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GREEN Less Heat, Less Power Consumption

STABLE Robust Design, Quality Parts

Stable and
Reliable Solution

Server/Workstation
Motherboard

1U1G-W680/2L2T

User Manual

English



Version 1.11

Published Aug. 2025

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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 server 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 server 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	1
1.1 Shipping Box Contents	2
1.2 Specifications	3
Chapter 2 Server System Overview	6
2.1 System Components	6
2.2 Internal Features	7
2.3 System Front Panel	9
2.4 System Rear Panel	9
2.5 Front Panel Board I/O Port	10
2.6 Hard Drive Tray LED	12
Chapter 3 Hardware Installation and Maintenance	13
3.1 Server Top Cover	14
3.2 Hard Drive	16
3.3 Power Supply	18
3.4 System Fan	20
3.5 GPU Card	21
Chapter 4 Server Motherboard (W680D4U-2L2T/G5)	23
4.1 Layout	23
4.2 Block Diagram	26
4.3 Installing the CPU (LGA 1700 Socket)	27
4.4 Installing the CPU Fan and Heatsink	29
4.5 Installing the Memory Modules (DIMM)	30

Chapter 1 Introduction

Thank you for purchasing 1U1G-W680/2L2T, 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.

This guide provides the instructions of insertion and extraction of chassis components, such as chassis covers, system fans, power supplies, hard drive trays, and other main components this system supports. If the system is pre-installed a server motherboard, refer to the server motherboard user manual for the information of the server motherboard components, specifications and BIOS settings.

System	ASRock Rack Server Motherboard
1U1G-W680/2L2T	W680D4U-2L2T/G5



Because the hardware specifications might be updated, the content of this documentation will be subject to change without notice.



The illustrations shown in this manual are for reference purposes only and may not exactly match the model purchased.



If requiring technical support related to this system, please visit the website for specific information about the using model.
<http://www.asrockrack.com/support/>

1.1 Shipping Box Contents

Item	Quantity
IU1G Series Barebone (IU form factor)	1
System Motherboard (MB)	1
Power Supply Unit	2
System Fan	6
Hard Drive Tray Backplane (BPB)	1
Front Panel Board (FPB)	1
Power Distribution Board (PDB)	1
USB Panel Board (UPB)	1
Riser-card for GPU Card (IU4G_SL2P_R_RDV)	1
Riser-card (IU2G-RBIU2SL-G4)	1
SLIMLINE X8 Cables (S/T TO R/A; L=440mm)	2
SMBus Cable (1*5P; L=600mm)	1
Hard Drive Tray Backplane Power Cable (12PIN; L=120mm)	1
ATX Power Cable (PH=4.2, 24PIN; L=150mm)	1
PMBus Cable (1*5PIN; L=350mm)	1
ATX Power Cable (PH=4.2, 8PIN; L=330mm)	2
Front Panel Board Cable (L=700mm)	1
USB Cable (INTER USB 3.0 20PIN; L=700mm)	1
USB Cable (USB 2.0 2*5P K10; L=750mm)	1
GPU Power Cable (PWR 6+2P*2 to 2*4P; L=450mm)	1
Riser-card Power Cable (for IU4G_SL2P_R_RDV; L=370mm)	1
AC Power Cable (L=800mm)	1
Hard Drive Tray Backplane Cable (mSAS_HD to SATA 7P*4+SGPIO; L=450mm)	1



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

1.2 Specifications

1U1G-W680/2L2T	
System	
Form Factor	1U Rackmount
Dimension	650.0 x 438.0 x 43.5mm (25.60" x 17.2" x 1.7")
Support MB	W680D4U-2L2T/G5
Front Panel	
Button	Power w/ LED, Reset, UID w/ LED
LED	System Fault, LAN1/LAN2 Activity
I/O Port	1 DB15 (VGA) 1 HDMI 1 DisplayPort 1 DB9 (COM) 2 USB Type-A (USB3.2 Gen1) 2 RJ45(10GbE) 2 RJ45(1GbE) 1 Dedicated IPMI
External Drive Bay / Storage	
Rear Side	4 Hot-swap SFF 2.5" drive bays (SATA 6Gb/s)
Rear Side Backplane	4-port SATA passive backplane
Internal Side	1 M-key (PCIe3.0 x4) [PCH]; support 2280/2260/2242/2230 form factor
Physical Status	
Type	1+1 Hot-swap CRPS
Output Watt	800W @ 100-240Vac input
Efficiency	80-PLUS Platinum
AC Input	AC 100-240V/10-5A, 50/60Hz
System Fan	
Fan	5 PWM single-rotor 40x56mm fans 1 PWM dual-rotor 40x56mm fans

Processor System	
CPU	Supports Intel® Core™ 14th Gen, 13th & 12th Gen Intel® Core™ series processors
Socket	Single Socket LGA 1700
Thermal Design Power	max. up to 125W
Chipset	Intel® W680
System Memory	
Supported DIMM Quantity	4 DIMM slots (2DPC)
Supported Type	DDR5 288-pin ECC/non-ECC UDIMM
Max. Capacity per DIMM	48GB on Intel® Core™ 14th Gen, 13th Gen Intel® Core™ processors 32GB on 12th Gen Intel® Core™ processors
Max. DIMM Frequency	4400MT/s (2DPC-1DIMM) 4000MT/s (2DPC-2DIMM 1R) 3600MT/s (2DPC-2DIMM 2R)
Voltage	1.1V
PCIe Expansion Slot	
PCIe x16	1 FH dual-slot PCIe4.0 x16 via 1U2G-RB1U2SL-G4/1U1GX570 and 1U4G_SL2P_R_RDV
Ethernet	
Additional GbE Controller	2 RJ45 (10GbE) by Intel® X710 2 RJ45 (1GbE) by Intel® i210
Server Management	
BMC Controller	ASPEED AST2600: IPMI2.0 with iKVM and vMedia support
IPMI Dedicated GLAN	1 RJ45 dedicated IPMI LAN port by Realtek RTL8211F
Rear I/O	
USB2.0 Port	2 Type-A (USB2.0)
USB3.2 Gen1 Port	2 Type-A (USB3.2 Gen1)
System BIOS	
BIOS Type	AMI 256Mb SPI Flash ROM
BIOS Features	Plug and Play (PnP), ACPI 6.4 and above compliance wake up events, SMBIOS 3.6.0 and above, ASRock Rack instant flash

Hardware Monitor	
Temperature	CPU, MB, card side, VR, M.2, X710, TR temperature sensing
Fan	Fan tachometer
	CPU quiet fan (allows chassis fan speed auto-adjust by CPU temperature)
	Fan multi-speed control
Voltage	3VSB, 5VSB, CPU_VCORE, VCCIN_AUX, VDD2, 1.05V_PCH, 0V82SB_PCH, VCCGT, 1V8SB, VCCSA, BAT, 3V, 5V, 12V
Environment	
Temperature	Operation temperature: 10°C ~ 35°C Non operation temperature: -40°C ~ 70°C
Humidity	Non operation humidity: 20% ~ 90% (non condensing)



The functions are supported depending on the type of the server motherboard. Refer to the server motherboard user manual for detailed information.

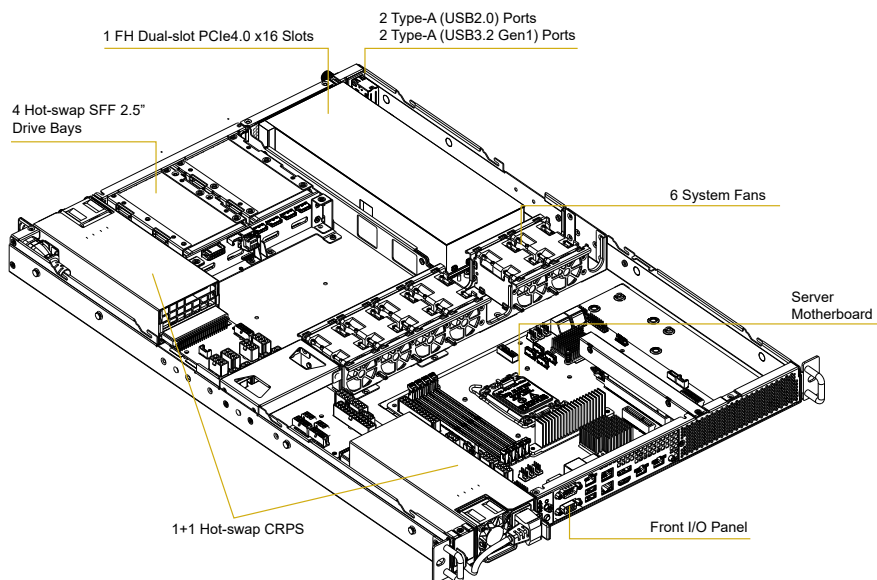
Chapter 2 Server System Overview

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.

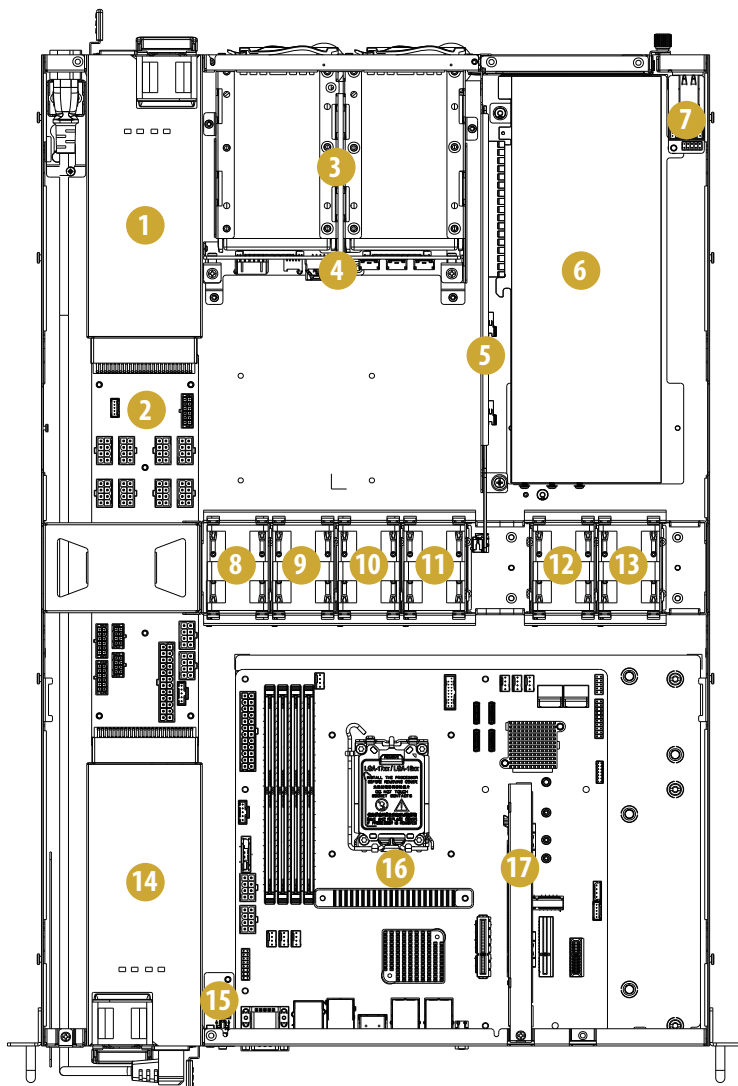
2.1 System Components



2.2 Internal Features

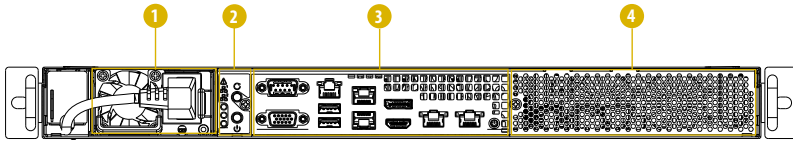


The illustrations shown in this manual are examples only. The actual system may slightly vary by models.



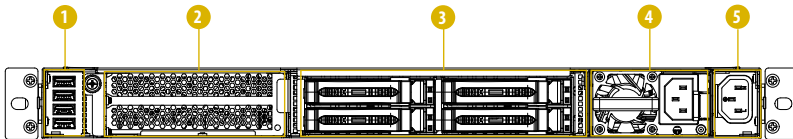
No.	Description
1	Power supply unit (PSU2)
2	Power distribution board (PDB)
3	4 Hot-swap SFF 2.5" drive bays (SATA 6Gb/s)
4	Hard drive tray backplane board (BPB)
5	Riser-card for GPU
6	1 FH dual-slot PCIe4.0 x16 slots
7	USB panel board (UPB)
8	System fan (FAN6)
9	System fan (FAN5)
10	System fan (FAN4)
11	System fan (FAN3)
12	System fan (FAN2)
13	System fan (FAN1)
14	Power supply unit (PSU1)
15	Front panel board (FPB)
16	Server motherboard (MB)
17	Riser-card (slimline card)

2.3 System Front Panel



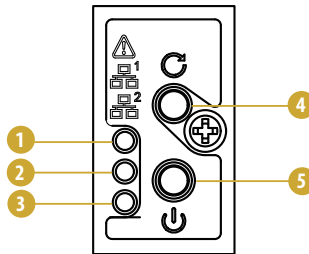
No.	Description
1	Power supply unit (PSU1)
2	Front panel board I/O ports
3	Server motherboard I/O ports <i>(depends on the specification of the server motherboard)</i>
4	Front vent

2.4 System Rear Panel



No.	Description
1	Top: 2 Type-A (USB2.0) ports Bottom: 2 Type-A (USB3.2 Gen1) ports
2	1 FH dual-slot PCIe4.0 x16 slots
3	4 Hot-swap SFF 2.5" drive bays (SATA 6Gb/s)
4	Power supply unit (PSU2)
5	Power socket for PSU1

2.5 Front Panel Board I/O Port



No.	Description
1	System fault LED
2	LAN1 activity LED
3	LAN2 activity LED
4	Reset button
5	Power button w/ LED

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

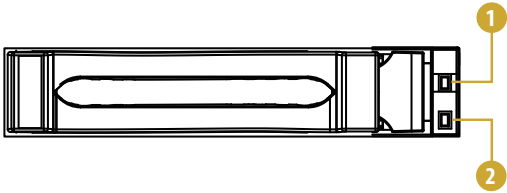
Status LED Definitions

System Fault LED	
Status	Description
Off	Running or normal operation
Amber	At least one sensor has critical alert.

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

Power LED	
Status	Description
Off	Power off
Green	Power on

2.6 Hard Drive Tray LED



No.	Description
1	Hard drive tray activity LED
2	Hard drive tray power LED

Status LED Definitions

Hard Drive Tray Activity LED	
Status	Description
Off	Hard drive tray powered-off
Green	Hard drive tray active
Blinking Green	Hard drive tray accessing or reading

Hard Drive Tray Power LED	
Status	Description
Off	No power to hard drive tray
Blue	Hard drive tray powered-on
Red	Hard drive tray failed

Chapter 3 Hardware Installation and Maintenance

This chapter helps user assemble the chassis and install components.

Before You Begin

Before working 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 having a clean and stable working environment. Avoid dust and dirt because contaminants may cause malfunctions.
3. Ground 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
- Power Supply Units (Pre-installed)
- System Fans (Pre-installed)
- Server Motherboard (Pre-installed)
- Power Distribution Board (Pre-installed)
- Hard Drive Tray Backplane (Pre-installed)



1. Some components are already pre-installed. Simply properly connect the relevant cables before or after installation.
2. Refer to the server motherboard user manual for instructions on how to install server motherboard components.

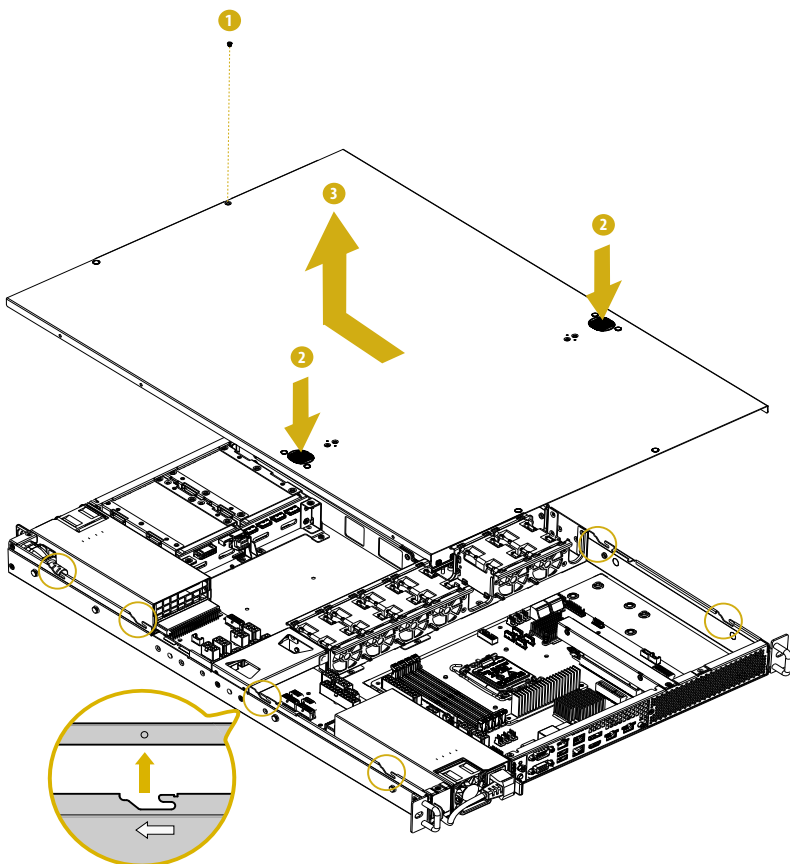
3.1 Server Top Cover

Removing the Server Top Cover



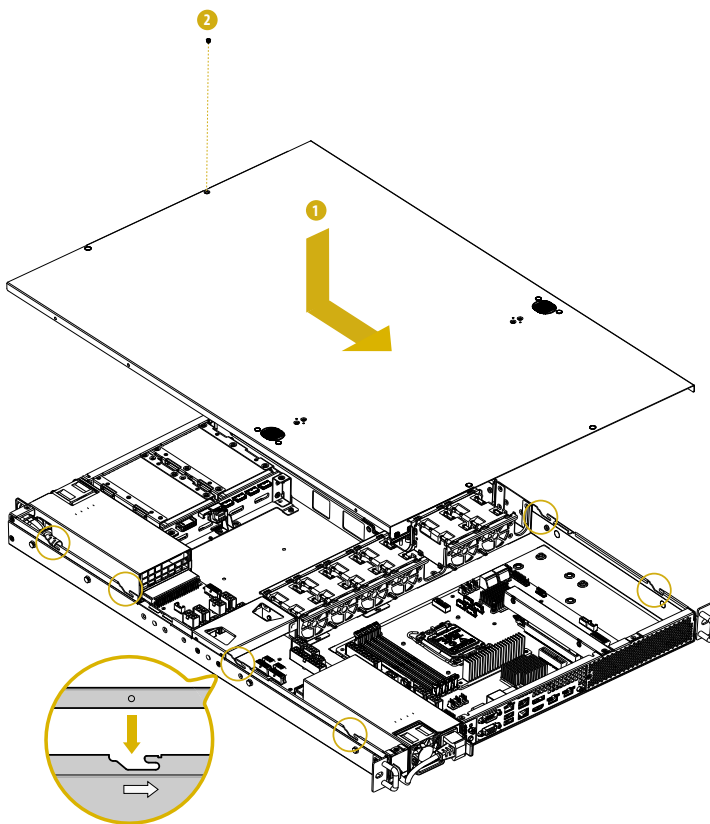
1. Before removing the top cover, power off the server and unplug the power cord.
2. The system must be operated with the chassis top cover installed to ensure proper cooling.

1. Remove the screw securing the top cover to the chassis.
2. Press the latches to release the top cover.
3. Push the top cover toward the REAR of the chassis to release the cover from the locked position. Lift up and remove the 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 of the chassis.
2. Secure the top cover with the screw.

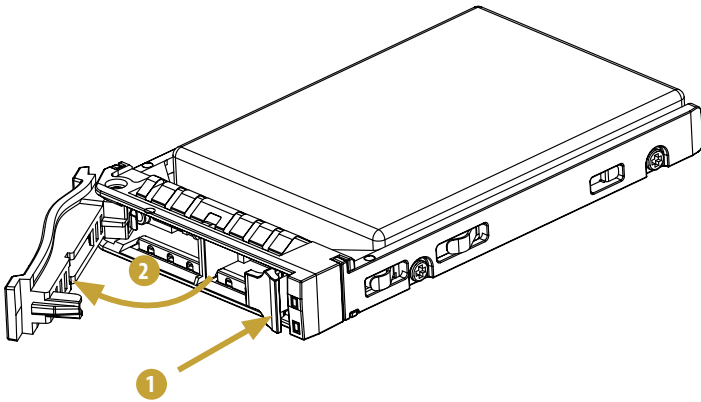


3.2 Hard Drive

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

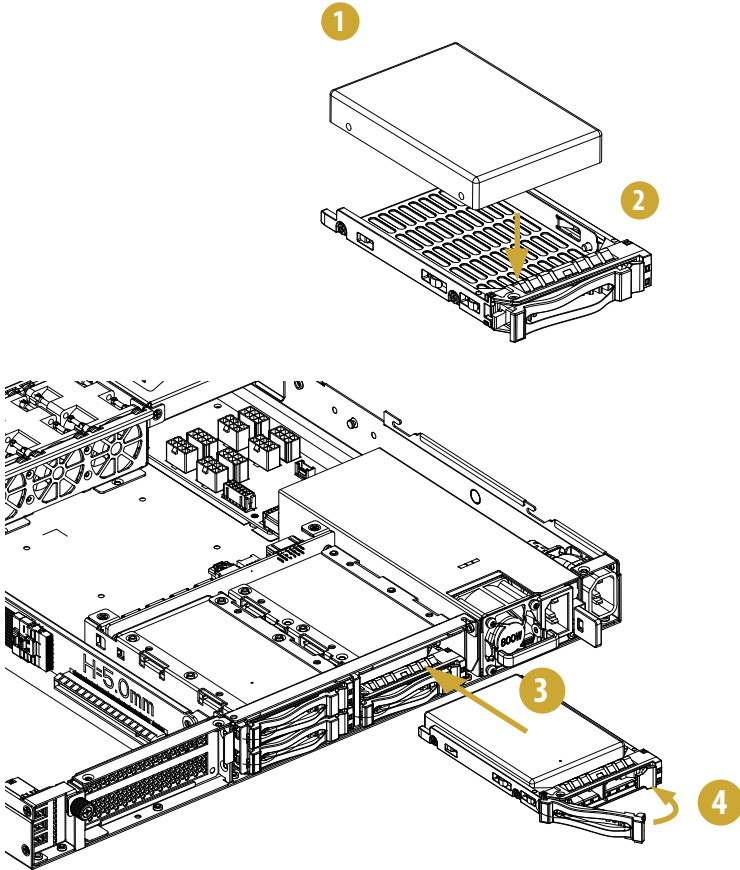
Removing a 2.5" Hard Drive Tray from the Chassis

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



Installing a 2.5" Hard Drive to the Chassis

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



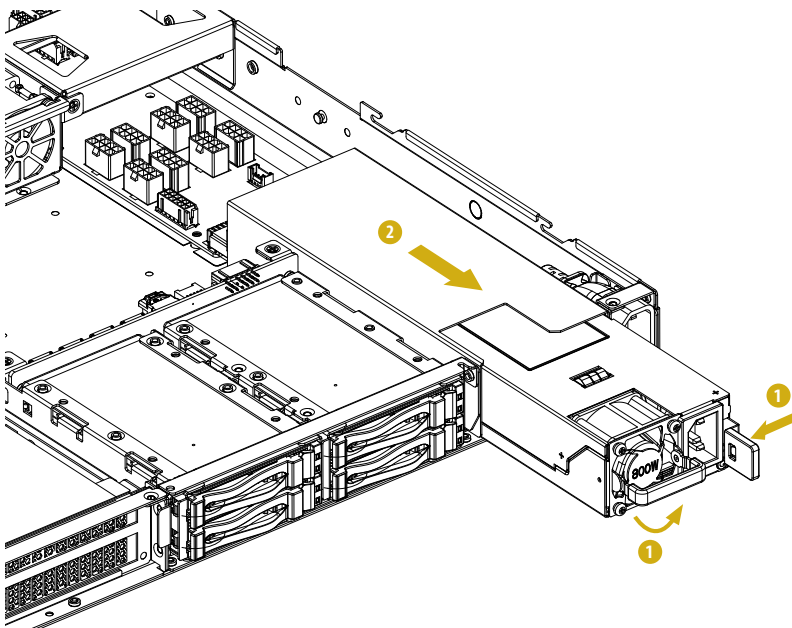
3.3 Power Supply

This system can accommodate two power supply units. Each unit provides up to 800W of power. One power supply unit is required for full load operation, with the other unit purely as a redundant, load-sharing backup. One unit can be removed without affecting system operation.

Removing the Power Supply Unit

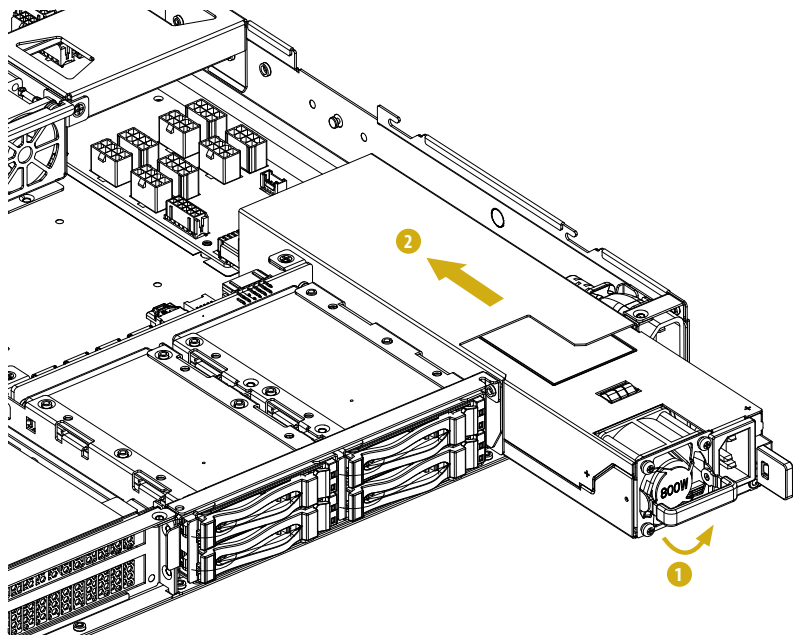
To remove a failed power supply unit, identify the failed PSU by checking the power supply LEDs on the PSUs.

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



Installing the Power Supply Unit

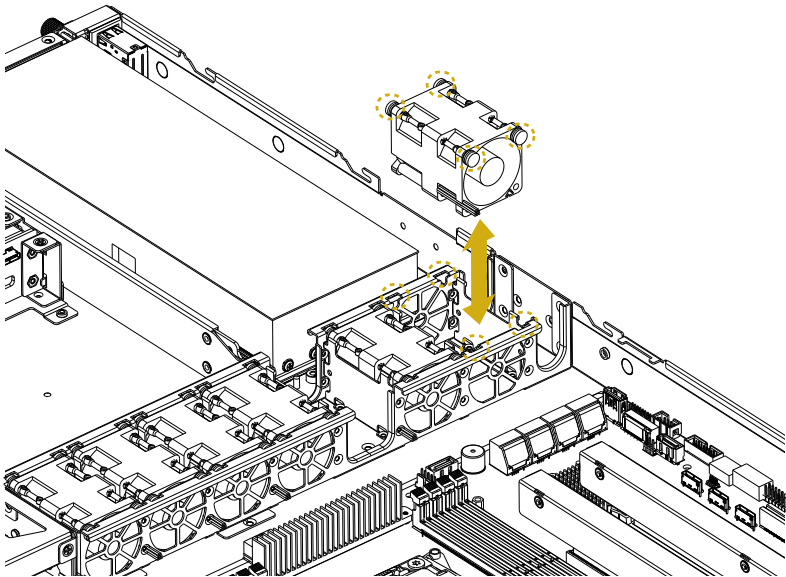
1. Align the power supply unit with the power supply bay.
2. Carefully slide the PSU all the way into the bay until the PSU clicks in place.



3.4 System Fan

Replacing the Simple-swap Fan

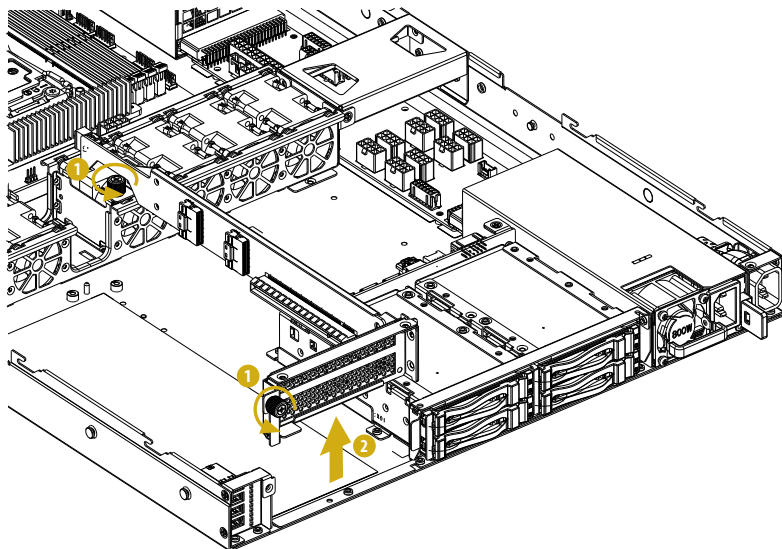
1. Lift the failed fan from the chassis.
2. Place the new fan into the vacant space in the housing, making sure the mounting holes on the fan bar align with the fan mounts on the fan.
3. Gently place the fan on the fan bar. Make sure the fan is well seated and the fan connector is properly connected.



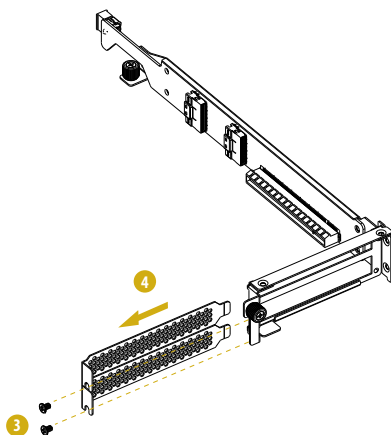
3.5 GPU Card

Installing a GPU Card

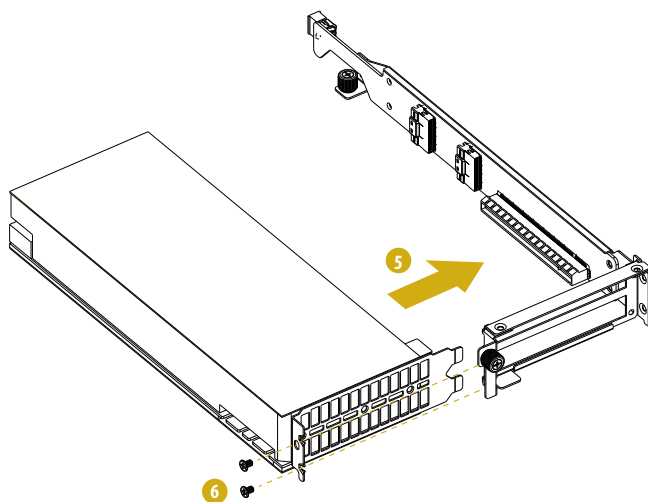
1. Hand-release the thumbscrews securing the riser-card bracket to the chassis.
2. Lift up the bracket.



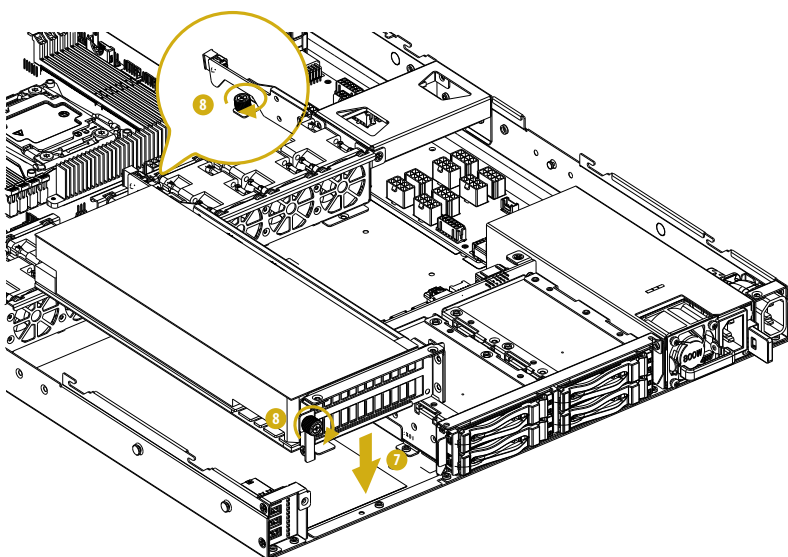
3. Remove the screws securing the blanking plates to the bracket.
4. Slide the blanking plates out sideways.



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

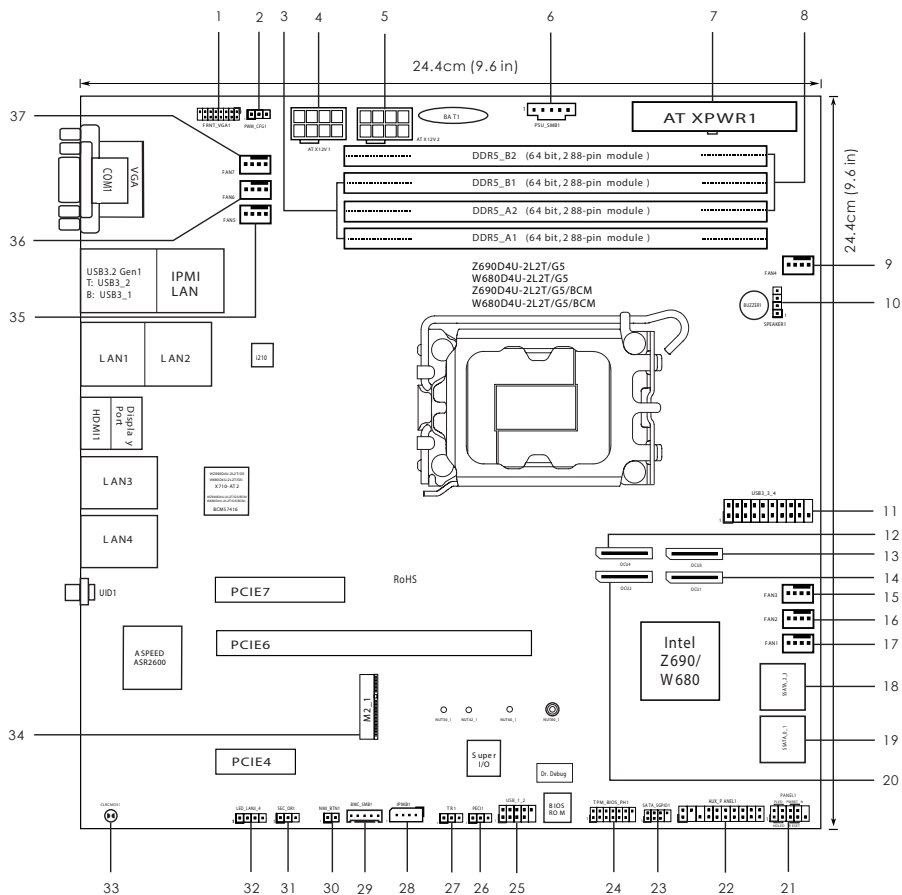


7. Align the GPU card assembly with the opening of the chassis. Make sure it is properly installed.
8. Hand-tighten the thumbscrews to secure the assembly in place.



Chapter 4 Server Motherboard (W680D4U-2L2T/G5)

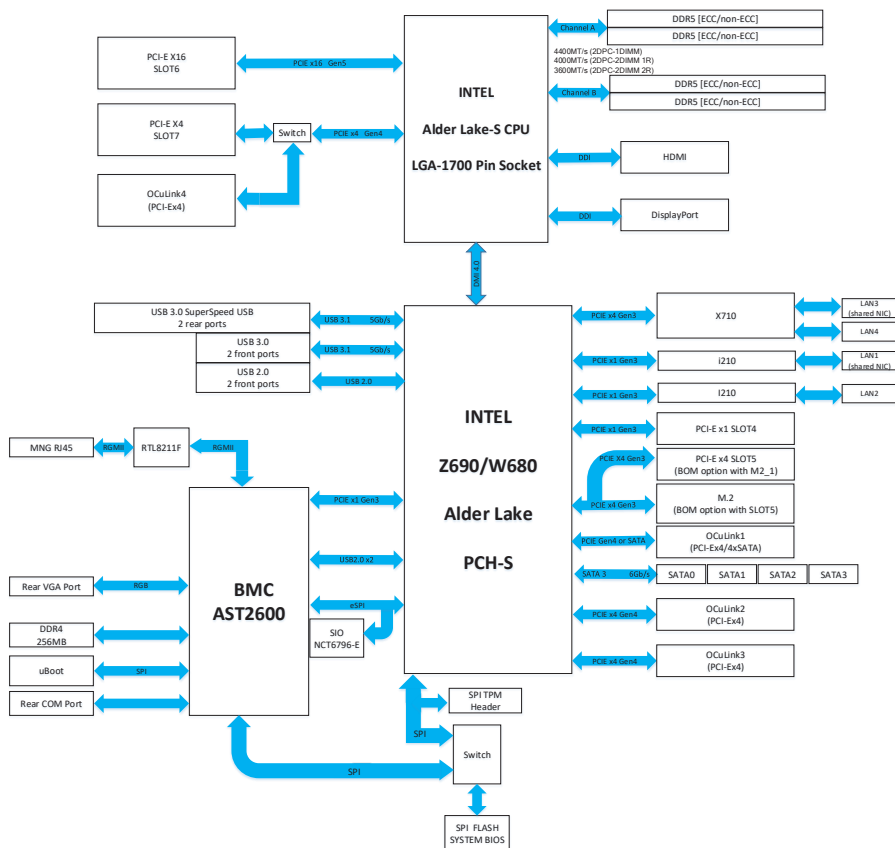
4.1 Layout



No.	Description
1	Front VGA Header (FRNT_VGA1)
2	PWM Configuration Header (PWM_CFG1)
3	2 x 288-pin DDR5 DIMM Slots (DDR5_A1, DDR5_B1)
4	ATX 12V Power Connector (ATX12V1)
5	ATX 12V Power Connector (ATX12V2)
6	PSU SMBus Header (PSU_SMB1)
7	ATX Power Connector (ATXPWR1)
8	2 x 288-pin DDR5 DIMM Slots (DDR5_A2, DDR5_B2)
9	Chassis Fan Connector (FAN4)
10	Chassis Speaker Header (SPEAKER1)
11	USB 3.2 Gen1 Header (USB3_3_4)
12	OCuLink x4 Connector (OCU4)
13	OCuLink x4 Connector (OCU3)
14	OCuLink x4 Connector (OCU1)
15	Chassis Fan Connector (FAN3)
16	Chassis Fan Connector (FAN2)
17	Chassis Fan Connector (FAN1)
18	SATA3 Connectors (SSATA3_3)(Upper), (SSATA3_2)(Lower)
19	SATA3 Connectors (SSATA3_1)(Upper), (SSATA3_0)(Lower)
20	OCuLink x4 Connector (OCU2)
21	System Panel Header (PANEL1)
22	Auxiliary Panel Header (AUX_PANEL1)
23	SATA SGPIO Connector (SATA_SGPIO1)
24	SPI TPM Header (TPM_BIOS_PH1)
25	USB 2.0 Header (USB_1_2)
26	CPU PECI Mode Jumper (PECI1)
27	Thermal Sensor Header (TR1)
28	Intelligent Platform Management Bus Header (IPMB1)
29	BMC SMBus Header (BMC_SMB1)
30	Non Maskable Interrupt Button (NMI_BTN1)
31	Security Override Jumper (SEC_OR1)
32	Front LAN LED Connector (LED_LAN3_4)
33	Clear CMOS Pad (CLRCMOS1)
34	M.2 Socket (M2_1) (Type 2230/2242/2260/2280)

No.	Description
35	Chassis Fan Connector (FAN5)
36	Chassis Fan Connector (FAN6)
37	Chassis Fan Connector (FAN7)

4.2 Block Diagram

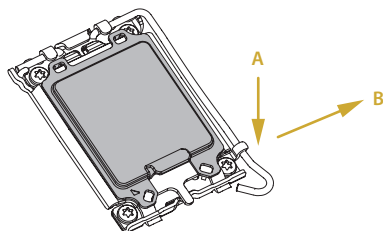


4.3 Installing the CPU (LGA 1700 Socket)

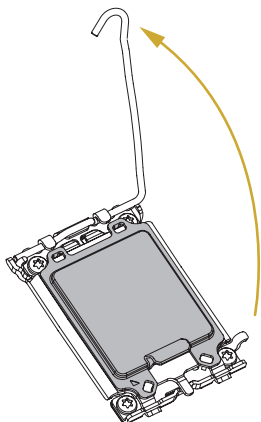


1. Before inserting the CPU into the socket, check if the PnP cap is on the socket, if the CPU surface is unclean, or if there are any bent pins in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.
2. Unplug all power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

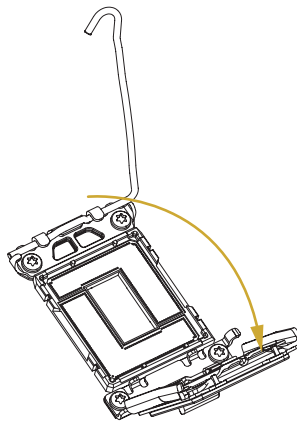
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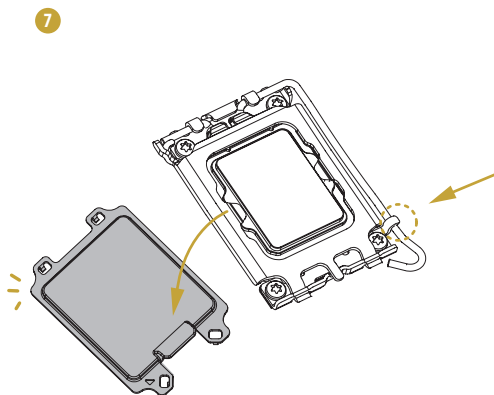
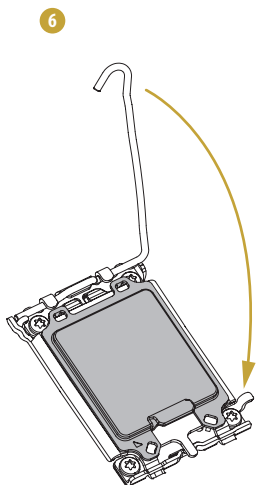
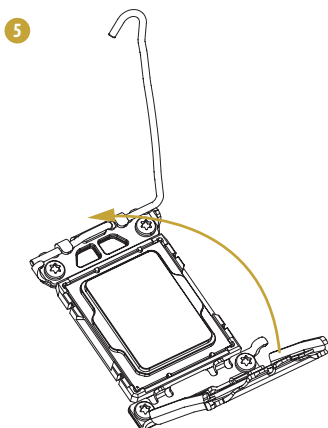
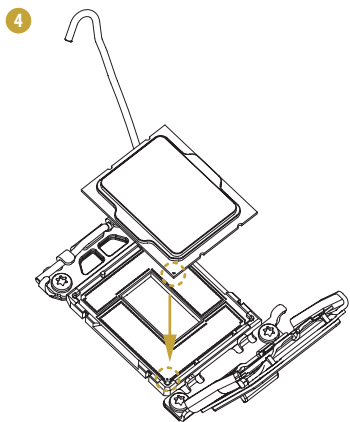


2



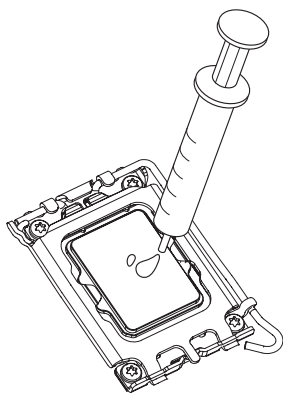
3



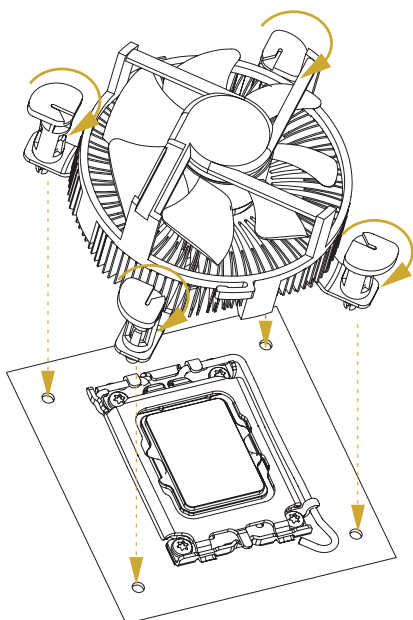


Save and replace the cover if the processor is removed. The cover must be placed if wishing to return the server motherboard for after service.

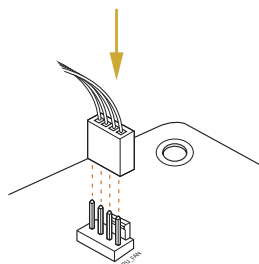
4.4 Installing the CPU Fan and Heatsink



1



2

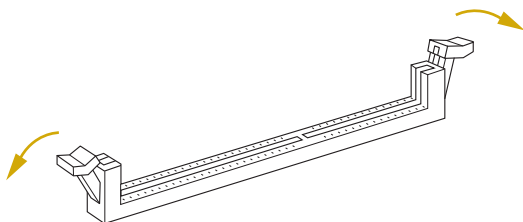


4.5 Installing the Memory Modules (DIMM)

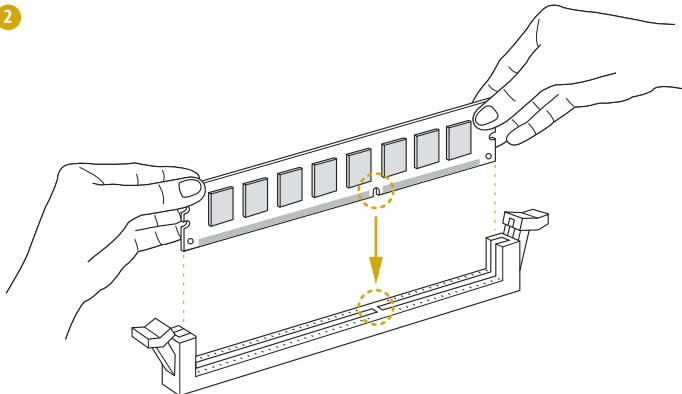


The DIMM only fits in one correct orientation. It will cause permanent damage to the server motherboard and the DIMM if forcing the DIMM into the slot at incorrect orientation. For more information about DIMM installation, refer to the server motherboard user manual.

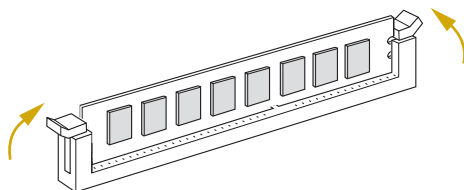
1



2



3



Contact Information

Contact ASRock Rack or want to know more about ASRock Rack, you're welcome to visit ASRock Rack's website at <http://www.asrockrack.com>; or contact the dealer for further information. For technical questions, please submit a support request form at <https://event.asrockrack.com/tsd.asp>

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