OPEN
Industry Standard, Flexible Architecture

GREEN
Less Heat, Less Power Consumption

STABLE
Robust Design, Quality Parts

Stable and
Reliable Solution

Server/Workstation
Motherboard

1U2LW Series

User Manual

English

Version 1.0
Published April 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"

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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 1U2LW 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	
	1U2LW-X470 1U2LW-C242	1U2LW-X570
1U2LW Series Barebone (1U form factor)	1	1
System Boards (MB)*	1	1
Power Supply Unit*	1	1
System Fans*	3	3
HDD Backplanes (BPB)*	2	0
Front Panel Board (FPB)*	1	1
Fan Cable (L:300mm)	1	0
Fan Cable (L:200mm)*	0	3
SATA Cable (L:300mm)	1	1
SATA Cable (L:500mm)	0	1
USB Cable*	0	1
Aux_Panel Cable*	0	1
Air Duct*	0	1
1U Cooler	1	1
Riser Board	1	1
Slide Rail	1	1
Accessory Box	1	1
Support CD	1	1

** The components are pre-installed.*

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

English

1.2 Specifications

1U2LW Series	
System Physical Status	
Form Factor	1U Rackmount
Dimension (D x W x H)	394 x 482.6 x 44.4mm (D/W/H)
Support MB Size	mATX / ATX
Front Panel	
Buttons	• Power On button • System reset button
LEDs	• Power LED • Hard drive activity LED • 2 x Network activity LEDs • System event LED
I/O Ports	2 x USB 3.2 Gen1 ports (1U2LW-X470 / 1U2LW-X570/2L2T) / 2 x USB 2.0 ports (1U2LW-C242)
Drive Bay	
Internal	2 x 3.5" HDD carriers (+ Slim ODD option)
System Cooling	
Fan	3 x 4028 PWM FAN W/1*4P CONN
Power Supply	
Type	Single PSU
Output Watts	315W
Efficiency	Gold

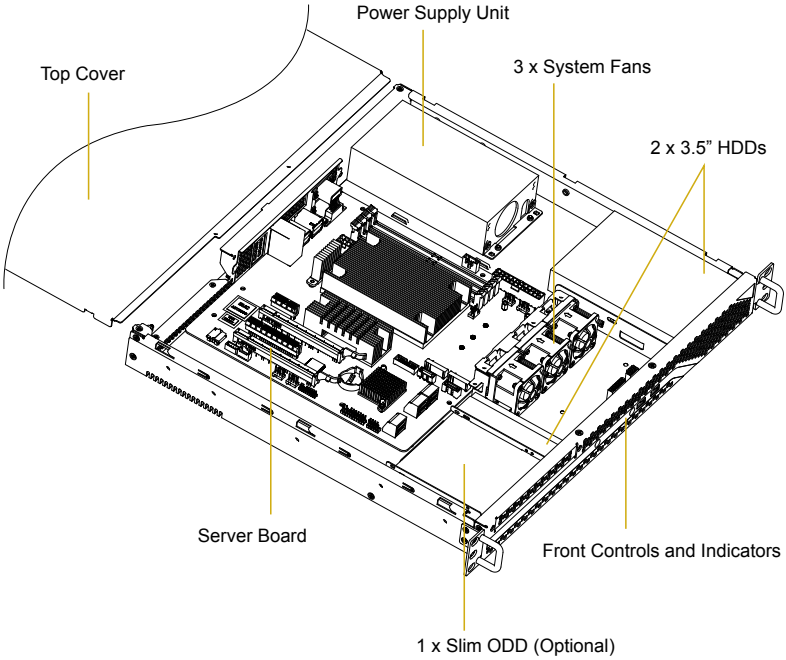
**Please be noted that the functions are supported depending on the type of the server board.*

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

Chapter 2 Server System Overview

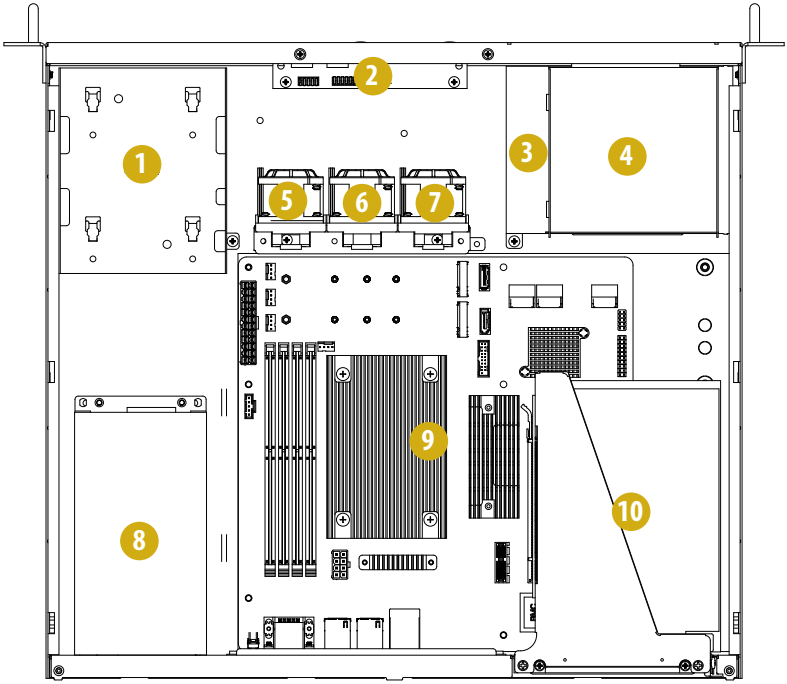
This chapter provides diagrams showing the location of important components of the server system.

2.1 System Components



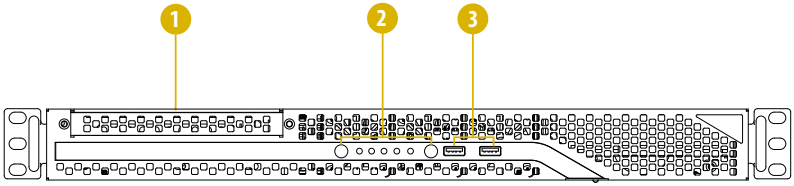
English

2.2 Internal Features



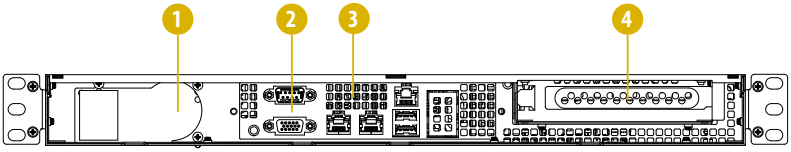
No.	From
1	3.5" SATA HDD (HDD0)
2	Front Panel Board (FPB)
3	3.5" SATA HDD (HDD1)
4	Slim Optical Disc Drive (ODD) (optional)
5	System Fan 1
6	System Fan 2
7	System Fan 3
8	Power Supply Unit (PSU)
9	Serverboard
10	PCIE x16 Add-in Card

2.3 System Front Panel



No.	Description
1	1 x Slim Optical Disc Drive (ODD)
2	Control Panel Buttons and LEDs
3	2 x USB Ports

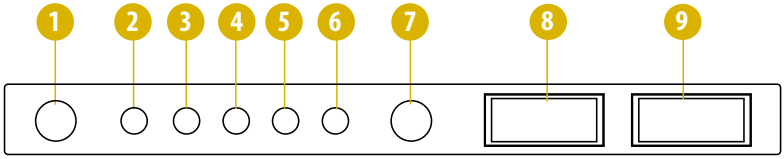
2.4 System Rear Panel



No.	Description
1	Power Supply Unit
2	I/O Shield (depends on the specification of the server board)
3	Rear Vent
4	PCI Express Slot (for the riser card)

2.5 Front Control Panel Buttons and LEDs

Front Control Panel



No.	Description
1	Power Button
2	Power Status LED
3	HDD Status LED
4	LAN1 Activity LED
5	LAN2 Activity LED
6	System Status LED
7	System Reset Button
8	USB Port (USB_1)
9	USB Port (USB_2)

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

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.

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.

Status LED Definitions

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

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

HDD Status LED	
Status	**Description**
Blinking Yellow	HDD access
Off	HDD idle

LAN1, LAN2 LED	
Status	**Description**
Blue	Link between system and network or no access
Blinking Blue	Network access

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.

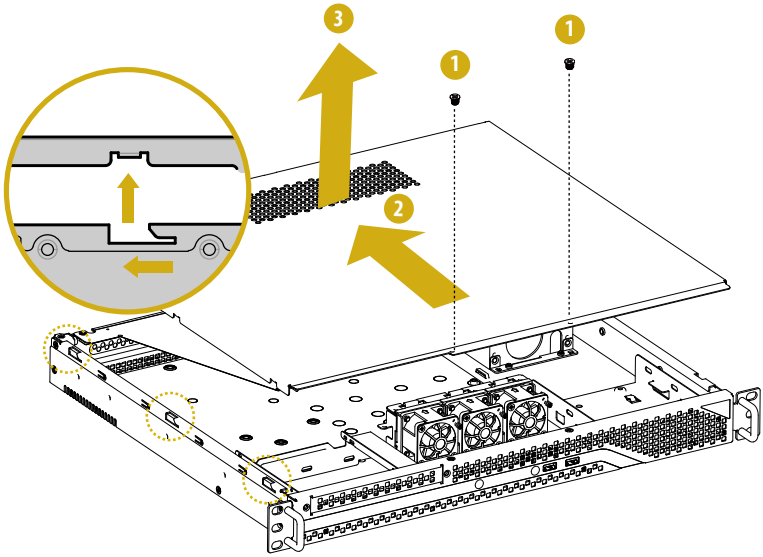
- 3.5" HDD(s)
- Power Supply Unit (Pre-installed)
- System Fans (Pre-installed)
- Server Board (Pre-installed)

> ⚠ 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

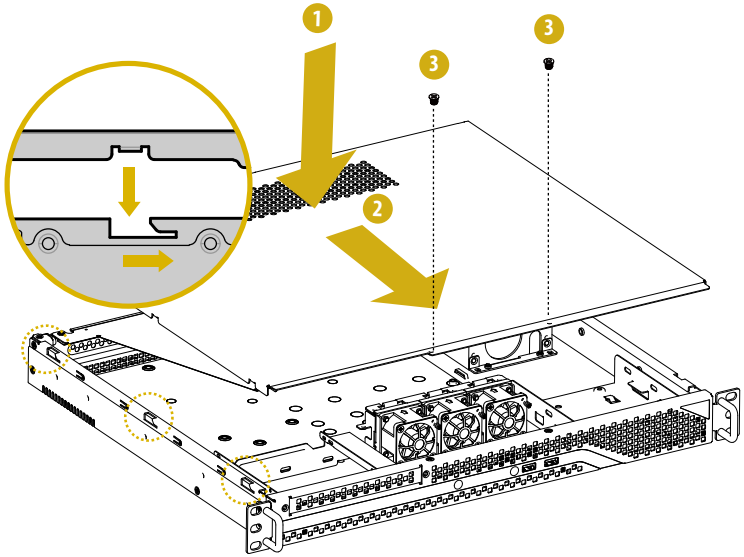
Removing the Server Top Cover

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



1. Remove the screws that secure the top cover to the chassis.
2. Push the top cover toward the rear of the chassis to remove the cover from the locked position.
3. Lift up and remove the top cover.

Installing the Server Top Cover



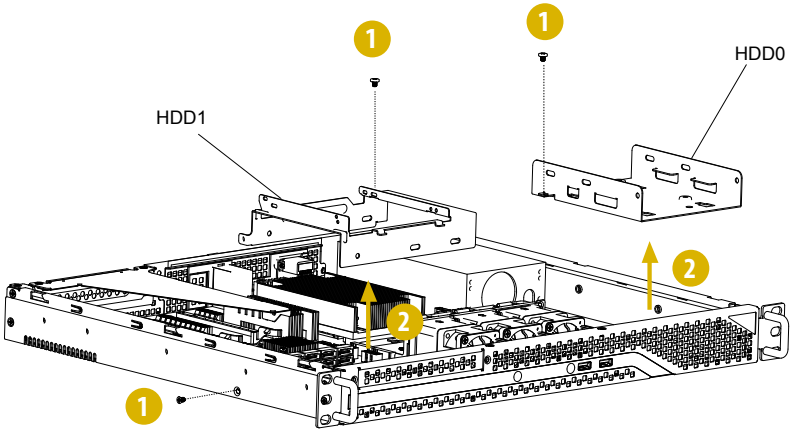
1. Lower the top cover on the chassis, making sure the side latches align with the cutouts.
2. Slide the top cover toward the front.
3. Secure the top cover with the screws.

3.2 Hard Drive

3.2.1 Installing a Hard Disk Drive into 3.5" Hard Drive Carrier

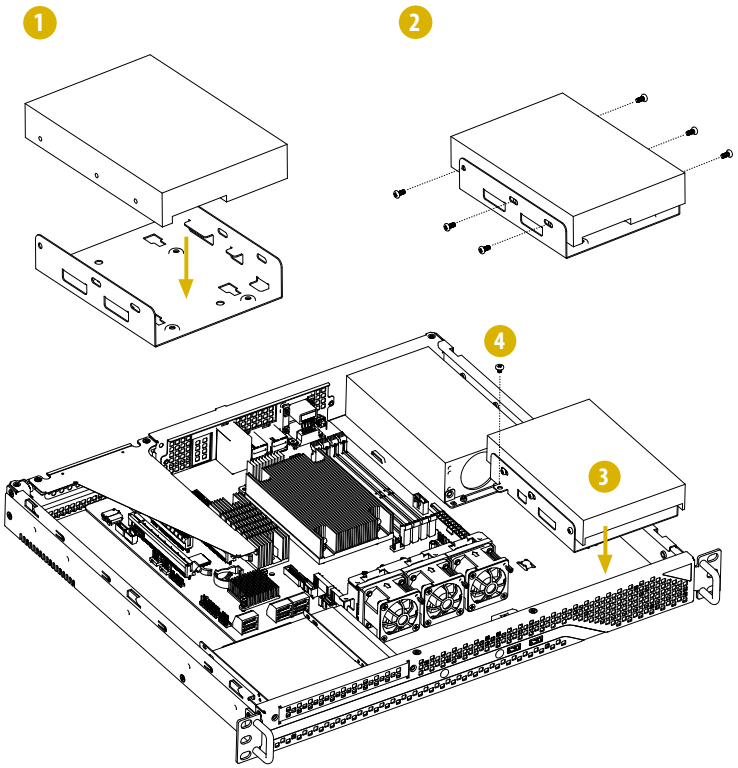
Removing a 3.5" Hard Drive Carrier from the Chassis

1. Release the screws that secure the hard drive carriers to the chassis.
2. Lift up and remove the carriers.



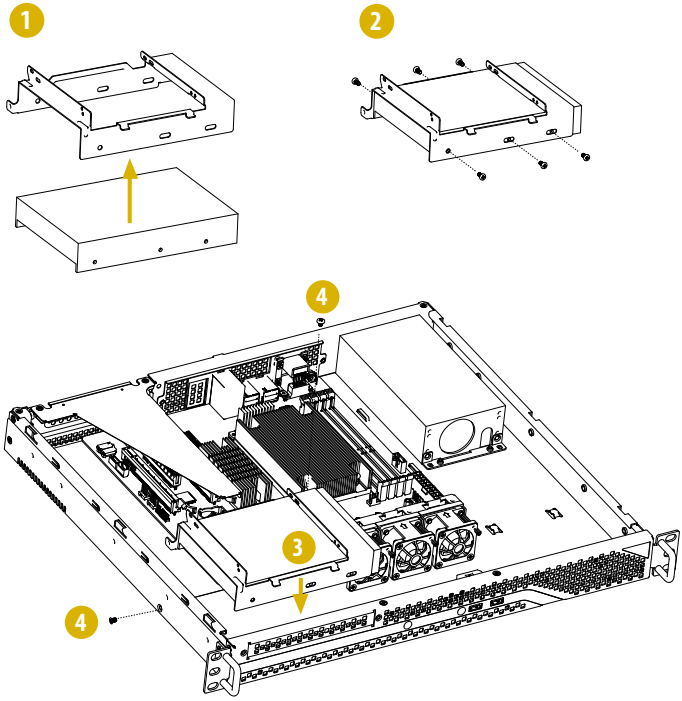
Installing a 3.5” Hard Drive to the Hard Drive Carrier (HDD0)

1. Place the 3.5" HDD into the carrier with the printed circuit board side facing down. Carefully align the mounting holes in the hard drive and the carrier.
2. Secure the hard drive using the screws.
3. Place the drive carrier back to the chassis with the screw hole aligned.
4. Secure the drive carrier with a screw.



Installing a 3.5” Hard Drive to the Hard Drive Carrier (HDD1)

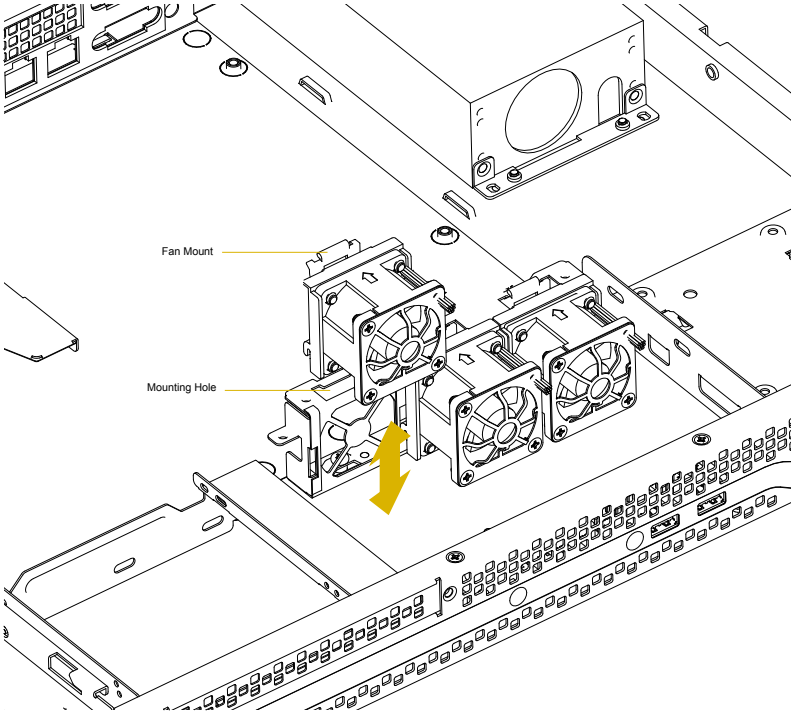
1. Place the 3.5" HDD into the carrier with the printed circuit board side facing up. Carefully align the mounting holes in the hard drive and the carrier.
2. Secure the hard drive using the screws.
3. Place the drive carrier back to the chassis with the screw hole aligned.
4. Secure the drive carrier with screws.



3.3 System Fan

Replacing the Simple-Swap Fan

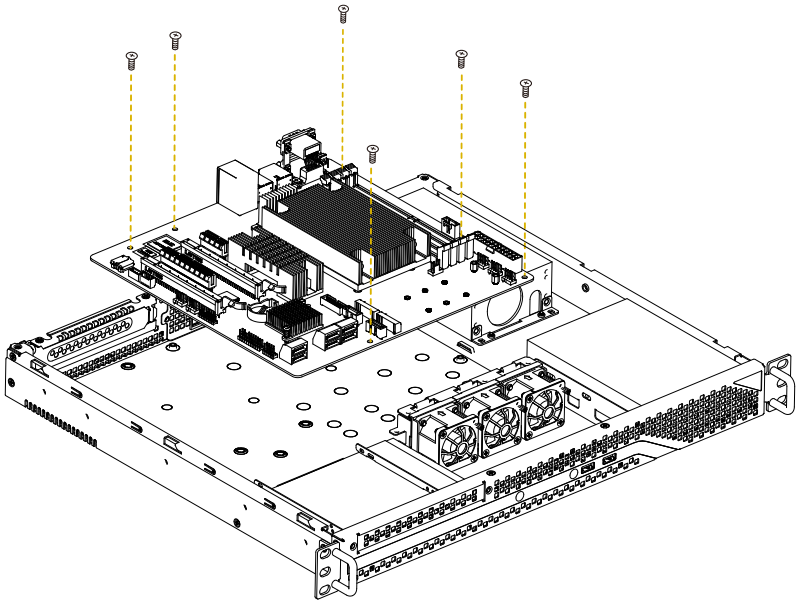
1. Press and hold the clip on the fan.
2. Press and hold the clip on the middle fan.



3.4 Server Board

Follow the steps below to install the server board to the chassis.

1. Hold the server board only by the edges.
2. Gently place the server board into the chassis. Sit the server board on the server board tray.
3. Position the server board in the server system. Align mounting holes of the server board to the standoff on the chassis.
4. Affix the screws clockwise into the mounting holes in all of the corners of the server board.



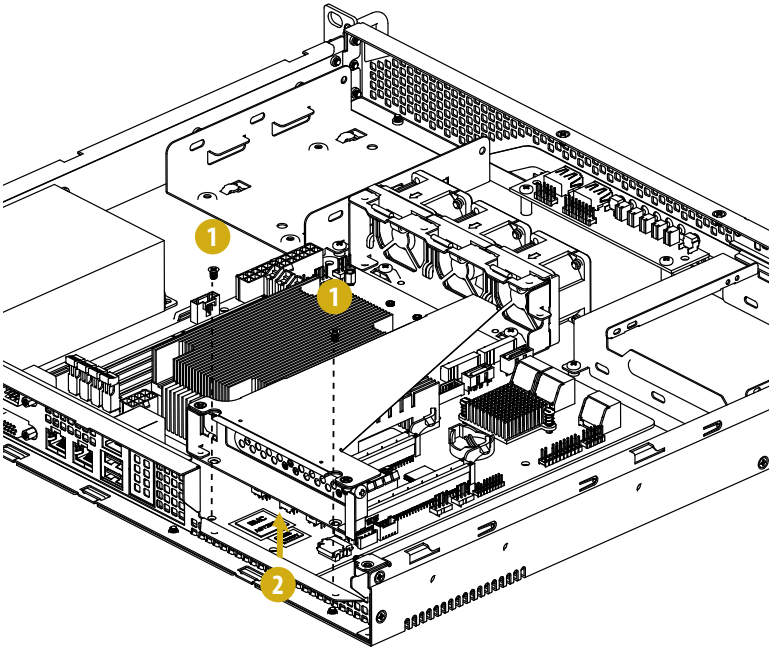
1. Do not over-tighten the screws! Doing so may damage the motherboard.
2. Refer to the user manual of the server board you use for instructions on how to install and remove the server board components and how to use its setup utility.

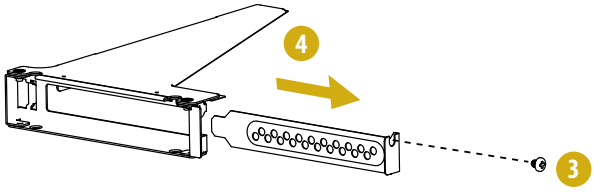
3.5 Add-in Card

1. *You can install an Add-in Card to the chassis only when you have a riser card installed on the server board.*
2. *Before installing the Add-in Card, power off the server and unplug the power cord.*

Removing the Blanking Plate from the Chassis

1. Remove the screws securing the blanking plate assembly on the chassis. Keep the screws for later use.
2. Lift up the blanking plate assembly.
3. Remove the screw securing the blanking plate on the assembly.
4. Slide the blanking plate out sideways.

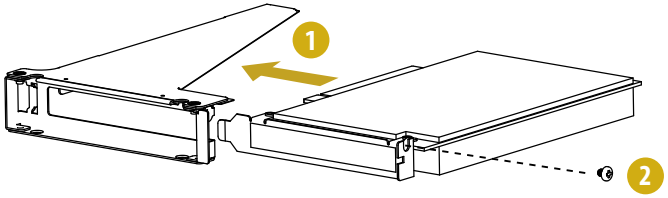


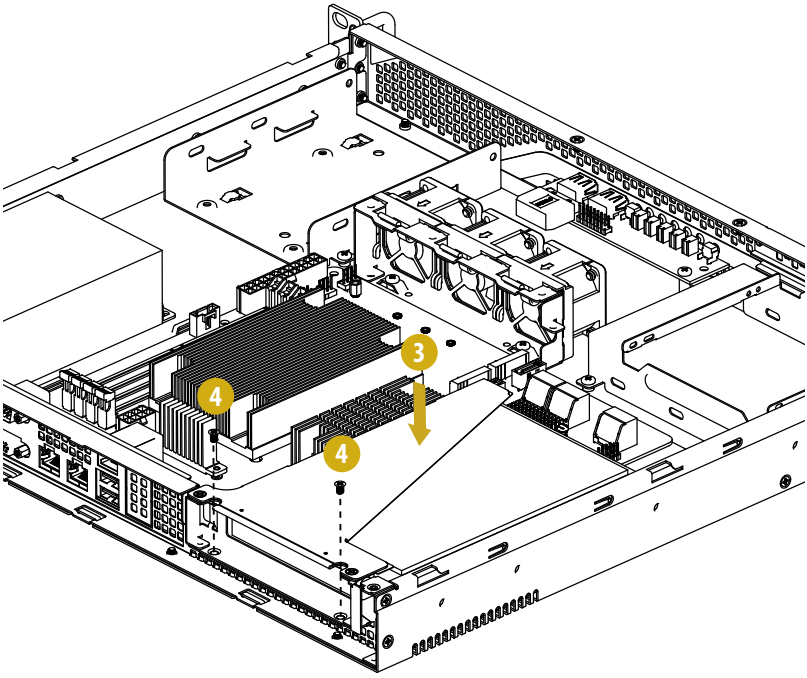


Installing the Add-in Card

Before installing an Add-in Card, you need to install a mezzaine card and a riser card first. Please refer to the followings for instructions.

1. Install the Add-in Card to the assembly.
2. Secure the Add-in Card to the assembly with the screw.
3. Align the assembly with the openings of the chassis.
4. Attach the assembly to the cahssis with the screw that was previously set aside.



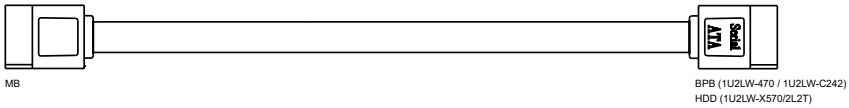


Chapter 4 Chassis Cables

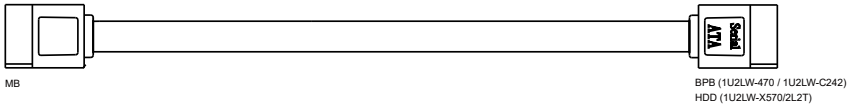
This section lists supported cables for your chassis system.

Cable type and quantity vary depending on the server board that comes with your system.

1. SATA Cable (SATA 6G 180-180, L=300mm)

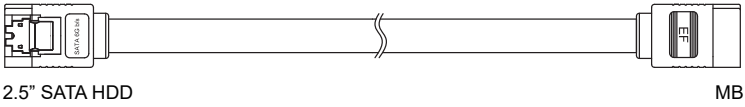


2. SATA Cable (SATA 6G 180-180, L=500mm(SATA4))

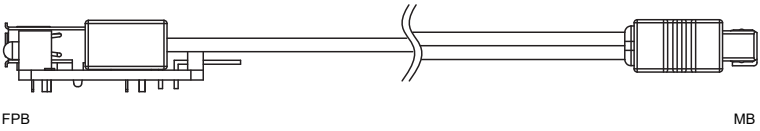


3. Fan Cable

4. 2.5” SATA HDD Cable

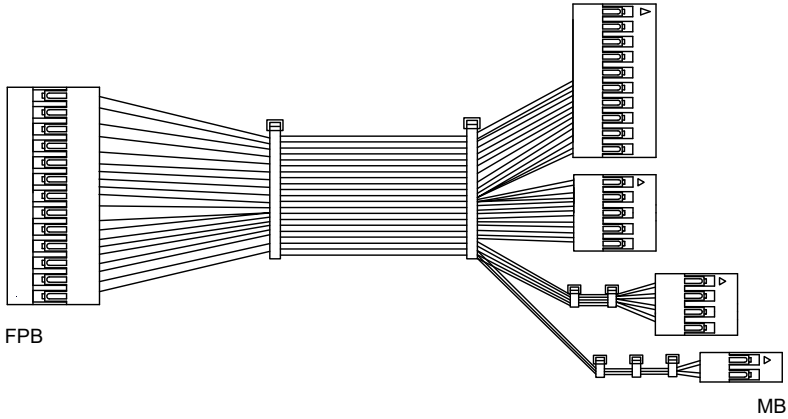


5. USB Cable



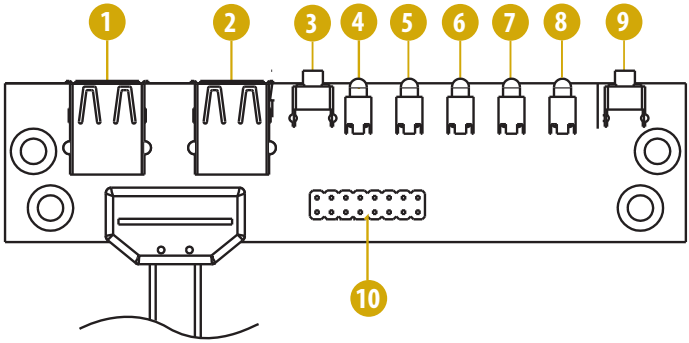
English

6. Aux_Panel Cable



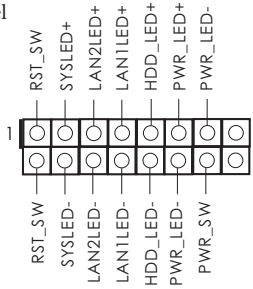
Chapter 5 Board Specifications

5.1 Front Panel Board (FPB)



No.	Description
1	USB 3.2 Gen1 Port (USB_1)
2	USB 3.2 Gen1 Port (USB_2)
3	Reset Button (RST_SW)
4	System Healthy LED (SYS_LED)
5	Mezz LAN2 LED (LAN2_LED)
6	Mezz LAN1 LED (LAN1_LED)
7	HDD Status LED (HDD_LED)
8	Power Status LED (Power_LED)
9	Power Button (Power_SW)
10	Front Panel Header (AUX_PANEL)

Front and Auxiliary Panel Header
(16-pin AUX_PANEL1)

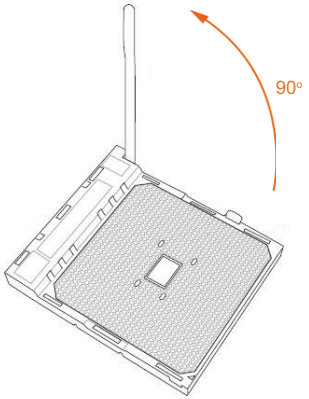


This header supports multiple functions on the front panel.

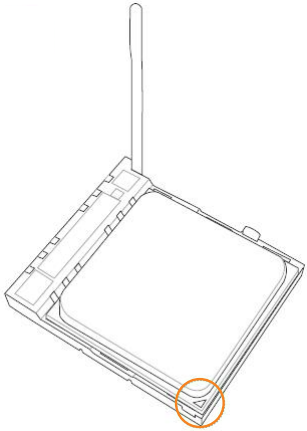
Appendix A

Installing the CPU (AMD AM4 Socket)

1



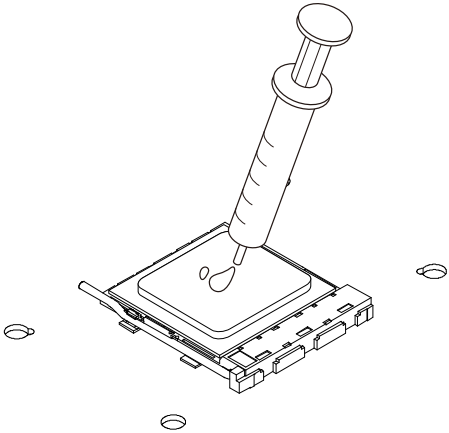
2



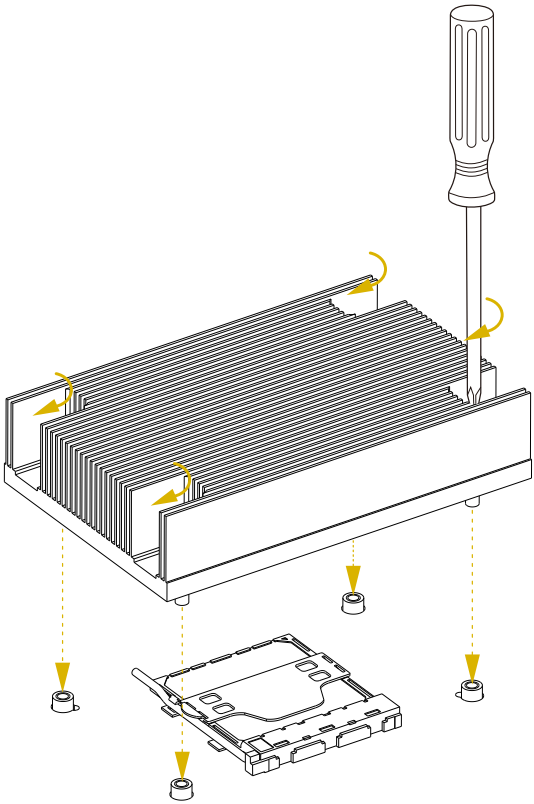
3

Installing the CPU Heatsink

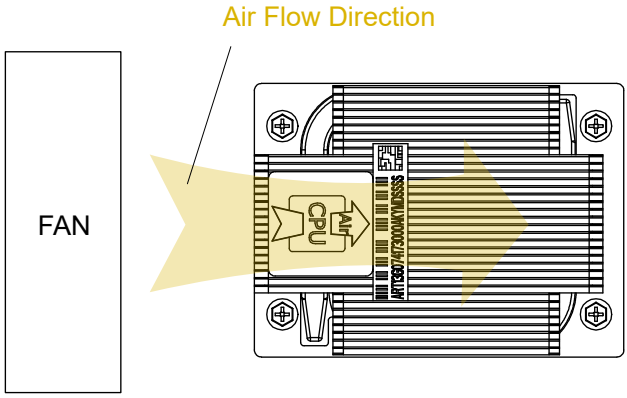
1



2



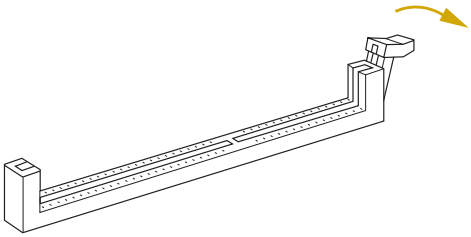
Please be aware of the correct direction when you install the CPU heatsink. Make sure the the arrow on the CPU heatsink is pointing to the opposite side of the system fan.



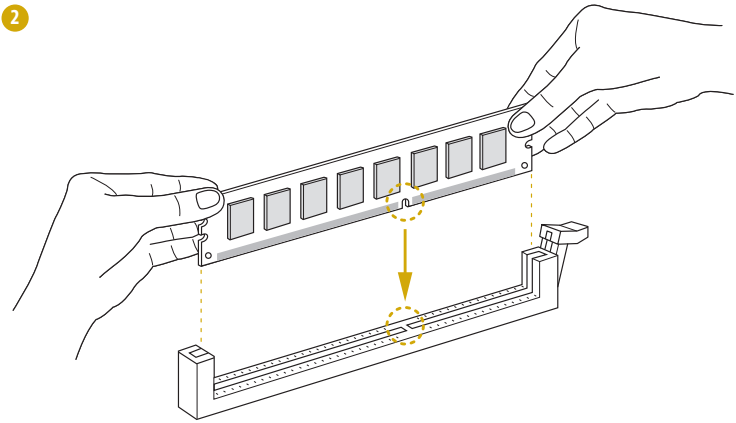
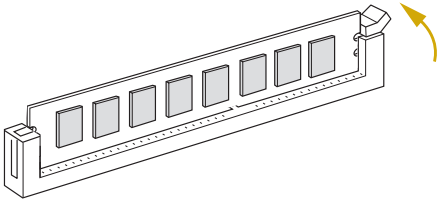
Installation of Memory Modules (DIMM)

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.

1



2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