



OPEN Industry Standard, Flexible Architecture

GREEN Less Heat, Less Power Consumption

STABLE Robust Design, Quality Parts

Stable and
Reliable Solution

Server/Workstation
Motherboard

1U1G Series

User Manual

English



Version 1.0

Published April 2022

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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 1U1G 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			
	1U1G- WC422/2T	1U1G- X570/2L2T	1U1G- X570/N	1U1G- MILAN/N
1U1G Series Barebone (1U form factor)	1	1	1	1
System Boards (MB)	1	1	1	1
Power Supply Unit	2	2	1	1
System Fans	6	6	6	6
HDD Backplane (BPB)	1	1	0	0
Front Panel Board (FPB)	1	1	1	1
Power Distribution Board (PDB)	1	1	1	1
USB Panel Board (UPB)	1	1	1	1
Riser Card for GPU Card (1U4G_SL2P_R)	1	0	0	0
Riser Card for Add-in Card (4UXG_SL2P)	0	0	1	1
Riser Card (RB) (1U4G_SL2P_R)	1	0	0	0
Riser Card (RB) (1U4G_SL2P_R_RDV)	0	1	1	1
Riser Card (RB) (M2-OCU)	0	0	1	1
Riser Card (RB) (1U2G-RB1U2SL-G41U1GX570)	0	1	1	1
SLIMLINE X8 Cables (S/T TO R/A; L=440mm)	2	0	0	0
SLIMLINE X8 Cables (S/T TO R/A; L=480mm)	0	2	2	2
SMBus Cable (1*5P; L=600mm)	1	1	0	0
OCULINK Cable (L=600mm)	4	0	0	0
SLIMLINE Cables x8 to OCULINK x4 *2 (L=600mm)	0	0	1	1
HDD Power Cable (12PIN; L=120mm)	1	0	0	0
HDD Power Cable (8PIN; L=350mm)	0	1	0	0
ATX Power Cable (PH=4.2, 24PIN; L=300mm)	1	0	0	0
ATX Power Cable (PH=4.2, 24PIN; L=330mm)	0	1	1	1
PMBus Cable (1*5PIN; L=350mm)	1	1	1	1
SLIMLINE Cables (L=800mm / L=800mm / 500mm)	3	0	0	0
ATX Power Cable (PH=4.2, 8PIN; L=150mm)	1	1	1	1
Front Panel Board Cable (L=700mm)	1	1	1	1

Item	Quantity			
	1U1G- WC422/2T	1U1G- X570/2L2T	1U1G- X570/N	1U1G- MILAN/N
USB Cable (INTER USB 3.0 20PIN; L=700mm)	1	1	1	1
USB Cable (USB 2.0 2*5P K10; L=430mm)	1	0	0	0
SATA 6G Cable (7P W/LATCH; L=600mm)	0	2	0	0
GPU Power Cable (PWR 6+2P*2 to 2*4P; L=450mm)	1	1	1	1
GPU Power Cable (PWR 2*4P; L=500mm)	0	1	1	1
Riser Card Power Cable (for 1U4G_SL2P_R_ RDV; L=370mm)	1	1	1	1
AC Power Cable (L=80mm)	1	1	0	0
Riser Card Power Cable (for 4UXG_SL2P; L=370mm)	0	0	1	1
System Fan Cables	6	6	6	6



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

1.2 Specifications

1U1G Series				
System	IU1G-WC422/2T	IU1G-X570/2L2T	IU1G-X570/N	IU1G-MILAN/N
System Physical Status				
Form Factor	1U Rackmount			
Dimension	650 mm x 438 mm x 43.5 mm (without ear) (L/W/H)			
Support MB Size	ATX	microATX	microATX	ATX
MB Model	WC422D8A-2T	X570D4U-2L2T	X570D4U	ROMED8-NL
Front Panel				
Buttons	• Power button • System Reset button			
LEDs	• Power LED • System fail LED • 2 x Network activity LEDs			
Rear Panel				
I/O Ports	• 2 x USB 2.0 ports • 2 x USB 3.2 Gen1 ports	• 2 x USB 3.2 Gen1 ports	• 2 x USB 3.2 Gen1 ports	• 2 x USB 3.2 Gen1 ports
External Drive Bay				
Rear Side Drive Bay	4 x 2.5" NVMe 6GB/s M.2 SSD	2 x 2.5" SATA 6GB/s SSD	N/A	N/A
Add-in Card (on the PCIe riser card tray)				
PCIe Card Slot	N/A	N/A	1 x PCIe Card	1 x PCIe Card
System Cooling				
Fan	6 x 40*56mm system fans			
Power Supply				
Type	Redundant PSU 1+1	Redundant PSU 1+1	Single PSU	Single PSU
Output Watts	800W CRPS	800W CRPS	1200W CRPS	1200W CRPS

*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

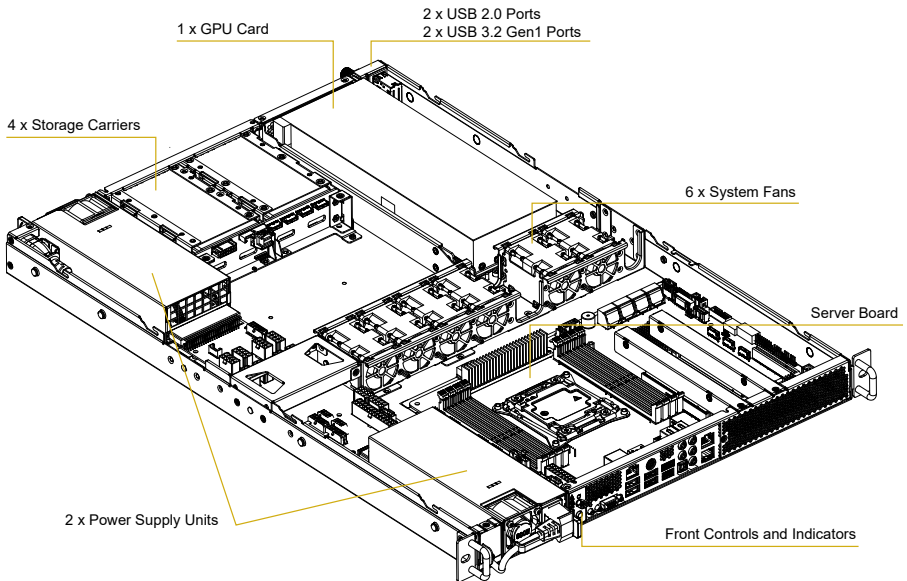
This chapter provides diagrams showing the location of important components of the server system.



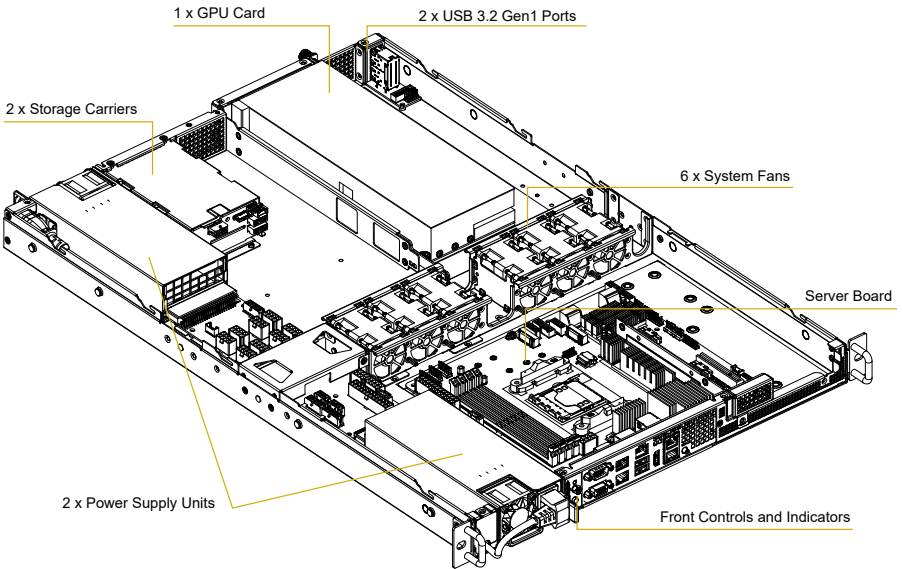
The illustrations shown in this manual are examples only, the actual system may differ slightly.

2.1 System Components

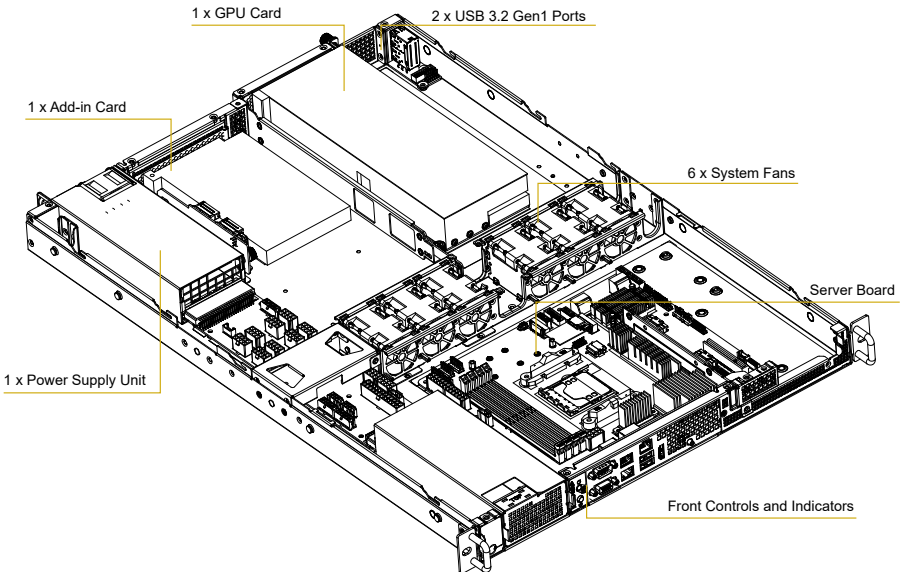
1U1G-WC422/2T



1U1G-X570/2L2T



1U1G-X570/N / 1U1G-MILAN/N

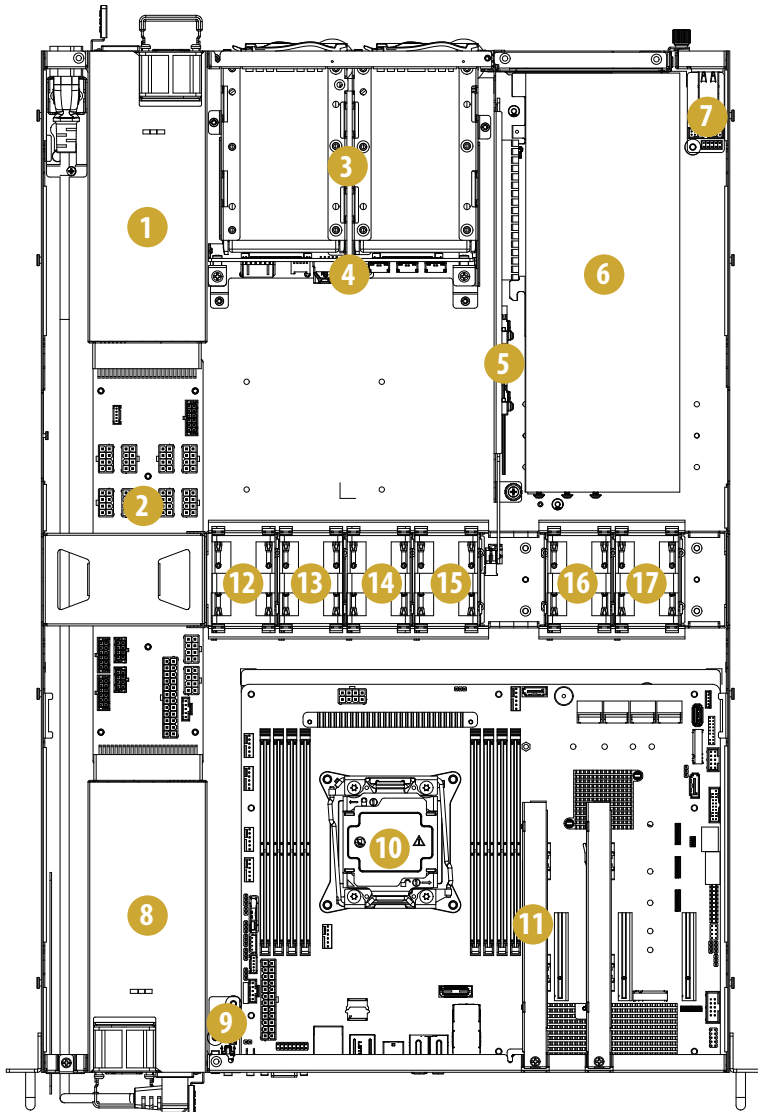


2.2 Internal Features

1U1G-WC422/2T / 1U1G-X570/2L2T

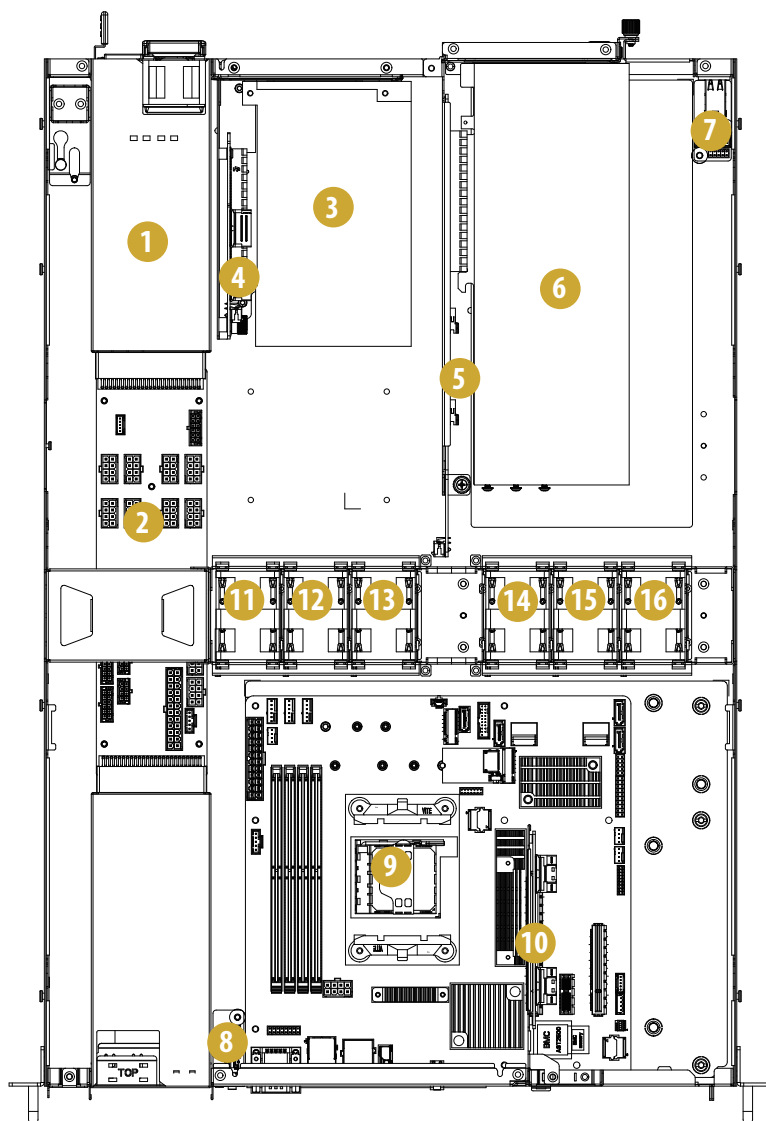


The illustrations shown in this manual are examples only, the actual system may slightly vary by models.



No.	Description
1	Power Supply Unit (PSU2)
2	Power Distribution Board (PDB)
3	IU1G-WC422/2T: 4 x 2.5" SSD Drive Trays IU1G-X570/2L2T: 2 x 2.5" SSD Drive Trays
4	HDD Backplane Board (BPB)
5	IU1G-WC422/2T: Riser Card for GPU (IU4G_SL2P_R) IU1G-X570/2L2T: Riser Card for GPU (IU4G_SL2P_R_RDV)
6	1 x GPU Card
7	USB Panel Board (UPB)
8	Power Supply Unit (PSU1)
9	Front Panel Board (FPB)
10	Serverboard (MB)
11	Riser Card (Slimline Card)
12	System Fan1
13	System Fan2
14	System Fan3
15	System Fan4
16	System Fan5
17	System Fan6

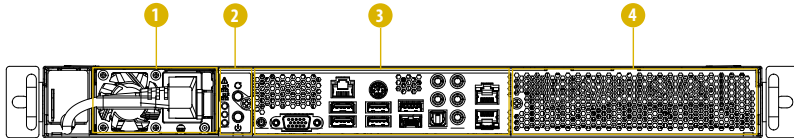
1U1G-X570/N /1U1G-MILAN/N



No.	Description
1	Power Supply Unit (PSU2)
2	Power Distribution Board (PDB)
3	1 x Add-in Card
4	Riser Card for Add-in Card (4UXG_SL2P)
5	Riser Card for GPU (1U4G_SL2P_R_RDV)
6	1 x GPU Card
7	USB Panel Board (UPB)
8	Front Panel Board (FPB)
9	Serverboard (MB) <i>The illustrations shown in this manual are examples only, the actual looks differ by models.</i>
10	Riser Card (Slimline Card)
11	System Fan1
12	System Fan2
13	System Fan3
14	System Fan4
15	System Fan5
16	System Fan6

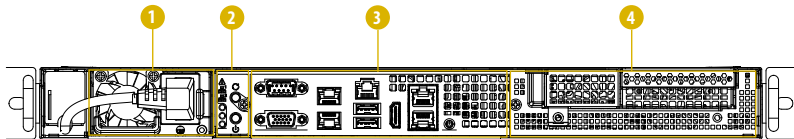
2.3 System Front Panel

1U1G-WC422/2T



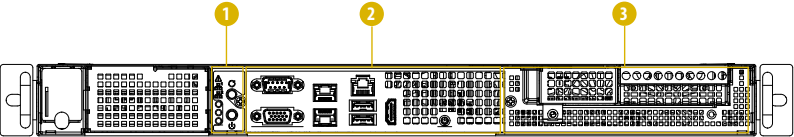
No.	Description
1	Power Supply Unit (PSU2)
2	Control Panel Buttons and LEDs
3	I/O Shield <i>(depends on the specification of the server board)</i>
4	Front Vent

1U1G-X570/2L2T



No.	Description
1	Power Supply Unit (PSU2)
2	Control Panel Buttons and LEDs
3	I/O Shield <i>(depends on the specification of the server board)</i>
4	Front Vent

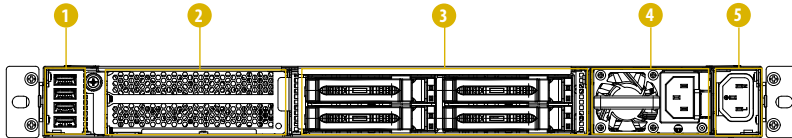
1U1G-X570/N / 1U1G-MILAN/N



No.	Description
1	Control Panel Buttons and LEDs
2	I/O Shield <i>(depends on the specification of the server board)</i>
3	Front Vent

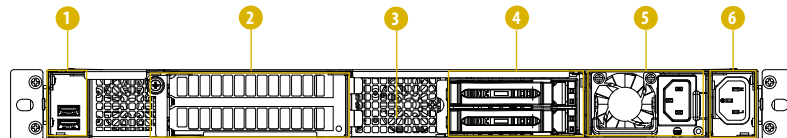
2.4 System Rear Panel

1U1G-WC422/2T



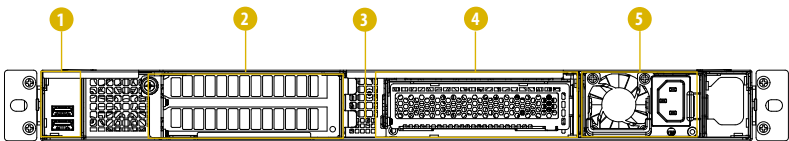
No.	Description
1	4 x USB Ports (2 USB 2.0 ports and 2 USB 3.2 Gen1 ports)
2	1 x GPU Card Slot
3	4 x 2.5" NVMe 6GB/s M.2 SSD Trays
4	Power Supply Unit (PSU1)
5	Power Socket (for PSU2)

1U1G-X570/2L2T



No.	Description
1	2 x USB 3.2 Gen1 Ports
2	1 x GPU Card Slot
3	Rear Vent
4	2 x 2.5" SATA 6GB/s SSD Trays
5	Power Supply Unit (PSU1)
6	Power Socket (for PSU2)

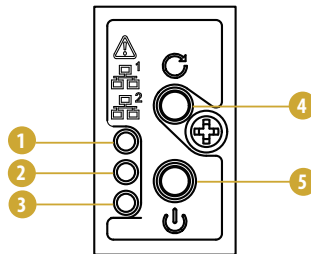
1U1G-X570/N / 1U1G-MILAN/N



No.	Description
1	2 x USB 3.2 Gen1 Ports
2	1 x GPU Card Slot
3	Rear Vent
4	1 x Add-in Card Slot
5	Power Supply Unit (PSU1)

2.5 Front Control Panel Buttons and LEDs

Front Control Panel



No.	Description
1	System Fail LED
2	LAN1 Activity LED
3	LAN2 Activity LED
4	System Reset Button
5	Power Button and 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 power-off modes.

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

System Reset Button

When the system is completely unresponsive, press the system reset button to reboot the server without shutting it off and initialize the system.

Status LED Definitions

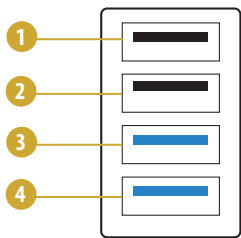
Power LED	
Status	Description
Green	Power on
Off	Power off

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

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

2.6 USB Port

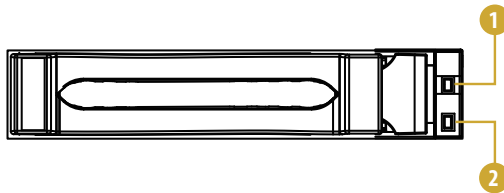
USB Ports on the Rear Panel



No.	Description
1	USB 2.0 Port (IU1G-WC422/2T only)
2	USB 2.0 Port (IU1G-WC422/2T only)
3	USB 3.2 Gen1 Port
4	USB 3.2 Gen1 Port

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

2.7 Drive Tray LEDs (1U1G-WC422/2T & 1U1G-X570/2L2T)



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. The Power LED at the front turns from solid green to dark.

- (2) Disconnect the power cord first from the AC outlet and then from the server.

The power LED turns off.

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.

- SSD Drives (1U1G-WC422/2T & 1U1G-X570/2L2T)
- Power Supply Unit(s) (Pre-installed)
- System Fans (Pre-installed)
- Server Board (Pre-installed)
- Power Distribution Board (Pre-installed)
- HDD Backplane (Pre-installed)



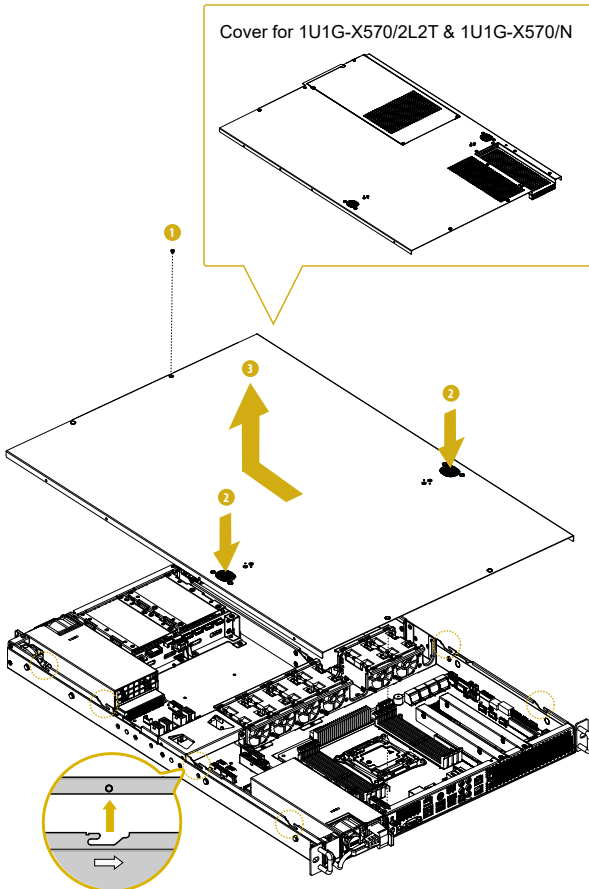
1. Some components are already pre-installed. Simply properly connect the relevant cables before or after installation. See the Quick Installation Guide for more details.
2. Refer to the user manual of the server board you use for instructions on how to install server board components.

3.1 Server Top Cover

Removing the Server Top Cover

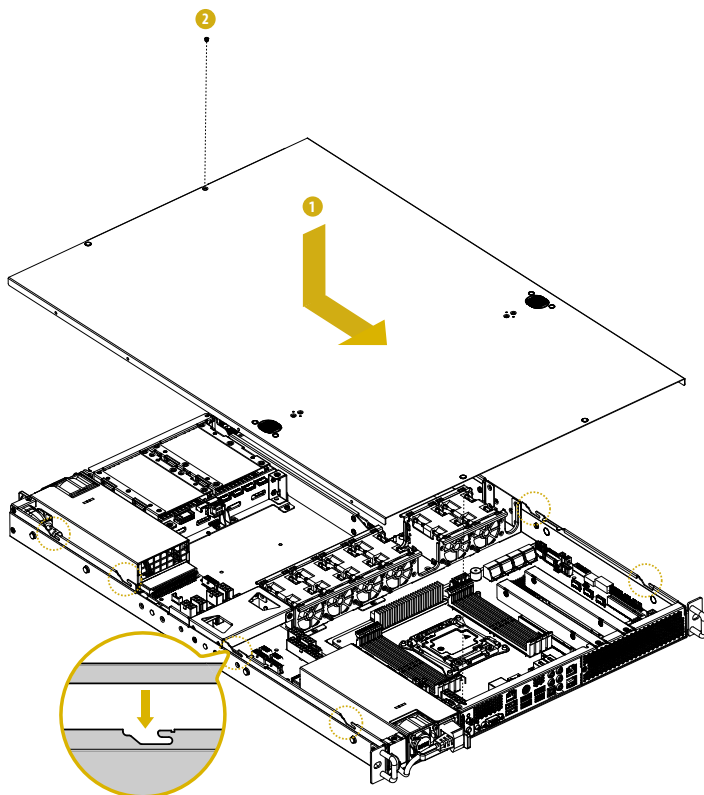


1. Before removing the top cover, power off the server and unplug the power cord.
2. The system must be operated with the chassis top cover installed to ensure proper cooling.



1. Remove the screw that secures the top cover to the chassis.
2. Push the latch to release the top cover.
3. Push the top cover toward the REAR side of the chassis to remove the cover from the locked position. 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. Slide the top cover toward the FRONT.
2. Secure the top cover with the screw.

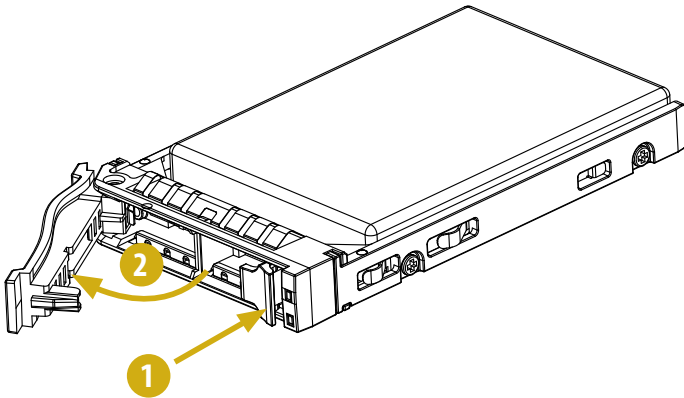
3.2 Hard Drive

Installing a Hard Disk Drive into 2.5" Hard Drive Tray

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

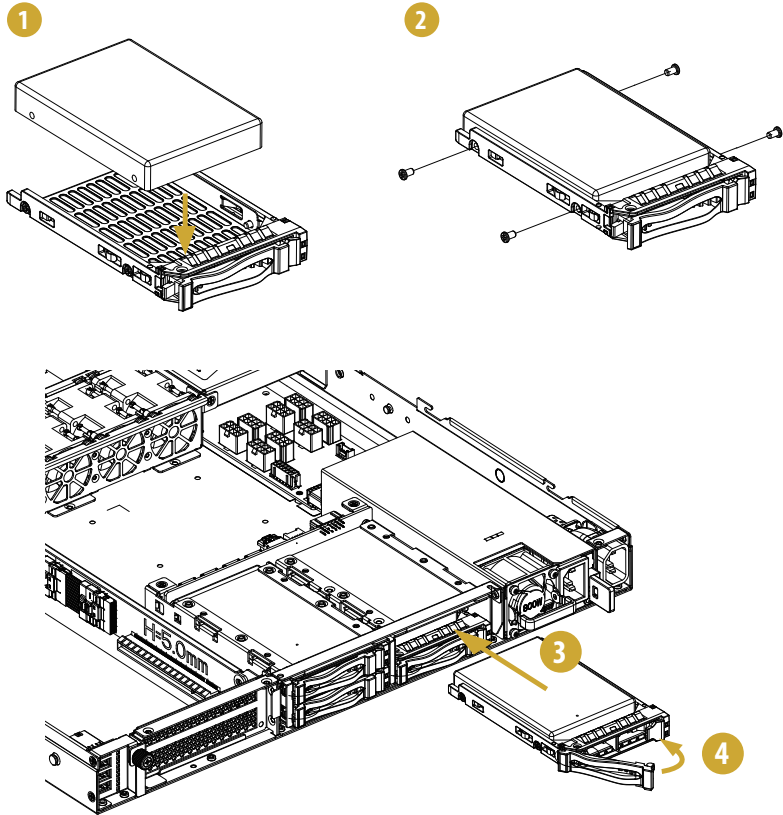
Removing 2.5" Hard Drive Trays from the Chassis

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.



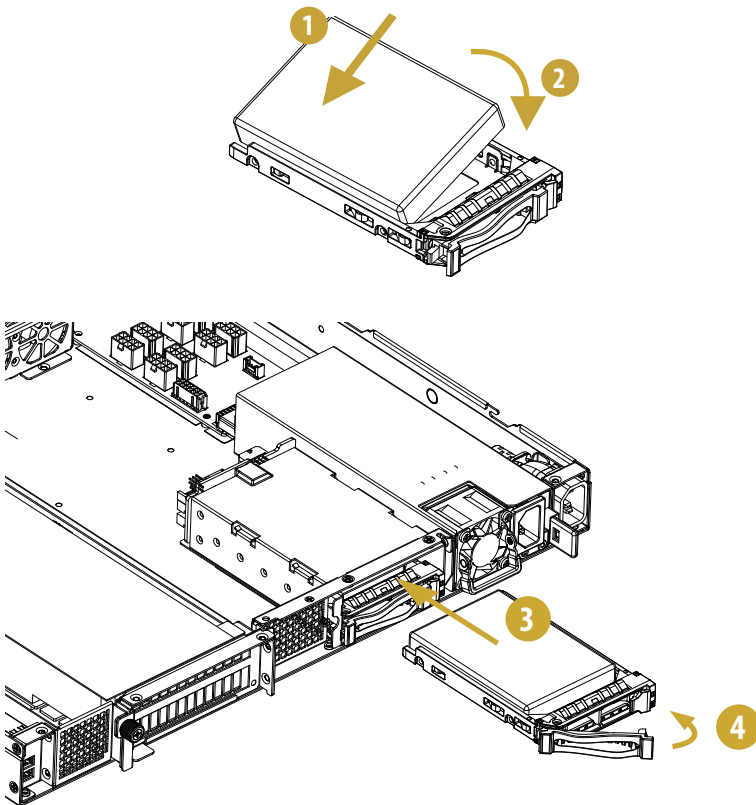
Installing a 2.5" Hard Drive to the Hard Drive Tray (1U1G-WC422/2T)

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 two screws.
Slide the drive tray into the HDD bay until the drive is fully seated.
3. Push in the locking lever to lock the HDD tray into place.



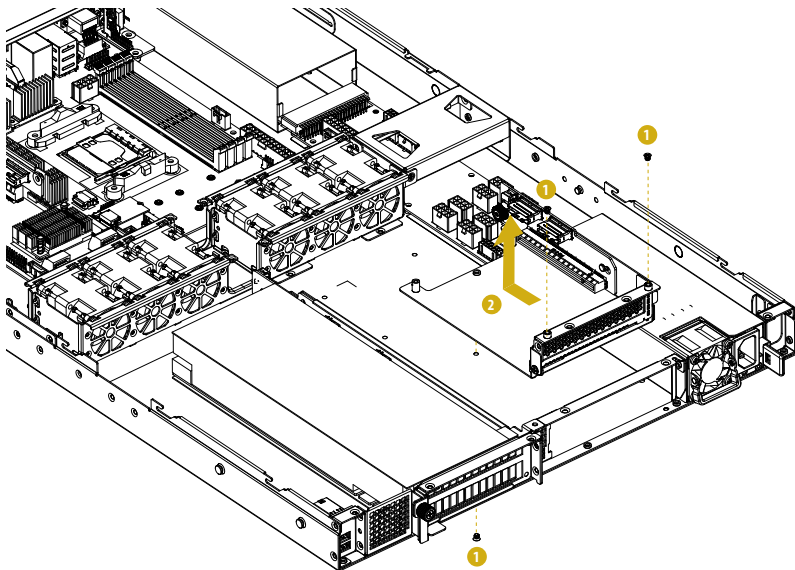
Installing a 2.5" Hard Drive to the Hard Drive Tray (1U1G-X570/2L2T)

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.

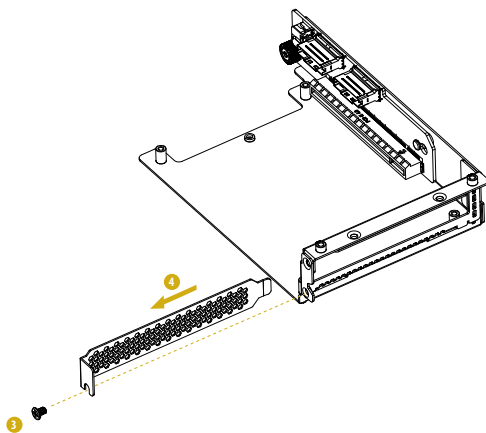


3.3 Installing an Add-in Card (IU1G-X570/N / IU1G-MILAN/N)

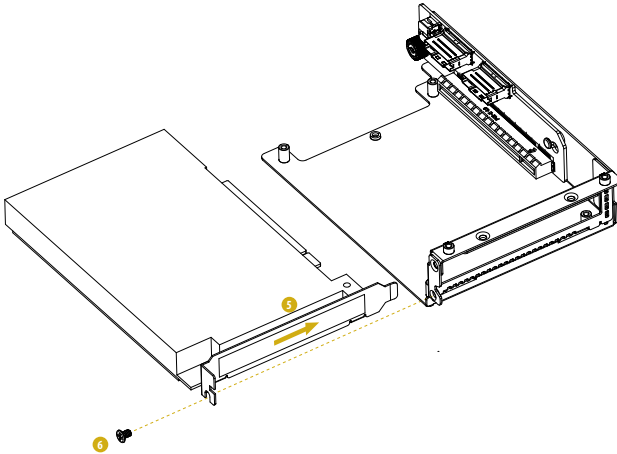
1. Remove the screws that secure the riser card tray to the chassis.
2. Push the tray toward the FRONT side of the chassis to remove it from the locked position. Lift up and remove the tray. Lift up and remove the riser card tray from the chassis.



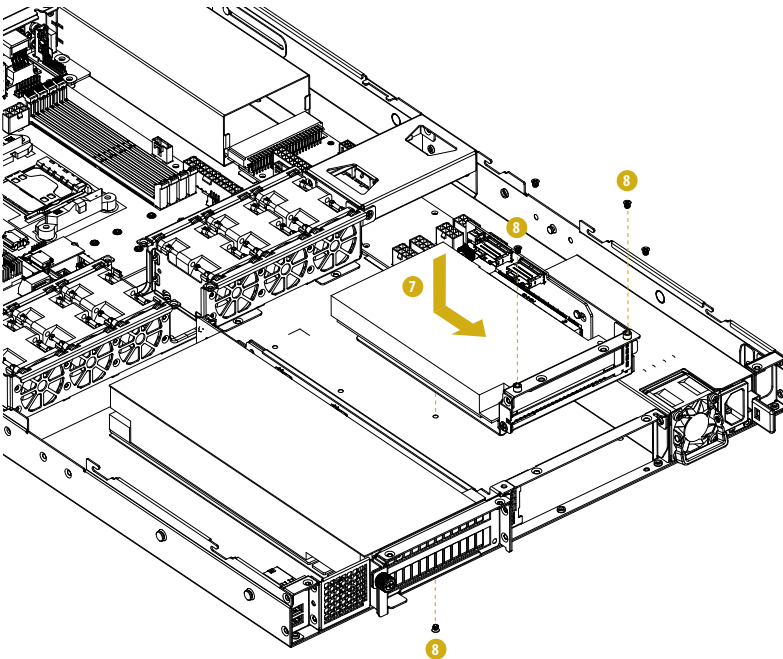
3. Remove the screw securing the slot cover to the tray.
4. Slide the slot cover out sideways.



5. Install the add-in card into the riser card tray.
6. Tighten the screw to secure the card to the tray.



7. Install the add-in card tray to the chassis. Align the plate of the card with the openings in the back of the chassis.
8. Tighten the screws to secure the add-in card tray to the chassis.



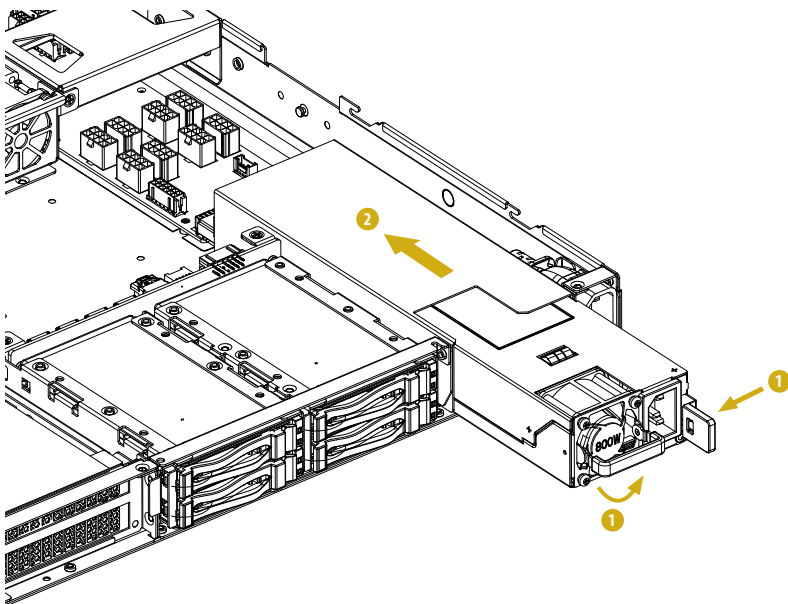
3.4 Power Supply

Installing and Removing the Power Supply

Installing the Power Supply Unit

This system can accommodate two AC or two DC power supplies in the bay at the rear of the chassis. Each unit provides up to 800 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.

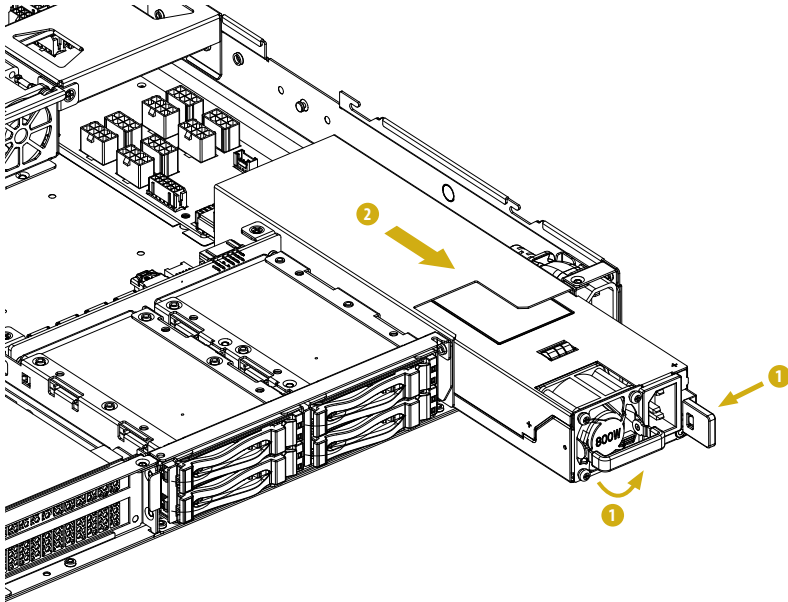
1. Align the power supply unit with the power supply slot.
2. Carefully slide the PSU all the way into the power supply bay until it clicks into place.



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.

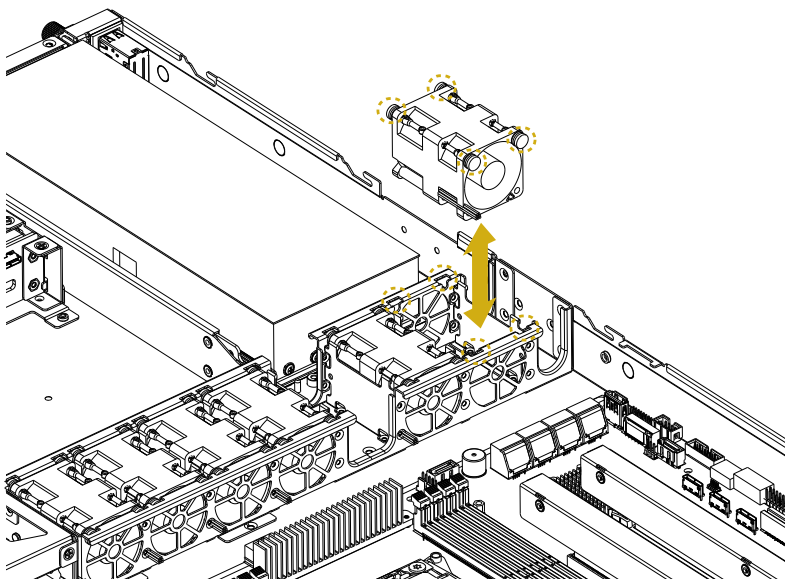
1. Hold onto the power supply handle while pressing the locking lever towards the power supply handle.
2. Pull to remove the power supply from the chassis.



3.5 System Fan

Replacing the Simple-Swap Fan

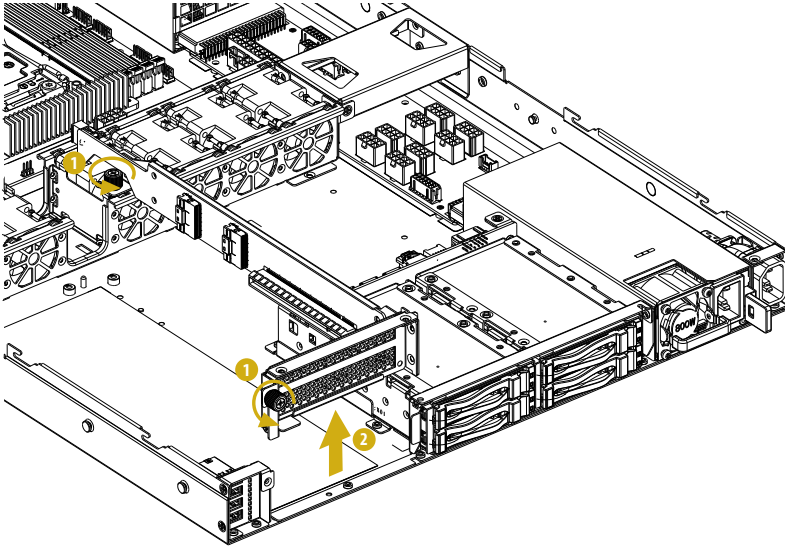
1. Open the chassis covers and lift the failed fan from the chassis.
2. Place the new fan into the vacant space in the housing while making sure the mounting holes on the fan bar are aligned with the fan mounts on the fan.
3. Gently place the fan on the fan bar. Make sure the fan is well seated and the fan connector is properly connected.



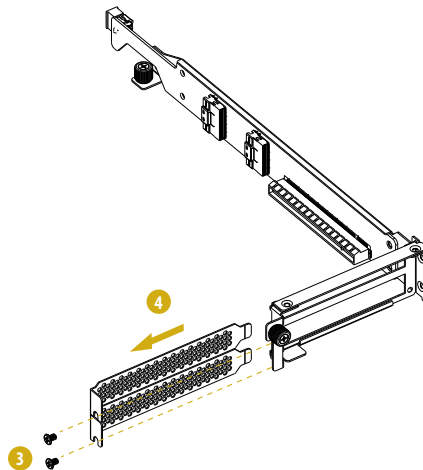
3.6 GPU Card

Installing a GPU Card

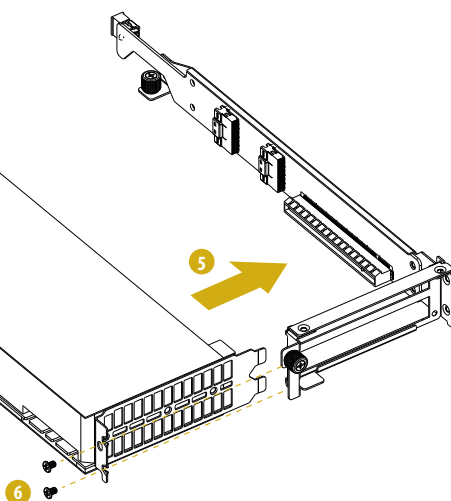
1. Hand release the thumbscrews.
2. Lift up the riser card bracket.



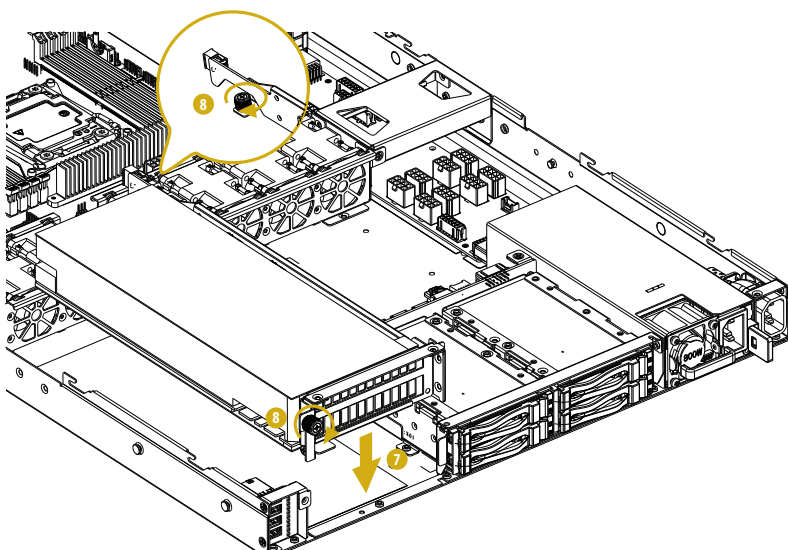
3. Remove the screws securing the blanking plates to the riser card bracket.
4. Slide the blanking plates out sideways.



5. Install the GPU card to the riser card bracket.
6. Secure the GPU card to the bracket with screws.



7. Align the riser card assembly with the openings of the chassis. Make sure it is properly installed.
8. Hand tighten the thumbscrews.



Appendix A

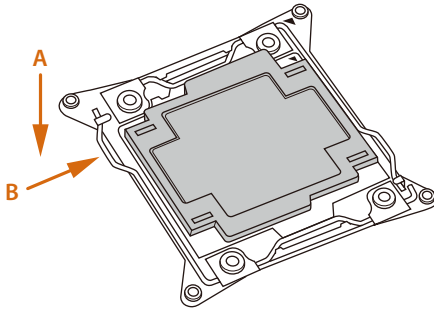
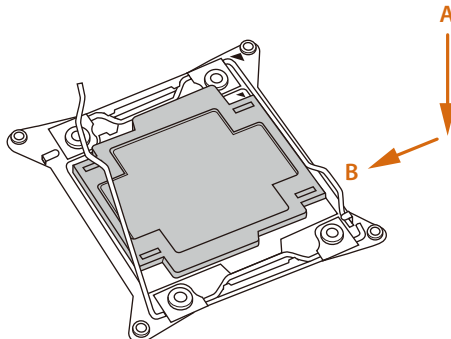
Installing the CPU (1U1G-WC422/2T)



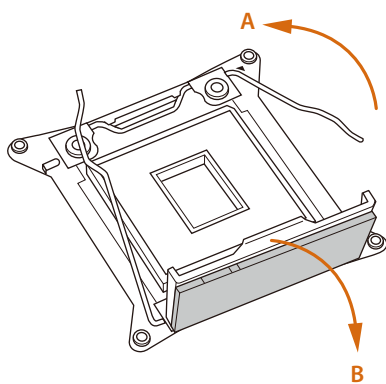
1. Before you insert the **2066**-Pin CPU into the socket, please check if the **PnP cap** is on the socket, if the CPU surface is unclean, or if there are any **bent pins** in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.
2. Unplug all power cables before installing the CPU.

CAUTION:

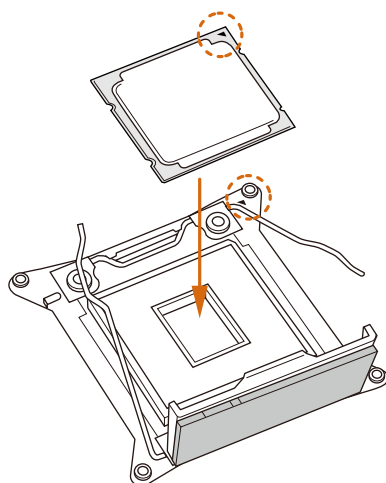
Please note that C422 platform is only compatible with the **LGA 2066 socket**, which is incompatible with the LGA 2011-3 socket.

1**2**

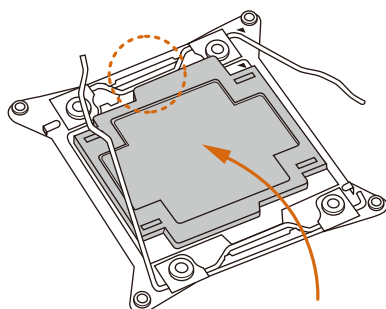
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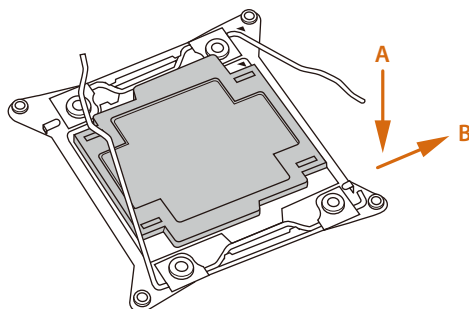
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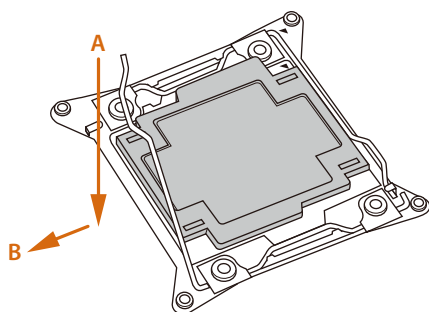
5



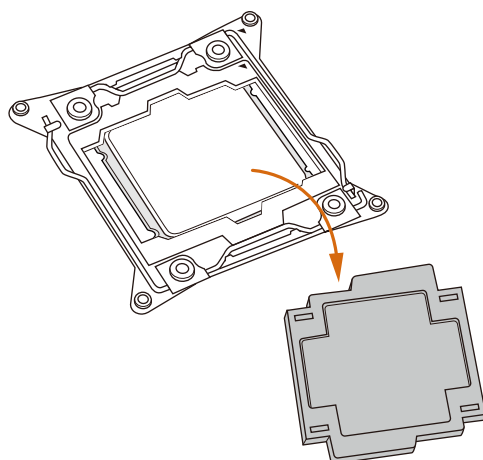
6



7

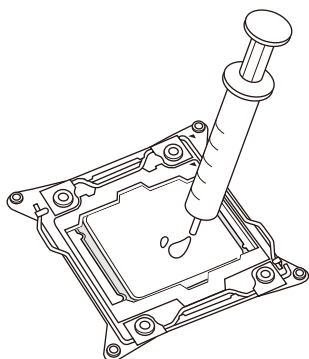


8

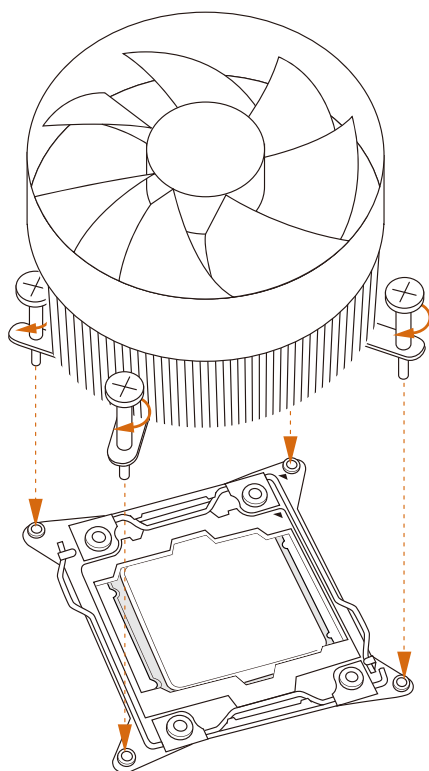


Please save and replace the cover if the processor is removed. The cover must be placed if you wish to return the motherboard for after service.

Installing the CPU Fan and Heatsink (1U1G-WC422/2T)



1

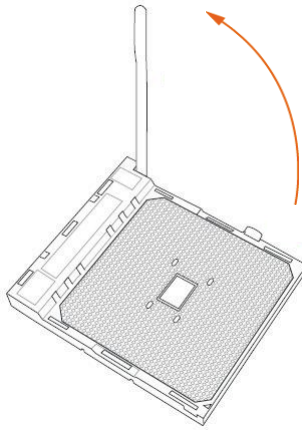


Installing the CPU (1U1G-X570/2L2T & 1U1G-X570/N)

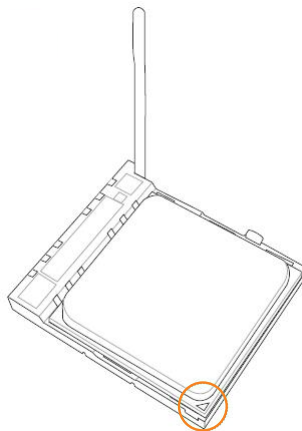


Unplug all power cables before installing the CPU.

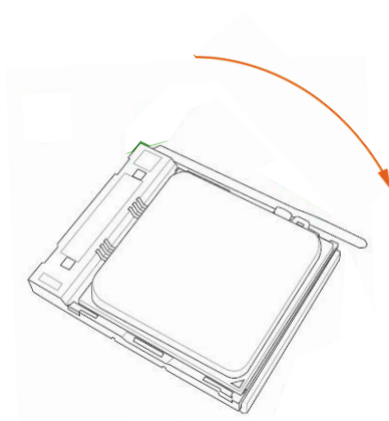
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2

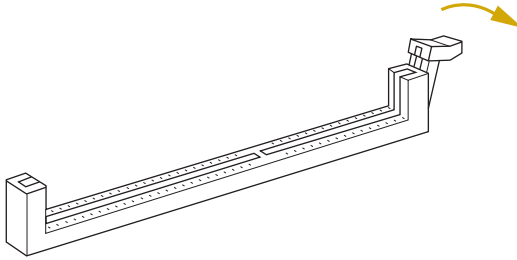


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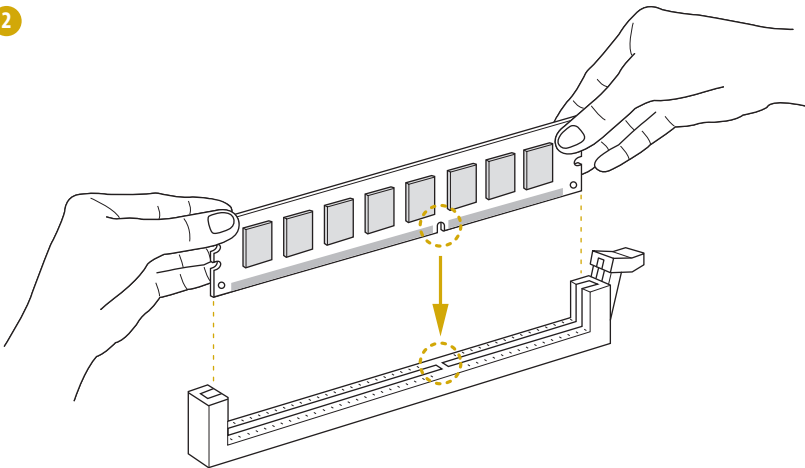


Installation of Memory Modules (DIMM)

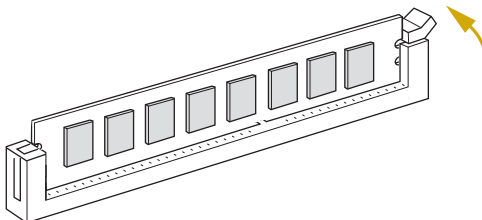
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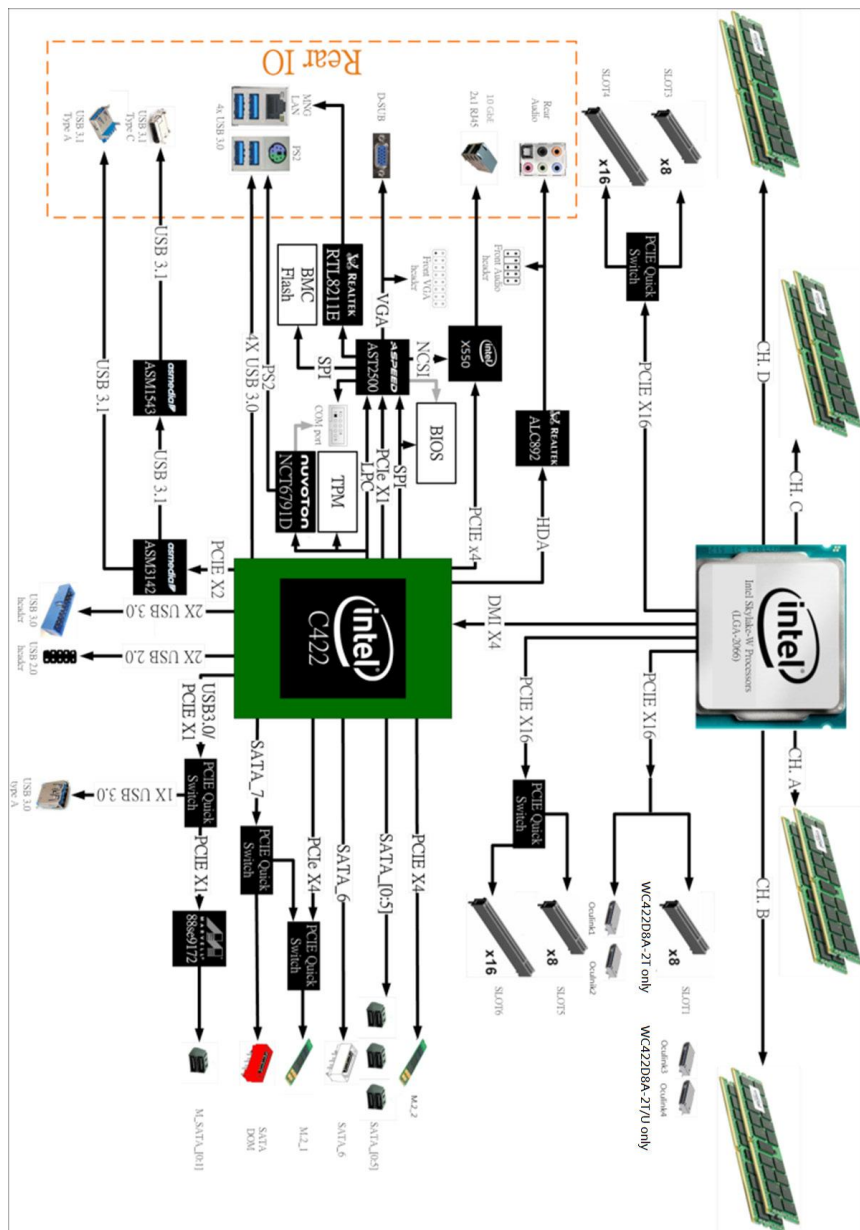
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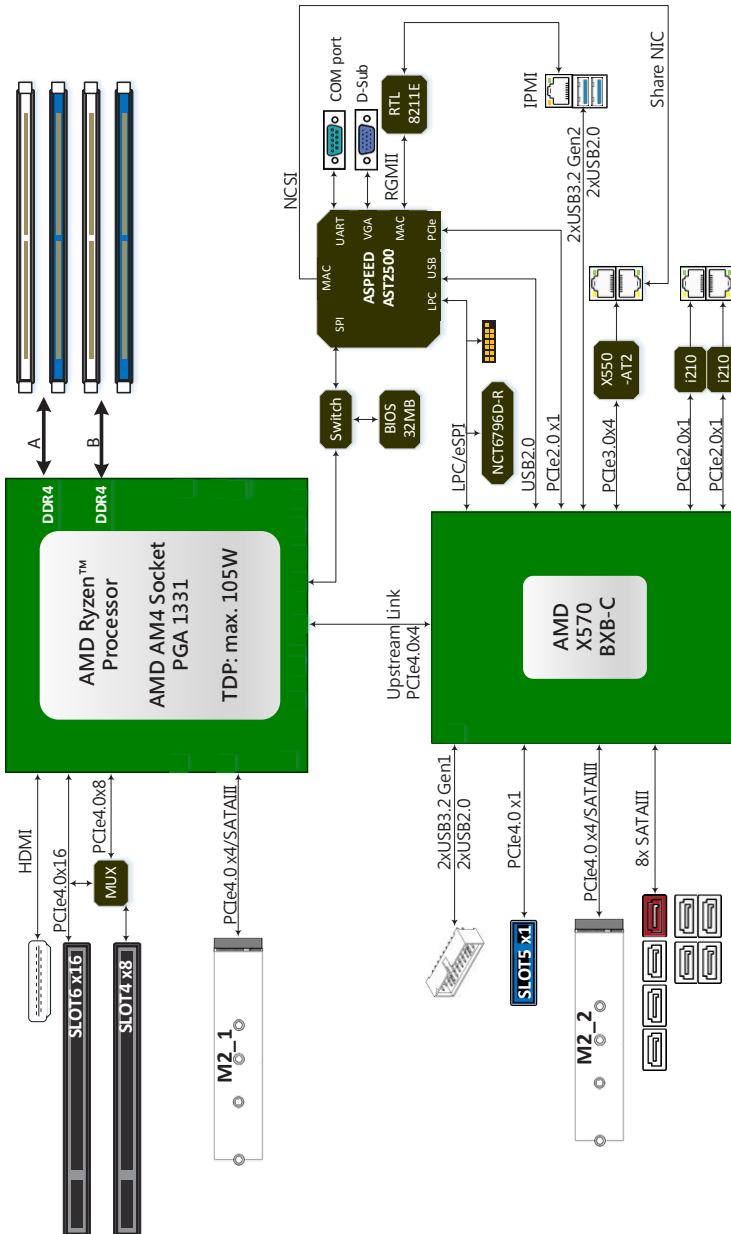
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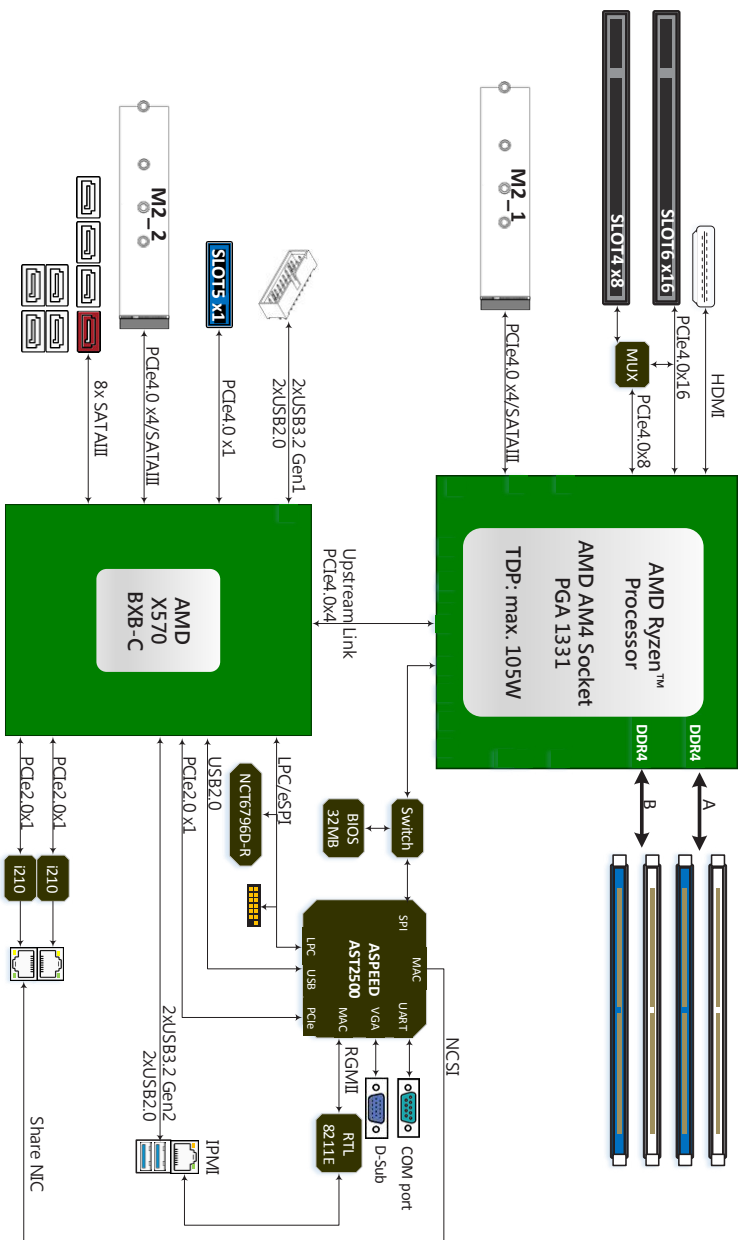
Block Diagram: WC422D8A-2T (for 1U1G-WC422-2T)



Block Diagram: X570D4U-2L2T (for 1U1G-X570/2L2T)



Block Diagram: X570D4U (for 1U1G-X570/N)



The diagram illustrates the system architecture for the ROME SP3 (OLGA-4094) Socket 225 W (240W cTDP). The central component is the CPU, which is connected to various system components through a series of buses and controllers.

Memory and Storage:

- Memory:** The CPU is connected to four DDR4 memory modules (DDR4_0, DDR4_1, DDR4_2, DDR4_3) via a 4x DDR4 DIMM/ROMM interface.
- Storage:** The CPU is connected to four PCIe SSDs (PCIe SSD_0, PCIe SSD_1, PCIe SSD_2, PCIe SSD_3) via a 4x PCIe Gen5 x16 interface. It also connects to four SATA drives (SATA_0, SATA_1, SATA_2, SATA_3) via a 4x SATA Gen3 x6 interface.

Networking and I/O:

- Networking:** The CPU is connected to a 10GbE network controller (NIC_0) via a 1x PCIe Gen5 x16 interface. It also connects to a 10GbE network controller (NIC_1) via a 1x PCIe Gen5 x16 interface.
- I/O:** The CPU is connected to a 1x PCIe Gen5 x16 interface for a 10GbE network controller (NIC_2). It also connects to a 1x PCIe Gen5 x16 interface for a 10GbE network controller (NIC_3).

System Components:

- BIOS/UEFI:** The CPU is connected to a BIOS/UEFI controller (BIOS/UEFI_0) via a 1x PCIe Gen5 x16 interface.
- Display:** The CPU is connected to a Display controller (Display_0) via a 1x PCIe Gen5 x16 interface.
- USB:** The CPU is connected to a USB controller (USB_0) via a 1x PCIe Gen5 x16 interface.
- Thunderbolt:** The CPU is connected to a Thunderbolt controller (Thunderbolt_0) via a 1x PCIe Gen5 x16 interface.

The diagram shows a complex interconnect system with multiple buses and controllers, ensuring high performance and scalability for the ROME SP3 (OLGA-4094) Socket 225 W (240W cTDP).