

OPEN Industry Standard, Flexible Architecture

GREEN Less Heat, Less Power Consumption

STABLE Robust Design, Quality Parts

Stable and
Reliable Solution

Server/Workstation

Motherboard

4U36L2S-C612
4U36L2S-C621
4U36L2E-ROME2/2T

User Manual

English



Version 1.0

Published June 2021

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

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

CALIFORNIA, USA ONLY

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

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

ASRock Rack's Website: 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 4U36L2S/4U36L2E 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



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

1.1 Shipping Box Contents

Item	Quantity		
	4U36L2S-C612	4U36L2S-C621	4U36L2E-ROME2/2T
4U36L2S/4U36L2E Series Barebone	1	1	1
System Boards (MB)*	1	1	1
Power Supply Units*	2	2	2
System Fans*	7	7	7
3.5"/2.5" HDD Backplane (BPB)*	2	0	0
3.5" HDD Backplane (BPB)*	0	2	2
2.5" HDD Backplane (BPB)*	1	1	1
Front Panel Boards*	2	2	2
Power Distribution Boards (PDB)*	1	1	1
SATA 6G Cable	2	2	0
Slimline to Oculink x2	0	0	1
MINISAS HD Cable	3	2	2
Additional Storage Card	1	0	0
Accessory Box	1	1	1
Support CD	1	0	0
User Manual	1	1	1
Quick Installation Guide	1	1	1

* The components are pre-installed.



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

1.2 Specifications

4U36L2S / 4U36L2E Series		
System Physical Status		
Form Factor	4U Rackmount	
Dimension (D x W x H)	4U36L2S-C612: 625mm x 482.6mm x 177 mm (24" x 19" x 7") (D/W/H) 4U36L2S-C621: 699mm x 432mm x 176mm (27.52" x 17.01" x 6.93" (D/W/H) 4U36L2E-ROME2/2T: 699mm x 432mm x 176mm (27.52" x 17.01" x 6.93" (D/W/H)	
Support MB Size	4U36L2S-C612: EEB, 12" x 13" (EP2C612D16SM-2T) 4U36L2S-C621: EEB, 12" x 13" (EP2C621D16-4L) 4U36L2E-ROME2/2T: EEB, 12" x 13" (ROME2D16-2T)	
Front Panel	4U36L2S-C612	4U36L2S-C621/ 4U36L2E-ROME2/2T
Buttons	• Power button • UID button • Reset button • NMI button	• Power button • Reset button
LEDs	• Power Status LED • LAN LEDs • System Alarm LED	• Power Status LED • LAN LEDs • System Alarm LED
I/O Ports	2 x USB 3.2 Gen1 ports	
Drive Bay		
External	4U36L2S-C612: • 36 x Hot-Swap Drive Bay 2.5"/3.5" SATA HDD (6Gb/s) or 36 x SAS (12Gb/s) (24 front side + 12 rear side) • 2 x Hot-Swap Drive Bay 2.5" (rear side) (SATA only) 4U36L2S-C621 / 4U36L2E-ROME2/2T: • 36 x Hot-Swap Drive Bay 3.5" SATA HDD (6Gb/s) or 36 x SAS (12Gb/s) (24 front side + 12 rear side) • 2 x Hot-Swap Drive Bay 2.5" (rear side) (4U36L2S-C621: SATA only / 4U36L2E-ROME2/2T: NVME only)	

In:	System Cooling	
	Fan	7 x 80*38 mm PWM Hot-Swap Fan
In:	Power Supply	
	Capacity	2 (1+1), Redundant
	Output Watts	1200W @ 200Vac~264Vac
	Additional Storage Card (for 4U36L2S-C612 only)	
	Model name	M3008
	Storage Controller	LSISAS3008 PowerPC 476 controller @ 1.2 GHz
	Interface	8 x PCI Express® 3.0
	Data Transfer Rates	Up to 12Gb/s per port
	Internal Connectors	2 HD Mini-SAS SFF8643 (Horizontal mount)
	Operating Voltage (V)	+12V

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

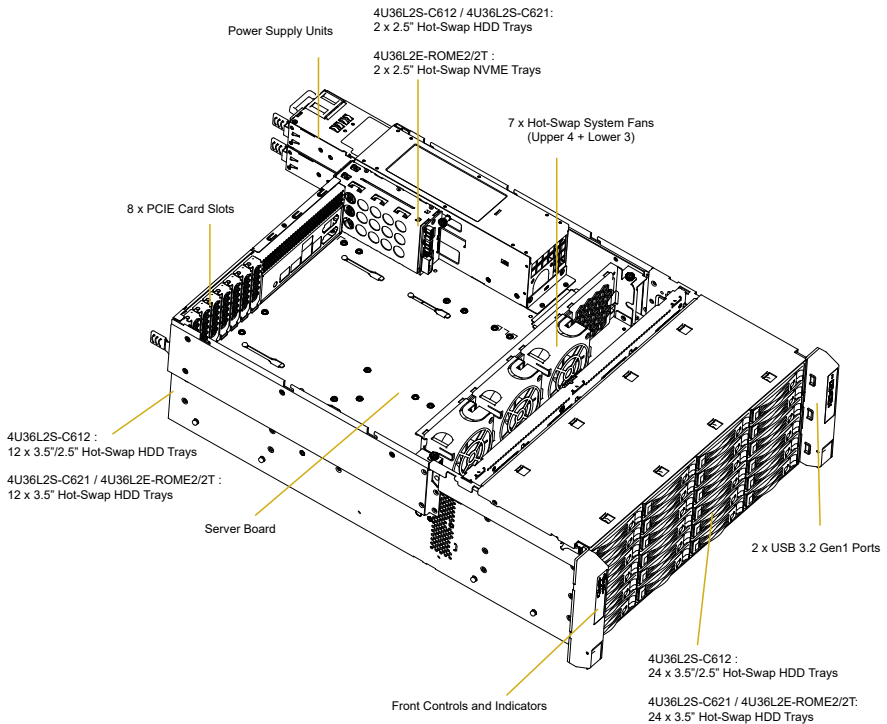


Please refer to the user manual of the motherboard you use for detailed information about motherboard components and features.

Chapter 2 Server System Overview

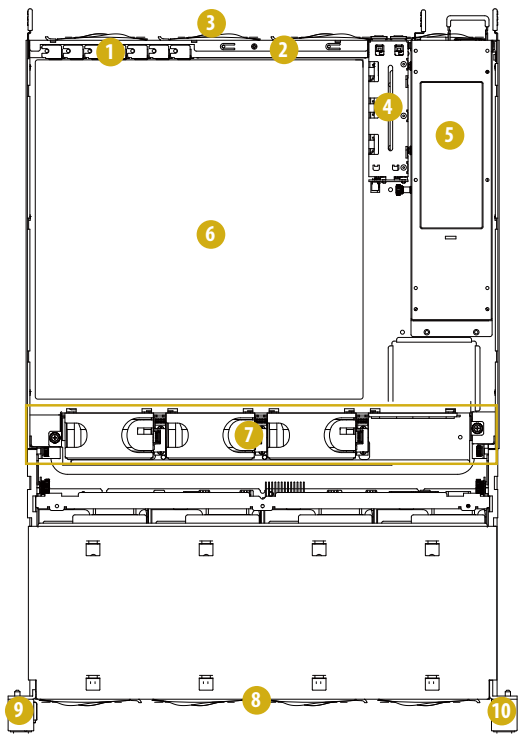
This chapter provides diagrams showing the location of important components of the server system.

2.1 System Components



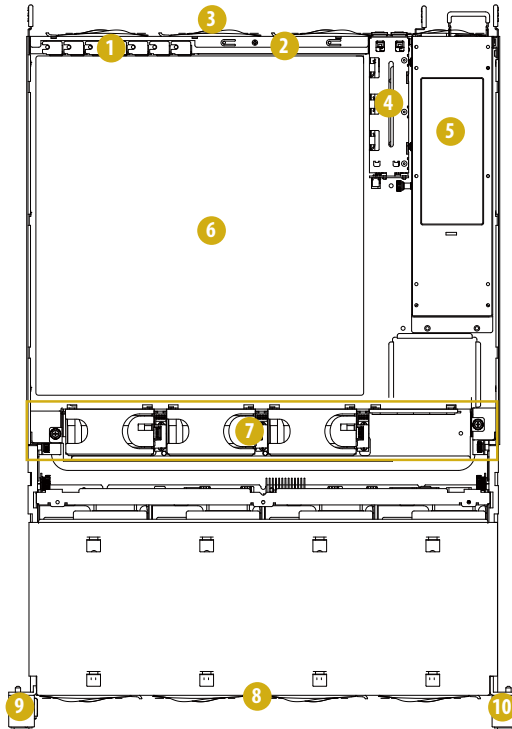
2.2 Internal Features

4U36L2S-C612



No.	From
1	8 x Add-on Card Slots
2	Rear I/O Panel <i>(depends on the specification of the server board)</i>
3	12 * 3.5"/2.5" HDD Trays
4	2 x 2.5" HDD Trays
5	2 x Power Supply Units
6	Serverboard
7	7 x System Fans (upper 3 + lower 4)
8	24 * 3.5"/2.5" HDD Trays
9	Front Control Panel
10	2 x USB 3.2 Gen1 Ports

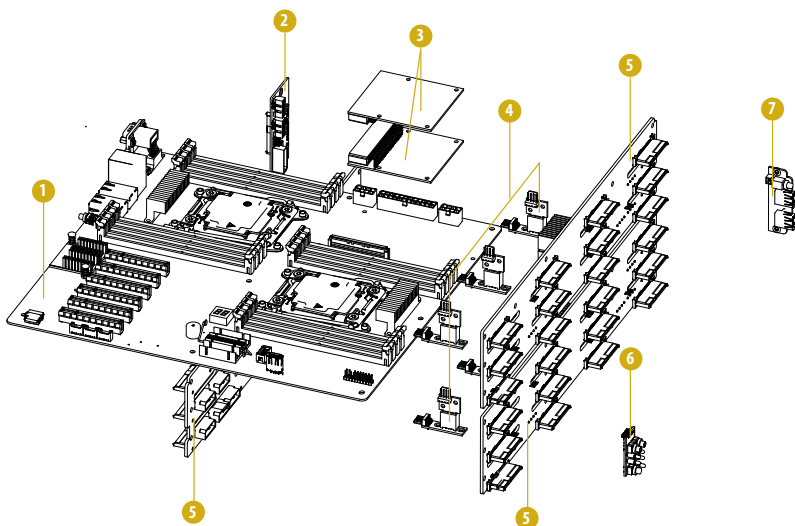
4U36L2S-C621 / 4U36L2E-ROME2/2T



No.	From
1	8 x Add-on Card Slots
2	Rear I/O Panel <i>(depends on the specification of the server board)</i>
3	12 * 3.5" HDD Trays
4	4U36L2S-C621: 2 x 2.5" HDD Trays 4U36L2E-ROME2/2T: 2 x 2.5" NVME Trays
5	2 x Power Supply Units
6	Serverboard
7	7 x System Fans (upper 3 + lower 4)
8	24 * 3.5" HDD Trays
9	Front Control Panel
10	2 x USB 3.2 Gen1 Ports

2.3 Board Arrangement

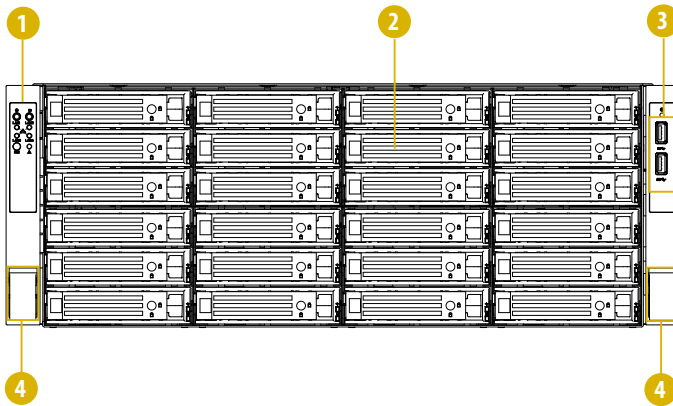
The illustration below is for references only and may be different from the actual model.



No.	Item
1	Serverboard
2	2.5" HDD Backplane Board
3	Power Distribution Board (PDB)
4	System Fan Board
5	4U36L2S-C612: 3.5" & 2.5" HDD Backplane Board 4U36L2S-C621 / 4U36L2E-ROME2/2T: 3.5" HDD Backplane Board
6	Front Panel Board for LED & Buttons
7	Front Panel Board for USB ports

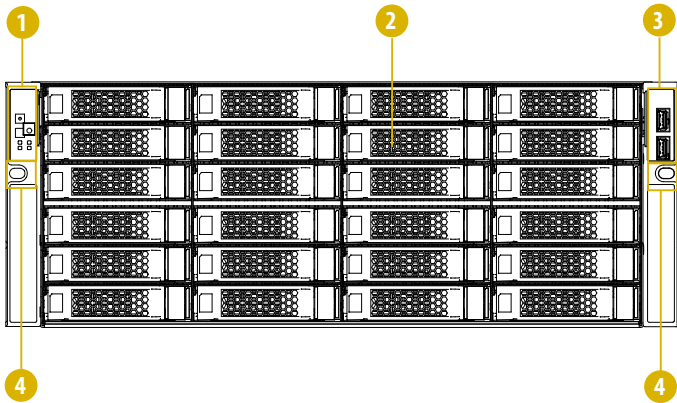
2.4 System Front Panel

4U36L2S-C612



No.	Description
1	Control Panel Buttons and LEDs
2	24 x 3.5" / 2.5" HDD Trays
3	2 x USB 3.2 Gen1 Ports
4	Thumbscrew inside

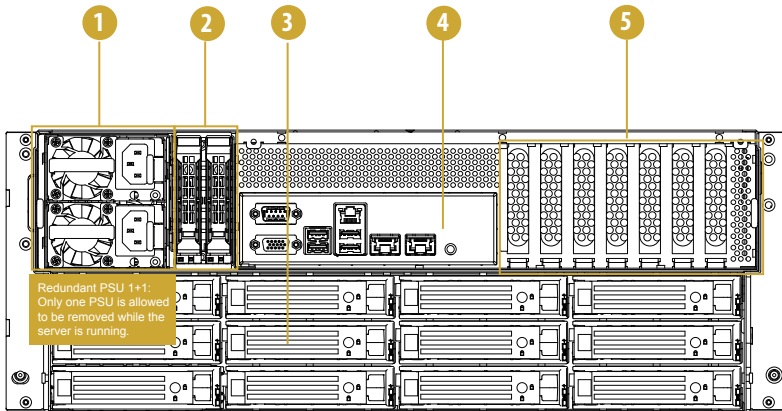
4U36L2S-C621 / 4U36L2E-ROME2/2T



No.	Description
1	Control Panel Buttons and LEDs
2	24 x 3.5" HDD Trays
3	2 x USB 3.2 Gen1 Ports
4	Rack mount screws hole

2.5 System Rear Panel

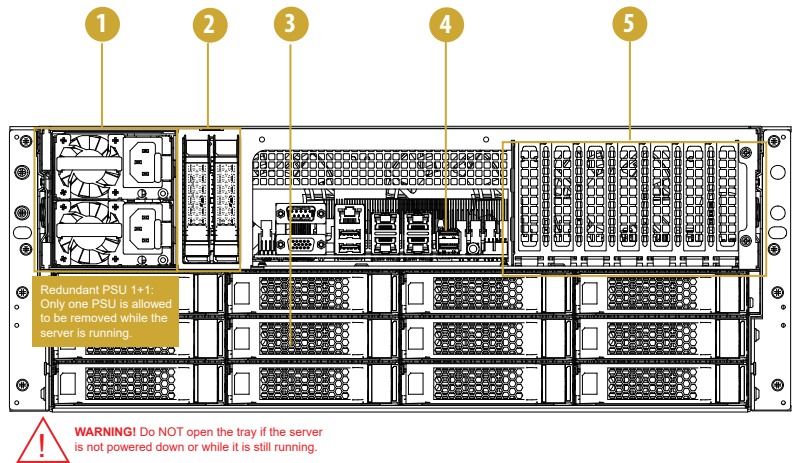
4U36L2S-C612



WARNING! Do NOT open the tray if the server is not powered down or while it is still running.

No.	Description
1	2 x Power Supply Units (Redundant PSU 1+1) <i>*Server requires 1 working PSU, with 1 redundant PSU. You must have at least one active supply, installed, functioning and connected to AC. Only one of the PSUs is allowed to be removed while the server is running.</i>
2	2 x 2.5" HDD trays
3	12 x 3.5"/2.5" HDD Trays
4	I/O Shield (depends on the specification of the server board)
5	8 x Low Profile Add-on PCI Express Slots

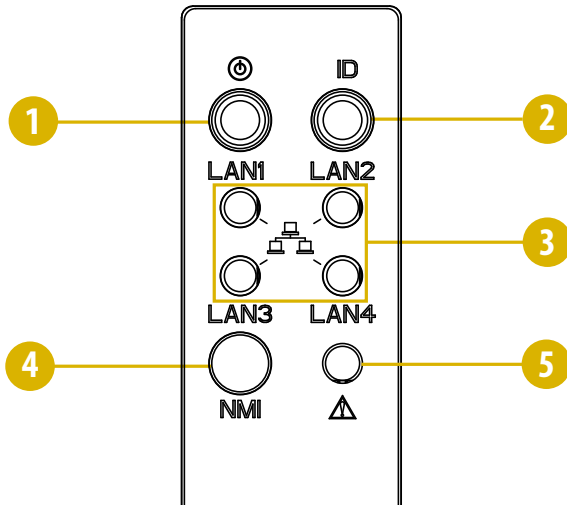
4U36L2S-C621 / 4U36L2E-ROME2/2T



No.	Description
1	2 x Power Supply Units (Redundant PSU 1+1) <i>*Server requires 1 working PSU, with 1 redundant PSU. You must have at least one active supply, installed, functioning and connected to AC. Only one of the PSUs is allowed to be removed while the server is running.</i>
2	4U36L2S-C621: 2 x 2.5" HDD trays 4U36L2E-ROME2/2T: 2 x 2.5" NVME trays
3	12 x 3.5" HDD Trays
4	I/O Shield (depends on the specification of the server board)
5	8 x Low Profile Add-on PCI Express Slots

2.6 Front Control Panel Buttons and LEDs

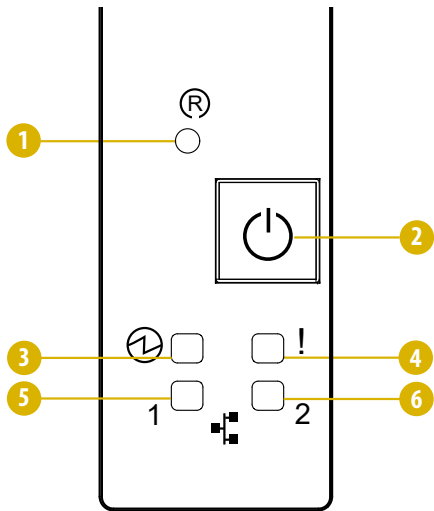
4U36L2S-C612



No.	Description
1	Power Button and LED
2	UID Button and LED*
3	LAN1, LAN2, LAN3, LAN4 Activity LEDs*
4	NMI (Nonmaskable Interrupt) Button*
5	System Alarm LED*

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

4U36L2S-C621 / 4U36L2E-ROME2/2T



No.	Description
1	Reset Button
2	Power Button
3	Power LED
4	System Alarm LED*
5	LAN1 Activity LED*
6	LAN2 Activity LED*

**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 standby/sleep modes.

To remove all power from the system completely, disconnect the power cord from the server.

ID Button

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

NMI (Nonmaskable Interrupt) Button

Press the NMI button with a paper clip or pin to generate a nonmaskable interrupt and to put the server in a halt state for examination.

Status LED Definitions

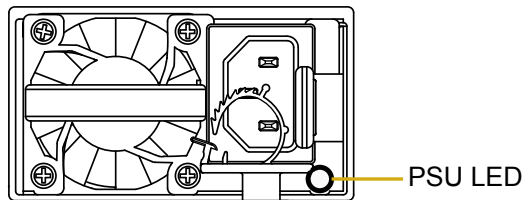
Power LED	
Status	Description
Green	Power on
Off	Power off

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

LAN Activity LED	
Status	Description
Green	Link between system and network or no access
Blinking Green	Network access

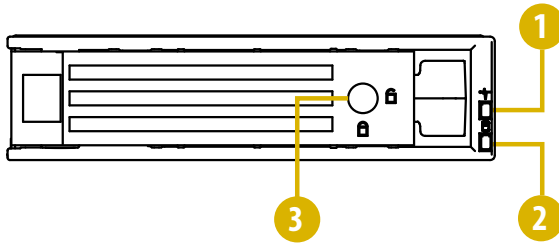
System Alarm LED	
Status	Description
Off	Running or normal operation
Red	At least one sensor has critical alert

2.7 PSU LED



PSU Status LED	
Status	Description
Green	Normal work; output ON and OK
Amber	Module fault/protection in operating mode (failure, OCP, OVP, Fan Fail, OTP, UVP) AC cord unplugged
Amber blinking at 0.5Hz	Warning (high temp, high power, high current, slow fan)
Green blinking at 0.5Hz	AC Present Only 12VSB on (PS off) or PS in Smart Redundant state

2.8 Drive Tray LEDs & Lock



No.	Description
1	HDD Power LED
2	HDD Activity LED
3	HDD Tray Lock

Status LED Definitions

HDD Power LED

Status	Description
Blue	HDD powered-on
Off	No power to HDD

HDD Activity LED

Status	Description
Solid Green	HDD active
Blinking Green	HDD accessing or reading
Red	HDD failed
Off	HDD powered-off

Chapter 3 Hardware Installation and Maintenance

This chapter helps you assemble the chassis and install components.

Before You Begin

Before you work with the server, pay close attention to the “Important Safety Instructions” at the beginning of this manual.

1. Make sure the server is powered off.

Power down the server if it is still running.

- (1) Press the Power button to power off the server 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.

- 3.5" and 2.5" HDD(s)
- Power Supply Units (Pre-installed)
- System Fans (Pre-installed)
- Server Board (Pre-installed)
- HDD Backplane (Pre-installed)
- Power Distribution Board (Pre-installed)



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

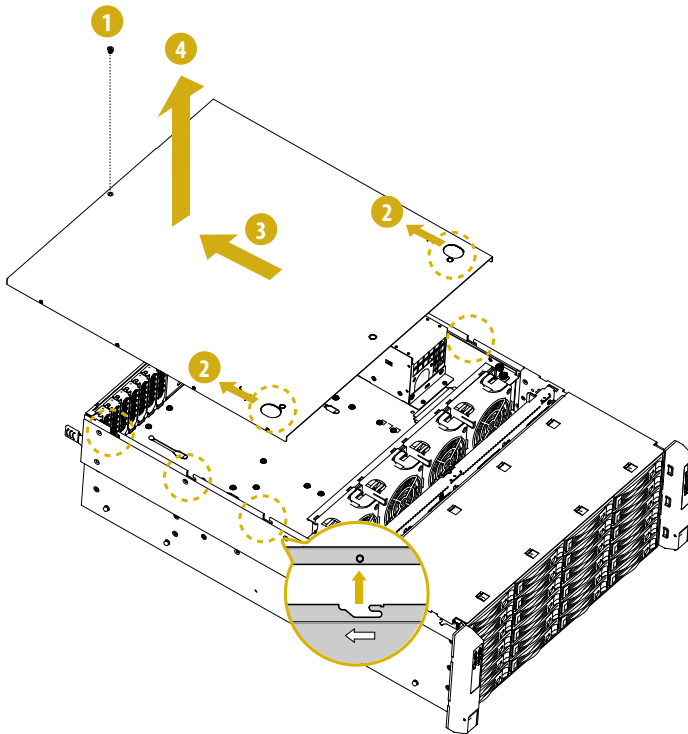
3.1 Server Top Cover

Removing the Server Top Cover



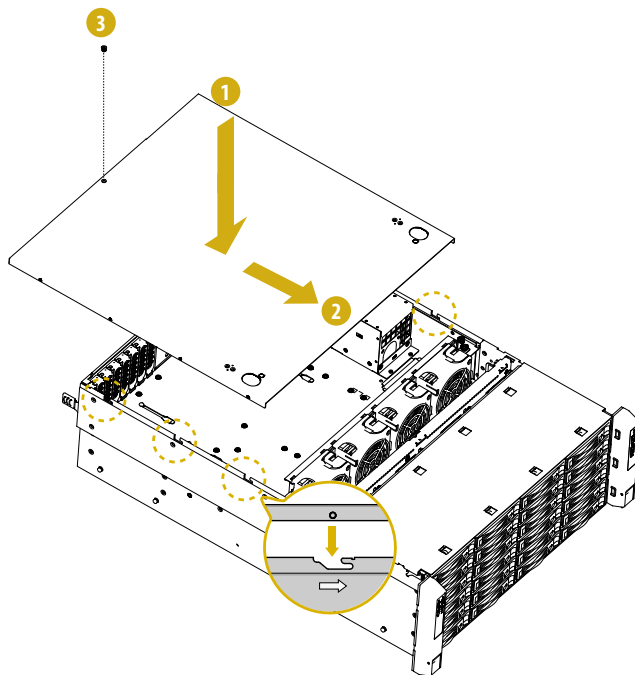
1. Before removing the top covers, power off the server and unplug the power cord.
2. The system must be operated with all the chassis top covers installed to ensure proper cooling.

1. Remove the screw that secures the top front cover to the chassis.
2. Press the two cover release latches in the direction of the arrows to release the cover from the system.
3. Push the top cover toward the REAR of the chassis to remove the cover from the locked position.
4. 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.
2. Slide the top cover toward the FRONT of the chassis.
3. Secure the top cover with the screw.



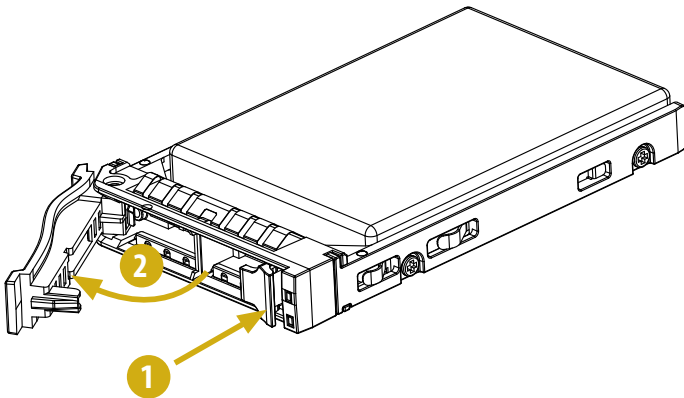
3.2 Hard Drive

3.2.1 Installing a Hard Disk Drive into 2.5" Hard Drive Tray

The 4U36L2S-C612 series chassis supports hot-swappable 2.5" hard drives. The 2.5" hard drive trays are located on the rear side of the chassis.

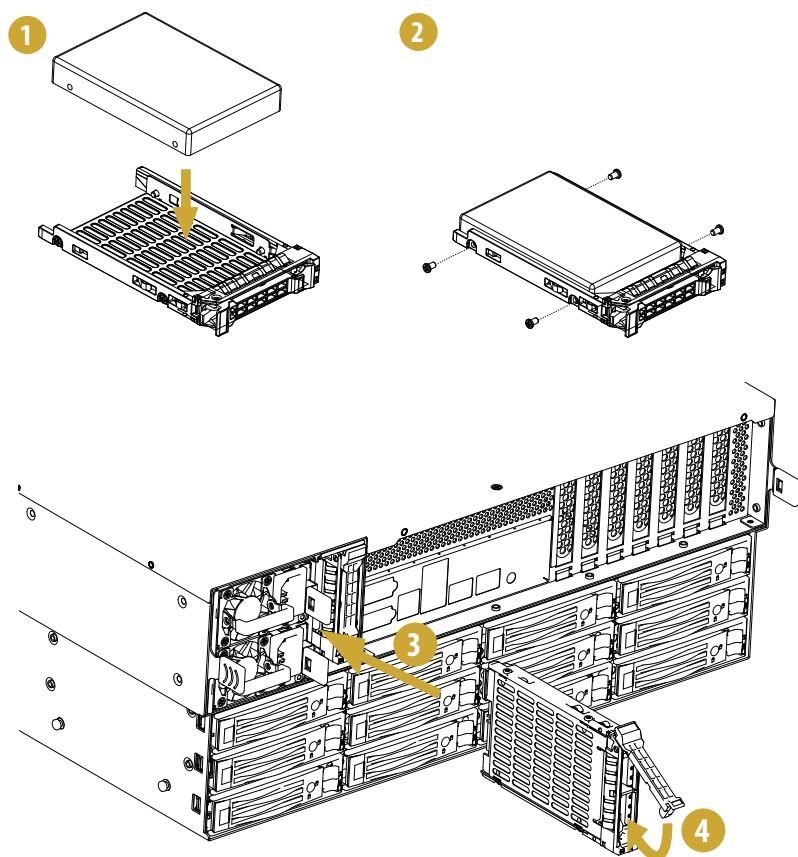
Removing 2.5" Hard Drive Trays from the Chassis

1. Press the locking lever latch on the drive tray to unlock the retention lever.
2. Rotate the lever out and away from the module bay and pull the hard drive out of the HDD tray.



Installing a 2.5" Hard Drive to the Hard Drive Tray

1. Place a 2.5" HDD into the tray with the printed circuit board side facing down.
Carefully align the mounting holes in the hard drive and the tray.
2. Secure the hard drive using the screws.
3. Slide the drive tray into the HDD bay until the drive is fully seated.
4. Push in the locking lever to lock the HDD tray into place.

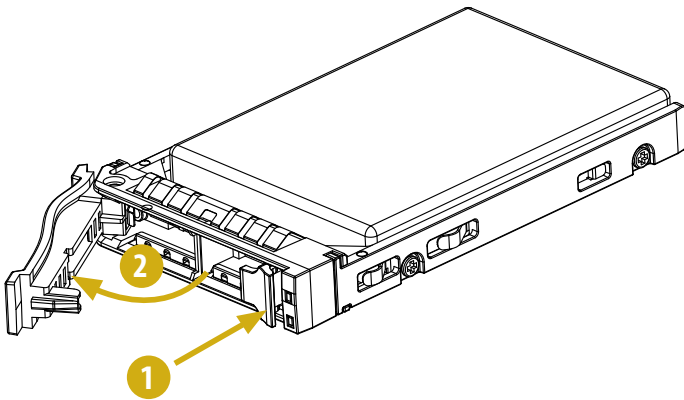


3.2.2 Installing a Hard Disk Drive into 3.5" Hard Drive Tray

The 4U36L2S-C612 series chassis supports hot-swappable 3.5" hard drives. The 3.5" hard drive trays are located on both the front and rear sides of the chassis.

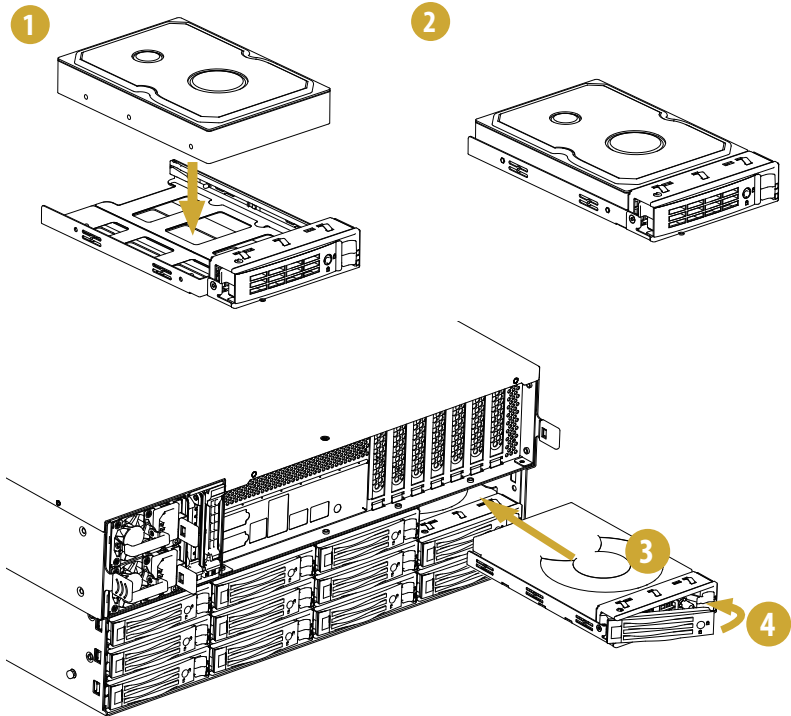
Removing 3.5" Hard Drive Trays from the Chassis

1. Press the locking lever latch on the drive tray to unlock the retention lever.
2. Rotate the lever out and away from the module bay and pull the hard drive out of the HDD tray.



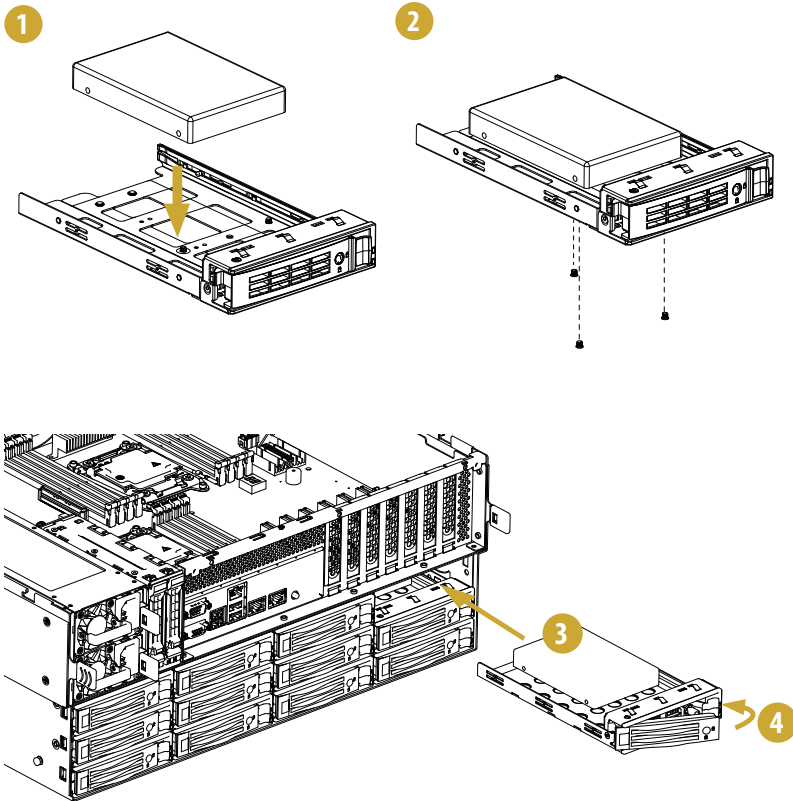
Installing a 3.5" Hard Drive to the Hard Drive Tray

1. Place a 3.5" HDD into the tray with the printed circuit board side facing down.
2. Directly place a HDD into the tool-less HDD tray until it snaps.
3. Slide the drive tray into the HDD bay until the drive is fully seated.
4. Push in the locking lever to lock the HDD tray into place.



Installing a 2.5" Hard Drive to the 3.5" Hard Drive Tray *(for 4U36L2S-C612 only)*

1. Place a 2.5" HDD into the 3.5" HDD tray with the printed circuit board side facing down.
Carefully align the mounting holes in the hard drive and the tray.
2. Secure the hard drive using the screws.
3. Slide the drive tray into the HDD bay until the drive is fully seated.
4. Push in the locking lever to lock the HDD tray into place.



3.3 Power Supply

Installing and Removing the Power Supply

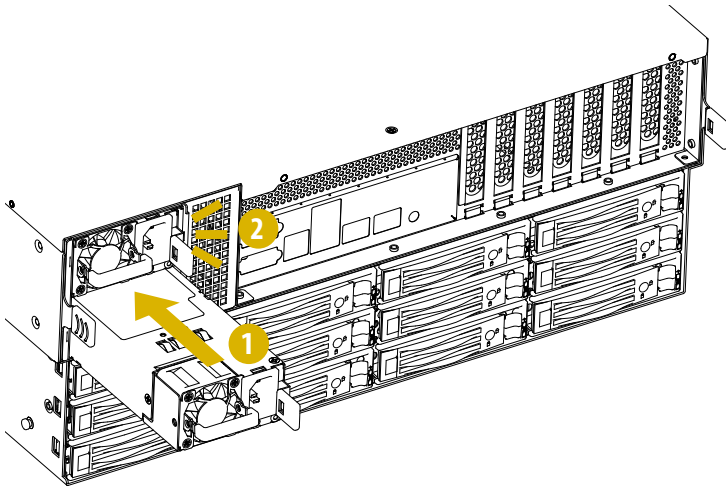


Before replacing the power supply, power off the server, unplug the power cord, and disconnect all wiring from the power supply.

Installing the Power Supply Unit

The 4U36L2S / 4U36L2E Series can accommodate two AC or two DC power supplies in the bay at the rear of the chassis. Each unit provides up to 1200 Watts (200V AC) of power. One power supply is required for full load operation, with the other power supply purely as a redundant, load-sharing backup. It can be removed without affecting system operation.

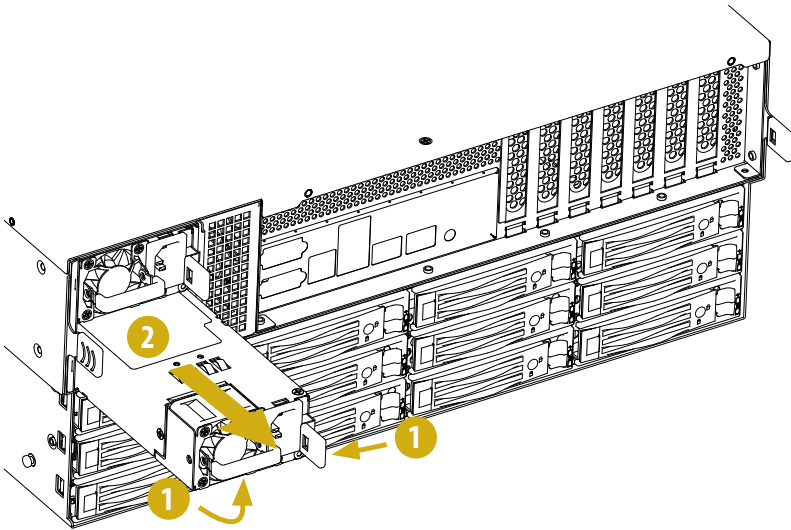
1. Align the power supply unit with the power supply slot. Ensure that the LED appears on the lower right when you are installing the power supply unit.
2. Carefully slide the PSU all the way into the power supply bay until it clicks into place.



Removing the Power Supply Unit

To remove a failed power supply, identify the failed power supply by checking the power supply LED on the PSU.

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



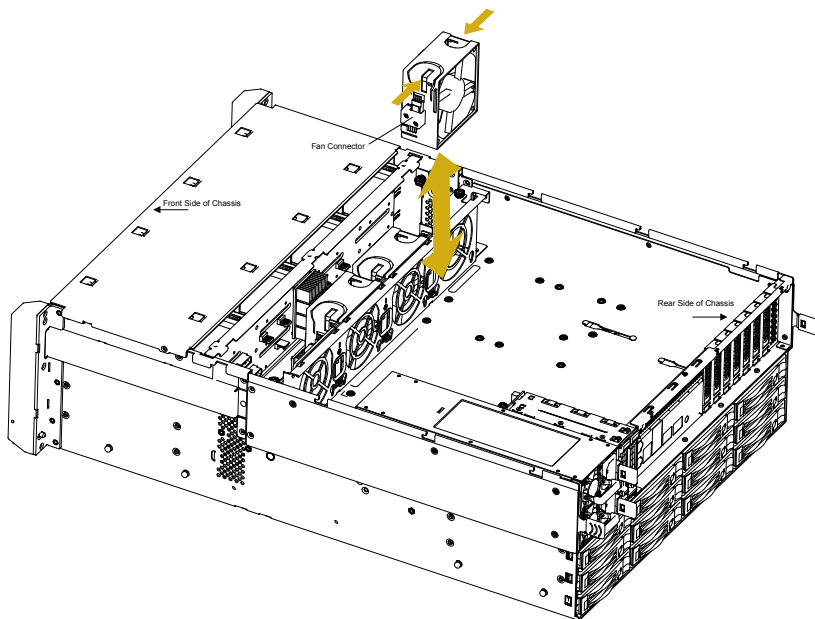
1. Before replacing the power supply, power off the server, unplug the power cord, and disconnect all wiring from the power supply.
2. In a redundant system, you do not need to power down the server.

3.4 System Fan

This system supports hot-swappable system fans.

Replacing the System Fan

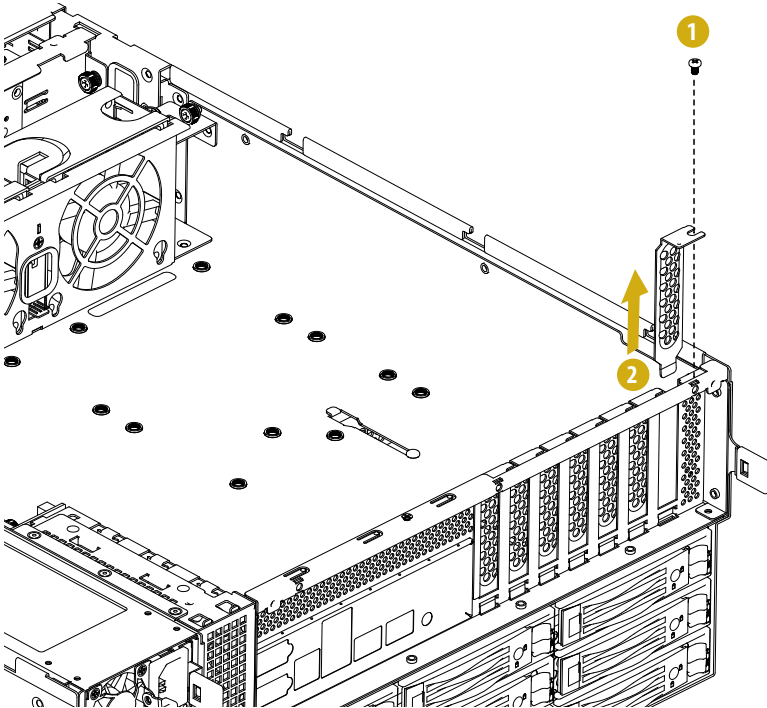
1. Squeeze the fan handles together, and then lift the failed fan out of the server.
2. Before installing a new fan, make sure the fan connector on the fan module is on the left, when you are facing the rear side of the chassis.
3. Lower the fan into the socket, and push it downward until it clicks into place.



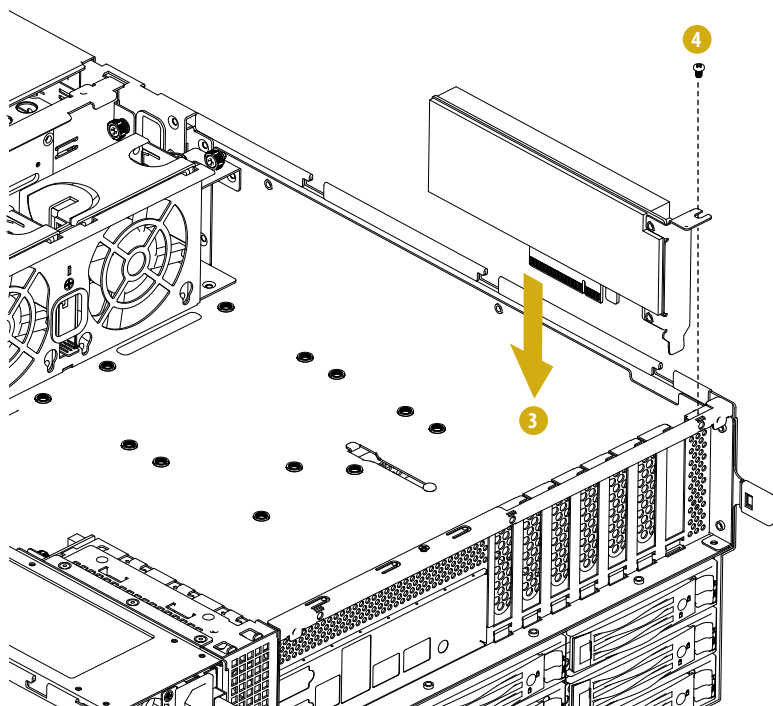
3.5 PCI Express Card (Low-Profile)

Installing and Removing the PCIe Card

1. Release the screw that secures the slot cover to the chassis.
2. Remove the slot cover.



3. Install a PCIE card into the slot.
4. Make sure that the card is well seated and tighten the screw on the face plate.

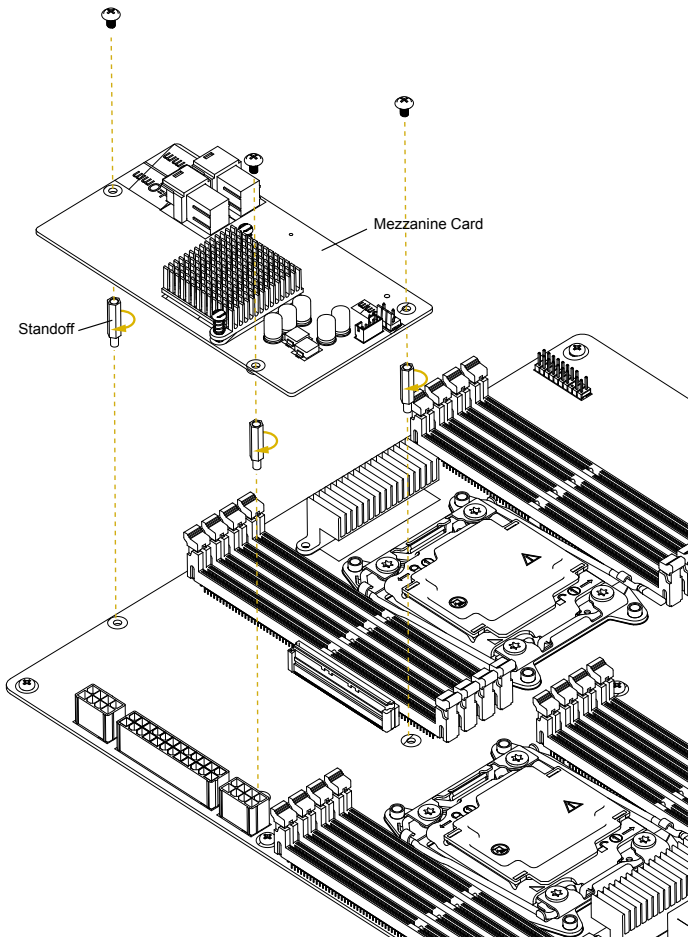


3.6 Mezzanine Card (4U36L2S-C612 / 4U36L2S-C621 only)

Installing and Removing a Mezzanine Card

Please install the mezzanine card before installing the serverboard to the chassis.

1. Install the four standoffs into the motherboard around the mezzanine card slot.
2. Gently insert the mezzanine card into the mezzanine card slot on the motherboard.
3. Use screws to secure the mezzanine card to the motherboard standoffs.
4. Reverse the procedures to remove the mezzanine card.

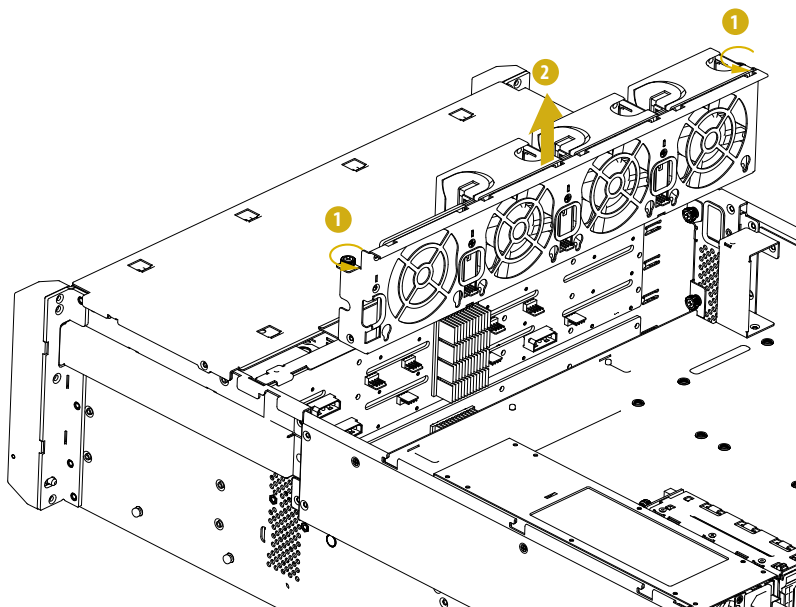


3.7 Fan Bar *(4U36L2S-C612 only)*

Installing and Removing the Fan Bar

Please remove the fan bar before removing the serverboard tray.

1. To remove the fan bar, first release the thumbscrews on the fan bar.
2. Lift the fan bar up from the chassis.
3. Reverse the procedures to install the fan bar.

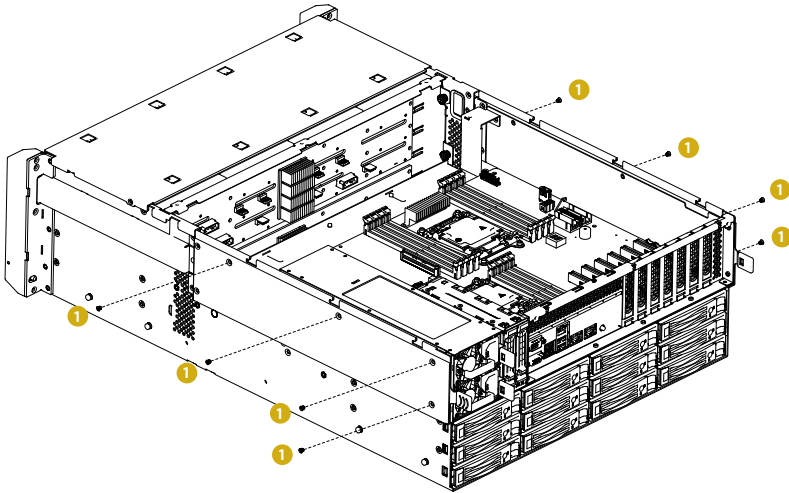


3.8 Serverboard Tray

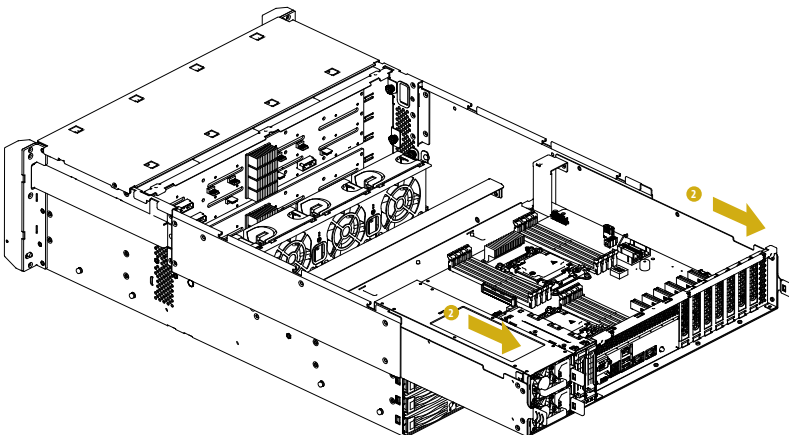
Installing and Removing the Serverboard Tray

Please remove the fan bar before removing the serverboard tray.

1. Remove eight screws that secure the serverboard tray to the chassis.



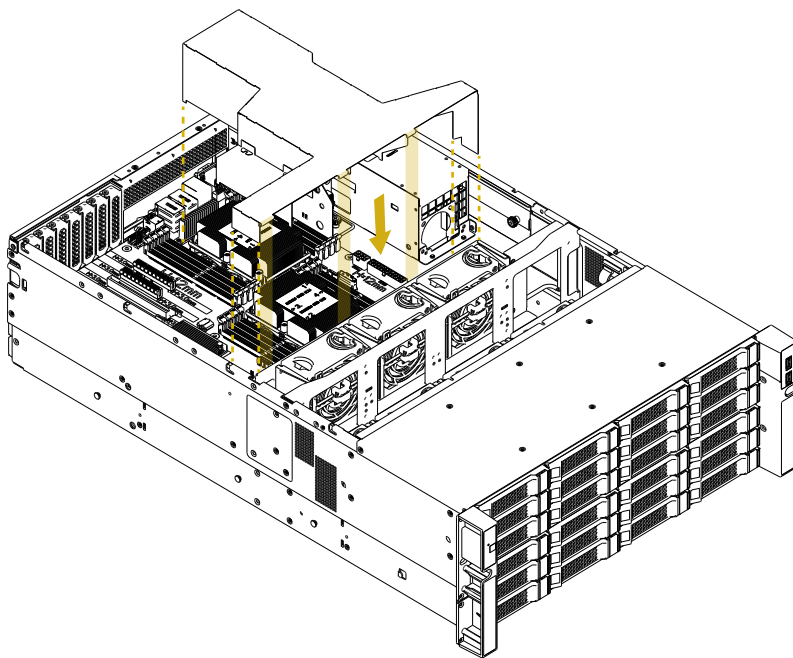
2. Pull to remove the power supply from the chassis.
3. Reverse the procedures to install the Serverboard Tray.



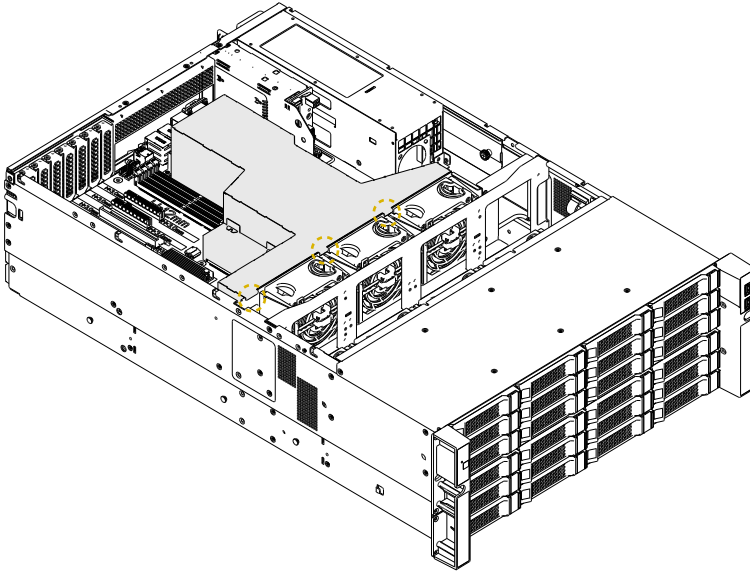
3.9 Air Duct *(4U36L2S-C621 only)*

Install the Air Duct on the Heatsink

1. Lower the air duct into the chassis.
2. Make sure the three tabs on the front edge of the air duct are aligned with the edge of the fan assembly.



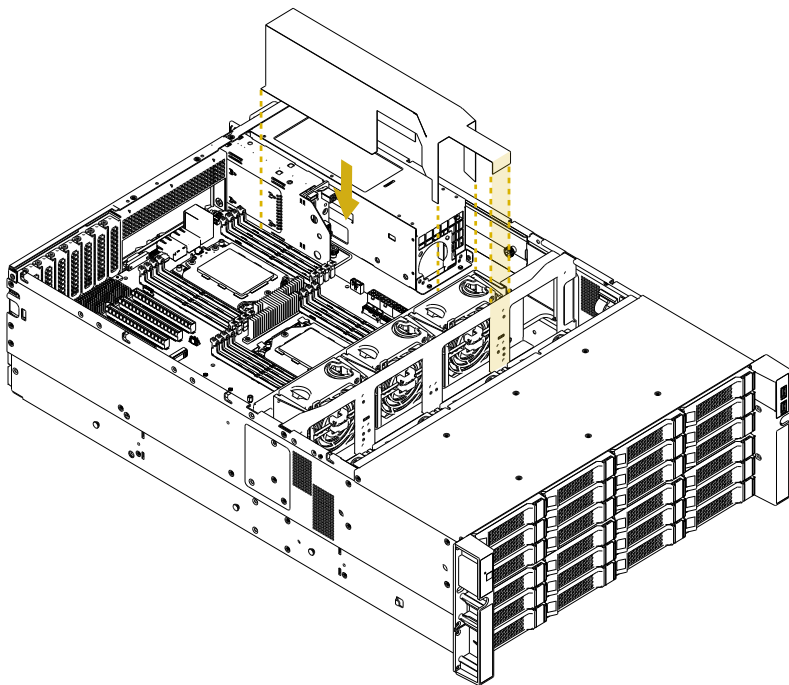
3. Make sure both air ducts are well installed.



3.10 Air Duct (4U36L2E-ROME2/2T only)

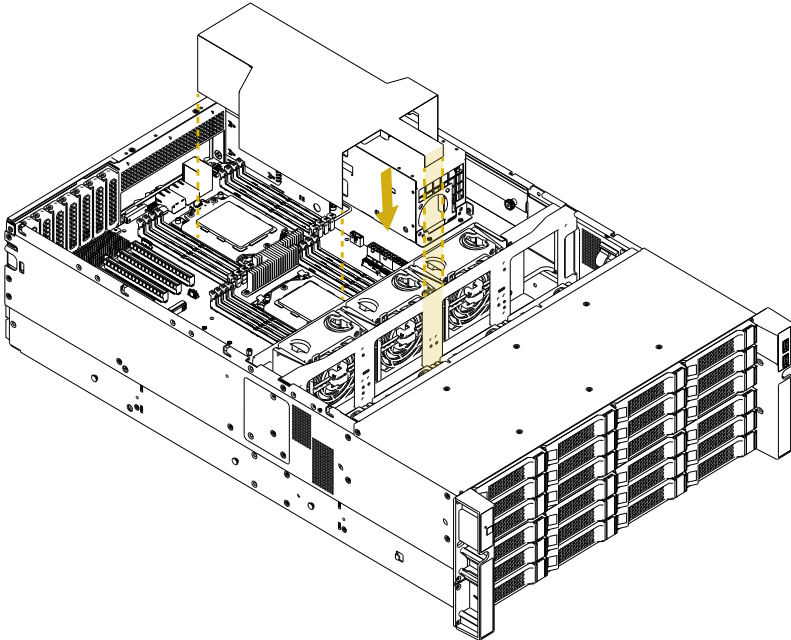
Install the Air Duct on the Rear HDDs

1. Align the tab on the front edge of the air duct with the fan bar on the fan assembly.
2. Lower the air duct into the chassis ensuring the tab is securely installed between the fan bar and the fan module.



Install the Air Duct on the Heatsink

1. Align the tab on the front edge of the air duct with the fan bar on the fan assembly.
2. Lower the air duct into the chassis ensuring the tab is securely installed between the fan bar and the fan module.



Make sure both air ducts are well installed.

