



**OPEN** Industry Standard, Flexible Architecture

**GREEN** Less Heat, Less Power Consumption

**STABLE** Robust Design, Quality Parts

Stable and  
Reliable Solution

**Server/Workstation**  
Motherboard

# 2U2E-F Series

User Manual

English



Version 1.0

Published August 2022

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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](http://www.dtsc.ca.gov/hazardouswaste/perchlorate)”

**ASRock Rack's Website: [www.ASRockRack.com](http://www.ASRockRack.com)**

## 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 2U2E-F 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.*

ASRock Rack's Website: [www.ASRockRack.com](http://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 |        |
|-----------------------------------------|----------|--------|
|                                         | /ICX2    | /ROME2 |
| 2U2E-F Series Barebone (2U form factor) | 1        | 1      |
| Power Supply Unit                       | 2        | 2      |
| System Fan                              | 4        | 4      |
| System Board (MB)                       | 1        | 1      |
| Backplane Board (BPB) (1U2G_U2BP_G4/CB) | 1        | 1      |
| Riser Card (2U2S_RB24_G4)               | 2        | 2      |
| Accessory Box                           | 1        | 1      |
| Slide Rail                              | 1        | 1      |

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

## 1.2 Specifications

| 2U2E-F Series            |                                                                                                                                                                                                                                                                                                                 |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System Physical Status   |                                                                                                                                                                                                                                                                                                                 |
| Form Factor              | 2U Rackmount                                                                                                                                                                                                                                                                                                    |
| Dimension<br>(D x W x H) | 600 * 438 * 87mm                                                                                                                                                                                                                                                                                                |
| Support MB Size          | L shape 19 x 17 inch Proprietary                                                                                                                                                                                                                                                                                |
| MB Model                 | ROME2D32LM3 / SP2C621D32LM3                                                                                                                                                                                                                                                                                     |
| Front Panel              |                                                                                                                                                                                                                                                                                                                 |
| LED                      | 4 x Fan Fail LED (2U2E-F/ROME2, 2U2E-F/ICX2 not supported)                                                                                                                                                                                                                                                      |
| AC Power<br>Source       | 2                                                                                                                                                                                                                                                                                                               |
| System Cooling           |                                                                                                                                                                                                                                                                                                                 |
| Fan                      | 4 fans                                                                                                                                                                                                                                                                                                          |
| Power Supply             |                                                                                                                                                                                                                                                                                                                 |
| Type                     | 1+1 CRPS                                                                                                                                                                                                                                                                                                        |
| Description              | SKU1 - PSU CRPS (Model: DELTA/DPS-1600AB-48 A)<br>- Support AC input: 100-127V, 47-63 Hz, Output Watts: 1008W Max.<br>- Support AC input: 200-240V, 47-63 Hz, Output Watts: 1600W Max.<br><br>SKU2 - PSU CRPS (Model: DELTA/DPS-1600AB-9 B)<br>- Support AC input: 200-240V, 47-63 Hz, Output Watts: 1600W Max. |

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

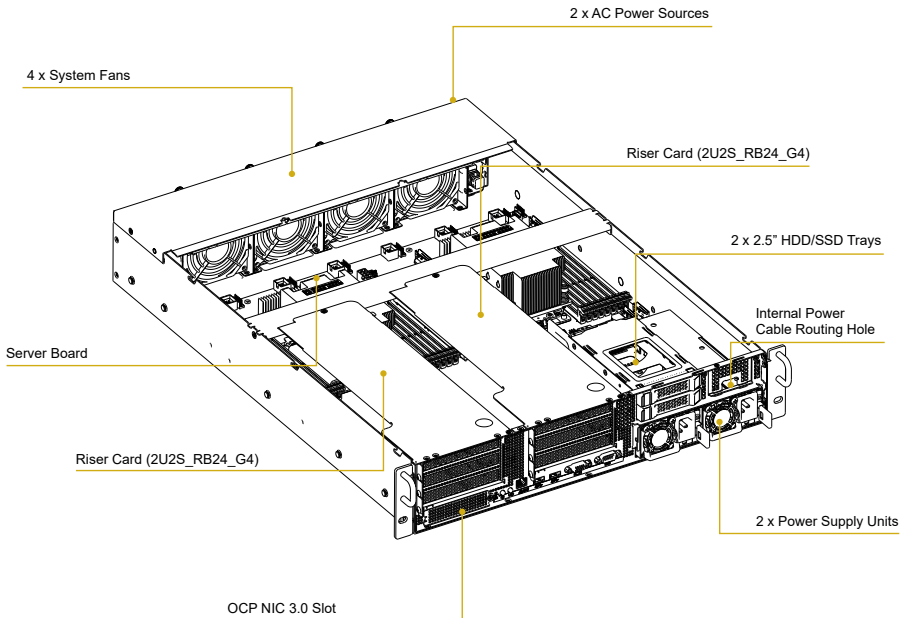


Please refer to the user manual of the motherboard you use for detailed information about motherboard components and features.

# Chapter 2 Server System Overview

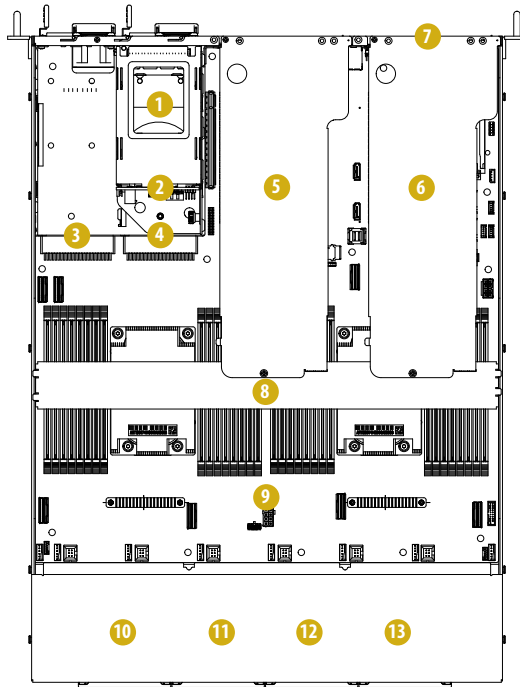
This chapter provides diagrams showing the location of important components of the server system.

## 2.1 System Components



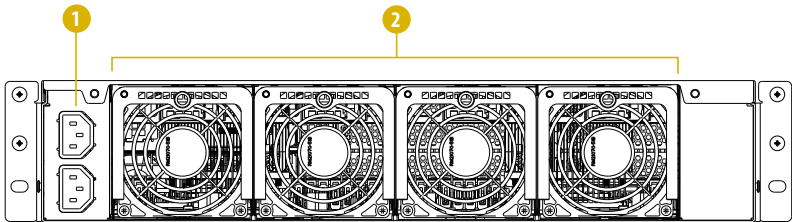
*\*The illustrations in this User Manual are for references only. The actual product may be slightly different by SKU.*

## 2.2 Internal Features



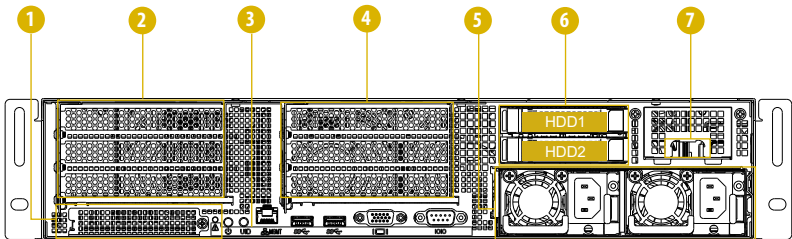
| No. | From                                              |
|-----|---------------------------------------------------|
| 1   | 2 x 2.5" HDD/SSD Tray (Upper: HDD1 / Lower: HDD2) |
| 2   | HDD Backplane Board                               |
| 3   | Power Supply Unit (PSU2)                          |
| 4   | Power Supply Unit (PSU1)                          |
| 5   | Riser Card (2U2S_RB24_G4)                         |
| 6   | Riser Card (2U2S_RB24_G4)                         |
| 7   | OCP NIC 3.0 Slot                                  |
| 8   | Riser Card Mounting Bar                           |
| 9   | Server Board (MB)                                 |
| 10  | System Fan (FAN4)                                 |
| 11  | System Fan (FAN3)                                 |
| 12  | System Fan (FAN2)                                 |
| 13  | System Fan (FAN1)                                 |

## 2.3 System Front Panel



| No. | Description          |
|-----|----------------------|
| 1   | 2 x AC Power Sources |
| 2   | 4 x System Fans      |

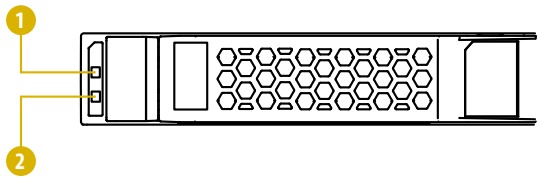
## 2.4 System Rear Panel



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

| No. | Description                                                   |
|-----|---------------------------------------------------------------|
| 1   | 1 x OCP NIC 3.0 Slot (supports up to NVMe Gen4 device)        |
| 2   | Add-on Card Slots (support up to NVMe Gen4 devices)           |
| 3   | I/O Shield (depends on the specification of the server board) |
| 4   | Add-on Card Slots (support up to NVMe Gen4 devices)           |
| 5   | 2 x Power Supply Unit (PSU1, PSU2)                            |
| 6   | HDD1 & HDD2 Slots (support up to NVMe Gen4/SATA 3 devices)    |
| 7   | Internal Power Cable Routing Hole                             |

## 2.5 Drive Tray LEDs



| No. | Item            | Color       | Description                                                                                                |
|-----|-----------------|-------------|------------------------------------------------------------------------------------------------------------|
| 1   | HDD Locator LED | Blue        | Use the locator LED to identify specific storage devices, so that you can locate them among other devices. |
| 2   | HDD Status LED  | Red & Green | The status LED is used to show the current status of the HDD.                                              |

### Status LED Definitions

| HDD Locator LED     |                                                 |
|---------------------|-------------------------------------------------|
| Status              | Description                                     |
| Blinking Blue (4Hz) | HDD located <i>(NVMe SSD not supported)</i>     |
| Off                 | HDD not located <i>(NVMe SSD not supported)</i> |

| HDD Status LED       |                                                |
|----------------------|------------------------------------------------|
| Status               | Description                                    |
| Solid Green          | HDD present                                    |
| Blinking Green (4Hz) | HDD accessing or reading                       |
| Red                  | HDD failed <i>(NVMe SSD not supported)</i>     |
| Blinking Red (1Hz)   | HDD rebuilding <i>(NVMe SSD not supported)</i> |
| Off                  | HDD not present                                |

# 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.

- Power Supply Units (Pre-installed)
- System Fans (Pre-installed)
- Server Board (Pre-installed)



1. Some components are already pre-installed. Simply properly connect the required 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.

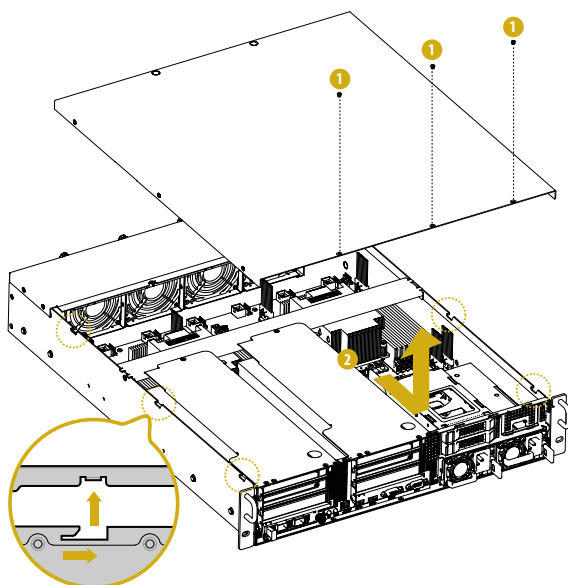


### 3.1 Server Top Cover

#### Removing the Server Top Cover

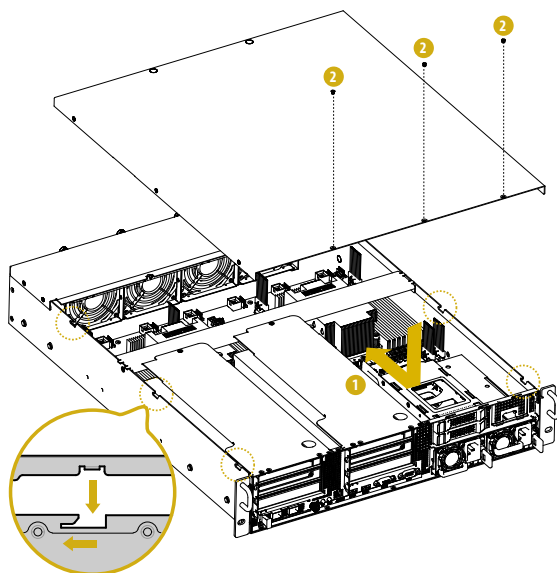


1. Before removing the top cover, power off the server and unplug the power cord.
2. The system must be operated with the chassis top cover installed to ensure proper cooling.



1. Remove the screw that secure the top cover to the chassis.
2. Push the top cover toward the front side of the chassis to remove the cover from the locked position. Lift up and remove the top cover.

## Installing the Server Top Cover



1. Lower the top cover on the chassis, making sure the side latches align with the cutouts.  
Slide the top cover toward the rear side
2. Secure the top cover with the screw.

## 3.2 Power Supply

The system can accommodate two AC-DC power supplies in the bay at the rear of the chassis. 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.

### Replacing the Power Supply

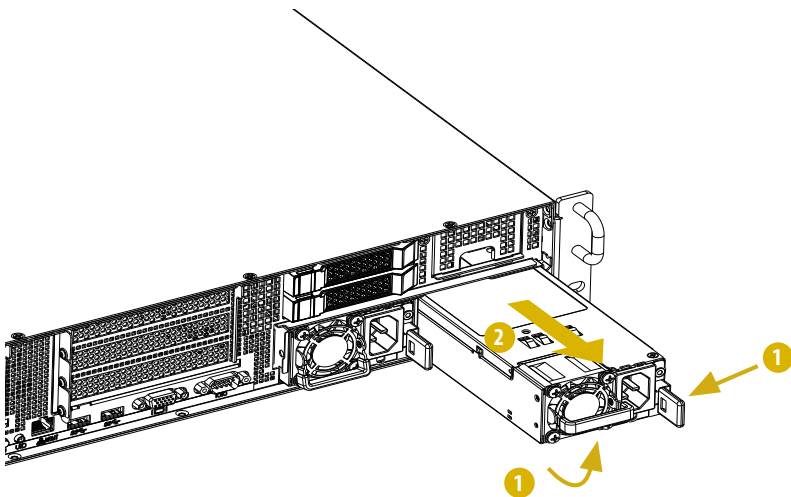


*Before replacing the power supply, power off the server, unplug the power cord, and disconnect all wiring from the power supply.*

#### 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.

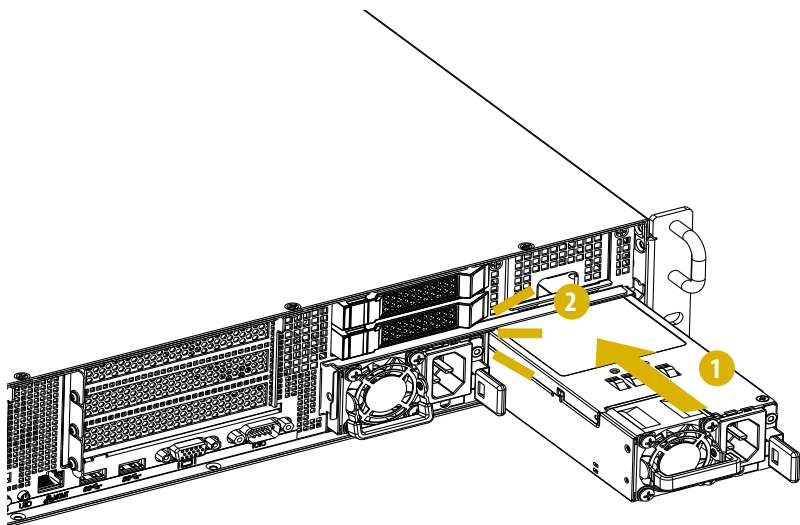
1. Hold onto the power supply handle while pressing the locking lever towards the power supply handle.
2. Pull to remove the power supply from the chassis.



## Installing the Power Supply Unit

To install a new power supply, please follow the steps below.

1. Carefully slide the PSU all the way into the power supply bay.
2. Make sure the power supply clicks into place and is well installed.



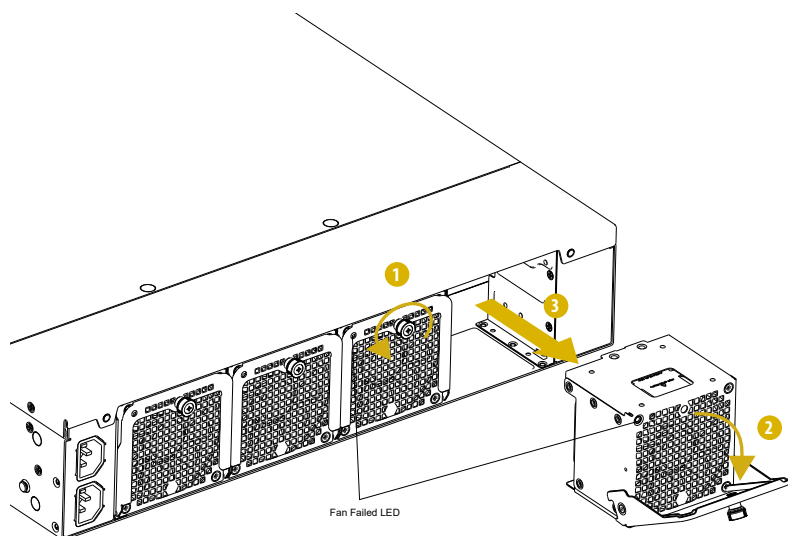
### 3.3 System Fan

The system supports hot-swappable system fans.

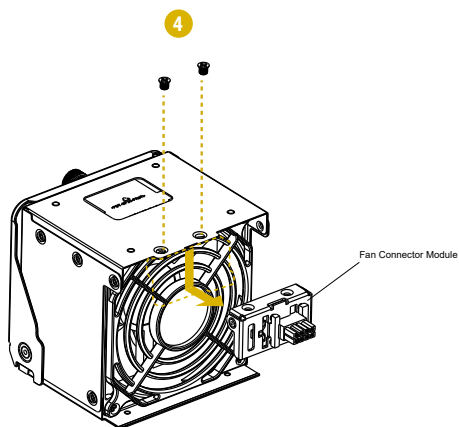
#### Replacing the System Fan

Please locate the failed fan by checking the fan failed LED indicator on the fan.

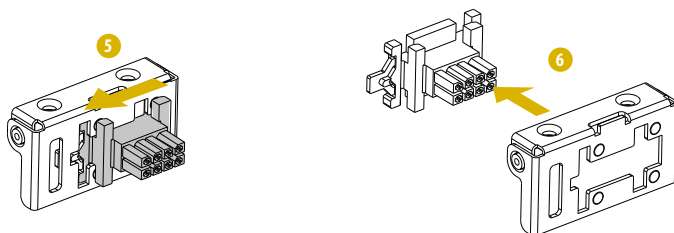
1. Hand release the thumbscrew on the failed fan.
2. Open the fan vent cover.
3. Pull to remove the failed fan.



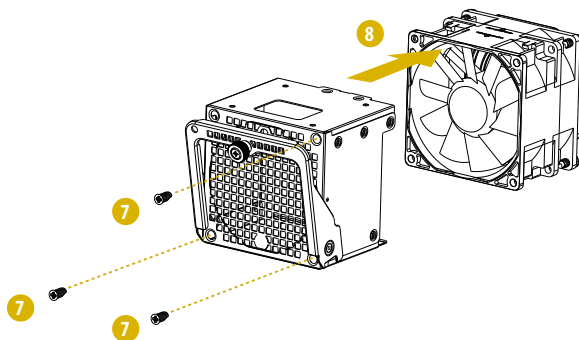
4. Release the screws to remove the fan connector module.



5. Press the fan connector toward the left side so as to disengage it from the locked position.
6. Push to remove the connector from the bracket.



7. Release the screws on the fan cage.
8. Remove the system fan.



9. Please reverse the procedures to install a new system fan.

### 3.4 Add-on Card (Riser Card)

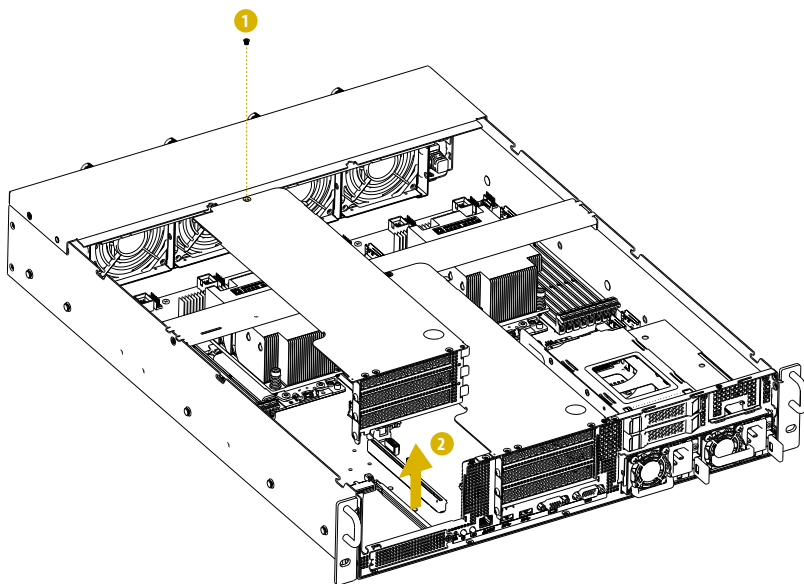


1. You can install an add-on card to the chassis only when you have a riser card installed on the server board.
2. Before installing the add-on card, power off the server and unplug the power cord.

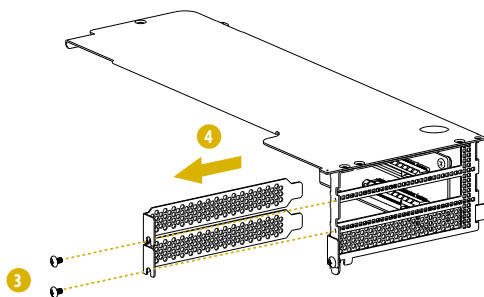
The system provides two riser cards. Each riser card bracket allows a double-width, full-height, full-length (FHFL) card installed on the upper slots and a single-width, full-height, half-length (FHHL) card installed on the lower slot.

#### Removing the Riser-Card Bracket from the Chassis

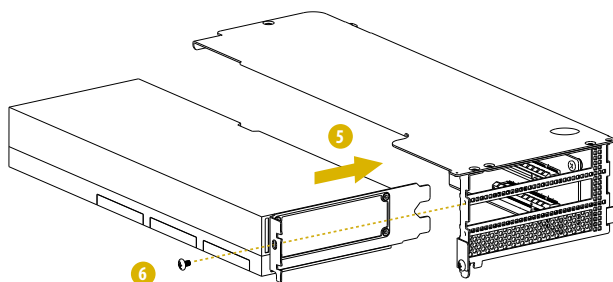
1. Release the screws that secure the riser-card bracket on the chassis.
2. Lift up and remove the riser-card bracket from the chassis.



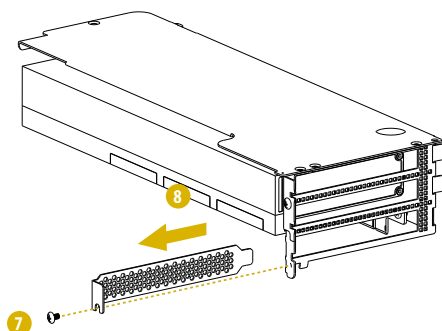
3. Remove the screws securing the blanking plates (upper) on the riser-card bracket.
4. Slide the blanking plates out sideways.



5. Install the add-on card to the riser-card bracket.
6. Secure the add-on card to the bracket with a screw .

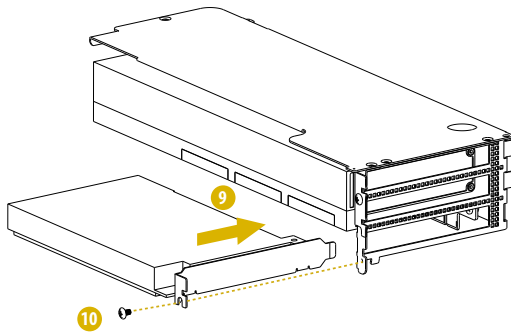


7. Remove the screw securing the blanking plate (lower) on the riser-card bracket.
8. Slide the blanking plate out sideways.

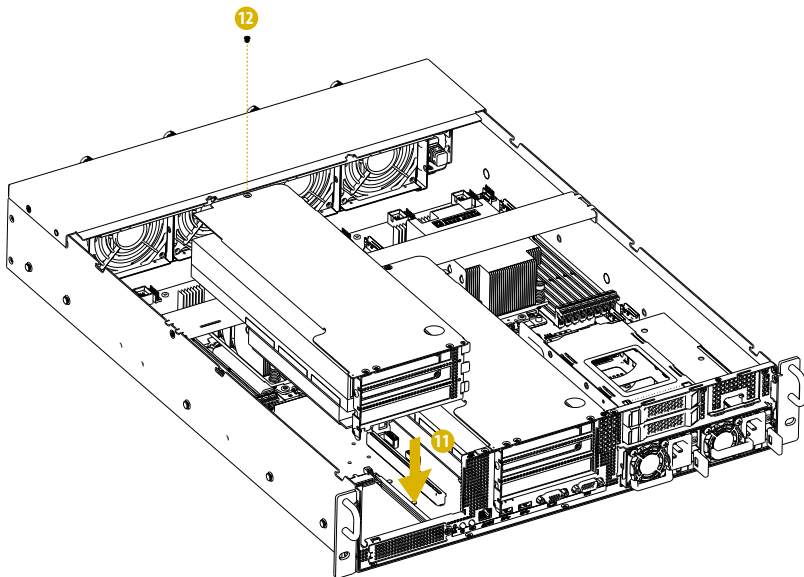




9. Install the add-on card to the riser-card bracket.
10. Secure the add-on card to the bracket with a screw .



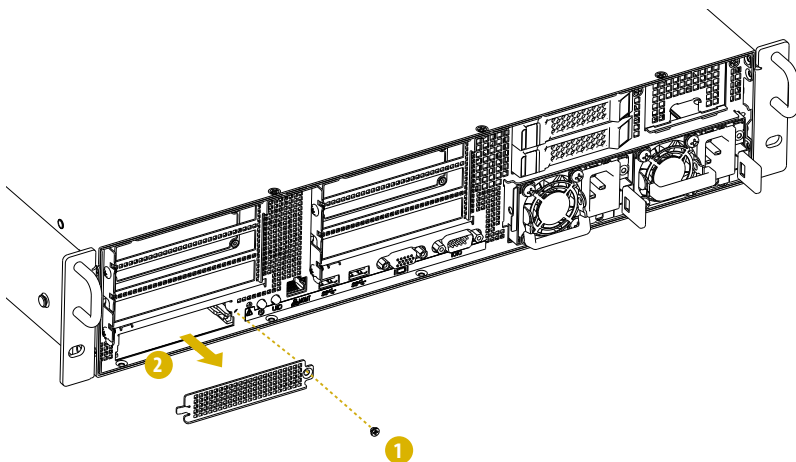
11. Align the riser-card assembly with the openings of the chassis. Place it into the chassis.
12. Tighten the screws to secure the assembly to the chassis.



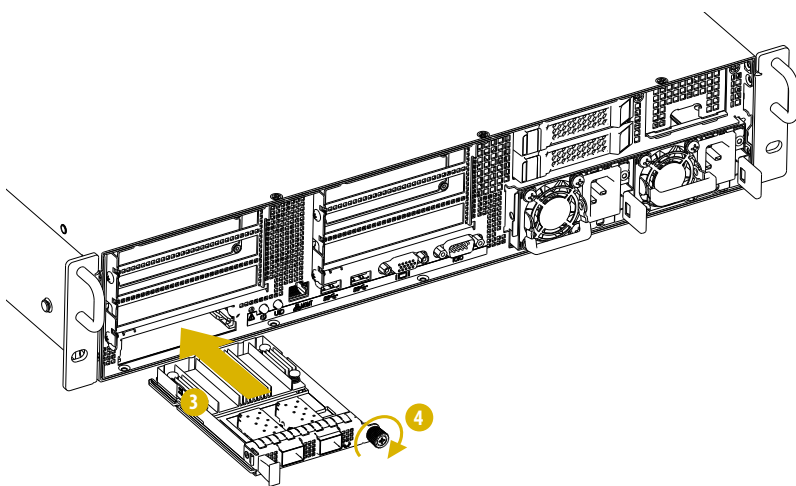
## 3.5 OCP NIC 3.0 Card

### Installing an OCP NIC 3.0 Card to the Chassis

1. Release the screw that secures the blanking plate to the chassis.
2. Remove the blanking plate.



1. Align and slide an OCP NIC 3.0 card into the slot.
2. Hand tighten the thumbscrew to secure the OCP NIC 3.0 card to the chassis.



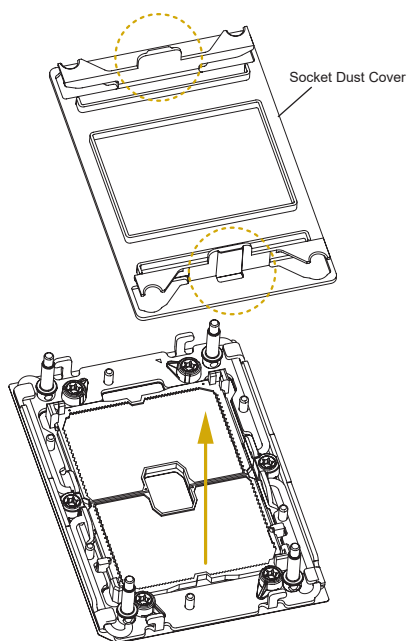
## Appendix A

### Installing the CPU (Intel LGA 4189 Socket)



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.

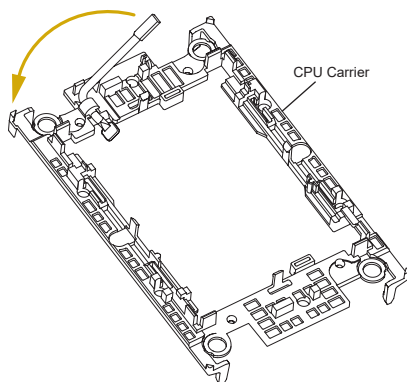
1



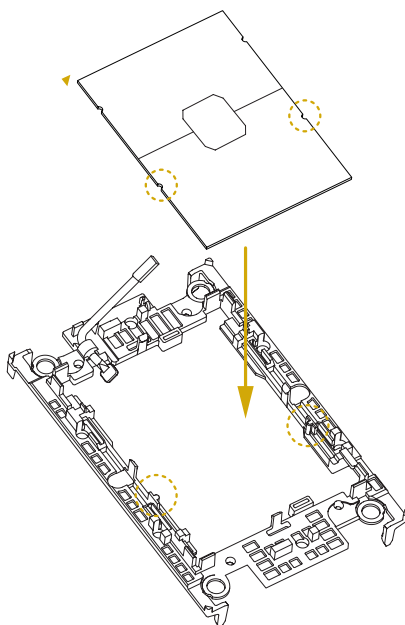


1. Before you installed the heatsink, you need to spray thermal interface material between the CPU and the heatsink to improve heat dissipation.
2. Illustration in this documentation are examples only. Heatsink or fan cooler type may differ.

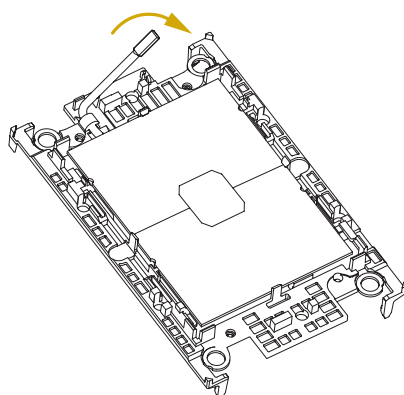
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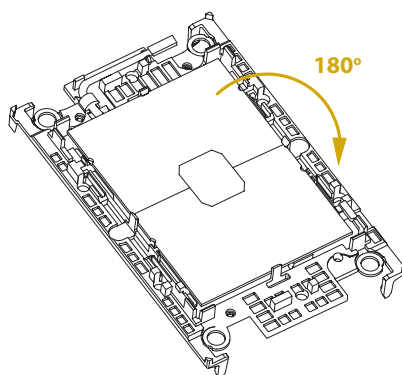
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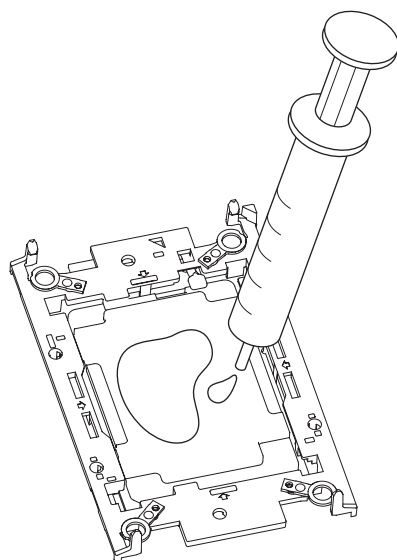
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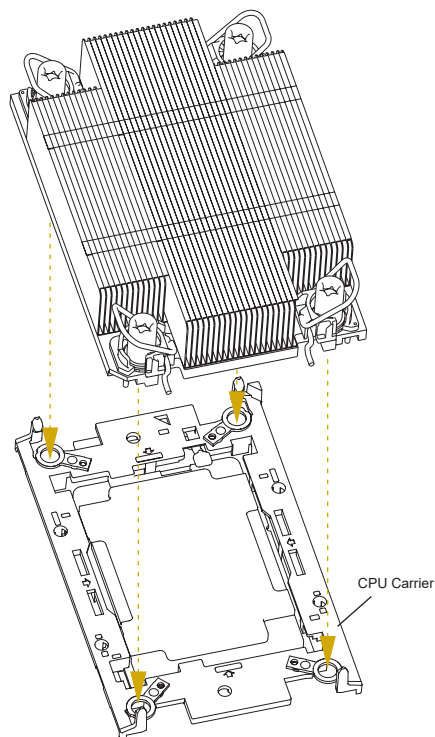
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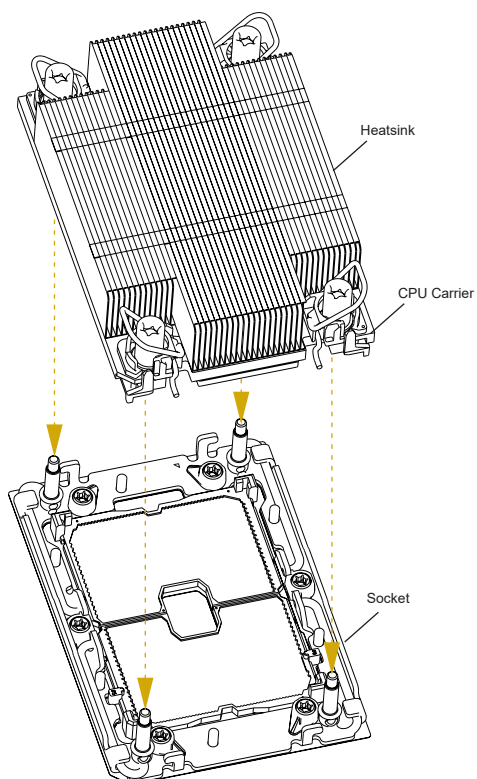
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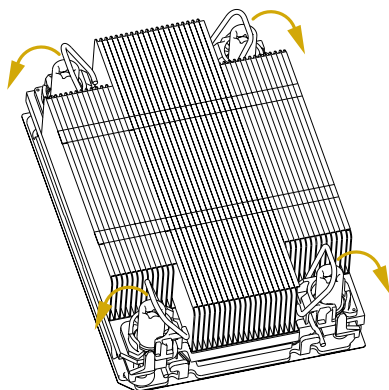
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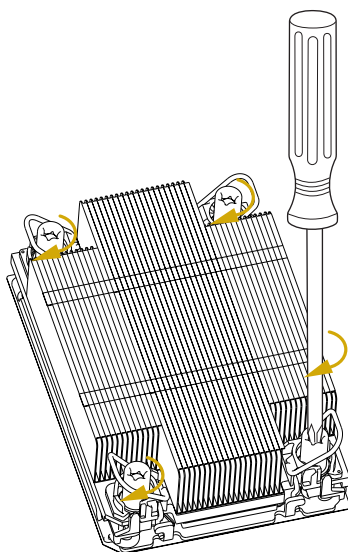
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9



10

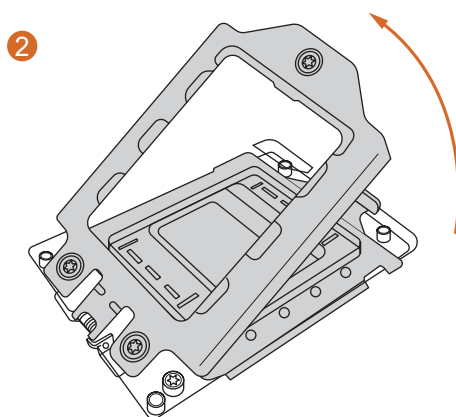
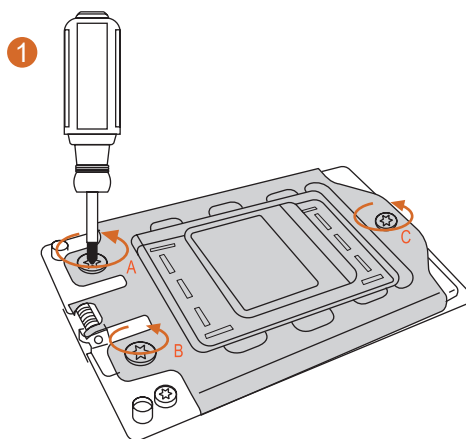




## Installing the CPU (AMD SP3 Socket)



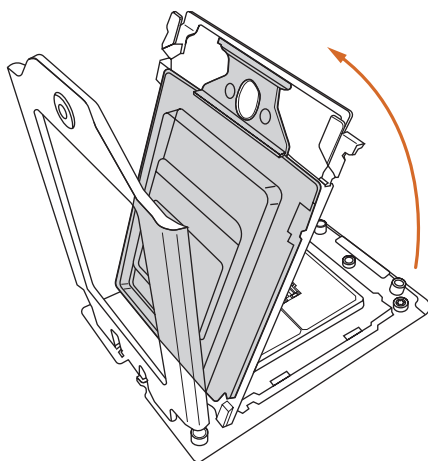
1. Before you insert the CPU into the socket, please check if the PnP cap is on the socket, if the CPU surface is unclean, or if there are any bent pins in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.
2. Unplug all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



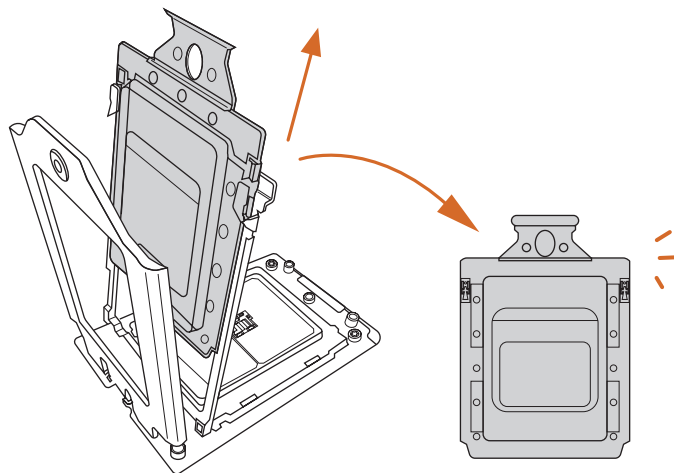


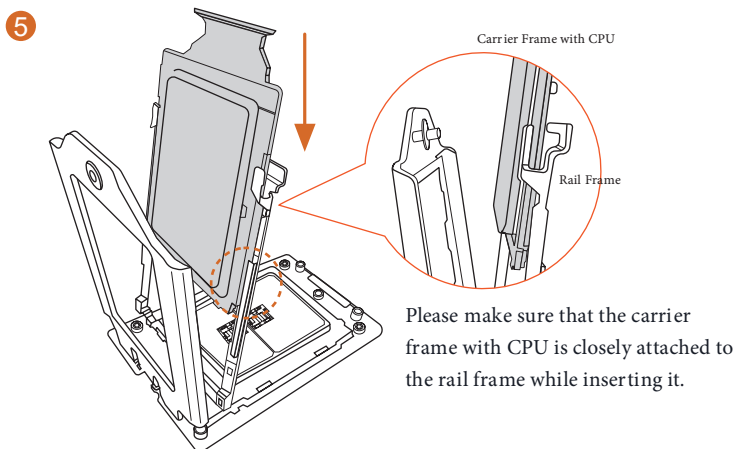
1. Before you installed the heatsink, you need to spray thermal interface material between the CPU and the heatsink to improve heat dissipation.
2. Illustration in this documentation are examples only. Heatsink or fan cooler type may differ.

3

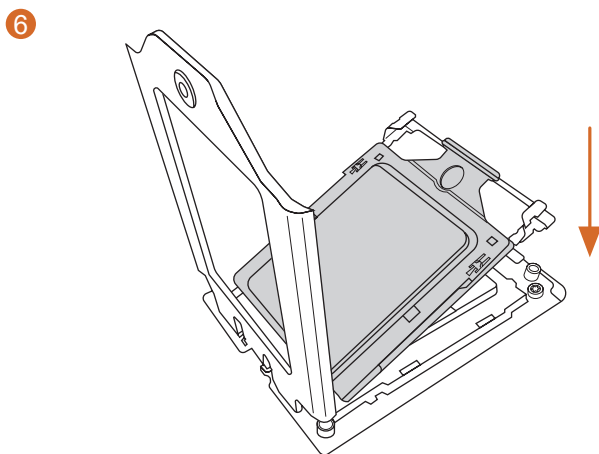


4

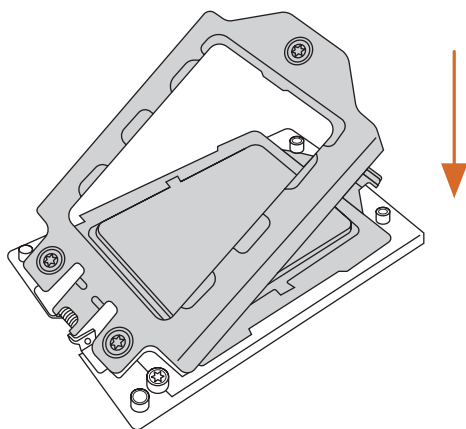




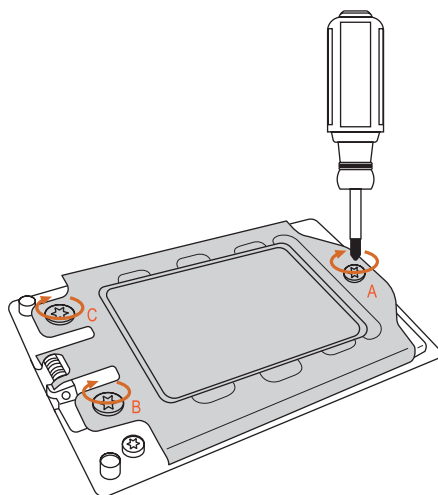
Install the carrier frame with CPU. Don't separate them.



7



8

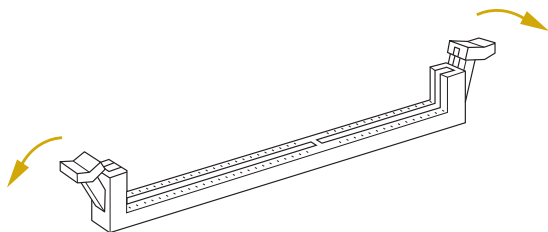


## Installation of Memory Modules (DIMM)

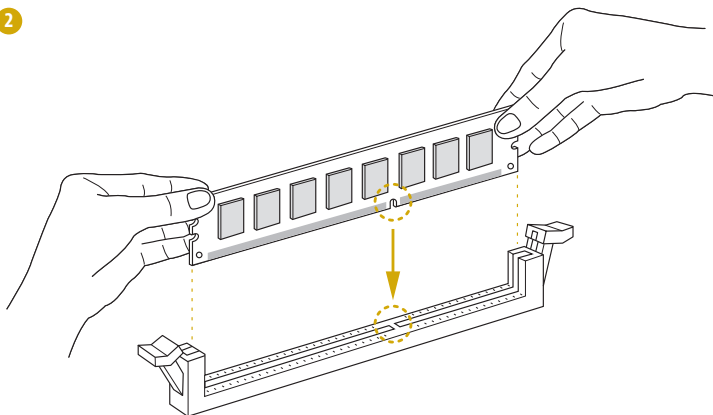


*The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation. For more information about DIMM installation, please refer to the User Manual that comes with the serverboard you use.*

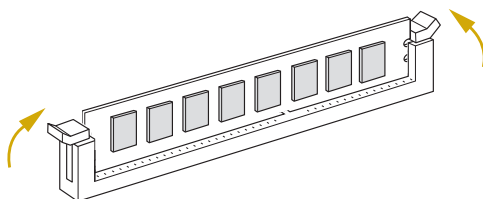
1



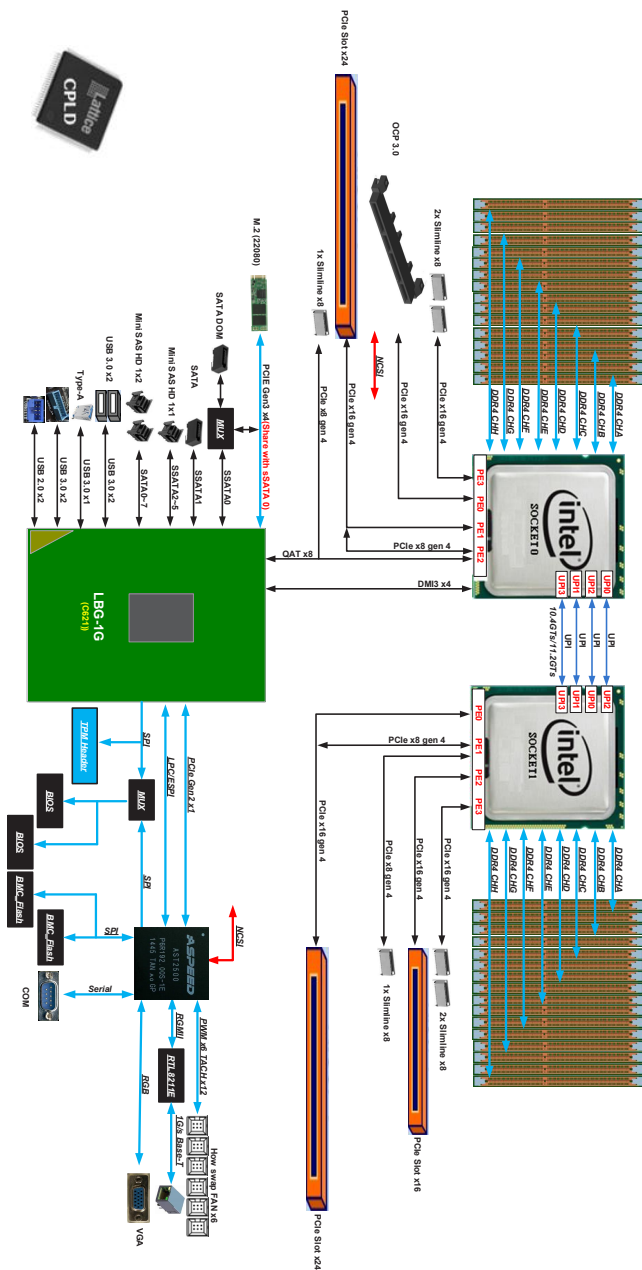
2



3



### Block Diagram (SP2C621D32LM3)



## Block Diagram (ROME2D32LM3)

