



**OPEN** Industry Standard, Flexible Architecture

**GREEN** Less Heat, Less Power Consumption

**STABLE** Robust Design, Quality Parts

Stable and  
Reliable Solution

**Server/Workstation**  
Motherboard

**RM237-C622LM**  
**RM237-C622LM2**



User Manual

English



Version 1.0

Published April 2021

Copyright©2021 ASRock Rack Inc. All rights reserved.

## Copyright Notice:

No part of this documentation may be reproduced, transcribed, transmitted, or translated in any language, in any form or by any means, except duplication of documentation by the purchaser for backup purpose, without written consent of ASRock Rack Inc.

Products and corporate names appearing in this documentation may or may not be registered trademarks or copyrights of their respective companies, and are used only for identification or explanation and to the owners' benefit, without intent to infringe.

## Disclaimer:

Specifications and information contained in this documentation are furnished for informational use only and subject to change without notice, and should not be constructed as a commitment by ASRock Rack. ASRock Rack assumes no responsibility for any errors or omissions that may appear in this documentation.

With respect to the contents of this documentation, ASRock Rack does not provide warranty of any kind, either expressed or implied, including but not limited to the implied warranties or conditions of merchantability or fitness for a particular purpose.

In no event shall ASRock Rack, its directors, officers, employees, or agents be liable for any indirect, special, incidental, or consequential damages (including damages for loss of profits, loss of business, loss of data, interruption of business and the like), even if ASRock Rack has been advised of the possibility of such damages arising from any defect or error in the documentation or product.



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](http://www.dtsc.ca.gov/hazardouswaste/perchlorate)”

**ASRock Rack's Website: [www.ASRockRack.com](http://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.

## **Contents**

|                                                        |           |
|--------------------------------------------------------|-----------|
| <b>Chapter 1 Introduction</b>                          | <b>1</b>  |
| 1.1 Shipping Box Contents                              | 2         |
| 1.2 Specifications                                     | 3         |
| <b>Chapter 2 Server System Overview</b>                | <b>4</b>  |
| 2.1 System Components                                  | 4         |
| 2.2 Internal Features                                  | 5         |
| 2.3 System Front Panel                                 | 7         |
| 2.4 System Rear Panel                                  | 8         |
| 2.5 Front Control Panel Buttons and LEDs               | 9         |
| 2.6 PSU LED                                            | 11        |
| <b>Chapter 3 Hardware Installation and Maintenance</b> | <b>12</b> |
| 3.1 Server Top Cover                                   | 13        |
| 3.2 Hard Drive                                         | 15        |
| 3.3 Power Supply                                       | 20        |
| 3.4 Add-on Card                                        | 21        |
| 3.4.1 Installing an Add-on Card                        | 21        |
| <b>Appendix A</b>                                      | <b>24</b> |
| Mezzanine Card Support List                            | 24        |
| <b>Appendix B</b>                                      | <b>25</b> |
| Installing the CPU and Heatsink                        | 25        |
| <b>Appendix C</b>                                      | <b>29</b> |
| Installation of Memory Modules (DIMM)                  | 29        |

# Chapter 1 Introduction

Thank you for purchasing RM237-C622LM / RM237-C622LM2, 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](http://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 |
|-------------------------------------------------------|----------|
| RM237-C622LM/RM237-C622LM2 Barebone (2U form factor)  | 1        |
| System Boards (MB)                                    | 1        |
| Power Supply Units                                    | 2        |
| System Fans                                           | 6        |
| 2.5 HDD Backplane (BPB)                               | 1        |
| 3.5 HDD Backplane (BPB)                               | 1        |
| Front Panel Boards                                    | 2        |
| Power Cable (12p to 8px2, 12HDD)                      | 1        |
| Power Cable (4p to 4p, 2HDD)                          | 1        |
| Mini SAS HD Cable (12HDD)                             | 3        |
| Front Panel Board Cable (Right, VGA+USB3.0)           | 1        |
| Front Panel Board Cable (Left, LED+USB2.0)            | 1        |
| SATA Cable (HDD)                                      | 2        |
| SMBus Cable (12HDD+2HDD)                              | 2        |
| SGPIO Cable (2HDD)                                    | 1        |
| Passive Heatsinks (LGA3647 2U PASSIVE 108*78*64mm)    | 2        |
| Power Cords (AC PWR CORD US, L:1.5M)                  | 2        |
| Rail Assembly Kit (SEV.FIXED-RAIL-RM23712 KING SLIDE) | 1        |
| RATING LABEL BLACK (40*21MM)                          | 1        |
| Accessory Box                                         | 1        |
| Support CD                                            | 1        |
| Quick Installation Guide                              | 1        |



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

## 1.2 Specifications

| RM237-C622LM / RM237-C622LM2 |                                                                                                                                                                                      |                             |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| System Physical Status       |                                                                                                                                                                                      |                             |
| Form Factor                  | 2U Rackmount                                                                                                                                                                         |                             |
| Dimension<br>(D x W x H)     | 87mm*438mm*735mm                                                                                                                                                                     |                             |
| Support MB Size              | L shape , 16.7" x17" inch<br>(RM237-C622LM: EP2C622D24LM /<br>RM237-C622LM2: EP2C622D24LM2 )                                                                                         |                             |
| Front Panel                  |                                                                                                                                                                                      |                             |
| Buttons                      | <ul style="list-style-type: none"><li>• Power button</li><li>• UID button</li><li>• System reset button</li></ul>                                                                    |                             |
| LEDs                         | <ul style="list-style-type: none"><li>• Power LED</li><li>• Identification LED</li><li>• Hard drive activity LED</li><li>• Network activity LED</li><li>• System event LED</li></ul> |                             |
| I/O Ports                    | <ul style="list-style-type: none"><li>• 1 x USB 2.0 port</li><li>• 1 x USB 3.0 port &amp; VGA port</li></ul>                                                                         |                             |
| External Drive Bay           |                                                                                                                                                                                      |                             |
| Front Side Drive Bay         | <ul style="list-style-type: none"><li>• 12 x 3.5" SATA 3(6Gb/s) HDD</li></ul> <i>[Option : Support 12 x 3.5" SAS (12Gb/s) HDD with an additional 16i HBA/RAID card]</i>              |                             |
| Rear Side Drive Bay          | <ul style="list-style-type: none"><li>• 2 x 2.5" SATA 3(6Gb/s)/ 2.5" SAS (12Gb/s) HDD</li></ul>                                                                                      |                             |
| Add-On Card Slot             |                                                                                                                                                                                      |                             |
| Model                        | RM237-C622LM                                                                                                                                                                         | RM237-C622LM2               |
| GPGPU Support                | Not Supported                                                                                                                                                                        | GPGPU Cards Supported       |
| System Cooling               |                                                                                                                                                                                      |                             |
| Fan                          | 6 x 60*38 mm PWM (Hot-swap)                                                                                                                                                          |                             |
| Power Supply                 |                                                                                                                                                                                      |                             |
| Model                        | RM237-C622LM                                                                                                                                                                         | RM237-C622LM2               |
| Type                         | 2 (1+1), Redundant CPRS PSU                                                                                                                                                          | 2 (1+1), Redundant CPRS PSU |
| Output Watts                 | 1200W, Platinum                                                                                                                                                                      | 1600W, Platinum             |

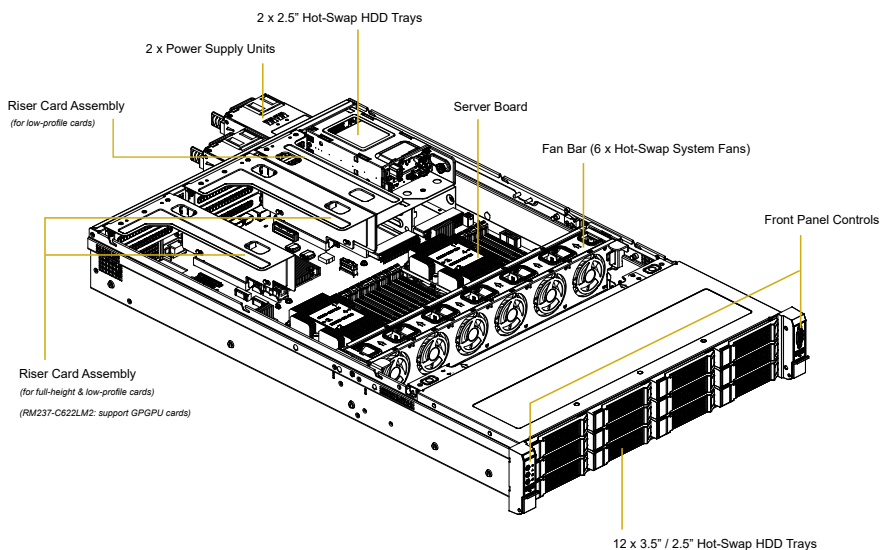


Please refer to the user manual of the motherboard you use for detailed information about motherboard components and features.

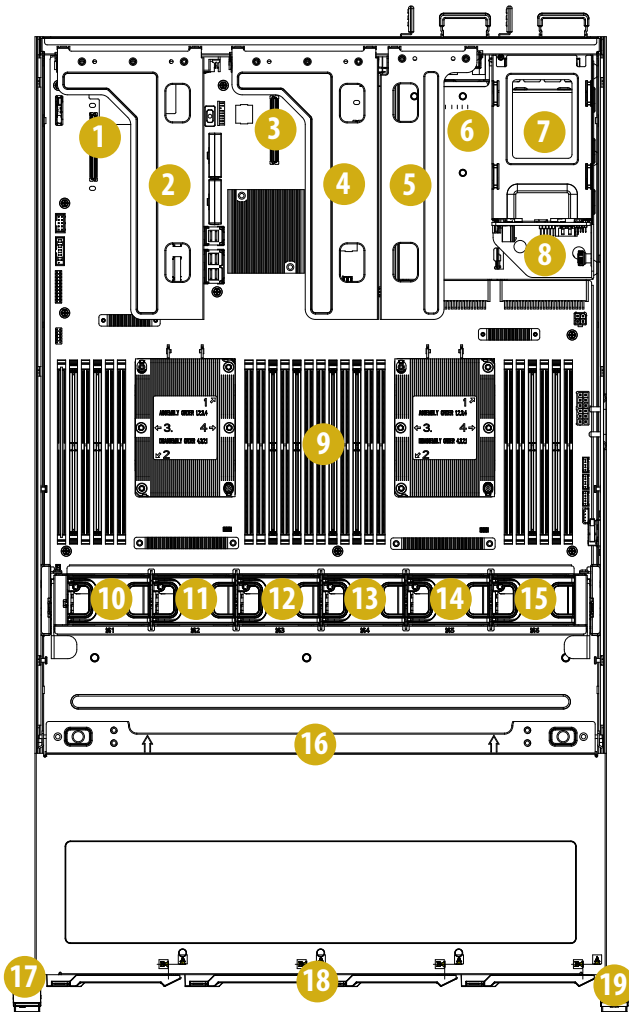
# Chapter 2 Server System Overview

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

## 2.1 System Components

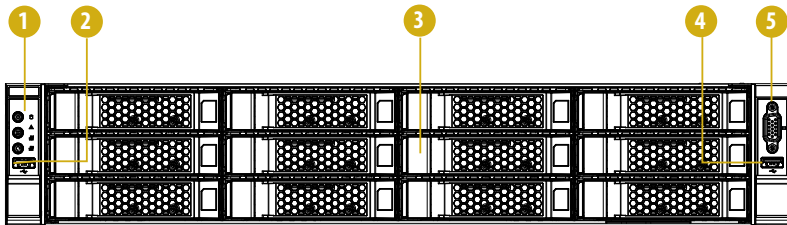


## 2.2 Internal Features



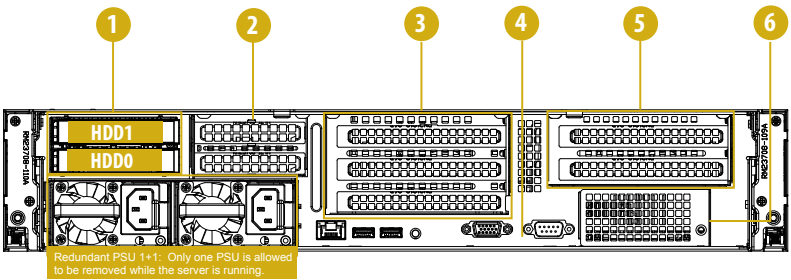
| No. | From                                                                                |
|-----|-------------------------------------------------------------------------------------|
| 1   | LAN Mezzanine Card Slot                                                             |
| 2   | Riser Card Assembly 1 ( <i>RM237-C622LM2 supports the full-height GPGPU card.</i> ) |
| 3   | Storage Mezzanine Card Slot                                                         |
| 4   | Riser Card Assembly 2 ( <i>RM237-C622LM2 supports the full-height GPGPU card.</i> ) |
| 5   | Riser Card Assembly 3 ( <i>Low-profile card only</i> )                              |
| 6   | 2 x Power Supply Units                                                              |
| 7   | 2 x 2.5" SATA 3(6Gb/s) / 2.5" SAS (12Gb/s) HDD (Hot-swappable)                      |
| 8   | 2.5" HDD Backplane Board (BPB)                                                      |
| 9   | Serverboard                                                                         |
| 10  | System Fan 1 (Hot-swappable)                                                        |
| 11  | System Fan 2 (Hot-swappable)                                                        |
| 12  | System Fan 3 (Hot-swappable)                                                        |
| 13  | System Fan 4 (Hot-swappable)                                                        |
| 14  | System Fan 5 (Hot-swappable)                                                        |
| 15  | System Fan 6 (Hot-swappable)                                                        |
| 16  | 3.5" HDD Backplane Board (BPB)                                                      |
| 17  | Front Control Panel (1 x USB 2.0 port)                                              |
| 18  | 12 x 2.5" or 3.5" SATA 3(6Gb/s)/ SAS (12Gb/s) HDDs                                  |
| 19  | Front I/O Ports (1 x USB 3.0 port & 1 x VGA port)                                   |

## 2.3 System Front Panel



| No. | Description                                        |
|-----|----------------------------------------------------|
| 1   | Front Control Panel                                |
| 2   | 1 x USB 2.0 Port                                   |
| 3   | 12 x 2.5" or 3.5" SATA 3(6Gb/s)/ SAS (12Gb/s) HDDs |
| 4   | 1 x USB 3.0 Port                                   |
| 5   | 1 x VGA Port                                       |

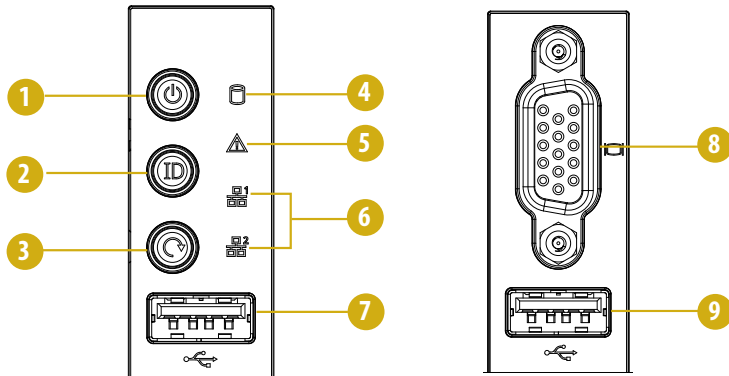
## 2.4 System Rear Panel



| No. | Description                                                   |
|-----|---------------------------------------------------------------|
| 1   | 2 x 2.5" SATA 3(6Gb/s)/ 2.5" SAS (12Gb/s) HDDs                |
| 2   | Add-on PCIe Card Slots (on Riser Card Assembly)               |
| 3   | Add-on PCIe Card Slots (on Riser Card Assembly)               |
| 4   | I/O Shield (depends on the specification of the server board) |
| 5   | Add-on PCIe Card Slots (on Riser Card Assembly)               |
| 6   | Mezzanine Card Slot (Type A/B/C)                              |

## 2.5 Front Control Panel Buttons and LEDs

### Front Control Panel



| No. | Description              |
|-----|--------------------------|
| 1   | Power Button and LED     |
| 2   | UID Button and LED       |
| 3   | System Reset Button      |
| 4   | HDD Activity LED         |
| 5   | System Event LED         |
| 6   | LAN1, LAN2 Activity LEDs |
| 7   | USB 2.0 Port             |
| 8   | VGA Port                 |
| 9   | USB 3.0 Port             |

*\*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.

## 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   |

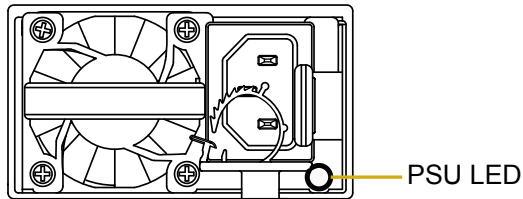
| ID LED |                                    |
|--------|------------------------------------|
| Status | Description                        |
| Blue   | System identification is active.   |
| Off    | System identification is disabled. |

| LAN1, LAN2 LEDs |                                              |
|-----------------|----------------------------------------------|
| Status          | Description                                  |
| Green           | Link between system and network or no access |
| Blinking Green  | Network access                               |

| HDD Activity LED |             |
|------------------|-------------|
| Status           | Description |
| Blinking Green   | HDD access  |
| Off              | HDD idle    |

| System Event 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<br>(failure, OCP, OVP, Fan Fail, OTP, UVP)<br>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<br>Redundant state                                       |

# 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.

- 2.5" / 3.5" HDD(s)
- Power Supply Units (Pre-installed)
- System Fans (Pre-installed)
- Server Board (Pre-installed)
- HDD Backplane Boards (Pre-installed)
- Front Panel Boards (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.

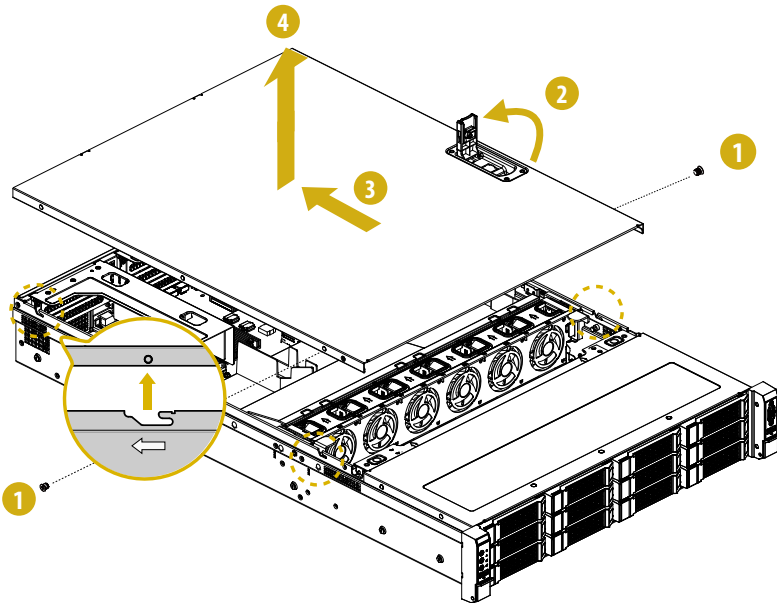
## 3.1 Server Top Cover

### Removing the Server Top Cover



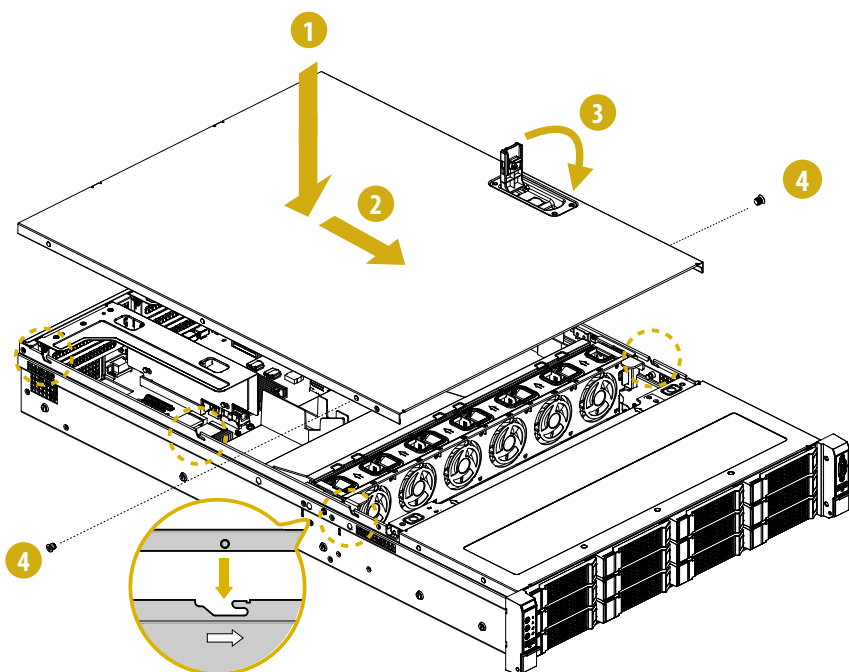
1. Before removing the top cover, power off the server and unplug the power cord.
2. The system must be operated with all the chassis top cover installed to ensure proper cooling.

1. Release the screws securing the cover to the chassis.
2. Push the cover latch button to release the latch handle and the cover.
3. Push the top front cover toward the rear of the chassis to remove the cover from the locked position.
4. Lift the chassis top cover off the chassis.



## Installing the Server Top Cover

1. Lower the top cover on the chassis , with the latch handle open.
2. Make sure the side latches align with the cutouts. Push the cover toward the front side of the chassis.
3. Close the latch handle.
4. Tighten the screws to secure the cover to the chassis.



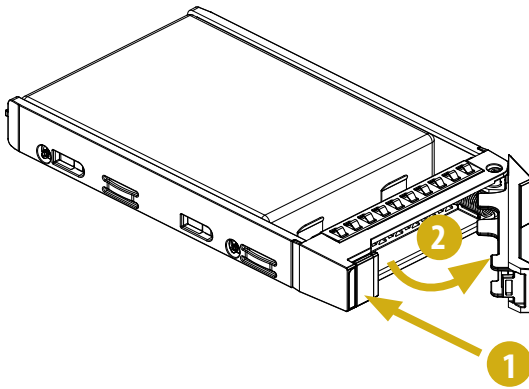
## 3.2 Hard Drive

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

The chassis supports hot-swappable 2.5" hard drives.

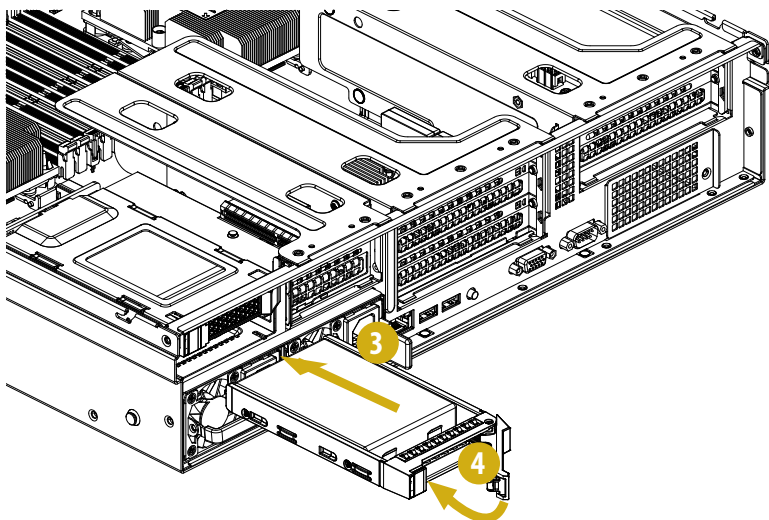
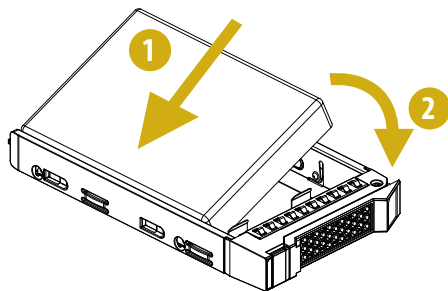
#### Removing 2.5" Hard Drive Trays from the Chassis

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

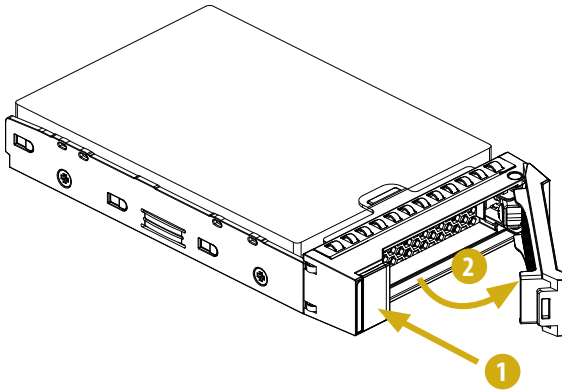


### 3.2.2 Installing a Hard Disk Drive into 3.5" Hard Drive Tray

The chassis supports hot-swappable 3.5" hard drives.

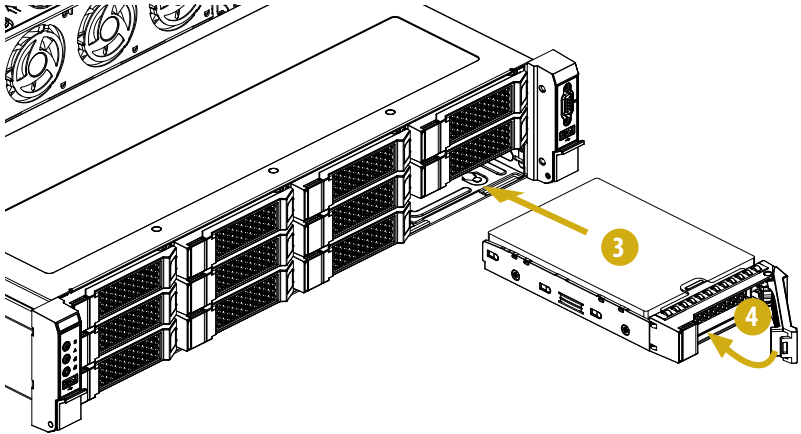
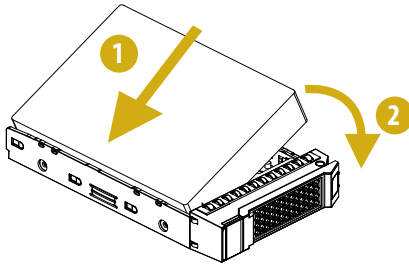
#### Removing 3.5" Hard Drive Trays from the Chassis

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.



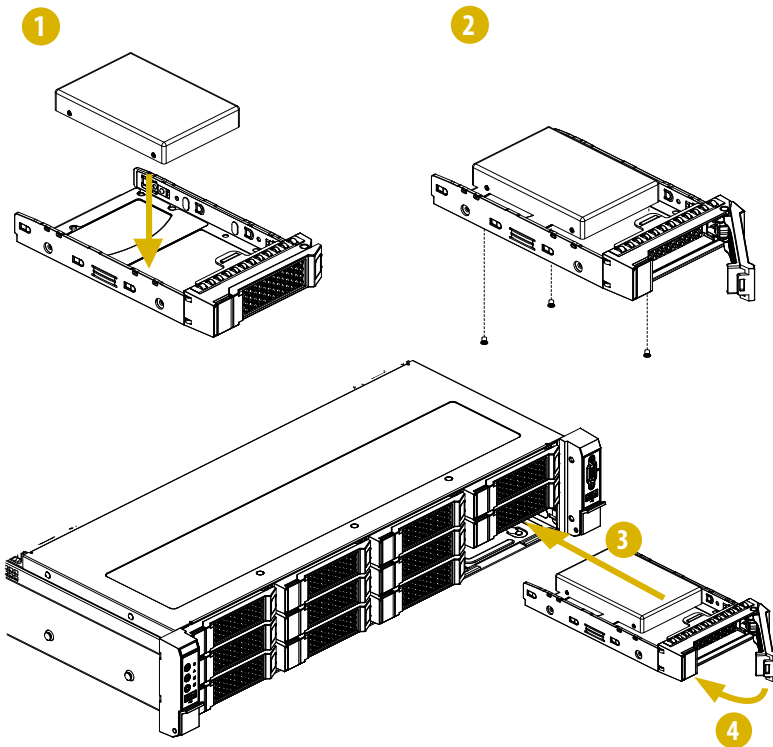
## Installing a 3.5" Hard Drive to the Hard Drive Tray

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

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 four 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



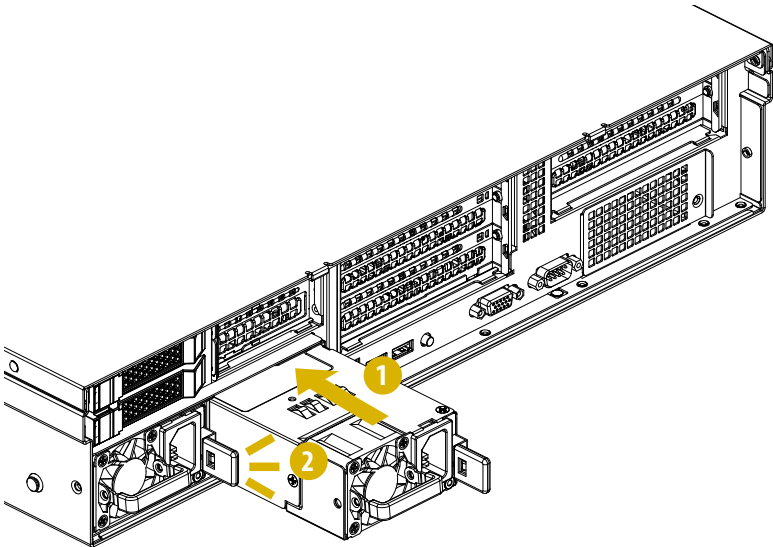
*Before replacing the power supply, power off the server, unplug the power cord, and disconnect all wiring from the power supply.*

#### Installing the Power Supply Unit

The system can accommodate four AC or two DC power supplies in the bay at the rear of the chassis. Each unit provides up to 1200 or 1600 Watts 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.



## 3.4 Add-on Card

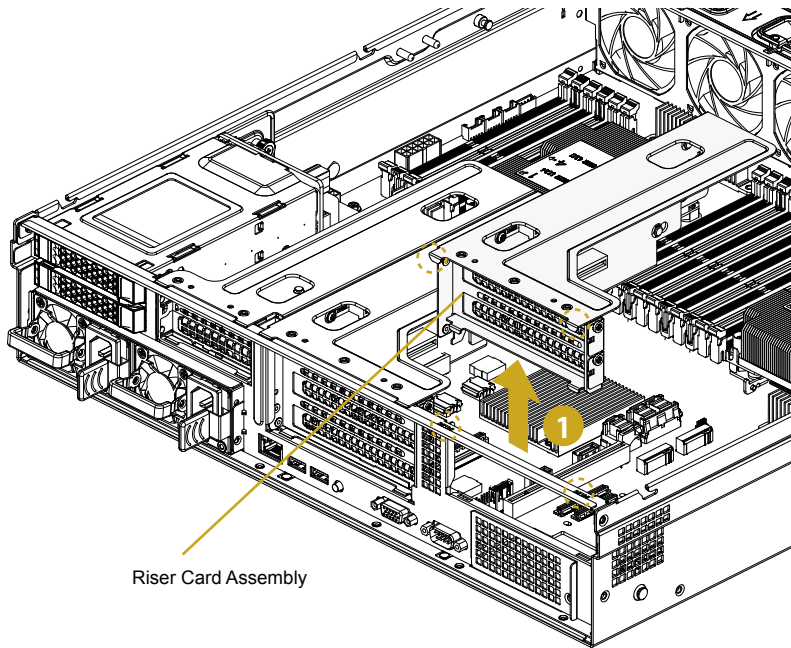


1. You can install an add-on card to the chassis with the riser card assembly installed on the serverboard.
2. Before installing the add-on card, power off the server and unplug the power cord.

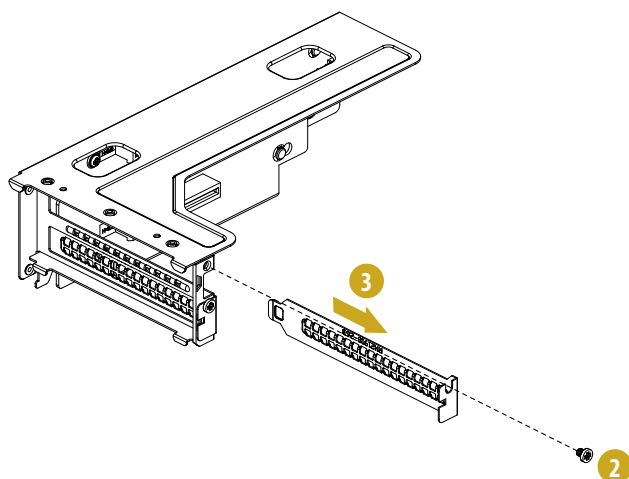
Please be noted that add-on card is supported for certain models only. Please check the rear panel of your chassis and see if a PCI Express slot is provided on the I/O shield.

### 3.4.1 Installing an Add-on Card

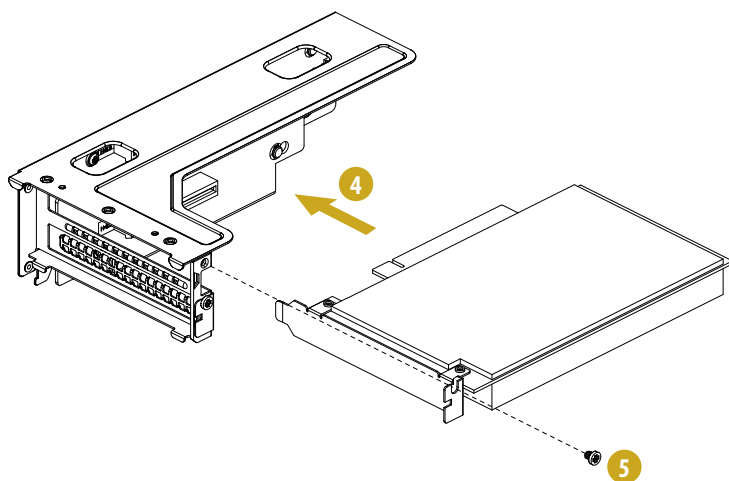
1. Push upward to remove the riser-card assembly from the chassis.



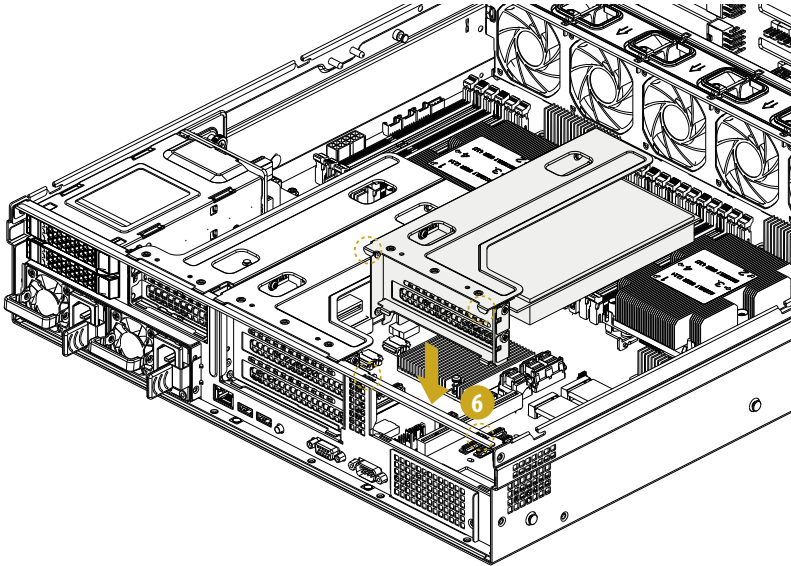
2. Remove the screw securing the slot cover to the assembly.
3. Slide the slot cover out sideways.



4. Install an add-on card into the riser-card assembly.
5. Tighten the screw to secure the add-on card.



6. Install the add-on card assembly to the chassis. Align the plate of the add-on card with the openings in the back of the chassis.
7. Use screws to secure the add-on card assembly to the chassis.



# Appendix A

## Mezzanine Card Support List

This motherboard supports the following ASRock Rack mezzanine cards.

| Mezz Card Type | Mezz Slot Type | Model     |
|----------------|----------------|-----------|
| LAN Card       | Mezz Type A    | M350      |
| LAN Card       | Mezz Type A    | M350R     |
| LAN Card       | Mezz Type A    | M540      |
| LAN Card       | Mezz Type A    | M540R     |
| LAN Card       | Mezz Type A    | M599      |
| LAN Card       | Mezz Type A    | M599R     |
| LAN Card       | Mezz Type A    | M710      |
| LAN Card       | Mezz Type A    | MX710R    |
| Storage Card   | Mezz Type A    | M3008     |
| Storage Card   | Mezz Type A    | M3008S    |
| Storage Card   | Mezz Type A    | M3108     |
| Storage Card   | Mezz Type A    | M3616     |
| PHI Card       | Mezz Type C    | MP-557R2  |
| PHI Card       | Mezz Type C    | MP-1543R4 |
| PHI Card       | Mezz Type C    | MP-4227R2 |

*\*Please refer to our website for the latest support list.*

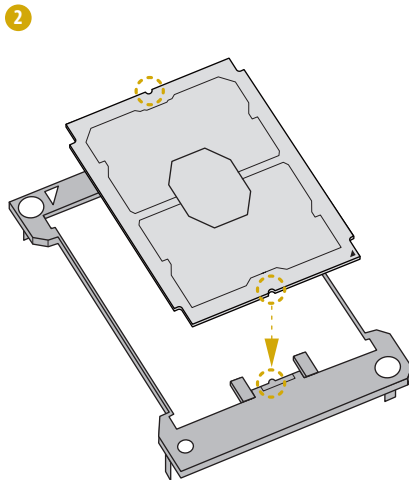
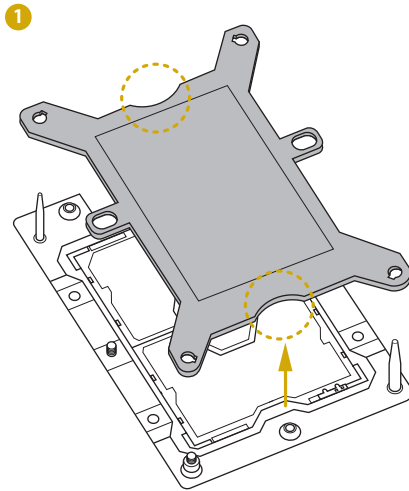
*\*Due to mechanical limits, use one type of the mezzanine card at a time.*

## Appendix B

### Installing the CPU and Heatsink

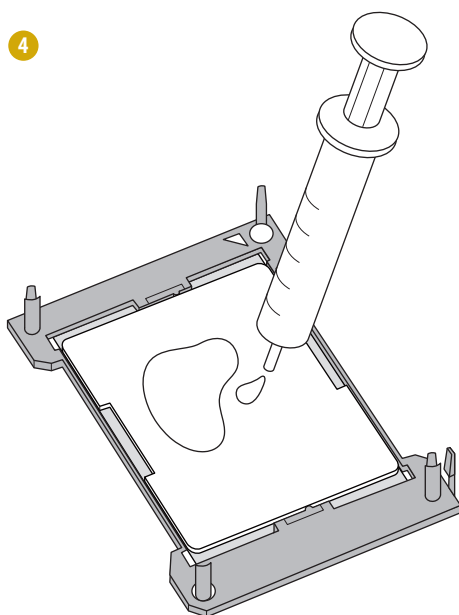
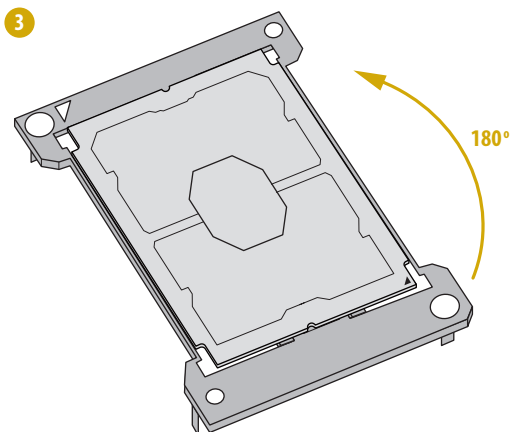


1. Before you insert the CPU into the socket, please check if the PnP cap is on the socket, if the CPU surface is unclean, or if there are any bent pins in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.
2. Unplug all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

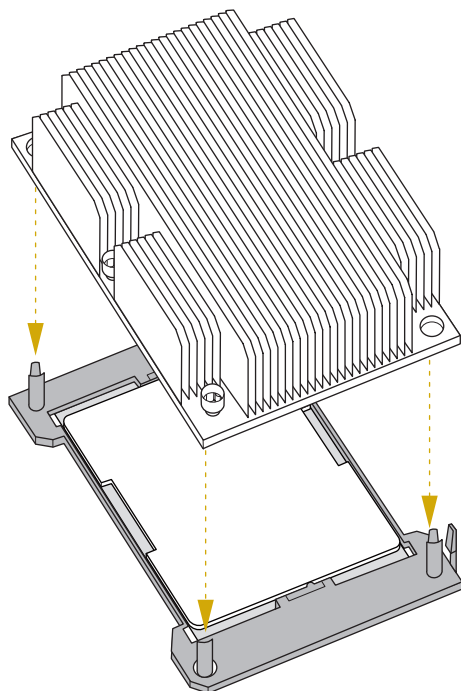




1. Before you installed the heatsink, you need to spray thermal interface material between the CPU and the heatsink to improve heat dissipation.
2. Illustration in this documentation are examples only. Heatsink or fan cooler type may differ.

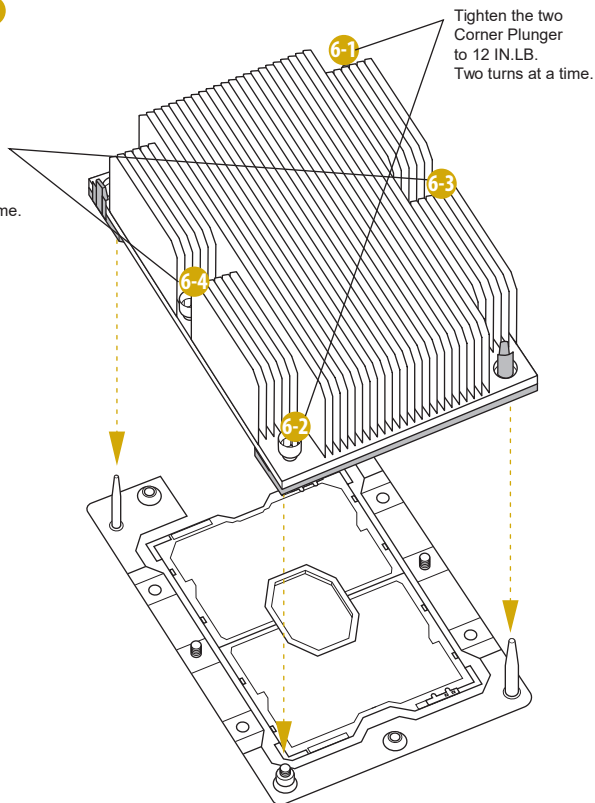


5



6

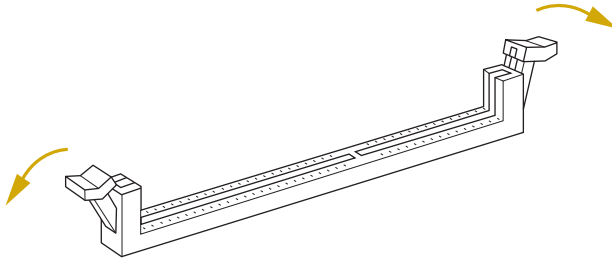
Tighten the two  
Middle Nuts to  
12 IN.LB.  
Two turns at a time.



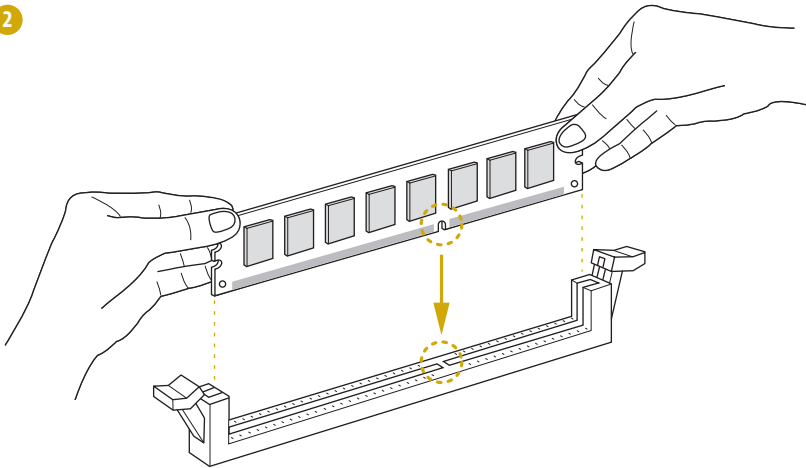
## Appendix C

### Installation of Memory Modules (DIMM)

1



2



3

