Contents

Appendix A Server specifications

The information in this document might differ from your product if it contains custom configuration options or features.

Figures in this document are for illustration only.

Server models and chassis view

H3C UniServer R4950 G5 servers are 2U rack servers with two AMD EPYC processors. The servers are typically suitable for cloud computing, IDC, and enterprises based on new-generation infrastructure. The servers feature low power consumption, high availability, and strong expandability, allowing for simple deployment and management.

Figure 1 Chassis view

The servers come in the models listed in Table 1. These models support different drive configurations.

Table 1 R4950 G5 server models

Model	Maximum drive configuration
LFF	12 LFF drives at the front + 2 LFF and 4 SFF drives or 4 LFF and 2 SFF drives at the rear.
SFF	25 SFF drives at the front + 2 LFF and 4 SFF or 4 LFF and 2 SFF drives at the rear.

Technical specifications

Item	Specifications
Dimensions (H × W × D)	• Without a security bezel: 87.5 × 445.4 × 748 mm (3.44 × 17.54 × 29.45 in) • With a security bezel: 87.5 × 445.4 × 775.5 mm (3.44 × 17.54 × 30.53 in)
Max. weight	34 kg (74.96 lb)

Item	Specifications
Power consumption	The power consumption varies by server configuration. For more information, use the server power consumption evaluation tool at https://iconfig-chl.h3c.com/iconfig/PowerCalIndex?language=en
Processors	• 2 × AMD EPYC Rome processors or Milan processors • Up to 3.9 GHz base frequency, maximum 280 W power consumption, and 256 MB cache per processor • Integrated with memory controllers to support eight memory channels • Integrated with PCIe controllers to support PCIe 4.0, with 128 PCIe Lanes per processor • Adopts three groups of xGMI bus interconnections, with the transmission speed of each line reaching 18 GT/s For more information, use the server compatibility query too at http://www.h3c.com/en/home/qr/default.htm?id=65
Memory	A maximum of 32 DIMMs Supports RDIMMs or LRDIMMs
Storage controllers	• Embedded SATA storage controller • Embedded NVMe storage controller • High-performance standard storage controller • Dual SD card extended module
Chipset	Not supported. Adopts System on Chip (SoC)

Integrated graphics	The graphics chip (model AST2500) is integrated in the BMC management chip to provide 64 MB of video memory and a maximum resolution of 1920 × 1200@60Hz (32bpp), where:
	• Resolution:
	  ○ **1920 × 1200**: 1920 horizontal pixels and 1200 vertical pixels.
	  ○ **60Hz**: Screen refresh rate, 60 times per second.
	  ○ **32bpp**: Color depts. The higher the value, the more colors that can be displayed.
	• A maximum resolution of 1920 x 1200 pixels is supported only after the server is installed with a graphics card driver compatible with the operating system version. Otherwise, the server supports only the default resolution of the operating system.
	• If you attach monitors to both the front and rear VGA connectors, only the monitor connected to the front VGA connector is available.

Network connectors	• 1 × embedded 1 Gbps HDM dedicated port • 1 × OCP 3.0 network adapter connector (for NCSI-capable OCP 3.0 network adapters)

I/O connectors	• 6 × USB connectors (two on the system board, two at the server rear, and two at the server front):
	• 20 × embedded SATA connectors:
	  ○ 2 × LP SlimSAS connectors (x8 SATA)
	  ○ 1 × SATA connector (x4 SATA)
	• 8 × embedded LP SlimSAS connectors (PCIe4.0 x8)
	• 1 × RJ-45 HDM dedicated port (at the server rear)
	• 2 × VGA connectors (one at the server rear and one at the server front)
	• 1 × BIOS serial port (at the server rear)
	• 1 × HDM dedicated management connector (at the server front)

Expansion slots	8 × PCIe4.0 standard slots and 1 × OCP 3.0 network adapter slot
Management	Supports HDM agentless management tool (with an independent management port) Supports H3C iFIST and UniSystem management software Supports an LCD managment module

Item	Specifications
Security	Supports chassis intrusion detection (chassis open alarm) Supports TCM and TPM
Power supplies	2 × hot-swappable power supplies, 1 + 1 redundancy

Components

Figure 2 R4950 G5 server components
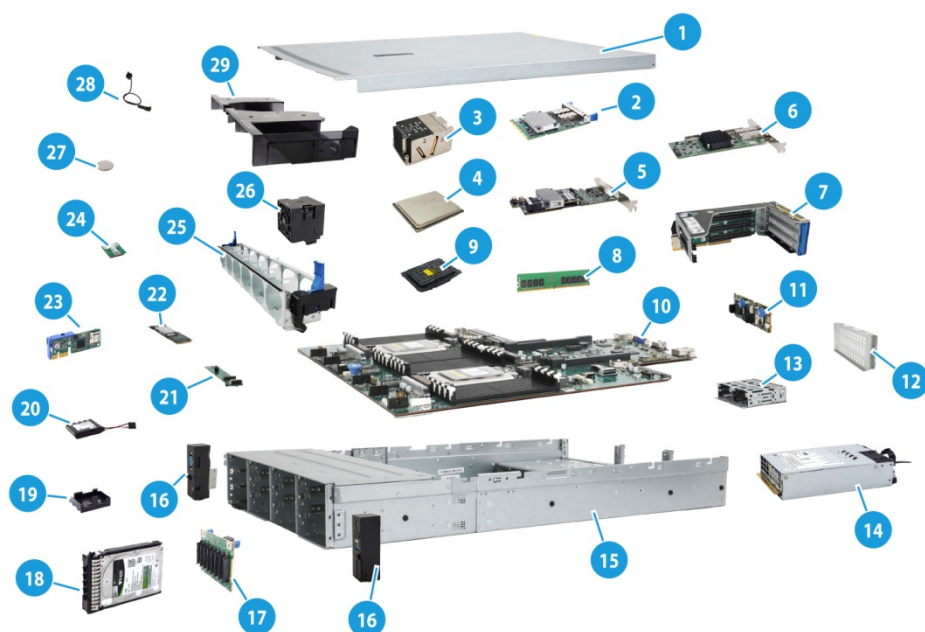
Table 2 R4950 G5 server components

Item	Description
(1) Chassis access panel	N/A
(2) OCP network adapter	Installed on the OCP slot on the system board.
(3) Processor heatsink	Cools the processor.
(4) Processor	Integrates memory and PCIe controllers to provide data processing capabilities for the server. Only AMD processors are supported.
(5) Storage controller	Provides RAID capability to SAS/SATA drives, including RAID configuration and RAID scale-up. It supports online upgrade of the controller firmware and remote configuration.
(6) Standard PCIe network adapter	Installed in a standard PCIe slot to provide network ports.
(7) Riser card	Provides PCIe slots.
(8) Memory	Stores computing data and data exchanged with external storage temporarily. Only DDR4 memory modules are supported.
(9) Processor socket cover	Installed over an empty processor socket to protect pins in the socket.

Item	Description
(10) System board	One of the most important parts of a server, on which multiple components are installed, such as processor, memory, and fan. It is integrated with basic server components, including the BIOS chip and PCIe connectors.
(11) Rear drive backplane	Provides power and data channels for drives at the server rear.
(12) Riser card blank	Installed on an empty PCIe riser connector to ensure good ventilation.
(13) Rear drive cage	Encloses drives at the server rear.
(14) Power supply	Supplies power to the server. The power supplies support hot swapping and 1+1 redundancy.
(15) Chassis	N/A
(16) Chassis ears	Attach the server to the rack. The right ear is integrated with the front I/O component, and the left ear is integrated with VGA connector, HDM dedicated management connector, and USB 2.0 connector.
(17) Front drive backplane	Provides power and data channels for drives at the server front.
(18) Drive	Provides data storage space. Drives support hot swapping. The server supports SSD and HDD drives and various drive interface types, such as SAS, SATA, M.2, and PCIe.
(19) Supercapacitor holder	Secures a supercapacitor in the chassis.
(20) Supercapacitor	Supplies power to the flash card on the power fail safeguard module, which enables the storage controller to back up data to the flash card for protection when power outage occurs.
(21) SATA M.2 SSD expander module	Provides M.2 SSD slots.
(22) SATA M.2 SSD	Provides data storage space for the server.
(23) Dual SD card extended module	Provides two SD card slots.
(24) Encryption module	Provides encryption services for the server to enhance data security.
(25) Fan cage	Accommodates fans.
(26) Fan	Helps server ventilation. Fans support hot swapping and N+1 redundancy.
(27) System battery	Supplies power to the system clock to ensure system time correctness.
(28) Chassis open-alarm module	Detects if the access panel is removed. The detection result can be displayed from the HDM Web interface.
(29) Air baffle	Provides ventilation aisles for processor heatsinks and memory modules and provides support for the supercapacitor.

Front panel

Front panel view of the server

Figure 3, Figure 4, and Figure 5 show the front panel views of 12LFF, 8SFF, and 25SFF servers, respectively.

Figure 3 12LFF front panel
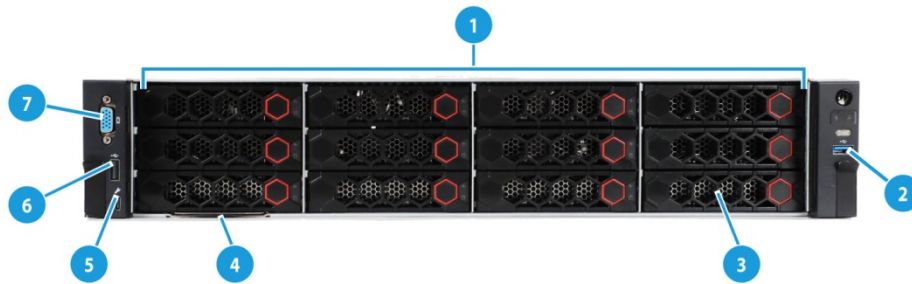
Table 3 12LFF front panel description

Item	Description
1	12LFF drives (optional)
2	USB 3.0 connector
3	Drive or LCD smart management module (optional)
4	Serial label pull tab
5	HDM dedicated management connector
6	USB 2.0 connector
7	VGA connector

Figure 4 8SFF front panel
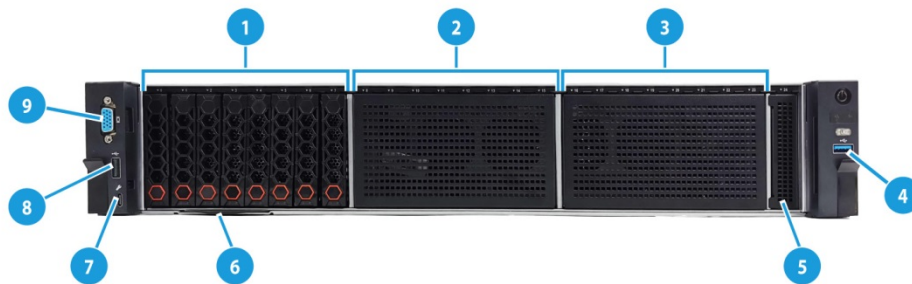
Table 4 8SFF front panel description

Item	Description
1	Bay 1 for 8SFF drives (optional)
2	Bay 2 for 8SFF drives (optional)
3	Bay 3 for 8SFF drives (optional)
4	USB 3.0 connector
5	Drive or LCD smart management module (optional)
6	Serial label pull tab
7	HDM dedicated management connector

Item	Description
8	USB 2.0 connector
9	VGA connector

Figure 5 25SFF front panel
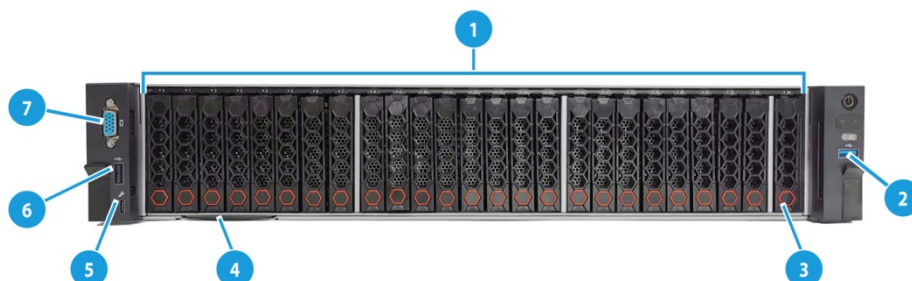
Table 5 25SFF front panel description

Item	Description
1	25SFF drives (optional)
2	USB 3.0 connector
3	Drive or LCD smart management module (optional)
4	Serial label pull tab
5	HDM dedicated management connector
6	USB 2.0 connector
7	VGA connector

LEDs and buttons

The LED and buttons are the same on all server models. Figure 6 shows the front panel LEDs and buttons. Table 6 describes the status of the front panel LEDs.

Figure 6 Front panel LEDs and buttons

(1) Power on/standby button and system power LED   (2) OCP 3.0 network adapter LED

(1) Power on/standby button and system power LED	(2) OCP 3.0 network adapter LED
(3) Health LED	(4) UID button LED

Table 6 LEDs and buttons on the front panel

Button/LED	Status

Power on/standby button and system power LED	• **Steady green**—The system has started.
	• **Flashing green (1 Hz)**—The system is starting.
	• **Steady amber**—The system is in standby state.
	• **Off**—No power is present. Possible reasons:
	  ○ No power source is connected.
	  ○ No power supplies are present.
	  ○ The installed power supplies are faulty.
	  ○ The system power cords are not connected correctly.

OCP 3.0 network adapter LED	• **Steady green**—A link is present on a port of the adapter. • **Flashing green (1 Hz)**—A port on the adapter is receiving or sending data. • **Off**—No link is present on the adapter.
Health LED	• **Steady green**—The system is operating correctly or a minor alarm is present. • **Flashing green (4 Hz)**—HDM is initializing. • **Flashing amber (1 Hz)**—A major alarm is present. • **Flashing red (1 Hz)**—A critical alarm is present. If a system alarm is present, log in to HDM to obtain more information about the system running status.

UID button LED	• **Steady blue**—UID LED is activated. The UID LED can be activated by using the following methods:
	  ○ Press the UID button LED.
	  ○ Activate the UID LED from HDM.
	• **Flashing blue**:
	  ○ **1 Hz**—The firmware is being upgraded or the system is being managed from HDM. Do not power off the server.
	  ○ **4 Hz**—HDM is restarting. To restart HDM, press the UID button LED for eight seconds.
	• **Off**—UID LED is not activated.

Ports

Table 7 Ports on the front panel

Port	Type	Description
VGA connector	DB-15	Connects a display terminal, such as a monitor or KVM device.
USB connector	USB 3.0/2.0	Connects the following devices: • USB flash drive. • USB keyboard or mouse. • USB optical drive for operating system installation.

Rear panel

Rear panel view

Figure 7 shows the rear panel view.

Figure 7 Rear panel components
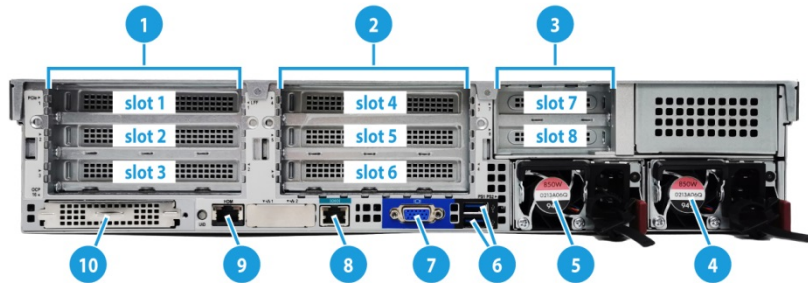
Table 8 Rear panel description

Item	Description
1	PCIe riser bay 1: PCIe slots 1 through 3
2	PCIe riser bay 2: PCIe slots 4 through 6
3	PCIe riser bay 3: PCIe slots 7 and 8
4	Power supply 2
5	Power supply 1
6	Two USB 3.0 connectors
7	VGA connector
8	BIOS serial port
9	HDM dedicated network port (1Gbps, RJ-45, default IP address 192.168.1.2/24)
10	OCP 3.0 network adapter (optional)

LEDs

Figure 8 shows the rear panel LEDs. Table 9 describes the status of the rear panel LEDs.

Figure 8 Rear panel LEDs

(1) UID LED	(2) Link LED of the Ethernet port

(1) UID LED	(2) Link LED of the Ethernet port
(3) Activity LED of the Ethernet port	(4) Power supply LED for power supply 1
(5) Power supply LED for power supply 2	

Table 9 LEDs on the rear panel

LED	Status

UID LED	• **Steady blue**—UID LED is activated. The UID LED can be activated by using the following methods:
	  ○ Press the UID button LED.
	  ○ Enable UID LED from HDM.
	• **Flashing blue**:
	  ○ **1 Hz**—The firmware is being upgraded from HDM in an out-of-band manner, or the system is being managed from HDM. Do not power off the server.
	  ○ **4 Hz**—HDM is restarting. To restart HDM, press the UID button LED for a minimum of eight seconds.
	• **Off**—UID LED is not activated.

Link LED of the Ethernet port	• **Steady green**—A link is present on the port. • **Off**—No link is present on the port.
Activity LED of the Ethernet port	• **Flashing green (1 Hz)**—The port is receiving or sending data. • **Off**—The port is not receiving or sending data.

Power supply LED	• **Steady green**—The power supply is operating correctly.
	• **Flashing green (1 Hz)**—Power is being input correctly but the system is not powered on.
	• **Flashing green (0.33 Hz)**—The power supply is in standby state and does not output power.
	• **Flashing green (2 Hz)**—The power supply is updating its firmware.
	• **Steady amber**—Either of the following conditions exists:
	  ○ The power supply is faulty.
	  ○ The power supply does not have power input, but another power supply has correct power input.
	• **Flashing amber (1 Hz)**—An alarm has occurred on the power supply.
	• **Off**—No power supplies have power input, which can be caused by an incorrect power cord connection or power source shutdown.

Ports

Table 10 Ports on the rear panel

Port	Type	Description
VGA connector	DB-15	Connects a display terminal, such as a monitor or KVM device.
BIOS serial port	RJ-45	The BIOS serial port is used for the following purposes: • Log in to the server when the remote network connection to the server has failed. • Establish a GSM modem or encryption lock connection.

Port	Type	Description
USB connector	USB 3.0	Connects the following devices: • USB flash drive. • USB keyboard or mouse. • USB optical drive for operating system installation.
HDM dedicated network port	RJ-45	Establishes a network connection to manage HDM from its Web interface.
Power receptacle	Standard single-phase	Connects the power supply to the power source.

System board

System board components

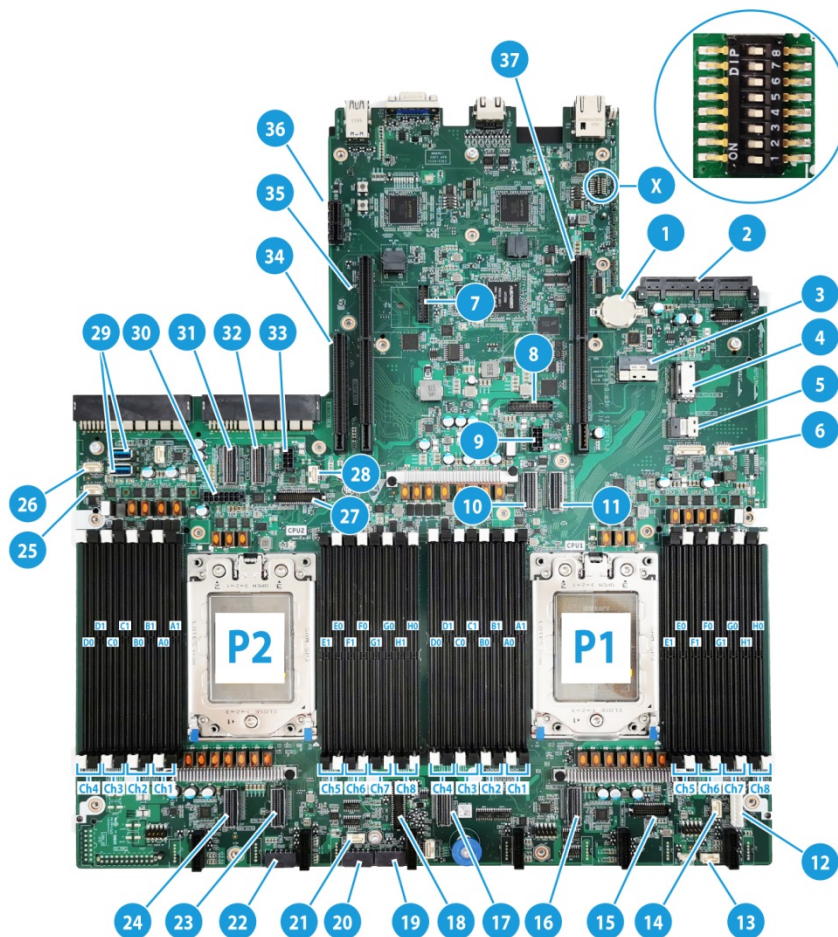Figure 9 shows the system board layout.

Figure 9 System board components

Table 11 System board components

Item	Description
1	System battery
2	OCP 3.0 network adapter connector (OCP 3.0)
3	OCP 3.0 x16 expansion connector (OCP UP X16)
4	M.2 connector & optical drive connector (for processor 1) (M.2&CD-ROM)
5	SATA connector A1 (for processor 1) (SATA PORT-A1)
6	AUX connector 9 (AUX9)
7	TPM/TCM connector (TPM)
8	Network adapter NCSI function connector (NCSI)
9	Drive backplane power connector 4 (PWR4)
10	LP SlimSAS connector A5/A6 (PCIe4.0 ×8, for processor 1) (NVMe-A5/A6)
11	LP SlimSAS connector A7/A8 (PCIe4.0 ×8, for processor 1)/SATA connector A2 (for processor 1) (NVMe-A7/A8, SATA PORT-A2)
12	LCD smart management module connector (DIAG LCD)
13	Drive backplane AUX connector 3 (AUX3)
14	Drive backplane AUX connector 2 (AUX2)
15	Front I/O connector (FRONT PANEL IO)
16	LP SlimSAS connector A1/A2 (PCIe4.0 ×8, for processor 1) (NVMe-A1/A2)
17	LP SlimSAS connector A3/A4 (PCIe4.0 ×8, for processor 1) (NVMe-A3/A4)
18	Shared connector for the chassis-open alarm module and the front VGA and USB 2.0 cable (FRONT VGA & USB2.0)
19	Drive backplane power connector 3 (PWR3)
20	Drive backplane power connector 1 (PWR1)
21	Drive backplane AUX connector 1 (AUX1)
22	Drive backplane power connector 2 (PWR2)
23	LP SlimSAS connector B1/B2 (PCIe4.0 ×8, for processor 2) (NVMe-B1/B2)
24	LP SlimSAS connector B3/B4 (PCIe4.0 ×8, for processor 2) (NVMe-B3/B4)
25	Drive backplane AUX connector 5 (AUX5)
26	Drive backplane AUX connector 4 (AUX4)
27	AUX connector 8 (AUX8)
28	AUX connector 6 (AUX6)
29	Two internal USB 3.0 connectors (INTERNAL USB3.0 PORT1, INTERNAL USB3.0 PORT2)
30	Power connector 6 (PWR6)
31	LP SlimSAS connector B5/B6 (PCIe4.0 ×8, for processor 2)/SATA connector B1 (for processor 2) (NVMe-B5/B6, SATA PORT-B1)
32	LP SlimSAS connector B7/B8 (PCIe4.0 ×8, for processor 2) (NVMe-B7/B8)
33	Power connector 5 (PWR5)
34	PCIe riser connector 3 (for processor 2) (RISER3 PCIe X16)

Item	Description
35	PCIe riser connector 2 (for processor 2) (RISER2 PCIe X32)
36	Dual SD card extended module connector (DSD CARD)
37	PCIe riser connector 1 (for processor 1) (RISER1 PCIe X32)
X	System maintenance switch

System maintenance switch

Figure 10 shows the system maintenance switch. Table 12 describes how to use the maintenance switch.

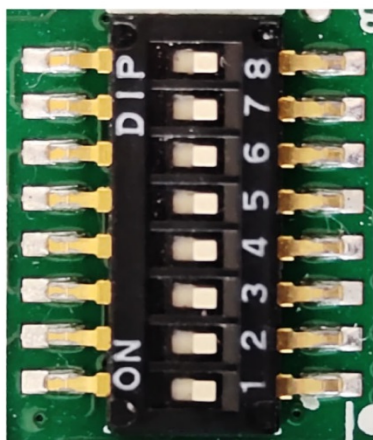**Figure 10 System maintenance switch**


Table 12 System maintenance switch description

Item	Description	Remarks
1	**Off (default)**—HDM login requires the username and password of a valid HDM user account. **On**—HDM login requires the default username and password.	For security purposes, turn off the switch after you complete tasks with the default username and password as a best practice.

Item	Description	Remarks
5	**Off (default)**—Normal server startup. **On**—Restores the default BIOS settings.	To restore the default BIOS settings, perform the following tasks: 1. Power off the server, and then turn on the switch. 2. Power on the server. Make sure the server is in power-on state for a minimum of 10 seconds. 3. Power off the server, and then turn off the switch. 4. Start up the server. The default BIOS settings are restored if the **The CMOS defaults were loaded** message prompts during POST. ⚠ **CAUTION:** The server cannot start up when the switch is turned on. To avoid service data loss, stop running services and power off the server before turning on the switch.
6	**Off (default)**—Normal server startup. **On**—Clears all passwords from the BIOS at server startup.	If this switch is on, the server will clear all the passwords at each startup. Make sure you turn off the switch before the next server startup if you do not need to clear all the passwords.
2, 3, 4, 7, and 8	Reserved for future use.	N/A

DIMM slots

The system board provides 8 DIMM channels per processor, and 16 channels in total, as shown in Figure 11. Each channel contains two DIMM slots.

Figure 11 System board DIMM slot layout
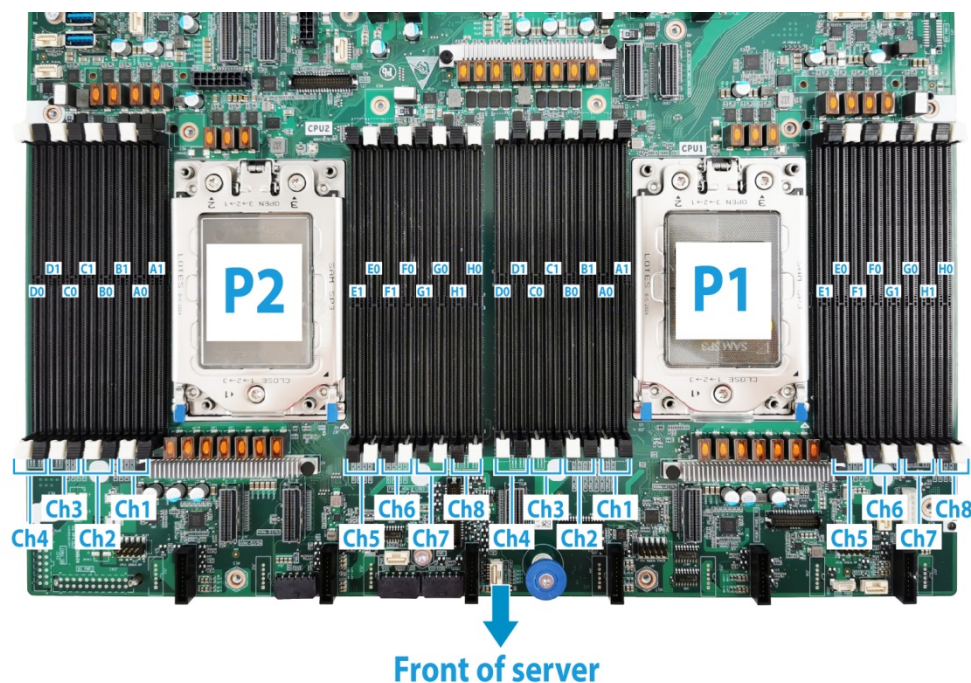
Appendix B Component specifications

For components compatible with the server and detailed component information, visit the query tool at http://www.h3c.com/cn/Service/Document_Software/Document_Center/Server/.

About component model names

The model name of a hardware option in this document might differ slightly from its model name label.

A model name label might add a prefix or suffix to the hardware-coded model name for purposes such as identifying the matching server brand or applicable region. For example, the DDR4-3200-16G-2Rx8-R memory model represents memory module labels including UN-DDR4-3200-16G-2Rx8-R, UN-DDR4-3200-16G-2Rx8-R-F, and UN-DDR4-3200-16G-2Rx8-R-S, which have different prefixes and suffixes.

DIMMs

The server provides 8 DIMM channels per processor, 16 channels in total. Each DIMM channel has two DIMM slots. For the physical layout of DIMM slots, see "DIMM slots."

DRAM DIMM rank classification label

A DIMM rank is a set of memory chips that the system accesses while writing or reading from the memory. On a multi-rank DIMM, only one rank is accessible at a time.

To determine the rank classification of a DRAM DIMM, use the label attached to the DIMM, as shown in Figure 12.
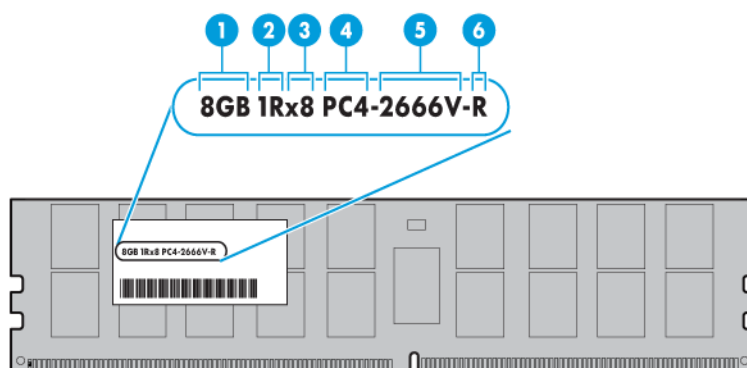
Figure 12 DRAM DIMM rank classification label

Table 13 DIMM rank classification label description

Callout	Description	Remarks
1	Capacity	Options include: • **8GB**. • **16GB**. • **32GB**.

Callout	Description	Remarks
2	Number of ranks	Options include: • **1R**— One rank. • **2R**—Two ranks. • **4R**—Four ranks. • **8R**—Eight ranks.
3	Data width	Options include: • **×4**—4 bits. • **×8**—8 bits.
4	DIMM generation	Only DDR4 is supported.
5	DIMM speed	Options include: • **2133P**—2133 MT/s. • **2400T**—2400 MT/s. • **2666V**—2666 MT/s. • **2933Y**—2933 MT/s. • **3200AA**—3200 MT/s.
6	DIMM type	Options include: • **L**—LRDIMM. • **R**—RDIMM.

HDDs and SSDs

Drive numbering

The server provides different drive numbering schemes for different drive configurations at the server front and rear, as shown in Figure 13 through Figure 17.

Figure 13 Drive numbering for front 25SFF drive configurations

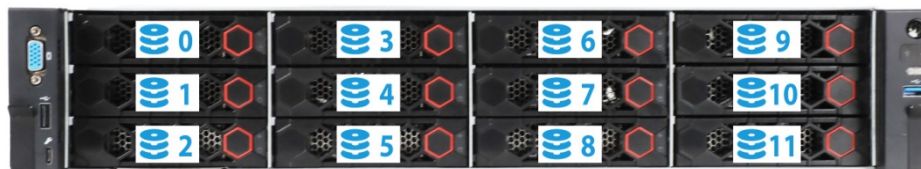**Figure 14 Drive numbering for front 12LFF drive configurations**

Figure 15 Drive numbering for front 8LFF drive configurations

Figure 16 Drive numbering for rear 2LFF+4SFF drive configurations

Figure 17 Drive numbering for rear 4LFF+2SFF drive configurations

Drive LEDs

The server supports SAS, SATA, and NVMe drives. You can use the LEDs on a drive to identify its status.

Figure 18 shows the location of the LEDs on a drive.

Figure 18 Drive LEDs

(1) Fault/UID LED	(2) Present/Active LED

To identify the status of a SAS or SATA drive, use Table 14. To identify the status of an NVMe drive, use Table 15.

Table 14 SAS/SATA drive LED description

Fault/UID LED status	Present/Active LED status	Description
Flashing amber (0.5 Hz)	Steady green/Flashing green (4.0 Hz)	A drive failure is predicted. As a best practice, replace the drive before it fails.

Fault/UID LED status	Present/Active LED status	Description
Steady amber	Steady green/Flashing green (4.0 Hz)	The drive is faulty. Replace the drive immediately.
Steady blue	Steady green/Flashing green (4.0 Hz)	The drive is operating correctly and is selected by the RAID controller.
Off	Flashing green (4.0 Hz)	The drive is performing a RAID migration or rebuilding, or the system is reading or writing data to the drive.
Off	Steady green	The drive is present but no data is being read or written to the drive.
Off	Off	The drive is not securely installed.

Table 15 NVMe drive LED description

Fault/UID LED status	Present/Active LED status	Description
Flashing amber (4 Hz)	Off	The drive is in hot insertion process.
Steady amber	Steady green/Flashing green (4.0 Hz)	The drive is faulty. Replace the drive immediately.
Steady blue	Steady green/Flashing green (4.0 Hz)	The drive is operating correctly and selected by the RAID controller.
Off	Flashing green (4.0 Hz)	The drive is performing a RAID migration or rebuilding, or the system is reading or writing data to the drive.
Off	Steady green	The drive is present but no data is being read or written to the drive.
Off	Off	The drive is not securely installed.

Drive backplanes

The server supports the following types of drive backplanes:

- **SAS/SATA drive backplanes**—Support only SAS/SATA drives.
- **UniBay drive backplanes**—Support both SAS/SATA and NVMe drives.
- *X* **SAS/SATA+***Y* **UniBay drive backplanes**—Support SAS/SATA drives in all slots and support NVMe drives in certain slots.
    - *X:* Number of slots supporting only SAS/SATA drives.
    - *Y:* Number of slots supporting both SAS/SATA and NVMe drives.

For UniBay drive backplanes and X SAS/SATA+Y UniBay drive backplanes:

- The two drive types are supported only when both SAS/SATA and NVMe data cables are connected.
- The number of supported SAS/SATA drives and the number of supported NVMe drives vary by cable connection.

Front 8SFF SAS/SATA drive backplane

The PCA-BP-8SFF-2U-G5 8SFF SAS/SATA drive backplane can be installed at the server front to support eight 2.5-inch SAS/SATA drives.
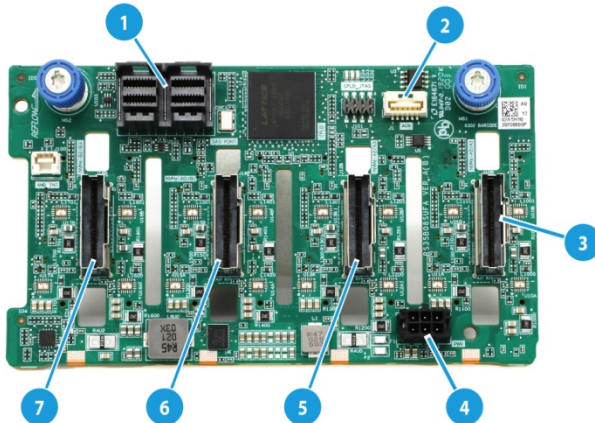
Figure 19 8SFF SAS/SATA drive backplane
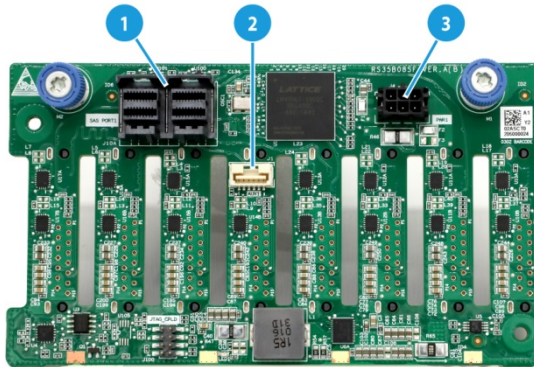
(1) x8 Mini-SAS-HD connector (SAS PORT 1)	(2) AUX connector (AUX 1)
(3) Power connector (PWR 1)	

Front 8SFF UniBay drive backplane

The PCA-BP-8UniBay-2U-G5 8SFF UniBay drive backplane can be installed at the server front to support eight 2.5-inch SAS/SATA/NVMe drives.

Figure 20 8SFF UniBay drive backplane

(1) x8 Mini-SAS-HD connector (SAS PORT)	(2) AUX connector (AUX)
(3) SlimSAS connector A1/A2 (PCIe4.0 x8)(NVMe A1/A2)	(4) Power connector (PWR)
(5) SlimSAS connector A3/A4 (PCIe4.0 x8)(NVMe A3/A4)	
(6) SlimSAS connector B1/B2 (PCIe4.0 x8)(NVMe B1/B2)	
(7) SlimSAS connector B3/B4 (PCIe4.0 x8)(NVMe B3/B4)	

NOTE:

PCIe4.0 x8 description:

- **PCIe4.0**: Fourth-generation signal speed.

- **x8**: Connector bandwidth.

Front 25SFF drive backplane (17 SAS/SATA + 8 UniBay)

The PCA-BP-25SFF-2U-G5 25SFF drive backplane can be installed at the server front to support 25 2.5-inch drives, including 17 SAS/SATA drives and 8 SAS/SATA/NVMe drives. The backplane is embedded with an Expander chip, which allows it to manage 25 SAS/SATA drives through an x8 Mini-SAS-HD port.

The backplane also provides three downlink connectors to connect to other backplanes and manage more drives.

Figure 21 25SFF drive backplane
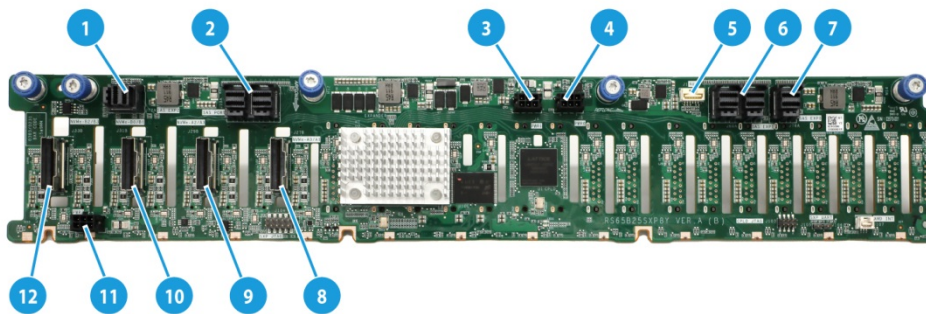
(1) x4 Mini-SAS-HD downlink connector 3 (SAS EXP 3)	
(2) x8 Mini-SAS-HD uplink connector (SAS PORT)	(3) Power connector 2 (PWR2)
(4) Power connector 1 (PWR1)	(5) AUX connector (AUX)
(6) x8 Mini-SAS-HD downlink connector 2 (SAS EXP 2)	
(7) x3 Mini-SAS-HD downlink connector 1 (SAS EXP 1)	
(8) SlimSAS connector A1/A2 (PCIe4.0 x8)(NVMe-A1/A2)(supports NVMe drives in slots 0 and 1)	
(9) SlimSAS connector A3/A4 (PCIe4.0 x8)(NVMe-A3/A4)(supports NVMe drives in slots 2 and 3)	
(10) SlimSAS connector B1/B2 (PCIe4.0 x8)(NVMe-B1/B2)(supports NVMe drives in slots 4 and 5)	
(11) Power connector 3 (PWR3)	
(12) SlimSAS connector B3/B4 (PCIe4.0 x8)(NVMe-B3/B4) (supports NVMe drives in slots 6 and 7)	

NOTE:

PCIe4.0 x8 description:

- **PCIe4.0**: Fourth-generation signal speed.
- **x8**: Connector bandwidth.

For more information about drive numbering, see Figure 13.

Front 25SFF drive backplane (17 SAS/SATA+8 UniBay)

The BP-25SFF-L36-G5 25SFF drive backplane can be installed at the server front to support 25 2.5-inch drives, including 17 SAS/SATA drives and 8 SAS/SATA/NVMe drives. The backplane is embedded with an Expander chip.

The drive backplane also provides one downlink connector for connecting other backplanes to support more drives.

Figure 22 25SFF drive backplane
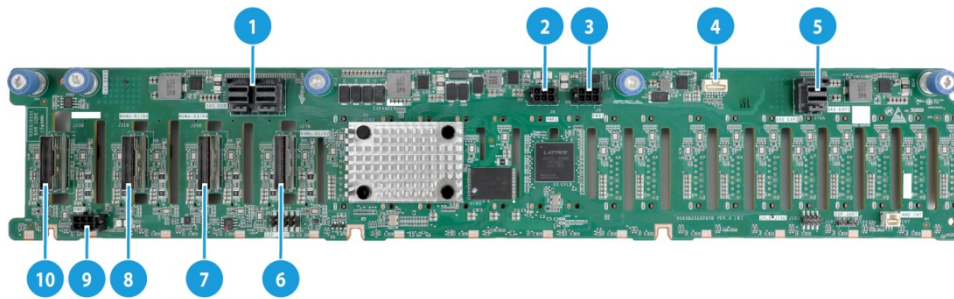
|	
(1) x8 Mini-SAS-HD uplink connector (SAS PORT)(controls all drives attached to the backplane)	
(2) Power connector 2 (PWR2)	(3) Power connector 1 (PWR1)
(4) AUX connector (AUX)	(5) x3 Mini-SAS-HD downlink connector (SAS EXP 1)
(6) SlimSAS connector A1/A2 (PCIe4.0 x8)(NVMe-A1/A2)(supports NVMe drives in slots 0 and 1)	
(7) SlimSAS connector A3/A4 (PCIe4.0 x8)(NVMe-A3/A4)(supports NVMe drives in slots 2 and 3)	
(8) SlimSAS connector B1/B2 (PCIe4.0 x8)(NVMe-B1/B2)(supports NVMe drives in slots 4 and 5)	
(9) Power connector 3 PWR3	
(10) SlimSAS connector B3/B4 (PCIe4.0 x8)(NVMe-B3/B4) (supports NVMe drives in slots 6 and 7)	

NOTE:

PCIe4.0 x8 description:

- **PCIe4.0**: Fourth-generation signal speed.
- **x8**: Connector bandwidth.

For more information about drive numbering, see Figure 13.

Front 8LFF SAS/SATA drive backplane

The PCA-BP-8LFF-2U-G5 8LFF SAS/SATA drive backplane can be installed at the server front to support eight 3.5-inch SAS/SATA drives.
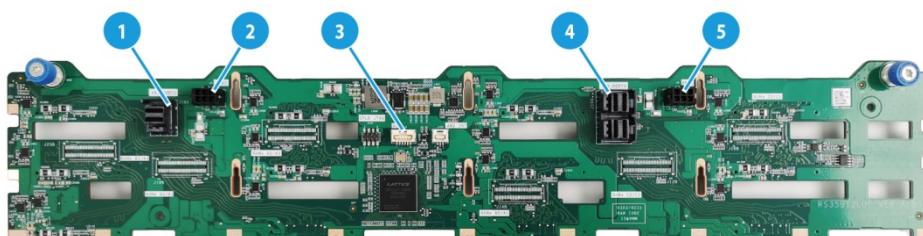
Figure 23 8LFF SAS/SATA drive backplane
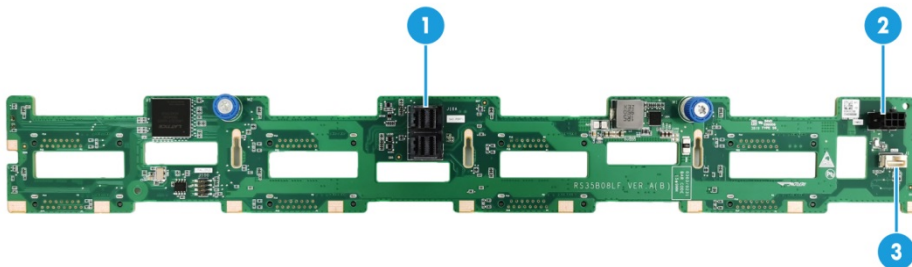
(1) x8 Mini-SAS-HD connector (SAS PORT 1)	(2) Power connector (PWR 1)
(3) AUX connector (AUX 1)	

Front 12LFF SAS/SATA drive backplane

The PCA-BP-12LFF-2U-G5 12LFF SAS/SATA drive backplane can be installed at the server front to support 12 3.5-inch SAS/SATA drives.
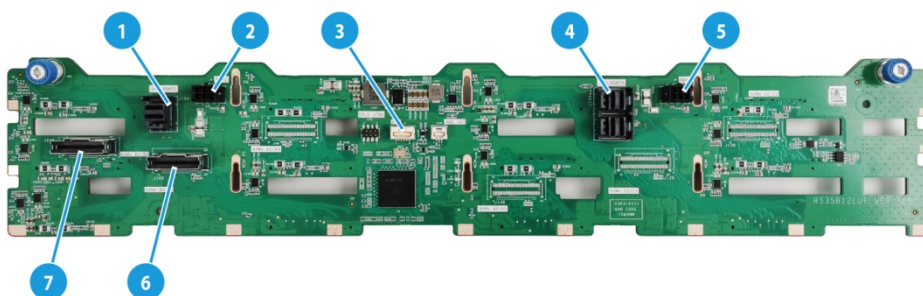
Figure 24 12LFF SAS/SATA drive backplane

(1) x4 Mini-SAS-HD connector (SAS PORT 2)	(2) Power connector (PWR 2)
(3) AUX connector (AUX)	(4) x8 Mini-SAS-HD connector (SAS PORT 1)
(5) Power connector (PWR 1)	

Front 12LFF drive backplane (8 SAS/SATA + 4 UniBay)

The PCA-BP-12LFF-4NVMe-2U-G5 12LFF drive backplane can be installed at the server front to support 12 3.5-inch drives, including 8 SAS/SATA drives and 4 SAS/SATA/NVMe drives.

Figure 25 12LFF drive backplane (8 SAS/SATA + 4 UniBay)

(1) x4 Mini-SAS-HD connector (SAS PORT 2)	(2) Power connector 2 (PWR 2)
(3) AUX connector (AUX)	(4) x8 Mini-SAS-HD connector (SAS PORT 1)
(5) Power connector 1 (PWR 1)	
(8) SlimSAS connector B1/B2 (PCIe4.0 x8)(NVMe-B1/B2)(supports NVMe drives in slots 0 and 1)	
(9) SlimSAS connector B3/B4 (PCIe4.0 x8)(NVMe-B3/B4)(supports NVMe drives in slots 2 and 3)	

NOTE:

PCIe4.0 x8 description:

- **PCIe4.0**: Fourth-generation signal speed.
- **x8**: Connector bandwidth.

For more information about drive numbering, see Figure 14.

Front 12LFF drive backplane (4 SAS/SATA + 8 UniBay)

The PCA-BP-12LFF-EXP-2U-G5/BP-12LFF-L36-G5 12LFF drive backplane with an Expander chip can be installed at the server front to support 12 3.5-inch drives, including 4 SAS/SATA drives and 8 SAS/SATA/NVMe drives. The backplane is embedded with an Expander chip, which allows it to manage 12 SAS/SATA drives through an x8 Mini-SAS-HD port.

The backplane also provides three downlink connectors to connect to other backplanes and manage more drives.

Figure 26 12LFF drive backplane (4 SAS/SATA + 8 UniBay)
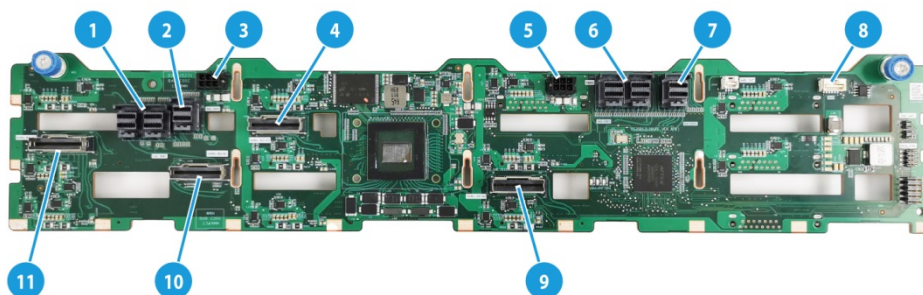
|	
(1) x8 Mini-SAS-HD connector (SAS PORT)	(2) x4 Mini-SAS-HD connector (SAS EXP3)
(3) Power connector 2 (PWR2)	
(4) SlimSAS connector A3/A4 (PCIe4.0 x8)(NVMe-A3/A4)(supports NVMe drives in slots 2 and 3)	
(5) Power connector 1 (PWR1)	(6) x8 Mini-SAS-HD connector (SAS EXP 2)
(7) x4 Mini-SAS-HD connector (SAS EXP 1)	(8) AUX connector (AUX)
(9) SlimSAS connector A1/A2 (PCIe4.0 x8)(NVMe-A1/A2)(supports NVMe drives in slots 0 and 1)	
(10) SlimSAS connector B1/B2 (PCIe4.0 x8)(NVMe-B1/B2)(supports NVMe drives in slots 4 and 5)	
(11) SlimSAS connector B3/B4 (PCIe4.0 x8)(NVMe-B3/B4)(supports NVMe drives in slots 6 and 7)	

NOTE:

PCIe4.0 x8 description:

- **PCIe4.0**: Fourth-generation signal speed.
- **x8**: Connector bandwidth.

For more information about drive numbering, see Figure 14.

Rear 2LFF SAS/SATA drive backplane

The PCA-BP-2LFF-2U-G5 2LFF SAS/SATA drive backplane can be installed at the server rear to support two 3.5-inch SAS/SATA drives.
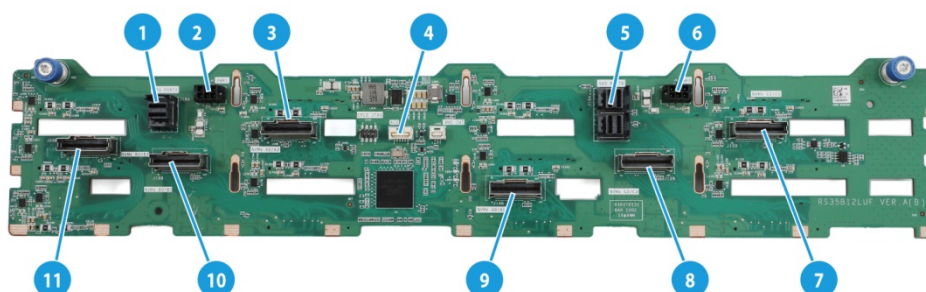
Figure 27 2LFF SAS/SATA drive backplane
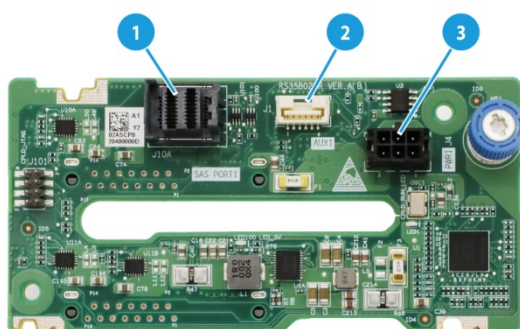
(1) x4 Mini-SAS-HD connector (SAS PORT)	(2) AUX connector (AUX)
(3) Power connector (PWR)	

Front 12LFF Unibay drive backplane

The PCA-BP-12LFF-UniBay-2U-G5 Unibay drive backplane can be installed at the server front to support 12 3.5-inch SAS/SATA/NVMe drives.

Figure 28 12LFF Unibay drive backplane

|	
(1) x4 Mini-SAS-HD connector (SAS PORT2)	(2) Power connector 2 (PWR2)
(3) SlimSAS connector A3/A4 (x8 PCIe4.0) (NVMe-A3/A4)	(4) AUX connector (AUX)
(5) x8 Mini-SAS-HD connector (SAS PORT1)	(6) Power connector 1 (PWR1)
(7) SlimSAS connector C1/C2 (PCIe4.0 x8) (NVMe-C1/C2)	
(8) SlimSAS connector C3/C4 (PCIe4.0 x8) (NVMe-C3/C4)	
(9) SlimSAS connector A1/A2 (PCIe4.0 x8) (NVMe-A1/A2)	
(10) SlimSAS connector B1/B2 (PCIe4.0 x8) (NVMe-B1/B2)	
(11) SlimSAS connector B3/B4 (PCIe4.0 x8) (NVMe-B3/B4)	

NOTE:

PCIe4.0 x8 description:

- **PCIe4.0**: Fourth-generation signal speed.
- **x8**: Connector bandwidth.

Front 8LFF UniBay drive backplane

The UN-PCA-BP-8LFF-UniBay-2U-G6 8LFF drive backplane can be installed at the server front to provide a maximum of eight 3.5-inch SAS/SATA/NVMe drives.

Figure 29 8LFF UniBay drive backplane
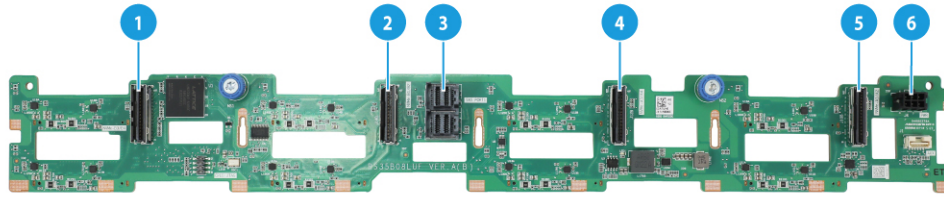
(1) SlimSAS connector B3/B4 (PCIe5.0 x8)(NVMe-B3/B4)(supports NVMe drives)

(2) SlimSAS connector B1/B2 (PCIe5.0 x8)(NVMe-B1/B2)(supports NVMe drives)

(3) x8 Mini-SAS-HD connector (SAS-PORT 1)

(4) SlimSAS connector A3/A4 (PCIe5.0 x8)(NVMe-A3/A4)(supports NVMe drives)

(5) SlimSAS connector A1/A2 (PCIe5.0 x8)(NVMe-A1/A2)(supports NVMe drives)
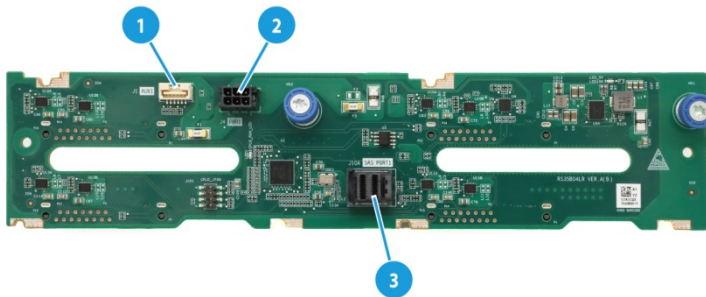
(6) Power connector (PWR)

NOTE:

PCIe5.0 x8 description:

- **PCIe5.0**: Fifth-generation signal speed.
- **x8**: Connector bandwidth.

Rear 4LFF SAS/SATA drive backplane

The PCA-BP-4LFF-2U-G5 4LFF SAS/SATA drive backplane can be installed at the server rear to support four 3.5-inch SAS/SATA drives.

Figure 30 4LFF SAS/SATA drive backplane

(1) AUX connector (AUX)	(2) Power connector (PWR)
(3) x4 Mini-SAS-HD connector (SAS PORT)	

Rear 2SFF UniBay drive backplane

The PCA-BP-2SFF-2UniBay-2U-G5 2SFF UniBay drive backplane can be installed at the server rear to support two 2.5-inch SAS/SATA/NVMe drives.

Figure 31 2SFF UniBay drive backplane

(1) Power connector (PWR)	(2) x4 Mini-SAS-HD connector (SAS PORT)
(3) SlimSAS connector (PCIe4.0 x8) (NVME)	(4) AUX connector (AUX)

NOTE:

PCIe4.0 x8 description:

- **PCIe4.0**: Fourth-generation signal speed.
- **x8**: Connector bandwidth.

Rear 4SFF UniBay drive backplane

The PCA-BP-4SFF-4UniBay-2U-G5 4SFF UniBay drive backplane can be installed at the server rear to support four 2.5-inch SAS/SATA/NVMe drives.

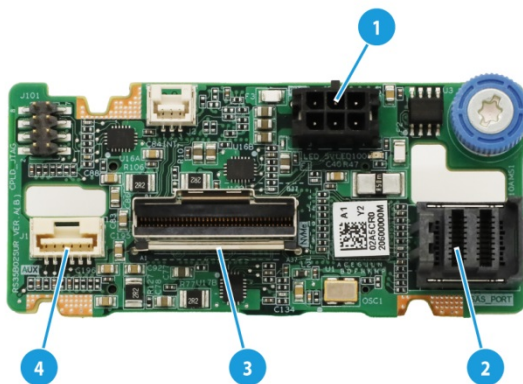**Figure 32 4SFF UniBay drive backplane**
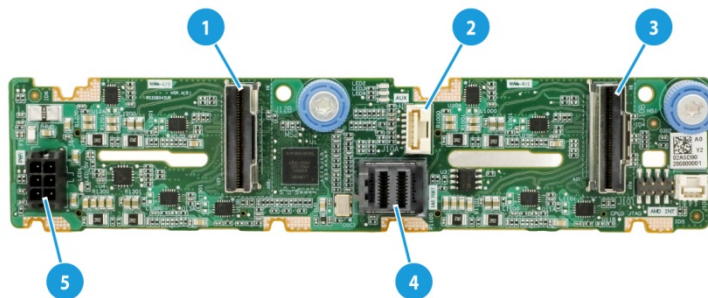
(1) SlimSAS connector 3/4 (PCIe4.0 x8) (NVME-3/4)	(2) AUX connector (AUX)
(3) SlimSAS connector 1/2 (PCIe4.0 x8) (NVME-1/2)	(4) x4 Mini-SAS-HD connector (SAS PORT)
(5) Power connector (PWR)	

NOTE:

PCIe4.0 x8 description:

- **PCIe4.0**: Fourth-generation signal speed.
- **x8**: Connector bandwidth.

LCD smart management module

An LCD smart management module displays basic server information, operating status, and fault information, and provides diagnostics and troubleshooting capabilities. You can locate and troubleshoot component failures by using the LCD module in conjunction with the event logs generated in HDM.
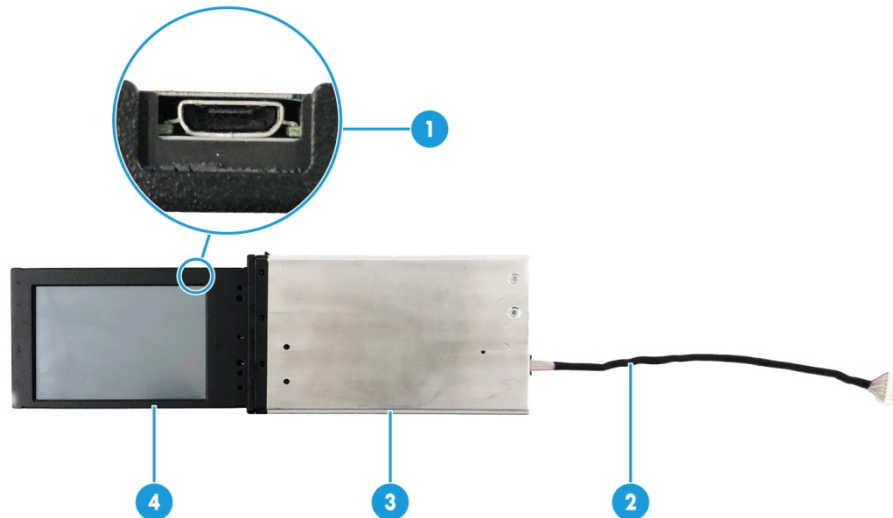
Figure 33 LCD smart management module

Table 16 LCD smart management module description

No.	Item	Description
1	Mini-USB connector	Used for upgrading the firmware of the LCD module.
2	LCD module cable	Connects the LCD module to the system board of the server. For information about the LCD smart management module connector on the system board, see "System board components."
3	LCD module shell	Protects and secures the LCD screen.
4	LCD screen	Displays basic server information, operating status, and fault information.

Fans

The server supports a maximum of six hot swappable fans. The fans support N+1 redundancy. Figure 34 shows the layout of the fans in the chassis.

The server can adjust the fan rotation speed based on the server temperature to provide optimal performance with balanced ventilation and noise.

During system POST and operation, the server will be gracefully powered off through HDM if the temperature detected by any sensor in the server reaches the critical threshold. The server will be powered off directly if the temperature of any key components such as processors exceeds the upper threshold. For more information about the thresholds and detected temperatures, access the HDM Web interface and see HDM online help.

Figure 34 Fan layout
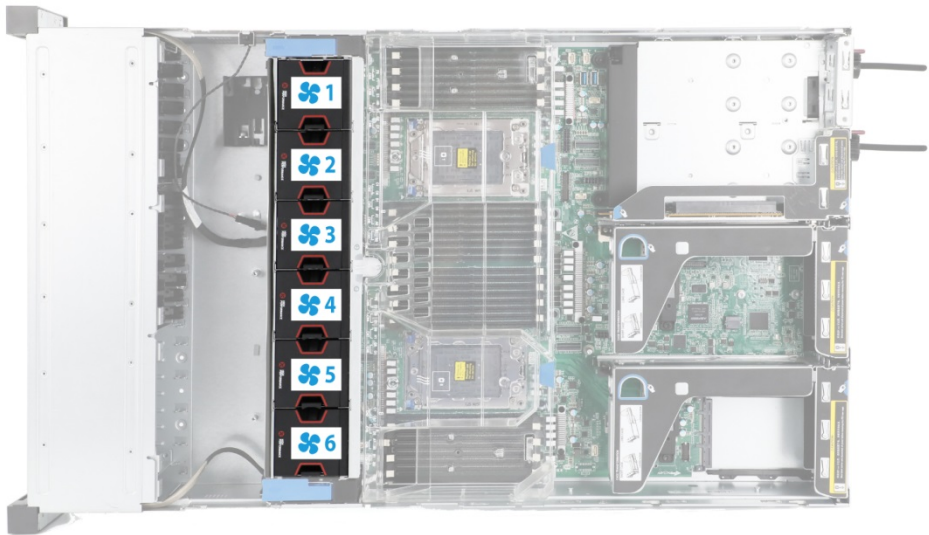
Riser cards

To expand the server with PCIe modules, install riser cards on the PCIe riser connectors.

Riser card guidelines

Each PCIe slot in a riser card can supply a maximum of 75 W power to the PCIe module. You must connect a separate power cord to the PCIe module if it requires more than 75 W power.

If a processor is faulty or absent, the corresponding PCIe slots are unavailable.

If a riser card can be installed on riser connector 1 or 2, the slot numbers of its PCIe slots are presented in the m/n format in this document.

- The m argument represents the PCIe slot number on connector 1.
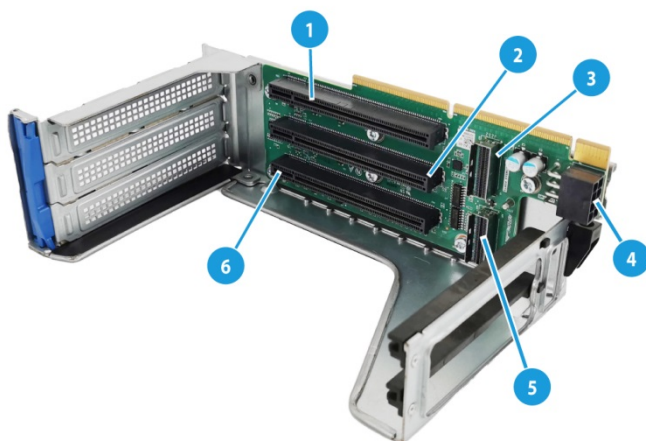- The n argument represents the PCIe slot number on connector 2.

For example, PCIe slot 1/4 represents that a PCIe slot is numbered 1 or 4 when the riser card is installed on riser connector 1 or riser connector 2, respectively. For more information about PCIe slot locations, see "Rear panel."

RC-3FHFL-2U-SW-G5

Item	Specifications
PCIe riser connector	Connector 1 or 2

Item	Specifications
PCIe slots	• PCIe riser connector 1: ○ Slot 1: PCIe4.0 ×16 for processor 1 ○ Slot 2: PCIe4.0 ×16 for processor 1 ○ Slot 3: PCIe4.0 ×16 for processor 1 • PCIe riser connector 2: ○ Slot 4: PCIe4.0 ×16 for processor 2 ○ Slot 5: PCIe4.0 ×16 for processor 2 ○ Slot 6: PCIe4.0 ×16 for processor 2 **NOTE:** x16 represents the compatible bus width, including x16, x8, x4, x2, and x1. By default, the connector width of a PCIe slot is x16.
SlimSAS connectors	• PCIe riser connector 1: ○ SlimSAS port 1 (x8 SlimSAS port, connected to LP SlimSAS connector A1/A2) for processor 1, providing x16 PCIe link for slot 1 with SlimSAS port 2. ○ SlimSAS port 2 (x8 SlimSAS port, connected to LP SlimSAS connector A3/A4) for processor 1, providing x16 PCIe link for slot 1 with SlimSAS port 1. • PCIe riser connector 2: ○ SlimSAS port 1 (x8 SlimSAS port, connected to LP SlimSAS connector B1/B2) for processor 2, providing x16 PCIe link for slot 4 with SlimSAS port 2. ○ SlimSAS port 2 (x8 SlimSAS port, connected to LP SlimSAS connector B3/B4) for processor 2, providing x16 PCIe link for slot 4 with SlimSAS port 1.
Form factors of PCIe modules	FHFL
Maximum power supplied per PCIe slot	75 W

Figure 35 RC-3FHFL-2U-SW-G5 riser card
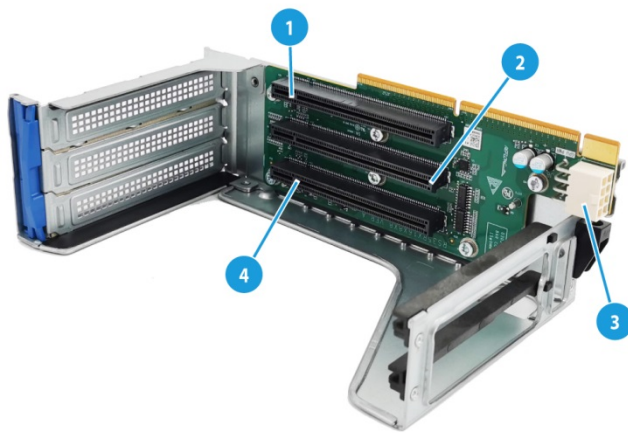

(1) PCIe4.0 x8 slot 3/6	(2) PCIe4.0 x8 slot 2/5
(3) SlimSAS port 2	(4) GPU module power connector
(5) SlimSAS port 1	(4) PCIe4.0 x8 slot 1/4

RC-3FHFL-2U-G5

Item	Specifications
PCIe riser connector	Connector 1 or 2

PCIe slots	• PCIe riser connector 1:
	    ○ Slot 2: PCIe4.0 ×16 for processor 1
	    ○ Slot 1/3: PCIe4.0 ×8 for processor 1
	• PCIe riser connector 2:
	    ○ Slot 5: PCIe4.0 ×16 for processor 2
	    ○ Slot 4/6: PCIe4.0 ×8 for processor 2
	NOTE:
	x16 represents the compatible bus width, including x16, x8, x4, x2, and x1.
	x8 represents the compatible bus width, including x8, x4, x2, and x1.
	By default, the connector width of a PCIe slot is x16.

Form factors of PCIe modules	• Slot 2 and slot 5: FHFL • Slots 1/3 and slot 4/6: FHHL
Maximum power supplied per PCIe slot	75 W

Figure 36 RC-3FHFL-2U-G5 riser card

(1) PCIe4.0 x8 slot 3/6	(2) PCIe4.0 x8 slot 2/5
(5) GPU module power connector	(6) PCIe4.0 x8 slot 1/4

Figure 37 RC-3FHFL-2U-G5 closed and extended
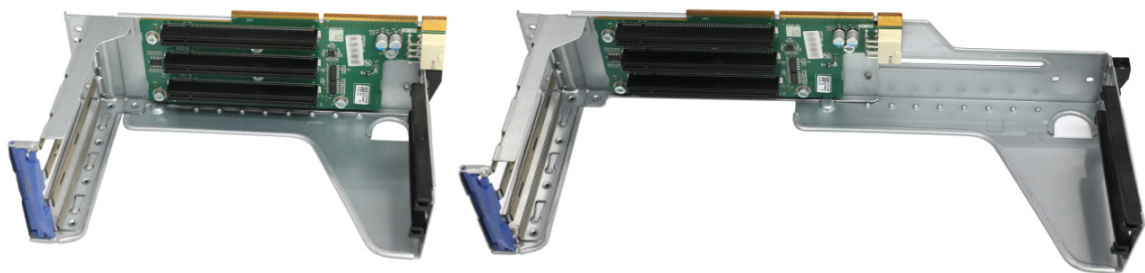
NOTE:

To accommodate different sizes of PCIe modules, the length of this riser card bracket is adjustable.

RC-3FHFL-2U-G6-1

Item	Specifications
PCIe riser connector	Connector 1 or 2

PCIe slots	• PCIe riser connector 1:
	  ○ Slot 1: PCIe4.0 ×16 for processor 1
	  ○ Slot 2: PCIe4.0 ×16 for processor 1
	  ○ Slot 3: PCIe4.0 ×16 for processor 1
	• PCIe riser connector 2:
	  ○ Slot 4: PCIe4.0 ×16 for processor 2
	  ○ Slot 5: PCIe4.0 ×16 for processor 2
	  ○ Slot 6: PCIe4.0 ×16 for processor 2
	NOTE:
	x16 represents the compatible bus width, including x16, x8, x4, x2, and x1.
	By default, the connector width of a PCIe slot is x16.

Form factors of PCIe modules	FHFL
Maximum power supplied per PCIe slot	75 W

Figure 38 RC-3FHFL-2U-G6-1 riser card (1)
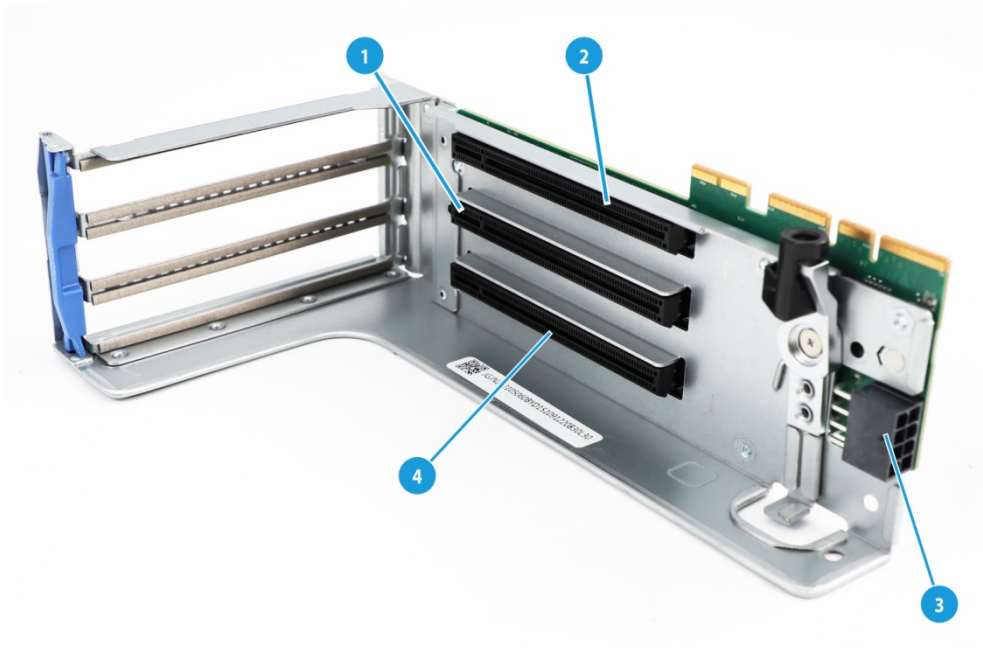
Figure 39 RC-3FHFL-2U-G6-1 riser card (2)
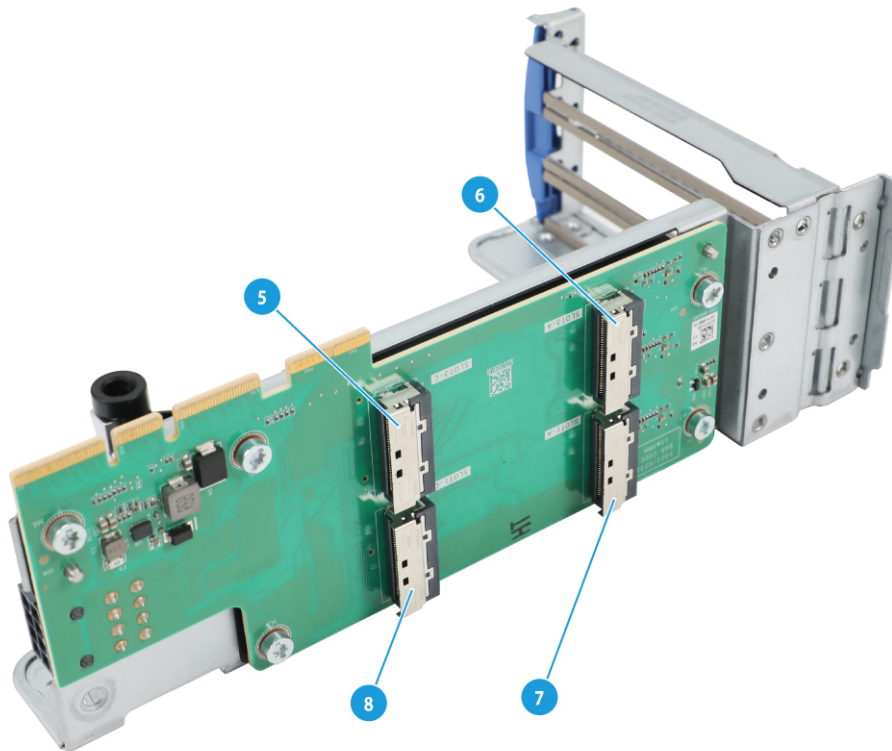
(1) PCIe5.0 x16 slot 2/5	(2) PCIe5.0 x16 slot 3/6
(3) GPU module power connector	(4) PCIe5.0 x16 slot 1/4
(5) MCIO connector 3-C	(6) MCIO connector 3-A
(7) MCIO connector 1-A	(8) MCIO connector 1-C

RC-OCP/FHHL-2U-G5

Item	Specifications
PCIe riser connector	Connector 1 or 2
PCIe slots	• PCIe riser connector 1: o Slot 3 o Slot 1 • PCIe riser connector 2: o Slot 6 o Slot 4
Form factors of PCIe modules	FHHL or OCP network adapters

Figure 40 RC-OCP/FHHL-2U-G5 riser card
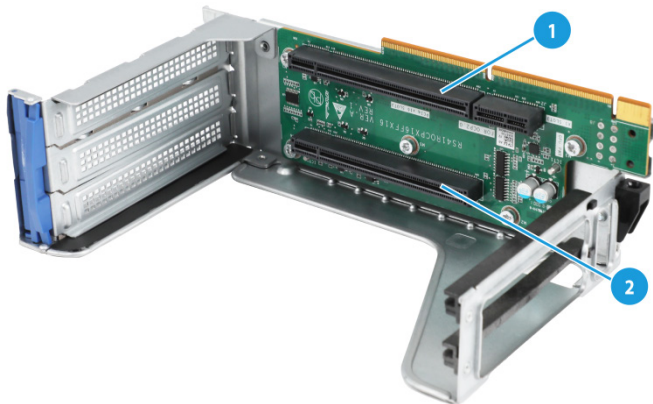
(1) PCIe4.0 x16 slot 3/6 (OCP network adapter only)　　(2) PCIe4.0 x16 slot 1/4

RC-2HHHL-R3-2U-G5

Item	Specifications
PCIe riser connector	Connector 3
PCIe slots	• Slot 7: PCIe4.0 ×8 for processor 2 • Slot 8: PCIe4.0 ×8 for processor 2 **NOTE:** x8 represents the compatible bus width, including x8, x4, x2, and x1. By default, the connector width of a PCIe slot is x16.
Form factors of PCIe modules	HHHL
Maximum power supplied per PCIe slot	75 W

Figure 41 RC-2HHHL-R3-2U-G5 riser card
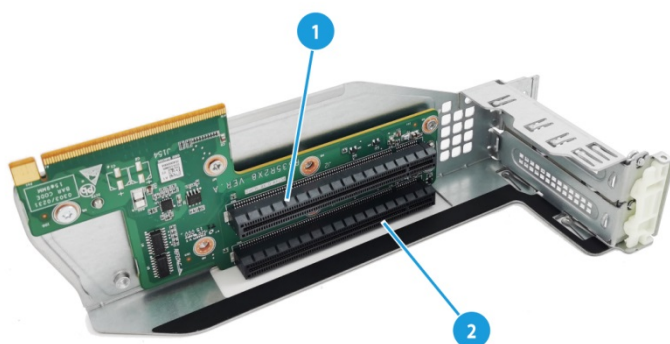
| (1) PCIe4.0 x8 slot 8 | (2) PCIe4.0 x8 slot 7 |

RC-2LP-SlimSAS-2U

Item	Specifications
PCIe riser connector	Connector 3
PCIe slots	• Slot 7 • Slot 8
Form factors of PCIe modules	LP

Figure 42 RC-2LP-SlimSAS-2U riser card
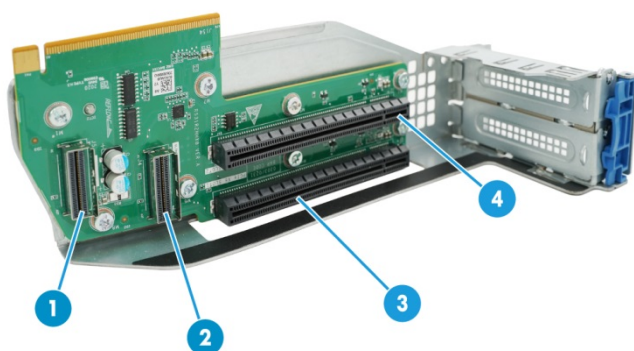
(1) SlimSAS port 2 connector	(2) SlimSAS port 1 connector
(3) PCIe4.0 x8 slot 7	(4) PCIe4.0 x8 slot 8

RC-1FHFL-R3-2U-G5

Item	Specifications
PCIe riser connector	Connector 3
PCIe slots	Slot 7
Form factors of PCIe modules	FHFL

Figure 43 RC-1FHFL-R3-2U-G5 riser card

| (1) GPU module power connector | (2) PCIe4.0 x16 slot 7 |

PCA-R4950-4GPU-G5

Item	Specifications
PCIe riser connector	Connector 1 or 2
PCIe slots	• Slot 3: PCIe4.0 ×16 for processor 1 • Slot 6: PCIe4.0 ×16 for processor 2 • Slot 11: PCIe4.0 ×16 for processor 1 • Slot 12: PCIe4.0 ×16 for processor 1 • Slot 13: PCIe4.0 ×16 for processor 2 • Slot 14: PCIe4.0 ×16 for processor 2 **NOTE:** x16 represents the compatible bus width, including x16, x8, x4, x2, and x1. By default, the connector width of a PCIe slot is x16.
Form factors of PCIe modules	FHFL
Maximum power supplied per PCIe slot	• Slots 3 and 6: 75 W • Slots 11, 12, 13, and 14: 300 W **NOTE:** Slots 11 through 14 provided by the 4GPU module installed at the server rear supports only GPU modules. The 300 W power requires an external GPU power cable.

Figure 44 PCA-R4950-4GPU-G5 riser card (1)
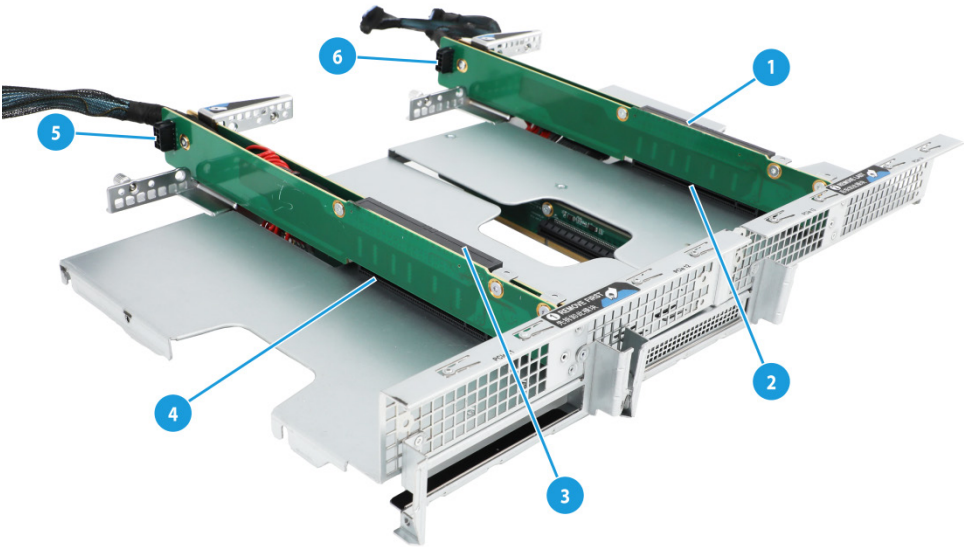
Figure 45 PCA-R4950-4GPU-G5 riser card (2)
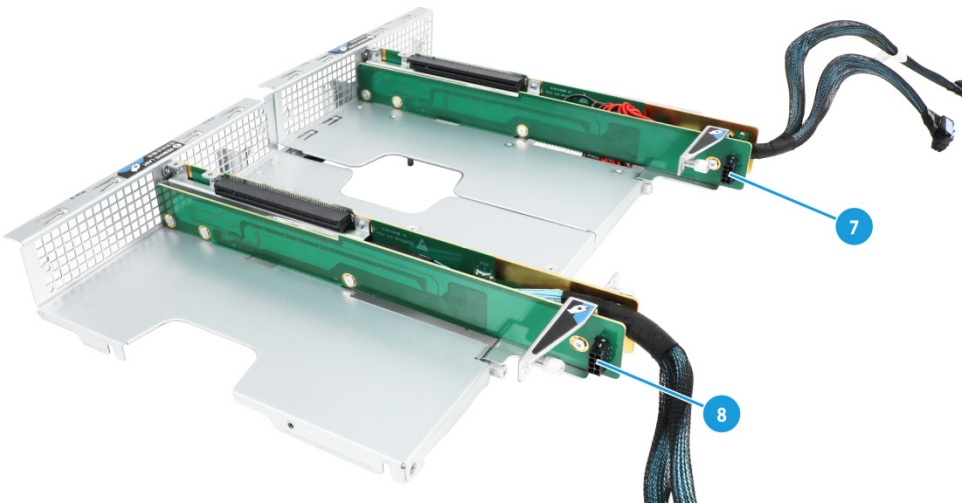
Figure 46 PCA-R4950-4GPU-G5 riser card (3)
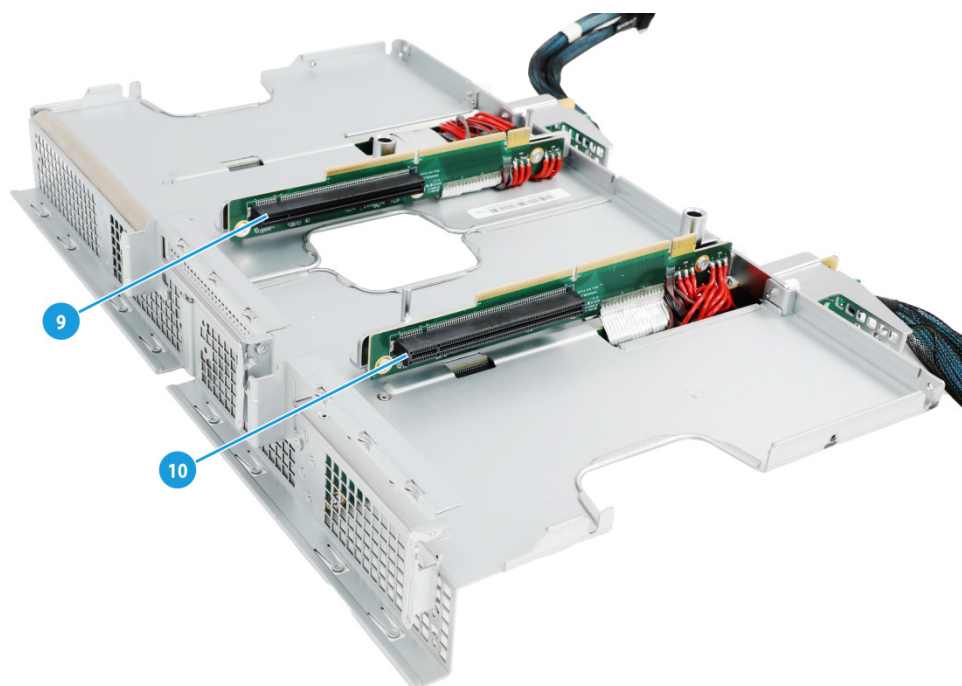
(1) PCIe4.0 x16 slot 14	(2) PCIe4.0 x16 slot 13
(3) PCIe4.0 x16 slot 12	(4) PCIe4.0 x16 slot 11
(5) to (8) GPU module power connectors	(9) PCIe4.0 x16 slot 6
(10) PCIe4.0 x16 slot 3	

PCIe modules

Typically, the PCIe modules are available in the following standard form factors:

- **LP**—Low profile.
- **FHHL**—Full height and half length.
- **FHFL**—Full height and full length.
- **HHHL**—Half height and half length.
- **HHFL**—Half height and full length.

Storage controllers

The server supports the following types of storage controllers:

- **Embedded SATA/NVMe controller**—Embedded in the server and does not require installation.
- **Standard storage controller**—Comes in a standard PCIe form factor and typically requires a riser card for installation.

For some storage controllers, you can order a power fail safeguard module to prevent data loss from power outages. This module provides a flash card and a supercapacitor. When a system power failure occurs, the supercapacitor provides power for a minimum of 20 seconds. During this interval, the storage controller can transfer data from DDR memory to the flash card, where the data remains

indefinitely or until the controller retrieves the data. If the storage controller contains a built-in flash card, you can order only a supercapacitor.

B/D/F information

Obtaining B/D/F information

The B/D/F information might vary by PCIe module configuration.

You can obtain B/D/F information by using one of the following methods:

- **BIOS log**—Search the **dumpiio** keyword in the BIOS log.
- **UEFI shell**—Execute the `pci` command. For information about how to execute the command, execute the `help pci` command.
- **Operating system**—The obtaining method varies by OS.
  - For Linux, execute the `lspci` command.

    If Linux does not support the `lspci` command by default, you must execute the `yum` command to install the pci-utils package.
  - For Windows, install the pciutils package, and then execute the `lspci` command.
  - For VMware, execute the `lspci` command.

Appendix C Environment requirements

About environment requirements

The operating temperature requirements for the server vary depending on the server model and hardware configuration. When the general and component-based requirements conflict, use the component-based requirement.

Be aware that the actual maximum operating temperature of the server might be lower than what is stated because of poor site cooling performance. In a real data center, the server cooling performance might decrease because of adverse external factors, including poor cabinet cooling performance, high power density inside the cabinet, or insufficient spacing between devices.

General environment requirements

Item	Specifications
Operating temperature	Minimum: 5°C (41°F) Maximum: 40°C (104°F) △ CAUTION: The maximum temperature varies by hardware option presence. For more information, see "Operating temperature requirements."
Storage temperature	–40°C to +70°C (–40°F to +158°F)
Operating humidity	8% to 90%, noncondensing
Storage humidity	5% to 95%, noncondensing
Operating altitude	–60 m to +3000 m (–196.85 ft to +9842.52 ft) The allowed maximum temperature decreases by 0.33 °C (32.59°F) as the altitude increases by 100 m (328.08 ft) from 900 m (2952.76 ft)
Storage altitude	–60 m to +5000 m (–196.85 ft to +16404.20 ft)

Operating temperature requirements

General guidelines

When a FAN-6038-2U-G5 fan or a rotor in a FAN-6056-2U-G5 fan fails, the maximum server operating temperature decreases by 5°C (41°F). The GPU performance and performance of processors with a TDP of more than 180 W might decrease.

1/2 × 8SFF drive configuration

Table 17 Operating temperature requirements

Maximum server operating temperature	Hardware options
30°C (86°F)	All hardware options are supported.

Maximum server operating temperature	Hardware options
35°C (95°F)	GPU-V100S-32G GPU modules are not supported.
40°C (104°F)	The following hardware options are not supported: • GPU modules. • NVMe drives. • Rear drives. • Processors with a TDP of more than 180 W. • DPS-1600AB-13 R power supplies.

8LFF drive configuration

Table 18 Operating temperature requirements

Maximum server operating temperature	Hardware options
30°C (86°F)	With a GPU-V100S-32G GPU module installed in the server, processors with a TDP of more than 200 W are not supported.
35°C (95°F)	GPU-V100S-32G GPU modules are not supported.
40°C (104°F)	The following hardware options are not supported: • GPU modules. • NVMe drives. • Rear drives. • Processors with a TDP of more than 180 W. • DPS-1600AB-13 R power supplies.

12LFF, 25SFF, and 3 × 8SFF drive configuration

Table 19 Operating temperature requirements

Maximum server operating temperature	Hardware options
30°C (86°F)	GPU-V100S-32G GPU modules are not supported.
35°C (95°F)	The following hardware options are not supported: • GPU-V100S-32G GPU modules. • DPS-1600AB-13 R power supplies. • With a processor with a TDP of more than 200 W installed in the server, rear SFF drives are not supported.
40°C (104°F)	The following hardware options are not supported: • GPU modules. • NVMe drives. • Rear drives. • Processors with a TDP of more than 180 W. • DPS-1600AB-13 R power supplies.

Appendix D Product recycling

New H3C Technologies Co., Ltd. provides product recycling services for its customers to ensure that hardware at the end of its life is recycled. Vendors with product recycling qualification are contracted to New H3C to process the recycled hardware in an environmentally responsible way.

For product recycling services, contact New H3C at

- Tel: 400-810-0504
- E-mail: service@h3c.com
- Website: http://www.h3c.com

Appendix E Glossary

Item	Description
B	
BIOS	Basic input/output system is non-volatile firmware pre-installed in a ROM chip on a server's management module. The BIOS stores basic input/output, power-on self-test, and auto startup programs to provide the most basic hardware initialization, setup and control functionality.
C	
CPLD	Complex programmable logic device is an integrated circuit used to build reconfigurable digital circuits.
E	
Ethernet adapter	An Ethernet adapter, also called a network interface card (NIC), connects the server to the network.
F	
FIST	Fast Intelligent Scalable Toolkit provided by H3C for easy and extensible server management. It can guide users to configure a server quickly with ease and provide an API interface to allow users to develop their own management tools.
G	
GPU module	Graphics processing unit module converts digital signals to analog signals for output to a display device and assists processors with image processing to improve overall system performance.
H	
HDM	Hardware Device Management is the server management control unit with which administrators can configure server settings, view component information, monitor server health status, and remotely manage the server.
Hot swapping	A module that supports hot swapping (a hot-swappable module) can be installed or removed while the server is running without affecting the system operation.
K	
KVM	KVM is a management method that allows remote users to use their local video display, keyboard, and mouse to monitor and control the server.
N	
NVMe VROC module	A module that works with Intel VMD to provide RAID capability for the server to virtualize storage resources of NVMe drives.
R	
RAID	Redundant array of independent disks (RAID) is a data storage virtualization technology that combines multiple physical hard drives into a single logical unit to improve storage and security performance.
Redundancy	A mechanism that ensures high availability and business continuity by providing backup modules. In redundancy mode, a backup or standby module takes over when the primary module fails.
S	

Item	Description
Security bezel	A locking bezel mounted to the front of a server to prevent unauthorized access to modules such as hard drives.
U	
U	A unit of measure defined as 44.45 mm (1.75 in) in IEC 60297-1. It is used as a measurement of the overall height of racks, as well as equipment mounted in the racks.
UniBay drive backplane	A UniBay drive backplane supports both SAS/SATA and NVMe drives.
V	
VMD	VMD provides hot removal, management and fault-tolerance functions for NVMe drives to increase availability, reliability, and serviceability.

Appendix F Acronyms

Acronym	Full name
B	
BIOS	Basic Input/Output System
C	
CMA	Cable Management Arm
CPLD	Complex Programmable Logic Device
D	
DCPMM	Data Center Persistent Memory Module
DDR	Double Data Rate
DIMM	Dual In-Line Memory Module
DRAM	Dynamic Random Access Memory
F	
FIST	Fast Intelligent Scalable Toolkit
G	
GPU	Graphics Processing Unit
H	
HBA	Host Bus Adapter
HDD	Hard Disk Drive
HDM	Hardware Device Management
I	
IDC	Internet Data Center
iFIST	integrated Fast Intelligent Scalable Toolkit
K	
KVM	Keyboard, Video, Mouse
L	
LRDIMM	Load Reduced Dual Inline Memory Module
N	
NCSI	Network Controller Sideband Interface
NVMe	Non-Volatile Memory Express
P	
PCIe	Peripheral Component Interconnect Express
POST	Power-On Self-Test

Acronym	Full name
R	
RAID	Redundant Array of Independent Disks
RDIMM	Registered Dual Inline Memory Module
S	
SAS	Serial Attached Small Computer System Interface
SATA	Serial ATA
SD	Secure Digital
SDS	Secure Diagnosis System
SFF	Small Form Factor
sLOM	Small form factor Local Area Network on Motherboard
SSD	Solid State Drive
T	
TCM	Trusted Cryptography Module
TDP	Thermal Design Power
TPM	Trusted Platform Module
U	
UID	Unit Identification
UPI	Ultra Path Interconnect
UPS	Uninterruptible Power Supply
USB	Universal Serial Bus
V	
VROC	Virtual RAID on CPU
VMD	Volume Management Device