

OPEN Industry Standard, Flexible Architecture

GREEN Less Heat, Less Power Consumption

STABLE Robust Design, Quality Parts

Stable and
Reliable Solution

Server/Workstation
Motherboard

1U2N2G-AM5/2T

User Manual

English



Version 1.02

Published Nov. 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 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/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.

ASRock Rack's Website: www.ASRockRack.com

Replaceable Batteries

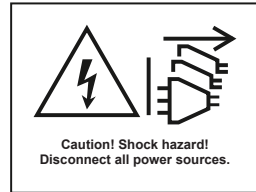
CAUTION

**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 server 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.

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Chapter 1 Introduction

Thank you for purchasing 1U2N2G-AM5/2T, 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 motherboard, refer to the server motherboard user manual for the information of the server motherboard components, specifications and BIOS settings.

System	ASRock Rack Server Motherboard
1U2N2G-AM5/2T	AM5D4ID-2T/BCM



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: 1U2N2G-AM5/2T	1
CPU Heatsink	2
Rail Kit	1
Accessory Box	1
- 2 Power Cords	
- 1 Quick Installation Guide	
- 2 M2 Screws	
- 2 M3 Screws	
- 1 M5 Screw	

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

1.2 Specifications

1U2N2G-AM5/2T	
System	
Form Factor	1U Rackmount
Dimensions	650 x 438 x 43.5mm (25.6" x 17.2" x 1.7")
Support MB	AM5D4ID-2T/BCM
Front Panel	
Button	UID w/ LED, power w/ LED
LED	System fail
I/O Port	2 RJ45 (10GbE) by Broadcom BCM57416, 2 Type-A (USB3.2 Gen1), 1 DB15 (VGA), 1 HDMI
IPMI LAN	1 Dedicated IPMI
External Drive Bay / Storage	
Internal Side	1 M-key (PCIe4.0 x4), supports 2280 form factor [CPU]
Power Supply	
Type	1+1 CRPS
Output Watts	1000W @100-127Vac input 1600W @200-240Vac input
Efficiency	80-PLUS Platinum
AC Input	Low-line: 100-127Vac, 60/50Hz High-line: 200-240Vac, 60/50Hz
System Fan	
Fan	8 PWM hot-swap 40x56mm fans
Processor System	
CPU	Supports AMD EPYC™ 4005/4004 and AMD Ryzen™ 9000/8000/7000 Series Processors
Socket	Single Socket AM5 (LGA 1718)
Thermal Design Power	Up to 120W
Chipset	KNOLL3 X300

System Memory	
Supported DIMM Quantity	4 DIMM slots (2DPC)
Supported Type	DDR5 288-pin ECC/non-ECC UDIMM
Max. Capacity per DIMM	48GB
Max. DIMM Frequency	AMD EPYC™ 4005 Processor: UDIMM: 5600MT/s (1DPC), 3600MT/s (2DPC) ECC-UDIMM: 5600MT/s (1DPC 1R), 5200MT/s (1DPC 2R), 3600MT/s (2DPC) AMD EPYC™ 4004 and AMD Ryzen™ 9000/8000/7000 Series Processors: 5200MT/s (1DPC), 3600MT/s (2DPC)
Voltage	1.1V
PCIe Expansion Slot	
PCIe x16	1 FHFL dual-slot PCIe5.0 x16 or 2 FHFL single-slot PCIe5.0 x8 Support passive-cooling GPU card dimensions (L x H x W): 266.7 x 111.15 x 39.04mm (GPU power connector on the east edge) <i>*Please contact ASRock Rack for suggested active-cooling GPU card dimensions or further details.</i>
Ethernet	
Additional GbE Controller	Broadcom BCM57416: 2 RJ45 (10GbE)
Server Management	
BMC Controller	ASPEED AST2600
IPMI Dedicated GLAN	1 Realtek RTL8211F for dedicated management GLAN
Graphics	
Controller	ASPEED AST2600: 1 DBI5 (VGA) AMD Processors with Graphics: 1 HDMI
System BIOS	
BIOS Type	AMI UEFI BIOS; 256MB (32MB) SPI Flash ROM
BIOS Features	Plug and Play, ACPI 5.1 compliance wake up events, SMBIOS 2.3

Hardware Monitor	
Temperature	CPU, DDR, MB, card side
Fan	Fan tachometer, multi-speed control, CPU quiet fan (allows chassis fan speed auto-adjust by CPU temperature)
Voltage	3VSB, 5VSB, VCPU, VCCM, APU VDDP, 1.05V_PROM_S5, 2.5V_PROM, 1.05V_PROM_RUN, BAT, 3V, 5V, 12V
Environment	
Temperature	Operation temperature: 10°C ~ 35°C Non operation temperature: -40°C ~ 70°C
Humidity	Non operation humidity: 20% ~ 90% (non condensing)

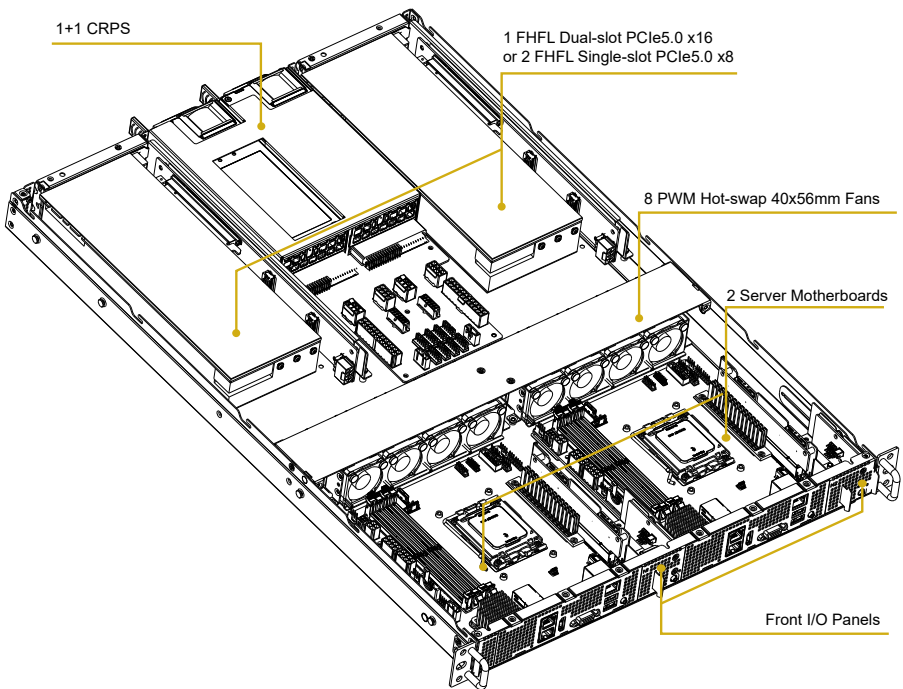


The functions are supported depending on the type of the server motherboard. Refer to the server motherboard user manual for more information.

Chapter 2 Server System Overview

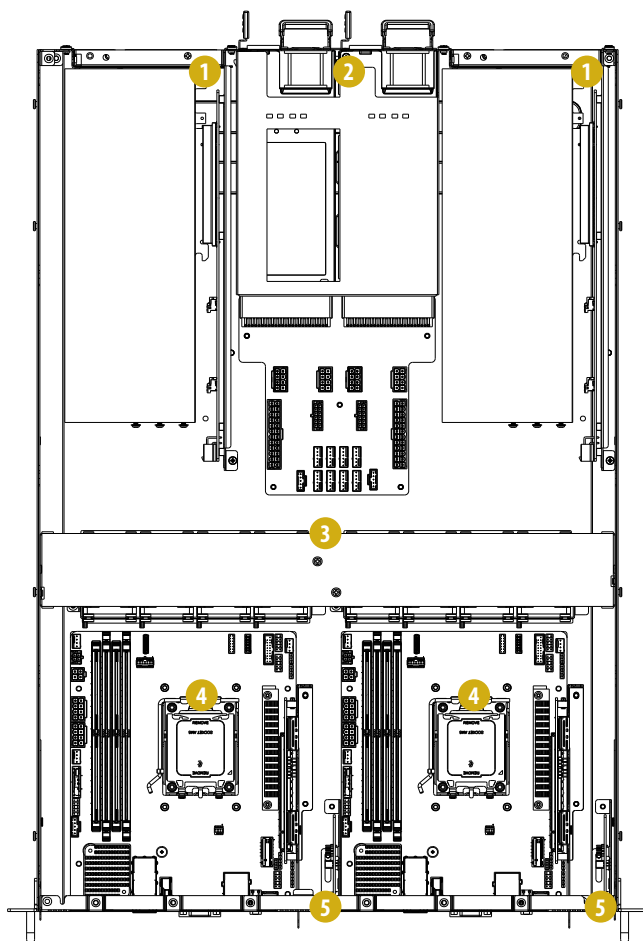
This chapter provides diagrams showing the location of important components of the server system.

2.1 System Components



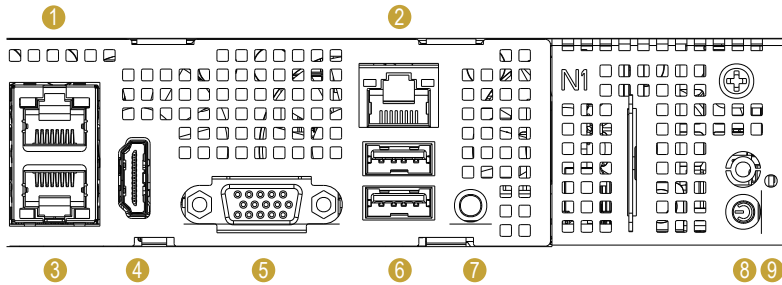
Note: The illustrations in this user manual are for references only. The actual product may be slightly different by SKU.

2.2 Internal Features



No.	Description
1	1 FHFL dual-slot PCIe5.0 x16 or 2 FHFL single-slot PCIe5.0 x8 per node
2	1+1 CRPS
3	8 PWM hot-swap 40x56mm fans
4	1 Server motherboard per node
5	1 Front I/O panel per node

2.5 Front I/O Panel



No.	Description
1	1 RJ45 (10GbE) LAN port (LAN2)
2	1 Dedicated IPMI LAN port
3	1 RJ45 (10GbE) LAN port (LAN1)
4	1 HDMI port
5	1 DB15 (VGA) port
6	2 Type-A (USB3.2 Gen1) ports
7	1 UID button w/ LED
8	1 Power button w/ LED
9	1 System fail LED

Chapter 3 Hardware Installation and Maintenance

This chapter helps user 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.



Ensure the motherboard battery is installed before unplugging the power cord or installing/removing the motherboard. Failure to follow this precaution may result in physical injury or damage to motherboard components.

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 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 power cord 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.

Installing Procedures

The followings are prerequisite to be installed.

- Power Supply Units (Pre-installed)
- System Fans (Pre-installed)
- Server Motherboards (Pre-installed)
- Power Distribution Board (Pre-installed)
- Front Panel Board (Pre-installed)



1. Some components are already pre-installed. Simply properly connect the required cables before or after installation.
2. Refer to the server motherboard user manual for instructions on how to install server motherboard components.

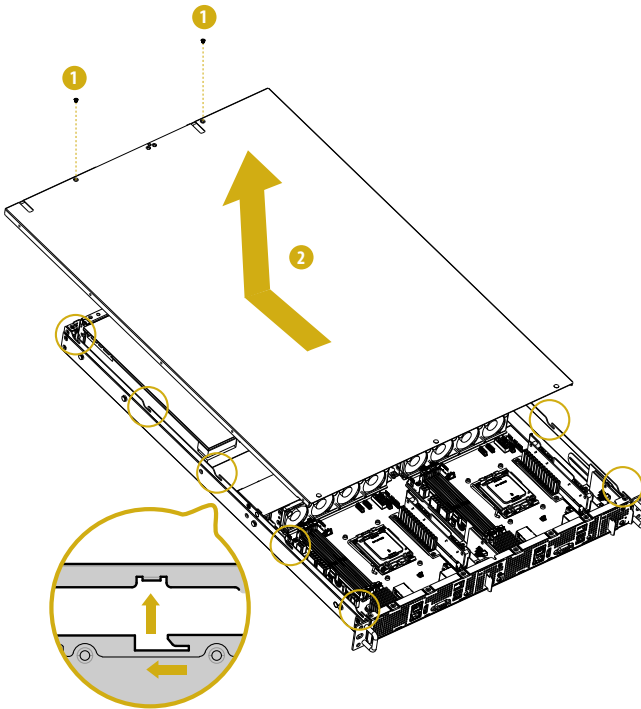
3.1 Server Top Cover

Removing the Server Top Cover



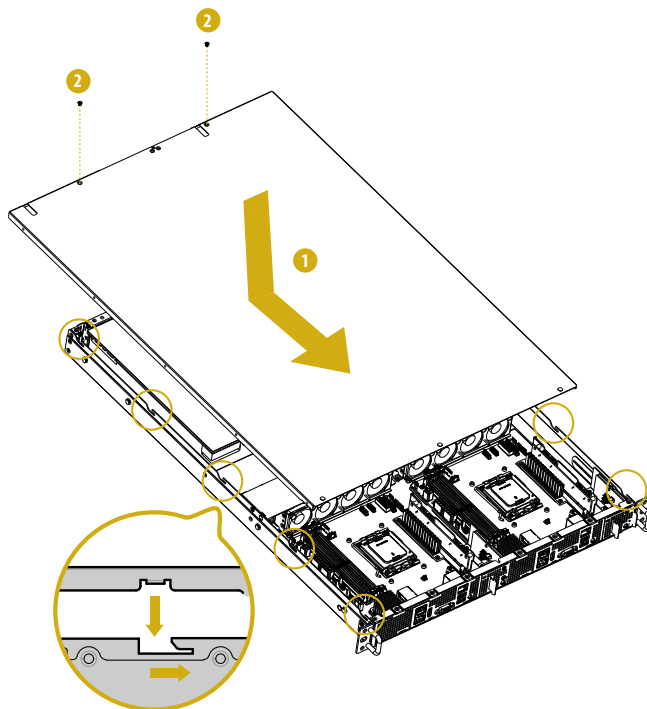
1. Before removing the top cover, power off the server and unplug the power cord.
2. The system must be operated with the chassis top cover installed to ensure proper cooling.

1. Remove the screws securing the top cover to the chassis.
2. Push the top cover toward the REAR side of the chassis to release the cover from the locked position. Lift up and remove the 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 cover toward the FRONT side
2. Secure the top cover with the screws.



3.2 Power supply

The 1U2N2G-AM5/2T system can accommodate 2 power supply units in the bay at the rear of the chassis. Each unit provides up to 1600W of power. 1 PSU is required for full load operation, with the other PSU purely as a redundant, load-sharing backup. 1 PSU can be removed without affecting system operation.

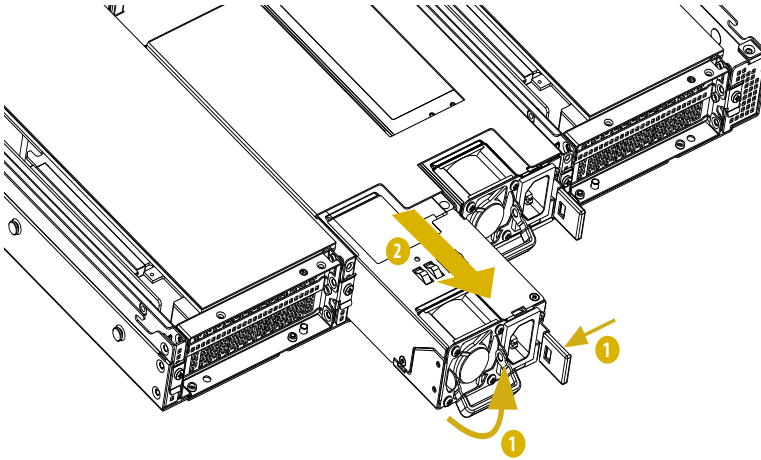
Removing the Power Supply Unit



1. Before replacing the power supply unit, power off the server, unplug the power cord, and disconnect all wiring from the power supply unit.
2. The redundant system does not require powering down the server..

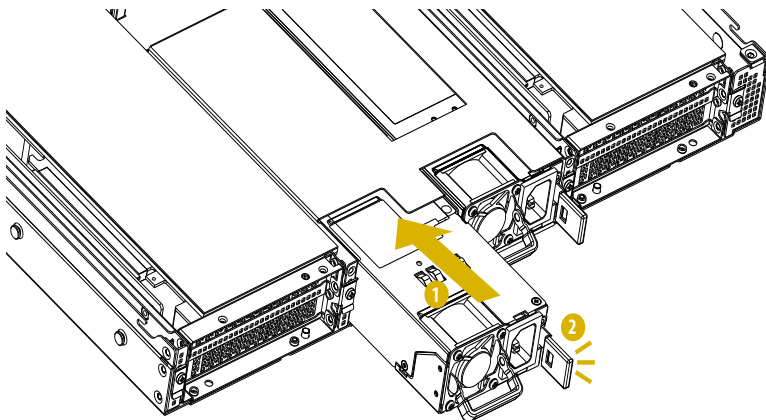
To remove a failed power supply unit, identify the failed PSU by checking the power supply LEDs on the PSUs.

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



Installing the Power Supply Unit

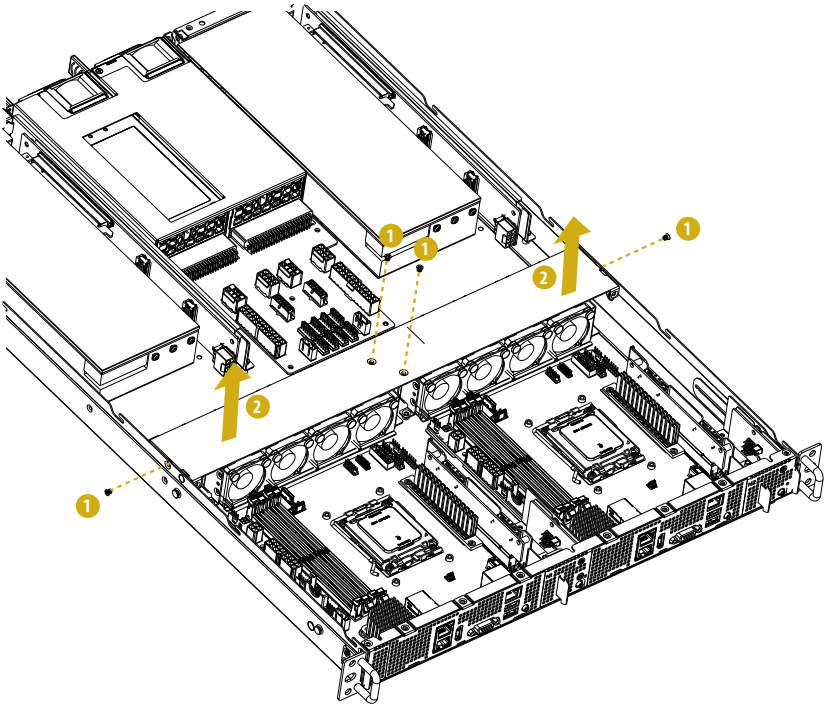
1. Carefully slide the PSU all the way into the power supply bay.
2. Make sure the PSU clicks in place and is well installed.



3.3 System Fan

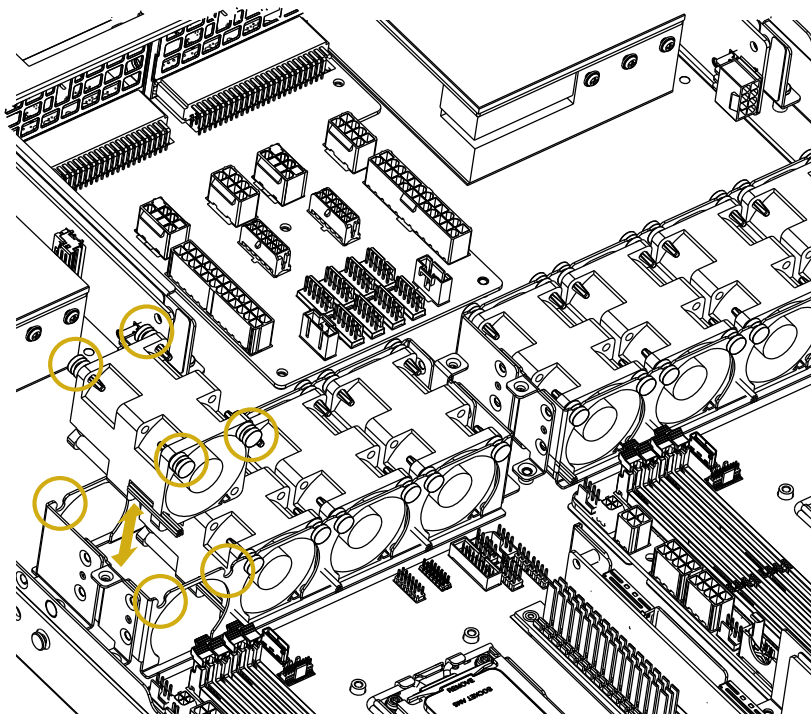
Removing the Fan Cover

1. Remove the screws securing the cover on the fans to the chassis.
2. Lift up and remove the cover.



Replacing the System Fan

1. Lift to remove the failed fan.
2. Align the mounting holes on the replacement fan corners with the fan mounts on the fan bracket.
3. Gently place the fan onto the mounts.
4. Make sure the fan is well seated.



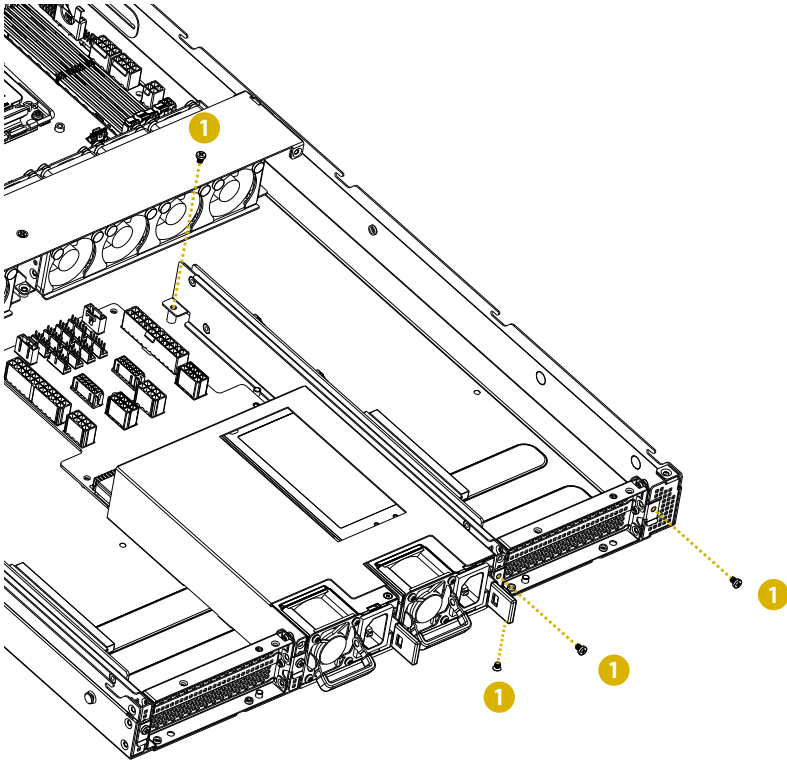
3.4 Add-in Card



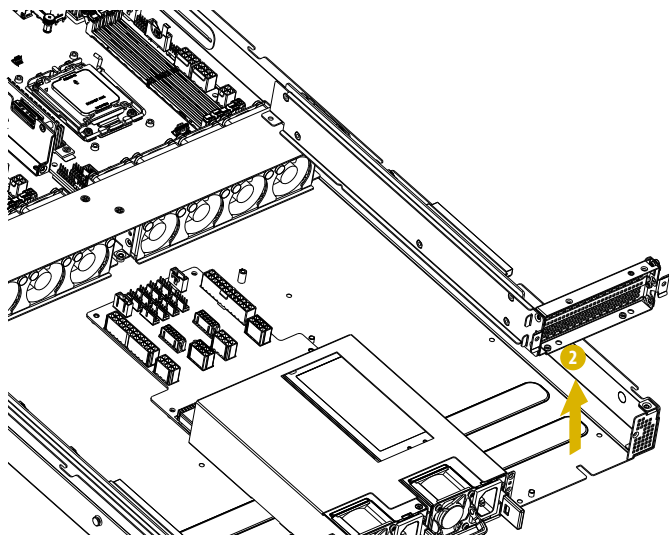
1. Install an add-in card to the chassis only when having a riser-card installed on the server motherboard.
2. Before installing the riser-card, power off the server and unplug the power cord.

Removing the Riser-card Bracket from the Chassis

1. Remove the screws securing the riser-card bracket on the chassis.

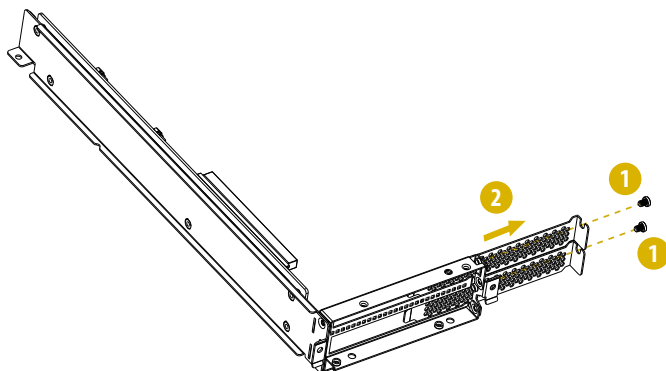


2. Lift up and remove the riser-card bracket from the chassis.

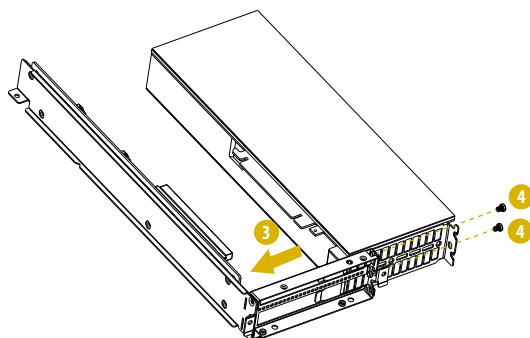


Installing the Add-in Card to the Chassis

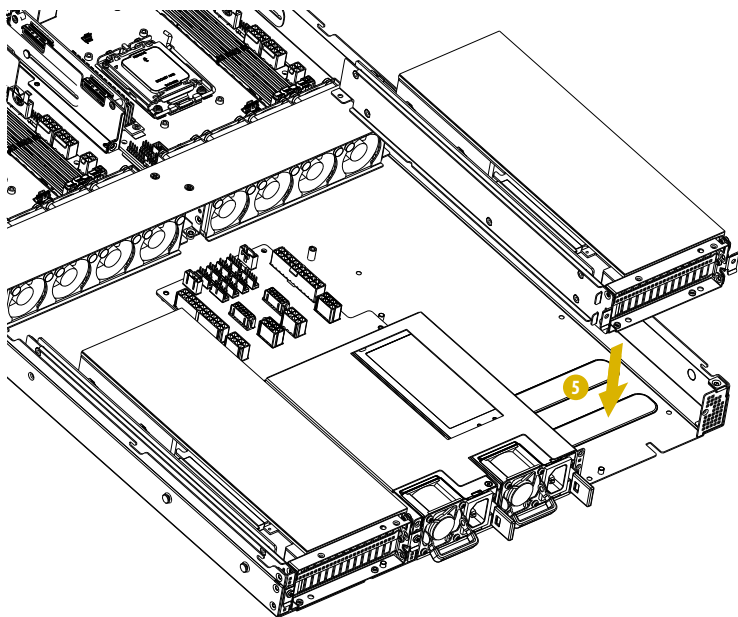
1. Remove the screws securing the blanking plates on the riser-card bracket.
2. Slide the blanking plates out sideways.



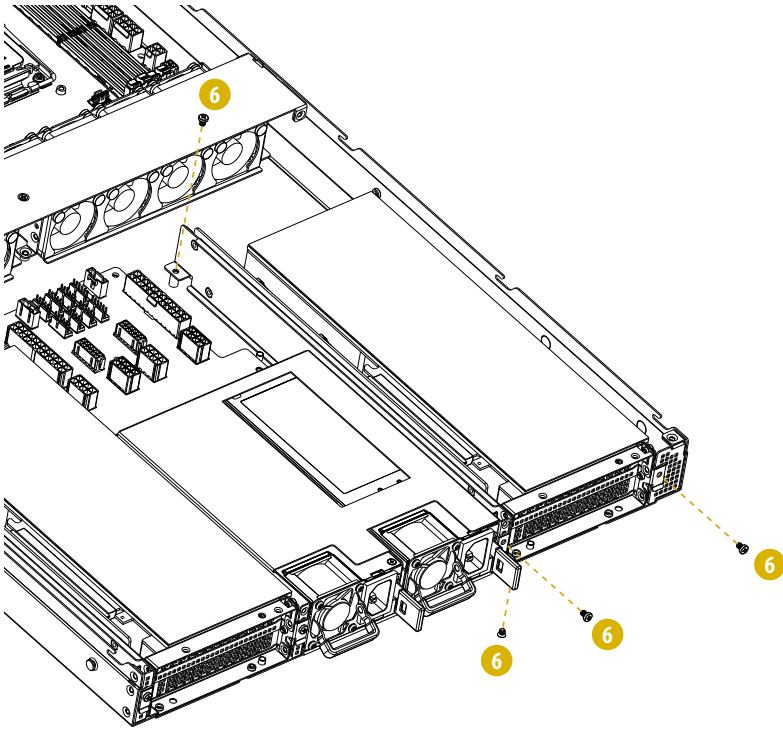
3. Install the add-in card to the riser-card bracket.
4. Secure the add-in card to the bracket with the screws.



5. Align the add-in card assembly with the opening of the chassis. Place it into the chassis.

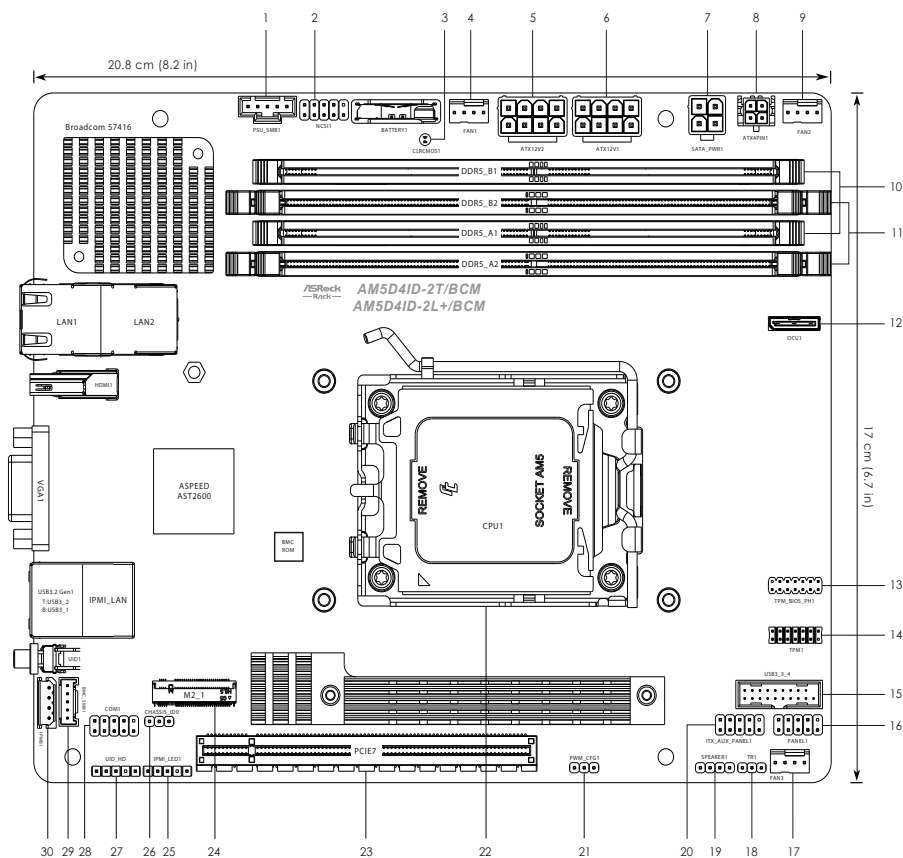


6. Tighten the screws to secure the assembly to the chassis.



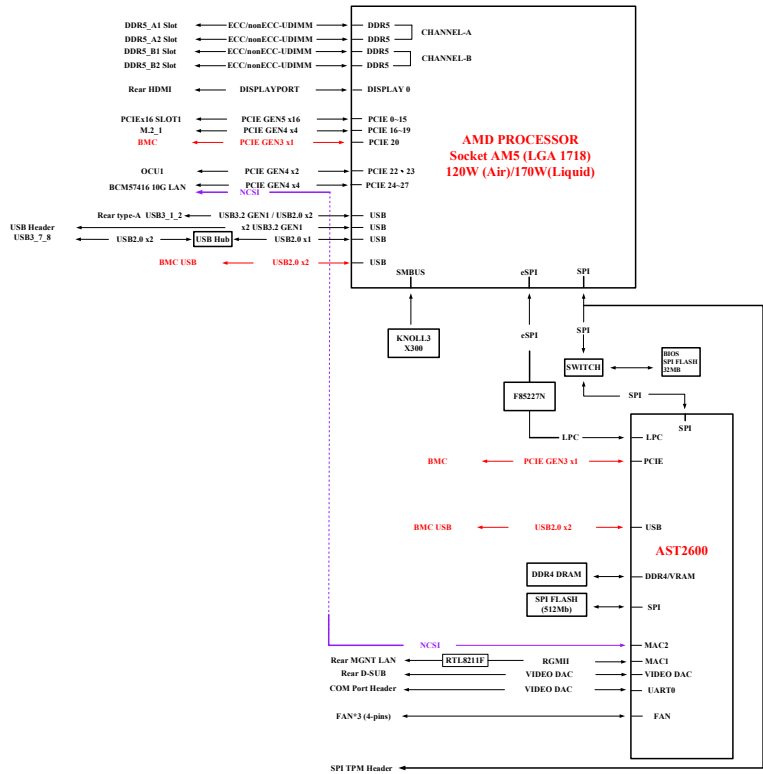
Chapter 4 ServerMotherboard (AM5D4ID-2T/BCM)

4.1 Layout



No.	Description
1	PSU SMBus Header (PSU_SMB1)
2	NSCI Header (NSCI1)
3	Clear CMOS Pad (CLRCMOS1)
4	System Fan Header (FAN1)
5	ATX 12V Power Connector (ATX12V1)
6	ATX 12V Power Connector (ATX12V2)
7	HDD Power Connector (SATA_PWR1)
8	ATX 4-PIN Power Connector (ATX4PIN1)
9	System Fan Header (FAN2)
10	2 x 288-pin DDR5 DIMM Slots (DDR5_A1, DDR5_B1)
11	2 x 288-pin DDR5 DIMM Slots (DDR5_A2, DDR5_B2)
12	OCuLink x4 Connector (OCU1)
13	SPI TPM Header (TPM_BIOS_PH1)
14	80 Debug Port Header (TPM1)
15	USB 3.2 Gen1 Header (USB3_3_4)
16	System Panel Header (PANEL1)
17	System Fan Header (FAN3)
18	Thermal Sensor Header (TR1)
19	Speaker Header (SPEAKER1)
20	Auxiliary Panel Header (ITX_AUX_PANEL1)
21	PWM Configuration Header (PWM_CFG1)
22	AMD Socket AM5 (LGA 1718) (CPU1)
23	PCI Express 5.0 x16 Card Slot (PCIE7)
24	M.2 Socket (M2_1) (Type 2280)
25	IPMI LAN LED Header (IPMI_LED1)
26	Chassis ID Jumper (CHASSIS_ID0)
27	UID Button Header (UID_HD)
28	Serial Port Header (COM1)
29	Baseboard Management Controller SMBus Header (BMC_SMB1)
30	Intelligent Platform Management Bus Header (IPMB1)

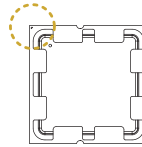
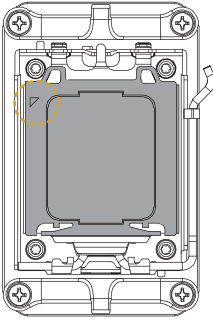
4.2 Block Diagram



4.3 Installing the CPU (LGA 1718 Socket)

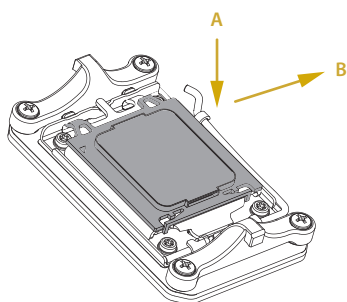


1. Before inserting the 1718-Pin CPU into the socket, check if the **PnP cap** is on the socket, if the CPU surface is unclean, or if there are any **bent pins** in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.
2. Unplug all power cables before installing the CPU.

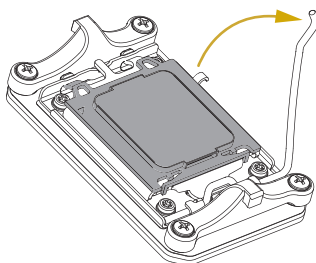


Turn the CPU to the correct orientation before opening the CPU socket cover.

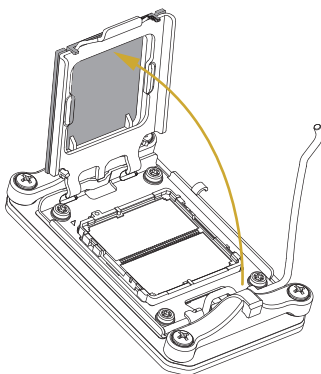
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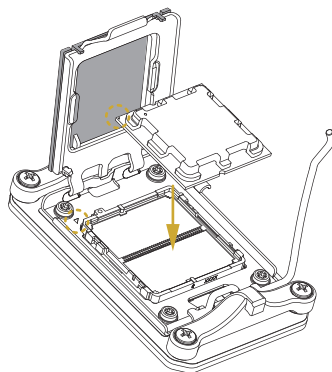
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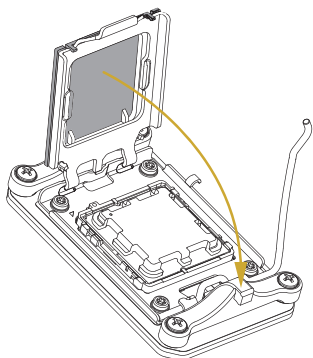


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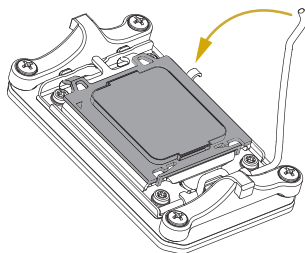


Carefully place the CPU in as flat as possible. Do not drop it.

5



6

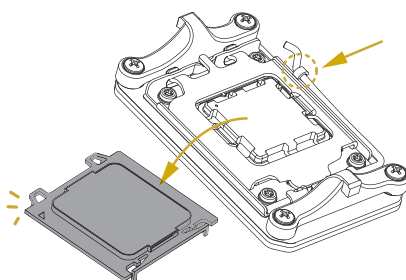


Make sure the CPU is aligned with the socket before locking it into place.

7



Make sure the black cover plate is always in place until it pops off when closing the socket lever.



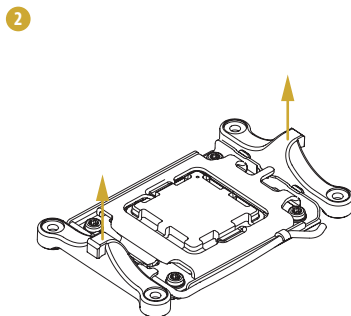
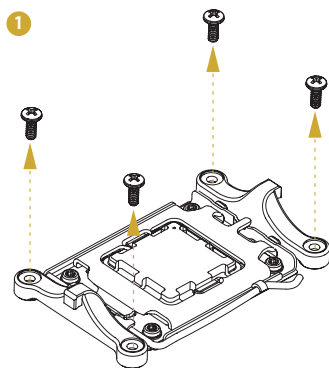
Please save the cover if the processor is removed. The cover must be placed if wishing to return the motherboard for after service.

4.4 Installing the CPU Fan and Heatsink

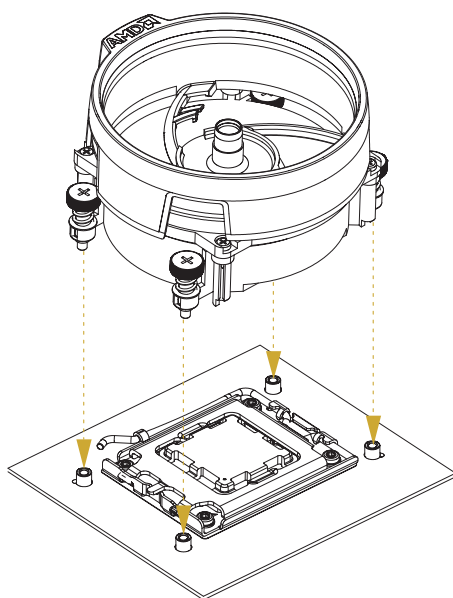
After installing the CPU into this motherboard, it is necessary to install a larger heatsink and cooling fan to dissipate heat. It also needs to spray thermal grease between the CPU and the heatsink to improve heat dissipation. Make sure that the CPU and the heatsink are securely fastened and in good contact with each other.



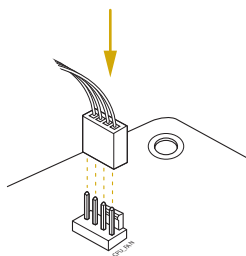
Turn off the power or remove the power cord before changing a CPU or heatsink.



3



4

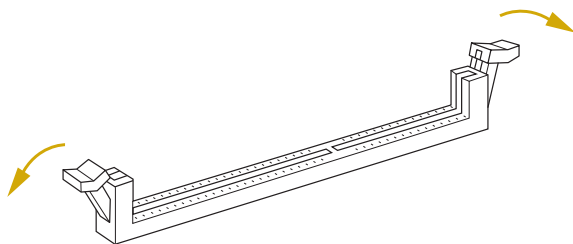


4.5 Installing the Memory Modules (DIMM)

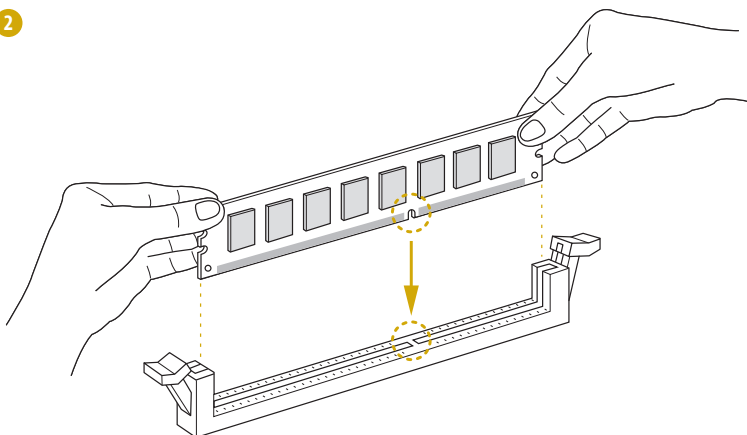


The DIMM only fits in one correct orientation. It will cause permanent damage to the server motherboard and the DIMM if forcing the DIMM into the slot at incorrect orientation. For more information about DIMM installation, refer to the server motherboard user manual.

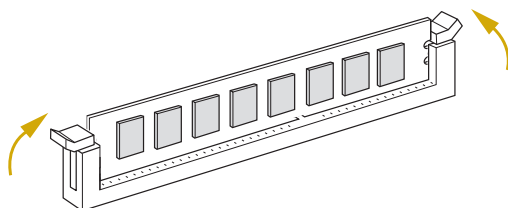
1



2



3



Appendix

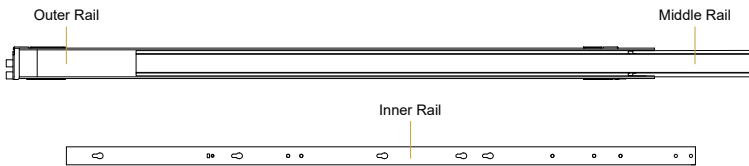
Installing the Server in a Rack

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



The rails installation instructions in this manual are example only, the actual rail assembly procedure may differ slightly.

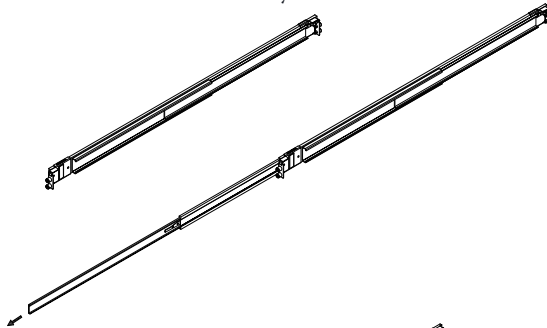
The rail assembly consists of outer, middle and inner rail.



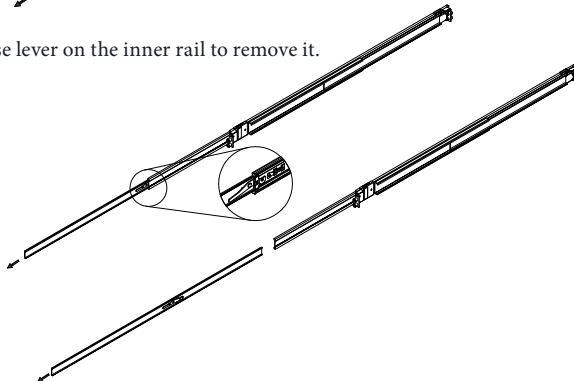
Each slide rail is labeled with either L or R, please identify prior to rail installation. Please install the rail labeled with L on the left side of rack, and the rail labeled with R on the right side of rack.

Release the inner rail from the outer rail

1. Fully extend the inner rail from the rail assembly.

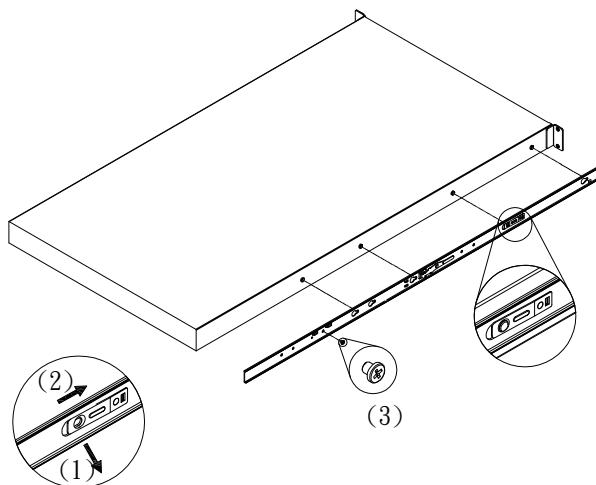


2. Press the release lever on the inner rail to remove it.



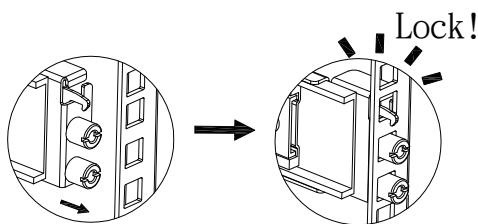
Attach the inner rail to the chassis

1. Lift the clip on the inner rail.
2. Slide the inner rail toward the chassis rear.
3. Secure the inner rail to the chassis with screw.

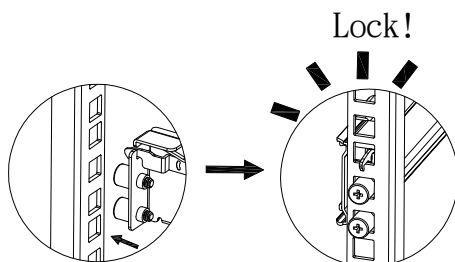


Attach the outer rail to the rack

1. Lift lever, aim the rack mount pin to the rack post and push forward.

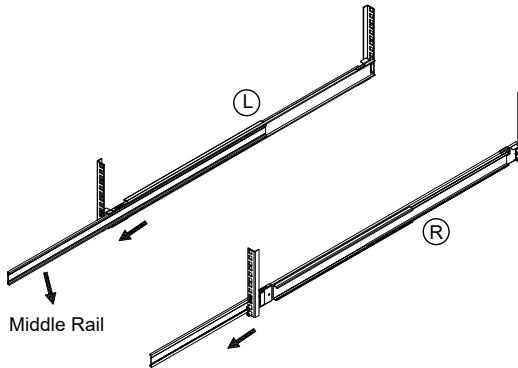


2. Lift lever, aim the rack mount pin to the rack post and pull back.

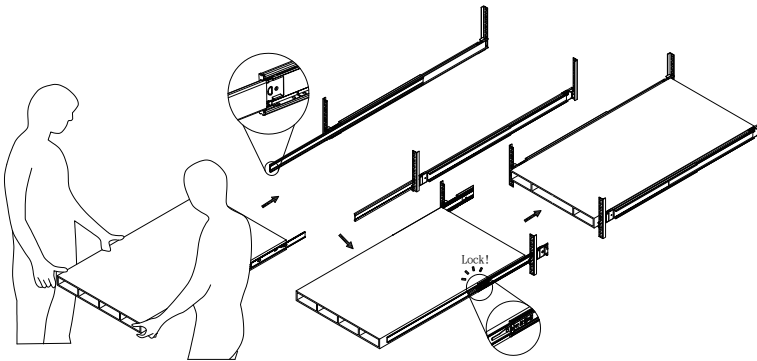


Mount the server in rack

1. Make sure the outer rail is locked to rack securely.
2. Fully extend the middle rail out of the outer rail until locked.

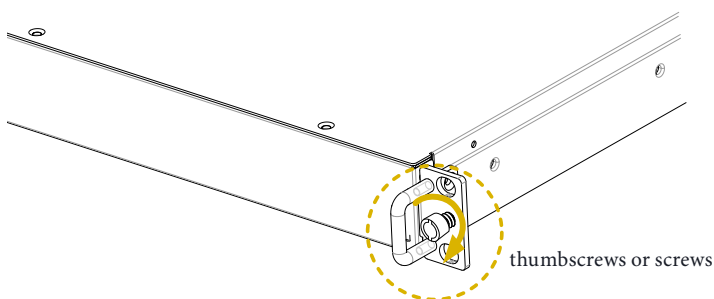


3. Aim the rail to push server into rack.



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

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



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

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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