2U Server System

User Manual

K888G4

P/N: 2017-MNU-000010
June, 2018 (Revision A)

Copyright Notice

Trademarks

Disclaimer

Warning!

Before opening the chassis cover, remove all power cords to completely disconnect power from the system.

Contents

About This Manual

About This Manual

Conventions

To make sure that you perform certain tasks properly, take note of the following symbols used throughout this manual.

	**Warning:**	Information to prevent injury to yourself when trying to complete a task.
	**Caution:**	Information to prevent damage to the components when trying to complete a task.
	**Important:**	Information that you must follow to complete a task.
	**Note:**	Tips and information to aid in completing a task.

Safety Symbols

Before troubleshooting, you must be familiar with the safety information listed below. In order to avoid any potential hazards, the following symbols may be placed on some components of the server.
The shape and the color of symbols shown below are mainly for your reference. Please take the actual shipment as standard.

	Indicates the potential hazard of energy circuits or electric shock. To reduce the risk of injury from electric hazards, do not open this enclosure. **Warning:** Any surface or area of the equipment marked with this symbol indicates the presence of electric shock hazards. The enclosed area contains no operator serviceable parts.
	Indicates the potential hazard of electric shock. The enclosed area contains no user of field serviceable parts. Do not open for any reason. **Warning:** To reduce the risk of injury from electric shock hazards, do not open this enclosure.
	Indicates the presence of a hot surface or hot component. **Warning:** To reduce the risk of injury from a hot component, allow the surface to cool before touching it.
	Any RJ45 receptacle marked with this symbol indicates a network interface connection. **Warning:** To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.
	This symbol, on power supplies or systems, indicates that the equipment is supplied by multiple sources of power. **Warning:** To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the system.
 Weight in kg. Weight in lb.	This symbol indicates that the component exceeds the recommended weight for one individual to handle safely. **Warning:** To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manual material handling.

Safety Precautions

Observe the following safety precautions when you are connecting or disconnecting any device.

- Regarding the standards of workstation regulations, do not place the server in the visual field of the user, because of the glossy front of the case.
- The product is non-consumer product and for profession technical person used only.

Operation Safety

- Any operation on this server must be conducted by certified or experienced engineers.
- Before operating your server, carefully read all the manuals included with the server package.
- Before using the server, make sure that all cables are correctly connected and power cords are not damaged. If any damage is detected, contact your dealer as soon as possible.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Before opening the chassis panels, make sure all power cords are unplugged.
- Avoid dust, humidity, and extreme temperatures; place the server on a stable surface.
- If the power supply is broken, do not try to fix it by yourself. Contact an authorized dealer.
- It is recommended that you wear gloves when assembling or disassembling the server to protect from cuts and scrapes.
- When the server is powered on, heat sinks and the surfaces of certain IC devices may be hot. Do not touch them. Check whether the fans are functioning properly.

Electrical Safety

- Before installing or removing signal cables, ensure that the power cords for the system unit and all attached devices are unplugged.
- To prevent electric shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing any additional device to or from the system, ensure that the power cords for those devices are unplugged before the signal cables are connected. If possible, disconnect all power cords from the existing system before you add a device.
- Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.

- This product is equipped with a three-wire power cable and plug for user safety. Use the power cable with a properly grounded electrical outlet to avoid electric shock.

Motherboards, adapters, and disk drives are sensitive to static electricity discharge. These devices are wrapped in antistatic bags to prevent this damage. Take the following precautions:

- If you have an antistatic wrist strap available, use it while handling the device.
- Do not remove the device from the antistatic bag until you are ready to install the device in the system unit.
- With the device still in its antistatic bag, touch it to a metal frame of the system.
- Grasp cards and boards by the edges. Hold drives by the frame. Avoid touching the solder joints or pins.
- If you need to lay the device down while it is out of the antistatic bag, lay it on the antistatic bag. Before picking it up again, touch the antistatic bag and the metal frame of the system unit at the same time.
- Handle the devices carefully to prevent permanent damage.

Battery Replacement Safety

This server is provided with an internal Lithium battery or battery pack. There is a danger of explosion and risk of personal injury if the battery is incorrectly replaced or mistreated.
For more information about battery replacement or proper disposal, contact an authorized reseller or your authorized service provider.

This server contains an internal Lithium Manganese Dioxide, or a Vanadium Pentoxide, or an alkaline battery pack. There is risk of fire and burns if the battery pack is not handled properly. To reduce the risk of personal injury:

- Do not attempt to recharge the battery.
- Do not expose to temperatures higher than 70°C.
- Do not disassemble, crush, puncture, shorten external contacts, or dispose in fire or water.
- Replace only with the spare parts designated for this product.

Batteries should not be littered along with the general household waste. Please use the public collection system or return them to the supplier.

Laser Peripherals or Devices Safety

To avoid risk of radiation exposure and/or personal injury:

- Do not open the enclosure of any laser peripheral or device.
- Laser peripherals or devices are not user serviceable.
- Return to manufacturer for servicing.

Intended Application Uses

This product was evaluated as Information Technology Equipment (ITE), which may be installed in server rooms, computer rooms and similar commercial type locations. The suitability of this product for other product categories and environments (such as medical, industrial, residential, alarm systems, and test equipment), other than an ITE application, may require further evaluation.

Site Selection

Restricted Access Location: location for equipment is intended for installation only in a Server Room or Computer Room where both of the following apply:

- Access can only be gained by SERVICE PERSONS or by USERS who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken.
- Access is through the use of a TOOL or lock and key, or other means of securtiy, and is controlled by the authority responsible for the location.

The system is designed to operate in a typical office environment. Choose a site that is:

- Clean, dry, and free of airborne particles (other than normal room dust).
- Well-ventilated and away from sources of heat including direct sunlight and radiators.
- Away from sources of vibration or physical shock.
- Isolated from strong electromagnetic fields produced by electrical devices.
- In regions that are susceptible to electrical storms, we recommend you plug your system into a surge suppresser and disconnect telecommunication lines to your modem during an electrical storm.
- Provided with a properly grounded wall outlet.
- Provided with sufficient space to access the power supply cord(s), because they serve as the product's main power.
- Mechanical Loading – Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

Tools Required

A cross screwdriver or a flat screwdriver is needed to install or remove the components in the server.

Regulatory and Integration Information

Regulatory Compliance Identification Numbers

For the purpose of regulatory compliance certifications and identification, this server is assigned a serial number. This server serial number can be found on the product label, along with the required approval markings and information. When requesting certification information for this product, always refer to this serial number. This serial number should not be confused with the marketing name or model number.

Product Regulatory Compliance

Worldwide Safety approvals can be supplied according to the requirements from Marketing or Customer.

Product Safety Compliance

The designs of server complies with the following safety requirements:

Table i Product Safety Requirements

IEC 60950-1	Safety of Information Technology Equipment
EN 60950-1	Safety of Information Technology Equipment Including Electrical Business Equipment, European Committee for Electrotechnical Standardization (CENELEC)
UL 60950-1	Safety of Information Technology Equipment
UL 94	Tests for Flammability of Plastic Materials for Parts in Devices & Appliances
GB4943	Safety of Information Technology Equipment

Product EMC Compliance

This product has been tested and verified to comply with the following electromagnetic compatibility (EMC) regulations.

Communications Commission Notice

Part 15 of the Federal Communications Commission (FCC) Rules and Regulations has established Radio Frequency (RF) emission limits to provide an interference-free radio frequency spectrum. Many electronic devices, including computers, generate RF energy incidental to their intended function and are, therefore, covered by these rules. These rules place computers and related peripheral devices into two classes, A and B, depending upon their intended installation. Class A devices are those that may reasonably be expected to be

installed in a business or commercial environment. Class B devices are those that may reasonably be expected to be installed in a residential environment (for example, personal computers). The FCC requires devices in both classes to bear a label indicating the interference potential of the device, as well as additional operating instructions for the user.
The rating label on the device shows which class (A or B) the equipment falls into. Class A devices do not have an FCC logo or FCC ID on the label. Class B devices have an FCC logo or FCC ID on the label. Once the class of the device is determined, refer to the following corresponding statement.

Class A Equipment

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

Declaration of Conformity for Products Marked with the FCC Logo—United States Only

This device complies with Part 15 of the FCC Rules Operation and is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
For questions regarding your product, please contact the supplier.
To identify this product, refer to the Part, Series, or Model number found on the product.

European Union Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low-Voltage Directive (73/23/EEC) issued by the Commission of the European Community.
Compliance with these directives implies conformity to the following European Norms (in brackets are the equivalent international standards):

Table ii European Union EMC Requirements

EN55032 (CISPR 32)	Electromagnetic Interference
EN55024 (IEC61000-4-2,3,4,5,6,8,11)	Electromagnetic Immunity
EN61000-3-2 (IEC61000-3-2)	Power Line Harmonics
EN61000-3-3 (IEC61000-3-3)	Power Line Flicker

Canadian Notice (Avis Canadien)

Class A Equipment

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Japanese Notice

VCCIマークが付いていない場合には、次の点にご注意下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です　この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Taiwanese Notice

警告使用者：

此為甲類資訊技術設備，於居住環境中使用時，可能會造成射頻擾動，

在此種情況下，使用者會被要求採取某些適當的對策。

Power Cords

The power cord set included in the server meets the requirements for use in the country where the server was purchased. If this server is to be used in another country, purchase a power cord that is approved for use in that country.

The power cord must be rated for the product and for the voltage and current marked on the product's electrical ratings label. The voltage and current rating of the cord should be greater than the voltage and current rating marked on the product. In addition, the cross-sectional area of the wires must be a minimum of 1.00mm² or 18AWG, and the length of the cords must be between 1.8m (6 feet) and 3.6m (12 feet). If you have questions about the type of power cord to use, contact an authorized service provider.

Route power cords so that they will not be walked on or pinched by items placed upon or against them. Pay particular attention to the plug, electrical outlet, and the point where the cords exit from the product.

Rack Mount Instructions

The following or similar rack-mount instructions are included with the installation instructions:

- Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
- Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

Chapter 1
Introduction

1 Audience Assumptions

This document is for the person who installs, administers, and troubleshoots servers and storage systems. Inventec assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.

1.1 Manual Organization

This manual introduces the chassis along with the hardware information, and how to replace the hardware and connect the cables. This manual is generally organized as follows:

Table 1-1 Manual Introduction

Introduction	General server introduction.
Hardware Operations	The operation of the components on the chassis, such as power supply, power distribution board, system fans, backplane, and riser card.
Connectors	Information about connectors on the various boards in the system.
Cable Connections	How to connect cables correctly.
Appendix	China RoHS Regulations information.

1.2 Packing Checklist

Make sure you have all the components shipped with your system. If any item contained in the package is damaged or missing, please contact your local dealer for replacement. In addition, keep the box and packing materials for possible future use. The server is shipped with the following:

Table 1-2 Packing Checklist

Chassis	➢ 2U rack-mounted chassis
Cables	➢ Main power cable, backplane power cable, SATA/SAS HDD cable, system fan cables, front panel cables, and so forth

1.3 Specifications

The table below is the technical specifications for the server.

Table 1-3 Specifications

Dimensions	➢ Height: 8.70cm ➢ Width: 44.76cm ➢ Length: 73.56cm
Weight	➢ Max. Weight - 12x3.5” HDDs: 17.59KG ➢ Max. Weight - 24x2.5” HDDs: 18.26KG ➢ Max. Weight - 12x3.5” HDDs(6xPCI-E x8 slots or x16 slots): 31.34KG ➢ Max. Weight - 24x2.5” HDDs(6xPCI-E x8 slots or x16 slots): 28.18KG
Temperature	➢ Operating System: +5°C ~ +35°C ➢ Non-operating System: -40°C ~ +70°C
Humidity	➢ Operating System: +20% ~ +80% ➢ Non-operating System: +10% ~ +90%
Voltage	➢ 100-120VAC; 200-240VAC or 240VDC ➢ 100-240VAC or 240VDC ➢ 100-277VAC or 240-336VDC
Current	➢ 12A; 10A or 10A ➢ 10.0A-4.0A or 4.5A ➢ 10-4.5A or 3.8-3.0A

1.4 Product Features

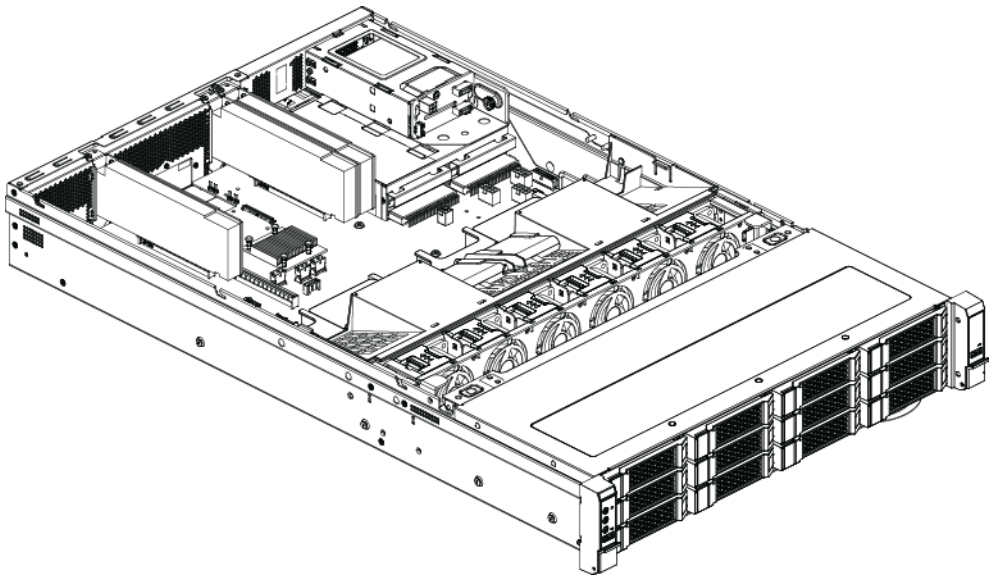


Figure 1-1 Product Introduction - 12x3.5” HDDs

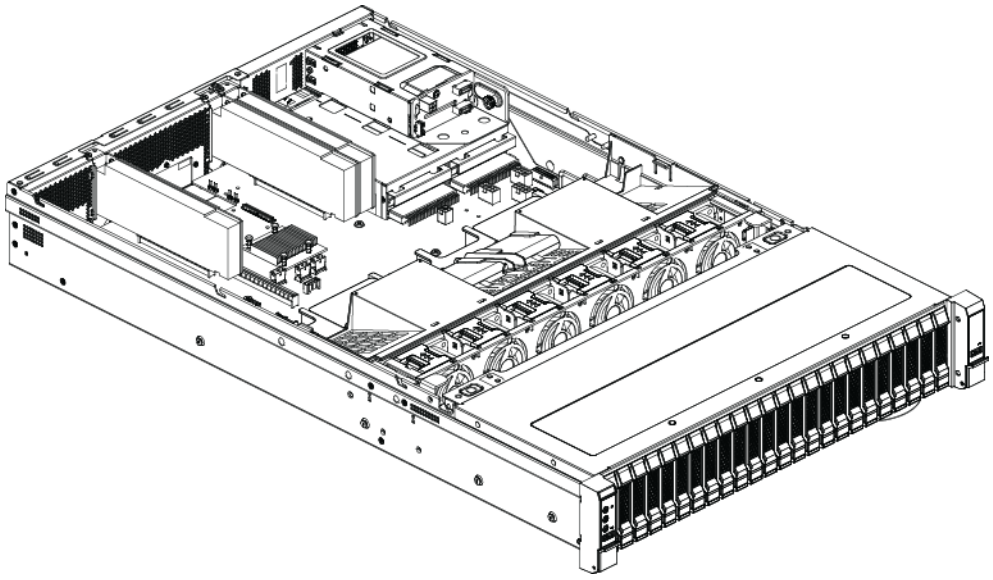


Figure 1-2 Product Introduction - 24x2.5” HDDs

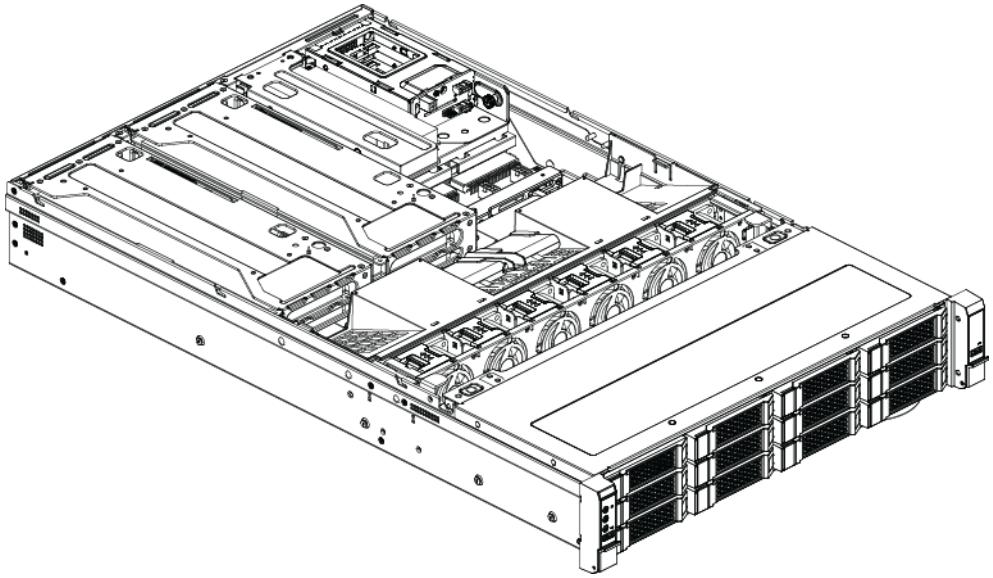


Figure 1-3 Product Introduction - 12x3.5” HDDs (6xPCI-E x8 Slots or x16 slots)

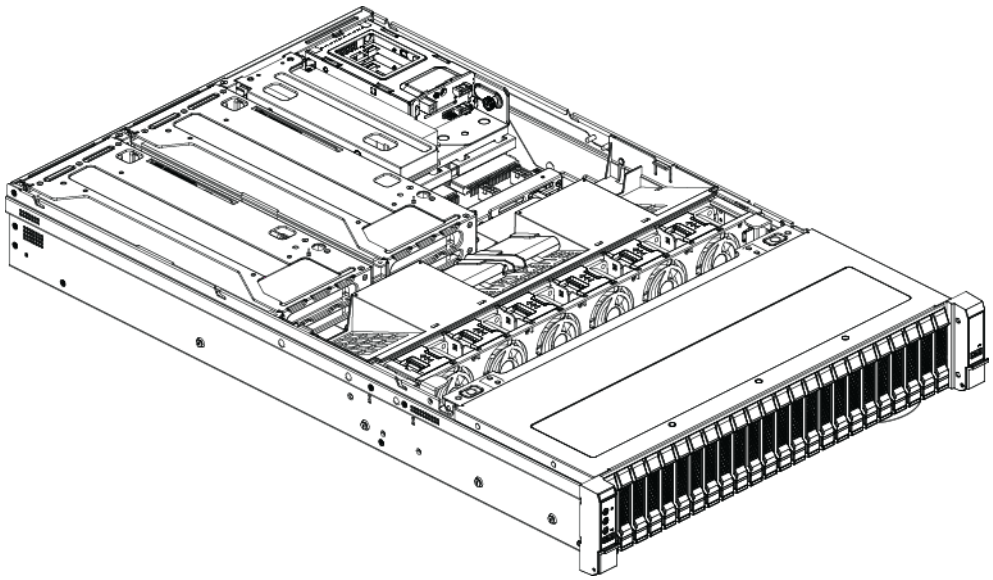


Figure 1-4 Product Introduction - 24x2.5” HDDs (6xPCI-E x8 Slots or x16 slots)

Table 1-4 Product Features

Chassis	➢ 2U rack-mounted chassis
Power	➢ 2x800W redundant power supplies with system throttling mode. ➢ Or 2x1600W redundant power supplies with system throttling mode.
Storage	➢ 12x3.5” hot-pluggable HDDs ➢ Or 24x2.5” hot-pluggable HDDs
Backplane	➢ 12x3.5” HDD Passive Backplane ➢ Or three 8x2.5” HDD Passive Backplanes
System Fan	➢ Number of fan cage: 6

	➢ 5+1 redundancy
Processor	➢ 2x Intel® Xeon™ E5-2600 v5 processors ➢ Intel Socket P0 (LGA3647) ➢ Up to 205W ➢ Up to 28 execution cores ➢ Hyper-Threading ➢ Turbo boost technology ➢ PCI-E Gen3 48 lanes ➢ UPI 10.4 GT/s
Chipset	➢ Intel C622 Lewisburg
System Memory	➢ 24x DDR4 DIMM slots ➢ 6 channels per socket with 2 DPC ➢ Supports ECC RDIMM(3DS)&LRDIMM(3DS) at 1866/2133/2400/2666MHz ➢ Supports DIMM capacity: up to 128GB ➢ Max memory capacity:1.5TB per CPU socket
BMC	➢ Aspeed AST2500 BMC
VGA	➢ Aspeed AST2500 embedded ▪ Max display resolution: 1920x1200 32bpp@60Hz ▪ Internal VGA connector combines with external VGA port.
Onboard Storage Ports	➢ SATA ▪ 14 x SATA 3.0 ports (12 SATA ports are in 3 slimline connectors and 2 SATADOM connectors are used for 2 SATADOM or 2 rear SFF SATA HDDs) ▪ Intel RST RAID 0/1/5/10 ➢ SAS ▪ 1 SAS x8 Mezzanine, supporting Inventec proprietary storage cards ➢ NVMe ▪ Support up to 4 NVMe SSDs via NVMe riser and NVMe HDD BP ▪ Optional Intel VROC for NVMe RAID support
Rear IO Ports	➢ 2x USB Ports 3.0 ➢ 1x UID LED ➢ 1x VGA Output Port ➢ 1x RJ45 Management Port ➢ 2x 10GbE SFP+ Ports ➢ 1x Serial Port (optional) ➢ 2x SFF HDD BP(optional)

	➢ 2x NIC LEDs(for on-board two ports 10GbE Indication)
Onboard Slots	➢ 3xPCI-E x16 Gen3 slot for low profile PCI-E card (slot 1, 2, 4) ➢ 1xPCI-E x16 Gen3 slot dedicated for PCI-E riser card (slot 3)

1.5 System Overview

1.5.1 Server Chassis Layout

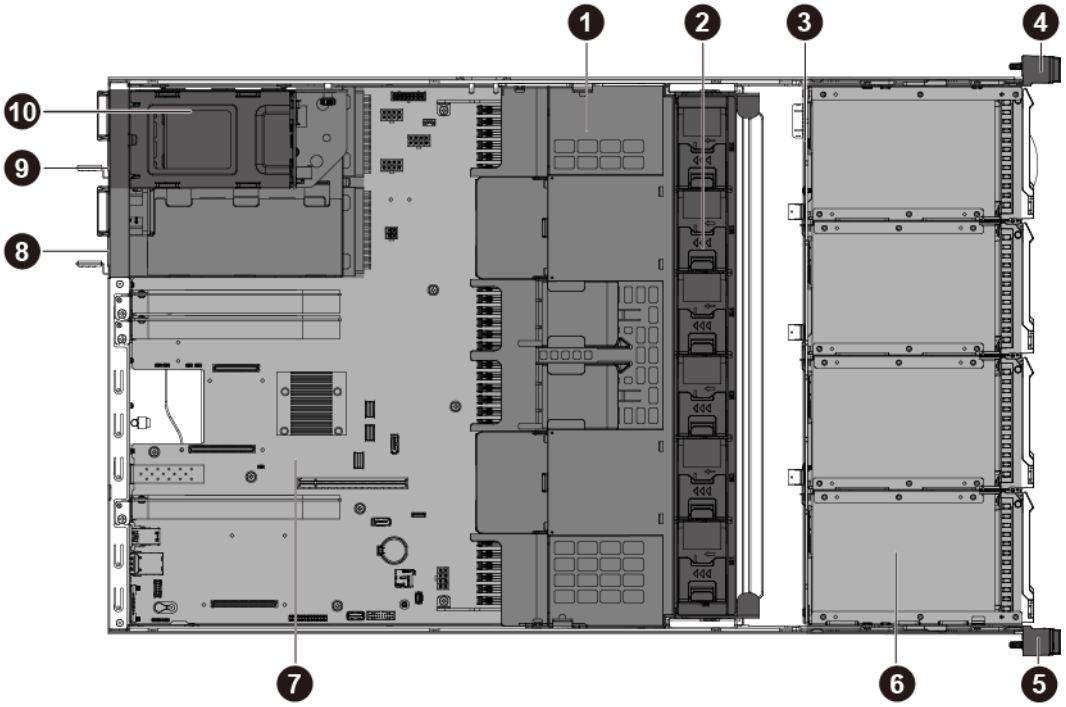


Figure 1-5 System Overview - 12x3.5” HDDs

1	Fan Duct
2	System Fans
3	3.5” HDD Backplane
4	Front Panel 2
5	Front Panel 1
6	3.5” HDD Bays
7	Motherboard
8	Power Supply 1
9	Power Supply 2
10	Rear 2.5” HDD Bays

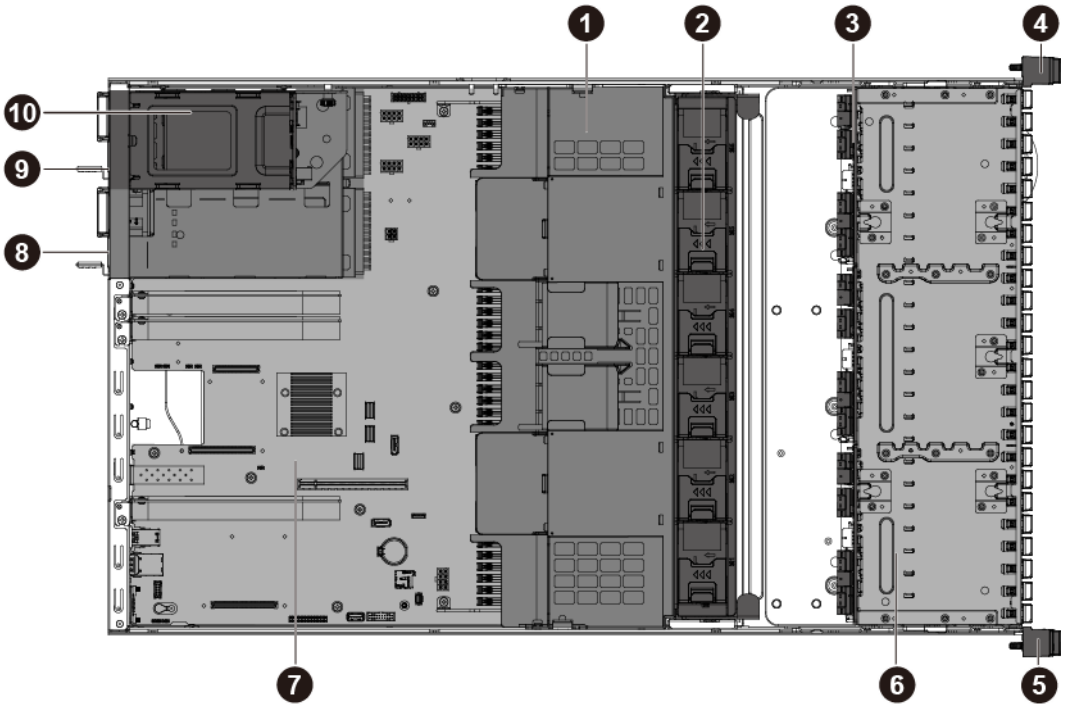


Figure 1-6 System Overview - 24x2.5” HDDs

1	Fan Duct
2	System Fans
3	2.5” HDD Backplane
4	Front Panel 2
5	Front Panel 1
6	2.5” HDD Bays
7	Motherboard
8	Power Supply 1
9	Power Supply 2
10	Rear 2.5” HDD Bays

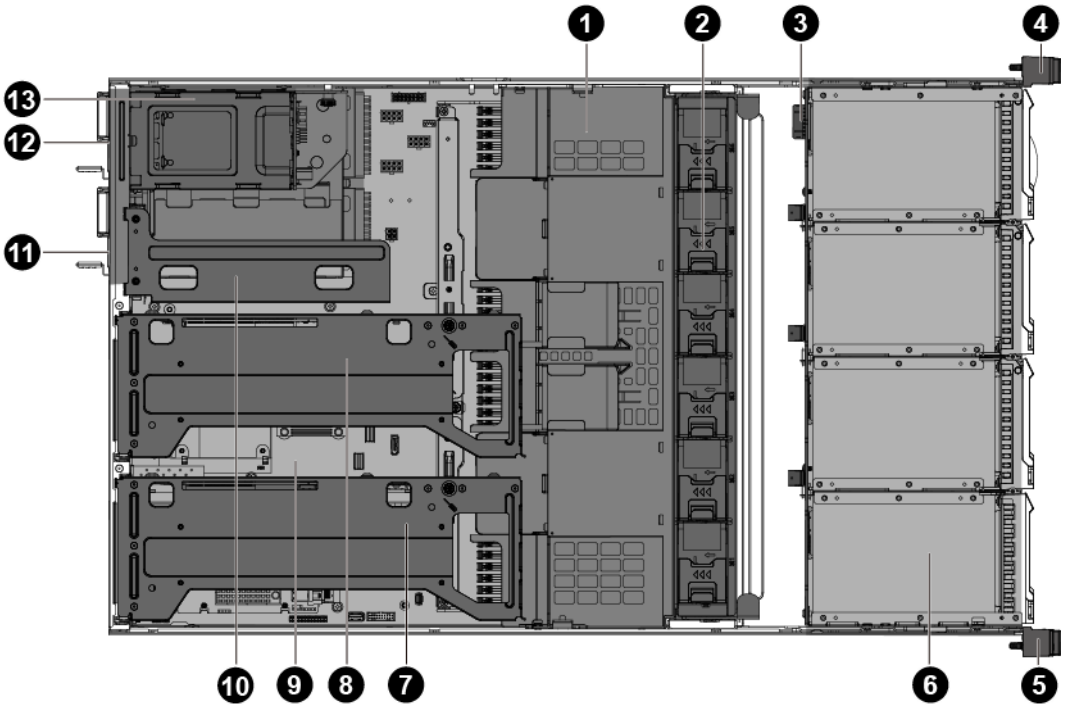


Figure 1-7 System Overview - 12x3.5” HDDs (6xPCI-E x8 Slots or x16 slots)

1	Fan Duct
2	System Fans
3	3.5” HDD Backplane
4	Front Panel 2
5	Front Panel 1
6	3.5” HDD Bays
7	Riser Card Bracket
8	Riser Card Bracket
9	Motherboard
10	Low-profile Riser Card Bracket
11	Power Supply 1
12	Power Supply 2
13	Rear 2.5” HDD Bays

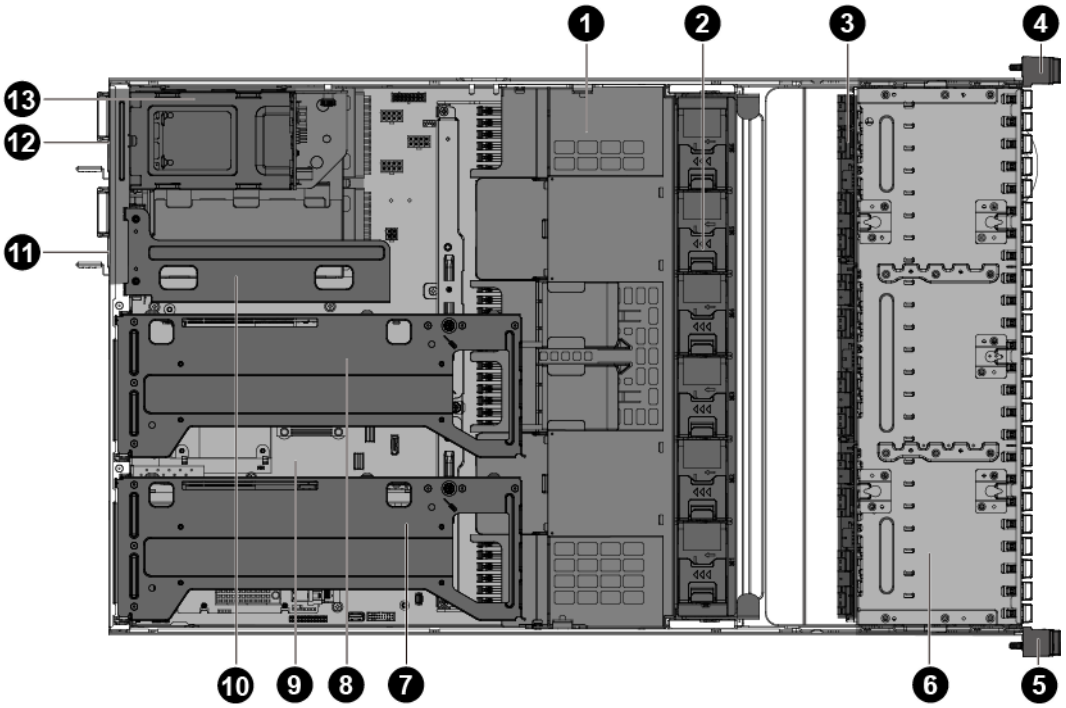


Figure 1-8 System Overview - 24x2.5” HDDs (6xPCI-E x8 Slots or x16 slots)

1	Fan Duct
2	System Fans
3	3.5” HDD Backplane
4	Front Panel 2
5	Front Panel 1
6	3.5” HDD Bays
7	Riser Card Bracket
8	Riser Card Bracket
9	Motherboard
10	Low-profile Riser Card Bracket
11	Power Supply 1
12	Power Supply 2
13	Rear 2.5” HDD Bays

1.5.2 Motherboard Layout

The layout of the motherboard is shown below. Each connector and major components are identified by number.

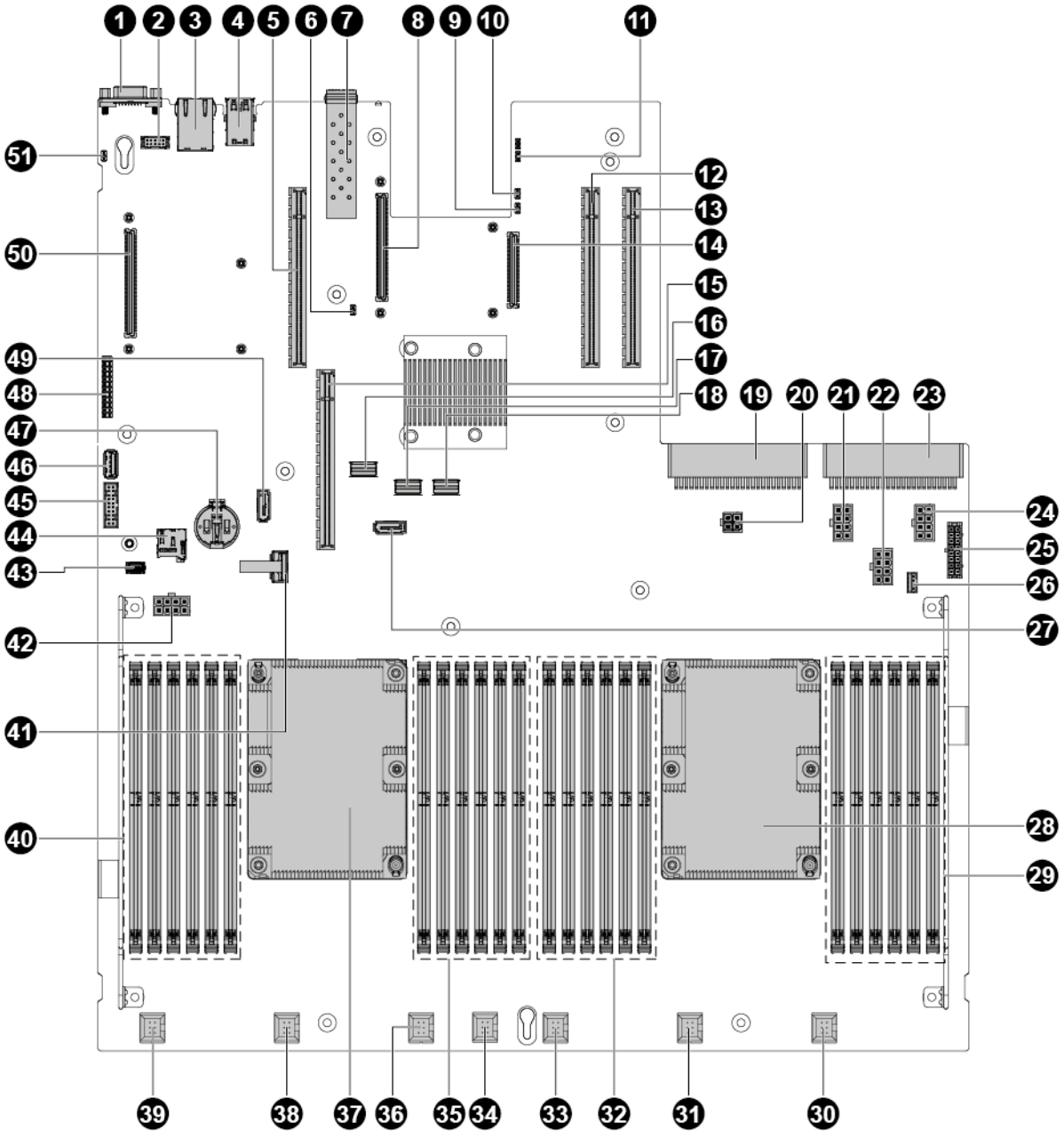


Figure 1-9 Connectors and Component Locations of Motherboard

1	VGA Connector (J2003)
2	Internal Serial Header (J2043)
3	Management Port (J2002)
4	Rear Dual USB Port (J2000)

5	PCI-E X16 Gen3 Slot4 (J57)
6	BIOS CMOS Clear Jumper (J46)
7	10G NIC Ports (J86)
8	NIC OCP 2.0 Connector A (J25)
9	Manufacture Mode Jumper (J90)
10	NMI Jumper (J96)
11	Password Clear Jumper (J39)
12	PCI-E X16 Gen3 Slot2 (J59)
13	PCI-E X16 Gen3 Slot1 (J58)
14	NIC OCP 2.0 Connector B (J75)
15	PCI-E X16 Gen3 Slot3 (J56)
16	Slimline Connector Port 2 (sSATA 0-3) (J70)
17	Slimline Connector Port 0 (SATA 0-3) (J48)
18	Slimline Connector Port 1 (SATA 4-7) (J50)
19	Power Supply Connector (J84)
20	Rear 2HDD Backplane Power Connector (J54)
21	GPU Power Connectors 1 (J65)
22	GPU Power Connectors 2 (J66)
23	Power Supply Connector (J85)
24	GPU Power Connectors 3 (J64)
25	Backplane Power Connector (J95)
26	Rear HDD Backplane I^2C Connector (J34)
27	SATA/SATADOM Connector (sSATA 5) (J52)
28	Processor 2 (CPU2)
29	DIMM Slots for Processor 2 (J14, J13, J16, J15, J18, J17)
30	Fan Connector 6 (J103)
31	Fan Connector 5 (J102)
32	DIMM Slots for Processor 2 (J23, J24, J21, J22, J19, J20)
33	Fan Connector 4 (J101)
34	Fan Connector 7 (J2007) (for 1U system)
35	DIMM Slots for Processor 1 (J2, J1, J4, J3, J6, J5)
36	Fan Connector 3 (J100)
37	Processor 1 (CPU1)
38	Fan Connector 2 (J99)
39	Fan Connector 1 (J98)
40	DIMM Slots for Processor 1 (J11, J12, J9, J10, J7, J8)

41	Internal VROC Connector (J2004)
42	GPU Power Connector (J67)
43	TPM Connector (J60)
44	Micro-SD Card Socket (J88)
45	Front Panel USB Connector (J71)
46	Internal USB Port (J55)
47	System Battery (BH1)
48	Front Left-ear Connector (J31)
49	SATA/SATADOM Connector (sSATA 4) (J74)
50	SAS Mezzanine-card Connector (J26)
51	ME Firmware Recovery Mode Jumper (J41)

1.5.3 Front View

The system supports up to 12 3.5” HDDs or up to 24 2.5” HDDs. The front view of this 2U server allows easy access to HDDs. In addition, the front panel with buttons and system LEDs is located on the front.

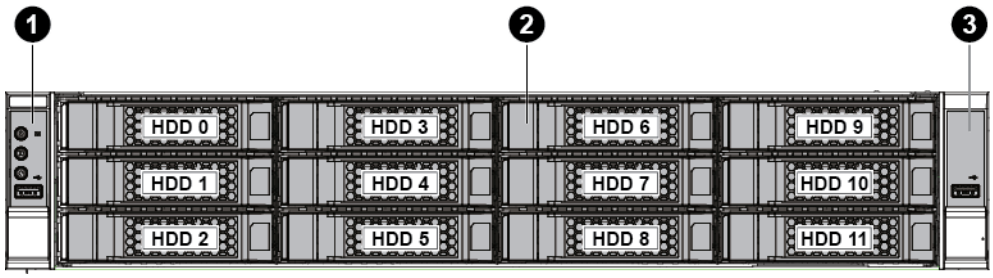


Figure 1-10 Front View - 12x3.5” HDDs

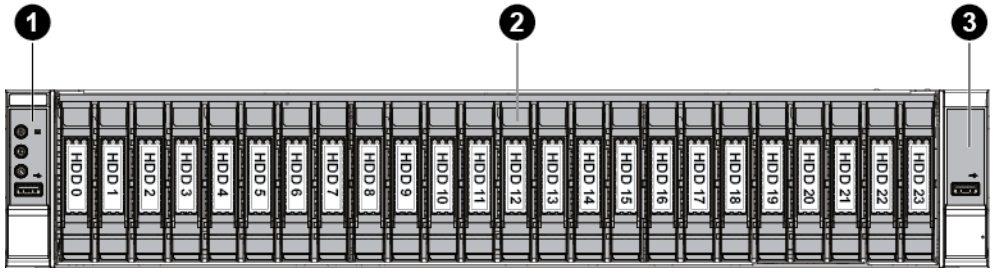


Figure 1-11 Front View - 24x2.5” HDDs

1	Front Panel 1
2	HDDs
3	Front Panel 2

1.5.4 Back View

The server back view includes the connectors of the external system devices.

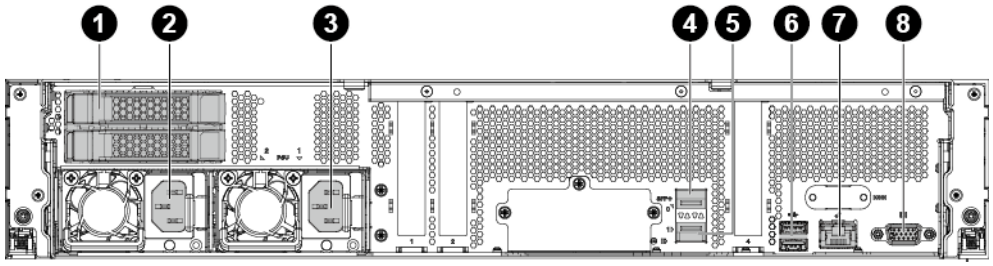


Figure 1-12 Back View

1	Rear 2.5” HDDs
2	AC Power Connector 2
3	AC Power Connector 1
4	SFP+ port 0
5	SFP+ port 1
6	Dual USB Port
7	Management Port
8	VGA Connector

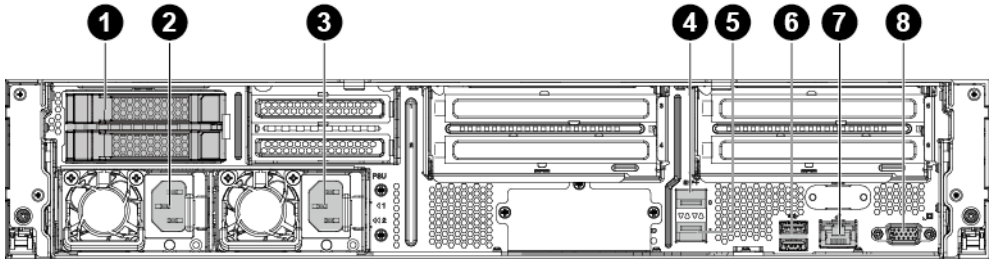


Figure 1-13 Back View (6xPCI-E x8 Slots or x16 slots)

1	Rear 2.5” HDDs
2	AC Power Connector 2
3	AC Power Connector 1
4	SFP+ port 0
5	SFP+ port 1
6	Dual USB Port
7	Management Port
8	VGA Connector

1.5.5 Buttons and System LED Information

This server is equipped with system LED indicators, and buttons located on the front panels. The front panel status LEDs allow constant monitoring of basic system functions while the server is operating. These LEDs provide visual cues to the status of power and ID of motherboard.

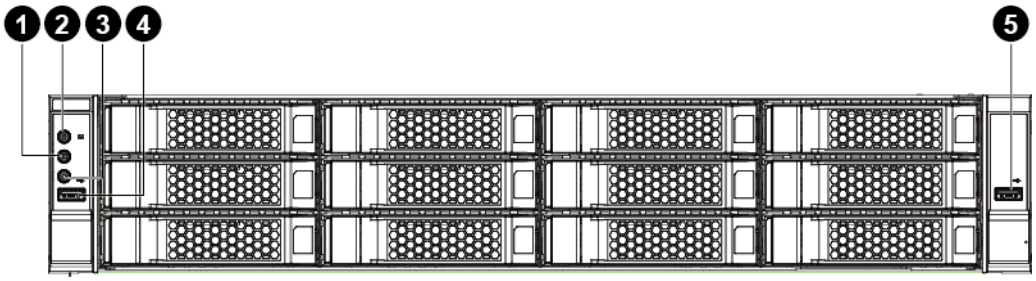


Figure 1-14 Front Panel Buttons and LEDs – 12x3.5” HDDs

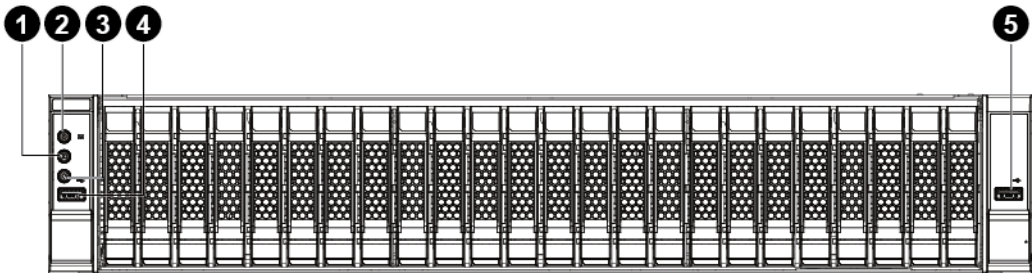


Figure 1-15 Front Panel Buttons and LEDs – 24x2.5” HDDs

1	ID Button/LED
2	Power Button/LED
3	Reset Button
4	USB 3.0 Port 0
5	USB 2.0 Port 0

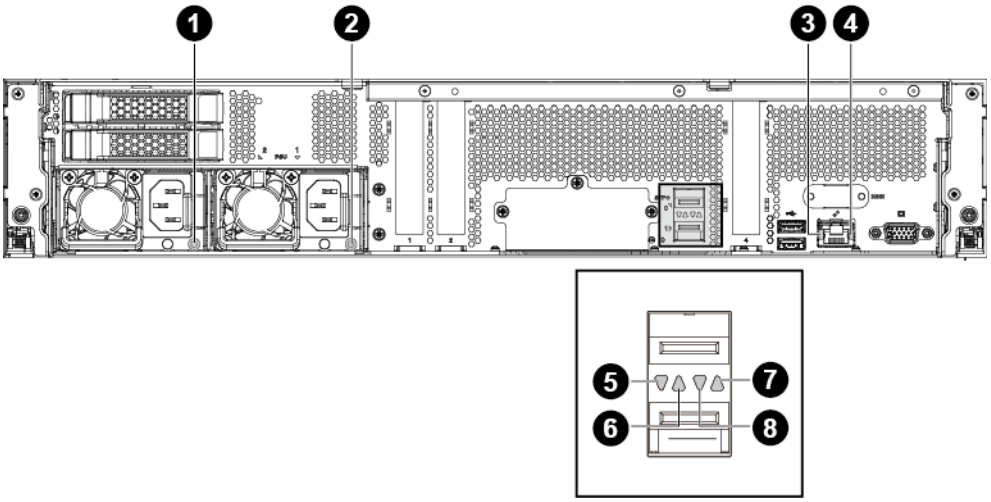


Figure 1-16 Back View LEDs

1	AC Power LED 2
2	AC Power LED 1
3	Speed LED of Management Port
4	Link/Activity LED of Management Port
5	Act LED of SFP+ Port 1
6	Act LED of SFP+ Port 0
7	Speed LED of SFP+ Port 0
8	Speed LED of SFP+ Port 1

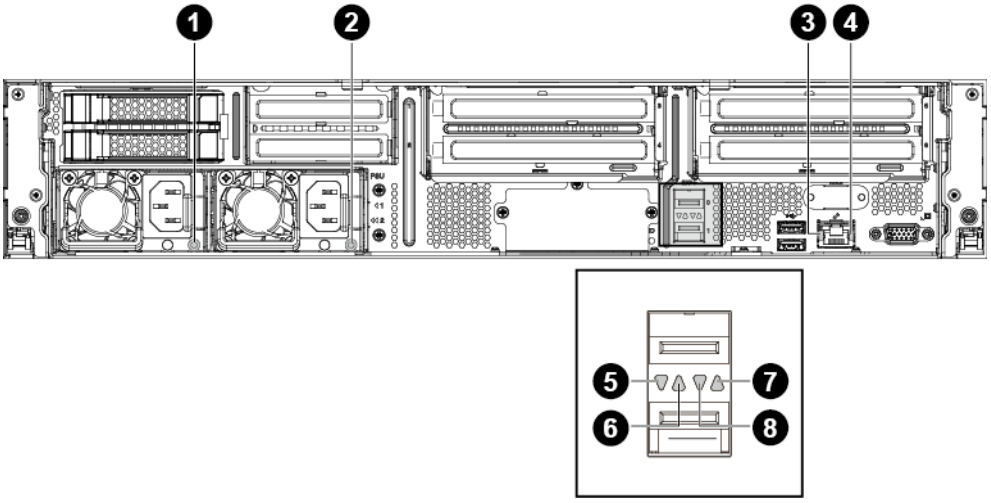


Figure 1-17 Back View LEDs (6x PCI-E x8 Slots or x16 Slots)

1	AC Power LED 2
2	AC Power LED 1

3	Speed LED of Management Port
4	Link/Activity LED of Management Port
5	Act LED of SFP+ Port 1
6	Act LED of SFP+ Port 0
7	Speed LED of SFP+ Port 0
8	Speed LED of SFP+ Port 1

The detailed LED information is shown below:

Table 1-5 LED Information

Front View LEDs			
LED Type	**Color**	**Status**	**Function**
Power LED	Green	On	System is powered on (S0 State; DC is On).
	Amber	On	System is standby (S5 State; DC is Off).
	-	Off	AC power is disconnected.
ID LED	Blue	On	ID LED is turned on by BMC.
		Blinking	Unit selected for identification via software.
	-	Off	ID LED is off as Default.
System Health LED	Green	On	System is in normal operation.
	Amber	Blinking	Non-critical event occurred.
	Red	On	Non-recovery event occurred ● Over temperature ● Voltage of any power rails out of range ● Fan fail or not installed
		Blinking	Critical event occurred.
	-	Off	Normal Standby
Back View LEDs			
LED Type	**Color**	**Status**	**Function**
AC Power LED	Green	On	Output is ON and works normally.
		Blinking (0.5Hz)	Standby mode is normal.
		Blinking (2Hz)	Sleep PSU is in cold redundant and in offline mode.

	Amber	On	• Standby mode with OTP range • 12V Fault (include: OVP, UVP, OCP, SCP, and OTP). • Fan locks 15 seconds including standby mode.
	-	Off	• No AC power.
Speed LED of Management Port	Green	On	The network is 100Mbps connection.
	Amber	On	The network is 1000Mbps connection.
	-	Off	The network is 10Mbps connection.
Lind/Activity LED of Management Port	Green	On	PHY is linked.
		Blinking	PHY is accessed
	-	Off	No link.
Speed LED of SFP+ port 0/1	Green	On	The network is 10G connection.
	Amber	On	The network is 1G connection.
	-	Off	No link
Active LED of SFP+ port 0/1	Green	Blinking	PHY is access.
	-	Off	PHY is idle.

1.5.6 System Thermal Solution

This server provides a thermal solution to keep proper cooling. The components in the following figure must be installed in place.

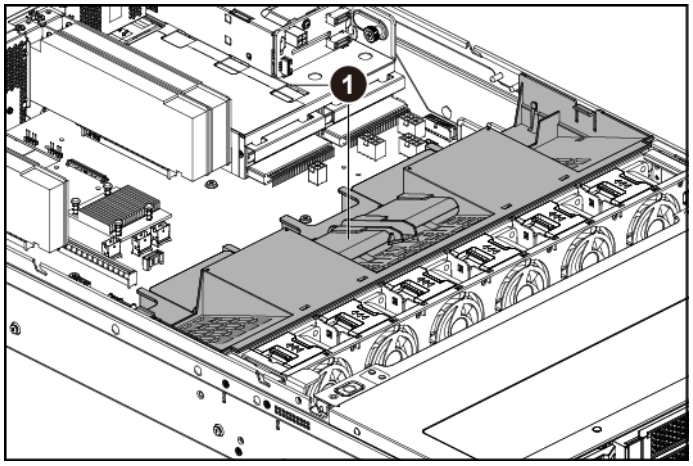


Figure 1-18 Thermal Solution

1	Fan Duct

Chapter 2
Hardware Operations

2 Hardware Operations

This chapter describes the hardware setup procedures that you have to perform when replacing system components. It also gives detailed information on the internal components and how to replace them.

The components shown in this chapter are mainly for your reference. Please take the actual shipment as standard.

2.1 Before You Start

Take note of the following operations before you start to remove or install internal components.

2.1.1 Power Off

To reduce the risk of injury from electric shock, remove the power cord to completely disconnect power from the system.

Moving the Power On/Off switch to the Off position does not completely remove power from the system. Some portions of the power supply and some internal circuitry remain active. Disconnect all power cords from the server to completely remove power from the system.

To press the power button:

Press the power button ❶ to toggle the server to standby. The power LED ❶ in blue turns off.

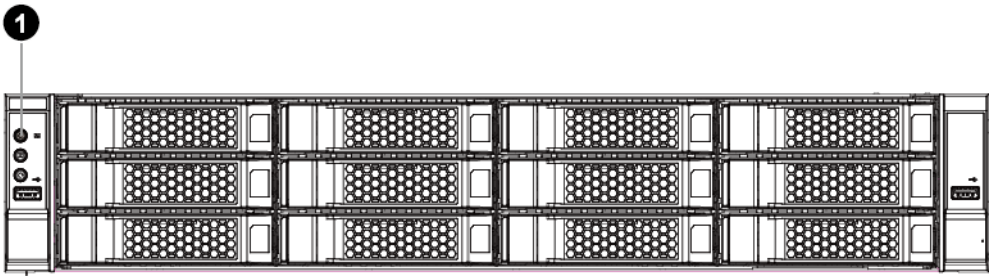


Figure 2-1 Pressing the Power Button

To remove the power cords:

First unplug the power cords from the AC outlet and then from the server.

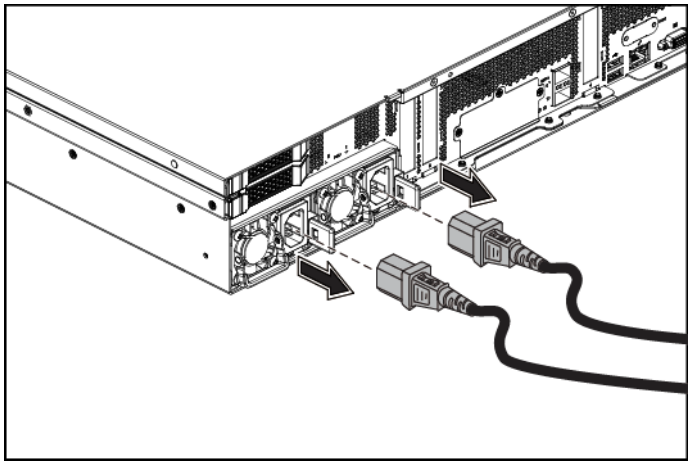


Figure 2-2 Unplugging the Power Cords

2.2 Chassis Cover

The server is a 2U form factor designed for easy assembly and disassembly, making the replacement of internal components very convenient.

Reminder

Before you remove or install the chassis cover, please follow the step below:

Step 1: *Make sure the server is not turned on or connected to the AC power. To power off the server, see "2.1.1 Power Off".*

2.2.1 To remove the chassis cover

❶ Release the screw on the chassis cover.

❷ Push the retaining clip along the direction of the arrow.

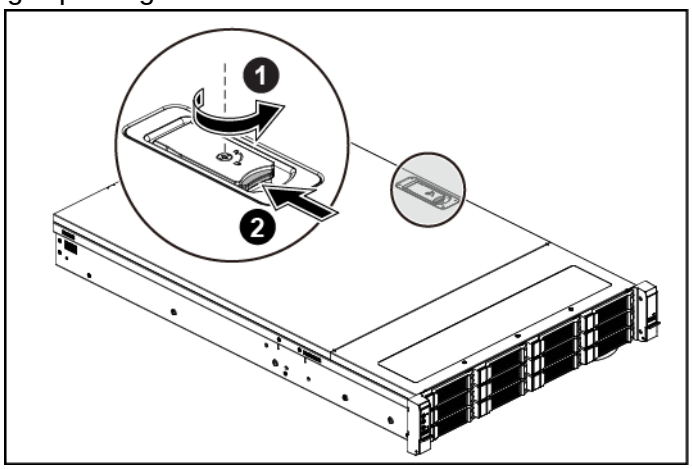


Figure 2-3 Releasing the Chassis Cover

❸ Pull up the retaining clip completely to the biggest angle.
❹ Simultaneously the cover automatically slides backward.
❺ Remove the cover from the chassis.

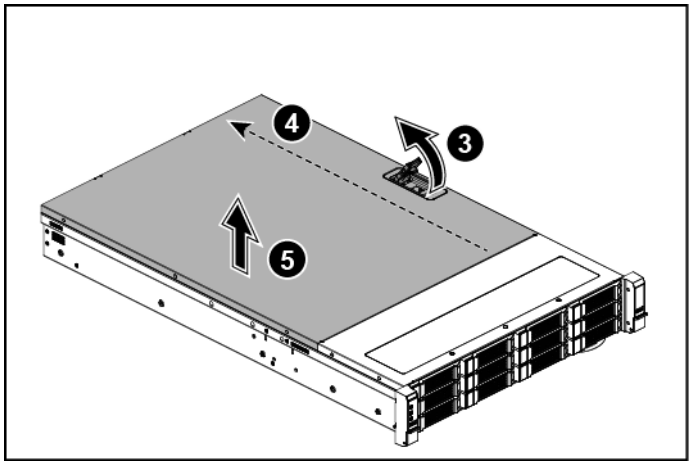


Figure 2-4 Removing the Chassis Cover

2.2.2 To install the chassis cover

❶ Locate the chassis cover onto the chassis.
❷ Simultaneously pull up the retaining clip completely to the biggest angle, and align the locking tabs on the cover to the corresponding notches on the chassis.

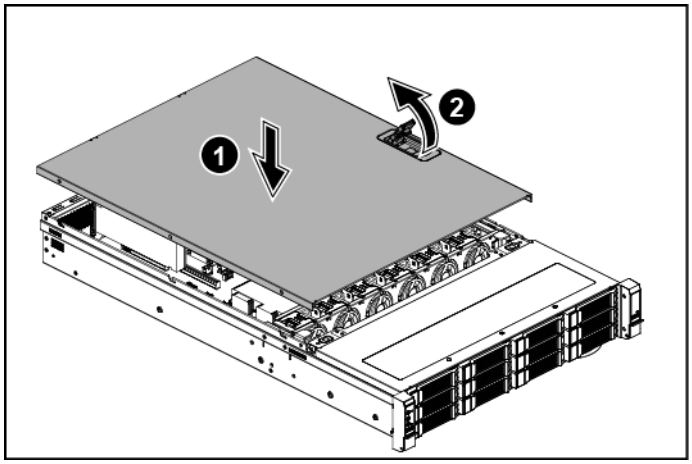


Figure 2-5 Locating the Cover onto the Chassis

❸ Secure the retaining clip and simultaneously the cover automatically slides back into place.

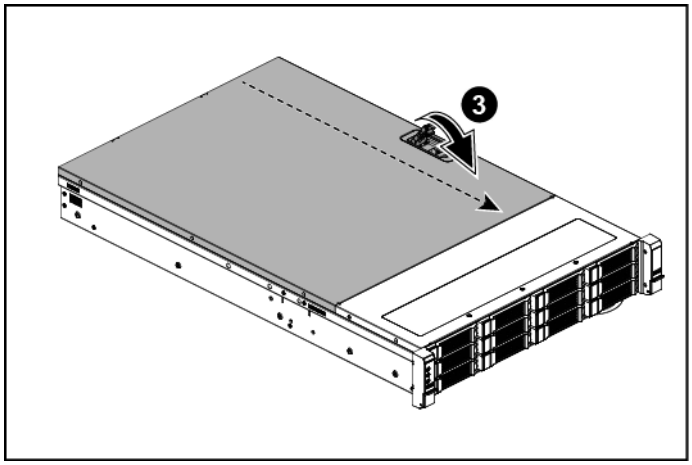


Figure 2-6 Secure the retaining clip

❸ Secure the chassis cover with one screw.

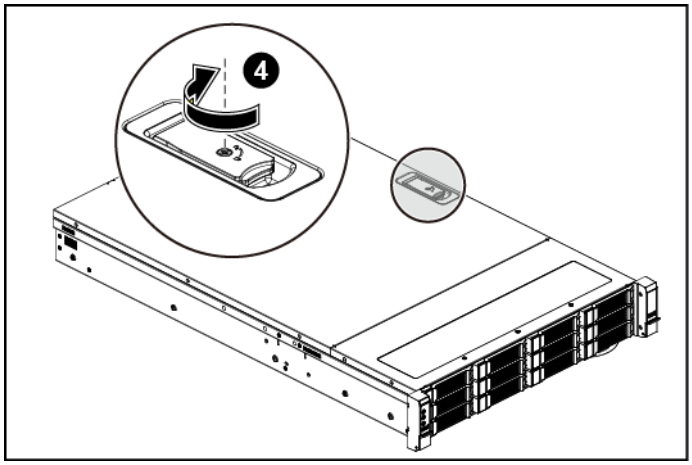


Figure 2-7 Tightening the Screw

This system must be operated with the chassis cover installed to ensure proper cooling.

2.3 Cable Guide

The locations of cable guides on the server are shown below:

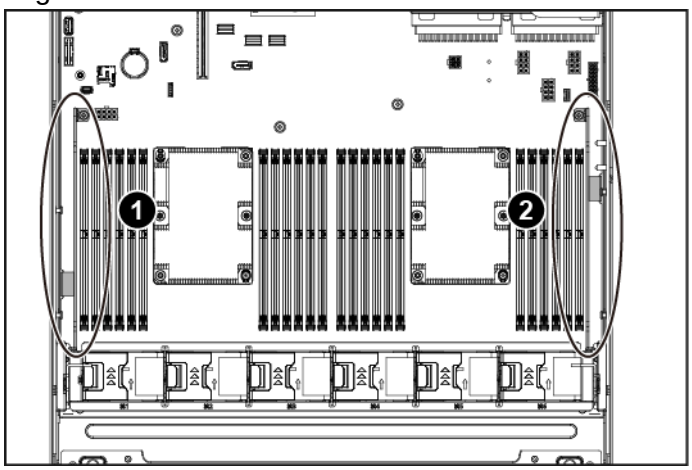


Figure 2-8 Cable Guide Locations

Reminder

Before you remove or install the cable guides, please follow the steps below:

Step 1: *Make sure the server is not turned on or connected to the AC power. To power off the server, see "2.1.1 Power Off"*

Step 2: *Remove the chassis cover. To remove the chassis cover, see "2.2 Chassis Cover".*

Step 3: *Remove the fan duct. To remove the fan duct, see "2.14 Fan Duct".*

Step 4: *Disconnect all necessary cables.*

2.3.1 To remove the cable guide

❶ Remove the two screws that secure the cable guide.

❷ Lift the cable guide out of the chassis.

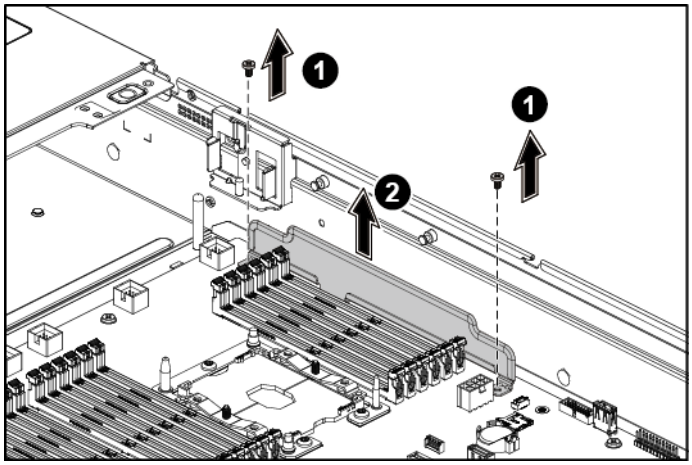


Figure 2-9 Removing the Cable Guide

2.3.2 To install the cable guide

Reverse the steps above to install the cable guide.

There is a stiffener designed for supporting PCI assemblies in the servers with 6xPCI-E x8 Slots or x16 slots. When removing the cable guides in such servers, you must remove the stiffener first.

2.3.3 To remove the stiffener

❶ Release the thumbscrew and remove the screws.
❷ Lift the stiffener out of the chassis.

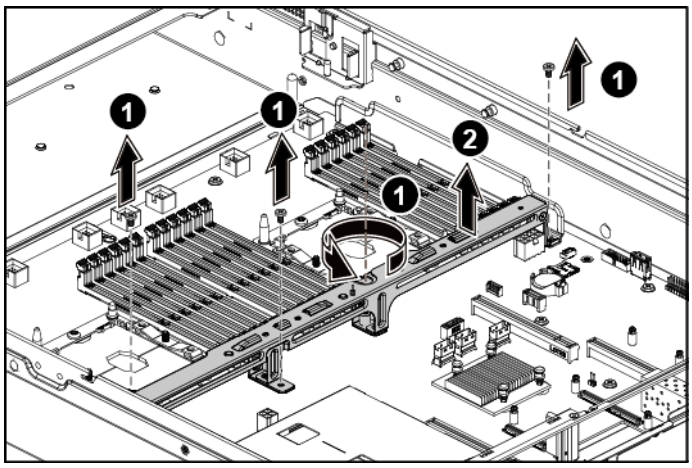


Figure 2-10 Removing the Cable Guide

2.3.4 To install the stiffener

Reverse the steps above to install the stiffener.

2.4 Motherboard

The location of motherboard on the server is shown below:

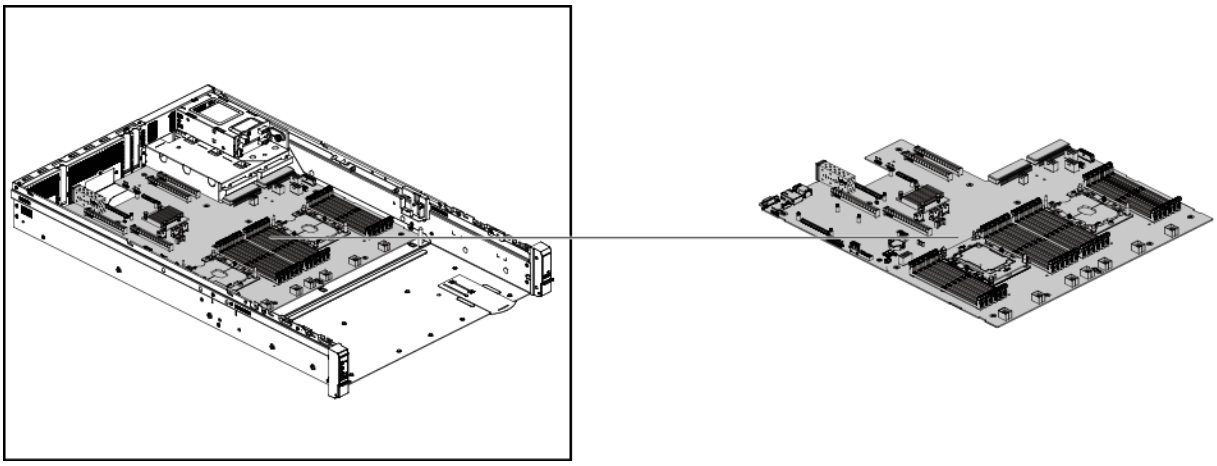


Figure 2-11 Motherboard Location

Reminder

Before you remove or install the cable guides, please follow the steps below:

Step 1: *Make sure the server is not turned on or connected to the AC power. To power off the server, see "2.1.1 Power Off"*

Step 2: *Remove the chassis cover. To remove the chassis cover, see "2.2 Chassis Cover".*

Step 3: *Remove the fan duct. To remove the fan duct, see "2.14 Fan Duct"*

Step 4: *Remove the cable guide. To remove the cable guide, see "2.3 Cable Guide"*

Step 5: *Disconnect all necessary cables.*

2.4.1 To remove the motherboard

❶ Release the retaining clip that secure the system fan cage.

❷ Lift the system fan assembly out of the chassis.

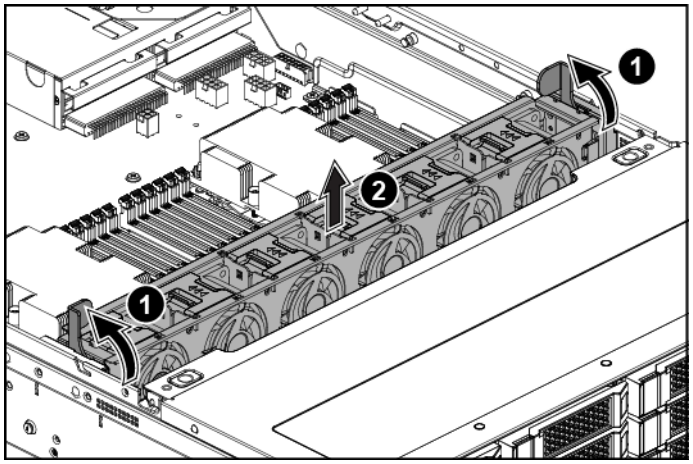


Figure 2-12 Removing the System Fan Assembly

❸ Remove the 10 screws that secure the motherboard.
❹ Remove the motherboard out of the chassis along the direction of the arrow.

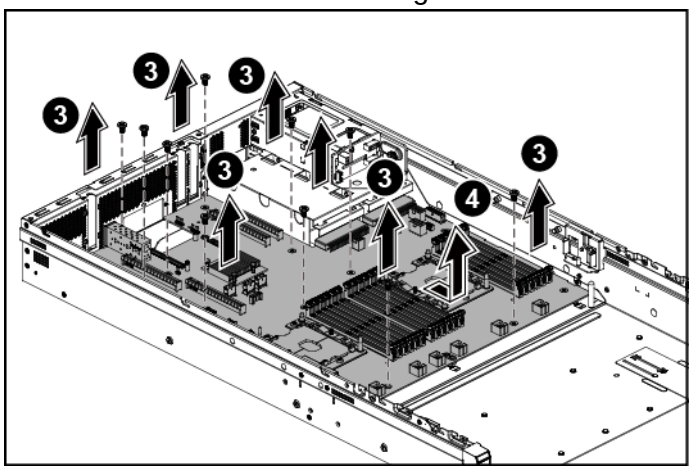


Figure 2-13 Removing the Motherboard

There are totally 14 screws needing to be removed when remove the motherboard, including the 4 screws that secure 2 cable guides.

2.4.2 To install the motherboard

Reverse the steps above to install the motherboard.

2.5 Power Supplies

This server is designed with two 800W redundant power supplies with system throttling mode.

The location of power supplies on the server is shown below:

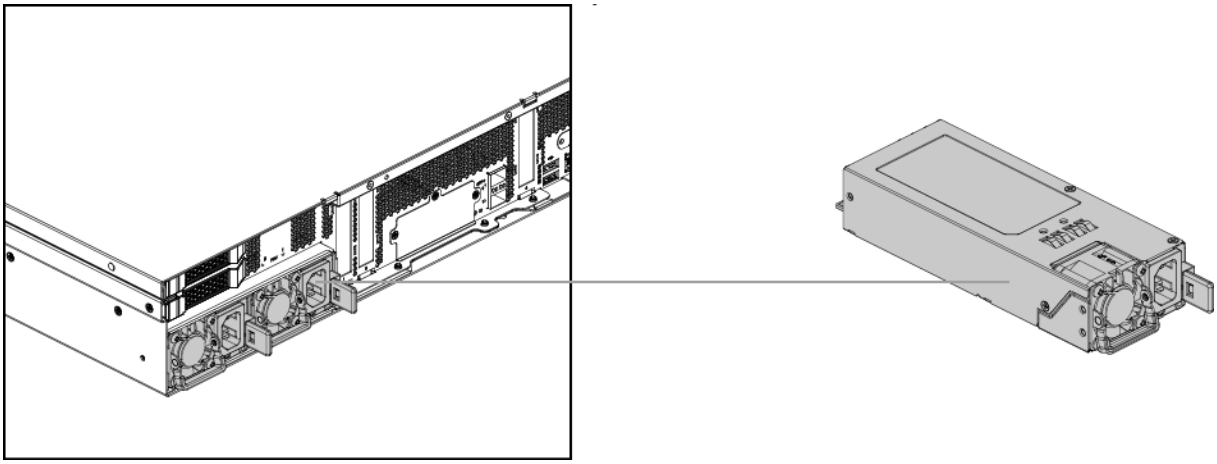


Figure 2-14 Power Supply Locations

Reminder

Before you remove or install the power supply, please follow the steps below:

Step 1: *Disconnect all necessary cables.*

2.5.1 To remove the power supply

❶ Press the retaining clip on the right side of the power supply along the direction of the arrow.

❷ Pull down the power supply handle.

❸ At the same time, pull out the power supply. (The power supply takes considerable force to remove.)

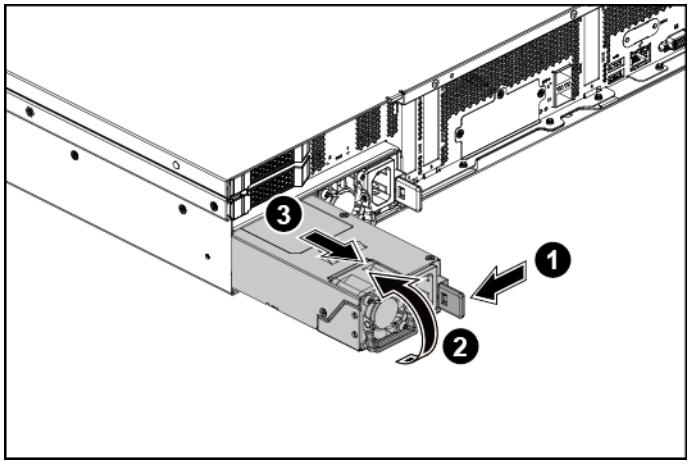


Figure 2-15 Removing the Power Supply

2.5.2 To install the power supply

Insert the replacement power supply firmly into the bay. The retaining clip should snap. Connect the AC power cord to the replacement power supply.

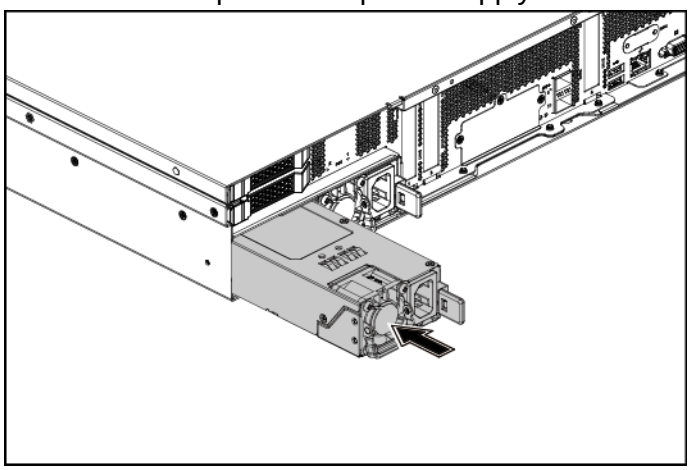


Figure 2-16 Installing the Power Supply

2.6 System Fans

Subdividing the motherboard area and the backplane area is a metal cage that holds the system fans. This server contains 6 system fans which are located inside the chassis. These system fans maintain the ideal temperature for the motherboard, backplane and disk drives.

The location of system fans is shown below:

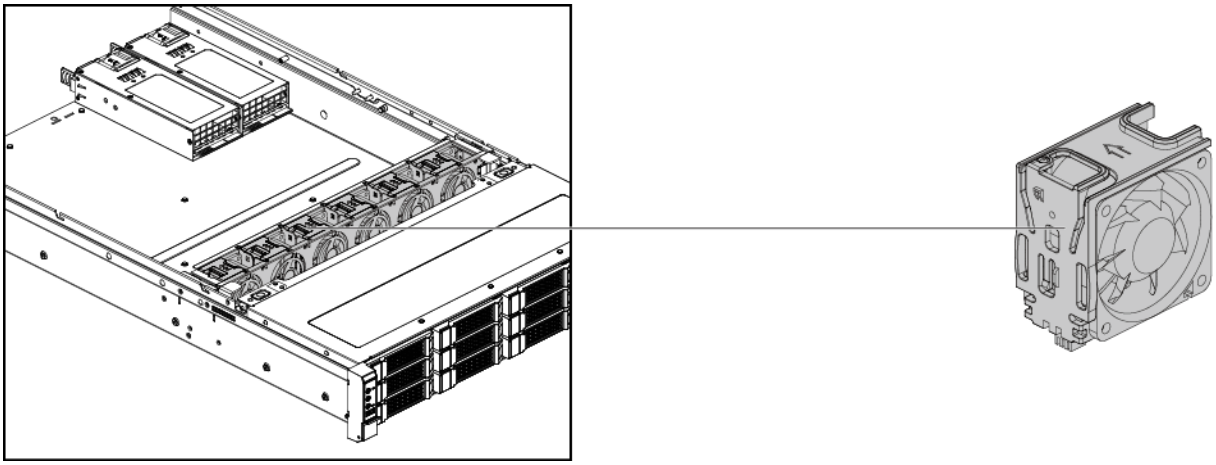


Figure 2-17 System Fan Locations

Reminder

Before you remove or install the cable guides, please follow the steps below:

Step 1: *Make sure the server is not turned on or connected to the AC power. To power off the server, see "2.1.1 Power Off"*

Step 2: *Remove the chassis cover. To remove the chassis cover, see "2.2 Chassis Cover".*

Step 3: *Disconnect all necessary cables.*

2.6.1 To remove the system fans

❶ Unlock the system fan by clamping the locking clip inward.
❷ Take the system fan out of the system fan cage.

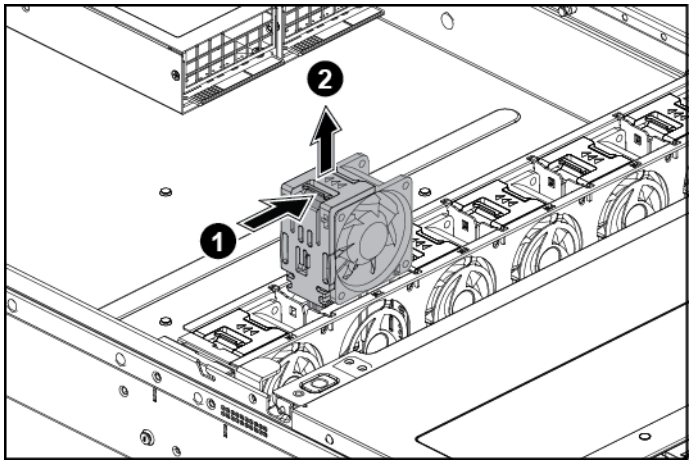


Figure 2-18 Removing the System Fan

2.6.2 To install the system fans

Place the system fan into the system fan cage.

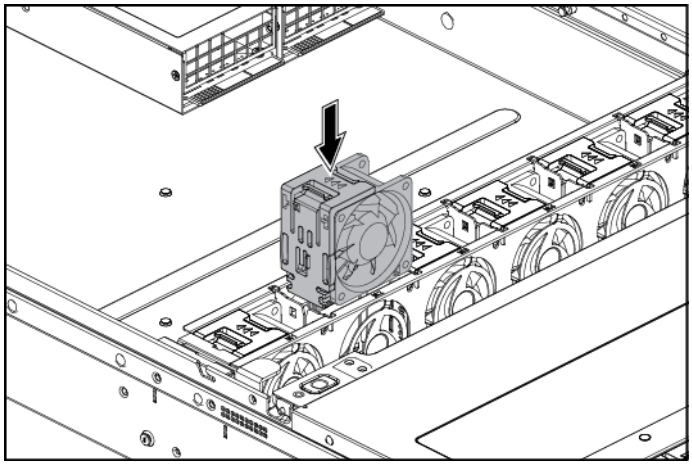


Figure 2-19 Installing the System Fan

2.7 3.5” HDDs

The server can support 12x3.5” hot-pluggable HDDs. Each HDD is with an adapter bracket. You don’t need to power-off the system when removing or installing a HDD.

The location of the 3.5” HDDs on the server is shown below:

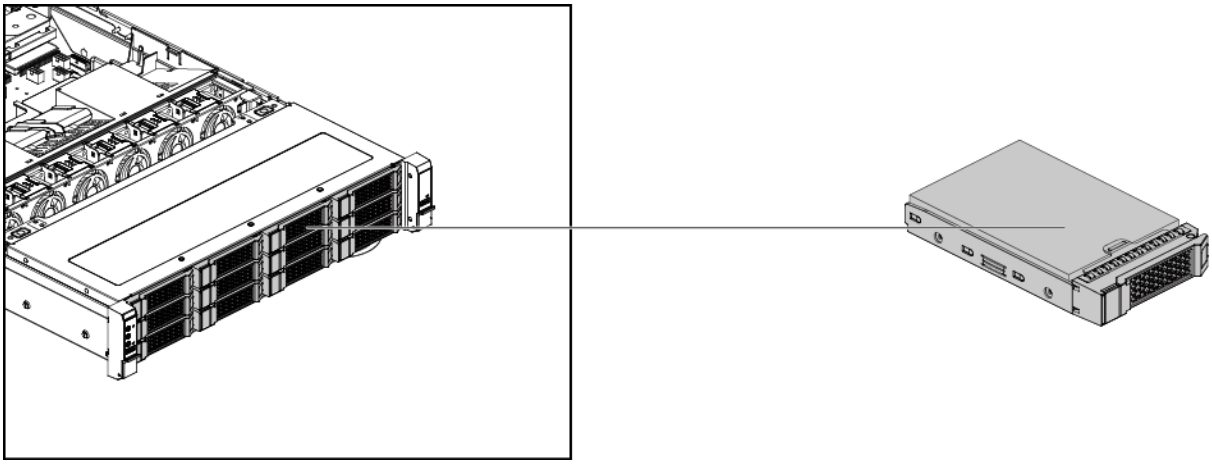


Figure 2-20 3.5” HDD Locations

- Take note of the drive tray orientation before sliding it out.
- The tray will not fit back into the bay if inserted incorrectly.

2.7.1 To remove the 3.5” HDD

❶ Push the release button.
❷ Pull the lever open.
❸ Slide the HDD assembly out of the HDD bay.

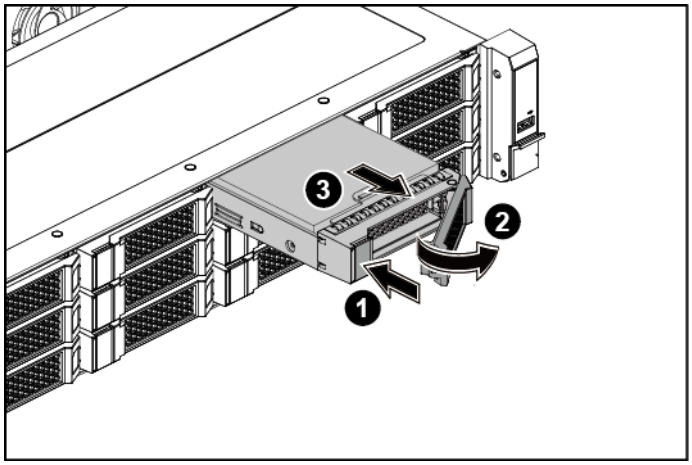


Figure 2-21 Sliding out the 3.5” HDD Assembly

❹ Turn the bottom of the HDD assembly up and press down the side of HDD to release this side from the HDD bracket.

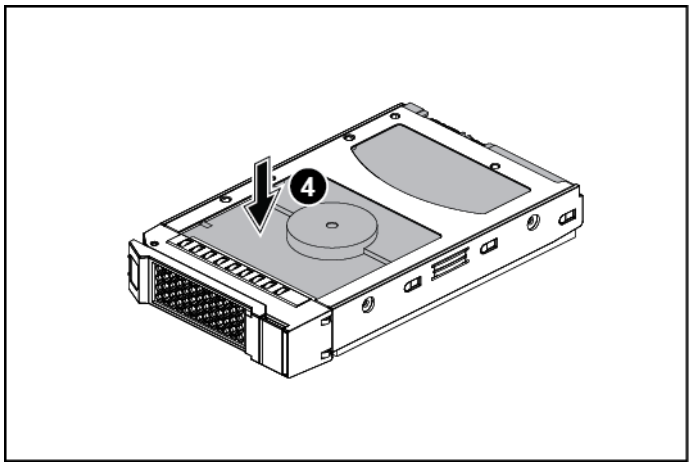


Figure 2-22 Releasing the HDD

❺ Lift up the released side of the HDD bracket to remove the HDD.

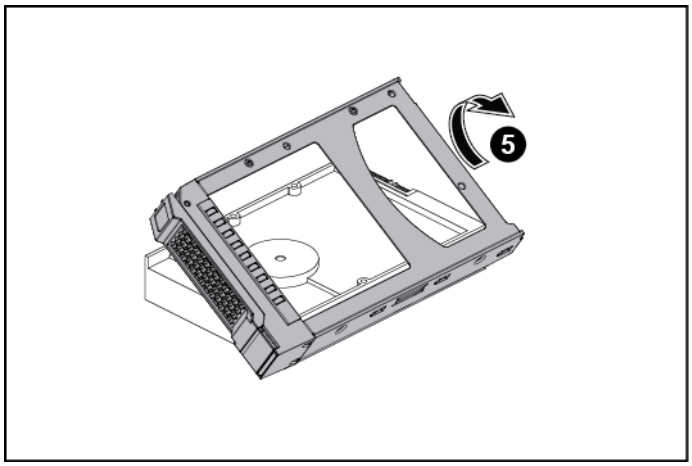


Figure 2-23 Removing the HDD

2.7.2 To install the 3.5” HDD

❶ Place the HDD to the HDD tray by aligning the locking tabs to the corresponding holes.

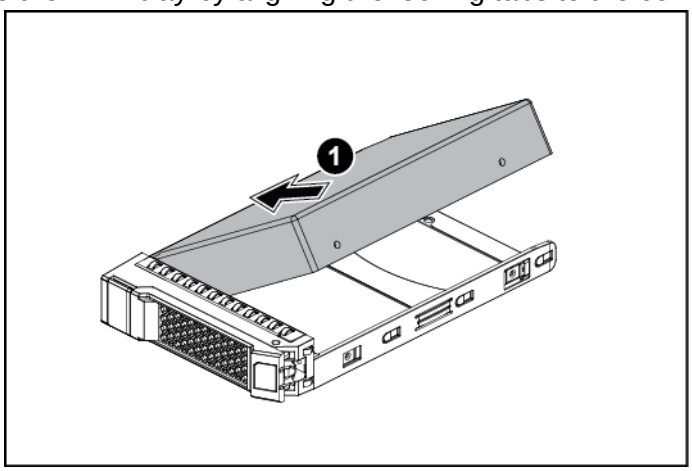


Figure 2-24 Placing the HDD

❷ Press the other side of the HDD down to secure it.

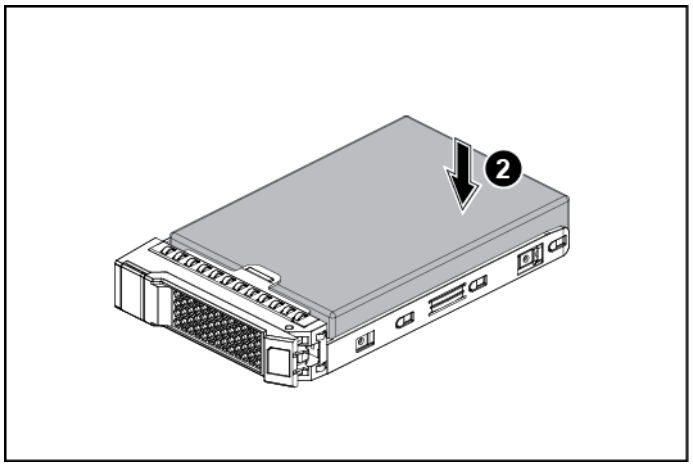


Figure 2-25 Securing the HDD

❸ Carefully insert the HDD assembly into the HDD bay with the lever lifted until it completely enters the HDD bay.

❹ Push the lever back in place.

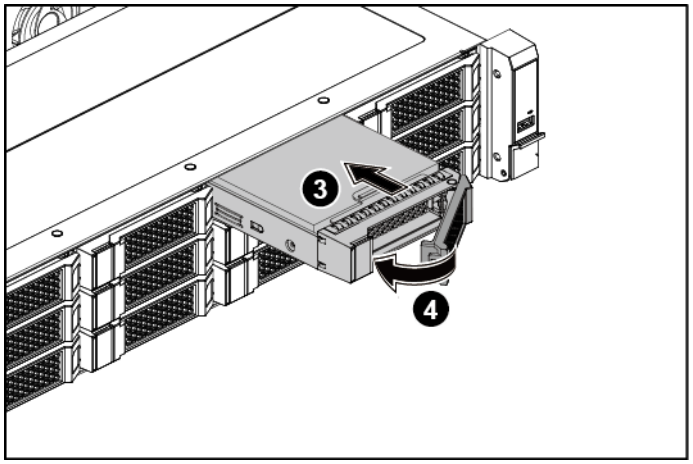


Figure 2-26 Installing the HDD Assembly

Make sure that the HDD is connected to the HDD connector on the backplane.

2.8 2.5” HDDs

The server can support 24x2.5” hot-pluggable HDDs. Each HDD is with an adapter bracket. You don’t need to power-off the system when removing or installing a HDD.

The location of the 2.5” HDDs on the server is shown below:

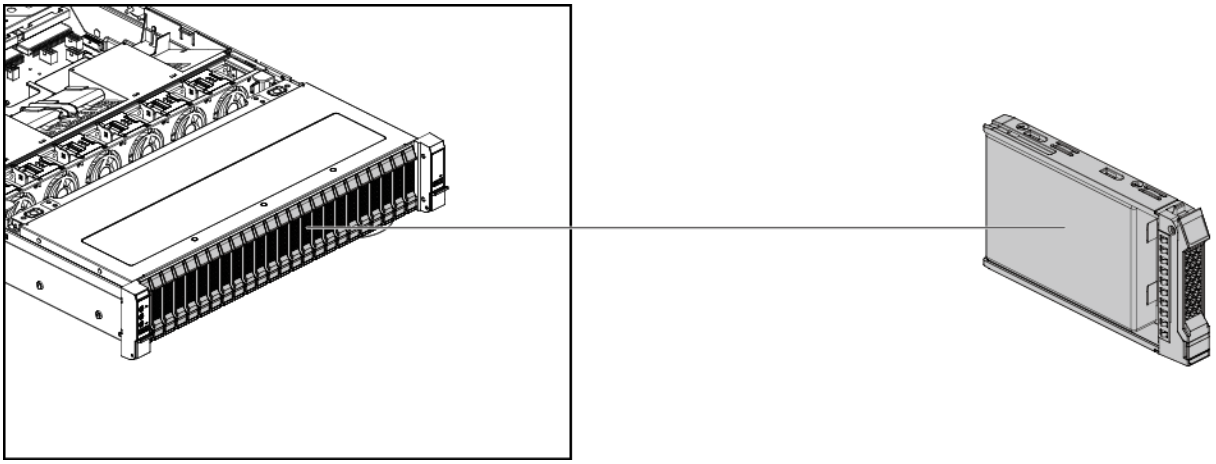


Figure 2-27 2.5” HDD Locations

- Take note of the drive tray orientation before sliding it out.
- The tray will not fit back into the bay if inserted incorrectly.

2.8.1 To remove the 2.5” HDD

❶ Push the release button.
❷ Pull the lever open.
❸ Slide the HDD assembly out of the HDD bay.

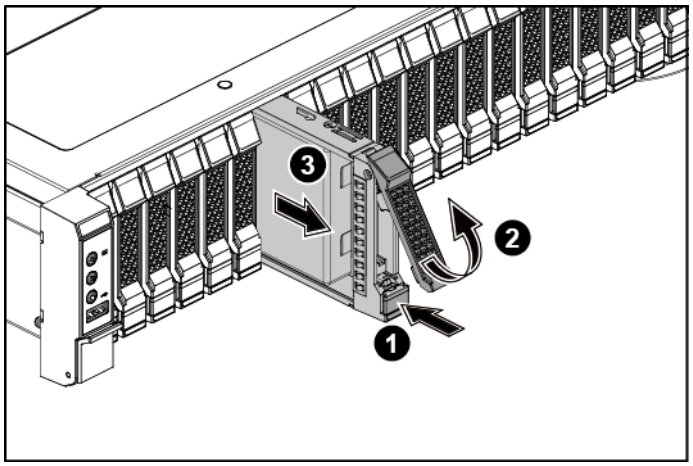


Figure 2-28 Sliding out the 2.5” HDD Assembly

❹ Turn the bottom of the HDD assembly up and press down the side of HDD to release this side from the HDD bracket.

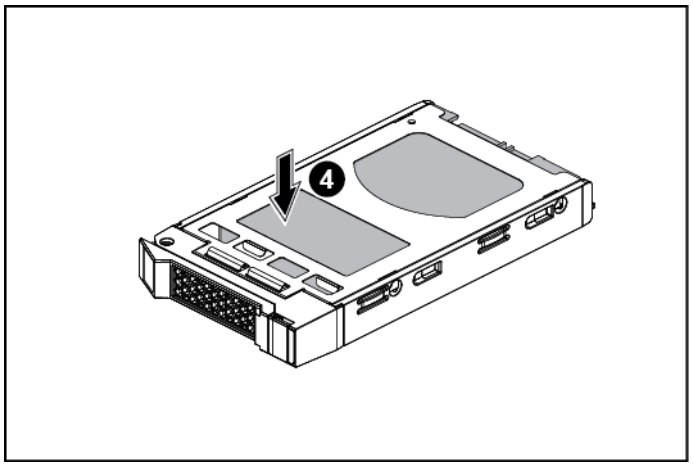


Figure 2-29 Releasing the HDD

❺ Lift up the released side of the HDD bracket to remove the HDD.

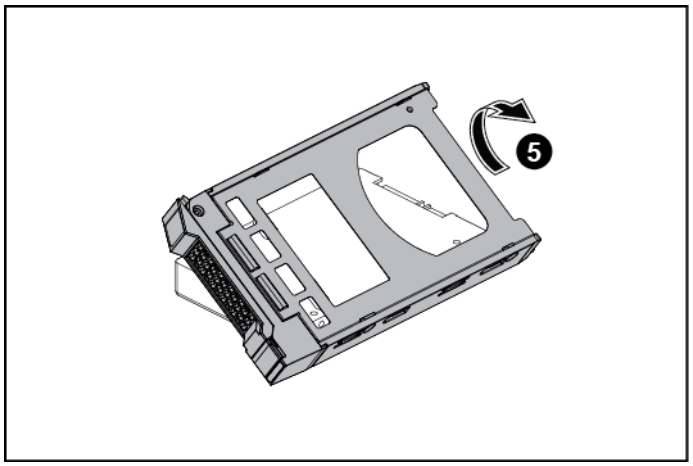


Figure 2-30 Removing the HDD

2.8.2 To install the 2.5” HDD

❶ Place the HDD to the HDD tray by aligning the locking tabs to the corresponding holes.

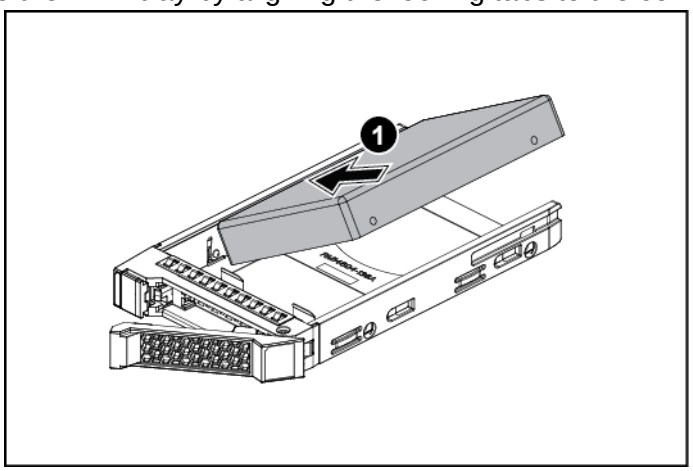


Figure 2-31 Placing the HDD

❷ Press the other side of the HDD down to secure it.

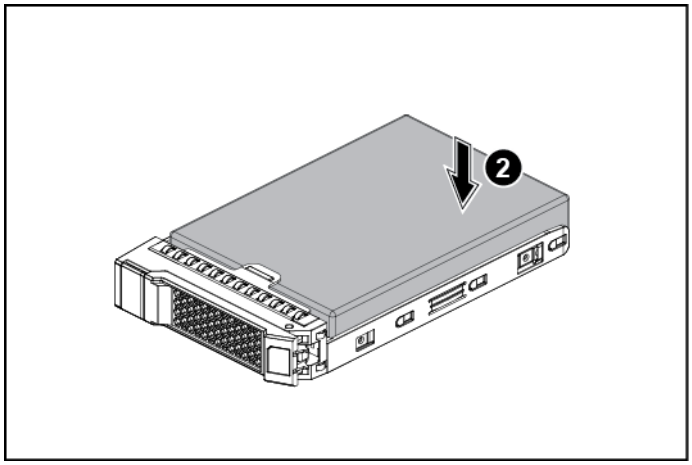


Figure 2-32 Securing the HDD

❸ Carefully insert the HDD assembly into the HDD bay with the lever lifted until it completely enters the HDD bay.

❹ Push the lever back in place.

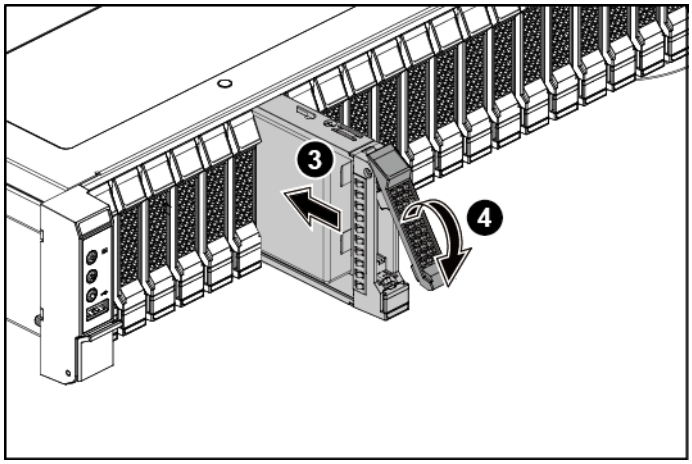


Figure 2-33 Installing the HDD Assembly

Make sure that the HDD is connected to the HDD connector on the backplane.

2.9 12x3.5” HDDs Backplane

The 12x3.5” HDDs backplane can support up to twelve 3.5” HDDs with adapter bracket in the system. The design incorporates a hot-swappable feature to allow easy replacement of HDDs. The SATA or SAS connectors on each backplane connect to the motherboard to provide power and indicate HDD access and failure.

The location of 12x3.5” HDDs backplane is shown below:

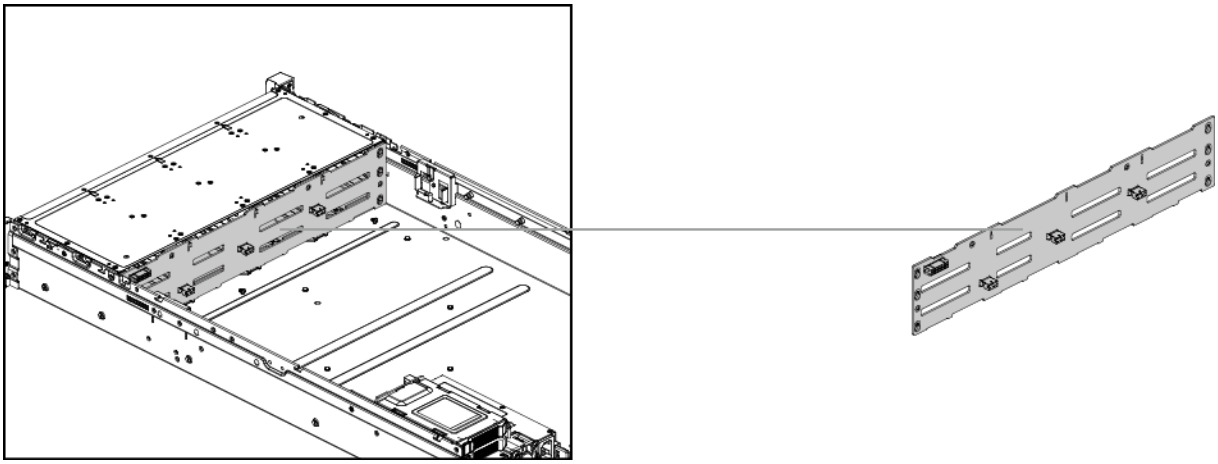


Figure 2-34 12x3.5” HDDs Backplane Location

Reminder

Before you remove or install the 12x3.5” HDDs backplane, please follow the steps below:

Step 1: *Make sure the server is not turned on or connected to the AC power. To power off the server, see “2.1.1 Power Off”.*

Step 2: *Remove the chassis cover. To remove the chassis cover, see “2.2 Chassis Cover”.*

Step 3: *Remove the HDDs.To remove a HDD, see ”2.7 3.5” HDDs”.*

Step 4: *Disconnect all the necessary cables.*

2.9.1 To remove the 12x3.5” HDDs backplane

❶ Press down the locking tab.
❷ Remove the front top cover from the chassis.

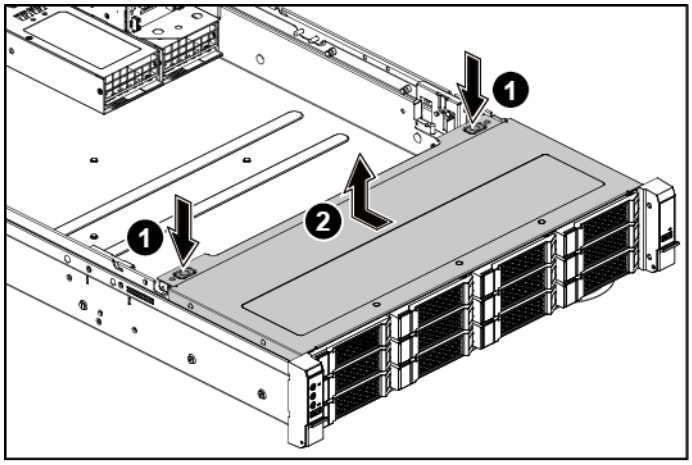


Figure 2-35 Removing the front top cover

❸ Remove the screws that secure the backplane.
❹ Remove the backplane along the direction of the arrow.

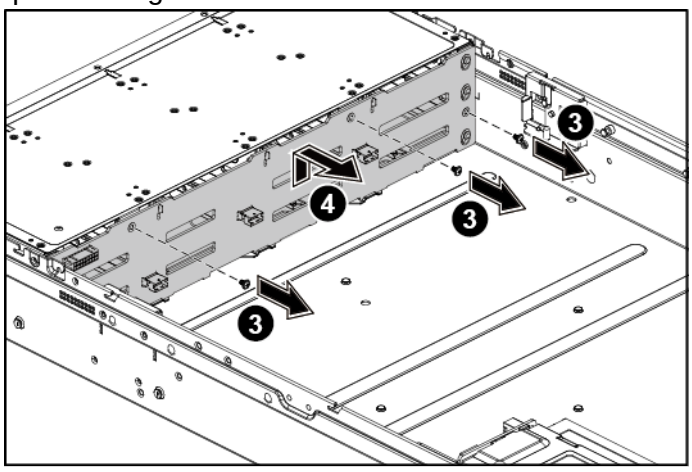


Figure 2-36 Removing the 12x3.5”HDDs backplane

2.9.2 To install the 12x3.5” HDDs backplane

Reverse the steps above to install the 12x3.5” HDDs backplane.

2.10 8x2.5” HDDs Backplane

The server supports three 8x2.5” HDDs backplanes, which can support up to twenty-four 2.5” HDDs with adapter bracket in the system. The design incorporates a hot-swappable feature to allow easy replacement of HDDs. The SATA or SAS connectors on each backplane connect to the motherboard to provide power and indicate HDD access and failure.

The location of 8x2.5” HDDs backplane is shown below:

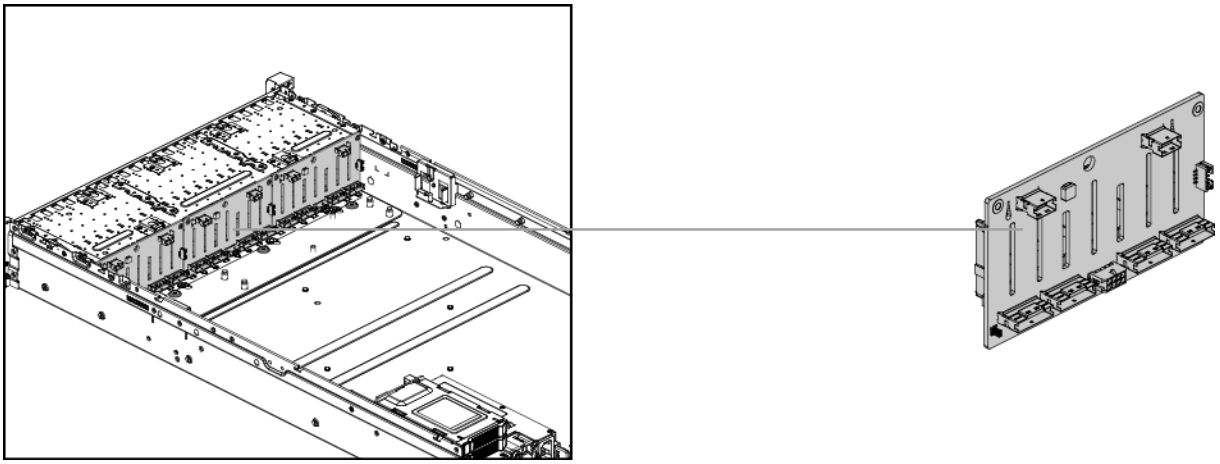


Figure 2-37 8x2.5” HDDs Backplane Location

Reminder

Before you remove or install the 8x2.5” HDDs backplane, please follow the steps below:

Step 1: *Make sure the server is not turned on or connected to the AC power. To power off the server, see “2.1.1 Power Off”.*

Step 2: *Remove the chassis cover. To remove the chassis cover, see “2.2 Chassis Cover”.*

Step 3: *Remove the HDDs.To remove a HDD, see 2.8 2.5” HDDs”.*

Step 4: *Disconnect all the necessary cables.*

2.10.1 To remove the 8x2.5” HDDs backplane

❶ Press down the locking tab.
❷ Remove the front top cover from the chassis.

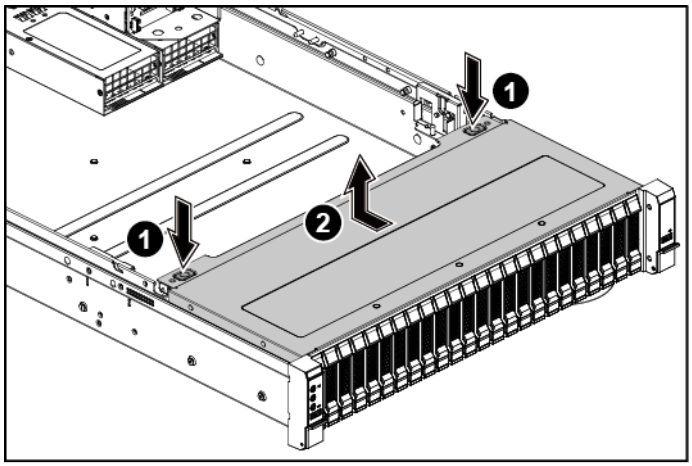


Figure 2-38 Removing the front top cover

❸ Remove the screws that secure the backplane.
❹ Remove the backplane along the direction of the arrow.

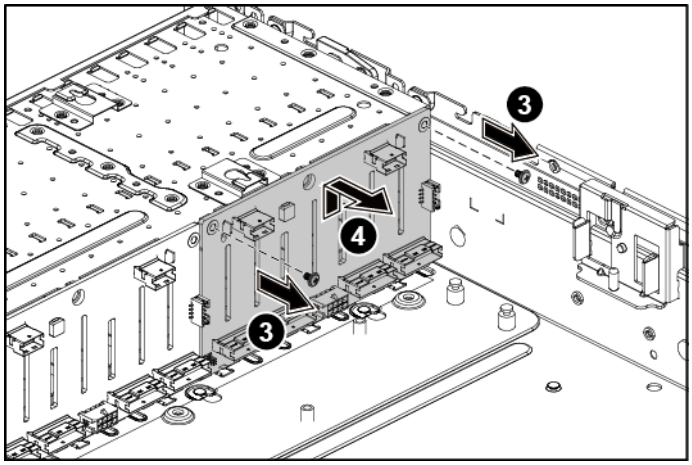


Figure 2-39 Removing the 8x2.5” HDDs backplane

2.10.2 To install the 8x2.5” HDDs backplane

Reverse the steps above to install the 8x2.5” HDDs backplane.

2.11 Rear 2x2.5” HDDs Backplane

The location of rear 2x2.5” HDD backplane is shown below:

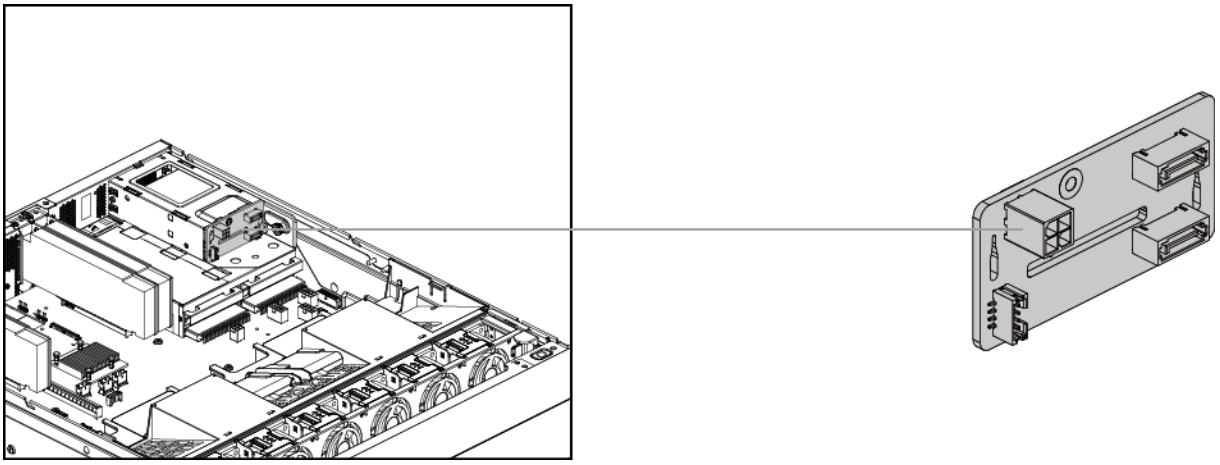


Figure 2-40 Rear 2x2.5” HDDs Backplane Location

Reminder

Before you remove or install the rear 2x2.5” HDDs backplane, please follow the steps below:

Step 1: *Make sure the server is not turned on or connected to the AC power. To power off the server, see “2.1.1 Power Off”.*

Step 2: *Remove the chassis cover. To remove the chassis cover, see “2.2 Chassis Cover”.*

Step 3: *Remove the rear HDDs.To remove a HDD, see “2.8 2.5” HDDs”.*

Step 4: *Disconnect all the necessary cables.*

2.11.1 To remove the rear 2x2.5” HDDs backplane

❶ Remove the screw.
❷ Remove the rear HDD backplane from the chassis.

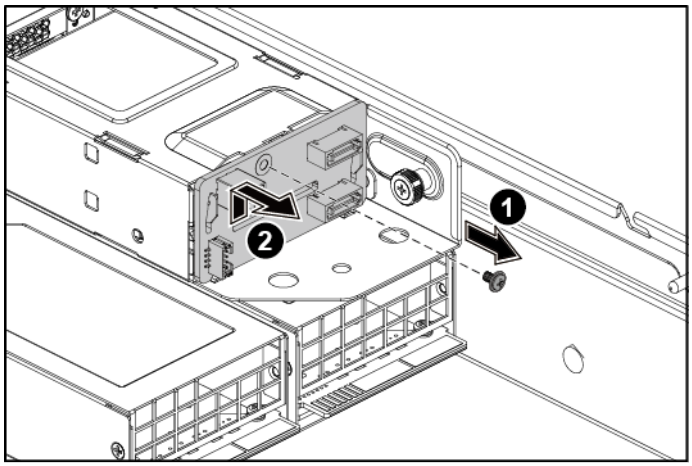


Figure 2-41 Removing the Rear 2x2.5” HDDs Backplane

2.11.2 To install the rear 2x2.5” HDDs backplane

Reverse the steps above to install the rear 2x2.5” HDDs backplane.

2.12 Front Panels

The location of left front panel on the server is shown below:

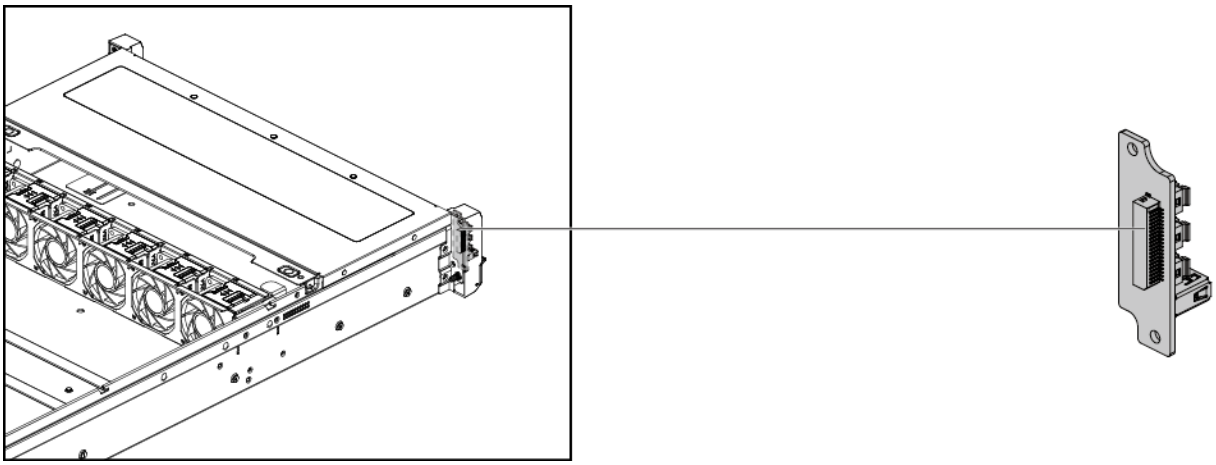


Figure 2-42 Left Front Panel Location

The location of right front panel on the server is shown below:

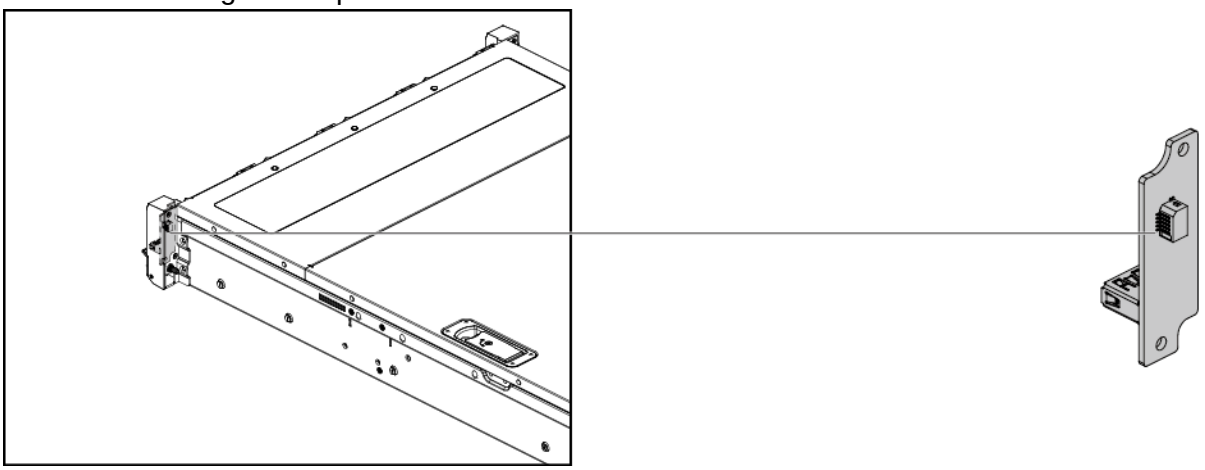


Figure 2-43 Right Front Panel Location

Reminder

Before you remove or install the front panel, please follow the steps below:

Step 1: *Make sure the server is not turned on or connected to the AC power. To power off the server, see "2.1.1 Power Off".*

2.12.1 To remove the front panel

❶ Unscrew the front panel assembly.

❷ Remove the front panel assembly from the chassis.

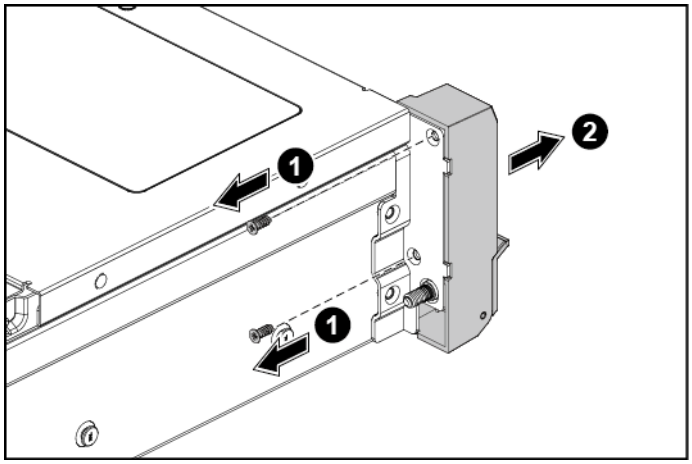


Figure 2-44 Removing the Front Panel Assembly

❸ Unscrew the front panel.
❹ Remove the front panel.

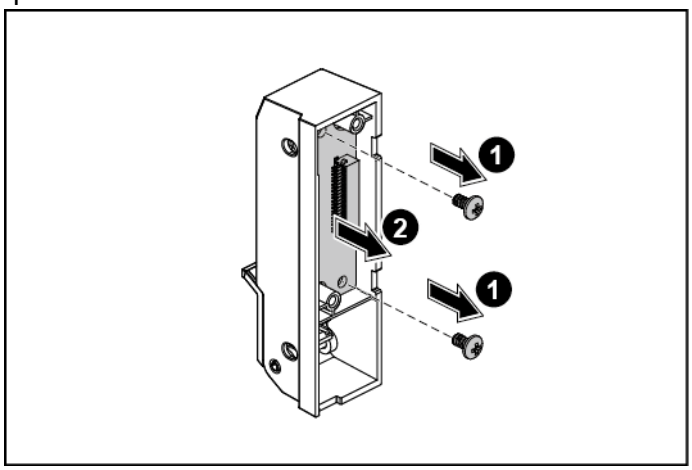


Figure 2-45 Removing the Front Panel

2.12.2 To install the front panel

Reverse the steps above to install the front panel.

2.13 Expansion Cards

The location of expansion cards on the server is shown below:

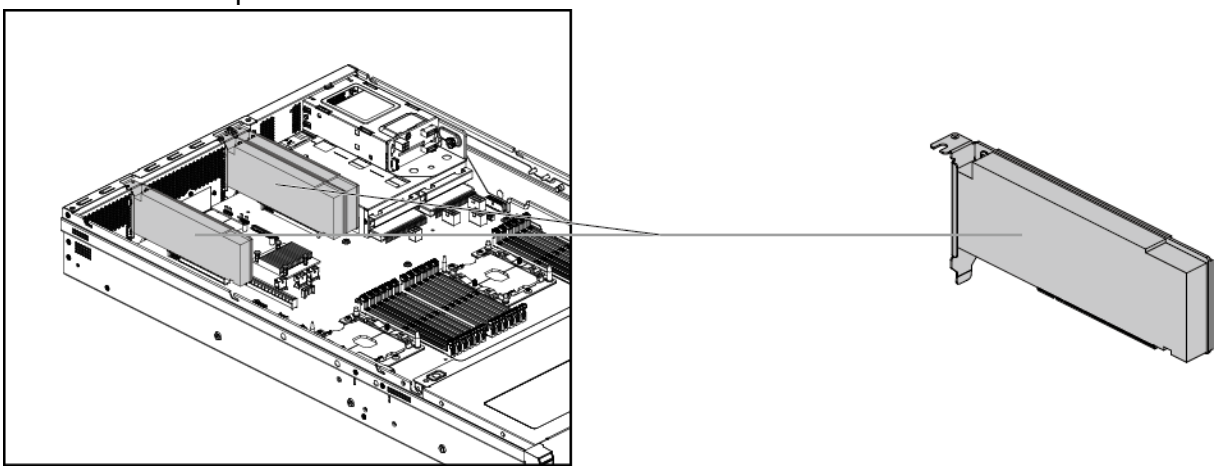


Figure 2-46 Expansion Card Location

Reminder

Before you remove or install the expansion card, please follow the steps below:

Step 1: *Make sure the server is not turned on or connected to the AC power. To power off the server, see "2.1.1 Power Off".*

Step 2: *Remove the chassis cover. To remove the chassis cover, see "2.2 Chassis Cover".*

2.13.1 To remove the expansion card

❶ Unscrew the expansion card.
❷ Lift the expansion card out of the chassis.

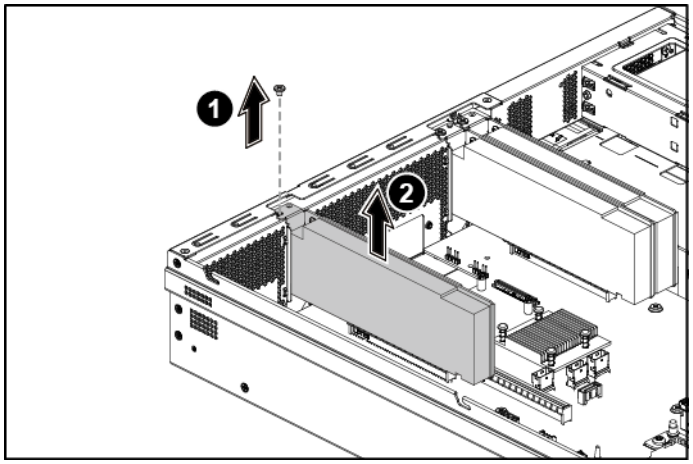


Figure 2-47 Removing the Expansion Card

❸ Insert the slot cover.
❹ Secure the slot cover with the screw.

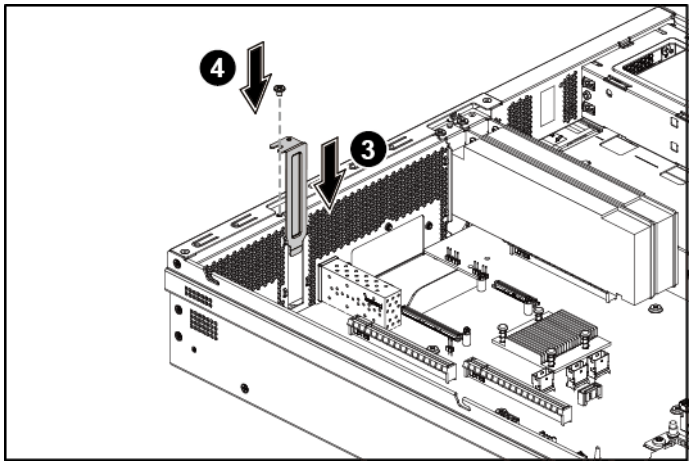


Figure 2-48 Installing the Slot Cover

2.13.2 To install the expansion card

Reverse the steps above to install the expansion card.

2.14 Fan Duct

The location of fan duct on the server is shown below:

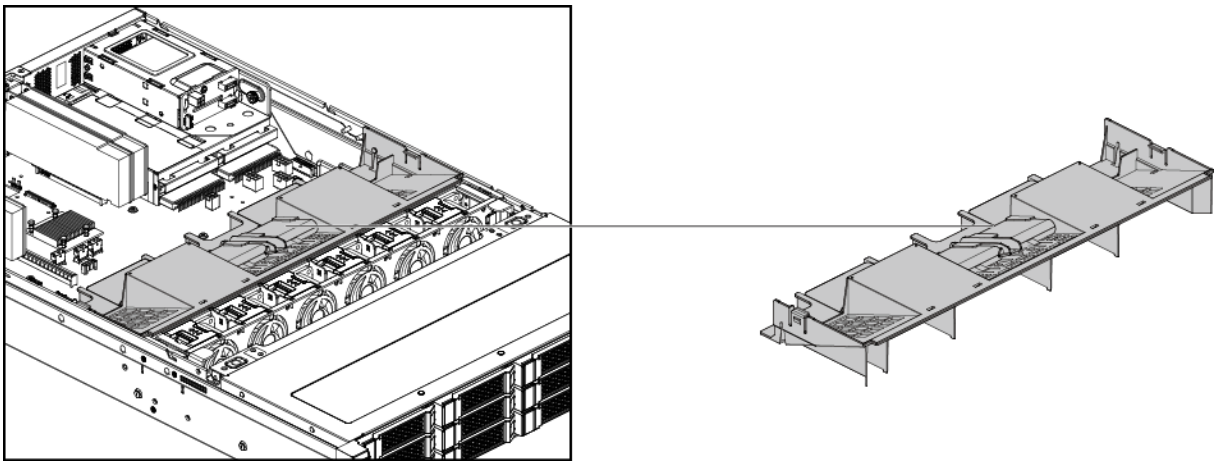


Figure 2-49 Fan Duct Location

Make sure that the fan duct on the server is installed in place to keep proper cooling.

Reminder

Before you remove or install the fan duct please follow the steps below:

Step 1: *Make sure the server is not turned on or connected to the AC power. To power off the server, see "2.1.1 Power Off".*

Step 2: *Remove the chassis cover. To remove the chassis cover, see "2.2 Chassis Cover".*

When removing the fan duct in the server with 6xPCI-E x8 Slots or x16 slots, make sure to remove the expansion card assembly first.

2.14.1 To remove the fan duct

❶ Push the two locking clips inward to release the fan duct.
❷ Lift the fan duct out of the chassis.

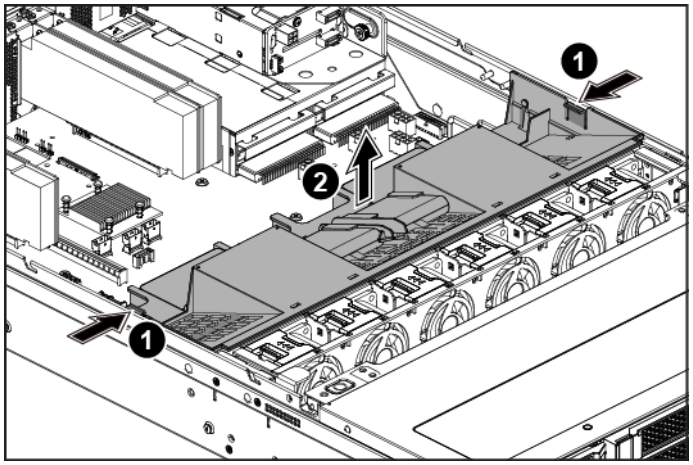


Figure 2-50 Removing the Fan Duct

2.14.2 To install the fan duct

Reverse the steps above to install the fan duct.

2.15 Full-length Expansion Cards (6xPCI-E x8 Slots or x16 slots)

The location of full-length expansion cards on the server is shown below:

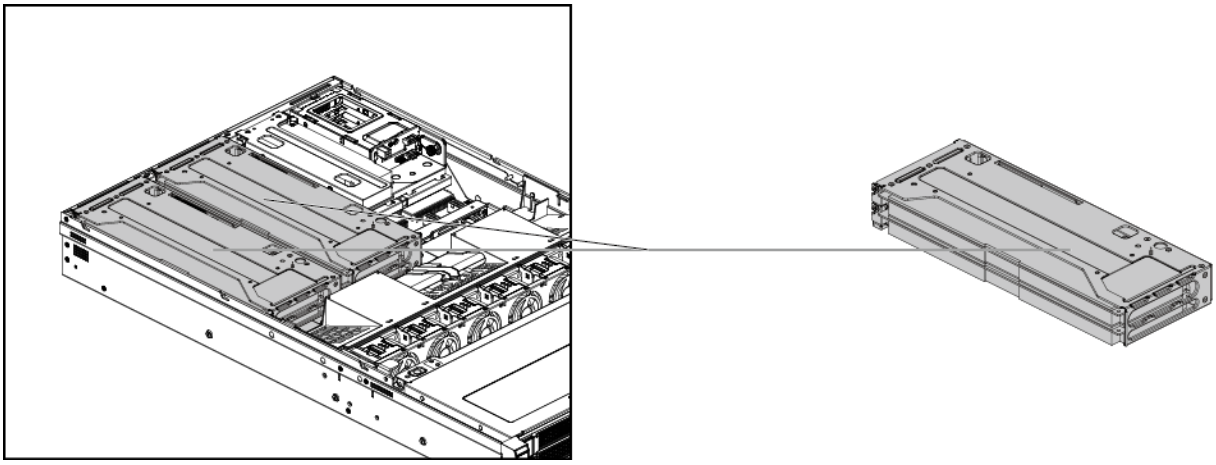


Figure 2-51 Full-length Expansion Card Location

Reminder

Before you remove or install the full-length expansion card, please follow the steps below:

Step 1: *Make sure the server is not turned on or connected to the AC power. To power off the server, see "2.1.1 Power Off".*

Step 2: *Remove the chassis cover. To remove the chassis cover, see "2.2 Chassis Cover".*

2.15.1 To remove the full-length expansion card

❶ Unscrew the expansion card assembly.

❷ Lift the expansion card assembly out of the chassis.

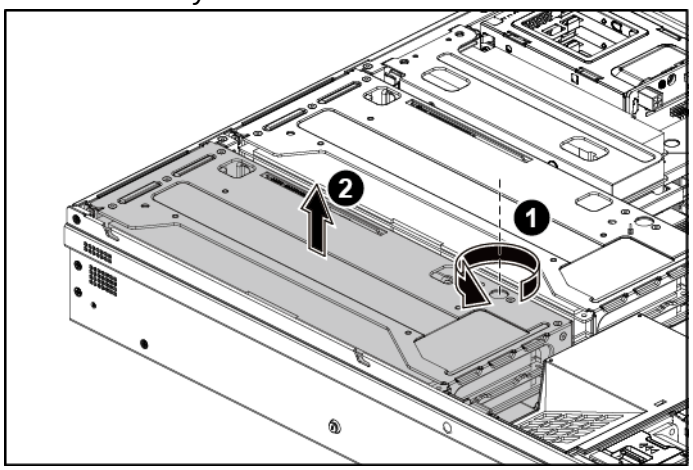


Figure 2-52 Removing the Full-profile Expansion Card Assembly

❸ Unscrew the expansion card.

❹ Lift the expansion card out of the chassis.

❺ Insert the slot cover into place.

❻ Secure the slot cover with the screw.

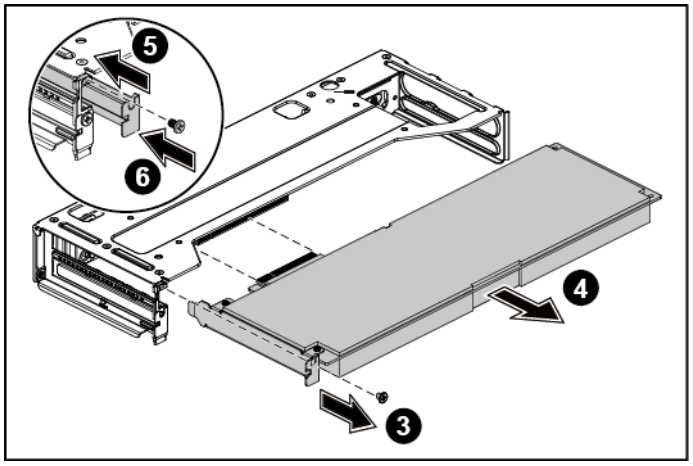


Figure 2-53 Removing the Full-profile Expansion Card

❼ Unscrew the riser card.

❽ Remove the riser card along the direction of the arrow.

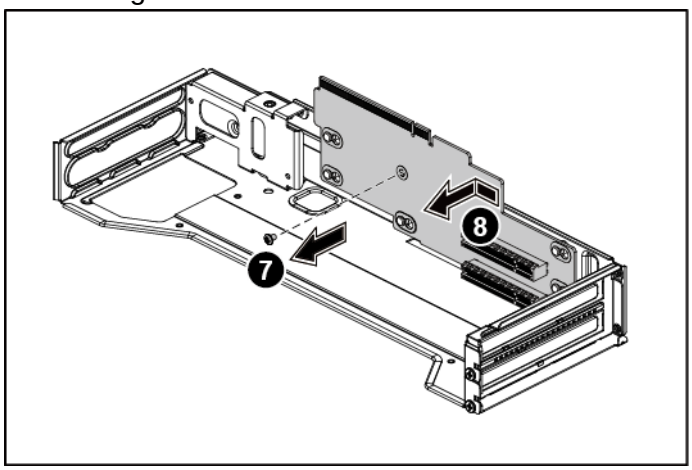


Figure 2-54 Removing the Riser Card

2.15.2 To install the full-length expansion card

Reverse the steps above to install the full-length expansion card.

2.16 Half-length Expansion Cards (6xPCI-E x8 Slots or x16 slots)

The location of half-length expansion cards on the server is shown below:

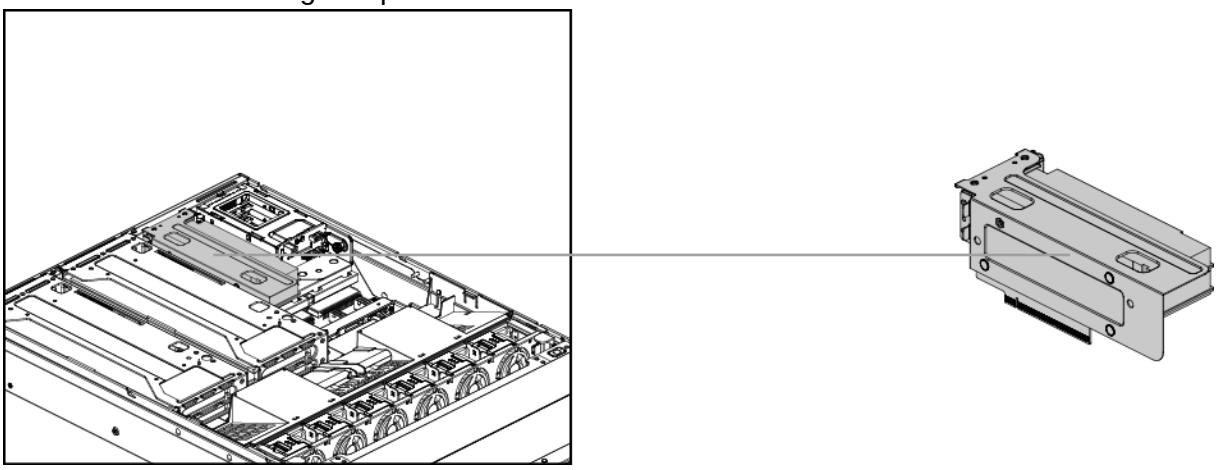


Figure 2-55 Half-length Expansion Card Location

Reminder

Before you remove or install the half-length expansion card, please follow the steps below:

Step 1: *Make sure the server is not turned on or connected to the AC power. To power off the server, see "2.1.1 Power Off".*

Step 2: *Remove the chassis cover. To remove the chassis cover, see "2.2 Chassis Cover".*

2.16.1 To remove the half-length expansion card

❶ Lift the half-length expansion card assembly out of the chassis.

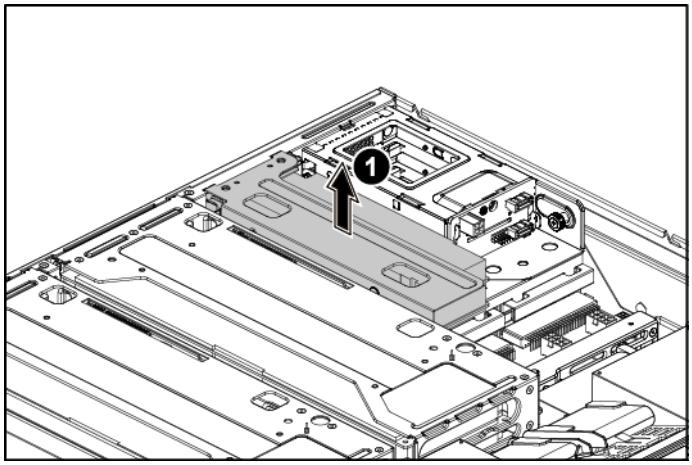


Figure 2-56 Removing the Half-length Expansion Card Assembly

❷ Unscrew the expansion card.
❸ Lift the expansion card out of the chassis.
❹ Insert the slot cover into place.
❺ Secure the slot cover with 1 screw.

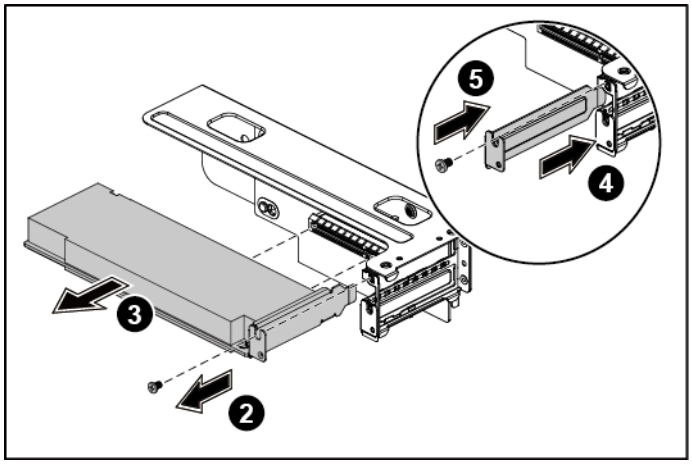


Figure 2-57 Removing the Half-length Expansion Card

❻ Unscrew the riser card.
❼ Remove the riser card along the direction of the arrow.

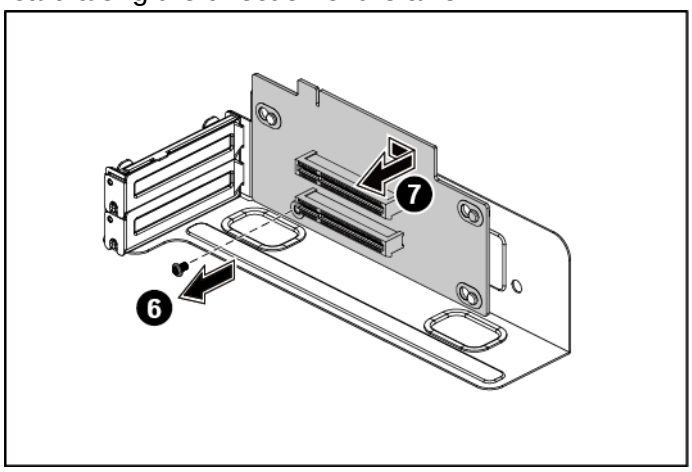


Figure 2-58 Removing the Riser Card

2.16.2 To install the half-length expansion card

Reverse the steps above to install the half-length expansion card.

Chapter 3
Connectors

Backplane Connectors

3 Connectors

3.1 Backplane Connectors

3.1.1 12x3.5” HDDs Backplane

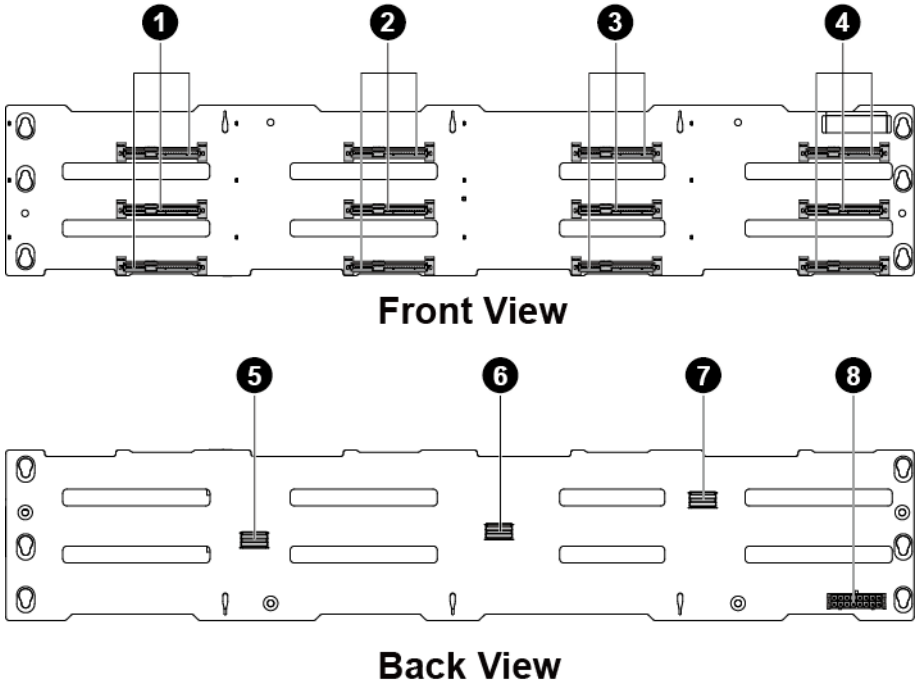


Figure 3-1 12x3.5“ HDDs Backplane

1	SATA HDD Connectors 0, 4, 8 (from bottom to top)	5	HDD Backplane mini-SAS connector 3
2	SATA HDD Connectors 1, 5, 9 (from bottom to top)	6	HDD Backplane mini-SAS connector 2
3	SATA HDD Connectors 2, 6, 10 (from bottom to top)	7	HDD Backplane mini-SAS connector 1
4	SATA HDD Connectors 3, 7, 11 (from bottom to top)	8	HDD Backplane Power Connector

3.1.2 8x2.5” HDDs Backplane

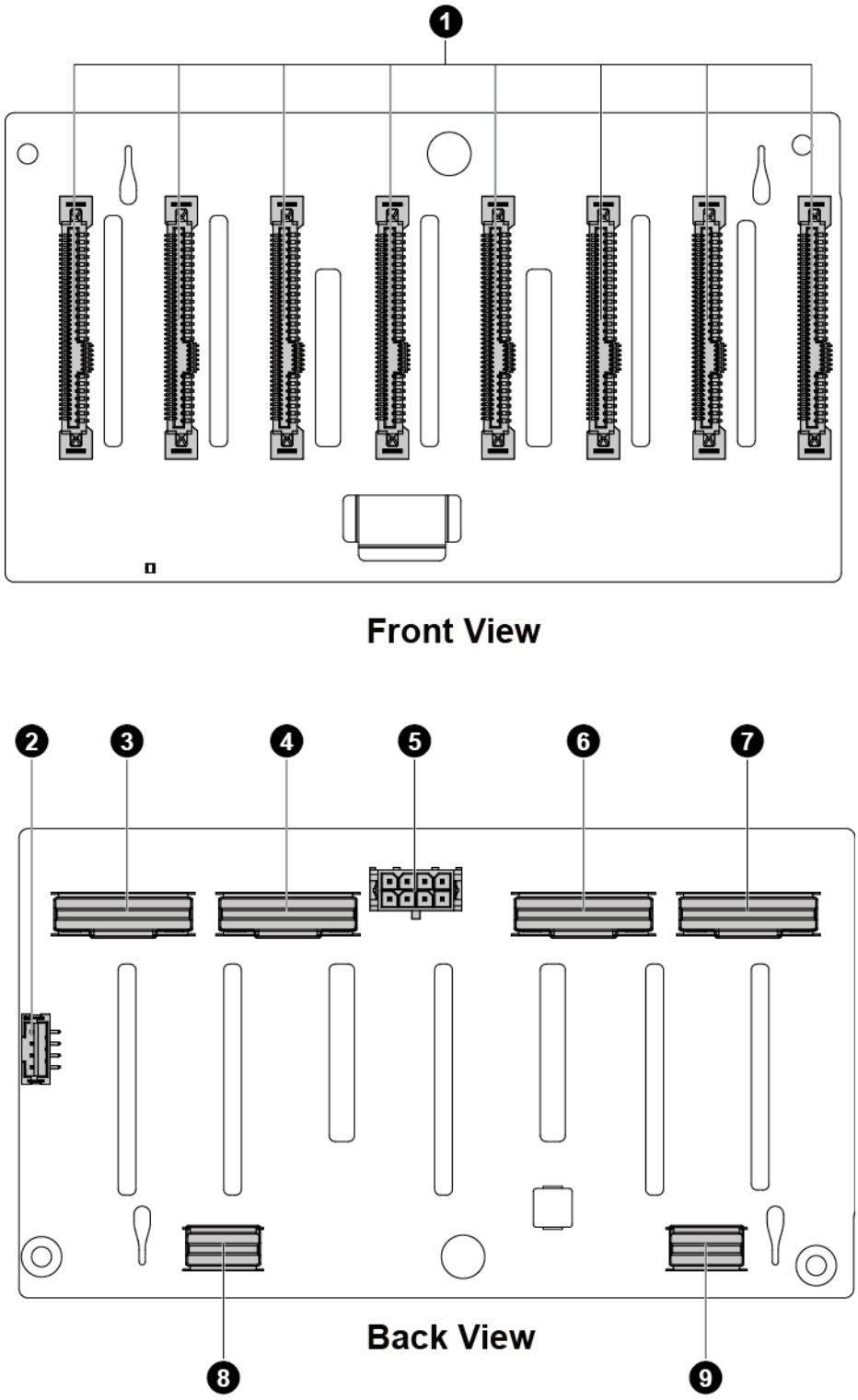


Figure 3-2 8x2.5“ HDDs Backplane

1	SATA HDD Connectors 0-7	6	Slimline Connector 2
2	I^2C Connector	7	Slimline Connector 1
3	Slimline Connector 4	8	Backplane SATA Connectors 2
4	Slimline Connector 3	9	Backplane SATA Connectors 1
5	Backplane Power Connector		

3.1.3 Rear 2x2.5” HDDs Backplane

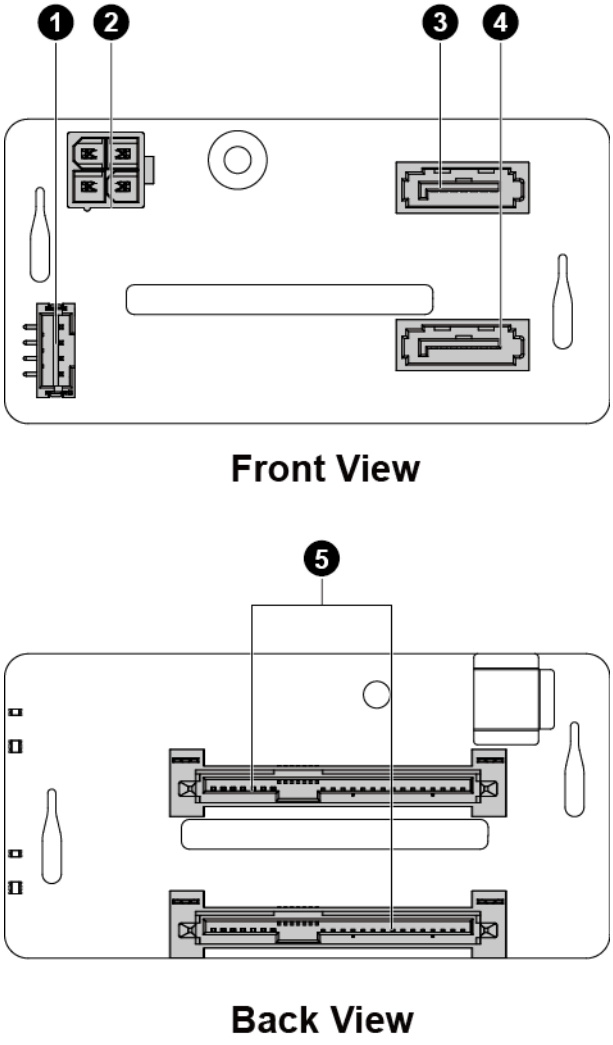


Figure 3-3 Rear 2x2.5“ HDDs Backplane

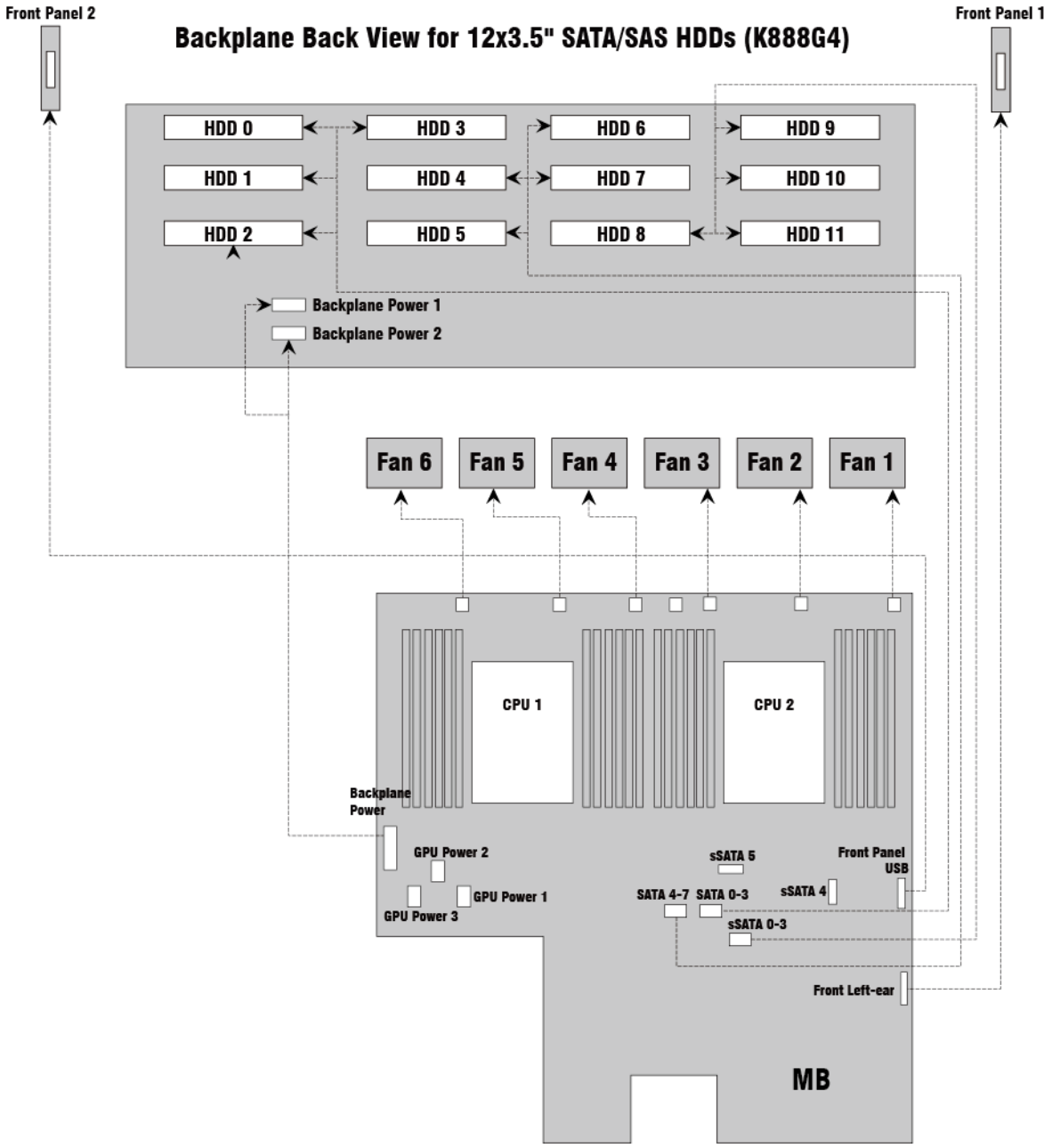
1	SGPIO Connector	4	Backplane SATA Connector 2
2	Backplane Power Connector	5	SATA HDD Connectors 0, 1
3	Backplane SATA Connector 1		

Chapter 4

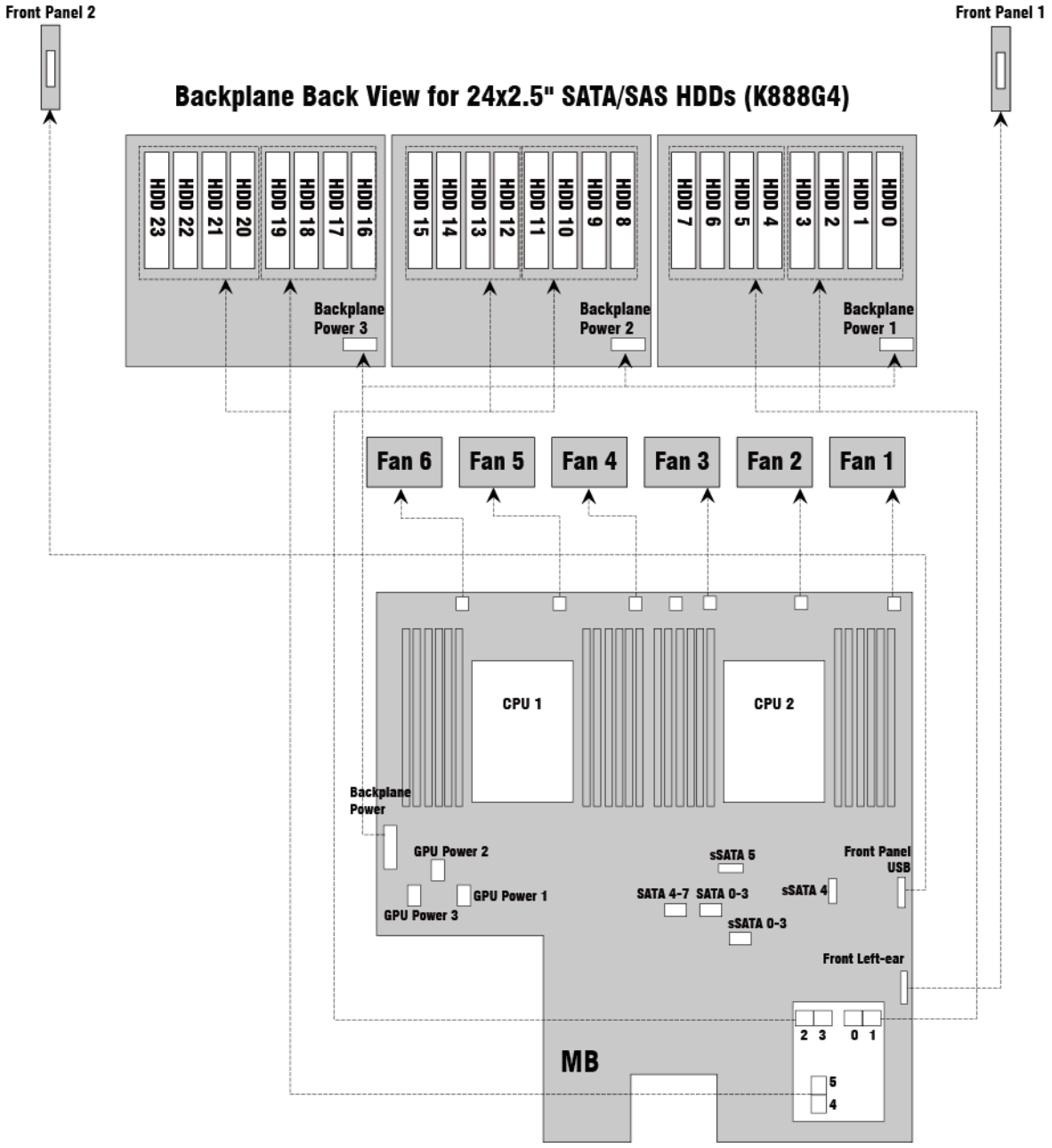
Cable Routing

4 Cable Routing

4.1 Cable Routing for 12x3.5” HDDs



4.2 Cable Routing for 24x2.5” HDDs



Appendix

Appendix Hazardous Substances Free Regulations and Electromagnetic Emissions Notices

China RoHS Regulations

产品中有害物质的名称及含量状态说明表

部件名称	有毒有害物质或元素					
	铅（Pb）	汞（Hg）	镉（Cd）	六价铬（Cr(VI)）	多溴联苯（PBB）	多溴二苯醚（PBDE）
机箱/ 挡板	×	○	○	○	○	○
机械部件（风扇、散热器、马达等）	×	○	○	○	○	○
印刷电路部件	×	○	○	○	○	○
电缆/ 电线/ 连接器	×	○	○	○	○	○
硬盘驱动器	×	○	○	○	○	○
介质读取/ 存储设备	×	○	○	○	○	○
电源设备/ 电源适配器	×	○	○	○	○	○
电源线	×	○	○	○	○	○
完整机架/ 导轨产品	×	○	○	○	○	○

○：表示该有毒有害物质在该部件所有均质材料中的含量均在 GB/T 26572 标准规定的限量要求以下。

×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 标准规定的限量要求。

注意：

1. 本表显示英业达股份有限公司供应的本型号产品可能包含这些物质，这些有毒有害物质或元素的部件皆因全球技术发展水平限制而无法实现有毒有害物质或元素的替代，但这些信息可能随着技术发展而不断更新。
2. 根据型号的不同可能不全含有以上的所有部件，请以实际购买机型为准。
3. 本表中部件定义的解释权归属英业达股份有限公司。

右图为本型号产品的环保使用期限标志，某些可更换的零部件会有一个不同的环保使用期（例如：电池的环保使用期限为五年）此环保使用期限只适用于产品手册中所规定的条件下工作。

Figure I China RoHS Regulations

Taiwan BSMI

限用物質標示聲明書

設備名稱：伺服器 Equipment name　　型號(型式)：K888G4 Type designation (Type)

單元	限用物質及其化學符號					
	鉛	汞 (Hg)	鎘 (Cd)	六價鉻 (Cr^{+6})	多溴聯苯 (PBB)	多溴二苯醚 (PBDE)
內外殼	—	○	○	○	○	○
電路板	—	○	○	○	○	○
主機板	—	○	○	○	○	○
記憶卡	—	○	○	○	○	○
電源供應器	—	○	○	○	○	○
存取裝置 (HDD、SSD)	—	○	○	○	○	○
散熱模組（主機風扇、CPU風扇）	—	○	○	○	○	○
配件（傳輸線、網路線）	—	○	○	○	○	○
其他固定組件（螺絲、檔板）	—	○	○	○	○	○

備考 1. “○”係指該項限用物質之百分比含量未超出百分比含量基準值。

備考 2. “—”係指該項限用物質為排除項目。

Figure II　Taiwan BSMI

Electromagnetic Emissions Notices

Federal Communications Commission notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Class A Equipment

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

Notices for Canada (Avis Canadien)

Class A Equipment

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. CAN ICES-3(A)/NMB-3(A) Cet appareil numérique de la class A respecte toutes les exigences du Règlement sur le materiel brouilleur du Canada.

Notices for China

Class A Equipment

声明
此为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取可行的措施。

Notices for European Union

European Union Regulatory Notice

Products bearing the CE marking comply with applicable EU Directives:

Compliance with such directives is assessed using applicable European Harmonized Standards.

Notices for Japan

VCCI Notice

Class A EMI Warning Message

VCCI マークが付いていない場合には、次の点にご注意下さい。

この装置は、クラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者は適切な対策を講ずるよう要求されることがあります。

VCCI-A

Power Cord Statement

製品には、同梱された電源コードをお使い下さい。
同梱された電源コードは、他の製品では使用出来ません。

Notices for Korea

Class A EMI Warning Message

A급 기기 (업무용 방송통신기기)	이 기기는 업무용(A급)으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정 외의 지역에서 사용하는 것을 목적으로 합니다.

Notices for Taiwan

BSMI Notices

Class A EMI Warning Message

警告使用者：

此為甲類資訊技術設備，於居住環境中使用時，可能會造成射頻擾動，

在此種情況下，使用者會被要求採取某些適當的對策。

Notices for Russia

Class A EMI Warning Message

ВНИМАНИЕ!

Настоящее изделие относится к оборудованию класса А. При использовании в бытовой обстановке это оборудование может нарушать функционирование других технических средств в результате создаваемых индустриальных радиопомех. В этом случае от пользователя может потребоваться принятие адекватных мер.