Huawei MZ220 NIC

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White Paper

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About This Document

Purpose

This document describes the MZ220 in terms of its functions, appearance, features, applications, and technical specifications. You can obtain comprehensive information about the MZ220 by reading this document.

Intended Audience

This document is intended for:

- Technical support engineers
- Maintenance engineers

Symbol Conventions

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

Symbol	Description
⚠ DANGER	Alerts you to a high risk hazard that could, if not avoided, result in serious injury or death.
⚠ WARNING	Alerts you to a medium or low risk hazard that could, if not avoided, result in moderate or minor injury.
⚠ CAUTION	Alerts you to a potentially hazardous situation that could, if not avoided, result in equipment damage, data loss, performance deterioration, or unanticipated results.
📖 NOTE	Provides additional information to emphasize or supplement important points in the main text.

Change History

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Type	Change Description
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This issue is the third official release.

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This issue is the first official release.

Contents

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1 Overview

About This Chapter

1.1 Functions

The MZ220 is a Fibre Channel (FC) host bus adapter (HBA). It is used for E9000 compute nodes and provides two 16G FC ports for compute nodes to connect to switch modules in the chassis.

The MZ220 uses the Emulex XE201 chip, and its two 16G FC ports support 16G/8G auto-negotiation. The MZ220 supports FC network applications and provides high-bandwidth, high-performance storage network solutions.

1.2 Appearance

The MZ220 can be installed in slot Mezzanine1 (Mezz1 for short) or Mezzanine2 (Mezz2 for short) on a half-width E9000 compute node or in slot Mezz1, Mezz2, Mezzanine3 (Mezz3 for short), or Mezzanine4 (Mezz4 for short) on a full-width E9000 compute node.

The MZ220 provides network ports for connecting to switch modules:

● When the MZ220 is installed in slot Mezz1 or Mezz3, its two ports connect to switch modules in slots 2X and 3X.

● When the MZ220 is installed in slot Mezz2 or Mezz4, its two ports connect to switch modules in slots 1E and 4E.

Figure 1-1 MZ220 appearance

Figure 1-2 MZ220 installation positions on a half-width compute node
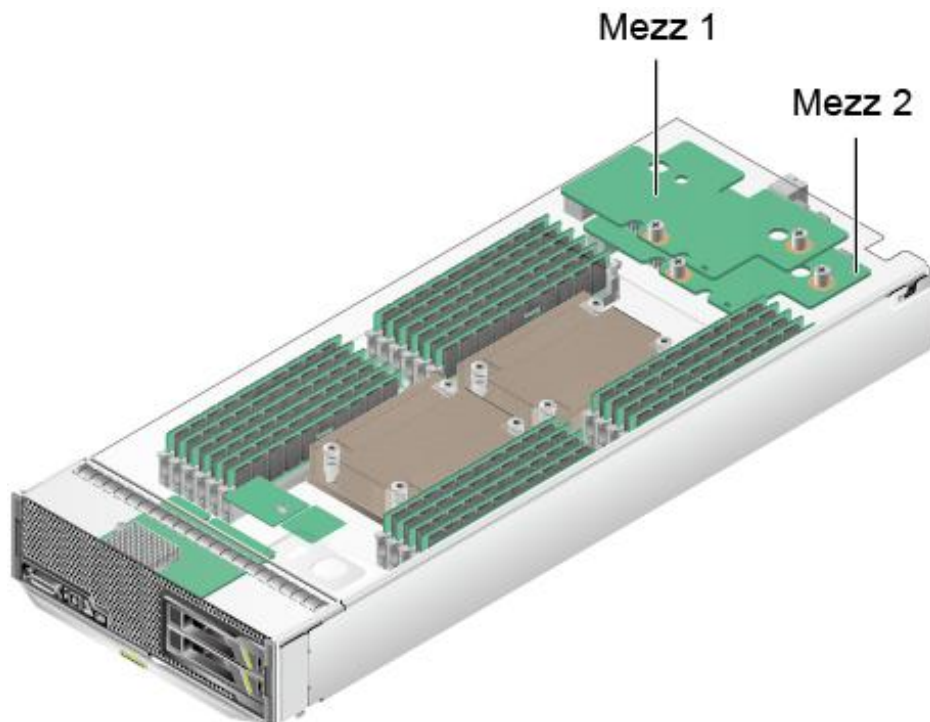
Figure 1-3 MZ220 installation positions on a full-width compute node
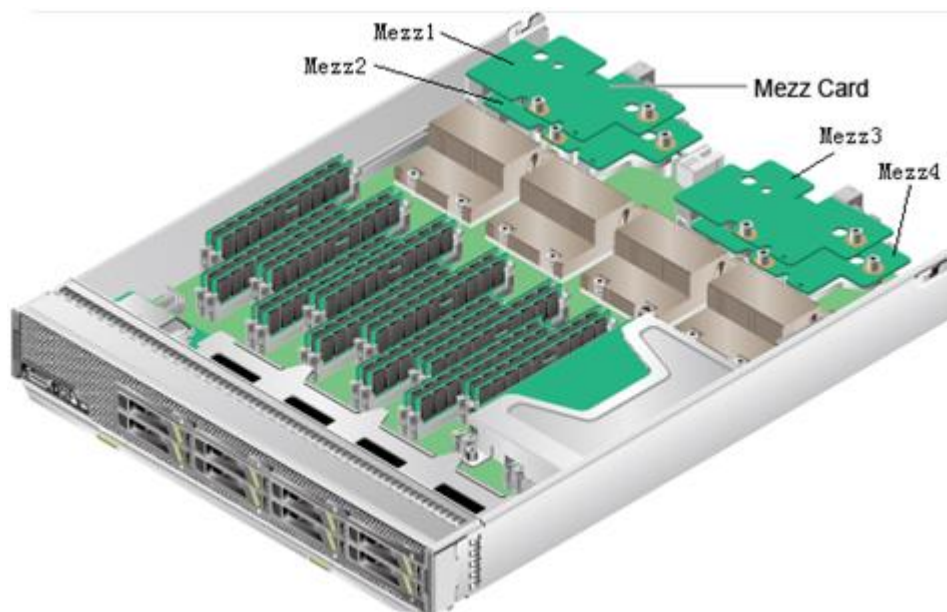
2 Features

About This Chapter

2.1 Feature List

The MZ220 supports the following features and performance specifications:

- FC ports that support 16G/8G auto-negotiation
- Fabric connection in N_Port mode and point-to-point in NL_Port mode (The NL_Port mode is supported only when the port rate is 8 Gbit/s.)
- N_Port_ID Virtualization (NPIV), supporting a maximum of 255 virtual N_Port IDs per FC port
- FC SAN Boot
- Processing capability of 1.2 million input/output operations per second (IOPS)

2.2 Feature Description

NPIV

The MZ220 supports the NPIV feature when it operates in FCoE mode. With this feature, each port supports a maximum of 255 virtual N_Port_IDs and its own physical N_Port_ID.

Virtual N_Port_IDs can be assigned to VMs. In this way, the mapping between virtual N_Port_IDs and VMs is set up.

SAN Boot

The MZ220 supports the SAN Boot feature. This feature is used for remote boot over the FC SAN. It enables users to connect to the remote FC array for loading an OS.

2.3 Standards Compliance

Table 2-1 lists the standards and protocols that the MZ220 complies with.

Table 2-1 Standards compliance

Standard	Protocol
FC-LS	FC Link Service
FC-FS-2	FC Framing and Signaling
FC-GS-5	FC Generic Service
FCP-3	Fibre Channel Protocol for SCSI
FC-AL-2 (supported only by 8G FC ports)	Fibre Channel Arbitrated Loop

3 Applications

About This Chapter

3.1 Compatible Compute Nodes

The MZ220 can be installed in slot Mezz1 or Mezz2 on a half-width compute node or in slot Mezz1, Mezz2, Mezz3, or Mezz4 on a full-width compute node. **Table 3-1** lists the compute nodes that support the MZ220 and its installation positions on them.

Table 3-1 Compute nodes that support the MZ220

Compute Node	Number of Mezz Module Slots	MZ220 Installation Position
CH121	2	Mezz1 and Mezz2
CH121 V3	2	Mezz1 and Mezz2
CH220	1	Mezz1
CH220 V3	4	Mezz1, Mezz2, Mezz3, and Mezz4
CH221	1	Mezz1
CH222	2	Mezz1 and Mezz2
CH222 V3	2	Mezz1 and Mezz2
CH240	2	Mezz1 and Mezz2
CH242 V3	4	Mezz1, Mezz2, Mezz3, and Mezz4

3.2 Connected I/O Modules

MZ220s can connect to I/O modules (switch modules or interface boards). **Figure 3-1** shows the connections between the MZ220s on a half-width compute node and the ports on I/O modules.

Figure 3-1 Connections between the MZ220s on a half-width compute node and the ports on I/O modules
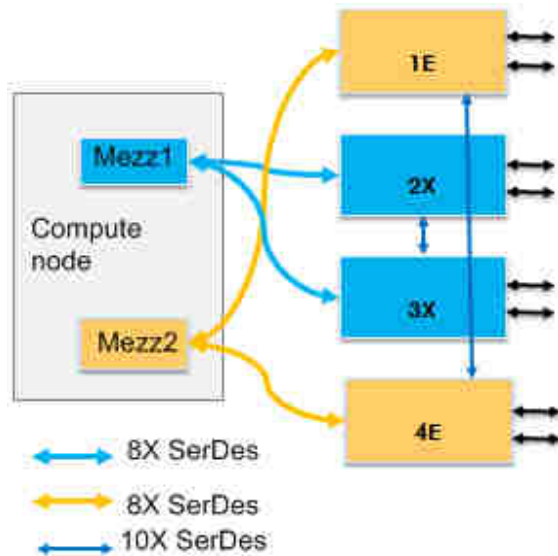
There are two or four groups of Serializer/Deserializer (SerDes, known as high-speed interconnect line) between each compute node and I/O module slots.

● Mezz1: 8X SerDes for connecting to I/O module slots 2X and 3X

● Mezz2: 8X SerDes for connecting to I/O module slots 1E and 4E

● Mezz3 (available only on a full-width compute node): 8X SerDes for connecting to I/O module slots 2X and 3X

● Mezz4 (available only on a full-width compute node): 8X SerDes for connecting to I/O module slots 1E and 4E

📖NOTE

The MZ220 provides two ports, and only 1X of each 8X SerDes is used.

Table 3-2 describes the I/O modules to which the MZ220 can connect.

Table 3-2 I/O modules to which the MZ220 can connect

I/O Module	I/O Module Slot	MZ220 (Mezz1)	MZ220 (Mezz2)	Typical Configuration	Remarks
CX210	2X/3X	√	X	Yes	-
	1E/4E	X	√	Yes	-
CX220	2X/3X	√	X	Yes	-
	1E/4E	X	√	Yes	-

3.3 MZ220 Networking

The MZ220 can connect to I/O modules (switch modules or interface boards) to provide FC services.

The MZ220 can work with the CX210 switch module. If this happens, the MZ220 ports work at a rate of 8 Gbit/s (auto-negotiation). The two 8G FC ports on the MZ220 provide 16 Gbit/s bandwidth to support FC service data. The MZ220 can connect to the FC switch module MX210 on the CX210 and then to the external FC SAN through 8G FC ports on the CX210. See **Figure 3-2**.

Figure 3-2 Connection between the MZ220 and the CX210

The MZ220 can work with the CX220 switch module. If this happens, the MZ220 ports work at a rate of 16 Gbit/s (auto-negotiation). The two 16G FC ports on the MZ220 provide 32 Gbit/s bandwidth to support FC service data. The MZ220 can connect to the FC switch module MX220 on the CX220 and then to the external FC SAN through 16G FC ports on the CX220. See **Figure 3-3**.

Figure 3-3 Connection between the MZ220 and the CX220

3.4 Supported OSs

Table 3-3 lists the OSs supported by the MZ220.

Table 3-3 OSs supported by the MZ220

OS	Version	Remarks
Redhat	RHEL 6.5	-
	RHEL 6.6	-
	RHEL 6.7	-
	RHEL 7.0	-
	RHEL 7.1	

OS	Version	Remarks
Suse	SLES 11.3	-
	SLES 12.0	-
VMware	VMware ESXi 5.1.2	-
	VMware ESXi 5.5.2	-
	VMware ESXi 5.5.3	-
	VMware ESXi 6.0	-
	VMware ESXi 6.0.1	-
	VMware ESXi 6.0.2	-
Windows	Windows 2008 R2 SP1	-
	Windows 2012	-
	Windows 2012 R2	-

The preceding table is for reference only. Compatible OSs for the MZ220 vary with the compute node type. For details, see the *Huawei Server Compatibility Checker*.

3.5 Connected FC Devices

Table 3-4 lists the FC arrays and FC switches to which the MZ220 can connect.

Table 3-4 FC devices to which the MZ220 can connect

Category	Vendor	Model	Remarks
FC array	EMC	Symmetrix DMX-4	-
		Symmetrix VMAX	-
		Symmetrix VMAXe	-
		VNX	-
	Huawei	HVS85T	-
		S2200T	-
		S2600T	-
		S5500T	-
		S3900	-

Category	Vendor	Model	Remarks
		S5600T	-
		S5800T	-
		S5900	-
		S6800T	-
		S6900	-
	Futijsu	DX80	-
	Synology	DS3611xs	-
		DS3612xs	-
		RS3411RPxs	-
		RS3411xs	-
		RS3412RPxs	-
		RS3412xs	-
FC Switch	Brocade	Brocade 300	The MZ220 connects to Brocade 300 in NPV mode through the CX210 or CX220 on the E9000.
		Brocade 5100	The MZ220 connects to Brocade 5100 in NPV mode through the CX210 or CX220 on the E9000.
		Brocade 5300	The MZ220 connects to Brocade 5300 in NPV mode through the CX210 or CX220 on the E9000.
		Brocade 8510	The MZ220 connects to Brocade 8510 in NPV mode through the CX210 or CX220 on the E9000.
	Huawei	E9000 CX210	The CX210 is an 8G FC switch module on the E9000, and is an ODM product from Brocade.
		E9000 CX220	The CX220 is a 16G FC switch module on the E9000, and is an ODM product from Brocade.
		SNS2124	OEM Brocade 300 The MZ220 connects to SNS2124 in NPV mode through the CX210 or CX220 on the E9000.

Category	Vendor	Model	Remarks
		SNS2248	OEM Brocade 6510
			The MZ220 connects to SNS2248 in NPV mode through the CX210 or CX220 on the E9000.
	Cisco	MDS 9148	The MZ220 connects to MDS 9148 in NPV mode through the CX210 or CX220 on the E9000.
		MDS 9513	The MZ220 connects to MDS 9513 in NPV mode through the CX210 or CX220 on the E9000.
		MDS 9505	The MZ220 connects to MDS 9505 in NPV mode through the CX210 or CX220 on the E9000.
		MDS 9222i	The MZ220 connects to MDS 9222i in NPV mode through the CX210 or CX220 on the E9000.

4 Technical Specifications

About This Chapter

4.1 Technical Specifications

Table 4-1 lists the technical specifications for the MZ220.

Table 4-1 Technical specifications

Item	Specifications
Dimensions (length x width)	148 mm x 85 mm (5.83 in. x 3.35 in.)
Power supply	12 V DC
Net weight	0.3 kg (0.66 lb)
Maximum power consumption	12 W
Temperature	Operating temperature: 5°C to 40°C (41°F to 104°F) (ASHRAE Class A3 compliant)
	Storage temperature: –40°C to +65°C (–40°F to +149°F)
Temperature change rate	15°C/h (27°F/h)
Humidity	Operating humidity: 5% RH to 85% RH (non-condensing)
	Storage humidity: 5% RH to 95% RH (non-condensing)
Altitude	● 40°C (104°F) at 1800 m (5905.44 ft) ● 30°C (86°F) at 3000 m (9842.40 ft) When the MZ220 is used at an altitude between 1800 m and 3000 m, the highest operating temperature decreases by 1°C (1.8°F) as the altitude increases by 120 m (393.70 ft).
PCIe port bandwidth	64 Gbit/s (PCIe 3.0 x8)
Port rate	8.5 Gbit/s or 14.025 Gbit/s
Number of ports	2
Port type	FC
Chip model/manufacturer	XE201/Emulex

A Acronyms and Abbreviations

F	
FC	Fibre Channel
H	
HBA	host bus adapter
N	
NPIV	N_Port_ID Virtualization
O	
OS	operating system
P	
PCIe	Peripheral Component Interconnect Express
S	
SAN	storage access network