

OPEN Industry Standard, Flexible Architecture

GREEN Less Heat, Less Power Consumption

STABLE Robust Design, Quality Parts

Stable and
Reliable Solution

Server/Workstation
Motherboard

4U2G-W790/2T/N

User Manual

English



Version 1.10

Published Sep. 2024

Copyright©2024 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”

Setting up the Server in a Restricted Access Location/Restricted Access Area

- Access can only be gained by service persons or by users who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken.
- Access is through the use of a tool or lock and key, or other means of security, and is controlled by the authority responsible for the location.
- Leave enough clearance (25 inches in the front and 30 inches in the back of the rack) to allow the front door to be opened completely and to allow for sufficient airflow.
- This product is for installation merely in a Restricted Access Location.
- This product is not suitable for use with visual display work place devices according to §2 of the the German Ordinance for Work with Visual Display Units.
- Only skilled person and Instructed person can remove the chassis covers to access the inside of the system.

ASRock Rack's Website: www.ASRockRack.com

Replaceable Batteries

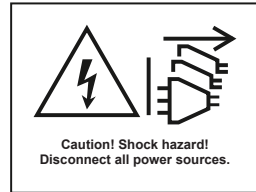
CAUTION

**RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS**

Warning

When removal of the chassis lid required for servicing:

- Turn off power and unplug any power cords/cables, and
- Reinstall the chassis lid before restoring power.



Important Safety Instructions

Pay close attention to the following safety instructions before performing any of the operation. Basic safety precautions should be followed to protect yourself from harm and the product from damage:

- Operation of the product should be carried out by suitably trained, qualified, and certified personnel only to avoid risk of injury from electrical shock or energy hazard.
- Disconnect the power cord from the wall outlet when installing or removing main system components, such as the motherboard and power supply unit.
- Place the system on a stable and flat surface.
- Use extreme caution when working with high-voltage components.
- When handling parts, use a grounded wrist strap designed to prevent static discharge.
- Keep the area around the system clean and clutter-free.
- Keep all components and printed circuit boards (PCBs) in their antistatic bags when not in use.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.
- The power cord must be connected to a socket or outlet with a ground connection.

Contents

Chapter 1 Introduction	1
1.1 Shipping Box Contents	2
1.2 Specifications	3
Chapter 2 Server System Overview	5
2.1 System Components	5
2.2 Internal Features	6
2.3 System Front Panel	7
2.4 System Rear Panel	7
2.5 Front Control Panel Buttons and LEDs	8
Chapter 3 Hardware Installation and Maintenance	10
3.1 Server Top Cover	11
3.2 System Fan	13
3.3 GPU Card	16
Appendix A	18
Installing the CPU (LGA 4677 Socket)	18
Appendix B	24
Installation of Memory Modules (DIMM)	24
Appendix C	26
Block Diagram (W790D8UD-1L1N2T/BCM)	26

Chapter 1 Introduction

Thank you for purchasing 4U2G-W790/2T/N, 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 disk drive trays, and other main components this system supports. If the system is pre-installed a serverboard, please refer to the user's manual of the serverboard for the information of the serverboard components, specifications and BIOS settings.

System	ASRock Rack Server Board
4U2G-W790/2T/N	W790D8UD-1L1N2T/BCM



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
4U2G Series Barebone (4U form factor)	1
Power Supply Unit	2
System Fan	4
Power Distribution Board (PDB)	1
System Board (MB)	1
Front Panel Board (FPB)	1
Accessory Box	1

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

1.2 Specifications

4U2G-W790/2T/N	
System	
Form Factor	4U Rackmount
Dimensions (D x W x H)	596 x 430.4 x 174.8 mm (23.5" x 16.9" x 6.9")
Support MB	W790D8UD-1L1N2T/BCM
Front Panel	
Buttons	Power w/ LED, UID w/ LED, NMI
LEDs	LAN Activity, HDD Activity, System Event
I/O Port	2 Type-A (USB3.2 Gen1)
System Cooling	
Fan	4 PWM fixed 80x38 mm fans
Power Supply	
Type	1, ATX PSU
Output Watts	2000W
Processor System	
CPU	Supports Intel® Xeon® W-2500/2400 and W-3500/3400 series processors
Socket	Single Socket AM5 (LGA 4677)
Chipset	Intel W790
System Memory	
Supported DIMM Quantity	8 DIMM slots (2DPC)
Supported Type	DDR5 288 pin RDIMM/RDIMM-3DS
Max. Capacity	RDIMM: 64GB RDIMM-3DS: 2H-128 GB/ 4H-256 GB
Max. DIMM Frequency	4800MT/s (1DPC)
Voltage	1.1 V
Expansion Slot	
PCIe x16	2 FHFL 3-slot PCIe5.0 x16
External Drive Bay / Storage	
Internal Side	1 M-key (PCIe4.0 x4), supports 2280 form factor [PCH]

Internal Connector	
TPM header	1
Management	
BMC Controller	ASPEED AST2600
IPMI Dedicated GLAN	1 x Realtek RTL8211F for dedicated management GLAN
Graphics	
Controller	ASPEED AST2600
Environment	
Temperature	Operation temperature: 10°C ~ 35°C / Non operation temperature: -40°C ~ 70°C

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

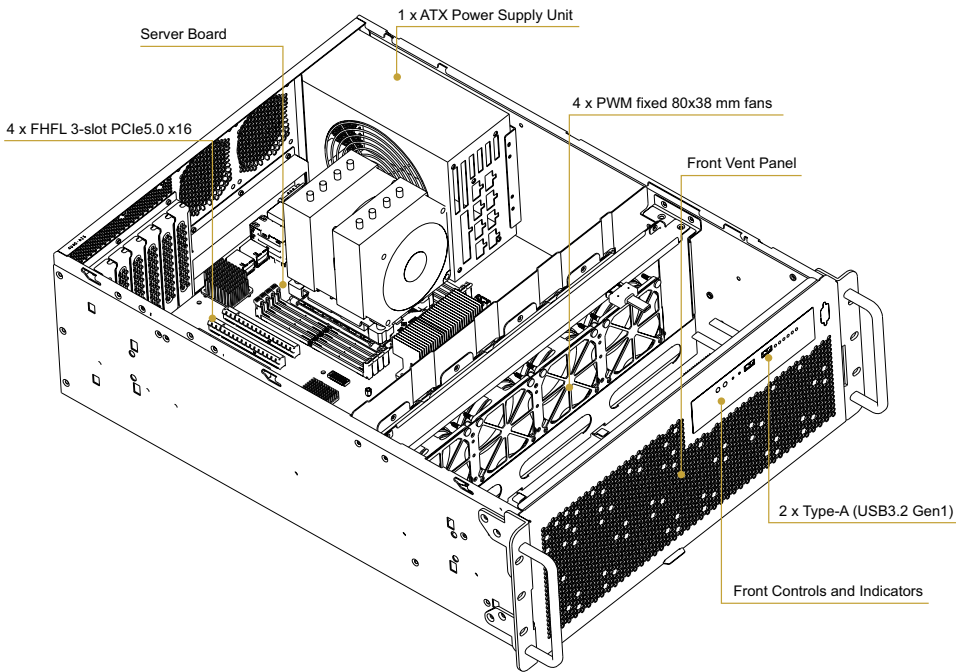


Please refer to the user manual of the motherboard you use for detailed information about motherboard components and features.

Chapter 2 Server System Overview

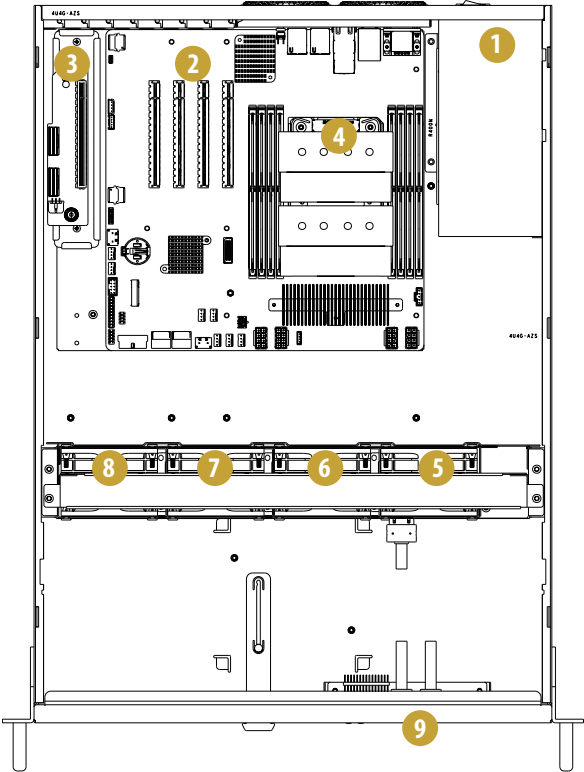
This chapter provides diagrams showing the location of important components of the server system.

2.1 System Components



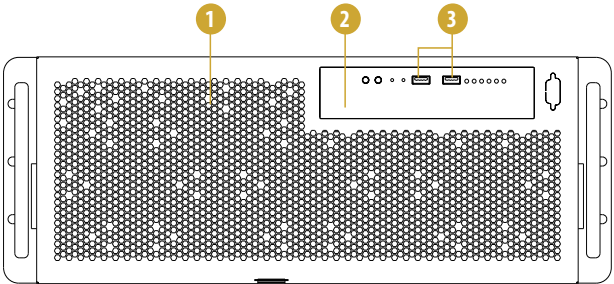
**The illustrations in this User Manual are for references only. The actual product may be slightly different by SKU.*

2.2 Internal Features



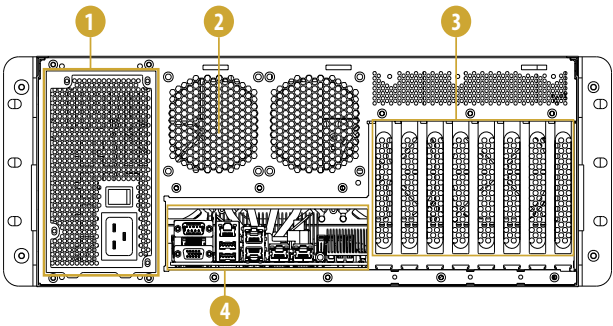
No.	From
1	1 ATX Power Supply Unit
2	4 PCIe5.0 x16
3	1 FHFL single-slot PCIe4.0 x4
4	Server Board
5	System Fan (FAN1)
6	System Fan (FAN2)
7	System Fan (FAN3)
8	System Fan (FAN4)
9	Control Panel Buttons and LED Indicators

2.3 System Front Panel



No.	Description
1	Front Vent
2	Control Panel (depends on the specification of the server board)
3	2 Type-A (USB3.2 Gen1)

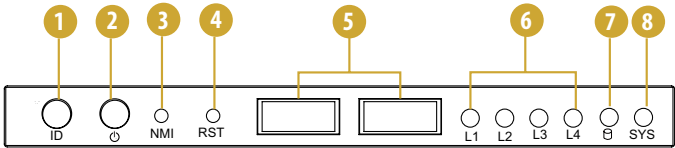
2.4 System Rear Panel



No.	Description
1	1 x ATX Power Supply Unit
2	Rear Vent Panel
3	4 x PCIe5.0 x16 1 FHFL single-slot PCIe4.0 x4
4	I/O Shield (depends on the specification of the server board)

2.5 Front Control Panel Buttons and LEDs

Front Control Panel



No.	Description
1	ID Button and LED
2	Power Button and LED
3	NMI (Nonmaskable Interrupt) Button
4	System Reset Button
5	2 x USB 3.2 Gen1 Ports
6	LAN1, LAN2 Activity LED
7	HDD Activity LED
8	System Event LED

Power Button

Press the power switch button to toggle the system power on and off modes.

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

ID Button

Press the ID button on the rear panel to toggle the front panel ID LED on and off. This can locate the server that is working on from behind a rack of servers.

NMI (Nonmaskable Interrupt) Button

Press the NMI button with a paper clip or pin to generate a nonmaskable interrupt and to put the server in a halt state for examination.

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, LAN3, LAN4 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

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.



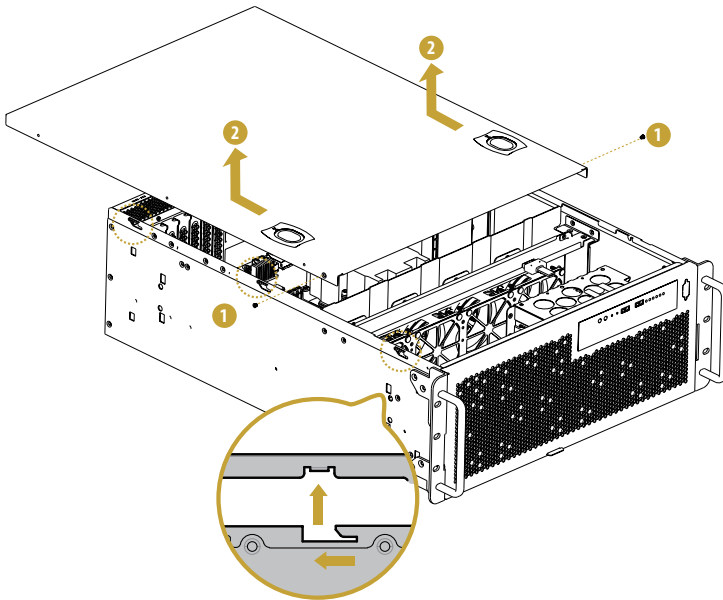
1. Some components are already pre-installed. Simply properly connect the required cables before or after installation. See the Quick Installation Guide for more details.
2. Refer to the user manual of the server board you use for instructions on how to install server board components.

3.1 Server Top Cover

Removing the Server Top Cover

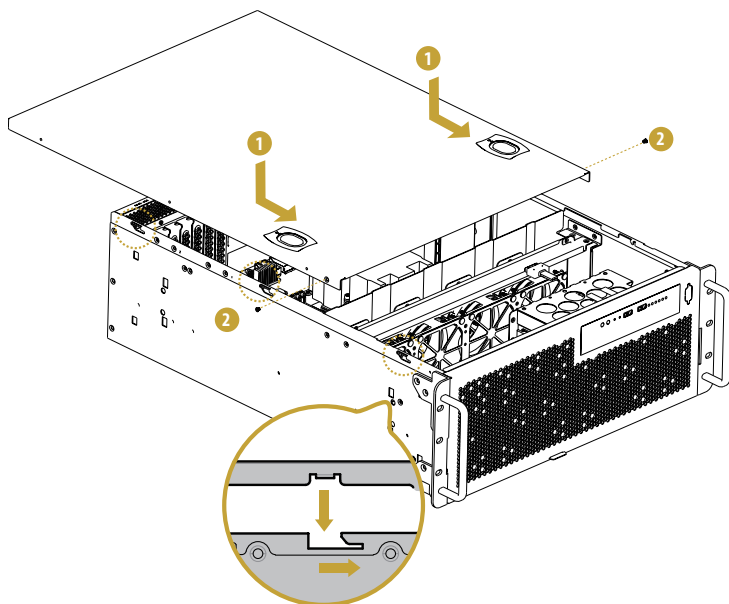


1. Before removing the top cover, power off the server and unplug the power cord.
2. The system must be operated with the chassis top cover installed to ensure proper cooling.



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. Lift up and remove the top cover.

Installing the Server Top Cover

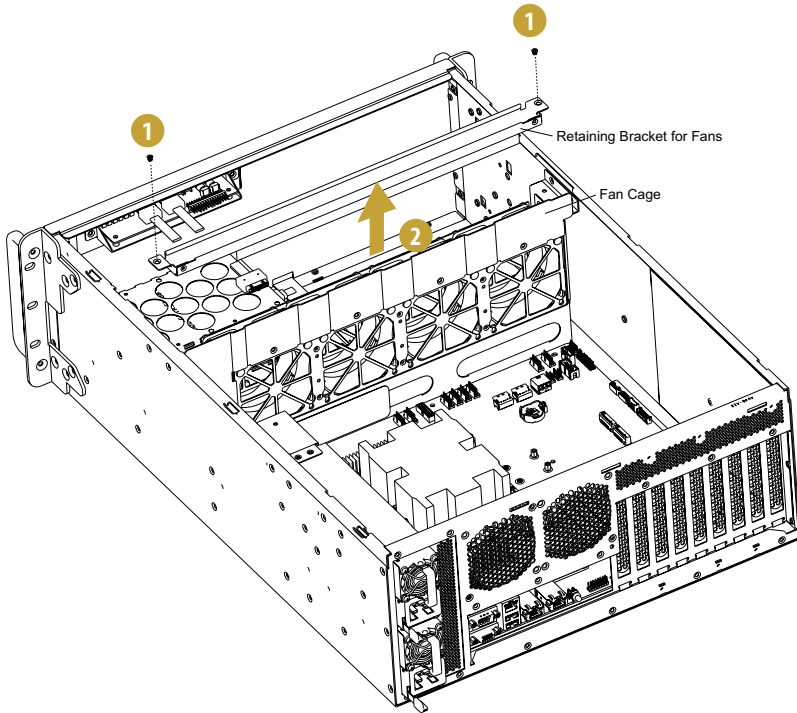


1. Lower the top cover on the chassis, making sure the side latches align with the cutouts. Slide the top cover toward the **FRONT** of the chassis.
2. Secure the top cover in place with screws.

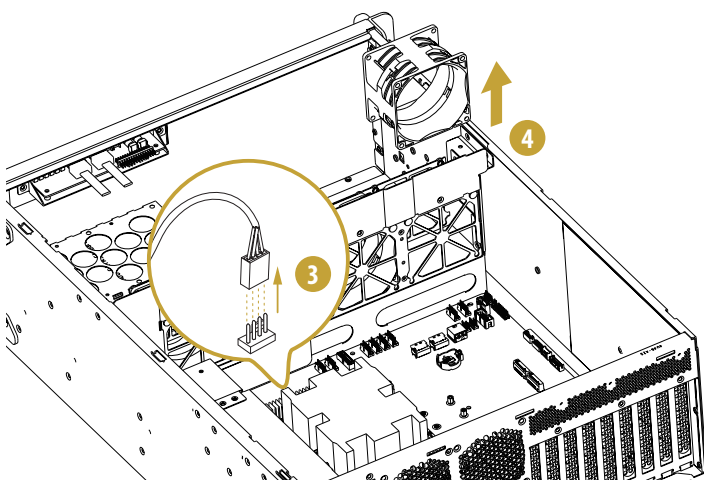
3.2 System Fan

Replacing the System Fan

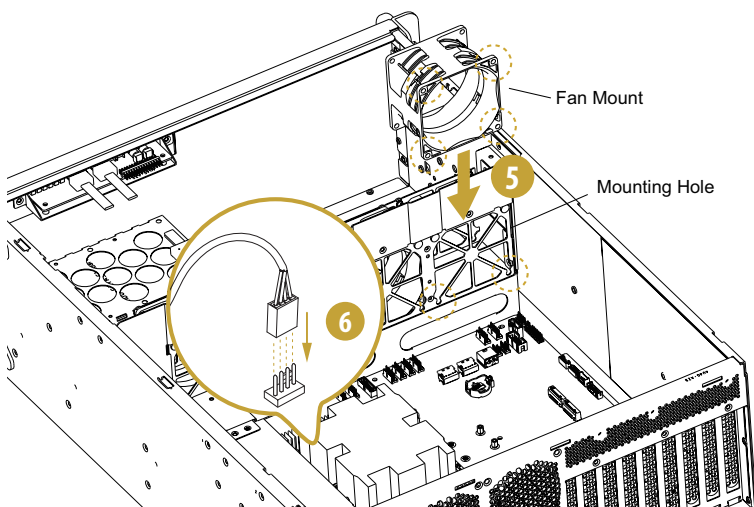
1. Release the screws that secure the fan-retention bracket to the fan cage.
2. Remove the fan-retention bracket from the chassis.



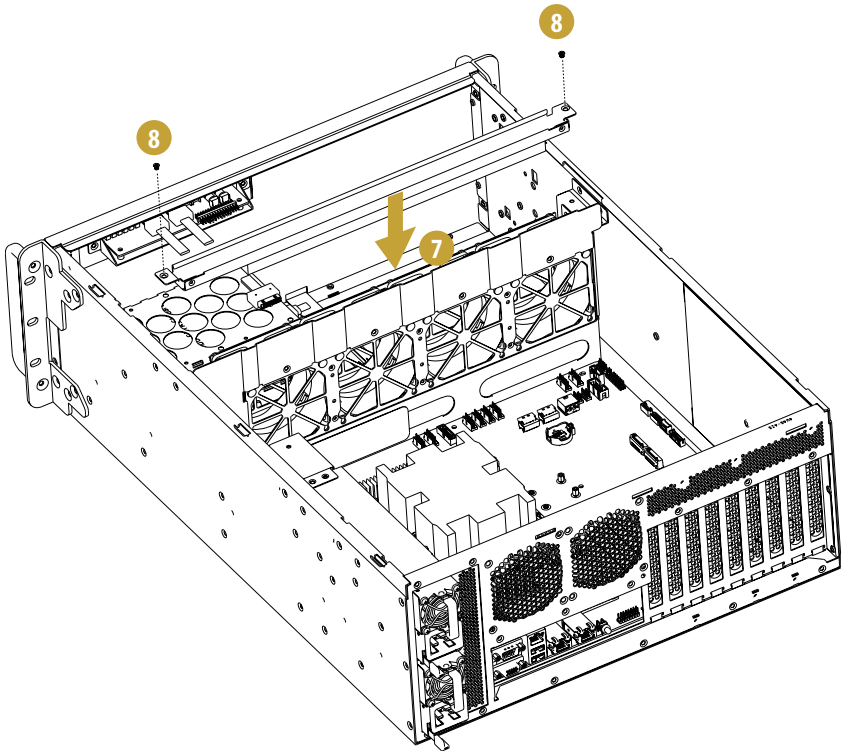
3. Unplug the fan connector.
4. Remove the failed fan.



5. Align the mounting holes on the fan bar with the fan mounts on the replacement fan corners. Please be aware that the fan cable on the replacement fan faces toward the rear side of the chassis.
Gently place the fan on the fan bar. Make sure the fan is well seated.
6. Connect the end of the fan cable to the fan connector.



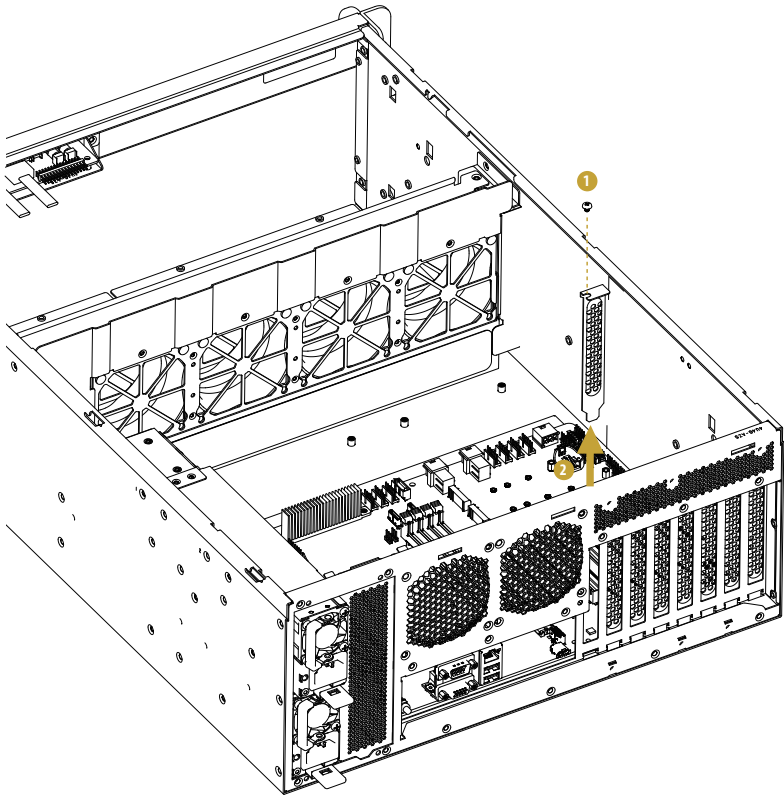
7. Place the fan-retention bracket back on the fan cage.
8. Tighten the screws to secure it to the chassis.



3.3 GPU Card

If there is a hold-down bar affixed on the chassis, please remove it before installing an add-in card. Be sure to replace the hold-down bar after installing the add-in cards. Refer to the section entitled "Hold-Down Bar (for GPU Card)" for more instructions.

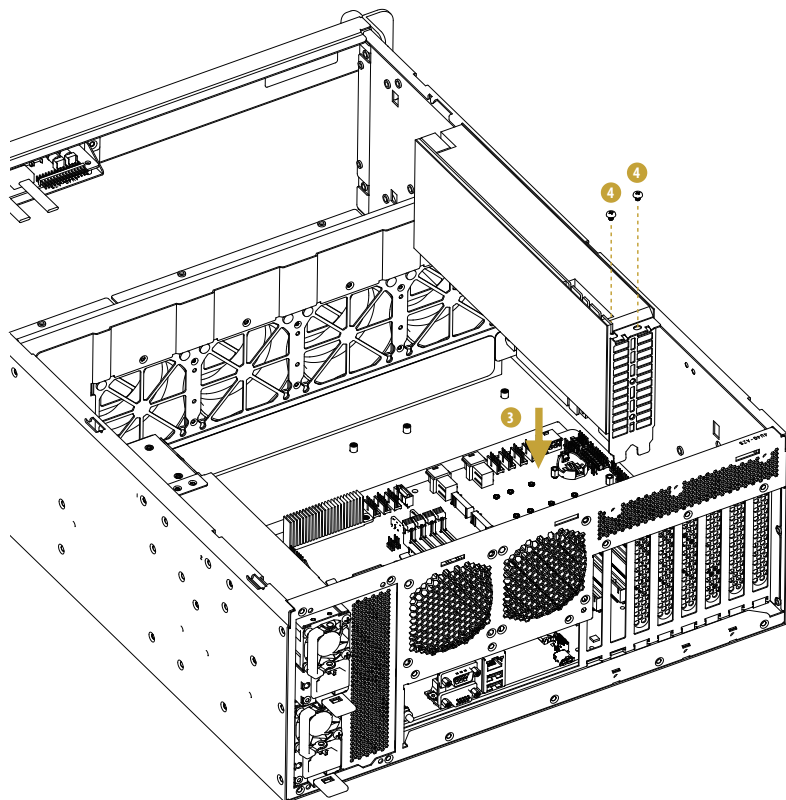
1. Release the screw securing the slot cover to the chassis.
2. Remove the slot cover.



3. Install an add-in card into the slot.

Note: It needs to remove the two slot covers when installing a double-width PCIe/GPU card.

4. Tighten the screw(s) to secure the card to the chassis.



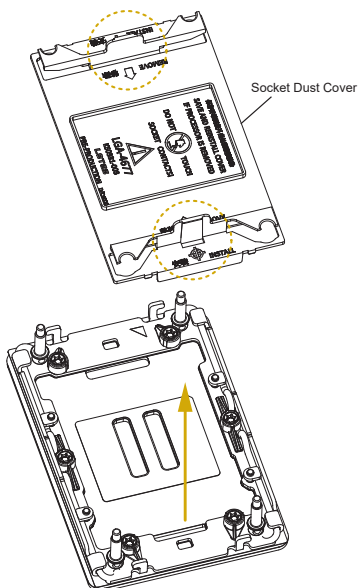
Appendix A

Installing the CPU (LGA 4677 Socket)

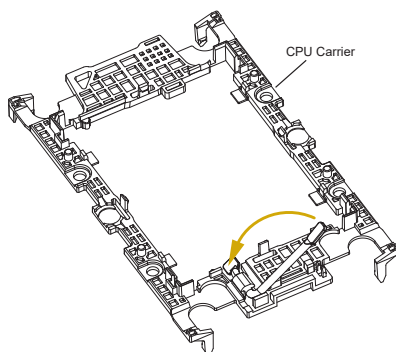


Unplug all power cables before installing the CPU.

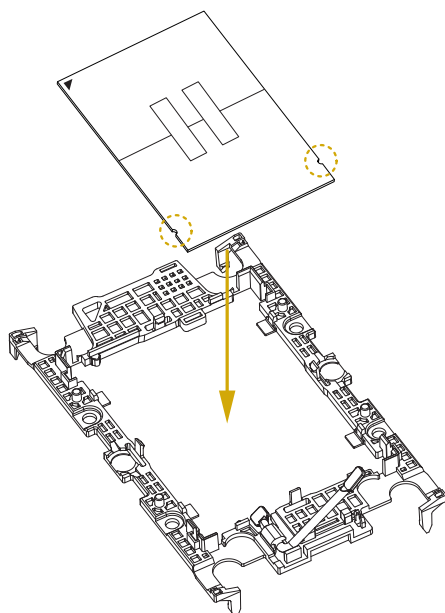
1



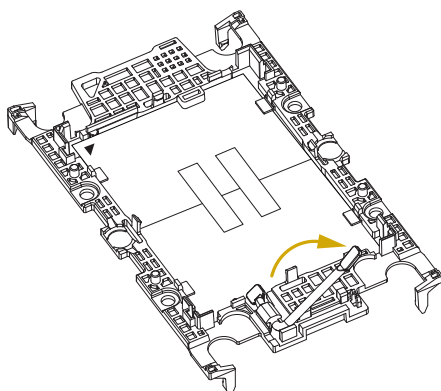
2



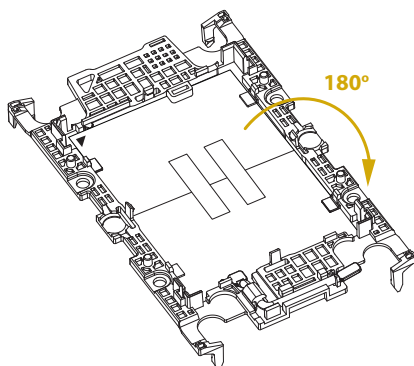
3



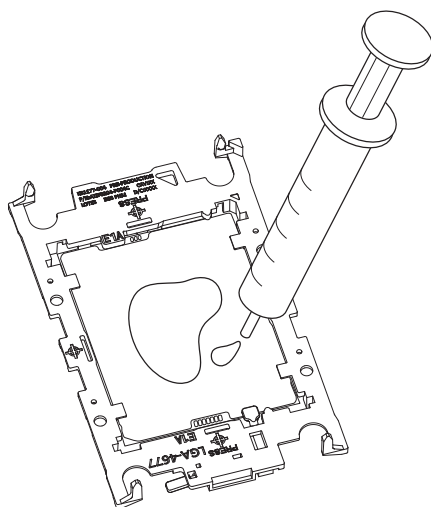
4



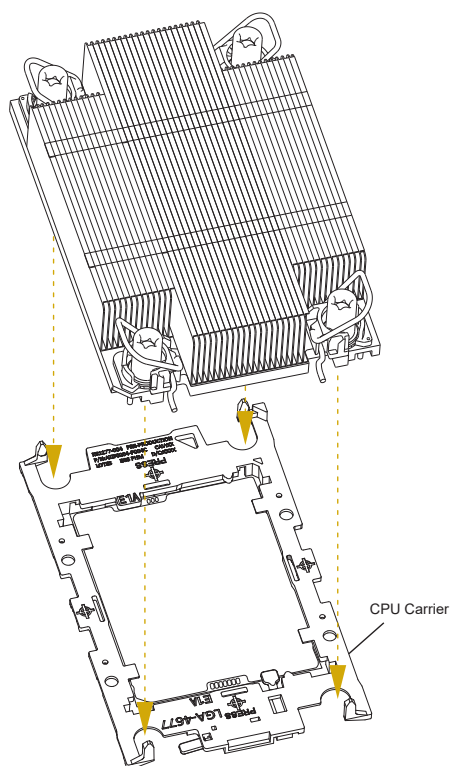
5



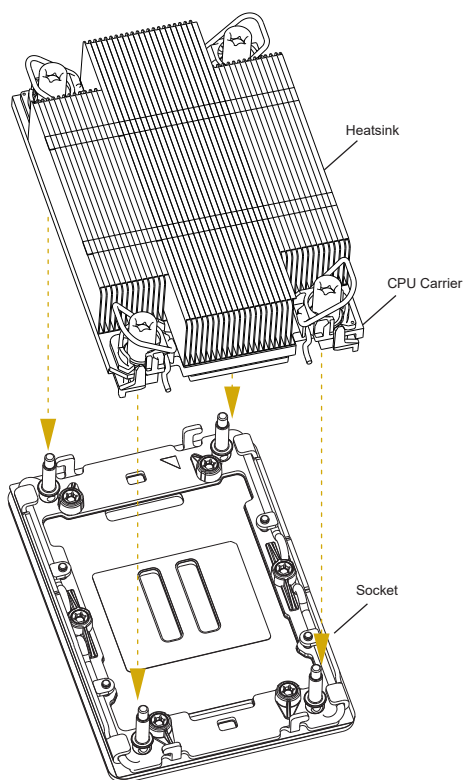
6



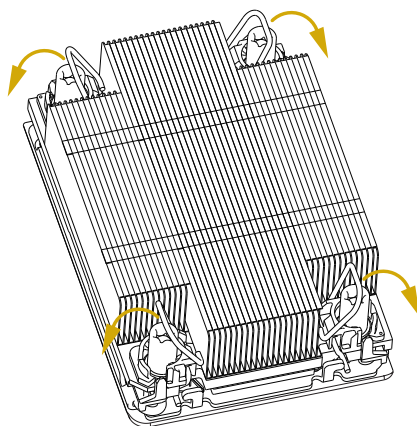
7



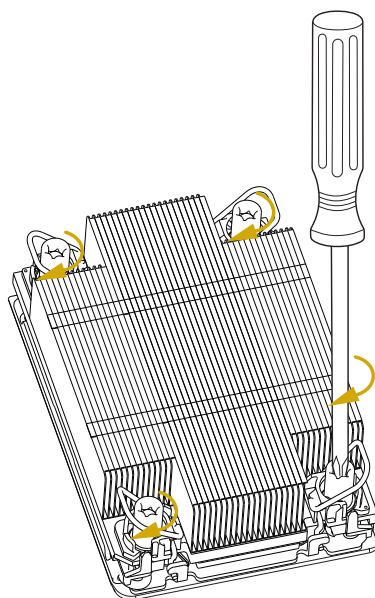
8



9



10



Appendix B

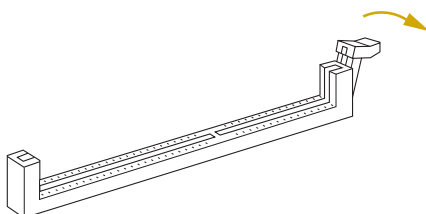
Installation of Memory Modules (DIMM)



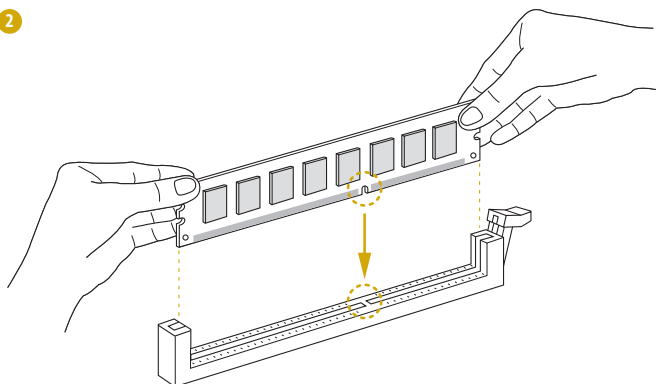
The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation. For more information about DIMM installation, please refer to the User Manual that comes with the serverboard you use.

Type A (Single Clip)

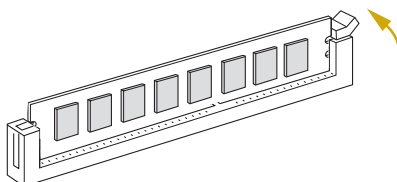
1



2

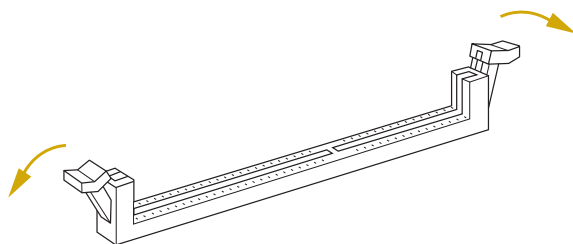


3

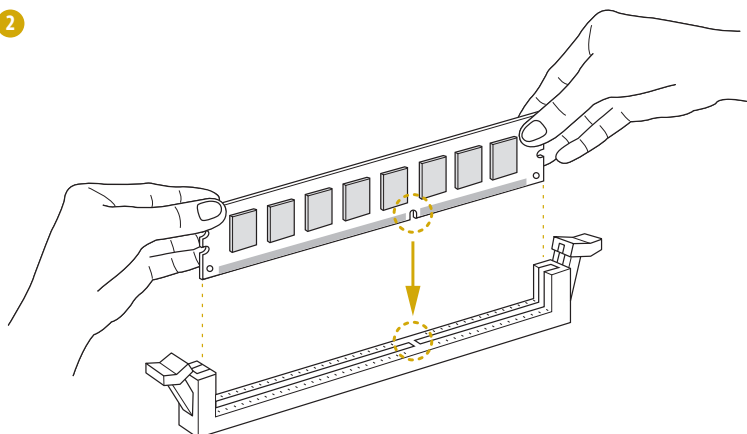


Type B (Two Clips)

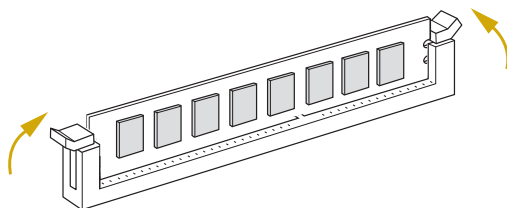
1



2

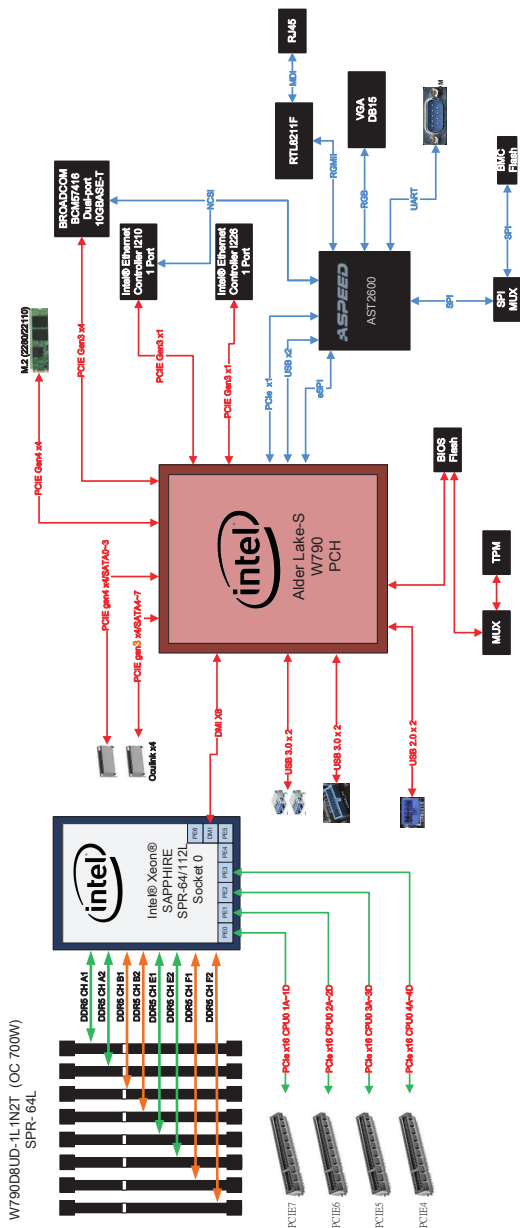


3



Appendix C

Block Diagram (W790D8UD-1L1N2T/BCM)



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>

ASRock Rack Incorporation

e-mail: ASRockRack_sales@asrockrack.com

ASRock Rack EUROPE B.V.

Bijsterhuizen 11-11
6546 AR Nijmegen
The Netherlands
Phone: +31-24-345-44-33

ASRock Rack America, Inc.

13848 Magnolia Ave, Chino, CA91710 U.S.A.
Phone: +1-909-590-8308
Fax: +1-909-590-1026