



OPEN Industry Standard, Flexible Architecture

GREEN Less Heat, Less Power Consumption

STABLE Robust Design, Quality Parts

Stable and
Reliable Solution

Server/Workstation
Motherboard

1U10E-ICX2

User Manual

English



Version 1.00

Published Sep. 2024

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This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

CALIFORNIA, USA ONLY

The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.

“Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate”

Setting up the Server in a Restricted Access Location/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

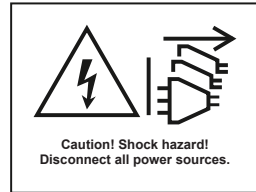
CAUTION

**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 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.

Contents

Chapter 1 Introduction	1
1.1 Shipping Box Contents	2
1.2 Specifications	3
Chapter 2 Server System Overview	5
2.1 System Components	5
2.2 Internal Features	6
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 Power supply	14
3.3 System Fan	16
3.4 Add-in Card	17
3.5 Install OCP	18
3.6 Hard Drive	19
Appendix A	20
Installing the CPU (LGA 4189 Socket)	20
Installation of Memory Modules (DIMM)	26
Block Diagram (SP2C621D32LM3)	28
Appendix B	29
Installing the Server in a Rack	29

Chapter 1 Introduction

Thank you for purchasing 1U10E-ICX2, 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 disk drive trays, and other main components this system supports. If the system is pre-installed a serverboard, please refer to the user's manual of the serverboard for the information of the serverboard components, specifications and BIOS settings.

System	ASRock Rack Server Board
1U10E-ICX2	SP2C621D32LM3



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 : SP2C621D32LM3	1
CPU heatsink	2
Rail kit	1
Accessory box - 2 Power cords - 1 Quick installation guide - 2 M2 screws	

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

1.2 Specifications

1U10E-ICX2	
System	
Form Factor	1U Rackmount
Dimensions	438 x 800 x 43.5 mm (17" x 31" x 2")
Support MB	SP2C621D32LM3
Front Panel	
Buttons	Power, Reset
LEDs	Power, HDD
I/O Ports	2 Type-A (USB3.2 Gen1)
External Drive Bay / Storage	
Front Side Drive Bay	External: 10 hot-swap 2.5" NVMe (PCIe4.0 x4) drive bays
Front Side Backplane	10-port NVMe passive backplane
Internal Side	1 M-key (PCIe3.0 x4 or SATA 6Gb/s), supports 2280/2260/2242 form factor [PCH]
Power Supply	
Type	1+1 CRPS
Output Watts	1600W
AC Input	100-240V, 47-63Hz
System Fan	
Fan	8 PWM hot-swap 40 x 56 mm fans
Processor System	
CPU	Supports 3rd Gen Intel® Xeon® Scalable processors
Socket	Dual Socket P+ (LGA 4189)
Chipset	Intel® C621A
System Memory	
Supported DIMM Quantity	16+16 DIMM slots (2DPC)
Supported Type	Supports DDR4 288-pin RDIMM, LRDIMM, RDIMM/ LRDIMM-3DS, Intel® Optane™ Persistent Memory 200 series
Max. Capacity per DIMM	RDIMM: up to 64GB RDIMM-3DS: up to 256GB LRDIMM: up to 128GB LRDIMM-3DS: up to 256GB
Max. DIMM Frequency	max. 3200MHz
Voltage	1.2V

PCIe Expansion Slots	
PCIe x 16	Rear: 2 FHHL PCIe4.0 x16 [CPU1] [CPU2]
Ethernet	
OCF slot	1 OCP NIC 3.0 (PCIe4.0 x16) [CPU1]
Server Management	
BMC Controller	ASPEED AST2500
IPMI Dedicated GLAN	1 x Realtek RTL8211E for dedicated management GLAN
Graphics	
Controller	ASPEED AST2500
VRAM	DDR4 16MB
Rear I/O	
UID Button/ LED	1 UID button w/ LED
VGA Port	1 DB15
Serial Port	1 DB9
USB 3.2 Gen1 Port	2 Type-A (USB3.2 Gen1)
RJ45	1 dedicated IPMI
System BIOS	
BIOS Type	256Mb SPI Flash ROM
BIOS Features	AMI UEFI BIOS
Hardware Monitor	
Temperature	CPU, PCH, MB, Card side Temperature Sensing
Fan	CPU/Rear/Front Fan Tachometer
	CPU Quiet Fan (Allow Chassis Fan Speed Auto-Adjust by CPU Temperature)
	CPU/Rear/Front Fan Multi-Speed Control
Voltage	CPU1_PVCCIN, CPU2_PVCCIN, PVDDQ_ABCD, PVDDQ_EFGH, PVDDQ_IJKL, PVDDQ_MNOP, 1.05V_PCH, 1.8V_PCH, +BAT, PVNN_PCH, 3.3V, 5V, 12V, 3.3VSB, 5VSB
Environment	
Temperature	Operation temperature: 10°C ~ 35°C / Non operation temperature: -40°C ~ 70°C
Humidity	Non operation humidity: 20% ~ 90% (Non condensing)

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

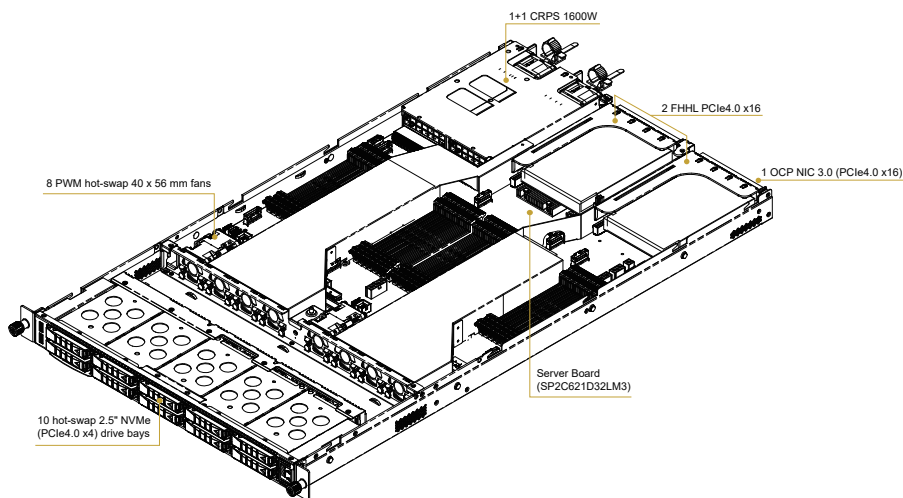


Please refer to the user manual of the motherboard you use for detailed information about motherboard components and features.

Chapter 2 Server System Overview

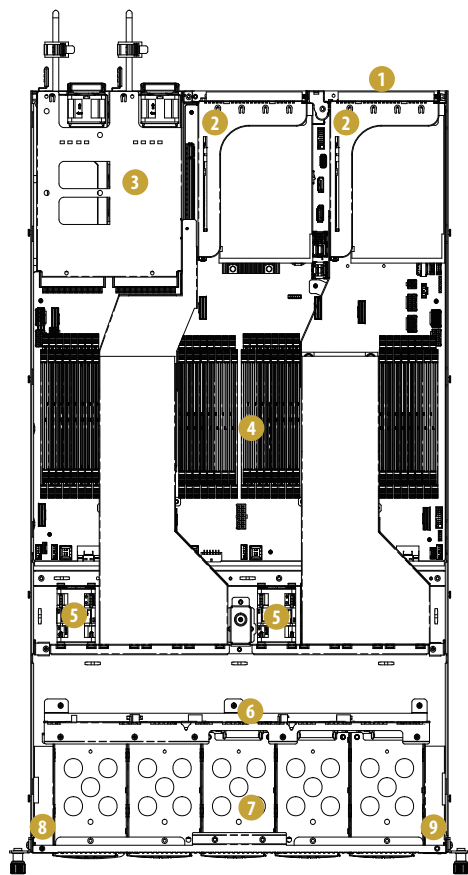
This chapter provides diagrams showing the location of important components of the server system.

2.1 System Components



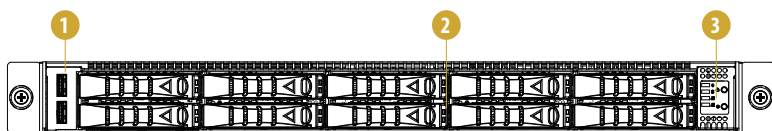
**The illustrations in this User Manual are for references only. The actual product may be slightly different by SKU.*

2.2 Internal Features



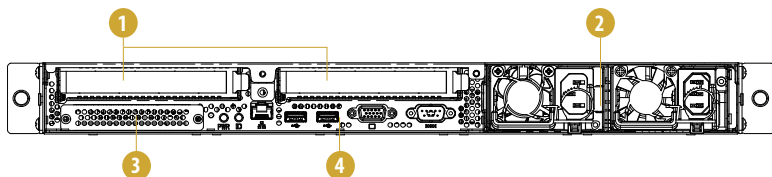
No.	Description
1	1 OCP NIC 3.0 (PCIe4.0 x16)
2	2 FHHL PCIe4.0 x16
3	1+1 CRPS 1600W
4	Server Boards (SP2C621D32LM3)
5	8 PWM hot-swap 40 x 56 mm fans
6	Back Panel Board (BPB)
7	10 hot-swap 2.5" NVMe (PCIe4.0 x4) drive bays
8	USB Board
9	Front Panel Board (FPB)

2.3 System Front Panel



No.	Description
1	2 Type-A (USB3.2 Gen1)
2	10 hot-swap 2.5" NVMe (PCIe4.0 x4) drive bays
3	Control Panel Buttons and LED Indicators

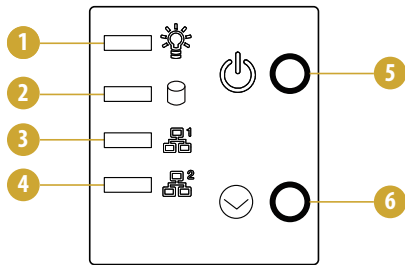
2.4 System Rear Panel



No.	Description
1	2 FHHL PCIe4.0 x16
2	1+1 CRPS 1600W
3	1 OCP NIC 3.0 (PCIe4.0 x16)
4	I/O Shield (depends on the specification of the server board)

2.5 Front Control Panel Buttons and LEDs

Front Control Panel



No.	Description
1	Power LED
2	Hard Drive Status LED
3	LAN1 Activity LED
4	LAN2 Activity LED
5	Power Button
6	System Reset Button

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

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

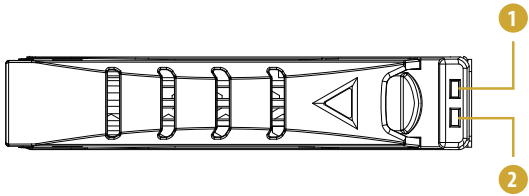
Hard Drive Status LED

Status	Description
Solid Green	Hard Drive access
Off	Hard Drive no connect or Power Off

LAN1, LAN2 LED

Status	Description
Blinking Amber	Network access
Solid Amber	LAN present
Off	No LAN present

2.6 Drive Tray LEDs



No.	Description
1	HDD Activity LED
2	HDD Status LED

Status LED Definitions

HDD Activity LED	
Status	Description
Solid Blue	HDD present
Blinking Blue	HDD Activity detected
Off	HDD no connect or Power Off

HDD Status LED	
Status	Description
Solid Yellow	HDD Fault
Blinking Yellow	HDD Rebuild
Off	Normal

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)
- Power Distribution Board (Pre-installed)
- Front Panel Board (Pre-installed)



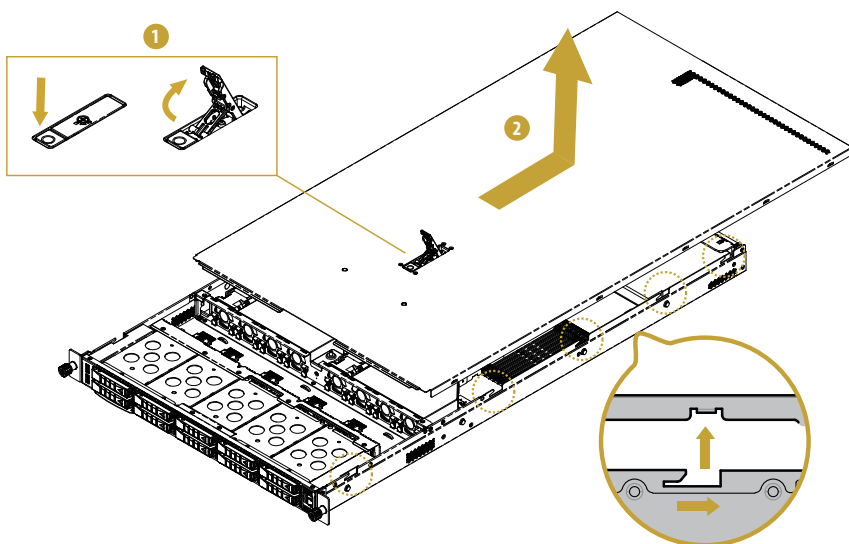
1. Some components are already pre-installed. Simply properly connect the required cables before or after installation. See the Quick Installation Guide for more details.
2. Refer to the user manual of the server board you use for instructions on how to install server board components.

3.1 Server top cover

Removing the server top cover

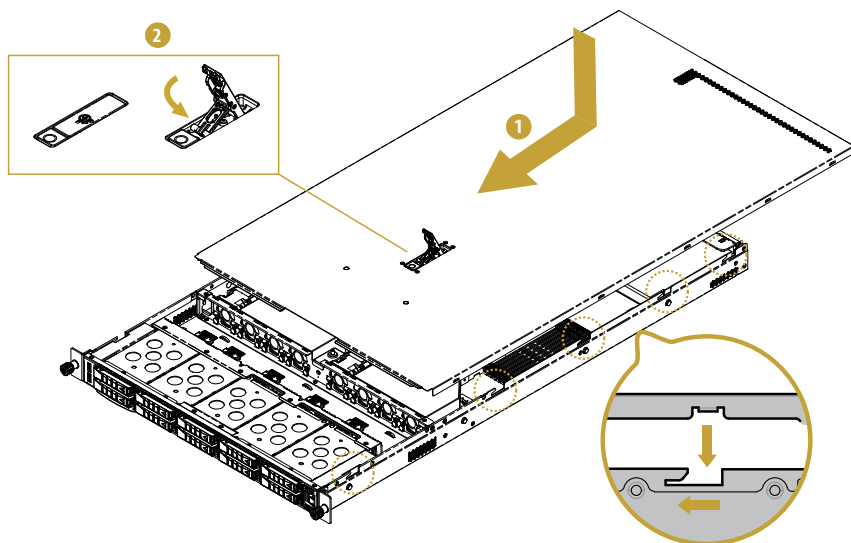


1. Before removing the top cover, power off the server and unplug the power cord.
2. The system must be operated with the chassis top cover installed to ensure proper cooling.



1. Press the cover spring button on the top cover.
2. Push the top cover toward the REAR of the chassis to remove the cover from the locked position.

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 FRONT side.
2. Press down the spring button to confirm the top cover is locked with the chassis..

3.2 Power supply

The system can accommodate four AC or two 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

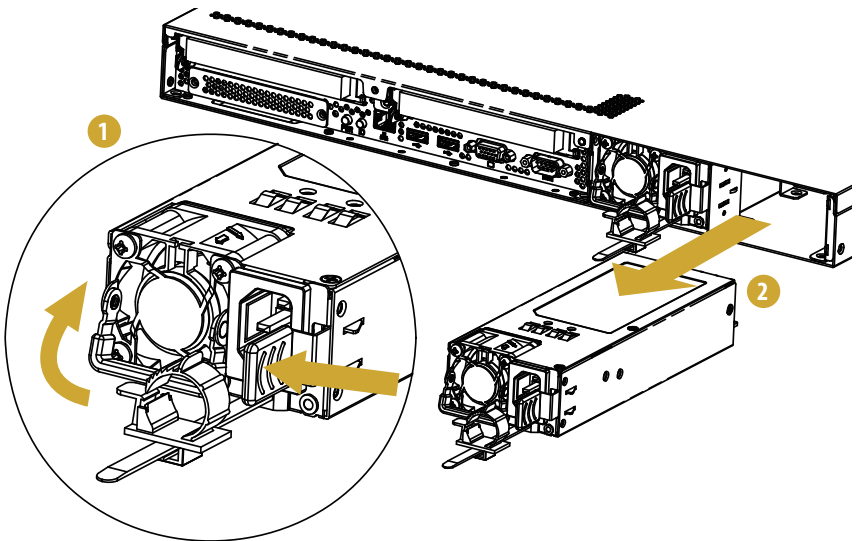


Before replacing the power supply, power off the server, unplug the power cord, and disconnect all wiring from the power supply.

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.

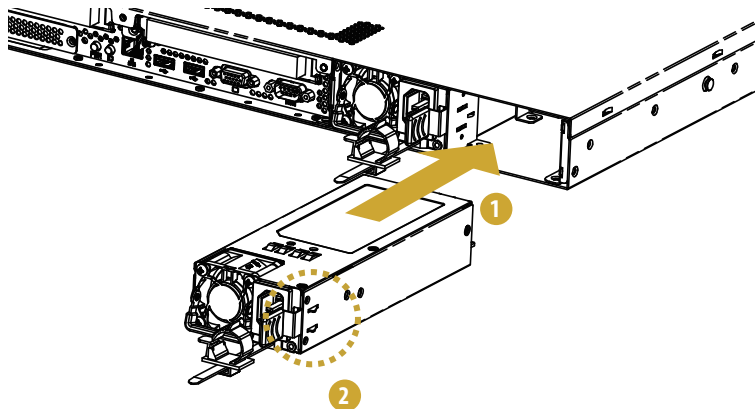
1. Hold onto the power supply handle while pressing the locking lever towards the power supply handle.
2. Pull to remove the power supply from the chassis.



Installing the power supply unit

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

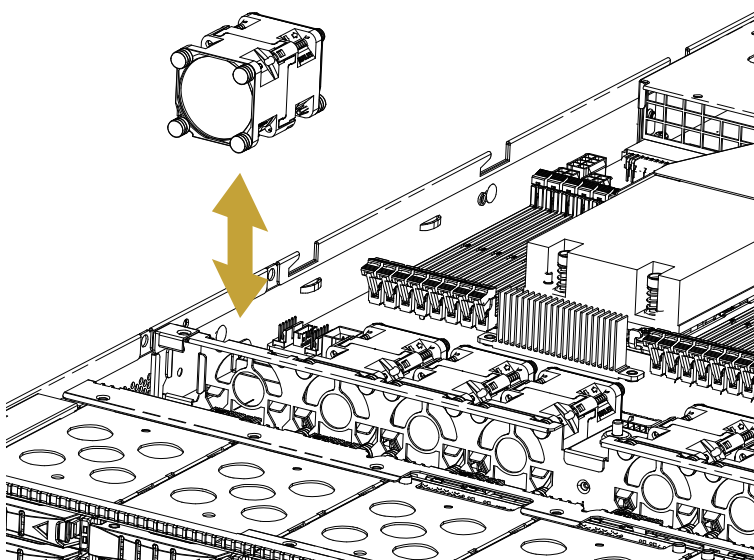
1. Carefully slide the PSU all the way into the power supply bay.
2. Make sure the power supply clicks into place and is well installed.



3.3 System Fan

Replacing the System Fan

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



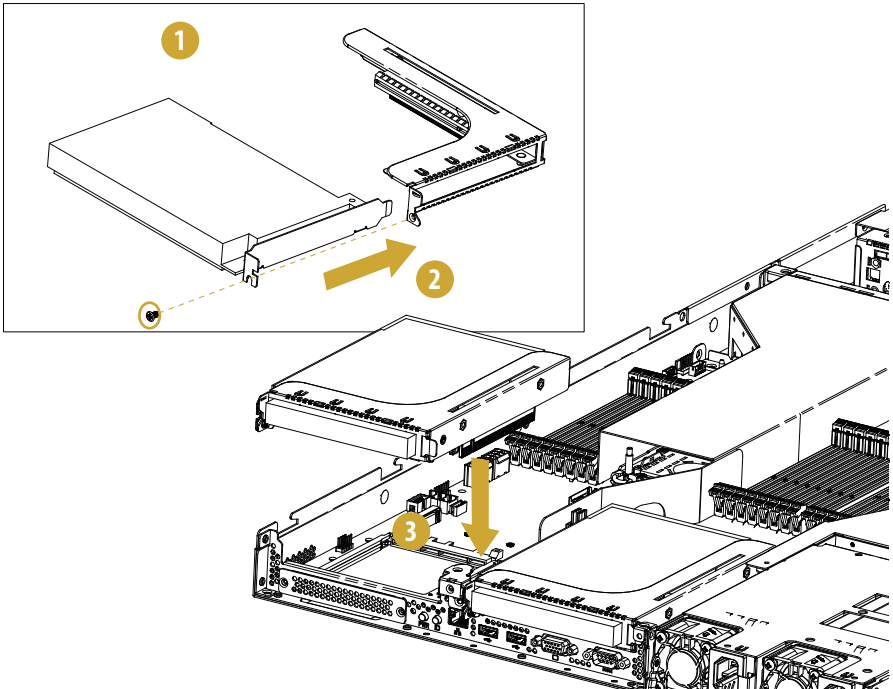
3.4 Add-in Card



1. Install an riser card to the chassis only when having a riser card installed on the server board.
2. Before installing the riser card, power off the server and unplug the related cables.

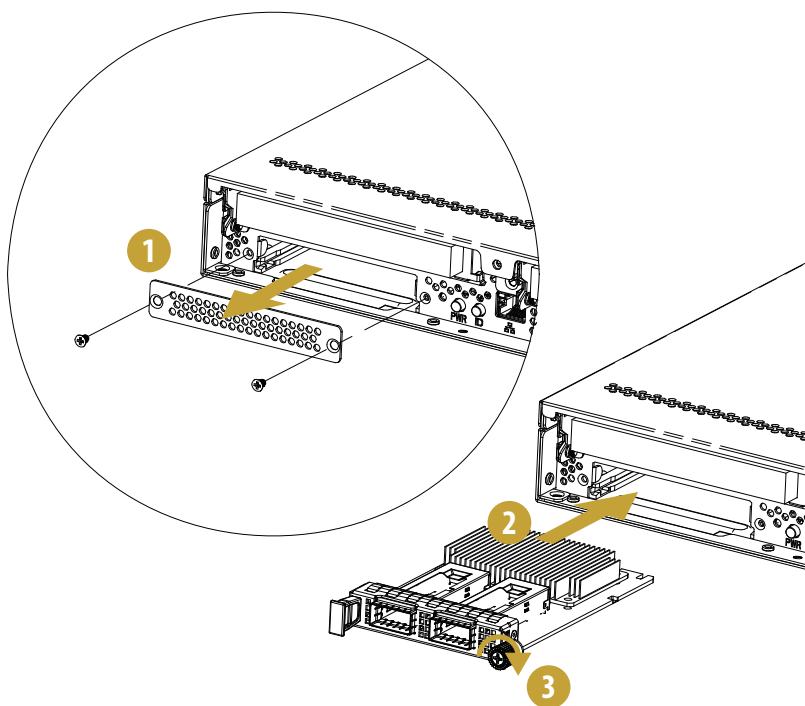
Installing the Add-in card

1. Install the Add-in card to the riser card bracket.
2. Secure the riser card bracket with screws.
3. Align the riser card assembly with the openings of the chassis and place it into the chassis.



3.5 Install OCP

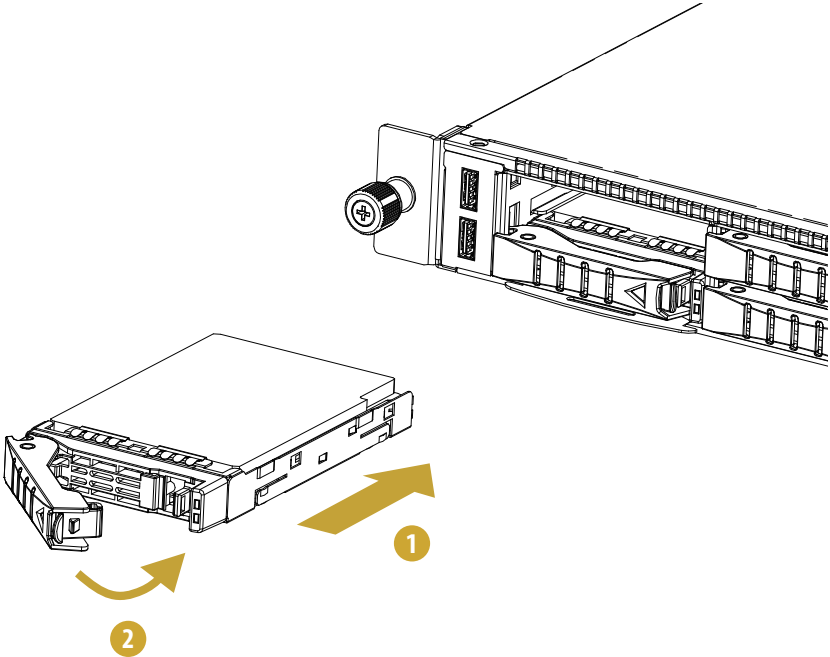
1. Release the screws that secure the slot cover to the chassis and remove the slot cover.
2. Install an OCP card into the slot.
3. Make sure the card is well seated and hand-tighten the thumbscrew on the face plate.



3.6 Hard Drive

The system supports hot-swappable 2.5" Hard Drive. The Hard Drive trays are located on the front of the chassis.

1. Slide the tray with 2.5" Hard Drive into the Hard Drive bay until the drive is fully seated.
2. Push in the locking lever to lock the tray into place.



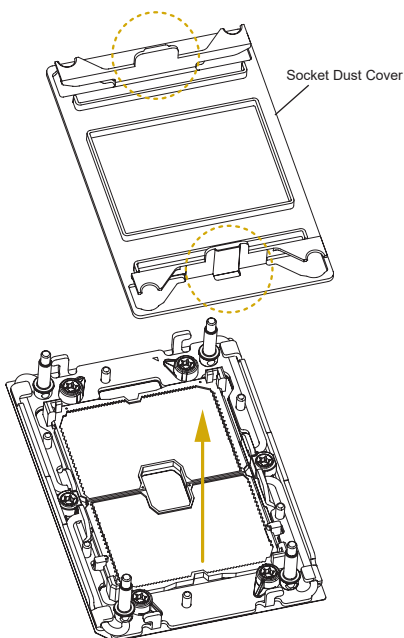
Appendix A

Installing the CPU (LGA 4189 Socket)



1. Before inserting 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.

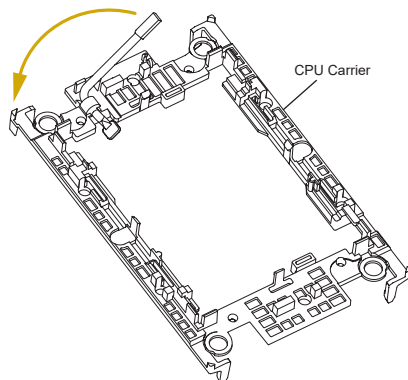
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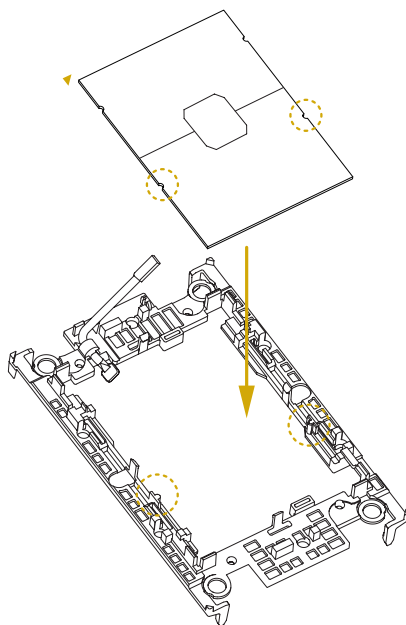


1. Before installing the heatsink, it needs to spray thermal interface material between the CPU and the heatsink to improve heat dissipation.
2. Illustration in this documentation are examples only. Heatsink or fan cooler type may differ.

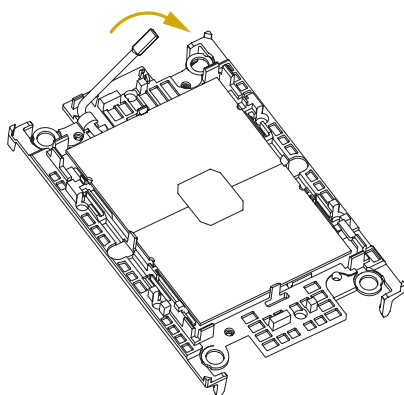
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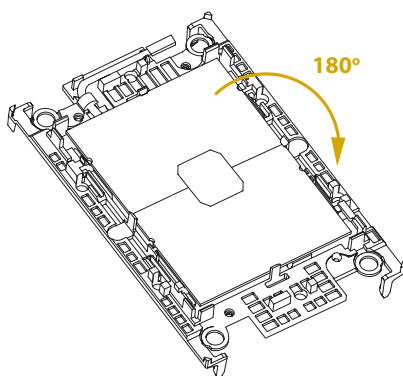
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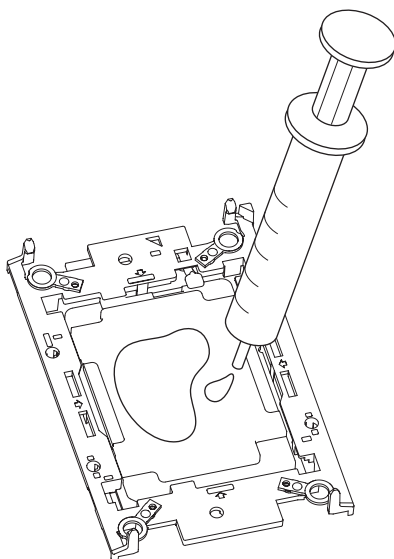
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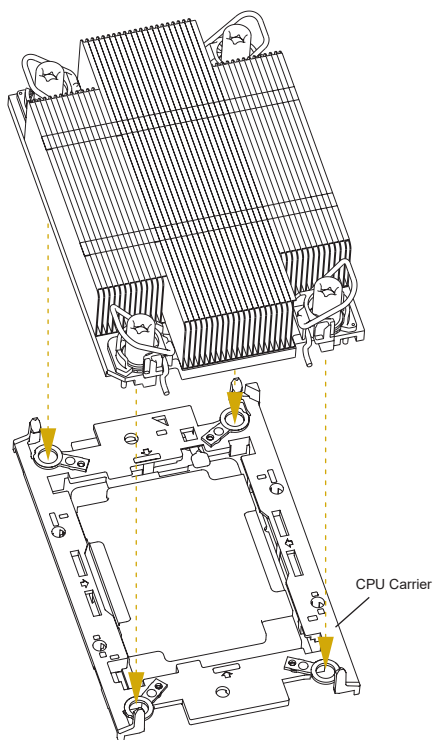
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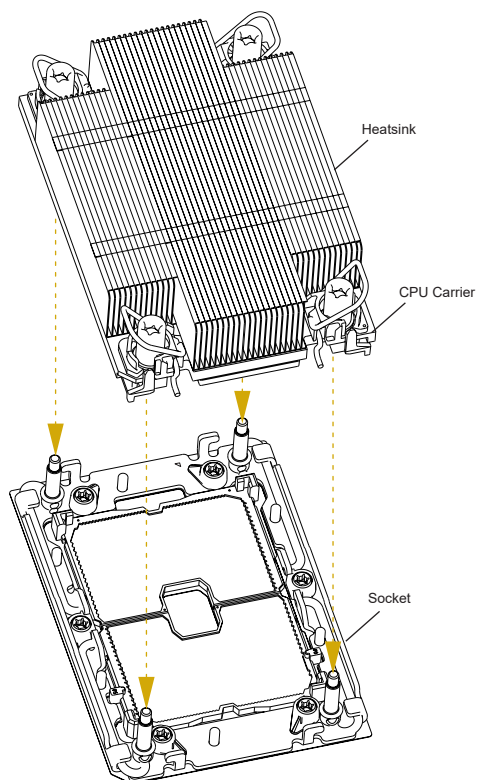


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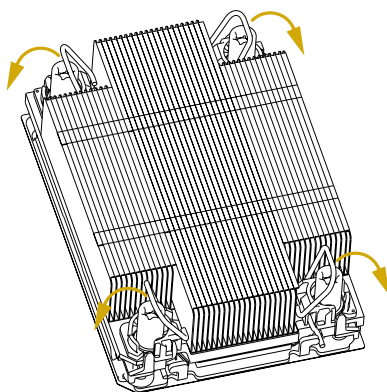


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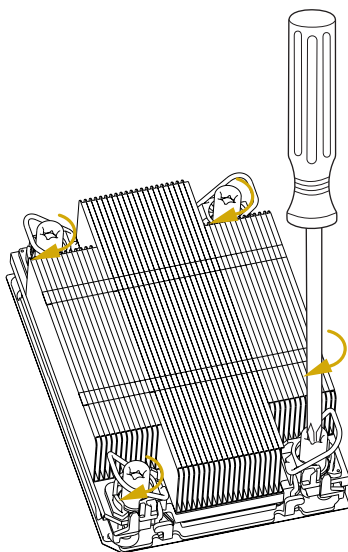




9



10



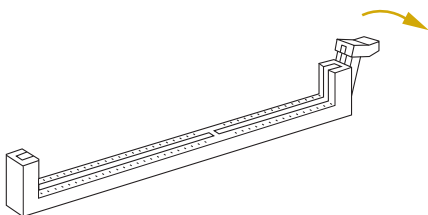
Installation of Memory Modules (DIMM)



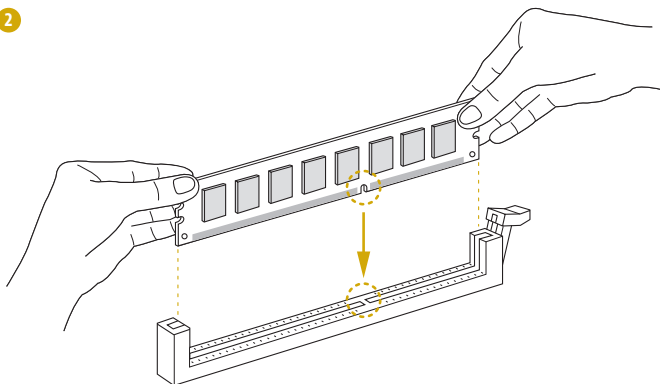
The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation. For more information about DIMM installation, please refer to the User Manual that comes with the serverboard you use.

Type A (Single Clip)

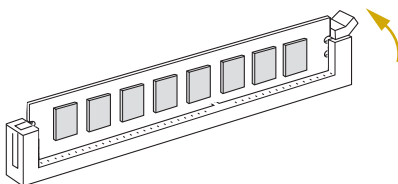
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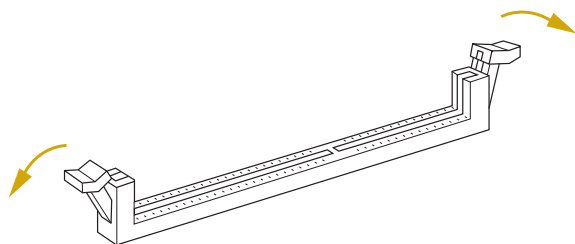


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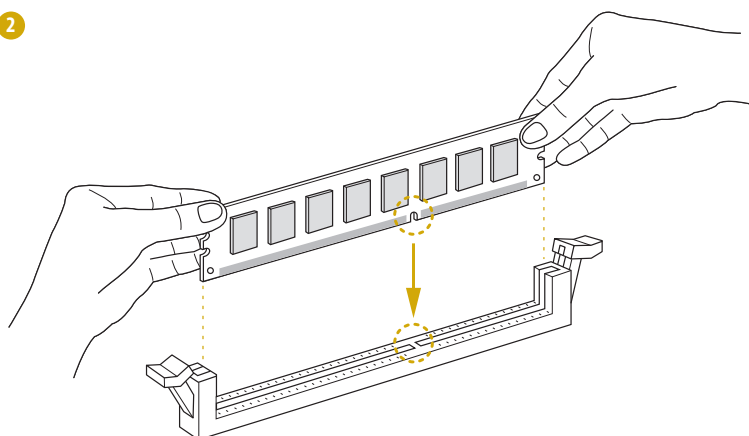


Type B (Two Clips)

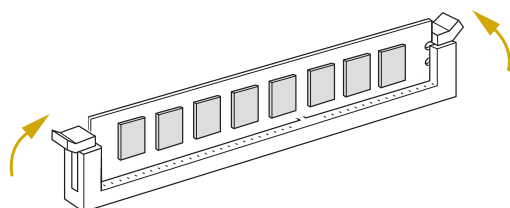
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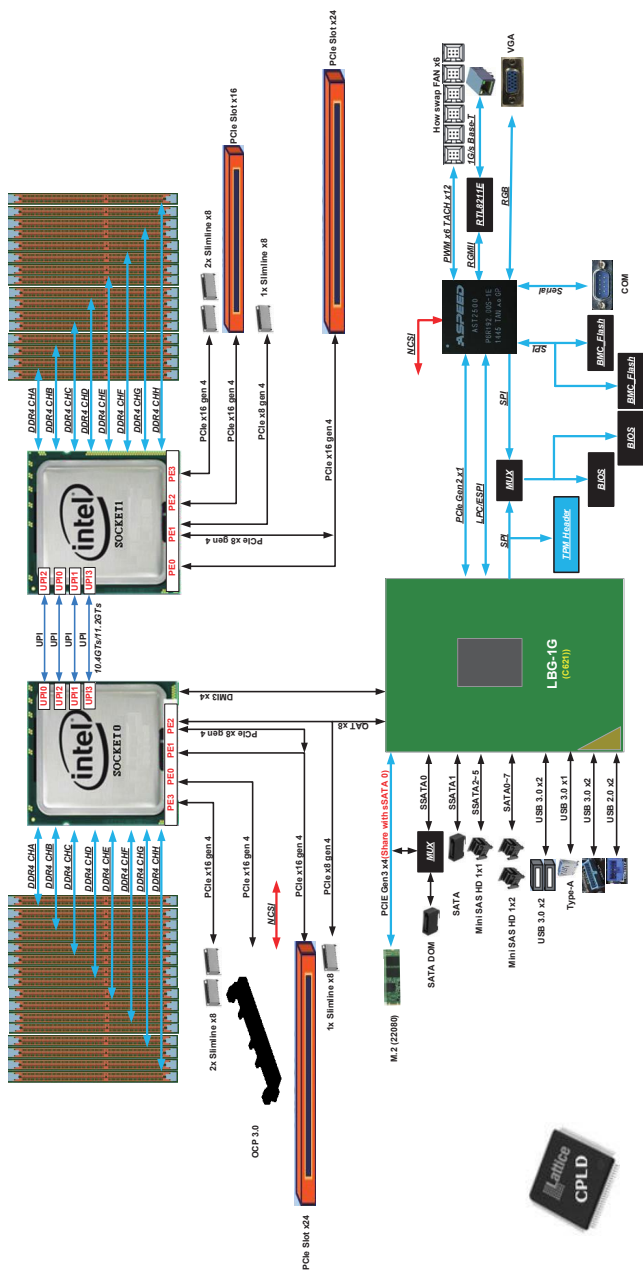
2



3



English



Appendix B

Installing the Server in a Rack

This section describes how to rackmount the 1U10E-ICX2 server with slide rail assembly.



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

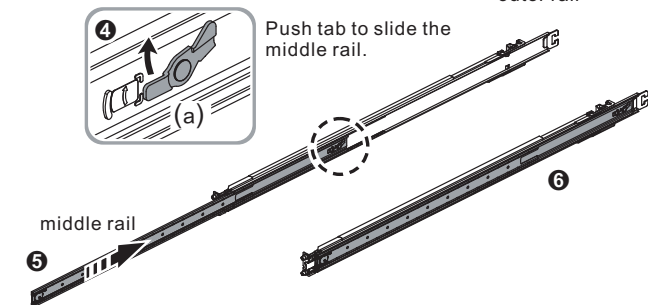
The rail assembly consists of outer, middle and inner rail.



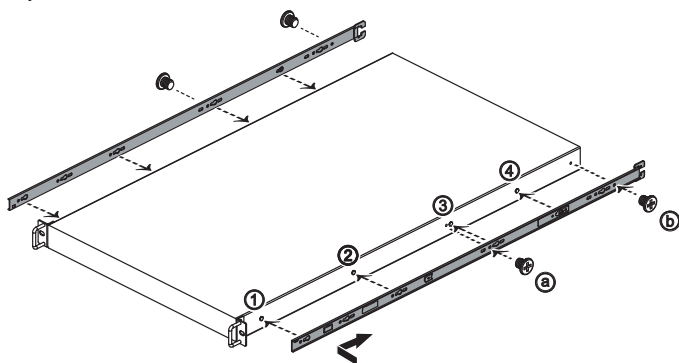
Each slide rail is labeled with either L or R, please identify prior to rail installation. Please install the rail labeled with L on the left side of rack, and the rail labeled with R on the right side of rack.

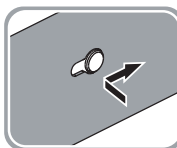
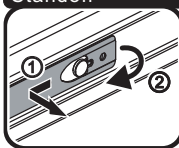
1-2) Push (a) and slide middle rail back.

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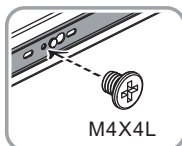


2) Install the inner rail onto the chassis.

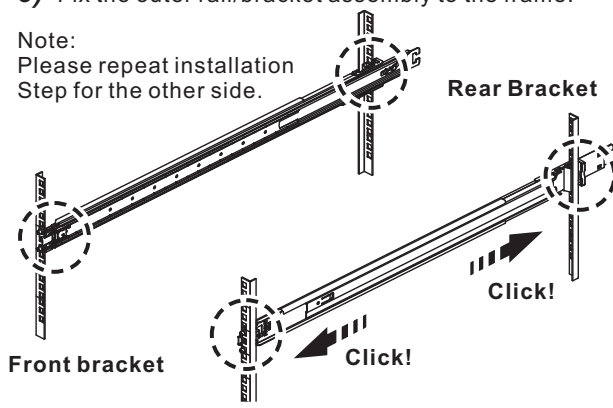
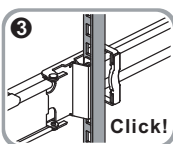
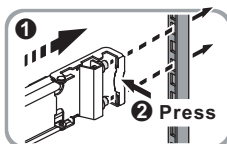
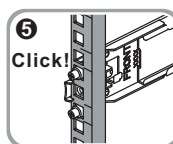
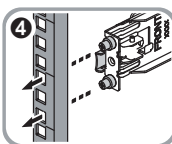


1 Key Hole ①-④**Detach Inner Rail from Standoff**

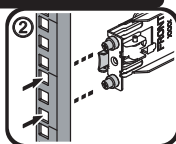
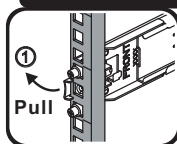
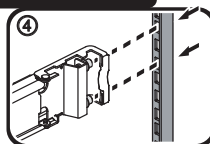
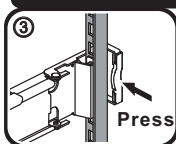
Pull the latch upward and remove the keyhole from standoff.

2 Screw Hole ③ ④**3) Fix the outer rail/bracket assembly to the frame.**

Note:
Please repeat installation
Step for the other side.

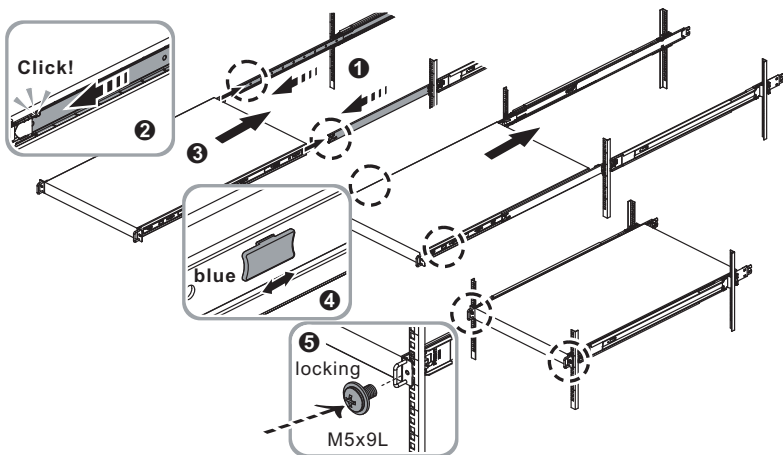
**Rear Bracket****Front bracket**

① Pull the rear bracket to the fully extended position.

Detach Front Bracket from Rack Post**Detach Rear Bracket from Rack Post**

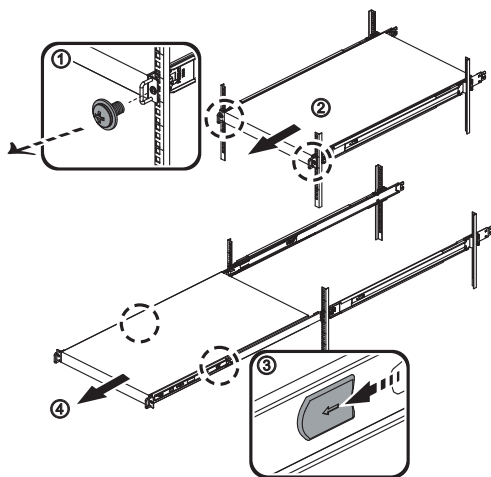
4) Insert the chassis to complete the installation.

- ❶❷ Pull the middle rail fully extended in lock position, ensure ball bearing retainer is located at the front of the middle rail.
- ❸ Insert the chassis into middle-outer rails.
- ❹ When hit a stop, please pull/push the blue release tab on the inner rails.
- ❺ Tighten chassis with shipping screws.



Remove the chassis from rack

- ❶❷ Loosen shipping screw to pull out chassis.
- ❸❹ Press the disconnect tab forward to remove chassis.



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

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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