution box, and PEM-B3 and PEM-B4 are connected to B2-1 and B2-2 in the power distribution box.

Figure 11-5 Power distribution mode 2 for the NE40E-X16



2. Scenario Where a Huawei NE40E-X8 Is Equipped with 4 PEM Modules

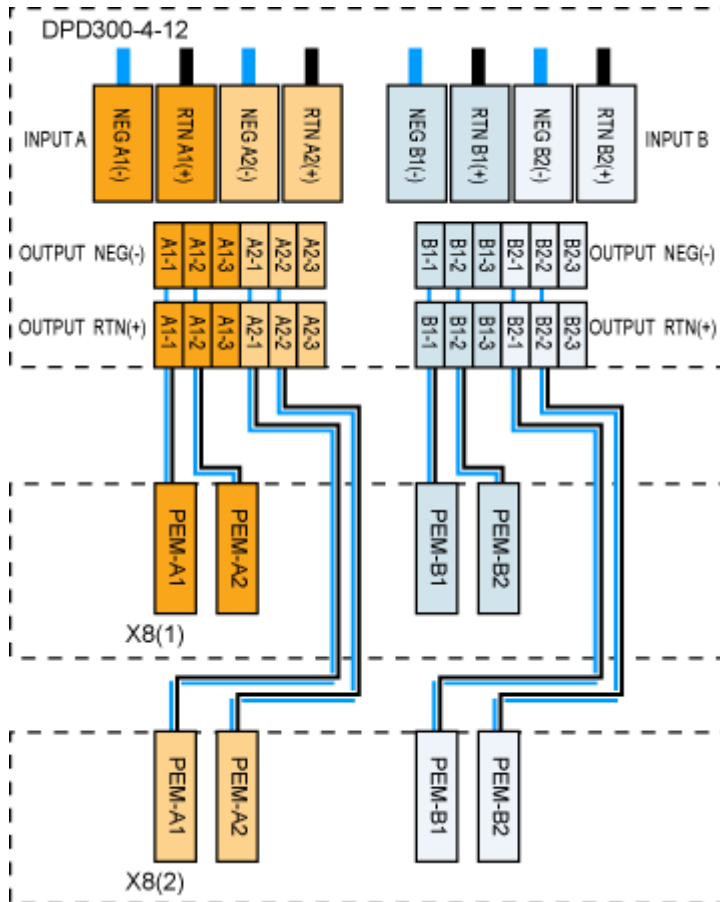
PEM-A1 and PEM-A2 are connected to A1-1 and A1-2 in the power distribution box.

PEM-B1 and PEM-B2 are connected to B1-1 and B1-2 in the power distribution box.

NOTE

When the power distribution box powers two NE40E-X8s at the same time, the A2-1, A2-2, B2-1, and B2-2 are connected to the PEM modules on the second NE40E-X8.

Figure 11-6 Power distribution mode 2 for the NE40E-X8

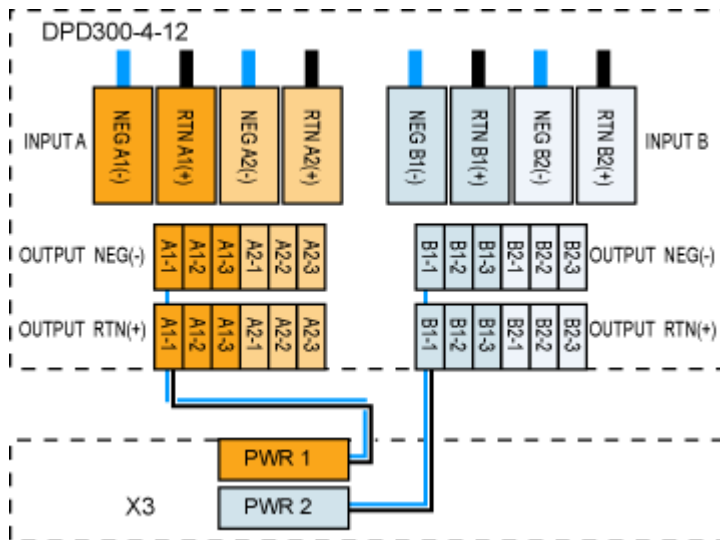


3. Scenario Where a Huawei NE40E-X3 Is Equipped with 2 PWR Modules

PWR 1 is connected to any power output in OUTPUT A area of the power distribution box.

PWR 2 is connected to any power output in OUTPUT B area of the power distribution box.

Figure 11-7 Power distribution mode for the NE40E-X3



11.3 Installing the Power Distribution Box into a Cabinet

This section describes how to install the power distribution box into a cabinet and install cables.

NOTE

- An N68E whose cabinet doors and rear boards are all torn down is used.
- Related materials for providing four input lines and 12 output lines are used.
- Cables that have proper length and are equipped with terminals are used.

NOTE

- It is recommended that the wiring terminals on the power distribution box before the installation, and the power distribution box be installed in the cabinet prior to the installation of any other device.
- The power distribution box is heavy and needs to be installed by two people.

Related Tools

Crosshead screwdriver, socket wrench, ladder, marker, and torque batch

Related Materials

Table 11-3 Related materials

Material	Description	Quantity
Guide rail	-	2
Captive nut	-	4
Panel bolt	M6	4
Binding	-	-

Material	Description		Quantity
strap			
Insulating tape	-		-
Input terminal of the power distribution box	Power input cable	Wire,450/750V,60227 IEC 02(RV)150mm ² ,blue,360A(per meter)	4
		Wire,450/750V,60227 IEC 02(RV)150mm ² ,black,360A(per meter)	4
	Power distribution box terminal	Naked Crimping Terminal,JG,150mm ² ,M12,Tin Plating	8
Output terminal of the power distribution box	Power output cable	Power Cable,450/750V,H07Z-K UL3386,16mm ² ,blue,Low Smoke Zero Halogen Cable (per meter)	12
		Power Cable,450/750V,H07Z-K UL3386,16mm ² ,Black,Low Smoke Zero Halogen Cable (per meter)	12
	Power distribution box terminal	Naked Crimping Terminal,JG2,16mm ² ,M6,95 A,Tin Plated,for OEM	48
Ground cable of the equipment room	Cable	Wire,450/750V,60227 IEC 02(RV)50mm ² ,yellow green,170A(per meter)	1
	Terminal	Naked Crimping Terminal,JG,50mm ² ,M10,Tin Plating	1
Ground cable of the cabinet	Cable	Power Cable,450/750V,H07Z-K UL3386,25mm ² ,Yellow Green,Low Smoke Zero Halogen Cable(per meter)	1
	Terminal 1	Naked Crimping Terminal,JG2,16mm ² ,M6,95 A,Tin Plated,for OEM	1
	Terminal 2	Naked Crimping Terminal,OT,25mm ² ,M8,Tin Plating,Naked Ring Terminal	1

Operation Procedure

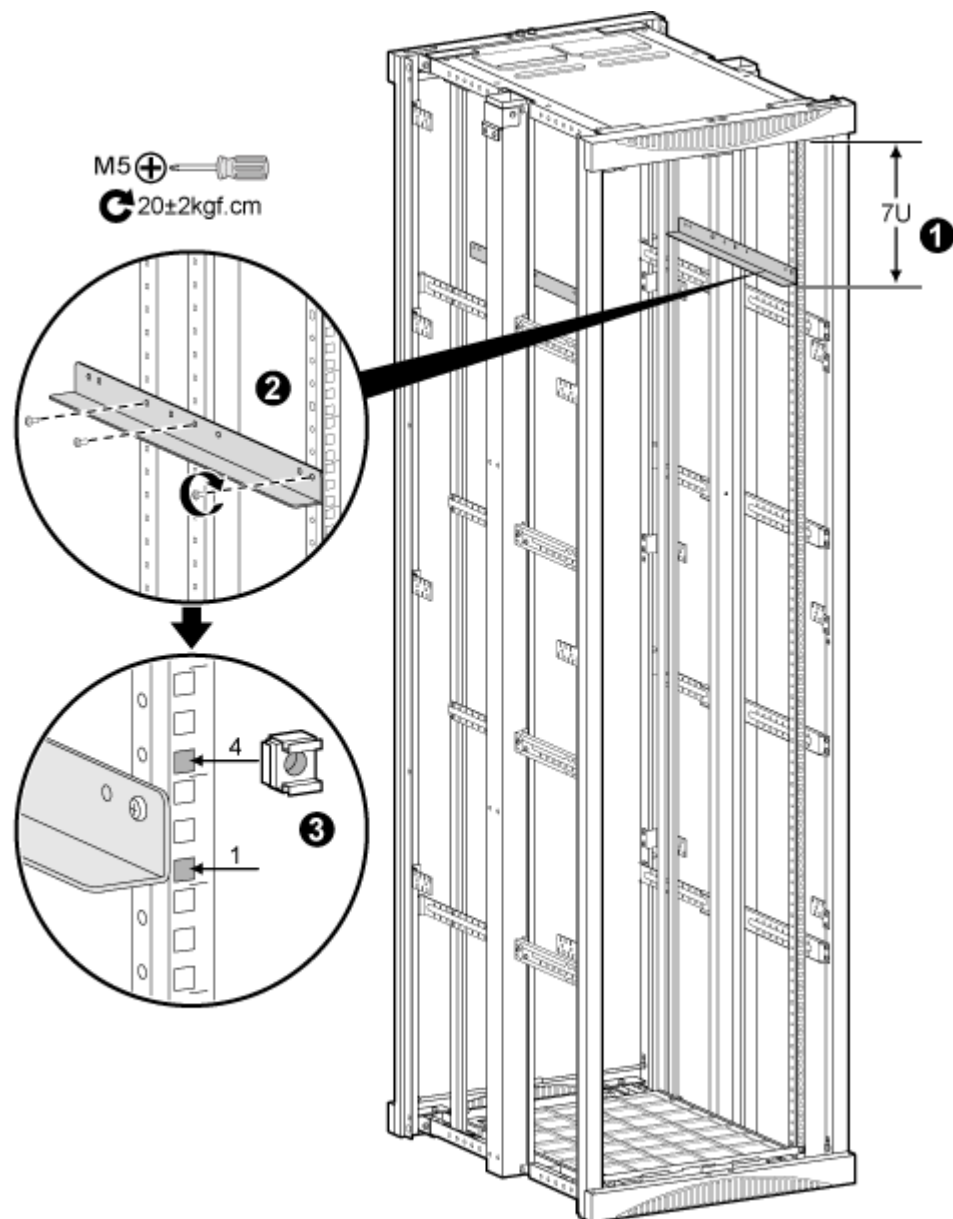
Step 1: Install slide rails.

Install the slide rails 7 U below the top of the power distribution box and align the bottom planes of slide rails with the corresponding scale line, as shown in (1) and (2) of Figure 11-8.

Step 2: Install captive nuts.

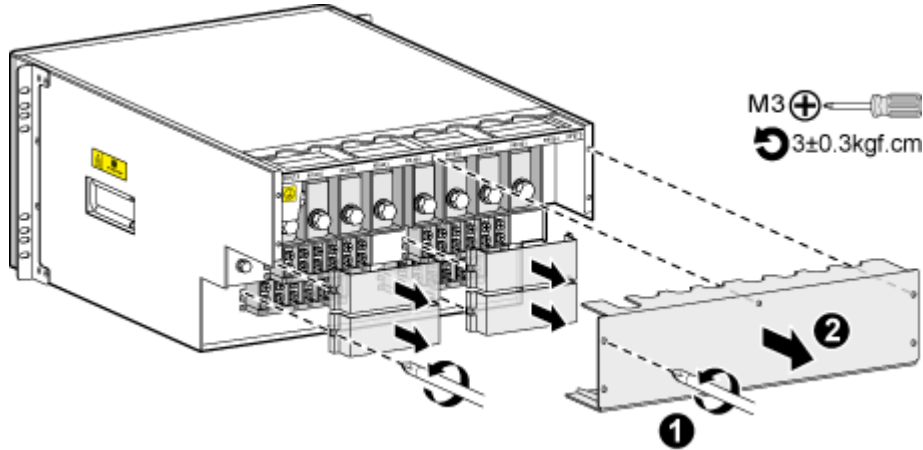
Install two captive nuts into the fourth and fifteenth holes from the bottom of the slide rail, as shown in (3) of Figure 11-8.

Figure 11-8 Installing slide rails and captive nuts



Step 3: Temporarily tear down the protective plates for connecting terminals, as shown in Figure 11-9.

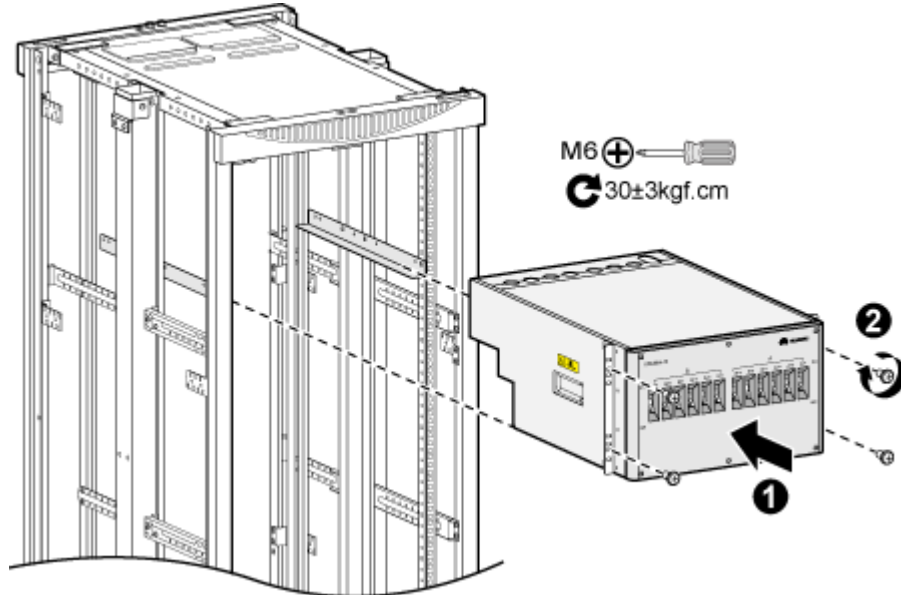
Figure 11-9 Tearing down the protective plate for connecting terminals



Step 4: Install the power distribution box into the cabinet.

Push the power distribution box into the cabinet along the slide rails, and use four screws to fix the power distribution box, as shown in Figure 11-10.

Figure 11-10 Installing the power distribution box into the cabinet

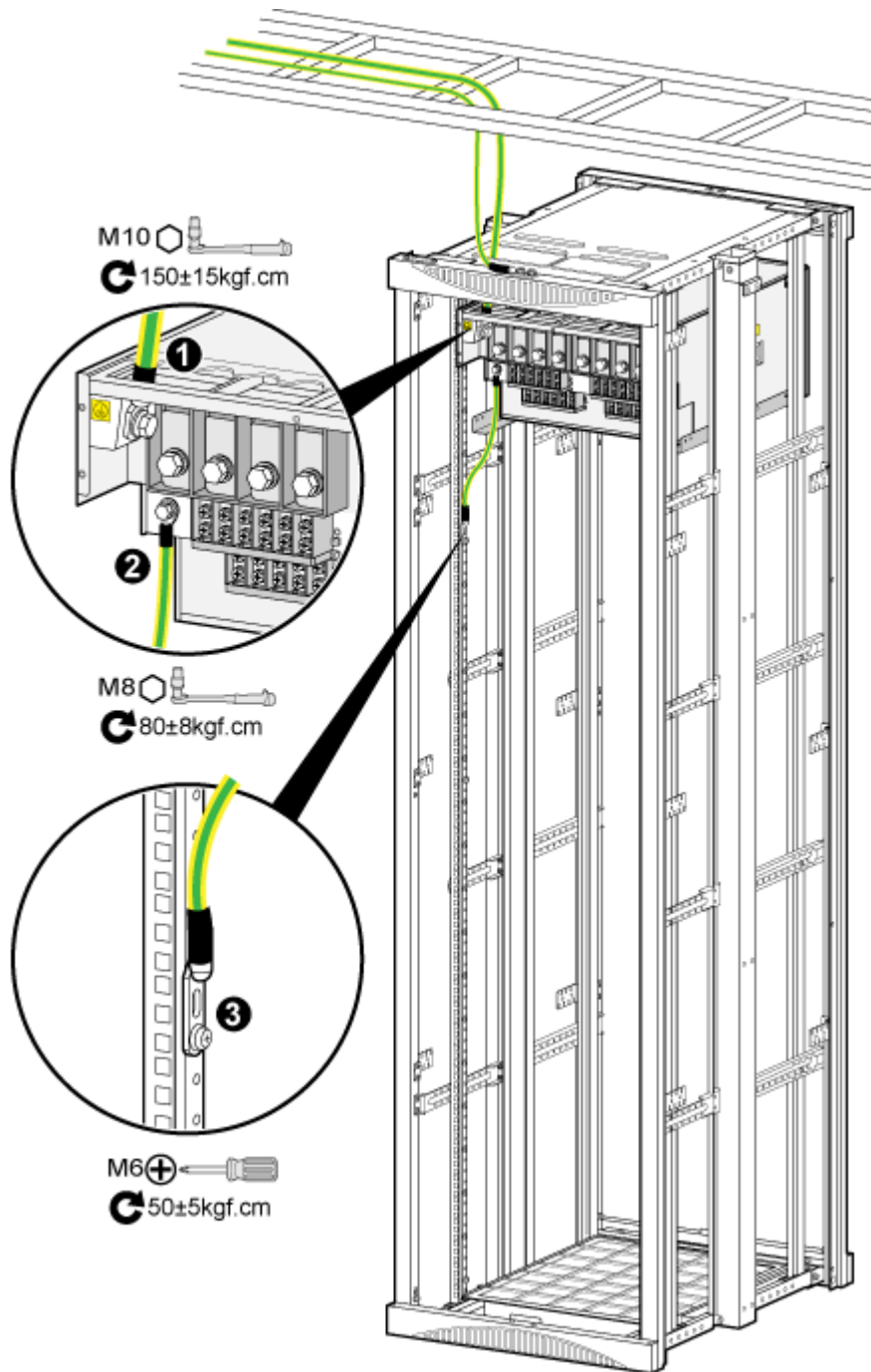


Step 5: Install ground cables.

Install the ground cable for the equipment room, and connect the peer end of the ground cable to the grounding copper bar of the equipment room, as shown in (1) of Figure 11-11.

Install the ground cable for the cabinet, and connect the peer end of the ground cable to the mounting bar in the cabinet, as shown in (2) and (3) of Figure 11-11.

Figure 11-11 Installing ground cables



Step 6: Install power cables.

Install power input cables, as shown in (1) and (2) of Figure 11-12.

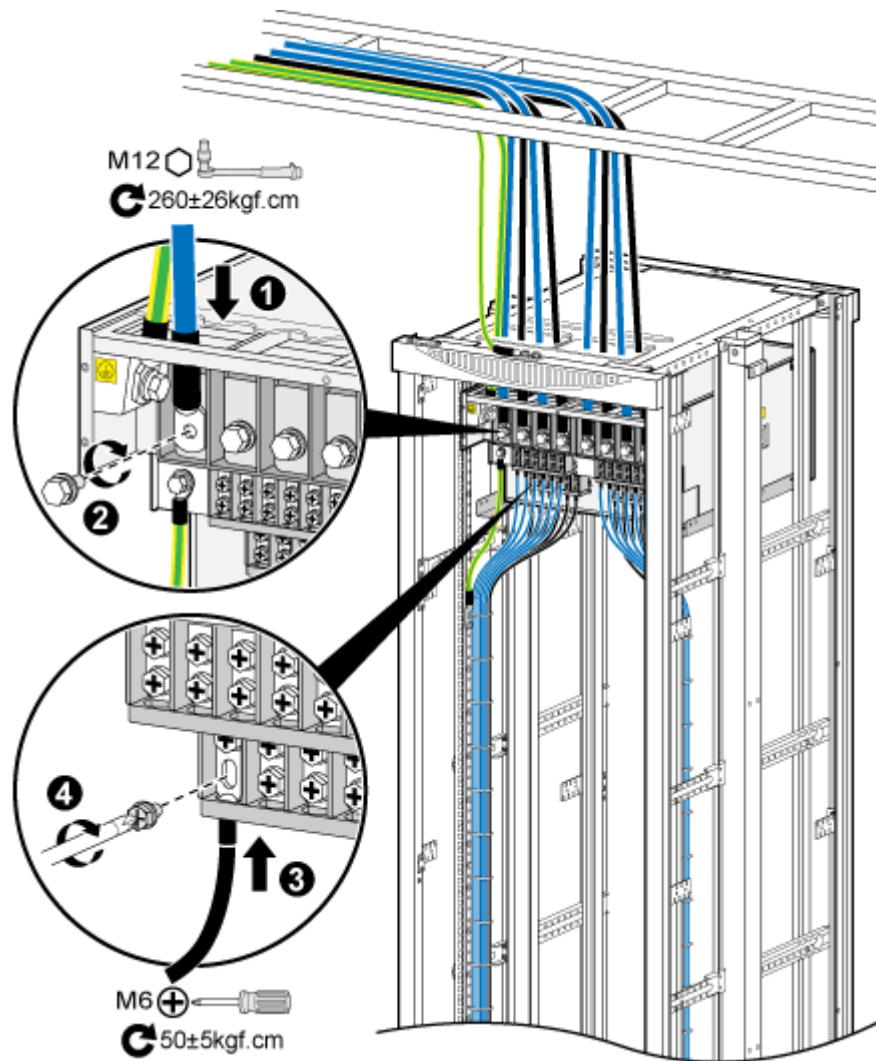
Install power output cables, as shown in (3) and (4) of Figure 11-12.

NOTE

- Pass the power input cables through the holes on the cabinet top and connect them to the power distribution cabinet.

- Lay out power output cables along the two mounting bars at the back of the cabinet and connect these cables to devices.

Figure 11-12 Installing power cables



Step 7: Re-install the protective plates.

11.4 Circuit Breaker Maintenance

This section describes how to replace an air breaker.



DANGER

- Before maintenance, power off the power distribution box and remove all metal ornaments, such as watches and rings from hands and wrists.
- Make sure that the new circuit breakers are switched off before being installed.

Related Tool

Crosshead screwdriver

Operation Procedure

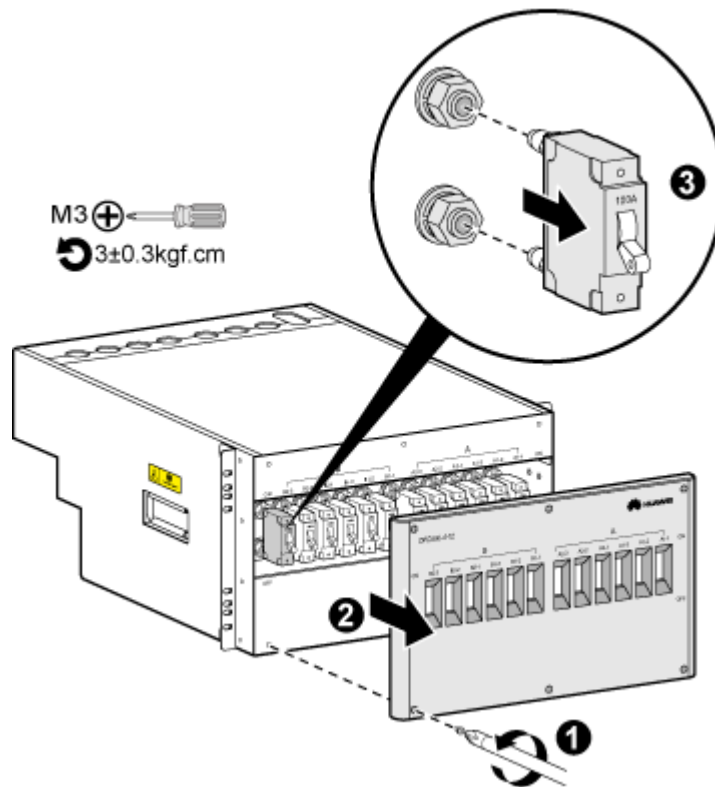
Step 1: Check the location of the air breaker to be replaced.

Step 2: Make sure that all circuit breakers are switched off.

Step 3: Tear down the plastic panel of the power distribution box using the Crosshead screwdriver, as shown in (1) and (2) of Figure 11-13.

Step 4: Remove the air breaker to be replaced, as shown in (3) of Figure 11-13.

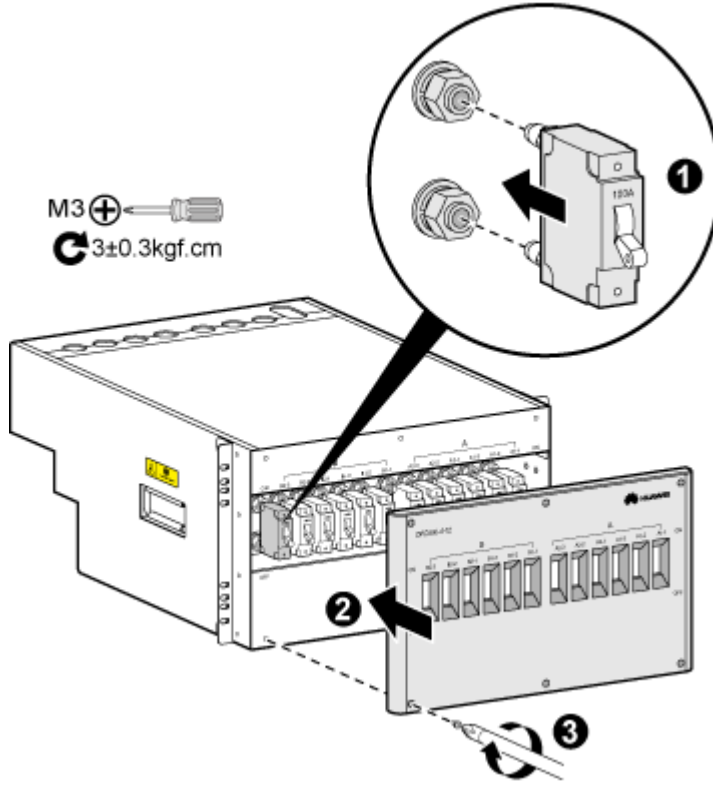
Figure 11-13 Tearing down an air breaker



Step 5: Install a new air breaker into the power distribution box, as shown in (1) of Figure 11-14.

Step 6: Re-install the plastic panel for the power distribution box, as shown in (2) and (3) of Figure 11-14.

Figure 11-14 Installing an air breaker



12 Fiber Breakout

About This Chapter

This section describes breakout boxes and maintenance of the breakout fibers and boxes.

12.1 Breakout Fibers

This section describes the positioning, usage scenario, structure, and technical specifications of breakout fibers.

12.2 Breakout Boxes

This section describes breakout boxes.

12.3 Breakout Box and Optical Fiber Maintenance

This section describes how to maintain the breakout box and optical fibers.

12.1 Breakout Fibers

This section describes the positioning, usage scenario, structure, and technical specifications of breakout fibers.

Positioning

Breakout fibers are used to flexibly allocate bandwidth resources to routers. They cooperate with a breakout optical module to convert an MPO interface into multiple LC interfaces to facilitate fiber layout.

Usage Scenario

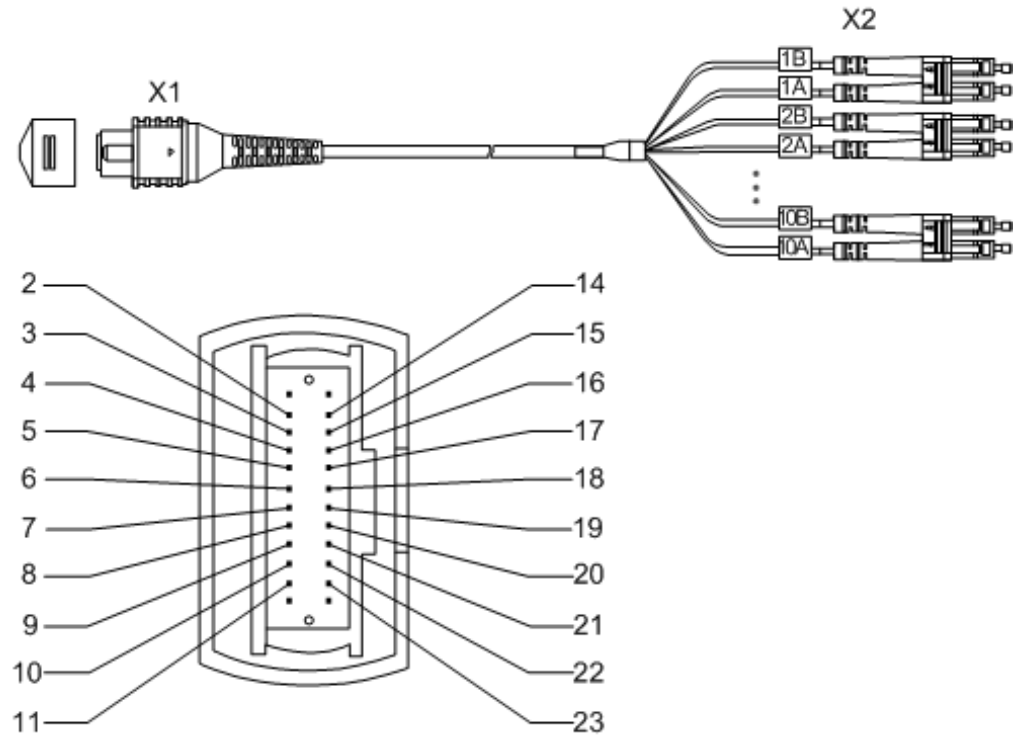
The breakout function applies to a scenario where bandwidth resources are unevenly allocated between two routers at different levels. In comparison with breakout boxes, breakout fibers implement the following functions:

- Loosen fiber layout.
- Extend the cabling distance.

Fiber Structure

To insert a breakout optical module (multimode and short transmission distance) into a board, use an MPO-LC fiber to directly connect the board and the optical module.

Figure 12-1 MPO-LC fiber structure



Technical Specifications

Table 12-1 lists the breakout fibers supported by the NE40E.

Table 12-1 Breakout fibers supported

Type	BOM Number	Official Name	Mode
Optical Cable Assembly, MPO/PC, 10*DLC/PC, Multimode (OM3, Bending Insensitive), GJFH 24A1a (LSZH), 15m, 5.6mm, 24 Cores, 1m/1m, 2mm	14132539	SS-OP-MPO24-10* DLC-M-15	Multimode
Optical Cable Parts, MPO/APC, MPO/APC, Single mode, 10m, 8 cores, GJFH-8G.657 A2, 3.5mm, LSZH, 43	14134759	MPO12-MPO12-S M-10	Single mode

Type	BOM Number	Official Name	Mode
mm Short MPO,Bending insensitive			

Table 12-2 lists the optical modules and boards mapping breakout fibers.

Table 12-2 Optical modules and boards mapping breakout fibers

Breakout Fiber	Optical Module	Board
[14132539/SS-OP-MPO24-10*DLC-M-15] Optical Cable Assembly,MPO/PC,10*DL C/PC,Multimode(OM3,Bending Insensitive),GJFH 24A1a(LSZH),15m,5.6mm, 24 Cores,1m/1m,2mm	[02311LYG/OMND10N12] Function Module,NetEngine40E,OM ND10N01,High Speed Transceiver,CFP2,850nm,10 *10Gb,103.125Gb/s,-7.6dBm,1dBm,-9.5dBm,MPO,M M,0.1km	<ul style="list-style-type: none"> [03056088/CR5D00E8N C70] 8-Port 100GBase-CFP2 Integrated Line Processing Unit (LPUI-1T) [03056888/CR5D00E8N C7B] 8-Port 100GBase-CFP2 Integrated Line Processing Unit B(LPUI-1T-B) [03057043/CR5D00E8N C7C] 8-Port 100GBase-CFP2 Integrated Line Processing Unit L(LPUI-1T-L) [03057725/CR5D00D8N C70] 8-Port 100GETH/DWDM-CFP 2 Integrated Line Processing Unit (LPUI-1T) [03057693/CR5D00E8N C7P] 8-Port 100GETH/DWDM-CFP 2 Integrated Line Processing Unit CM(LPUI-1T-CM)
[14132538/MPO12-4DLC-S M-15] Optical Cable Assembly,MPO/APC,4*DL C/PC,Singlemode,GJFH 8G.657A2(LSZH),15m,3.5 mm,8 Cores,0m/1m,2mm	[02311NUA/OSM010N11] High Speed Transceiver,QSFP+,1310,41 .25Gbps,-8.2dBm,0.5dBm,- 12.6dBm,MPO,SM,10km	<ul style="list-style-type: none"> [03057599/CR5DE2NLF X71] NetEngine40E,CR57E2 NLFX22,2-Port 100GBase-CFP2 + 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit
[14132537/SS-OP-MPO12-4*DLC-M-5] Optical Cable Parts,MPO/PC,4DLC/PC,M	[02310WUU/OMXD30010] Optical Transceiver,QSFP+,850nm,	

Breakout Fiber	Optical Module	Board
ulti-mode,5m,8 cores,0/1m,GJFH-8A1a.2(OM3),3.5mm,2mm,LSZH,43mm Short MPO,Bending insensitive	41.25Gbps,-7.6dBm,-1dBm,-9.5dBm,MPO,MMF,0.15km	(LPUI-480) • [03057936/CR5D00E4NB70] Finished Board Unit,NetEngine40E,CR57E4NBE23,4-Port 100GBase-CFP2 Integrated Line Processing Unit (LPUI-480)
[14131058/SS-OP-MPO12-4*DLC-M-15] Optical Cable Parts,MPO/PC,4DLC/PC,Multi-mode,15m,8 cores,0m/12m,GYFH-8A1a.2(OM3),3.5mm,2mm,LSZH,43mm short MPO,Bending insensitive		
[14132537-001/SS-OP-MPO12-4*DLC-M-100] Optical Cable Parts,MPO/PC,4DLC/PC,Multi-mode,100m,8 cores,0/1m,GJFH-8A1a.2(OM3),3.5mm,2mm,LSZH,43mm Short MPO,Bending insensitive		



NOTE

Characters in the brackets indicate the BOM number and official name that are separated using a slash ("/") in the [BOM number/Official name] format.

12.2 Breakout Boxes

This section describes breakout boxes.

12.2.1 Product Overview

This section describes the positioning, features, and usage scenarios of breakout boxes.

Positioning

Breakout boxes are used to flexibly allocate bandwidth resources to routers. They cooperate with a breakout optical module and optical jumper to convert an MPO interface into multiple LC interfaces to facilitate fiber layout.

Product Features

- LC interfaces support automatic dust-proof covers, and MPO interfaces support dust-proof plugs.
- In comparison with breakout fibers (MPO-LC fibers), breakout boxes feature more flexible fiber layout.

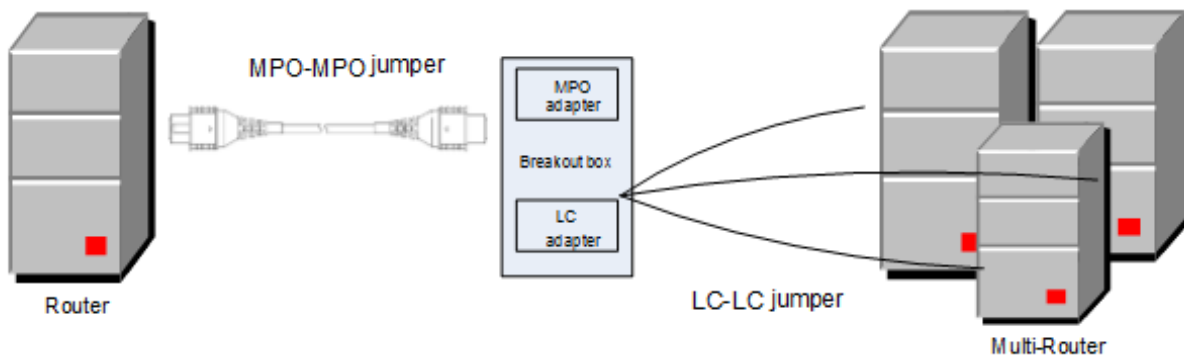
- There is no restriction on the installation direction of breakout boxes, so that the breakout boxes can be installed positively or negatively as needed.

Usage Scenario

The breakout function applies to a scenario where bandwidth resources are unevenly allocated between two routers at different levels. In comparison with breakout fibers, breakout boxes implement the following functions:

- Increase the density of fiber layout.
- Shorten the cabling distance.

Figure 12-2 Breakout box cabling



12.2.2 4-Port-MPO-24-40-Port-LC-Breakout Box(multi-mode)

This section describes the appearance, components, MPO-24 jumper, and technical specifications of this product.

Appearance

Figure 12-3 4-Port-MPO-24-40-Port-LC-Breakout Box(multi-mode)



Components

Figure 12-4 4-Port-MPO-24-40-Port-LC-Breakout Box(multi-mode)



1. MPO adapter	2. LC adapter	3. Mounting ear
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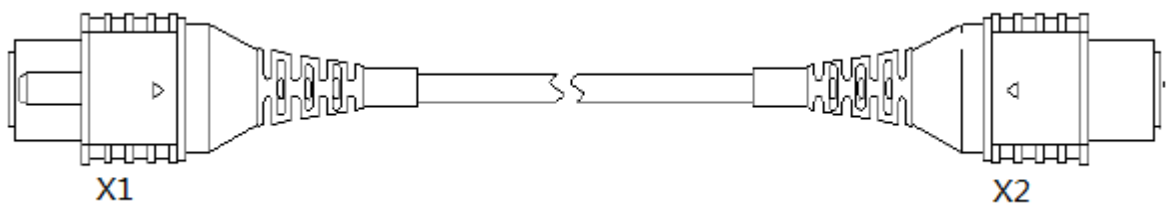
MPO adapters map LC adapters according to their numbers displayed on the panel. Figure 12-5 shows the mapping between MPO and LC adapters.

Figure 12-5 Mapping between MPO and LC adapters



MPO-24 Jumper

The following figure shows the MPO-24 jumper structure and line orders of X1 and X2 ports.



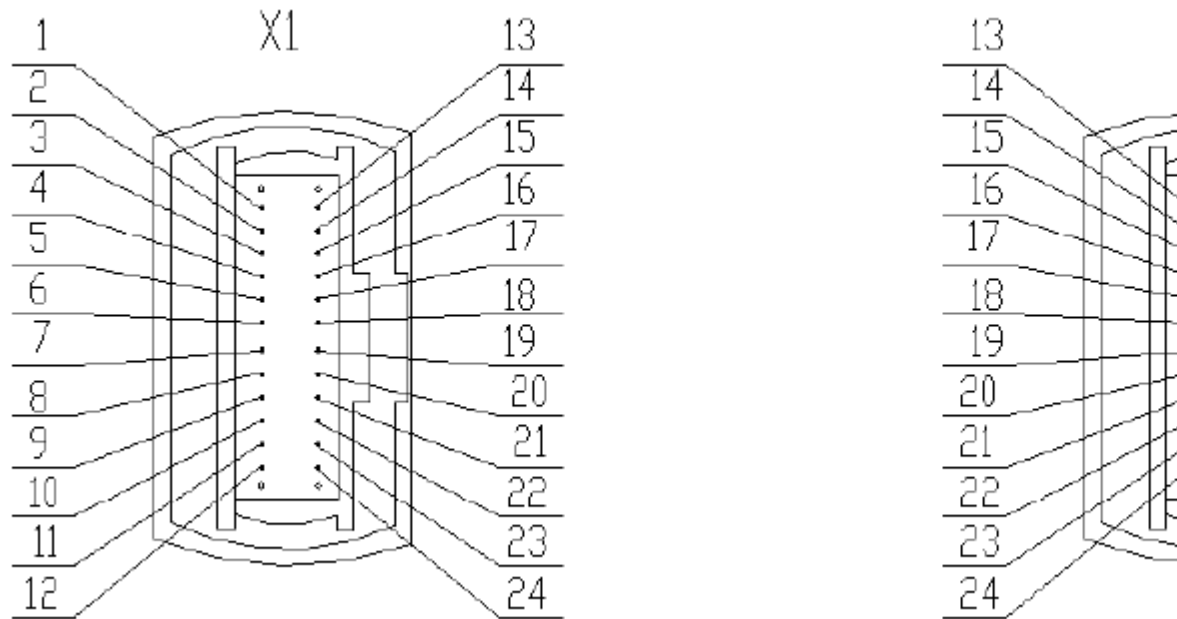


Table 12-3 describes the mappings between the lanes of the X1 and X2 ports.

Table 12-3 Mappings between the lanes of the X1 and X2 ports

Start	End	Start	End
X1-1	X2-1	X1-13	X2-13
X1-2	X2-2	X1-14	X2-14
X1-3	X2-3	X1-15	X2-15
X1-4	X2-4	X1-16	X2-16
X1-5	X2-5	X1-17	X2-17
X1-6	X2-6	X1-18	X2-18
X1-7	X2-7	X1-19	X2-19
X1-8	X2-8	X1-20	X2-20
X1-9	X2-9	X1-21	X2-21
X1-10	X2-10	X1-22	X2-22
X1-11	X2-11	X1-23	X2-23
X1-12	X2-12	X1-24	X2-24

Technical Specifications

Table 12-4 Technical specifications of the 4-Port-MPO-24-40-Port-LC-Breakout Box(multi-mode)

Item	Description
BOM Number	2082892
Official Name	ODBM04040
Dimensions (H x W x D)	43.6 mm x 442 mm x 164 mm
Mounting ear	19-inch supported
Weight	2.3 kg
Insertion loss	≤ 0.75 db
Return loss	Multi-mode: ≥ 20 db
Operating temperature	-40 °C to +65 °C
Storage temperature	-40 °C to +70 °C
Relative operating humidity	<ul style="list-style-type: none"> • Long term: 5% RH to 85% RH, non-condensing • Short term: 5% RH to 95% RH, non-condensing
Relative storage humidity	0% RH to 95% RH, non-condensing

Table 12-5 Optical modules, jumpers, and boards supported by the 4-Port-MPO-24-40-Port-LC-Breakout Box(multi-mode)

Optical Module	MPO-MPO Fiber	Board
[02311LYG/OMND10N12] Function Module,NetEngine40E,OM ND10N01,High Speed Transceiver,CFP2,850nm,10 *10Gb,103.125Gb/s,-7.6dB m,1dBm,-9.5dBm,MPO,M M,0.1km	<ul style="list-style-type: none"> • [14131208/F010MPO00] Patch Cord,MPO/PC,MPO/PC, Multimode(OM,Bending Insensitive,GJFH 24A1a(LSZH),5.6mm,10 m,24cores • [14131209/F030MPO00] Patch Cord,MPO/PC,MPO/PC, Multimode(OM,Bending Insensitive,GJFH 24A1a(LSZH),5.6mm,30 m,24cores 	[03056088/CR5D00E8NC7 0] 8-Port 100GBase-CFP2 Integrated Line Processing Unit (LPUI-1T) [03057043/CR5D00E8NC7 C] 8-Port 100GBase-CFP2 Integrated Line Processing Unit L(LPUI-1T-L) [03056888/CR5D00E8NC7 B] 8-Port 100GBase-CFP2 Integrated Line Processing Unit B(LPUI-1T-B)



NOTE

Characters in the brackets indicate the BOM number and official name that are separated using a slash ("/") in the [BOM number/Official name] format.

12.2.3 10-Port-MPO-12-40-Port-LC-Breakout Box(single-mode)

This section describes the appearance, components, MPO-12 jumper, and technical specifications of this product.

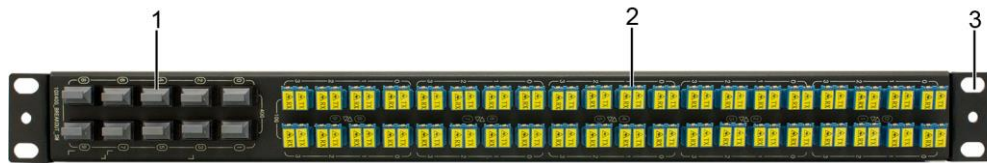
Appearance

Figure 12-6 10-Port-MPO-12-40-Port-LC-Breakout Box(single-mode)



Components

Figure 12-7 10-Port-MPO-12-40-Port-LC-Breakout Box(single-mode)



1. MPO adapter	2. LC adapter	3. Mounting ear
----------------	---------------	-----------------

MPO adapters map LC adapters according to their numbers displayed on the panel. [Figure 12-8](#) shows the mapping between MPO and LC adapters.

Figure 12-8 Mapping between MPO and LC adapters



MPO-12 Jumper

The TYPE-B MPO jumper is used. The following figure shows the MPO-12 jumper structure and line orders of X1 and X2 ports.

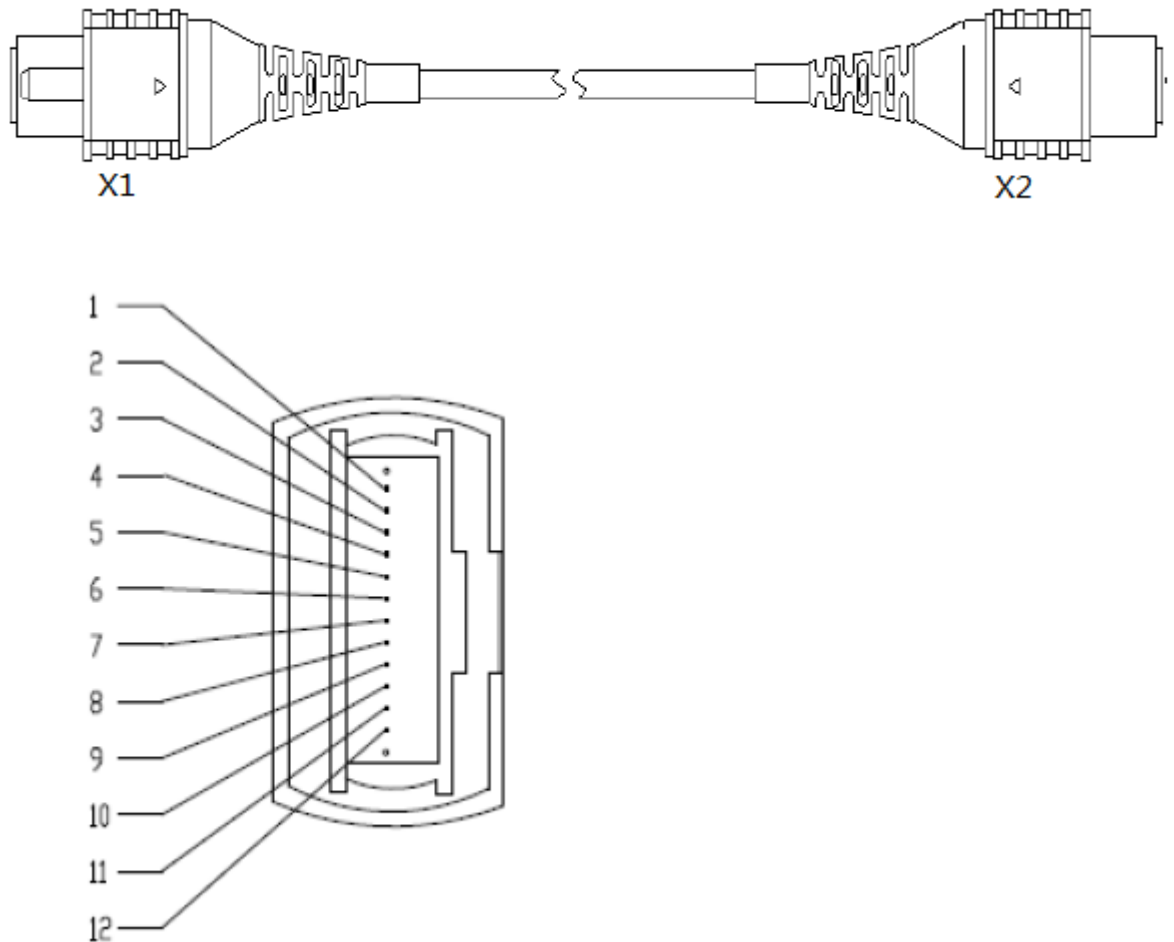


Table 12-6 describes the mappings between the lanes of the X1 and X2 ports.

Table 12-6 Mappings between the lanes of the X1 and X2 ports

Start	End	Start	End
X1-1	X2-12	X1-7	/
X1-2	X2-11	X1-8	/
X1-3	X2-10	X1-9	X2-4
X1-4	X2-9	X1-10	X2-3
X1-5	/	X1-11	X2-2
X1-6	/	X1-12	X2-1

Technical Specifications

Table 12-7 Technical specifications of the 10-Port-MPO-12-40-Port-LC-Breakout Box(single-mode)

Item	Description
BOM Number	2082890
Official Name	ODBS10040
Dimensions (H x W x D)	43.6 mm x 442 mm x 164 mm
Mounting ear	19-inch supported
Weight	2.3 kg
Insertion loss	≤ 0.75 db
Return loss	Single-mode: ≥ 30 db
Operating temperature	−40 °C to +65 °C
Storage temperature	−40 °C to +70 °C
Relative operating humidity	<ul style="list-style-type: none"> • Long term: 5% RH to 85% RH, non-condensing • Short term: 5% RH to 95% RH, non-condensing
Relative storage humidity	0% RH to 95% RH, non-condensing

Table 12-8 Optical modules, jumpers, and boards supported by the 10-Port-MPO-12-40-Port-LC-Breakout Box(single-mode)

Optical Module	MPO-MPO Fiber	Board
<ul style="list-style-type: none"> • [02311NUA/OSM010N1 1] Function 	[14134759/MPO12-MPO12 -SM-10] Optical Cable	<ul style="list-style-type: none"> • [03057599/CR5DE2NLF X71] 2-Port

Optical Module	MPO-MPO Fiber	Board
Module,OSM010N11,High Speed Transceiver,QSFP+,1310,41.25Gbps,-8.2dBm,0.5dBm,-12.6dBm,MPO,SM,10km • [02310WUU/OMXD30010] High Speed Transceiver,QSFP+,850nm,41.25Gbps,-7.6dBm,-1dBm,-9.5dBm,MPO,MF,0.15km	Parts,MPO/APC,MPO/APC, Single mode,10m,8 cores,GJFH-8G.657A2,3.5mm,LSZH,43mm Short MPO,Bending insensitive	100GBase-QSFP28 + 24-Port 10GBase LAN/WAN-SFP+ Integrated Line Processing Unit (LPUI-480) • [03057936/CR5D00E4NB70] 4-Port 100GBase-QSFP28 Integrated Line Processing Unit(LPUI-480)



NOTE

Characters in the brackets indicate the BOM number and official name that are separated using a slash ("/") in the [BOM number/Official name] format.

12.3 Breakout Box and Optical Fiber Maintenance

This section describes how to maintain the breakout box and optical fibers.

The maintenance method of the MPO and LC optical fibers applies to the mapping optical fibers.

The maintenance method of the optical modules on the MPO and LC interfaces applies to adapters on the breakout box.

13 Conversion Box

About This Chapter

13.1 Conversion Box

13.1 Conversion Box

Figure 13-1 shows the appearance of the 24-port E1/T1 DB100 to RJ48 port conversion box.

Figure 13-1 Appearance of the 24-port E1/T1 DB100 to RJ48 port conversion box



Figure 13-2 shows the appearance of the 48-port E1/T1 DB100 to RJ48 port conversion box.

Figure 13-2 Appearance of the 48-port E1/T1 DB100 to RJ48 port conversion box



Figure 13-3 shows the appearance of the 24-port E1/T1 DB100 to SMB port conversion box.

Figure 13-3 Appearance of the 24-port E1/T1 DB100 to SMB port conversion box



The CR53CFE1 provides 24 E1/T1 interfaces. The connectors on the CR53CFE1 are of the DB100 type, which cannot be directly used. Therefore, you need to use 100-ohm 24xE1 trunk cables to connect the 24 E1 port conversion box and the CR53CFE1. In this manner, the conversion box provides RJ48 interfaces and SMB interfaces that can be directly used. The selection of the balanced or unbalanced conversion box and associated E1/T1 cables is determined by site survey results.

- The remote interface is a 120-ohm balanced RJ48 interface.
 - If the remote interface is a 120-ohm balanced RJ48 interface, you need to select E1/T1 trunk cables with RJ48 connectors at both ends and a DB100 to RJ48 port conversion box. The maximum transmission distance is 270 m (88.58 ft).
- The remote interface is a 75-ohm unbalanced SMB interface.
 - If the remote interface is a 75-ohm unbalanced SMB interface, you need to select a 24-port E1/T1 DB100 to SMB port conversion box and suitable cables. In addition, the cable end that is connected to the customer's device is not equipped with a terminal, so the customer needs to prepare the terminal. In this case, the maximum transmission distance is shorter than 200 m.

The size of the conversion box is 125 mm x 442 mm x 43.6 mm (excluding the mounting ear). The conversion box can be installed in a 19-inch or ETSI standard cabinet. The N68E cabinet is a 19-inch cabinet, and the N63E cabinet is an ETSI cabinet.

14 More Conference

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