OPEN
Industry Standard, Flexible Architecture

GREEN
Less Heat, Less Power Consumption

STABLE
Robust Design, Quality Parts

Stable and
Reliable Solution

Server/Workstation
Motherboard

4U36L6E Series

User Manual

English

Version 1.01
Published Feb. 2024

Copyright Notice:

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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

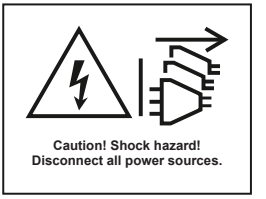
RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.

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

Thank you for purchasing 4U36L6E 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	
	4U36L6E-MILAN2/2T	4U36L6E-ICX2/2T
4U36L6E Series Barebone	1	1
System Boards (MB)	1	1
Power Supply Units	2	2
System Fans	7	7
3.5"/2.5" HDD Backplane (24-port BPB)	1	1
3.5" HDD Backplane (12-port BPB)	1	1
2.5" HDD Backplane (2-port BPB)	1	1
Front Panel Boards	2	2
Riser Card	0	1
Power Distribution Boards (PDB)	1	1
Accessory Box	1	1
User Manual	1	1
Quick Installation Guide	1	1
Slide Rail	1	1

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

English

1.2 Specifications

4U36L6E Series	
System Physical Status	
Form Factor	4U Rackmount
Dimension (D x W x H)	699 mm x 432 mm x 176 mm, 27.52” x 17.01” x 6.93”
Support MB Size	• EEB, 12'' x 13'' (ROME2D16-2T) • EEB, 12'' x 13'' (SP2C621D16-2T)
Front Panel	
Button	• Power Button • Reset Button
LED	• Power LED • LAN1 ActivityLED • LAN2 Activity LED • System Fail LED • HDD Atatus LED
I/O Port	2 x Type-A USB3.2 Gen1 Ports
Drive Bay	
Front Side	• 20 Hot-swap 3.5'' SATA/SAS drive bays* • 4 Hot-swap 3.5'' SATA/SAS drive bays* or 4 Hot-swap 2.5'' NVMe (PCIe3.0 x4) drive bays ** Additional RAID/HBA card is required to support the 36 x 3.5'' SATA/SAS drives*
Rear Side	• 12 Hot-swap 3.5'' SATA/SAS drive bays*, • 2 Hot-swap 2.5'' NVMe (PCIe3.0 x4) drive bays ** Additional RAID/HBA card is required to support the 36 x 3.5” SATA/SAS drives*
System Cooling	
Fan	7 Hot-swap 80x38mm fans
Power Supply	
Type	1+1 CRPS
Output Watts	1200W
Efficiency	80-PLUS Platinum
AC Input	Low Line: 100-127Vrms, 50/60Hz, High Line: 200-240Vrms, 50/60Hz

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

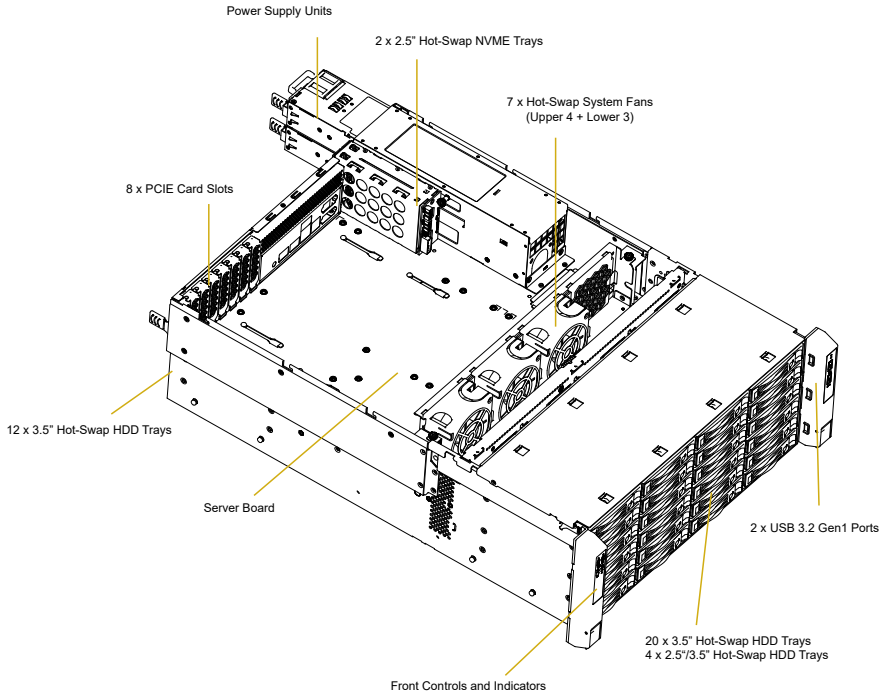
Please refer to the user manual of the motherboard you use for detailed information about motherboard components and features.

English

Chapter 2 Server System Overview

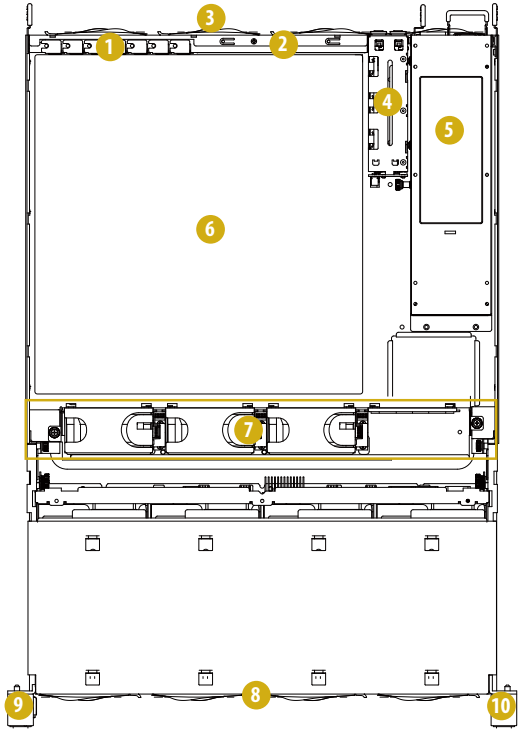
This chapter provides diagrams showing the location of important components of the server system.

2.1 System Components



English

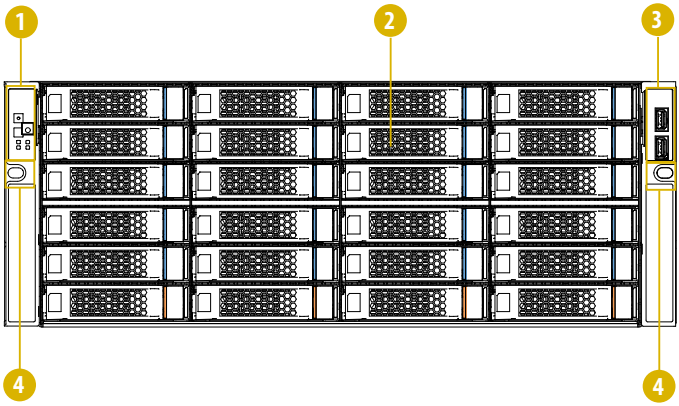
2.2 Internal Features



No.	From
1	Add-on Card Slots
2	Rear I/O Panel *(depends on the specification of the server board)*
3	12 x 3.5" SAS/SATA Drive Trays
4	2 x 2.5" NVME Drive Trays
5	2 x Power Supply Units
6	Serverboard
7	7 x System Fans (upper 3 + lower 4)
8	20 x 3.5" SAS/SATA Drive Trays 4 x 3.5" SATA/SAS Drive Trays or 4 x 2.5" NVMe Drive Trays
9	Front Control Panel
10	2 x Type-A USB 3.2 Gen1 Ports

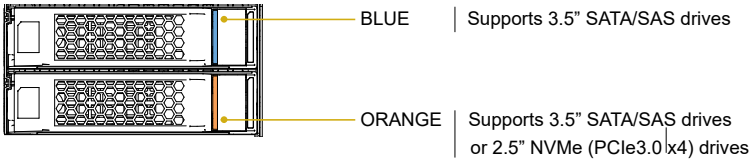
English

2.3 System Front Panel



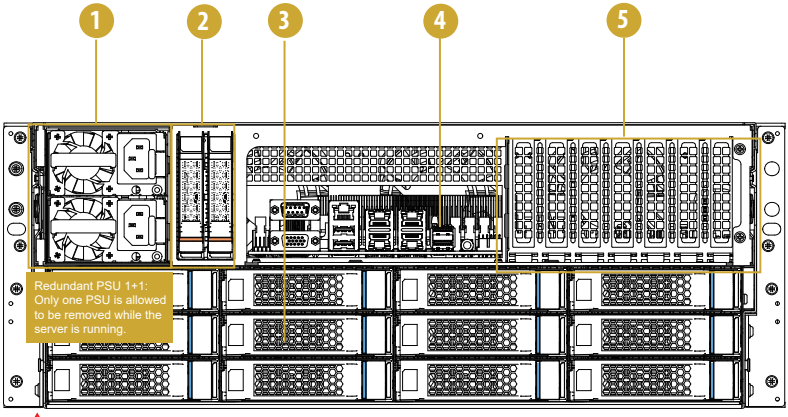
No.	Description
1	Control Panel Buttons and LEDs
2	20 x 3.5" SATA/SAS HDD Trays 4 x 3.5" SATA/SAS HDD or 2.5" NVMe HDD Trays
3	2 x USB 3.2 Gen1 Ports
4	Rack mount screws hole

The HDD trays marked with blue color at the front side of the chassis are for 3.5" SATA/SAS drives only. The HDD trays marked with orange color can support both 3.5" SATA/SAS drives and 2.5" NVMe drives.



English

2.4 System Rear Panel

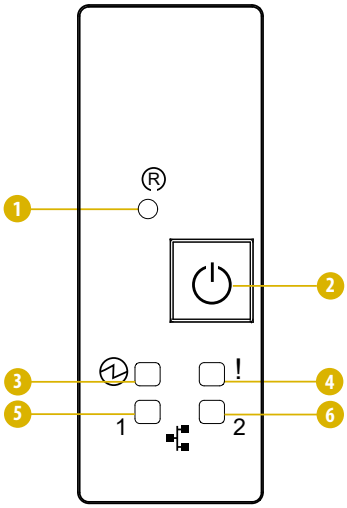


WARNING! Do NOT open the tray if the server is not powered down or while it is still running.

No.	Description
1	2 x Power Supply Units (Redundant PSU 1+1) **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.*
2	2 x 2.5" NVME trays
3	12 x 3.5" SATA/SAS HDD Trays
4	I/O Shield (depends on the specification of the server board)
5	4U36L6E-MILAN2/2T • 6 x Low Profile Add-on PCI Express Slots 4U36L6E-ICX2/2T • 5 x Low Profile Add-on PCI Express Slots

English

2.5 Front Control Panel Buttons and LEDs



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

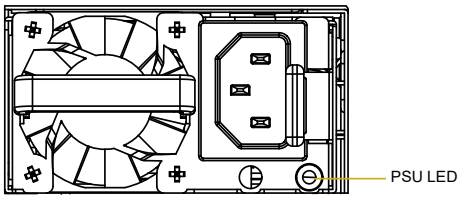
Power LED	
Status	**Description**
Green	Power on
Off	Power off

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

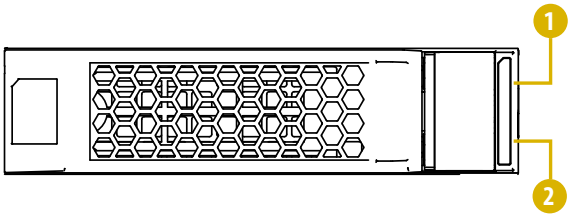
System Alarm LED	
Status	**Description**
Off	Running or normal operation
Red	At least one sensor has critical alert

2.6 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

2.7 Drive Tray LEDs & Lock



No.	Description
1	HDD Power LED
2	HDD Activity LED

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)

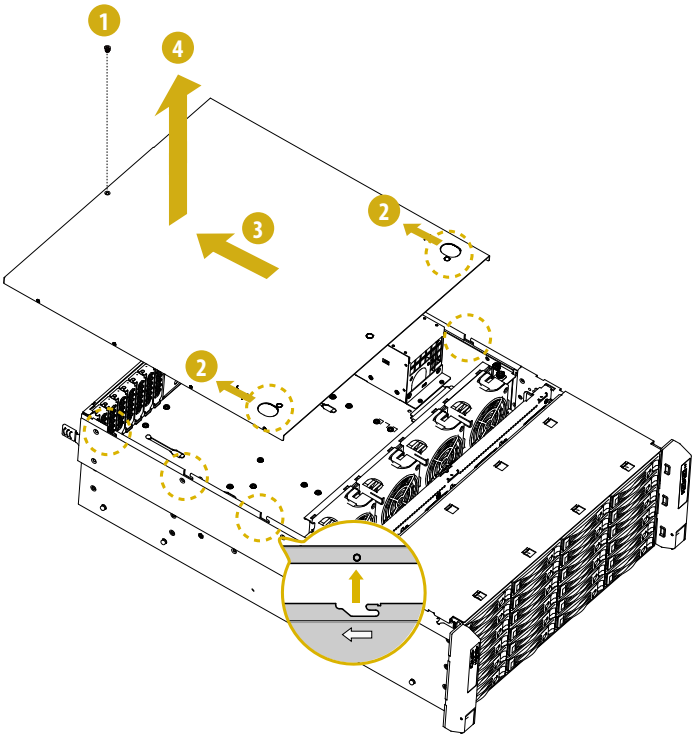
> 1. *Some components are already pre-installed. Simply properly connect the relavant cables before or after installation. See the Quick Installation Guide for more details.*
> 2. *Refer to the user manual of the server board you use for instructions on how to install server board components.*

3.1 Server Top Cover

Removing the Server Top Cover

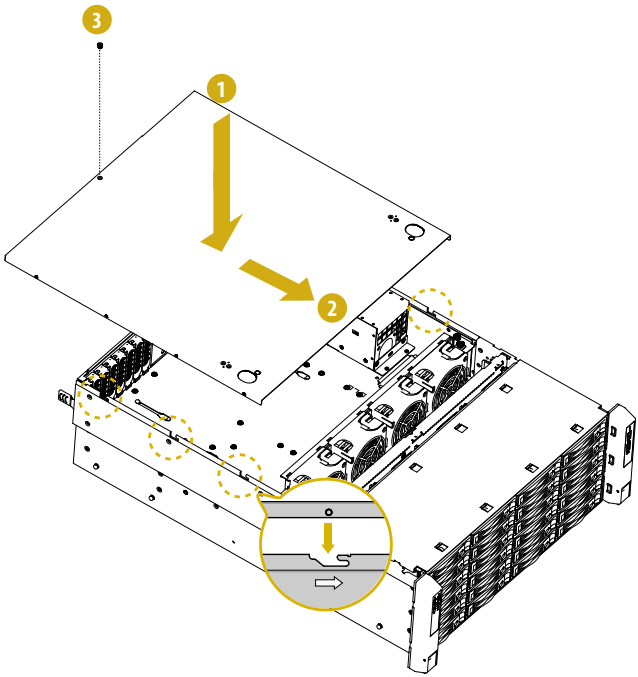
1. Before removing the top covers, power off the server and unplug the power cord.
2. The system must be operated with all the chassis top covers installed to ensure proper cooling.

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.



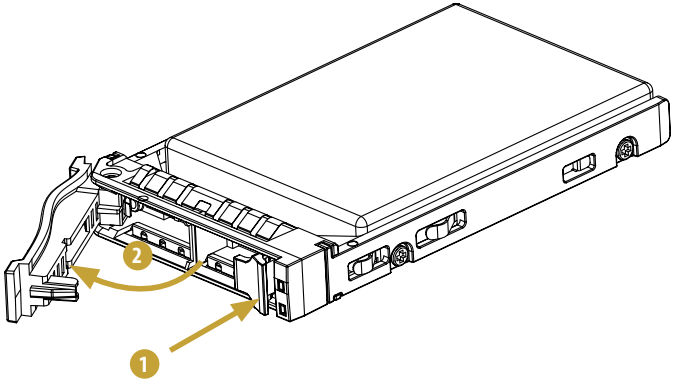
3.2 Hard Drive

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

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

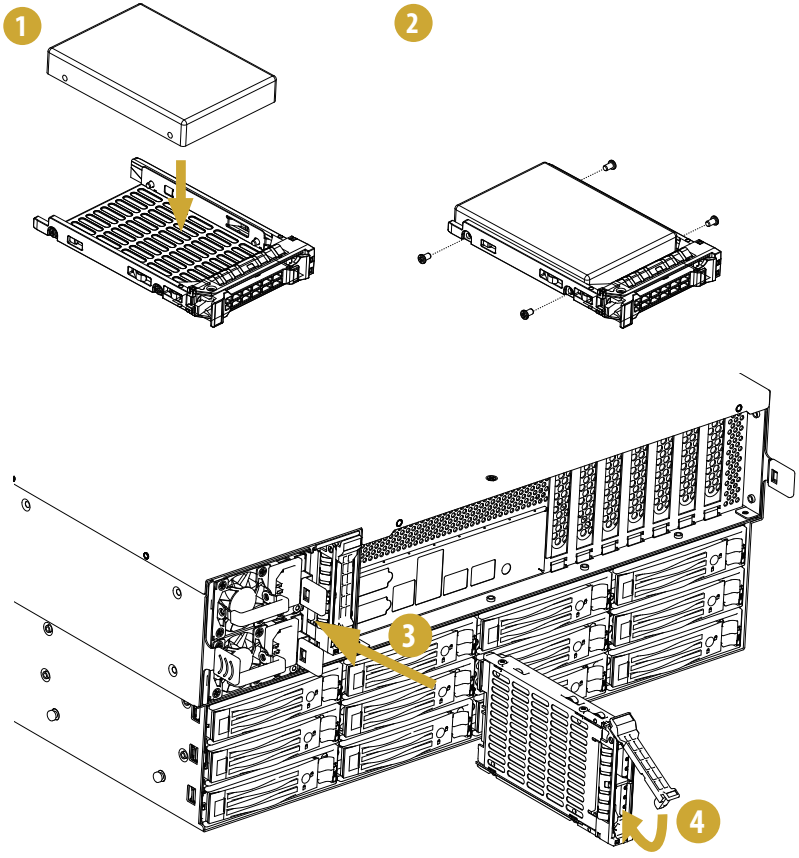
Removing 2.5” Hard Drive Trays from the Chassis

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.

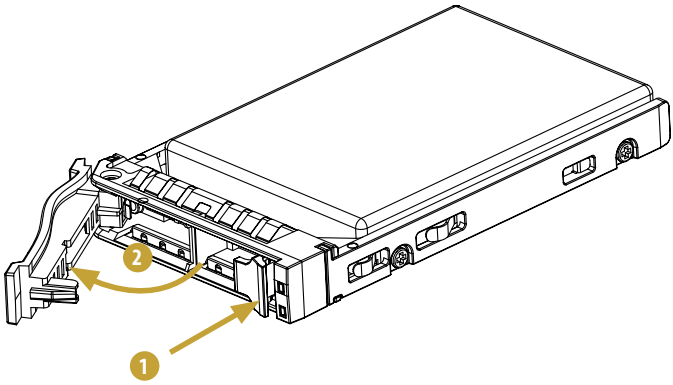


3.2.2 Installing a Hard Disk Drive into 3.5" Hard Drive Tray

The system 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.

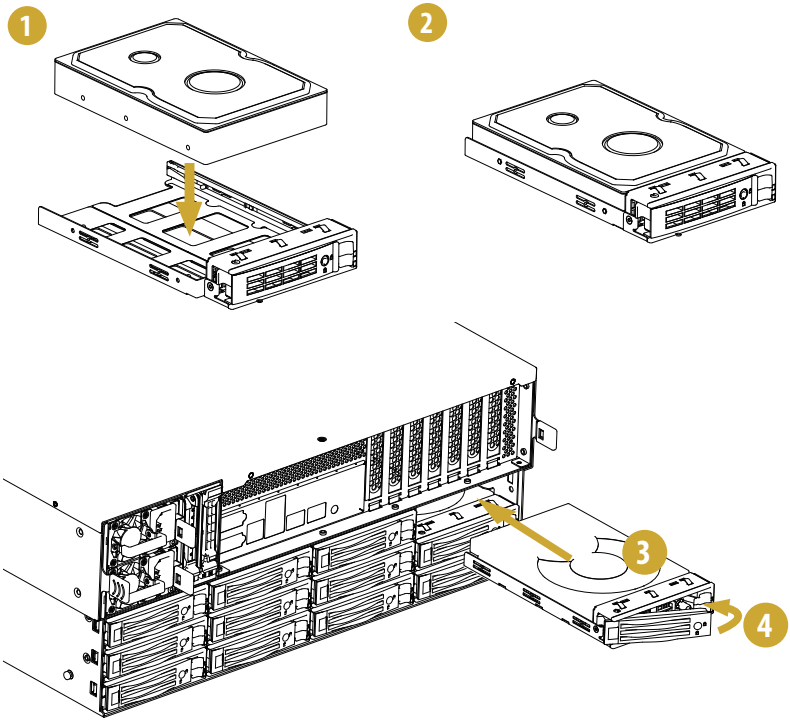
Removing 3.5” Hard Drive Trays from the Chassis

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

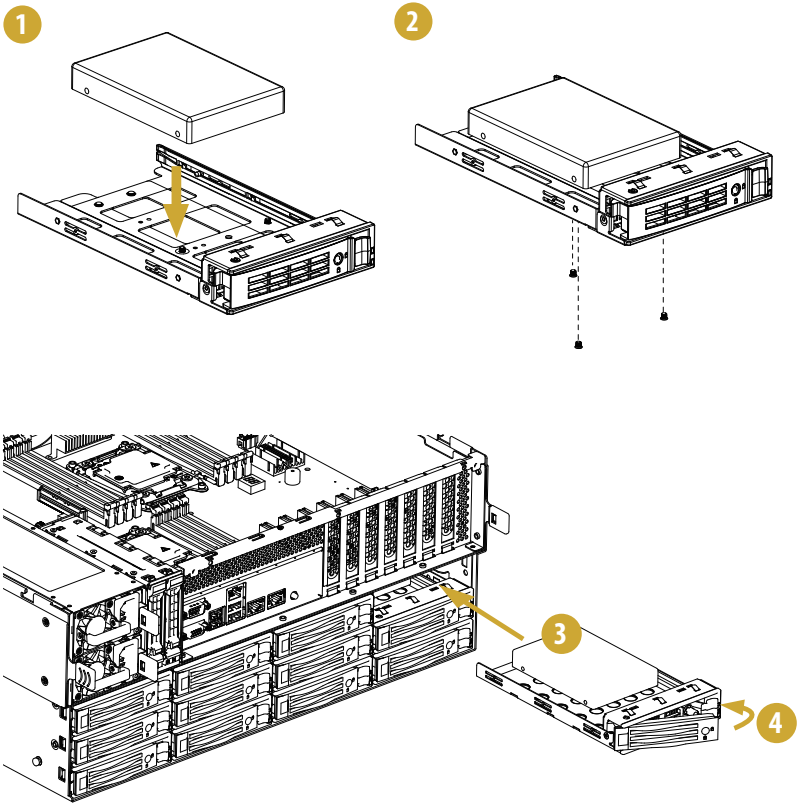
1. Place a 3.5" HDD into the tray with the printed circuit board side facing down.
2. Directly place a HDD into the tool-less HDD tray untli it snaps.
3. Slide the drive tray into the HDD bay until the drive is fully seated.
4. Push in the locking lever to lock the HDD tray into place.



Installing a 2.5” Hard Drive to the 3.5” Hard Drive Tray

The HDD trays marked with orange color at the front side of the chassis can support both 3.5" SATA/SAS drives and 2.5" NVMe drives.

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

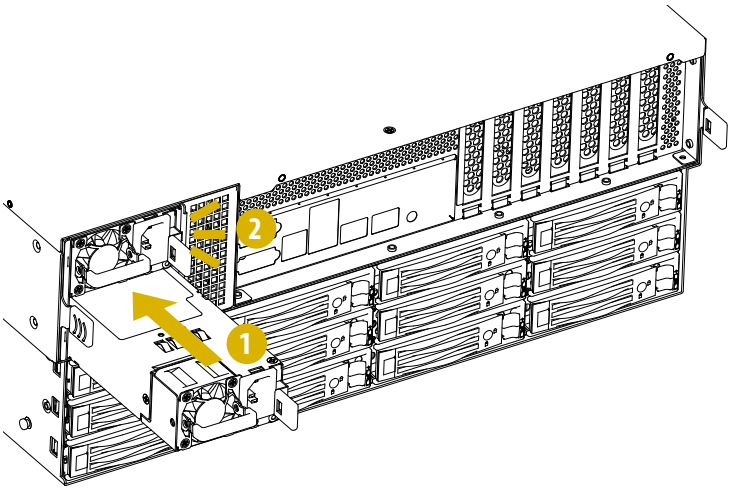
Installing and Removing the Power Supply

> *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.

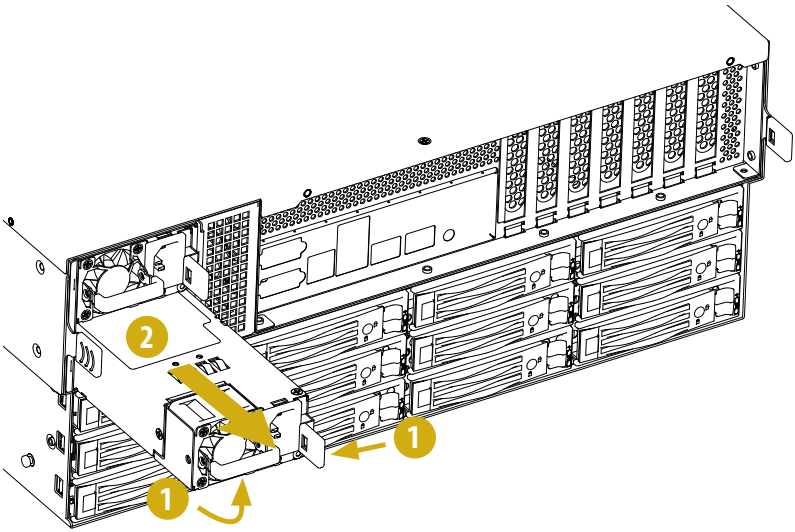
1. Align the power supply unit with the power supply slot. Ensure that the LED appears on the lower right when you are installing the power supply unit.
2. Carefully slide the PSU all the way into the power supply bay until it clicks into place.



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.



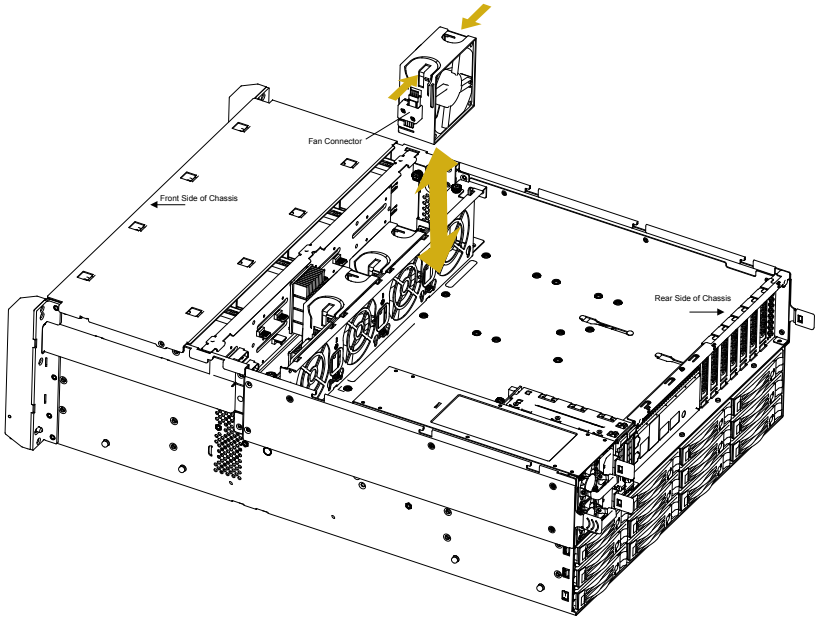
1. Before replacing the power supply, power off the server, unplug the power cord, and disconnect all wiring from the power supply.
2. In a redundant system, you do not need to power down the server.

3.4 System Fan

This system supports hot-swappable system fans.

Replacing the System Fan

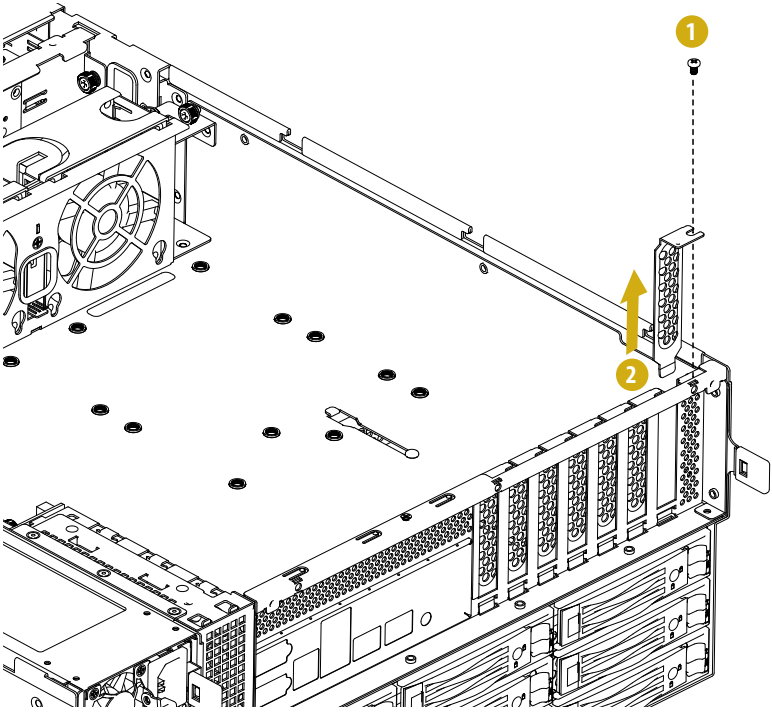
1. Squeeze the fan handles together, and then lift the failed fan out of the server.
2. Before installing a new fan, make sure the fan connector on the fan module is on the left, when you are facing the rear side of the chassis.
3. Lower the fan into the socket, and push it downward until it clicks into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



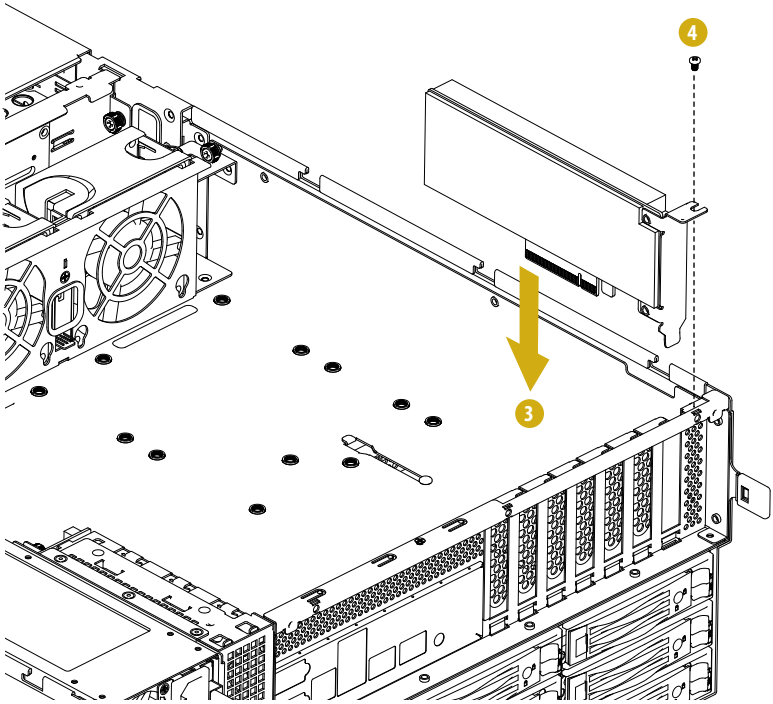
3.5 PCI Express Card (Low-Profile)

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.

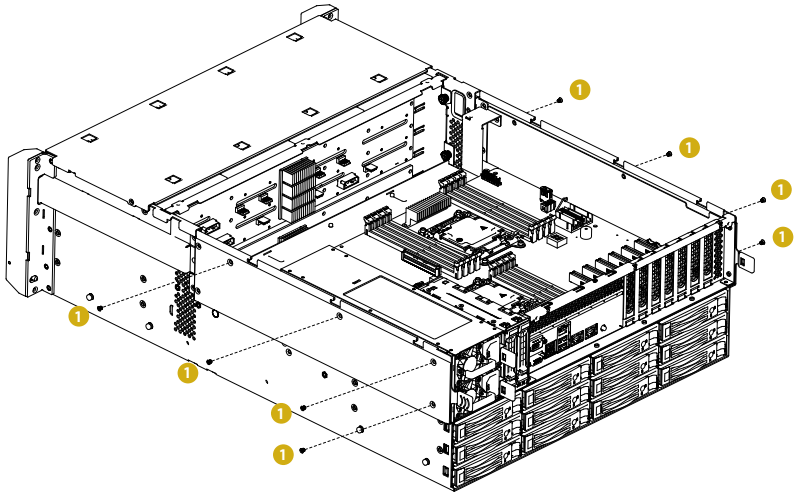


3.6 Serverboard Tray

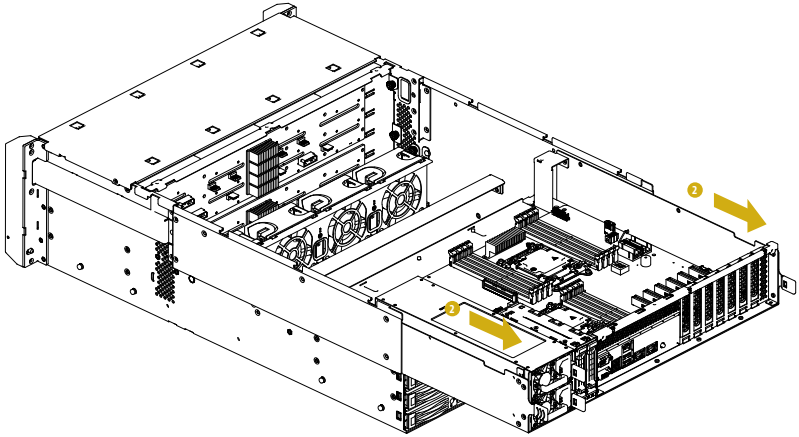
Installing and Removing the Serverboard Tray

Please remove the fan bar before removing the serverboard tray.

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



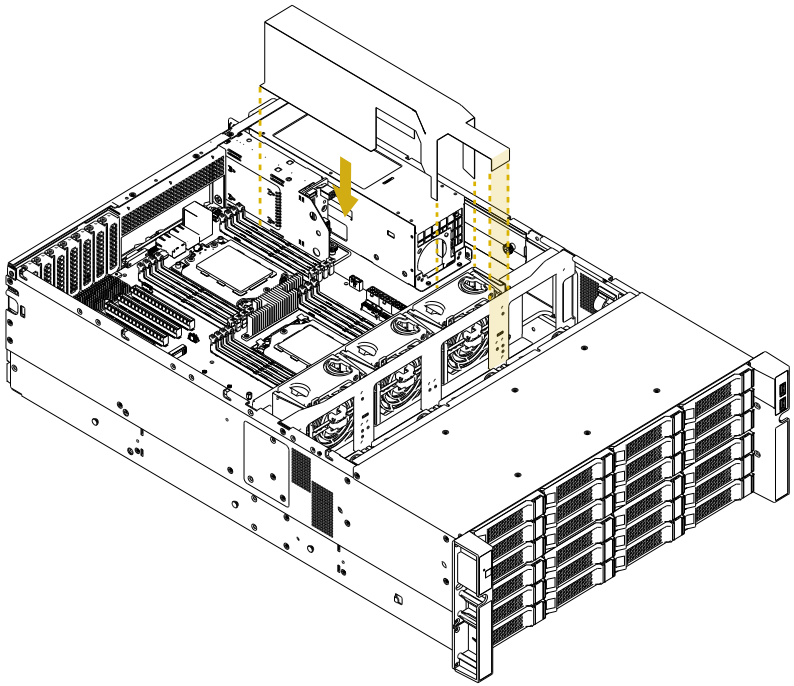
2. Pull to remove the power supply from the chassis.
3. Reverse the procedures to install the Serverboard Tray.



3.7 Air Duct

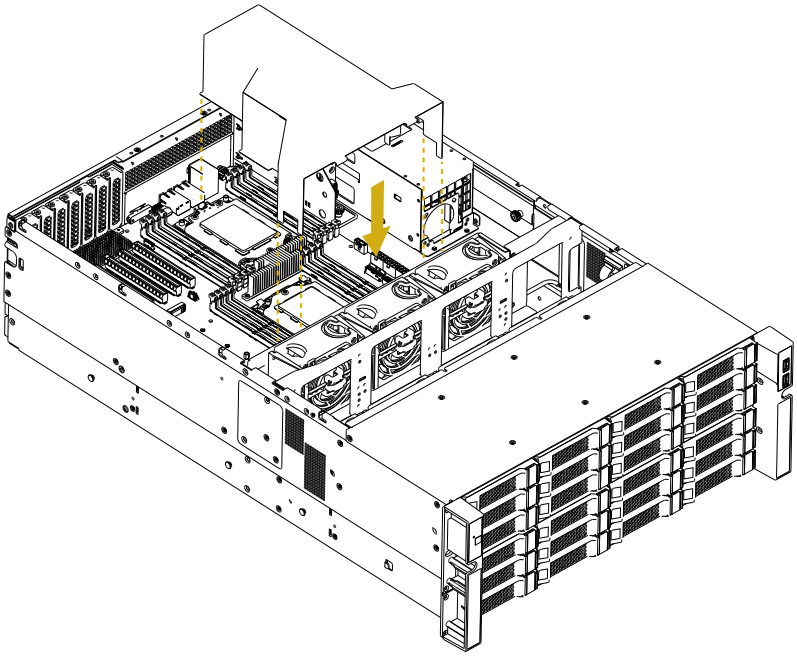
Install the Air Duct on the Rear HDDs

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.

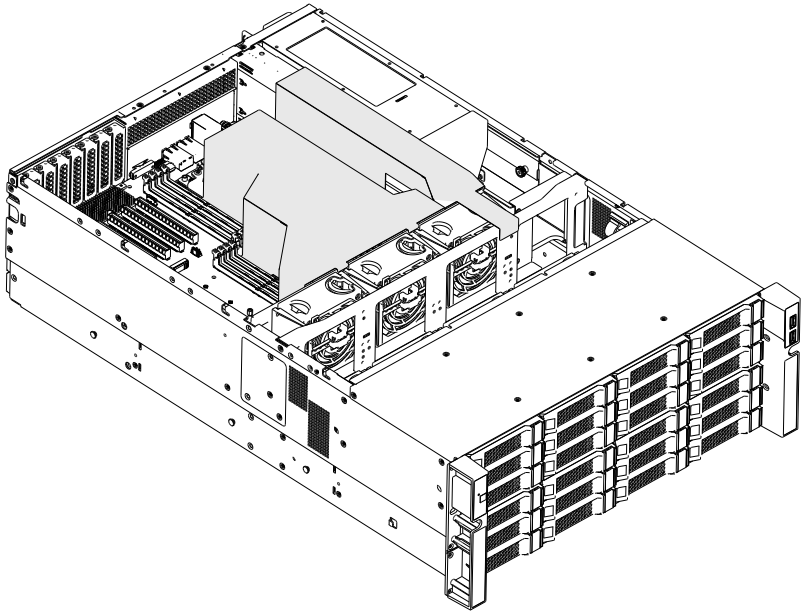


Install the Air Duct on the Heatsink

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.

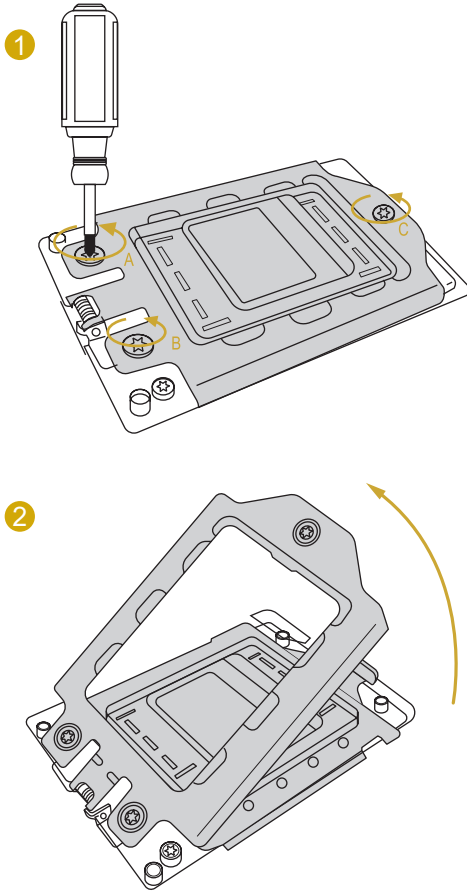


Appendix A

Please refer to the user's manual of the serverboard for more information of the serverboard components.

Installing the CPU (4U36L6E-MILAN2/2T)

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



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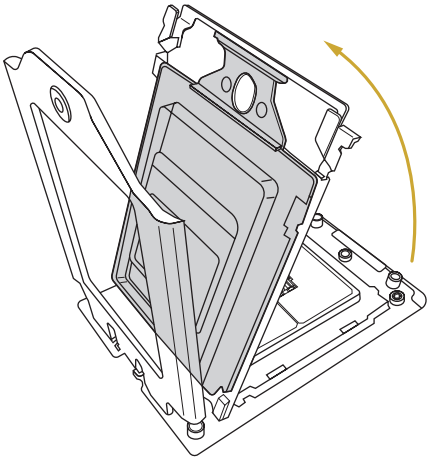

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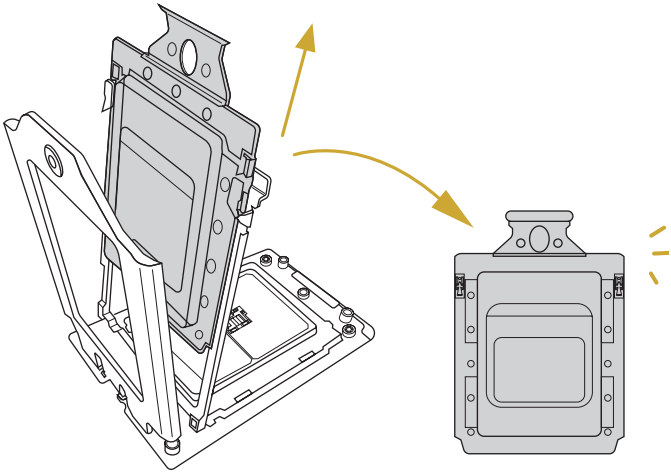

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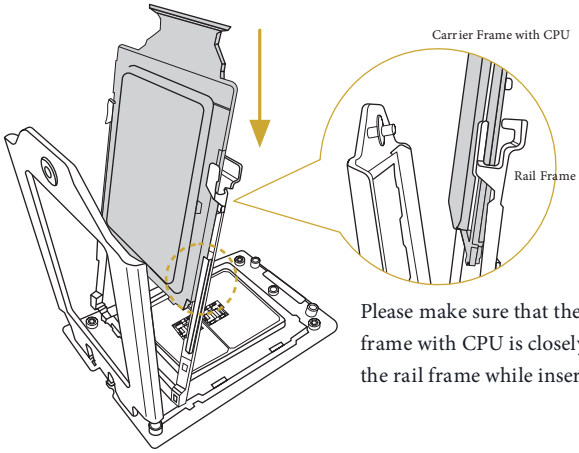
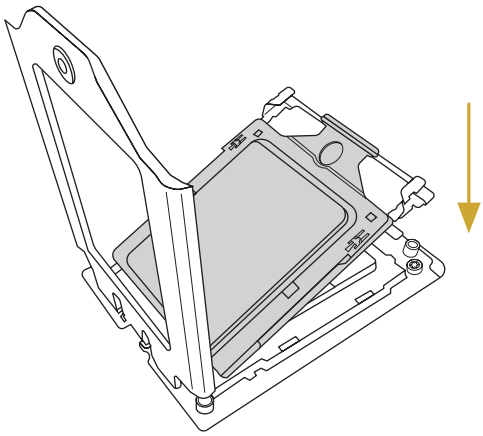


Please make sure that the carrier frame with CPU is closely attached to the rail frame while inserting it.

⚠

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

6



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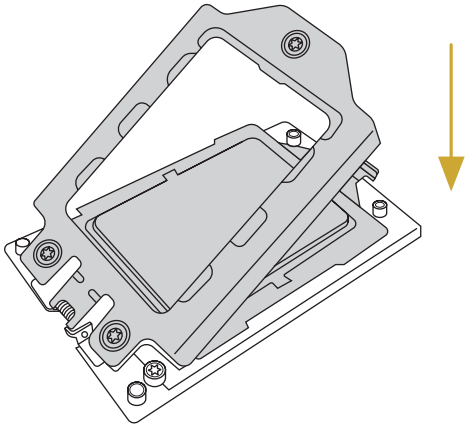

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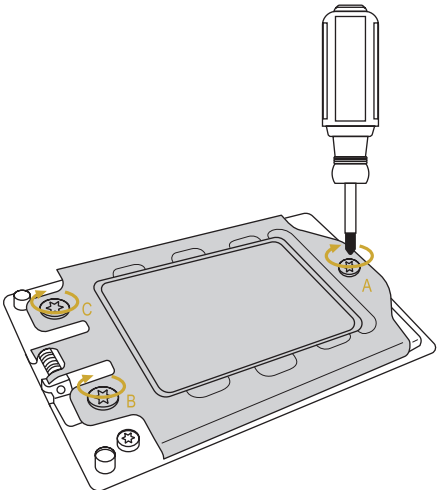
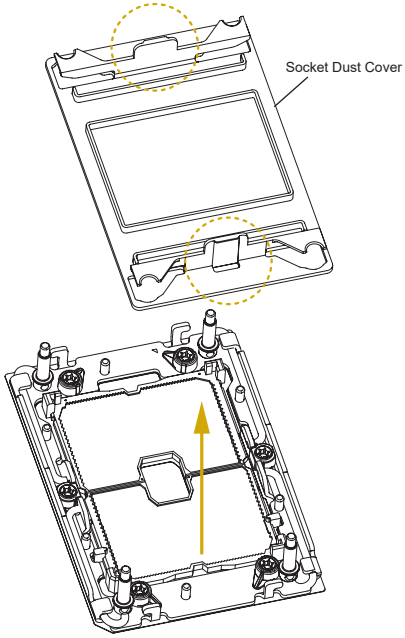


Installing the CPU (4U36L6E-ICX2/2T)

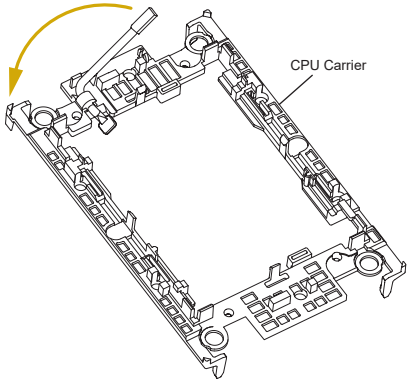
1. *Before you insert the CPU into the socket, please check if the PnP cap is on the socket, if the CPU surface is unclean, or if there are any bent pins in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.*
2. *Unplug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

1



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

2



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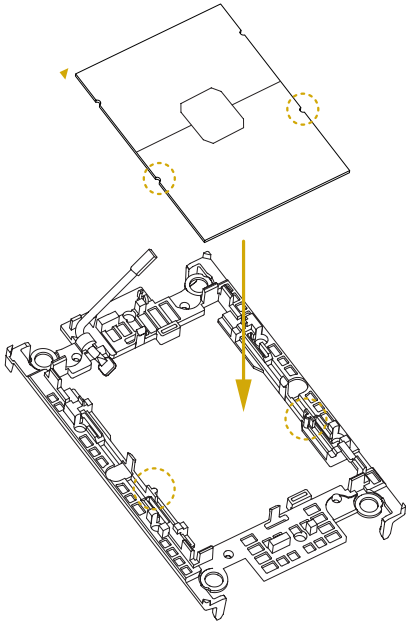

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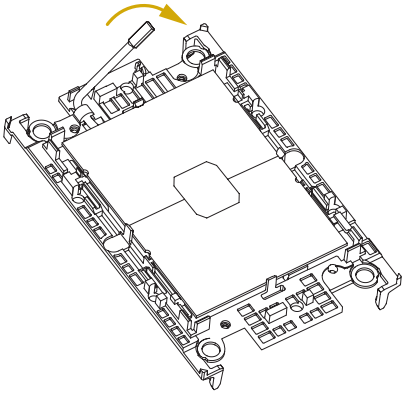

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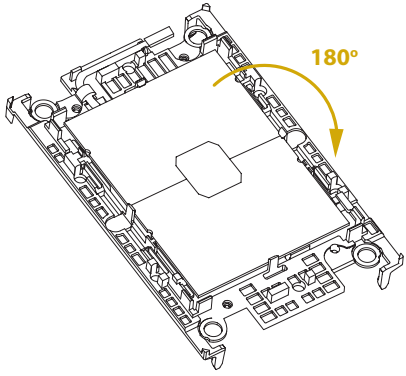

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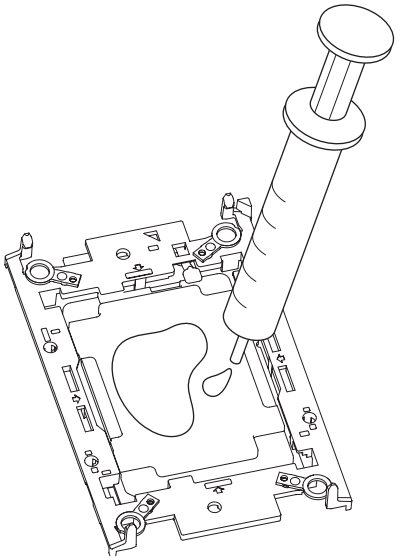

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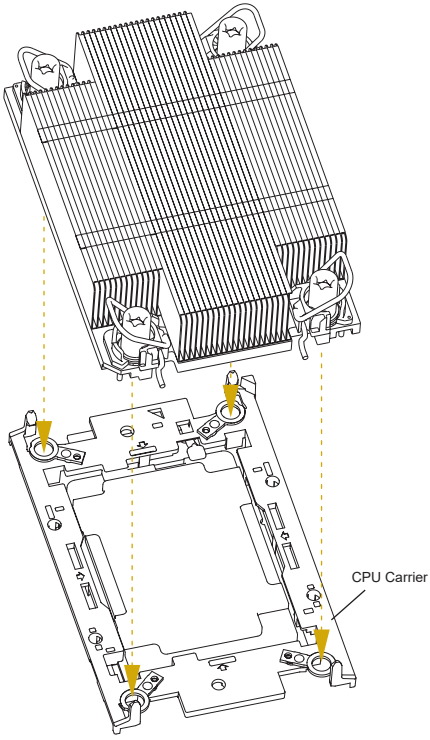

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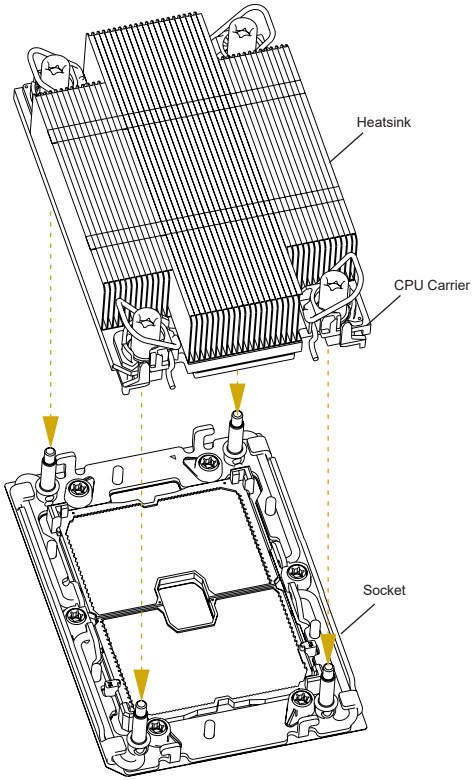

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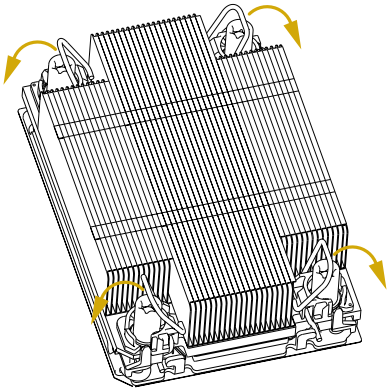

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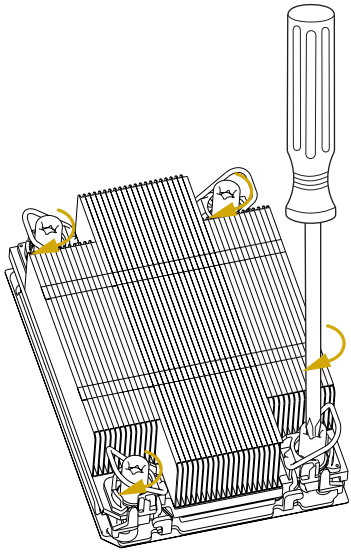
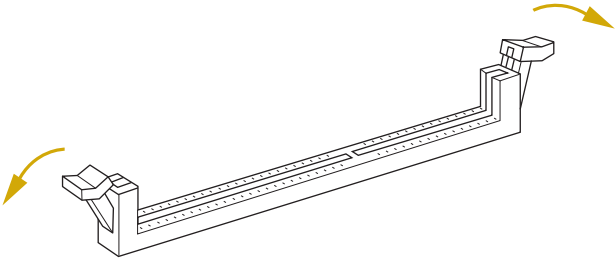


Installation of Memory Modules (DIMM)

1



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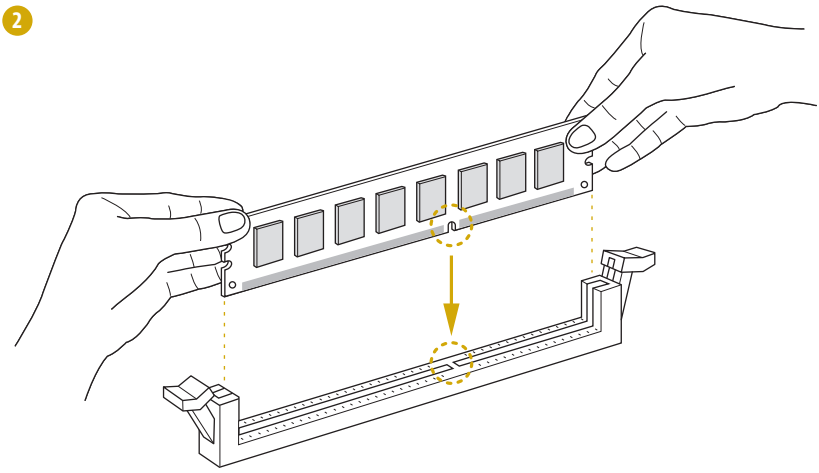

3