SUPERSERVER®
SYS-820GH-TNR2

USER'S MANUAL

Revision 1.0b

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Manual Revision 1.0b

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Preface

About this Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the server. Installation and maintenance should be performed by certified service technicians only.

Please refer to the SYS-820GH-TNR2 server specifications page on our website for updates on supported memory, processors and operating systems (http://www.supermicro.com).

Notes

For your system to work properly, please follow the links below to download all necessary drivers/utilities and the user's manual for your server.

- Supermicro product manuals: http://www.supermicro.com/support/manuals/
- Product drivers and utilities: https://www.supermicro.com/wdl/
- Product safety info: http://www.supermicro.com/about/policies/safety_information.cfm

If you have any questions, please contact our support team at:
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This manual may be periodically updated without notice. Please check the Supermicro website for possible updates to the manual revision level.

Secure Data Deletion

A secure data deletion tool designed to fully erase all data from storage devices can be found on our website: https://www.supermicro.com/about/policies/disclaimer.cfm?url=/wdl/utility/Lot9_Secure_Data_Deletion_Utility/

Warnings

Special attention should be given to the following symbols used in this manual.

Warning! Indicates important information given to prevent equipment/property damage or personal injury.

Warning! Indicates high voltage may be encountered when performing a procedure.

Contents

Chapter 1

Introduction

1.1 Overview

This chapter provides a brief outline of the functions and features of the SuperServer SYS-820GH-TNR2. It is based on the X12DPG-OA6-GD2 motherboard and the CSE-GP802TS-R000NP chassis.

The following provides an overview of the specifications and capabilities.

System Overview	
Chassis	CSE-GP802TS-R000NP
Motherboard	X12DPG-OA6-GD2
Carrier Board	GPU-HLBA-225
Processor Support	3rd Gen Intel® Xeon® Scalable processors
Memory	Supports up to 8 TB of 3DS LRDIMM/LRDIMM/3DS RDIMM/RDIMM DDR4 (288-pin) ECC memory with speeds of 3200/2933/2666 MT/s in 32 memory slots or up to 8 TB of Intel Optane PMem 200 Series with speeds of up to 3200 MT/s
Drive Support	Twenty-four internal 2.5" hot-swap NVMe/SATA/SAS drive bays
Expansion Slots	Four PCIe slots: Two PCIe 4.0 x16 (FHFL) and two PCIe 4.0 x8 (FHFL)
I/O Ports	One VGA port One dedicated BMC LAN port Two front USB 3.0 ports
System Cooling	Twelve removable heavy-duty fan modules (80x80 mm)
Power	Six 3000 W high efficiency power supply modules (54 V+12 V)
Form Factor	8U Rackmount 17.6 x 14 x 31.5 in (447 x 356 x 800 mm) (WxHxD)

A Quick Reference Guide can be found on the product page of the Supermicro website.

The following safety models associated with the SYS-820GH-TNR2 have been certified as compliant with UL or CSA: GP802F-H30X12, GP802-30

1.2 System Features

The following views of the system display the main features. Refer to Appendix B for additional specifications.

Front View

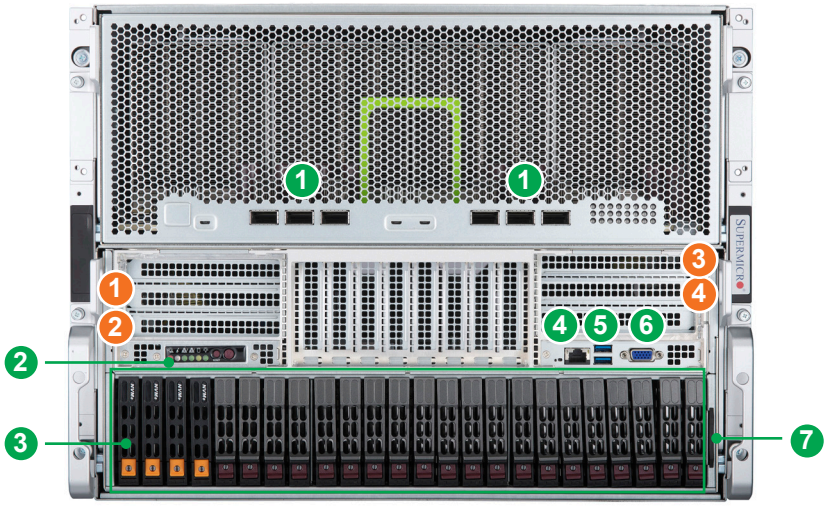


Figure 1-1. Front View

System Features: Front		
Item	**Feature**	**Description**
1	QSFP-DD Ports	Six 400 Gb/s QSFP-DD ports on AI Processor tray for RDMA for scale-out. Up to 12 W of power is supported. **Note:** The AOC cables must be plugged into all six QSFP-DD ports before power up.
2	LED Panel	See the table on the next page for details.
3	Drive Bays	2.5" hot-swap NVMe/SATA/SAS hybrid drive bays
4	LAN Port	One dedicated BMC LAN port for both motherboard and carrier board
5	USB Ports	Two USB 3.0 ports
6	VGA	One VGA port
7	Service Tag	Pull-out service tag with BMC password label

Expansion Slot Locations	
Item	**Description**
1	PCIe 4.0 x16 FHFL
2	PCIe 4.0 x8 FHFL
3	PCIe 4.0 x8 FHFL
4	PCIe 4.0 x16 FHFL

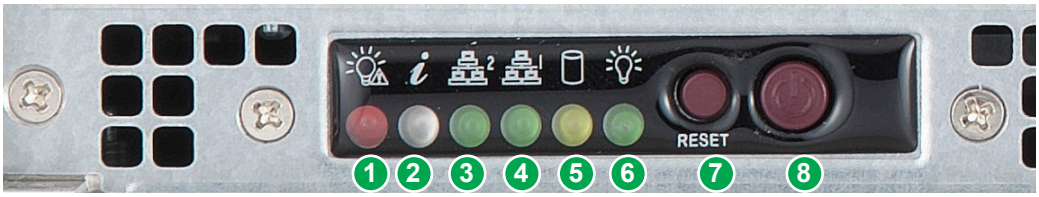


Figure 1-2. LED Panel View

LED Panel		
Item	**Feature**	**Description**
1	Power Fail LED	Indicates a power supply module has failed.
2	Information LED	Alerts operator to several states, as noted in the table below.
3	NIC LED 2	Indicates network activity on LAN when flashing
4	NIC LED 1	Indicates network activity on LAN when flashing
5	HDD	Indicates hard drive activity on the storage drive when flashings
6	Power LED	Indicates power is being supplied to the system power supply units. This LED is illuminated when the system is operating normally.
7	Reset Button	The reset button is used to reboot the system.
8	Power Button	The main power switch is used to apply or remove power from the power supply to the server. Turning off system power with this button removes the main power but maintains standby power. To perform many maintenance tasks, you must unplug system before servicing. Note that fans continue to run for one minute after power is off. You can press the Power Button to turn off fans immediately.

Information LED	
Status	**Description**
Continuously on and red	An overheat condition has occurred. (This may be caused by cable congestion.)
Blinking red (1 Hz)	Fan failure, check for an inoperative fan.
Blinking red (0.25 Hz)	Power failure, check for a non-operational power supply.
Solid blue	UID has been activated locally to locate the server in a rack environment.
Blinking blue	UID has been activated remotely to locate the server in a rack environment.

Drive Carrier Indicators

Each drive carrier has two LED indicators: an activity indicator and a status indicator. For RAID configurations using a controller, the meaning of the status indicator is described in the table below. For OS RAID or non-RAID configurations, some LED indications are not supported, such as hot spare.

Drive Carrier LED Indicators			
	Color	**Blinking Pattern**	**Behavior for Device**
Activity LED	Blue	Solid On	Idle SAS/NVMe drive installed
	Blue	Blinking	I/O activity
	Off		Idle SATA drive
Status LED	Red	Solid On	Failure of drive with RSTe support
	Red	Blinking at 1 Hz	Rebuild drive with RSTe support
	Red	Blinking with two blinks and one stop at 1 Hz	Hot spare for drive with RSTe support
	Red	On for five seconds, then off	Power on for drive with RSTe support
	Red	Blinking at 4 Hz	Identify drive with RSTe support

Front I/O Ports and LED Indicators of AI Processor

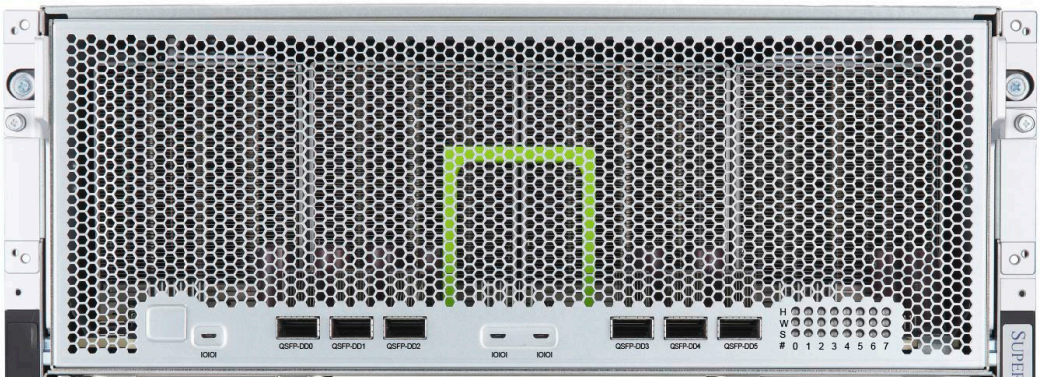


Figure 1-3. Front I/O on AI Processor Tray

Front I/O Ports and LED Indicators on AI Processor Tray					
Symbol	**Name**	**Status**	**Color**	**Behavior**	**Description**
IOIOI	-	-	-	-	Ports reserved for factory maintenance
H	Hazard	Default	Off	Off	OAM Thermal trip
		Alarm	Red	Solid On	
W	Warning	Default	Green	Solid On	Voltage violations: PG_P54V P12V OAM PD
		Alarm	Red	Solid On	
S	Status	Default	Green	Solid On	OAM driver loaded or not
		Before a driver is loaded	Off	Off	
#	OAM	N/A	N/A	N/A	OAM locations 0~7

Rear View

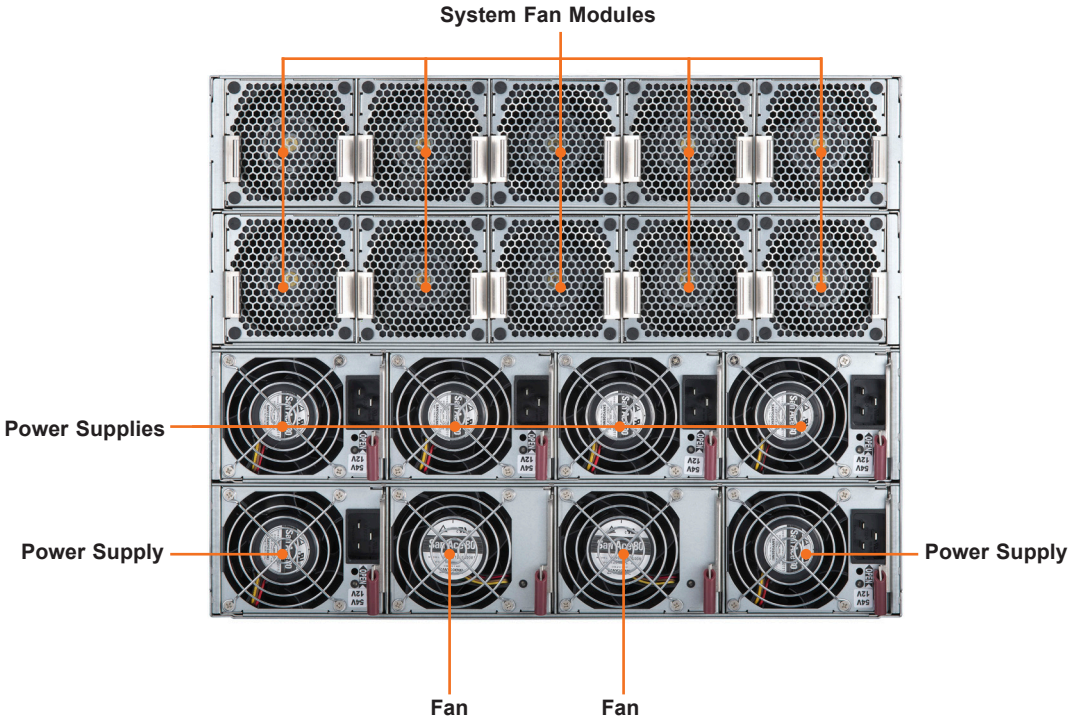


Figure 1-4. System: Rear View

System Features: Rear	
Feature	**Description**
System Fans	Twelve heavy-duty, hot-swappable fan modules. System fans run at full speed when a failed fan is detected or the ambient temperature reaches 35˚C or higher.
Power Supplies	Six 3000W (+54 V: 2100 W, +12 V: 110 W) redundant power supplies, Titanium Level, 4+2 redundancy

Warning: The 4+2 redundancy of power supplies requires the installation of two dummy fans. If no dummy fans are installed, this feature is NOT available for use. To take advange of the feature, the minimum requirement should be: four power supplies plus two dummy fans, five power supplies plus one dummy fan, or six power supplies without any dummy fans.

1.3 System Architecture

This section covers the locations of the main system components and block diagrams of the motherboard and the overall system.

Main Component Locations

Motherboard

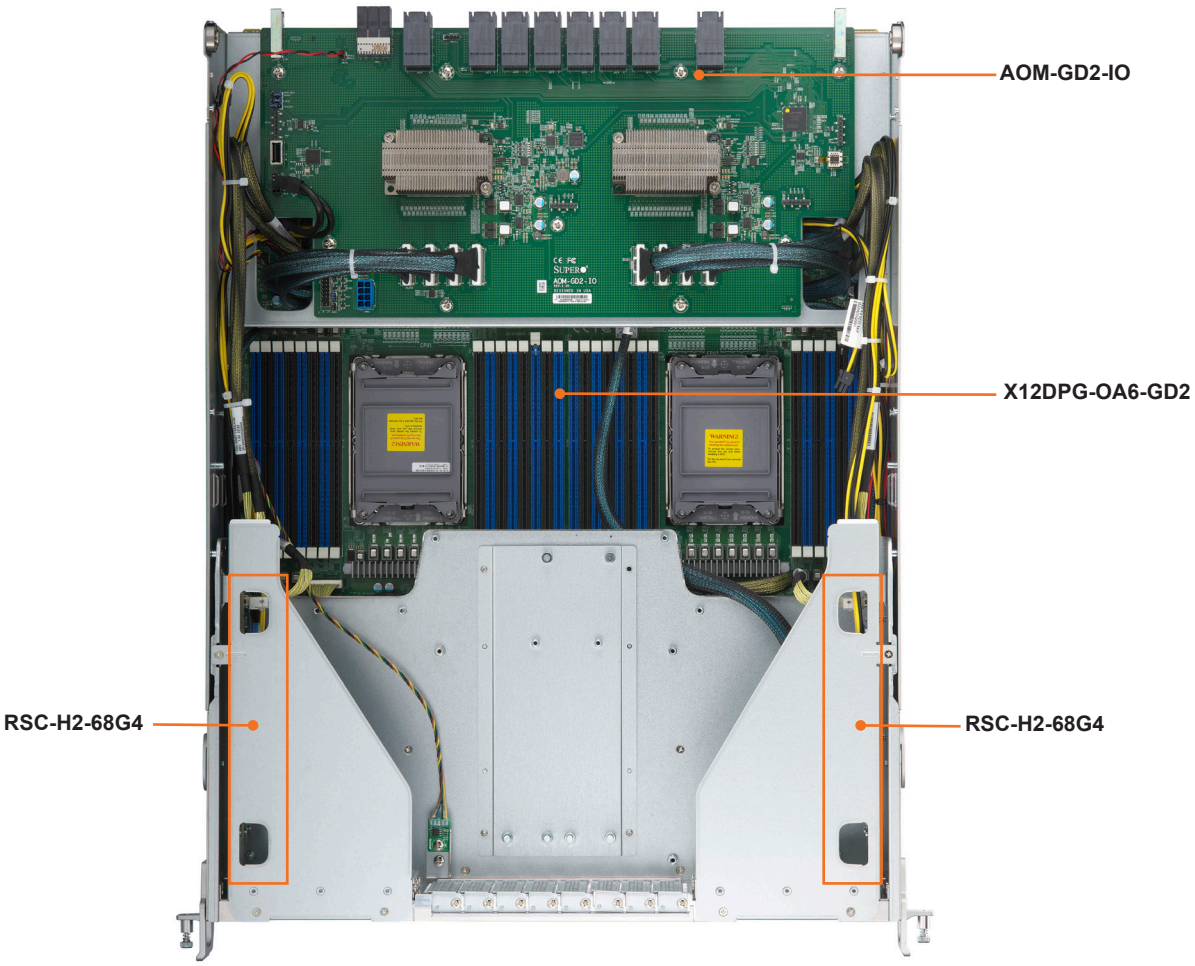


Figure 1-5. Motherboard

Carrier Board

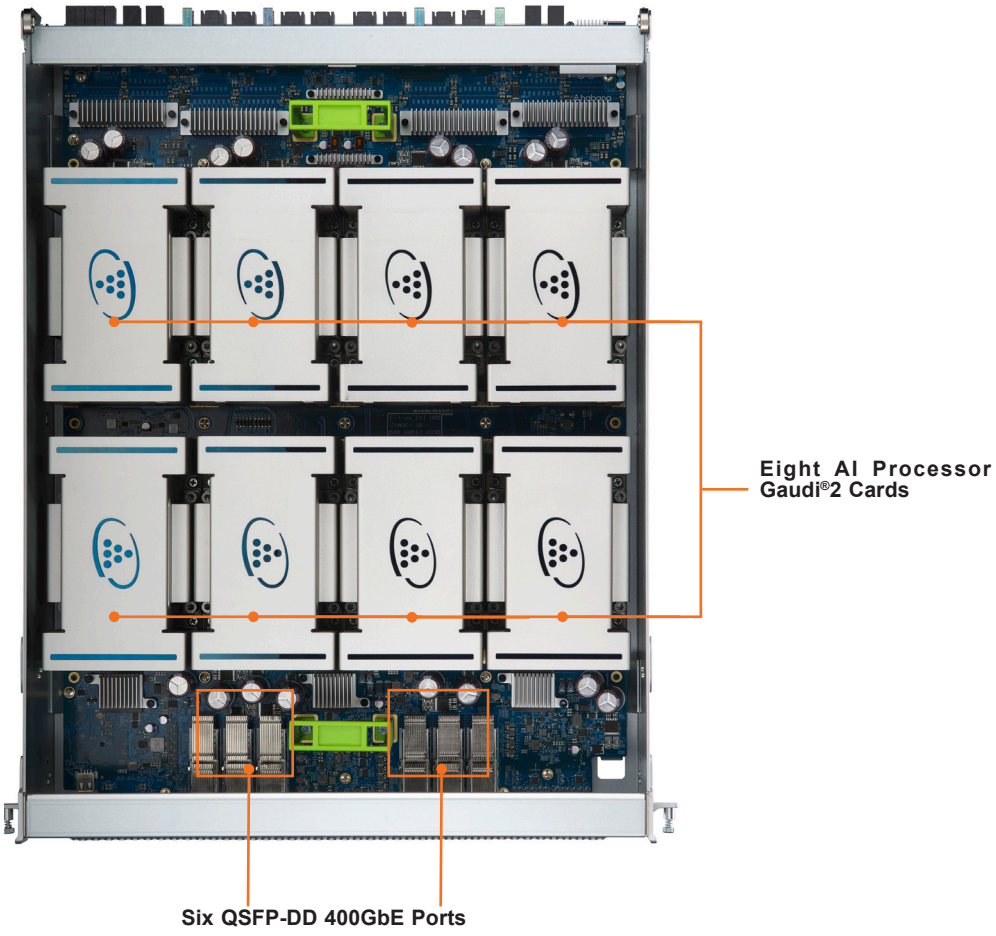


Figure 1-6. Carrier Board

System Block Diagram

This is a general block diagram and may not exactly represent the features on your motherboard. See the System Specifications appendix for the actual specifications of your motherboard.

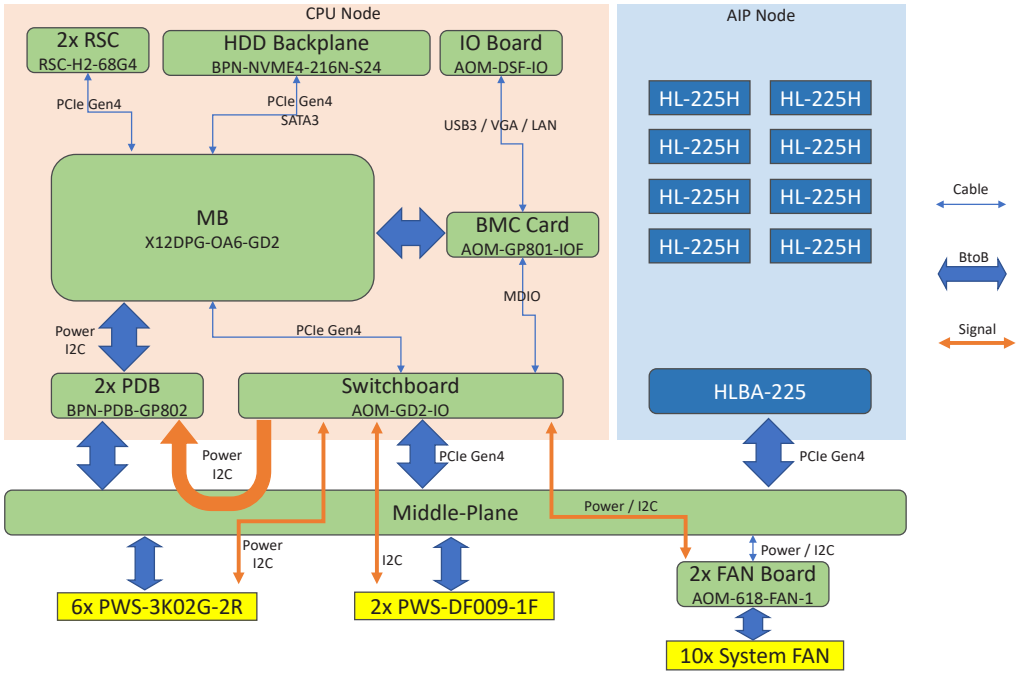


Figure 1-7. System Block Diagram

1.4 PCIe Mapping: Carrier Board and Motherboard

Refer to the images and tables below for the PCIe mapping on the carrier board and motherboard of the SYS-820GH-TNR2.

PCIe Mapping on Carrier Board

Figure 1-8. Carrier Board Mapping

Carrier Board Mapping Table		
Linux OS Numbering	**Physical Location**	**PCI BUS ID**
Numbering changes with every system boot.	OAM#0	43:00.0
	OAM#1	44:00.0
	OAM#2	19:00.0
	OAM#3	1A:00.0
	OAM#4	CC:00.0
	OAM#5	CD:00.0
	OAM#6	B3:00.0
	OAM#7	B4:00.0

PCI Bus IDs

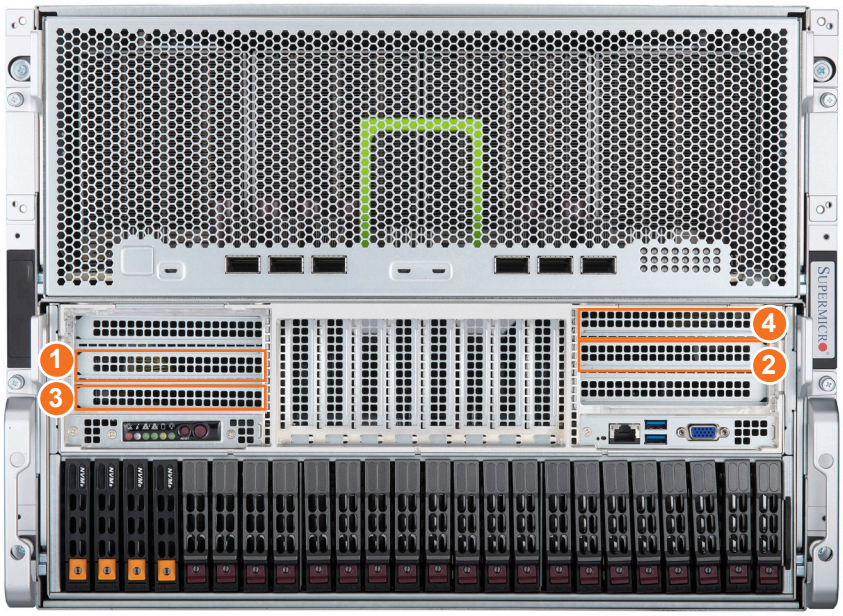


Figure 1-9. PCIe BUS IDs

Slot 1-4 PCI Bus IDs		
Item	**PCI BUS ID**	**BMC Number**
1 (Gen4 x16)	4B:00.0	1
2 (Gen4 x16)	98:00.0	2
3 (Gen4 x8)	77:00.0	3
4 (Gen4 x8)	90:00.0	4

NVMe PCIe Bus IDs

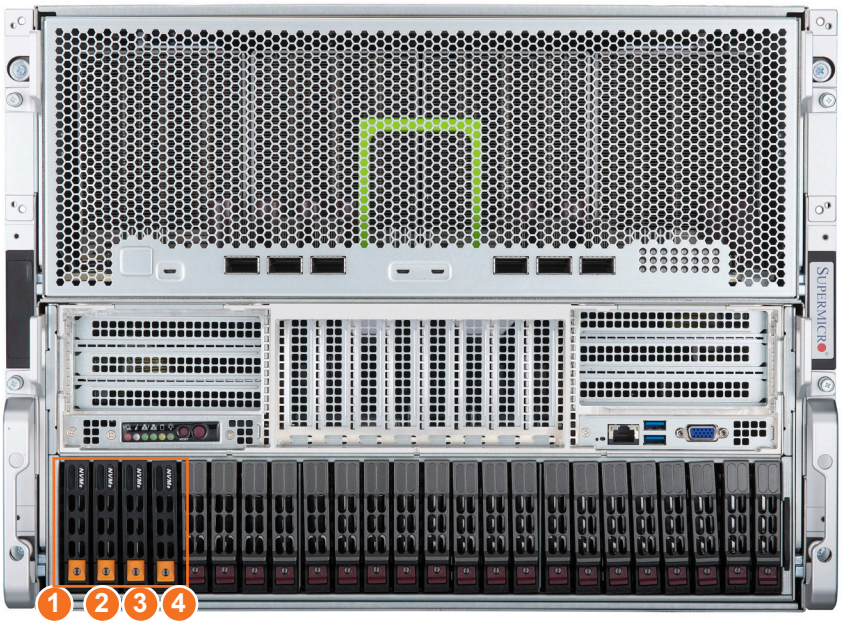


Figure 1-10. NVMe PCI BUS IDs

Slot 1-4 NVMe PCI Bus IDs		
Item	**NVMe PCI BUS ID**	**BMC Number**
1	75:00.0	0
2	76:00.0	1
3	8e:00.0	2
4	8f:00.0	3

M.2 PCI Bus IDs

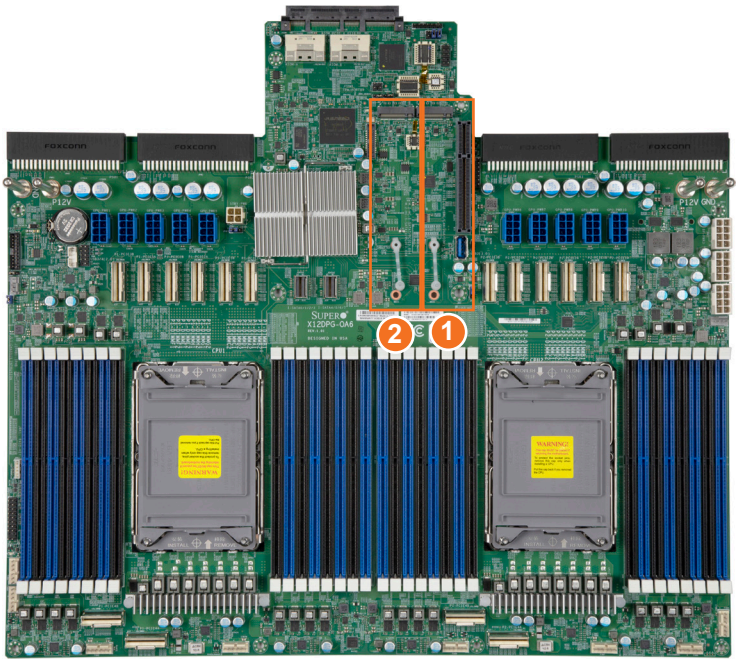


Figure 1-11. M.2 PCI BUS IDs

Slot 1-4 M.2 PCI Bus IDs		
Item	**M.2 PCI BUS ID**	**BMC Number**
1	04:00.0	0
2	05:00.0	1

1.5 Motherboard Layout

Below is a layout of the X12DPG-OA6-GD2 motherboard with jumper, connector and LED locations shown. See the table on the following page for descriptions. For detailed descriptions, pinout information and jumper settings, refer to Chapter 4 or the Motherboard Manual.

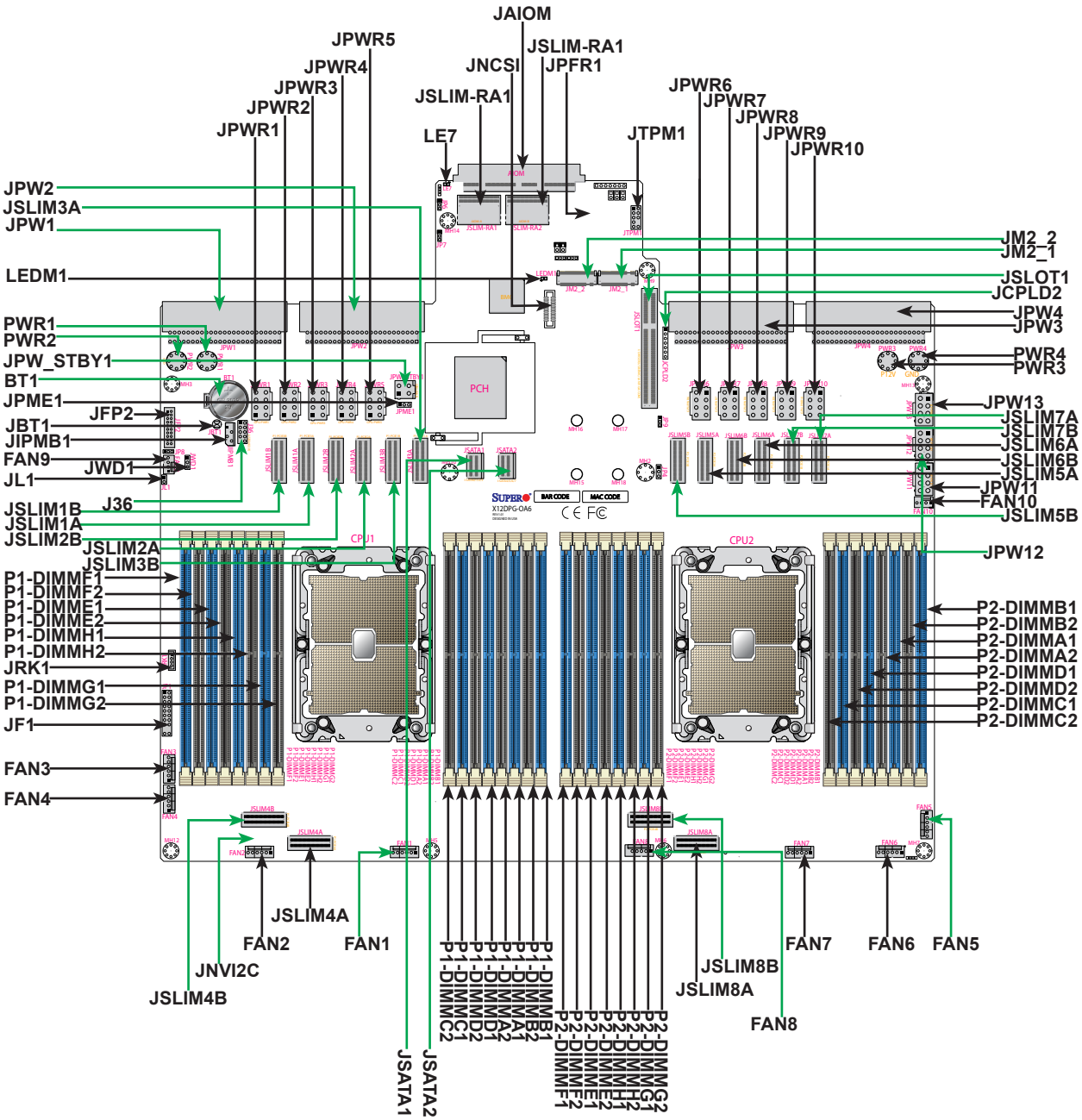


Figure 1-12. Motherboard Layout

Quick Reference Table

Jumper	Description	Default Setting
JBT1	CMOS Clear	Open (Normal)
JPME1	ME Recovery	Pins 1-2 (Normal)

LED	Description	Status
LE7	AIOM/OCP card power good indicator	Blinking Green: Device Working
LEDM1	BMC Heartbeat LED	Blinking Green: BMC Normal (Active), Solid Green: (during BMC Rest or during a Cold Reboot)

Connector	Description
AIOM	Supermicro Advanced I/O Module (AIOM) slot
BT1	Onboard CMOS battery
FAN1~10	CPU/System Fan headers
J36 (USB3/4)	Front-accessible USB 3.0 header with support for two USB 3.0 ports
JF1	Front Control Panel header
JFP2	Front VGA header
JIPMB1	4-pin BMC External I^2C header
JL1	Chassis Intrusion header
JM2_1/JM2_2	M.2 PCIe 3.0 x4 slots supported by PCH (with support for M-Key 2280 and 22110)
JPW_STBY1	4-pin Standby Power connector
JPWR1~10	8-pin Power connectors for GPU use
JPW1~4	PSU Power connectors
BP-PWR1~3	8-pin Power connectors used for backplane devices
JRK1	VROC Intel RAID Key header for NVMe SSD
JSATA1, JSATA2	Intel® PCH SATA3 ports (I-SATA0/1/2/3, I-SATA4/5/6/7) with RAID (0, 1, 5, 10)
JSLIM1A/1B/2A/2B/3A/3B/4A/4B	Slim SAS PCIe 4.0 x8 slots supported by CPU1
JSLIM5A/5B/6A/6B/7A/7B/8A/8B	Slim SAS PCIe 4.0 x8 slots supported by CPU2
JSLOT	I/O Riser Board slot for a VGA header, a COM header, two USB 3.0 ports, a dedicated BMC LAN port and a dual 1G Gigabit LAN Ethernet port
JSLIM-RA1, JSLIM-RA2	PCIe Gen 4 x16 signal to AIOM (Advanced I/O Module)
JTPM1	Trusted Platform Module/Port 80 connector
JVRM1, JVRM2	VRM SMB clock and data to BMC
MH16~18	M.2 mounting holes
JUID1	Multi-purpose UID switch and reset switch

Chapter 2

Server Installation

2.1 Overview

This chapter provides advice and instructions for mounting your system in a server rack. If your system is not already fully integrated with processors, system memory etc., refer to Chapter 3 for details on installing those specific components.

Caution: Electrostatic Discharge (ESD) can damage electronic components. To prevent such damage to PCBs (printed circuit boards), it is important to use a grounded wrist strap, handle all PCBs by their edges and keep them in anti-static bags when not in use.

Warning! The equipment should only be operated by skilled or instructed persons. Instructed person is a term applied to persons who have been instructed and trained by a skilled person, or who is supervised by a skilled person.

2.2 Unpacking the System

Inspect the box in which the system was shipped, and note if it was damaged. If any equipment appears damaged, file a claim with the carrier.

Decide on a suitable location for the rack unit that will hold the server. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. It will also require a grounded AC power outlet nearby. Be sure to read the precautions and considerations noted in Appendix A.

2.3 Preparing for Setup

The box in which the system was shipped should include the rackmount hardware needed to install it into the rack. Please read this section in its entirety before you begin the installation.

Choosing a Setup Location

- The system should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated.
- Leave enough clearance in front of the rack so that you can open the front door completely (~25 inches) and approximately 30 inches of clearance in the back of the rack to allow sufficient space for airflow and access when servicing.

- This product should be installed only in a Restricted Access Location (dedicated equipment rooms, service closets, etc.).
- This product is not suitable for use with visual display workplace devices according to §2 of the German Ordinance for Work with Visual Display Units.

Warning! Power cord shall be connected to a socket-outlet with earthing connection.

Warning! Thumbscrews normally should be tightened with a screwdriver.

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are extended to the floor so that the full weight of the rack rests on them.
- In single rack installations, stabilizers should be attached to the rack. In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a server or other component from the rack.
- You should extend only one server or component at a time - extending two or more simultaneously may cause the rack to become unstable.

Server Precautions

- Review the electrical and general safety precautions in Appendix A.
- Determine the placement of each component in the rack *before* you install the rails.
- Install the heaviest server components at the bottom of the rack first and then work your way up.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges and voltage spikes and to keep your system operating in case of a power failure.
- Allow any drives and power supply modules to cool before touching them.
- When not servicing, always keep the front door of the rack and all covers/panels on the servers closed to maintain proper cooling.

Rack Mounting Considerations

Ambient Operating Temperature

If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the room's ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (TMRA).

Airflow

Equipment should be mounted into a rack so that the amount of airflow required for safe operation is not compromised.

Mechanical Loading

Equipment should be mounted into a rack so that a hazardous condition does not arise due to uneven mechanical loading.

Circuit Overloading

Consideration should be given to the connection of the equipment to the power supply circuitry and the effect that any possible overloading of circuits might have on overcurrent protection and power supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Ground

A reliable ground must be maintained at all times. To ensure this, the rack itself should be grounded. Particular attention should be given to power supply connections other than the direct connections to the branch circuit (i.e. the use of power strips, etc.).

To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
- Slide rail mounted equipment is not to be used as a shelf or a work space.

2.4 Installing the Rails

There are a variety of rack units on the market, which may require a slightly different assembly procedure. This rail set fits a rack between 28" and 33.5" deep. Do not use a two post "telco" type rack.

The following is a basic guideline for installing the system into a rack with the rack mounting hardware provided. You should also refer to the installation instructions that came with the specific rack you are using.

Installing the Rails onto a Rack

1. Identify the left rail and right rail, as they are different.

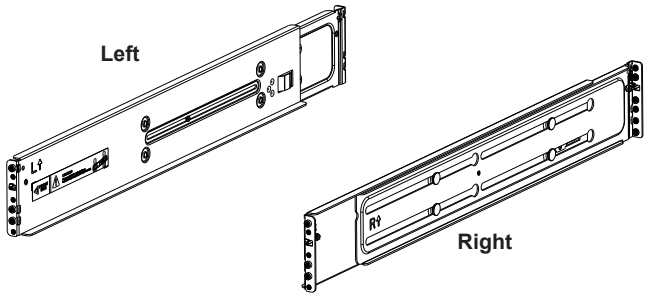


Figure 2-1. Identifying the Left and Right Rail

2. In each rail set, the two sections are screwed together to keep them immobile during shipping. Release these screws just enough to allow the rail sections to slide apart. Note the arrow on the rail, which indicates the end that attaches to the front of the rack.

3. Slide the rails sections apart to match the depth of the rack. Position the rails with the template and secure the front of each to the front of the rack with two flathead screws, then secure the back of each rail to the rear of the rack with two flathead screws (see Figure 2-2).

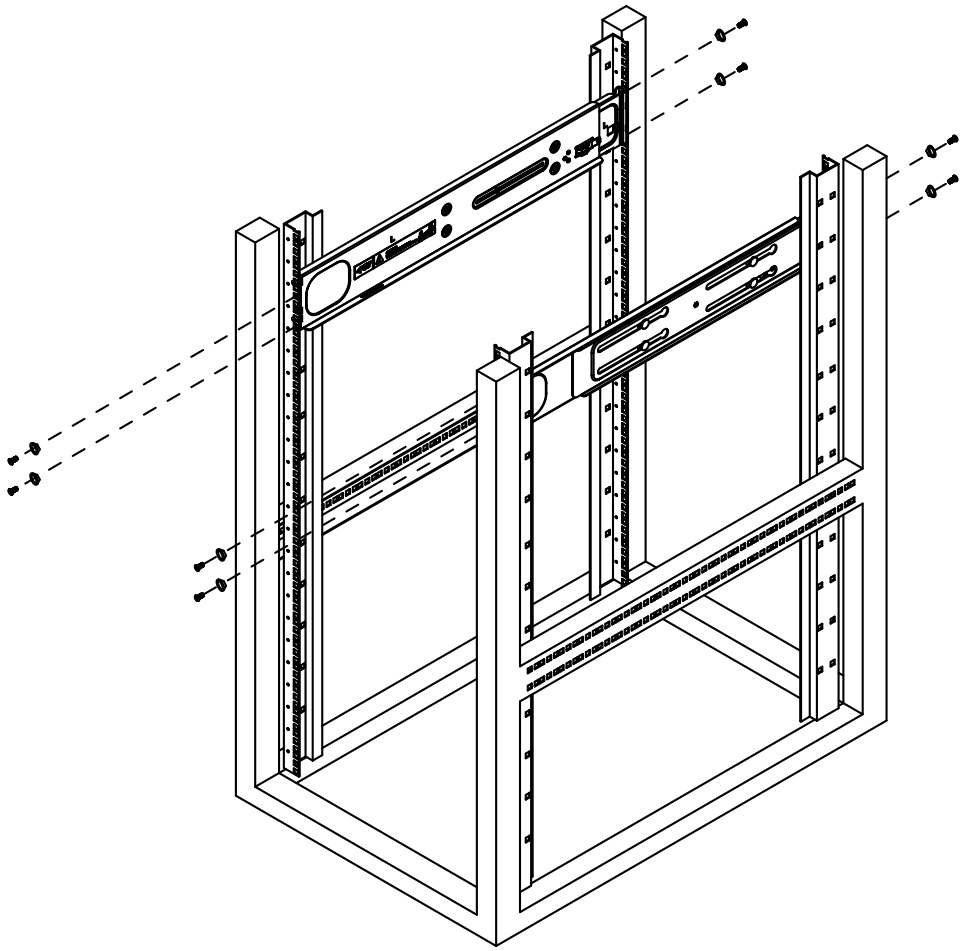


Figure 2-2. Sliding the Rail to the Depth of the Rack

2.5 Installing the Server

Once rails are attached to the chassis and the rack, you can install the server.

Installing the Chassis into a Rack

Caution: The assembled system may weigh over 120 kg (265 lb). Use a lift and multiple people to move it. Remove the carrier board tray before installing into the rack to reduce the weight of the system.

Warning: Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over.

Warning: When initially installing the system to a rack, test that the rail locking tabs engage to prevent the system from being overextended. Have a rack lift in place as a precaution in case the test fails.

1. Using a lift and as many people as necessary, lift the system and slide it onto the installed rails.

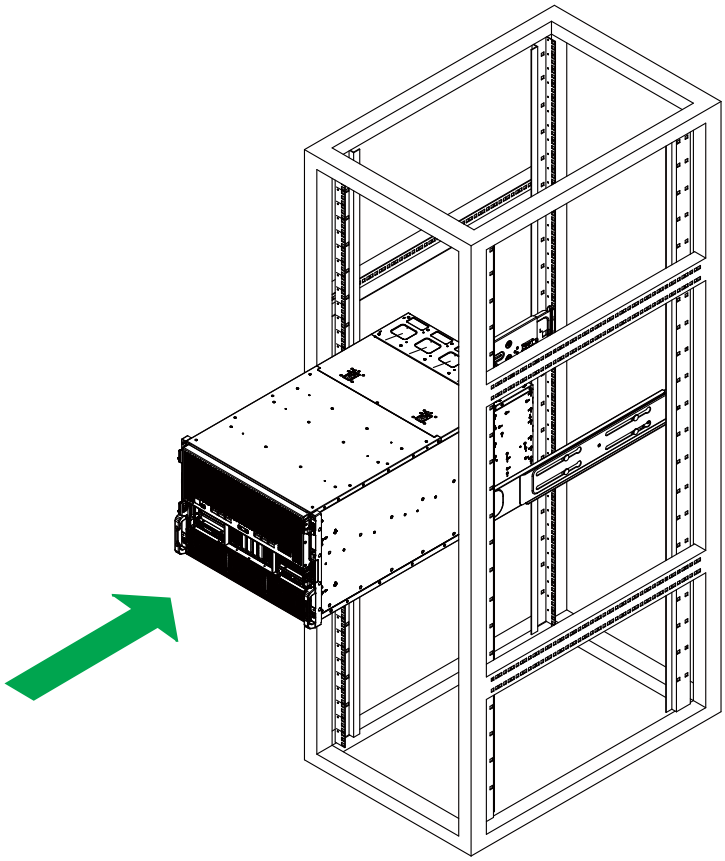


Figure 2-3. Sliding the Server into the Rack

2. After pushing the enclosure all the way into the rack, use the thumbscrew on each side of the server to lock it into place.

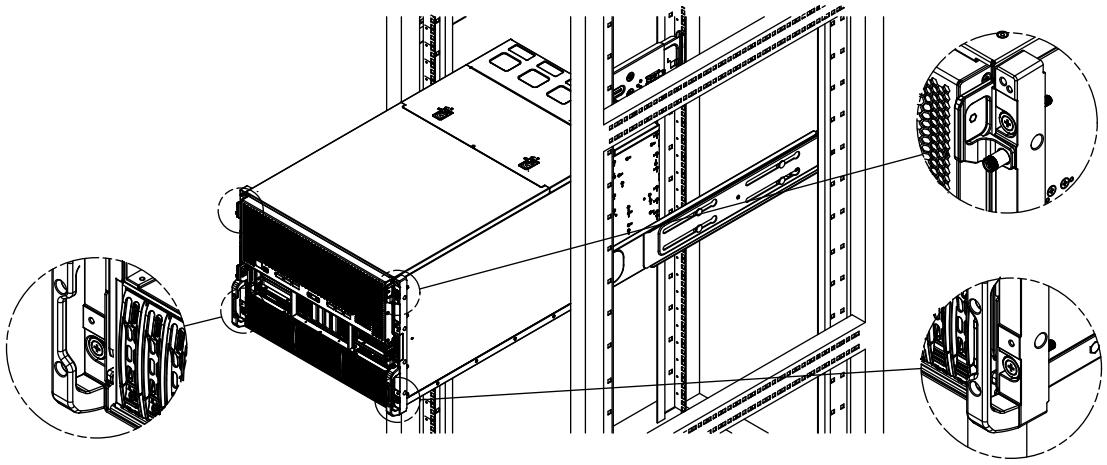


Figure 2-4. Using the Screws to Secure the Server

Note: The figures are for illustrative purposes only. Some chassis components such as the carrier board tray may be removed from the chassis enclosure before installing the system to the rack.

Chapter 3

Maintenance and Component Installation

This chapter provides instructions on installing and replacing main system components. To prevent compatibility issues, only use components that match the specifications and/or part numbers given.

Installation or replacement of most components require that power first be removed from the system. Please follow the procedures given in each section.

Caution: Only Laser Class 1 optical transceivers shall be used.

3.1 Removing Power

Use the following procedure to ensure that power has been removed from the system. This step is necessary when removing or installing non hot-swap components or when replacing a non-redundant power supply.

1. Use the operating system to power down the system.
2. After the system has completely shut-down, disconnect the AC power cord(s) from the power strip or outlet. (If your system has more than one power supply, remove the AC power cords from all power supply modules.)
3. Disconnect the power cord(s) from the power supply module(s).

3.2 Accessing the System

The system is comprised of two trays, a CPU tray and an AI processor tray. Each tray can be removed from the chassis using releasing levers or handles. Before removing the trays, power down the system, as described in Section 3.1.

It is recommended that you should NOT remove the AI processor tray unless necessary.

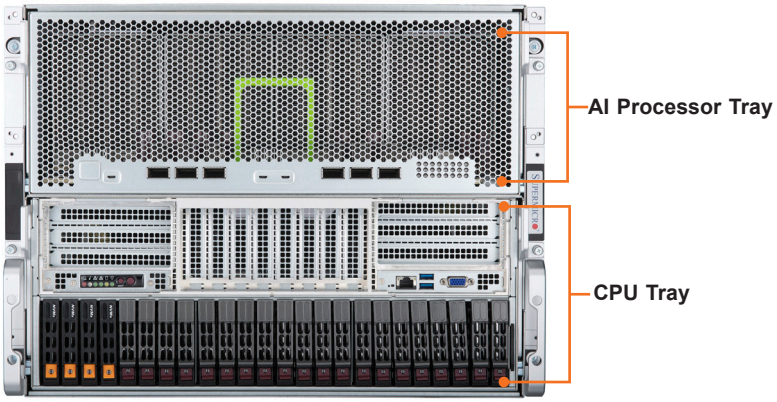


Figure 3-1. AI Processor Tray and CPU Tray

CPU Tray

Removing and Installing the CPU Tray

1. Loosen the captive screw on the CPU chassis, pull both levers to pull the CPU tray out.

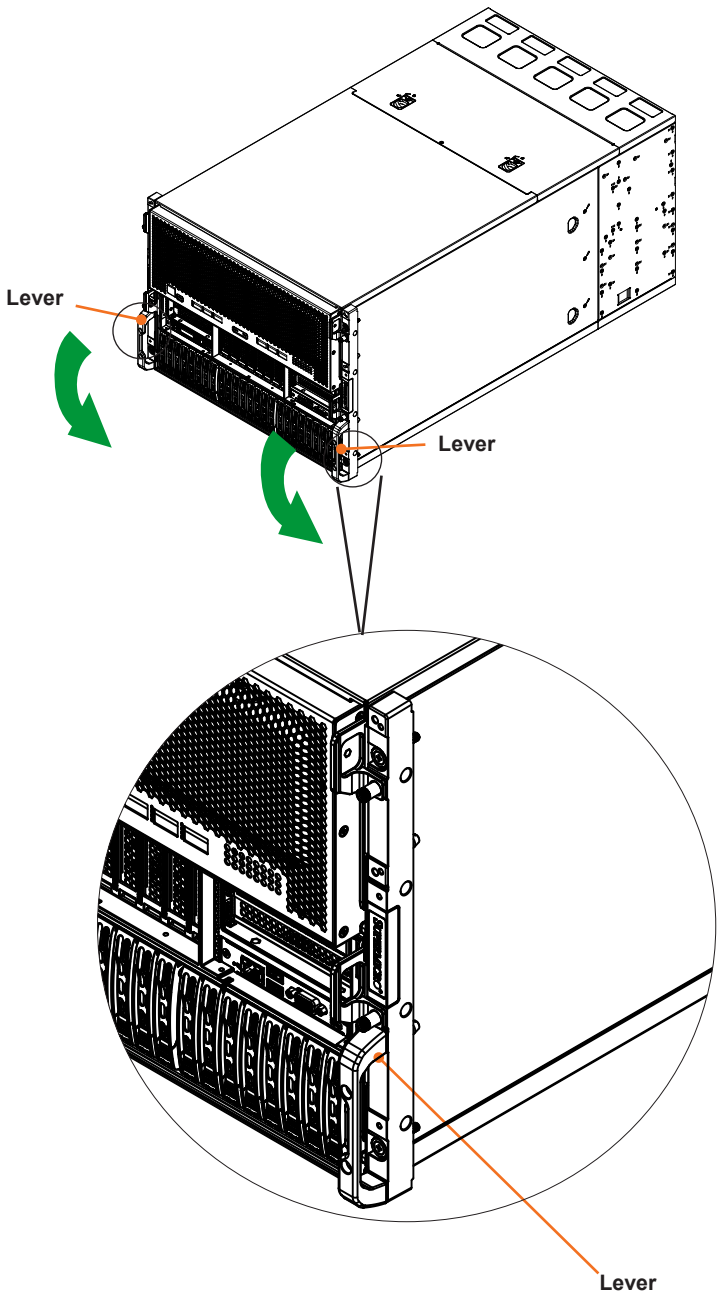


Figure 3-2. Pulling out the CPU Tray

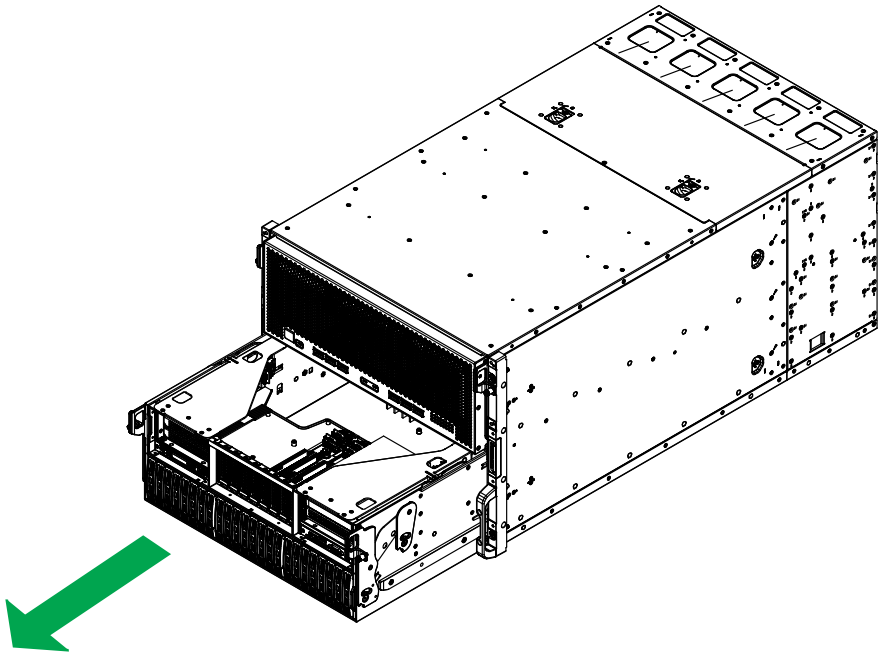


Figure 3-3. Removing the CPU Tray

2. To re-install it back, slide the tray into the chassis.
3. Push the levers back until they snap into place.
4. Secure each lever with a screw.

AI Processor Tray

Removing and Installing the AI Processor Tray

1. Loosen the captive screw on the AI processor chassis, then pull both levers to release latches to pull the AI processor tray out.

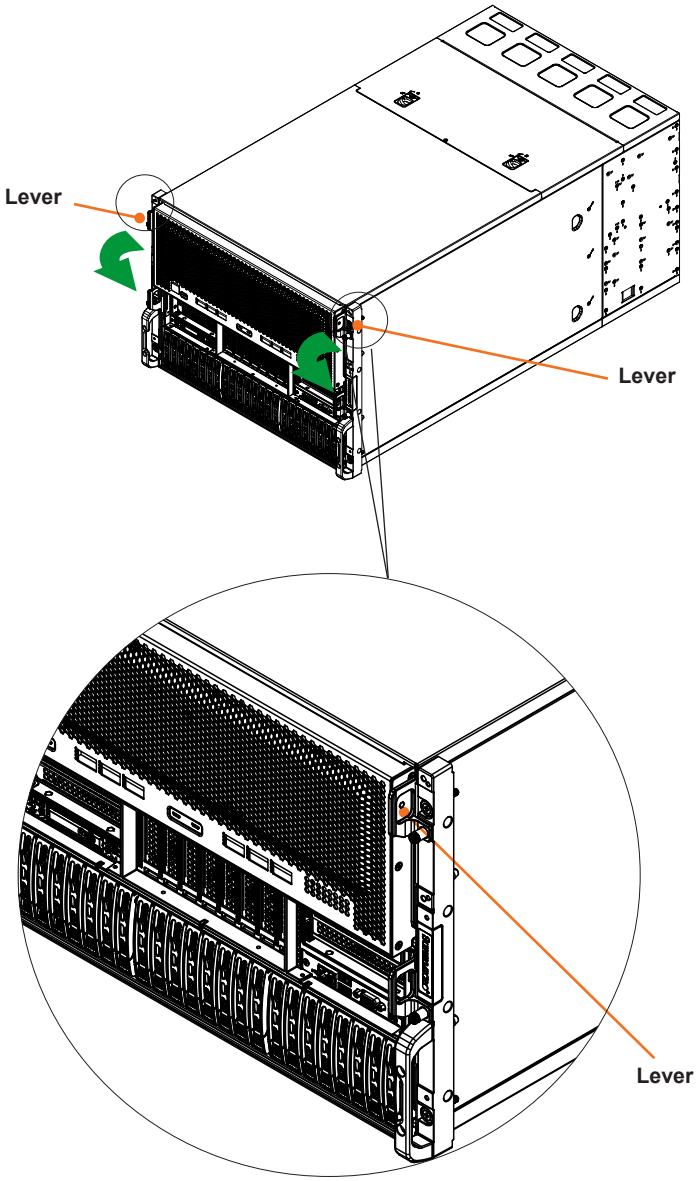


Figure 3-4. Pulling Out the AI Processor Tray

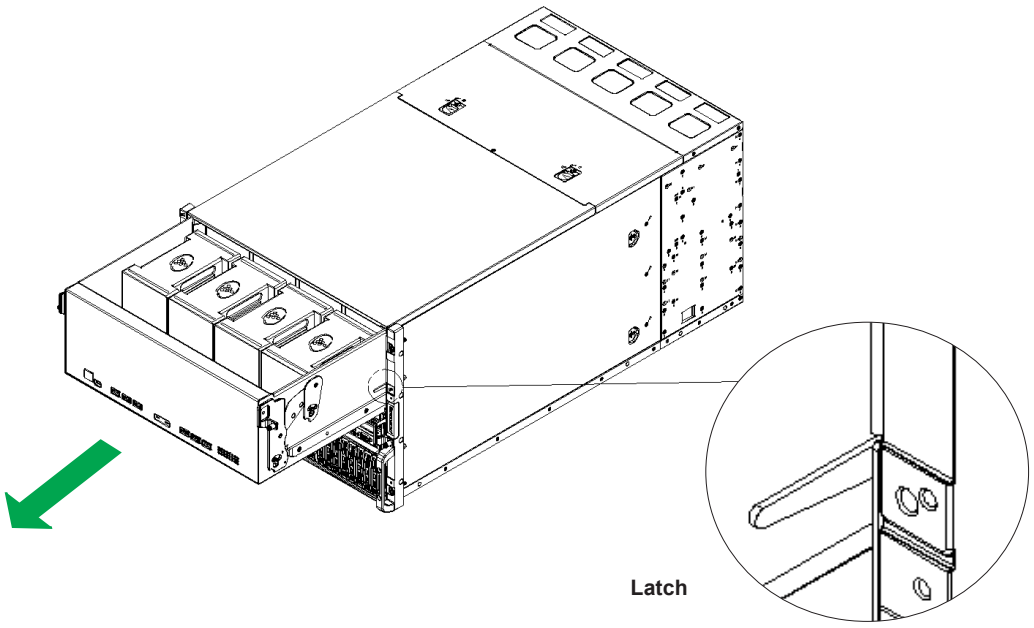


Figure 3-5. Removing the AI Processor Tray

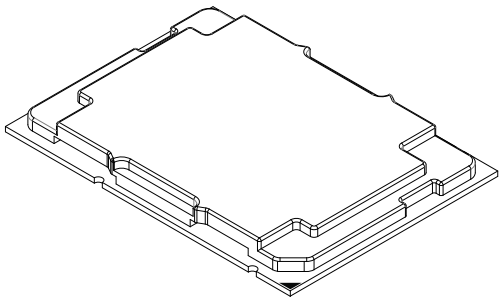
2. To re-install it back, slide the tray into the chassis.
3. Push the levers back until they snap into place.
4. Secure each lever with a screw.

3.3 Processor and Heatsink Installation

The processor (CPU) and processor carrier should be assembled together first to form the processor carrier assembly. This will be attached to the heatsink to form the processor heatsink module (PHM) before being installed into the CPU socket. Before installation, be sure to perform the following steps below:

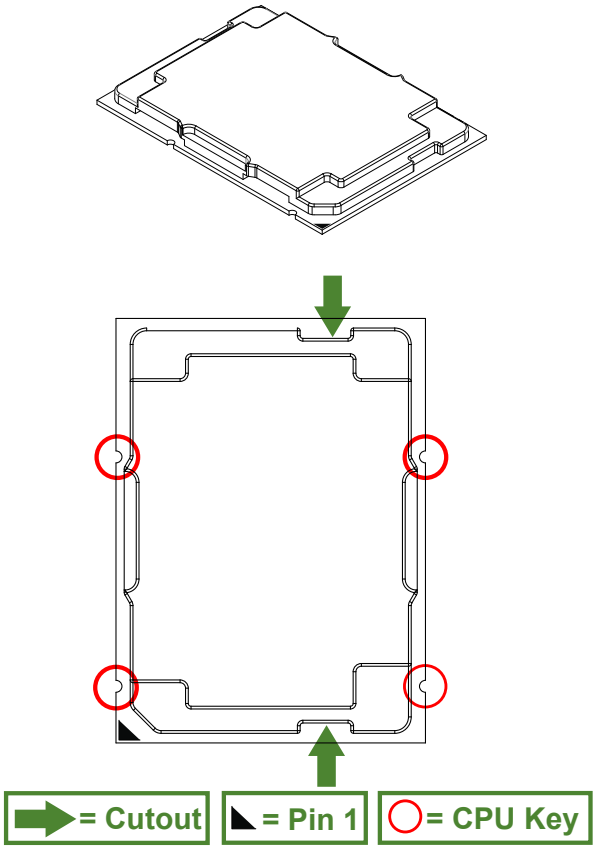
- Please carefully follow the instructions given in Chapter 2 to avoid ESD-related damages.
- Unplug the AC power cords from all power supplies after shutting down the system.
- Check that the plastic protective cover is on the CPU socket and none of the socket pins are bent. If they are, contact your retailer.
- When handling the processor, avoid touching or placing direct pressure on the LGA lands (gold contacts). Improper installation or socket misalignment can cause serious damage to the processor or CPU socket, which may require manufacturer repairs.
- Thermal grease is pre-applied on a new heatsink. No additional thermal grease is needed.
- Refer to the Supermicro website for updates on processor and memory support.
- All graphics in this manual are for illustrations only. Your components may look different.

The 3rd Gen Intel Xeon Scalable Processor



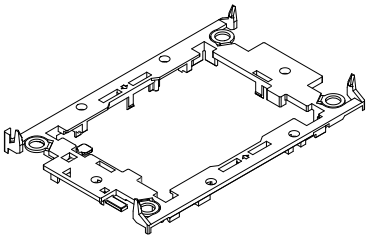
Processor Top View

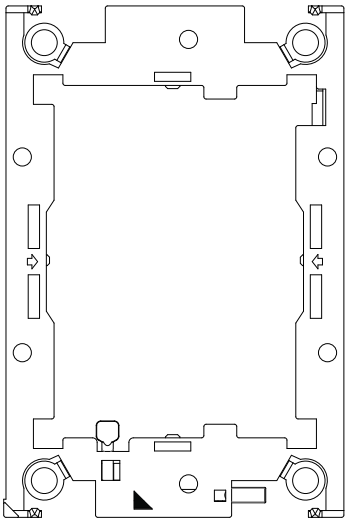
1. The 3rd Gen Intel Xeon Scalable Processor

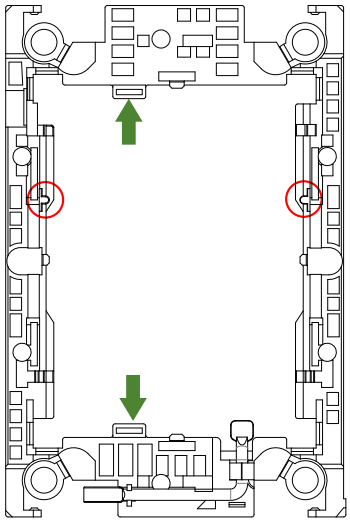


Processor Top View

2. The Processor Carrier

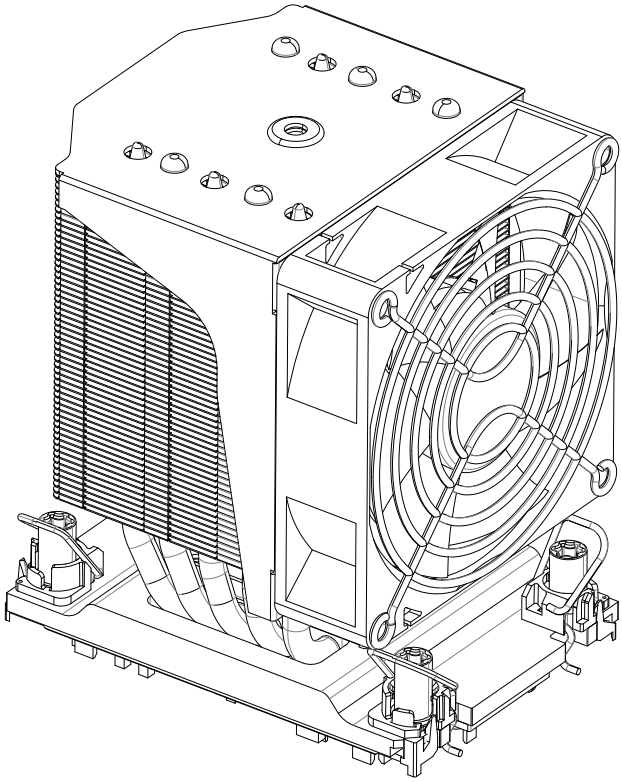






Carrier Bottom View

3. Heatsink



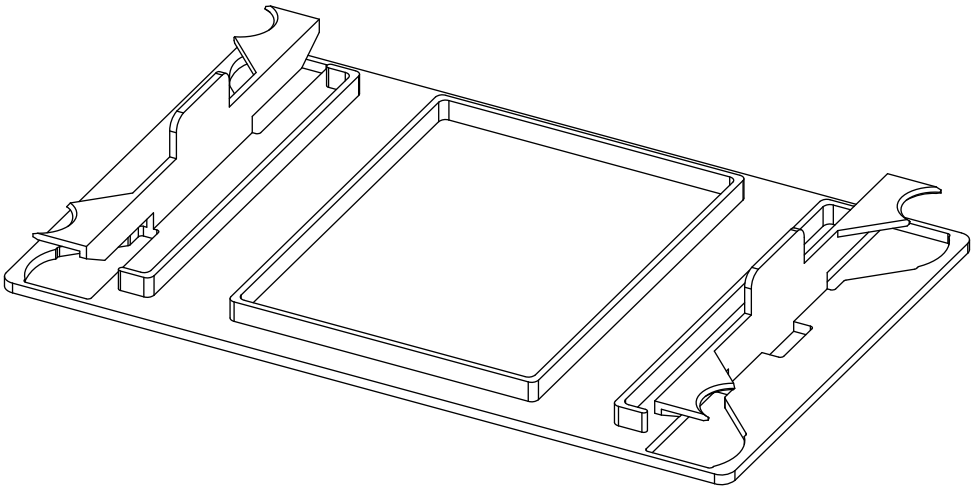
Notes:

- All pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.
- Exercise extreme care when handling the heatsink. Pay attention to the edges of heatsink fins which can be sharp! To avoid damaging the heatsink, please do not apply excessive force on the fins when handling the heatsink.

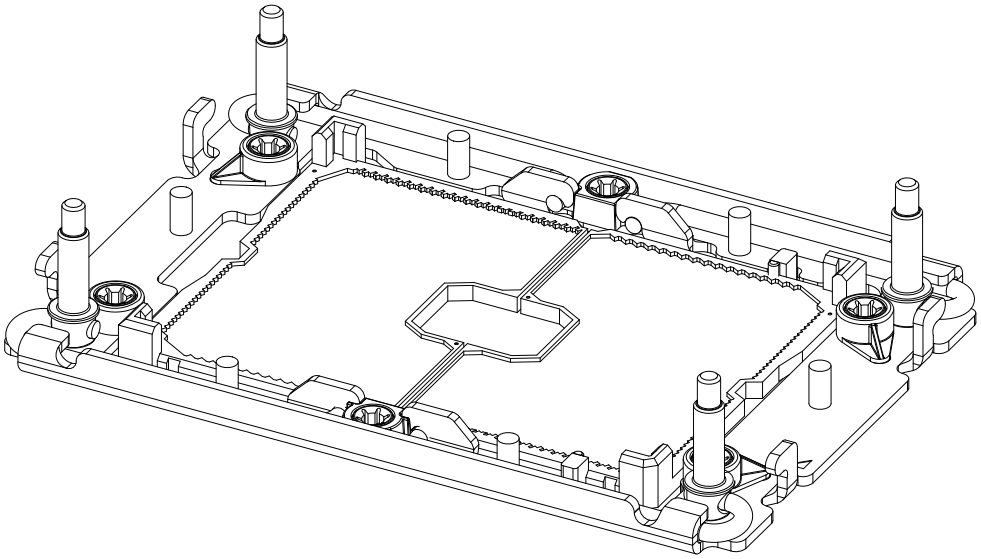
Overview of the CPU Socket

The CPU socket is protected by a plastic protective cover.

Plastic Protective Cover



CPU Socket

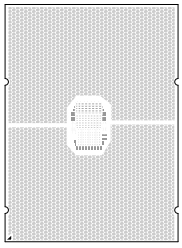


Overview of the Processor Carrier Assembly

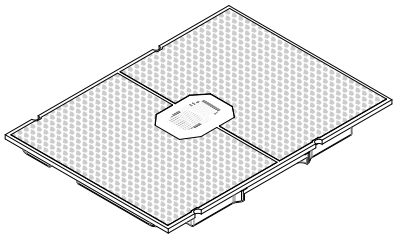
The processor carrier assembly contains a 3rd Gen Intel Xeon Scalable processor and a processor carrier. Carefully follow the instructions given in the installation section to place a processor into the carrier to create a processor carrier.

1. The 3rd Gen Intel Xeon Scalable Processor

Intel Processor (Bottom View)



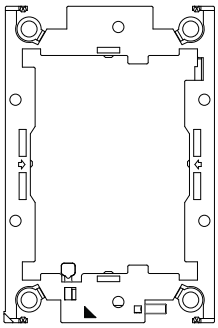
Processor (2D)



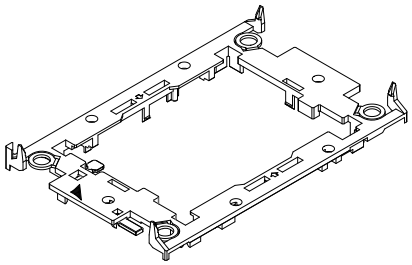
Processor (3D)

2. Processor Carrier

Intel Processor Carrier Top View)

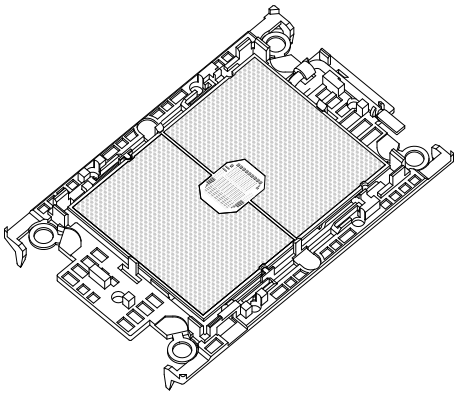


Processor Carrier (2D)



Processor Carrier (3D)

3. Processor Carrier Assembly

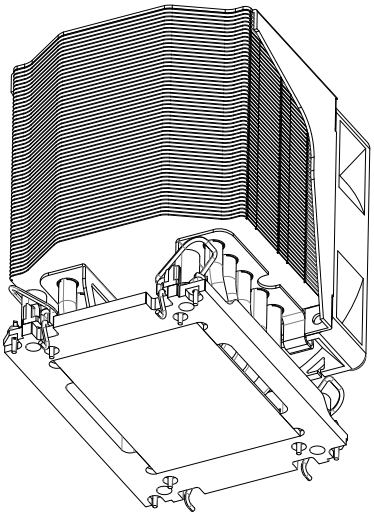


(with Processor Seated inside the Carrier)

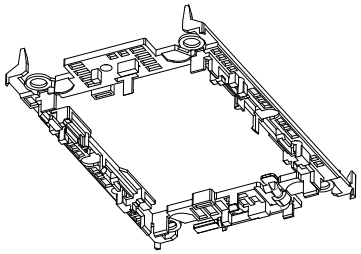
Overview of the Processor Heatsink Module

The Processor Heatsink Module (PHM) contains a heatsink, a processor carrier, and a 3rd Gen Intel Xeon Scalable processor.

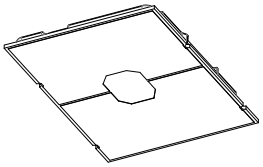
1. Heatsink



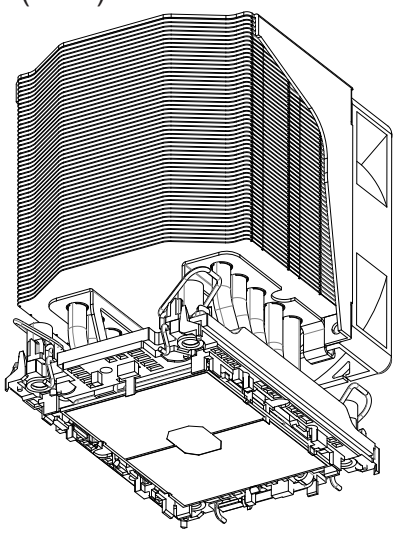
2. Processor Carrier



3. The 3rd Gen Intel Xeon Scalable Processor



4. Processor Heatsink Module (PHM)



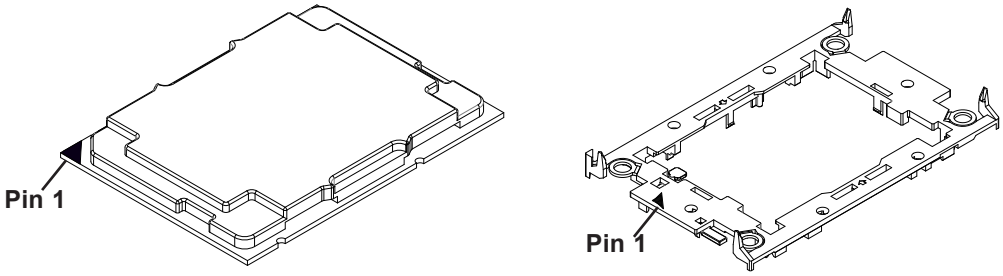
Creating the Processor Carrier Assembly

The processor carrier assembly contains a 3rd Gen Intel Xeon Scalable processor and a processor carrier.

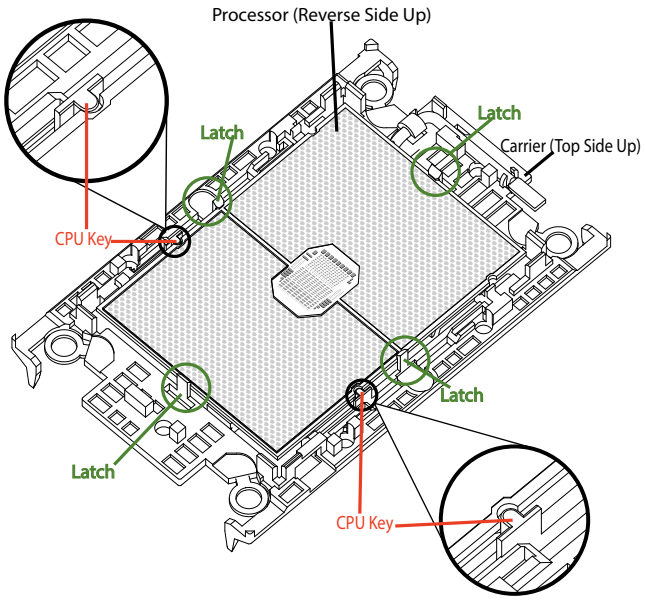
To create the processor carrier assembly, please follow the steps below:

Note: Before installation, be sure to follow the instructions given on Page 1 and Page 2 of this chapter to properly prepare yourself for installation.

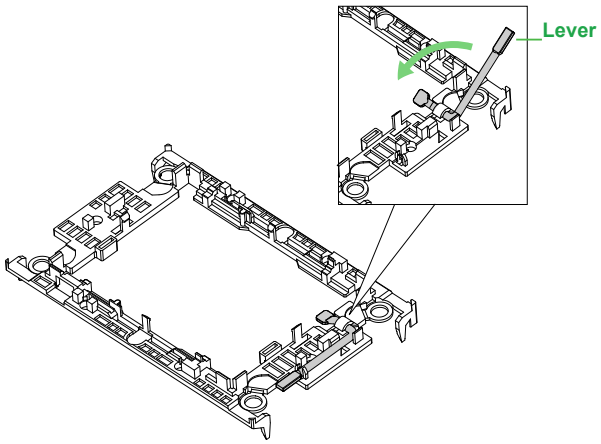
1. Hold the processor with the LGA lands (with Gold CPU contacts) facing down. Locate the small, gold triangle at the corner of the processor and the corresponding hollowed triangle on the processor carrier as shown in the graphics below. Please note that the triangle indicates Pin 1 location.



2. First, turn over the processor carrier and locate Pin 1 on the CPU and Pin 1 on the carrier. Then, turn the processor over with the processor reverse side (gold contacts) facing up and locate CPU keys on the processor. Finally, locate the CPU keys and four latches on the carrier as shown below.

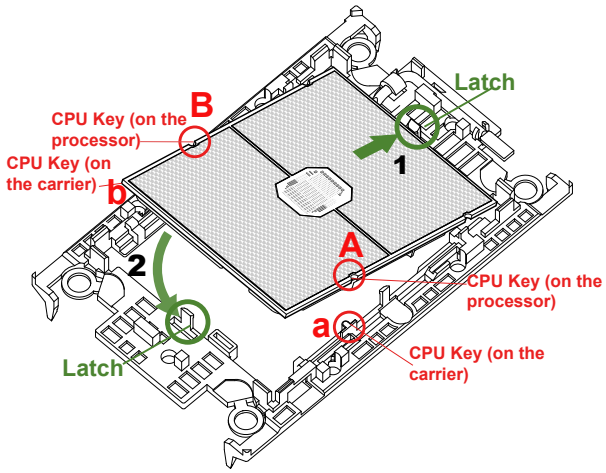


3. Locate the lever on the CPU socket and press the lever down as shown below.

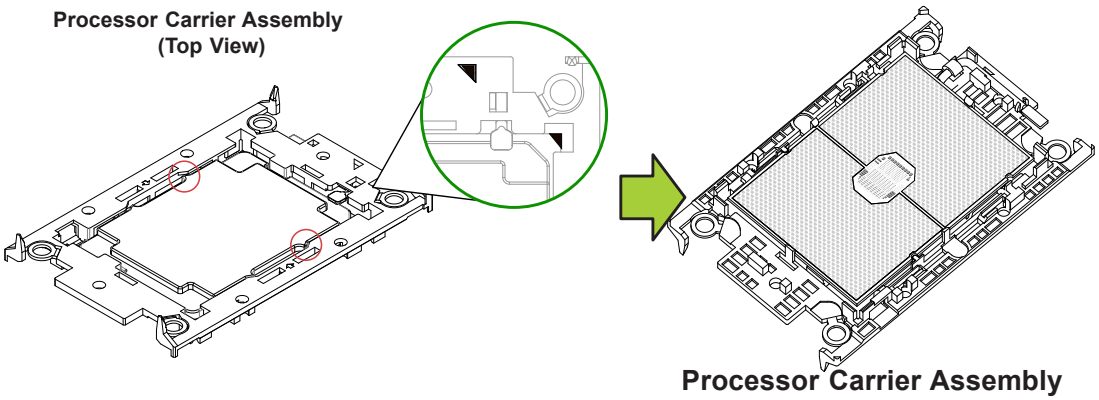


4. Using Pin 1 as a guide, carefully align the CPU keys (A and B) on the processor against the CPU keys on the carrier (a and b) as shown in the drawing below.

5. Once they are properly aligned, carefully place one end of the processor into the latch marked 1 on the carrier, and place the other end of processor into the latch marked 2.



6. After the processor is placed inside the carrier, examine the four sides of the processor, making sure that the processor is properly seated on the carrier.

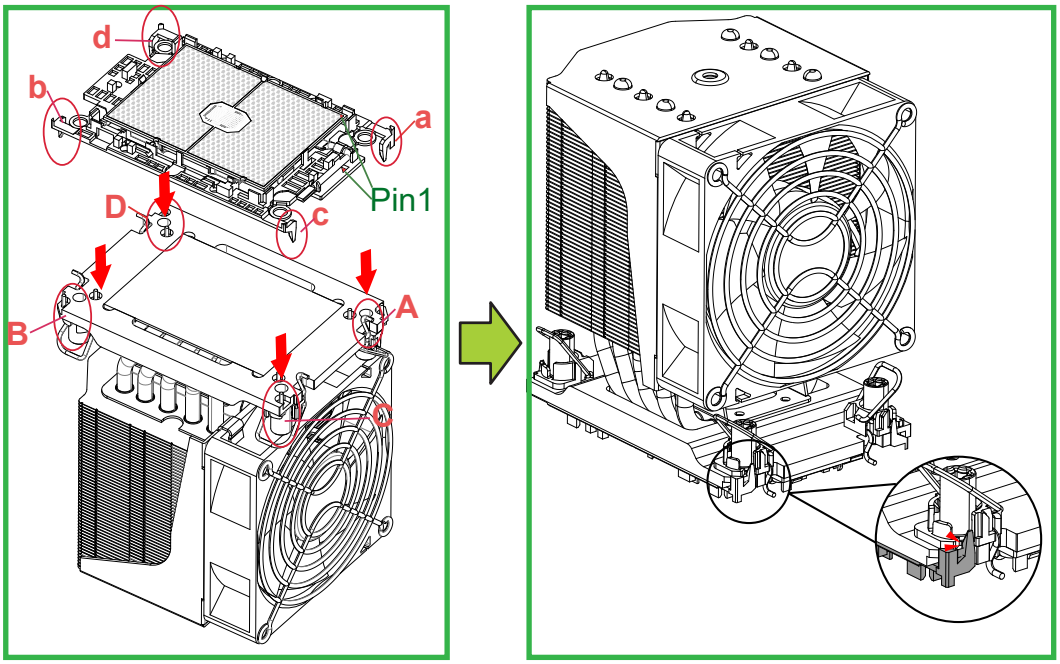


Creating the Processor Heatsink Module (PHM)

After creating the processor carrier assembly, please follow the instructions below to mount the processor carrier into the heatsink to form the processor heatsink module (PHM).

Note: If this is a new heatsink, the thermal grease has been pre-applied on the underside. Otherwise, apply the proper amount of thermal grease.

1. Turn the heatsink over with the thermal grease, which is on the reverse side of the heatsink, facing up. Pay attention to the two triangle cutouts (A, B) located at the diagonal corners of the heatsink as shown in the drawing below.
2. Hold the processor carrier assembly top side (with thermal grease) facing up, and locate the triangle on the CPU and the triangle on the carrier. (Triangle indicates Pin 1.)
3. Using Pin 1 as a guide, turn the processor carrier assembly over with the gold contacts facing up. Locate Pin 1 (A) on the processor and Pin 1 (a) on the processor carrier assembly "a".
4. Align the corner marked "a" on the processor carrier assembly against the triangle cutout "A" on the heatsink, and align the corners marked "b", "c", and "d" on processor assembly against the corners marked "B", "C", and "D" on the heatsinks
5. Once they are properly aligned, place the corner marked "a" on the processor carrier assembly into the corner of the heatsink marked "A". Repeat the same step to place the corners marked "b", "c", and "d" on the processor carrier assembly into the corners of the heatsink marked "B", "C", and "D". Make sure that all plastic clips are properly attached to the heatsink.



Processor Carrier Assembly

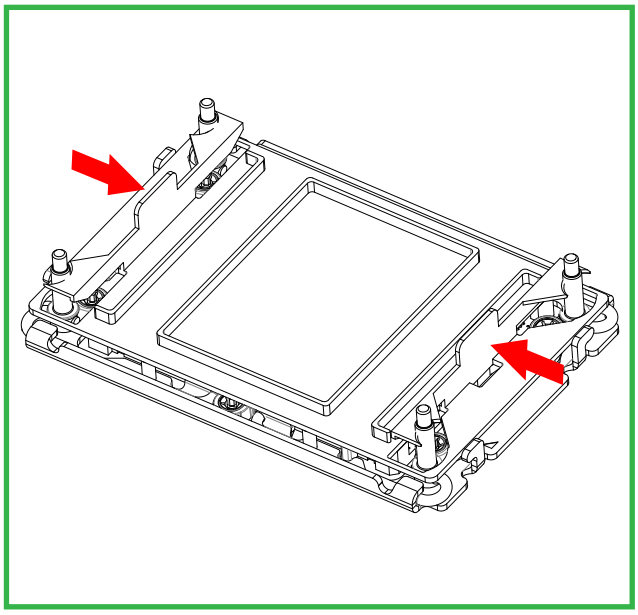
(Reverse Side View)

Heatsink

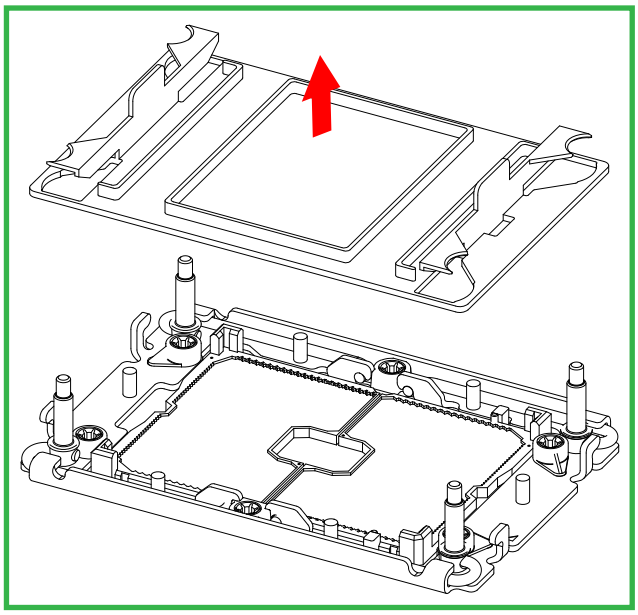
(Reverse Side View)

Preparing the CPU Socket for Installation

This motherboard comes with a plastic protective cover installed on the CPU socket. Remove it from the socket to install the Processor Heatsink Module (PHM). Gently pull up one corner of the plastic protective cover to remove it.



1. Press the tabs inward.

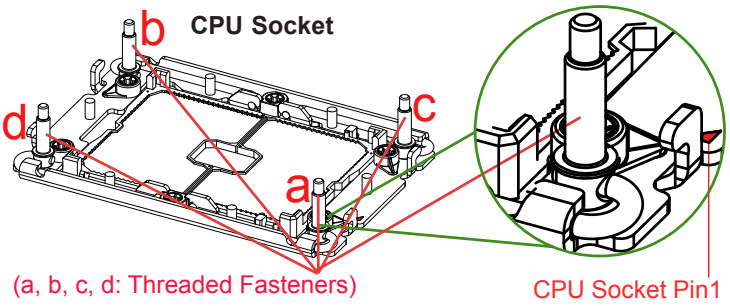


2. Pull up the protective cover from the socket.

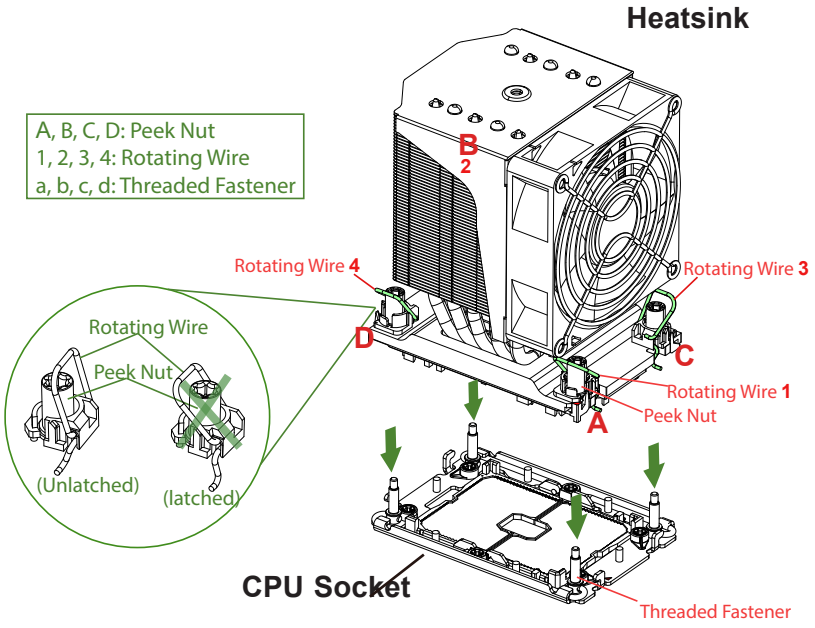
Preparing to Install the Processor Heatsink Module (PHM) into the CPU Socket

After assembling the Processor Heatsink Module (PHM), you are ready to install it into the CPU socket. To ensure the proper installation, please follow the procedures below:

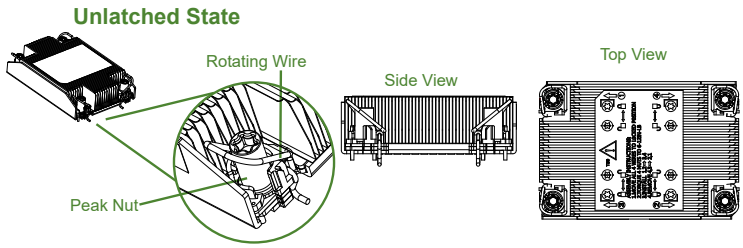
1. Locate four threaded fasteners (a, b, c, and d) on the CPU socket.



2. Locate four peek nuts (A, B, C, and D) and four rotating wires (1, 2, 3, and 4) on the heatsink as shown in the graphics below.



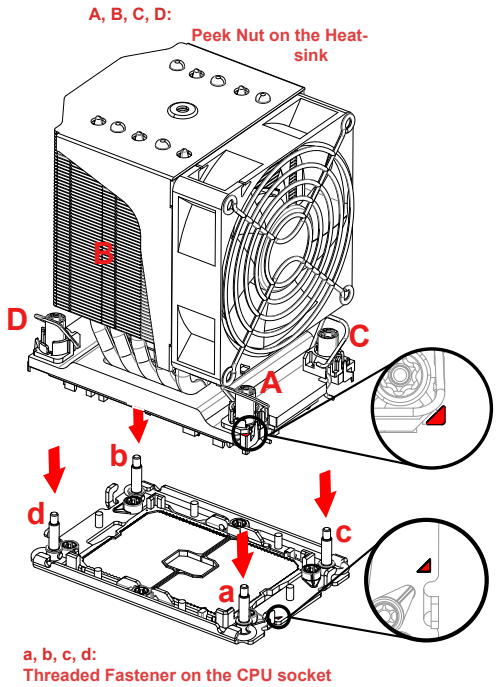
3. Check the rotating wires (1, 2, 3, and 4) to make sure that they are at unlatched positions as shown in the drawing below before installing the PHM into the CPU socket.



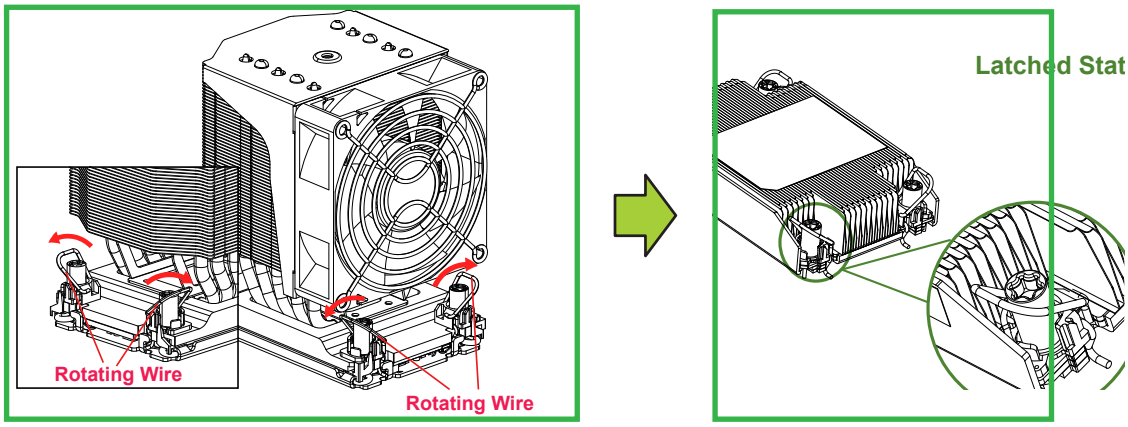
Installing the Processor Heatsink Module (PHM)

1. Align peek nut "A", which is next to the triangle (Pin 1) on the heatsink, against threaded fastener "a" on the CPU socket. Then align peek nuts "B", "C", and "D" on the heatsink against threaded fasteners "b", "c", and "d" on the CPU socket, making sure that all peek nuts on the heatsink are properly aligned with the corresponding threaded fasteners on the CPU socket.

2. Once they are aligned, gently place the heatsink on top of the CPU socket, making sure that each peek nut is properly attached to its corresponding threaded fastener.

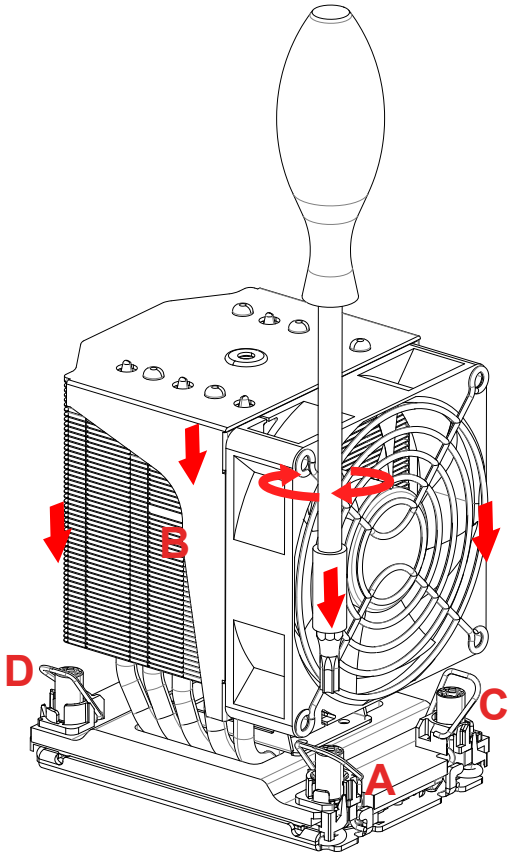


3. Press all four rotating wires outwards and make sure that the heatsink is securely latched unto the CPU socket.



4. With a T30-bit screwdriver, tighten all peek nuts in the sequence of "A", "B", "C", and "D" with even pressure. To avoid damaging the processor or socket, do not use a force greater than 12 lbf-in when tightening the screws.

5. Examine all corners heatsink to ensure that the PHM is firmly attached to the CPU socket.



Connecting CPU Fan Connectors

When you connect CPU fans, make sure you connect the cables to the proper fan connector: Use the FAN 1 connector for the fan of CPU 1 and the FAN 7 connector for the fan of CPU 2.

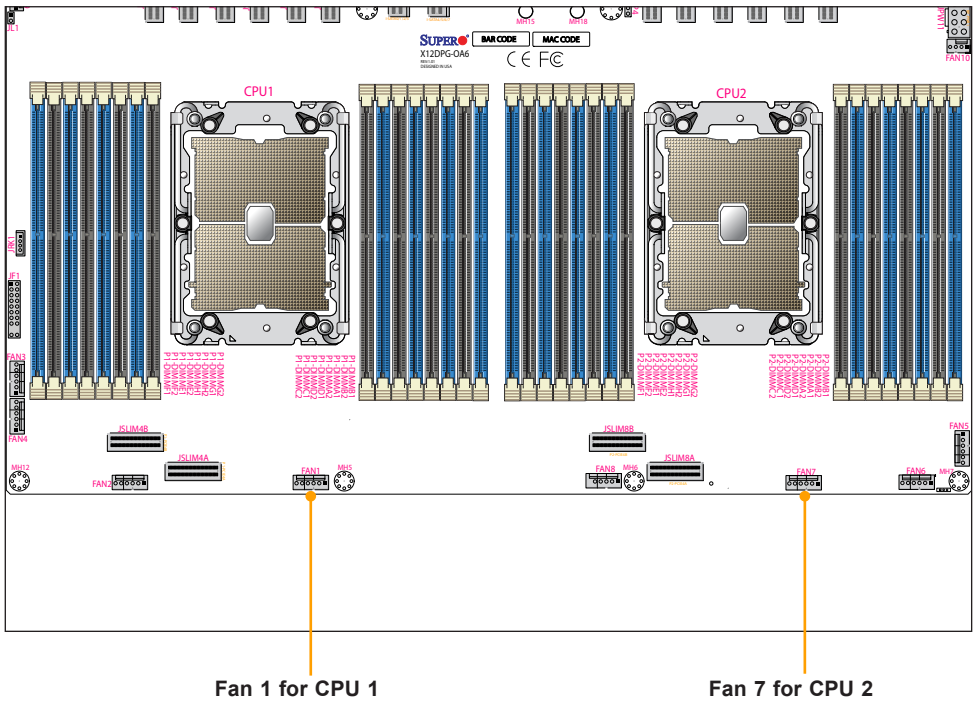
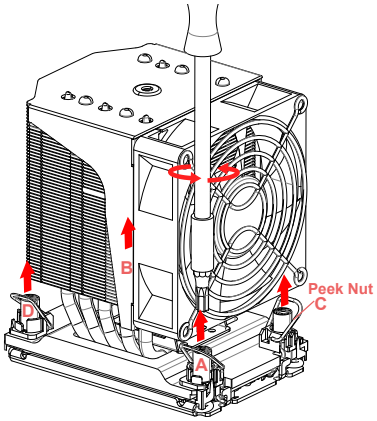


Figure 3-6. Connecting CPU Fan Connectors to the Motherboard

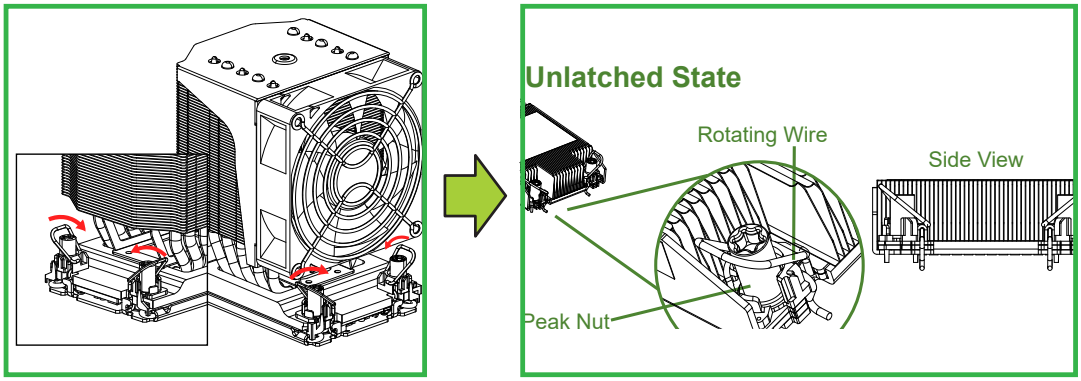
Removing the Processor Heatsink Module from the CPU Socket

Before removing the processor heatsink module (PHM) from the motherboard, unplug the AC power cord from all power supplies after shutting down the system. Then follow the steps below:

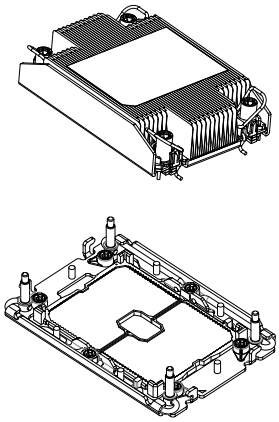
1. Use a T30-bit screwdriver to loosen the four peek nuts on the heatsink in the sequence of #A, #B, #C, and #D.



2. Once the peek nuts are loosened from the CPU socket, press the rotating wires inwards to unlatch the PHM from the socket as shown in the drawings below.



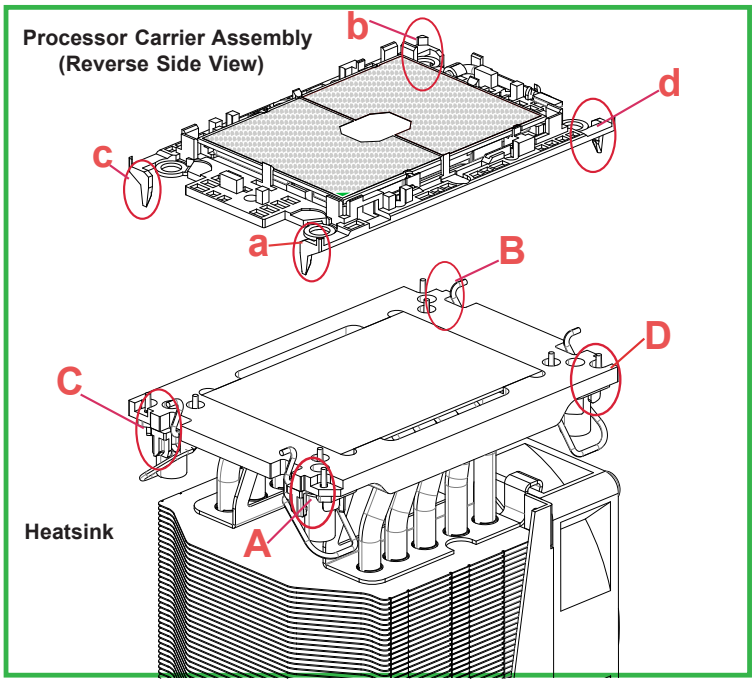
3. Gently lift the PHM upwards to remove it from the CPU socket.



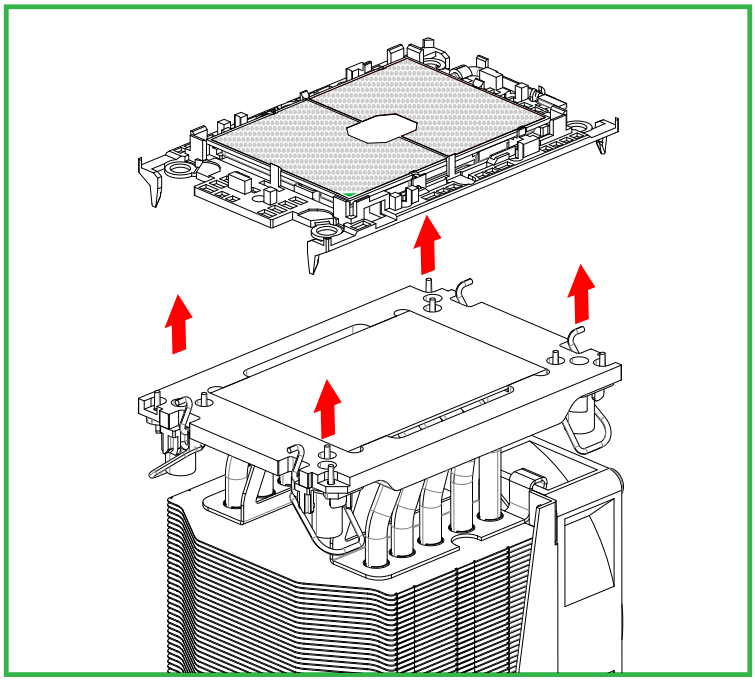
Removing the Processor Carrier Assembly from the Processor Heatsink Module (PHM)

To remove the processor carrier assembly from the PHM, please follow the steps below:

1. Detach four plastic clips (marked a, b, c, and d) on the processor carrier assembly from the four corners of heatsink (marked A, B, C, and D) in the drawings below.



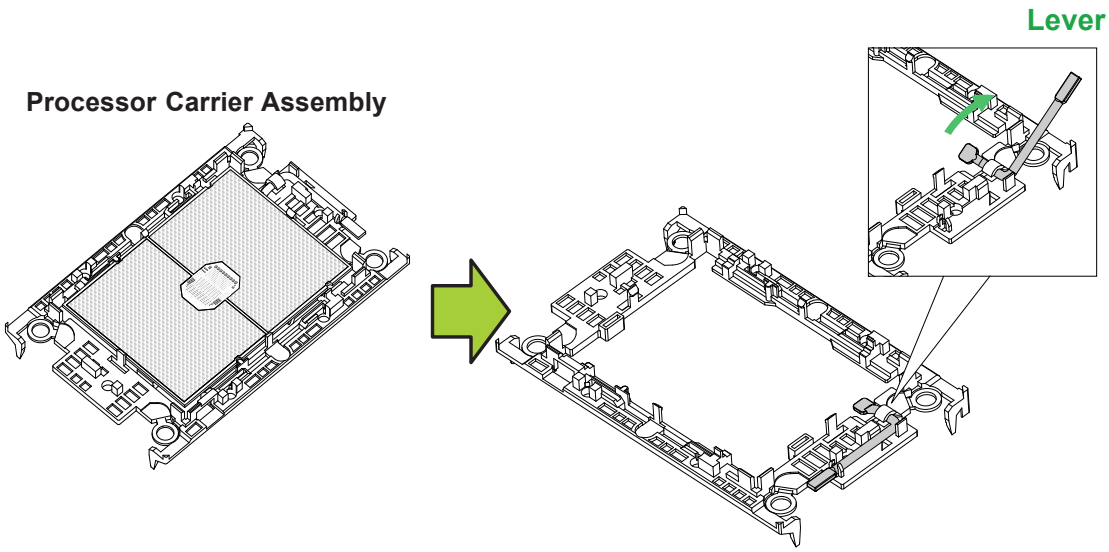
2. When all plastic clips are detached from the heatsink, remove the processor carrier assembly from the heatsink



Removing the Processor from the Processor Carrier Assembly

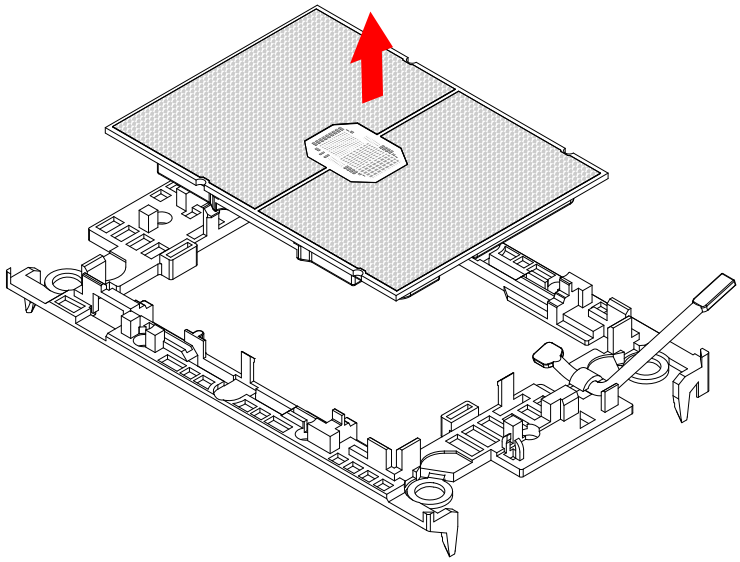
Once you have removed the processor carrier assembly from the PHM, you are ready to remove the processor from the processor carrier by following the steps below.

1. Unlock the lever from its locking position and push the lever upwards to disengage the processor from the processor carrier as shown in the right drawing below.



2. Once the processor is loosened from the carrier, carefully remove the processor from the processor carrier.

Note: To avoid damaging the processor and its pins, please handle the processor with care.



3.4 Memory Support and Installation

Note: Check the Supermicro website for recommended memory modules.

Important: Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

Memory Support

The X12DPG-OA6-GD2 supports up to 8 TB of 3DS LRDIMM/LRDIMM/3DS RDIMM/RDIMM DDR4 (288-pin) ECC memory with speeds of 3200/2933/2666 MT/s in 32 memory slots or up to 8 TB of Intel Optane PMem 200 Series with speeds of up to 3200 MT/s. (See the notes below.)

Note 1: The Intel Optane Persistent Memory (PMem) 200 series are supported by 3rd Gen. Intel Xeon Scalable (83xx/63xx/53xx/4314) processors.

Note 2: DDR4 3200 MT/s memory is supported by 3rd Gen Intel Xeon Scalable 83xx/63xx Series Processors only.

Note 3: To enable the function of Software Guard Extension (SGX), make sure the DIMMs are populated with one DIMM per channel.

DDR4 Memory Support for 3rd Gen Intel Xeon Scalable Processors

DDR4 Memory Support for 3rd Gen Intel Xeon Scalable Processors					
Type	Ranks Per DIMM & Data Width	DIMM Capacity (GB)		Speed (MT/s); Voltage (V); Slots Per Channel (SPC) and DIMMs Per Channel (DPC)	
				1DPC (1-DIMM Per Channel)	2DPC (2-DIMM Per Channel)
		8Gb (Chip Density)	16Gb (Chip Density)	1.2 V	1.2 V
RDIMM	SRx8	8GB	16GB	3200	3200
	SRx4	16GB	32GB		
	DRx8	16GB	32GB		
	DRx4	32GB	64GB		
RDIMM 3Ds	(4R/8R) X4	2H- 64 GB 4H-128 GB	2H- 128 GB 4H-256 GB		
LRDIMM	QRx4	64GB	128GB	3200	3200
LRDIMM - 3Ds	(4R/8R) X4	4H-128 GB	2H- 128 GB 4H-256 GB	3200	3200

Key Parameters for DIMM Configurations	
Parameters	Possible Values
Number of Channels	8
Number of DIMMs per Channel	1DPC (1 DIMM Per Channel) or 2DPC (2 DIMMs Per Channel)
DIMM Type	RDIMM (w/ECC), 3DS RDIMM, LRDIMM, 3DS LRDIMM
DIMM Construction	non-3DS RDIMM Raw Cards: A/B (2Rx4), C (1Rx4), D (1Rx8), E (2Rx8) 3DS RDIMM Raw Cards: A/B (4Rx4) non-3DS LRDIMM Raw Cards: D/E (4Rx4) 3DS LRDIMM Raw Cards: A/B (8Rx4)

Memory Population Table for 3rd Gen Intel Xeon Scalable Processors

DDR4 Memory Population Table for X12DP 32-DIMM Motherboards	
When 1 CPU is used:	***Memory Population Sequence***
1 CPU & 1 DIMM	CPU1: P1-DIMMA1
1 CPU & 2 DIMMs (Note)	CPU1: P1-DIMMA1/P1-DIMME1
1 CPU & 4 DIMMs (Note)	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1
1 CPU & 6 DIMM	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1
1 CPU & 8 DIMMs (Note)	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1/P1-DIMMD1/P1-DIMMH1
1 CPU & 12 DIMMs (Note)	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1/P1-DIMMA2/P1-DIMME2/ P1-DIMMC2/P1-DIMMG2/P1-DIMMB2/P1-DIMMF2
1 CPU & 16 DIMMs (Note)	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1/P1-DIMMD1/P1-DIMMH1/ P1-DIMMA2/P1-DIMME2/P1-DIMMC2/P1-DIMMG2/P1-DIMMB2/P1-DIMMF2/P1-DIMMD2/P1-DIMMH2
When 2 CPUs are used	***Memory Population Sequence***
2 CPUs & 2 DIMMs (Note)	CPU1: P1-DIMMA1 CPU2: P2-DIMMA1
2 CPUs & 4 DIMMs (Note)	CPU1: P1-DIMMA1/P1-DIMME1 CPU2: P2-DIMMA1/P2-DIMME1
2 CPUs & 6 DIMMs	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1 CPU2: P2-DIMMA1/P2-DIMME1
2 CPUs & 8 DIMMs (Note)	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1 CPU2: P2-DIMMA1/P2-DIMME1/P2-DIMMC1/P2-DIMMG1
2 CPUs & 10 DIMMs	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1 CPU2: P2-DIMMA1/P2-DIMME1/P2-DIMMC1/P2-DIMMG1
2 CPUs & 12 DIMMs (Note)	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1 CPU2: P2-DIMMA1/P2-DIMME1/P2-DIMMC1/P2-DIMMG1/P2-DIMMB1/P2-DIMMF1
2 CPUs & 14 DIMMs	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1/P1-DIMMD1/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMME1/P2-DIMMC1/P2-DIMMG1/P2-DIMMB1/P2-DIMMF1
2 CPUs & 16 DIMMs (Note)	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1/P1-DIMMD1/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMME1/P2-DIMMC1/P2-DIMMG1/P2-DIMMB1/P2-DIMMF1/P2-DIMMD1/P2-DIMMH1
2 CPUs & 18 DIMMs	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1/P1-DIMMA2/P1-DIMME2/ P1-DIMMC2/P1-DIMMG2/P1-DIMMB2/P1-DIMMF2 CPU2: P2-DIMMA1/P2-DIMME1/P2-DIMMC1/P2-DIMMG1/P2-DIMMB1/P2-DIMMF1
2 CPUs & 20 DIMMs	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1/P1-DIMMA2/P1-DIMME2/ P1-DIMMC2/P1-DIMMG2/P1-DIMMB2/P1-DIMMF2 CPU2: P2-DIMMA1/P2-DIMME1/P2-DIMMC1/P2-DIMMG1/P2-DIMMB1/P2-DIMMF1/P2-DIMMD1/P2-DIMMH1
2 CPUs & 22 DIMMs	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1/P1-DIMMD1/P1-DIMMH1/ P1-DIMMA2/P1-DIMME2/P1-DIMMC2/P1-DIMMG2/P1-DIMMB2/P1-DIMMF2/P1-DIMMD2/P1-DIMMH2 CPU2: P2-DIMMA1/P2-DIMME1/P2-DIMMC1/P2-DIMMG1/P2-DIMMB1/P2-DIMMF1
2 CPUs & 24 DIMMs (Note)	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1/P1-DIMMD1/P1-DIMMH1/ P1-DIMMA2/P1-DIMME2/P1-DIMMC2/P1-DIMMG2/P1-DIMMB2/P1-DIMMF2/P1-DIMMD2/P1-DIMMH2 CPU2: P2-DIMMA1/P2-DIMME1/P2-DIMMC1/P2-DIMMG1/P2-DIMMB1/P2-DIMMF1/P2-DIMMD1/P2-DIMMH1
2 CPUs & 28 DIMMs	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1/P1-DIMMD1/P1-DIMMH1/ P1-DIMMA2/P1-DIMME2/P1-DIMMC2/P1-DIMMG2/P1-DIMMB2/P1-DIMMF2/P1-DIMMD2/P1-DIMMH2 CPU2: P2-DIMMA1/P2-DIMME1/P2-DIMMC1/P2-DIMMG1/P2-DIMMB1/P2-DIMMF1/P2-DIMMD1/P2-DIMMH1/ P2-DIMMA2/P2-DIMME2/P2-DIMMC2/P2-DIMMG2
2 CPUs & 32 DIMMs (Note)	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1/P1-DIMMD1/P1-DIMMH1/ P1-DIMMA2/P1-DIMME2/P1-DIMMC2/P1-DIMMG2/P1-DIMMB2/P1-DIMMF2/P1-DIMMD2/P1-DIMMH2 CPU2: P2-DIMMA1/P2-DIMME1/P2-DIMMC1/P2-DIMMG1/P2-DIMMB1/P2-DIMMF1/P2-DIMMD1/P2-DIMMH1/ P2-DIMMA2/P2-DIMME2/P2-DIMMC2/P2-DIMMG2/P2-DIMMB2/P2-DIMMF2/P2-DIMMD2/P2-DIMMH2

Note: This memory configuration is recommended by Supermicro for optimal memory performance. Please use this configuration to maximize your memory performance.

Intel Optane PMem 200 Series Memory Population Table

Note: The Intel® Optane™ Persistent Memory (PMem) 200 Series supports 3rd Gen Intel Xeon Scalable (83xx/63xx/53xx/4314 Series) Processors.

PMem 200 Series Population Table for X12DP 32-DIMM Motherboards (within 1 CPU socket)

DDR4+ PMem	Mode	AD Inter-leave	P1-DIMMF1	P1-DIMMF2	P1-DIMME1	P1-DIMME2	P1-DIMMH1	P1-DIMMH2	P1-DIMMG1	P1-DIMMG2	P1-DIMMC2	P1-DIMMC1	P1-DIMMD2	P1-DIMMD1	P1-DIMMA2	P1-DIMMA1	P1-DIMMB2	P1-DIMMB1
4+4	AD MM	One - x4	PMem	-	DDR4	-	PMem	-	DDR4	-	-	DDR4	-	PMem	-	DDR4	-	PMem
		One - x4	DDR4	-	PMem	-	DDR4	-	PMem	-	-	PMem	-	DDR4	-	PMem	-	DDR4
6+1	AD	One - x1	DDR4	-	DDR4	-	-	-	DDR4	-	-	DDR4	-	PMem	-	DDR4	-	DDR4
			-	-	DDR4	-	DDR4	-	DDR4	-	-	DDR4	-	DDR4	-	DDR4	-	PMem
			DDR4	-	DDR4	-	PMem	-	DDR4	-	-	DDR4	-	-	-	DDR4	-	DDR4
			PMem	-	DDR4	-	DDR4	-	DDR4	-	-	DDR4	-	DDR4	-	DDR4	-	-
			DDR4	-	DDR4	-	DDR4	-	-	-	-	PMem	-	DDR4	-	DDR4	-	DDR4
			DDR4	-	-	-	DDR4	-	DDR4	-	-	DDR4	-	DDR4	-	PMem	-	DDR4
			DDR4	-	DDR4	-	DDR4	-	PMem	-	-	-	-	DDR4	-	DDR4	-	DDR4
			DDR4	-	PMem	-	DDR4	-	DDR4	-	-	DDR4	-	DDR4	-	-	-	DDR4
8+1	AD	One - x1	DDR4	-	DDR4	-	DDR4	-	DDR4	-	-	DDR4	-	DDR4	PMem	DDR4	-	DDR4
			DDR4	-	DDR4	-	DDR4	-	DDR4	-	PMem	DDR4	-	DDR4	-	DDR4	-	DDR4
			DDR4	-	DDR4	PMem	DDR4	-	DDR4	-	-	DDR4	-	DDR4	-	DDR4	-	DDR4
			DDR4	-	DDR4	-	DDR4	-	DDR4	PMem	-	DDR4	-	DDR4	-	DDR4	-	DDR4
			DDR4	-	DDR4	-	DDR4	-	DDR4	-	-	DDR4	PMem	DDR4	-	DDR4	-	DDR4
			DDR4	-	DDR4	-	DDR4	-	DDR4	-	-	DDR4	-	DDR4	-	DDR4	PMem	DDR4
			DDR4	PMem	DDR4	-	DDR4	-	DDR4	-	-	DDR4	-	DDR4	-	DDR4	-	DDR4
			DDR4	-	DDR4	-	DDR4	PMem	DDR4	-	-	DDR4	-	DDR4	-	DDR4	-	DDR4
8+4	AD MM	One - x4	DDR4	-	DDR4	PMem	DDR4	-	DDR4	PMem	PMem	DDR4	-	DDR4	PMem	DDR4	-	DDR4
		Two - x2	DDR4	-	DDR4	PMem	DDR4	PMem	DDR4	-	-	DDR4	PMem	DDR4	PMem	DDR4	-	DDR4
		Two - x2	DDR4	PMem	DDR4		DDR4	-	DDR4	PMem	PMem	DDR4	-	DDR4	-	DDR4	PMem	DDR4
		One - x4	DDR4	PMem	DDR4	-	DDR4	PMem	DDR4	-	-	DDR4	PMem	DDR4	-	DDR4	PMem	DDR4
8+8	AD, MM,	One - x8	DDR4	PMem	DDR4	PMem	DDR4	PMem	DDR4	PMem	PMem	DDR4	PMem	DDR4	PMem	DDR4	PMem	DDR4
12+2	AD	One - x2	PMem	-	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	-	PMem
			DDR4	DDR4	DDR4	DDR4	PMem	-	DDR4	DDR4	DDR4	DDR4	-	PMem	DDR4	DDR4	DDR4	DDR4
			DDR4	DDR4	PMem	-	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	-	PMem	DDR4	DDR4
			DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	PMem	-	-	PMem	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4

Legend (for the table above)	
DDR4 Type and Capacity	
DDR4	See Validation Matrix (DDR4 DIMMs validated with PMem)
Capacity	
PMem	Any Capacity (Uniformly for all channels for a given configuration)

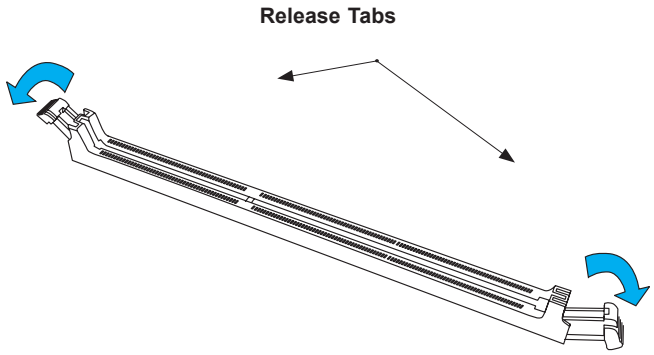
- Mode definitions: AD = App Direct Mode, MM = Memory Mode.
- No mixing of PMem and NVDIMMs within the platform.
- For MM, NM/FM ratio is between 1:4 and 1:16. (NM = Near Memory (DRAM); FM = Far Memory (PMem)).
- Matrix targets configs for optimized PMem to DRAM cache ratio in MM mode.
- For each individual population, different PMem rearrangements among channels are permitted so long as the configuration doesn't break X12DP Memory population rules.
- Ensure the same DDR4 DIMM type and capacity are used for each DDR4 + PMem population.
- If the system detects an unvalidated configuration, then the system issues a BIOS warning. The CLI functionality is limited in non-POR configurations, and select commands will not be supported.

Validation Matrix (DDR4 DIMMS with PMem 200 Series)			
DIMM Type	Ranks Per DIMM & Data Width (Stack)	DIMM Capacity (GB)	
		DRAM Density	
		8Gb	16Gb
RDIMM (up to 3200)	1Rx8	N/A	N/A
	1Rx4	16 GB	32 GB
	1Rx8	16 GB	32 GB
	1Rx4	32 GB	64 GB
RDIMM 3DS (up to 3200)	4Rx4 (2H)	N/A	128 GB
	8Rx4 (4H)	NA	256 GB
LRDIMM (up to 3200)	4Rx4	64 GB	128 GB
LRDIMM 3DS (up to 3200)	4Rx4 (2H)	N/A	N/A
	8Rx4 (4H)	128 GB	256 GB

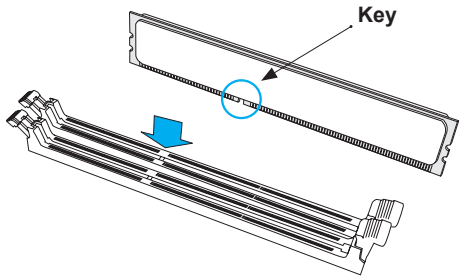
DIMM Installation

1. Insert the desired number of DIMMs into the memory slots based on the recommended DIMM population tables in the previous section. Locate DIMM memory slots on the motherboard as shown on the right.

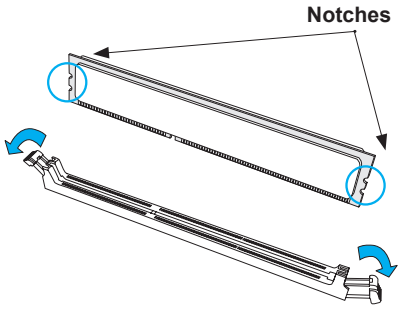
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.



3. Align the key of the DIMM module with the receptive point on the memory slot.

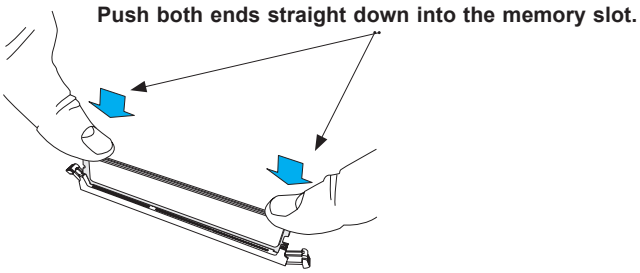


4. Align the notches on both ends of the module against the receptive points on the ends of the slot.



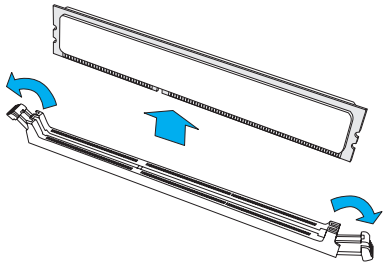
5. Push both ends of the module straight down into the slot until the module snaps into place.

6. Press the release tabs to the lock positions to secure the DIMM module into the slot.



DIMM Removal

Press both release tabs on the ends of the DIMM module to unlock it. Once the DIMM module is loosened, remove it from the memory slot.



Warning! Please do not use excessive force when pressing the release tabs on the ends of the DIMM socket to avoid causing any damage to the DIMM module or the DIMM socket. Please handle DIMM modules with care. Carefully follow all the instructions given in Chapter 2 to avoid ESD-related damages done to your memory modules or components.

3.5 Motherboard Battery

The motherboard uses non-volatile memory to retain system information when system power is removed. This memory is powered by a lithium battery residing on the motherboard.

Replacing the Battery

Begin by removing power from the system.

1. Push aside the small clamp that covers the edge of the battery. When the battery is released, lift it out of the holder.
2. To insert a new battery, slide one edge under the lip of the holder with the positive (+) side facing up. Then push the other side down until the clamp snaps over it.

Note: Handle used batteries carefully. Do not damage the battery in any way; a damaged battery may release hazardous materials into the environment. Do not discard a used battery in the garbage or a public landfill. Please comply with the regulations set up by your local hazardous waste management agency to dispose of your used battery properly.

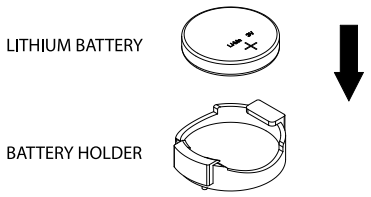


Figure 3-7. Installing the Onboard Battery

Warning: There is a danger of explosion if the onboard battery is installed upside down (which reverses its polarities). This battery must be replaced only with the same or an equivalent type recommended by the manufacturer (CR2032).

3.6 Storage Drives

A total of 24 NVMe/SATA drives may be housed in the CSV-GP802TS-R000NP chassis. System Default Configuration supports 4 NVMe and 8 SATA storages.

The drives are mounted in drive carriers to simplify their installation and removal from the chassis. (Both procedures may be done without removing power from the system.) These carriers also help promote proper airflow.

Note: Enterprise level storage drives are recommended for use in Supermicro chassis and servers. For information on recommended storage drives, visit the Supermicro website at http://www.supermicro.com/products/nfo/storage.cfm

Drive Carrier Indicators

Each drive carrier has two LED indicators: an activity indicator and a status indicator. In RAID configurations, the status indicator lights to indicate the status of the drive. In non-RAID configurations, the status indicator remains off. See the table below for details.

Hard Drive Carrier LED Indicators			
	LED Color	**State**	**Status**
Activity LED	Blue	Solid On	NVMe drive installed
	Blue	Blinking	I/O activity
Status LED	Red	Solid On	Failed drive for SATA/NVMe
	Red	Blinking at 1 Hz	Rebuild drive for SATA/NVMe
	Red	Blinking with two blinks and one stop at 1 Hz	Hot spare for SATA/NVMe
	Red	On for five seconds, then off	Power on SATA/NVMe
	Red	Blinking at 4 Hz	Identity drive for SATA/NVMe
	Red	Solid On	Safe to remove NVMe device
	Green	Blinking at 1 Hz	Attention state- do not remove NVMe device

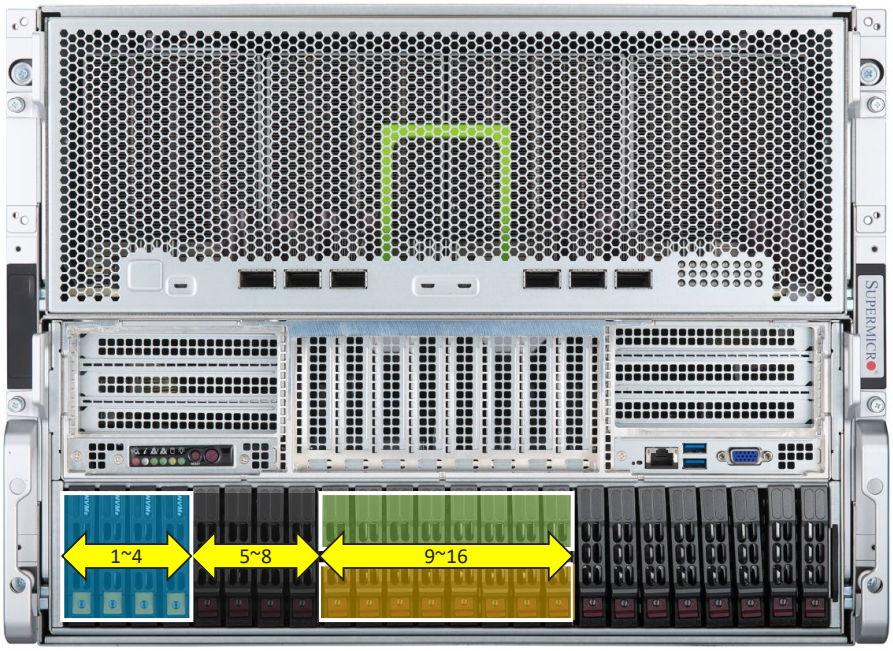


Figure 3-8. Logical Drive Numbers

Logical Drive Numbers	
Bay #	**Description**
1-4	Four 2.5" NVMe drive bays
9-16	Up to eight 2.5" SATA drive bays

Removing/Installing Drives

Removing Drive Carriers from the Chassis

1. Slide the handle lever on the drive carrier up to unlock the carrier handle. This releases and extends the drive carrier handle.

Figure 3-9. Unlocking Handle

2. Extend and use the handle to pull the carrier out.

Caution: Except for short periods of time (swapping drives), do not operate the server with the drive carriers removed from the bays, regardless of how many drives are installed, for proper airflow.

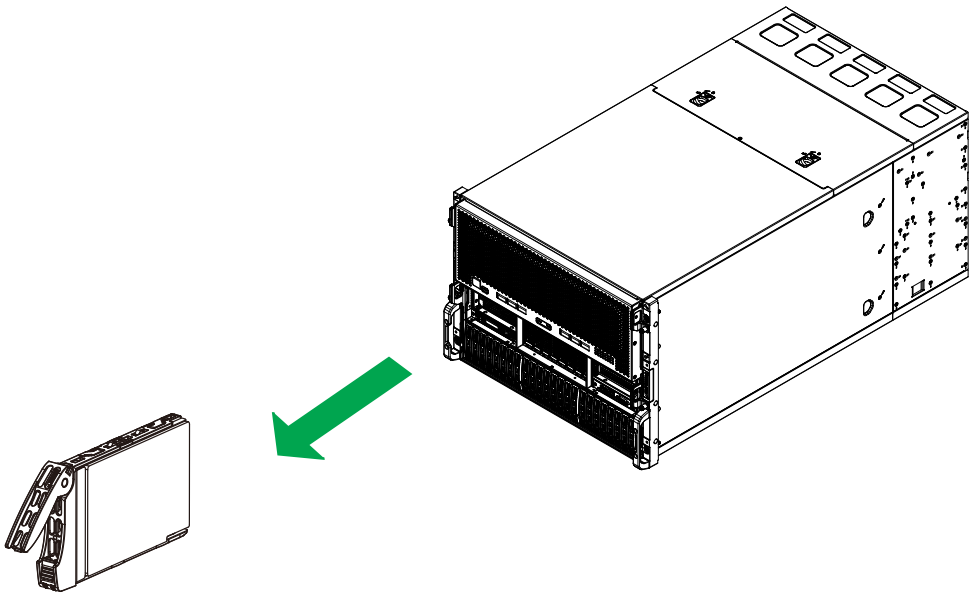


Figure 3-10. Removing a Drive Carrier

Installing a 2.5" Drive

1. Place the drive carrier on a flat surface.
2. Orient the drive with the connector facing the bottom rear of the carrier. The drive can be inserted from above the carrier and into the clips until a "click" is heard.
3. Use the open handle of the drive carrier to insert the carrier into the open drive bay.
4. Secure the drive carrier into the drive bay by closing the drive carrier handle.
5. Lock the handle with a flat-head screwdriver.

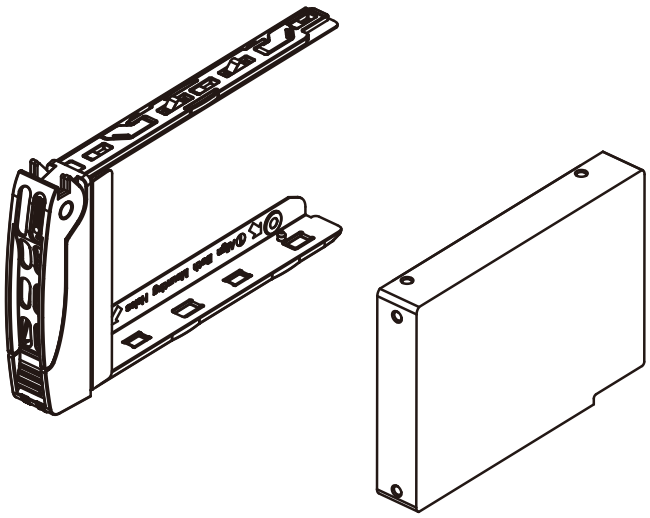


Figure 3-11. Installing a Drive to a Drive Carrier

Removing a 2.5" Drive

1. After removing the carrier from the system, push up from the bottom of the drive to remove it from the carrier.
2. Replace with a new drive and insert the carrier back into the open drive bay.

Installing M.2 Solid State Drives

The X12DPG-OA6-GD2 motherboard has two hybrid M.2 slots located at JM2_1 and JM2_2. M.2 was formerly known as Next Generation Form Factor (NGFF) and serves to replace mini PCIe. M.2 allows for a variety of card sizes, increased functionality, and spatial efficiency. The M.2 socket on the motherboard supports PCIe 3.0 x4 (32 Gb/s) SSD cards in the 2280 and 22110 form factors.

Caution: Use industry-standard anti-static equipment, such as gloves or wrist strap, and follow precautions to avoid damage caused by ESD.

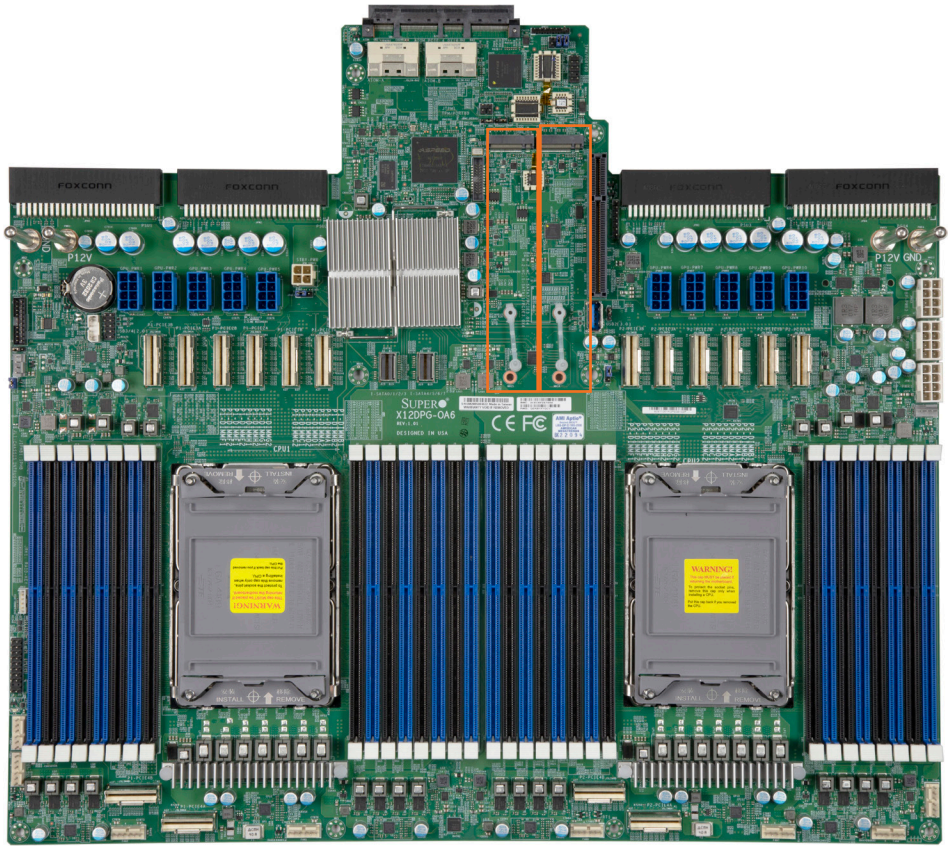


Figure 3-12. M.2 Slot Locations

Installing an M.2 2280 Device

1. Power down the system and remove the CPU tray as described in Sections 3.1 and 3.2.
2. Remove any components blocking the M.2 sockets.
3. To loosen the M.2 plastic standoff on the motherboard, lift up its top square latch, and use gentle force to pull it out of the hole.
4. Move and place the standoff plug in the proper hole.
5. Insert the M.2 2280 device at a slight angle in the M.2 slot, and ensure the notch on the other end of the device aligns the standoff top.
6. Pull the top square latch down and ensure the latch plug is pushed in standoff to secure the device in place.
7. Replace the CPU tray into the chassis.

3.7 Expansion Cards

The system has two PCIe 4.0 x16 FHFL slots and two PCIe 4.0 x8 FHFL slots.

Note: Expansion cards are recommended to be serviced by Supermicro due to the optimized density of the 8U form factor.

Installing PCIe Expansions Cards

1. Power down the system and remove the CPU tray.
2. Remove the thumbscrews on the PCIe module back that secures it to the board and lift it up.

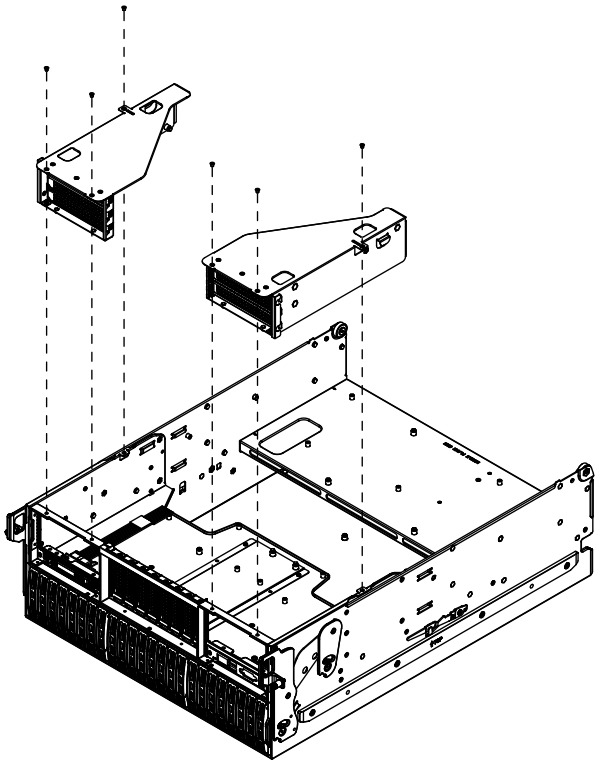


Figure 3-13. Removing the PCIe Shields

3. Insert an expansion card into the riser slot to create an assembly.

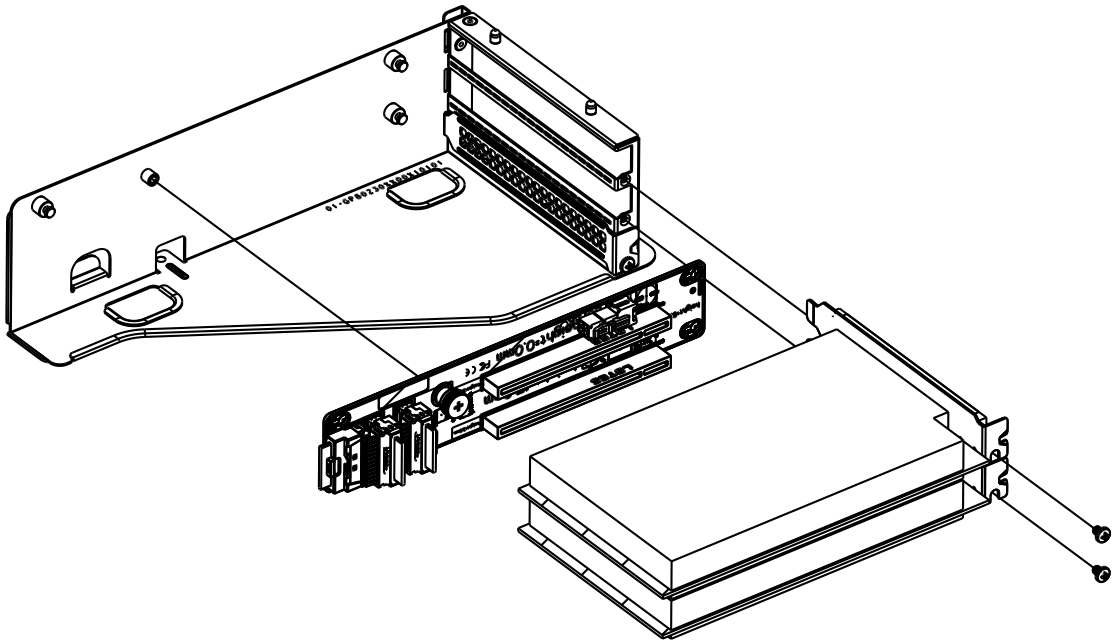


Figure 3-14 Installing the Rise Card

4. Insert the assembly into the motherboard and install a screw to secure the expansion card to the chassis.

3.8 System Cooling

Twelve heavy-duty fan modules provide cooling for the chassis. The fan modules are located in the rear of the chassis. The chassis comes with pre-installed internal fan modules. Each fan is hot-swappabe, and can be replaced without any connections being removed.

System Fan Failure

Fan speed is controlled by thermal sensors and ambient temperature through BMC. A system fan module consists of two fan rotors. If any of fan module rotors fails, the remaining fan modules will immediately ramp up to full speed. Replace any failed fan module at your earliest convenience with the same type and model (the system can continue to run with a failed fan). Do not remove the failed fan module from the chassis until the new fan is replaced.

Number of Failed Fans	System Behavior
One fan module fails.	All system fan modules and power supply module fans run at full speed.
One power supply fan fails.	

Replacing Power Fan Modules

Both system fan modules and power supply fans run to simultaneously cool down the system.

Changing a System Fan

1. Determine which fan has failed. It is recommended that BMC should be checked in advance. While the power is on, locate the failed fan module.
2. Slide the lever on the handle to the unlocked position, and rotate the handle to pull the failed fan module out of the chassis.
3. Replace the failed fan with a new one of the same type and model.
4. Insert the new fan module into the housing until it is secured and running.
5. Confirm that the fans are working properly and ensure no objects obstruct airflow in the front and rear of the server.

The control panel LEDs display system heat status. See 1.2 System Features for details.

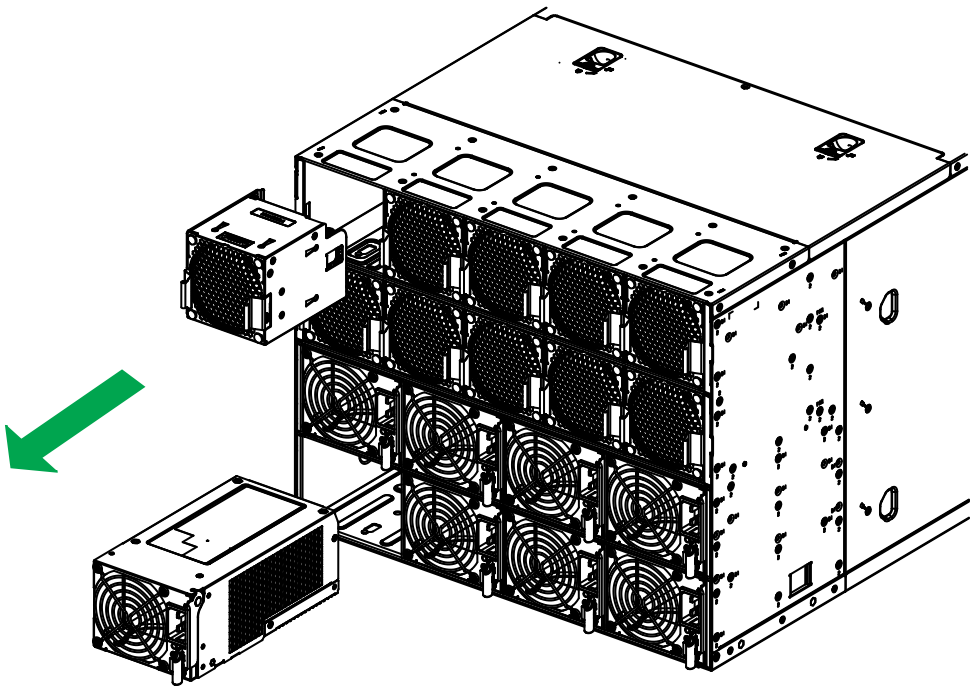


Figure 3-15. Removing a Fan Module

3.9 Power Supply

The chassis features six 4+2 3000 W (+54 V: 2100 W, +12 V: 1100 W), redundant power supplies. The power modules can be changed without powering down the system. New units can be ordered directly from Supermicro or authorized distributors.

These power supplies are auto-switching capable. This feature enables them to automatically sense the input voltage and operate at a 200-240 v. An amber light will be illuminated on the power supply when the power is off. An illuminated green light indicates that the power supply is operating.

Replacing the Power Supply

1. Fully rotate power supply locking handle upward.
2. Carefully and slowly pull the power supply module from the rear structure.

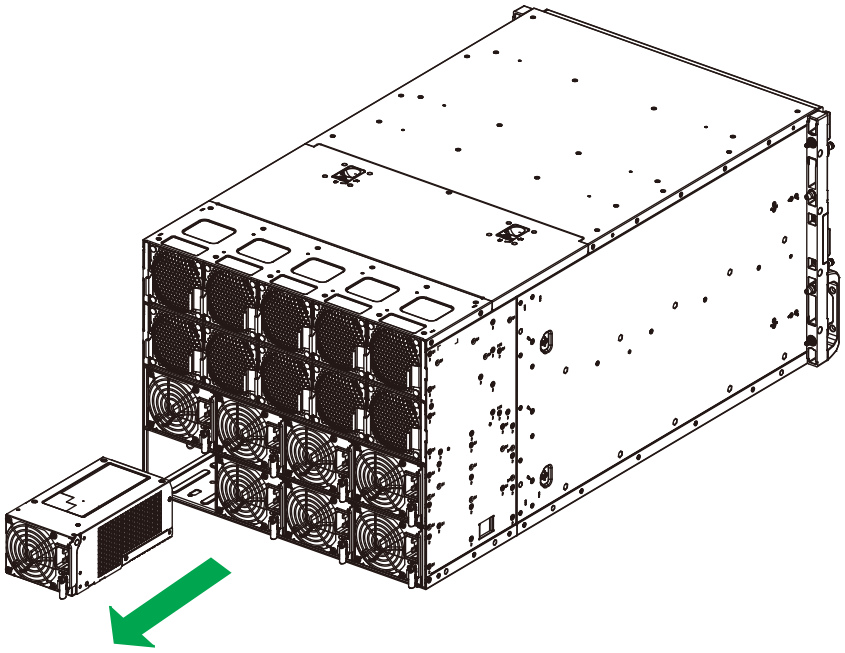


Figure 3-16. Replacing a Power Supply Module

3. Insert the replacement power supply module (with lock handle on fully upward position) into the rear structure until the power supply locking handle engages with the rear structure's locking pin.
4. Fully push power supply locking handle downward until it is locked into the rear structure.

Warning: The 4+2 redundacy of power supplies requires the installation of two dummy fans. If no dummy fans are installed, this feature is NOT available for use. To take advange of the feature, the minimum requirement should be: four power supplies plus two dummy fans, five power supplies plus one dummy fan, or six power supplies without any dummy fans.

3.10 Gaudi OAM Modules

Replacing Gaudi OAM Modules

Due to the optimized density of the system, Gaudi OAM (Open Accelerator Module) modules and a carrier board are stronly recommended to ONLY be serviced by Supermicro. Please contact Supermicro for your failed Gaudi OAM modules.

However, when necessary, follow the steps below to replace a Gaudi OAM module with assistance from Supermicro.

Replacing a Gaudi OAM Module

1. It is recommended that you go to the BMC dashboard and select the GPU tab to locate any failed Gaudi OAM modules. Normally, information on all eight Gaudi OAM modules should be displayed. However, fields that are blank, display "00.00.00" or "NA" indicate failed, non-original, or uncertified modules. For details on accessing the remote console, refer to Baseboard Management Controller User's Manual.

2. Remove the AI processor tray and pull it out. Refer to Removing and Installing the AI Processor Tray.

3. Remove the air shroud by removing two M3.5 screws on each side.

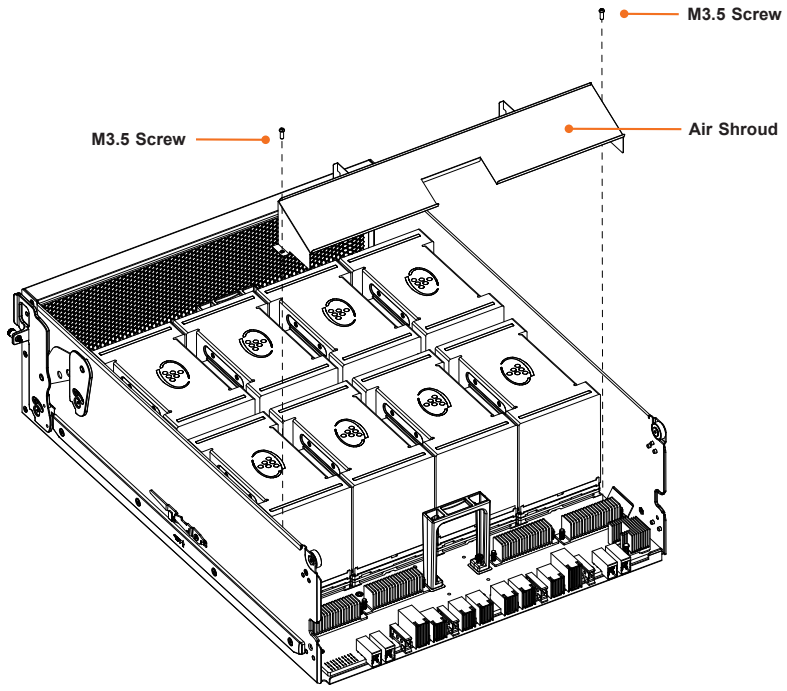


Figure 3-17. Removing the Air Shroud

4. Remove the screws that secure the failed Gaudi OAM module to the carrier board in the order of 3, 2, 4, and 1.

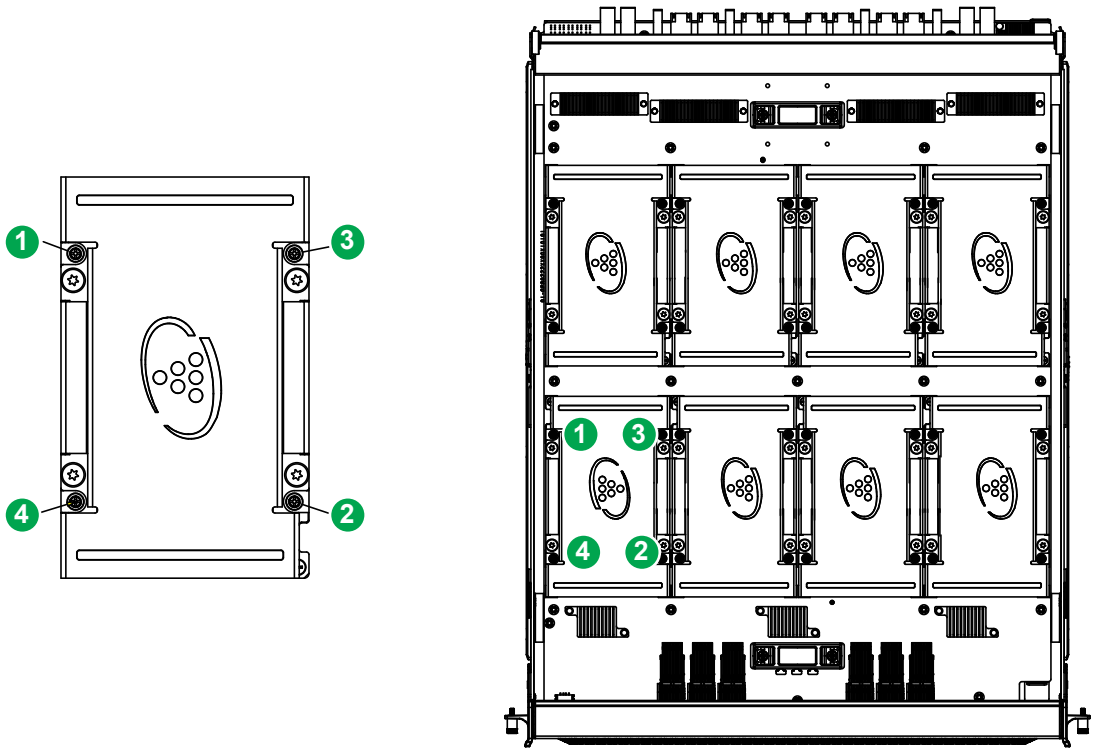


Figure 3-18. Removing a Gaudi OAM Module

5. Once all screws are loose, grasp the handle of the carrier board module and lift it up and out. Be careful not to scratch the carrier board baseboard or your hands on the chassis metal edges.

To Install a Gaudi OAM Module

1. Align the guide pins and holes of both Gaudi OAM module and carrier board.
2. Place the Gaudi OAM module on the carrier board and secure it with screws evenly to 8.7 lbs-in torque in the order of 1, 4 2, and 3. Then double-check screw #1 is securely tightened.

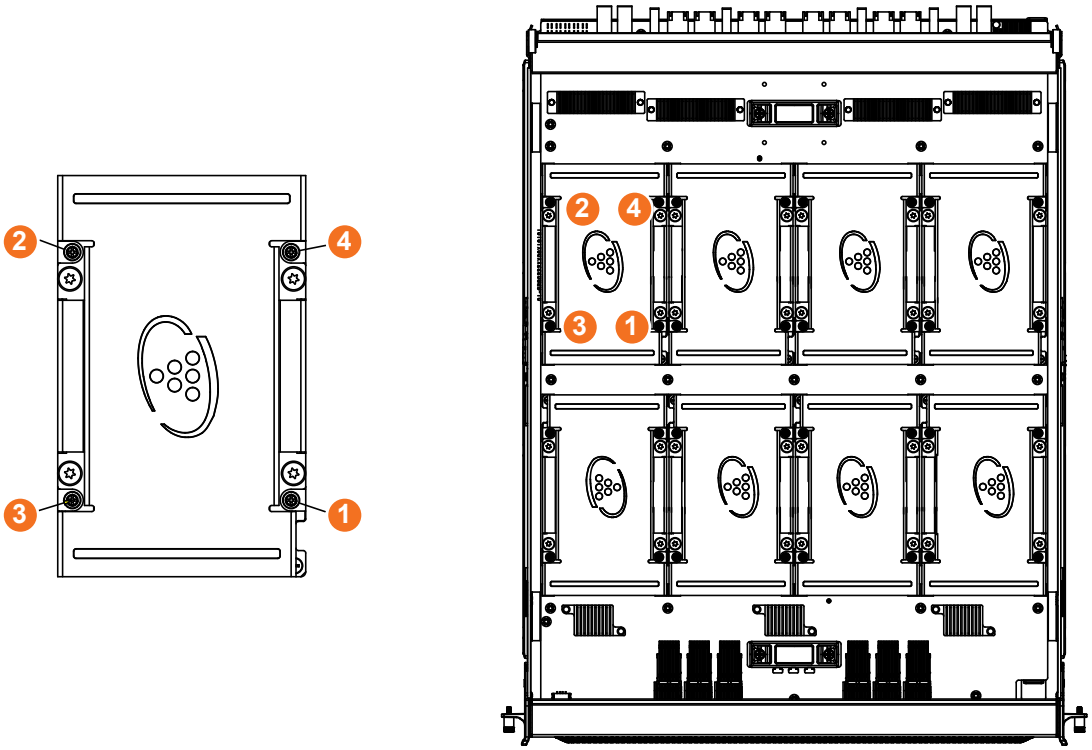


Figure 3-19.

3. Install an air shroud on the top of the rear of the carrier board.
4. Tighten two M3.5 screws to secure the air fan duct in place to approximately 6 to 8 lbf tightening torque

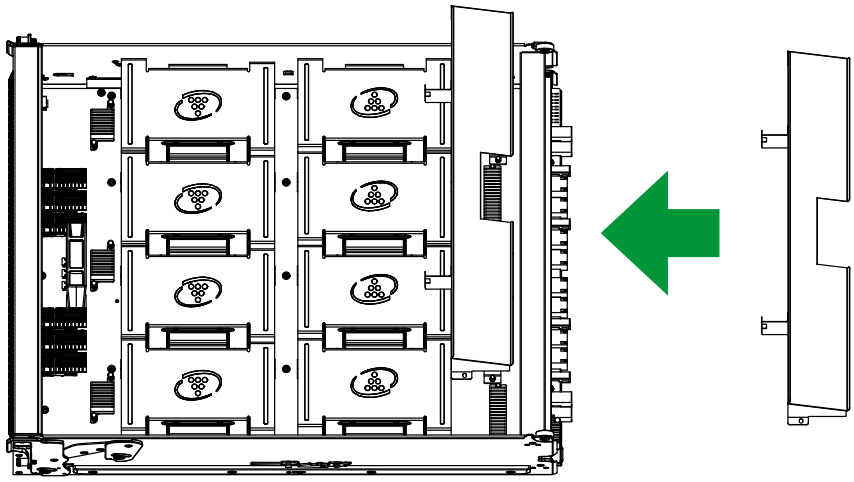


Figure 3-20.

Chapter 4

Motherboard Connections

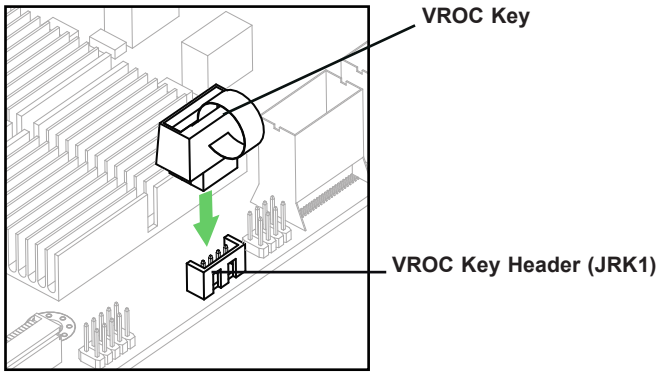
This section describes the connections on the motherboard and provides pinout definitions. Note that depending on how the system is configured, not all connections are required. The LEDs on the motherboard are also described here. A motherboard layout indicating component locations may be found in Chapter 1. More detail can be found in the Motherboard Manual. Please review the Safety Precautions in Appendix A before installing or removing components.

4.1 Headers and Connectors

VROC RAID Key Header

A VROC RAID Key header is located at JRK1 on the motherboard. Install a VROC RAID Key on JRK1 for NVMe RAID support as shown in the illustration below. Please refer to the layout below for the location of JRK1.

Intel VROC Key Pin Definitions	
Pin#	**Definition**
1	Ground
2	3.3 V Standby
3	Ground
4	PCH RAID Key



Note: The graphics contained in this user's manual are for illustration only. The components installed in your system may or may not look exactly the same as the graphics shown in the manual.

TPM/Port 80 Header

The JTPM1 header is used to connect a Trusted Platform Module (TPM)/Port 80, which is available from Supermicro (optional). A TPM/Port 80 connector is a security device that supports encryption and authentication in hard drives. It allows the motherboard to deny access if the TPM associated with the hard drive is not installed in the system. See the layout below for the location of the TPM header. Please go to the following link for more information on the TPM: http://www.supermicro.com/manuals/other/TPM.pdf.

Trusted Platform Module Header Pin Definitions

Pin#	Definition	Pin#	Definition
1	+3.3 V	2	SPI_CS#
3	RESET#	4	SPI_MISO
5	SPI_CLK	6	GND
7	SPI_MOSI	8	NC
9	+3.3 V Stdby	10	SPI_IRQ#

SATA Ports

This motherboard has two I-SATA 3.0 headers (JSATA1/JSATA2) onboard. The two I-SATA 3.0 headers provide eight SATA connections (I-SATA 0-3, I-SATA 4-7).

Note: For more information on the SATA HostRAID configuration, please refer to the Intel SATA HostRAID user's guide posted on our website at http://www.supermicro.com.

M.2 Slots

The X12DPG-OA6(-GD2) motherboard has two hybrid M.2 slots located at JM2_1 and JM2_2. M.2 was formerly known as Next Generation Form Factor (NGFF) and serves to replace mini PCIe. M.2 allows for a variety of card sizes, increased functionality, and spatial efficiency. The M.2 socket on the motherboard supports PCIe 3.0 x4 (32 Gb/s) SSD cards in the 2280 and 22110 form factors.

4.2 Input/Output Ports

Front I/O Ports

VGA Connection

The onboard VGA port is located on the I/O back panel. This VGA connection provides an analog interface support between the computer and the video display.

Universal Serial Bus (USB) Ports and Header

There is one internal USB 3.2 Gen 1 header (JUSB3) on the motherboard. Refer to the table below for the internal USB header pin definitions.

USB 3.2 Gen 1 Header (JUSB3)
Pin Definitions

Pin#	Definition	Pin#	Definition
1	VBUS	19	Power
2	Stda_SSRX-	18	USB3_RN
3	Stda_SSRX+	17	USB3_RP
4	GND	16	GND
5	Stda_SSTX-	15	USB3_TN
6	Stda_SSTX+	14	USB3_TP
7	GND	13	GND
8	D-	12	USB_N
9	D+	11	USB_P
10		x	

4.3 Front Control Panel

JF1 contains header pins for various buttons and indicators that are normally located on a control panel at the front of the chassis. See the figure below for the descriptions of the front control panel buttons and LED indicators.

Power On and BMC/BIOS Status LED Button

The Power On and BMC/BIOS Status LED button is located on pins 1 and 2 of JF1. Momentarily contacting both pins will power on/off the system or display BMC/BIOS status. Refer to the tables below for more information.

Power Button and BIOS/BMC Status LED Indicator Pin Definitions (JF1)

Pin#	Definition
1	Signal
2	Ground

Power Button	
Status	**Event**
Green: solid on	System power on
BMC/BIOS blinking green at 4 Hz	BMC/BIOS checking
BIOS blinking green at 4 Hz	BIOS recovery/update in progress
BMC blinking red x2 (2 blinks red) at 4Hz, 1 pause at 2Hz (on-on-off-off)	BMC recovery/update in progress
BMC/BIOS blinking green at 1 Hz	Flash not detected or golden image checking failure

Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1. Momentarily contacting both pins will reset the system. Refer to the table below for pin definitions.

Reset Button Pin Definitions (JF1)

Pin#	Definition
3	Reset
4	Ground

Power Fail LED

The Power Fail LED connection is located on pins 5 and 6 of JF1. Refer to the table below for pin definitions.

Power Fail LED Pin Definitions (JF1)	
Pin#	**Definition**
5	3.3 V
6	PWR Fail for LED6 (Solid red on: PWR failure)

Information LED (OH/Fan Fail/PWR Fail/UID LED)

The Information LED (OH/Fan Fail/PWR Fail/UID LED) connection is located on pins 7 and 8 of JF1. The LED on pin 7 is active when the UID button (JUIDB1) on the rear I/O panel is pressed. The LED on pin 8 provides warnings of overheat, power failure, or fan failure. Refer to the table below for more information.

Information LED-Blue+ (OH/Fan Fail/PWR Fail LED for LED5/blue UID LED)	
Status	**Description**
Solid red (on)	An overheat condition has occurred.
Blinking red (1 Hz)	Fan failure: check for an inoperative fan.
Blinking red (0.25 Hz)	Power failure: check for a non-operational power supply
Blinking red (10 Hz) (FP red LED)	CPLD recovery mode error(s)
Solid blue	Local UID is activated. Use this function to locate a unit in a rack mount environment that might be in need of service.
Blinking blue (1 Hz)	Remote UID is on. Use this function to identify a unit from a remote location that might be in need of service.
BIOS/BMC blinking blue (10Hz)	BIOS/BMC: recovery and/or update in progress
Red Info LED blinking (10 Hz) and MB UID LED blue blinking (10 Hz)	CPLD: recovery and/or update in progress

NIC1/NIC2 (LAN1/LAN2)

The NIC (Network Interface Controller) LED connection for LAN port 1 is located on pins 11 and 12 of JF1, and pins 9 and 10 on LAN port 2. Refer to the tables below for pin definitions

LAN1/LAN2 LED Pin Definitions			
Pin#	Definition	Pin#	Definition
9	NIC 2 Activity LED	10	NIC 2 Link LED
11	NIC 1 Activity LED	12	NIC 1 Link LED

LAN1/LAN2 LED	
Color	State
Blinking green	Active

ID_UID Switch/HDD LED

The UID Switch/HDD LED connection is located on pins 13 and 14 of JF1. The UID switch is used for a chassis that supports a front UID switch. The front UID switch functions in the same way as the rear UID switch; both are for input only and cannot be used for output.

When this LED is blinking green, it indicates HDD is active. Attach a cable to pins 13 and 14 to show ID_UID status and hard drive activity. Refer to the tables below for pin definitions.

ID_UID/HDD LED Pin Definitions (JF1)	
Pins	Definition
13	ID_UID/3.3 V Stdby
14	HDD Activity

ID_UID/HDD LED	
Color	State
Blinking Green	HDD Active

FP Power LED

The Front Panel Power LED connection is located on pins 15 and 16 of JF1. Refer to the table below for pin definitions.

FP Power LED Pin Definitions (JF1)	
Pins	Definition
15	3.3 V
16	FP PWR LED

NMI Button

The non-maskable interrupt (NMI) button header is located on pins 19 and 20 of JF1. Refer to the table below for pin definitions.

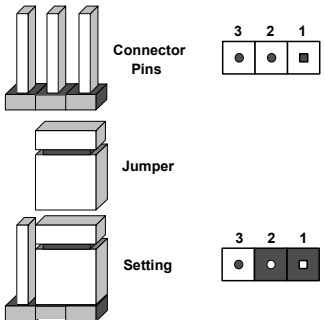
NMI Button Pin Definitions (JF1)	
Pins	Definition
19	NMI
20	Ground

4.4 Jumpers

Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the diagram below for an example of jumping pins 1 and 2. Refer to the motherboard layout page for jumper locations.

Note: On two-pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.



CMOS Clear

JBT1 is used to clear CMOS, which will also clear any passwords. Instead of pins, this jumper consists of contact pads to prevent accidentally clearing the contents of CMOS.

To Clear CMOS

1. First power down the system and unplug the power cord(s).
2. Remove the cover of the chassis to access the motherboard and remove the battery from the motherboard.
3. Short the CMOS pads with a metal object such as a small screwdriver for at least four seconds.
4. Remove the screwdriver (or shorting device).
5. Replace the cover, reconnect the power cord(s), and power on the system.

Note 1: Clearing CMOS will also clear all passwords.

Note 2: Do not use the PW_ON connector to clear CMOS.

UID (Unit Identifier)/BMC Reset Switch

Jumper JUID1 is located next to the DIMM slot of P1_DIMMG2 on the motherboard and provides dual functions for the system. It can be used to identify a system unit that is in need of service, and it can also be used to reset the BMC settings. Both functions are available when it connects to the system UID/BMC reset switch via the midplane to the carrier board. You may refer to the Supermicro system user's manual or the BMC user's guide posted on our website at http://www.supermicro.com for more information.

UID Switch Jumper Settings	
Jumper Setting	**Definition**
Pins 1-2	UID Switch
Pins 3-4	Reset Button

Chapter 5

Software

After the hardware has been installed, you can install the Operating System (OS), configure RAID settings and install the drivers.

5.1 Habana Gaudi®2 Software Installation

Habana Gaudi®2 software was designed to provide users with ease of use and in optimizing AI processors. For more details on the supported Gaudi®2 operating systems, please go to https://docs.habana.ai/en/latest/Support_Matrix/Support_Matrix.html and click Support Matrix.

To prepare a suitable software environment on your server system, please visit the below website link and follow Habana official guidelines: https://docs.habana.ai/en/latest/Installation_Guide/Bare_Metal_Fresh_OS.html

Note that the information above may not reflect the latest changes. For more details, visit Habana Developer's website: https://developer.habana.ai/

5.2 Scale-Out

The networking capacity of Habana Gaudi®2 allows for scaling out in the eight-card Gaudi server. For one OAM card, 24x 100 GbE PAM4 SerDes Links can be split into twenty-one 100GbE OAM-to-OAM connections and three 100GbE ports for scale-out. In total, there are 2.4 TbE connections connected to six QSFP-DD ports.

For the QSFP-DD SerDes lane port numbers for scale-out, see the next section.

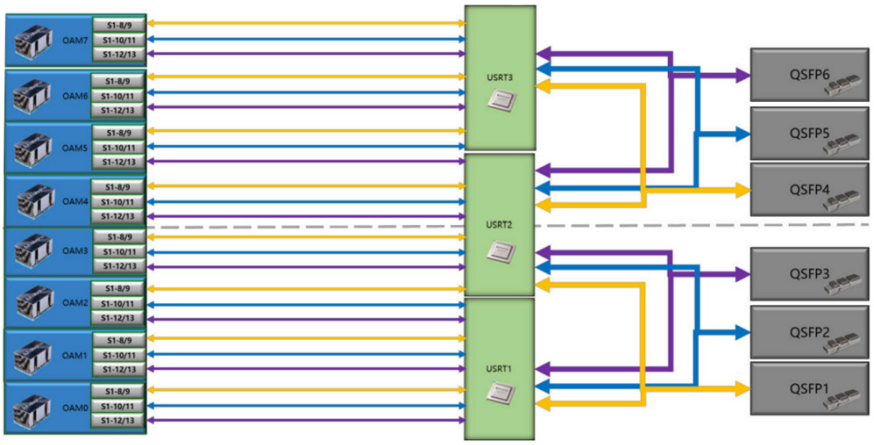


Figure 5-1. HLBA-225 High Speed Block Diagram

QSFP-DD SerDes Lane Port Numbers for Scale-Out

Habana Gaudi®2 provides six QSFP-DD ports (24x 100GbE) for multi-node scale-out. Refer to the picture below for the QSFP-DD SerDes lane port numbers for scale-out. For details, please refer to the Habana official website: https://habana.ai/products/gaudi2/

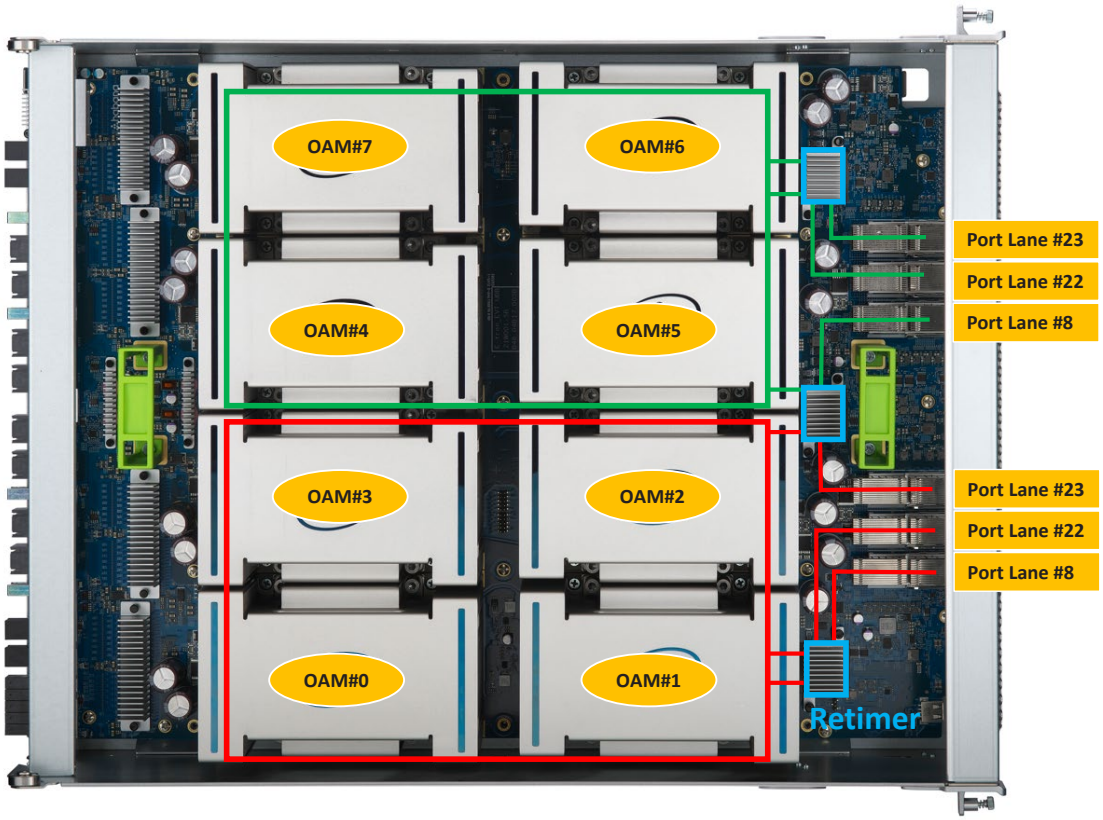


Figure 5-2. QSFP-DD SerDes Lane Port Numbers

5.3 BMC

The X12DPG-OA6-GD2 provides remote access, monitoring and management through the baseboard management controller (BMC) and other management controllers distributed among different system modules. There are several BIOS settings that are related to BMC.

For general documentation and information on BMC, visit our website at:
https://www.supermicro.com/en/solutions/management-software/bmc-resources

BMC ADMIN User Password

For security, each system is assigned a unique default BMC password for the ADMIN user. This can be found on a sticker on the chassis and a sticker on the motherboard. The sticker also displays the BMC MAC address.

Figure 5-3. BMC Password Label

BMC Password Label Locations

To locate the BMC password sticker on the motherboard, refer to the layout below.

Motherboard

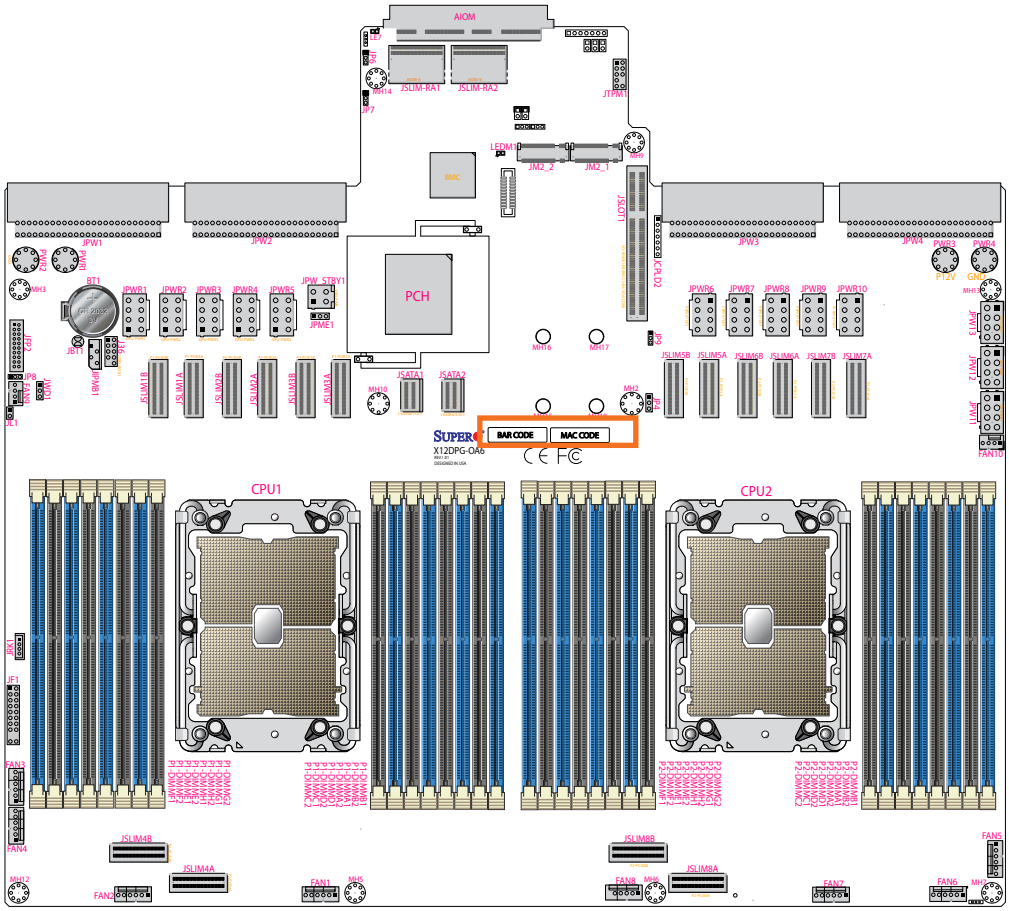


Figure 5-3. BMC Password Label Location

Chapter 6

Optional Components

This chapter describes optional system components and installation procedures.

6.1 Intel Virtual RAID on CPU (VROC)

Intel® Virtual RAID on CPU (Intel VROC) is an enterprise RAID solution for NVMe SSDs directly attached to Intel Xeon Scalable processors. Intel Volume Management Device (VMD) is an integrated controller inside the CPU PCIe root complex.

- A single processor supports up to 12 NVMe SSDs and up to 6 RAID arrays.
- A dual processor system supports up to 24 NVMe SSDs and 12 RAID arrays.

Strip sizes are 4K, 8K, 16K, 32K, 64K, 128K.

Requirements and Restrictions

- **Intel VROC is only available when the system is configured for UEFI boot mode.**
- To enable the **mdadm** command and support for RSTe, install the patch from
  - Linux: https://downloadcenter.intel.com/download/28158/Intel-Virtual-RAID-on-CPU-Intel-VROC-and-Intel-Rapid-Storage-Technology-enterprise-Intel-RSTe-Driver-for-Linux-
  - Windows: https://downloadcenter.intel.com/download/28108/Intel-Virtual-RAID-on-CPU-Intel-VROC-and-Intel-Rapid-Storage-Technology-enterprise-Intel-RSTe-Driver-for-Windows-
- To enable Intel VROC, a hardware key must be inserted on the motherboard, and the appropriate processor's Virtual Management Devices must be enabled in the BIOS setup.
- It is possible to enable Intel VROC without a hardware key installed, but only RAID0 will be enabled.
- Intel VROC is not compatible with secure boot. This feature must be disabled.
- When creating bootable OS RAID1 devices, you must have both devices on the same CPU, and a VMD on that CPU.
- Spanning drives when creating RAID devices is not recommended to due to performance issues, even though it is supported.

Supported SSDs and Operating Systems

To see the latest support information: https://www.intel.com/content/www/us/en/support/articles/000030310/memory-and-storage/ssd-software.html

Additional Information

Additional information is available on the product page for the Supermicro add-on card and the linked manuals.

www.supermicro.com/products/accessories/addon/AOC-VROCxxxMOD.cfm

Hardware Key

The Intel VROC hardware key is a license key that detects the Intel VROC SKU and activates the function accordingly. The key must be plugged into the Supermicro motherboard (connector JRK1). The key options are:

Intel® VROC Keys			
VROC Package	**Description**	**Part Number**	**Intel MM Number**
Standard	RAID 0, 1, 10 Supports 3rd party SSDs	AOC-VROCSTNMOD	951605
Premium	RAID 0, 1, 5, 10 Supports 3rd party SSDs	AOC-VROCPREMOD	951606
Intel SSD only	RAID 0, 1, 5, 10 Supports Intel SSDs only	AOC-VROCINTMOD	956822

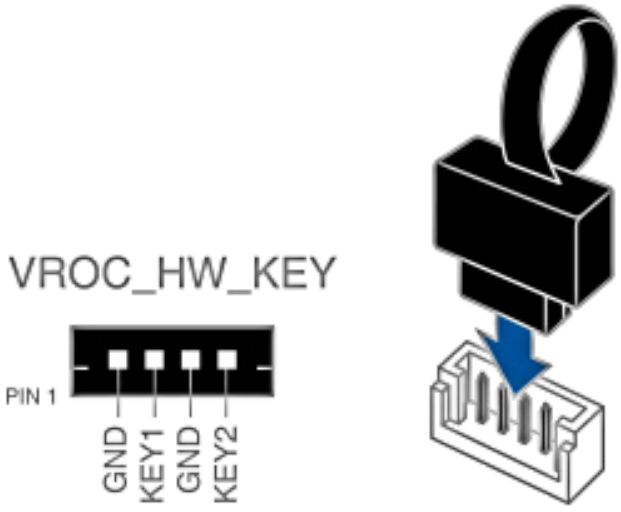


Figure 6-1. Intel® VROC RAID Key and Motherboard Connector JRK1

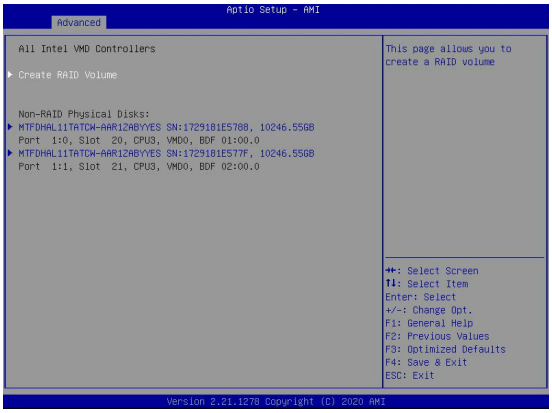
Enabling NVMe RAID

RAID for NVMe SSDs must be enabled through the UEFI BIOS.

1. Install the patch as described in the Restrictions and Requirements section on a previous page.
2. Reboot the server.
3. Press <DEL> key to enter BIOS.
4. Switch to **Advanced > Chipset Configuration > North Bridge > IIO Configuration > Intel® VMD Technology > CPU3 & CPU4**.
5. **Enable** the VMD according to the following rules.
   - For U.2 NVMe, enable all the sub-items under each PStack, based on the your model server:
   - For M.2 NVMe or NVMe AIC, enable the VMD according to which AOC card/slot it used.

   Examples for some U.2 configurations follow.
6. Press <F4> to save the configuration and reboot the system.
7. Press <DEL> to enter BIOS.
8. Switch to **Advanced > Intel(R) Virtual RAID on CPU > All Intel VMD Controllers > Create RAID Volume**.
9. Set **Name**.
10. Set **RAID Level**.
11. If cross-controller RAID is required, select Enable RAID spanned over VMD Controller.
12. Select specific disks for RAID with an [X].
    - RAID0: Select at least two [2 - 24] disks
    - RAID1: Select only two disks
    - RAID5: Select at least three [3 - 24] disks
    - RAID10: Select only four disks

Figure 6-2. BIOS VMD Setting Examples



13. Select **Strip Size** (Default 64KB).
14. Select **Create Volume**.
15. If another RAID is needed, start again at step 6.
16. Press [F4] to save and reboot.

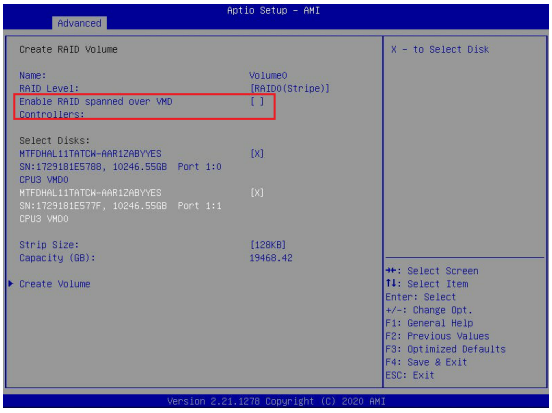


Figure 6-3. Created Volume without enabling RAID spanned over VMD Controller

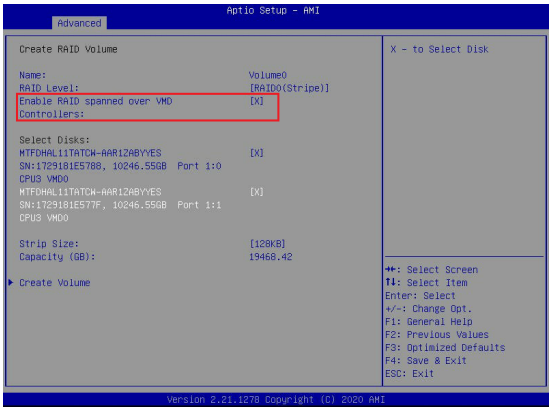


Figure 6-4. Created Volume with enabling RAID spanned over VMD Controller

Status Indications

An LED indicator on the drive carrier shows the RAID status of the drive.

Drive Carrier Status LED Indicator	
Status	**State (red)**
Normal function	Off
Locating	4 Hz blinking
Fault	Solid on
Rebuilding	1 Hz blinking

IBPI SFF 8489 Defined Status LED States

Hot Swap Drives

Intel VMD enables hot-plug and hot-unplug for NVMe SSDs, whether from Intel or other manufacturers. Under vSphere ESXi, several steps are necessary to avoid potential stability issues. See the information at link [1] below.

Hot-unplug

1. Prevent devices from being re-detected during rescan:

```
esxcli storage core claiming autoclaim --enabled=false
```

2. Unmount the VMFS volumes on the device. Check [2] for details.
3. Detach the device. Check [3] for details.
4. Physically remove the device.

Hot-plug

- Physically install the device.

ESXi will automatically discover NVMe SSDs, but a manual scan may be required in some cases.

Related Information Links

[1] https://kb.vmware.com/s/article/2151404

[2] https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.storage.doc/GUID-1B56EF97-F60E-4F21-82A7-8F2A7294604D.html

[3] https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.storage.doc/GUID-F2E75F67-740B-4406-9F0C-A2D99A698F2A.html

Chapter 7

Troubleshooting and Support

7.1 Information Resources

Website

A great deal of information is available on the Supermicro website, supermicro.com.

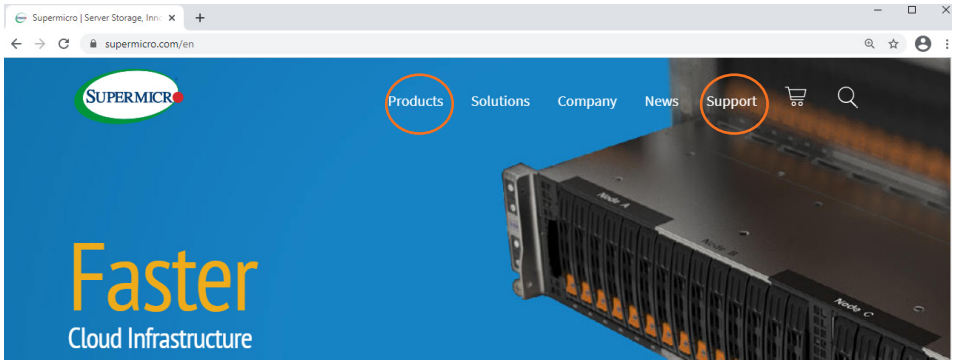


Figure 7-1. Supermicro Website

- Specifications for servers and other hardware are available by clicking the menu icon, then selecting the **Products** option.
- The **Support** option offers downloads (manuals, BIOS/BMC, drivers, etc.), FAQs, RMA, warranty, and other service extensions.

Direct Links for the SYS-820GH-TNR2 System

Web SYS-820GH-TNR2 specifications page

X12DPG-OA6-GD2 motherboard page for links to the Quick Reference Guide, User Manual, validated storage drives, etc.

Direct Links for General Support and Information

Frequently Asked Questions

Add-on card descriptions

TPM User Guide

General Memory Configuration Guide: X12

BMC User Guide

SuperDoctor5 Large Deployment Guide

Direct Links (continued)

For validated memory, use our Product Resources page

Product Matrices page for links to tables summarizing specs for systems, motherboards, power supplies, riser cards, add-on cards, etc.

Security Center for recent security notices

Supermicro Phone and Addresses

7.2 BMC Interface

The system supports a Baseboard Management Controller (BMC) interface, which provides remote access, monitoring and management. There are several BIOS settings related to the BMC.

For general documentation and information on the BMC, please visit our website at: www.supermicro.com/manuals/other/BMC_Users_Guide_X12_H12.pdf.

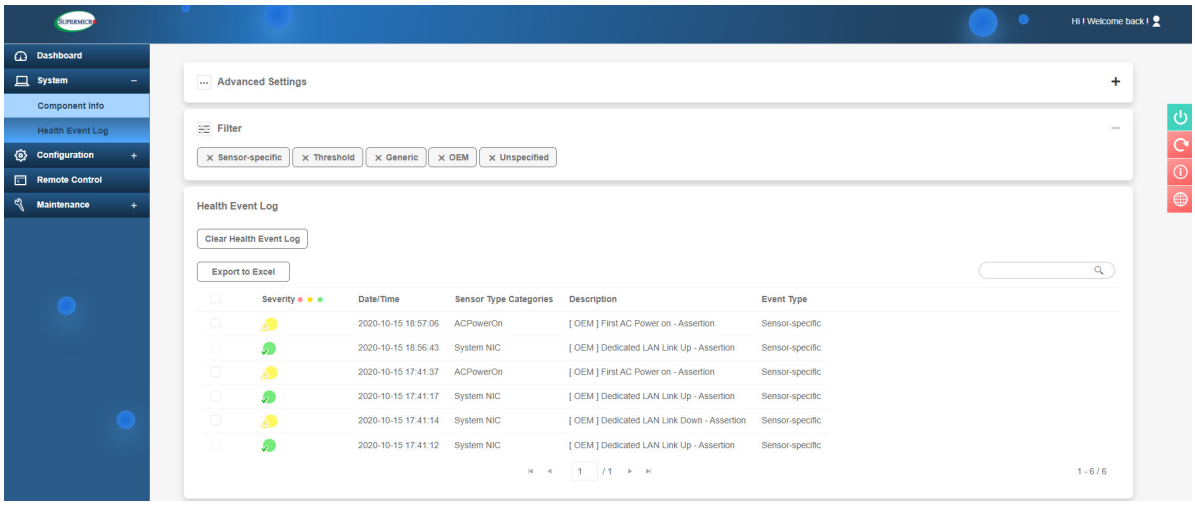


Figure 7-2. BMC Sample

7.3 Troubleshooting Procedures

Use the following procedures to troubleshoot your system. If you have followed all of the procedures below and still need assistance, refer to the Technical Support Procedures or Returning Merchandise for Service section(s) in this chapter. Power down the system before changing any non hot-swap hardware components.

General Technique

If you experience unstable operation or get no boot response, try:

1. With power off, remove all but one DIMM and other added components, such as add-on cards, from the motherboard. Make sure the motherboard is not shorted to the chassis.
2. Set all jumpers to their default positions.
3. Power up. If the system boots, check for memory errors and add-on card problems.

No Power

- Make sure that there are no short circuits between the motherboard and the chassis.
- Make sure that the power connectors are properly connected.
- Check that the 115 V/230 V switch, if available, on the power supply is properly set.
- Turn the power switch on and off to test the system, if applicable.
- The battery on your motherboard may be old. Check to verify that it still supplies approximately 3 VDC. If it does not, replace it with a new one.

No Video

- If the power is on but you have no video, remove all add-on cards and cables.
- Remove all memory modules and turn on the system (if the alarm is on, check the specs of memory modules, reset the memory, or try a different one).

System Boot Failure

If the system does not display Power-On-Self-Test (POST) or does not respond after the power is turned on, try the following:

1. Remove all components from the motherboard, especially the DIMM modules. Make sure that system power is on and that memory error beeps are activated.

2. Turn on the system with only one DIMM module installed. If the system boots, check for bad DIMM modules or slots by following the Memory Errors Troubleshooting procedure in this chapter.

Memory Errors

When a no-memory beep code is issued by the system, check the following:

- Make sure that the memory modules are compatible with the system and are properly installed. (For memory compatibility, refer to the "Tested Memory List" link on the motherboard's product page to see a list of supported memory.)
- Check if different speeds of DIMMs have been installed. It is strongly recommended that you use the same RAM type and speed for all DIMM modules in the system.
- Make sure that you are using the correct type of ECC DDR4 modules recommended by the manufacturer.
- Check for bad DIMM modules or slots by swapping a single module among all memory slots and check the results.

Losing the System Setup Configuration

- Make sure that you are using a high-quality power supply. A poor-quality power supply may cause the system to lose the CMOS setup information.
- The battery on your motherboard may be old. Check to verify that it still supplies approximately 3 VDC. If it does not, replace it with a new one.

When the System Becomes Unstable

If the system becomes unstable during or after OS installation, check the following:

- CPU/BIOS support: Make sure that your CPU is supported and that you have the latest BIOS installed in your system.
- Memory: Make sure that the memory modules are supported. Refer to the product page on our website at www.supermicro.com. Test the modules using **memtest86** or a similar utility.
- Storage drives: Make sure that all drives work properly. Replace if necessary.
- System cooling: Check that all heatsink fans and system fans work properly. Check the hardware monitoring settings in the BMC to make sure that the CPU and system temperatures are within the normal range. Also check the Control panel Overheat LED.

- Adequate power supply: Make sure that the power supply provides adequate power to the system. Make sure that all power connectors are connected. Refer to the Supermicro website for the minimum power requirements.
- Proper software support: Make sure that the correct drivers are used.

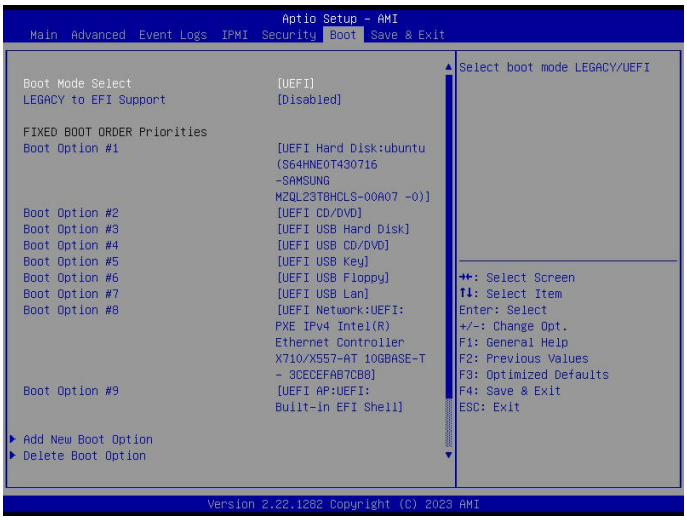
If the system becomes unstable before or during OS installation, check the following:

- Source of installation: Make sure that the devices used for installation are working properly, including boot devices.
- Cable connection: Check to make sure that all cables are connected and working properly.
- Use the minimum configuration for troubleshooting: Remove all unnecessary components (starting with add-on cards first), and use the minimum configuration (but with a CPU and a memory module installed) to identify the trouble areas.
- Identify a bad component by isolating it. If necessary, remove a component in question from the chassis, and test it in isolation to make sure that it works properly. Replace a bad component with a good one.
- Check and change one component at a time instead of changing several items at the same time. This will help isolate and identify the problem.
- To find out if a component is good, swap this component with a new one to see if the system will work properly. If so, then the old component is bad. You can also install the component in question in another system. If the new system works, the component is good and the old system has problems.

Selecting the Boot Mode

To optimize SYS-820GH-TNR2 performance, the boot mode is set to "UEFI" by default. If you need to set the boot mode to "Legacy" to suit your needs, follow these steps:

1. Press <DEL> key when prompted to enter BIOS menu.
2. Switch to **Boot > Boot Mode Select**.



3. Select and set **Legacy**.
4. Switch to **Advanced > PCIe/PCI/PnP Configuration**.
5. Check if all slots have been set to **Legacy**. If not, manually set those to Legacy.
6. Switch to **Save & Exit > Save Changes and Reset**, and then press <Enter> key to reset the system.

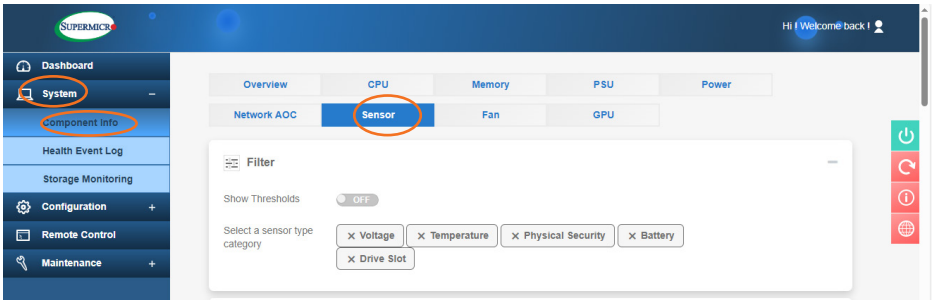
Reviewing the OAM Status

When an OAM (Open Accelerator Module) module becomes non-functional, use one of these methods to check the OAM status.

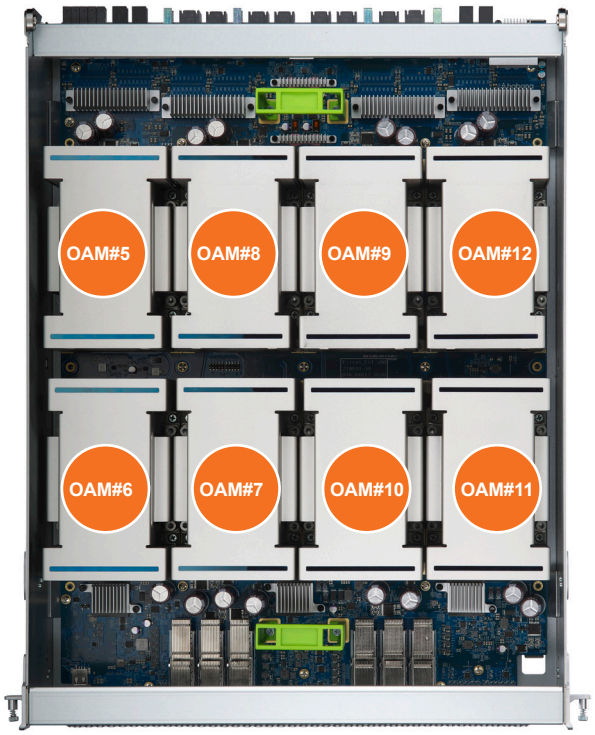
BMC IPMI

1. Open a browser, type the CPU BMC IP address, enter the login user name and password to access the BMC dashboard.

2. On the BMC dashboard, select **System > Component Info > Sensor**.

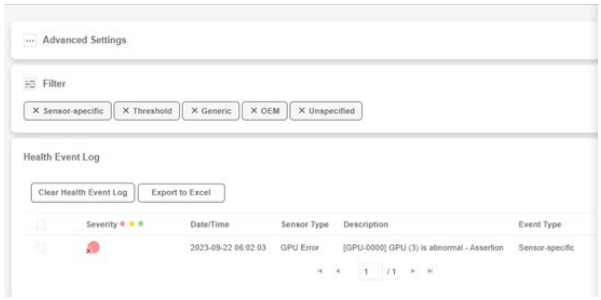


3. In the Severity column, a green icon indicates that an OAM module is functional, while a red icon indicates an OAM module is non-functional.



BMC Web UI Alert

An SEL record of OAM status, including power status, can be only generated through BMC when the OAM modules are functioning. When an OAM module becomes non-functional, users are automatically alerted of abnormality.

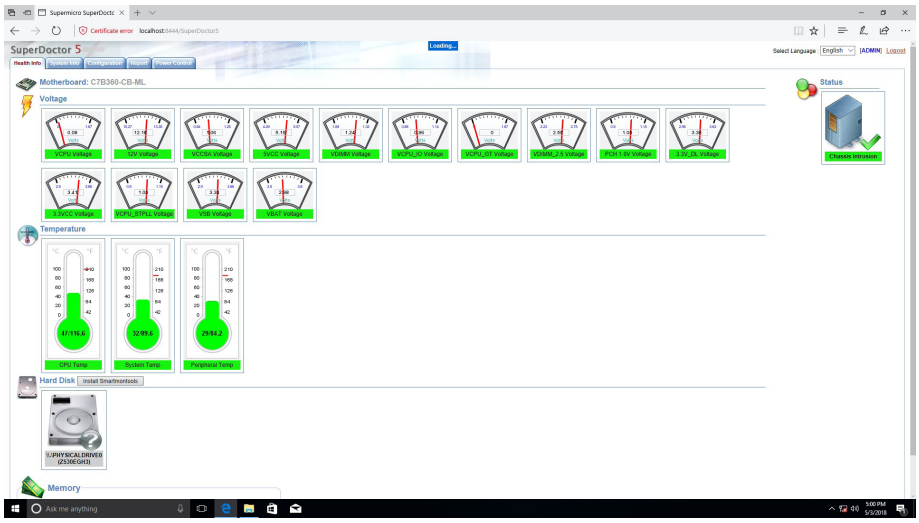


SuperDoctor® 5 (SD5)

The Supermicro SuperDoctor 5 is a program that functions in a command-line or web-based interface for Windows and Linux operating systems. The program monitors such system health information as CPU temperature, system voltages, system power consumption, fan speed, and provides alerts via email or Simple Network Management Protocol (SNMP).

SuperDoctor 5 comes in local and remote management versions and can be used with Nagios to maximize your system monitoring needs. With SuperDoctor 5 Management Server (SSM Server), you can remotely control power on/off and reset chassis intrusion for multiple systems with SuperDoctor 5 or BMC. SuperDoctor 5 Management Server monitors HTTP, FTP, and SMTP services to optimize the efficiency of your operation.

SuperDoctor® Manual and Resources



Notes: Do not try to replace any OAM modules by yourself. Please contact Supermicro for assistance.

7.4 Crash Dump Using the BMC Dashboard

In the event of a processor internal error (IERR) that crashes your system, you may want to provide information to support staff. You can download a crash dump of status information using the BMC Dashboard. The BMC manual is available at www.supermicro.com/manuals/other/BMC_Users_Guide_X12_H12.pdf.

Check Error Log

1. Access the BMC web interface.
2. Click the **Server Health** tab, then **Event Log** to verify an IERR error.

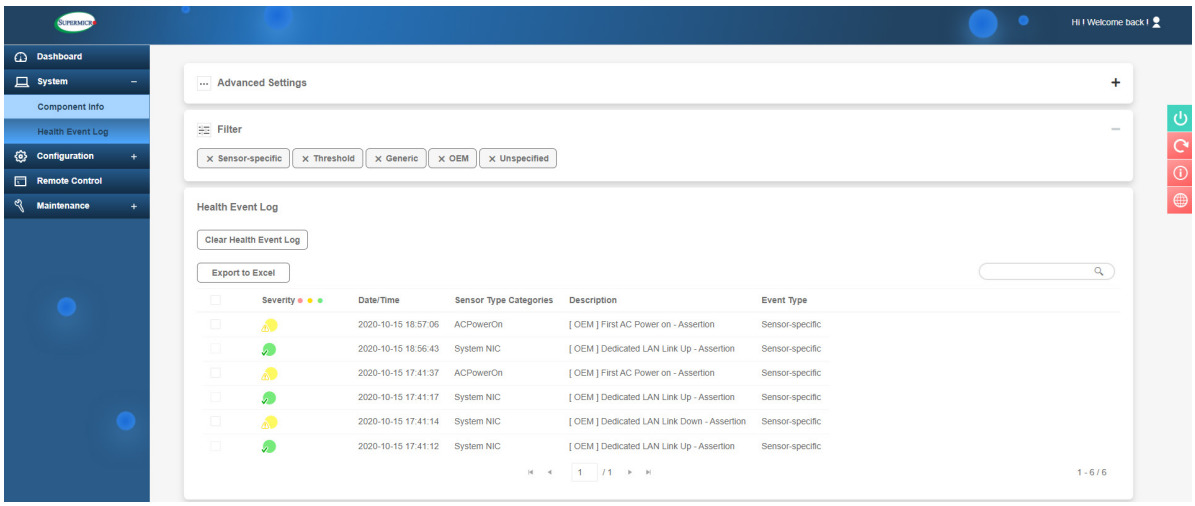


Figure 7-3. BMC Event Log

In the event of an IERR, the BMC executes a crash dump. You must download the crash dump and save it.

7.5 UEFI BIOS Recovery

Warning: Do not upgrade the BIOS unless your system has a BIOS-related issue. Flashing the wrong BIOS can cause irreparable damage to the system. In no event shall Supermicro be liable for direct, indirect, special, incidental, or consequential damages arising from a BIOS update. If you do update the BIOS, do not shut down or reset the system while the BIOS is updating to avoid possible boot failure.

Overview

The Unified Extensible Firmware Interface (UEFI) provides a software-based interface between the operating system and the platform firmware in the pre-boot environment. The UEFI specification supports an architecture-independent mechanism that will allow the UEFI OS loader stored in an add-on card to boot the system. The UEFI offers clean, hands-off management to a computer during system boot.

Recovering the UEFI BIOS Image

A UEFI BIOS flash chip consists of a recovery BIOS block and a main BIOS block (a main BIOS image). The recovery block contains critical BIOS codes, including memory detection and recovery codes for the user to flash a healthy BIOS image if the original main BIOS image is corrupted. When the system power is turned on, the recovery block codes execute first. Once this process is complete, the main BIOS code will continue with system initialization and the remaining POST (Power-On Self-Test) routines.

Note 1: Follow the BIOS recovery instructions below for BIOS recovery when the main BIOS block crashes.

Note 2: When the BIOS recovery block crashes, you will need to follow the procedures to make a Returned Merchandise Authorization (RMA) request. Also, you may use the Supermicro Update Manager (SUM) Out-of-Band (https://www.supermicro.com.tw/products/nfo/SMS_SUM.cfm) to reflash the BIOS.

Recovering the Main BIOS Block with a USB Device

This feature allows the user to recover the main BIOS image using a USB-attached device without additional utilities used. A USB flash device such as a USB Flash Drive, or a USB CD/DVD ROM/RW device can be used for this purpose. However, a USB Hard Disk drive cannot be used for BIOS recovery at this time.

The file system supported by the recovery block is FAT (including FAT12, FAT16, and FAT32) which is installed on a bootable or non-bootable USB-attached device. However, the BIOS might need several minutes to locate the SUPER.ROM file if the media size becomes too large due to the huge volumes of folders and files stored in the device.

To perform UEFI BIOS recovery using a USB-attached device, follow the instructions below.

1. Using a different machine, copy the "Super.ROM" binary image file into the Root "\" directory of a USB device or a writable CD/DVD.

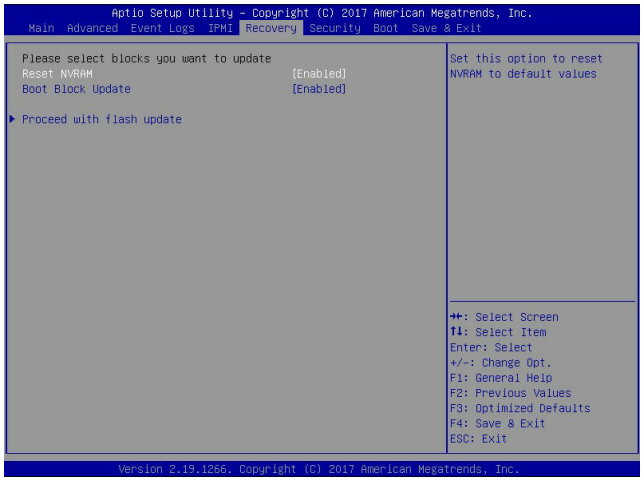
   Note 1: If you cannot locate the "Super.ROM" file in your drive disk, visit our website at www.supermicro.com to download the BIOS package. Extract the BIOS binary image into a USB flash device and rename it "Super.ROM" for the BIOS recovery use.

   Note 2: Before recovering the main BIOS image, confirm that the "Super.ROM" binary image file you download is the same version or a close version meant for your motherboard.

2. Insert the USB device that contains the new BIOS image ("Super.ROM") into your USB drive and reset the system when the following screen appears.

3. After locating the healthy BIOS binary image, the system will enter the BIOS Recovery menu as shown below.

Note: At this point, you may decide if you want to start the BIOS recovery. If you decide to proceed with BIOS recovery, follow the procedures below.

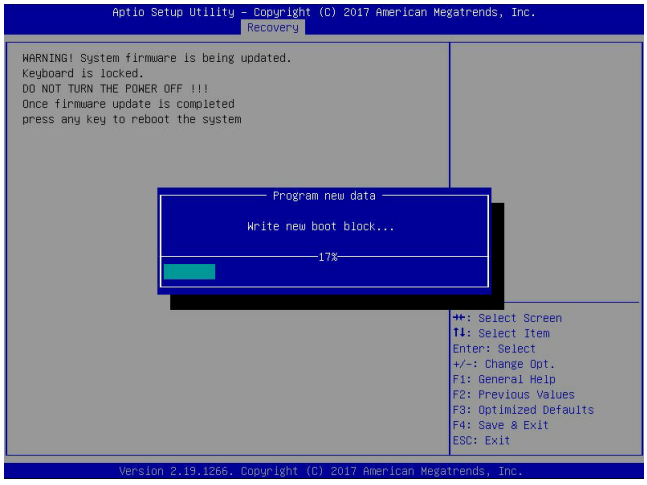


4. When the screen as shown above displays, use the arrow keys to select the item "Proceed with flash update" and press the <Enter> key. You will see the BIOS recovery progress as shown in the screen below.

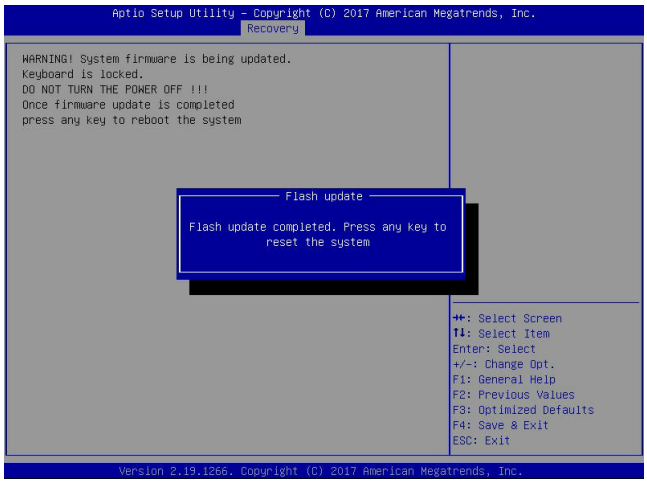
   Note: *Do not interrupt the BIOS flashing process until it has completed*.

5. After the BIOS recovery process is complete, press any key to reboot the system.

6. Using a different system, extract the BIOS package into a USB flash drive.

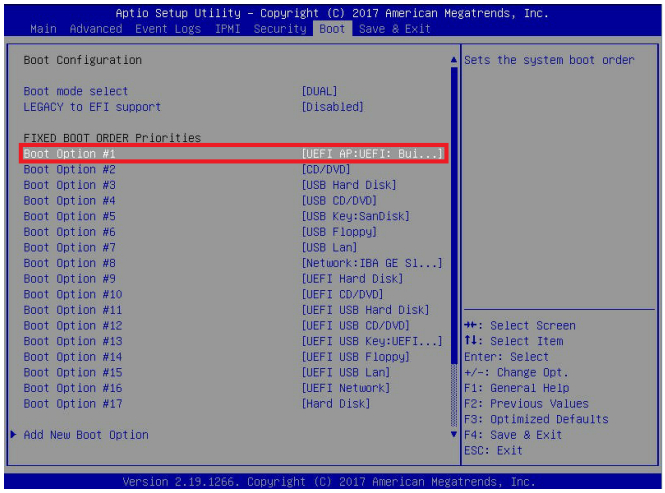


7. Press <Del> continuously during system boot to enter the BIOS Setup utility. From the top of the tool bar, select Boot to enter the submenu. From the submenu list, select Boot Option

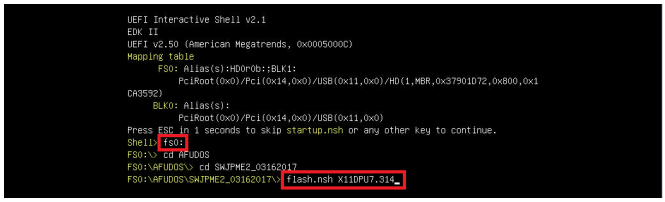


#1 as shown below. Then, set Boot Option #1 to [UEFI AP:UEFI: Built-in EFI Shell]. Press <F4> to save the settings and exit the BIOS Setup utility.

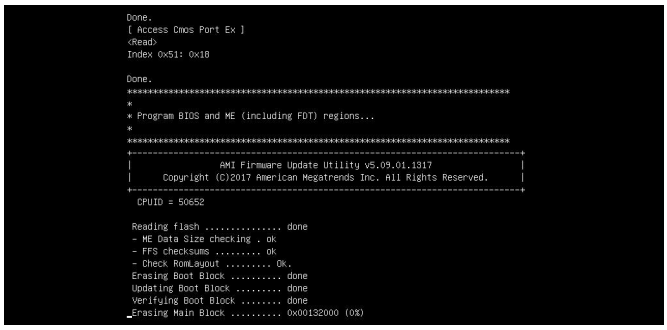
8. When the UEFI Shell prompt appears, type fs# to change the device directory path. Go to the directory that contains the BIOS package you extracted earlier from Step 6. Enter flash.nsh BIOSname.### at the prompt to start the BIOS update process.



Note: *Do not interrupt this process* until the BIOS flashing is complete.

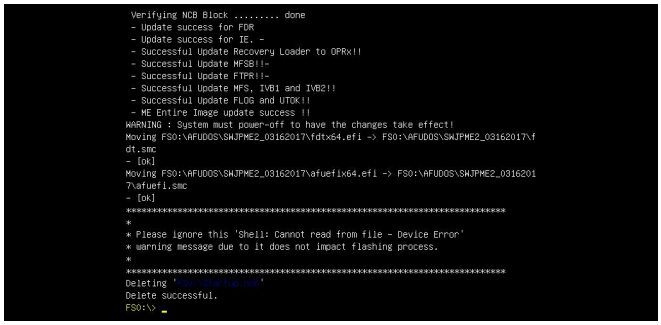


9. The screen above indicates that the BIOS update process is complete. When you see the screen above, unplug the AC power cable from the power supply, clear CMOS, and plug



the AC power cable in the power supply again to power on the system.

10. Press <Del> continuously to enter the BIOS Setup utility.



11. Press <F3> to load the default settings.

12. After loading the default settings, press <F4> to save the settings and exit the BIOS Setup utility.

7.6 CMOS Clear

JBT1 is used to clear CMOS, which will also clear any passwords. Instead of pins, this jumper consists of contact pads to prevent accidentally clearing the contents of CMOS.

To Clear CMOS

1. First power down the system completely.
2. Pulling the CPU tray out of the chassis to access the motherboard.
3. Remove the onboard battery from the motherboard.
4. Short the CMOS pads with a metal object such as a small screwdriver for at least four seconds.
5. Remove the screwdriver or shorting device.
6. Replace the cover, reconnect the power cords and power on the system.

Notes: Clearing CMOS will also clear all passwords.

Do not use the PW_ON connector to clear CMOS.

JBT1 contact pads

7.7 Where to Get Replacement Components

If you need replacement parts for your system, to ensure the highest level of professional service and technical support, purchase exclusively from our Supermicro Authorized Distributors/System Integrators/Resellers. A list can be found at: http://www.supermicro.com. Click the "Where to Buy" tab.

7.8 Reporting an Issue

Technical Support Procedures

Before contacting Technical Support, please take the following steps. If your system was purchased through a distributor or reseller, please contact them for troubleshooting services. They have the best knowledge of your specific system configuration.

1. Please review the Troubleshooting Procedures in this manual and Frequently Asked Questions on our website before contacting Technical Support.
2. BIOS upgrades can be downloaded from our website. **Note**: Not all BIOS can be flashed depending on the modifications to the boot block code.
3. If you still cannot resolve the problem, include the following information when contacting us for technical support:
   - System, motherboard, and chassis model numbers and PCB revision number
   - BIOS release date/version (this can be seen on the initial display when your system first boots up)
   - System configuration

An example of a Technical Support form is posted on our website. Distributors: For immediate assistance, please have your account number ready when contacting our technical support department by email.

Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

For faster service, RMA authorizations may be requested online (http://www.supermicro.com/support/rma/).

Whenever possible, repack the chassis in the original Supermicro carton, using the original packaging material. If these are no longer available, be sure to pack the chassis securely, using packaging material to surround the chassis so that it does not shift within the carton and become damaged during shipping.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Vendor Support Filing System

For issues related to Intel, use the Intel IPS filing system:

https://www.intel.com/content/www/us/en/design/support/ips/training/welcome.html

For issues related to Red Hat Enterprise Linux, since it is a subscription based OS, contact your account representative.

7.9 Feedback

Supermicro values your feedback as we strive to improve our customer experience in all facets of our business. To provide feedback on our manuals, please email us at techwriterteam@supermicro.com.

7.10 Contacting Supermicro

Headquarters

Address:	Super Micro Computer, Inc. 980 Rock Ave. San Jose, CA 95131 U.S.A.
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Appendix A

Standardized Warning Statements for AC Systems

About Standardized Warning Statements

The following statements are industry standard warnings, provided to warn the user of situations which have the potential for bodily injury. Should you have questions or experience difficulty, contact Supermicro's Technical Support department for assistance. Only certified technicians should attempt to install or configure components.

Read this appendix in its entirety before installing or configuring components in the Supermicro chassis.

These warnings may also be found on our website at http://www.supermicro.com/about/policies/safety_information.cfm.

Warning Definition

Warning! This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.

警告の定義

この警告サインは危険を意味します。

人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、

電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

此警告符号代表危险。

您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾的声明号码找到此设备的安全性警告说明的翻译文本。

此警告符號代表危險。

您正處於可能身體可能會受損傷的工作環境中。在您使用任何設備之前，請注意觸電的危險，並且要熟悉預防事故發生的標準工作程序。請依照每一注意事項後的號碼找到相關的翻譯說明內容。

Warnung

WICHTIGE SICHERHEITSHINWEISE

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS.

תקנון הצהרות אזהרה

הצהרות הבאות הן אזהרות על פי תקני התעשייה, על מנת להזהיר את המשתמש מפני חבלה פיזית אפשרית. במידה ויש שאלות או היתקלות בבעיה כלשהי, יש ליצור קשר עם מחלקת תמיכה טכנית של סופרמיקרו. טכנאים מוסמכים בלבד רשאים להתקין או להגדיר את הרכיבים.

יש לקרוא את הנספח במלואו לפני התקנת או הגדרת הרכיבים במארזי סופרמיקרו.

ا كً ف حالة وٌكي أى تتسبب ف اصابة جسد ةٌ هذا الزهز عٌ خطز !تحذ زٌ .
قبل أى تعول على أي هعذات،كي على علن بالوخاطز ال ٱجوة عي الذوائز
الكهزبائ ةٍ
وكي على درا ةٌ بالووارسات البقائ ةٍ لو عٌ وقع أي حادث
استخذم رقن الب إٍى الو صٌص ف هًا ةٌ كل تحذ زٌ للعشر تزجوتها

안전을 위한 주의사항

경고!

이 경고 기호는 위험이 있음을 알려 줍니다. 작업자의 신체에 부상을 야기 할 수 있는 상태에 있게 됩니다. 모든 장비에 대한 작업을 수행하기 전에 전기회로와 관련된 위험요소들을 확인하시고 사전에 사고를 방지할 수 있도록 표준 작업절차를 준수해 주시기 바랍니다.

해당 번역문을 찾기 위해 각 경고의 마지막 부분에 제공된 경고문 번호를 참조하십시오

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwings symbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij een elektrische installatie betrokken risico's en dient u op de hoogte te zijn van de standaard procedures om ongelukken te voorkomen. Gebruik de nummers aan het eind van elke waarschuwing om deze te herleiden naar de desbetreffende locatie.

BEWAAR DEZE INSTRUCTIES

Installation Instructions

Warning! Read the installation instructions before connecting the system to the power source.

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告

将此系统连接电源前,请先阅读安装说明。

警告

將系統與電源連接前，請先閱讀安裝說明。

Warnung

Vor dem Anschließen des Systems an die Stromquelle die Installationsanweisungen lesen.

¡Advertencia!

Lea las instrucciones de instalación antes de conectar el sistema a la red de alimentación.

Attention

Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

Raadpleeg de installatie-instructies voordat u het systeem op de voedingsbron aansluit.

Circuit Breaker

Warning! This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 250 V, 20 A.

サーキット・ブレーカー

この製品は、短絡（過電流）保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

警告

此产品的短路(过载电流)保护由建筑物的供电系统提供,确保短路保护设备的额定电流不大于250V,20A。

警告

此產品的短路(過載電流)保護由建築物的供電系統提供,確保短路保護設備的額定電流不大於250V,20A。

Warnung

Dieses Produkt ist darauf angewiesen, dass im Gebäude ein Kurzschluss- bzw. Überstromschutz installiert ist. Stellen Sie sicher, dass der Nennwert der Schutzvorrichtung nicht mehr als: 250 V, 20 A beträgt.

¡Advertencia!

Este equipo utiliza el sistema de protección contra cortocircuitos (o sobrecorrientes) del edificio. Asegúrese de que el dispositivo de protección no sea superior a: 250 V, 20 A.

Attention

Pour ce qui est de la protection contre les courts-circuits (surtension), ce produit dépend de l'installation électrique du local. Vérifiez que le courant nominal du dispositif de protection n'est pas supérieur à :250 V, 20 A.

מוצר זה מסתמך על הגנה המותקנת במבנים למניעת קצר חשמלי. יש לוודא כי
המכשיר המגן מפני הקצר החשמלי הוא לא יותר מ-250VDC, 20A

هذا المنتج يعتمد على معداث الحمايت مه الدوائرالقصيرة التي تم تثبيتها في
المبنى
تأكد من أن تقييم الجهاز الوقائي ليس أكثر من : 20A, 250V

경고!

이 제품은 전원의 단락(과전류)방지에 대해서 전적으로 건물의 관련 설비에 의존합니다.
보호장치의 정격이 반드시 250V(볼트), 20A(암페어)를 초과하지 않도록 해야 합니다.

Waarschuwing

Dit product is afhankelijk van de kortsluitbeveiliging (overspanning) van uw electrische installatie. Controleer of het beveiligde aparaat niet groter gedimensioneerd is dan 250V, 20A.

Power Disconnection Warning

Warning! The system must be disconnected from all sources of power and the power cord removed from the power supply module(s) before accessing the chassis interior to install or remove system components (except for hot-swap components).

電源切断の警告

システムコンポーネントの取り付けまたは取り外しのために、シャーシー内部にアクセスするには、

システムの電源はすべてのソースから切断され、電源コードは電源モジュールから取り外す必要があります。

警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

Das System muss von allen Quellen der Energie und vom Netzanschlusskabel getrennt sein, das von den Spg.Versorgungsteilmodulen entfernt wird, bevor es auf den Chassisinnenraum zurückgreift, um Systemsbestandteile anzubringen oder zu entfernen.

¡Advertencia!

El sistema debe ser disconnected de todas las fuentes de energía y del cable eléctrico quitado de los módulos de fuente de alimentación antes de tener acceso el interior del chasis para instalar o para quitar componentes de sistema.

Attention

Le système doit être débranché de toutes les sources de puissance ainsi que de son cordon d'alimentation secteur avant d'accéder à l'intérieur du chassis pour installer ou enlever des composants de systéme.

אזהרה מפני ניתוק חשמלי

!אזהרה

יש לנתק את המערכת מכל מקורות החשמל ויש להסיר את כבל החשמלי מהספק
.לפני גישה לחלק הפנימי של המארז לצורך התקנת או הסרת רכיבים

يجب فصم اننظاو من جميع مصادر انطاقت وإزانت سهك انكهرباء من وحدة امداد
انطاقت قبم
انصل إنى انمناطق انداخهيت نههيكم نتثبيج أو إزانت مكناث الجهاز

경고!

시스템에 부품들을 장착하거나 제거하기 위해서는 섀시 내부에 접근하기 전에 반드시 전원 공급장치로부터 연결되어있는 모든 전원과 전기코드를 분리해주어야 합니다.

Waarschuwing

Voordat u toegang neemt tot het binnenwerk van de behuizing voor het installeren of verwijderen van systeem onderdelen, dient u alle spanningsbronnen en alle stroomkabels aangesloten op de voeding(en) van de behuizing te verwijderen

Equipment Installation

Warning! Only authorized personnel and qualified service persons should be allowed to install, replace, or service this equipment.

機器の設置

トレーニングを受け認定された人だけがこの装置の設置、交換、またはサービスを許可されています。

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

Nur autorisiertes Personal und qualifizierte Servicetechniker dürfen dieses Gerät installieren, austauschen oder warten..

¡Advertencia!

Sólo el personal autorizado y el personal de servicio calificado deben poder instalar, reemplazar o dar servicio a este equipo.

Attention

Seul le personnel autorisé et le personnel de maintenance qualifié doivent être autorisés à installer, remplacer ou entretenir cet équipement..

אזהרה!

יש לאפשר רק צוות מורשה ואנשי שירות מוסמכים להתקין, להחליף או לטפל בציוד זה.

ينبغي السماح فقط للموظفين المعتمدين وأفراد الخدمة المؤهلين بتركيب هذا الجهاز أو استبداله أو صيانته.

경고!

승인된 직원과 자격을 갖춘 서비스 담당자만이 이 장비를 설치, 교체 또는 서비스할 수 있습니다.

Waarschuwing

Alleen geautoriseerd personeel en gekwalificeerd onderhoudspersoneel mag deze apparatuur installeren, vervangen of onderhouden..

Restricted Area

Warning! This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. (This warning does not apply to workstations).

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

アクセス制限区域は、特別なツール、鍵と錠前、その他のセキュリティの手段を用いてのみ出入りが可能です。

警告

此部件应安装在限制进出的场所，限制进出的场所指只能通过使用特殊工具、锁和钥匙或其它安全手段进出的场所。

警告

此裝置僅限安裝於進出管制區域，進出管制區域係指僅能以特殊工具、鎖頭及鑰匙或其他安全方式才能進入的區域。

Warnung

Diese Einheit ist zur Installation in Bereichen mit beschränktem Zutritt vorgesehen. Der Zutritt zu derartigen Bereichen ist nur mit einem Spezialwerkzeug, Schloss und Schlüssel oder einer sonstigen Sicherheitsvorkehrung möglich.

¡Advertencia!

Esta unidad ha sido diseñada para instalación en áreas de acceso restringido. Sólo puede obtenerse acceso a una de estas áreas mediante la utilización de una herramienta especial, cerradura con llave u otro medio de seguridad.

Attention

Cet appareil doit être installée dans des zones d'accès réservés. L'accès à une zone d'accès réservé n'est possible qu'en utilisant un outil spécial, un mécanisme de verrouillage et une clé, ou tout autre moyen de sécurité.

אזור עם גישה מוגבלת

אזהרה!

יש להתקין את היחידה באזורים שיש בהם הגבלת גישה. הגישה ניתנת בעזרת
'מפתח, מנעול וכד(כלי אבטחה בלבד.)

تخصيص هذه انحذة نترك بُها ف مناطق محظورة تم .
،مَكن انصبل إن منطقت محظورة فقط من خلال استخذاو أداة خاصت
أو أ وس هُت أخري نلالأمما قفم ومفتاح

경고!

이 장치는 접근이 제한된 구역에 설치하도록 되어있습니다. 특수도구, 잠금 장치 및 키, 또는 기타 보안 수단을 통해서만 접근 제한 구역에 들어갈 수 있습니다.

Waarschuwing

Dit apparaat is bedoeld voor installatie in gebieden met een beperkte toegang. Toegang tot dergelijke gebieden kunnen alleen verkregen worden door gebruik te maken van speciaal gereedschap, slot en sleutel of andere veiligheidsmaatregelen.

Battery Handling

Warning! There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions

電池の取り扱い

電池交換が正しく行われなかった場合、破裂の危険性があります。交換する電池はメーカーが推奨する型、または同等のものを使用下さい。使用済電池は製造元の指示に従って処分して下さい。

警告

电池更换不当会有爆炸危险。请只使用同类电池或制造商推荐的功能相当的电池更换原有电池。请按制造商的说明处理废旧电池。

警告

電池更換不當會有爆炸危險。請使用製造商建議之相同或功能相當的電池更換原有電池。請按照製造商的說明指示處理廢棄舊電池。

Warnung

Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr. Ersetzen Sie die Batterie nur durch den gleichen oder vom Hersteller empfohlenen Batterietyp. Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.

Attention

Danger d'explosion si la pile n'est pas remplacée correctement. Ne la remplacer que par une pile de type semblable ou équivalent, recommandée par le fabricant. Jeter les piles usagées conformément aux instructions du fabricant.

¡Advertencia!

Existe peligro de explosión si la batería se reemplaza de manera incorrecta. Reemplazar la batería exclusivamente con el mismo tipo o el equivalente recomendado por el fabricante. Desechar las baterías gastadas según las instrucciones del fabricante.

!אזהרה

קיימת סכנת פיצוץ של הסוללה במידה והוחלפה בדרך לא תקינה. יש להחליף
את הסוללה בסוג התואם מחברת יצרן מומלצת.
סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

هناك خطر من انفجار في حالة اسحبذال البطارية بطريقة غير صحيحة فعليل
اسحبذال البطارية
فقط بنفس النبع أو ما يعادلها مما أوصث به الشرمة المصنعة
جخلص من البطاريات المسحعملة وفقا لحعليمات الشرمة الصانعة

경고!

배터리가 올바르게 교체되지 않으면 폭발의 위험이 있습니다. 기존 배터리와 동일하거나 제조사에서 권장하는 동등한 종류의 배터리로만 교체해야 합니다. 제조사의 안내에 따라 사용된 배터리를 처리하여 주십시오.

Waarschuwing

Er is ontploffingsgevaar indien de batterij verkeerd vervangen wordt. Vervang de batterij slechts met hetzelfde of een equivalent type die door de fabrikant aanbevolen wordt. Gebruikte batterijen dienen overeenkomstig fabrieksvoorschriften afgevoerd te worden.

Redundant Power Supplies

Warning! This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.

冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。

ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

警告
此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告
此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

Warnung

Dieses Gerät kann mehr als eine Stromzufuhr haben. Um sicherzustellen, dass der Einheit kein trom zugeführt wird, müssen alle Verbindungen entfernt werden.

¡Advertencia!

Puede que esta unidad tenga más de una conexión para fuentes de alimentación. Para cortar por completo el suministro de energía, deben desconectarse todas las conexiones.

Attention

Cette unité peut avoir plus d'une connexion d'alimentation. Pour supprimer toute tension et tout courant électrique de l'unité, toutes les connexions d'alimentation doivent être débranchées.

אם קיים יותר מספק אחד

אזהרה!

ליחדה יש יותר מחיבור אחד של ספק. יש להסיר את כל החיבורים על מנת לרוקן את היחידה.

قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة .

يجب إزالة كافة الاتصالات لعسل الوحدة عن الكهرباء

경고!

이 장치에는 한 개 이상의 전원 공급 단자가 연결되어 있을 수 있습니다. 이 장치에 전원을 차단하기 위해서는 모든 연결 단자를 제거해야만 합니다.

Waarschuwing

Deze eenheid kan meer dan één stroomtoevoeraansluiting bevatten. Alle aansluitingen dienen verwijderd te worden om het apparaat stroomloos te maken.

Backplane Voltage

Warning! Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.

バックプレーンの電圧

システムの稼働中は危険な電圧または電力が、バックプレーン上にかかっています。

修理する際には注意ください。

警告

当系统正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告

當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

Wenn das System in Betrieb ist, treten auf der Rückwandplatine gefährliche Spannungen oder Energien auf. Vorsicht bei der Wartung.

¡Advertencia!

Cuando el sistema está en funcionamiento, el voltaje del plano trasero es peligroso. Tenga cuidado cuando lo revise.

Attention

Lorsque le système est en fonctionnement, des tensions électriques circulent sur le fond de panier. Prendre des précautions lors de la maintenance.

מתח בפנל האחורי

אזהרה!

קיימת סכנת מתח בפנל האחורי בזמן תפעול המערכת. יש להיזהר במהלך העבודה.

هناك خطر مه التيار الكهزبائي أوالطاقة المجبدة على اللحة
عندما يكن النظام يعمل كه حذرا عند خدمة هذا الجهاس

경고!
시스템이 동작 중일 때 후면판 (Backplane)에는 위험한 전압이나 에너지가 발생 합니다. 서비스 작업 시 주의하십시오.

Waarschuwing
Een gevaarlijke spanning of energie is aanwezig op de backplane wanneer het systeem in gebruik is. Voorzichtigheid is geboden tijdens het onderhoud.

Comply with Local and National Electrical Codes

Warning! Installation of the equipment must comply with local and national electrical codes.

地方および国の電気規格に準拠
機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告
设备安装必须符合本地与本国电气法规。

警告
設備安裝必須符合本地與本國電氣法規。

Warnung
Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!
La instalacion del equipo debe cumplir con las normas de electricidad locales y nacionales.

Attention
L'équipement doit être installé conformément aux normes électriques nationales et locales.

תיאום חוקי החשמל הארצי
אזהרה!
התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمتثل للقاويه المحلية والبطية المتعلقة
بالكهرباء

경고!
현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing
Bij installatie van de apparatuur moet worden voldaan aan de lokale en nationale elektriciteitsvoorschriften.

Product Disposal

Warning! Ultimate disposal of this product should be handled according to all national laws and regulations.

製品の廃棄
この製品を廃棄処分する場合、国の関係する全ての法律・条例に従い処理する必要があります。

警告
本产品的废弃处理应根据所有国家的法律和规章进行。

警告
本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung
Die Entsorgung dieses Produkts sollte gemäß allen Bestimmungen und Gesetzen des Landes erfolgen.

¡Advertencia!
Al deshacerse por completo de este producto debe seguir todas las leyes y reglamentos nacionales.

Attention

La mise au rebut ou le recyclage de ce produit sont généralement soumis à des lois et/ou directives de respect de l'environnement. Renseignez-vous auprès de l'organisme compétent.

סילוק המוצר

אזהרה!

סילוק סופי של מוצר זה חייב להיות בהתאם להנחיות וחוקי המדינה.

التخلص النهائي من هذا المنتج ينبغي التعامل معه وفقا لجميع القانين واللائح البطنية عند

경고!

이 제품은 해당 국가의 관련 법규 및 규정에 따라 폐기되어야 합니다.

Waarschuwing

De uiteindelijke verwijdering van dit product dient te geschieden in overeenstemming met alle nationale wetten en reglementen.

Fan Warning

Warning! Hazardous moving parts. Keep away from moving fan blades. The fans might still be turning when you remove the fan assembly from the chassis. Keep fingers, screwdrivers, and other objects away from the openings in the fan assembly's housing.

ファンの警告

警告!回転部品に注意。運転中は回転部(羽根)に触れないでください。シャーシから冷却ファン装置を取り外した際、ファンがまだ回転している可能性があります。ファンの開口部に、指、ドライバー、およびその他のものを近づけないで下さい。

警告!

警告！危险的可移动性零件。请务必与转动的风扇叶片保持距离。 当您从机架移除风扇装置，风扇可能仍在转动。小心不要将手指、螺丝起子和其他物品太靠近风扇

警告

危險的可移動性零件。請務必與轉動的風扇葉片保持距離。 當您從機架移除風扇裝置，風扇可能仍在轉動。小心不要將手指、螺絲起子和其他物品太靠近風扇。

Warnung

Gefährlich Bewegende Teile. Von den bewegenden Lüfterblätter fern halten. Die Lüfter drehen sich u. U. noch, wenn die Lüfterbaugruppe aus dem Chassis genommen wird. Halten Sie Finger, Schraubendreher und andere Gegenstände von den Öffnungen des Lüftergehäuses entfernt.

¡Advertencia!

Riesgo de piezas móviles. Mantener alejado de las aspas del ventilador. Los ventiladores podran dar vuelta cuando usted quite ell montaje del ventilador del chasis. Mandtenga los dedos, los destornilladores y todos los objetos lejos de las aberturas del ventilador

Attention

Pieces mobiles dangereuses. Se tenir a l'ecart des lames du ventilateur Il est possible que les ventilateurs soient toujours en rotation lorsque vous retirerez le bloc ventilateur du châssis. Prenez garde à ce que doigts, tournevis et autres objets soient éloignés du logement du bloc ventilateur.

אזהרה!

חלקים נעים מסוכנים. התרחק מלהבי המאוורר בפעולהכאשר מסירים את חלקי
המאוורר מהמארז, יתכן והמאוררים עדיין עובדים. יש להרחיק למרחק בטוח את
האצבעות וכלי עבודה שונים מהפתחים בתוך המאוורר

تحذير! أجزاء متحركة خطرة. ابتعد عن شفرات المروحة المتحركة.من الممكن أن
المراوح لا تزال تدورعند إزالة كتلة المروحة من الهيكل يجب إبقاء الأصابع
.ومفكات البراغي وغيرها من الأشياء بعيدا عن الفتحات في كتلة المروحة

경고!

움직이는 위험한 부품. 회전하는 송풍 날개에 접근하지 마세요. 섀시로부터 팬 조립품을 제거할 때 팬은 여전히 회전하고 있을 수 있습니다. 팬 조림품 외관의 열려있는 부분들로부터 손가락 및 스크류드라이버, 다른 물체들이 가까이 하지 않도록 배치해 주십시오.

Waarschuwing

Gevaarlijk bewegende onderdelen. Houd voldoende afstand tot de bewegende ventilatorbladen. Het is mogelijk dat de ventilator nog draait tijdens het verwijderen van het ventilatorsamenstel uit het chassis. Houd uw vingers, schroevendraaiers en eventuele andere voorwerpen uit de buurt van de openingen in de ventilatorbehuizing.

Power Cable and AC Adapter

Warning! When installing the product, use the provided or designated connection cables, power cables and AC adaptors. Using any other cables and adaptors could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL or CSA -certified cables (that have UL/CSA shown on the cord) for any other electrical devices than products designated by Supermicro only.

電源コードとACアダプター

製品を設置する場合、提供または指定および購入された接続ケーブル、電源コードとACアダプターを 該当する地域の条例や安全基準に適合するコードサイズやプラグと共に使用下さい。他のケーブルやアダプタを使用すると故障や火災の原因になることがあります。

電気用品安全法は、ULまたはCSA認定のケーブル(UL/CSAマークがコードに表記)を Supermicroが指定する製品以外に使用することを禁止しています。

警告

安装此产品时,请使用本身提供的或指定的或采购的连接线,电源线和电源适配器，包含遵照当地法规和安全要求的合规的电源线尺寸和插头.使用其它线材或适配器可能会引起故障或火灾。除了Supermicro所指定的产品,电气用品和材料安全法律规定禁止
使用未经UL或CSA认证的线材。(线材上会显示UL/CSA符号)。

警告

安裝此產品時,請使用本身提供的或指定的或採購的連接線,電源線和電源適配器，包含遵照當地法規和安全要求的合規的電源線尺寸和插頭.使用其它線材或適配器可能會引起故障或火災。除了Supermicro所指定的產品,電氣用品和材料安全法律規定禁止
使用未經UL或CSA認證的線材。 (線材上會顯示UL/CSA符號)。

Warnung

Nutzen Sie beim Installieren des Produkts ausschließlich die von uns zur Verfügung gestellten Verbindungskabeln, Stromkabeln und/oder Adapater, die Ihre örtlichen Sicherheitsstandards einhalten. Der Gebrauch von anderen Kabeln und Adapter können Fehlfunktionen oder Feuer verursachen. Die Richtlinien untersagen das Nutzen von UL oder CAS zertifizierten Kabeln (mit UL/CSA gekennzeichnet), an Geräten oder Produkten die nicht mit Supermicro gekennzeichnet sind.

¡Advertencia!

Cuando instale el producto, utilice la conexión provista o designada o procure cables, Cables de alimentación y adaptadores de CA que cumplan con los códigos locales y los requisitos de seguridad, incluyendo el tamaño adecuado del cable y el enchufe. El uso de otros cables y adaptadores podría causar un mal funcionamiento o un incendio. La Ley de Seguridad de Aparatos Eléctricos y de Materiales prohíbe El uso de cables certificados por UL o CSA (que tienen el certificado UL / CSA en el código) para cualquier otros dispositivos eléctricos que los productos designados únicamente por Supermicro.

Attention

Lors de l'installation du produit, utilisez les cables de connection fournis ou désigné ou achetez des cables, cables de puissance et adaptateurs respectant les normes locales et les conditions de securite y compris les tailles de cables et les prises electriques appropries. L'utilisation d'autres cables et adaptateurs peut provoquer un dysfonctionnement ou un incendie. Appareils électroménagers et la Loi sur la Sécurité Matériel interdit l'utilisation de câbles certifies- UL ou CSA (qui ont UL ou CSA indiqué sur le code) pour tous les autres appareils électriques sauf les produits désignés par Supermicro seulement.

AC ימאתמו סיילמשח סילבכ

!הרהזא

ךרוצל ומאתוה וא ושכרנ רשא AC סימאתמו סיקפס ,סילבכב שמתשהל שי ,רצומה תא סיניקתמ רשאכ לכב שומיש . עקתהו לבכה לש הנוכנ הדימ ללוכ ,תוימוקמה תוחיטבה תושירדל ומאתוה רשאו ,הנקתהה למשחה יריש כמב שומישה יקוחל סאתהב .ילמשח רצק וא הלקתל סורגל לולע ,רחא גוסמ סאתמ וא לבכ לש דוק סהילע עיפומ רשאכ) CSA-ב וא UL -ב סיכמסומה סילבכב שמתשהל רוסיא סייק ,תוחיטבה יקוחו .דבלב Supermicro י"ע סאתוה רשא רצומב קר אלא ,רחא ילמשח רצומ לכ רובע UL/CSA)

تحذير!

عند تركيب المنتج، قم باستخدام التوصيلات المتوفرة أو المحددة أو قم بشراء الكابلات الكهربائية ومحولات التيار المتردد مع الالتزام بقوانين ومتطلبات السلامة المحلية بما في ذلك حجم الموصل والقابس السليم. استخدام أي كابلات ومحولات أخرى قد يتسبب في عطل أو حريق. يحظر قانون السلامة للأجهزة الكهربائية والمعدات استخدام الكابلات المعتمدة من قبل UL أو CSA لأي منتجات المعينة والمحددة من قبل Supermicro. والتي تحمل علامة (UL/CSA) مع أي معدات أخرى غير

전원 케이블 및 AC 어댑터

경고! 제품을 설치할 때 현지 코드 및 적절한 굵기의 코드와 플러그를 포함한 안전 요구 사항을 준수하여 제공되거나 지정된 연결 혹은 구매 케이블, 전원 케이블 및 AC 어댑터를 사용하십시오.

다른 케이블이나 어댑터를 사용하면 오작동이나 화재가 발생할 수 있습니다. 전기 용품 안전법은 UL 또는 CSA 인증 케이블 (코드에 UL / CSA가 표시된 케이블)을 Supermicro 가 지정한 제품 이외의 전기 장치에 사용하는 것을 금지합니다.

Stroomkabel en AC-Adapter

Waarschuwing! Bij het aansluiten van het Product uitsluitend gebruik maken van de geleverde Kabels of een andere geschikte aan te schaffen Aansluitmethode, deze moet altijd voldoen aan de lokale voorschriften en veiligheidsnormen, inclusief de juiste kabeldikte en stekker. Het gebruik van niet geschikte Kabels en/of Adapters kan een storing of brand veroorzaken. Wetgeving voor Elektrische apparatuur en Materiaalveiligheid verbied het gebruik van UL of CSA -gecertificeerde Kabels (met UL/CSA in de code) voor elke andere toepassing dan de door Supermicro hiervoor beoogde Producten.

Appendix B

System Specifications

Processors

Dual 3rd Gen Intel® Xeon® Scalable processors, Socket P+ (LGA-4189), up to 270 W TDP
Note: Refer to the motherboard specifications pages on our website for updates to supported processors.

Chipset

Intel® C620A

BIOS

AMI 32 Mb SPI Flash ROM

Memory

Supports up to 8 TB of 3DS LRDIMM/LRDIMM/3DS RDIMM/RDIMM DDR4 (288-pin) ECC memory with speeds of 3200/2933/2666 MT/s in 32 memory slots or up to 8 TB of Intel Optane PMem 200 Series with speeds of up to 3200 MT/s

Drive Bays

Twenty-four internal 2.5" hot-swap NVMe/SATA/SAS drive bays

PCI Expansion Slots

Four PCIe slots: Two PCIe 4.0 x8 (FHFL) and two PCIe 4.0 x16 (FHFL)

Input/Output

Video: One VGA port

Motherboard

X12DPG-OA6-GD2; ATX, 13.98 x 11.81 in (355.09 x 299.97 mm) (WxL)

Chassis

CSE-GP802TS-R000NP; 8U Rackmount, 17.6 x 14 x 31.5 in (447 x 356 x 800 mm) (WxHxD)

System Cooling

Twelve removable heavy-duty fan modules (80x80 mm)

Power Supply

Six 3000 W high-efficiency power supplies (54 V+12 V)

Operating Environment

Operating Temperature: 10ºC to 35ºC (50ºF to 95ºF)
Non-operating Temperature: -40ºC to 60ºC (-40ºF to 140ºF)
Operating Relative Humidity: 8% to 80% (non-condensing)
Non-operating Relative Humidity: 8% to 90% (non-condensing)

Regulatory Compliance

UL/CSA/CB/NRTL
CE/FCC/VCCI/RCM/UKCA/ICES

Applied Directives, Standards

EMC/EMI: 2014/30/EU (EMC Directive) CLASS A
Electromagnetic Compatibility Regulations 2016
FCC Part 15 Subpart B
ICES-003
VCCI-CISPR 32
AS/NZS CISPR 32
BS/EN55032
BS/EN55035
CISPR 32
CISPR 35
EN 61000-3-2
EN 61000-3-3
EN 61000-4-2
EN 61000-4-3
EN 61000-4-4
EN 61000-4-5
EN 61000-4-6
EN 61000-4-8
EN 61000-4-11

Green Environment:
2011/65/EU (RoHS Directive)
EC 1907/2006 (REACH)
2012/19/EU (WEEE Directive)
California Proposition 65

Product Safety: 2014/35/EU (LVD Directive)
UL/CSA 62368-1 (USA and Canada)
Electrical Equipment (Safety) Regulations 2016
IEC/BS/EN 62368-1

Warning! This product can expose you to chemicals including lead, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov

Perchlorate Warning

California Best Management Practices Regulations for Perchlorate Materials: This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. “Perchlorate Material-special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate”

この装置は、クラスA機器です。この装置を住宅環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

VCCI ー A

General Data Center Environmental Specifications

Particulate contamination specifications

- Air filtration: Data centers must be kept clean to Class 8 of ISO 14644-1 (ISO 2015). The air entering the data center should be filtered with a MERV 11 filter or better. The air within the data center should be continuously filtered with a MERV 8 filter or better.
- Conductive dust: Air should be free of conductive dust, zinc whiskers, or other conductive particles.
- Corrrosive dust: Air should be free of corrosive dust.

Gaseous* contamination specifications

- Copper coupon corrosion rate: <300 Å/month per class G1 as defined by ANSI.ISA71.04-2013, referenced by ASHRAE TC 9.9
- Silver coupon corrosion rate: <200 Å/month per class G1 as defined by ANSI.ISA71.04-2013, referenced by ASHRAE TC 9.9
- *If testing with silver or copper coupons results in values less that 200 Å/month or 300 Å/month, respectively, then operating up to 70% relative humidity (RH) is acceptable. If the testing shows corrosion levels exceed these limits, then catalyst-type pollutants are probably present and RH should be driven to 50% or lower.