



OPEN Industry Standard, Flexible Architecture

GREEN Less Heat, Less Power Consumption

STABLE Robust Design, Quality Parts

Stable and
Reliable Solution

Server/Workstation
Motherboard

1U4G-ROME

User Manual

English



Version 1.0

Published November 2021

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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.

Contents

Chapter 1 Introduction	1
1.1 Shipping Box Contents	2
1.2 Specifications	3
Chapter 2 Server System Overview	4
2.1 System Components	4
2.2 Internal Features	5
2.3 System Front Panel	7
2.4 System Rear Panel	7
2.5 Front Control Panel Buttons and LEDs	8
2.6 Drive Tray LEDs	10
Chapter 3 Hardware Installation and Maintenance	11
3.1 Server Top Cover	12
3.2 SSD Drive (EDSFF Short/E1.S)	14
3.3 SSD Drive (M.2/ED_M2W_G4)	16
3.4 Power Supply	20
3.5 System Fan	22
3.6 Add-on Card	23
3.7 GPU Card (for GPU1 / GPU2 / GPU3 Slot)	27
3.8 GPU Card (for GPU4 Slot)	30

Chapter 1 Introduction

Thank you for purchasing 1U4G-ROME Series, 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.

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

1.1 Shipping Box Contents

Item	Quantity
1U4G-ROME Barebone (1U form factor)	1
System Boards (MB)	1
Power Supply Unit	2
System Fans	8
HDD Backplane (BPB)	1
Front Panel Board (FPB)	1
Power Distribution Board (PDB)	1
Riser-L Card for GPU Card	3
Riser-R Card for GPU Card	1
Riser Card for Add-on Card	2
Slimline to Slimline Cable (L=420mm)	5
Slimline to Slimline Cable (L=300mm)	2
Slimline to Slimline Cable (L=350mm)	4
Slimline to Slimline Cable (L=450mm)	1
Riser Power Cable 8pin to 6pin (360mm)	3
Riser Power Cable 8pin to 6pin (600mm)	1
NVMe Backplane Power Cable 8pin to 8pin (L=700mm)	1
MB Power Cable 8pin (L=220mm)	2
MB Power Cable 4pin (L=180mm)	1
PMBUS Cable (L=200mm)	1
GPU Card Power Cable 8pin to 8pin/2x 6+2pin (L=550mm)	1
GPU Card Power Cable 8pin to 8pin/2x 6+2pin (L=450mm)	3
FAN Cable 6pin to 8pin (L=570mm)	2
FAN Cable 6pin to 8pin (L=460mm)	6
Front Panel Cable (L=760mm)	1
USB Cable (L=875mm)	1

1.2 Specifications

1U4G-ROME	
System Physical Status	
Form Factor	1U Rackmount
Dimension	438 mm x 880 mm x 43.5 mm (L/W/H)
Support MB Size	Half
MB Model	MBD-EPYC2ROME/128
Front Panel	
Buttons	• Power button • System reset button • UID button
LEDs	• Power LED • System fail LED • 2 x Network activity LEDs
I/O Port	1 x USB 3.2 Gen1 port
Rear Panel <i>(depends on the specification of the server board)</i>	
I/O Ports	• 2 x USB 3.2 Gen1 ports • 1 x VGA port (DB15 via ASPEED2500)
LAN Ports	• 2 x LAN(1G) ports • 1 x MLAN(1G) port
External Drive Bay	
Front Side Drive Bay	8 x NVMe SSD Drives (EDSFF-S (E1.S) or M.2 (ED_M2W_G4))
System Cooling	
Fan	8 x 40*56 mm dual-rotor hot-swap fans
Power Supply	
Type	Redundant PSU 1+1
Output Watts	2000W or 2200W CRPS
Efficiency	Platinum

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

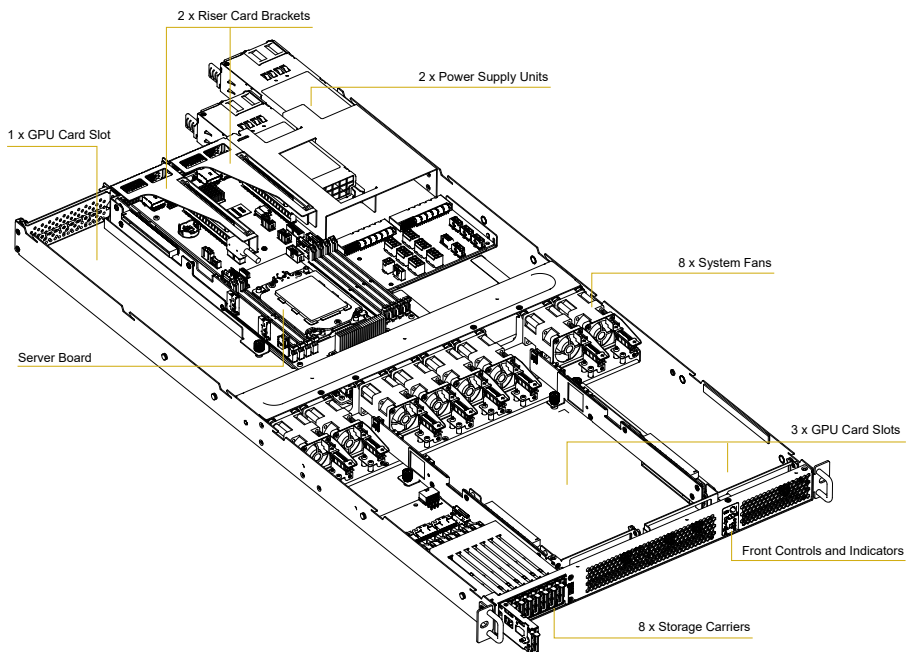


Please refer to the user manual of the motherboard you use for detailed information about motherboard components and features.

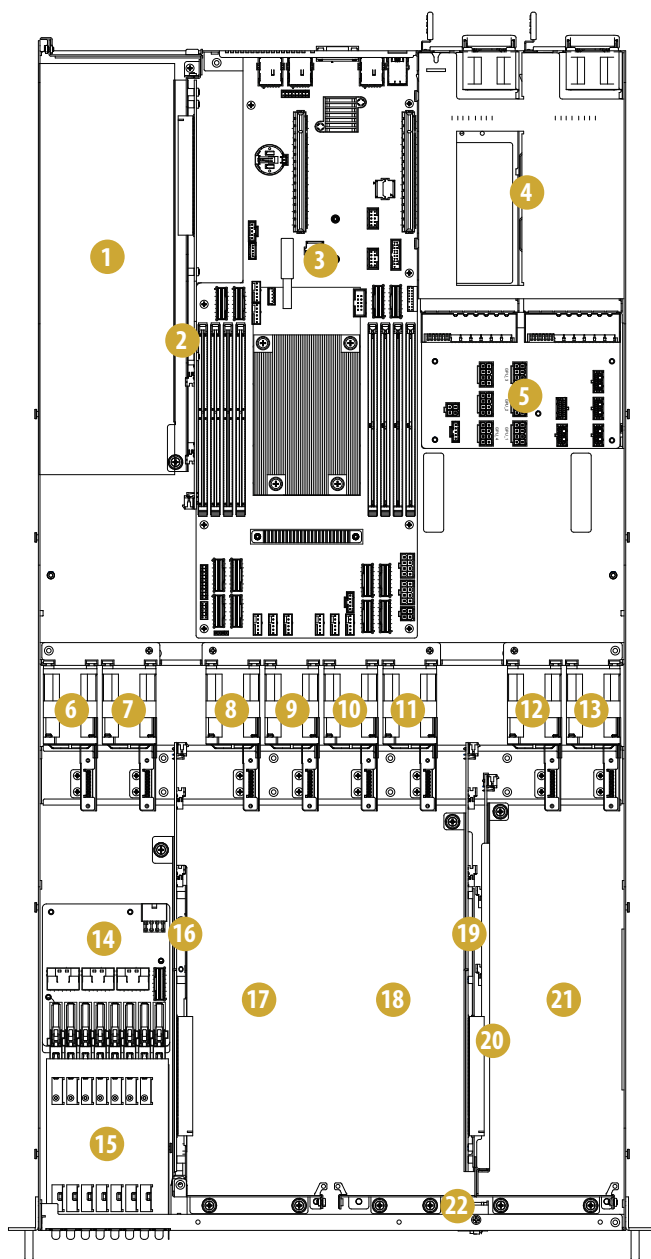
Chapter 2 Server System Overview

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

2.1 System Components

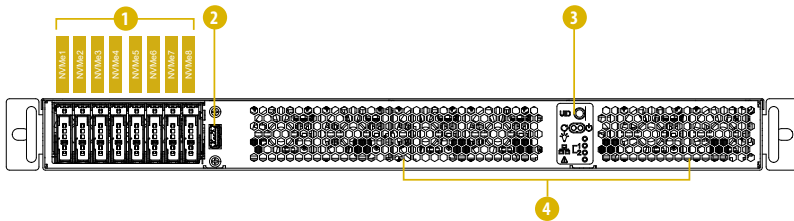


2.2 Internal Features



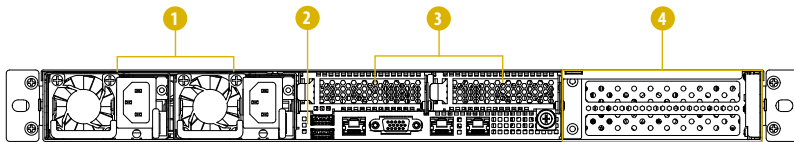
No.	Description
1	GPU Card (GPU4)
2	Riser-L Card (for GPU4)
3	Serverboard (MB)
4	2 x Power Supply Units
5	Power Distribution Board (PDB)
6	System Fan8
7	System Fan7
8	System Fan6
9	System Fan5
10	System Fan4
11	System Fan3
12	System Fan2
13	System Fan1
14	Backplane Board (BPB)
15	8 x SSD Drive Trays
16	Riser-L Card (for GPU1)
17	GPU Card (GPU1)
18	GPU Card (GPU2)
19	Riser-R Card (for GPU2)
20	Riser-L Card (for GPU3)
21	GPU Card (GPU3)
22	Front Panel Board (FPB)

2.3 System Front Panel



No.	Description
1	8 x NVMe SSD Drives (EDSFF-S (E1.S) or M.2 (ED_M2W_G4))
2	1 x USB 3.2 Gen1 Port
3	Control Panel Buttons and LEDs
4	Front Vent

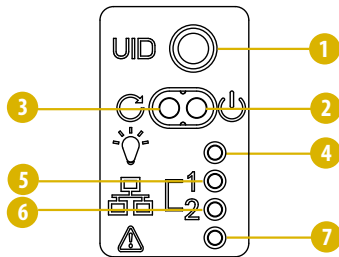
2.4 System Rear Panel



No.	Description
1	2 x Power Supply Units
2	I/O Shield (<i>depends on the specification of the server board</i>)
3	2 x Riser Card Slots
4	GPU Card Slot

2.5 Front Control Panel Buttons and LEDs

Front Control Panel



No.	Description
1	UID Button
2	Power Button
3	System Reset Button
4	Power LED
5	LAN1 Activity LED
6	LAN2 Activity LED
7	System Fail LED

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

UID Button

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

Power Button

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

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.

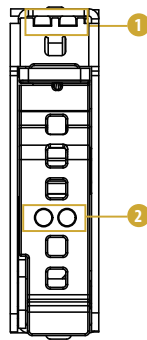
Status LED Definitions

Power LED	
Status	Description
Green	Power on
Off	Power off

LAN1, LAN2 LED	
Status	Description
Yellow	Link between system and network or no access
Blinking Yellow	Network access

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

2.6 Drive Tray LEDs



No.	Description
1	HDD Power & Activity LED (ED_M2W_G4)
2	HDD Power & Activity LED (E1.S)

Status LED Definitions

HDD Activity LED	
Status	Description
On	HDD present, no activity
Blinking	HDD accessing or rebuild
Off	HDD not present

HDD Power LED	
Status	Description
On	Power on / Card populated
Off	Power off

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. The Power LED at the front turns from solid green to dark.
- (2) Disconnect the power cord first from the AC outlet and then from the server.
The power LED turns off.

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.

- SSD Drives
- Power Supply Unit(s) (Pre-installed)
- System Fans (Pre-installed)
- Server Board (Pre-installed)
- Power Distribution Board (Pre-installed)
- HDD Backplane (Pre-installed)



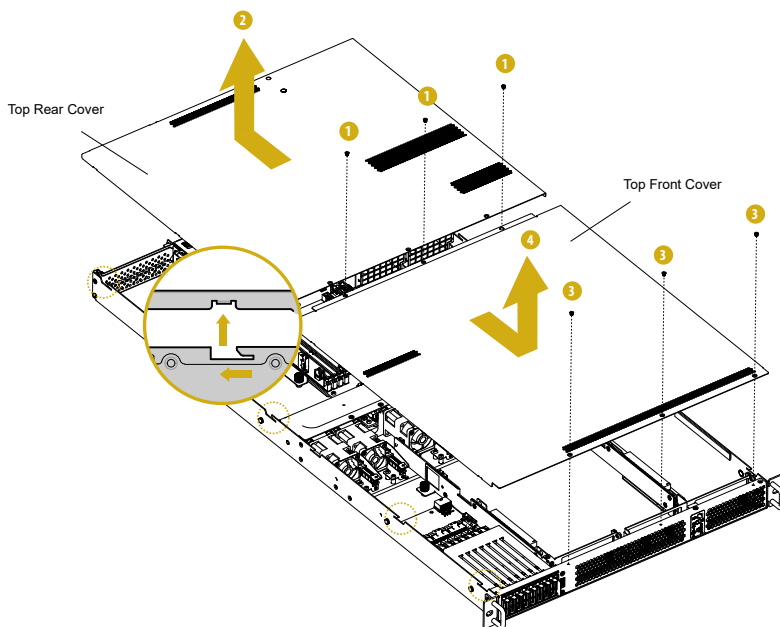
1. Some components are already pre-installed. Simply properly connect the relevant cables before or after installation. See the Quick Installation Guide for more details.
2. Refer to the user manual of the server board you use for instructions on how to install server board components.

3.1 Server Top Cover

Removing the Server Top Covers

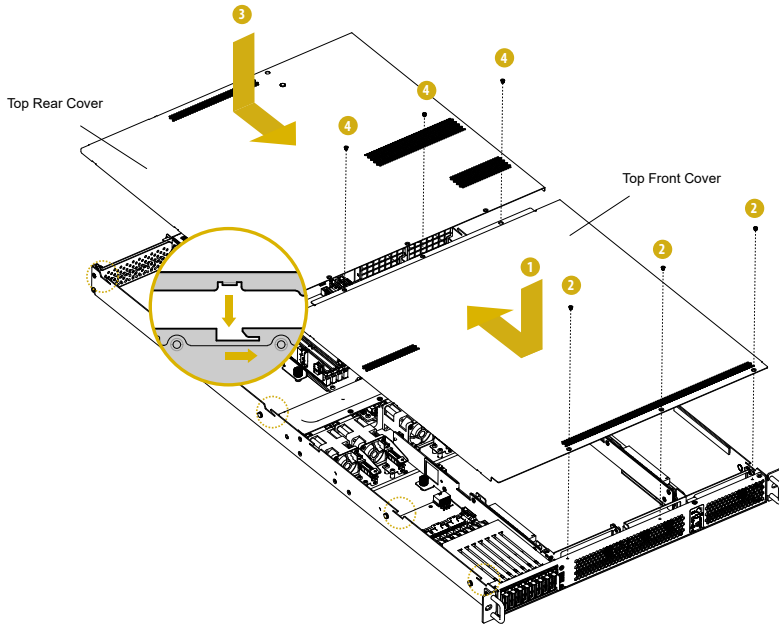


1. Before removing the top cover, power off the server and unplug the power cord.
2. The system must be operated with the chassis top cover installed to ensure proper cooling.



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

Installing the Server Top Covers

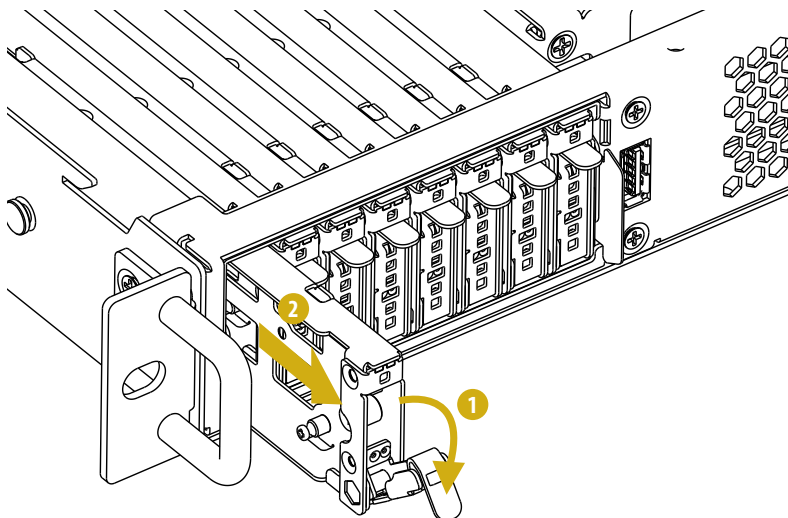


1. Lower the top FRONT cover on the chassis, making sure the side latches align with the cutouts. Slide the top front cover toward the REAR.
2. Secure the top front cover with the screws.
3. Lower the top REAR cover on the chassis, making sure the side latches align with the cutouts. Slide the top rear cover toward the FRONT.
4. Secure the top rear front cover with the screws.

3.2 SSD Drive (EDSFF Short/E1.S)

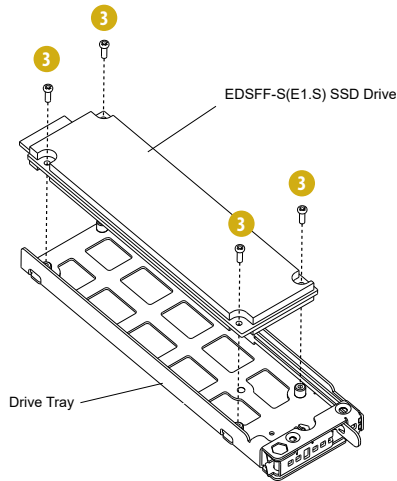
Installing EDSFF-S Solid State Drives

1. Rotate the lever out and away from the drive bay.
2. Pull the hard drive tray out of the chassis.

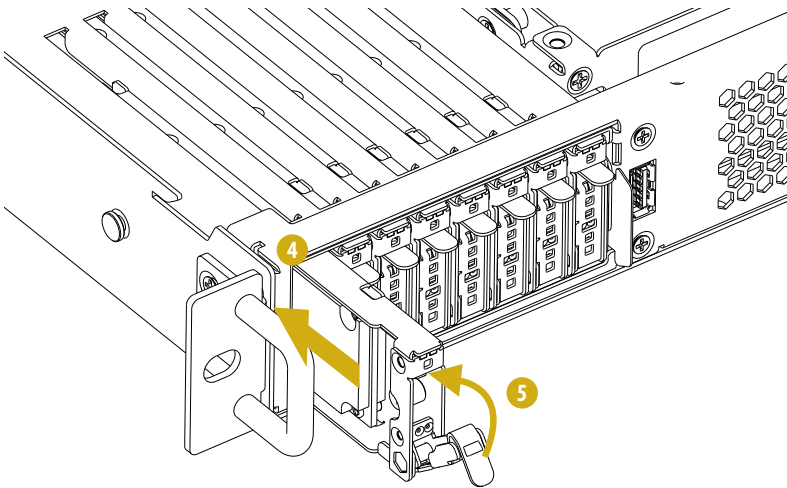


Attention! If a M.2 SSD (ED_M2W_G4) is installed in the drive tray, remove the M.2 SSD and its standoff before installing an EDSFF-S SSD.

3. Install an EDSFF-S SSD drive on the drive tray and secure it with screws.



4. Insert the drive tray into the drive bay.
5. When it is about to fully inserted, push in the lever to lock the drive tray into place.

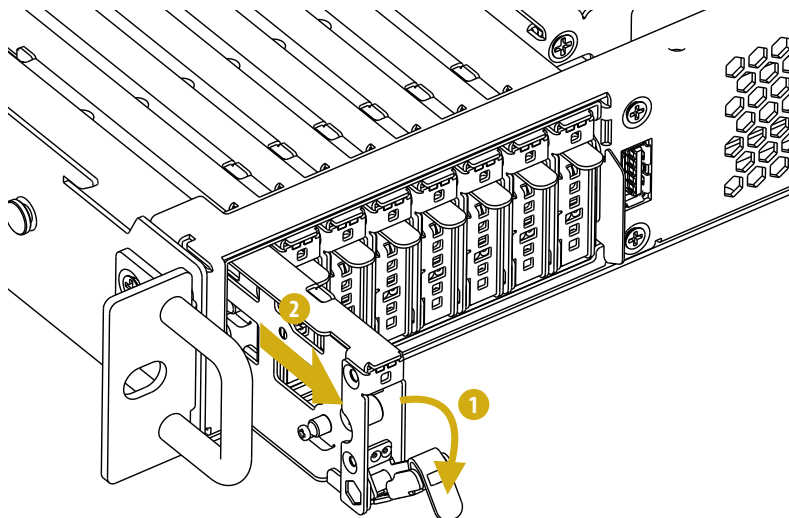


6. Reverse the procedures to remove the EDSFF-S SSD drive.

3.3 SSD Drive (M.2/ED_M2W_G4)

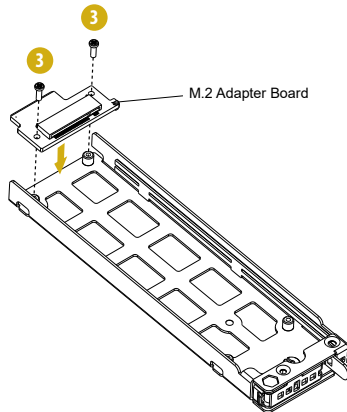
Installing M.2 Solid State Drives

1. Rotate the lever out and away from the drive bay.
2. Pull the hard drive tray out of the chassis.



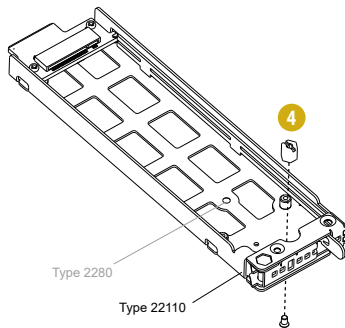
Attention! Remove the EDSFF-S SSD if it is installed in the drive tray.

3. Install the M.2 adapter board and secure it with screws.

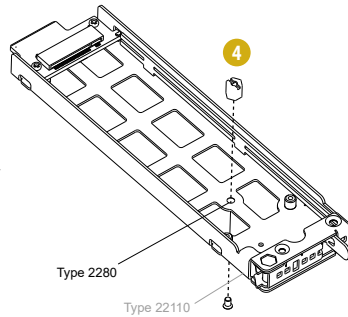


4. Depending on the length of your M.2 module, find the corresponding nut location to be used. Install the standoff based on the module length.

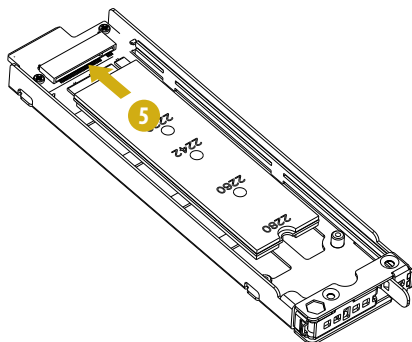
Hand release and move the standoff to the corresponding nut location if you would like to install another M.2 module with different length.



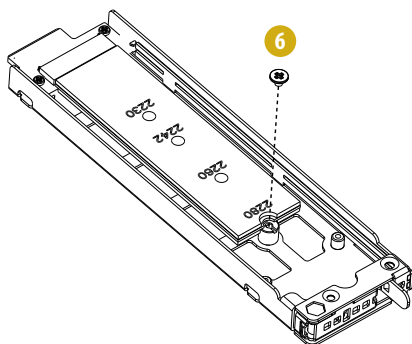
OR



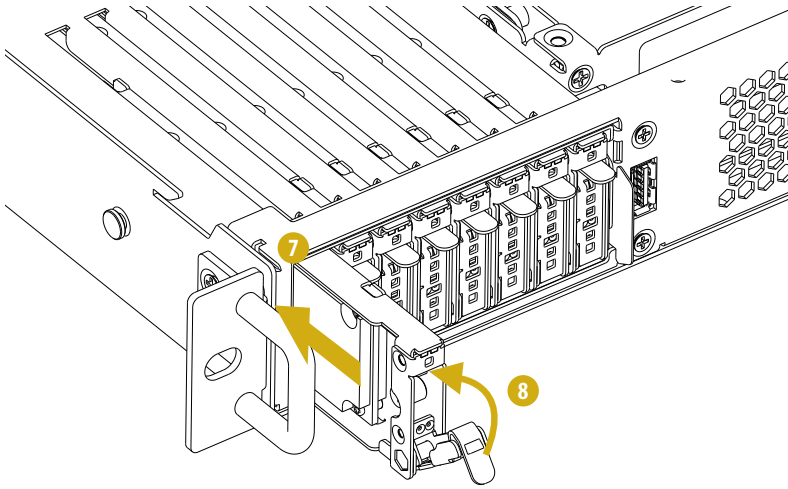
5. Install the M.2 module.



6. Tighten the screw with a screwdriver to secure the module into place. Please do not overtighten the screw as this might damage the module.



7. Insert the drive tray into the drive bay.
8. When it is about to fully inserted, push in the lever to lock the drive tray into place.



9. Reverse the procedures to remove the M.2 SSD drive.

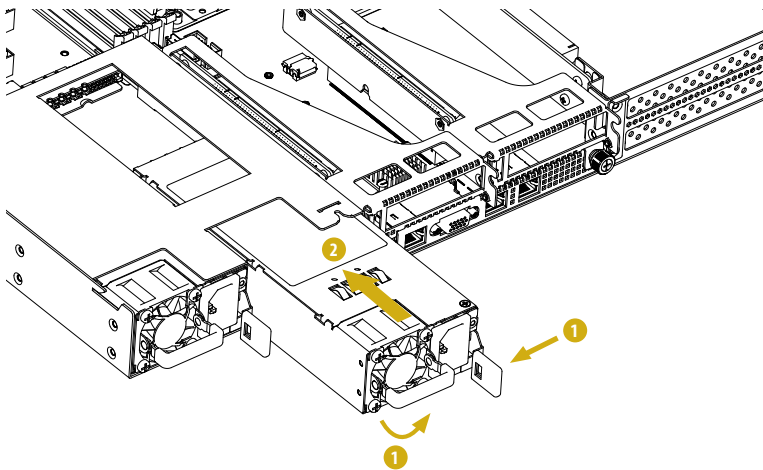
3.4 Power Supply

Installing and Removing the Power Supply

Installing the Power Supply Unit

The 1U4G-ROME Series can accommodate two AC or two DC power supplies in the bay at the rear of the chassis. Each unit provides up to 2000 or 2200 Watts of power (180V to 264VAC input). 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.

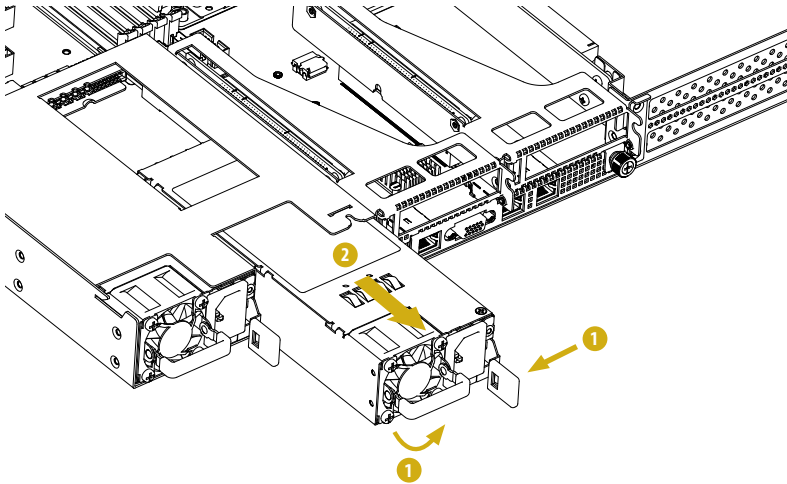
1. Align the power supply unit with the power supply slot.
2. Carefully slide the PSU all the way into the power supply bay until it clicks into place.



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.

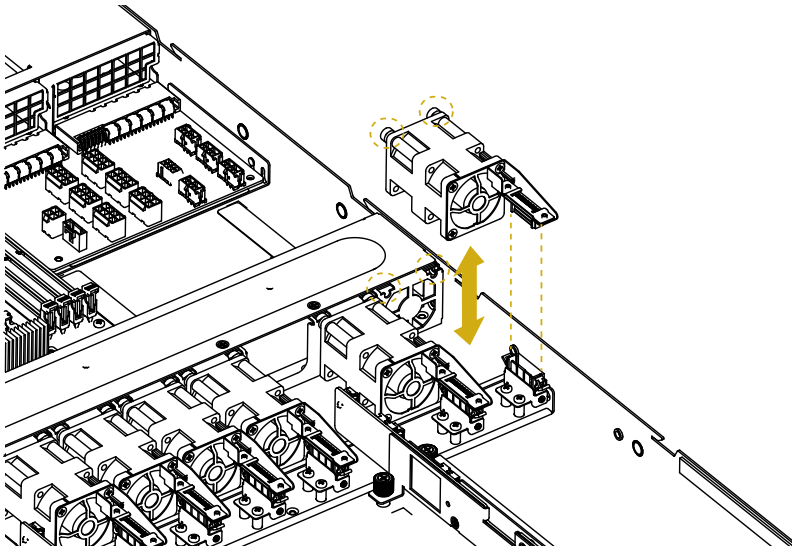
1. Hold onto the power supply handle while pressing the locking lever towards the power supply handle.
2. Pull to remove the power supply from the chassis.



3.5 System Fan

Replacing the Simple-Swap Fan

1. Open the chassis covers and lift the failed fan from the chassis.
2. Place the new fan into the vacant space in the housing while making sure the mounting holes on the fan bar are aligned with the fan mounts on the fan.
3. Gently place the fan on the fan bar. Make sure the fan is well seated and the fan connector is properly connected.



3.6 Add-on Card

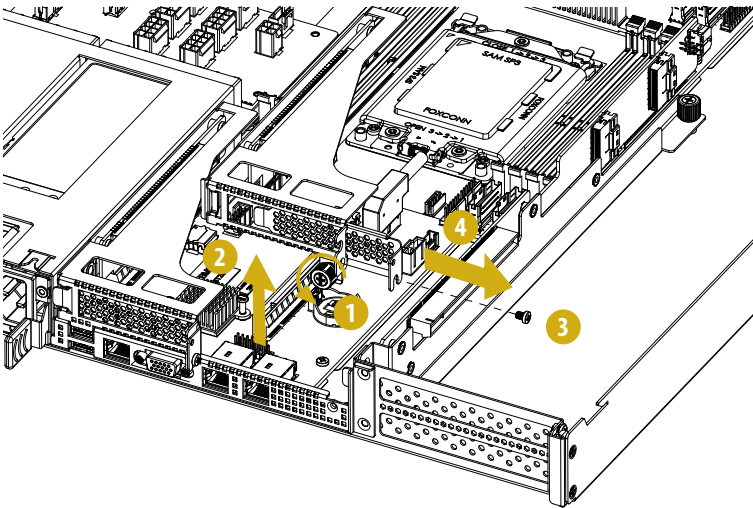


1. You can install an add-on card to the chassis only when you have a riser card installed on the server board.
2. Before installing the add-on card, power off the server and unplug the power cord.

Right Add-on Card Slot

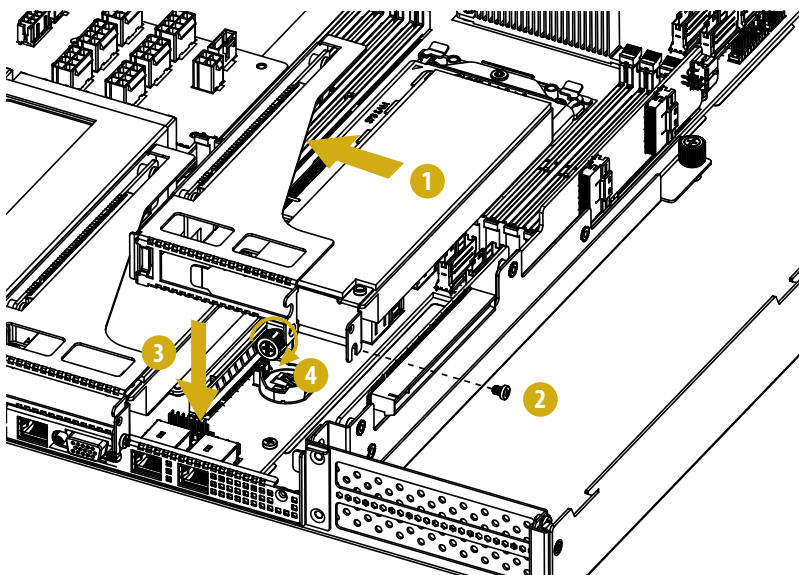
Removing the Blanking Plate from the Chassis

1. Hand release the thumbscrew.
2. Lift up the riser card bracket.
3. Remove the screw securing the blanking plate to the riser card bracket.
4. Slide the blanking plate out sideways.



Installing the Add-on Card

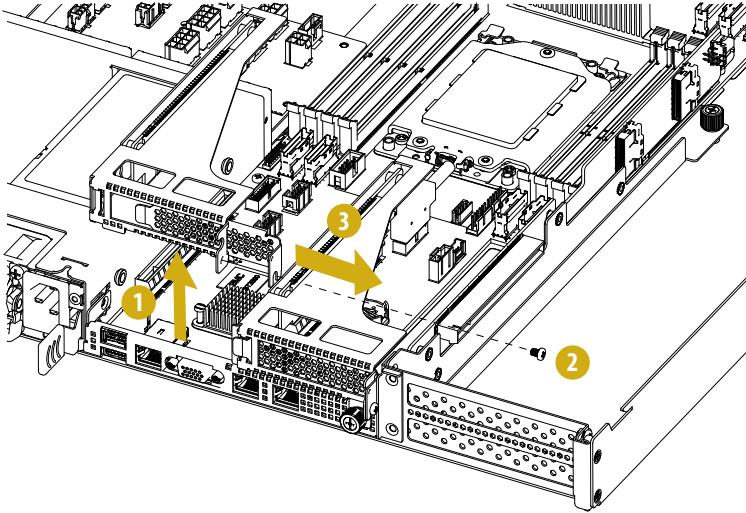
1. Install the add-on card to the riser card bracket.
2. Secure the add-on card to the bracket with one screw.
3. Align the riser card assembly with the openings of the chassis. Make sure it is properly installed.
4. Hand tighten the thumbscrew.



Left Add-on Card Slot

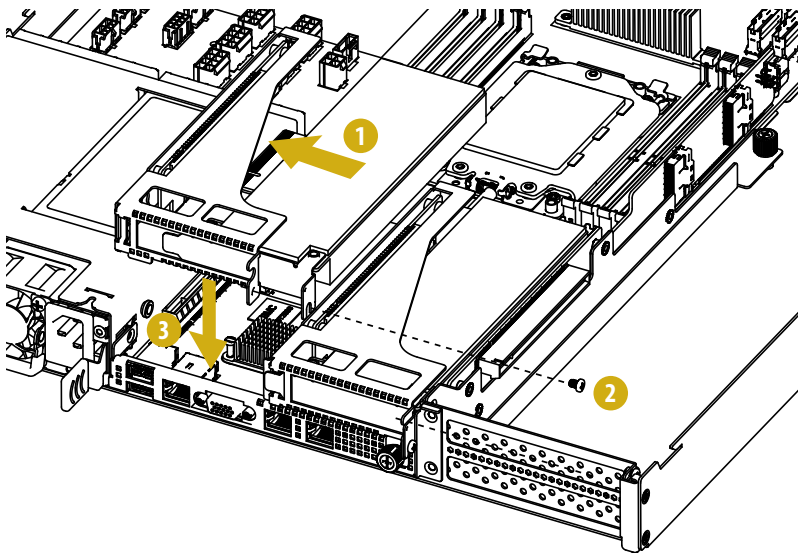
Removing the Blanking Plate from the Chassis

1. Lift up the riser card bracket.
2. Remove the screw securing the blanking plate to the riser card bracket.
3. Slide the blanking plate out sideways.



Installing the Add-on Card

1. Install the add-on card to the riser card bracket.
2. Secure the add-on card to the bracket with one screw.
3. Align the riser card assembly with the openings of the chassis. Make sure it is properly installed.

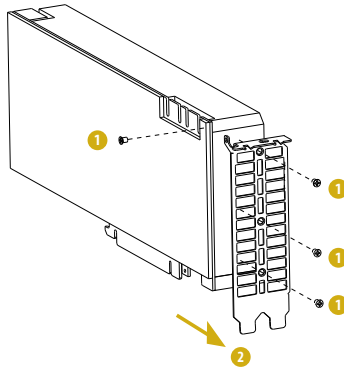


3.7 GPU Card (for GPU1 / GPU2 / GPU3 Slot)

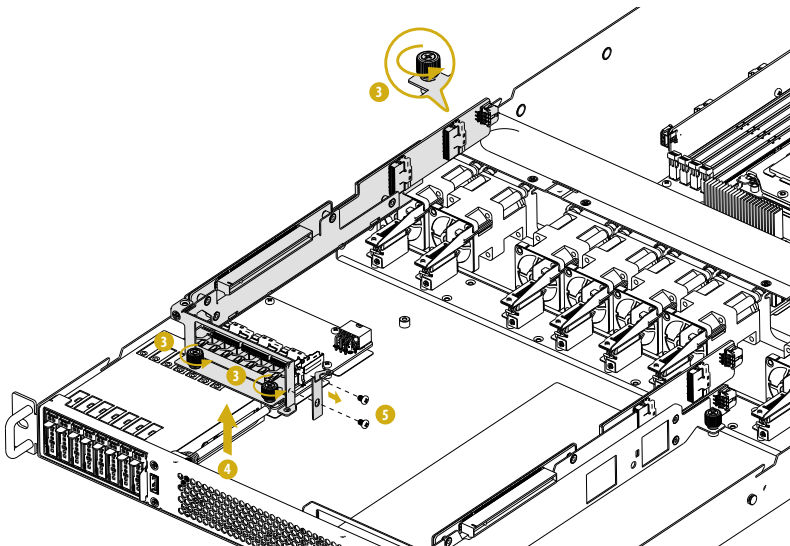


1. Before installing the add-on card, power off the server and unplug the power cord.
2. Before installing GPU2, be sure to remove GPU3 first.

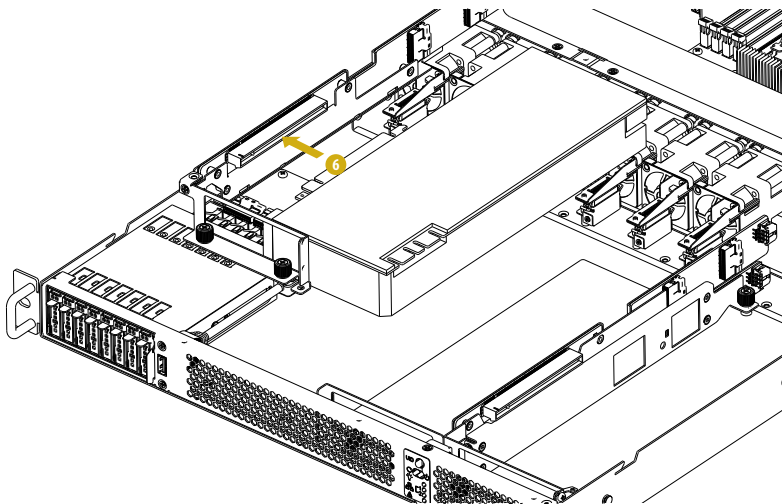
1. Release the screws. Keep them for later use.
2. Remove the bracket from the PCIE card.



3. Hand-release the thumbscrews that secure the riser card bracket to the chassis.
4. Lift up and remove the riser card bracket.
5. Release the screws and remove the mounting bracket. Keep them for later use.

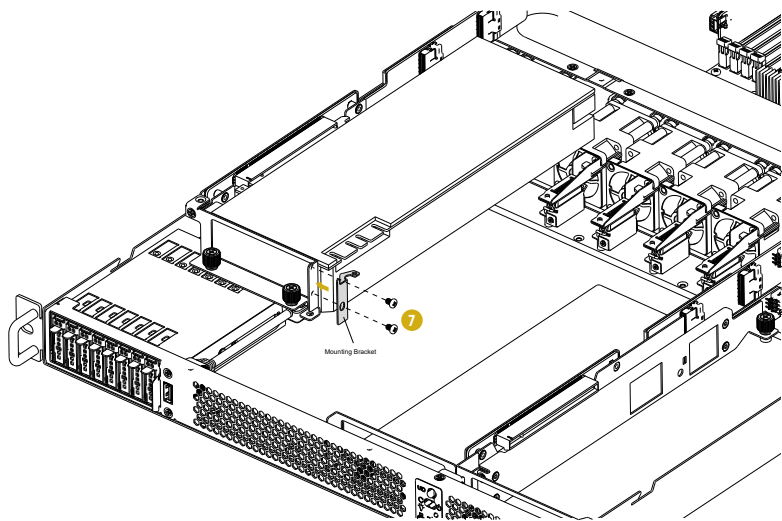


6. Install the PCIE card to the riser card bracket.



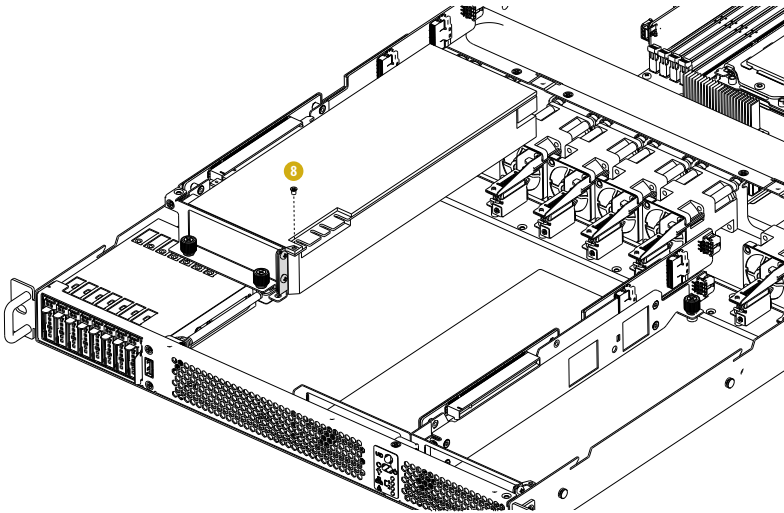
7. Install the mounting bracket back to the riser card bracket and secure it with screws.

(This step is for NVIDIA V100/V100S GPU cards only.)

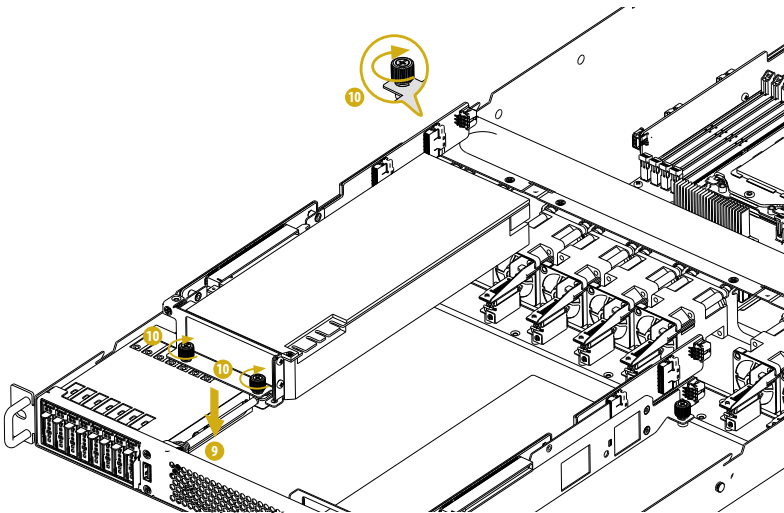


8. Use the screw you set aside in Step 1 to secure the PCIe card to the riser card bracket.

(This step is for NVIDIA V100/V100S GPU cards only.)



9. Install the riser card assembly to the PCIe slot on the server board.
10. Hand-tighten the thumbscrews to secure the add-on card assembly to the chassis.

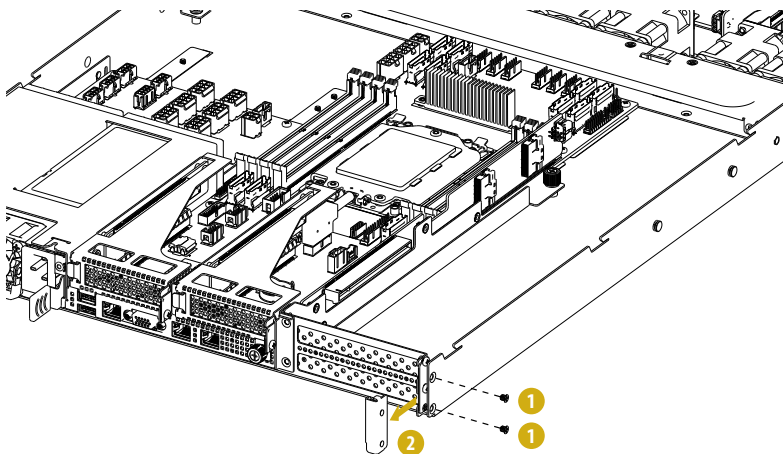


3.8 GPU Card (for GPU4 Slot)

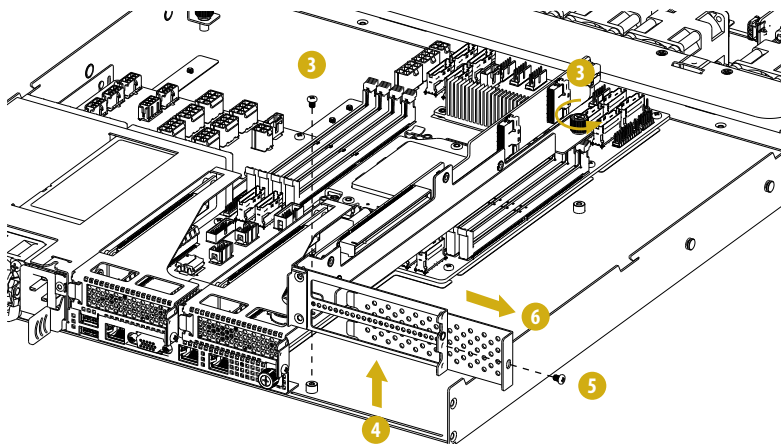


1. Before installing the add-on card, power off the server and unplug the power cord.
2. Before installing GPU4, be sure to remove the right add-on card first. Please refer to the section entitled "Add-on Card" for instructions.

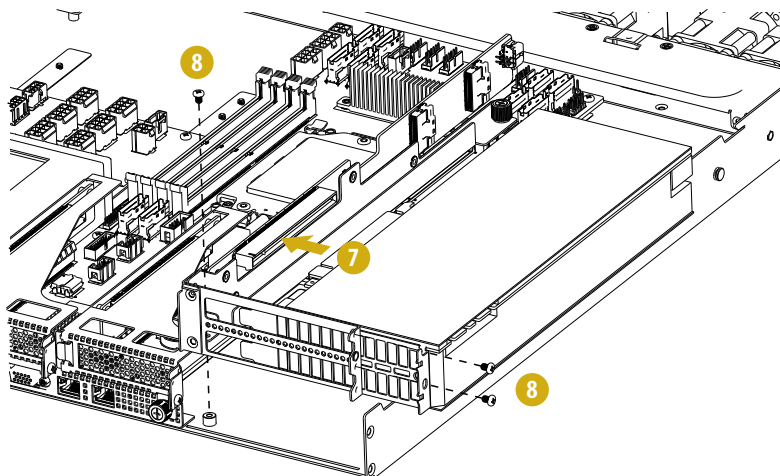
1. Remove the screws. Keep them for later use.
2. Remove the mounting bracket.



3. Hand-release the thumbscrew and the screw that secure the riser card bracket to the chassis.
4. Lift up and remove the riser card bracket.
5. Release the screw securing the blanking plate to the riser card bracket.
6. Remove the blanking plate sideways.

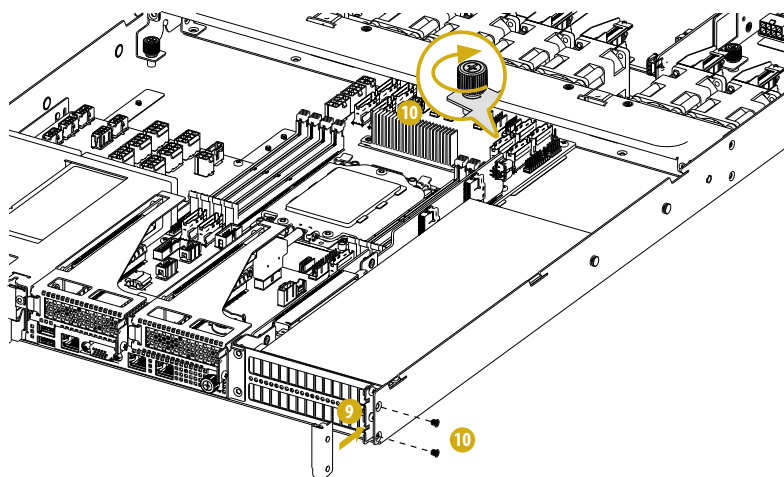


7. Install the PCIE card to the riser card bracket.
8. Use the screw to secure the PCIE card to the riser card bracket.



9. Install the mounting bracket back.

10. Use both screws and thumbscrews to secure the add-on card assembly to the chassis.

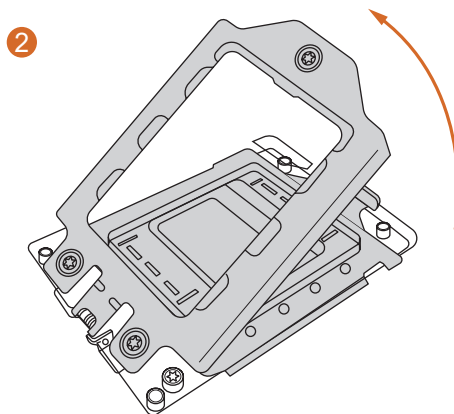
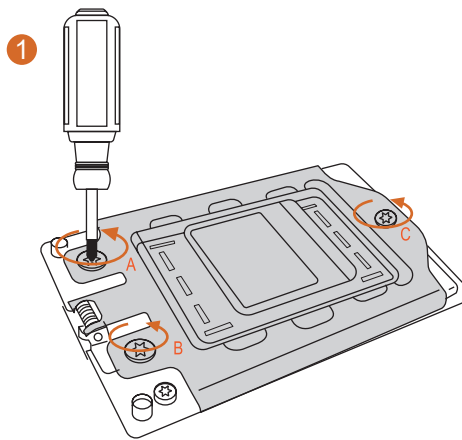


Appendix A

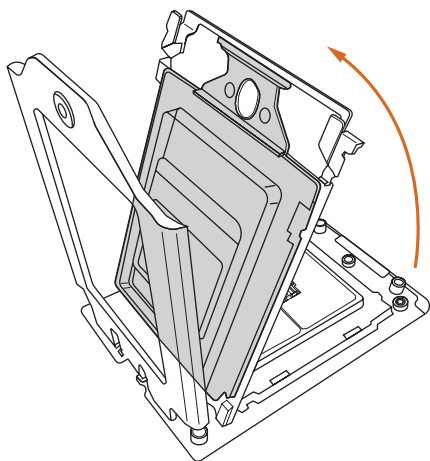
Installing the CPU



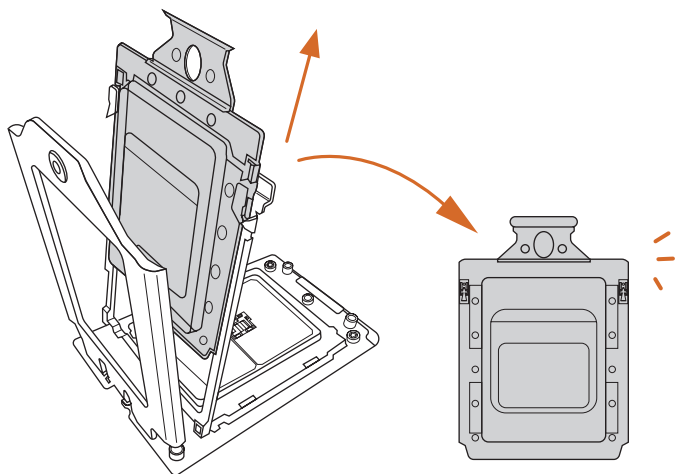
1. Before you insert the CPU into the socket, please check if the PnP cap is on the socket, if the CPU surface is unclean, or if there are any bent pins in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.
2. Unplug all power cables before installing the CPU.

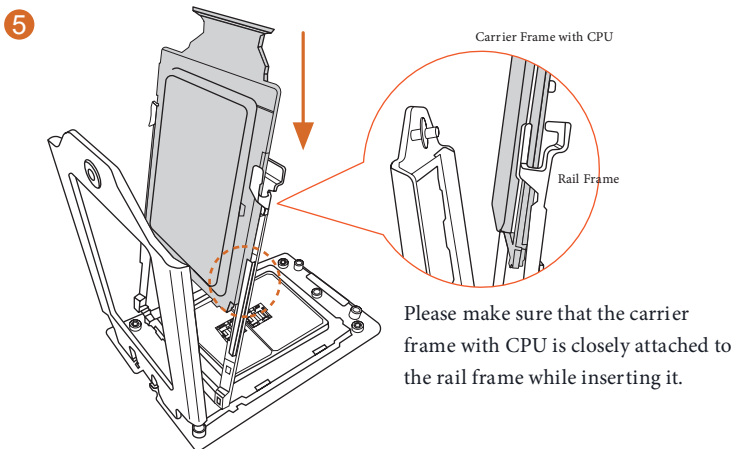


3

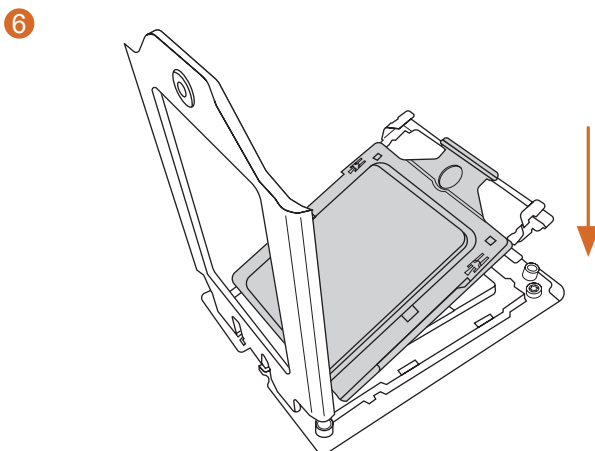


4

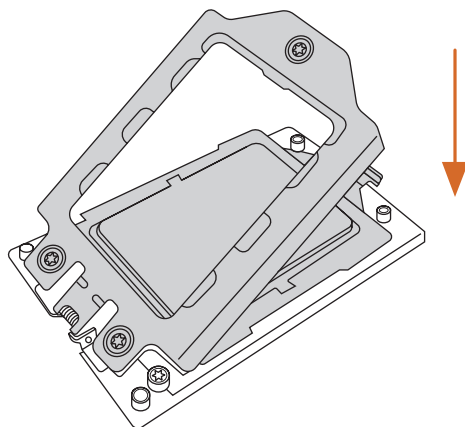




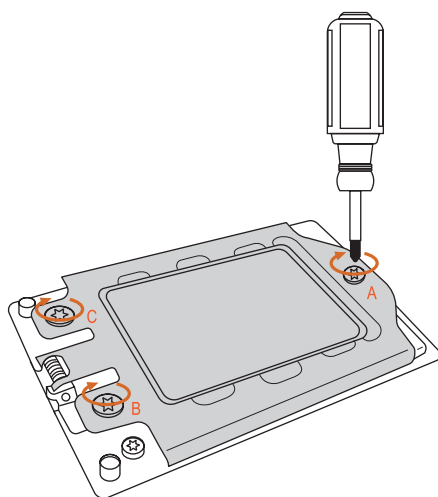
Install the carrier frame with CPU. Don't separate them.



7

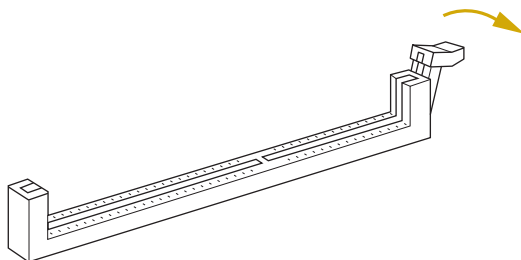


8

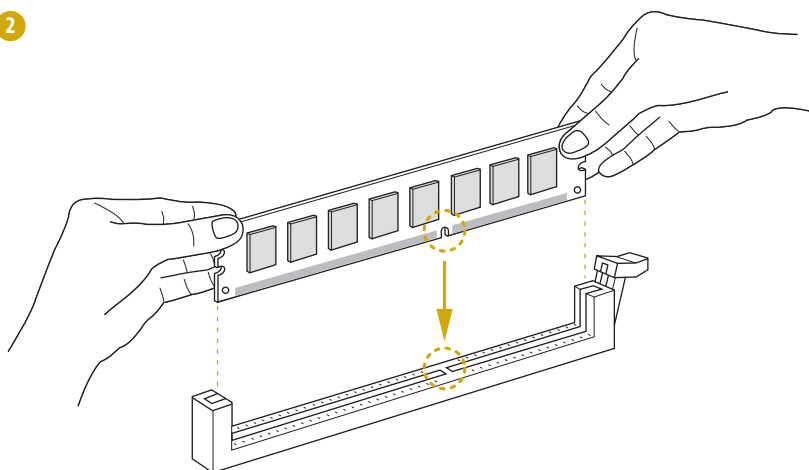


Installation of Memory Modules (DIMM)

1



2



3

