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GREEN Less Heat, Less Power Consumption

STABLE Robust Design, Quality Parts

Stable and
Reliable Solution



3U8G+/C621

User Manual

English



Version 1.0

Published June 2018

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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.

CALIFORNIA, USA ONLY

The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.

“Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate”

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Setting up the Server in a Restricted Access Location

- 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 security, and is controlled by the authority responsible for the location.
- Leave enough clearance (25 inches in the front and 30 inches in the back of the rack) to allow the front door to be opened completely and to allow for sufficient airflow.
- This product is for installation merely in a Restricted Access Location.
- This product is not suitable for use with visual display work place devices according to §2 of the the German Ordinance for Work with Visual Display Units.

Replaceable Batteries

CAUTION

**RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS**

Warning

When removal of the chassis lid required for servicing:

- Turn off power and unplug any power cords/cables, and
- Reinstall the chassis lid before restoring power.

Important Safety Instructions

Pay close attention to the following safety instructions before performing any of the operation. Basic safety precautions should be followed to protect yourself from harm and the product from damage:

- Operation of the product should be carried out by suitably trained, qualified, and certified personnel only to avoid risk of injury from electrical shock or energy hazard.
- Disconnect the power cord from the wall outlet when installing or removing main system components, such as the motherboard and power supply unit.
- Place the system on a stable and flat surface.
- Use extreme caution when working with high-voltage components.
- When handling parts, use a grounded wrist strap designed to prevent static discharge.
- Keep the area around the system clean and clutter-free.
- Keep all components and printed circuit boards (PCBs) in their antistatic bags when not in use.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.

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Chapter 1 Introduction

Thank you for purchasing 3U8G+/C621, a reliable barebone system produced under ASRock Rack's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock Rack's commitment to quality and endurance.



Because the hardware specifications might be updated, the content of this documentation will be subject to change without notice. In case any modifications of this documentation occur, the updated version will be available on ASRock Rack's website without further notice. If you require technical support related to this product, please visit our website for specific information about the model you are using.

ASRock Rack's Website: www.ASRockRack.com



The illustrations shown in this manual are examples only, the actual system may differ slightly.

1.1 Shipping Box Contents

Item	Quantity
3U8G+/C621 Barebone (3U form factor)	1
System Boards (MB)*	1
Power Supply Units*	4
System Fans*	8
HDD Backplane (BPB)*	1
Front Panel Board*	1
Power Distribution Boards (PDB)*	1
Switch Board (SWB)*	1
Power Cable, ATX 24Pin, PDB to MB, 520mm*	1
Power Cable, ATX 8Pin-1, PDB to MB, 470mm*	1
Power Cable, ATX 8Pin-2, PDB to MB, 500mm*	1
PMBus Cable, PDB to MB(1*5Pin), 470mm*	1
3U Front Control Cable (1 to 4 connectors)*	1
3U USB Cable 9Pin, 850mm*	1
MiniSAS Cable, 380mm (SATA0-3)*	1
SATA Cable, 310mm (SATA4 / SATA5)*	2
BPB Power Cable, PDB to HDD BPB*	2
3U MNG Cable, Pitch 2.0 1*5P, 610mm*	1
GPGPU Power Cable*	8
VGA Cable	1
Accessory Box	1
Support CD	1
User Manual	1
Quick Installation Guide	1
4U Top Cover	2
4U10G_SL2P	2
4U10G_SL2M	1

* The components are pre-installed.



If any items are missing or appear damaged, contact your authorized dealer.

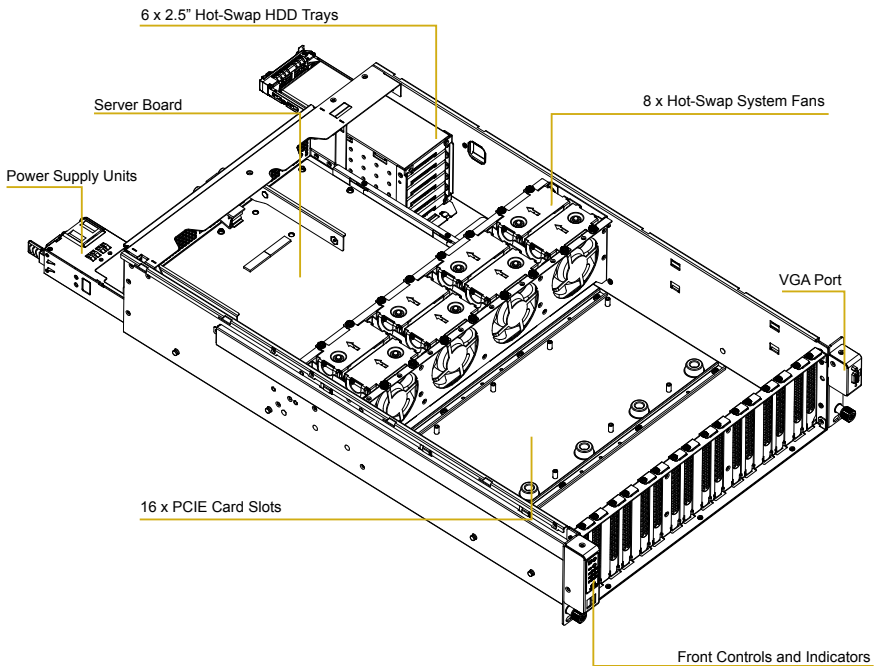
1.2 Specifications

3U8G+/C621	
System Physical Status	
Form Factor	3U Rackmount
Dimension (D x W x H)	27.6" x 16.9" x 5.1" (711 x 430 x 130.35 mm)
Support MB Size	CEB (EP2C621D16GM / EP2C621D16GM-2T)
Front Panel	
Buttons	• Power On/Standby button • ID button* • System reset button • NMI button*
LEDs	• Power LED • Identification LED* • Hard drive activity LED* • 4 x Network activity LEDs* • System event LED*
I/O Ports	2 x USB 2.0 ports 1 x VGA port
Drive Bay	
External	6 x 2.5" SATA HDD (6Gb/s) or 6 x SAS HDD* (12Gb/s) <i>*A PCIE RAID card is required for SAS support.</i>
System Cooling	
Fan	8 x 80*38 mm system fans
Power Supply	
Capacity	4 (3+1), Redundant
Output Watts	1200W @ 200Vac~264Vac
System Switch Board	
Switch IC	PLX 8747 x 4
GPGPU Card	
GPGPU Watts	Max 300w /per card
Expansion Slot	
PCIE / GPGPU Card	Front Panel: 16 single-width / 8 x double-width cards Rear Panel: 2 x PCIE cards* <i>* PCIE cards and mezzanine cards share the same slots. Install one card at a time. * A riser card (4U10G_SL2P), pre-installed on the assembly, is required for PCIE card installation.</i>
Mezzanine Card	Rear Panel: 2 x Mezzanine cards (M599R / M41202R supported) (with a riser card (4U10G_SL2P))* <i>* PCIE cards and mezzanine cards share the same slots. Install one card at a time. * A mezzanine adapter card (4U10G_SL2M) and riser card (4U10G_SL2P), pre-installed on the assembly, are required for mezzanine card installation.</i>

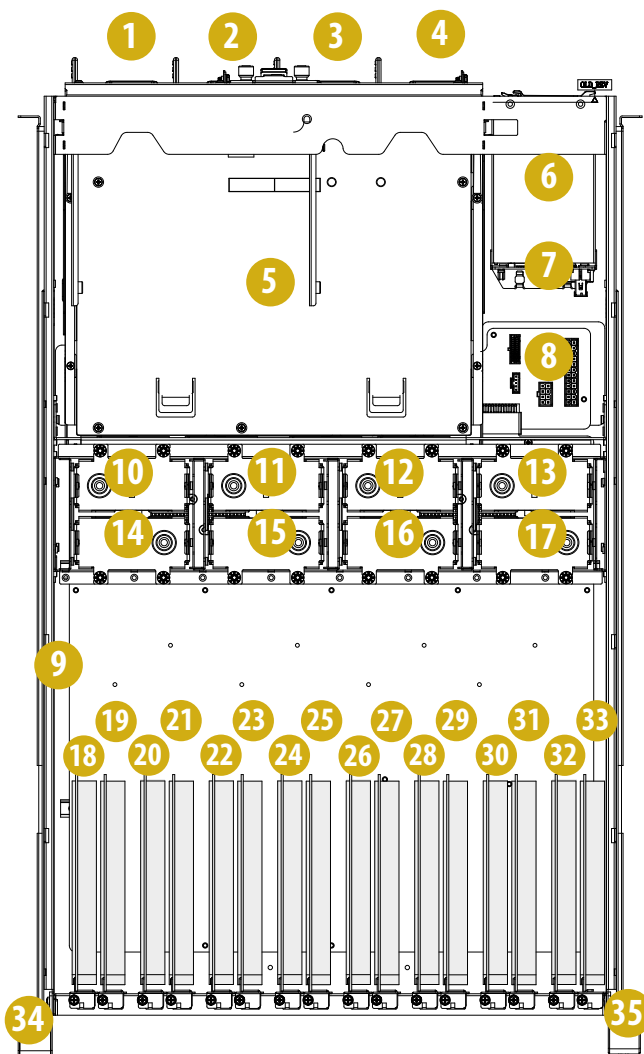
Chapter 2 Server System Overview

This chapter provides diagrams showing the location of important components of the server system.

2.1 System Components



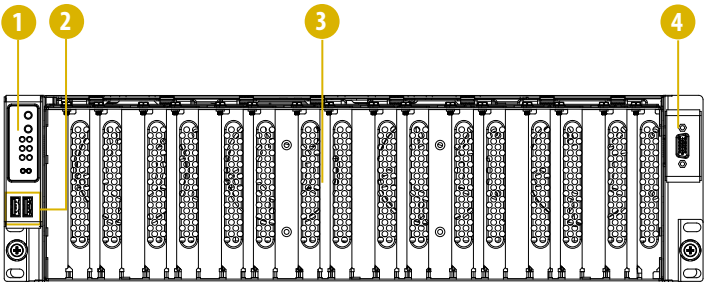
2.2 Internal Features



No.	Item
1	Power Supply Unit (PSU) 4
2	Power Supply Unit (PSU) 3
3	Power Supply Unit (PSU) 2
4	Power Supply Unit (PSU) 1
5	Serverboard
6	6 x 2.5" SATA HDDs (Hot-swappable)
7	HDD Backplane Board (BPB)
8	Power Distribution Board (PDB)
9	Switch Board (SWB)
10	System Fan 2
11	System Fan 4
12	System Fan 6
13	System Fan 8
14	System Fan 1
15	System Fan 3
16	System Fan 5
17	System Fan 7
18	PCIE Card Slot 1

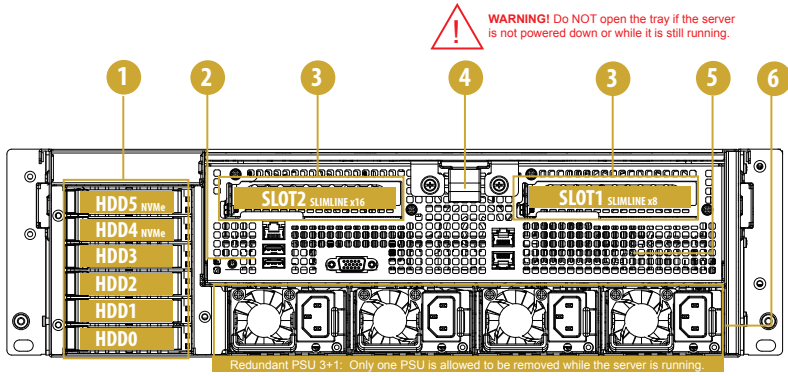
No.	Item
19	PCIE Card Slot 2
20	PCIE Card Slot 3
21	PCIE Card Slot 4
22	PCIE Card Slot 5
23	PCIE Card Slot 6
24	PCIE Card Slot 7
25	PCIE Card Slot 8
26	PCIE Card Slot 9
27	PCIE Card Slot 10
28	PCIE Card Slot 11
29	PCIE Card Slot 12
30	PCIE Card Slot 13
31	PCIE Card Slot 14
32	PCIE Card Slot 15
33	PCIE Card Slot 16
34	Front Controls and USB Ports
35	VGA Port

2.3 System Front Panel



No.	Description
1	Control Panel Buttons and LEDs
2	2 x USB 2.0 Ports
3	16 x PCIE Card Slots (single-width)
4	1 x VGA Port

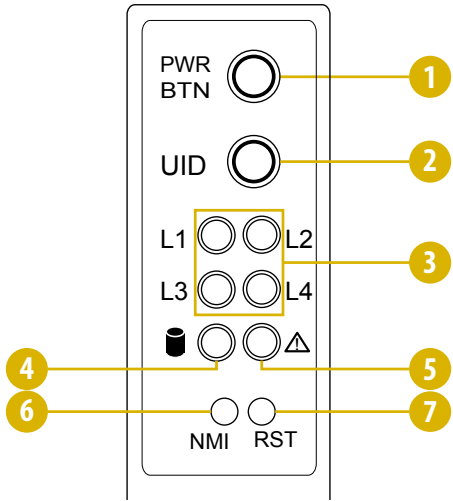
2.4 System Rear Panel



No.	Description
1	6 x 2.5" HDD trays *HDD4 and HDD5 supports NVMe HDD.
2	I/O Shield *Depending on the specification of the server board
3	PCI Express Card Slot or Mezzanine Card Slot *You can install either a PCIe card or a mezzanine card to this slot with a riser-card assembly. The riser card (4U10G_SL2P) is pre-installed to the assembly. *If you want to install a mezzanine card (only M599R and M41202R supported), a mezzanine adapter card (4U10G_SL2M) is required. * Slot1 supports Slimline X8; Slot2 supports Slimline X16
4	Motherboard Tray Handle *WARNING! Please do NOT open the tray if the server is not powered down or while it is still running.
5	Rear Vent
6	4 x Power Supply Units (Redundant PSU 3+1) *Server requires 3 working PSUs, with 1 redundant PSU. You must have at least three active supplies, installed, functioning and connected to AC. Only one of the PSUs is allowed to be removed while the server is running.

2.5 Front Control Panel Buttons and LEDs

Front Control Panel



No.	Description
1	Power Button and LED
2	UID Button and LED*
3	LAN1, LAN2, LAN3, LAN4 Activity LEDs*
4	HDD Activity LED
5	System Event LED*
6	NMI (Nonmaskable Interrupt) Button*
7	System Reset Button

**Please be noted that the functions are supported depending on the type of the server board.*

Power Button

Press the power switch button to toggle the system power on and standby/sleep modes. To remove all power from the system completely, disconnect the power cord from the server.

ID Button

Press the ID button to toggle the front panel ID LED and the baseboard ID LED on and off. You are able to locate the server you're working on from behind a rack of servers.

NMI (Nonmaskable Interrupt) Button

Press the NMI button with a paper clip or pin to generate a nonmaskable interrupt and to put the server in a halt state for examination.

System Reset Button

When the system is completely unresponsive, press the system reset button to reboot the server without shutting it off and initialize the system.

Status LED Definitions

Power LED	
Status	Description
Green	Power on
Off	Power off

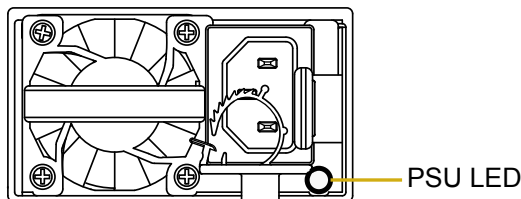
ID LED	
Status	Description
Blue	System identification is active.
Off	System identification is disabled.

LAN1, LAN2, LAN3, LAN4 LEDs	
Status	Description
Green	Link between system and network or no access
Blinking Green	Network access

HDD Activity LED	
Status	Description
Blinking Green	HDD access
Off	HDD idle

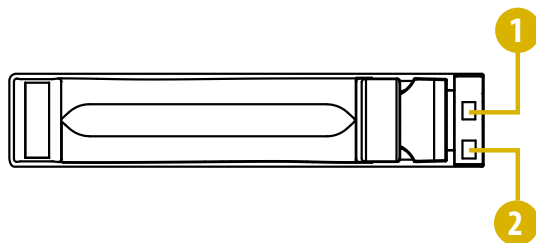
System Event LED	
Status	Description
Off	Running or normal operation
Red	At least one sensor has critical alert

2.6 PSU LED



PSU Status LED	
Status	Description
Green	Normal work; output ON and OK
Amber	Module fault/protection in operating mode (failure, OCP, OVP, Fan Fail, OTP, UVP) AC cord unplugged
Amber blinking at 0.5Hz	Warning (high temp, high power, high current, slow fan)
Green blinking at 0.5Hz	AC Present Only 12VSB on (PS off) or PS in Smart Redundant state

2.7 Drive Tray LEDs



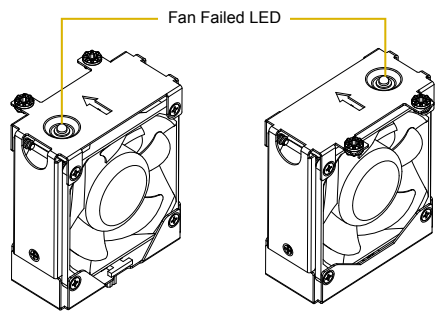
No.	Description
1	HDD Power LED
2	HDD Activity LED

Status LED Definitions

HDD Power LED	
Status	Description
Blue	HDD powered-on
Off	No power to HDD

HDD Activity LED	
Status	Description
Solid Green	HDD active
Blinking Green	HDD accessing or reading
Red	HDD failed
Off	HDD powered-off

2.8 Fan Failed LED



Fan LED	
Status	Description
Solid Red	Fan failed
Off	Normal

Chapter 3 Hardware Installation and Maintenance

This chapter helps you assemble the chassis and install components.

Before You Begin

Before you work with the server, pay close attention to the “Important Safety Instructions” at the beginning of this manual.

1. Make sure the server is powered off.

Power down the server if it is still running.

- (1) Press the Power button to power off the server from full-power mode to standby-power (sleep) mode. The Power LED at the front turns from solid green to blinking green.
- (2) Disconnect the power cord first from the AC outlet and then from the server.
The power LED turns off.



The server is not completely powered down when you press the Power button on the front panel. The Power button lets the server toggle between Power On and Standby (Sleep) modes. Some internal circuitry remain active in the Standby mode. To remove all power from the system completely, be sure to disconnect the power cord from the server.

2. Ensure you have a clean and stable working environment. Avoid dust and dirt because contaminants may cause malfunctions.
3. Ground yourself properly before touching any system component. A discharge of static electricity may damage components. Wear a grounded wrist strap if available.

Installing Procedures

The followings are prerequisite to be installed.

- 2.5" HDD(s)
- Power Supply Units (Pre-installed)
- System Fans (Pre-installed)
- Server Board (Pre-installed)
- HDD Backplane (Pre-installed)
- Switch Board (Pre-installed)
- Power Distribution Board (Pre-installed)



1. Some components are already pre-installed. Simply properly connect the relevant cables before or after installation. See the Quick Installation Guide for more details.
2. Refer to the user manual of the server board you use for instructions on how to install server board components.

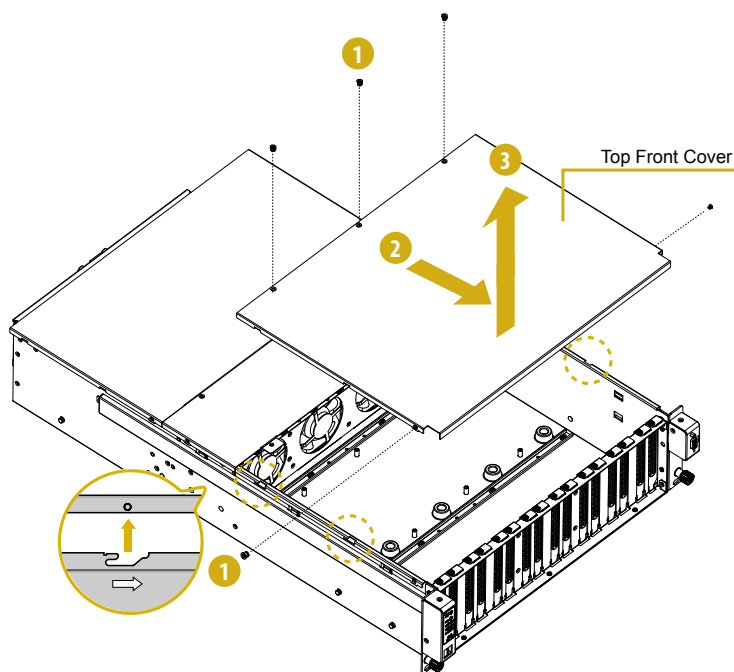
3.1 Server Top Cover

Removing the Server Top Covers



1. Before removing the top covers, power off the server and unplug the power cord.
2. The system must be operated with all the chassis top covers installed to ensure proper cooling.

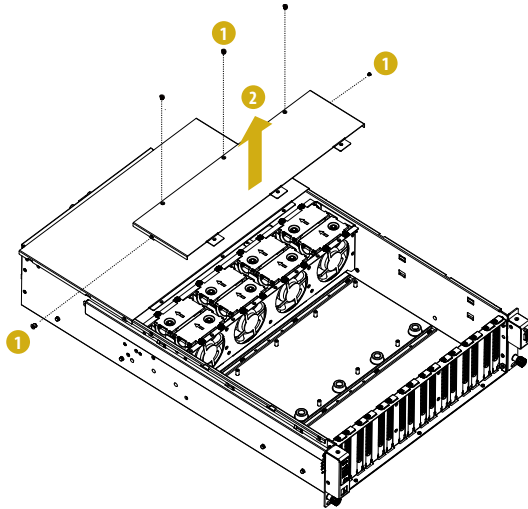
(A) Top Front Cover



1. Remove the screws that secure the top front cover to the chassis.
2. Lift up and remove the top front cover.

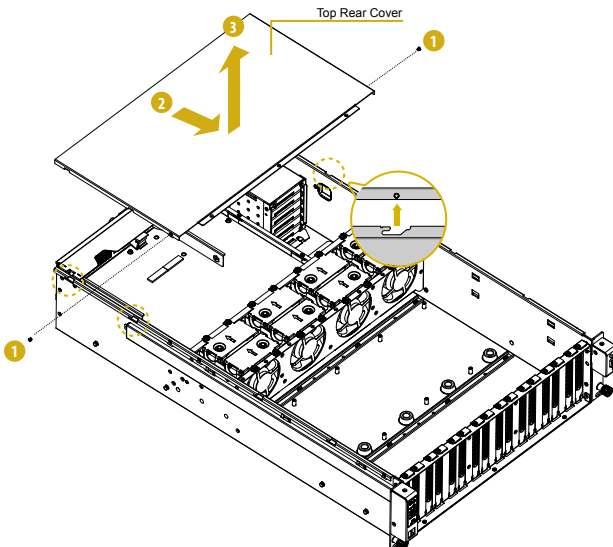
(B) Top Middle Cover

1. Remove the screws that secure the top middle cover to the chassis.
2. Lift up and remove the top middle cover.



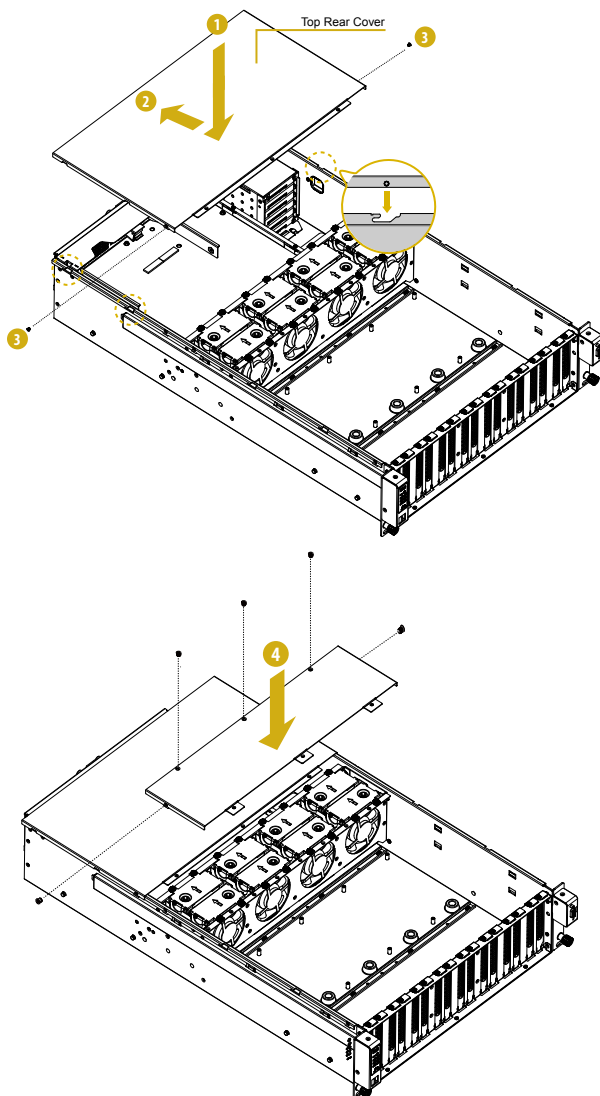
(C) Top Rear Cover

1. Remove the screws that secure the top rear cover to the chassis.
2. Push the top rear cover toward the FRONT of the chassis to remove the cover from the locked position.
3. Lift up and remove the top rear cover.



Installing the Server Top Covers

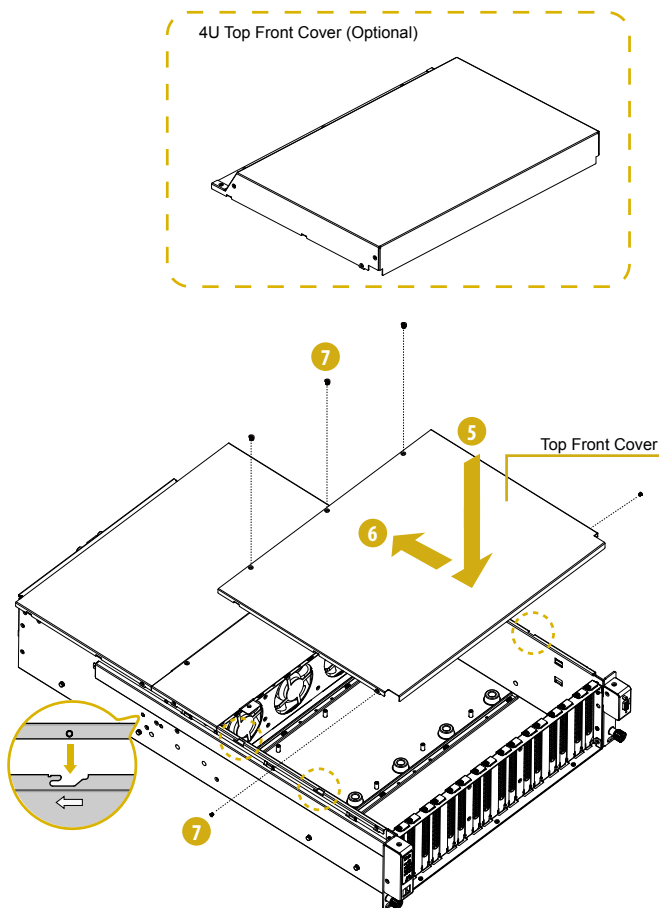
1. Lower the top rear cover on the chassis, making sure the side latches align with the cutouts.
2. Slide the top rear cover toward the REAR of the chassis.
3. Secure the top rear cover with the screws.
4. Lower the top middle cover on the chassis and secure it with the screws.



- When both top middle and rear covers are properly secured, lower the top front cover on the chassis. Carefully align the mounting holes in the top middle cover and the chassis.

**Use a 4U top (front) cover instead if the power connectors of your GPGPU card are on the top side of it. Please purchase separately if needed.*

- Slide the top front cover toward the REAR of the chassis.
- Secure the top front cover with the screws.



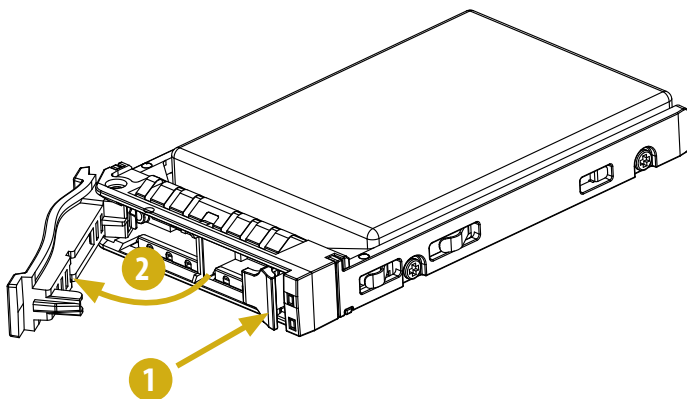
3.2 Hard Drive

3.2.1 Installing a Hard Disk Drive into 2.5" Hard Drive Tray

The 3U8G+/C621 chassis supports hot-swappable 2.5" hard drives. Six 2.5" hard drive trays are located on the rear of the chassis.

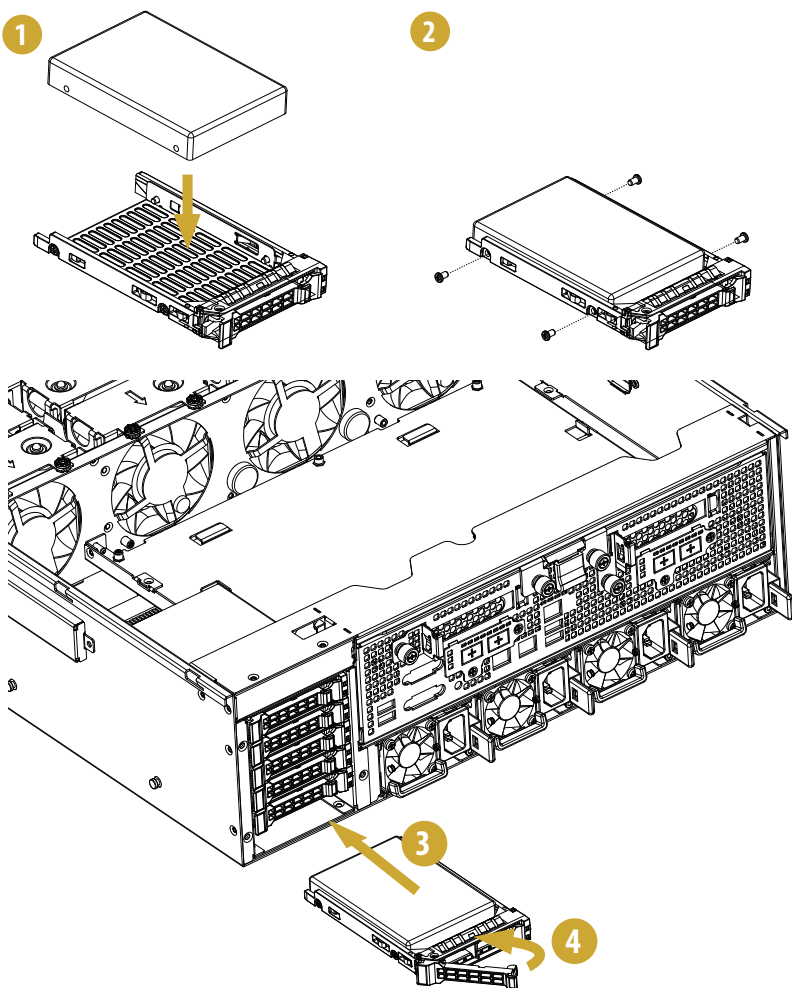
Removing 2.5" Hard Drive Trays from the Chassis

1. Press the locking lever latch on the drive tray to unlock the retention lever.
2. Rotate the lever out and away from the module bay and pull the hard drive out of the HDD tray.



Installing a 2.5" Hard Drive to the Hard Drive Tray

1. Place a 2.5" HDD into the tray with the printed circuit board side facing down.
Carefully align the mounting holes in the hard drive and the tray.
2. Secure the hard drive using the two screws.
3. Slide the drive tray into the HDD bay until the drive is fully seated.
4. Push in the locking lever to lock the HDD tray into place.



3.3 Power Supply

Installing and Removing the Power Supply

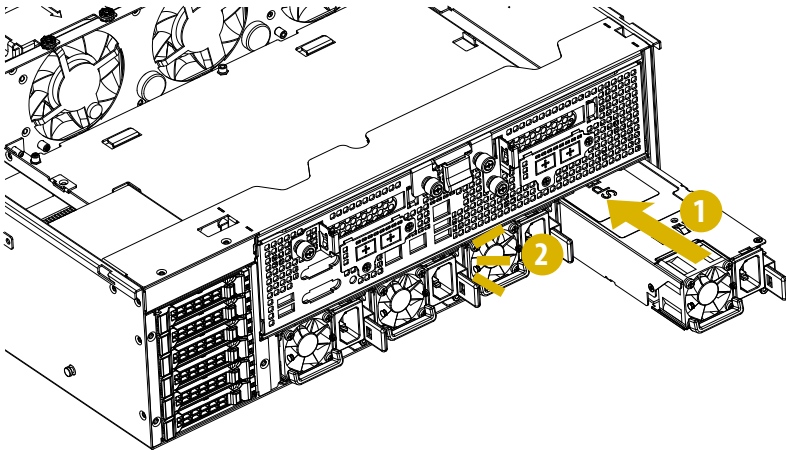


Before replacing the power supply, power off the server, unplug the power cord, and disconnect all wiring from the power supply.

Installing the Power Supply Unit

The 3U8G+/C621 can accommodate four AC or two DC power supplies in the bay at the rear of the chassis. Each unit provides up to 1200 Watts of power. Three power supplies are required for full load operation, with the fourth power supply purely as a redundant, load-sharing backup. It can be removed without affecting system operation.

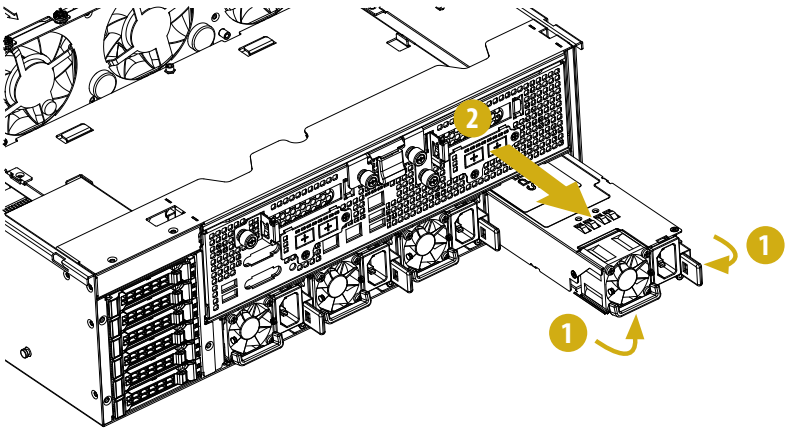
1. Align the power supply unit with the power supply slot. Ensure that the LED appears on the lower right when you are installing the power supply unit.
2. Carefully slide the PSU all the way into the power supply bay until it clicks into place.



Removing the Power Supply Unit

To remove a failed power supply, identify the failed power supply by checking the power supply LEDs on the PSU.

1. Hold onto the power supply handle while pressing the locking lever towards the power supply handle.
2. Pull to remove the power supply from the chassis.



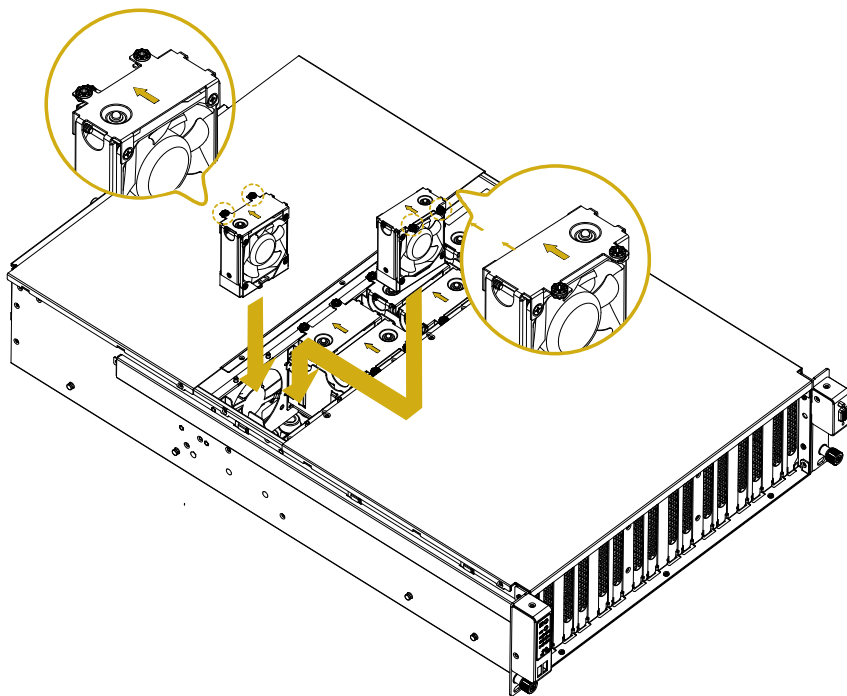
1. Before replacing the power supply, power off the server, unplug the power cord, and disconnect all wiring from the power supply.
2. In a redundant system, you do not need to power down the server.

3.4 System Fan

The 3U8G+/C621 chassis supports hot-swappable system fans.

Replacing the System Fan

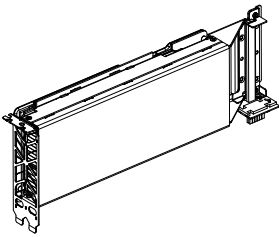
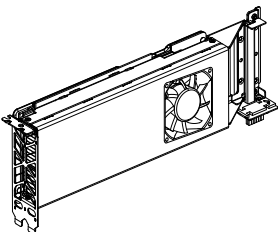
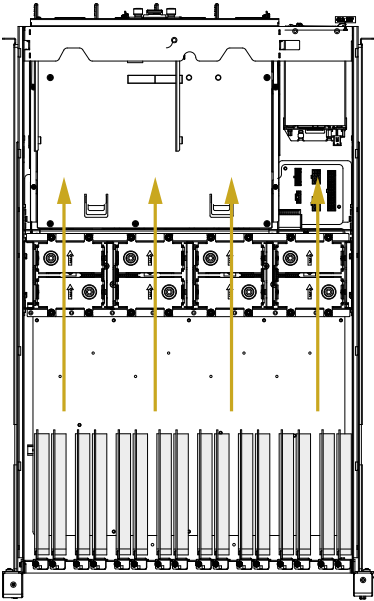
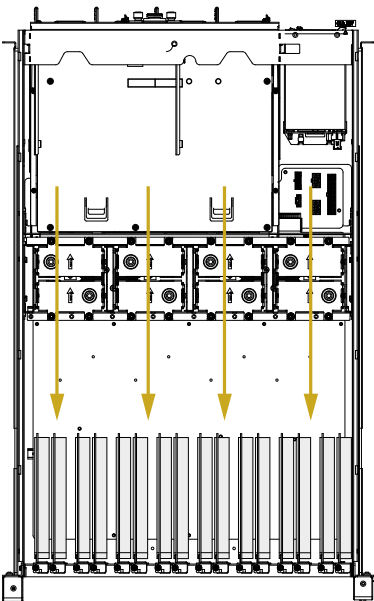
1. Remove the top middle cover from the chassis. (See p. 14 for more details.)
2. Lift to remove the failed fan.
3. Align the mounting holes on the replacement fan corners with the fan mounts on the fan bracket. Make sure the arrow on the fan pointed to the REAR of the chassis.
4. Gently place the fan onto the mounts. Make sure the fan is well seated.



Reversing the Fan Modules (only required for active GPGPU users)

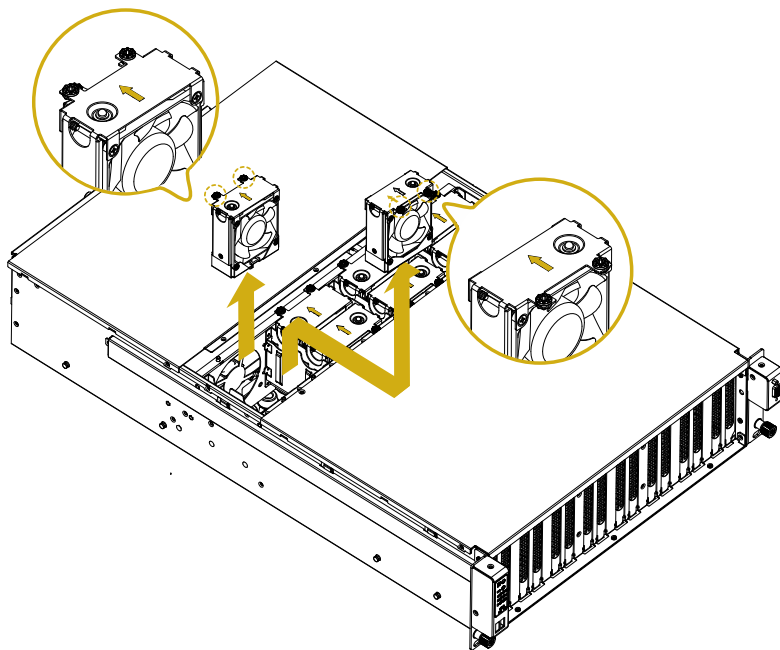
If you are using "active" GPGPU cards that are equipped with one or more fans on the cards, the system requires back-to-front air flow routing, so you need to reverse the fan modules before installing the system fans.

**Be sure to completely power down the system before reversing the fan modules.*

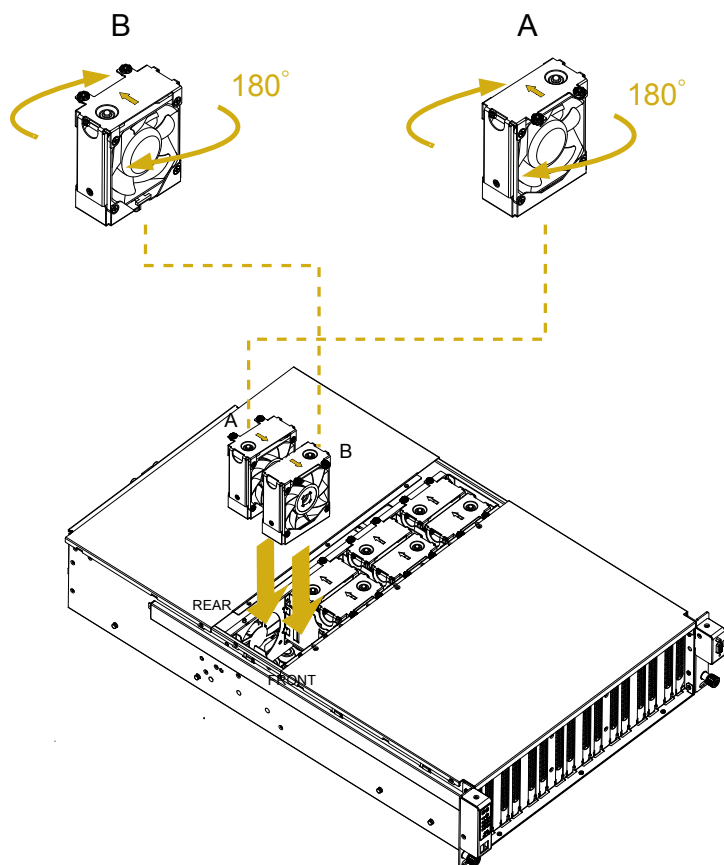
Passive GPU/MIC Card	Active GPU/MIC Card
	
(Default)	Reverse the fan modules
Front-to-back air flow routing	Back-to-front air flow routing
	

To reverse fan modules, please follow the steps below.

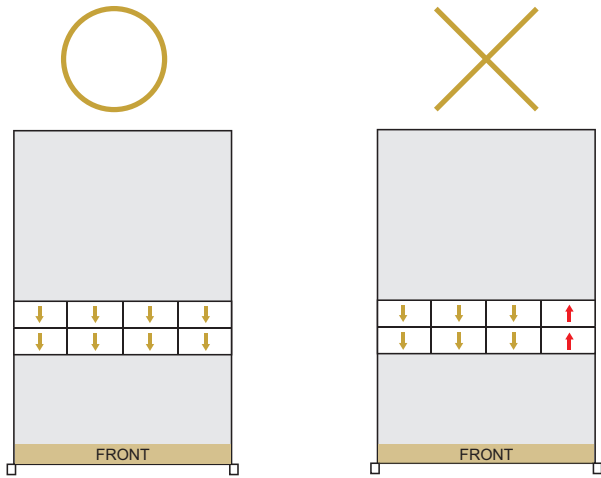
1. Gently lift and remove the fans (A) from the front row and the fans (B) from the rear row.



2. Turn all the four fan modules (A) 180 degrees around. Place them to the rear row.
3. Turn all the four fan modules (B) 180 degrees around. Place them to the front row.



4. Make sure all fans are well seated and all arrows on the fans are pointed to the FRONT of the chassis.

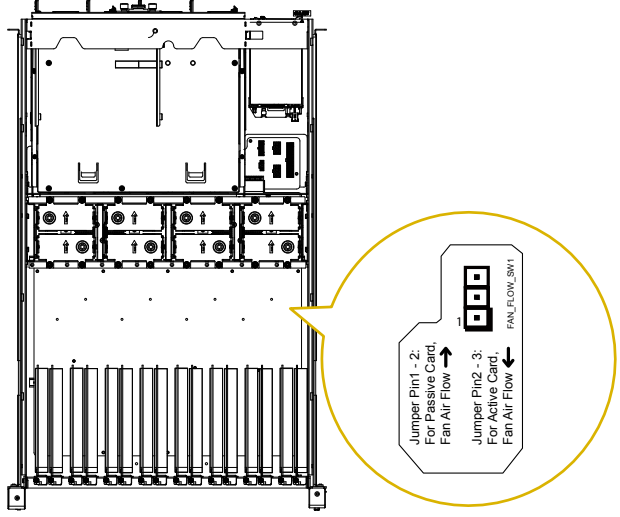


Back-to-front air flow
For active GPU/MIC cards

5. Remove the front top cover and remove the GPGPU card from the Slot 8.

**For more instructions on how to remove and install a GPGPU card, please refer to the section entitled "3.5 GPG or MIC Card".*

6. Move the jumper caps placed on the FAN Flow Switch Jumper (FAN_FLOW_SW1) from pins 1-2 (default) to pins 2-3 on the switchboard (SWB).



FAN Flow Switch Jumper
(3-pin FAN_FLOW_SW1)



For Passive Card
Front-to-back air flow
(Default)



For Active Card
Back-to-front air flow

7. Place the GPGPU Card back into the Slot
8. Put the top front cover back. Then power on the system.

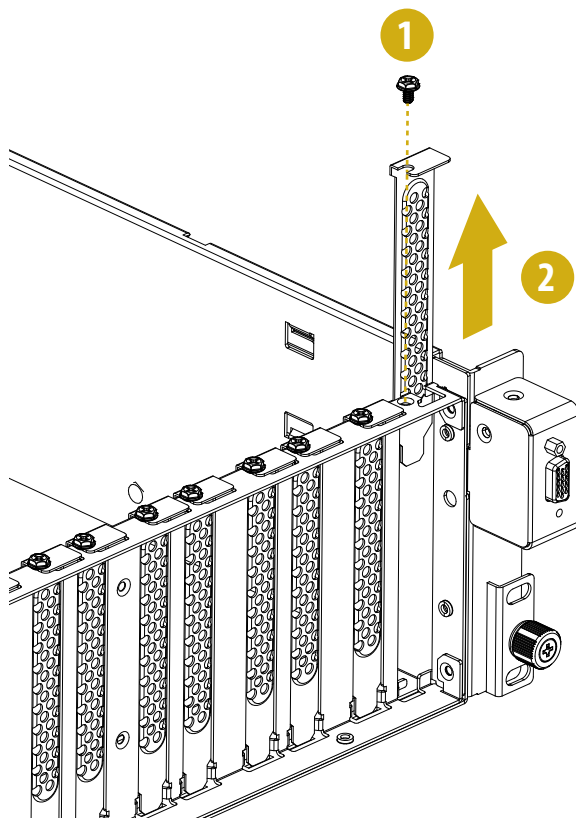
3.5 PCI Express Card

Installing and Removing a PCIe Card

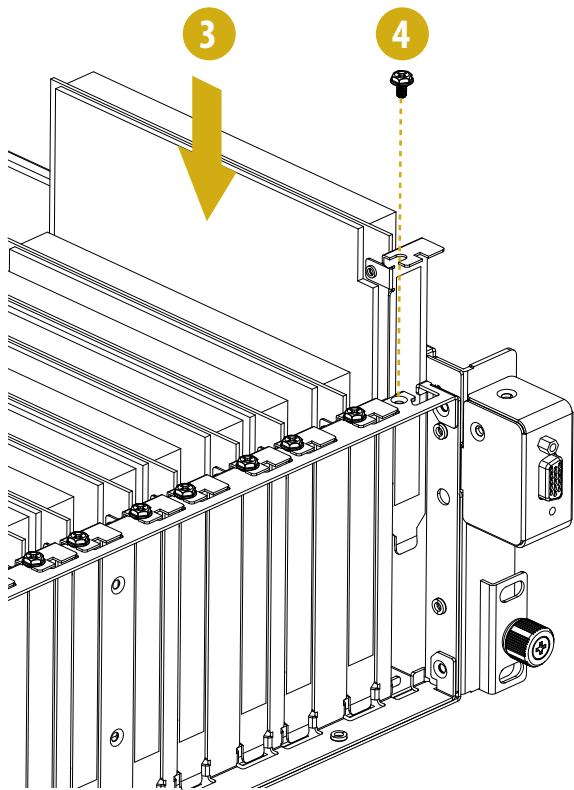
1. Release the screw that secures the slot cover to the chassis.

**For installing a double-width PCI Express card, please remove two slot covers.*

2. Remove the slot cover.



3. Install a PCIE card into the slot.
4. Make sure that the card is well seated and tighten the screw on the face plate.



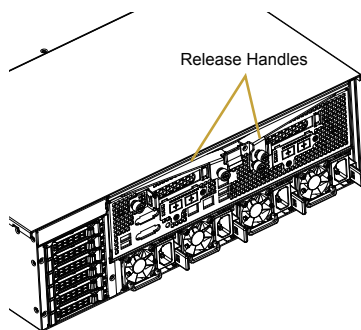
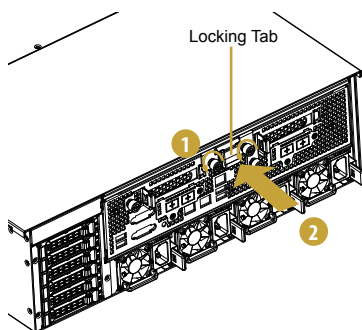
3.6 Motherboard Tray



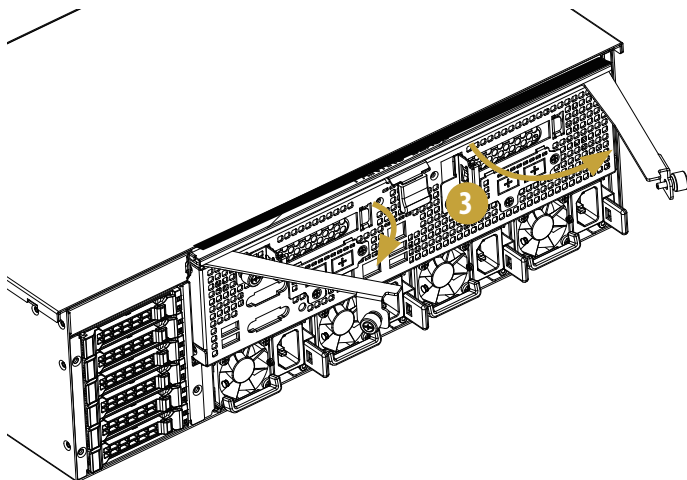
Attention! DO NOT open the motherboard tray if the server is not powered down or while it is still running.

Removing the Motherboard Tray

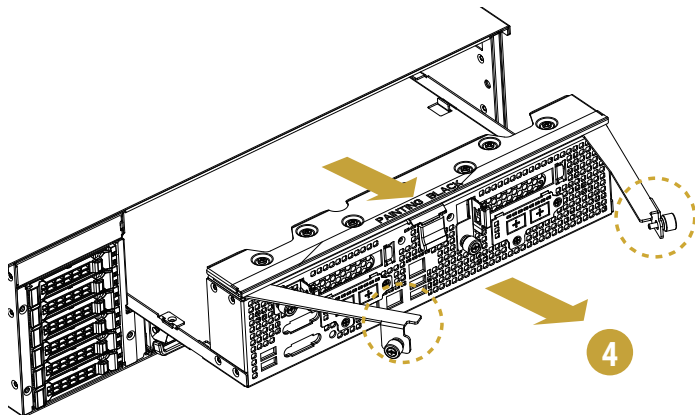
1. Release the two thumb screws on the motherboard tray.
2. Press the locking tab in the middle to release the handles.



3. Rotate and open the release handles on the sides of the motherboard tray to disengage the tray from the chassis.

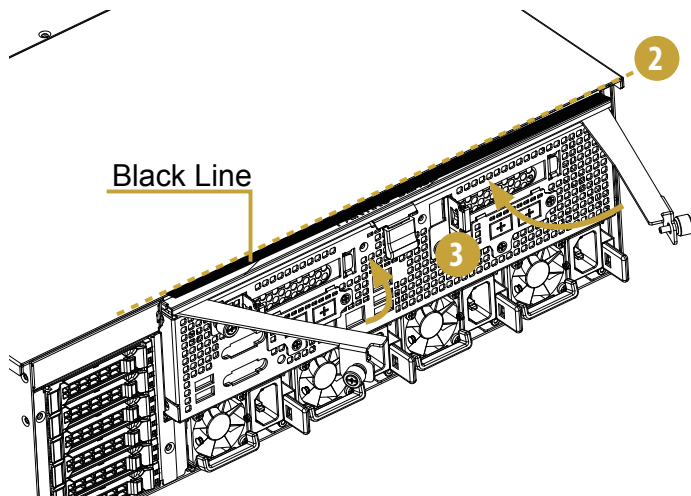


4. Then you can grasp the handles and slide the tray all the way out of the chassis.

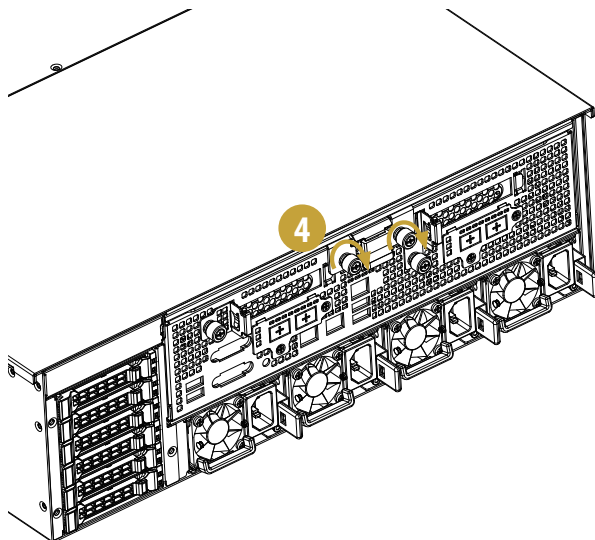


Installing the Motherboard Tray

1. Gently and slowly slide the motherboard tray into the chassis until the black line on the tray almost reaches the edge of the chassis.
2. Make sure the black line on the top edge of the tray is evenly aligned with the edge of the chassis.
3. Then close the release handles completely. Push and make sure the tray moves back fully into the chassis.



4. Tighten the two thumb screws on the motherboard tray.



3.7 Add-on Card & Mezzanine Card

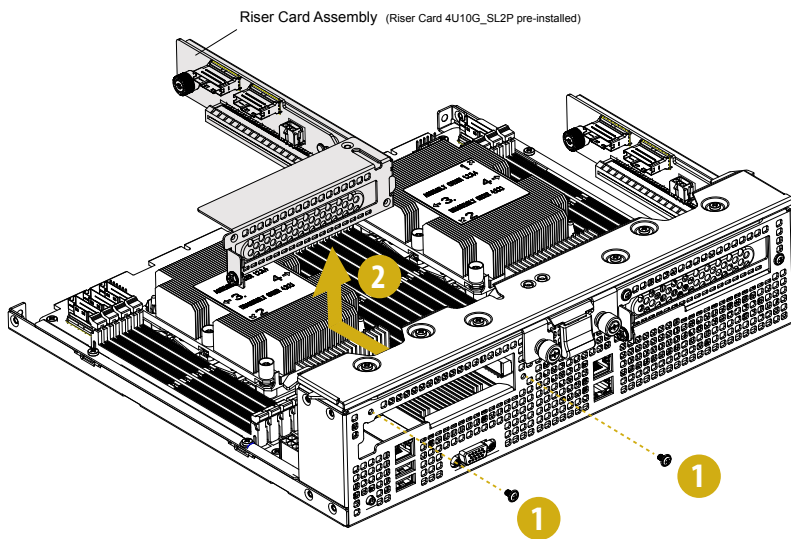


1. You can install an add-on card to the chassis only when you have a riser card installed on the server board.
2. Use a 1U low profile passive heatsink for the processor nearest to the add-on card on your server board.
3. Before installing the add-on card, power off the server and unplug the power cord.

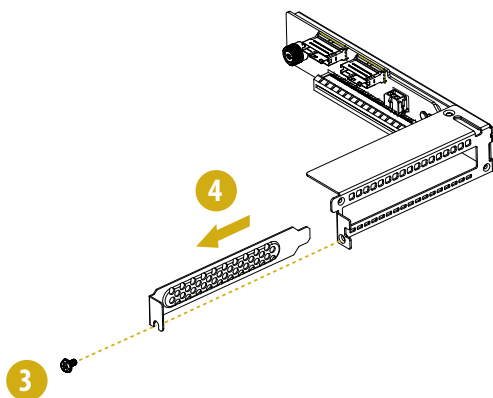
Please be noted that add-on card is supported for certain models only. Please check the rear panel of your chassis and see if a PCI Express slot is provided on the I/O shield.

3.7.1 Installing an Add-on Card

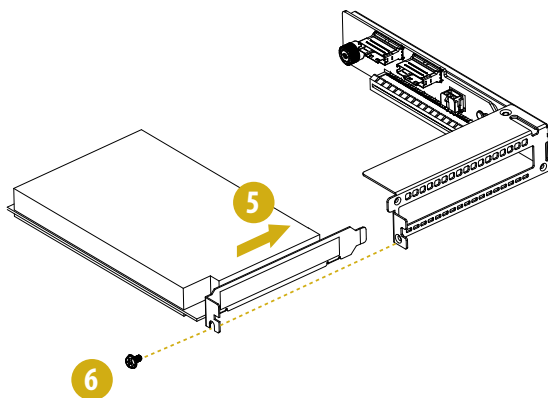
1. Loosen the screws to release the riser-card assembly.
2. Remove the riser-card assembly from the chassis.



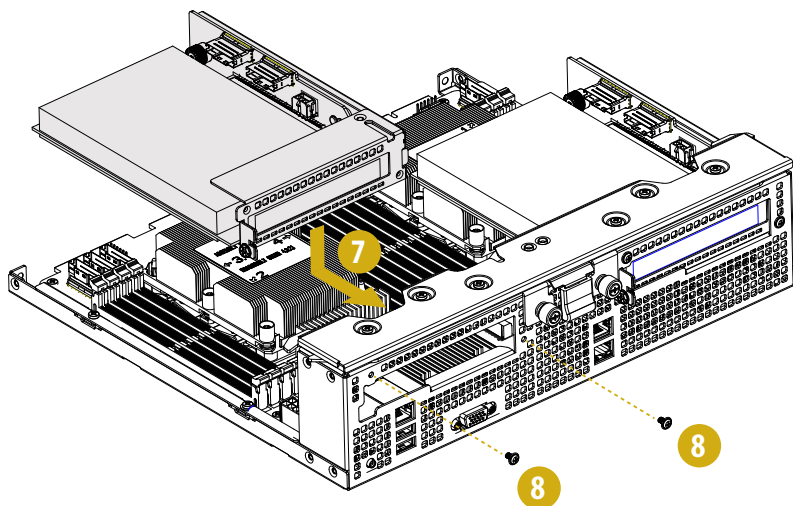
3. Remove the screw securing the slot cover to the assembly.
4. Slide the slot cover out sideways.



5. Install the add-on card into the riser-card assembly.
6. Tighten the screw to secure the add-on card.

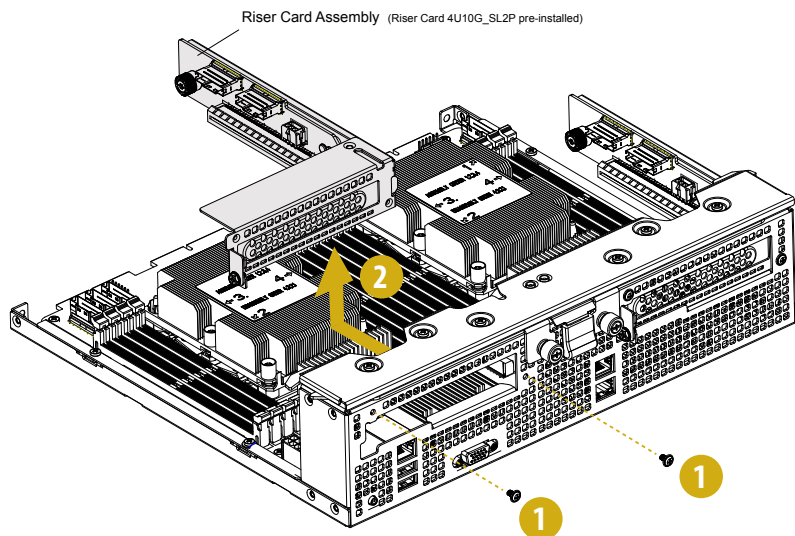


7. Install the add-on card assembly to the chassis. Align the plate of the add-on card with the openings in the back of the chassis.
8. Use screws to secure the add-on card assembly to the chassis.

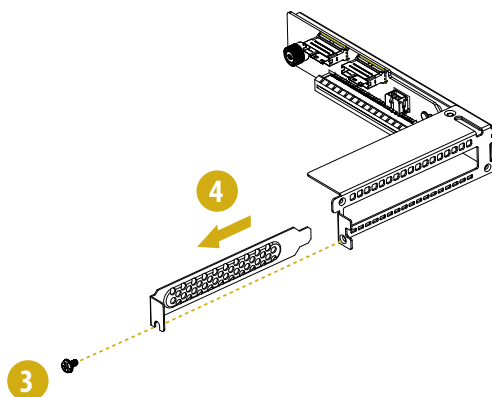


3.7.2 Installing a Mezzanine Adapter Card (4U10G_SL2M)

1. Loosen the screws to release the riser-card assembly.
2. Remove the riser-card assembly from the chassis.



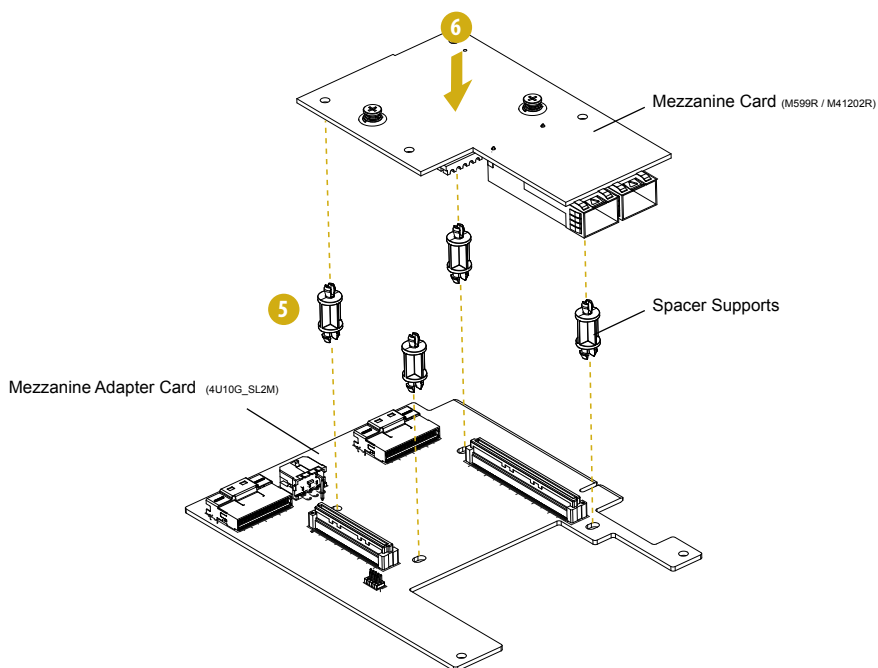
3. Remove the screw securing the slot cover to the assembly.
4. Slide the slot cover out sideways.



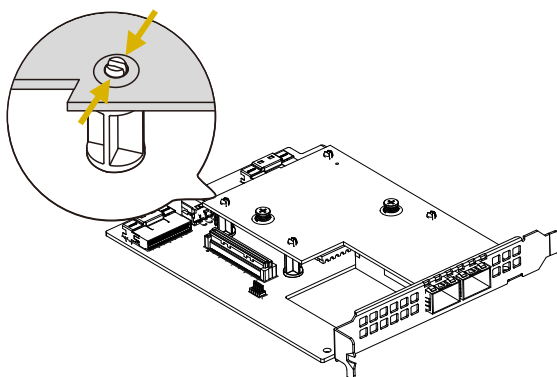
5. Install the four spacer supports into the mezzanine adapter card (4U10G_SL2M) around the mezzanine card slot.

Note: Please contact the ASRock Rack Technical Support Team for more information about the mezzanine adapter card and the supported mezzanine cards.

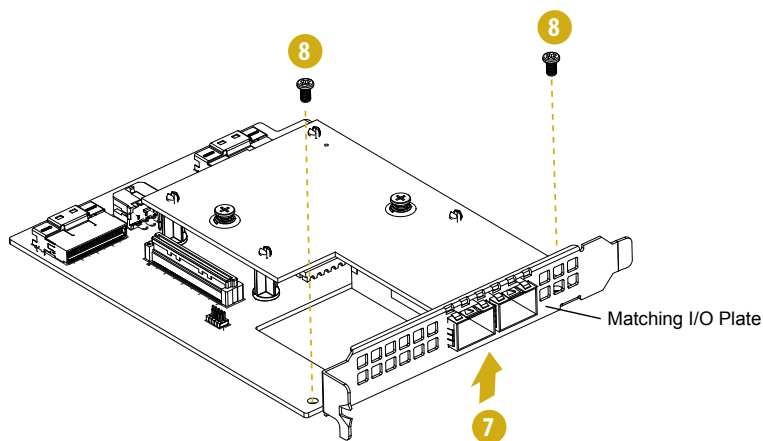
6. Gently insert the mezzanine card into the mezzanine card slot on the adapter card.



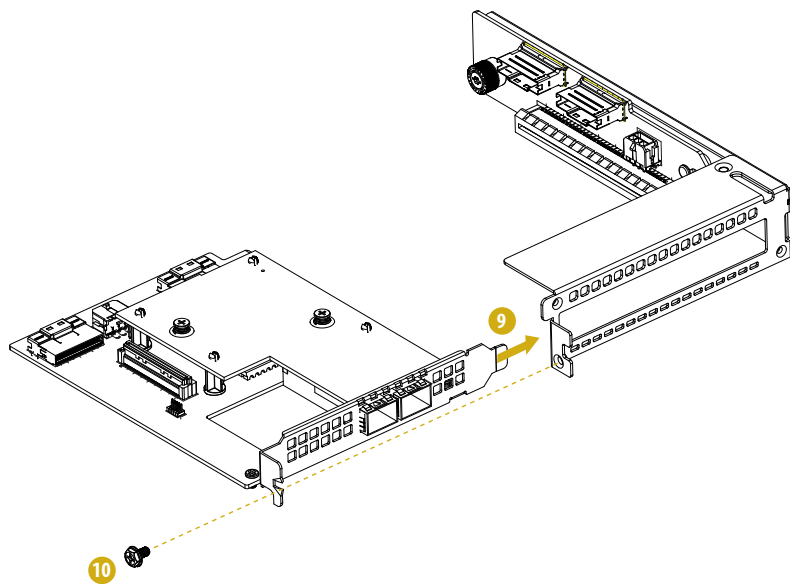
Note: Simply squeeze the top of each spacer support to release the mezzanine card.



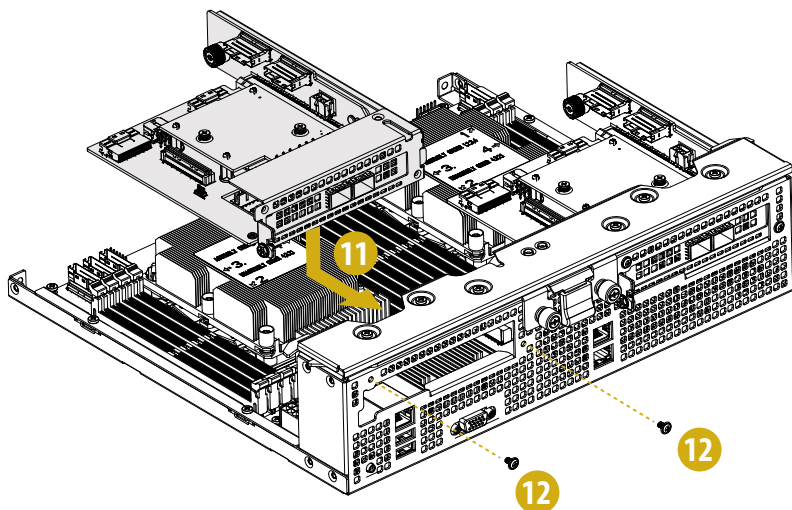
7. Attach the matching I/O plate of the mezzanine card to the adapter card.
8. Use screws to secure the plate to the adapter card.



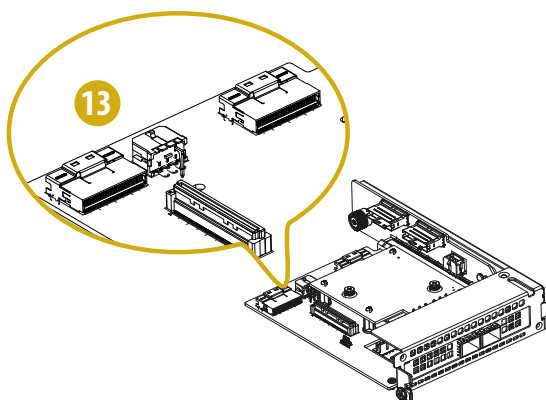
9. Install the mezzanine adapter card into to the riser-card assembly.
10. Tighten the screw to secure it into place.



11. Install the adapter card assembly to the chassis. Align the plate of the adapter card with the openings in the back of the chassis.
12. Use screws to secure the adapter card assembly to the chassis.

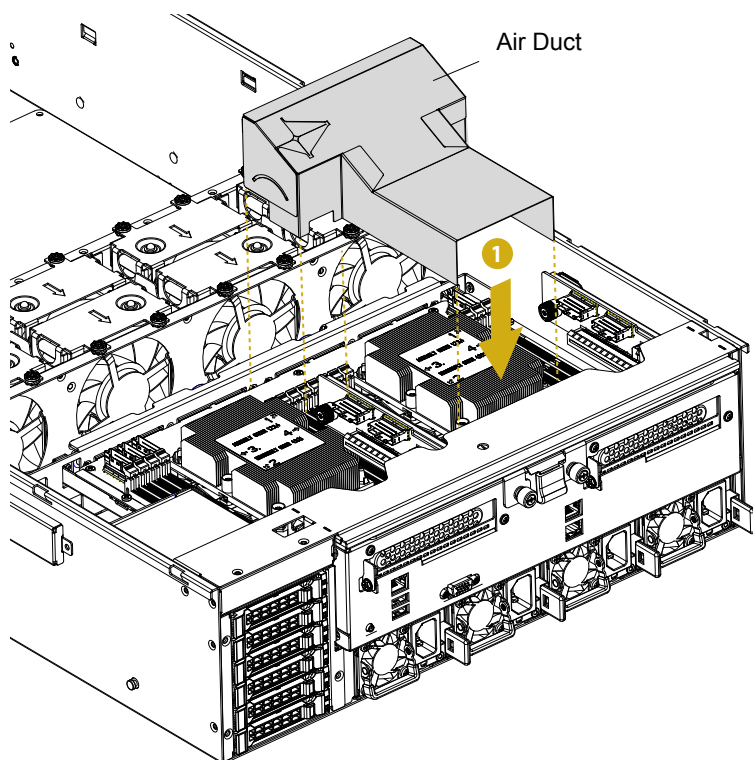


13. If you are using a mezzanine adapter card, please connect your Slimline cables to the connectors on the mezzanine adapter card, but not to those on the riser card.

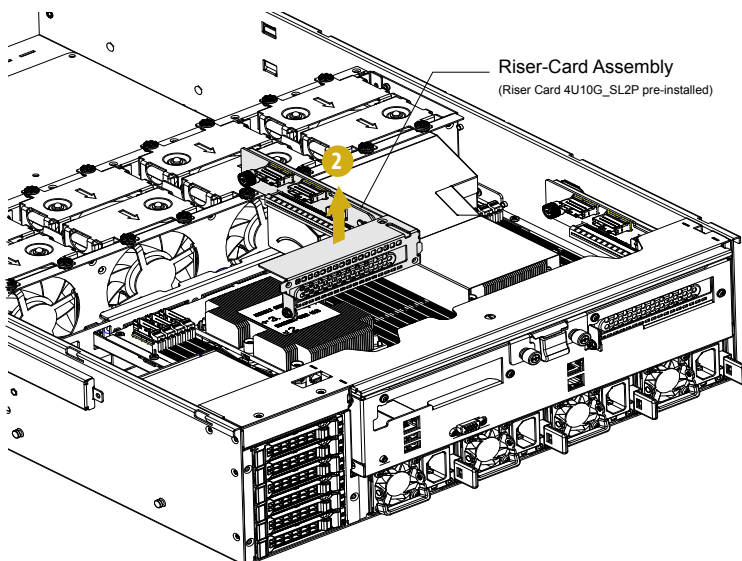


3.8 Air Duct

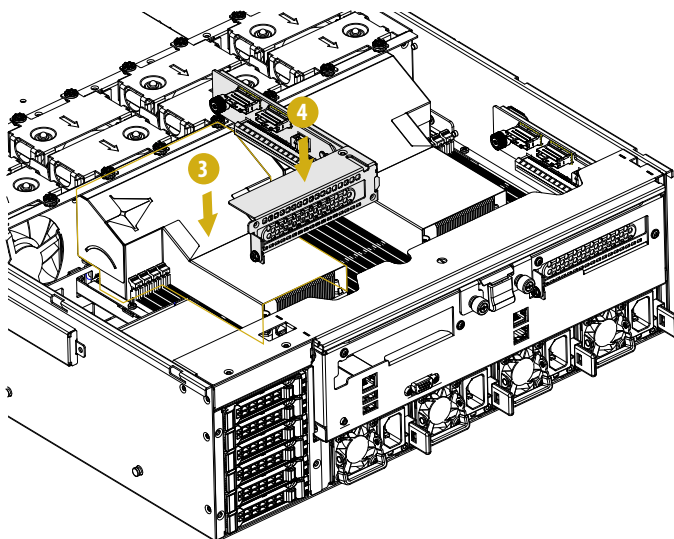
1. Position the air duct (Right) in the chassis and carefully lower the air duct in place.



2. Remove the left riser-card assembly first, before installing the air duct (Left). Please see section "3.7 Add-on Card & Mezzanine Card" for the instructions on how to remove a riser-card assembly.



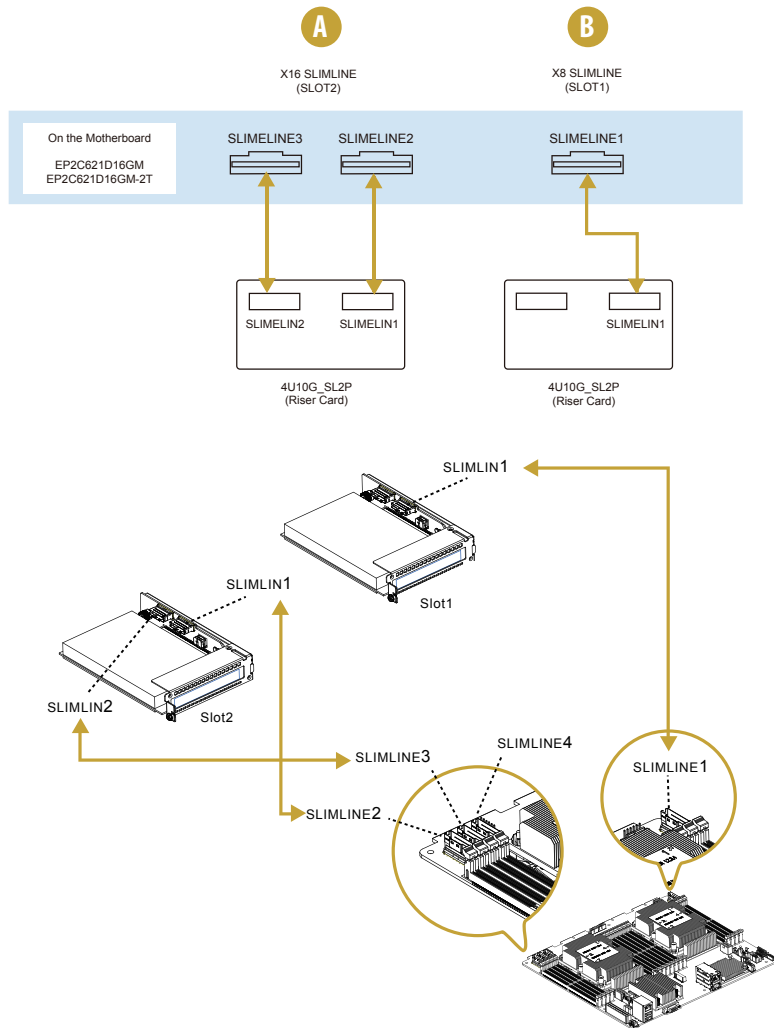
3. Carefully lower the other air duct (Left) in place.
4. Then install the left riser-card assembly back into the chassis.



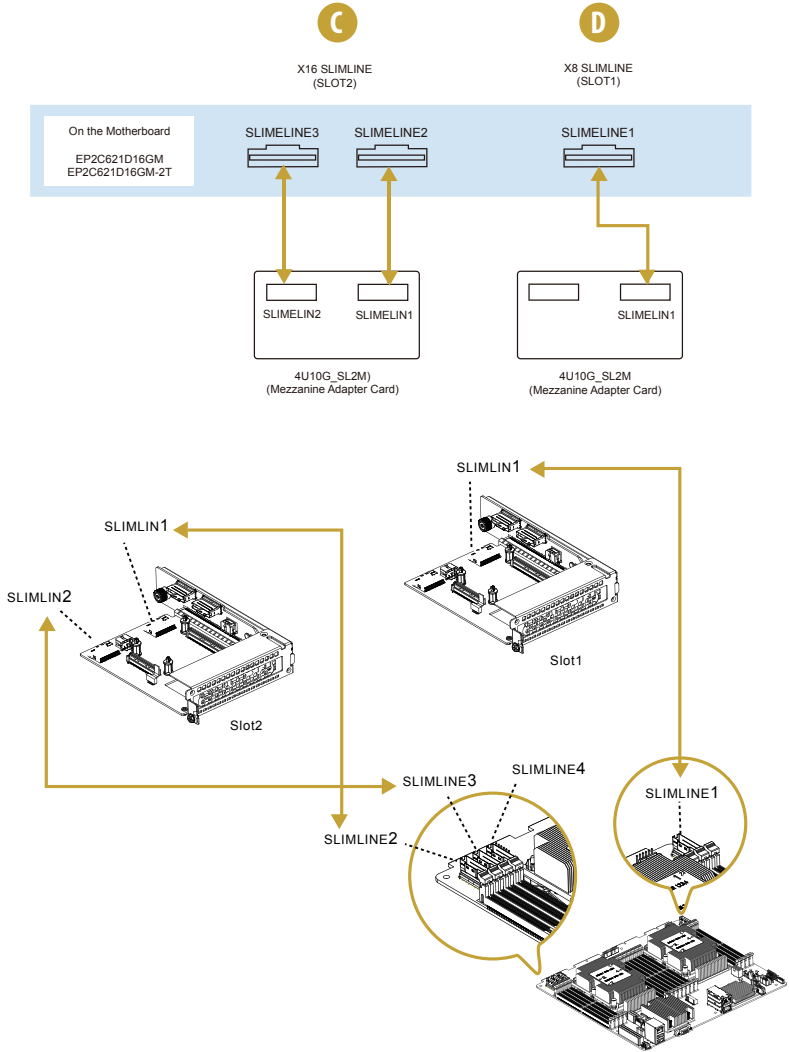
Appendix A

SLIMLINE Connections

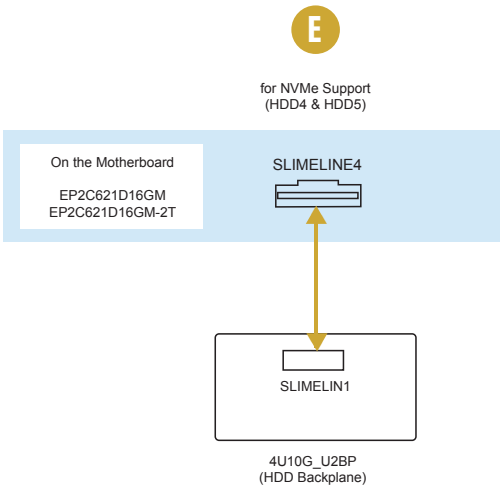
For PCIe Cards



For Mezzanine Cards

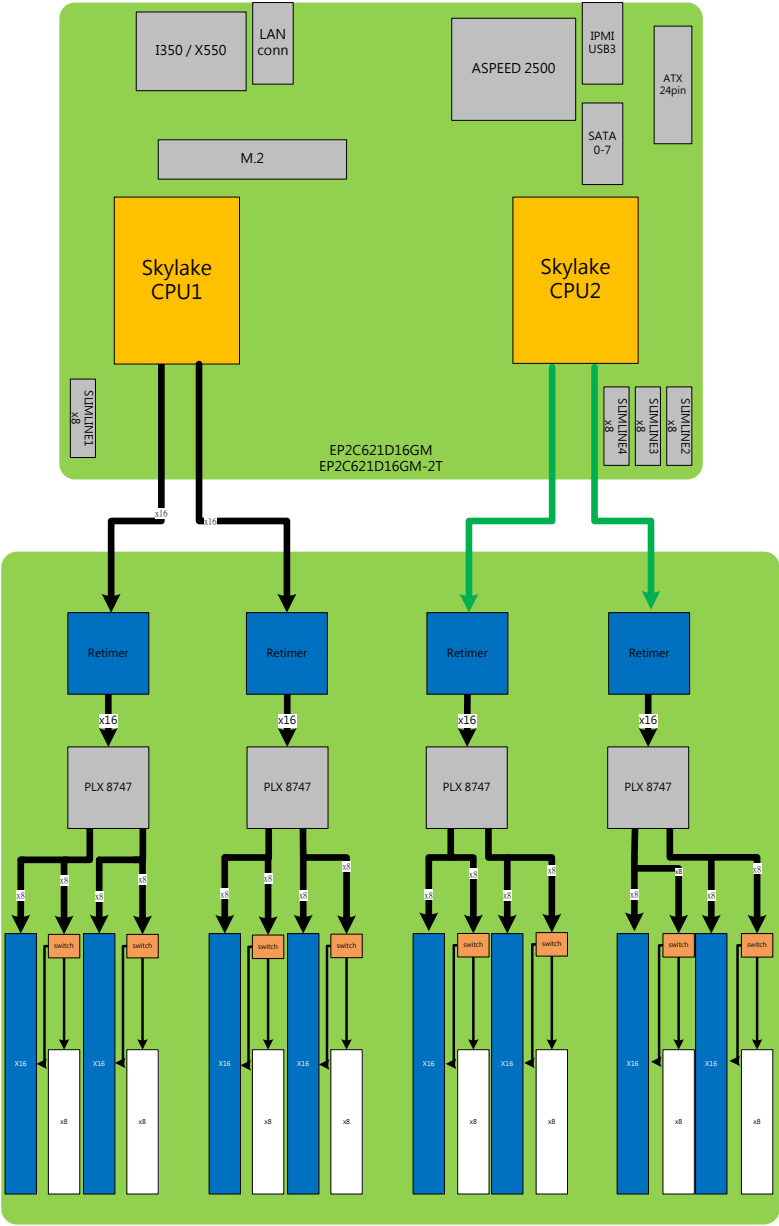


For NVMe HDDs



Appendix B

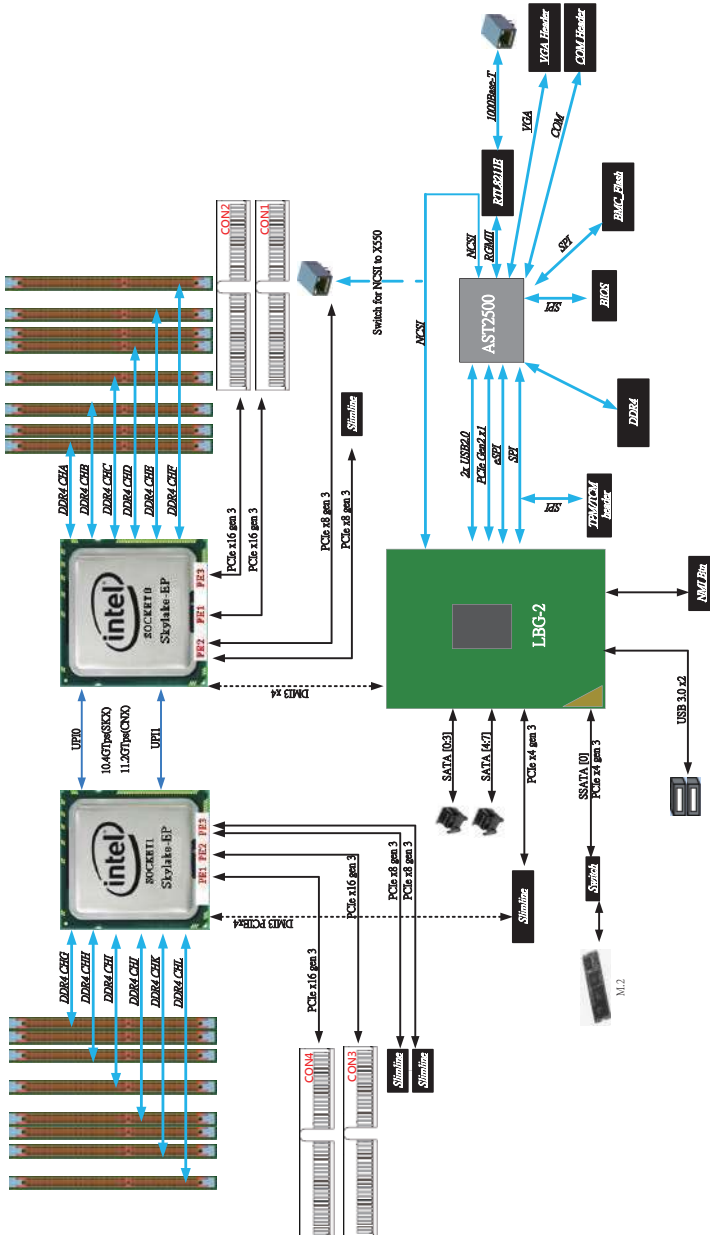
System Block Diagram



Appendix C

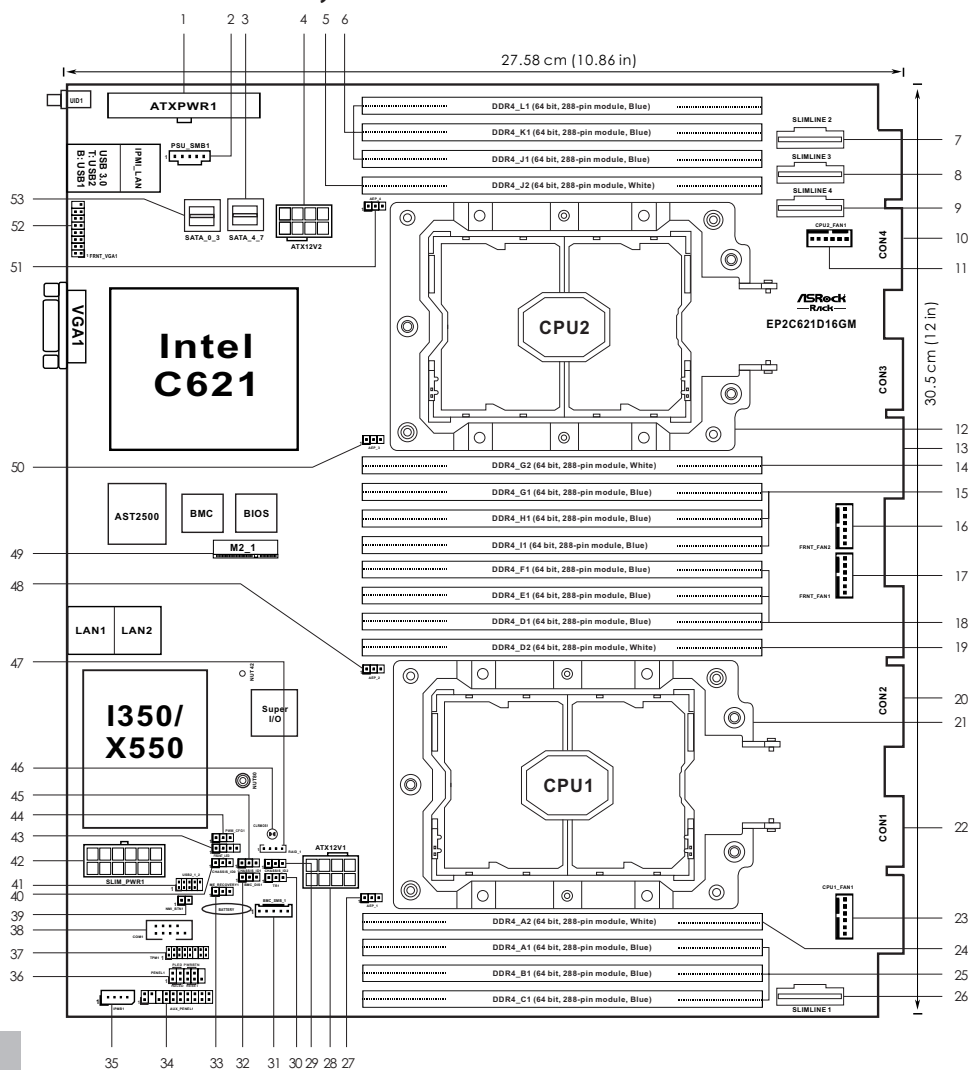
Serverboard Block Diagram

(UM EP2C621D16GM /EP2C621D16GM-2T)



Appendix D

Motherboard Layout



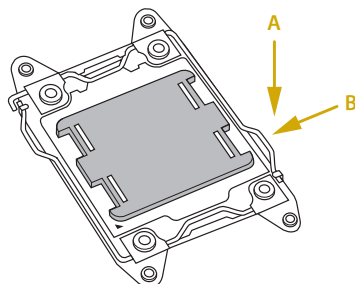
No.	Description
1	ATX Power Connector (ATXPWR1)
2	PSU SMBus (PSU_SMB1)
3	Mini-SAS HD Connector (SATA_4_7)
4	ATX 12V Power Connector (ATX12V2)
5	1 x 288-pin DDR4 DIMM Slots (DDR4_J2, White)
6	3 x 288-pin DDR4 DIMM Slots (DDR4_J1, DDR4_K1, DDR4_L1, Blue)
7	Slimline NVMe Connector (SLIMLINE2)
8	Slimline NVMe Connector (SLIMLINE3)
9	Slimline NVMe Connector (SLIMLINE4)
10	Connector to the Expander Board (CON4)
11	CPU2 Fan Connector (CPU2_FAN1)
12	LGA 3647 CPU Socket P0 (CPU1)
13	Connector to the Expander Board (CON3)
14	1 x 288-pin DDR4 DIMM Slots (DDR4_G2, White)
15	3 x 288-pin DDR4 DIMM Slots (DDR4_G1, DDR4_H1, DDR4_I1, Blue)
16	Front Fan Connector (FRNT_FAN2)
17	Front Fan Connector (FRNT_FAN1)
18	3 x 288-pin DDR4 DIMM Slots (DDR4_D1, DDR4_E1, DDR4_F1, Blue)
19	1 x 288-pin DDR4 DIMM Slots (DDR4_D2, White)
20	Connector to the Expander Board (CON2)
21	LGA 3647 CPU Socket P0 (CPU2)
22	Connector to the Expander Board (CON1)
23	CPU1 Fan Connector (CPU1_FAN1)
24	1 x 288-pin DDR4 DIMM Slots (DDR4_A2, White)
25	3 x 288-pin DDR4 DIMM Slots (DDR4_A1, DDR4_B1, DDR4_C1, Blue)
26	Slimline NVMe Connector (SLIMLINE1)
27	NVMDIMM Mode Jumper (AEP_1)
28	ATX 12V Power Connector (ATX12V1)
29	Chassis ID2 Jumper (CHASSIS_ID2)
30	Thermal Sensor Header (TR1)
31	BMC SMBus Header (BMC_SMB_1)
32	Enable/Disable BMC Jumper (BMC_DIS1)
33	ME Recovery Jumper (ME_RECOVERY1)

No.	Description
34	Auxiliary Panel Header (AUX_PANEL1)
35	Intelligent Platform Management Bus header (IPMB1)
36	System Panel Header (PANEL1)
37	TPM Header (TPM1)
38	Serial Port Header (COM1)
39	Non Maskable Interrupt Button (NMI_BTN1)
40	Chassis ID0 Jumper (CHASSIS_ID0)
41	USB 2.0 Header (USB2_1_2)
42	Slimline NVMe Power Connector (SLIM_PWR1)
43	Front LAN LED Header (FRONT_LED_LAN34)
44	PWM Configuration Header (PWM_CFG1)
45	Chassis ID1 Jumper (CHASSIS_ID1)
46	Clear CMOS Pads (CLRMOS1)
47	Virtual RAID On CPU Header (RAID_1)
48	NVMDIMM Mode Jumper (AEP_2)
49	M.2 Socket (M2_1) (Type 2242 / 2280)
50	NVMDIMM Mode Jumper (AEP_3)
51	NVMDIMM Mode Jumper (AEP_4)
52	Front VGA Header (FRONT_VGA1)
53	Mini-SAS HD Connector (SATA_0_3)

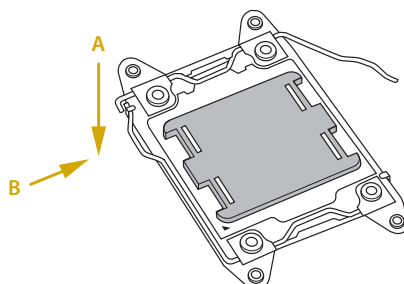
Appendix E

Installing the CPU (Socket: LGA2011 R3)

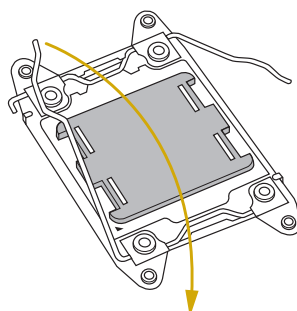
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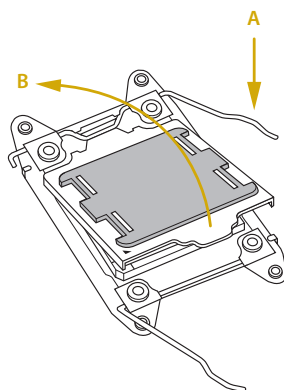
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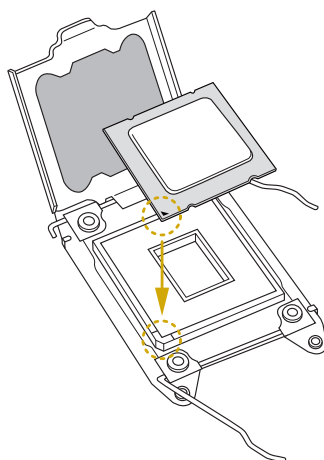
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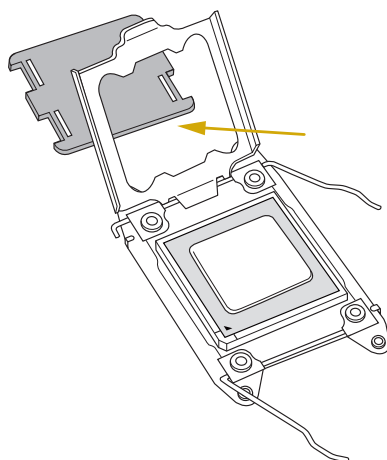
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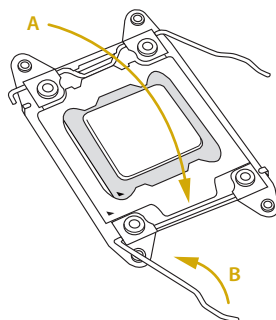
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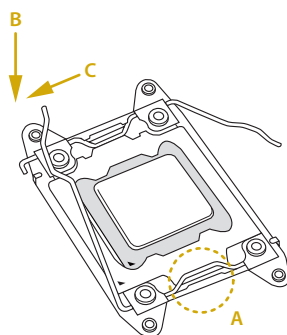
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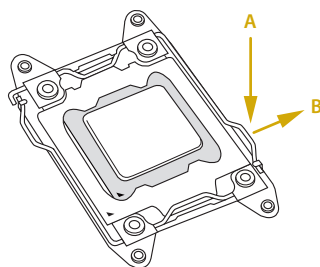
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8



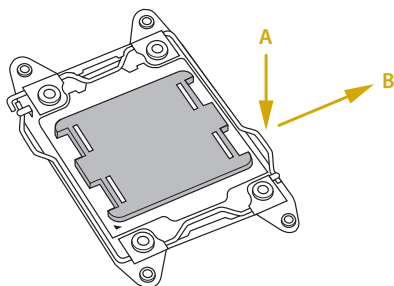
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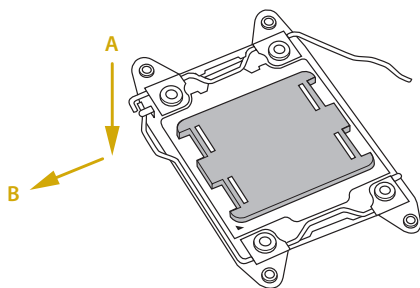
The cover must be placed if returning the motherboard for after service.

Installing the CPU (Socket: LGA2011)

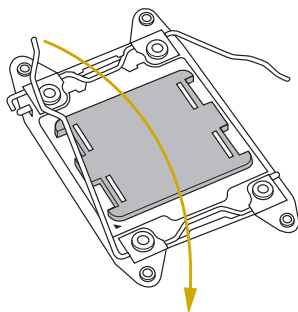
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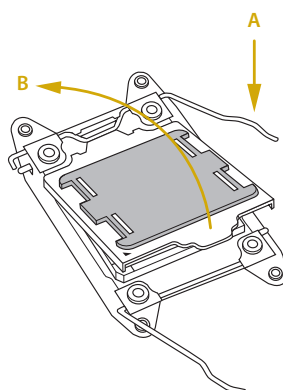
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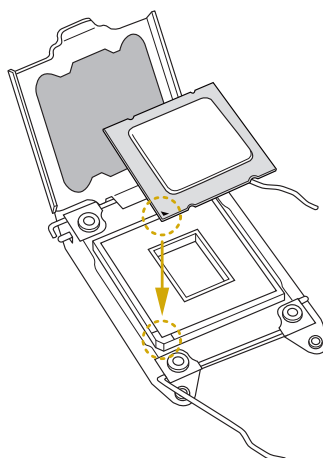
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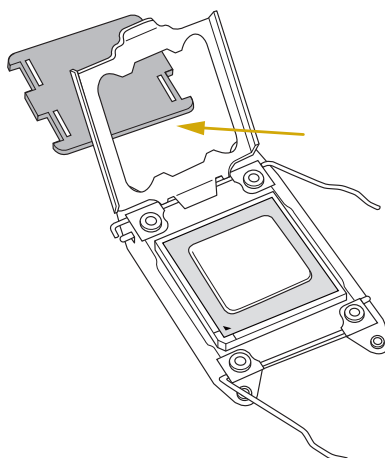
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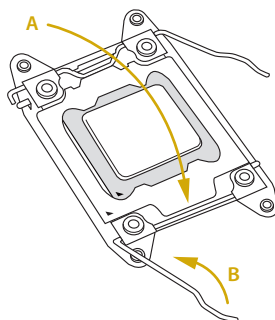
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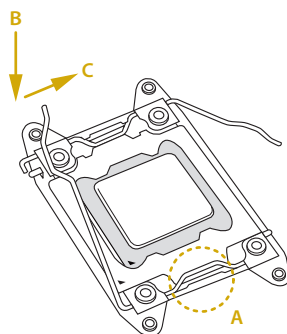
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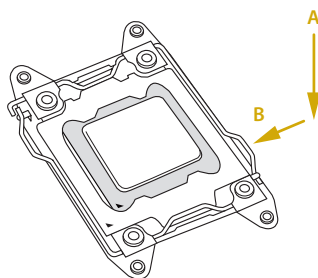
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9



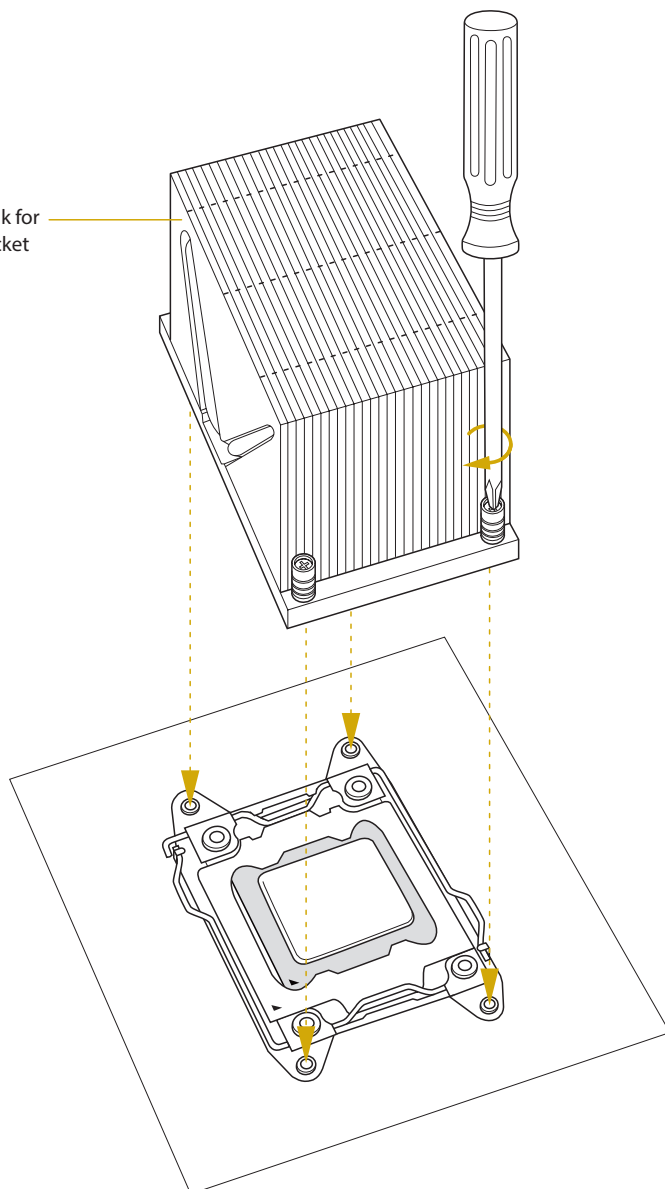
The cover must be placed if returning the motherboard for after service.

Installing the CPU Fan and Heatsink



Before you installed the heatsink, you need to spray thermal interface material between the CPU and the heatsink to improve heat dissipation.

Passive heatsink for
narrow ILM socket

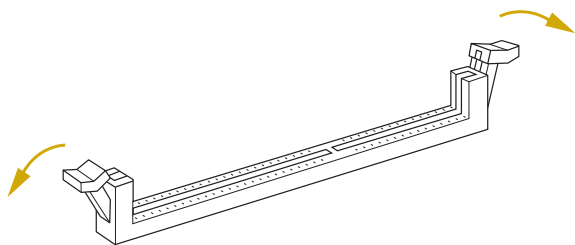


Installation of Memory Modules (DIMM)

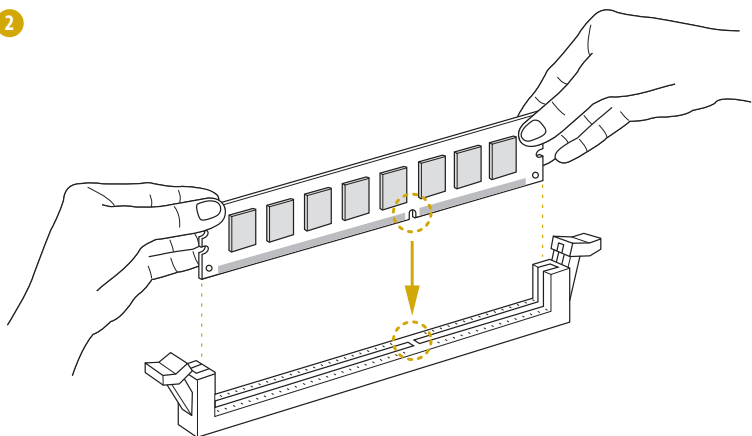


The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation. For more information about DIMM installation, please refer to the User Manual that comes with the serverboard you use.

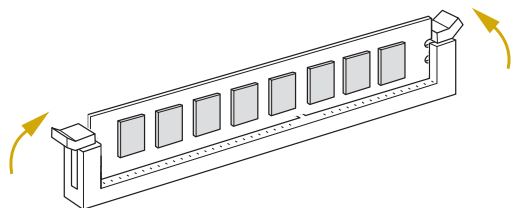
1



2



3



Appendix F

Installing the Server in a Rack

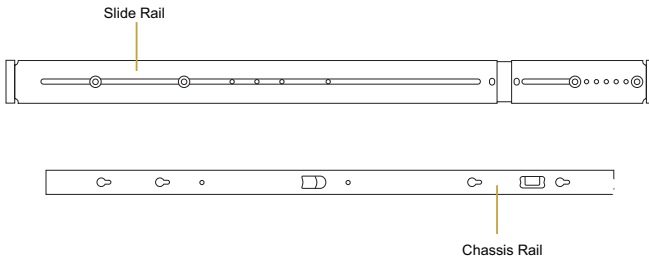
This section describes how to rackmount the server with slide rail assemblies.



1. The rails installation instructions in this manual are example only, your actual rail assembly procedure may differ slightly.
2. Please purchase the rail assembly separately if needed.

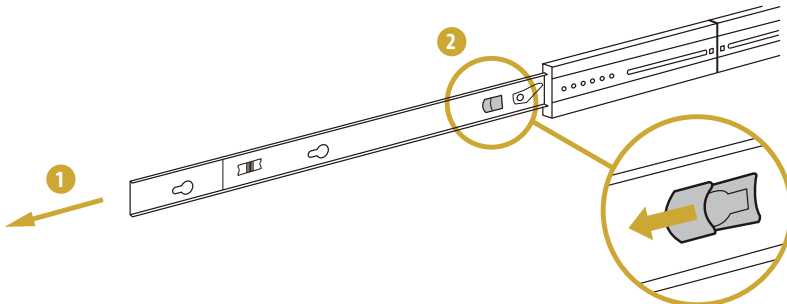
The slide rail assembly consists of a chassis rail and a slide rail.

You need to attach the chassis rails to the server and attach the slide rail assemblies to the rack.



Removing the Chassis Rail from the Slide Rail Assembly

1. Pull out the inner chassis rail from the rail assembly.
2. Push the white chassis rail release button toward the front, and simultaneously withdraw the chassis rail from the slide rail assembly.
3. Repeat for the remaining rail assembly.

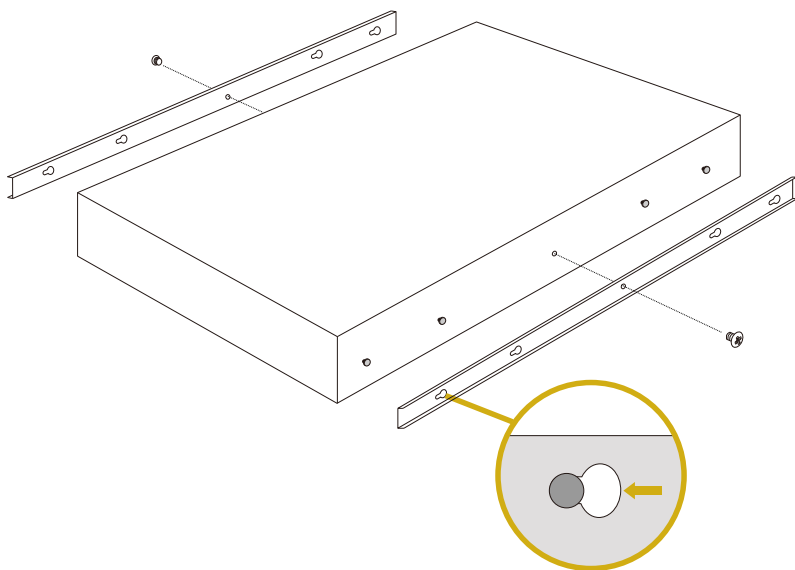




To slide a chassis rail back into the slide rail assembly, push the blue release button toward the rear, and simultaneously slide the chassis rail into the slide rail assembly until it is locked and cannot be pushed further.

Attaching the Chassis Rails to the Server

1. Position a chassis rail along one side of the chassis, and align the keyhole openings on the chassis rail with the locating pins on the side of the chassis.
2. Pull the chassis rail toward the front of the chassis until the chassis rail clips. Make sure the rail is installed in the correct direction.
3. Secure the chassis rail to the server chassis with screws.
4. Repeat for the remaining chassis rail.

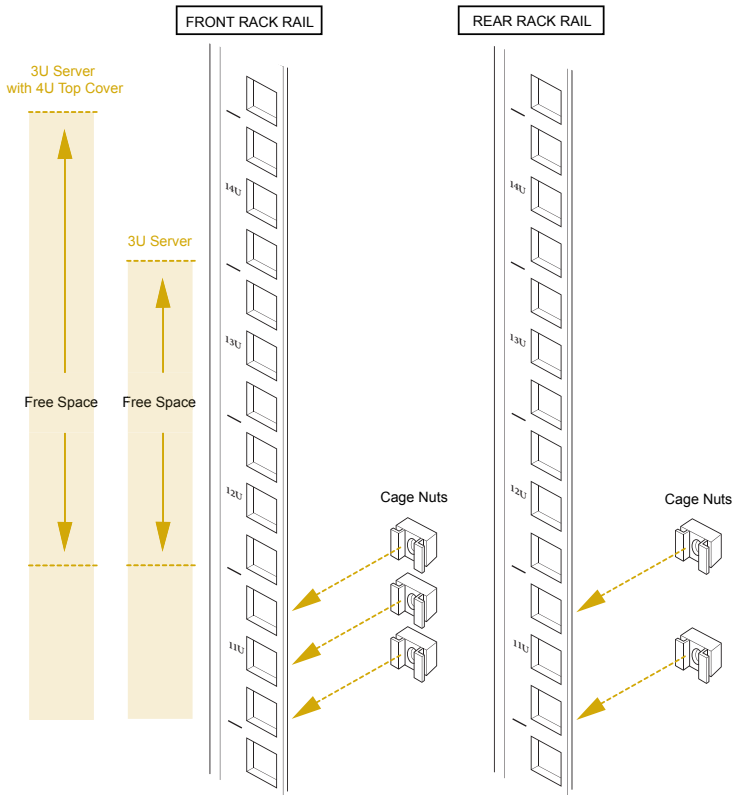


Attaching the Slide Rail Assemblies to the Rack

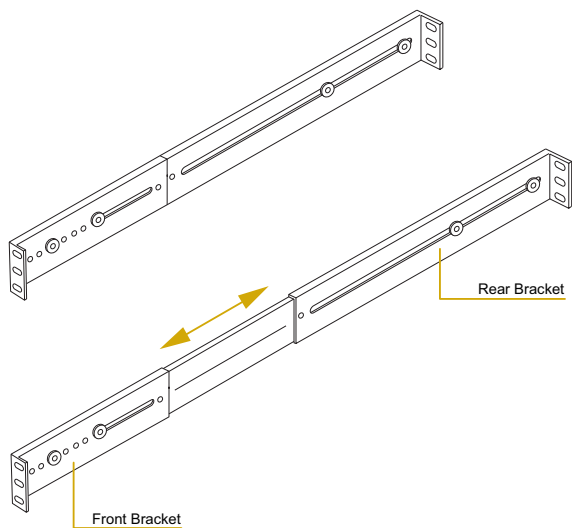
1. Determine where to attach the slide rails. Make sure you have enough free space above the slide rail bracket for the chassis.

**For a 3U server, 6 holes of free space above the slide rail bracket are required. If you use a 4U top cover for the server, you need to have 9 holes of free space above the slide rail bracket.*

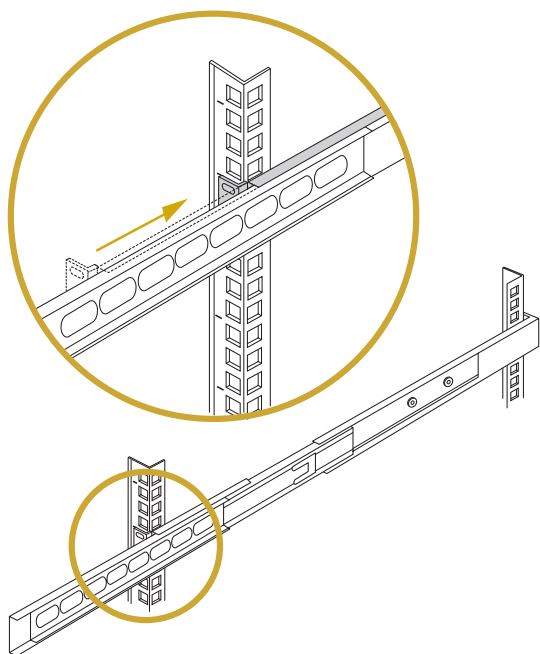
For the rack with square mounting holes, insert cage nuts in the holes that you will use on the rack.



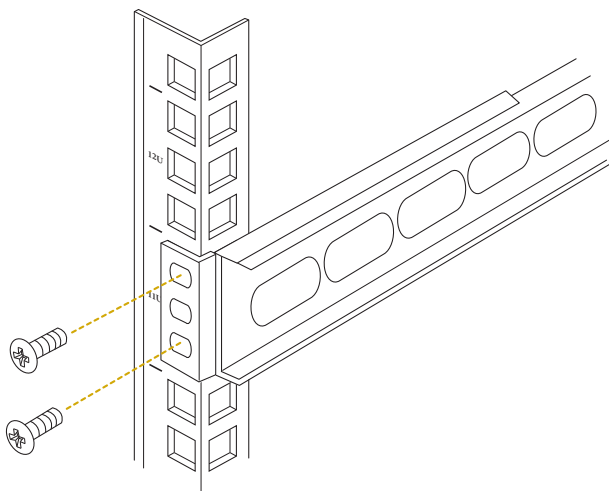
2. Extend the pre-attached front and rear adjustable brackets on the slide. Do not fully tighten the nuts yet.



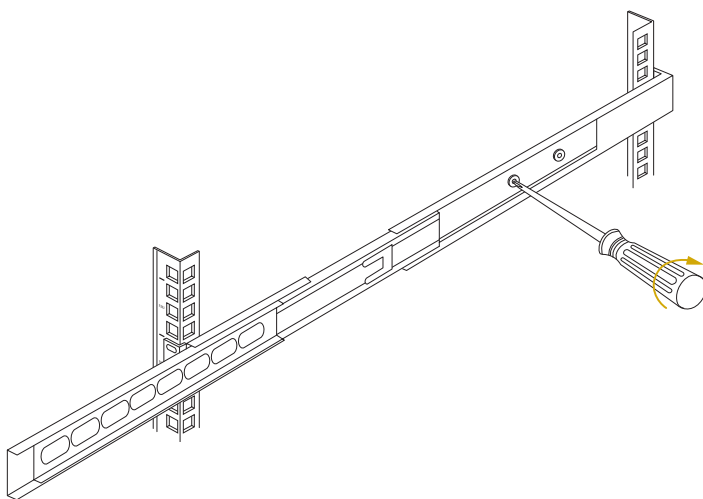
3. Adjust the brackets to accommodate the depth of the rack.



4. Align the holes on the brackets with the mounting holes you selected on the rack.
5. Tighten the screws to secure the slide rails to the rack. Make sure the rear bracket meets the rear vertical rail of the rack.

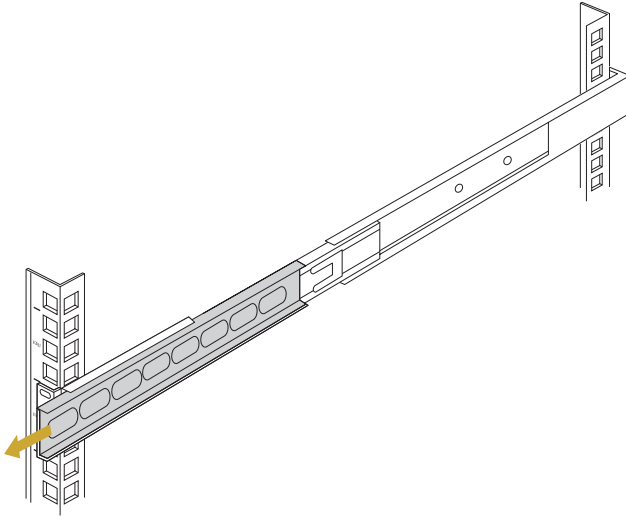


6. Fully tighten the lock nuts on the rear bracket.



Sliding the Server into the Rack

1. Ensure that the slide rails are properly and securely attached to the rack.
2. Fully extend the slide rails from the rack by pulling the inner rails out until they are locked and cannot be pulled out further.

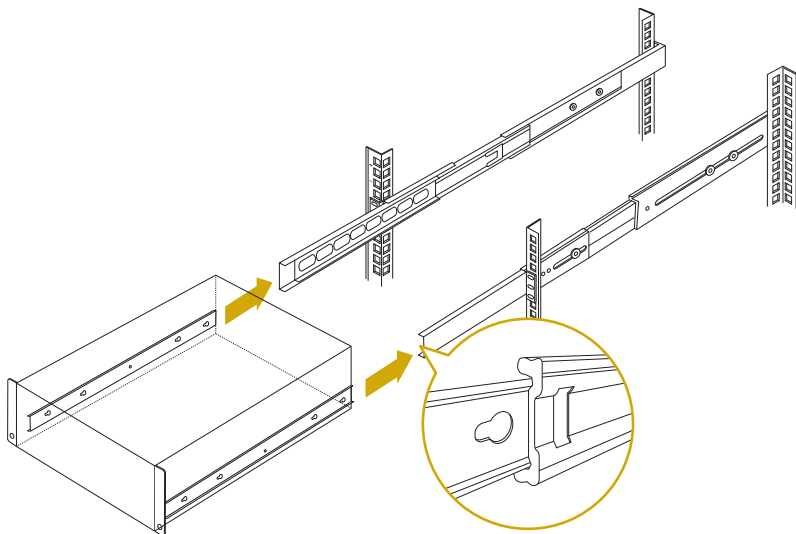


To slide an inner rail back into the slide rail, press the metal tab on the inner rail, and simultaneously slide the inner rail into the slide rail .

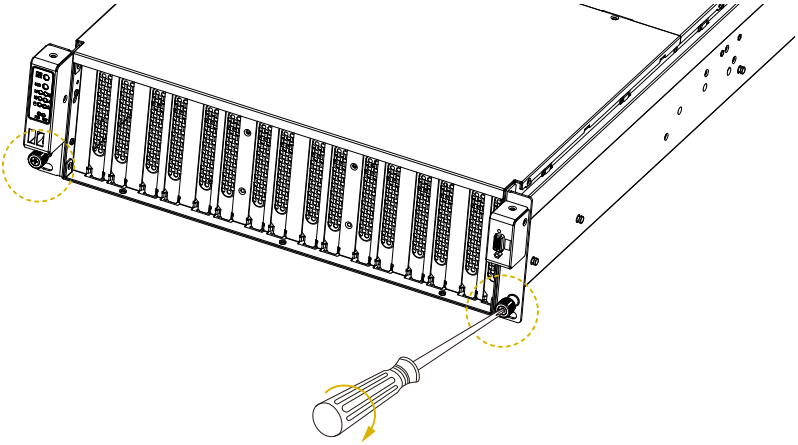
3. Slide the server slowly and evenly all the way into the cabinet to ensure that the slide assemblies are working correctly.



The server is heavy. For safe lifting, two or more persons are required to install the server into the rack.



4. Tighten the two thumb screws on the front of the server to secure the server to the rack.
5. To remove the server from the rack, reverse these instructions.



When connecting cables to the server, make sure there is enough cable slack so you can slide the server in and out of the rack without accidentally unplugging a cable.

Optional Accessory

Please purchase the following optional accessory separately if needed.

Rail Assembly Kit	
Vendor	Model Name
KINGSLIDE	3A68-660CP