RH1288 V3 Server

V100R003

User Guide

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About This Document

Intended Audience

This document describes the RH1288 V3 in terms of its features, appearance, technical specifications, and procedure of installing and removing, powering on and off, parts replacement, and troubleshooting of the RH1288 V3.

Read this document before operating the RH1288 V3.

This document is intended for:

● Technical support engineers

● Maintenance engineers

Symbol Conventions

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

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

Symbol	Description
NOTE	Calls attention to important information, best practices and tips.
	NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

Change History

Changes between document issues are cumulative. The latest document issue contains all changes made in previous issues.

Issue 06 (2015-11-06)

Mode	Change Description
New	Added the procedure of operating the front bezel. For details, see **5.2 Removing the Front Bezel** and **5.3 Installing a Front Bezel**.
	Added internal cabling. For details, see **1.7 Internal Cabling**.

Issue 05 (2015-06-10)

Mode	Change Description
New	Added the procedure for removing the RH1288 V3 installed on the holding rails. For details, see **5.8 Removing the Chassis Cover**.

Issue 04 (2015-03-27)

Mode	Change Description
New	Added product specifications. For details, see **1.11 Technical Specifications**.

Issue 03 (2014-12-30)

Mode	Change Description
Modified	Modified the product name.

Issue 02 (2014-12-10)

Mode	Change Description
New	Added the guide rail requirements on the chassis. For details, see **1.12 Physical Specifications**.

Issue 01 (2014-08-30)

This issue is the first official release.

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About This Chapter

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1.1 Overview

This topic describes the functions and hard disk configurations of the RH1288 V3.

The Huawei RH1288 V3 server (nameplate model H12M-03,RH1288 V3 for short) is a 1 U 2-socket rack server developed for the Internet, Internet data center (IDC), cloud computing, enterprise, and telecom service applications.

The RH1288 V3 features high-performance computing (HPC), large storage capacity, low power consumption, high scalability and reliability, and is easy to deploy and manage. It is ideal for virtualization, basic enterprise applications, telecom services, and storage services such as distributed storage, data mining, electronic albums, and videos.

The RH1288 V3 supports the following hard disk configurations:

● RH1288 V3 with 8 hard disks: supports eight front 2.5-inch SAS HDDs, SATA HDDs, or SSDs.

   Hard disks can be connected through the Intel chipset (PCH) or a SAS RAID controller card.

● RH1288 V3 with 4 hard disks: supports four front 3.5-inch SAS or SATA HDDs.

   Hard disks can be connected through the Intel chipset (PCH) or a SAS RAID controller card.

☐NOTE

The server where hard disks are connected through the Intel chipset (PCH) supports SATA disks only, an optional softRAID license, and softRAID 0, 1, and 5. The server with softRAID configuration does not support installation of a virtualization OS. If you have any doubts about the hard disk configuration, contact your local Huawei sales representatives.

Figure 1-1 shows the RH1288 V3 with eight hard disks.

Figure 1-1 RH1288 V3

1.2 Appearance
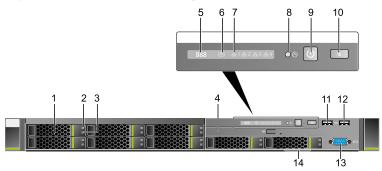
This topic describes the RH1288 V3 panels.

Front Panel

Figure 1-2 shows the RH1288 V3-8S front panel.
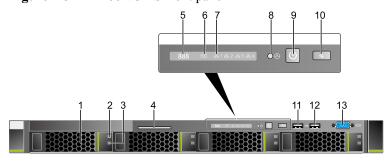
Figure 1-2 RH1288 V3-8S front panel

1	Hard disk	2	Hard disk fault indicator
3	Hard disk active indicator	4	Built-in DVD drive
5	Fault diagnosis LED	6	Health indicator
7	Network port indicator	8	NMI button
9	Power button	10	Unit Identification (UID) button/indicator
11	USB 2.0 port	12	USB 2.0 port
13	Video graphics array (VGA) port	14	Label (including ESN label)

Figure 1-3 shows the RH1288 V3-4S front panel.

Figure 1-3 RH1288 V3-4S front panel

1	Hard disk	2	Hard disk fault indicator
3	Hard disk active indicator	4	Label (including ESN label)
5	Fault diagnosis LED	6	Health indicator
7	Network port indicator	8	NMI button
9	Power button/indicator	10	UID button/indicator
11	USB 2.0 port	12	USB 2.0 port

13	VGA port

Rear Panel

Figure 1-4 shows the rear panel of the RH1288 V3 with a 10GE network interface card (NIC).

Figure 1-4 Rear panel of the RH1288 V3 with a 10GE NIC

1	Power socket for a power supply unit (PSU)	2	PSU indicator
3	PSU	4	Serial port
5	VGA port	6	UID indicator
7	USB 3.0 port	8	USB 3.0 port
9	Management network port (Mgmt)	10	LINK indicator
11	ACT indicator	12	10GE port
13	10GE port	14	Data transmission status indicator
15	Connectivity status indicator	16	Full-height PCIe slot
17	Half-height PCIe slot		
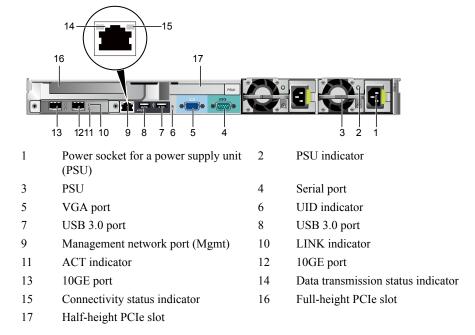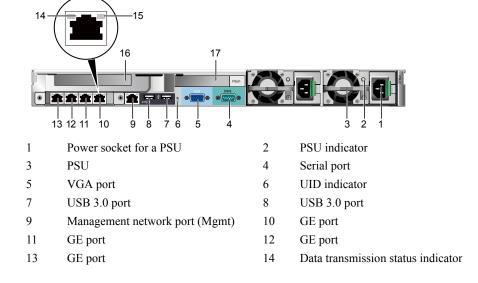
Figure 1-5 shows the rear panel of the RH1288 V3 with a GE NIC.

Figure 1-5 Rear panel of the RH1288 V3 with a GE NIC

1	Power socket for a PSU	2	PSU indicator
3	PSU	4	Serial port
5	VGA port	6	UID indicator
7	USB 3.0 port	8	USB 3.0 port
9	Management network port (Mgmt)	10	GE port
11	GE port	12	GE port
13	GE port	14	Data transmission status indicator
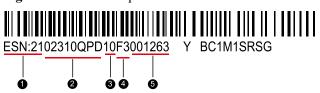
| 15 | Connectivity status indicator | 16 | Full-height PCIe slot |
| 17 | Half-height PCIe slot | | |

ESNs

An Equipment Serial Number (ESN) is a string that uniquely identifies a server. An ESN is required when you apply for technical support to Huawei.

Figure 1-6 shows the ESN format by using the example 2102310QPD10F3001263.

Figure 1-6 ESN example

ESN:2102310QPD10F3001263   Y   BC1M1SRSG

❶   ❷   ❸❹ ❺

No.	Description
1	Indicates the ESN ID (two digits).
2	Indicates the material identification code (8 characters).
3	Indicates the vendor code (two characters).
4	Indicates the year and month (two characters).
5	Indicates the serial number (six digits).

1.3 Ports

This topic describes the ports on the RH1288 V3.

Table 1-1 and Table 1-2 describe the external ports on the RH1288 V3.

Table 1-1 Ports on the front panel

Name	Type	Quantity	Description
Video graphics array (VGA) port	DB-15	1	The port is connected to a terminal, such as a monitor or KVM.

Name	Type	Quantity	Description
USB port	USB2.0	2	The USB port is connected to a USB device. **NOTICE** Before connecting to an external USB device, check that the USB device operates properly. A server may operate abnormally if it is connected to an abnormal USB device. The USB 3.0 is disabled by default. You can enable it in the BIOS. When you use the VMware OS, do not enable the USB 3.0. Otherwise, the keyboard and mouse are unavailable. z

Table 1-2 Ports on the rear panel

Name	Type	Quantity	Description
VGA port	DB-15	1	The port is connected to a terminal, such as a monitor or KVM.
USB port	USB 3.0	2	The USB port is connected to a USB device. **NOTICE** Before connecting to an external USB device, check that the USB device operates properly. A server may operate abnormally if it is connected to an abnormal USB device.
Management network port (Mgmt)	Ethernet port	1	The 1000 Mbit/s Ethernet port is used to manage the server.
Serial port	DB9	1	The port is used as the system serial port by default. You can set it to the iBMC serial port by using the iBMC command. The port is used for debugging.
GE port/10GE electrical or optical port	-	-	The port types and quantity vary according to the configured I/O card type.

1.4 Indicators and Buttons

This topic describes the indicators and buttons on the RH1288 V3.

You can observe the indicators to determine the status of the RH1288 V3.

Table 1-3 describes the indicators and buttons on the RH1288 V3 front panel.

Table 1-3 Indicators and buttons on the front panel

Silk Screen	Meaning	Color	State Description
▢▢▢	Fault diagnosis LED	None	● ---: The server is operating properly. ● **Error Code**: A fault occurs in server hardware. For details about error code, see *HUAWEI Rack Server Alarm Handling (iBMC)*.
⏻	Power button/ indicator	Yellow and green	● Off: The server is not powered on. ● Blinking yellow: The iBMC is being started. ● Steady yellow: The system is in the standby state. ● Steady green: The system is properly powered on. **NOTE** You can hold down the power button for 6 seconds to power off the server.
◉	UID button/ indicator	Blue	The UID button/indicator helps identify and locate a server in a rack. You can turn on or off the UID indicator by manually pressing the UID button or remotely running a command on the iBMC CLI. ● Steady on: The server is located. ● Off: The server is not located. ● You can hold down the UID button for 4 to 6 seconds to reset iBMC.
▣	Health indicator	Red and green	● Steady green: The server is operating properly. ● Blinking red at 1 Hz: A major alarm is generated. ● Blinking red at 5 Hz: A critical alarm is generated.

Silk Screen	Meaning	Color	State Description
○	NMI button	None	The NMI button triggers a server to generate a non-maskable interrupt. You can press this buttton or control it remotely through the iBMC WebUI. **NOTICE** - Click the NMI button only when the OS is abnormal. Do not click this button when the server is operating properly. - Click the NMI button only for internal commissioning. Before clicking this button, ensure that the OS has the handler for NMI interrupt. Otherwise, the OS may crash. Exercise caution when clicking this button.
-	Hard disk active indicator	Green	- Off: The hard disk is not detected or is faulty. - Blinking green: Data is being read from, written to the hard disk, or synchronized between hard disks. - Steady green: The hard disk is inactive.
-	Hard disk fault indicator	Yellow	- Off: The hard disk is operating properly or hard disks cannot be detected in the RAID group. - Blinking yellow: The hard disk is being located, or the RAID is being reconstructed. - Steady yellow: The hard disk is not detected or is faulty.

Silk Screen	Meaning	Color	State Description
品1 品3 品2 品4	Network port link status indicators	Green	Each indicator shows the status of an Ethernet port on the network interface card (NIC). ● Steady green: The port is properly connected. ● Off: The port is not in use. **NOTE** If the NIC provides only two network ports, network port indicators 1 and 2 on the front panel are used.

Table 1-4 describes the indicators on the RH1288 V3 rear panel.

Table 1-4 Indicators on the rear panel

Indicator	Color	State
Data transmission status indicator	Orange	● Off: No data is being transmitted. ● Blinking: Data is being transmitted.
Connectivity status indicator	Green	● Steady green: The port is properly connected. ● Off: The port is not in use.
Unit Identification (UID) indicator	Blue	The UID button/indicator helps identify and locate a server in a rack. You can turn on or off the UID indicator by manually pressing the UID button or remotely running a command on the iBMC CLI. ● Steady on: The server is located. ● Off: The server is not located. ● You can hold down the UID button for 4 to 6 seconds to reset iBMC.
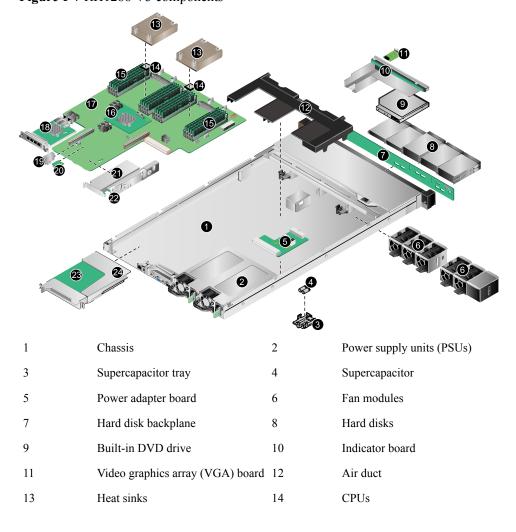
Indicator	Color	State
Power supply unit (PSU) indicator	Green	• Steady green: Both the active output and the standby output are normal. • Off: There is no AC power input; the input overvoltage or undervoltage occurs and the PSU is not detected; the PSU is abnormal.

1.5 Physical Structure

This topic describes the components of the RH1288 V3.

Figure 1-7 shows the RH1288 V3 components.

Figure 1-7 RH1288 V3 components

1	Chassis	2	Power supply units (PSUs)
3	Supercapacitor tray	4	Supercapacitor
5	Power adapter board	6	Fan modules
7	Hard disk backplane	8	Hard disks
9	Built-in DVD drive	10	Indicator board
11	Video graphics array (VGA) board	12	Air duct
13	Heat sinks	14	CPUs

15	DIMMs	16	RAID controller card
17	Mainboard	18	Network interface card (NIC)
19	SATADOM	20	(Optional) Trusted platform module (TPM)
21	Half-height PCIe card	22	Half-height riser card tray
23	Full-height PCIe card	24	Full-height riser card tray

Table 1-5 describes the components of the RH1288 V3.

Table 1-5 Component description

No.	Component	Description
1	Chassis	A chassis houses all components.
2	PSUs	The RH1288 V3 uses two AC or DC hot-swappable PSUs in 1+1 redundancy mode based on the input power: ● AC PSUs: 100 V to 240 V AC ● DC PSUs: –48 V to –60 V DC ● 240 V high voltage direct current (HVDC) PSUs: 240 V DC ● 380 V HVDC PSUs: 260 V to 400 V DC **NOTICE** The PSUs support double-pole/neutral fusing.
3	Supercapacitor tray	A battery tray supports and secures a cache battery.
4	Supercapacitor	A supercapacitor is required to provide power-off protection for the LSISAS3108 controller card on the RH1288 V3.
5	Power adapter board	The power adapter board connects the PSUs and the mainboard.
6	Fan modules	Fan modules dissipate server heat and support hot swaps. If fan modules are in full configuration, the server tolerates the failure of a single fan module and supports fan speed adjustment by area, maintaining optimal heat dissipation.
7	Hard disk backplane	The hard disk backplane provides power supply to and data transmission channels for hard disks. The RH1288 V3 supports two types of hard disk backplanes: ● Backplane for 2.5-inch hard disks ● Backplane for 3.5-inch hard disks

| No.	Component	Description
8	Hard disks	The RH1288 V3 uses hot-swappable hard disks to store data. It supports the following hard disk configurations: ● RH1288 V3-8S: supports eight 2.5-inch SAS HDDs, SATA HDDs, or SSDs. ● RH1288 V3-4S: supports four 3.5-inch SAS or SATA HDDs.
9	Built-in DVD drive	The DVD drive plays DVDs.
10	Indicator board	The indicator board provides server indicators.
11	VGA board	The VGA board provides a VGA port.
12	Air duct	It is a ventilation duct in a chassis, and supports the chassis cover.
13	Heat sinks	The heat sinks dissipate heat from CPUs. Each CPU is configured with one heat sink.
14	CPUs	To provide powerful data processing functions, the RH1288 V3 has CPUs integrated with memory controllers and PCIe controllers. The server supports Intel® Haswell-EP® E5-2600 v3 4-core, 6-core, 8-core, 10-core, 12-core, 14-core, and 16-core CPUs with up to 135 W power.
15	DIMMs	● The RH1288 V3 supports a maximum of 16 double data rate 4 (DDR4) registered dual-line memory modules (RDIMMs) or load-reduced DIMMs (LRDIMMs). ● Maximum memory capacity: 512 GB ● Capacity per DIMM: 8 GB, 16 GB, or 32 GB ● Memory speed: DDR4 1600 MHz, 1867 MHz, or 2133 MHz

16	RAID controller card	The RH1288 V3 supports RAID controller cards of the following models:
		● SR130:
		  – Uses the LSISAS3008 chip.
		  – Supports RAID 0, 1, 1E, and 10.
		  – Does not provide cache data protection from power failures.
		● SR430C:
		  – Uses the LSISAS3108 chip.
		  – Supports RAID 0, 1, 10, 5, 50, 6, and 60.
		  – Provides a supercapacitor to protect cache data from power failures.
		  – Supports a maximum of 32 hard disks.
		  – Provides 1 GB or 2 GB cache.
		These RAID controller cards support RAID state migration, RAID configuration memory, and web-based remote configuration.
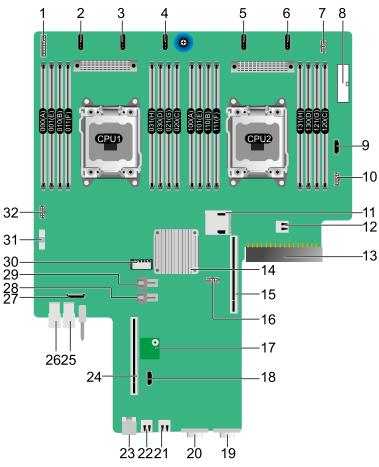
No.	Component	Description
17	Mainboard	As the most important component of the server, the mainboard provides CPU sockets, DIMM slots, and PCIe slots and integrates basic components such as the BIOS chip and Platform Controller Hub (PCH) chip. The system mainboard integrates the display chip and provides 32 MB display memory. The maximum resolution is 1920 x 1200 at 60 Hz with 16 M colors.
18	NIC	The RH1288 V3 supports one GE NIC to provide two or four GE ports, or supports one 10GE NIC to provide two 10GE electrical or optical ports. Both NICs support the Network Controller Sideband Interface (NC-SI).
19	SATADOM	The SATA disk on module (SATADOM) is a SATA SSD or SATA DOM electrical hard disk. It is a quick memory storage media unit that features high energy efficiency and stability.
20	(Optional) TPM	The TPM complies with the Trusted Computing Group (TCG) standards and protects the platform from viruses or unauthorized operations.
21	Half-height PCIe card	The RH1288 V3 provides one standard PCIe 3.0 x16 half-height half-length slot for a standard PCIe card.
22	Half-height riser card tray	A riser card tray secures the PCIe riser card.
23	Full-height PCIe card	The RH1288 V3 provides one PCIe 3.0 x16 slot for a full-height half-length or full-height 3/4-lenght standard PCIe card.
24	Full-height riser card tray	A riser card tray secures the PCIe riser card.

1.6 Mainboard Layout

This topic describes the ports on the RH1288 V3 mainboard.

Figure 1-8 shows the ports on the mainboard.

Figure 1-8 Ports on the mainboard

1	BUTTON LED(J1017 BUTTON LED)	2	FAN 5(J1021)
3	FAN 4(J130)	4	FAN 3(J131)
5	FAN 2(J132)	6	FAN 1(J133)
7	HDD_BP(J1019)	8	BC11PSBB POWER(J1015)
9	SATA DOM/SATA DVD(J37)	10	BC11PSBB SIGNAL(J1018)
11	BMC SD card(J1004)	12	USB 3.0(J53)
13	PSU connector(J1022)	14	PCH
15	PCIe x16 Riser 2(corresponding to CPU 2,J3)	16	NC-SI(J1008)
17	TPM(J35)	18	SATA DOM/SATA CONN(J38)
19	COM(J55)	20	VGA(J54)
21	USB 3.0(J40)	22	USB 3.0(J39)
23	BMC GE(J33)	24	PCIe x16 Riser 1(corresponding to CPU 1,J1010)
25	IO CARD connector(J46)	26	IO card connector(J45)
27	SD board connector(J57)	28	MINI HD PORT A(J1001)
29	MINI HD PORT B (J1002)	30	RAID card connector(J44)
31	USB SIGNAL(J42)	31	VGA connector(J1023)

1.7 Internal Cabling

This topic describes the internal cabling for the RH1288 V3.

Internal Cabling for the Server with Four 3.5-inch Hard Disks
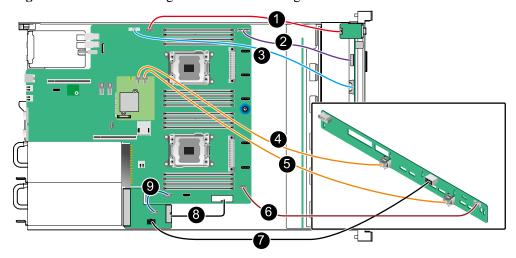
Figure 1-9 Internal cabling for the server with four 3.5-inch hard disks

1	Signal cable for connecting the video graphics array (VGA) device to the mainboard(J1023)
2	Signal cable for connecting the indicator plate to the mainboard(J1017 BUTTON LED)
3	Signal cable for connecting a USB device to the mainboard(J42)
4	SAS cable for connecting the hard disk backplane(J5/J4/J3/J2) to the RAID controller card(J44) on the mainboard
5	Signal cable for connecting the hard disk backplane(J1) to the mainboard(J1019)
6	Power cable for connecting the hard disk backplane(J24) to the power adapter board
7	Power cable for connecting the power adapter board to the mainboard(J1015)
8	Signal cable for connecting the power adapter board to the mainboard(J1018)

Internal Cabling for the Server with Eight 2.5-inch Hard Disks

Figure 1-10 Internal cabling for the server with eight 2.5-inch hard disks

1	Signal cable for connecting the VGA device to the mainboard(J1023)
2	Signal cable for connecting the indicator plate to the mainboard(J1017 BUTTON LED)
3	Signal cable for connecting a USB device to the mainboard(J42)
4	SAS cable (Port A - Port A) for connecting the hard disk backplane(J29) to the RAID controller card on the mainboard(J44)
5	SAS cable (Port B - Port B) for connecting the hard disk backplane(J28) to the RAID controller card on the mainboard(J44)
6	Signal cable for connecting the hard disk backplane(J1) to the mainboard(J1019)
7	Power cable for connecting the hard disk backplane(J24) to the power adapter board
8	Power cable for connecting the power adapter board to the mainboard(J1015)
9	Signal cable for connecting the power adapter board to the mainboard(J1018)

1.8 Logical Structure

This topic describes the RH1288 V3 logical structure.

Figure 1-11 shows the RH1288 V3 logical structure.

The RH1288 V3 supports two Intel® Xeon® Haswell-EP E5-2600 v3 series CPUs and 16 dual in-line memory modules (DIMMs). CPUs are connected over QuickPath Interconnect (QPI) buses at 9.6 GT/s.

The CPUs connect to two PCIe riser cards over PCIe connectors to provide PCIe slots with various specifications.

A RAID controller card combines with the hard disk backplane to work as the hard disk interface module, which connects to CPUs over PCIe connectors.
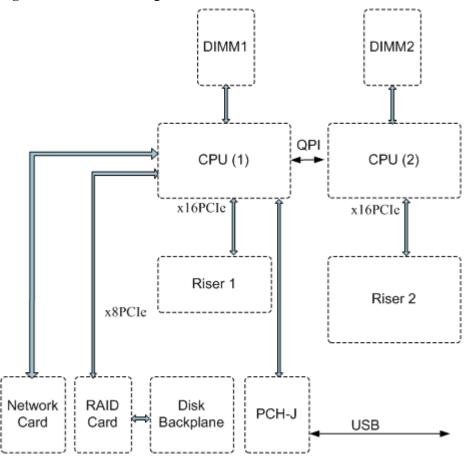
Figure 1-11 RH1288 V3 logical structure

1.9 RAS Features

This topic describes the reliability, availability, and serviceability (RAS) features supported by the RH1288 V3.

Table 1-6 describes the RAS features supported by the RH1288 V3. You can configure these features to improve server RAS.

□NOTE

For details about how to configure RAS features, see the .

Table 1-6 RAS features

Mod ule	Feature	Description
CPU	Corrected machine check interrupt (CMCI)	This feature corrects error-triggered interrupts.

Module	Feature	Description
DIMM	Failed DIMM isolation	This feature identifies the faulty dual in-line memory module (DIMM), which helps isolate the faulty DIMM from others and replace it.
	Memory thermal throttling	This feature automatically adjusts DIMM temperatures to avoid DIMM damage due to overheat.
	Rank sparing	This feature uses some memory ranks as backup ranks to prevent the system from crashing due to uncorrectable errors.
	Memory address parity protection	This feature detects memory command and address errors.
	Memory demand and patrol scrubbing	This feature provides the memory patrol function for promptly correcting correctable errors upon detection. If these errors are not corrected promptly, uncorrectable errors may occur.
	Memory mirroring	This feature improves system reliability.
	Single device data correction (SDDC)	This feature provides a single-device, multi-bit error correction capability to improve memory reliability.
	Device tagging	This feature degrades and rectifies DIMM device faults to improve DIMM availability.
	Data scrambling	This feature optimizes data stream distribution and reduces the error possibility to improve the reliability of data streams in the memory and the capability to detect address errors.
PCIe	PCIe advanced error reporting	This feature improves server serviceability.
QPI	Intel QPI link level retry	This feature provides a retry mechanism upon errors to improve QPI reliability.
	Intel QPI protocol protection via CRC	This feature provides cyclic redundancy check (CRC) protection for QPI packets to improve system reliability.
OS	Core disable for fault resilient boot (FRB)	This feature isolates the faulty CPU during startup to improve system reliability and availability.
	Corrupt data containment mode	This feature identifies the memory storage unit that contains corrupted data to minimize the impact on the running programs and improve system reliability.
	Socket disable for FRB	This feature isolates the faulty socket during startup to improve system reliability.

Mod ule	Feature	Description
	Architected error records	With the eMCA feature, the BIOS collects error information recorded in hardware registers in compliance with UEFI specifications, sends the error information to the OS over the APEI of the Advanced Configuration and Power Interface (ACPI), and locates the error unit, improving system availability.
	Error injection support	This feature injects errors to verify various RAS features.
	Machine check architecture (MCA)	This feature provides software recovery for uncorrectable errors, which improves system availability.
	Enhanced MCA (eMCA): Gen2	This feature improves system availability.
	OOB access to MCA registers	The out-of-band system accesses MCA registers by using the Platform Environment Control Interface (PECI). If a fatal error occurs in the system, the out-of-band system collects onsite data to facilitate fault analysis and locating and improve system serviceability.
	BIOS abstraction layer for error handling	The basic input/output system (BIOS) processes errors and reports the error information to the OS and iBMC in compliance with specifications to improve system serviceability.
	BIOS-based predictive failure analysis (PFA)	The BIOS provides physical unit information for DIMM errors, and the OS traces and predicts errors, and isolates error memory pages.

1.10 Software and Hardware Compatibility

This topic describes the software and hardware compatibility of the RH1288 V3.

For details about the software and hardware compatibility of the RH1288 V3, see **Huawei Server Compatibility Checker**.

The RH1288 V3 supports a variety of operating systems (OSs), including Windows, SUSE Linux Enterprise Server (SLES), and Red Hat Enterprise Linux (RHEL). For details about the OS compatibility of the RH1288 V3, see **Huawei Server Compatibility Checker**.

1.11 Technical Specifications

This topic describes the technical specifications for the RH1288 V3.

Table 1-7 describes the RH1288 V3 technical specifications.

Table 1-7 Technical Specifications

Component	Specifications
Form factor	1 U rack server
Processor	Up to two Intel® Xeon® E5-2600 v3 series processors: ● Maximum TDP: 135 W ● Number of cores per processor: 16 cores (2.3 GHz), 14 cores (2.6 GHz), 12 cores (2.6 GHz), 10 cores (2.6 GHz), 8 cores (2.6 GHz), 6 cores (2.4 GHz), and 4 cores (3.0 GHz) ● Number of QPI links: 2 ● Maximum transmission speed per QPI link: 9.6 GT/s ● Maximum memory speed: 2133 MHz ● Maximum L3 cache capacity: 35 MB
Chipset	Intel C612
DIMM	● Up to 16 DDR4 DIMM slots (8 DIMMs per processor) for installing either RDIMMs or LRDIMMs. ● 16 x 16 GB RDIMMs for two processors, with a maximum memory capacity of 256 GB ● 16 x 32 GB LRDIMMs for two processors, with a maximum memory capacity of 512 GB ● Maximum memory speed: 2133 MHz ● Data protection measures: ECC, memory mirroring, Single Device Data Correction (SDDC), memory sparing, and lockstep
Storage	● The RH1288 V3 supports the following hard disk configurations: 　– RH1288 V3 with 8 hard disks: supports a maximum of eight 2.5-inch SAS HDDs, SATA HDDs, or SSDs. 　– RH1288 V3 with 4 hard disks: supports a maximum of four 3.5-inch SAS or SATA HDDs. ● Hard disks are hot-swappable. ● The server supports RAID 0, 1, 10, 1E, 5, 50, 6, and 60. It protects cache data from power failures, and supports RAID state migration, RAID configuration memory, self-diagnosis, and web-based configuration. ● The mainboard can be configured with a SAS adapter or SAS RAID controller card (with a maximum of 2 GB cache) to improve hard disk storage performance and ensure user data security. ● The RAID controller card does not occupy a standard PCIe slot, improving system scalability. **NOTE** All the hard disks can be connected through the PCH or a SAS RAID controller card.

Component	Specifications
Network port	Four types of NICs are supported, which provide the following network ports: ● Two GE electrical ports, supporting NC-SI, Wake on LAN (WOL), and Preboot Execution Environment (PXE) ● Four GE optical ports, supporting NC-SI, WOL, and PXE ● Two 10GE optical ports, supporting NC-SI and PXE ● Two 10GE electrical ports, supporting NC-SI, WOL, and PXE

PCIe slot	● The RH1288 V3 supports a maximum of two PCIe 3.0 x16 slots:
	   – One full-height half-length or full-height 3/4-length standard PCIe card on riser card 1(default configuration)
	   The server does not support a built-in RAID controller card when it is configured with a full-height 3/4-length standard PCIe card.
	   – One half-height half-length standard PCIe card on riser card 2
	● PCIe slots can house Huawei's proprietary PCIe SSDs to improve I/O performance for search, cache, and download services.
	● PCIe slots can house K2000 and NVS 315 graphics processing units (GPUs).

Port	● Two USB 2.0 ports on the front panel (the server supports up to eight 2.5-inch or ten 3.5-inch hard disks) ● Two USB 3.0 ports, one DB15 VGA port, one DB9 serial port, and one RJ45 system management port on the rear panel ● One internal USB 3.0 port ● Two internal miniSSD (SATADOM) ports, supporting softRAID 1 ● One internal dual-SD card port, supporting hardware RAID 1 **NOTE** The server with two internal miniSSDs (SATADOMs) and softRAID 1 does not support the installation of a virtualization OS.
Fan module	Five hot-swappable fan modules, tolerating the failure of a single fan. Each fan module consists of two counter-rotating fans.
PSU	Two hot-swappable PSUs are in redundancy mode: ● 460 W AC Platinum PSU, supporting 240 V HV DC ● 750 W AC Platinum PSU, supporting 240 V HV DC ● 750 W AC Titanium PSU ● 1200 W PSU, supporting 380 V HV DC ● 800 W PSU, supporting -48 V DC or -60 V DC
System management	● UEFI ● HUAWEI iBMC: supports Intelligent Platform Management Interface (IPMI), Serial over LAN (SOL), KVM over IP, and virtual media, and provides one 10/100/1000M RJ-45 management network port. ● NCSI

Component	Specifications
Security	● Power-on password ● Administrator password ● Front bezel
GPU	The system mainboard integrates the display chip and provides 32 MB display memory. The maximum resolution is 1920 x 1200 at 60 Hz with 16 M colors.

1.12 Physical Specifications

This topic describes the physical and environmental specifications for the RH1288 V3.

Table 1-8 describes the physical and environmental specifications for the RH1288 V3.

Table 1-8 Physical and environmental specifications

Item	Specifications
Dimensions (H x W x D)	● Chassis with 3.5-inch hard disks: 43 mm x 436 mm x 748 mm (1.69 in. x 17.17 in. x 29.45 in.) ● Chassis with 2.5-inch hard disks: 43 mm x 436 mm x 708 mm (1.69 in. x 17.17 in. x 27.87 in.)
Installation space	The server fits into a universal rack complying with the IEC 297 standard. ● Rack width: 19 in. ● Rack depth: > 1000 mm (39.37 in.) Guide rail installation requirements are as follows: ● L-shaped guide rails: apply only to Huawei cabinets. ● Adjustable guide rail: The distance between the front rear mounting bars is 543.5 mm to 848.5 mm. ● Holding rail: The distance between the front rear mounting bars is 610 mm to 914 mm.
PSU power rating	The PSUs support the following power ratings: ● 460 W ● 750 W ● 800 W ● 1200 W
Weight in full configuration	Net weight: ● Eight hard disks: 20 kg (44.10 lb) ● Four hard disks: 19 kg (41.90 lb) Packing material weight: 5 kg (11.03 lb)

Item	Specifications
Rated input voltage	● AC PSUs: 100 V to 240 V AC ● DC PSUs: -48 V to －60 V DC ● 240 V high-voltage (HV) DC PSUs: 240 V DC ● 380 V HV DC PSUs: 260 V to 400 V DC **NOTE** The recommended current specifications for the external power circuit breaker connected to the RH1288 V3 are as follows: ● AC: 32 A ● DC: 63 A
Temperature	Operating temperature: 5°C to 45°C (41°F to 113°F) Storage temperature: －40°C to +65°C (－40°F to +149°F) The temperature change rate is less than 20°C/h (36°F/h). Long-term storage temperature:21°C to 27°C (69.8°F to 80.6°F) **NOTE** ● When the RH1288 V3 operates at 40°C (104°F), the failure of one fan may cause the CPU performance to deteriorate. ● When the RH1288 V3 operates at 35°C (95°F), the failure of one fan has no adverse impact on the CPU performance. ● The RH1288 V3 can work at the highest temperature of 35°C (95°F) when it is configured with HUAWEI PCIe SSDs. ● The RH1288 V3 can work at the highest temperature of 40°C (104°F) when it is configured with E5-2698 v3, E5-2690 v3, E5-2667 v3, or E5-2643 v3 CPU, more than 40°C (104°F) environment temperature or the failure of one fan may cause the CPU performance to deteriorate. ● The RH1288 V3 can work at the highest temperature of 30°C (86°F) when it is configured with the E5-2637 v3 CPU, more than 30°C (86°F) environment temperature or the failure of one fan may cause the CPU performance to deteriorate.
Humidity	Operating humidity: 8% RH to 90% RH (non-condensing) Storage humidity: 5% RH to 95% RH (non-condensing) Humidity change rate: < 20% RH/h Long-term storage humidity: 30% RH to 69% RH (non-condensing)
Altitude	≤ 3000 m (9842.40 ft) When the altitude is higher than 900 m (2952.72 ft), the operating temperature decreases by 1°C (1.8°F) as the altitude increases by 300 m (984.24 ft).

Item	Specifications
Acoustic Noise	The data listed in the following is the declared A-weighted sound power levels (LWAd) and declared average bystander position A-weighted sound pressure levels (LpAm) when the server is operating in a 23°C (73.4°F) ambient environment. Noise emissions are measured in accordance with ISO 7999 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). ● Idle: – LWAd: 5.4Bels – LpAm: 37.6dBA ● Operating: – LWAd: 6.37Bels – LpAm: 46.7dBA **NOTE** The actual sound levels generated during server operating vary depending on the server configuration, load, and ambient temperature.

2 Installing and Removing the RH1288 V3

About This Chapter

This topic describes the precautions and procedures for installing and removing the RH1288 V3.

2.1 Installation Overview

This topic describes the checking before the installation and the rules for installing the RH1288 V3.

📖**NOTE**

For details about the safety instructions in the process of installing or replacing a server or its parts, see the **Safety** in the *Server Product Documentation*.

Checking the Installation Environment

To ensure the proper installation and operating of the RH1288 V3, plan the installation environment before installation, such as the rack, space, temperature, and humidity.

Space Requirements

- The RH1288 V3 must be installed in a restricted area.

- Keep the areas where devices are located clean and tidy.

- For the convenience of heat dissipation and device maintenance, keep a clearance of 800 mm (31.50 in.) between walls and the front doors or rear doors of the cabinet.

Rack Requirements

- It is a standard 19-inch (482.6 mm) rack with a depth of more than 1000 mm (39.37 in.) and complies with International Electrotechnical Commission 297 (IEC 297).

- Air filters are installed on rack doors.

- AC power is supplied from the rear of the rack.

Temperature and Humidity Requirements

- Deploy temperature control devices all year long in any climates.

- In dry areas, use humidifiers to ensure the ambient humidity.

- In areas with high humidity, use dehumidifiers.

Table 2-1 Temperature and humidity requirements in the equipment room

Item	Description
Temperature	5°C to 40°C (41°F to 104°F)
Humidity	8% RH to 90% RH (non-condensing)

Installation Rules

The RH1288 V3 is 1 U high and can be installed in a standard 19-inch rack. The RH1288 V3 can be stacked on the holding rail. If the cabinet space is enough, the distance among servers can be 1 U.

2.2 Unpacking the Chassis

This topic describes how to unpack the server chassis.

Scenarios

Unpack the server chassis. Before the operation, you must get familiar with the hardware devices.

Impact on the System

This operation has no adverse impact on the system.

Prerequisites

Conditions

No special condition is required for this operation.

Data

Data preparation is not required for this operation.

Tools

The following tools must be available before the operation:

- Protective gloves
- Electrostatic discharge (ESD) gloves
- ESD wrist strap
- Paper knife

Procedure

Step 1 Check whether the packing case and seals are in good condition.

□**NOTE**

> If the packing case is damaged (for example, the packing case is soaked or deformed, or the seals or pressure sensitive adhesive tape is unsealed), fill in the *Cargo Problems Feedback Form*.

Step 2

⚠ **CAUTION**

When using a paper knife to unpack a packing case, ensure that the knife edge is of a proper protrusion to avoid hurting hands or damaging the device in the packing case.

Use a paper knife to cut the pressure sensitive adhesive tape on the packing case, and open the packing case.

Step 3 Based on **Table 2-2**, check that the components are intact and free from oxidation, corrosion, or damage. Ensure that there is no missing part.

Table 2-2 Packing items

No.	Description
1	Accessary box, containing the product documentation CD-ROM, one Service CD, Quick Start Guide, and Warranty card.
2	A pair of guide rails.
3	One rack server.

----End

2.3 Installing the RH1288 V3

This topic describes how to install the RH1288 V3.

Scenarios

Install the RH1288 V3 when:

● More RH1288 V3s are required in a rack for capacity expansion.

● A faulty RH1288 V3 needs to be replaced with a new RH1288 V3.

● A different rack server needs to be substituted by the RH1288 V3.

● Maintain the RH1288 V3 parts.

⚠ **NOTICE**

Before installing a server, check that the guide rails of the rack are level, smooth, and not deformed. This ensures surface contact between the server and the guide rails. As a result, the guide rails are evenly loaded after the server is installed. You are advised to use the guide rails delivered with the server to ensure even loading.

Impact on the System

This operation has no adverse impact on the system.

Prerequisites

Conditions

Make the following preparations before installing the RH1288 V3:

● A rack is properly installed.

● The installation environment meets the requirements specified in **2.1 Installation Overview**.

Data

Data preparation is not required for this operation.

Tools

The following tools are available:

- Electrostatic discharge (ESD) wrist strap or ESD gloves: used to prevent ESD damage.
- Screwdriver: used to tighten the screws on the panel.
- Floating nut mounting bar: used to install the floating nut.

2.3.1 Installing the RH1288 V3 by Using L-Shaped Guide Rails

Context

L-shaped guide rails apply only to Huawei racks.

The RH1288 V3 cannot be stacked on the L-shaped guide rail.
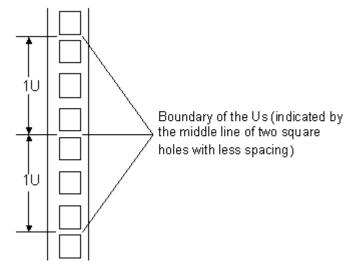
Procedure

Step 1 Install floating nuts.

1. Determine the position for installing a floating nut based on the installation plan.

    NOTE

    The floating nuts and screws are used together, to tighten the screws.

    The middle of two adjacent square holes with small spacing is the boundary of two Us. See **Figure 2-1**. The boundary between Us is used as the reference for calculating device installation space.

    Figure 2-1 Spacing of 1 U on a guide rail of a rack

2. Fasten one end of a floating nut to the installation hole in a guide rail at the front of the rack. See **Figure 2-2**.
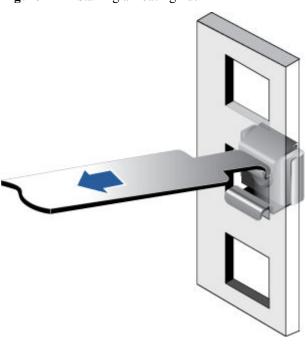
Figure 2-2 Installing a floating nut

3. Fasten the upper end of the floating nut to the mounting bar at the front of the rack by using the floating nut mounting bar.

Step 2 Install L-shaped guide rails.

1. Place a guide rail horizontally in the planned position and keep the guide rail contact with the mounting bars in the rack. See **Figure 2-3**.
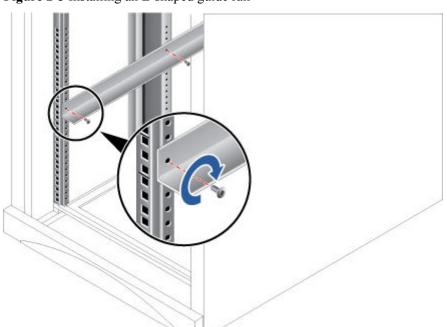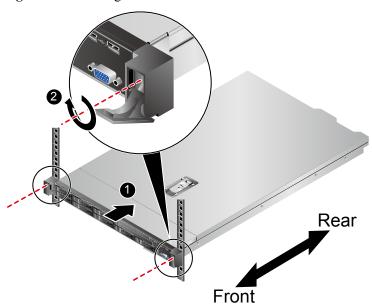
Figure 2-3 Installing an L-shaped guide rail

2. Tighten the screws.

3. Install another guide rail on the opposite side by using the same method.

Step 3 Installing the RH1288 V3

1. At least two persons lift the RH1288 V3 on two sides and move it to the rack.

2. Place the RH1288 V3 on the guide rails and push it into the rack, as shown in **Figure 2-4**.

Figure 2-4 Installing the RH1288 V3

3. When the two mounting ears on the RH1288 V3 contact the mounting bars on the rack, tighten the captive screws on the mounting ears to secure the RH1288 V3.

----End

2.3.2 Installing the RH1288 V3 by Using Adjustable Guide Rails

Operation Scenario

The adjustable guide rails apply to a rack where the distance between the front and rear mounting bars is 557 mm to 862 mm.

The RH1288 V3 cannot be stacked on the adjustable guide rail.

Procedure

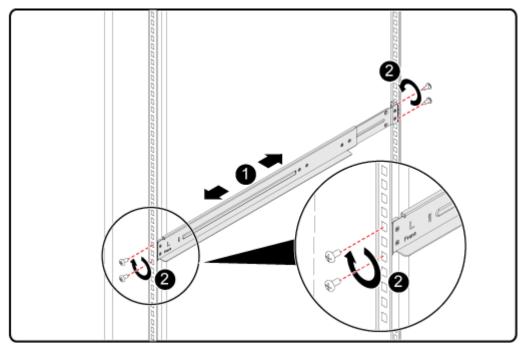**Step 1** Install guide rails.

1. Place a guide rail horizontally in the planned position and keep the guide rail contact with the mounting bars in the rack. Hook the guide rail to the rack. See step (1) in **Figure 2-5**.

   📖**NOTE**

   The three holes in each mounting ear of a guide rail should be within a 1 U mark.

2. Install the four screws at the front and rear of the guide rail to secure the guide rail. See step (2) in **Figure 2-5**.

3. Install another guide rail on the opposite side by using the same method.

Figure 2-5 Installing an adjustable guide rail

Step 2 Installing the RH1288 V3

1. At least two persons lift the RH1288 V3 on two sides and move it to the rack.

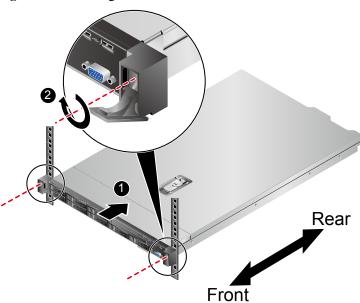2. Place the RH1288 V3 on the guide rails and push it into the rack, as shown in **Figure 2-6**.

Figure 2-6 Installing the RH1288 V3

3. When the two mounting ears on the RH1288 V3 contact the mounting bars on the rack, tighten the captive screws on the mounting ears to secure the RH1288 V3.

----End

Follow-up Procedure

Connect the power cable to the server and power on the RH1288 V3. Connect the network cable, video graphics array (VGA) cable, and USB device to the server.

2.3.3 Installing the RH1288 V3 on Holding Rails

Context

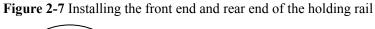Holding rails apply to the rack where the distance between the front and rear mounting bars is 610 mm to 914 mm.

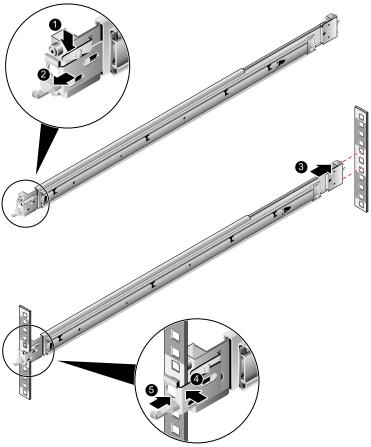The RH1288 V3 can be stacked on the holding rail.

Procedure

Step 1 Install the front end and rear end of the holding rail.

1. Hold down the plate on the front end of the holding rail, and pull out the hook. See steps (1) and (2) in **Figure 2-7**.

2. Insert the positioning pins on the rear end of the holding rail into the square holes in the rack. See step (3) in **Figure 2-7**.

3. Align the front end of the holding rail with the hole in the column, and push the holding rail forward to insert it into the hole in the column. See step (4) in **Figure 2-7**.

4. Push the hook backwards to make the metal sheet close to the column. See step (5) in **Figure 2-7**.

Figure 2-7 Installing the front end and rear end of the holding rail

Step 2 Install the chassis.

1. Pull out the inner rails slightly. See in **Figure 2-8**.

Figure 2-8 Pulling out inner rails

2. Align the positioning holes in the inner rails with the positioning pins on the chassis. Push the inner rails forwards until the inner rails are secured to the chassis. See steps (1) in **Figure 2-9**.

3. Lift the chassis, align the inner rails with the holding rails, and push the chassis in along the holding rails. See steps (2) in **Figure 2-9**.
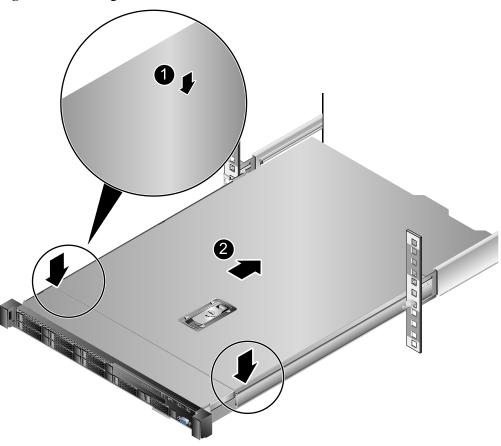
Figure 2-9 Installing the chassis

Step 3 Install a cabling rack.

1. Insert the support lever into the outer rails on both left and right sides. See step (1) in **Figure 2-10**.

2. Insert the nail heads on the left outer rail into the holes in the outer support lever of the cabling rack, and pull the cabling rack out to secure it. See step (2) in **Figure 2-10**.

3. Insert the nail heads on the left inner rail into the holes in the inner support lever of the cabling rack, and pull the cabling rack out to secure it. See step (3) in **Figure 2-10**.
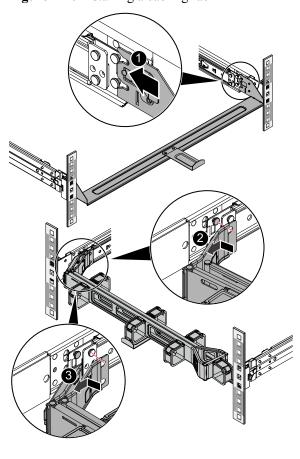
Figure 2-10 Installing a cabling rack

----End

2.4 Connecting External Cables

This topic describes how to connect cables for the server.

2.4.1 Connecting Cables to a Mouse, Keyboard, and VGA Port

Scenarios

After powering on the server, set the basic input/output system (BIOS) and RAID, and log in to the operating system (OS).

The front and rear panels of the server provide DB15 video graphics array (VGA) ports but have no standard PS2 port for a keyboard or mouse. You can connect the keyboard and mouse to the USB ports on the front or rear panel based on actual installation conditions. The following describes two connection methods:

- Connect the keyboard and mouse to the USB ports.

- Connect the keyboard and mouse by using a USB-to-PS2 cable.

Prerequisites

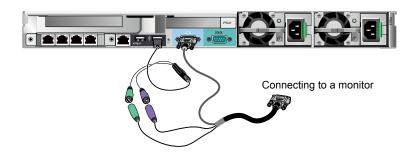### Conditions

No special condition is required for this operation.

Data

Data preparation is not required for this operation.

Procedure

Step 1 Connect the USB connector on the PS2 cable to the USB port on the front or rear panel of the server.

Step 2 Connect the connectors on the other end of the PS2 cable to the keyboard and mouse.

Step 3 Connect the DB15 connector on the VGA cable to the VGA port on the front or rear panel of the server, and tighten the two screws on the connector to secure the cable.

Step 4 Connect the other end of the VGA cable to the VGA port on the monitor, and tighten the two screws on the connector to secure the cable.

Figure 2-11 Connecting a PS2 cable and VGA cable

----End

2.4.2 Connecting a network cable

Scenarios

Connect a network cable in the following scenarios:

- The network is to be set up over a gigabit Ethernet (GE).

- You want to log in to the iBMC of the server over the management network port for device management.

- One or more network cables do not work.

- A network cable is to be replaced when the existing network cable does not meet length requirements after a device is replaced or moved.

Prerequisites

Conditions

- The network plan is complete.
- Spare network cables are ready and placed near the device.

Data

Data preparation is not required for this operation.

Tools

- Phillips screwdriver: used to tighten screws.
- Electrostatic discharge (ESD) wrist strap or ESD gloves: used to prevent ESD damage.
- Diagonal pliers: used to trim the cable ties after binding cables.
- RJ45 crimping tool: used to make network cable connectors.
- Network cable tester: used to test the cable connectivity.
- Multimeter: used to test the resistance.

Hardware

- Use a network cable tester to check that the new network cable works properly.
- Check that the new network cable is of the same model as or compatible with the network cable to be replaced. Make clear whether they are straight-through cables or crossover cables.

Procedure

Step 1 Check the new network cable model.

Step 2 Number the new network cable.

- The number of the new network cable must be the same as that of the one to be replaced.
- Use the same type of label for network cables. Record the name and number of the local device to be connected on one side of the network cable and those of the peer device on the other side. Attach a label to the position 2 cm (0.79 in.) away from one end of a network cable.

Step 3 Route the new network cable.

Route the new network cable in the same mode as the network cable to be replaced. Note the following points:

- Underfloor cabling is recommended because it is tidy and easy to route. Route cables in the rack based on the installation requirements. You are advised to arrange cables in the existing mode. Ensure that cables are routed neatly and undamaged.
- Separate network cables from power cables for routing.
- Bend a network cable with the bending radius no less than 4 cm (1.57 in.) to prevent damage to core wires. Check that the cable insulation layer is not damaged. Ensure that cables are routed for easy maintenance and capacity expansion.
- Network cables must be bound to ensure proper routing. Check that network cables are bound neatly and appropriately, and that they are straightly stretched and close to each other. Cable ties are in even distance and fastened properly.

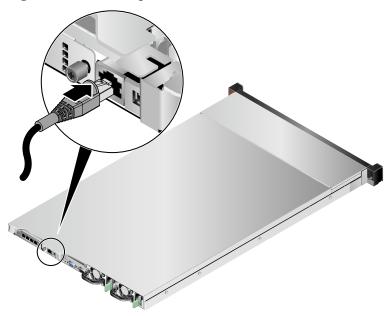**Step 4** Remove the network cable to be replaced.

Remove the network cable from the network interface card (NIC) or board in a rack.

Step 5 Connect the new network cable.

Note the following:

- Connect the new network cable to the same port as the removed one.

- Install the network cable in the network port securely.

Figure 2-12 Connecting a network cable

Step 6 Connect the other end of the network cable to the peer network port.

Connect the other cable connector to the peer device based on the network plan. Note the following:

- Connect the new network cable to the same port as the removed one.

- Install the network cable in the network port securely.

Step 7 Check that the new network cable is operating properly.

Power on the device, and ping the peer device connected by the new network cable. If the peer device cannot be pinged, check whether the network cable is damaged or connectors are not secured.

Step 8 Bind the new network cable with other cables.

Bind the new network cable by using the same method as the existing one. You can also remove all cable ties and bind all network cables again.

----End

2.4.3 Connecting a Cable to a 10GE Port

Background Information

You can connect an optical fiber or SFP+ cable to a 10GE port. You need to determine the type of cable to be connected, depending on site requirements.

Operation Scenario

Connect a cable to a 10GE port in any of the following scenarios:

- A 10GE network needs to be set up.

- One or more optical fibers or SFP+ cables are not properly connected.

- The existing optical fibers or SFP+ cables are not long enough after a network device is replaced or migrated.

Prerequisites

1. Precautions

   The new and old cables must be of the same model or be compatible.

2. Installation Preparations

   - The network plan is complete.

   - Spare cables are ready and placed near the target device.

3. Tools

   - Phillips screwdriver: used to tighten screws.

   - ESD wrist strap or ESD gloves: used to prevent ESD damage.

Procedure

Step 1 Check the new network model.

Step 2 Number the new cable.

- The new cable must have the same number as the old one.

- Use the same type of labels for optical fibers. Record the name and number of the local device to be connected on one side of an optical fiber and those of the peer device on the other side. Attach a label to the position 2 cm (0.79 in.) away from one end of an optical fiber.

Step 3 Lay out the new cable.

Lay out the new cable in the same mode as the old cable. Note the following points:

- Lay out optical fibers or SFP+ cables in the rack based on installation regulations. You are advised to arrange cables in original mode. Ensure that cables are routed neatly and intact.

- Separate optical fibers or SFP+ cables from power cables and signal cables when laying out the cables.

- Bend an optical fiber or SFP+ cable with a bending radius of at least 4 cm (1.57 in.) to prevent damage to core wires. Ensure that the cable is intact. Ensure that optical fibers or SFP+ cables are laid out for easy maintenance and capacity expansion.

- Optical fibers must be bound. Ensure that optical fibers are routed straightly and bound neatly and properly with cable ties. Ensure that cable ties are installed at even spacing and in the same direction.

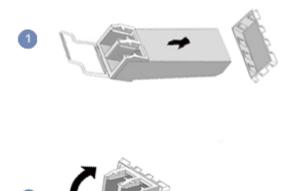**Step 4** When you use an optical fiber:

1. Remove the old optical fiber.
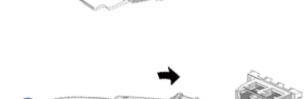
   Remove the old optical fiber from the server.

2. Connect the new optical fiber.

    📖**NOTE**

     – Connect the new optical fiber to the same port as the old one.

     – Connect the optical fiber to the optical module securely.

    a. Insert the optical module into the optical port. See step (1) in **Figure 2-13**.

    b. Close the latch on the optical module to secure it. See step (2) in **Figure 2-13**.

    c. Insert the optical fiber into the optical module. See step (3) in **Figure 2-13**.

Figure 2-13 Connecting an optical fiber

Step 5 When you use an SFP+ cable:

    1. Remove the old SFP+ cable.

    Gently push the power connector inwards and pull out the latch to remove the SFP+ cable. See **Figure 2-14**.

⚠ **NOTICE**

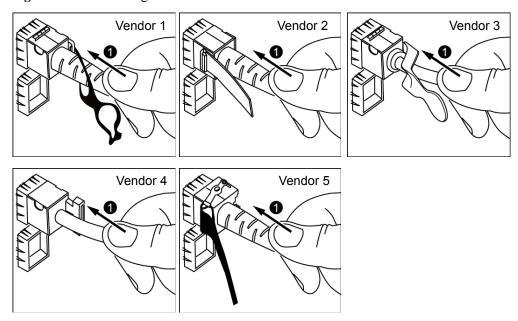Do not directly pull out the latch.

Figure 2-14 Removing an SFP+ cable

2. Connect the new SFP+ cable.

Remove the dust-proof cap of the port, and insert the cable connector into the port. See **Figure 2-15**.

📖**NOTE**

When you hear a "click" sound and the cable cannot be pulled out, the connector is securely connected.

Figure 2-15 Connecting an SFP+ cable

Step 6 Check that the new cable is properly connected.

Power on the device, and ping the IP address of the peer device connected over the new cable. If the peer device cannot be pinged, check that the cable is intact or the connector is securely connected.

Step 7 Bind the new optical fiber.

Bind the new optical fiber using the same method as the old one. You can also remove all cable ties and bind all optical fibers again if necessary.

----End

2.4.4 Connecting a USB Device

Scenarios

- Use a USB keyboard and mouse to set parameters after logging in to the operating system (OS).
- Use a USB storage device, DVD-ROM drive, or floppy disk drive (FDD) to transmit data or install an OS.

Prerequisites

Conditions

- Confirm the server installation position in the rack.
- Obtain the USB device to be connected and place it near the server.

Data

Check that data has been copied to the USB storage device to be connected.

Tools

Electrostatic discharge (ESD) wrist strap

Hardware

The USB storage device to be connected operates properly.

Procedure

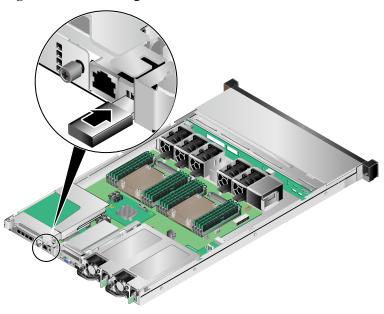**Step 1** Connect the USB storage device to the USB port on the server, as shown in **Figure 2-16**.

Figure 2-16 Connecting a USB device

----End

2.4.5 Connecting a Serial Cable

Scenarios

The server provides one standard DB9 serial port on the rear, which works as the system serial port by default. You can set it to the iBMC serial port on the iBMC CLI.

- As the system serial port: It is used for monitoring the operating system (OS) status.
- As the iBMC serial port: It is used for debugging and locating a fault.

Prerequisites

Conditions

No special condition is required for this operation.

Data

You have determined the rack number and installation position for the device to be connected.

Tools

Electrostatic discharge (ESD) wrist strap or ESD gloves: used to prevent ESD damage.

Documents

📖**NOTE**

For details about the command for setting the serial port to the iBMC serial port, see the *HUAWEI Rack Server iBMC User Guide*.

Hardware

The serial cable uses a DB9 connector.

Procedure

Step 1

⚠ **NOTICE**

Do not exert excessive force; otherwise, the pins in the serial port may be damaged.

Align the connector on the serial cable with the serial port, and insert the connector into the serial port, as shown in **Figure 2-17**.

Step 2 Tighten the screws on the connector to secure the serial cable.

Figure 2-17 Connecting a serial cable

----End

2.4.6 Connecting a Power Cable

Scenarios

Connect a power cable for the server in the following scenarios:

- The server is to be powered on after being properly installed.
- A power supply unit (PSU) is replaced and the new PSU is to be powered on.
- A new PSU is to be powered on after being installed.

The following describes how to connect AC and DC power cables.

Prerequisites

Conditions

- The power cable must be securely connected.
- To ensure device and human safety, use the dedicated power cables.
- A power cable is used only for specified servers. Do not use power cables for other devices.

Data

Data preparation is not required for this operation.

Tools

Electrostatic discharge (ESD) wrist strap or ESD gloves: used to prevent ESD damage.

Procedure

Connecting AC Power Cables

1 Connect the one end of the AC power cable to the power port on the PSU of the server. See **Figure 2-18**.

Figure 2-18 Connecting AC power cables

2 Close the securing latch on the PSU.

3 Insert the other end of the AC power cable into the AC power socket on the rack. The AC power socket is horizontally secured at the rear of the rack. Select the jacks on the nearest socket for connection.

4 Bind the power cable to the cable trough using cable ties. For details, see

Connecting DC Power Cables

5 Connect the power cable to the wiring terminal on the PSU until the power cable snaps into the spring. See **Figure 2-19**.

    – Connect the OT terminal on the negative power cable to the NEG(-) wiring terminal on the PSU.

    – Connect the OT terminal on the positive power cable to the RTN(+) wiring terminal on the PSU.

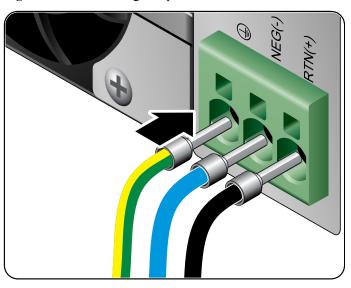   – Connect the OT terminal on the ground cable to the ground terminal on the PSU.

Figure 2-19 Connecting DC power cables

6   Connect the other end of the power cable to the DC power distribution frame (PDF) based on the power cable connection rules.

7   Bind the power cable to the cable trough using cable ties.

----End

2.4.7 Cable Routing

Basic Rules

- Different types of cables should be separately routed and bound. The cables of the same type are routed in the same direction. Cables at a small distance can be routed in crossover mode. When routing cables in parallel, the distance between power cables and signal cables must not be smaller than 30 mm.

- If the cables cannot be identified by the labels, attach engineering labels to distinguish different types of cables.

- Cables must be protected from burrs, cooling fins, and active accessories, which may damage the insulation layers of cables.

- Cable ties are used for binding cables. Do not connect two or more cable ties together for binding cables. After cables are bound using cable ties, cut the excessive part and ensure that the cuts are neat and smooth.

- Cables must be properly routed, supported, or fixed in the cable trough inside a rack. This is to prevent excessive stress on the cables or wiring terminals, loose connections, and damage to the cable insulation layer.

- Surplus parts of the cables are rolled up and bound in a proper position in the rack.

- Cables are straight and tidily bundled in a rack. The bending radius of a cable varies according to different parts of the cable.

  – If a cable needs to bend in the middle, the bending radius must be at least twice the diameter of the cable.

- If a cable bends at the output terminal of a connector or plug-in, the bending radius must be at least five times the diameter of the cable, and the cable must be bound before bending.
- Do not use cable ties at a place where the cables are bent. Otherwise, the cables may break.

Common Cable Routing Methods

The methods of routing cables inside a rack are described as follows:

- Determine overhead cabling and underfloor cabling based on specific conditions in the equipment room, such as conditions of the AC power distribution frame (PDF), surge protector, and terminal block.
- Determine the overhead cabling and underfloor cabling based on specific conditions in the equipment room.
- Place all connectors of the service Ethernet cables at the bottom of the rack in order, so that the connectors are not easily reached.
- Ensure that high-density cables are not bound in crossover mode. This helps identify, insert, or remove a node server.

Cable Routing Rules

⚠ **NOTICE**

Do not block the air exhaust vents of PSUs. Otherwise, heat dissipation of the servers may be affected.

2.4.8 Verifying Cable Connections

⚠ **CAUTION**

Before verifying cable connections, check that the power is cut off. Otherwise, any incorrect connection or loose connection may damage the devices or injury the human body.

Table 2-3 lists the cable connection checklist.

Table 2-3 Cable connection checklist

Item	Description
Power cable	The power cable is correctly connected to the rear of the chassis.
Network cable	Network cables are correctly connected to the management Ethernet ports or service Ethernet ports on the rear panel of the chassis.
Ground cable	**NOTE** The RH1288 V3 provides no grounding port. It is grounded through the cabinet. Ensure that the cabinet is properly grounded.

2.5 Removing the RH1288 V3

This topic describes how to remove the RH1288 V3.

Scenarios

Remove the RH1288 V3 in the following scenarios:

- Its component is to be replaced.
- Devices are to be relocated.

Impact on the System

The services and programs running on the RH1288 V3 will be interrupted when it is removed.

Prerequisites

Conditions

⚠ **NOTICE**

The RH1288 V3 is heavy so that at least two persons are required to move it.

All running services and programs on the RH1288 V3 are stopped, then power off the server.

Data

Data is backed up for the RH1288 V3 before it is removed.

Tools

- Electrostatic discharge (ESD) wrist strap or ESD gloves: used to prevent ESD damage.
- Screwdriver: used to loosen the screws on the panel.

Hardware

The spare RH1288 V3 and its components are obtained.

Procedure

Step 1 Power off the RH1288 V3.

Step 2 Disconnect all power cables and signal cables from the RH1288 V3.

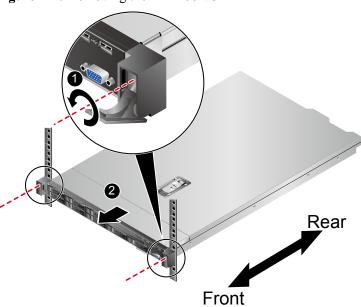**Step 3** Loosen the captive screws on the RH1288 V3 panel using a screwdriver. See step (1) in **Figure 2-20**.

Figure 2-20 Removing the RH1288 V3

Step 4 Pull out the RH1288 V3 along the guide rails away from the rack. See step (2) in **Figure 2-20**.

Step 5 Place the removed RH1288 V3 on the ESD platform for maintenance, for example, parts replacement.

----End

3 Powering On and Off the RH1288 V3

About This Chapter

This topic describes the precautions and procedures for powering on and off the server.

This topic describes how to power on the server.

This topic describes how to power off the server.

3.1 Powering On

This topic describes how to power on the server.

Scenarios

- The server is to be powered on after being properly installed.
- The server is to be powered on after being maintained.

Prerequisites

Conditions

The server and internal components are properly installed.

Data

- You have determined the rack number and installation position for the device to be powered on.
- You have obtained the IP address, user name, and user password for the management network port on the iBMC.

Tools

Electrostatic discharge (ESD) wrist strap or ESD gloves: used to prevent ESD damage.

Documents

For details about how to obtain the IP address for the management network port and how to operate the iBMC, see the *HUAWEI Rack Server iBMC User Guide*.

Procedure

The power supply units (PSUs) are properly installed but not powered on.

The server is powered on along with the PSUs.

The PSUs are powered on, and the server is in the standby state.

- Press the power button on the front panel to power on the server.
- The iBMC WebUI is available.

  After logging in to the iBMC WebUI, on the menu bar, choose **Power**, in the navigation tree, choose **Power Control**, and choose **Power On** > **OK** to power on the server.
- Power on the iBMC by running commands for remote management.

  On the iBMC CLI, run the **ipmcset -d powerstate -v 1** command to power on the server remotely.

  ----End

Verification

Check the indicator status after the server is powered on.

3.2 Powering Off

This topic describes how to power off the server.

Scenarios

- The server is to be powered off for maintenance.

- The server is to be powered off for movement.

Impact on the System

The services and programs running on the server will be interrupted when it is powered off.

Prerequisites

Conditions

The services running on the server are forcibly stopped when the server is powered off. Check that all services are manually stopped or switched over to other servers before powering off the server.

Data

- All data is saved before the power-off operation.

- You have determined the rack number and installation position for the device to be powered off.

- You have obtained the IP address, user name, and user password for the management network port on the iBMC.

Tools

Electrostatic discharge (ESD) wrist strap or ESD gloves: used to prevent ESD damage.

Documents

For details about how to obtain the IP address for the management network port and how to operate the iBMC, see the *HUAWEI Rack Server iBMC User Guide*.

Procedure

Power off the server to have the server enter the standby state.

- Use the keyboard, mouse, and monitor to shut down the server operating system (OS).

- Hold down the power button on the front panel until the server is powered off.

- Power off the server by running commands for remote management.

  On the iBMC CLI, run the **ipmcset -d powerstate -v 0** command to power off the server remotely.

- The iBMC WebUI is available.

  After logging in to the iBMC WebUI, on the menu bar, choose **Power**, in the navigation tree, choose **Power Control**, and choose **Power Off** > **OK** to power off the server.

Power off the server completely.

When the server is in the standby state after it is powered off, remove the power cable to disconnect the external power supply. After that, the server powers off completely.

----End

4 Configuring the RH1288 V3

About This Chapter

This topic describes how to configure the RH1288 V3 after installation.

4.1 Configuration Overview

This topic describes the default information and the initial configuration process.

4.1.1 Default Information

This topic describes the default information used for configuring the server.

Table 4-1 lists the default user name, password, and IP address used for configuring the server.

Table 4-1 Default information

Item	Parameter	Default Value
iBMC management network port information	IP address and subnet mask of the management network port	● Default IP address: 192.168.2.100 ● Default subnet mask: 255.255.255.0
iBMC management system login information	User name and password	● Default user name: root ● Default password: Huawei12#$
BIOS	Password	Default password: Huawei12#$

4.1.2 Configuration Process

This topic describes the process for configuring the server.

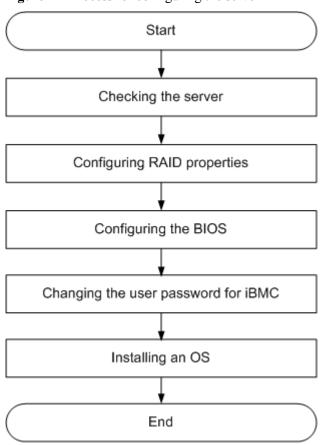**Figure 4-1** shows the process for configuring the server.

Figure 4-1 Process for configuring the server

Table 4-2 describes the procedures for configuring the server.

Table 4-2 Procedures for configuring the server

Procedure	Description
Checking the server	● Check that the board versions are the required ones. ● Check for alarms about the server.
Configuring RAID properties	The RH1288 V3 supports the LSISAS2308, LSISAS3008, and LSISAS3108 controller cards. Configure RAID properties for the server based on actual site requirements.
Configuring the basic input/ output system (BIOS)	Configure the server BIOS, including the boot mode, network drive, preboot execution environment (PXE) options of the network interface card (NIC), and BIOS password.
Changing the user password for iBMC	Change the default password for the iBMC.
Installing an operating system (OS)	For details, see *HUAWEI Server OS Installation Guide*.

4.2 Checking the RH1288 V3

This topic describes how to check the RH1288 V3 initial status.

Scenarios

Log in to the iBMC WebUI or CLI to check the health status of the RH1288 V3. Ensure that its health status meets the environment requirements for software installation.

Prerequisites

Conditions

The RH1288 V3 is powered on.

Data

- You have obtained the user names and passwords for logging in to the RH1288 V3 iBMC WebUI or CLI.
- You have obtained the IP address for the RH1288 V3 iBMC management network port.

Table 4-3 Default information

Item	Parameter	Default Value
iBMC management network port information	IP address and subnet mask of the management network port	- Default IP address: 192.168.2.100 - Default subnet mask: 255.255.255.0
iBMC management system login information	User name and password	- Default user name: root - Default password: Huawei12#$
BIOS	Password	Default password: Huawei12#$

Documents

For details about the CLI, see the ***HUAWEI Rack Server iBMC User Guide***.

Workflow

Check the RH1288 V3 by following the sequence described in **Figure 4-2**. Determine the checking method based on actual site requirements.
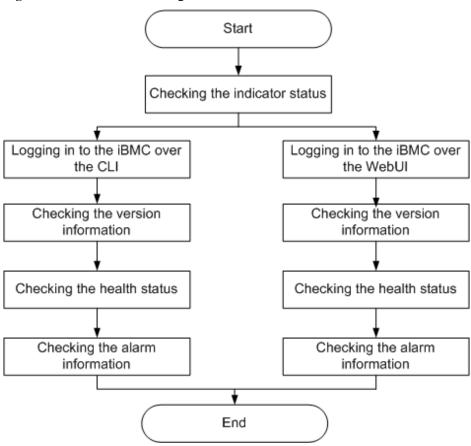
Figure 4-2 Process for checking the RH1288 V3

Procedure

- **Check the indicator status.**

  Observe the RH1288 V3 indicator status, and check that hardware devices are properly operating.

  For details, see **1.4 Indicators and Buttons**.

- **Check the RH1288 V3 using the iBMC WebUI.**

  a. Log in to the iBMC over the WebUI.

     i. Set an IP address for the PC, and ensure that the IP address is on the same network segment as the iBMC management network port.

     ii. Connect the PC to the RH1288 V3 iBMC management network port by using a network cable.

     iii. Run Internet Explorer on the PC, enter the IP address of the iBMC management network port, user name, and password to log in.
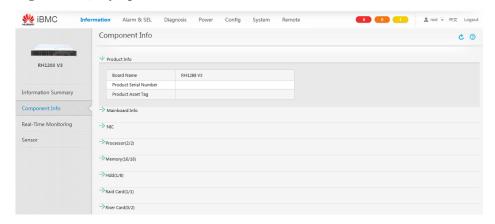
     NOTE

     You are advised to change the default password when you log in to the iBMC for the first time. For details, see **4.5 Changing an iBMC User Password**.

  b. View the RH1288 V3 version information.

In the navigation tree, choose **Information** > **Component Info**, and view server versions, as shown in **Figure 4-3**.

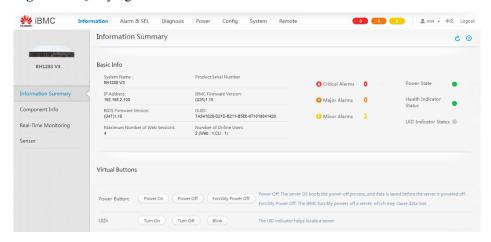Check that the RH1288 V3 versions meet the site requirements.

Figure 4-3 Querying version information

c. View the RH1288 V3 health status and alarms.

In the navigation tree, choose **Information Summary**, and view server health status, as shown in **Figure 4-4**.

Figure 4-4 Querying the health status for the RH1288 V3

d. Clear alarms by referring to the *HUAWEI Rack Server Alarm Handling (iBMC)*.

📖**NOTE**

If the query result in **c** indicates that no alarm is generated for the server, skip this step.

● **Check the RH1288 V3 using the iBMC CLI.**

a. Log in to the iBMC over the CLI.

i. Set an IP address for the PC, and ensure that the IP address is on the same network segment as the iBMC management network port.

ii. Connect the PC to the RH1288 V3 iBMC management network port by using a network cable.

iii. Run the Secure Shell (SSH) tool on the PC, and enter the IP address of the iBMC management network port, user name, and password to log in.

📖**NOTE**

To log in to iBMC over SSH is secure by default. If the SSH service is disabled, enable the SSH service on the **Config** > **Port Settings** page on the WebUI of iBMC.

b. View the RH1288 V3 version information.

Check that the RH1288 V3 versions meet the site requirements.

```
Hi1710 / # ipmcget -d v
------------------ iBMC INFO ------------------
IPMC          CPU:          Hi1710
IPMI          Version:      2.0
CPLD          Version:      (U46)1.05
Active iBMC   Version:      (U25)1.26
Active iBMC     Built:      08:26:05 Dec 23 2014
Backup iBMC   Version:      1.26
SDK           Version:      1.47
SDK             Built:      08:28:02 Dec 19 2014
Active Uboot  Version:      1.1.29 (Oct 13 2014 - 15:23:00)
Backup Uboot  Version:      1.1.29 (Oct 13 2014 - 15:23:00)
---------------- Product INFO ----------------
Product         ID:         0x0001
Product         Name:       RH1288
Product       Version:      V3
BIOS          Version:      (U47)1.19
-------------- Mother Board INFO --------------
Mainboard     BoardID:      0x000f
Mainboard       PCB:        .B
------------------ NIC INFO ------------------
SM211         BoardID:      0x0017
SM211           PCB:        .A
--------------- Riser Card INFO ---------------
BC11PERK      BoardID:      0x0084
BC11PERL      BoardID:      0x0085
-------------- HDD Backplane INFO --------------
BC11EHBD      BoardID:      0x0079
BC11EHBD        PCB:        .A
BC11EHBD  CPLD Version:     (U3)1.02
```

- **CPLD Version**: indicates the current complex programmable logical device (CPLD) version of the RH1288 V3.

- **BIOS Version**: indicates the basic input/output system (BIOS) version of the RH1288 V3.

- **Active iBMC Version**: indicates the active iBMC version of the RH1288 V3.

- **Backup iBMC Version**: indicates the backup iBMC version of the RH1288 V3.

c. Query the health status for the RH1288 V3.

```
iBMC / # ipmcget -d health
System in health state
```

- If the message "System in health state" is displayed, no further action is required.

- If an alarm is generated, clear the alarm by referring to **d** to **e**.

d. Query alarms for the RH1288 V3.

```
iBMC:/->ipmcget -d healthevents
System in health state
```

e. Clear alarms by referring to the *HUAWEI Rack Server Alarm Handling (iBMC)*.

----End

4.3 Configuring RAID Properties

This topic describes how to configure RAID properties.

The procedure for configuring RAID properties varies according to the RAID controller card type. For details about how to configure RAID properties, see the *HUAWEI Server RAID Controller Card User Guide*.

The RH1288 V3 supports the LSISAS3008 and LSISAS3108 RAID controller cards. You can identify RAID controller card types using different methods.

Using the BIOS Boot Information

- LSISAS3008 controller card

  Press Ctrl-C to Start LSI Corp Configuration Utility... is displayed during the system startup, as shown in **Figure 4-5**.

  Figure 4-5 Boot information displayed for the LSISAS3008 controller card

  📖**NOTE**

  > The preceding information is for reference only. The actual information may be different from the example.

- LSISAS3108 controller card

  Press <Ctrl><R> to Run MegaRAID Configuration Utility is displayed during the system startup, as shown in **Figure 4-6**.

  Figure 4-6 Boot information displayed for the LSISAS3108 controller card
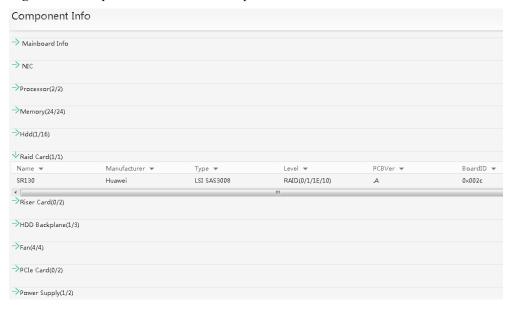

  📖**NOTE**

  > The preceding information is for reference only. The actual information may be different from the example.

Using the iBMC Hardware Information

1. Log in to the iBMC WebUI.

2. On the menu bar, choose **Information**, in the navigation tree, choose **Component Info**. The **Component Info** page is displayed.

3. View the RAID controller card information, as shown in **Figure 4-7**.
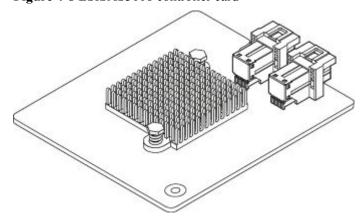
Figure 4-7 Component information example

☷**NOTE**

The preceding information is for reference only. The actual information may be different from the example.

Checking the Appearance

● LSISAS3008 controller card

Figure 4-8 shows the LSISAS3008 controller cards.

Figure 4-8 LSISAS3008 controller card

● LSISAS3108 controller card

Figure 4-9 shows the LSISAS3108 controller cards.

Figure 4-9 LSISAS3108 controller card

4.4 Configuring the BIOS

This topic describes how to configure the basic input/output system (BIOS) for the RH1288 V3.

Scenarios

Configure the BIOS for the RH1288 V3 in remote control mode.

The configuration items are as follows:

- Server boot mode
- Network drive
- Preboot execute environment (PXE) on the network interface card (NIC)
- Setting the BIOS Password

☐**NOTE**

For details about how to configure the BIOS, see the ***HUAWEI Server Grantley Platform BIOS Parameter Reference***.

Prerequisites

Conditions

- The RH1288 V3 is powered on.
- You have logged in to the iBMC Web. For details, see **7.2 Logging In to the iBMC WebUI**.

Data
None

Workflow

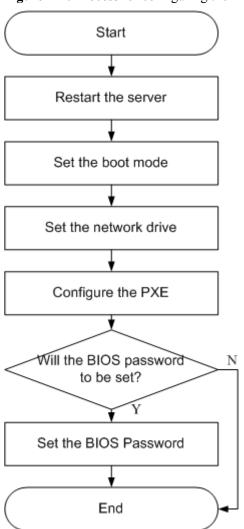**Figure 4-10** shows the process for configuring the BIOS.

Figure 4-10 Process for configuring the BIOS

Procedure

Restart the server.

1. Click ▲ on the menu bar on the remote virtual console.

    For details about how to log in to the remote virtual console, see **7.4 Logging In to the Remote Virtual Console**.

2. Select **Reset**

    The system displays "Are you sure to perform this operation?"

3. Click **Yes**.

    The server restarts.

4. Press **Delete** repeatedly when the screen shown in the following figure is displayed during the server startup.

Figure 4-11 BIOS startup screen

5   Enter a BIOS password as prompted. The screen for setting the BIOS is displayed.
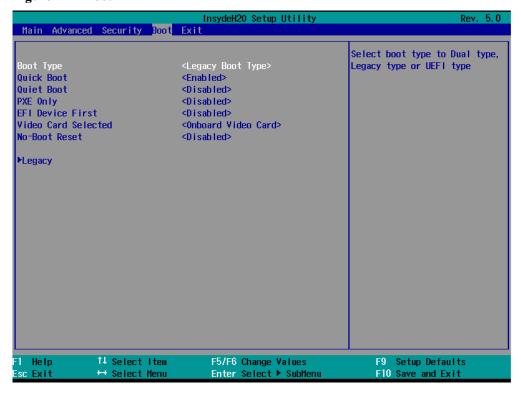
☐**NOTE**

> The default BIOS password is **Huawei12#$**. To ensure system security, you are advised to change the default BIOS password after the first login. For details, see **Set the BIOS password**.

Set the server boot mode.

6   Choose **Boot** > **Boot Type** and press **Enter**.

The **Boot** screen is displayed, as shown in **Figure 4-12**.

Figure 4-12 Boot
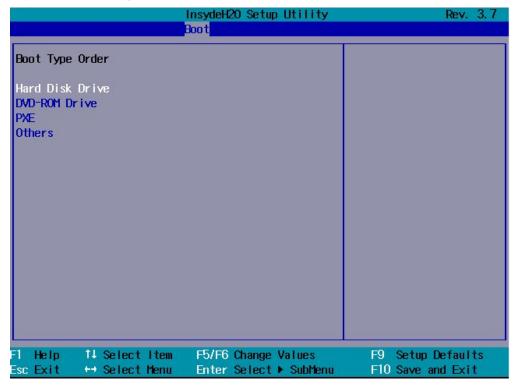

7   In the displayed dialog box, select **Dual Boot Type** or **Legacy Boot Type**, and press **Enter**.

8   Choose **Legacy** > **Boot Type Order** and press **Enter**.

The **Boot Type Order** screen is displayed.

📖**NOTE**

The default boot sequence is as follows: **Hard Disk Drive**, **CD/DVD-ROM Drive**, **PXE**, and finally **Others**.

Figure 4-13 Boot Type Order

Set the boot option to the network.

9 Select boot options that are to be configured, and press **+** or **-** to change the boot sequence. Set the first boot option to **PXE**.

The option at the top of the boot option list is the first boot option, and the one at the bottom is the last boot option.

– To move a boot option up, press **+**.

– To move a boot option down, press **-**.

Configure the PXE.

10 Choose **Advanced** > **PXE Configuration** and press **Enter**.

The **PXE Configuration** screen is displayed, as shown in **Figure 4-14**.

📖**NOTE**

This screen displays only network ports 1 and 2 on a LAN on motherboard (LOM) no matter how many network ports the LOM has. The default value is **Enabled** for PXE1 and **Disabled** for PXE2.
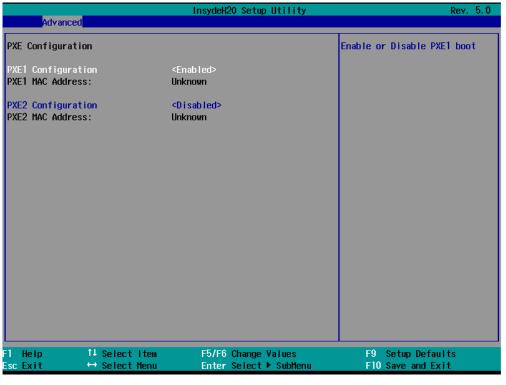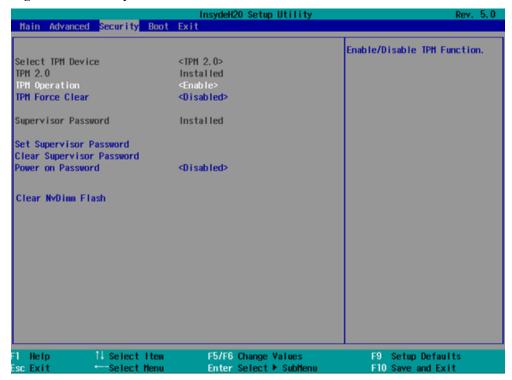
Figure 4-14 PXE Configuration


```
                          InsydeH20 Setup Utility                        Rev. 5.0
        Advanced

    PXE Configuration                                          Enable or Disable PXE1 boot

    PXE1 Configuration              <Enabled>
    PXE1 MAC Address:               Unknown

    PXE2 Configuration              <Disabled>
    PXE2 MAC Address:               Unknown

    F1  Help            ↑↓ Select Item      F5/F6 Change Values      F9  Setup Defaults
    Esc Exit            ↔ Select Menu       Enter Select ▶ SubMenu   F10 Save and Exit
```

11 Select the network port to be configured, and press Enter.

12 Choose **Enabled** from the shortcut menu and press **Enter** to enable the PXE function for the NIC.

Set the BIOS password.

13 Select the **Security** tab.

The **Security** screen is displayed, as shown in **Figure 4-15**.

Figure 4-15 Security

14 Select **Set Supervisor Password**, and press **Enter**. Set a login password for the super administrator.

Before changing the supervisor password, you need to enter the current supervisor password. The server is locked after three consecutive failures with wrong passwords. Restart the server to unlock it.

☰**NOTE**

– The supervisor password must be a string of 8 to 16 characters, including special characters (including spaces) and at least two types of the following characters: uppercase letters, lowercase letters, and digits.

– A new password cannot be the same as one of the previous five passwords.

– After the supervisor password is set, the following menu items are displayed:

■ Clear Supervisor Password

■ Power on Password

----End

4.5 Changing an iBMC User Password

This topic describes how to change an iBMC user password.

Scenarios

Change an iBMC user password for the server.

☰**NOTE**

Change the default password promptly and change the user password periodically to ensure system security.

Impact on the System

This operation has no adverse impact on the system.

Prerequisites

Conditions

You have logged in to the iBMC WebUI over a network port. For details, see **7.2 Logging In to the iBMC WebUI**.

Data

Table 4-4 lists the default user name and password of the iBMC.

Table 4-4 Default user name and password

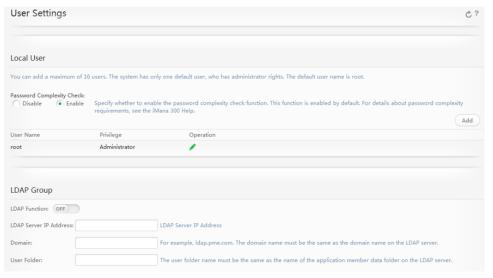| Default User Name and Password	Description
● User name: **root** ● Password: **Huawei12#$**	The default user of the iBMC belongs to the administrator group and has full rights to access all iBMC resources and perform all operations.

Documents

The following describes how to change a user password on the iBMC WebUI. For details about how to change a password on the iBMC CLI, see the *HUAWEI Rack Server iBMC User Guide*.

Procedure

Step 1 In the navigation tree, choose **Config** > **User Settings**. In the right pane, click the **Local User** tab.

The **Local User** page is displayed, as shown in **Figure 4-16**,after you select **Enable** for **Password Complexity Cheek**, the system performs the password complexity check when a new password is set.

Figure 4-16 Local User page

Step 2 Click ✎ next to the user whose password is to be changed.

Step 3 Change the password as prompted.

- When the password complexity check function is disabled, the password can be empty or a string of any characters less than 20 characters.

- When the password complexity check function is enabled, the password must meet the following requirements:

    - Must contain 8 to 20 characters.

    - Must contain at least one space or one of the following special characters:

        `~!@#$%^&*()-_=+\|[{}];:'",<.>/?

    - Must contain at least two types of the following characters:

        - Letters: a to z

        - Letters: A to Z

        - Digits: 0 to 9

    - Must not be the user name or the user name in reverse order.

----End

4.6 Installing an OS

This topic describes how to install an operating system (OS) for the RH1288 V3.

The RH1288 V3 is compatible with different types of OSs, including Windows, SUSE Linux Enterprise Server (SLES), and Red Hat Enterprise Linux (RHEL). For details, see **Huawei Server Compatibility Checker**.

The OS installation method varies according to the OS type. For details about the installation procedure, see *HUAWEI Server OS Installation Guide*.

5 Replacing Parts

About This Chapter

This topic describes the replaceable parts of the RH1288 V3 and how to replace them.

📖NOTE

  Ensure that the obtained spare parts are compatible and function properly before any replacement.

This topic describes the replaceable parts of the RH1288 V3.

This topic describes how to remove the front bezel.

This topic describes how to install a front bezel.

This topic describes how to remove a hard disk when replacing it with a new one.

This topic describes how to install a hard disk.

This topic describes how to remove an AC or DC power supply unit (PSU).

This topic describes how to install an AC or DC power supply unit (PSU).

This topic describes how to remove the chassis cover from the RH1288 V3 before replacing any RH1288 V3 part in the chassis.

This topic describes how to install the chassis cover for the RH1288 V3 after replacing one or more RH1288 V3 parts.

This topic describes how to remove the air duct.

This topic describes how to install an air duct.

5.12 Removing a Fan Module
This topic describes how to remove a fan module before replacing it with a new one.

5.13 Installing a Fan Module
This topic describes how to install a fan module.

5.14 Removing the Riser Card
This topic describes how to remove the riser card before replacing it with a new one.

5.15 Installing a Riser Card
This topic describes how to install a riser card.

5.16 Removing a PCIe Card from the Riser Card
This topic describes how to remove a Peripheral Component Interconnect Express (PCIe) card from the riser card.

5.17 Installing a PCIe Card on the Riser Card
This topic describes how to install a Peripheral Component Interconnect Express (PCIe) card on the riser card.

5.18 Removing a TPM
This topic describes how to remove a trusted platform module (TPM) before replacing it with a new one.

5.19 Installing a TPM
This topic describes how to install a trusted platform module (TPM).

5.20 Removing the DVD-ROM Drive
This topic describes how to remove the DVD-ROM drive before replacing it with a new one.

5.21 Installing a DVD-ROM Drive
This topic describes how to install a DVD-ROM drive.

5.22 Removing a USB Flash Drive from the Chassis
This topic describes how to remove a USB flash drive before replacing it with a new one.

5.23 Installing a USB Flash Drive in the Chassis
This topic describes how to install a USB flash drive in the chassis.

5.24 Removing a System Battery
This topic describes how to remove a system battery.

5.25 Installing a System Battery
This topic describes how to install a system battery.

5.26 Removing the RAID Controller Card
This topic describes how to remove the RAID controller card before replacing it with a new one. The removing method varies with the RAID controller cards.

5.27 Installing a RAID Controller Card
This topic describes how to install a RAID controller card. The method for installing the RAID controller card varies with the RAID controller cards.

5.28 Removing a Supercapacitor
This topic describes how to remove a supercapacitor before replacing it with a new one.

5.29 Installing a Supercapacitor
This topic describes how to install a supercapacitor.

5.30 Removing a CPU

This topic describes how to remove a CPU before replacing it with a new one.

5.31 Installing a CPU
This topic describes how to install a CPU.

5.32 Removing a DIMM
This topic describes how to remove a dual in-line memory module (DIMM) before replacing it with a new one.

5.33 Installing a DIMM
This topic describes how to install a dual in-line memory module (DIMM) for a server.

5.34 Removing the Mainboard
This topic describes how to remove the mainboard before replacing it with a new one.

5.35 Installing the Mainboard
This topic describes how to install the mainboard.

5.36 Removing a NIC
This topic describes how to remove a network interface card (NIC) before replacing it with a new one.

5.37 Installing a NIC
This topic describes how to install a network interface card (NIC).

5.38 Removing a SATA DOM
This topic describes how to remove a Serial Advanced Technology Attachment (SATA) Disk on Module (DOM) before replacing it with a new one.

5.39 Installing a SATA DOM
This topic describes how to install a Serial Advanced Technology Attachment (SATA) Disk on Module (DOM) to replace the original one.

5.40 Removing an SD Card
This topic describes how to remove a Secure Digital (SD) card before replacing it with a new one.

5.41 Installing an SD Card
This topic describes how to install an SD card to replace the original one.

5.42 Removing the Front Hard Disk Backplane
This topic describes how to remove the front hard disk backplane before replacing it with a new one.

5.43 Installing the Front Hard Disk Backplane
This topic describes how to install the front hard disk backplane.

5.44 Removing the Indicator Board
This topic describes how to remove the indicator board before replacing it with a new one.

5.45 Installing an Indicator Board
This topic describes how to install an indicator board to replace the original one.

5.46 Removing the VGA Board
This topic describes how to remove the video graphics array (VGA) board before replacing it with a new one.

5.47 Installing a VGA Board
This topic describes how to install a video graphics array (VGA) board to replace the original one.

5.48 Removing the Power Adapter Board
This topic describes how to remove the power adapter board before replacing it with a new one.

5.49 Installing a Power Adapter Board
This topic describes how to install a power adapter board to replace the original one.

5.1 Replaceable Parts

This topic describes the replaceable parts of the RH1288 V3.

The RH1288 V3 is 1 U high and has the following replaceable parts:

- Mainboard
- SATA or SAS hard disk
- Power supply unit (PSU)
- DVD-ROM drive (optional)
- Fan module
- CPU
- Peripheral Component Interconnect Express (PCIe) card on the riser card
- Riser card
- RAID controller card
- Supercapacitor
- System battery
- Trusted platform module (TPM) (optional)
- USB device
- Dual in-line memory module (DIMM)
- Hard disk backplane
- Indicator board
- VGA Board
- Power adapter board

◫NOTE

The preceding parts are for reference only. Actual replaceable parts may differ.

5.2 Removing the Front Bezel

This topic describes how to remove the front bezel.

Scenarios

Remove the front bezel in any of the following scenarios:

- You need to replace a component (such as a hard disk or DVD-ROM drive) on the RH1288 V3 front.
- You need to replace the left or right mounting ear.

Prerequisites

Conditions

None

Data

You have obtained a spare component and packing materials (for example, an ESD bag), and placed them 0.5 m (1.64 ft) or less away from the server.

Tools

- ESD wrist strap or ESD gloves
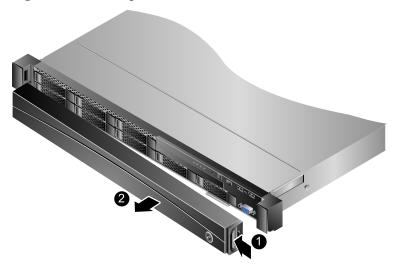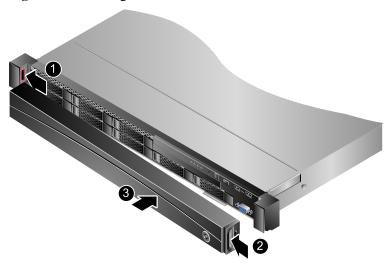- Key to the front bezel

Procedure

Step 1 Unlock the front bezel by turning the key clockwise, and remove the key for proper storage. See **Figure 5-1**.

Figure 5-1 Unlocking a front bezel

Step 2 Press the button and remove the front bezel. See **Figure 5-2**.

Figure 5-2 Removing a front bezel

----End

5.3 Installing a Front Bezel

This topic describes how to install a front bezel.

Scenarios

Install a front bezel in any of the following scenarios:

- You are going to install a front bezel for the first time.
- You need to replace a component (such as a hard disk or DVD-ROM drive) on the RH1288 V3 front.
- You need to replace the left or right mounting ear.

Prerequisites

Conditions

None

Data

You have obtained a spare front bezel, and placed it 0.5 m (1.64 ft) or less away from the server.

Tools

- ESD wrist strap or ESD gloves

Procedure

Step 1 Remove the key from the front bezel. See **Figure 5-3**.

Figure 5-3 Removing a key

Step 2 Unlock the front bezel by turning the key clockwise, and remove the key for proper storage. See **Figure 5-4**.

Figure 5-4 Unlocking a front bezel

Step 3 Hook the front bezel onto the side of the left mounting ear, and press the button so that the front bezel is secured to the chassis. See **Figure 5-5**.

Figure 5-5 Installing a front bezel

Step 4 Lock the front bezel by turning the key counterclockwise, and remove the key for proper storage. See **Figure 5-6**.

Figure 5-6 Locking a front bezel

----End

5.4 Removing a Hard Disk

This topic describes how to remove a hard disk when replacing it with a new one.

Scenarios

Remove a hard disk in any of the following scenarios:

- A hard disk fails.

- A hard disk is to be replaced with a new model.

- A hard disk has no free space.

☐**NOTE**

Do not power off the RH1288 V3 when removing a hard disk.

Prerequisites

Conditions

If services are running on the RH1288 V3, you have backed up the data on the hard disk to be removed and delete RAID configuration from the hard disk.

Data

- You have determined the position on the RH1288 V3 for removing a hard disk.

- You have obtained the rack number and chassis number of the RH1288 V3.

- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.

Tools

- ESD gloves or ESD wrist strap

- Packaging materials, for example, an ESD bag
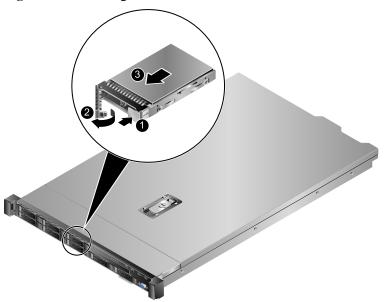
Procedure

Step 1 Determine the position of the hard disk to be removed(for example,a front hard disk)on the RH1288 V3.See **Figure 5-7**.

Figure 5-7 Hard disk position

Step 2 Push the spring that fastens the hard disk ejector lever. See step (1) in **Figure 5-8**.
The ejector lever automatically ejects.

Figure 5-8 Removing a hard disk

Step 3 Hold the ejector lever, and pull out the hard disk for about 3 cm (1.18 in.). See step (2) in **Figure 5-8**. Wait for at least 30 seconds until the hard disk stops working. Then remove the hard disk from the RH1288 V3. See step (3) in **Figure 5-8**.

Step 4 Place the removed hard disk in an ESD bag.

----End

5.5 Installing a Hard Disk

This topic describes how to install a hard disk.

Scenarios

Install a hard disk in any of the following scenarios:

- A hard disk fails.
- A hard disk is to be replaced with a new model.
- A hard disk has no free space.
- A hard disk is to be added.

☰**NOTE**

You do not need to power off the RH1288 V3 before installing a hard disk.

Prerequisites

Conditions

No special condition is required for this operation.

Data

- You have determined the position on the RH1288 V3 for installing a hard disk.
- You have obtained the rack number and chassis number of the RH1288 V3.
- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.

Tools

- ESD gloves
- Packaging materials, for example, an ESD bag

Hardware

You have obtained a spare hard disk.

Procedure
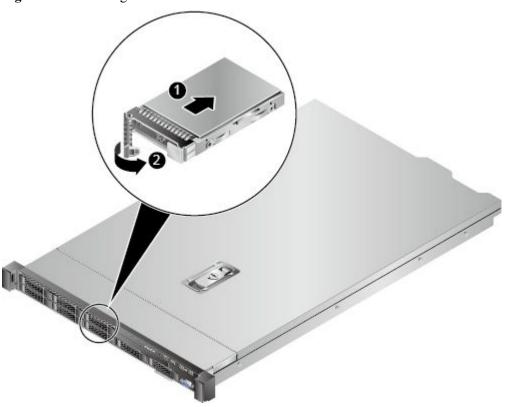
Step 1 Take the spare hard disk out of the ESD bag.

Step 2 Determine the position of the hard disk to be removed(for example,a front hard disk)on the RH1288 V3.See **Figure 5-9**.

Figure 5-9 Hard disk position

Step 3 Fully raise the ejector lever and push the hard disk into the chassis along the guide rails until it does not move. See step (1) in **Figure 5-10**.

Figure 5-10 Installing a hard disk

Step 4 Ensure that the ejector lever is fastened to the chassis beam, and lower the ejector lever to completely insert the hard disk into the chassis. See step (2) in **Figure 5-10**.

Observe the hard disk indicators to check the hard disk operating status. For details about the indicators, see **1.4 Indicators and Buttons**.

----End

5.6 Removing a PSU

This topic describes how to remove an AC or DC power supply unit (PSU).

5.6.1 Removing an AC PSU

This topic describes how to remove an AC power supply unit (PSU) before replacing it with a new one.

Scenarios

Remove an AC PSU in any of the following scenarios:

- An AC PSU fails.
- An AC PSU is to be replaced with a new model.

Prerequisites

Conditions

When two PSUs are configured, remove one PSU without powering off the RH1288 V3 if the other PSU is operating properly and its power rating is greater than or equal to the rated power of the RH1288 V3. Observe the PSU indicators to check the PSU operating status. For details about the indicators, see **1.4 Indicators and Buttons**.

Data

- You have determined the position on the RH1288 V3 for removing a PSU.
- You have obtained the rack number and chassis number of the RH1288 V3.
- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.
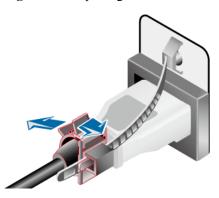
Tools

- ESD gloves or ESD wrist strap
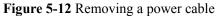- Packaging materials, for example, an ESD bag

Procedure

Step 1 (Optional) If only one PSU is configured, power off the RH1288 V3. For details, see **3.2 Powering Off**.

Step 2 Open the cable tie for the power cable. See **Figure 5-11**.

Figure 5-11 Opening a cable tie

Step 3 Remove the power cable from the PSU to be replaced. See **Figure 5-12**.

Figure 5-12 Removing a power cable

Step 4 Press the spring on the PSU in the arrow direction, and pull the PSU out of the slot while holding the handle. See steps (1) and (2) in **Figure 5-13**.

Figure 5-13 Removing a PSU

Step 5   Place the removed PSU in an ESD bag.

----End

5.6.2 Removing a DC PSU

This topic describes how to remove a DC power supply unit (PSU) before replacing it with a new one.

Scenarios

Remove a DC PSU in any of the following scenarios:

● A DC PSU fails.

● A DC PSU is to be replaced with a new model.

Prerequisites

Conditions

When two PSUs are configured, remove one PSU without powering off the RH1288 V3 if the other PSU is operating properly. Observe the PSU indicators to check the PSU operating status. For details about the indicators, see **1.4 Indicators and Buttons**.

Data

● You have determined the position on the RH1288 V3 for removing a PSU.

● You have obtained the rack number and chassis number of the RH1288 V3.

● You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.
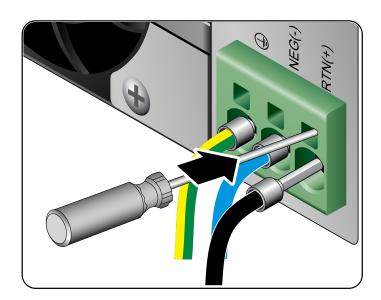
Tools

● ESD gloves or ESD wrist strap

● Packaging materials, for example, an ESD bag

Procedure

Step 1   Hold down the spring above the power cable using a flat-head screwdriver to eject the power cable. See **Figure 5-14**.

Figure 5-14 Removing power cables

Step 2   Hold down the spring on the PSU, and pull out part of the PSU while holding the handle. See step (1) in **Figure 5-15**.

Step 3   Remove the PSU from the slot. See step (2) in **Figure 5-15**.

Figure 5-15 Removing a PSU

----End

5.7 Installing a PSU

This topic describes how to install an AC or DC power supply unit (PSU).

5.7.1 Installing an AC PSU

This topic describes how to install an AC power supply unit (PSU).

Scenarios

Install an AC PSU in any of the following scenarios:

- An AC PSU fails.

- An AC PSU is to be replaced with a new model.

- An AC PSU is to be added to improve reliability when only one AC PSU is configured for the RH1288 V3.

Prerequisites

Conditions

None

Data

- You have determined the position on the RH1288 V3 for installing a PSU.

- You have obtained the rack number and chassis number of the RH1288 V3.

- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.

Tools

- ESD gloves
- Packaging materials, for example, an ESD bag

Hardware

You have obtained a spare AC PSU.

Procedure

Step 1 Take the spare AC PSU out of the ESD bag.

Step 2 Push the spare AC PSU along the guide rails into a slot until you hear a sound.

The PSU spring snaps into the latch so that the PSU does not move. See **Figure 5-16**.
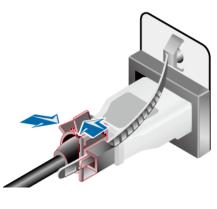
Figure 5-16 Installing an AC PSU

Step 3 Connect the power cable to the PSU. See **Figure 5-17**.

Figure 5-17 Connecting a power cable to an AC PSU

Step 4 Secure the power cable using a cable tie. See **Figure 5-18**.

Figure 5-18 Securing a power cable

----**End**

5.7.2 Installing a DC PSU

This topic describes how to install a DC power supply unit (PSU).

Scenarios

Install a DC PSU in any of the following scenarios:

- A DC PSU fails.
- A DC PSU is to be replaced with a new model.
- A DC PSU is to be added to improve reliability when the RH1288 V3 is configured with only one DC PSU.

Prerequisites

Conditions

None

Data

- You have determined the position on the RH1288 V3 for installing a DC PSU.
- You have obtained the rack number and chassis number of the RH1288 V3.
- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.

Tools

- ESD gloves
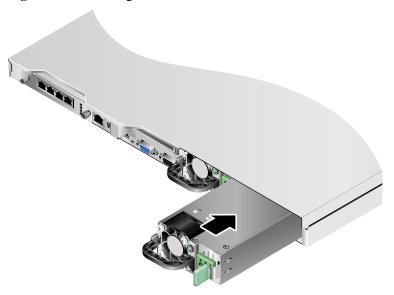- Packaging materials, for example, an ESD bag

Hardware

You have obtained a spare DC PSU.

Procedure

Step 1 Take the spare DC PSU out of the ESD bag.

Step 2 Push the spare DC PSU along the guide rails into a slot (for example, slot 1) until you hear a sound.

The PSU spring snaps into the latch so that the PSU does not move. See **Figure 5-19**.
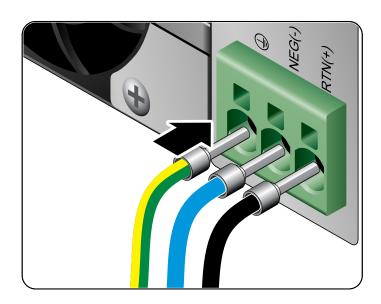
Figure 5-19 Installing a DC PSU

Step 3 Connect the power cable to the wiring terminal on the PSU until the power cable snaps into the spring. See **Figure 5-20**.

- Connect the OT terminal on the negative power cable to the NEG(-) wiring terminal on the PSU.
- Connect the OT terminal on the positive power cable to the RTN(+) wiring terminal on the PSU.
- Connect the OT terminal on the ground cable to the ground terminal on the PSU.

Figure 5-20 Connecting power cables to a DC PSU

----End

5.8 Removing the Chassis Cover

This topic describes how to remove the chassis cover from the RH1288 V3 before replacing any RH1288 V3 part in the chassis.

Scenarios

Remove the chassis cover from the RH1288 V3 before replacing any RH1288 V3 part in the chassis.

Prerequisites

Conditions

- You have removed the RH1288 V3 installed on the L-shaped guide rails or adjustable guide rails before removing its chassis cover. For details, see **2.5 Removing the RH1288 V3**.

- The RH1288 V3 installed on the holding rails has not been removed before removing its chassis cover.

Data

- You have obtained the rack number and chassis number of the RH1288 V3.

- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.
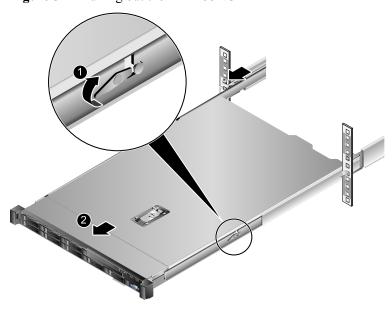
Tools

- ESD gloves or ESD wrist strap

- Flat-head screwdriver

Procedure

Step 1 (Optional) If the RH1288 V3 is installed on the holding rails, perform the following operations:

1. Pull the RH1288 V3 out of the cabinet until it does not move.

2. Pull the tab upwards to unlock it. See step (1) in **Figure 5-21**.

3. Pull the RH1288 V3 out until the securing holes in the inner rails align with the positioning pins on the chassis. See step (2) in **Figure 5-21**.

Figure 5-21 Pulling out the RH1288 V3

Step 2 Loosen the latch that secures the handle of the chassis cover using a flat-head screwdriver. See step (1) in **Figure 5-22**.

Step 3 Open the handle to push the chassis cover backwards. See step (2) in **Figure 5-22**.

Figure 5-22 Removing a chassis cover

Step 4 Lift the chassis cover. See step (3) in **Figure 5-22**.

----End

5.9 Installing a Chassis Cover

This topic describes how to install the chassis cover for the RH1288 V3 after replacing one or more RH1288 V3 parts.

Scenarios

Install the chassis cover after replacing parts for the RH1288 V3.

Prerequisites

Conditions
You have removed the RH1288 V3 from the rack and the components in the chassis are replaced. For details, see **2.5 Removing the RH1288 V3**.

Data

● You have obtained the rack number and chassis number of the RH1288 V3.

● You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.

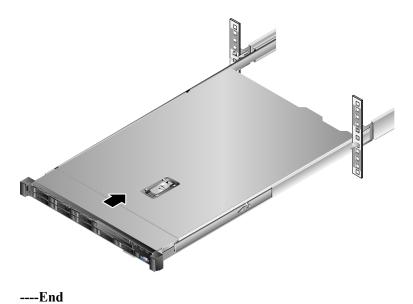### Tools

● ESD gloves

● Flat-head screwdriver

Procedure

Step 1 Place the chassis cover horizontally, align it with the fixing slots on both side panels of the chassis, and close the handle. See steps (1) and (2) in **Figure 5-23**.

Step 2 Tighten the latch using a flat-head screwdriver to secure the handle. See step (3) in **Figure 5-23**.

Figure 5-23 Installing a chassis cover

Step 3 (Optional) When the RH1288 V3 is installed on holding rails, push the RH1288 V3 into the rack along the holding rails. See **Figure 5-24**.

Figure 5-24 Pushing the RH1288 V3 into the rack

----End

5.10 Removing the Air Duct

This topic describes how to remove the air duct.

Scenarios

Remove the air duct in any of the following scenarios:

● The air duct fails.

● A CPU, dual in-line memory module (DIMM), or supercapacitor is to be replaced.

Prerequisites

Conditions

● You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

Data

● You have determined the position on the RH1288 V3 for removing the air duct.

● You have obtained the rack number and chassis number of the RH1288 V3.

● You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.
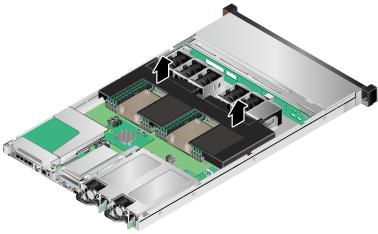
Tools

● ESD gloves

● Packaging materials, for example, an ESD bag

Procedure

Step 1 Lift the air duct. See step (1) in **Figure 5-25**.

Figure 5-25 Removing an air duct

----End

5.11 Installing an Air Duct

This topic describes how to install an air duct.

Scenarios

Install an air duct in any of the following scenarios:

● An air duct fails.

● A CPU, dual in-line memory module (DIMM), or supercapacitor is to be replaced.

Prerequisites

Conditions

● You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

Data

● You have determined the position on the RH1288 V3 for installing an air duct.

● You have obtained the rack number and chassis number of the RH1288 V3, and labeled its panel to prevent misoperations.

Tools

● ESD gloves

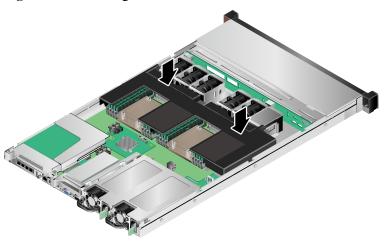● Packaging materials, for example, an ESD bag

Hardware

You have obtained a spare air duct.

Procedure

Step 1 Take the spare air duct out of the ESD bag.

Step 2 Align the positioning pins on the air duct with the fixing holes on the mainboard by following the instructions on the chassis, and vertically place the air duct downwards. See **Figure 5-26**.

Figure 5-26 Installing an air duct

----End

5.12 Removing a Fan Module

This topic describes how to remove a fan module before replacing it with a new one.

Scenarios

Remove a fan module before replacing it with a new one.

Prerequisites

Conditions

● You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

Data

● You have determined the position on the RH1288 V3 for removing a fan module.

● You have obtained the rack number and chassis number of the RH1288 V3.

● You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.

Tools

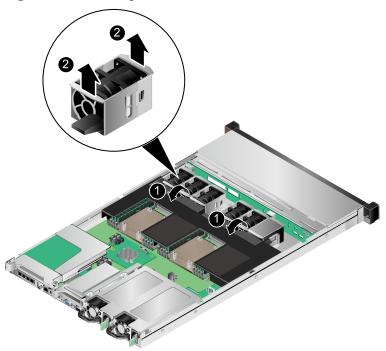● ESD gloves or ESD wrist strap

● Packaging materials, for example, an ESD bag

Procedure

Step 1 Open the memory windows on the air duct. See step (1) in **Figure 5-27**.

Step 2 Lift the fan module slowly out of the RH1288 V3. See step (2) in **Figure 5-27**.

Step 3 Remove the fan module from the slot.

Figure 5-27 Removing a fan module

Step 4 Place the removed fan module in an ESD bag.

----End

5.13 Installing a Fan Module

This topic describes how to install a fan module.

Scenarios

Install a fan module to replace the original one.

Prerequisites

Conditions

● You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

Data

● You have determined the position on the RH1288 V3 for installing a fan module.

● You have obtained the rack number and chassis number of the RH1288 V3, and labeled its panel to prevent misoperations.

Tools

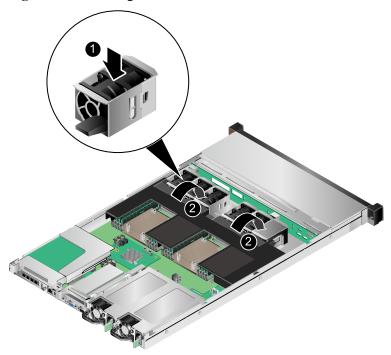- ESD gloves
- Packaging materials, for example, an ESD bag

Hardware

You have obtained a spare fan module.

Procedure

Step 1   Take the spare fan module out of the ESD bag.

Step 2   Insert the fan module along the guide rails into the slot. Check that the fan cable connector is securely inserted into the mainboard connector. See step (1) in**Figure 5-28**.

Figure 5-28 Installing a fan module

Step 3   Close the handle for the fan module. See step (2) in **Figure 5-28**.

----End

5.14 Removing the Riser Card

This topic describes how to remove the riser card before replacing it with a new one.

Scenarios

Remove the riser card in any of the following scenarios:

- The riser card fails.
- The mainboard is to be removed.

● The RAID controller card is to be removed.

Prerequisites

Conditions

● You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
● You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

Data

● You have determined the position on the RH1288 V3 for removing the riser card.
● You have obtained the rack number and chassis number of the RH1288 V3, and labeled its panel to prevent misoperations.
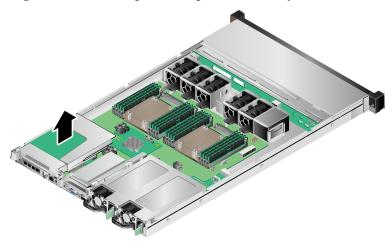
Tools

● ESD gloves
● Packaging materials, for example, an ESD bag

Procedure

Step 1 Remove a full-height or half-height riser card for the RH1288 V3.

● Lift the full-height riser card tray. See **Figure 5-29**.

Figure 5-29 Removing a full-height riser card tray

● Remove the half-height riser card tray.

a. Open the PCIe card latch. See step (1) in **Figure 5-30**.

b. Remove the PCIe card. See step (2) in **Figure 5-30**.

c. Hold down the latch on the riser card and push the riser card into the chassis. See step (3) in **Figure 5-30**.

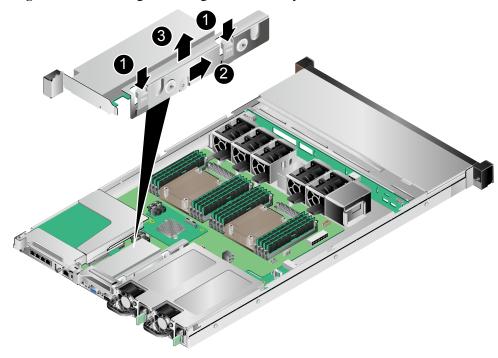d. Lift the half-height riser card tray. See step (4) in **Figure 5-30**.

Figure 5-30 Removing a half-height riser card tray

Step 2 Remove the PCIe cards from the riser card tray. For details, see **5.16 Removing a PCIe Card from the Riser Card**.

Step 3 Place the removed riser card in the ESD bag.

----End

5.15 Installing a Riser Card

This topic describes how to install a riser card.

Scenarios

Install a riser card to replace the original one.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

Data

- You have determined the position on the RH1288 V3 for installing a riser card.
- You have obtained the rack number and chassis number of the RH1288 V3, and labeled its panel to prevent misoperations.

Tools

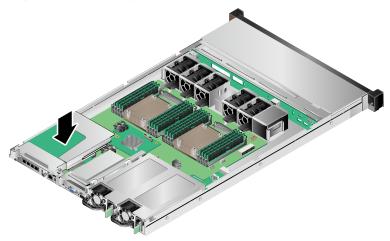- ESD gloves
- Packaging materials, for example, an ESD bag

Hardware

You have obtained a spare riser card or tray.

Procedure

Step 1 Take the spare riser card out of the ESD bag.

Step 2 Install a PCIe card on the riser card. For details, see **5.17 Installing a PCIe Card on the Riser Card**.

Step 3 Install a full-height or half-height riser card for the RH1288 V3

- Install the full-height riser card tray. See **Figure 5-31**.

Figure 5-31 Installing a full-height riser card tray

- Install a half-height riser card tray.

  a. Install the half-height riser card tray. See step (1) in **Figure 5-32**.

  b. Insert the PCIe card into the slot. See step (2) in **Figure 5-32**.

  c. Close the PCIe card latch to secure the PCIe card. See step (3) in **Figure 5-32**.
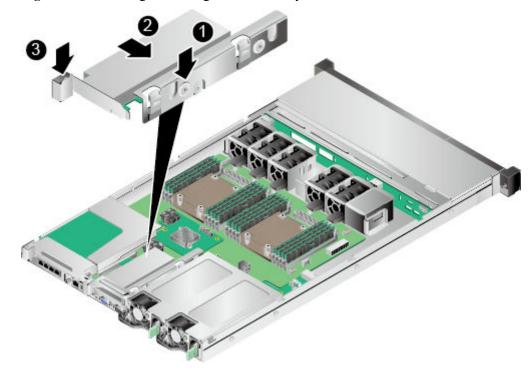
Figure 5-32 Installing a half-height riser card tray

----End

5.16 Removing a PCIe Card from the Riser Card

This topic describes how to remove a Peripheral Component Interconnect Express (PCIe) card from the riser card.

Scenarios

Remove a PCIe card in any of the following scenarios:

- A PCIe card fails.
- The riser card connected to a PCIe card is to be removed.
- A PCIe card is to be replaced with a new model.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.
- You have removed the riser card tray from the RH1288 V3. For details, see **5.14 Removing the Riser Card**.

Data

- You have determined the position on the RH1288 V3 for removing a PCIe card.

- You have obtained the rack number and chassis number of the RH1288 V3.
- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.
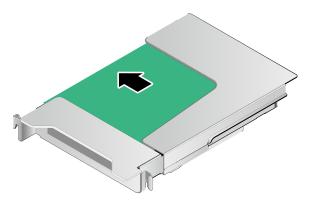
Tools

- ESD gloves
- Packaging materials, for example, an ESD bag

Procedure

Step 1 Remove a PCIe card from a full-height or half-height riser card.

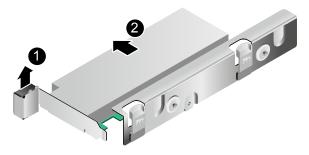- Pull out the PCIe card from the full-height riser card. See **Figure 5-33**.

Figure 5-33 Removing a PCIe card from a full-height riser card

- Remove the PCIe card from the half-height riser card.

    a. Open the PCIe card latch. See step (1) in **Figure 5-34**.

    b. Pull out the PCIe card from the half-height riser card. See step (2) in **Figure 5-34**.

Figure 5-34 Removing a PCIe card from a half-height riser card

Step 2 Place the removed PCIe card in an ESD bag.

----End

5.17 Installing a PCIe Card on the Riser Card

This topic describes how to install a Peripheral Component Interconnect Express (PCIe) card on the riser card.

Scenarios

Install a PCIe card.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.
- You have installed the riser card on the riser card tray.

Data

- You have determined the position on the RH1288 V3 for installing a PCIe card.
- You have obtained the rack number, chassis number, and slot number of the RH1288 V3, and labeled its panel to prevent misoperations.

Tools

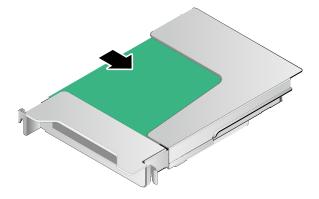- ESD gloves
- Packaging materials, for example, an ESD bag

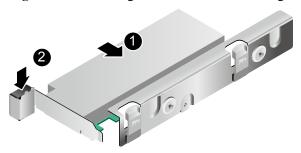### Hardware

You have obtained a spare PCIe card.

Procedure

Step 1 Install the PCIe card on a full-height or half-height riser card.

- Insert the PCIe card into a PCIe slot on the full-height riser card. See **Figure 5-35**.

Figure 5-35 Installing a PCIe card on a full-height riser card

● Install the PCIe card on the half-height riser card.

   a. Insert the PCIe card into a PCIe slot on the half-height riser card. See step (1) in **Figure 5-36**.

   b. Close the latch. See step (2) in **Figure 5-36**.

Figure 5-36 Installing a PCIe card on a half-height riser card

Step 2   Install the riser card tray. For details, see **5.15 Installing a Riser Card**.

   ----End

5.18 Removing a TPM

This topic describes how to remove a trusted platform module (TPM) before replacing it with a new one.

Scenarios

Remove a TPM in any of the following scenarios:

● A TPM fails.

● A TPM is to be replaced with a new model.

Prerequisites

Conditions

● You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.

● You have removed the RH1288 V3 from the rack. For details, see **2.5 Removing the RH1288 V3**.

● You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

● You have removed the riser card above the TPM. For details, see **5.14 Removing the Riser Card**.

Data

● You have determined the position on the RH1288 V3 for removing a TPM.

● You have obtained the rack number and chassis number of the RH1288 V3.

● You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.
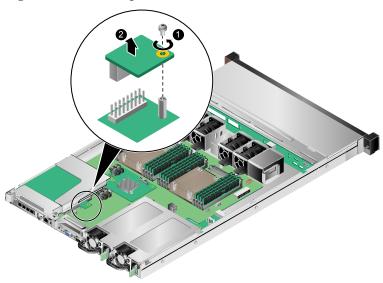
Tools

- ESD gloves ESD wrist strap
- M3 Phillips screwdriver
- Packaging materials, for example, an ESD bag

Procedure

Step 1 Unscrew the TPM using a Phillips screwdriver. See step (1) in **Figure 5-37**.

Figure 5-37 Removing a TPM

Step 2 Remove the TPM from the mainboard. See step (2) in **Figure 5-37**.

Step 3 Place the removed TPM in an ESD bag.

----End

5.19 Installing a TPM

This topic describes how to install a trusted platform module (TPM).

Scenarios

Install a TPM in any of the following scenarios:

- A TPM fails.
- A TPM is to be replaced with a new model.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the RH1288 V3 from the rack. For details, see **2.5 Removing the RH1288 V3**.

- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

- You have removed the riser card above the TPM. For details, see **5.14 Removing the Riser Card**.

- You have removed the riser card fixing frame. For details, see **5.34 Removing the Mainboard**.

Data

- You have determined the position on the RH1288 V3 for installing a TPM.

- You have obtained the rack number and chassis number of the RH1288 V3.

- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.

Tools

- ESD gloves

- M3 Phillips screwdriver
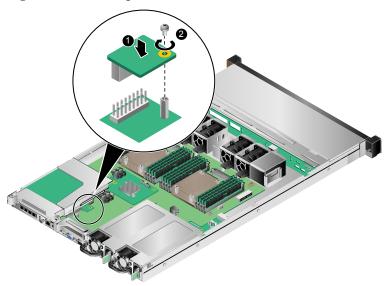
- Packaging materials, for example, an ESD bag

Hardware

You have obtained a spare TPM.

Procedure

Step 1 Take the spare TPM out of the ESD bag.

Step 2 Insert the TPM vertically downwards into the connector on the mainboard. See step (1) in **Figure 5-38**.

Figure 5-38 Installing a TPM

Step 3 Screw the TPM using a Phillips screwdriver. See step (2) in **Figure 5-38**.

----End

5.20 Removing the DVD-ROM Drive

This topic describes how to remove the DVD-ROM drive before replacing it with a new one.

Scenarios

Remove the DVD-ROM drive before replacing it with a new one.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.
- You have removed the air duct from the RH1288 V3. For details, see **5.10 Removing the Air Duct**.

Data

- You have determined the position on the RH1288 V3 for removing the DVD-ROM drive.
- You have obtained the rack number and chassis number of the RH1288 V3.
- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.

Tools

- ESD gloves or ESD wrist strap
- Packaging materials, for example, an ESD bag

Procedure

Step 1 Remove the cable from the DVD-ROM drive. See step (1) in **Figure 5-39**.

Figure 5-39 Removing a DVD-ROM drive

Step 2 Hold down the plastic latch on the DVD–ROM drive, and push the DVD–ROM drive outwards to remove it from the chassis. See steps (2) and (3) in **Figure 5-39**.

Step 3 Place the removed DVD-ROM drive in an ESD bag.

----End

5.21 Installing a DVD-ROM Drive

This topic describes how to install a DVD-ROM drive.

Scenarios

Install a DVD-ROM drive to replace the original one.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.

- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

- You have removed the air duct from the RH1288 V3. For details, see **5.10 Removing the Air Duct**.

Data

- You have determined the position on the RH1288 V3 for installing a DVD-ROM drive.

- You have obtained the rack number and chassis number of the RH1288 V3.

- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.

Tools

- ESD gloves

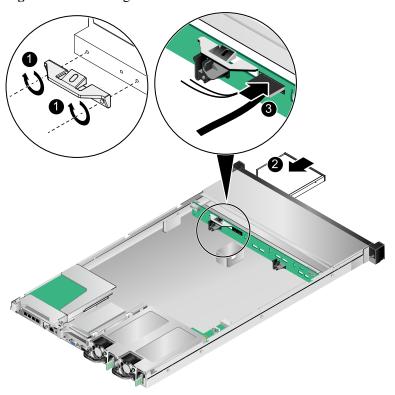- Packaging materials, for example, an ESD bag

- M3 Phillips screwdriver

Hardware

You have obtained a spare DVD-ROM drive.

Procedure

Step 1 Take the spare DVD-ROM drive out of the ESD bag.

Step 2 Tighten two M2 flat-head screws using the Phillips screwdriver to secure the plastic latch to the DVD-ROM drive. See step (1) in **Figure 5-40**.

Figure 5-40 Installing a DVD-ROM drive

Step 3 Insert the DVD-ROM drive into the support. See step (2) in **Figure 5-40**.

Step 4 Connect the cable to the DVD–ROM drive. See step (3) in **Figure 5-40**.

----End

5.22 Removing a USB Flash Drive from the Chassis

This topic describes how to remove a USB flash drive before replacing it with a new one.

Scenarios

Remove a USB flash drive in any of the following scenarios:

- A USB flash drive fails.
- A USB flash drive is to be replaced with a new model.

Prerequisites

Conditions

- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

Data

- You have determined the position on the RH1288 V3 for removing a USB flash drive.
- You have obtained the rack number and chassis number of the RH1288 V3.
- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.
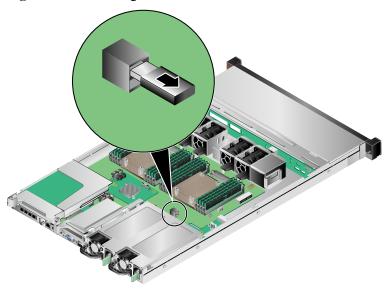
Tools

- ESD gloves or ESD wrist strap
- M3 Phillips screwdriver
- Packaging materials, for example, an ESD bag

Procedure

Step 1 Remove the USB flash drive from the connector on the mainboard. See **Figure 5-41**.

Figure 5-41 Removing a USB flash drive

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Step 2 Place the removed USB flash drive in an ESD bag.

----End

5.23 Installing a USB Flash Drive in the Chassis

This topic describes how to install a USB flash drive in the chassis.

Scenarios

Install a USB flash drive in any of the following scenarios:

- A USB flash drive fails.
- A USB flash drive is to be replaced with a new model.

Prerequisites

Conditions

- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

Data

- You have determined the position on the RH1288 V3 for installing a USB flash drive.
- You have obtained the rack number and chassis number of the RH1288 V3.
- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.

Tools

- ESD gloves
- M3 Phillips screwdriver
- Packaging materials, for example, an ESD bag

Hardware

You have obtained a spare USB flash drive.

Procedure

Step 1 Take the spare USB flash drive out of the ESD bag.

Step 2 Insert the USB flash drive into the upper USB port. See **Figure 5-42**.

📖**NOTE**

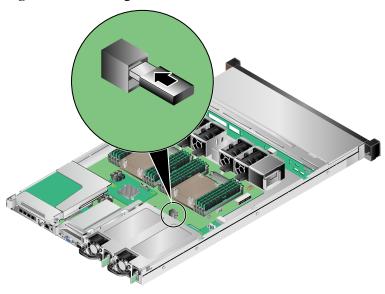The lower USB port is unavailable.

Figure 5-42 Installing a USB flash drive

----End

5.24 Removing a System Battery

This topic describes how to remove a system battery.

Scenarios

- A system battery fails.
- A system battery is low.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

Data

- You have obtained the rack number, chassis number, and slot number of the RH1288 V3.
- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.

Tools

ESD wrist strap or ESD gloves

Procedure

Step 1 Pull upwards the right end of the system battery and remove it from the slot. See step (1) in **Figure 5-43**.

Figure 5-43 Removing a system battery

Step 2 Place the removed system battery in an ESD bag.

----End

5.25 Installing a System Battery

This topic describes how to install a system battery.

Scenarios

- A system battery fails.
- A system battery is low.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

Data

You have obtained the rack number and chassis number of the RH1288 V3.

You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.

Tools

- ESD wrist strap or ESD gloves

Procedure

Step 1 Take the spare system battery out of the ESD bag.

Step 2 Hold the system battery with the side marked with text facing upwards, insert the left end of the system battery into the slot, and gently press down the system battery until it is properly installed in the slot. See **Figure 5-44**.

Figure 5-44 Installing a system battery

----End

5.26 Removing the RAID Controller Card

This topic describes how to remove the RAID controller card before replacing it with a new one. The removing method varies with the RAID controller cards.

Scenarios

Remove the RAID controller card in any of the following scenarios:

- The RAID controller card has failed.
- The RAID controller card is to be replaced with a new model.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.
- You have removed the riser card tray above the RAID controller card. For details, see **5.14 Removing the Riser Card**.
- You have removed the supercapacitor from the RH1288 V3 if any. For details, see **5.28 Removing a Supercapacitor**.
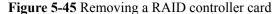
Data

- You have determined the position on the RH1288 V3 for removing the RAID controller card.
- You have obtained the rack number and chassis number of the RH1288 V3.
- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.
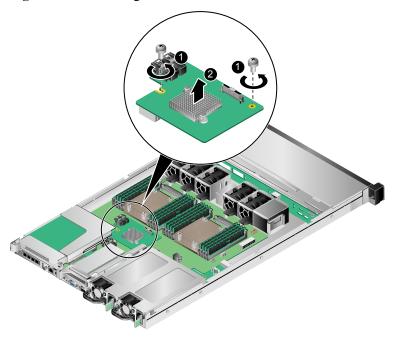
Tools

- ESD gloves or ESD wrist strap
- M3 Phillips screwdriver
- Packaging materials, for example, an ESD bag

Procedure

Step 1 Hold down the latches on the cables to the RAID controller card, and remove the cables from the RAID controller card. For details, see **1.7 Internal Cabling**.

Step 2 Unscrew the RAID controller card. See step (1) in **Figure 5-45**.

Step 3 Lift the RAID controller card slowly out of the server. See step (2) in **Figure 5-45**.

Figure 5-45 Removing a RAID controller card

Step 4 Place the removed RAID controller card in an ESD bag.

----End

5.27 Installing a RAID Controller Card

This topic describes how to install a RAID controller card. The method for installing the RAID controller card varies with the RAID controller cards.

Scenarios

Install a RAID controller card in any of the following scenarios:

- A RAID controller card fails.
- A RAID controller card is to be replaced with a new model.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.

- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

- You have removed the riser card tray above the RAID controller card. For details, see **5.14 Removing the Riser Card**.

Data

- You have determined the position on the RH1288 V3 for installing a RAID controller card.

- You have obtained the rack number and chassis number of the RH1288 V3.

- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.

Tools

- ESD gloves

- M3 Phillips screwdriver

- Packaging materials, for example, an ESD bag

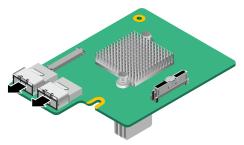### Hardware

You have obtained a spare RAID controller card.

Procedure

Step 1 (Optional) Remove the rubber plugs from the ports on the RAID controller card if any. See **Figure 5-46**.

Figure 5-46 Ports with rubber plugs

Step 2 Take the spare RAID controller card out of the ESD bag.

Step 3 Align the connector on the RAID controller card with the port on the mainboard, and insert the RAID controller card slowly into the mainboard. See step (1) in **Figure 5-47**.

Step 4 Screw the RAID controller card. See step (2) in **Figure 5-47**.

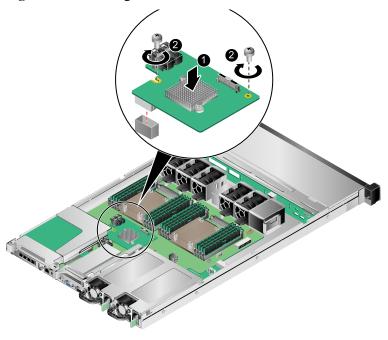**Step 5** Connect cables to the RAID controller card. For details, see **1.7 Internal Cabling**.

Figure 5-47 Installing a RAID controller card

----**End**

5.28 Removing a Supercapacitor

This topic describes how to remove a supercapacitor before replacing it with a new one.

Scenarios

You can configure a supercapacitor to provide power-off protection for the LSISAS3108 controller card. Remove a supercapacitor in any of the following scenarios:

● A supercapacitor fails.

● A supercapacitor is low.

Prerequisites

Conditions

● You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.

● You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

● You have removed the riser card tray above the RAID controller card. For details, see **5.14 Removing the Riser Card**.

● You have removed the air duct from the RH1288 V3. For details, see **5.10 Removing the Air Duct**.

Data

● You have determined the position on the RH1288 V3 for removing the supercapacitor.

- You have obtained the rack number and chassis number of the RH1288 V3.

- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.
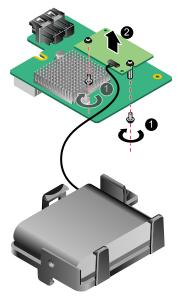
Tools

- ESD gloves

- Packaging materials, for example, an ESD bag

- Phillips screwdriver

Procedure

Step 1 Unscrew the trans flash module (TFM). See step (1) in **Figure 5-48**.

Step 2 Vertically lift the trans flash module (TFM) out of the RAID controller card. See step (2) in **Figure 5-48**.

Step 3 Horizontally open the plastic latches that secure the supercapacitor. See step (3) in **Figure 5-48**.

Step 4 Exert even force to lift the supercapacitor out of the server. See step (4) in **Figure 5-48**.

Figure 5-48 Removing a supercapacitor

Step 5 Place the removed supercapacitor in an ESD bag.

----End

5.29 Installing a Supercapacitor

This topic describes how to install a supercapacitor.

Scenarios

You can configure a supercapacitor for the LSISAS3108 controller card. Install a supercapacitor in any of the following scenarios:

- A supercapacitor fails.
- A supercapacitor is low.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.
- You have removed the riser card tray above the RAID controller card. For details, see **5.14 Removing the Riser Card**.
- You have removed the air duct from the RH1288 V3. For details, see **5.10 Removing the Air Duct**.

Data

- You have determined the position on the RH1288 V3 for installing a supercapacitor.
- You have obtained the rack number and chassis number of the RH1288 V3.
- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.

Tools

- ESD gloves
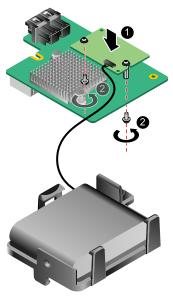- Packaging materials, for example, an ESD bag
- Phillips screwdriver

Hardware

You have obtained a spare supercapacitor.

Procedure

Step 1 Take the supercapacitor out of the ESD bag.

Step 2 Place the supercapacitor downwards and exert even force to install it in the tray. Ensure that the supercapacitor is secured by the plastic latches. See step (1) in **Figure 5-49**.

Step 3 Insert the trans flash module (TFM) vertically into the RAID controller card. See step (2) in **Figure 5-49**.

Step 4 Screw the TFM. See step (3) in **Figure 5-49**.

Figure 5-49 Installing a supercapacitor

----End

5.30 Removing a CPU

This topic describes how to remove a CPU before replacing it with a new one.

Scenarios

⚠ **NOTICE**

● Only the personnel authorized by Huawei and Huawei technical support can remove a CPU from a Huawei server.

● Do not wear ESD gloves to prevent damage to the pins on the CPU socket.

Remove a CPU in any of the following scenarios:

● A CPU fails.

● A CPU is to be replaced with a new model.

Prerequisites

Conditions

● You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.

● You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

● You have removed the air duct from the RH1288 V3. For details, see **5.10 Removing the Air Duct**.

Data

- You have determined the position on the RH1288 V3 for removing a CPU.
- You have obtained the rack number and chassis number of the RH1288 V3, and labeled its panel to prevent misoperations.
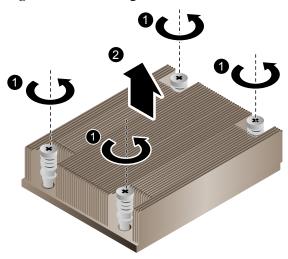
Tools

- ESD wrist strap
- M3 Phillips screwdriver
- Packaging materials, for example, an ESD bag

Procedure

1 Use the Phillips screwdriver to loosen the four screws securing the heat sink in a diagonal sequence. See step (1) in **Figure 5-50**.

Figure 5-50 Removing the heat sink

2 Lift the heat sink. See step (2) in **Figure 5-50**.
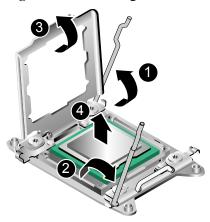
3

⚠ **NOTICE**

Do not use any tool or sharp object to lift the securing rod on the CPU socket. Otherwise, the compute node may be damaged.

Raise the securing rod near the ▪️▭➞ or ▭➞ label. See step (1) in **Figure 5-51**.

Figure 5-51 Removing the CPU

4   Raise the securing rod near the ━ 🔒① or ⇌🔓① label. See step (2) in **Figure 5-51**.

5   Open the lid that fixes the CPU, and remove the CPU from the socket. See steps (3) and (4) in **Figure 5-51**.

6   Place the removed CPU in an ESD bag.

⚠ **NOTICE**

Ensure that CPU sockets are installed with CPUs or protective covers during transportation and storage.

---

7   (Optional) Install a CPU protective cover.

    a.   Close the CPU cover. See step (1) in **Figure 5-52**.

    b.   Hold the CPU protective cover horizontally, aligning its edges with those of the CPU socket, and fit the protective cover securely onto the socket. See step (2) in **Figure 5-52**.

    📖**NOTE**

    An ill-positioned CPU protective cover may damage the pins in the corners of the CPU socket.

    c.   Close the securing rods. See steps (3) and (4) in **Figure 5-52**.

Figure 5-52 Installing a CPU protective cover

----End

5.31 Installing a CPU

This topic describes how to install a CPU.

Scenarios

⚠ **NOTICE**

- Only the personnel authorized by Huawei and Huawei technical support can install a CPU on a Huawei server.
- Do not wear ESD gloves to prevent damage to the pins on the CPU socket.

Install a CPU in any of the following scenarios:

- A CPU fails.
- A CPU is to be replaced with a new model.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.
- You have removed the air duct from the RH1288 V3. For details, see **5.10 Removing the Air Duct**.

Data

- You have determined the position on the RH1288 V3 for installing a CPU.

- You have obtained the rack number and chassis number of the RH1288 V3, and labeled its panel to prevent misoperations.

Tools

- ESD wrist strap
- M3 Phillips screwdriver

Hardware

You have obtained a spare CPU.

Procedure

1. Take the new CPU out of the ESD bag.
2. Before installing CPUs, ensure that CPU sockets do not have bent bins and are free from foreign objects.

⚠ **NOTICE**

If CPU sockets have bent bins or foreign objects are detected on CPU sockets, stop installing CPUs and contact Huawei technical support.

3. Before installing a CPU or heat sink, use tissue to clean up the oil, remaining thermal grease, or foreign objects on their surfaces.
4. Determine the area on the heat sink for contacting the CPU, and paste thermal grease in the center of the area.

📖**NOTE**

Paste appropriate amount of thermal grease evenly on the CPU surface.

Use a syringe to measure the thermal grease for pasting to the CPU. **Table 5-1** lists the quantity of thermal grease used for different chip sizes.
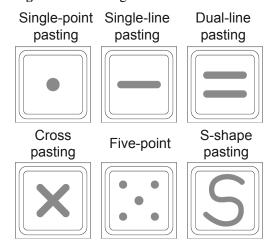
Table 5-1 Quantity of thermal grease

Chip Size	Quantity of Thermal Grease
50 mm x 50 mm	0.4 ml
40 mm x 40 mm	0.3 ml
30 mm x 30 mm	0.2 ml
20 mm x 20 mm	0.15 ml

Figure 5-53 shows the methods for pasting thermal grease. These methods are described as follows:

- Single-point pasting: for a small socket.
- Single-line pasting: for a long socket.

–   Dual-line pasting, cross pasting, five-point pasting, and S-shape pasting apply to a
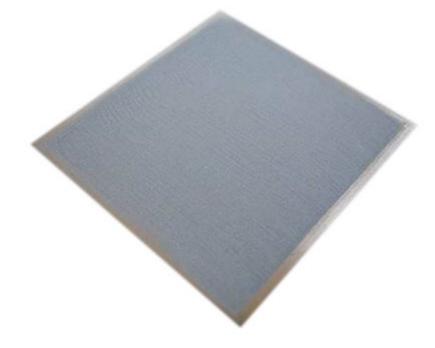large square socket.

Figure 5-53 Pasting methods

5   Use a clean card to smear the thermal grease over the entire center of the CPU.

The thermal grease layer is as thick as a common piece of pater. **Figure 5-54** shows the
smeared thermal grease layer. Ensure that the thermal grease is evenly and fully painted.

Figure 5-54 Smeared thermal grease layer

6

⚠️ **NOTICE**

- To prevent damage to the CPU, CPU socket, or main board, ensure that the securing rod on the CPU socket is fully open before you install the CPU in the socket.
- When you close the securing rod, do not exert excessive force or touch any components and gild pins on the CPU.
- Do not move the CPU if it is not correctly placed to avoid any twisted pins. Lift the CPU until it is out of the socket, and then place it in the socket properly.

Keep CPUs straight down and slide the CPUs in CPU sockets. See step (1) in **Figure 5-55**.

Align the triangle mark on the CPU with the triangle mark on the CPU socket to ensure that the CPU is properly installed. **Figure 5-56** shows a CPU that is incorrectly place.
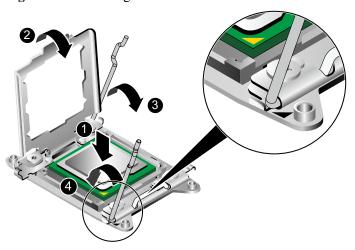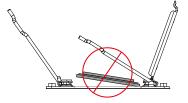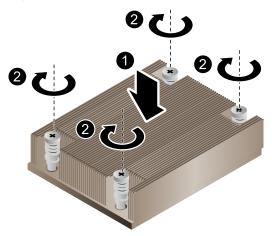
Figure 5-55 Installing the CPU

Figure 5-56 Wrong way to place the CPU

7   Close the cover that secures the CPU. See step (2) in **Figure 5-55**.

8   Lower the securing rod near the ⊏ 🔒 ⓪ or ⊏ 🔓 ⓪ label. See step (3) in **Figure 5-55**.

9   Lower the securing rod near the ◼ ⓪➞ or ◻ ⓪➞ label. See step (4) in **Figure 5-55**.

10 Align the screws on the heat sink with the fastening studs on the CPU base, and place the heat sink on the CPU. See step (1) in **Figure 5-57**.

Figure 5-57 Installing the heat sink

11   Use the Phillips screwdriver to tighten the four screws securing the heat sink in a diagonal sequence. See step (2) in **Figure 5-57**.

----End

5.32 Removing a DIMM

This topic describes how to remove a dual in-line memory module (DIMM) before replacing it with a new one.

Scenarios

Remove a DIMM in any of the following scenarios:

● A DIMM fails.

● A DIMM is to be replaced with a new model.

Prerequisites

Conditions

● You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.

● You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

● You have removed the air duct from the RH1288 V3. For details, see **5.10 Removing the Air Duct**.

Data

● You have determined the position on the RH1288 V3 for removing a DIMM.

● You have obtained the rack number and chassis number of the RH1288 V3, and labeled its panel to prevent misoperations.
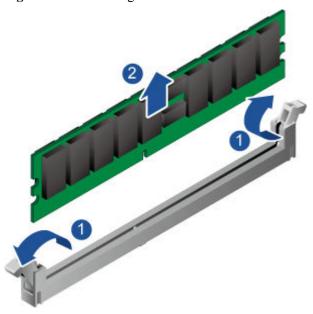
Tools

● ESD gloves

● Packaging materials, for example, memory riser box

Procedure

Step 1 Open the two fixing clips of the DIMM slot simultaneously. See step (1) in **Figure 5-58**.

Figure 5-58 Removing a DIMM

Step 2 Remove the DIMM from the slot. See step (2) in **Figure 5-58**.

Step 3 Place the removed DIMM in memory riser box.

----End

5.33 Installing a DIMM

This topic describes how to install a dual in-line memory module (DIMM) for a server.

Scenarios

Install a DIMM in any of the following scenarios:

- A DIMM has failed.
- A DIMM is to be replaced with a new model.
- The memory capacity is to be expanded.

The rules for installing DIMMs are as follows:

- The RH1288 V3 provides sixteen double data rate 4 (DDR4) DIMM slots. Each memory riser integrates two memory channels: 0 and 1. **Figure 5-59** shows the memory channels, and **Table 5-2** lists the memory channels.

Figure 5-59 Memory channels

Table 5-2 Memory channels

CPU	Memory Channel
CPU 1	000(A), 010(B), 020(C), 030(D), 001(E), 011(F), 021(G), 031(H)
CPUs 1 and 2	000(A), 100(A), 010(B), 110(B), 020(C), 120(C), 030(D), 130(D), 001(E), 101(E), 011(F), 111(F), 021(G), 121(G), 031(H), 131(H)

● **Table 5-3** describes DIMM configuration rules.

Table 5-3 DIMM configuration rules

CPU	DIMM Installation Sequence
CPUs 1 and 2	Install DIMMs in alphabetical order of channel numbers.

Prerequisites

Conditions

● You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.

● You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

● You have removed the air duct from the RH1288 V3. For details, see **5.10 Removing the Air Duct**.

Data

● You have determined the position on the RH1288 V3 for installing a DIMM.

● You have obtained the rack number and chassis number of the RH1288 V3, and labeled its panel to prevent misoperations.

Tools

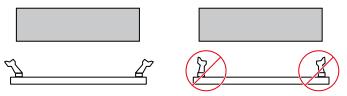- ESD gloves
- Packaging materials, for example, memory riser box

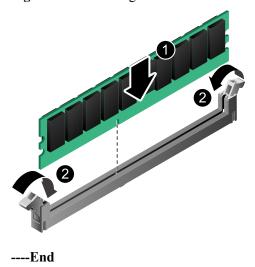**Hardware**

You have obtained a spare DIMM.

Procedure

Step 1 Take the spare DIMM out of the memory riser box.

Step 2 Open the two fixing clips of the DIMM slot. See **Figure 5-60**.

Figure 5-60 Opening the fixing clips of a DIMM slot

Step 3 Align the DIMM with the DIMM slot, and insert the DIMM into the slot. See **Figure 5-61**. The two fixing clips close automatically.

Figure 5-61 Installing a DIMM

----End

5.34 Removing the Mainboard

This topic describes how to remove the mainboard before replacing it with a new one.

Scenarios

Remove the mainboard before replacing it with a new one.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.

- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

- You have removed the supercapacitor if it is configured. For details, see **5.28 Removing a Supercapacitor**.

- You have removed the air duct from the RH1288 V3. For details, see **5.10 Removing the Air Duct**.

- You have removed the riser card from the RH1288 V3. For details, see **5.16 Removing a PCIe Card from the Riser Card**.

- You have removed all dual in-line memory modules (DIMMs) from the RH1288 V3. For details, see **5.32 Removing a DIMM**.

- You have removed all CPUs from the RH1288 V3. For details, see **5.30 Removing a CPU**.

- You have removed the supercapacitor from the RH1288 V3 if any. For details, see **5.28 Removing a Supercapacitor**.

- You have removed the RAID controller card from the RH1288 V3. For details, see **5.26 Removing the RAID Controller Card**.

- You have removed the network interface card (NIC) from the RH1288 V3. For details, see **5.36 Removing a NIC**.

- You have removed all power supply units (PSUs) from the RH1288 V3. For details, see **5.6 Removing a PSU**.

- You have removed all cables from the mainboard. The cables include those connected to the hard disk backplane and the left and right mounting ears.

- You have removed all fan modules from the RH1288 V3. For details, see **5.12 Removing a Fan Module**.

Data

- You have determined the position on the RH1288 V3 for removing the mainboard.

- You have obtained the rack number and chassis number of the RH1288 V3, and labeled its panel to prevent misoperations.

Tools

- ESD gloves

- Packaging materials, for example, an ESD bag

Procedure

Step 1 Remove all cables from the mainboard. For details, see **1.7 Internal Cabling**.

Step 2 Unscrew the mainboard using a Phillips screwdriver. See step (1) in **Figure 5-62**.

Figure 5-62 Removing the mainboard

Step 3 Push the mainboard in the arrow direction until it does not move, and lift the mainboard out of the RH1288 V3 while holding the handle. See step (2) in **Figure 5-62**.

⚠ **NOTICE**

Do not hold any other protruding part on the mainboard to lift it. Otherwise, the components on the mainboard may be damaged.

Step 4 Place the removed mainboard in an ESD bag.

⚠ **NOTICE**

Before putting the mainboard into an ESD bag, check that a protective cover is installed on a vacant CPU socket. For details about how to install a protective cover, see **5.30 Removing a CPU**.

----End

5.35 Installing the Mainboard

This topic describes how to install the mainboard.

Scenarios

Install the mainboard to replace the original one.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.

- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

- You have removed the supercapacitor if it is configured. For details, see **5.28 Removing a Supercapacitor**.

- You have removed the air duct from the RH1288 V3. For details, see **5.10 Removing the Air Duct**.

- You have removed the riser card from the RH1288 V3. For details, see **5.16 Removing a PCIe Card from the Riser Card**.

- You have removed all DIMMs from the RH1288 V3. For details, see **5.32 Removing a DIMM**.

- You have removed all CPUs from the RH1288 V3. For details, see **5.30 Removing a CPU**.

- You have removed the redundant array of independent disks (RAID) controller card from the RH1288 V3. For details, see **5.26 Removing the RAID Controller Card**.

- You have removed the network interface card (NIC) from the RH1288 V3. For details, see **5.36 Removing a NIC**.

- You have removed all power supply units (PSUs) from the RH1288 V3. For details, see **5.6 Removing a PSU**.

- You have removed all cables from the mainboard. The cables include those connected to the hard disk backplane and the left and right mounting ears.

- You have removed the air duct from the RH1288 V3. For details, see **5.12 Removing a Fan Module**.

Data

- You have determined the position on the RH1288 V3 for installing the mainboard.

- You have obtained the rack number and chassis number of the RH1288 V3, and labeled its panel to prevent misoperations.

Tools

- ESD gloves

- Packaging materials, for example, an ESD bag

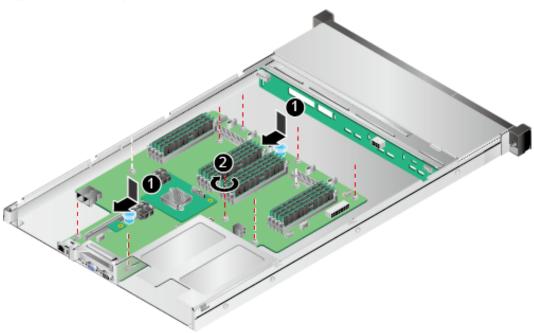### Hardware

You have obtained a spare mainboard.

Procedure

Step 1 Take the spare mainboard out of the ESD bag.

Step 2 Before installing the mainboard, ensure that CPU sockets do not have bent bins and are free from foreign objects.

⚠ **NOTICE**

If CPU sockets have bent bins and foreign objects are detected on CPU sockets, stop installing mainboard and contact Huawei technical support.

Step 3 Place the mainboard into the RH1288 V3, and push the mainboard in the arrow direction until it does not move while holding the handle. See step (1) in **Figure 5-63**.

Step 4 Screw the mainboard using the Phillips screwdriver. See step (2) in **Figure 5-63**.

Figure 5-63 Installing the mainboard

Step 5 Connect all cables. For details, see **1.7 Internal Cabling**.

----End

5.36 Removing a NIC

This topic describes how to remove a network interface card (NIC) before replacing it with a new one.

Scenarios

Remove a NIC in any of the following scenarios:

- A NIC fails.
- A NIC is to be replaced with a new model.

Prerequisites

Conditions

● You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.

● You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

● You have removed the , half-height riser card tray that is above the NIC. For details, see **5.14 Removing the Riser Card**.

Data

● You have determined the position on the RH1288 V3 for removing a NIC.

● You have obtained the rack number and chassis number of the RH1288 V3.

● You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.
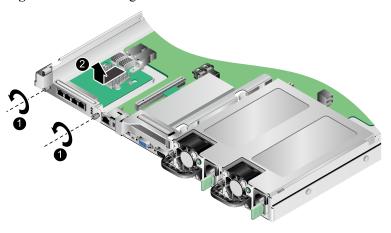
Tools

● ESD gloves

● Packaging materials, for example, an ESD bag

● Phillips screwdriver

Procedure

Step 1 Unscrew the NIC using a Phillips screwdriver. See step (1) in **Figure 5-64**.

Figure 5-64 Removing a NIC

Step 2 Pull out part of the NIC to have the NIC disconnected from the port on the mainboard, and then remove the NIC out of the server. See step (2) in **Figure 5-64**.

Step 3 Place the removed NIC in an ESD bag.

----End

5.37 Installing a NIC

This topic describes how to install a network interface card (NIC).

Scenarios

Install a NIC in any of the following scenarios:

- A NIC fails.
- A NIC is to be replaced with a new model.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have checked that the mainboard is properly installed. For details, see **5.35 Installing the Mainboard**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.
- You have removed the , half-height riser card tray, or that is above the NIC. For details, see **5.14 Removing the Riser Card**.

Data

- You have determined the position on the RH1288 V3 for installing a NIC.
- You have obtained the rack number and chassis number of the RH1288 V3, and labeled its panel to prevent misoperations.
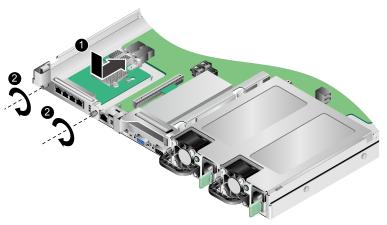
Tools

- ESD gloves
- Packaging materials, for example, an ESD bag
- Phillips screwdriver

Hardware

You have obtained a spare NIC.

Procedure

Step 1 Take the spare NIC out of the ESD bag.

Step 2 Insert the NIC into the chassis and then push the NIC horizontally into the chassis to have the NIC connected to the connector on the mainboard. See step (1) in **Figure 5-65**.

Step 3 Tighten the two screws using the Phillips screwdriver to secure the NIC. See step (2) in **Figure 5-65**.

Figure 5-65 Installing a NIC

----End

5.38 Removing a SATA DOM

This topic describes how to remove a Serial Advanced Technology Attachment (SATA) Disk on Module (DOM) before replacing it with a new one.

Scenarios

Remove a SATA DOM when it fails.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

Data

- You have determined the position on the RH1288 V3 for removing a SATA DOM.
- You have obtained the rack number and chassis number of the RH1288 V3.
- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.

Tools

- ESD gloves
- Packaging materials, for example, an ESD bag

Procedure

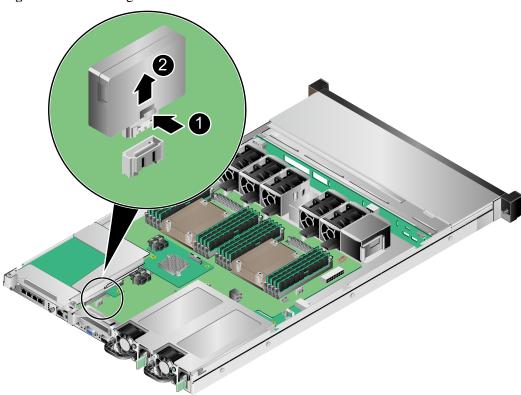**Step 1** Press the button on the side of the SATA DOM. See step (1) in **Figure 5-66**.

Figure 5-66 Removing a SATA DOM

Step 2 Remove the SATA DOM from the mainboard. See step (2) in **Figure 5-66**.

Step 3 Place the removed SATA DOM in an ESD bag.

----End

5.39 Installing a SATA DOM

This topic describes how to install a Serial Advanced Technology Attachment (SATA) Disk on Module (DOM) to replace the original one.

Scenarios

Install a SATA DOM when the original one fails.

Prerequisites

Conditions

● You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.

● You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

Data

● You have determined the position on the RH1288 V3 for installing a SATA DOM.

● You have obtained the rack number and chassis number of the RH1288 V3.

● You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.
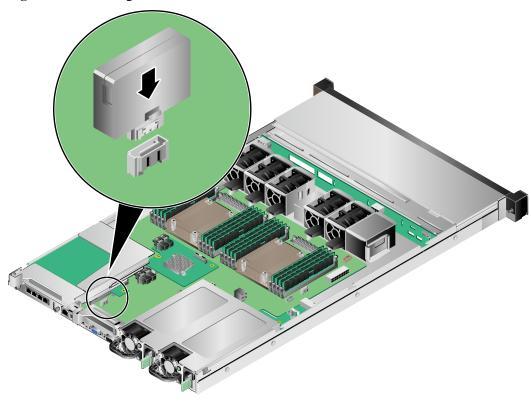
Tools

- ESD gloves
- Packaging materials, for example, an ESD bag

Procedure

Step 1 Take the spare SATA DOM out of the ESD bag.

Step 2 Insert the SATA DOM vertically into the connector on the mainboard. See **Figure 5-67**.

Figure 5-67 Installing a SATA DOM

----End

5.40 Removing an SD Card

This topic describes how to remove a Secure Digital (SD) card before replacing it with a new one.

Scenarios

Remove an SD card in any of the following scenarios:

- The SD card fails.
- The SD card is to be replaced with a new model.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

Data

- You have determined the position on the RH1288 V3 for removing an SD card.
- You have obtained the rack number and chassis number of the RH1288 V3.
- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.
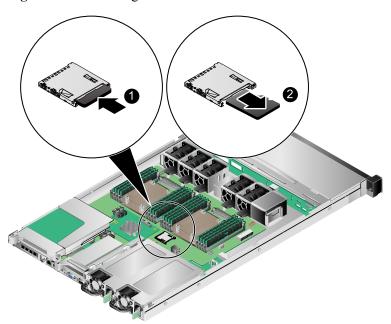
Tools

- ESD gloves
- Packaging materials, for example, an ESD bag

Procedure

Step 1 Press the SD card in the arrow direction. See step (1) in **Figure 5-68**.

Figure 5-68 Removing an SD card

Step 2 Remove the SD card from the connector on the mainboard. See step (2) in **Figure 5-68**.

Step 3 Place the removed SD card in an ESD bag.

----End

5.41 Installing an SD Card

This topic describes how to install an SD card to replace the original one.

Scenarios

Install an SD card in any of the following scenarios:

- An SD card fails.
- An SD card is to be replaced with a new model.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

Data

- You have determined the position on the RH1288 V3 for installing an SD card.
- You have obtained the rack number and chassis number of the RH1288 V3.
- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.
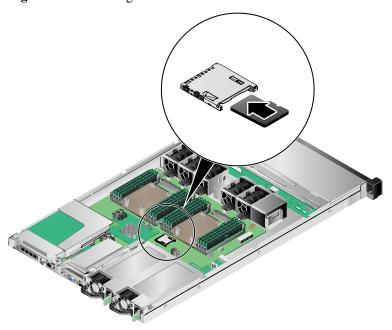
Tools

- ESD gloves
- Packaging materials, for example, an ESD bag

Procedure

Step 1 Take the spare SD card out of the ESD bag.

Step 2 Insert the SD card into the connector on the mainboard. See **Figure 5-69**.

Figure 5-69 Installing an SD card

----End

5.42 Removing the Front Hard Disk Backplane

This topic describes how to remove the front hard disk backplane before replacing it with a new one.

Scenarios

Remove the front hard disk backplane before replacing it with a new one.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.
- You have removed all hard disks from the RH1288 V3. For details, see **5.4 Removing a Hard Disk**.
- You have removed the air duct from the RH1288 V3. For details, see **5.10 Removing the Air Duct**.
- You have removed all fan modules from the RH1288 V3. For details, see **5.12 Removing a Fan Module**.

Data

- You have determined the position on the RH1288 V3 for removing the front hard disk backplane.
- You have obtained the rack number and chassis number of the RH1288 V3.
- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.

Tools

- ESD gloves
- M3 Phillips screwdriver
- Packaging materials, for example, an ESD bag

Procedure

Step 1 Remove the cables between the front hard disk backplane and the mainboard and between the front hard disk backplane and the RAID controller card. For details, see **1.7 Internal Cabling**.

Step 2 Unscrew the hard disk backplane. Lift the hard disk backplane and remove it in the arrow direction. See **Figure 5-70**.

Figure 5-70 Removing a hard disk backplane

Step 3 Place the removed hard disk backplane in an ESD bag.

----End

5.43 Installing the Front Hard Disk Backplane

This topic describes how to install the front hard disk backplane.

Scenarios

Install the front hard disk backplane to replace the original one.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.
- You have removed all hard disks from the RH1288 V3. For details, see **5.4 Removing a Hard Disk**.
- You have removed the air duct from the RH1288 V3. For details, see **5.10 Removing the Air Duct**.
- You have removed all fan modules from the RH1288 V3. For details, see **5.12 Removing a Fan Module**.

Data

- You have determined the position on the RH1288 V3 for installing the front hard disk backplane.
- You have obtained the rack number and chassis number of the RH1288 V3.
- You have located the RH1288 V3 based on the preceding information, and labeled its panel to prevent misoperations.
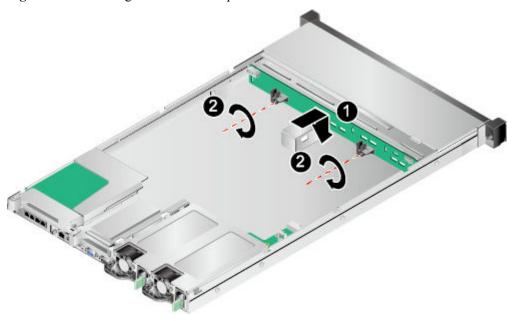
Tools

- ESD gloves
- M3 Phillips screwdriver
- Packaging materials, for example, an ESD bag

Procedure

Step 1 Take the spare front hard disk backplane out of the ESD bag.

Step 2 Hook the hard disk backplane, and push it in the arrow direction until the latch is locked and it does not move. See **Figure 5-71**.

Figure 5-71 Installing a hard disk backplane

Step 3 Screw the hard disk backplane. See step (2) in **Figure 5-71**.

Step 4 Connect the cable of the front hard disk to the server. For details, see **1.7 Internal Cabling**.

Step 5 Install the front hard disk.

----End

5.44 Removing the Indicator Board

This topic describes how to remove the indicator board before replacing it with a new one.

Scenarios

Remove the indicator board when it has failed.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.
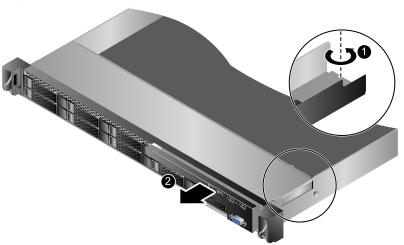
Data

- You have determined the position on the RH1288 V3 for removing the indicator board.
- You have obtained the rack number and chassis number of the RH1288 V3, and labeled its panel to prevent misoperations.

Tools

- ESD gloves
- Packaging materials, for example, an ESD bag
- Phillips screwdriver

Procedure

Step 1 Unscrew the indicator board module using a Phillips screwdriver. See step (1) in **Figure 5-72**.

Step 2 Push the indicator board module out of the chassis. See step (2) in **Figure 5-72**.

Step 3 Remove all cables from the indicator board. See step (3) in **Figure 5-72**.

Figure 5-72 Removing an indicator board module

Step 4 Unscrew the indicator board. See step (1) in **Figure 5-73**.

Step 5 Remove the indicator board from the indicator board module in the arrow direction. See step (2) in **Figure 5-73**.

Figure 5-73 Removing an indicator board module

Step 6 Place the removed indicator board in an ESD bag.

----End

5.45 Installing an Indicator Board

This topic describes how to install an indicator board to replace the original one.

Scenarios

Install an indicator board when the original one has failed.
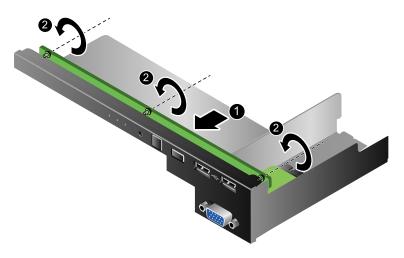
Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.

Data

- You have determined the position on the RH1288 V3 for installing an indicator board.
- You have obtained the rack number and chassis number of the RH1288 V3, and labeled its panel to prevent misoperations.
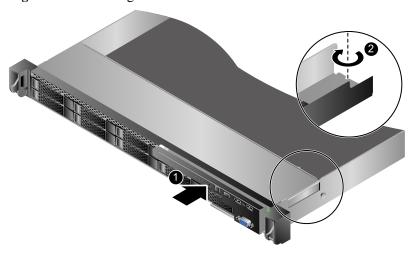
Procedure

Step 1 Take the spare indicator board out of the ESD bag.

Step 2 Insert the indicator board into the indicator board module. See step (1) in **Figure 5-74**.

Step 3 Tighten screws on the indicator board to secure the indicator board to the indicator board module. See step (2) in **Figure 5-74**.

Figure 5-74 Installing an Indicator Board

Step 4 Connect all cables to the indicator board.

Step 5 Insert the indicator board module into the chassis. See step (1) in **Figure 5-75**.

Figure 5-75 Installing an indicator board module

Step 6 Screw the indicator board module using the Phillips screwdriver. See step (2) in **Figure 5-75**.

----End

5.46 Removing the VGA Board

This topic describes how to remove the video graphics array (VGA) board before replacing it with a new one.

Scenarios

Remove the VGA board when it has failed.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.
- You have removed the indicator board module from the RH1288 V3. For details, see **5.44 Removing the Indicator Board**.
- You have removed all cables . For details, see **1.7 Internal Cabling**.

Data

- You have determined the position on the RH1288 V3 for removing the VGA board.
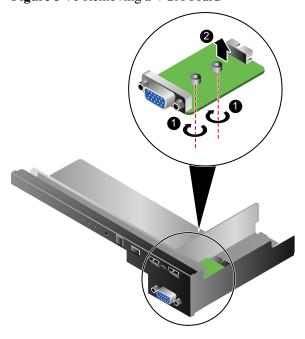- You have obtained the rack number and chassis number of the RH1288 V3.

Tools

- ESD gloves
- Phillips screwdriver
- Packaging materials, for example, an ESD bag

Procedure

Step 1 Unscrew the VGA board. See step (1) in **Figure 5-76**.

Step 2 Remove the VGA board from the indicator board module in the arrow direction. See step (2) in **Figure 5-76**.

Figure 5-76 Removing a VGA board

Step 3 Place the removed VGA board in an ESD bag.

----End

5.47 Installing a VGA Board

This topic describes how to install a video graphics array (VGA) board to replace the original one.

Scenarios

Install a VGA board when the original one has failed.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.
- You have removed the indicator board module from the RH1288 V3. For details, see **5.44 Removing the Indicator Board**.

Data

- You have determined the position on the RH1288 V3 for installing a VGA board.
- You have obtained the rack number and chassis number of the RH1288 V3.

Hardware

You have obtained a spare VGA board.

Procedure

Step 1 Take the spare VGA board out of the ESD bag.

Step 2 Place the VGA board in the indicator board module. See step (1) in **Figure 5-77**.

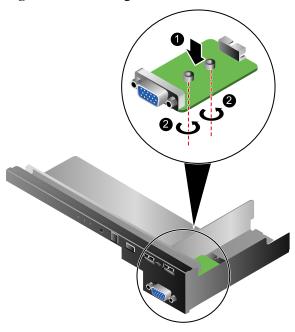**Step 3** Tighten the screws to secure the VGA board to the indicator board module. See step (2) in **Figure 5-77**.

Figure 5-77 Installing a VGA board

Step 4 Connect all cables. For details, see **1.7 Internal Cabling**.

----End

5.48 Removing the Power Adapter Board

This topic describes how to remove the power adapter board before replacing it with a new one.

Scenarios

Remove the power adapter board when the original one has failed.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.
- You have removed the air duct from the RH1288 V3. For details, see **5.10 Removing the Air Duct**.
- You have removed all power supply units (PSUs) from the RH1288 V3. For details, see **5.6 Removing a PSU**.
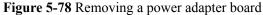
Data

- You have determined the position on the RH1288 V3 for removing the power adapter board.
- You have obtained the rack number and chassis number of the RH1288 V3.
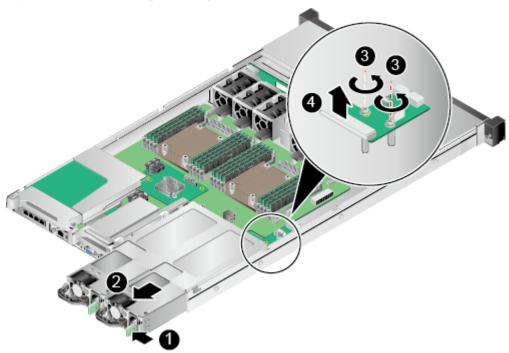
Tools

- ESD gloves
- Phillips screwdriver
- Packaging materials, for example, an ESD bag

Procedure

Step 1 Remove all cables from the power adapter board.

Step 2 Press the spring on the PSU in the arrow direction, and pull the PSU out of the slot while holding the handle... See steps (1) and (2) in **Figure 5-78**.

Step 3 Unscrew the power adapter board using a Phillips screwdriver. See step (3) in **Figure 5-78**.

Step 4 Lift the power adapter board out of the RH1288 V3. See step (4) in **Figure 5-78**.

Figure 5-78 Removing a power adapter board

Step 5 Place the removed power adapter board in an ESD bag.

----End

5.49 Installing a Power Adapter Board

This topic describes how to install a power adapter board to replace the original one.

Scenarios

Install a power adapter board when the original one has failed.

Prerequisites

Conditions

- You have powered off the RH1288 V3. For details, see **3.2 Powering Off**.
- You have removed the chassis cover from the RH1288 V3. For details, see **5.8 Removing the Chassis Cover**.
- You have removed the air duct from the RH1288 V3. For details, see **5.10 Removing the Air Duct**.

Data

- You have determined the position on the RH1288 V3 for installing a power adapter board.
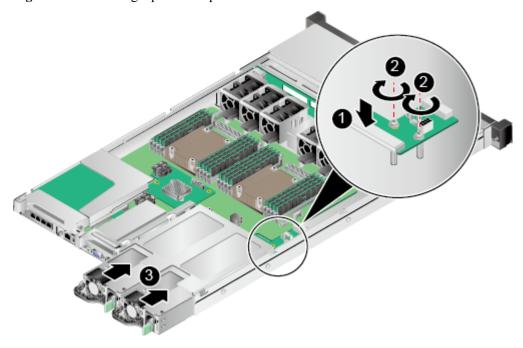- You have obtained the rack number and chassis number of the RH1288 V3.

Tools

- ESD gloves
- Phillips screwdriver

Hardware

You have obtained a spare power adapter board.

Procedure

Step 1 Take the spare power adapter board out of the ESD bag.

Step 2 Place the power adapter board in a correct position, and screw the power adapter board using a Phillips screwdriver. See steps (1) and (2) in **Figure 5-79**.

Figure 5-79 Installing a power adapter board

Step 3 Install the PSUs. See step (3) in **Figure 5-79**. For details, see **5.7 Installing a PSU**.

Step 4 Connect cables to the power adapter board.

----End

6 Troubleshooting Guide

For details about how to troubleshoot Huawei servers, see *Huawei Server Troubleshooting Guide*. It covers the following content:

- Troubleshooting process
- Fault information collection
- Fault diagnosis
- Software and firmware upgrade
- Preventive maintenance

7 Common Operations

About This Chapter

This topic describes the RH1288 V3 common operations.

7.1 Querying and Setting the IP Address of the Management Network Port

This topic describes how to query and set the IP address of the iBMC management network port.

Methods

To check the IP address of the management network port, you can use any of the following methods:

- Query the default IP address.
- Query and set the IP address in the basic input/output system (BIOS).

Querying the Default IP Address

Table 7-1 lists the default IP address of the iBMC management network port.

Table 7-1 Default IP address

Product Model	IP Address
RH1288 V3	192.168.2.100

Querying and Setting the IP Address in the BIOS

Step 1 Restart the server.

1. Click ![icon] on the menu bar on the remote virtual console.

   For details about how to log in to the remote virtual console, see **7.4 Logging In to the Remote Virtual Console**.

2. Select **Reset**

   The system displays "Are you sure to perform this operation?"

3. Click **Yes**.

   The server restarts.

4. Press **Delete** repeatedly when the screen shown in the following figure is displayed during the server startup.

Figure 7-1 BIOS startup screen

5. Enter a BIOS password as prompted. The screen for setting the BIOS is displayed.

   □**NOTE**

   The default BIOS password is **Huawei12#$**. To ensure system security, you are advised to change the default BIOS password after the first login. For details, see **Set the BIOS password**.
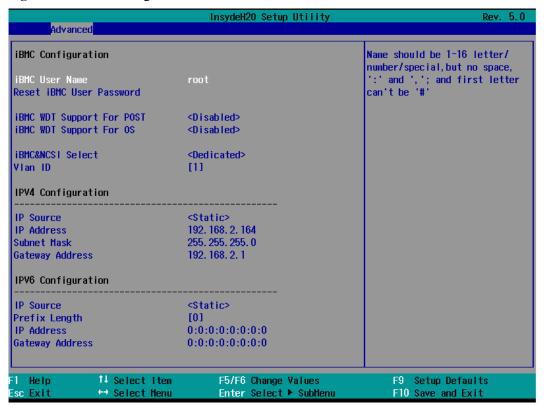
Step 2 Choose **Advanced** > **IPMI iBMC Configuration** and press **Enter**.

The **IPMI iBMC Configuration** screen is displayed.

Step 3 Select **iBMC Configuration** and press **Enter**.
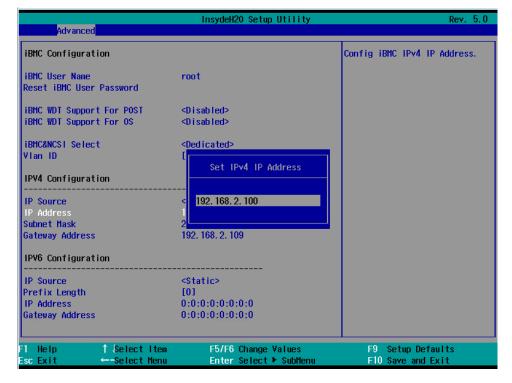
The **iBMC Configuration** screen is displayed, showing information about the IP address of the iBMC network port. See **Figure 7-2**.

Figure 7-2 iBMC Configuration

Step 4 Select **IP Address** in **IPV4 configuration** and press **Enter**. On the configuration screen, set the IPv4 address of the iBMC management network port, as shown in **Figure 7-3**.

Figure 7-3 Setting the IPv4 address of the iBMC management network port

Step 5 Set the parameter in **IPV4 configuration** and **IPV6 Configuration** for the iBMC management network port in the same way.

Step 6 Press **F10** to save settings and exit.

----End

7.2 Logging In to the iBMC WebUI

This topic describes how to log in to the iBMC WebUI.

Scenarios

Use the WebUI to quickly and easily monitor, manage, and configure devices.

Log in to the iBMC WebUI.

Prerequisites

Conditions

No special condition is required for this operation.

Data

The following data is available:

- You have obtained the IP address for the iBMC management network port.

- You have obtained the user name and password for logging in to the iBMC.

Procedure

Step 1 Set an IP address for the PC, and ensure that the IP address is on the same network segment as the iBMC management network port.

Step 2 Connect the PC to the iBMC management network port by using a network cable.

Step 3 Run Internet Explorer on the PC, enter the IP address of the iBMC management network port in the address box, and press **Enter**. Then enter a user name and password to log in, as shown in **Figure 7-4**.

Figure 7-4 iBMC home page

----End

7.3 Accessing the CLI of the iBMC Management Software

This topic describes how to access the CLI of the management software.

Scenarios

You can log into the iBMC CLI to manage and monitor the device.

There are ways to access the CLI of the management software, choose the way based on actual site requirements.

Prerequisites

Conditions

To open the CLI through the network interface, you must connect the network interface of the configuration terminal to the network interface of the server by using a network cable, and ensure that the IP addresses of the two network interfaces are on the same network segment.

Data

- The IP address of the iBMC management network port.
- The user name and password of the iBMC management network port.

  The default user name of the iBMC is **root**, and the default password is **Huawei12#$**

Procedure

Logging In Through the SSH

The SSH protocol is used to provide the secure remote login and other network services on an insecure network.

□ **NOTE**

To log in to iBMC over SSH is secure by default. If the SSH service is disabled, enable the SSH service on the **Config** > **Port Settings** page on the web user interface (WebUI) of iBMC.

To open the CLI over the SSH protocol in different OSs, perform the following operations:

- In the Linux OS

  a. Connect the network interface of the configuration terminal to the management interface of the server.

  b. Run the **ssh** *ipaddress* command in the shell to log in directly.

- In the Windows OS

  a. Download and install the client communications tool that supports the SSH protocol.

  b. Connect the network interface of the configuration terminal to the management interface of the server.

  c. Log in by using the user name, password, and IP address of the management network interface.

Logging In Through the Telnet

To log in to iBMC over Telnet is insecure. By default, iBMC does not support Telnet login. If you need to log in to iBMC over Telnet, enable the Telnet service on the **Config** > **Port Settings** page on the web user interface (WebUI) of iBMC.

To open the CLI over the Telnet protocol in different OSs, perform the following operations:

- In the Linux OS

  a. Connect the network interface of the configuration terminal to the management interface of the server.

  b. Run the **telnet** *ipaddress* command in the shell to log in directly.

- In the Windows OS

  a. Connect the network interface of the configuration terminal to the management interface of the server.

  b. Run the **telnet** *ipaddress* command in the terminal tool to log in directly.

  ----End

7.4 Logging In to the Remote Virtual Console

This topic describes how to log in to the server remote desktop over the iBMC WebUI.

Scenarios

Log in to the iBMC WebUI, open the **Remote Control** page. Then log in to server in remote control mode, and monitor and operate the server.

Prerequisites

Conditions

No special condition is required for this operation.

Data

The following data is available:

- You have obtained the IP address for the RH1288 V3 iBMC management network port.

- You have obtained the user name and password for logging in to the iBMC.
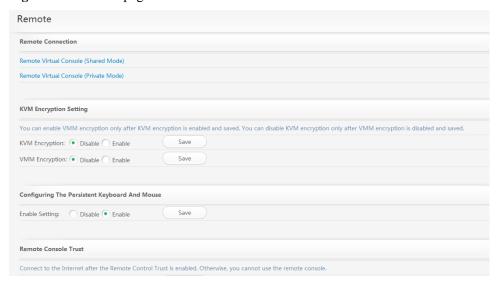
  The default user name is **root**, and the default password is **Huawei12#$**.

Procedure

Step 1 Log in to the iBMC WebUI.

For details, see **7.2 Logging In to the iBMC WebUI**.

Step 2 In the navigation tree, choose **Remote**. The **Remote** page is displayed, as shown in **Figure 7-5**.

Figure 7-5 Remote page

Step 3 Click **Remote Virtual Console**. The real-time operation console user interface (UI) is displayed, as shown in **Figure 7-6**.

📖**NOTE**

● **Remote Virtual Console (Shared Mode)**: allows two users to access and operate the server simultaneously. One user can view the operations performed by the other user.

● **Remote Virtual Console (Private Mode)**: allows only one user to access and operate the server.

Figure 7-6 Real-time operation console

----End

8 Regulatory Compliance Standards

About This Chapter

This topic describes the certifications that the product passes and the standards that the product complies with.

8.1 FCC

The product passes the Federal Communications Commission (FCC) certification.

The product has been tested and found to comply with the limits for a Class A digital product, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the product is operated in a commercial environment. This product generates, uses, and radiates radio frequency energy. If it is not installed and used in accordance with the instructions, it may cause harmful interference to radio communications.

Operation of this product in a residential area is likely to cause harmful interference in which case the user will be requested to correct the interference by taking protective measures.

If you perform any change to this product, which is explicitly prohibited by FCC regulations, your right to operate the product shall be deprived.

8.2 CE

The product passes the Conformity with European (CE) certification.

European Union Notice: Products that bear the CE marking comply with the following directives issued by the Commission of the European Union:

- EMC: 2004/108/EC
- The Low Voltage Directive: 2006/95/EC
- ROHS: 2002/95/EC & 2011/65/EU
- WEEE: 2002/96/EC&2012/19/EU
- REACH: 2006/1907/EC
- Erp: (EU) No 617/2013

The product is a Class A device. Operation of this product in a residential area is likely to cause radio interference in which case users will be requested to correct the interference by taking protective measures.

8.3 UL

The product passes the Underwriters Laboratories Inc (UL) certification.

UL is a non-profitable product safety test and certification institute.

UL has its own certification system for the whole product, components, and materials. All electric products that are exported to the USA must pass the UL certification.

8.4 RoHS

The product passes the Restriction of Hazardous Substances (RoHS) certification and the contents of hazardous substances in the product comply with SJ/T-11363-2006 Requirements for concentration limits for certain hazardous substances in electronic information products.

8.5 WEEE

This product passes the Waste Electrical and Electronic Equipment (WEEE) certification.

The WEEE certification is applied to electrical and electronic equipment, whose rated working voltage does not exceed 1000 V AC or 1500 V DC, those which work with current or in an electromagnetic field, or those which generate, convert, or measure the current and eletromagnetic field, as defined in prEN50419.

In addition, the WEEE standard defines equipment manufacturers, who are engaged in the following activities:

● Manufacturing and selling electrical and electronic equipment of their own brand.

● Selling electrical and electronic equipment labeled with their own brand but manufactured by other manufacturers. If a product is labeled with the brand of its manufacturer, the seller of the product cannot be regarded as the manufacturer.

● Importing or exporting electrical and electronic equipment in professional fields from or to each member country.

8.6 VCCI

The product passes the Voluntary Control Council for Interference (VCCI) certification.

The VCCI has determined that the product is a Class A information technology device. Operation of this product in a residential area is likely to cause radio interference in which case users will be requested to correct the interference by taking protective measures.

8.7 C-Tick

The product passes the C-TICK certification.

In Australia, electromagnetic compatibility (EMC) is monitored by the Australian Communications Authority (ACA). In Australian EMC system, products are divided into three classes. The providers must register in the ACA and apply for a C-TICK label before they sell Class B or Class C products.

8.8 CCC

The product passes the China Compulsory Certification (CCC) certification.

The product is a Class A device based on the CCC. Operation of this product in a residential area is likely to cause radio interference in which case users will be requested to correct the interference by taking protective measures.

A How to Obtain Help

If a tough or critical problem persists in routine maintenance or troubleshooting, contact Huawei for technical support.

A.1 Preparations For Contacting Huawei
To better solve the problem, you need to collect troubleshooting information and make debugging preparations before contacting Huawei.

A.2 How to Use the Document
Huawei provides guide documents shipped with the device. The guide documents can be used to handle the common problems occurring in daily maintenance or troubleshooting.

A.3 How to Obtain Help from Website
Huawei provides users with timely and efficient technical support through the regional offices, secondary technical support system, telephone technical support, remote technical support, and onsite technical support.

A.4 Ways to Contact Huawei
Huawei Technologies Co., Ltd. provides customers with comprehensive technical support and service. For any assistance, contact our local office or company headquarters.

A.1 Preparations For Contacting Huawei

To better solve the problem, you need to collect troubleshooting information and make debugging preparations before contacting Huawei.

A.1.1 Collecting Troubleshooting Information

You need to collect troubleshooting information before troubleshoot.

You need to collect the following information:

- Name and address of the customer
- Contact person and telephone number
- Time when the fault occurred
- Description of the fault phenomena
- Device type and software version
- Measures taken after the fault occurs and the related results
- Troubleshooting level and required solution deadline

A.1.2 Making Debugging Preparations

When you contact Huawei for help, the technical support engineer of Huawei might assist you to do certain operations to collect information about the fault or rectify the fault directly.

Before contacting Huawei for help, you need to prepare the boards, port modules, screwdrivers, screws, cables for serial ports, network cables, and other required materials.

A.2 How to Use the Document

Huawei provides guide documents shipped with the device. The guide documents can be used to handle the common problems occurring in daily maintenance or troubleshooting.

To better solve the problems, use the documents before you contact Huawei for technical support.

A.3 How to Obtain Help from Website

Huawei provides users with timely and efficient technical support through the regional offices, secondary technical support system, telephone technical support, remote technical support, and onsite technical support.

Contents of the Huawei technical support system are as follows:

- Huawei headquarters technical support department
- Regional office technical support center
- Customer service center
- Technical support website:
  - Huawei enterprise business website:**http://e.huawei.com**

– Huawei carrier business website:**http://carrier.huawei.com**

You can query how to contact the regional offices at **http://support.huawei.comGlobal Service Hotline**.

A.4 Ways to Contact Huawei

Huawei Technologies Co., Ltd. provides customers with comprehensive technical support and service. For any assistance, contact our local office or company headquarters.

Huawei Technologies Co., Ltd.

Address: Huawei Industrial Base Bantian, Longgang Shenzhen 518129 People's Republic of China

Website: **http://enterprise.huawei.com/**

B Glossary

B

BMC Baseboard management controller. The BMC complies with the Intelligent Platform Management Interface (IPMI) standard, responsible for collecting, processing, and storing sensor signals, and monitoring the operating status of each component. The BMC provides the hardware status and alarm information about the managed objects for the MM610, so that the MM610 can manage the objects.

ejector lever An item or part on the panel, used to insert or remove a blade in or out of a slot.

F

server A special computer that provides various services for clients over a network.

K

KVM Keyboard, video, and mouse. A switch that provides public video, keyboard and mouse for all server blades.

mezz module A card connected to the mainboard through the connector, level to the mainboard. It is used on a device which has high requirement for space usage.

M

panel The front-most element of a server, perpendicular to the PCB, which serves to mount connectors, indicators, controls and mezzanines, and also seals the front of the subrack for airflow and electromagnetic compatibility (EMC).

P

P A unit of power. 1 P = 0.735 kW

PCIe	A high-speed serial computer expansion bus standard designed to replace the older PCI, PCI-X, and AGP bus standards. PCIe has numerous improvements over the aforementioned bus standards, including higher maximum system bus throughput, lower I/O pin count and smaller physical footprint, better performance-scaling for bus devices, a more detailed error detection and reporting mechanism (Advanced Error Reporting), and native hot-plug functionality. More recent revisions of the PCIe standard support hardware I/O virtualization.

R

RAID	Redundant array of independent disks (RAID) is a storage technology that combines multiple hard disks into a logical unit in several ways called "RAID levels", providing high storage and redundancy performance.
hot swap	In a running system, insertion or removal of a blade or component does not affect normal running of the system.
redundancy	The ability of a system to keep functioning normally in the event of a device failure by having a backup device automatically replace the faulty one.

S

SEL	System event log. A non-volatile storage area and associated interfaces for storing system platform events for later retrieval.

U

U	A unit defined in International Electrotechnical Commission (IEC) 60297-1 to measure the height of a cabinet, chassis, or subrack. 1 U = 44.45 mm = 1.75 in.

Y

Ethernet	A baseband local area network (LAN) architecture developed by Xerox Corporation in cooperation with DEC and Intel. Ethernet uses Carrier Sense Multiple Access/Collision Detection (CSMA/CD) and supports The data transfer rate of 10 Mbit/s on multiple cables. The Ethernet specification is the basis for the IEEE 802.3 standard.