

OPEN Industry Standard, Flexible Architecture

GREEN Less Heat, Less Power Consumption

STABLE Robust Design, Quality Parts

Stable and
Reliable Solution

Server/Workstation
Motherboard

20U3N-SIENA

User Manual

English



Version 1.00

Published Jun. 2025

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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 server board 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”

ASRock Rack’s Website: www.ASRockRack.com

Setting up the Server in a Restricted Access Location/Restricted Access Area

- 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.
- Only skilled person and Instructed person can remove the chassis covers to access the inside of the system.

Replaceable Batteries

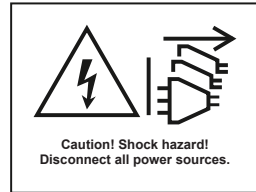
CAUTION

**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 disconnect the node, 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 node when installing or removing main system components, such as the server board.
- 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.

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Chapter 1 Introduction

Thank you for purchasing 2OU3N-SIENA, 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.

This guide provides the instructions of insertion and extraction of chassis components, such as chassis covers, system fans, power supplies, hard drive trays, and other main components this system supports. If the system is pre-installed a server board, refer to the server board user manual for the information of the server board components, specifications and BIOS settings.

System	ASRock Rack Server Board
2OU3N-SIENA	SIENAD10HM3



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 for reference purposes only and may not exactly match the model purchased.



If requiring technical support related to this system, please visit the website for specific information about the using model.
<http://www.asrockrack.com/support/>

1.1 Shipping Box Contents

Item	Quantity
Server Barebone: 2OU3N-SIENA	1
CPU Heatsink	3
Accessory Box - 6 Screws for M.2	1



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

1.2 Specifications

2OU1N-SIENA	
System	
Form Factor	2OU Rackmount, ORv3
Dimension	537 x 803 x 93mm (21.1" x 31.6" x 3.7", shelf dimension)
Support MB	SIENAD10HM3
Front Panel	
Button	Power button, UID button w/ LED, reset button
LED	Power LED, system fault LED
I/O Port	1 Mini-DisplayPort (VGA)* 2 Type-A (USB3.2 Gen1) *Needs to bundle ASRock Rack special cable for VGA
IPMI LAN	1 Dedicated IPMI
Real Panel	
Backplane Power Connector	1 IT Gear connector for ORv3 50/48V busbar
External Drive Bay / Storage	
Front Side Drive Bay	4 Hot-swap 2.5" NVMe (PCIe4.0 x4) drive bays per sled
Internal Side	2 M-key (PCIe5.0 x4 or SATA 6Gb/s), supports 22110/2280 form factor per sled
Power Supply	
Type	Centralized 50/48V busbar to 1OU3N_PDB_V3
Output Watt	1600W
System Fan	
Fan	2 System fans (80x38mm) per sled
Processor System	
CPU	Supports AMD EPYC™ 8004 series processors
Socket	Single Socket SP6 (LGA4844)
Chipset	System on Chip
System Memory	
Supported DIMM Quantity	10 DIMM slots (2DPC/1DPC)

Supported Type	Supports DDR5 288-pin RDIMM
Max. Capacity per DIMM	96GB (2Rx4)
Max. DIMM Frequency	4800MHz
Voltage	1.1V
PCIe Expansion Slot	
PCIe x16	1 HHHH PCIe5.0 x16 per sled
Ethernet	
OCP Slot	1 OCP NIC 3.0 (PCIe5.0 x16) per sled
Server Management	
BMC Controller	ASPEED AST2600
IPMI Dedicated GLAN	1 Realtek RTL8211F for dedicated management GLAN
System BIOS	
BIOS Type	AMI UEFI BIOS; 256Mb SPI Flash ROM
BIOS Features	ASRock Rack Instant Flash, ACPI 6.4 and above compliance wake up events, SMBIOS 3.5.0 and above, Plug and Play (PnP)
Hardware Monitor	
Temperature	CPU, MB, card side, TR1 temperature sensing
Fan	Fan tachometer CPU quiet fan (allows chassis fan speed auto-adjust by CPU temperature) Fan multi-speed control
Voltage	VDDCR_CPU, VDDCR_SOC, VDDIO, VDD_18_S5, VDD_33_S5, VDD_11_S3, +3V, +5V, +12V, +BAT, +1V8SB, 3VSB, 5VSB
Environment	
Temperature	Operation temperature: 10°C ~ 35°C Non operation temperature: -40°C ~ 70°C
Humidity	Non operation humidity: 20% ~ 90% (non condensing)

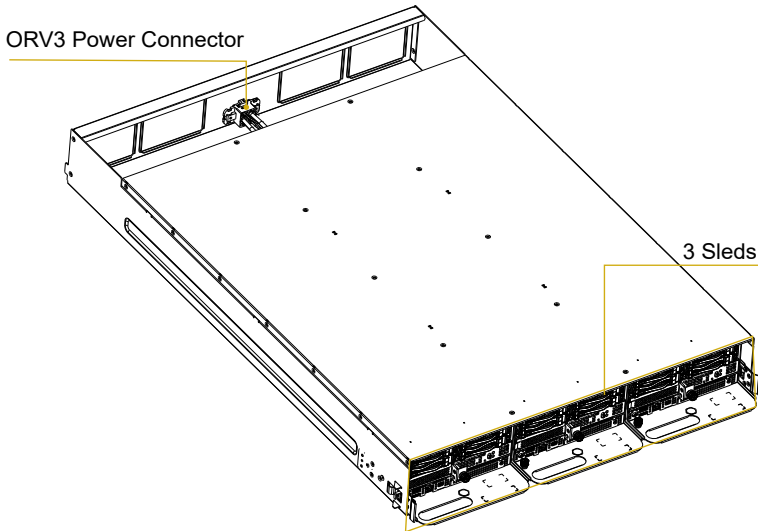


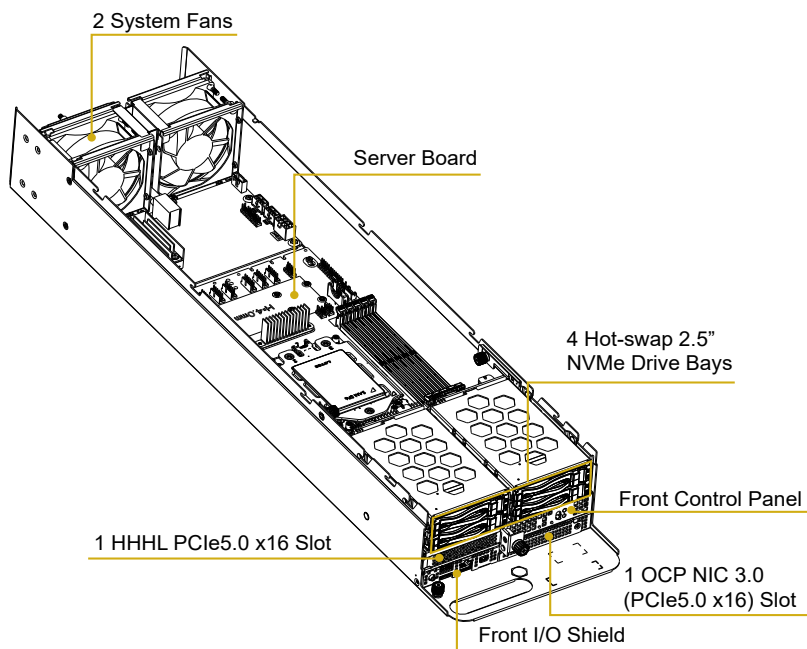
The functions are supported depending on the type of the server board. Refer to the server board user manual for more information.

Chapter 2 Server System Overview

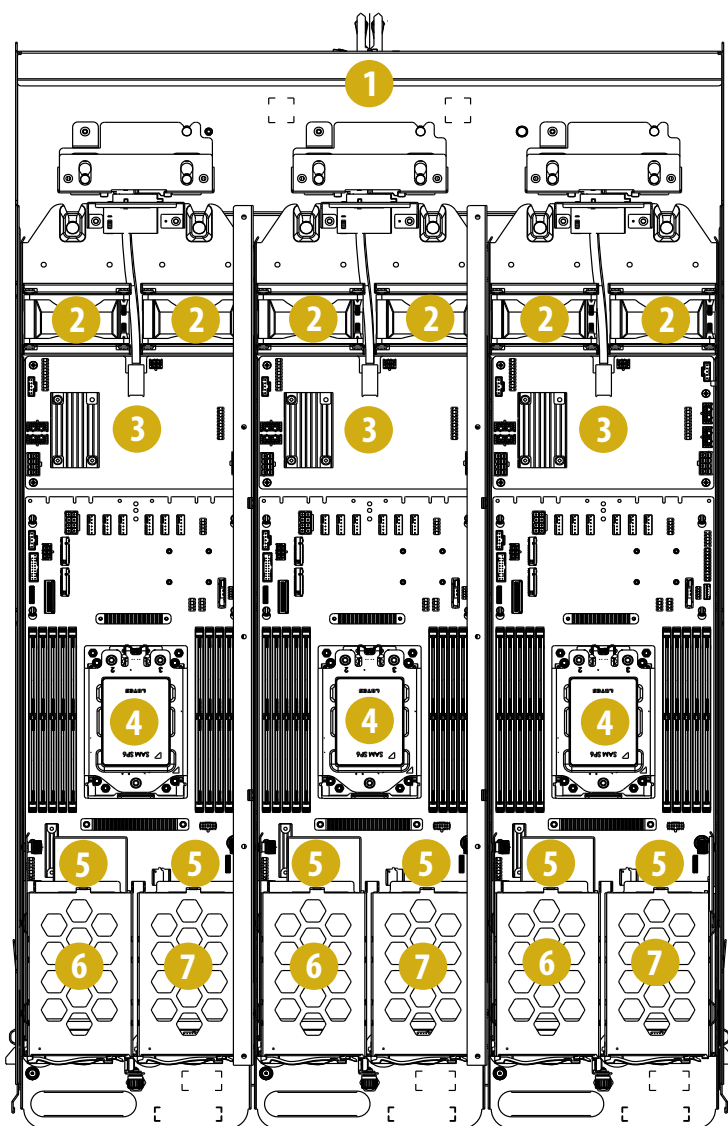
This chapter provides diagrams showing the location of important components of the server system.

2.1 System Components



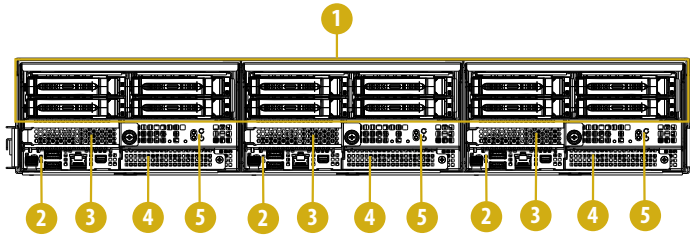


2.2 Internal Features



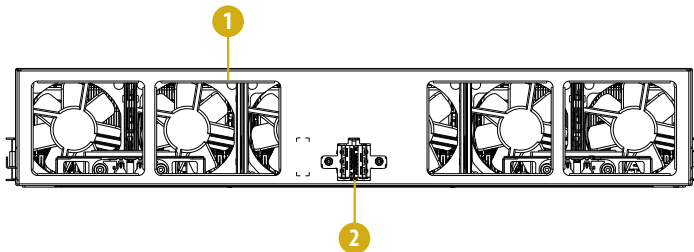
No.	Description
1	ORV3 power connector
2	6 System fans (80x38mm)
3	3 Power distribution boards (PDB)
4	3 Server boards
5	6 Hard drive backplane boards (BPB)
6	Upper: 6 Hot-swap 2.5" NVMe (PCIe4.0 x4) drive bays Middle: 3 HHHL PCIe5.0 x16 slots Lower: 3 Front I/O shields
7	Upper: 6 Hot-swap 2.5" NVMe (PCIe4.0 x4) drive bays Middle: 3 Front control panels Lower: 3 OCP NIC 3.0 (PCIe5.0 x16) slots

2.3 System Front Panel



No.	Description
1	12 Hot-swap 2.5" NVMe (PCIe4.0 x4) drive bays
2	3 Front I/O shields <i>(depends on the specification of the server board)</i>
3	3 HHHL PCIe5.0 x16 slots
4	3 OCP NIC 3.0 (PCIe5.0 x16) slots
5	3 Front control panels

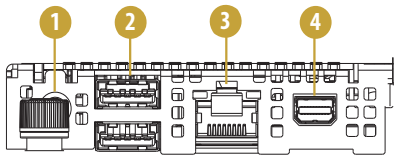
2.4 System Rear Panel



No.	Description
1	6 System fans (80x38mm)
2	ORV3 power connector

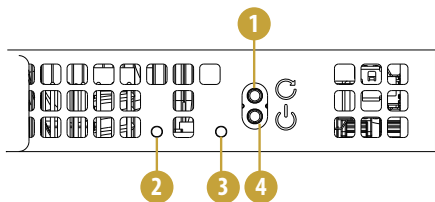
2.5 I/O Panel

Front I/O Shield



No.	Description
1	UID button w/ LED
2	2 Type-A (USB3.2 Gen1) ports
3	Dedicated IPMI LAN port*
4	Mini-DisplayPort (VGA)** **Needs to bundle ASRock Rack special cable for VGA

Front Control Panel



No.	Description
1	Reset button
2	System fault LED
3	Power LED
4	Power button

UID Button

Press the UID button to toggle the front panel UID LED on and off.

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.

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 node from the server.

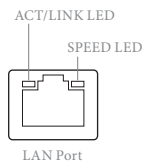
Status LED Definitions

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

System Fault LED	
Status	Description
Off	Running or normal operation
Red	Signal error

Power LED	
Status	Description
Off	Power off
Green	Power on

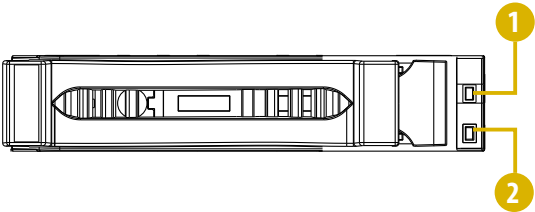
*There is an LED on each side of IPMI LAN port. Please refer to the table below for the LAN port LED indications.



IPMI LAN Port LED Indications

Activity / Link LED		Speed LED	
Status	Description	Status	Description
Off	No link	Off	10Mbps connection or no link
Blinking Yellow	Data activity	Orange	100Mbps connection
On	Link	Green	1Gbps connection

2.6 Hard Drive Tray LED



No.	Description
1	Hard drive tray activity LED
2	Hard drive tray status LED

Status LED Definitions

Hard Drive Tray Activity LED	
Status	Description
Off	Hard drive tray powered-off
Green	Hard drive tray active
Blinking Green	Hard drive tray accessing or reading

Hard Drive Tray Status LED	
Status	Description
Red	Hard drive tray failed

Chapter 3 Hardware Installation and Maintenance

This chapter helps user to assemble the chassis and install components.

Before You Begin

Before working 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 node from the server.
The power LED turns off.



The server is not completely powered down when pressing 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 node from the server.

2. Ensure having a clean and stable working environment. Avoid dust and dirt because contaminants may cause malfunctions.
3. Ground 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.
2. Refer to the server board user manual for instructions on how to install server board components.

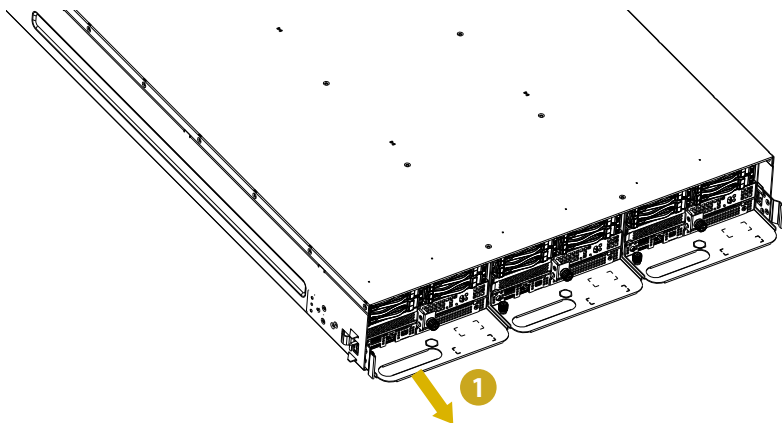
3.1 Sled Top Cover

Removing the Sled Top Cover

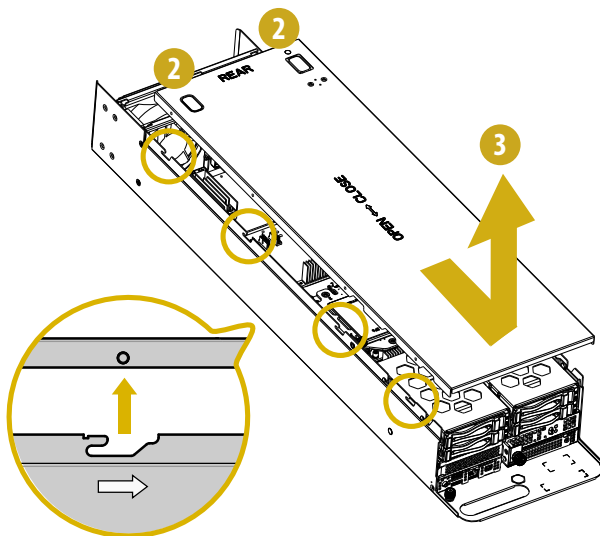


1. Before removing the top cover, power off the server.
2. The system must be operated with all the chassis top cover installed to ensure proper cooling.

1. Hold onto the handle and pull the sled out of the chassis.

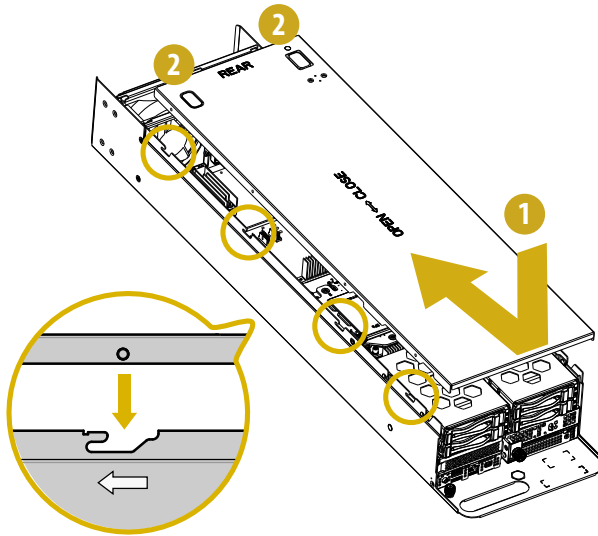


2. Press the tabs on the sled cover.
3. Push the sled cover toward the FRONT of the sled to release the cover from the locked position. Lift up and remove the cover.

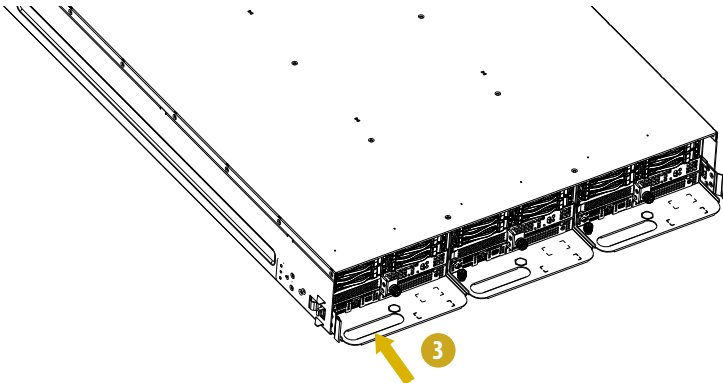


Installing the Sled Top Cover

1. Lower the sled cover on the chassis, making sure the side latches align with the cutouts. Slide the sled cover toward the REAR of the sled.
2. Press the tabs to secure the cover in place.



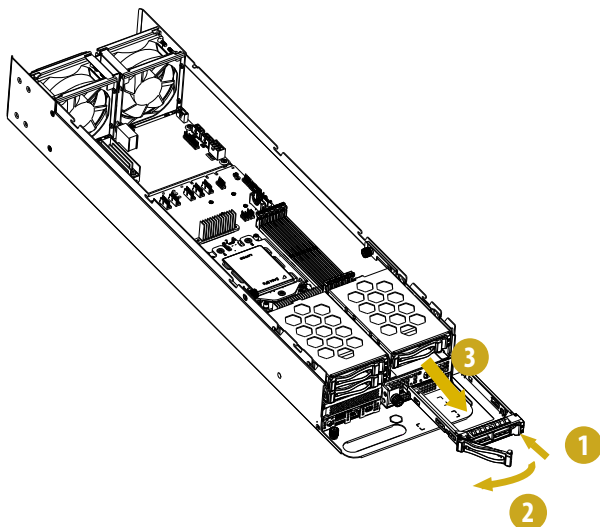
3. Slide the sled all the way into the chassis. Make sure the sled is well seated.



3.2 Hard Drive

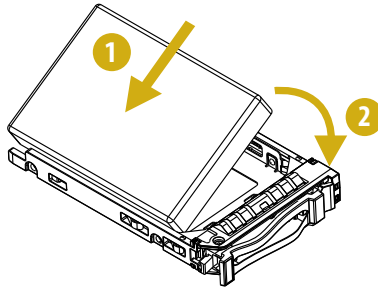
Removing Hard Drive Tray from the Chassis

1. Press the locking lever latch on the drive tray to unlock the retention lever.
2. Rotate the lever out and away from the bay.
3. Pull the tray out.

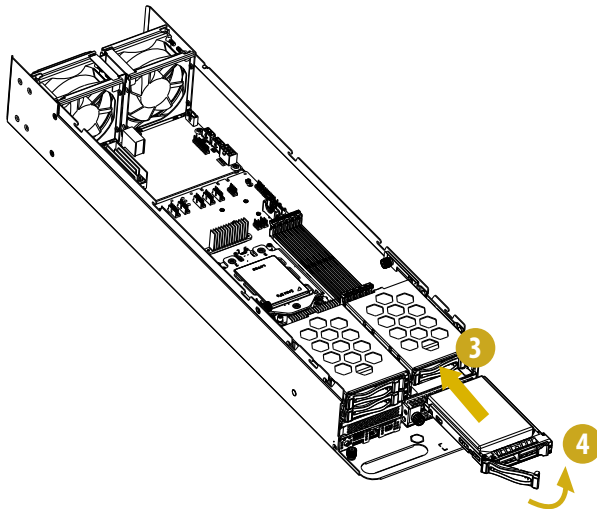


Installing 2.5" Hard Drive

1. Engage two embossed pins into the side dimples on the hard drive tray.
2. Carefully push down the other side of hard drive until the other two embossed pins and side dimples lock into place.



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

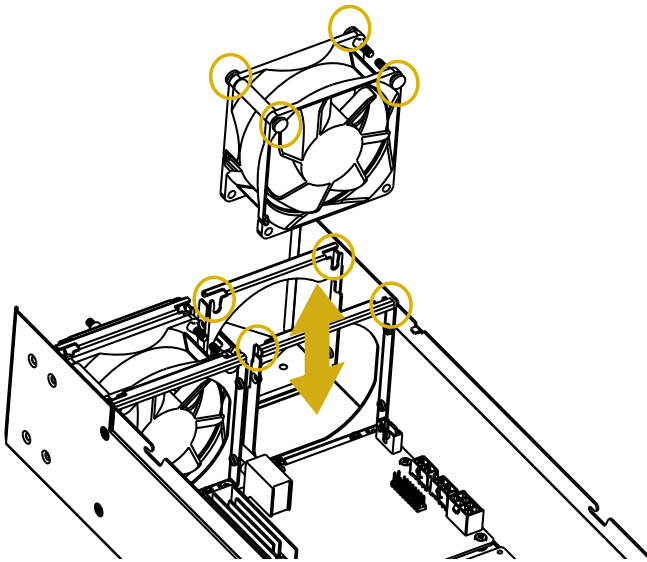


3.3 System Fan

The system supports six 80x38mm fans.

Replacing the System Fan

1. Lift to remove the failed fan.
2. Align the mounts on the replacement fan with the fan mounting holes on the fan bar.
3. Gently place the fan into the fan frame.
4. Make sure the fan is well seated and the fan connector is properly connected.



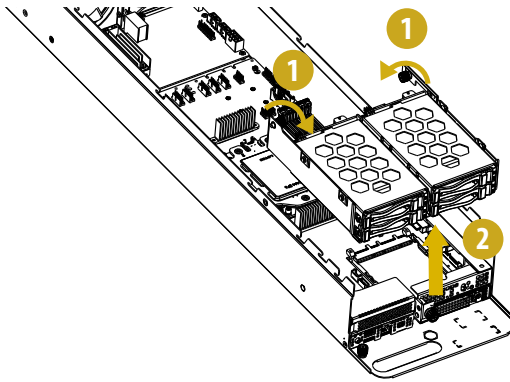
3.4 Add-in Card



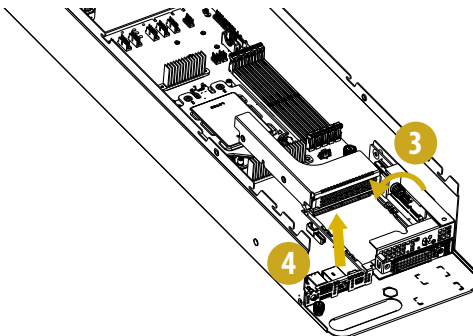
1. Before installing an add-in card to the chassis via the riser-card, make sure the riser-card assembly is installed on the server board.
2. Before installing the add-in card, power off the server and disconnect the node.

Installing the Add-in Card

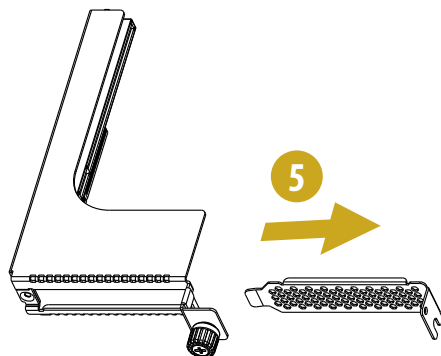
1. Hand-release the thumbscrews securing the hard drive cage to the chassis.
2. Push upward to remove the cage from the chassis.



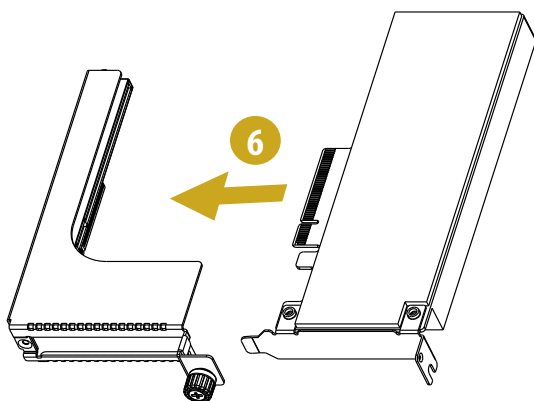
3. Hand-release the thumbscrew securing the riser-card bracket to the chassis.
4. Push upward to remove the bracket from the chassis.



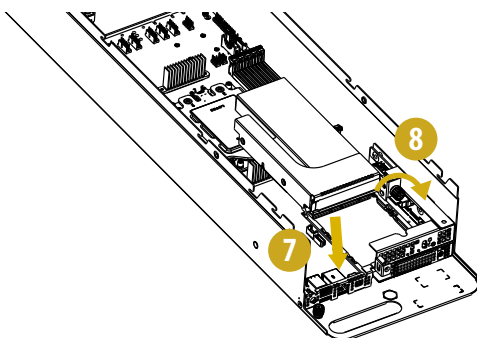
5. Slide the blanking plate out sideways.



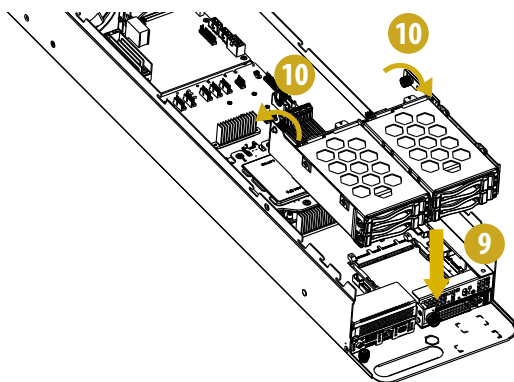
6. Install an add-in card to the bracket.



7. Align the add-in card assembly with the opening of the chassis to place it to the chassis.
8. Hand-tighten the thumbscrew on the assembly to the chassis



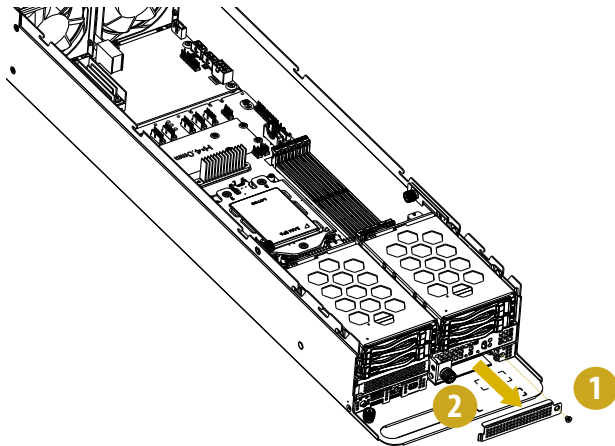
9. Align the hard drive cage with the opening of the chassis to place it to the chassis
10. Hand-tighten the thumbscrews to secure the hard drive cage to the chassis.



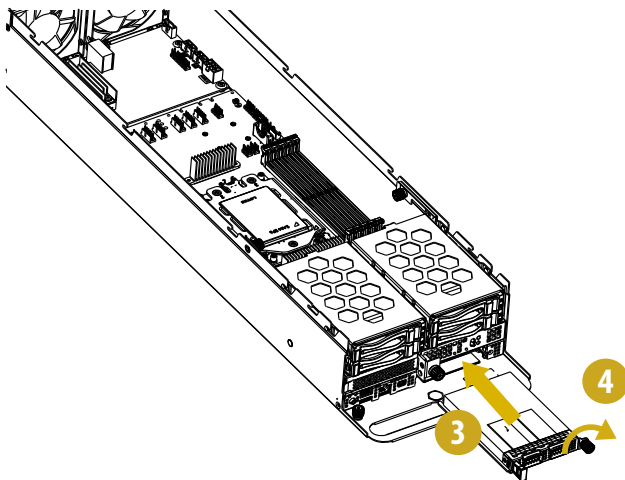
3.5 OCP Card

Installing the OCP Card

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

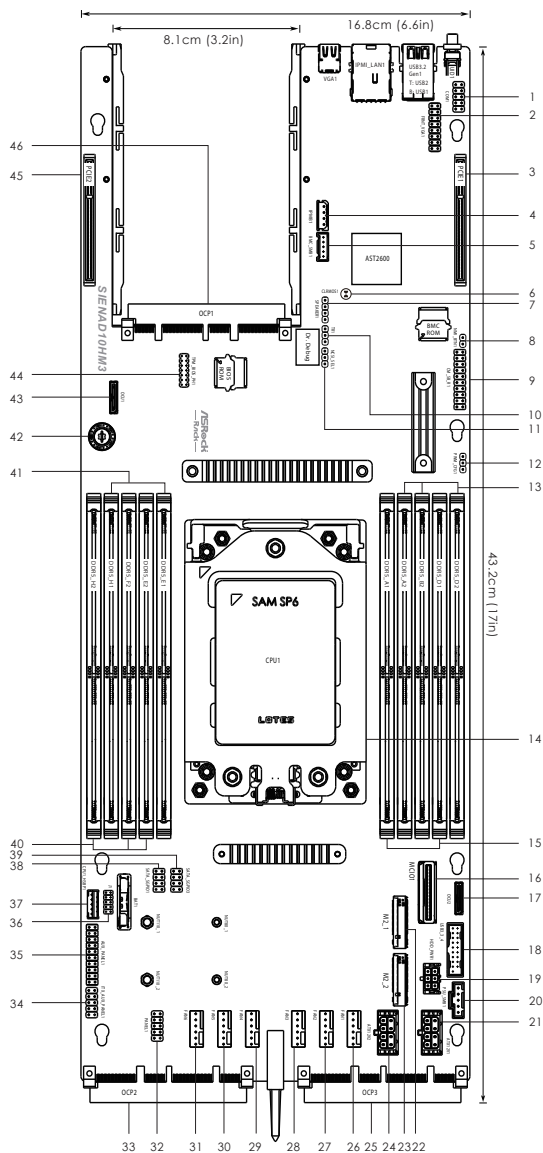


3. Install the OCP card into the slot.
4. Make sure the card is well seated and hand-tighten the thumbscrew on the face plate.



Chapter 4 Server Board (SIENAD10HM3)

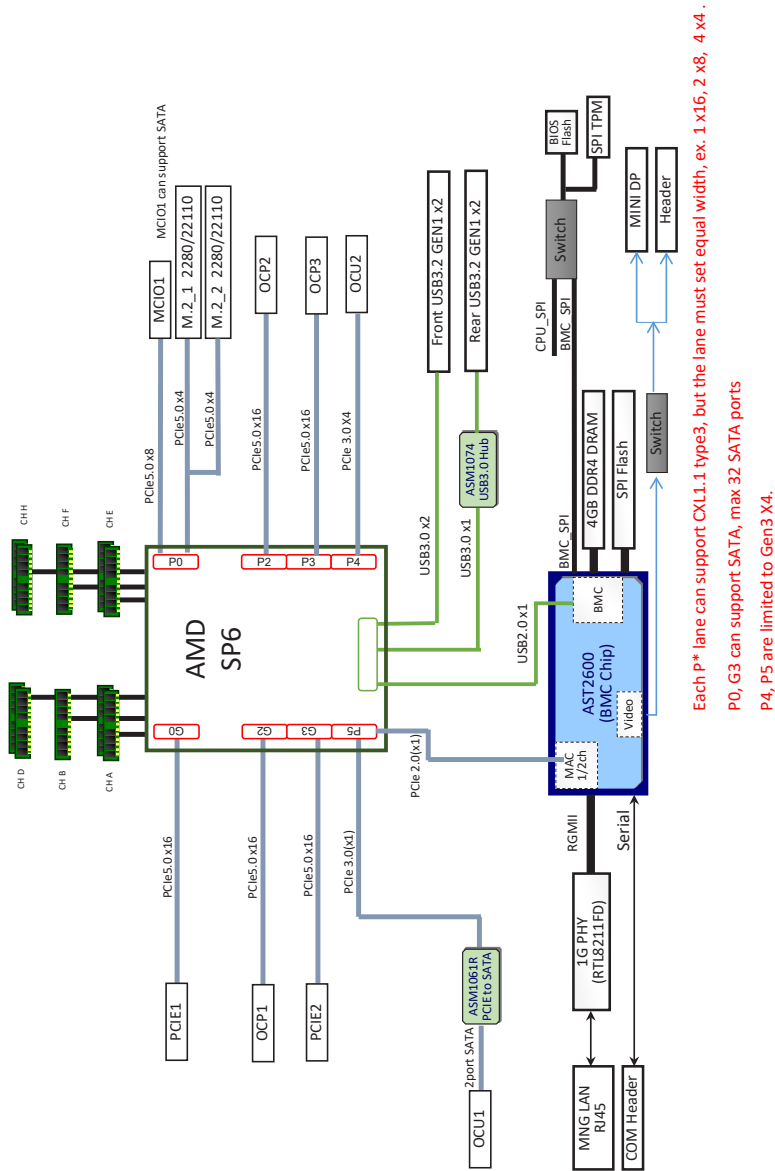
4.1 Layout



No.	Description
1	COM Port Header (COM1)
2	Front VGA Header (FRNT_VGA1)
3	PCI Express 5.0 x16 Slot (PCIE1)
4	Intelligent Platform Management Bus Header (IPMB1)
5	BMC SMBus Header (BMC_SMB1)
6	Clear CMOS Pad (CLRMOS1)
7	Speaker Header (SPEAKER1)
8	Non Maskable Interrupt Button (NMI_BTN1)
9	CM Board Standby Power Header (CM_SB_R1)
10	Thermal Sensor Header (TR1)
11	NCSI Mode Jumper (NCSI_SEL1)
12	PWM Configuration Header (PWM_CFG1)
13	3 288-pin DDR5 DIMM Slots (DDR5_A2, DDR5_B2, DDR5_D2)
14	AMD Socket SP6 (LGA 4844) (CPU1)
15	2 288-pin DDR5 DIMM Slots (DDR5_A1, DDR5_D1)
16	Mini Cool Edge IO Connector (MCIO1)
17	OCuLink Connector (PCIe3.0 x4) (OCU2)
18	USB3.2 Gen1 Header (USB3_3_4)
19	HDD Power Connector (HDD_PWR1)
20	PSU SMBus (PSU_SMB1)
21	ATX 12V Power Connector (ATX12V1)
22	M.2 Socket (M2_1) (Type 2280/22110)
23	M.2 Socket (M2_2) (Type 2280/22110)
24	ATX 12V Power Connector (ATX12V2)
25	OCP 3.0 Gen5 x16 Mezzanine Card Slot (OCP3)
26	System Fan Connector (FAN1)
27	System Fan Connector (FAN2)
28	System Fan Connector (FAN3)
29	System Fan Connector (FAN4)
30	System Fan Connector (FAN5)
31	System Fan Connector (FAN6)
32	System Panel Header (PANEL1)
33	OCP 3.0 Gen5 x16 Mezzanine Card Slot (OCP2)
34	ITX Auxiliary Panel Header (ITX_AUX_PANEL1)

No.	Description
35	Auxiliary Panel Header (AUX_PANEL1)
36	System Front Panel Board Header (J1)
37	Backplane PCI Express Hot-Plug Connector (CPU1_HSBP1)
38	SATA SGPIO Connector (SATA_SGPIO1)
39	SATA SGPIO Connector (SATA_SGPIO3)
40	3 288-pin DDR5 DIMM Slots (DDR5_E2, DDR5_F2, DDR5_H2)
41	2 288-pin DDR5 DIMM Slots (DDR5_E1, DDR5_H1)
42	Thumbscrew
43	OCuLink Connector (2 SATA 6Gb/s) (OCU1)
44	SPI TPM Header (TPM_BIOS_PH1)
45	PCI Express 5.0 x16 Slot (PCIE2)
46	OCP 3.0 Gen5 x16 Mezzanine Card Slot (OCP1)

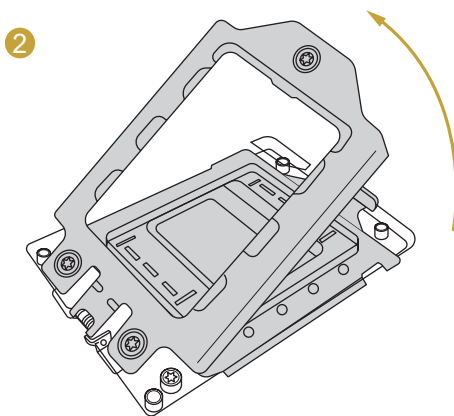
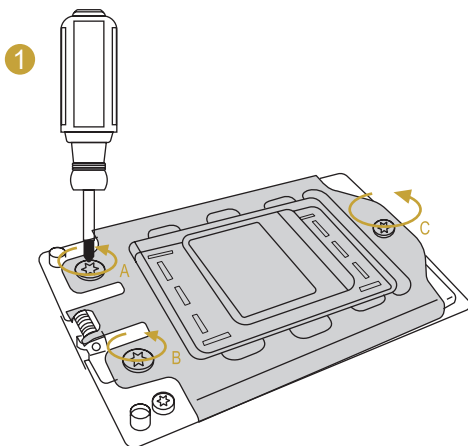
4.2 Block Diagram



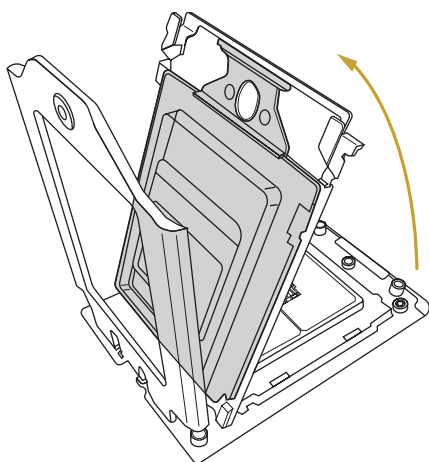
4.3 Installing the CPU and Heatsink (LGA4844 Socket)



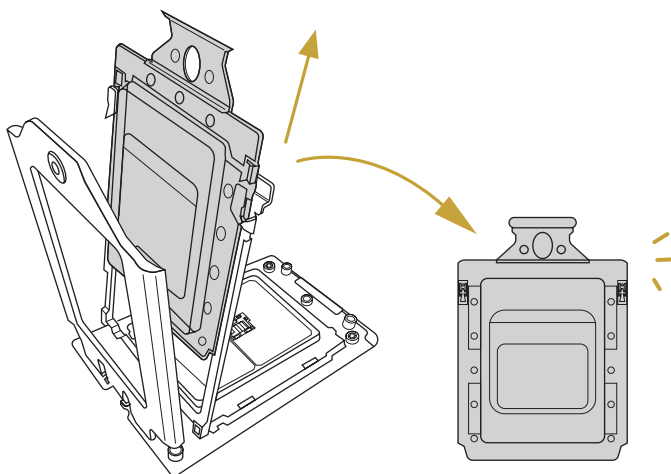
1. Before inserting the CPU into the socket, check if the PnP cap is on the socket, if the CPU surface is unclean, or if there are any bent pins in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.
2. Unplug all power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



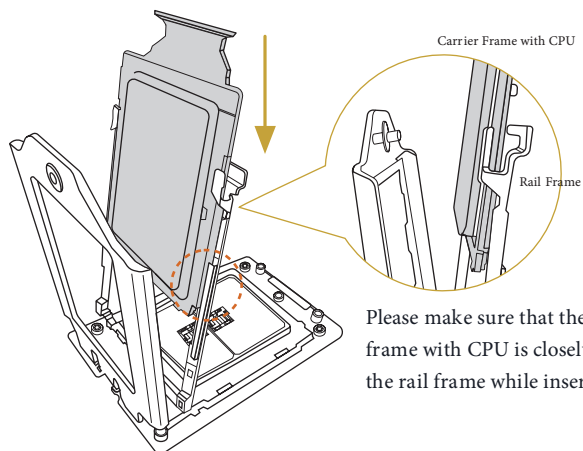
3



4



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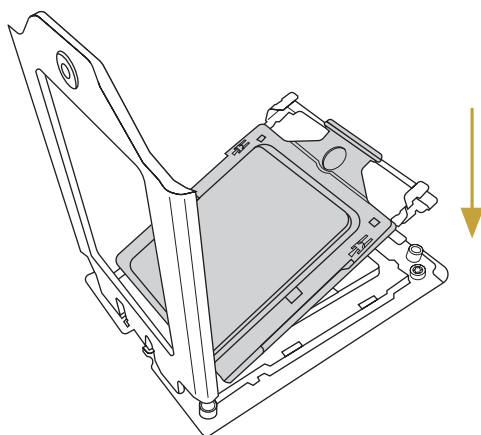


Please make sure that the carrier frame with CPU is closely attached to the rail frame while inserting it.

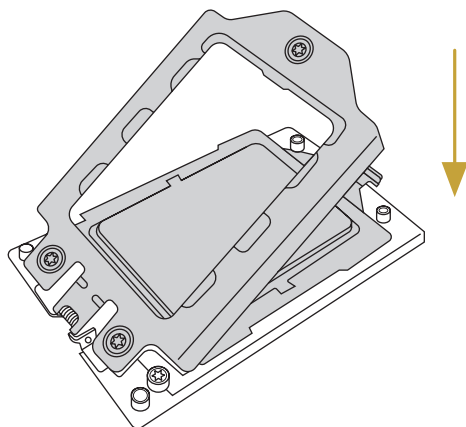


Install the carrier frame with CPU. Don't separate them.

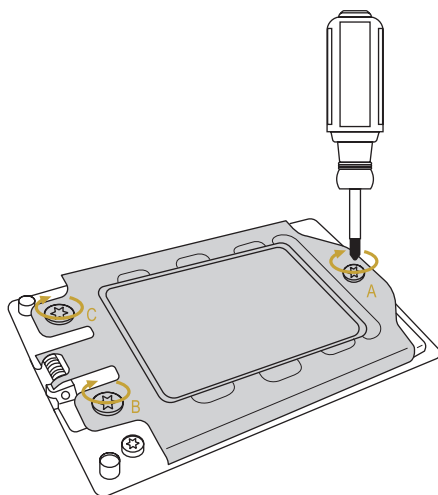
6



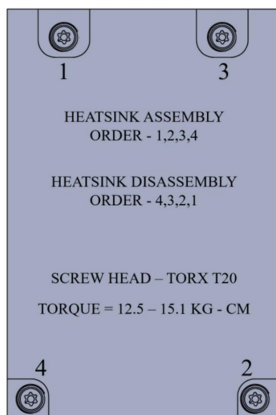
7



8



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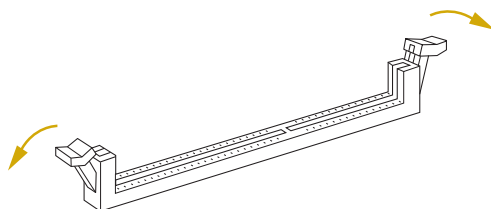


4.4 Installing the Memory Modules (DIMM)

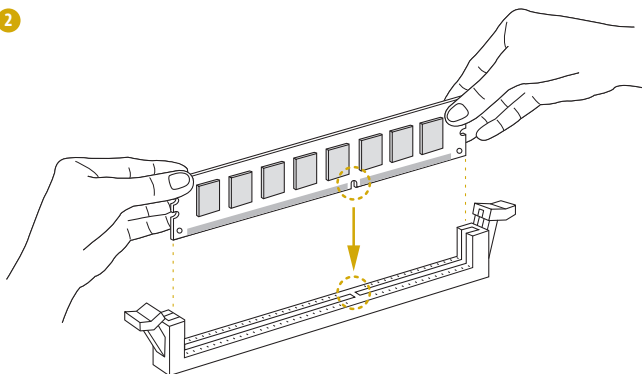


The DIMM only fits in one correct orientation. It will cause permanent damage to the server board and the DIMM if forcing the DIMM into the slot at incorrect orientation. For more information about DIMM installation, refer to the server board user manual.

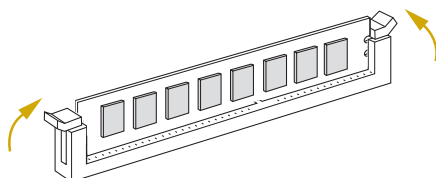
1



2



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Contact Information

Contact ASRock Rack or want to know more about ASRock Rack, you're welcome to visit ASRock Rack's website at <http://www.asrockrack.com>; or contact the dealer for further information. For technical questions, please submit a support request form at <https://event.asrockrack.com/tsd.asp>

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