



OPEN Industry Standard, Flexible Architecture

GREEN Less Heat, Less Power Consumption

STABLE Robust Design, Quality Parts

Stable and
Reliable Solution

Server/Workstation
Motherboard

2U4G Series

User Manual

English



Version 1.0
Published December 2020
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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"



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 German Ordinance for Work with Visual Display Units.

Replaceable Batteries

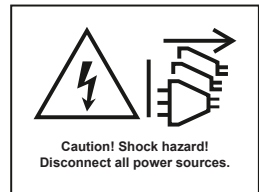
CAUTION

**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.
- The power cord must be connected to a socket or outlet with a ground connection.

AUSTRALIA ONLY

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage caused by our goods. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. If you require assistance please call ASRock Tel : +886-2-28965588 ext.123 (Standard International call charges apply)

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Chapter 1 Introduction

Thank you for purchasing 2U4G Series, a reliable system produced under our consistently stringent quality control. It delivers excellent performance with robust design conforming to our commitment to quality and endurance.



Because the hardware specifications might be updated, the content of this documentation will be subject to change without notice.



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

1.1 Shipping Box Contents

Item	Quantity
GPU Power Cable (Red & Orange / L=800mm ; Blue & Green / L=500mm)	4
PMBus Cable (L=390mm)	1
Power ATX Cable (8PIN) (L=350mm)	2
Power ATX Cable (24 PIN TO 24 PIN) (L=150mm)	1
SWB Power Cable (SWB CABLE 2*6P(3.0)PWR; L=400mm)	3
HDD Power Cable (HDD PWR 2*4P TO 2*6P; L=800mm)	1
SLIMLINE Cables (L=800mm / 500mm)	6
Front Control Cable (2*10P(2.0)TO 2*10P+2*5P(2.54))	1
MNG Cable (L=960mm)	1
MINISAS HD to OcuLink (S/T) Cable (L=710mm) (2U4G-C621WS only)	2
USB Cable (25P 2.54HSG TO 2.0HSG) (L=1.25M) (2U4G-C621WS only)	1
SATA 6G Cable (L=820mm) (2U4G-C621WS only)	4
SGPIO Cable (L=615mm) (2U4G-C621WS only)	1
MINISAS HD TO 4*SATA+SGPIO Cable (L=700mm) (2U4G-EPYC only)	1
USB Cable (USD 3.0(20P) TO 2*5P HEADER) (L=880mm) (2U4G-EPYC only)	1
OcuLink Cables (L=600mm) (2U4G-EPYC only)	2
Accessory Box	1
Slide Rail Kit	1
Support CD	1
User Manual	1
Quick Installation Guide	1



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

1.2 Specifications

2U4G Series (2U4G-EPYC / 2U4G-C621WS / 2U4G-ROME/2T)	
System Physical Status	
Form Factor	2U Rackmount
Dimension (D x W x H)	438x 795x 87.5 mm (without ear)
Support MB Size	EATX 12" x 13" (EP2C621D12 WS) / ATX 12" x 9.6" (EPYCD8) / ATX 12" x 9.6" (ROMED8QM-2T)
Front Panel (per node)	
Buttons	• Power button • UID button
LEDs	• Power LED • UID LED • LAN activity LED • System Event LED
I/O Port	2 x USB 2.0 ports
Drive Bay	
External	• 4 x 2.5" SATA 6GB/s HDDs (1x SATA3 HDD could support NVME SSD or SATA3 6GB/s HDDs) • 1 x NVME SSD
System Cooling	
Fan	6 x 80*38 mm system fans
Power Supply	
Capacity	2 (1+1), Redundant
Input	200~240V , 15A, 50/60Hz
Output Watts	2000W
Efficiency	Platinum
GPU Card (on the riser card assembly)	
GPU Watts	Max 300w /per card
Support GPU	4 x GPU cards

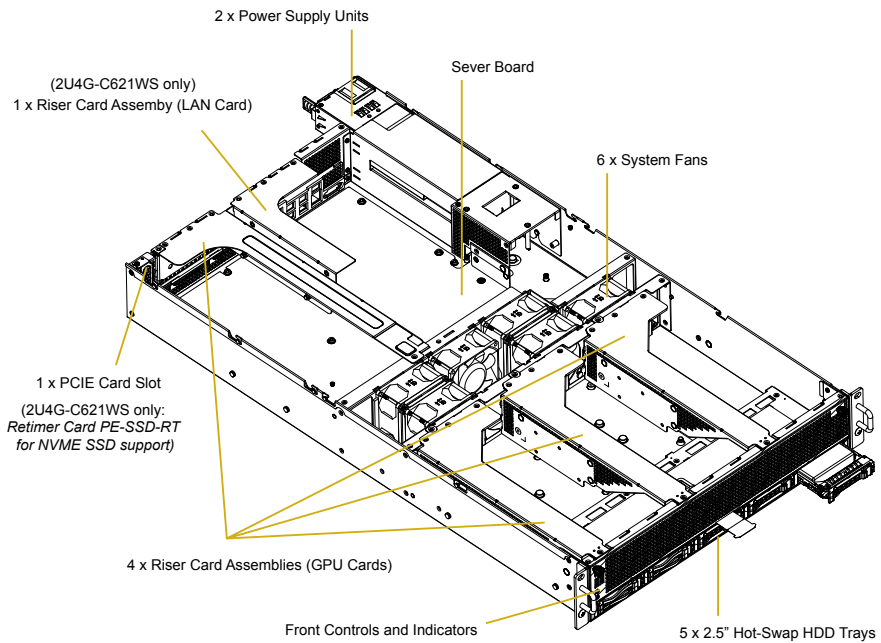


Please refer to the user manual of the motherboard you use for detailed information about motherboard components and features.

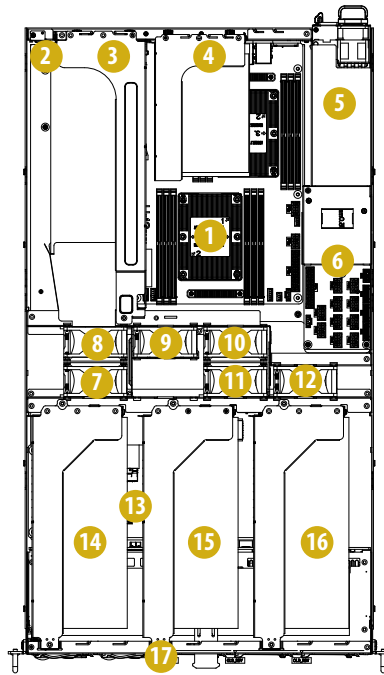
Chapter 2 Server System Overview

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

2.1 System Components

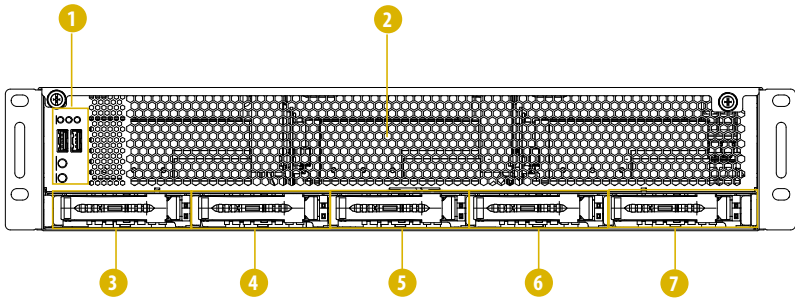


2.2 Internal Features



No.	Item / per node	No.	Item / per node
	Server Board	10	System Fan4
1	<i>(The serverboard varies depending on the system SKU.)</i>	11	System Fan5
2	PCIe Card Slot (for Retimer Card PE-SSD-RT) (2U4G-C621WS only)	12	System Fan6
3	Riser Card Slot4 (GPU Card)	13	Switch Board (2U4G-C621WS / 2U4G-EPYC only)
4	Riser Card Slot5 (LAN Card) (2U4G-C621WS only)	14	Riser Card Slot3 (GPU Card)
5	Power Supply Units	15	Riser Card Slot2 (GPU Card)
6	Power Distribution Boards	16	Riser Card Slot1 (GPU Card)
7	System Fan2	17	2.5" HDD Trays
8	System Fan1		
9	System Fan3		

2.3 System Front Panel



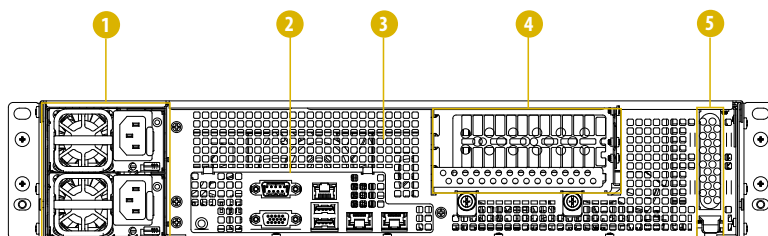
No.	Description
1	Control Panel Buttons and LEDs
2	Front Vent
3	2.5" HDD Tray (NVME0)
4	2.5" HDD Tray (NVME1 / HDD1)
5	2.5" HDD Tray (HDD2)
6	2.5" HDD Tray (HDD3)
7	2.5" HDD Tray (HDD4)



To enable NVME SSD for 2U4G-C621WS system, please install the Retimer Card (PE-SSD-RT) on the rear I/O (refer to Chapter 3.8 Installing a PCIE Card) and connect the the Retimer Card to the motherboard via the Retimer Card cables.

2.4 System Rear Panel

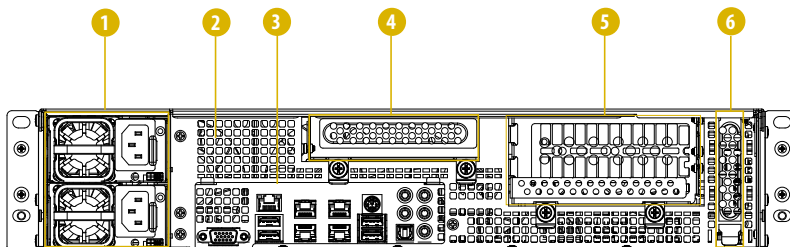
2U4G-EPYC



Redundant PSU 1+1: Only one PSU is allowed to be removed while the server is running.

No.	Description
1	2 x Power Supply Units (Redundant PSU 1+1) <i>*Server requires 1 working PSU, with 1 redundant PSU. You must have at least one active supply, installed, functioning and connected to AC. Only one of the PSUs is allowed to be removed while the server is running.</i>
2	I/O Shield (depends on the specification of the server board)
3	Rear Vent
4	Add-on Card Slot (GPU Card)
5	Add-on Card Slot (PCIE Card)

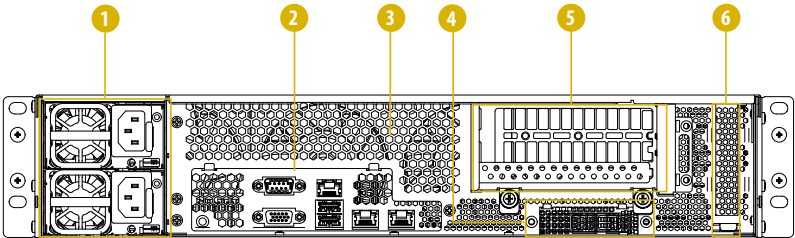
2U4G-C621WS



Redundant PSU 1+1: Only one PSU is allowed to be removed while the server is running.

No.	Description
1	2 x Power Supply Units (Redundant PSU 1+1) <i>*Server requires 1 working PSU, with 1 redundant PSU. You must have at least one active supply, installed, functioning and connected to AC. Only one of the PSUs is allowed to be removed while the server is running.</i>
2	Rear Vent
3	I/O Shield (depends on the specification of the server board)
4	Add-on Card Slot (LAN Card)
5	Add-on Card Slot (GPU Card)
6	Add-on Card Slot (Retimer Card PE-SSD-RT)

2U4G-ROME/2T

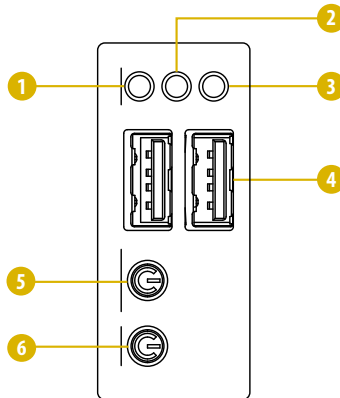


Redundant PSU 1+1: Only one PSU is allowed to be removed while the server is running.

No. Description	
1	2 x Power Supply Units (Redundant PSU 1+1) <i>*Server requires 1 working PSU, with 1 redundant PSU. You must have at least one active supply, installed, functioning and connected to AC. Only one of the PSUs is allowed to be removed while the server is running.</i>
2	I/O Shield (depends on the specification of the server board)
3	Rear Vent
4	Mezzanine Card Slot (LAN Card)
5	Add-on Card Slot (GPU Card)
6	Add-on Card Slot
7	Add-on Card Slot (Retimer Card PE-SSD-RT)

2.5 Front Control Panel Buttons and LEDs

Front Control Panel



No.	Description
1	LAN2 Activity LED
2	LAN1 Activity LED
3	System Event LED
4	2 x USB 2.0 Ports
5	Power Button and LED
6	UID LED

Power Button

Press the power switch button to toggle the system power on and off modes.

To remove all power from the system completely, disconnect the power cord from the server.

UID Button

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

Status LED Definitions

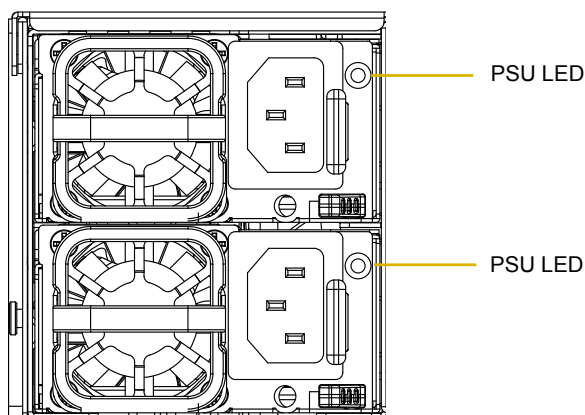
Power LED	
Status	Description
Green	Power on
Off	Power off

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

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

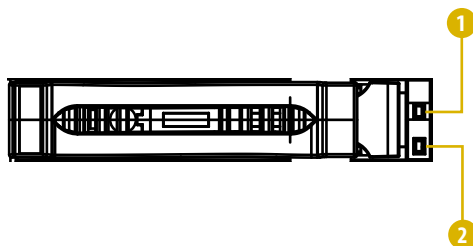
System Event LED	
Status	Description
Off	Running or normal operation
Red	At least one sensor has critical alert

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 ACT LED
2	HDD STATUS LED

Status LED Definitions

HDD ACT LED	
Status	Description
Solid Green	HDD active
Blinking Green	HDD accessing or reading
Off	No HDD

HDD STATUS LED	
Status	Description
Off	Normal
Red	HDD failed

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 off 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. 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.



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.

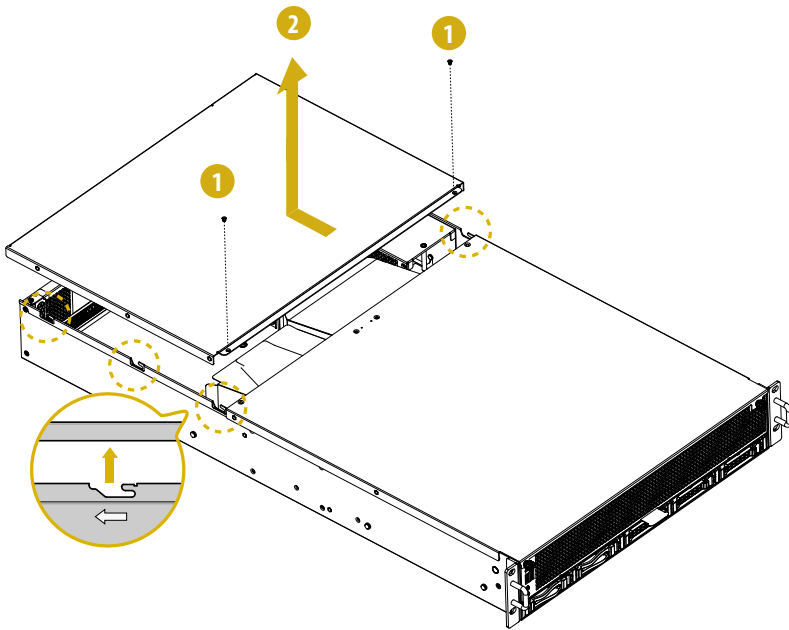
3.1 Server Top Cover

Removing the Server Top Cover

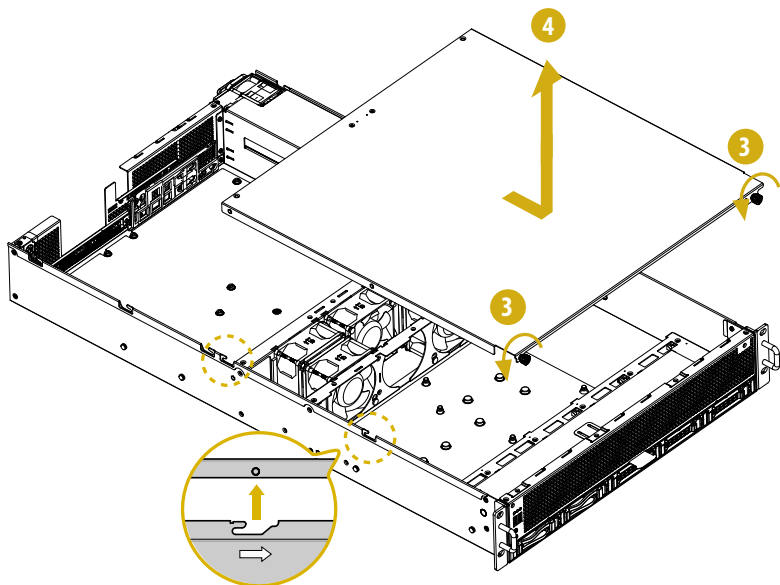


1. Before removing the top covers, power off the server and unplug the power cord.
2. The system must be operated with all the chassis top covers installed to ensure proper cooling.

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

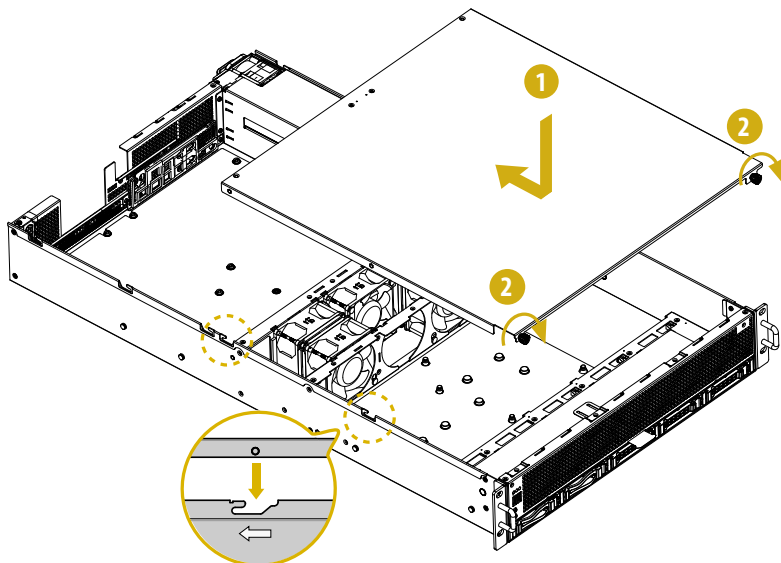


3. Release the thumbscrews that secure the top front cover to the chassis.
4. Push the top front cover toward the FRONT of the chassis to remove the cover from the locked position. Lift up and remove the top front cover.

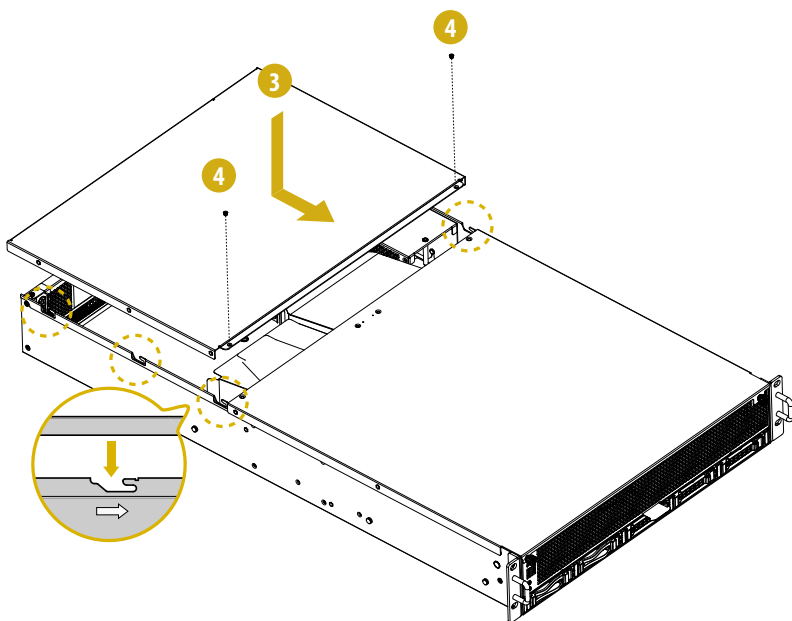


Installing the Server Top Cover

1. Lower the top front cover on the chassis, making sure the side latches align with the cutouts. Slide the top front cover toward the REAR of the chassis.
2. Hand tighten the thumbscrews on the front.



3. Then lower the top rear cover on the chassis, making sure the side latches align with the cutouts. Slide the top front cover toward the FRONT of the chassis.
4. Secure the top rear cover in place with screws.



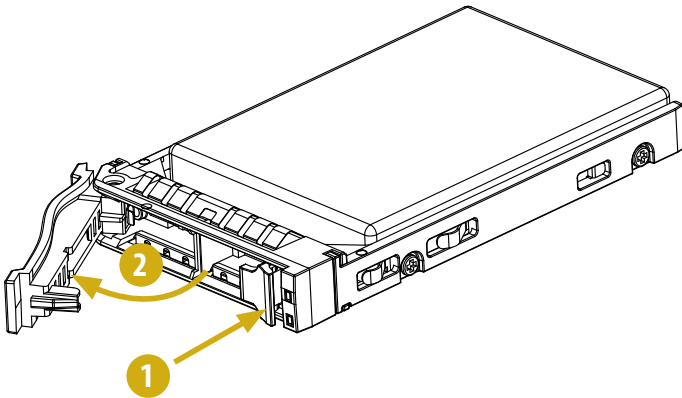
3.2 Hard Drive

Installing a Hard Disk Drive into 2.5" Hard Drive Tray

The 2U4G Series chassis supports hot-swappable 2.5" hard drives. Five 2.5" hard drive trays are located on the front of the system.

Removing 2.5" Hard Drive Trays from the Chassis

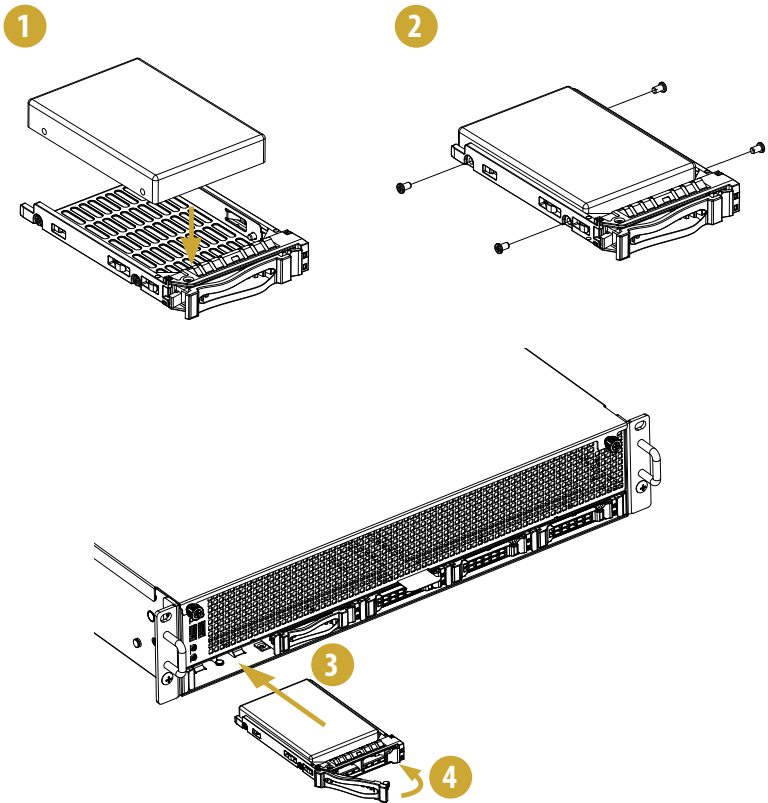
1. Press the locking lever latch on the drive tray to unlock the retention lever.
2. Rotate the lever out and away from the module bay and pull the hard drive out of the HDD tray.



2U4G-EPYC / 2U4G-C621WS:

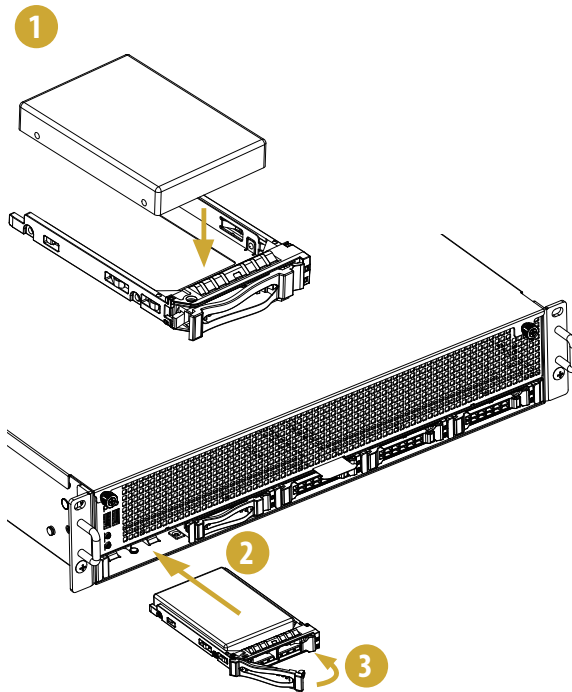
Installing a 2.5" Hard Drive to the Hard Drive Tray

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.
Slide the drive tray into the HDD bay until the drive is fully seated.
3. Push in the locking lever to lock the HDD tray into place.



2U4G-ROME/2T:**Installing a 2.5" Hard Drive to the Hard Drive Tray**

1. Place a 2.5" HDD into the bracket with the printed circuit board side facing down.
2. Slide the drive tray into the HDD bay until the drive is fully seated.
3. Push in the locking lever to lock the HDD tray into place.



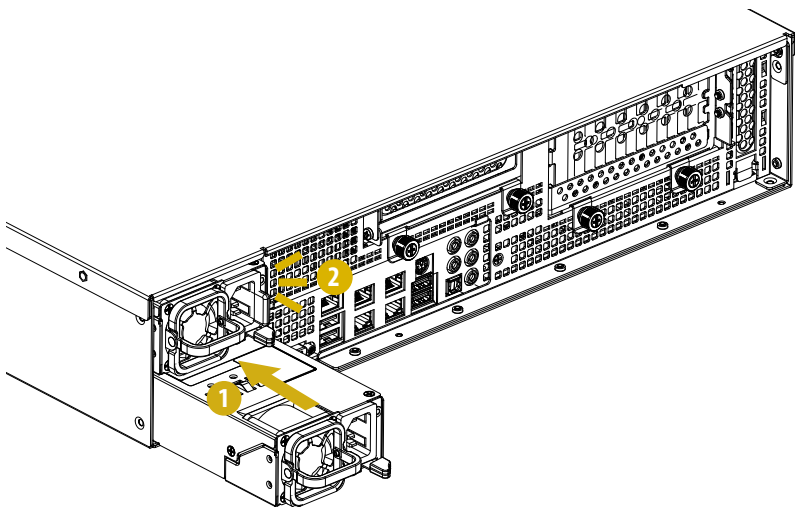
3.3 Power Supply

Installing and Removing the Power Supply

Installing the Power Supply Unit

The 2U4G Series can accommodate two AC or two DC power supplies in the bay at the rear of the chassis. Each unit provides up to 200 Watts of power. One power supply is required for full load operation, with the other power supply purely as a redundant, load-sharing backup. It can be removed without affecting system operation.

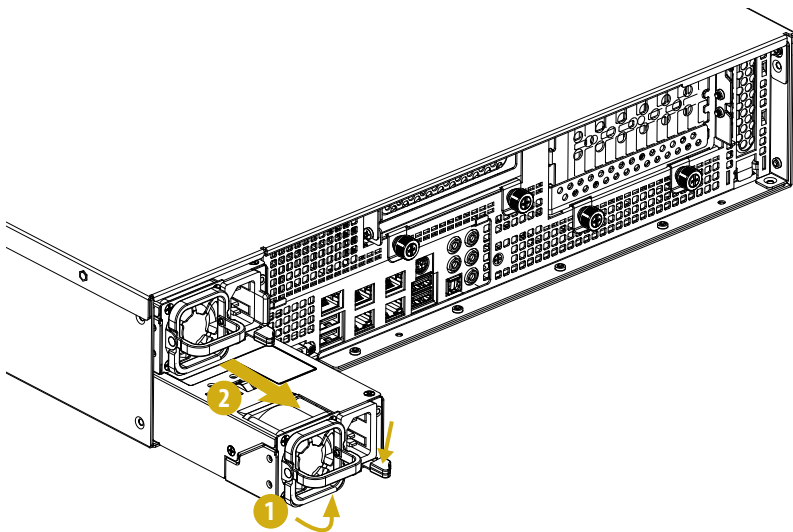
1. Align the power supply unit with the power supply slot.
2. Carefully slide the PSU all the way into the power supply bay until it clicks into place.



Removing the Power Supply Unit

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

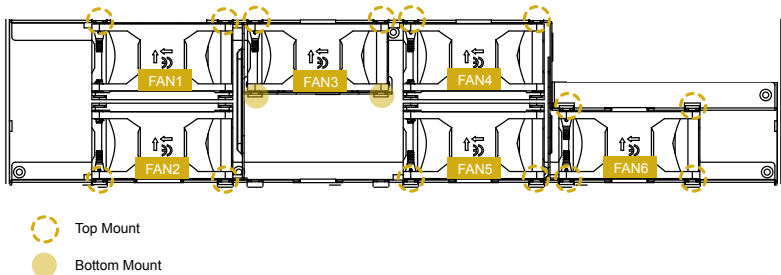
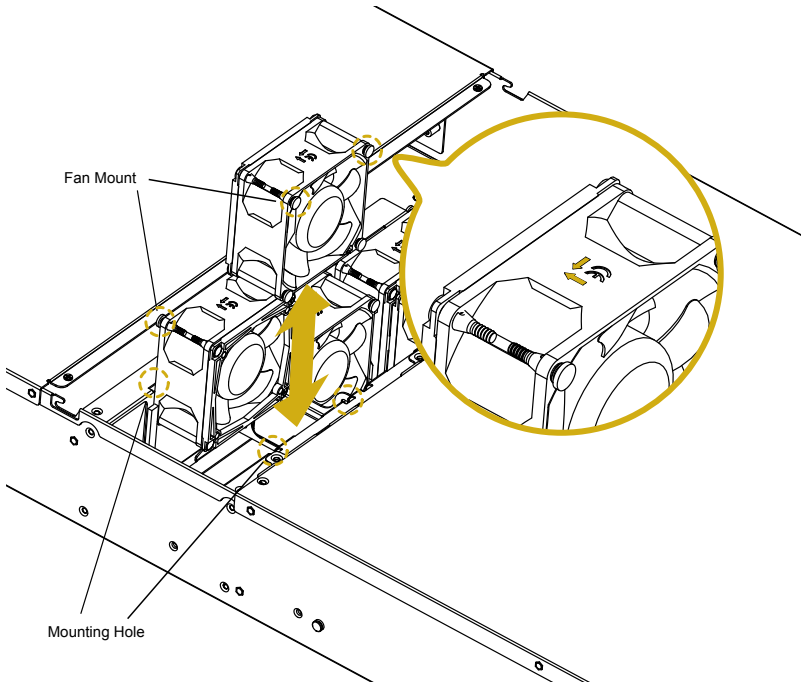
1. Hold onto the power supply handle while pressing the locking lever.
2. Pull to remove the power supply from the chassis.



3.4 System Fan

Replacing the System Fan

1. Unplug the fan connector and remove the failed fan.
2. Align the mounting holes on the fan bar with the fan mounts on the replacement fan corners. Please be aware of the mount location of each fan.
3. Gently place the fan on the fan bar. Make sure the fan is well seated.
4. Connect the end of the fan cable to the fan connector.



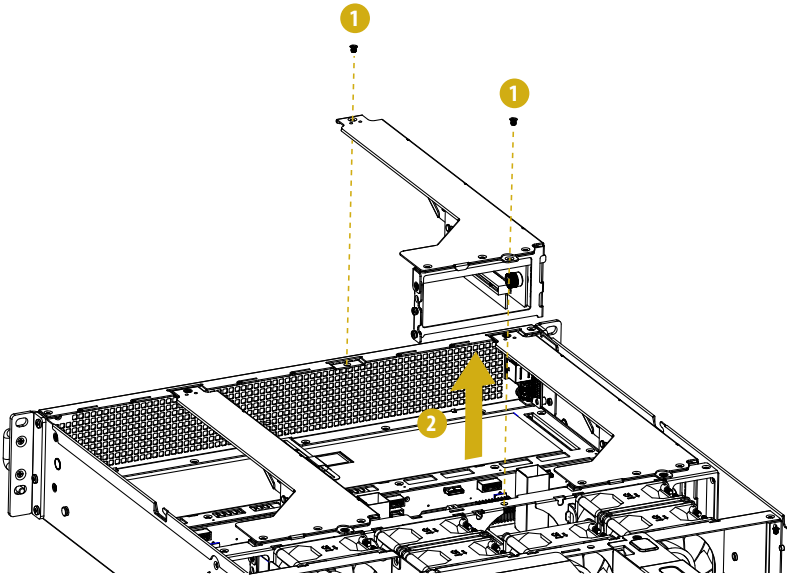
3.5 Front GPU Card (on the riser-card assembly)



Before installing the add-on card, power off the server and unplug the power cord.

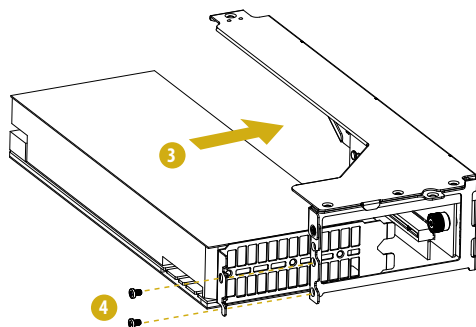
Installing the GPU Card in the Chassis

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

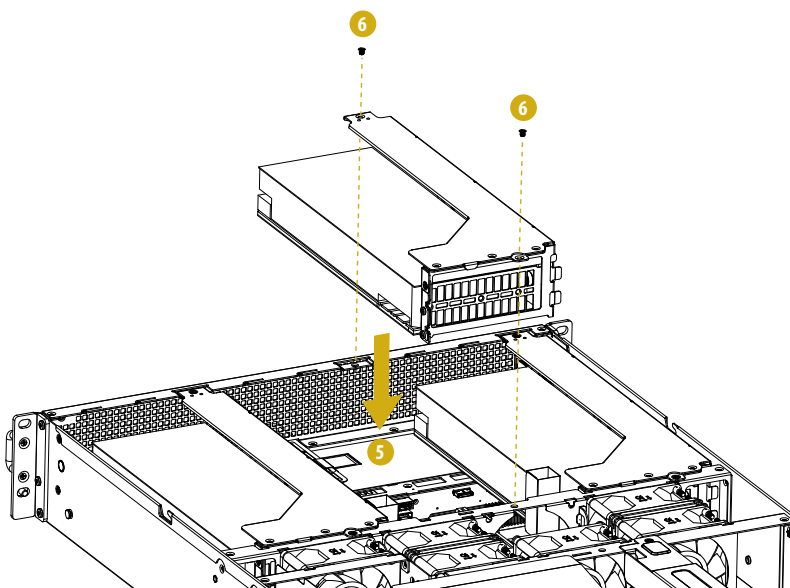


1. You can install an add-on card to the chassis only when you have a riser card installed on the motherboard.
2. Before installing the add-on card, power off the server and unplug the power cord.

3. Install the GPU card into to the riser-card assembly.
4. Tighten the screws to secure the GPU card.

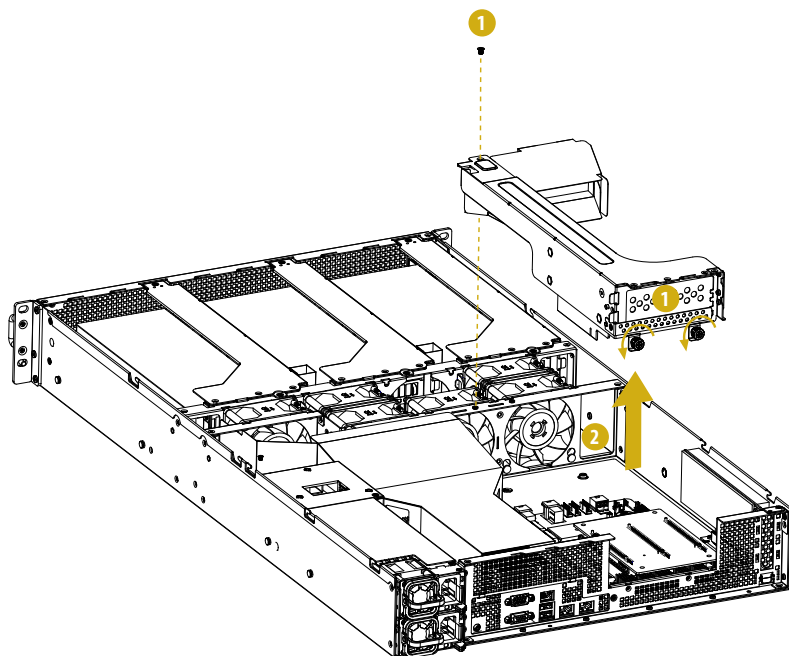


5. Install the riser card assembly to the chassis. Align the plate of the add-on card with the openings in the back of the chassis.
6. User screws to secure the add-on card assembly to the chassis.

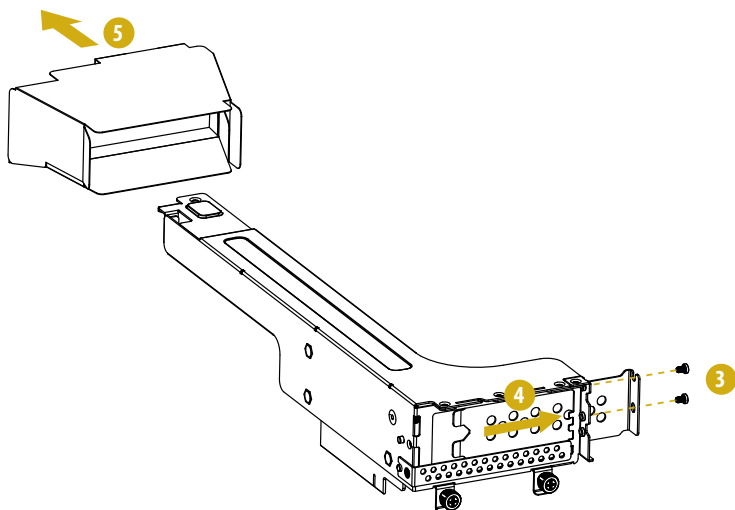


3.6 Rear GPU Card (on the riser-card assembly)

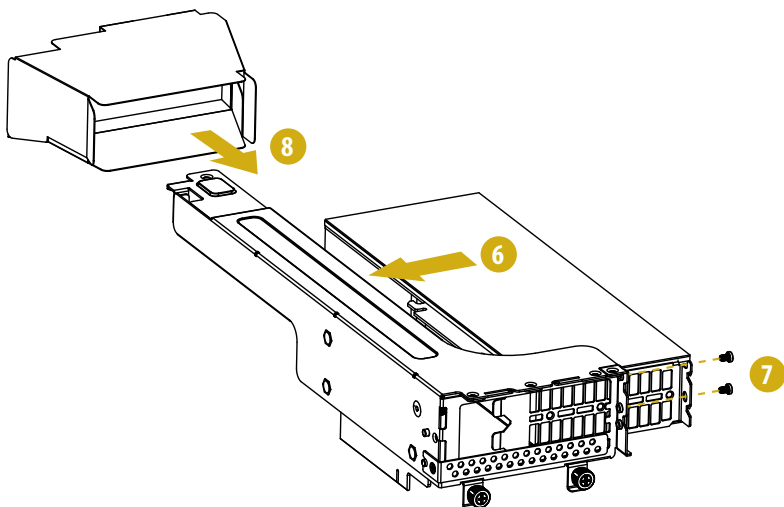
1. Loosen the screw and the thumbscrews to release the riser-card assembly.
2. Remove the riser-card assembly from the chassis.



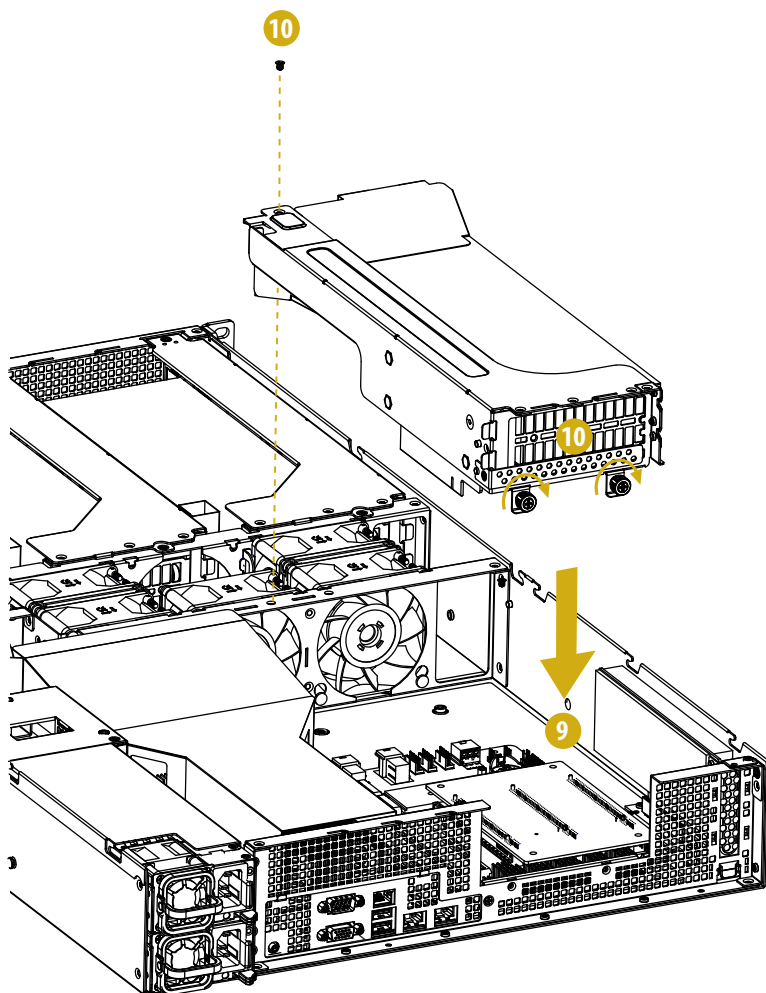
3. Remove the screws securing the slot cover to the assembly.
4. Slide the slot cover out sideways.
5. Remove the air baffle.



6. Install the GPU card into the riser-card assembly.
7. Tighten the screws to secure the card.
8. Install the air baffle to the rear end of the GPU card.

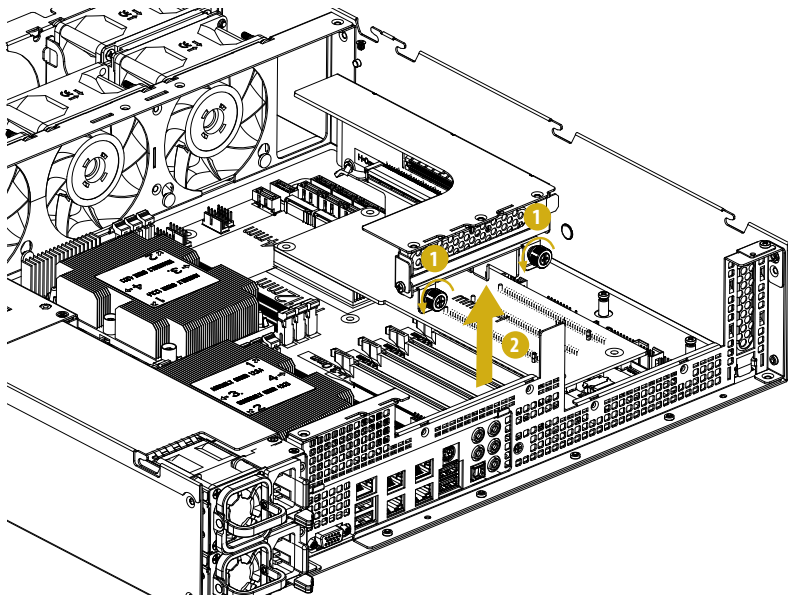


9. Install the riser card assembly to the chassis. Align the plate of the card with the openings in the back of the chassis.
10. Tighten the screw and the thumbscrews to secure the GPU card assembly to the chassis.

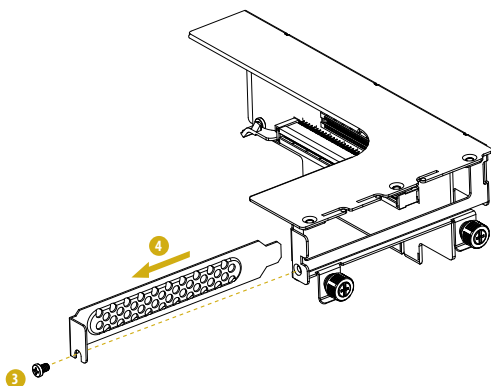


3.7 Installing a LAN Card *(for 2U4G-C621WS only)*

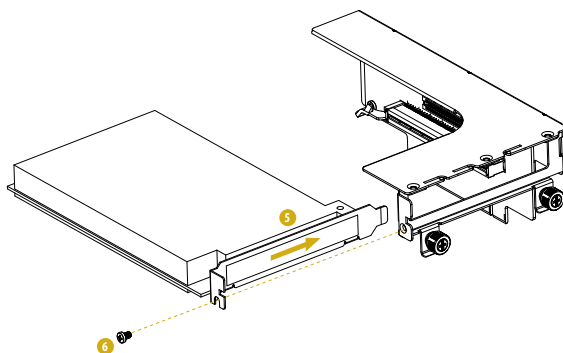
1. Loosen the thumbscrews to release the riser-card assembly.
2. Remove the riser-card assembly from the chassis.



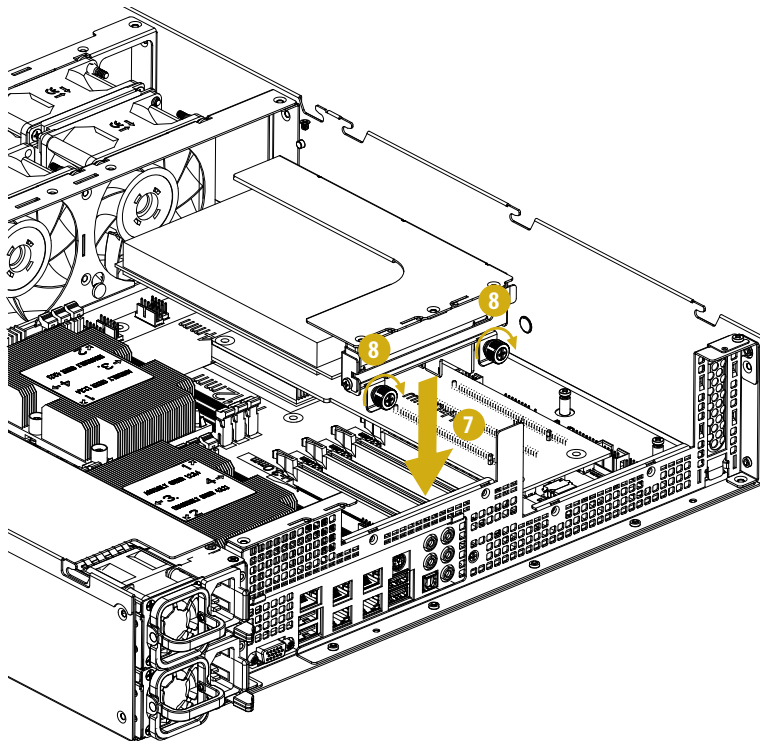
3. Remove the screw securing the slot cover to the assembly.
4. Slide the slot cover out sideways.



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



7. Install the LAN card assembly to the chassis. Align the plate of the LAN card with the openings in the back of the chassis.
8. Tighten the thumb screws to secure the LAN card assembly to the chassis.

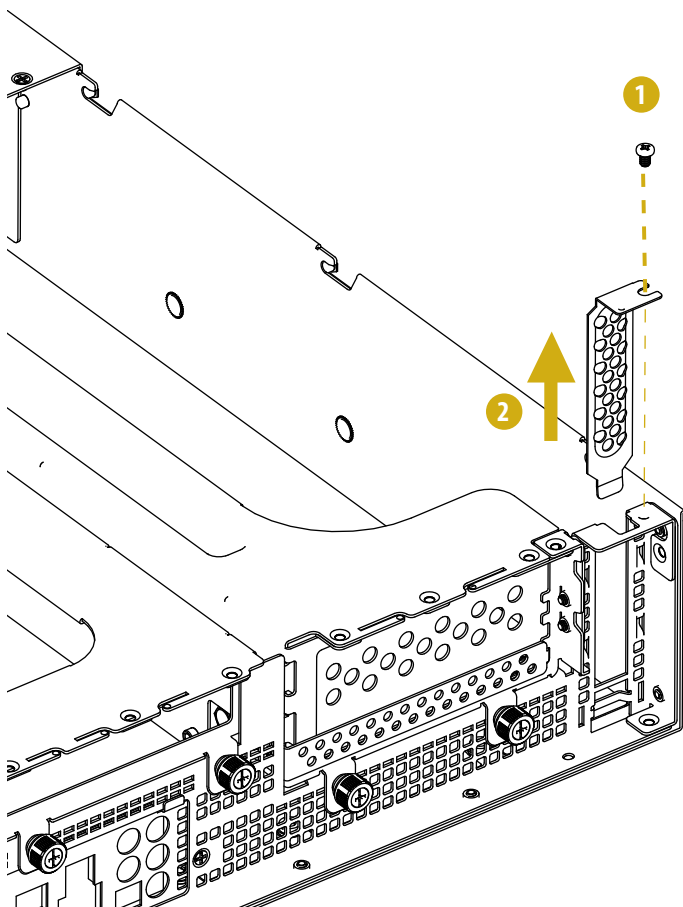


3.8 Installing a PCIe Card *(for 2U4G-EPYC only)* / Retimer Card (PE-SSD-RT) *(for 2U4G-C621WS only)*

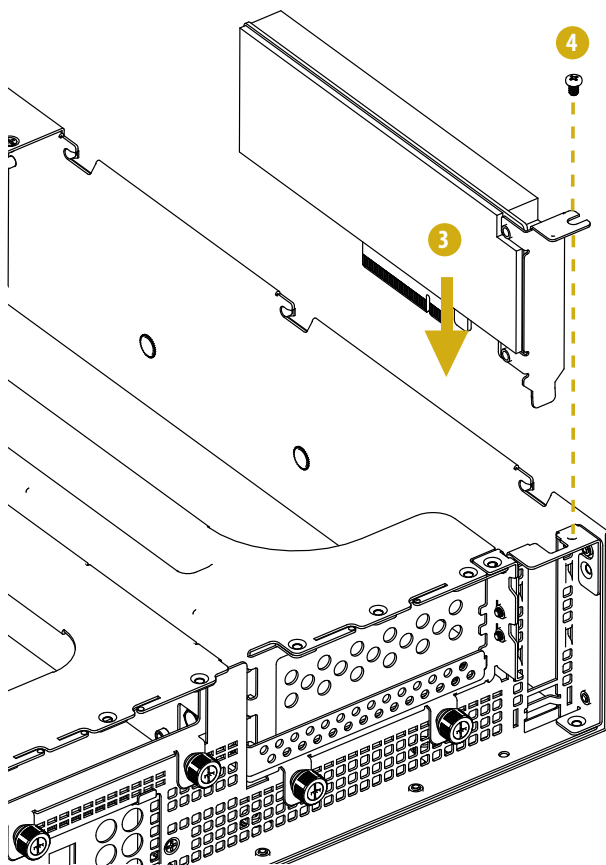


1. It is required to install the Retimer Card (PE-SSD-RT) to support NVME SSD for the 2U4G-C621WS system.
2. For the 2U4G-EPYC system, you can optionally install an add-on PCIe card into this slot if required.

1. Remove the screw securing the slot cover to the chassis.
2. Slide the slot cover out.



3. Install a PCIE card into to the slot.
4. Tighten the screw to secure the card to the chassis.

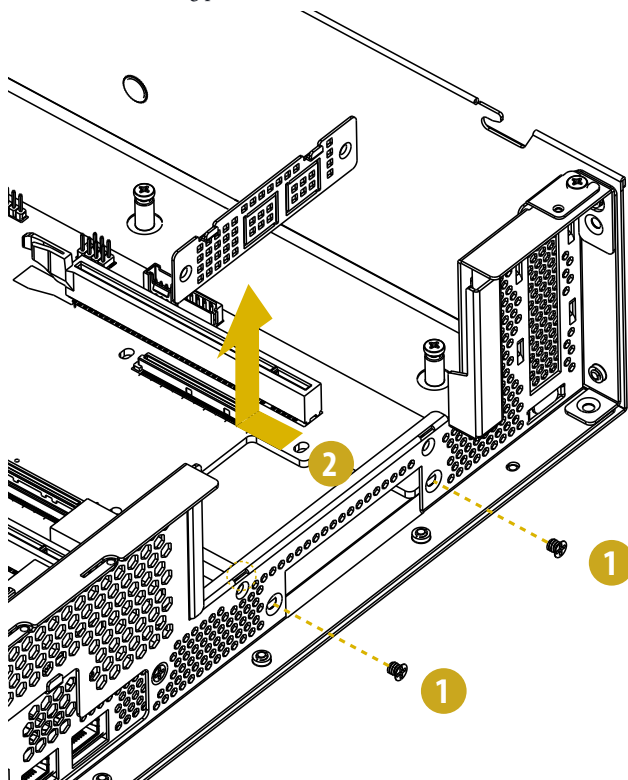


3.9 LAN Mezzanine Card *(for 2U4G-ROME/2T only)*

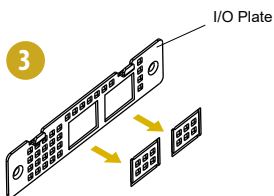
You can use an optional Ethernet mezzanine card for additional LAN ports.

Installing the I/O Plate for a LAN Mezzanine Card

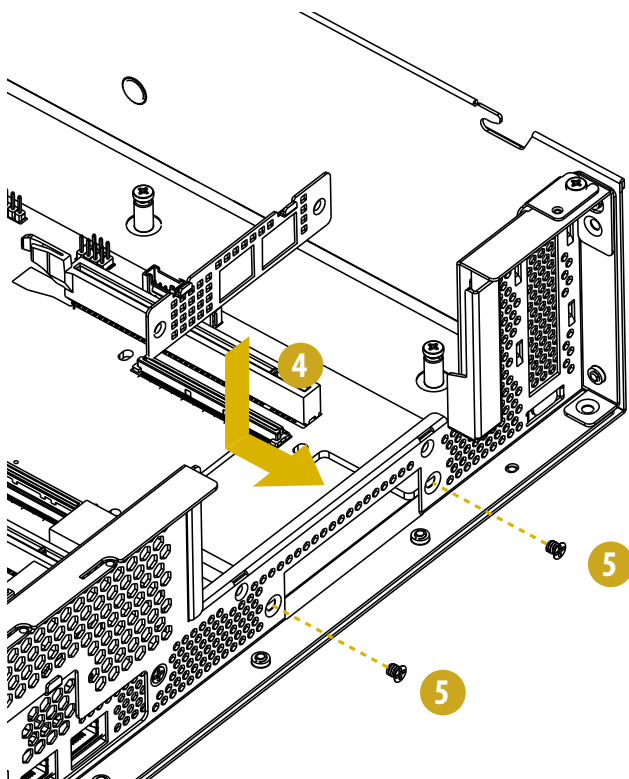
1. Release the screws.
2. Push to remove the blanking plate from the chassis.



3. Remove the blanking dummy plates.



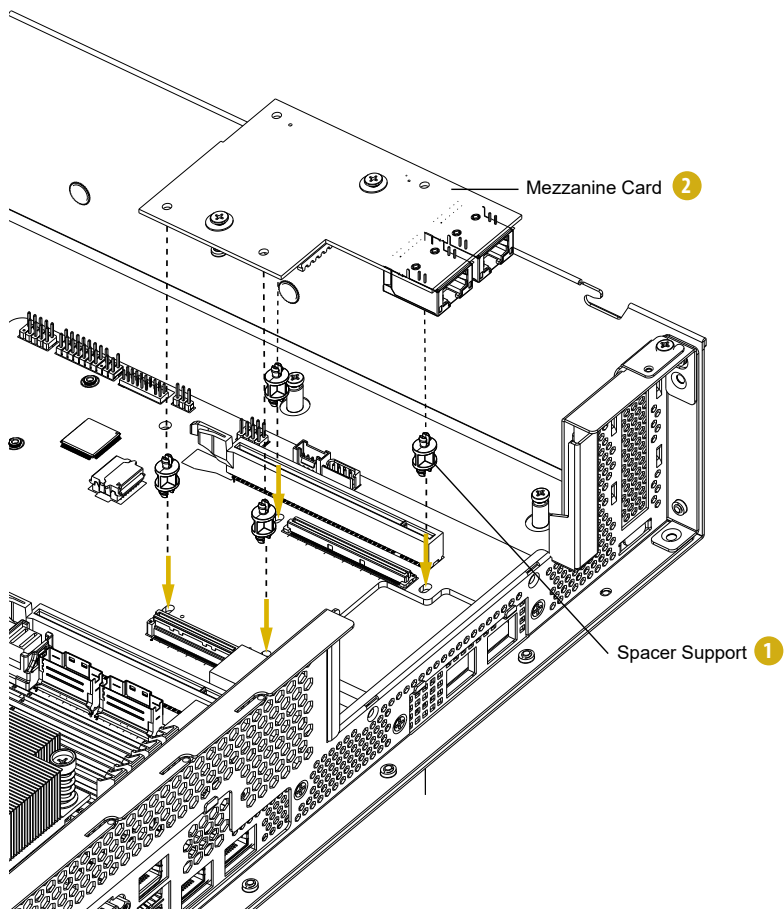
4. Install the I/O plate to the chassis by sliding the tabs into the notches.
5. Tighten the screws to secure the I/O plate to the chassis.



Installing the LAN Mezzanine Card

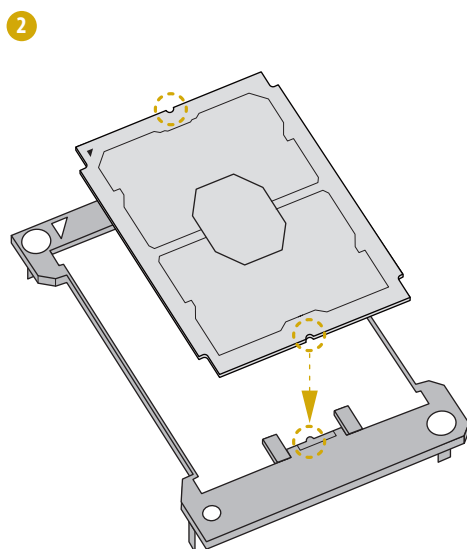
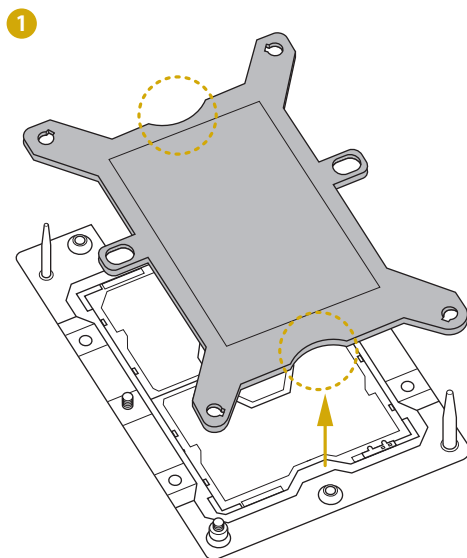
1. Install the four spacer supports into the motherboard around the mezzanine card slot.
2. Gently insert the mezzanine card into the mezzanine card slot on the motherboard.

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



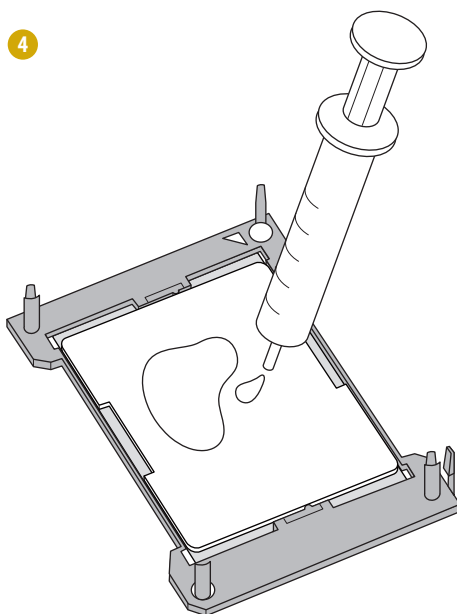
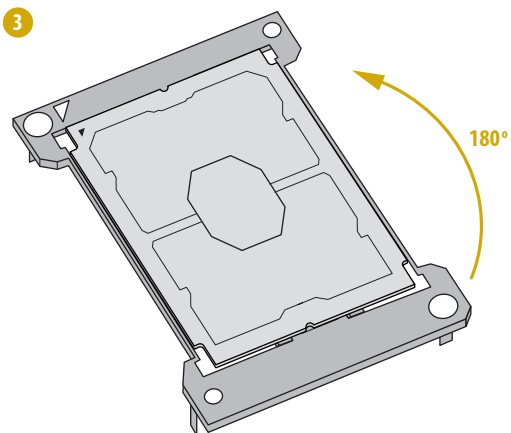
Appendix A

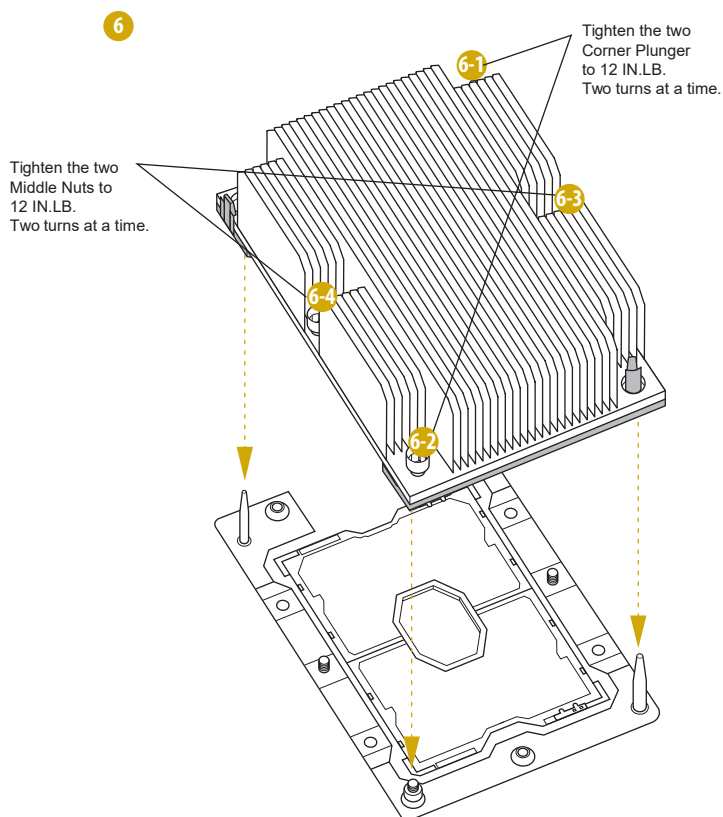
Installing the CPU (Socket: LGA-3647)



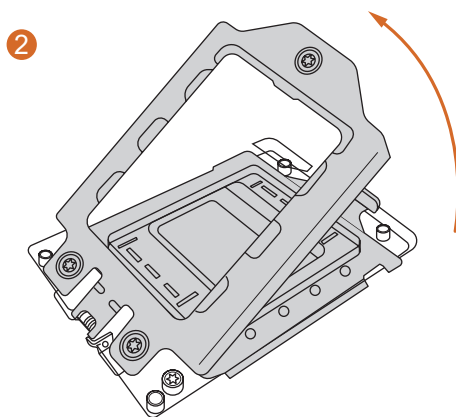
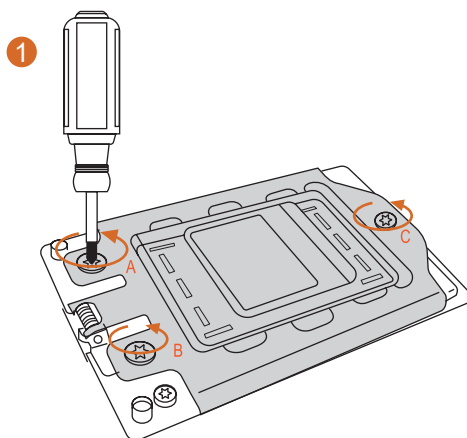


1. Before you installed the heatsink, you need to spray thermal interface material between the CPU and the heatsink to improve heat dissipation.
2. Illustration in this documentation are examples only. Heatsink or fan cooler type may differ.

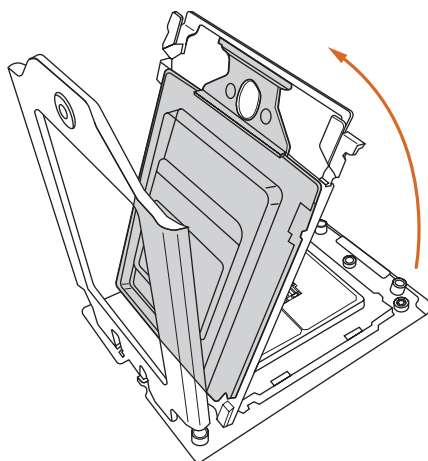




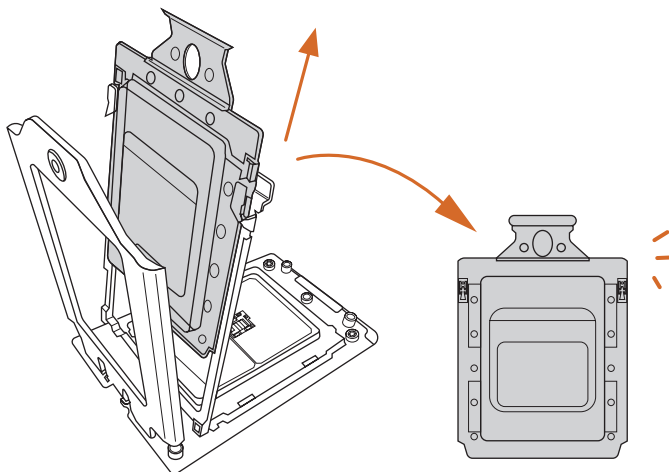
Installing the CPU (Socket: LGA-4094)



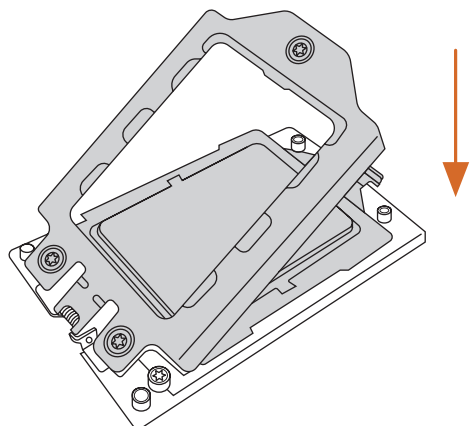
3



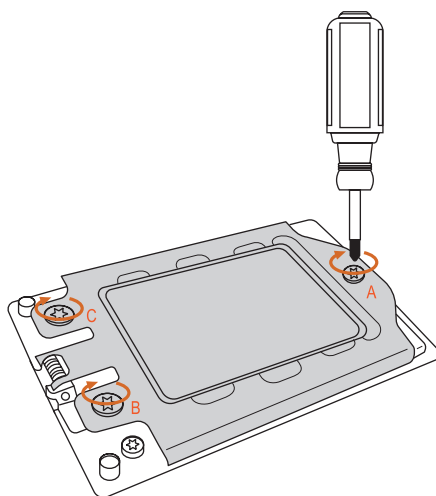
4



7

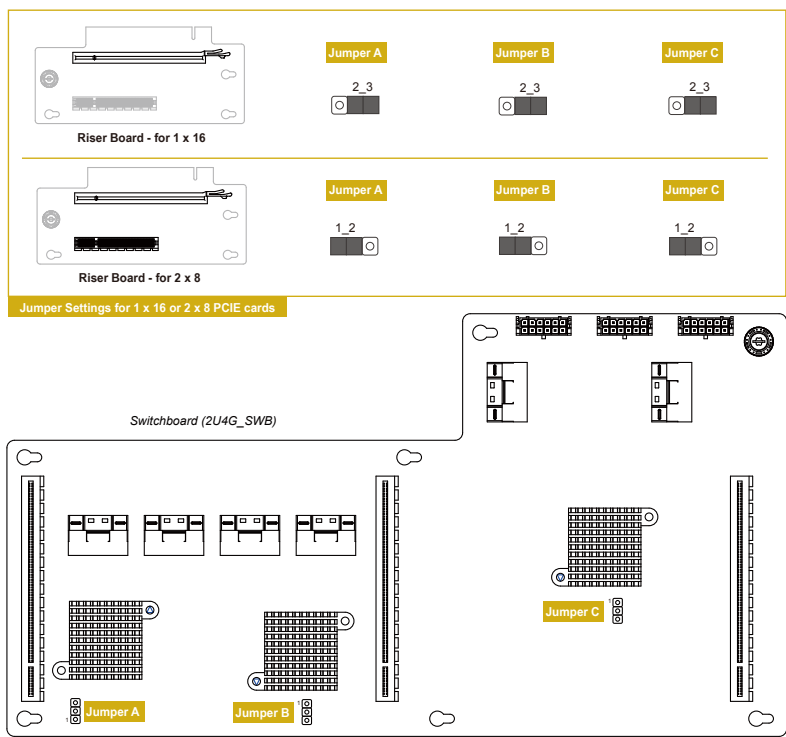


8



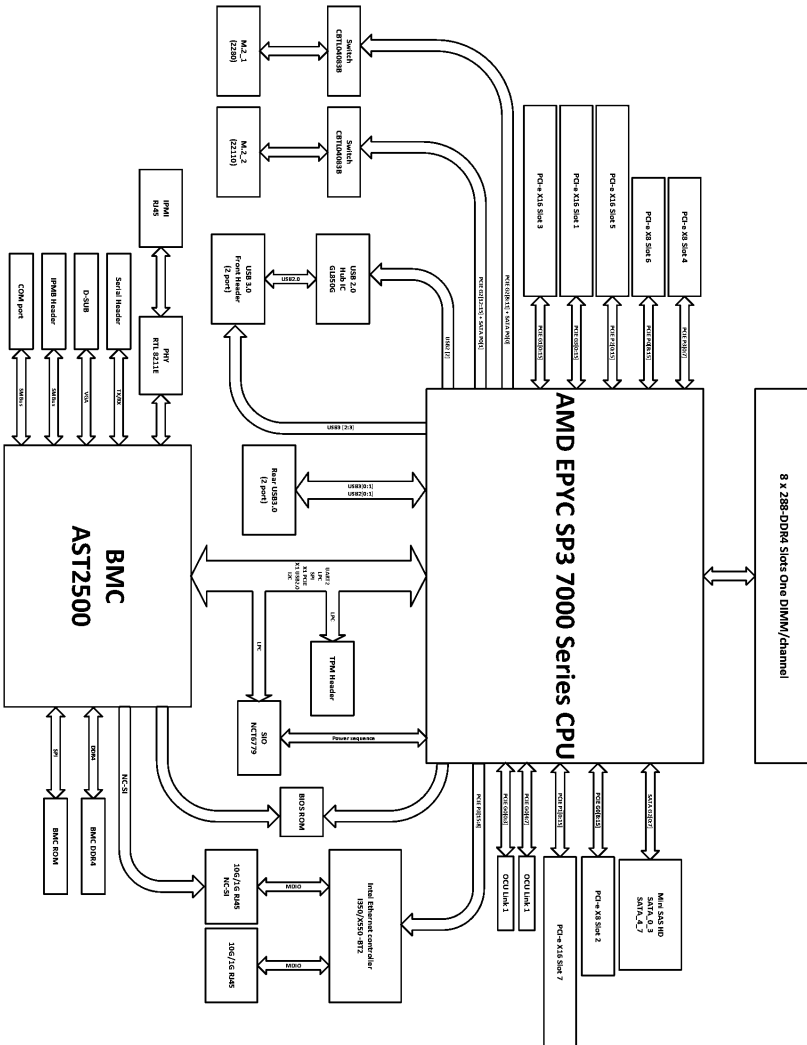
Appendix B

Jumper Settings for the Riser Board



Appendix C

Block Diagram: EPYCD8 (for 2U4G-EPYC)



MB Block Diagram

