FusionCube BigData Machine-2288H V5 Configuration Help

1. **Notice: The V5 servers which install VMware system should avoid using the Intel X710/XL710 NIC, should configure and use the NIC which is in the compatibility list configuration except X7xx/XL7xx serial NIC. The reason is detailed in the warning notice: http://support.huawei.com/enterprise/en/bulletins-product/NEWS2000000641**

   Notice: The V5 servers which install VMware system should avoid using the Intel X710/XL710 NIC, should configure and use the NIC which is in the compatibility list configuration except X7xx/XL7xx serial NIC.The reason is detailed in the warning notice: http://support.huawei.com/enterprise/en/bulletins-product/NEWS2000000641

2. **Chassis module type**

   A chassis module includes the chassis, mainboard, and other components, but not PSUs, DVD-ROM drive, and RAID controller cards.

3. **===CPU===**

   o 3.1 **CPU type**

   1. Preferred, Sub-preferred: recommended optimum commercial model.
   2. Recommended configuration order: Preferred -> Sub-preferred.
   3 .Intel 3100 series CPUs support DIMMs of 2133 MHz and higher. However, DIMMs whose frequency is higher than 2133 MHZ can only work at the maximum frequency of 2133 MHz in actual operating.
   4. Intel 4100 and 5100 series CPUs support the actual maximum frequency of 2400 MHz, and Intel 6100 and 8100 series CPUs support the actual maximum frequency of 2666 MHz.

   o 3.2 **Number of CPUs**

   The server supports up to 2 CPUs.

4. **===Memory===**

   o 4.1 **DIMM type**

   The DIMMs installed on the same server must be the same type.

   o 4.2 **Number of DIMMs**

   One CPU supports 1 to 12 DIMMs, and two CPUs support 1 to 24 DIMMs.

5. **===2.5" Hard Disk===**

   o 5.1 **Number of hard disks of the first type**

   1. An 8 x 2.5"-disk chassis supports up to eight 2.5" hard disks.
   2. A 24 x 2.5''-disk chassis supports up to twenty-four 2.5" hard disks.
   3. A 25 x 2.5"-disk chassis supports up to twenty-five 2.5" hard disks.
   4. A 20 x 2.5"-disk chassis supports up to twenty 2.5" hard disks.

   o 5.2 **Number of hard disks of the second type**

   1. An 8 x 2.5"-disk chassis supports up to eight 2.5" hard disks.
   2. A 24 x 2.5''-disk chassis supports up to twenty-four 2.5" hard disks.
   3. A 25 x 2.5"-disk chassis supports up to twenty-five 2.5" hard disks.
   4. A 20 x 2.5"-disk chassis supports up to twenty 2.5" hard disks.

   o 5.3 **Number of hard disks of the third type**

   1. An 8 x 2.5"-disk chassis supports up to eight 2.5" hard disks.
   2. A 24 x 2.5''-disk chassis supports up to twenty-four 2.5" hard disks.
   3. A 25 x 2.5"-disk chassis supports up to twenty-five 2.5" hard disks.
   4. A 20 x 2.5"-disk chassis supports up to twenty 2.5" hard disks.

6. **===3.5" Hard Disk===**

   o 6.1 **Number of hard disks of the first type**

   1. A 12 x 3.5"-disk chassis supports up to twelve 3.5" hard disks.
   2. A 16 x 3.5"-disk chassis supports up to sixteen 3.5" hard disks.

   o 6.2 **Number of hard disks of the second type**

   1. A 12 x 3.5"-disk chassis supports up to twelve 3.5" hard disks.
   2. A 16 x 3.5"-disk chassis supports up to sixteen 3.5" hard disks.

   o 6.3 **Number of hard disks of the third type**

   1. A 12 x 3.5"-disk chassis supports up to twelve 3.5" hard disks.
   2. A 16 x 3.5"-disk chassis supports up to sixteen 3.5" hard disks.

7. **===RAID===**

   o 7.1 **RAID controller card**

   1. You must configure a mezzanine or standard RAID controller card if hard disks other than NVMe SSDs are installed.
   2. RAID controller cards with supercapacitor are preferred.

3. The following RAID controller cards support out-of-band management functions: 430C-M 1G, 430C-M 2G, 450C-M 2G, 450C-M 4G, 530C-M 1G, and 530C-M 2G.

8. **===Flexible PCIe NIC===**

   o 8.1 **PCIe NIC**

Dedicated network interface card (NIC), which does not occupy any standard PCIe slot.
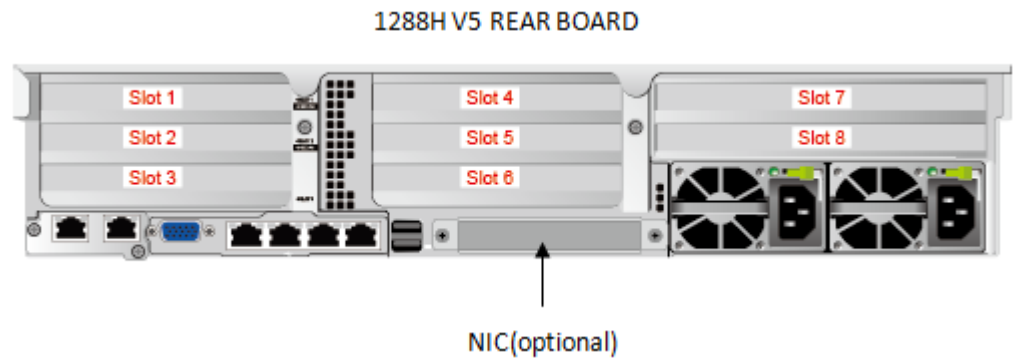
2288H V5 Flexible NIC

9. **=== M.2 SSD===**

   o 9.1 **M.2 SSD type**

M.2 SSD include 240 GB M.2 SSD.

   o 9.2 **Number of M.2 SSDs**

Two M.2 SSD are configured by default.

10. **===Riser Card or Rear Hard Drive Module===**

   o 10.1 **Riser Card or Rear Hard Drive Module**

1. A three-slot PCIe riser card provides three x8 slots (bus bandwidth: x16) for three PCIe x8 cards.
2. A two-slot PCIe riser card provides one x16 slot and one x8 slot (bus bandwidth: x16) for one PCIe x16 card and one PCIe x8 card, or one PCIe x16 double-slot card.
3. add multiple P4 card configuration:
1) dual CPU, IO1 and IO2 can only use 02311TWR Riser (3 * X8), you can choose P4 card, 3 slots can be selected. IO3 can choose 02311TWT (2*x8), and only 7 slots can be selected as P4. Supports up to 7pcs P4 in dual CPU situations. When using a single CPU, RIS2 is not available for IO2 and IO3. The configurator adds a prompt, and the bandwidth supported by P4 is X8.
2) dual CPU, IO1 and IO2 can only use 02311XAH Riser, you can choose P4 card,

only 1 and 4 slots can be selected. IO3 can choose 02311VLP, only 7 slots can be selected P4. Supports up to 3pcs P4 in dual CPU situations. When using a single CPU, RIS2 is not available for IO2 and IO3.

- o 10.2 **Riser Card or Rear Hard Drive Module**

1. A three-slot PCIe riser card provides three x8 slots (bus bandwidth: x16) for three PCIe x8 cards.
2. A two-slot PCIe riser card provides one x16 slot and one x8 slot (bus bandwidth: x16) for one PCIe x16 card and one PCIe x8 card, or one PCIe x16 double-slot card.
3. add multiple P4 card configuration:
1) dual CPU, IO1 and IO2 can only use 02311TWR Riser (3 * X8), you can choose P4 card, 3 slots can be selected. IO3 can choose 02311TWT (2*x8), and only 7 slots can be selected as P4. Supports up to 7pcs P4 in dual CPU situations. When using a single CPU, RIS2 is not available for IO2 and IO3. The configurator adds a prompt, and the bandwidth supported by P4 is X8.
2) dual CPU, IO1 and IO2 can only use 02311XAH Riser, you can choose P4 card, only 1 and 4 slots can be selected. IO3 can choose 02311VLP, only 7 slots can be selected P4. Supports up to 3pcs P4 in dual CPU situations. When using a single CPU, RIS2 is not available for IO2 and IO3.

- o 10.3 **Riser Card or Rear Hard Drive Module**

1.A two-slot PCIe riser card provides one x8 slot and one x8 slot (bus bandwidth: x16) for two PCIe x8 cards.
2. A one-slot PCIe riser card provides one x16 slot for one PCIe x16 card.
3. add multiple P4 card configuration:
1) dual CPU, IO1 and IO2 can only use 02311TWR Riser (3 * X8), you can choose P4 card, 3 slots can be selected. IO3 can choose 02311TWT (2*x8), and only 7 slots can be selected as P4. Supports up to 7pcs P4 in dual CPU situations. When using a single CPU, RIS2 is not available for IO2 and IO3. The configurator adds a prompt, and the bandwidth supported by P4 is X8.
2) dual CPU, IO1 and IO2 can only use 02311XAH Riser, you can choose P4 card, only 1 and 4 slots can be selected. IO3 can choose 02311VLP, only 7 slots can be selected P4. Supports up to 3pcs P4 in dual CPU situations. When using a single CPU, RIS2 is not available for IO2 and IO3.

11. **===PCIe Card===**

- o 11.1 **PCIe card of slot 1**

1. A three-slot PCIe riser card provides three x8 slots (bus bandwidth: x16) for three PCIe x8 cards.
2. A two-slot PCIe riser card provides one x16 slot and one x8 slot (bus bandwidth: x16) for one PCIe x16 card and one PCIe x8 card, or one PCIe x16 double-slot card.
3. If a 24-disk server is configured with only one CPU, the first standard RAID

controller card is installed in the first PCIe slot, and the second standard RAID controller card is installed in the second PCIe slot.

4. The two-slot PCIe riser card providing one x16 slot and one x8 slot (bus bandwidth: x16) is dedicated for GPUs and supports one GPU.

5. P100 and P4 GPUs are used for computing and do not provide any port for cable connection or support display output.

6. License files are required for virtual desktop scenarios. An M10 GPU can be virtualized into 4, 8, 32, and 64 vGPUs.

7. License files are required for virtual desktop scenarios. An M60 GPU can be virtualized into 4, 8, 16, and 32 vGPUs.

8.Support for up to 1pcs M.2 PCIe Raid card.

9. V100 GPU card only for 8-disk server.

10. P4 GPU card is not support for 16-disk server.

11. To configure 4 to 7 P4 GPU cards:

1) Use a 3-slot x8 (x16 slot) PCIe riser card (BOM: 02311TWR) in I/O modules 1 and 2,and a PCIe card (BOM:02311TWT) with one x8 slot and one x8 (x16 slot) slot in slot 7 of I/O module 3.

2) Manually add extra P4 GPU cards (BOM:06320107) after choosing riser cards on the configurator.

EMULEX FCoE-SFP+ 2 ports(with

Optical Transceiver)

INTEL 2*10GE

Optical Interface NIC(with Optical Transceiver)

INTEL 2*GE

RJ45 Electrical Interface NIC

INTEL 4*GE RJ45

Electrical Interface NIC

Qlogic Dual-port 8G HBA (with Optical Transceiver)

o 11.2 **PCIe card of slot 2**

1. A three-slot PCIe riser card provides three x8 slots (bus bandwidth: x16) for three PCIe x8 cards.

2. A two-slot PCIe riser card provides one x16 slot and one x8 slot (bus bandwidth: x16) for one PCIe x16 card and one PCIe x8 card, or one PCIe x16 double-slot card.

3. The two-slot PCIe riser card providing one x16 slot and one x8 slot (bus bandwidth: x16) is dedicated for GPUs and supports one GPU.

4. Support for up to 1pcs M.2 PCIe Raid card.

5. To configure 4 to 7 P4 GPU cards:

1) Use a 3-slot x8 (x16 slot) PCIe riser card (BOM: 02311TWR) in I/O modules 1 and 2,and a PCIe card (BOM:02311TWT) with one x8 slot and one x8 (x16 slot) slot in slot 7 of I/O module 3.

2) Manually add extra P4 GPU cards (BOM:06320107) after choosing riser cards on the configurator.

EMULEX FCoE-SFP+ 2 ports(with Optical Transceiver)

INTEL 2*10GE

Optical Interface NIC(with Optical Transceiver)

INTEL 2*GE

RJ45 Electrical Interface NIC

INTEL 4*GE RJ45

Electrical Interface NIC

Qlogic Dual-port 8G HBA (with Optical
Transceiver)

o 11.3 **PCIe card of slot 3**

1. A three-slot PCIe riser card provides three x8 slots (bus bandwidth: x16) for three
PCIe x8 cards.
2. A two-slot PCIe riser card provides one x16 slot and one x8 slot (bus bandwidth:
x16) for one PCIe x16 card and one PCIe x8 card, or one PCIe x16 double-slot card.
3. The two-slot PCIe riser card providing one x16 slot and one x8 slot (bus bandwidth:
x16) is dedicated for GPUs and supports one GPU
4. Support for up to 1pcs M.2 PCIe Raid card.
5. To configure 4 to 7 P4 GPU cards:
1) Use a 3-slot x8 (x16 slot) PCIe riser card (BOM: 02311TWR) in I/O modules 1 and
2,and a PCIe card (BOM:02311TWT) with one x8 slot and one x8 (x16 slot) slot in
slot 7 of I/O module 3.
2) Manually add extra P4 GPU cards (BOM:06320107) after choosing riser cards on
the configurator.

EMULEX FCoE-SFP+ 2 ports(with
Optical Transceiver)

INTEL 2*10GE

Optical Interface NIC(with Optical Transceiver)

INTEL 2*GE

RJ45 Electrical Interface NIC

INTEL 4*GE RJ45

Electrical Interface NIC

Qlogic Dual-port 8G HBA (with Optical Transceiver)

o 11.4 **PCIe card of slot 4**

1. A three-slot PCIe riser card provides three x8 slots (bus bandwidth: x16) for three PCIe x8 cards.

2. A two-slot PCIe riser card provides one x16 slot and one x8 slot (bus bandwidth: x16) for one PCIe x16 card and one PCIe x8 card, or one PCIe x16 double-slot card.

3. If a 24-disk server is configured with only one CPU, the first standard RAID controller card is installed in the first PCIe slot, and the second standard RAID controller card is installed in the second PCIe slot.

4. The two-slot PCIe riser card providing one x16 slot and one x8 slot (bus bandwidth: x16) is dedicated for GPUs and supports one GPU.

5. P100 and P4 GPUs are used for computing and do not provide any port for cable connection or support display output.

6. License files are required for virtual desktop scenarios. An M10 GPU can be virtualized into 4, 8, 32, and 64 vGPUs

7. License files are required for virtual desktop scenarios. An M60 GPU can be virtualized into 4, 8, 16, and 32 vGPUs.

8.Support for up to 1pcs M.2 PCIe Raid card.

9. V100 GPU card only for 8-disk server.

10. P4 GPU card is not support for 16-disk server.

11. To configure 4 to 7 P4 GPU cards:

1) Use a 3-slot x8 (x16 slot) PCIe riser card (BOM: 02311TWR) in I/O modules 1 and 2,and a PCIe card (BOM:02311TWT) with one x8 slot and one x8 (x16 slot) slot in slot 7 of I/O module 3.

2) Manually add extra P4 GPU cards (BOM:06320107) after choosing riser cards on the configurator.

EMULEX FCoE-SFP+ 2 ports(with Optical Transceiver)

INTEL 2*10GE Optical Interface NIC(with Optical Transceiver)

INTEL 2*GE RJ45 Electrical Interface NIC

INTEL 4*GE RJ45
Electrical Interface NIC

Qlogic Dual-port 8G HBA (with Optical
Transceiver)

o 11.5 **PCIe card of slot 5**

1. A three-slot PCIe riser card provides three x8 slots (bus bandwidth: x16) for three PCIe x8 cards.

2. A two-slot PCIe riser card provides one x16 slot and one x8 slot (bus bandwidth: x16) for one PCIe x16 card and one PCIe x8 card, or one PCIe x16 double-slot card.

3. The two-slot PCIe riser card providing one x16 slot and one x8 slot (bus bandwidth: x16) is dedicated for GPUs and supports one GPU.

4. If a 24-disk server is configured with two CPUs, the first standard RAID controller card is installed in the fourth PCIe slot, and the second standard RAID controller card is installed in the fifth PCIe slot.

5.Support for up to 1pcs M.2 PCIe Raid card.

6. To configure 4 to 7 P4 GPU cards:

1) Use a 3-slot x8 (x16 slot) PCIe riser card (BOM: 02311TWR) in I/O modules 1 and 2,and a PCIe card (BOM:02311TWT) with one x8 slot and one x8 (x16 slot) slot in

slot 7 of I/O module 3.

2) Manually add extra P4 GPU cards (BOM:06320107) after choosing riser cards on the configurator.

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INTEL 2*10GE Optical Interface NIC(with Optical Transceiver)

INTEL 2*GE RJ45 Electrical Interface NIC

INTEL 4*GE RJ45 Electrical Interface NIC

Qlogic Dual-port 8G HBA (with Optical Transceiver)

o 11.6 **PCIe card of slot 6**

1. A three-slot PCIe riser card provides three x8 slots (bus bandwidth: x16) for three PCIe x8 cards.

2. A two-slot PCIe riser card provides one x16 slot and one x8 slot (bus bandwidth: x16) for one PCIe x16 card and one PCIe x8 card, or one PCIe x16 double-slot card.

3. The two-slot PCIe riser card providing one x16 slot and one x8 slot (bus bandwidth: x16) is dedicated for GPUs and supports one GPU

4.Support for up to 1pcs M.2 PCIe Raid card.

5. To configure 4 to 7 P4 GPU cards:

1) Use a 3-slot x8 (x16 slot) PCIe riser card (BOM: 02311TWR) in I/O modules 1 and 2,and a PCIe card (BOM:02311TWT) with one x8 slot and one x8 (x16 slot) slot in slot 7 of I/O module 3.

2) Manually add extra P4 GPU cards (BOM:06320107) after choosing riser cards on the configurator.

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INTEL 2*10GE Optical Interface NIC(with Optical Transceiver)

INTEL 2*GE RJ45 Electrical Interface NIC

INTEL 4*GE RJ45 Electrical Interface NIC

Qlogic Dual-port 8G HBA (with Optical Transceiver)

o 11.7 **PCIe card of slot 7**

1. A two-slot PCIe riser card provides one x8 slot and one x8 slot (bus bandwidth: x16) for two PCIe x8 cards.

2. A one-slot PCIe riser card provides one x16 slot for one PCIe x16 card.

3. P4 GPUs are used for computing and do not provide any port for cable connection or support display output ,P4 GPU card is not support for 16-disk server.

4.Support for up to 1pcs M.2 PCIe Raid card.

5. To configure 4 to 7 P4 GPU cards:

1) Use a 3-slot x8 (x16 slot) PCIe riser card (BOM: 02311TWR) in I/O modules 1 and 2,and a PCIe card (BOM:02311TWT) with one x8 slot and one x8 (x16 slot) slot in slot 7 of I/O module 3.

2) Manually add extra P4 GPU cards (BOM:06320107) after choosing riser cards on the configurator.

3) Note that servers with internal disks do not support P4 GPU cards.

4) Note that the maximum temperature supported by P4 GPU cards is 30 degree.

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INTEL 2*10GE Optical Interface NIC(with Optical Transceiver)

INTEL 2*GE RJ45 Electrical Interface NIC

INTEL 4*GE RJ45 Electrical Interface NIC

Qlogic Dual-port 8G HBA (with Optical Transceiver)

o 11.8 **PCIe card of slot 8**

1.A two-slot PCIe riser card provides one x8 slot and one x8 slot (bus bandwidth: x16) for two PCIe x8 cards.

2.Support for up to 1pcs M.2 PCIe Raid card.

EMULEX FCoE-SFP+ 2 ports(with Optical Transceiver)

INTEL 2*10GE Optical Interface NIC(with Optical Transceiver)

INTEL 2*GE RJ45 Electrical Interface NIC

INTEL 4*GE RJ45 Electrical Interface NIC

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4. An GPU can be virtualized into 4/8/16/32/64 vGPUs. For details, visit https://images.nvidia.com/content/grid/pdf/GRID-Licensing-Guide.pdf.
5. License files are required for virtual desktop scenarios. The number of license files varies with the number of concurrent VMs. A VM that has been already assigned vGPUs will apply to the license server for a license file after the VM is started. After the VM is powered off, the license file will be returned to the license server. (Even if the VM fails to receive a license file, all the functions of the vGPUs are still available, but the VM user will keep receiving prompt messages.)

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5. License files are required for virtual desktop scenarios. The number of license files varies with the number of concurrent VMs. A VM that has been already assigned vGPUs will apply to the license server for a license file after the VM is started. After the VM is powered off, the license file will be returned to the license server. (Even if the VM fails to receive a license file, all the functions of the vGPUs are still available, but the VM user will keep receiving prompt messages.)

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4. An GPU can be virtualized into 4/8/16/32/64 vGPUs. For details, visit https://images.nvidia.com/content/grid/pdf/GRID-Licensing-Guide.pdf.
5. License files are required for virtual desktop scenarios. The number of license files varies with the number of concurrent VMs. A VM that has been already assigned vGPUs will apply to the license server for a license file after the VM is started. After the VM is powered off, the license file will be returned to the license server. (Even if the VM fails to receive a license file, all the functions of the vGPUs are still available, but the VM user will keep receiving prompt messages.)

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4. An GPU can be virtualized into 4/8/16/32/64 vGPUs. For details, visit https://images.nvidia.com/content/grid/pdf/GRID-Licensing-Guide.pdf.
5. License files are required for virtual desktop scenarios. The number of license files varies with the number of concurrent VMs. A VM that has been already assigned vGPUs will apply to the license server for a license file after the VM is started. After the VM is powered off, the license file will be returned to the license server. (Even if the VM fails to receive a license file, all the functions of the vGPUs are still available, but the VM user will keep receiving prompt messages.)

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5. License files are required for virtual desktop scenarios. The number of license files varies with the number of concurrent VMs. A VM that has been already assigned vGPUs will apply to the license server for a license file after the VM is started. After the VM is powered off, the license file will be returned to the license server. (Even if the VM fails to receive a license file, all the functions of the vGPUs are still available, but the VM user will keep receiving prompt messages.)

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4. An GPU can be virtualized into 4/8/16/32/64 vGPUs. For details, visit https://images.nvidia.com/content/grid/pdf/GRID-Licensing-Guide.pdf.
5. License files are required for virtual desktop scenarios. The number of license files varies with the number of concurrent VMs. A VM that has been already assigned vGPUs will apply to the license server for a license file after the VM is started. After the VM is powered off, the license file will be returned to the license server. (Even if the VM fails to receive a license file, all the functions of the vGPUs are still available, but the VM user will keep receiving prompt messages.)

- o 11.16 **Subscription License, NVIDIA GRID Virtual Workstation, 1 CCU, 3 year product services, Electronic**

1. Perpetual license allows the use of licensed software indefinitely. The subscription can be renewed at the end of the subscription period. Subscription license includes software license and subscription services, and the license needs to be renewed at the end of the subscription period.
2. NVIDIA GRID Virtual PC is used for common desktop acceleration scenarios, such as PC applications, browsers, and HD videos. NVIDIA GRID Virtual Workstation is used for professional graphics applications acceleration scenarios.
3. Concurrent User (CCU) is a method of counting licenses based on active user VMs. If a VM is active and the NVIDIA GRID software is running, this VM is considered as one CCU. A GRID CCU is independent of the VM connection.
4. An GPU can be virtualized into 4/8/16/32/64 vGPUs. For details, visit https://images.nvidia.com/content/grid/pdf/GRID-Licensing-Guide.pdf.
5. License files are required for virtual desktop scenarios. The number of license files varies with the number of concurrent VMs. A VM that has been already assigned vGPUs will apply to the license server for a license file after the VM is started. After the VM is powered off, the license file will be returned to the license server. (Even if the VM fails to receive a license file, all the functions of the vGPUs are still available, but the VM user will keep receiving prompt messages.)

12. **=== Optical Transceiver and High Speed Cable ===**

- 12.1 **Optical Transceiver-SFP+-850nm-10Gb/s-LC-Multimode-0.3km**

1. This Opticial transceiver is connected to a 10GE SFP+ NIC. The total number of SFP+ cables and optical transceivers cannot exceed that of 10GE ports.
2. The SFP+ cable comes with an interface module, an no additional optical transceiver or optical cable is required.
3. Intel NICs with 2 x 10GE optical ports (Intel X710) (without optical transceivers) do not support this cable.

- 12.2 **Optical Transceiver-SFP+-1310nm-10Gb/s-LC-Singlemode-10km**

1. This Opticial transceiver is connected to a 10GE SFP+ NIC. The total number of SFP+ cables and optical transceivers cannot exceed that of 10GE ports.
2. The SFP+ cable comes with an interface module, an no additional optical transceiver or optical cable is required.
3. Intel NICs with 2 x 10GE optical ports (Intel X710) (without optical transceivers) do not support this cable.

- 12.3 **1m Passive SFP+ High-speed Cable-include Interface Module**

1. This Opticial transceiver is connected to a 10GE SFP+ NIC. The total number of SFP+ cables and optical transceivers cannot exceed that of 10GE ports.
2. The SFP+ cable comes with an interface module, an no additional optical transceiver or optical cable is required.
3. Intel NICs with 2 x 10GE optical ports (Intel X710) (without optical transceivers) do not support this cable.

- 12.4 **3m Passive SFP+ High-speed Cable-include Interface Module**

1. This Opticial transceiver is connected to a 10GE SFP+ NIC. The total number of SFP+ cables and optical transceivers cannot exceed that of 10GE ports.
2. The SFP+ cable comes with an interface module, an no additional optical transceiver or optical cable is required.
3. Intel NICs with 2 x 10GE optical ports (Intel X710) (without optical transceivers) do not support this cable.

- 12.5 **1m IB FDR High-speed Passive Cable(DAC)-Include Interface Module**

1.IB cable costs vary greatly with cable length. Select the cable type and quantity based on actual requirements.
2.Cables of other length specifications are to be introduced in future. If you need cables of other length specifications, contact RD personnel.
3.The QSFP+ cable comes with an interface module, an no additional optical transceiver or optical cable is required.

- o 12.6 **3m IB FDR High-speed Passive Cable(DAC)-Include Interface Module**

1.IB cable costs vary greatly with cable length. Select the cable type and quantity based on actual requirements.
2.Cables of other length specifications are to be introduced in future. If you need cables of other length specifications, contact RD personnel.
3.The QSFP+ cable comes with an interface module, an no additional optical transceiver or optical cable is required.

- o 12.7 **5m IB FDR High-speed Cable-Include 56Gb/s QSFP+ Optical Module**

The IB FDR cable comes with a QSFP+ optical transceiver and optical cable. You do not need to configure an additional optical cable.

- o 12.8 **10m IB FDR High-speed Cable-Include 56Gb/s QSFP+ Optical Module**

The IB FDR cable comes with a QSFP+ optical transceiver and optical cable. You do not need to configure an additional optical cable.

- o 12.9 **Optical Transceiver-SFP28-850nm-25Gb/s-LC-Multimode-0.1km**

This optical transceiver is used for a 25GE QSFP+ NIC. The total number of QSFP+ cables and optical transceivers cannot exceed that of 25GE ports.

- o 12.10 **25G SFP28 Passive High Speed Cable,1m**

1. Used for 25GE SFP28 Network Card, the quantity of SFP28 Cable and optical transceiver are not more than the 25GE interfaces without optical transceiver;
2. The SFP28 cable including the Interface Module, does not need to configure the optical transceiver and optical fiber additionally.

- o 12.11 **25G SFP28 Passive High Speed Cable,3m**

1. Used for 25GE SFP28 Network Card, the quantity of SFP28 Cable and optical transceiver are not more than the 25GE interfaces without optical transceiver;
2. The SFP28 cable including the Interface Module, does not need to configure the optical transceiver and optical fiber additionally.

- o 12.12 **Optical Transceiver-QSFP+-850nm-41.25Gb/s-MPO-Multimode-0.15km**

Optical Transceiver is required when 40GE QSFP+ Network Card is selected and the quantity can't exceed the port of 40GE interfaces without optical transceiver.

- o 12.13 **High Speed Transceiver,QSFP28,850nm,100G,-8.4dBm,2.4dBm,-10.3dBm,MPO,MM,0.1km,OM4**

Optical Transceiver is required when 100GE QSFP+ Network Card is selected and the quantity can't exceed the port of 100GE interfaces without optical transceiver.

- o 12.14 **100G QSFP28 Passive High Speed Cable,3m,ETH 100GbE**

Optical Transceiver is required when 100GE QSFP+ Network Card is selected and the quantity can't exceed the port of 100GE interfaces without optical transceiver.

- o 12.15 **1m Omni-Path 100Gbps QSFP28 High-speed Passive Cable-Include Interface Module**

Optical Transceiver is required when 100GE QSFP+ Network Card is selected and the quantity can't exceed the port of 100GE interfaces without optical transceiver.

- o 12.16 **2m Omni-Path 100Gbps QSFP28 High-speed Passive Cable-Include Interface Module**

Optical Transceiver is required when 100GE QSFP+ Network Card is selected and the quantity can't exceed the port of 100GE interfaces without optical transceiver.

- o 12.17 **3m Omni-Path 100Gbps QSFP28 High-speed Passive Cable-Include Interface Module**

Optical Transceiver is required when 100GE QSFP+ Network Card is selected and the quantity can't exceed the port of 100GE interfaces without optical transceiver.

13. **===Rear Hard Disk Module Expand Hard Drive===**

- o 13.1 **Number of the 1st 3.5" rear hard disks**

A 2 x 3.5" rear hard disk module supports two 3.5" hard disks.

- o 13.2 **Number of the 2nd 3.5" rear hard disks**

A 2 x 3.5" rear hard disk module supports two 3.5" hard disks.

- o 13.3 **Number of the 3rd 2.5" rear hard disks of the first type**

A 4 x 2.5" rear hard disk module supports four 2.5" hard disks.

14. **===Power Supply===**

- o 14.1 **PSU**

1. For more accurate power information, use the power calculator at http://support.huawei.com/onlinetoolsweb/ftpa/en.

2. 550 W, 900 W, and 1500 W Platinum AC PSUs support 192 V to 288 V high voltage DC

3. If the requirements cannot be met after PSU derating, replace the PSU or consult the product contact person (Wang Jiangtao, wangjiangtao@huawei.com).

○ 14.2 **C13 AC power cord**

1.Power Cable recommend Wall Plug and PDU Style, if the use condition is clear, it could select the Wall Plug or PDU Style.

2.2000W and below power supply use C13 power cable, PDU power cable is 12A in Japan, other countries is 10A; wall plug cable is 12A in Japan, other countries is 10A.

3.If use the wall plug, please select power cable by select Area model(C13 to C13 Wall plug, normal extension cord);

4.If use the PDU plug, please select C13 PDU power cable(C13 to C14 PDU plug, PDU extension cord).

PDU-IEC plug

Wall plug for PDU

Normal wall plug

○ 14.3 **C13 wall plug power cord**

1.Power Cable recommend Wall Plug and PDU Style, if the use condition is clear, it could select the Wall Plug or PDU Style.

2.2000W and below power supply use C13 power cable, PDU power cable is 12A in Japan, other countries is 10A; wall plug cable is 12A in Japan, other countries is 10A.

3.If use the wall plug, please select power cable by select Area model(C13 to C13 Wall plug, normal extension cord);
4.If use the PDU plug, please select C13 PDU power cable(C13 to C14 PDU plug, PDU extension cord).

Denmark C13-C13

Korea C13-C13

Argentina C13-C13

Australia C13-C13

Brazil C13-C13

Britain C13-C13

China C13-C13

Europe C13-C13

South Africa C13-C13

India C13-C13

Italy C13-C13

Japan C13-C13

North America C13-C13

Switzerland C13-C13

- 14.4 **C13 PDU power cord**

1.Power Cable recommend Wall Plug and PDU Style, if the use condition is clear, it could select the Wall Plug or PDU Style.

2.2000W and below power supply use C13 power cable, PDU power cable is 12A in Japan, other countries is 10A; wall plug cable is 12A in Japan, other countries is 10A.

3.If use the wall plug, please select power cable by select Area model(C13 to C13 Wall plug, normal extension cord);

4.If use the PDU plug, please select C13 PDU power cable(C13 to C14 PDU plug, PDU extension cord).

China(PDU) C13-14

15. **===DVD===**

  o 15.1 **Internal DVD-RW**

Only an 8-disk server supports the internal DVD drive.

  o 15.2 **External DVD-RW**

If you select the internal DVD drive, an external drive will not be necessary.

16. **===Accessory===**

  o 16.1 **Rack rail**

1. Adjustable Guide Rails does not support online maintenance.
2. Holding Rails Without Cable Management Arm does not support online maintenance, but if a cable management arm is installed, it supports online maintenance.
3. Holding Rails With Cable Management Arm supports online maintenance.

Static Rail Kit(21240434)

Guide Rail: 2U

Ball Bearing Rail Kit(21241258)

Slide Rail: 2U

Management Arm(21241259)

1U/2U Cable

  o 16.2 **Protection panel**

The front panel comes with a lock and does not need any screws.

17. **===Insert Part===**

- 17.1 **Security encryption function**

1.The security chip module and TPM are used for system and disk encryption;
2.TPM 2.0 support only Windows Server 2012, Windows Server 2012 R2, and Windows Server 2016.

18. **===Operating System===**

- 18.1 **Operating System type**

Huawei is only a reseller and OS services are provided by original manufacturers.

- 18.2 **Operating System**

1. SUSE Linux, Red Hat Linux, and Windows Server 2008/2012 OSs are licensed based on the number of CPUs.
2. Windows Server 2016 is licensed based on the number of CPU cores. Additional license files are required when there are more than 16 CPU cores.
3. According to the operating system manufacturer's life cycle strategy, entering the version(eg:suse 12.2 of the LTSS cycle requires an additional purchase of LTSS expand maintenance.
Please confirm the customer's operating system version before placing the order. If the LTSS version is involved, the customer needs to purchase it from the operating system manufacturer separately.
4. According to the operating system manufacturer's life cycle strategy, entering the version(eg:redhat 7.2) of the EUS/ELS cycle requires an additional purchase of EUS/ELS expand maintenance.
Please confirm the customer's operating system version before placing the order. If the EUS/ELS version is involved, the customer needs to purchase it from the operating system manufacturer separately.

- 18.3 **Windows Server 2019 Additional 16 Core,English,Standard,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1.Windows Server 2019-English-Standard(or Downgrade Edition)-expands the CPU Core License;
2.Each License increases supports 16Core.

- 18.4 **Windows Server 2019 Additional 16 Core,Chinese,Standard,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1.Windows Server 2019-English-Standard(or Downgrade Edition)-expands the CPU Core License; 2.Each License increases supports 16Core.

- o 18.5 **Windows Server 2019 Additional 4 Core,English,Standard,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1.Windows Server 2019-English-Standard(or Downgrade Edition)-expands the CPU Core License; 2.Each License increases supports 16Core.

- o 18.6 **Windows Server 2019 Additional 4 Core,Chinese,Standard,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1.Windows Server 2019-English-Standard(or Downgrade Edition)-expands the CPU Core License; 2.Each License increases supports 16Core.

- o 18.7 **Windows Server 2019 Additional 2 Core,English,Standard,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1.Windows Server 2019-English-Standard(or Downgrade Edition)-expands the CPU Core License; 2.Each License increases supports 16Core.

- o 18.8 **Windows Server 2019 Additional 2 Core,Chinese,Standard,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1.Windows Server 2019-English-Standard(or Downgrade Edition)-expands the CPU Core License; 2.Each License increases supports 16Core.

- o 18.9 **Windows Server 2019 Additional 16 Core,English,Data Center,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1.Windows Server 2019-English-Standard(or Downgrade Edition)-expands the CPU Core License; 2.Each License increases supports 16Core.

- o 18.10 **Windows Server 2019 Additional 16 Core,Chinese,Data Center,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1.Windows Server 2019-English-Standard(or Downgrade Edition)-expands the CPU Core License; 2.Each License increases supports 16Core.

- 18.11 **Windows Server 2019 Additional 4 Core,English,Data Center,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1.Windows Server 2019-English-Standard(or Downgrade Edition)-expands the CPU Core License; 2.Each License increases supports 16Core.

- 18.12 **Windows Server 2019 Additional 4 Core,Chinese,Data Center,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1.Windows Server 2019-English-Standard(or Downgrade Edition)-expands the CPU Core License; 2.Each License increases supports 16Core.

- 18.13 **Windows Server 2019 Additional 2 Core,English,Data Center,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1.Windows Server 2019-English-Standard(or Downgrade Edition)-expands the CPU Core License; 2.Each License increases supports 16Core.

- 18.14 **Windows Server 2019 Additional 2 Core,Chinese,Data Center,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1.Windows Server 2019-English-Standard(or Downgrade Edition)-expands the CPU Core License; 2.Each License increases supports 16Core.

- 18.15 **Windows Server 2016 Additional 16 Core,English,Standard,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1. Windows Server 2016-English-Standard-License for additional CPU cores;
2. Each additional license file supports 16 cores.

- 18.16 **Windows Server 2016 Additional 16 Core,Chinese,Standard,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1. Windows Server 2016-Chinese-Standard-License for additional CPU cores;
2. Each additional license file supports 16 cores.

- 18.17 **Windows Server 2016 Additional 4 Core,English,Standard,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1. Windows Server 2016-English-Standard-License for additional CPU cores;
2. Each additional license file supports four cores.

- 18.18 **Windows Server 2016 Additional 4 Core,Chinese,Standard,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1. Windows Server 2016-Chinese-Standard-License for additional CPU cores;
2. Each additional license file supports four cores.

- 18.19 **Windows Server 2016 Additional 2 Core,English,Standard,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1. Windows Server 2016-English-Standard-License for additional CPU cores;
2. Each additional license file supports two cores.

- 18.20 **Windows Server 2016 Additional 2 Core,Chinese,Standard,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1. Windows Server 2016-Chinese-Standard-License for additional CPU cores;
2. Each additional license file supports two cores.

- 18.21 **Windows Server 2016 Additional 16 Core,English,Data Center,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1. Windows Server 2016-English-DataCenter-License for additional CPU cores;
2. Each additional license file supports 16 cores.

- 18.22 **Windows Server 2016 Additional 16 Core,Chinese,Data Center,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1. Windows Server 2016-Chinese-DataCenter-License for additional CPU cores;
2. Each additional license file supports 16 cores.

- 18.23 **Windows Server 2016 Additional 4 Core,English,Data Center,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1. Windows Server 2016-English-DataCenter-License for additional CPU cores;
2. Each additional license file supports four cores.

- 18.24 **Windows Server 2016 Additional 4 Core,Chinese,Data Center,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1. Windows Server 2016-Chinese-DataCenter-License for additional CPU cores;
2. Each additional license file supports four cores.

- 18.25 **Windows Server 2016 Additional 2 Core,English,Data Center,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1. Windows Server 2016-English-DataCenter-License for additional CPU cores;
2. Each additional license file supports two cores.

- 18.26 **Windows Server 2016 Additional 2 Core,Chinese,Data Center,x86,64bit,General OEM,COA Lic,No DVD,No Product Service,No CAL**

1. Windows Server 2016-Chinese-DataCenter-License for additional CPU cores;
2. Each additional license file supports two cores.

- 18.27 **Client Access License (CAL),1 Device,for Windows Server 2019,Chinese,General OEM,without product services**

1.The Windows Server 2019-Chinese Version-expands Device CAL License;
2.Each License increases 1pcs device side access authority.

- 18.28 **Client Access License (CAL),1 Device,for Windows Server 2019,English,General OEM,without product services**

1.The Windows Server 2019-Chinese Version-expands Device CAL License; 2.Each License increases 1pcs device side access authority.

- 18.29 **Client Access License (CAL),10 Device,for Windows Server 2019,Chinese,General OEM,without product services**

1.The Windows Server 2019-Chinese Version-expands Device CAL License; 2.Each License increases 1pcs device side access authority.

- 18.30 **Client Access License (CAL),10 Device,for Windows Server 2019,English,General OEM,without product services**

1.The Windows Server 2019-Chinese Version-expands Device CAL License; 2.Each License increases 1pcs device side access authority.

- 18.31 **Client Access License (CAL),1 User,for Windows Server 2019,Chinese,General OEM,without product services**

1.The Windows Server 2019-Chinese Version-expands Device CAL License; 2.Each License increases 1pcs device side access authority.

- o 18.32 **Client Access License (CAL),1 User,for Windows Server 2019,English,General OEM,without product services**

1.The Windows Server 2019-Chinese Version-expands Device CAL License; 2.Each License increases 1pcs device side access authority.

- o 18.33 **Client Access License (CAL),10 User,for Windows Server 2019,Chinese,General OEM,without product services**

1.The Windows Server 2019-Chinese Version-expands Device CAL License; 2.Each License increases 1pcs device side access authority.

- o 18.34 **Client Access License (CAL),10 User,for Windows Server 2019,English,General OEM,without product services**

1.The Windows Server 2019-Chinese Version-expands Device CAL License; 2.Each License increases 1pcs device side access authority.

- o 18.35 **Client Access License (CAL),1 device,for Windows Server 2016/2012/2012R2,Chinese,General OEM,without product services**

1. Windows Server 2016-Chinese-Additional device CAL;
2. Each additional license file supports access to one device.

- o 18.36 **Client Access License (CAL),1 device,for Windows Server 2016/2012/2012R2,English,General OEM,without product services**

1. Windows Server 2016-English-Additional device CAL;
2. Each additional license file supports access to one device.

- o 18.37 **Client Access License (CAL),10 device,for Windows Server 2016/2012/2012R2,Chinese,General OEM,without product services**

1. Windows Server 2016-Chinese-Additional device CAL;
2. Each additional license file supports access to 10 devices.

- o 18.38 **Client Access License (CAL),10 device,for Windows Server 2016/2012/2012R2,English,General OEM,without product services**

1. Windows Server 2016-English-Additional device CAL;
2. Each additional license file supports access to 10 devices.

- o 18.39 **Client Access License (CAL),1 User,for Windows Server 2016/2012/2012R2,Chinese,General OEM,without product services**

1. Windows Server 2016-Chinese-Additional user CAL;
2. Each additional license file supports access by one user.

- 18.40 **Client Access License (CAL),1 User,for Windows Server 2016/2012/2012R2,English,General OEM,without product services**

1. Windows Server 2016-English-Additional user CAL;
2. Each additional license file supports access by one user.

- 18.41 **Client Access License (CAL),10 User,for Windows Server 2016/2012/2012R2,Chinese,General OEM,without product services**

1. Windows Server 2016-Chinese-Additional user CAL;
2. Each additional license file supports access by 10 users.

- 18.42 **Client Access License (CAL),10 User,for Windows Server 2016/2012/2012R2,English,General OEM,without product services**

1. Windows Server 2016-English-Additional user CAL;
2. Each additional license file supports access by 10 users.

- 18.43 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2019,Chinese,1 Device,without Service,General OEM**

1. Optional
2. One server is configured with one RDS CAL license.
3. The standard edition and data center edition are not distinguished.
4.The purchasing quantity is subject to actual requirements.
5.If Remote Desktop Service is needed, please select.

- 18.44 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2019,English,1 Device,without Service,General OEM**

1. Optional 2. One server is configured with one RDS CAL license. 3. The standard edition and data center edition are not distinguished. 4.The purchasing quantity is subject to actual requirements. 5.If Remote Desktop Service is needed, please select.

- 18.45 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2019,Chinese,5 Device,without Service,General OEM**

1. Optional 2. One server is configured with one RDS CAL license. 3. The standard edition and data center edition are not distinguished. 4.The purchasing quantity is subject to actual requirements. 5.If Remote Desktop Service is needed, please select.

- 18.46 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2019,English,5 Device,without Service,General OEM**

1. Optional 2. One server is configured with one RDS CAL license. 3. The standard edition and data center edition are not distinguished. 4.The purchasing quantity is subject to actual requirements. 5.If Remote Desktop Service is needed, please select.

- 18.47 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2019,Chinese,1 User,without Service,General OEM**

1. Optional 2. One server is configured with one RDS CAL license. 3. The standard edition and data center edition are not distinguished. 4.The purchasing quantity is subject to actual requirements. 5.If Remote Desktop Service is needed, please select.

- 18.48 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2019,English,1 User,without Service,General OEM**

1. Optional 2. One server is configured with one RDS CAL license. 3. The standard edition and data center edition are not distinguished. 4.The purchasing quantity is subject to actual requirements. 5.If Remote Desktop Service is needed, please select.

- 18.49 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2019,Chinese,5 User,without Service,General OEM**

1. Optional 2. One server is configured with one RDS CAL license. 3. The standard edition and data center edition are not distinguished. 4.The purchasing quantity is subject to actual requirements. 5.If Remote Desktop Service is needed, please select.

- 18.50 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2019,English,5 User,without Service,General OEM**

1. Optional 2. One server is configured with one RDS CAL license. 3. The standard edition and data center edition are not distinguished. 4.The purchasing quantity is subject to actual requirements. 5.If Remote Desktop Service is needed, please select.

- 18.51 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2016,Chinese,1 Device,without Service,General OEM**

1. Optional
2. One server is configured with one RDS CAL license.

3. The standard edition and data center edition are not distinguished.
4. The purchasing quantity is subject to actual requirements.

- 18.52 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2016,English,1 Device,without Service,General OEM**

1. Optional
2. One server is configured with one RDS CAL license.
3. The standard edition and data center edition are not distinguished.
4. The purchasing quantity is subject to actual requirements.

- 18.53 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2016,Chinese,5 User,without Service,General OEM**

1. Optional
2. One server is configured with one RDS CAL license.
3. The standard edition and data center edition are not distinguished.
4. The purchasing quantity is subject to actual requirements.

- 18.54 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2016,English,5 User,without Service,General OEM**

1. Optional
2. One server is configured with one RDS CAL license.
3. The standard edition and data center edition are not distinguished.
4. The purchasing quantity is subject to actual requirements.

- 18.55 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2016,Chinese,1 User,without Service,General OEM**

1. Optional
2. One server is configured with one RDS CAL license.
3. The standard edition and data center edition are not distinguished.
4. The purchasing quantity is subject to actual requirements.

- 18.56 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2016,English,1 User,without Service,General OEM**

1. Optional
2. One server is configured with one RDS CAL license.

3. The standard edition and data center edition are not distinguished.
4. The purchasing quantity is subject to actual requirements.

- 18.57 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2012/2012R2,Chinese,1 Device,without Service,General OEM**

1. Optional
2. One server is configured with one RDS CAL license.
3. The standard edition and data center edition are not distinguished.
4. The purchasing quantity is subject to actual requirements.

- 18.58 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2012/2012R2,English,1 Device,without Service,General OEM**

1. Optional
2. One server is configured with one RDS CAL license.
3. The standard edition and data center edition are not distinguished.
4. The purchasing quantity is subject to actual requirements.

- 18.59 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2012/2012R2,Chinese,5 User,without Service,General OEM**

1. Optional
2. One server is configured with one RDS CAL license.
3. The standard edition and data center edition are not distinguished.
4. The purchasing quantity is subject to actual requirements.

- 18.60 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2012/2012R2,English,5 User,without Service,General OEM**

1. Optional
2. One server is configured with one RDS CAL license.
3. The standard edition and data center edition are not distinguished.
4. The purchasing quantity is subject to actual requirements.

- 18.61 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2012/2012R2,Chinese,1 User,without Service,General OEM**

1. Optional
2. One server is configured with one RDS CAL license.

3. The standard edition and data center edition are not distinguished.

4. The purchasing quantity is subject to actual requirements.

- o 18.62 **Operating System Software,Remote Desktop Services Client Access License For Windows Server 2012/2012R2,English,1 User,without Service,General OEM**

1. Optional

2. One server is configured with one RDS CAL license.

3. The standard edition and data center edition are not distinguished.

4. The purchasing quantity is subject to actual requirements.

19. **===Enhanced software===**

- o 19.1 **RAS features lift kit (ECC, eMCA2, SDDC, PFA)**

Dedicated for operators outside China except Brazilian operators.

- o 19.2 **Memory expansion kit**

Dedicated for operators outside China except Brazilian operators.

- o 19.3 **Hard Disk expansion kit**

Dedicated for operators outside China except Brazilian operators.

- o 19.4 **Integrated Network features (NCSI)**

Dedicated for operators outside China except Brazilian operators.

- o 19.5 **A firmware upgrade (to support remote batch upgrade function BMC, BIOS, CPLD and other firmware)**

Dedicated for Brazilian operators.

- o 19.6 **Serial port redirection (SOL) (originally only output from the proximal end of the serial cable system serial data output redirected to a network device, and can accept input remote network devices for easy Remote Maintenance)**

Dedicated for Brazilian operators.

- o 19.7 **Hard Disk Pre-diagnostic tools**

Dedicated for Brazilian operators.

- o 19.8 **Virtual KVM (virtual local keyboard, monitor, and mouse to the remote device tool)**

Dedicated for Brazilian operators.

- o 19.9 **Virtual Media (including virtual CDROM, virtual folder, virtual floppy and other virtual media)**

Dedicated for Brazilian operators.

- o 19.10 **Intelligent energy management (including power capping, power statistics history and dynamic energy-saving technology)**

Dedicated for Brazilian operators.