SuperServer®
420GP-TNAR
420GP-TNAR+

USER'S MANUAL

Revision 1.0a

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Manual Revision 1.0a

Release Date: November 06, 2023

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 420GP-TNAR/420GP-TNAR+ 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

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Chapter 1

Introduction

1.1 Overview

This chapter provides a brief outline of the functions and features of the SuperServer 420GP-TNAR/420GP-TNAR+. It is based on the X12DGO-6 motherboard and the CSE-438G chassis.

The 420GP-TNAR/420GP-TNAR+ is a system ideal for AI/ML, Deep Learning, and HPC applications.

The following provides an overview of the main specifications.

System Overview	
Motherboard	X12DGO-6
Chassis	CSE-438G
Processor Support	Dual 3rd Generation Intel® Xeon® Scalable processors
Memory	32 DIMM slots for up to 8TB of 3DS LRDIMM/LRDIMM/3DS RDIMM/RDIMM DDR4 3200/2933/2666 or 8TB of Intel Optane PMem 200 Series with speeds of up to 3200 MHz
Drive Support	Six 2.5” hot-swap NVMe/SAS/SATA drive bays Four optional rear 2.5” NVMe drive bays (requires NVMe optional kit) Two NVMe/SATA3 M.2
Expansion Slots	Two PCIe Gen 4 x16 slots (from CPUs) Eight PCIe Gen 4 x16 slots (from PLX) One AIOM PCIe Gen 4 x16 slot
I/O Ports	One dedicated BMC LAN port One VGA port Two front USB 3.0 ports
System Cooling	Four 9-cm hot-swap, counter-rotating fan modules Eight 4-cm counter-rotating fans (CPU node) CPU and GPU air shrouds
Power	420GP-TNAR: Four redundant 2200W power supply modules (Platinum Level, supports 3+1 redundancy) 420GP-TNAR+: Four redundant 3000W power supply modules (Titanium Level, supports 2+2 redundancy)
Form Factor	4U 6.9 x 17.6 x 35.4in (174 x 446 x 900mm) (HxWxD)

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

The following safety agency or regulatory models associated with the 420GP-TNAR and 402GP-TNAR+ have been certified as compliant with UL: 438G-Q22X12, 438G-Q30X12, 438G-X12, 438G-GPU.

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	
Feature	**Description**
0-5	6 hot-swap 2.5" Gen 4 NVMe/SAS/SATA drive bays (hybrid, logical drive numbers shown)
6	9-cm fans
7	Two PCIe 4 x16 slots
8	3U GPU Node
9	1U CPU node

Expansion Slot Locations: Front	
Item	**Description**
6	PCIe Gen4 x16 (from CPU1)
7	PCIe Gen4 x16 (from CPU2)

CPU1 **CPU2**

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

Control Panel

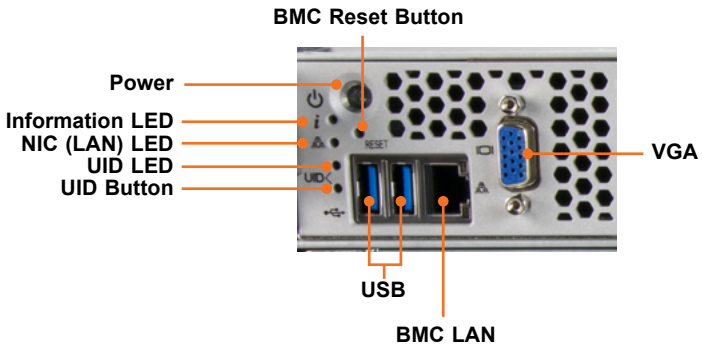


Figure 1-2. Control Panel

Control Panel Features	
Feature	**Description**
Power button	The main power switch applies or removes primary power from the power supply to the server but maintains standby power.
Information LED	Alerts operator to several states, as noted in the table below.
NIC (LAN) LED	Indicates network activity on the LAN port when flashing.
UID LED	The unit identification (UID) LED turns on when activated by the UID button or via management software.
UID button	UID button, to activate UID LEDs for easier location of the server in a rack environment.
BMC Reset	BMC reset button
USB	Two USB3.0 ports
BMC LAN	Dedicated BMC LAN port
VGA	VGA port

Information LED	
Status	**Description**
Continuously on and red	An overheat condition has occurred. (This may be caused by cable congestion.)
Blinking red (1Hz)	Fan failure, check for an inoperative fan.
Blinking red (0.25Hz)	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.

Rear View

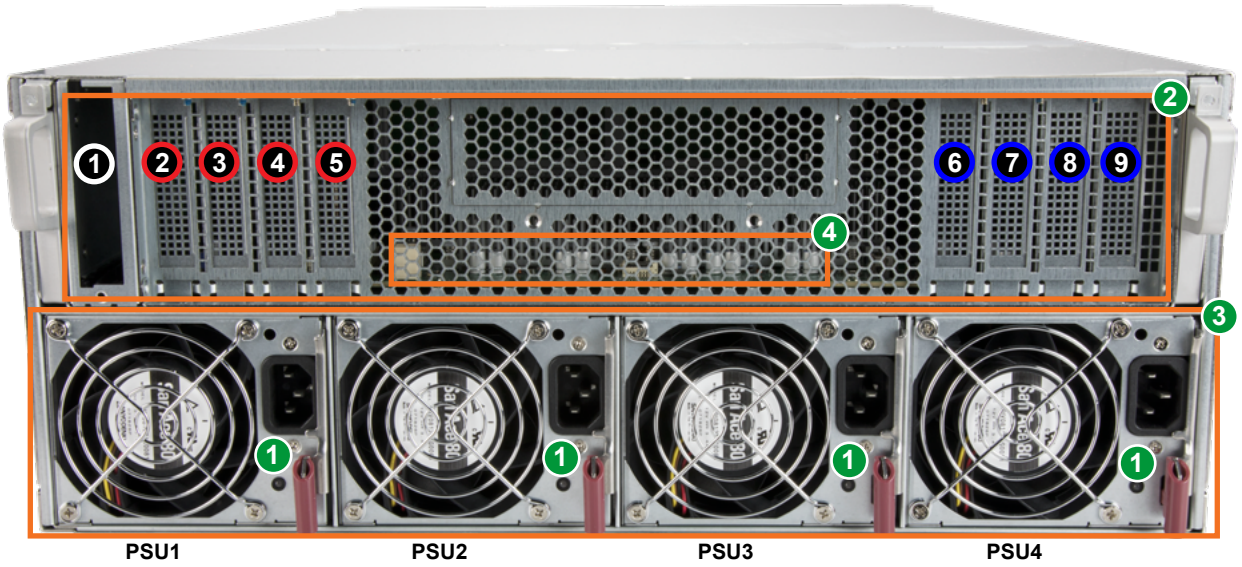


Figure 1-3. System: Rear View

System Features: Rear	
Feature	**Description**
1	Power supply modules (four for redundancy)
2	2U switch node
3	Power supply bay
4	Switchboard LEDs (12 LEDs)

Expansion Slot Locations: Rear	
Item	**Description**
1	AIOM: PCIe Gen4 x16 (from CPU1)
2	PCIe Gen4 x16 slot (internal low-profile slot from PLX, CPU1)
3	PCIe Gen4 x16 slot (internal low-profile slot from PLX, CPU1)
4	PCIe Gen4 x16 slot (internal low-profile slot from PLX, CPU1)
5	PCIe Gen4 x16 slot (internal low-profile slot from PLX, CPU1)
6	PCIe Gen4 x16 slot (internal low-profile slot from PLX, CPU2)
7	PCIe Gen4 x16 slot (internal low-profile slot from PLX, CPU2)
8	PCIe Gen4 x16 slot (internal low-profile slot from PLX, CPU2)
9	PCIe Gen4 x16 slot (internal low-profile slot from PLX, CPU2)

CPU1 CPU2

Switchboard LEDs		
LED Color	**Quantity**	**Description**
Green	4	Indicate the link status between the CPUs and the PLXs
Amber	8	Indicate the link status between the GPUs and the PLXs

Riser Cards		
Riser P/N	**Quantity**	**Description**
RSC-G-66G4	1	1U riser card with two PCIe 4.0 x16 slots (left side)

Power Supply Indicators		
Power Supply Condition	**Green LED**	**Amber LED**
No AC Power to Power Supply	OFF	OFF
Power Supply critical events causing a shutdown/ failure/ OCP/ OVP/ Fan Fail/ OTP/ UVP	OFF	Amber LED
Power Supply Warning Events Where the power supply continues to operate; High temperature; Over voltage; under voltage, etc	OFF	1Hz Blink Amber
AC present only 12vsb on (PS off)	1Hz Blink Green	OFF
Output ON and OK	Green	OFF
AC cord unplugged and in redundant mode	OFF	Amber

1.3 System Architecture

This section covers the locations of the system electrical components, a system block diagram, and a motherboard layout with the connectors and jumpers called out.

Main Components

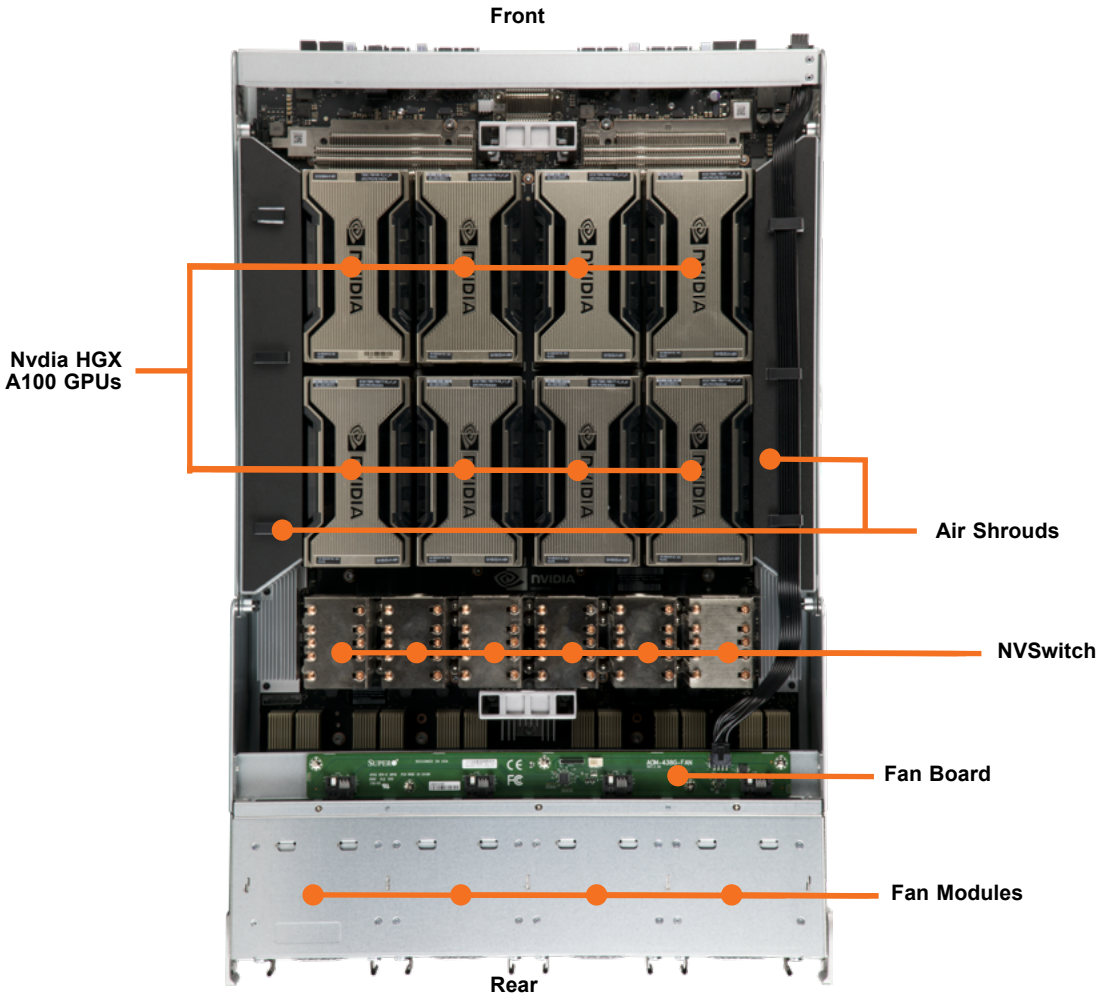


Figure 1-4. Main Component Locations: GPU Node

System Features: GPU Node	
Feature	**Description**
Fan Modules	Four hot-swap fan modules
Air Shrouds	Air shrouds for cooling
Fan Board	Fan power board
NVSwitch	Nvidia NVSwitches
Nvidia HGX A100 GPUs	Graphics processing units

System Block Diagram

The block diagram below shows the connections and relationships between the subsystems and major components of the overall system.

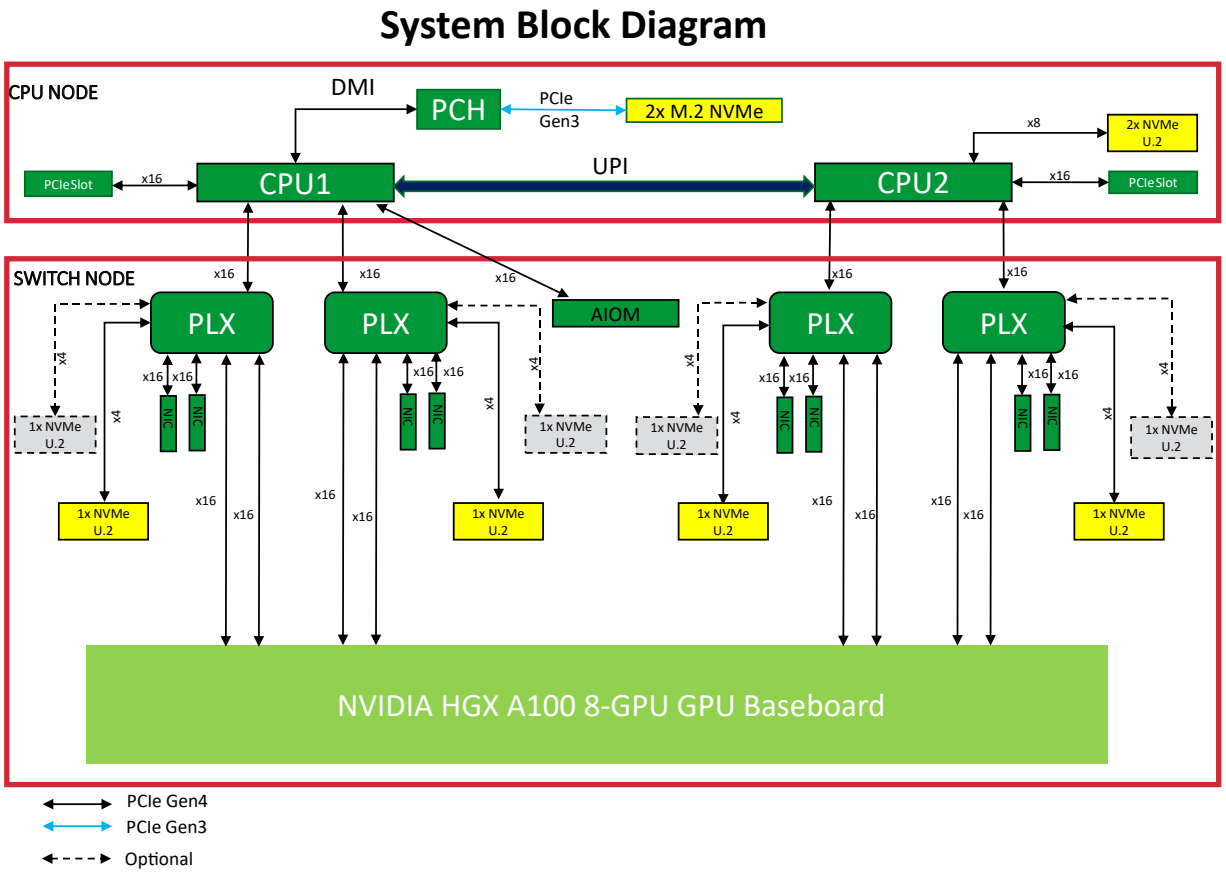


Figure 1-5. System Block Diagram

1.4 Motherboard Layout

Below is a layout of the X12DGO-6 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.

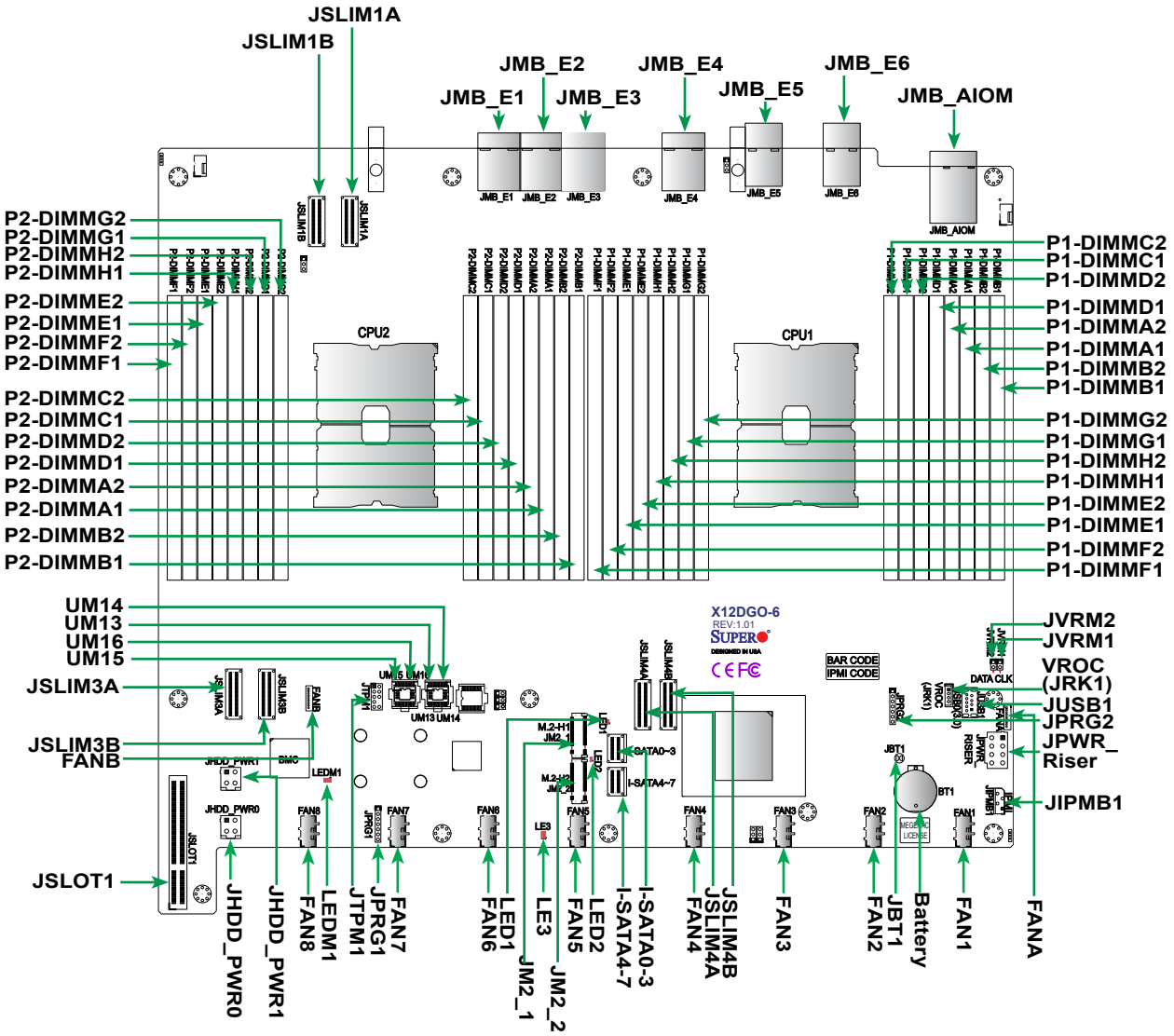


Figure 1-6. Motherboard Layout

Quick Reference Table

Jumper	Description	Default Setting
JBT1	CMOS Clear	Opened (Normal)

LED	Description	Status
LED1/LED2	M.2 active LED	Blinking Green: M.2 SSD operating normally
LE3	Power LED	LED On: Onboard Power On
LED1	Unit Identifier (UID) LED	Solid Blue: Unit Identified
LEDM1	BMC Heartbeat LED	Blinking Green: BMC Normal

Connector	Description
Battery (BT1)	Onboard battery
FAN1 ~ FAN8	CPU/System fan headers
FANA/FANB	Fan header for liquid cooling pump
I-SATA0-3, I-SATA4-7	Intel Serial ATA (SATA 3.0) Ports 0~3 (6Gb/sec)
JHDD_PWR0/JHDD_PWR1	Power connectors for hard drive backplane
JIPMB1	4-pin BMC external I^2C header
JM2_1/JM2_2	M.2 Slots
JMB_AIOM	PCIe signal to AIOM board
JMB_E1 ~ 4	PCIe signal to backplane
JMB_E5 ~ 6	Power connectors
JPRG1/JPRG2	Complex-programmable logical device (CPLD) header
JPWR_Riser	Power connector for raiser card
JRK1	Intel VROC RAID key header for NVMe SSD
JSLIM1A/B	PCIe signal to hard drive backplane
JSLIM3A/B	PCIe signal to riser card
JSLIM4A/B	PCIe signal to riser card
JSLOT1	MISC Signal to front I/O board
JTPM1	Trusted Platform Module/Port 80 connector
JUSB1	Front I/O panel standard USB 3.1 port
JVRM1/2	VRM SMB clock and data to BMC
UM13/14	BMC flash
UM15/16	BIOS flash

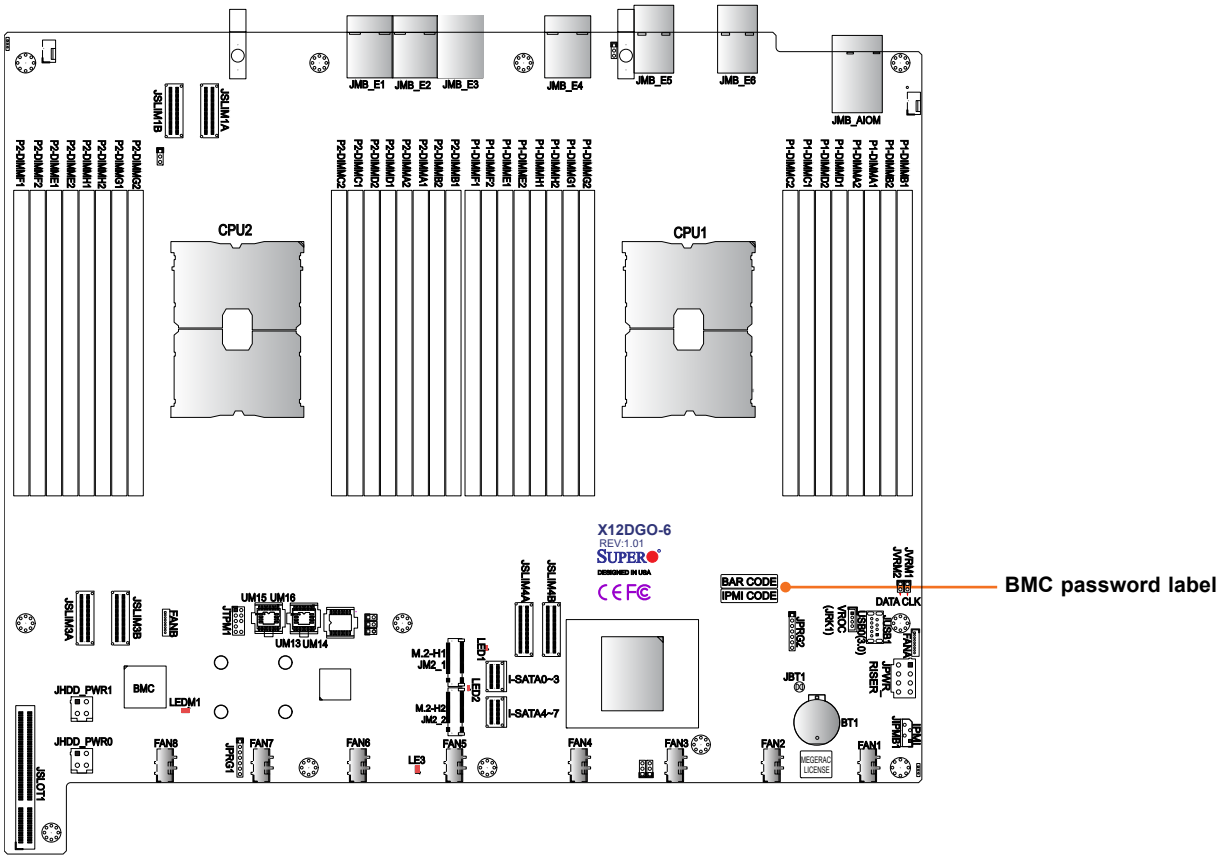


Figure 1-7. BMC Password Label

1.5 GPU and PCI Mapping

Refer to the images and tables below for the GPU and PCI mapping for the 420GP-TNAR/420GP-TNAR+.

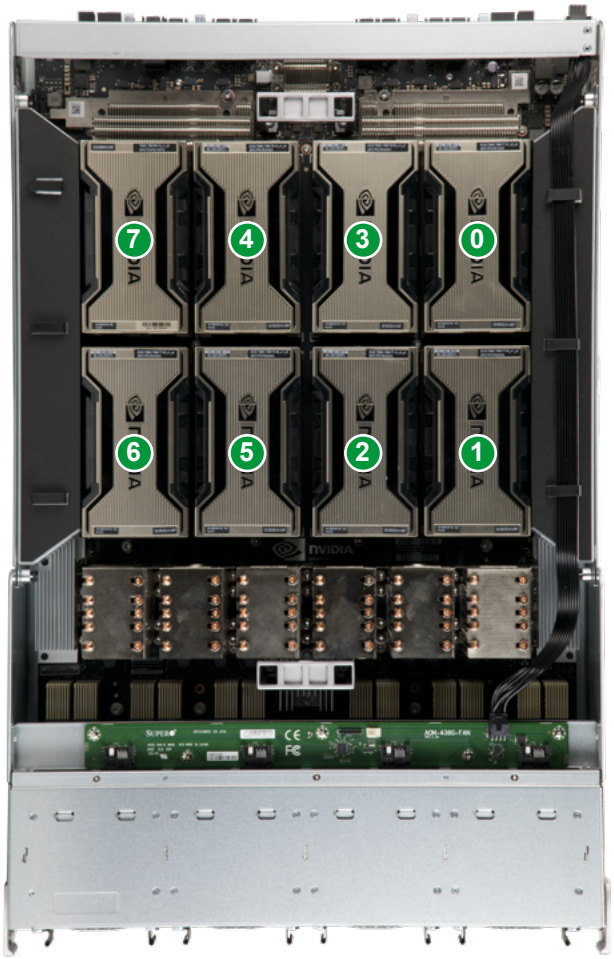


Figure 1-8. GPU Mapping

GPU Mapping Table		
Linux OS Numbering	**PCI Bus ID**	**BMC Number**
0	27:00	5
1	2A:00	7
2	51:00	6
3	57:00	8
4	9E:00	1
5	A4:00	3
6	C7:00	2
7	CA:00	4

Figure 1-9. PCIe Slot Mapping

PCIe Slot Mapping Table		
Slot Number	**PCI Bus ID**	**BMC Number**
1	75:00	1
2	F3:00	2
3	2D:00	3
4	30:00	4
5	5E:00	5
6	5F:00	6
7	A5:00	7
8	A8:00	8
9	D1:00	9
10	CE:00	10
11 (AIOM slot)	11:00	11

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.

2.2 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.

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

- **Caution:** The assembled system may weigh over 170 lbs. When moving it, remove the GPU tray to reduce weight, and use a lift and multiple people.
- Review the electrical and general safety precautions in Appendix B.
- 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.

2.3 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.

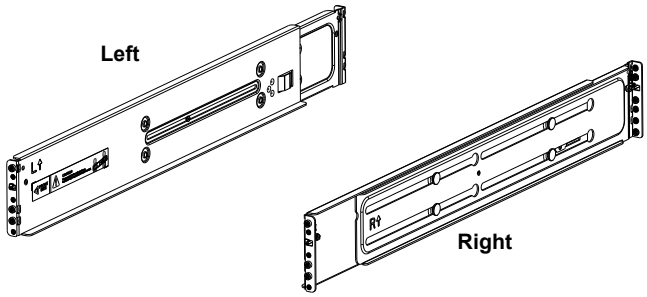


Figure 2-1. Identifying the Left and Right Rail

2. Position the template at the front of the rack to determine the locations of the screws for the rails.

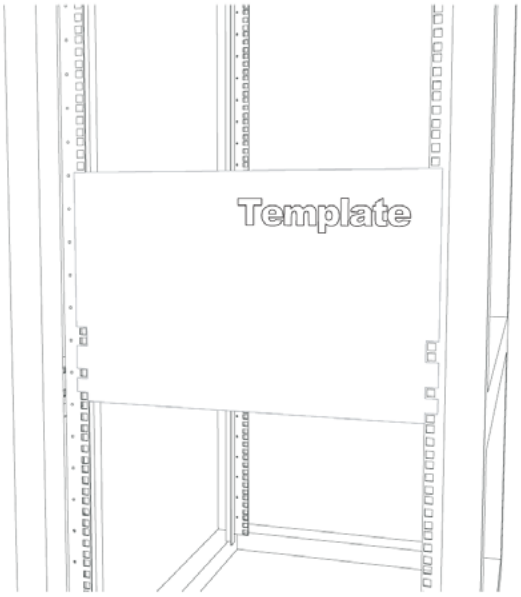


Figure 2-2. Placing Template in Rack

3. 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.

4. 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 2-3).

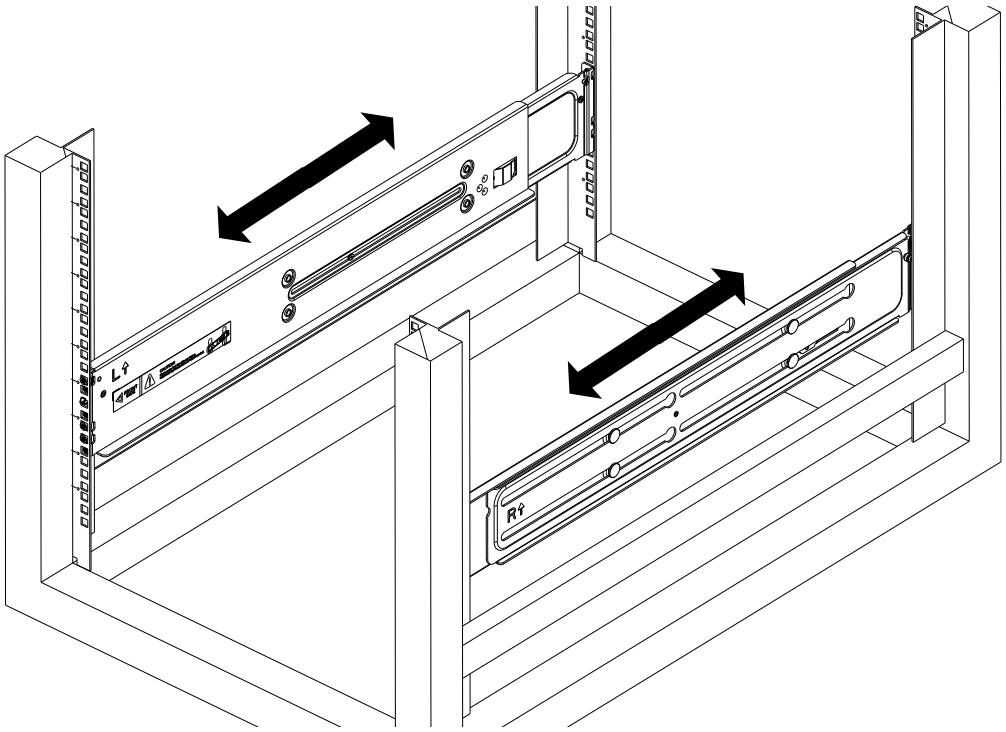


Figure 2-3. Sliding the Rail to the Depth of the Rack

2.4 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 200 lbs. Use a lift and multiple people to move it. Remove the GPU tray before installing into the rack to reduce the weight of the system.

1. If you want to install the optional chassis handles, use screws including a thumbscrew, through the bottom hole of each handle. **Note:** These handles need only be installed when mounting the system into a short rack. When mounting into a deep rack, they are unnecessary and regular screws should be used instead of thumbscrews.

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

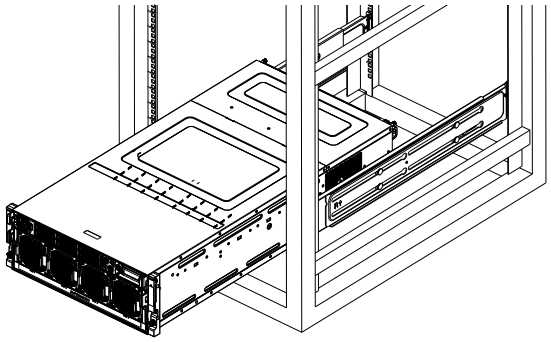


Figure 2-4. Sliding the Server into the Rack

Note: The figure is for illustrative purposes only. Some chassis components such as the GPU tray may be removed from the chassis enclosure before installing the system to the rack.

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

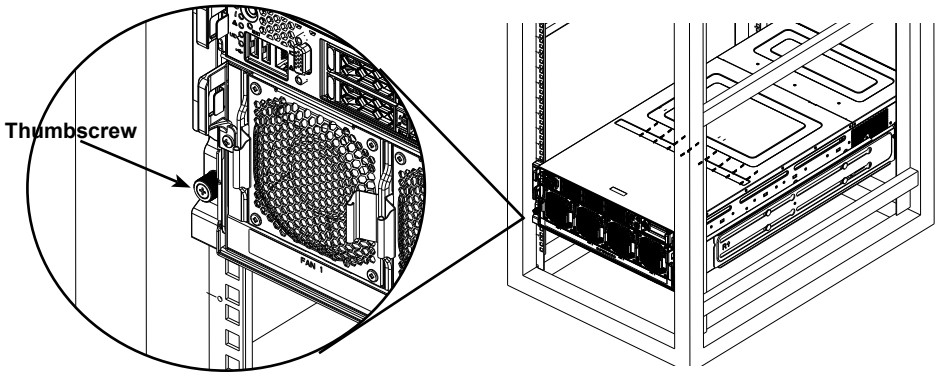


Figure 2-5. Locking the Server to the Rack

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.

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 three trays. Each tray can be removed from the chassis using release levers. Before removing the trays, power down, as described in Section 3.1.

Removing the Motherboard Tray

1. Remove the locking screw holding the release lever and set aside. The locking screw is next to the riser slot.
2. Pull both release levers out.
3. Press outwards slightly and pull out the tray.

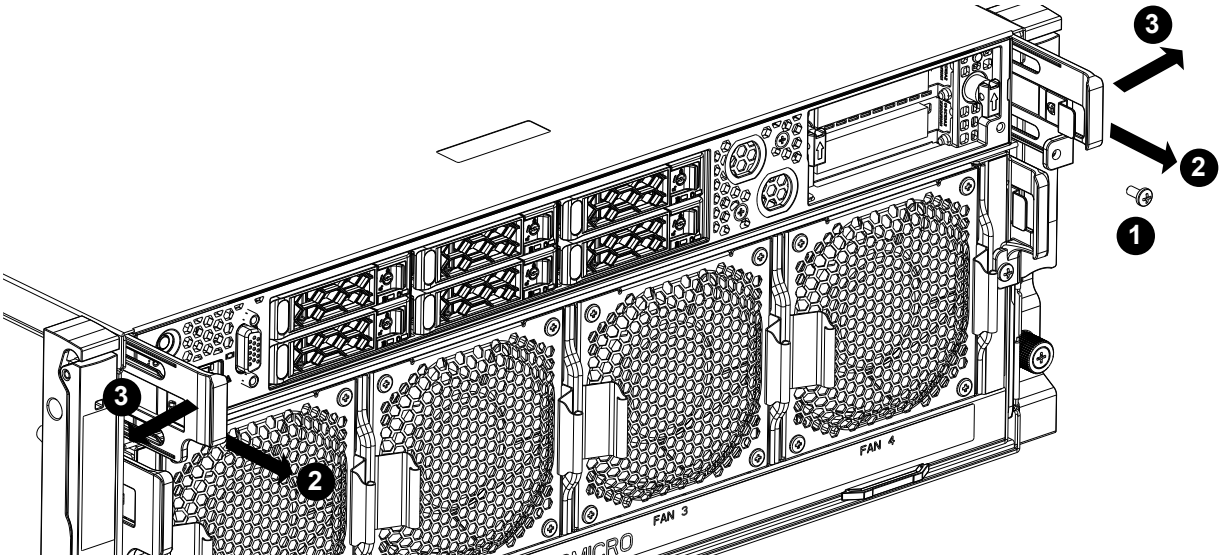


Figure 3-1. Motherboard Tray Handles

4. Service the motherboard as needed.
5. With both release levers in fully pulled-out positions, carefully and slowly reinsert the motherboard tray back into the chassis enclosure until both tray handles are retracted into the chassis.
6. Insert and tighten the tray handle locking screw.

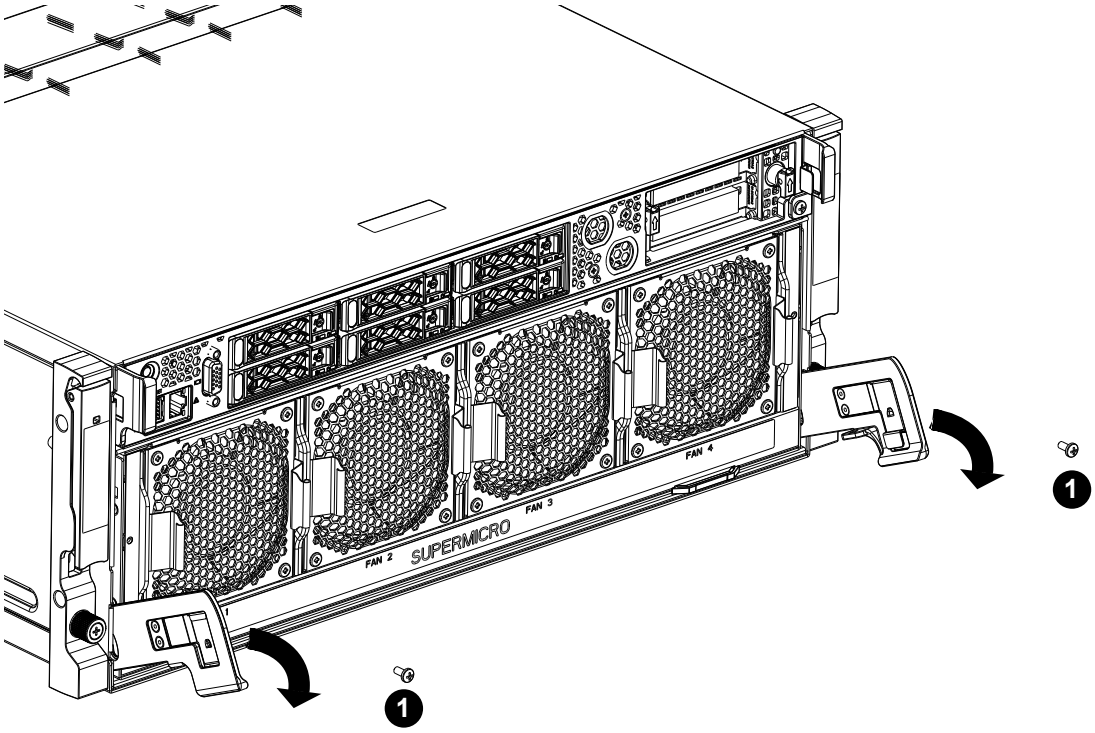


Figure 3-2. GPU Tray Handle and Locking Screw

Removing the GPU Tray

Caution: The GPU tray may weigh up to 45 lbs. When moving the tray, exercise caution and use multiple people.

1. Remove the tray handle locking screws, one on each side.
2. Rotate both tray handles downward.
3. Carefully and slowly pull the GPU tray outward until the safety lock is engaged.
4. Release the safety locks on both side of the GPU tray.
5. Continue to carefully and slowly pull and remove the GPU tray from the chassis enclosure.
6. Place the GPU tray on a safe surface.
7. Service the GPU board as needed.
8. With both tray handles in fully pulled-down positions, carefully and slowly reinsert the switch tray back into the chassis enclosure until both tray handles are rotated back into the chassis enclosure and locked.
9. Insert and tighten both tray handle locking screws.

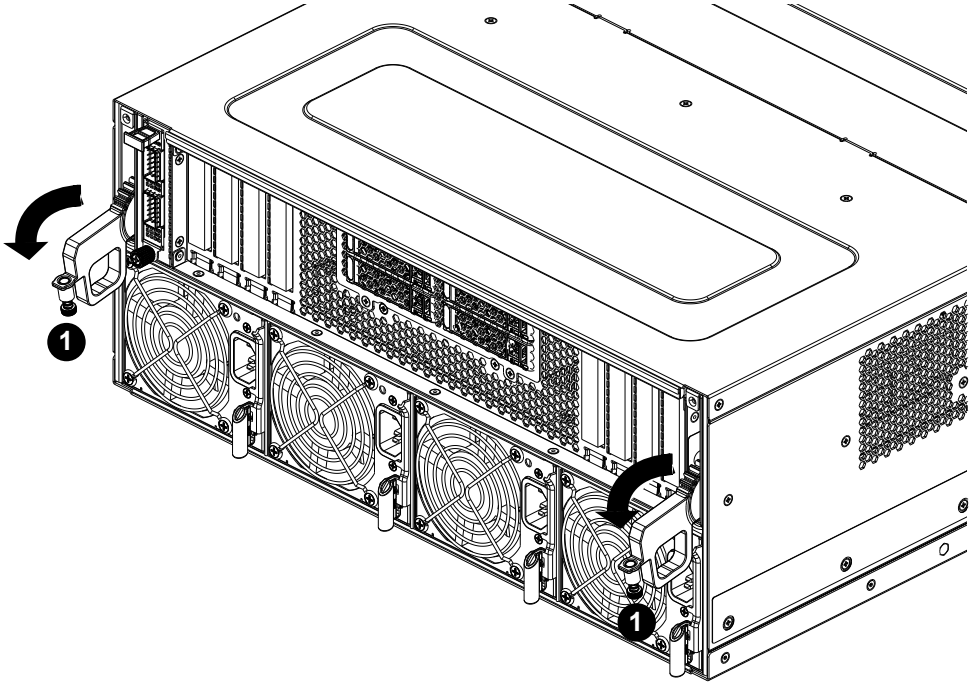


Figure 3-3. Unlocking the Switch Handles

Removing the Switch Tray

1. Loosen the thumbscrew on both handles.
2. Rotate both tray handles downward.
3. Carefully and slowly pull the switch tray outward from the chassis enclosure.
4. Service the switch tray as needed.
5. With both tray handles in fully pulled-down positions, carefully and slowly reinsert the switch tray back into the chassis until both tray handles are rotated back into the chassis enclosure and locked.
6. Tighten both thumbscrews.

3.3 Processor and Heatsink Installation

The processor (CPU) must first be attached to the processor carrier to form the processor carrier assembly. This assembly gets attached to the heatsink to form the processor heatsink module (PHM), which is then installed into the CPU socket. Before installing, be sure to perform the steps below:

- Please carefully follow the instructions given on ESD precautions.
- After shutting down the system, unplug the AC power cords from all power supplies.
- Check that the plastic protective cover is on the CPU socket and that 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 the socket, and may require manufacturer repairs.
- Thermal grease is pre-applied on new heatsinks. 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 illustration only. Your components may look different.

The Processor Carrier Assembly

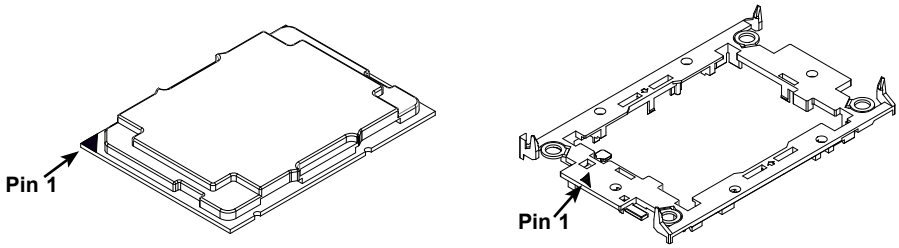
The processor carrier assembly is comprised of the processor and the processor carrier.

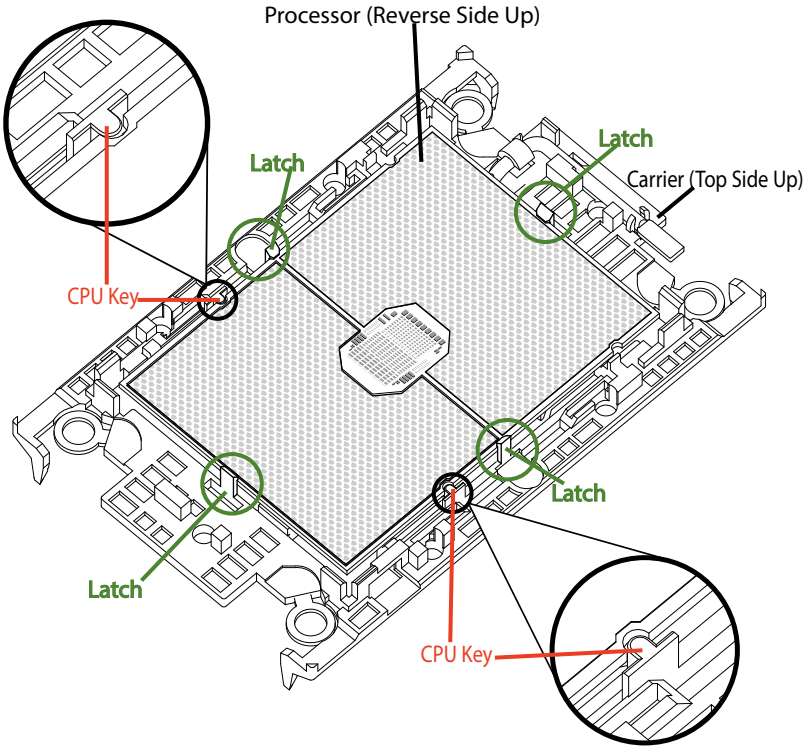
To create the processor carrier assembly, please follow the steps below:

Note: Before installation, be sure to review the Static-Sensitive Devices section earlier in this chapter.

1. Hold the processor with the gold pins (LGA lands) facing down. Locate the gold triangle at the corner of the processor and the corresponding hollowed triangle on the processor carrier as shown below. These triangles indicate the location of pin 1.

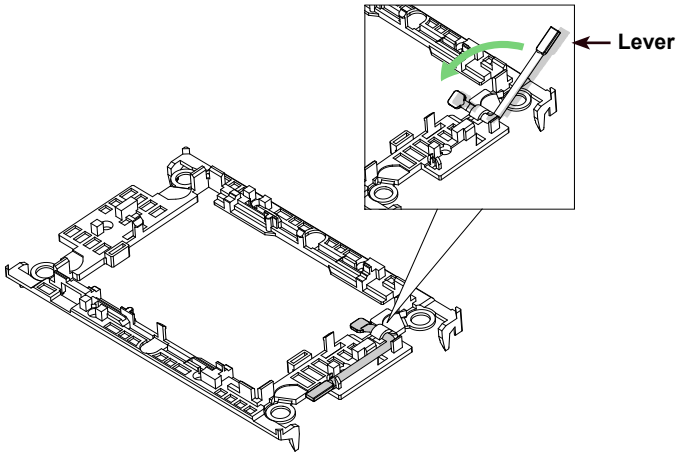
2. Turn the processor over (with the gold pins up). Locate the CPU keys on the processor and the four latches on the carrier as shown below.



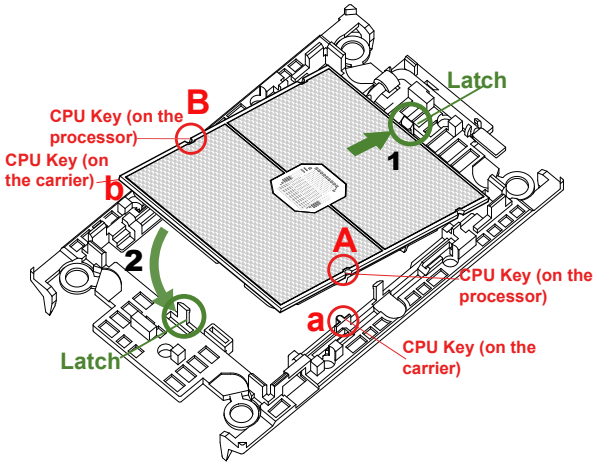


(with Processor Seated inside the Carrier)

3. Locate the lever on the carrier and press it down as shown below.

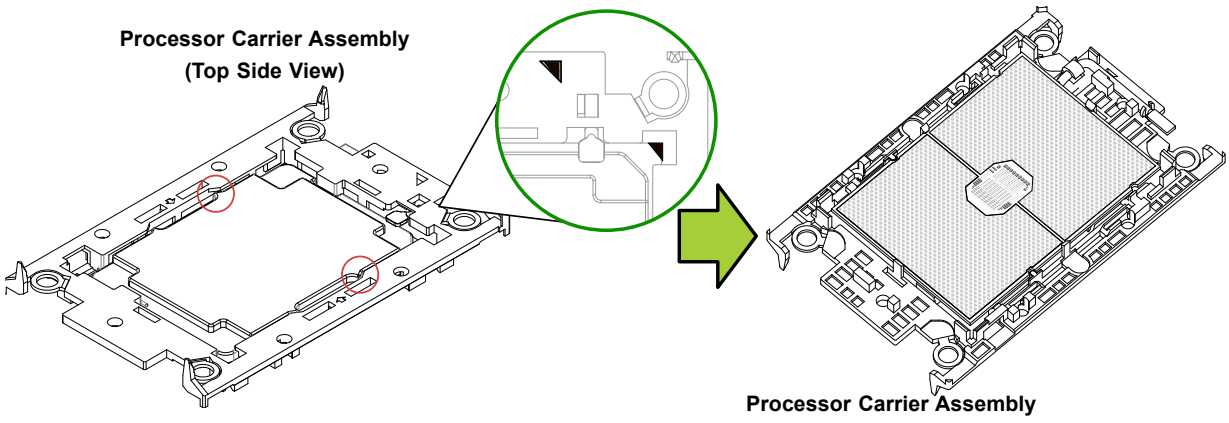


4. Using pin 1 as a guide, carefully align the CPU keys on the processor (A & B) with those on the carrier (a & b) as shown below.



5. Once aligned, carefully place one end of the processor under latch 1 on the carrier, and then press the other end down until it snaps into latch 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.

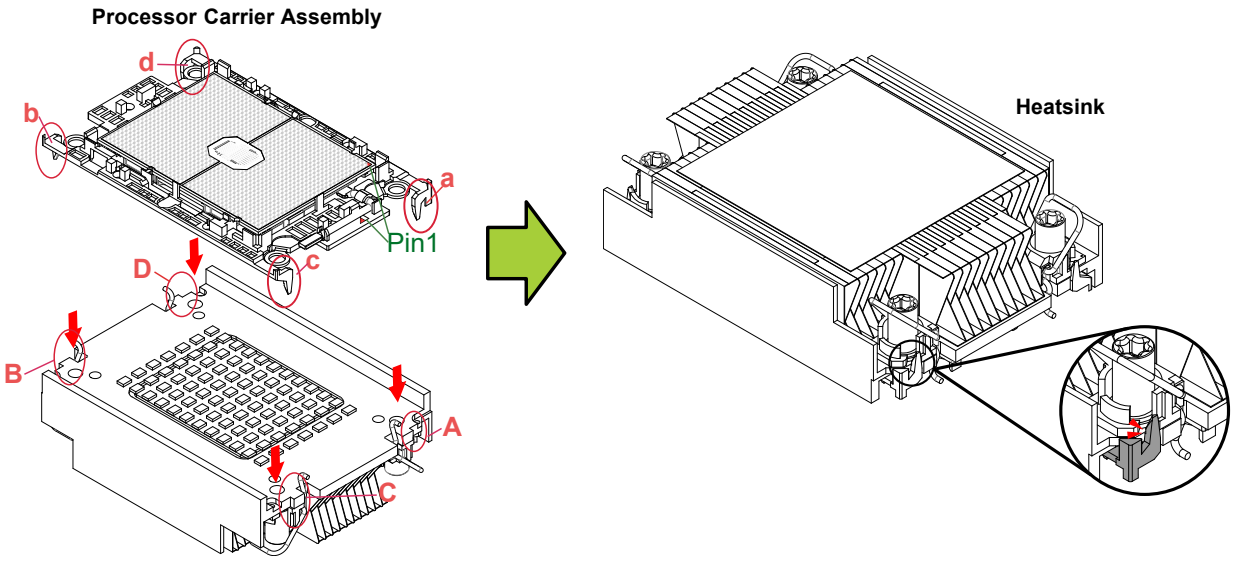


The Processor Heatsink Module (PHM)

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

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

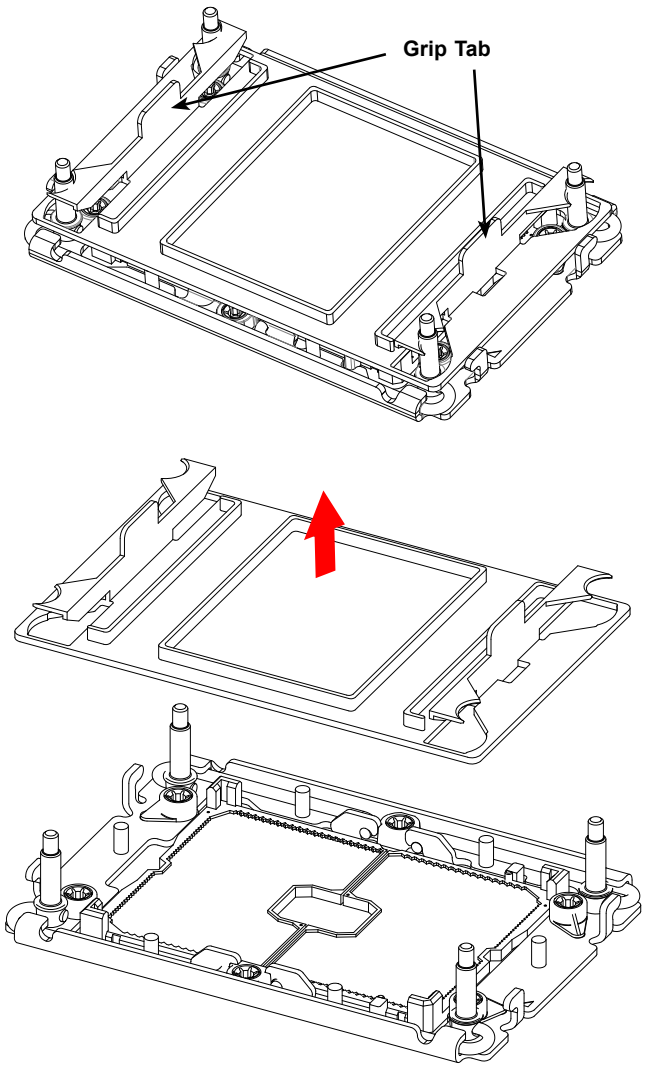
1. Turn the heatsink over with the thermal grease facing up. Pay attention to the two triangle cutouts (A, B) located at the diagonal corners of the heatsink as shown in the drawing below.
2. Hold the processor carrier assembly upside-down to locate the triangles on the processor and the carrier, which indicate pin 1.
3. Turn the processor carrier assembly over so that the gold pins are facing up. Locate the two pin 1 locations ("A on the processor and "a" on the processor carrier assembly).
4. Align "a" on the processor carrier assembly with the triangular cutout "A" on the heatsink along with "b", "c", "d" on the processor assembly with "B", "C", "D" on the heatsink.
5. Once properly aligned, place the heatsink on the processor carrier assembly with all corners matched up, making sure that the four clips are properly securing the heatsink.



Preparing the CPU Socket for Installation

The CPU socket comes with a plastic protective cover, which needs to be removed before installing the Processor Heatsink Module (PHM). Do this by gently squeezing the grip tabs then pulling the cover off.

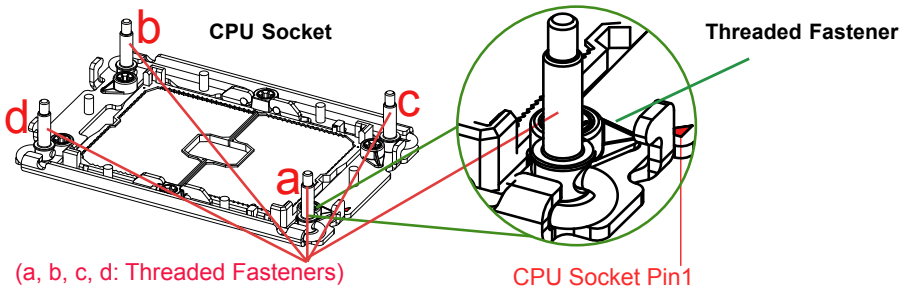
CPU Socket with Plastic Protective Cover



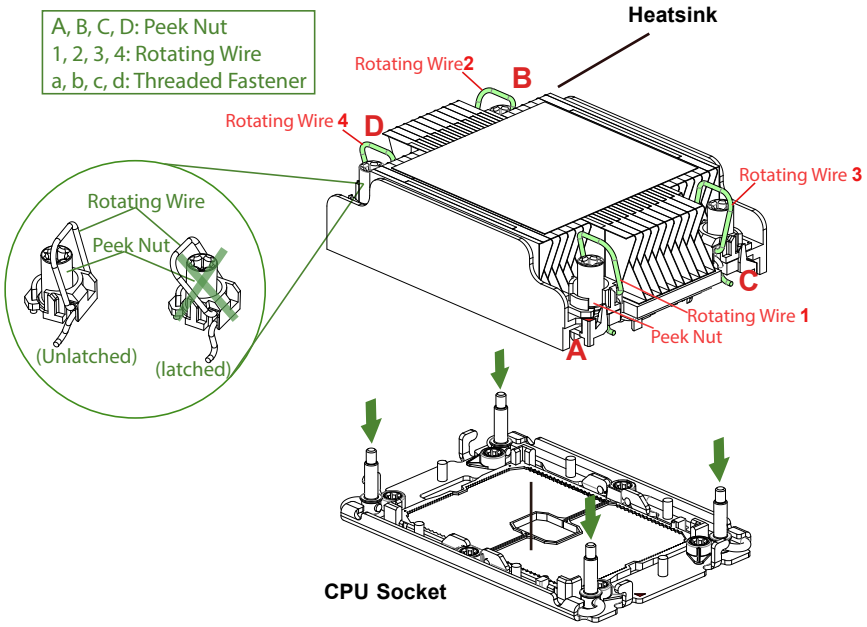
Installing the PHM into the CPU Socket

After assembling the Processor Heatsink Module (PHM), you are ready to install it into the CPU socket.

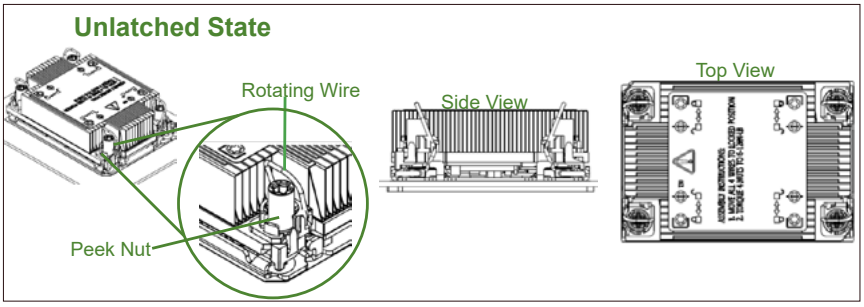
1. Locate four threaded fasteners (a, b, c, d) on the CPU socket.



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

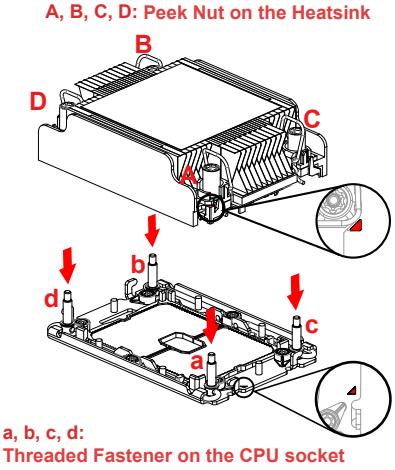


3. Check the rotating wires (1, 2, 3, 4) to make sure that they are in the unlatched position as shown.

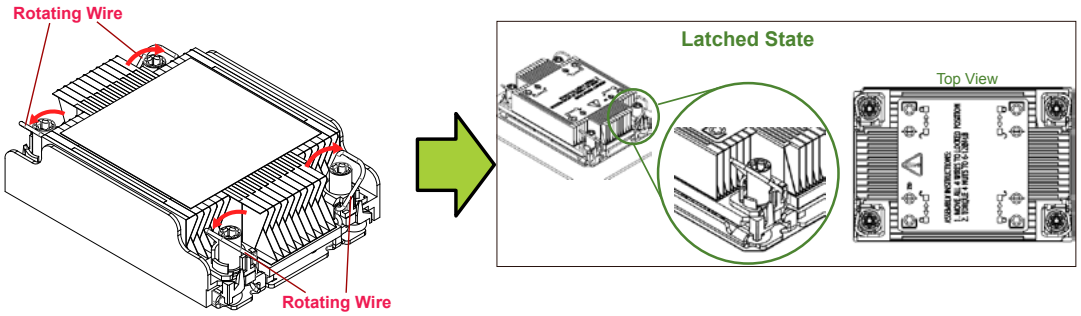


4. Align peek nut "A" (next to the triangular pin 1 on the heatsink) with threaded fastener "a" on the CPU socket. Then align peek nuts "B", "C", "D" on the heatsink with threaded fasteners "b", "c", "d" on the CPU socket, making sure that all peek nuts and threaded fasteners are properly aligned.

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

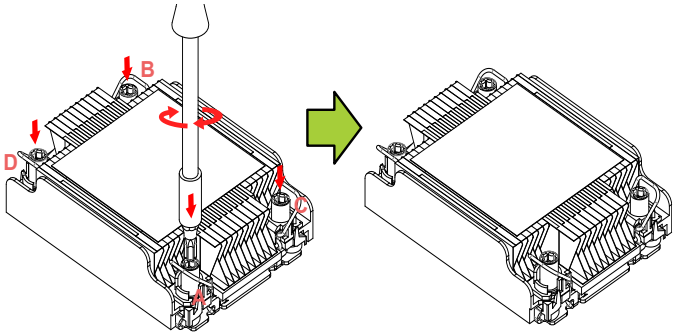


6. Press all four rotating wires outward and make sure that the heatsink is securely latched into the CPU socket.



7. 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.

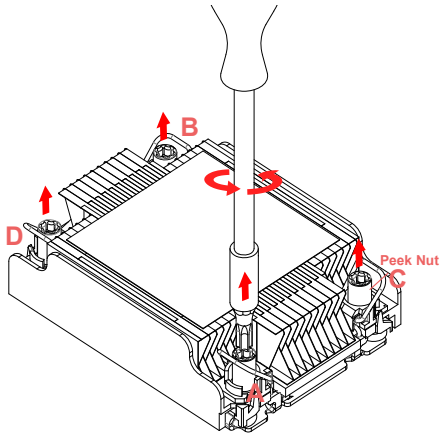
8. Examine all corners of the heatsink to ensure that the PHM is firmly attached to the CPU socket.



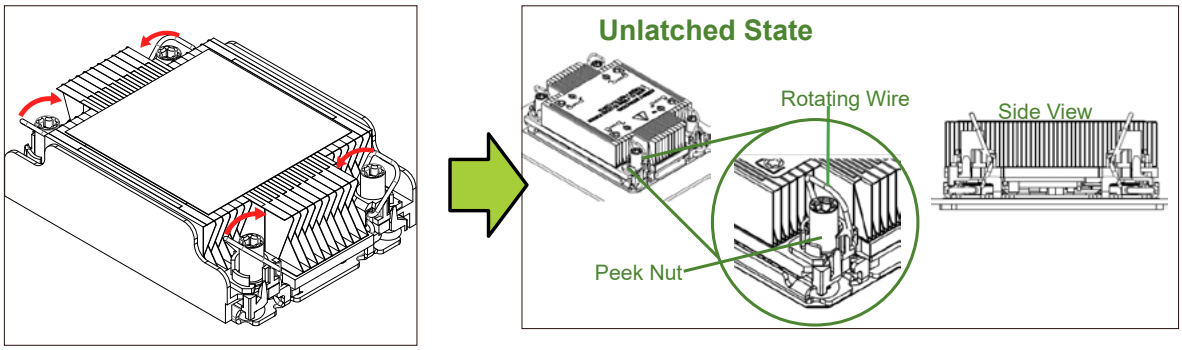
Removing the PHM from the CPU Socket

Before removing the PHM from the motherboard, first shut down the system and unplug the AC power cord from all power supplies.

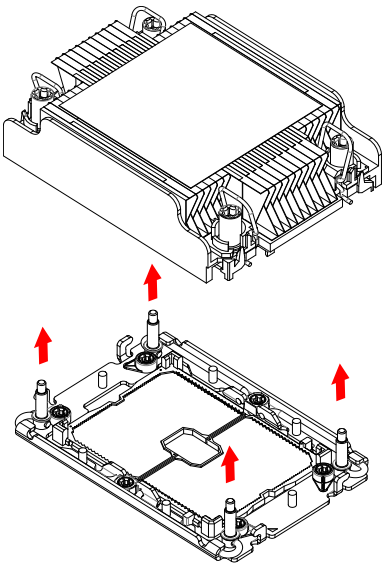
1. Use a t30-bit screwdriver to loosen the four peek nuts on the heatsink in the sequence of A, B, C, and D.



2. Once the peek nuts have been loosened from the CPU socket, press the rotating wires inward to unlatch the PHM from the socket as shown below.



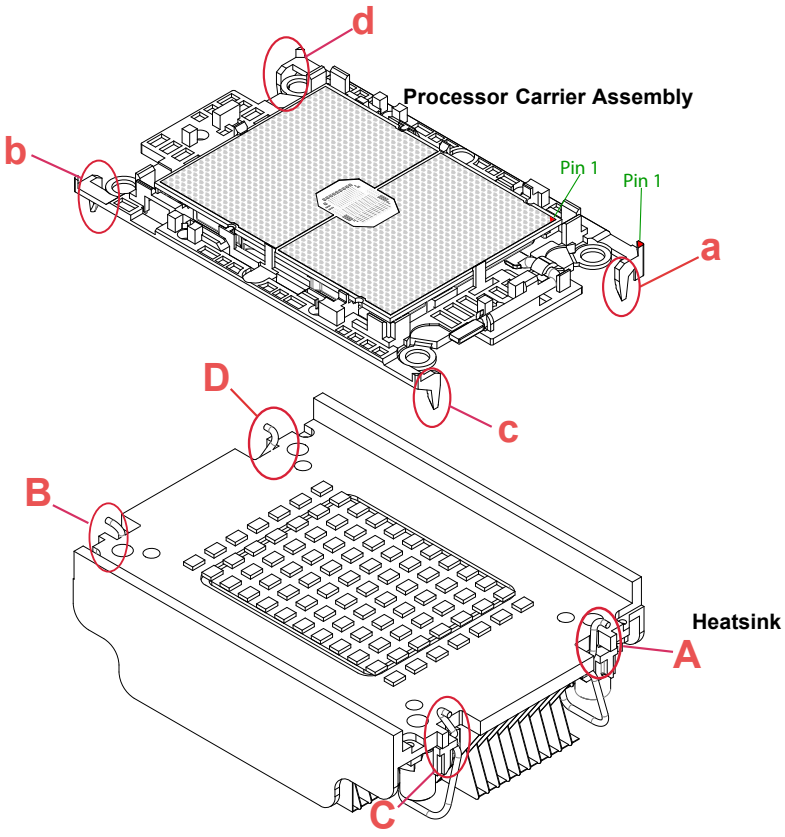
3. Gently lift the PHM upward to remove it from the CPU socket.



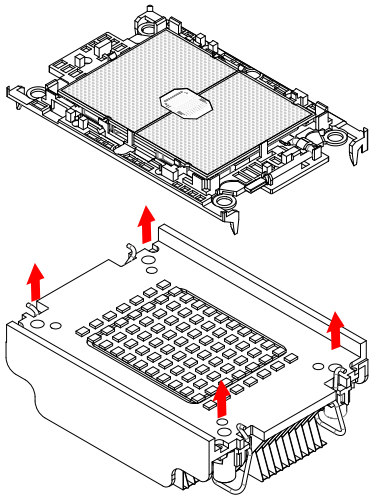
Removing the Processor Carrier Assembly from the PHM

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

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



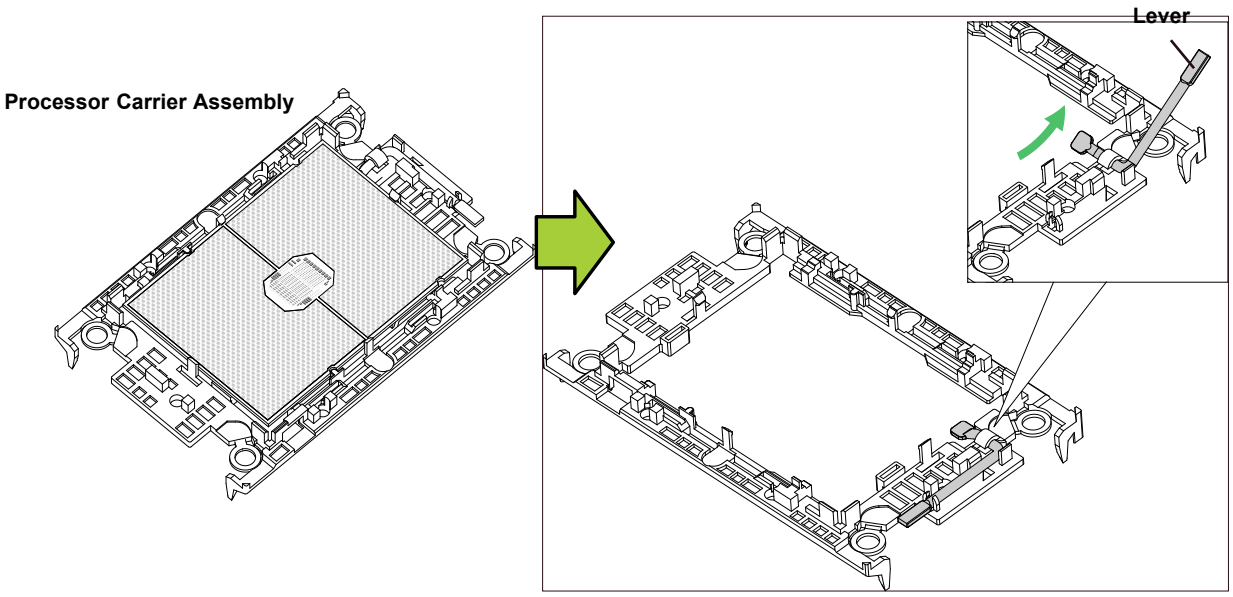
2. When all plastic clips have been detached from the heatsink, remove the processor carrier assembly from the heatsink



Removing the Processor from the Processor Carrier Assembly

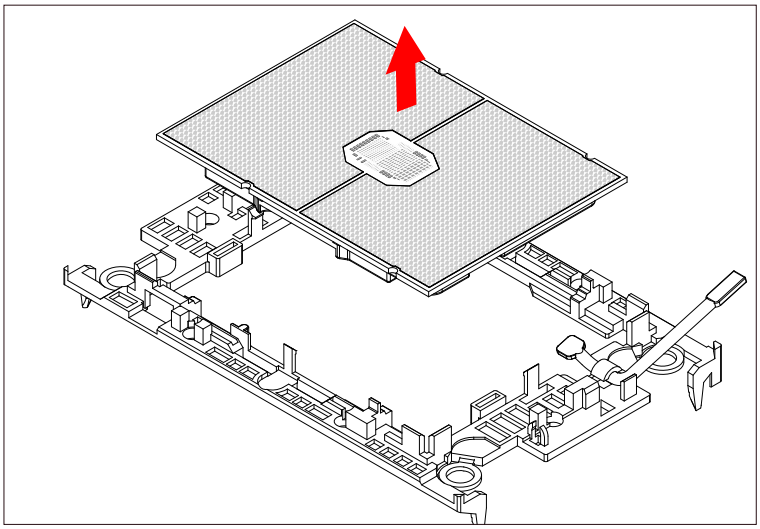
Once you have removed the processor carrier assembly from the PHM, you are ready to remove the processor from the processor carrier by following the steps below.

1. Unlock the lever from its locked position and push it upwards to disengage the processor from the processor carrier as shown below right.



2. Once the processor has been loosened from the carrier, carefully remove the processor from the carrier.

Note: Please handle the processor with care to avoid damaging it or its pins.



3.4 Memory

Memory Support

The X12DGO-6 supports up to 8TB of 3DS LRDIMM/LRDIMM/3DS RDIMM/RDIMM DDR4 (288-pin) ECC memory with speeds of 3200/2933/2666 MHz in 32 memory slots and up to 8TB of Intel Optane PMem 200 Series with speeds of up to 3200 MHz.. For validated memory, use our Product Resources page. Check the Supermicro website for possible updates to memory support.

Notes: 1. Intel Optane PMem 200 Series is supported by 3rd Generation Intel® Xeon® Scalable processors (83xx/63xx/53xx/4315) Series only. 2. P1-DIMMB2/P2-DIMMB2 memory slots are reserved for Intel Optane PMem 200 Series only. 3. Memory speed support depends on the processors used in the system.

Memory Support for 3rd Generation Intel® Xeon® Scalable Processors

Type	Ranks Per DIMM & Data Width	DIMM Capacity (GB)		Speed (MT/s); Voltage (V); Slot Per Channel (SPC) and DIMM Per Channel (DPC)	
				1DPC (1-DIMM Per Channel)	2DPC (2-DIMM Per Channel)
		8Gb	16Gb	1.2 V	1.2 V
RDIMM	SRx8	8GB	16GB	3200	2933*
	SRx4	16GB	32GB		
	DRx8	16GB	32GB		
	DRx4	32GB	64GB		
RDIMM-3DS	(4R/8R)X4	2H-64GB 4H-128GB	2H-128GB 4H-256GB		
LRDIMM	QRx4	64GB	128GB	3200	3200
LRDIMM-3DS	(4R/8R)x4	4H-128GB	2H-128GB 4H-256GB	3200	3200

DDR4 Memory Population Table

Memory Population Table (w/32 Slots)	
When 1 CPU is used:	***Memory Population Sequence***
1 CPU & 1 DIMM	CPU1: P1-DIMMA1
1 CPU & 2 DIMMs	CPU1: P1-DIMMA1/P1-DIMME1
1 CPU & 3 DIMMs*	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1
1 CPU & 4 DIMMs	CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1
1 CPU & 5 DIMMs*	CPU1: P1-DIMMA1/P1-DIMMB1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1
1 CPU & 6 DIMM	CPU1: P1-DIMMA1/P1-DIMMB1/P1-DIMME1/P1-DIMMF1/P1-DIMMC1/P1-DIMMG1
1 CPU & 7 DIMMs*	CPU1: P1-DIMMA1/P1-DIMMB1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMC1/P1-DIMMG1
1 CPU & 8 DIMMs	CPU1: P1-DIMMA1/P1-DIMMB1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMC1/P1-DIMMG1/P1-DIMMH1
1 CPU & 9 DIMMs*	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1
1 CPU & 10 DIMMs	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMG1/ P1-DIMMH1
1 CPU & 11 DIMMs*	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/ P1-DIMMG1/P1-DIMMH1
1 CPU & 12 DIMMs	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/ P1-DIMMG1/P1-DIMMG2/P1-DIMMH1
1 CPU & 13 DIMMs*	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMME1/P1-DIMME2/ P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMH1
1 CPU & 14 DIMM	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMME1/P1-DIMME2/ P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1
1 CPU & 15 DIMMs*	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMMD2/P1-DIMME1/ P1-DIMME2/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1
1 CPU & 16 DIMMs	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMMD2/P1-DIMME1/ P1-DIMME2/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1/P1-DIMMH2
When 2 CPUs are used:	***Memory Population Sequence***
2 CPUs & 2 DIMMs	CPU1: P1-DIMMA1 CPU2: P2-DIMMA1
2 CPUs & 4 DIMMs	CPU1: P1-DIMMA1/P1-DIMME1 CPU2: P2-DIMMA1/P2-DIMME1
2 CPUs & 6 DIMMs	CPU1: P1-DIMMA1/P1-DIMMB1/P1-DIMME1/P1-DIMMF1 CPU2: P2-DIMMA1/P2-DIMME1
2 CPUs & 8 DIMMs	CPU1: P1-DIMMA1/P1-DIMMB1/P1-DIMME1/P1-DIMMF1 CPU2: P2-DIMMA1/P2-DIMMB1/P2-DIMME1/P2-DIMMF1
2 CPUs & 10 DIMMs	CPU1: P1-DIMMA1/P1-DIMMB1/P1-DIMME1/P1-DIMMF1/P1-DIMMC1/P1-DIMMG1 CPU2: P2-DIMMA1/P2-DIMMB1/P2-DIMME1/P2-DIMMF1
2 CPUs & 12 DIMMs	CPU1: P1-DIMMA1/P1-DIMMB1/P1-DIMME1/P1-DIMMF1/P1-DIMMC1/P1-DIMMG1 CCPU2: P2-DIMMA1/P2-DIMMB1/P2-DIMME1/P2-DIMMF1/P2-DIMMC1/P2-DIMMG1
2 CPUs & 14 DIMMs	CPU1: P1-DIMMA1/P1-DIMMB1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMC1/P1-DIMMG1/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMB1/P2-DIMME1/P2-DIMMF1/P2-DIMMC1/P2-DIMMG1
2 CPUs & 16 DIMMs	CPU1: P1-DIMMA1/P1-DIMMB1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMC1/P1-DIMMG1/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMB1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMC1/P2-DIMMG1/P2-DIMMH1
2 CPUs & 18 DIMMs	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMG1/ P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMB1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMC1/P2-DIMMG1/P2-DIMMH1
2 CPUs & 20 DIMMs	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMG1/ P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMME2/P2-DIMMF1/P2-DIMMG1/ P2-DIMMH1
2 CPUs & 22 DIMMs	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/ P1-DIMMG1/P1-DIMMG2/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMME2/P2-DIMMF1/P2-DIMMG1/ P2-DIMMH1
2 CPUs & 24 DIMMs	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/ P1-DIMMG1/P1-DIMMG2/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMC1/P2-DIMMC2/P2-DIMMD1/P2-DIMME1/P2-DIMME2/P2-DIMMF1/ P2-DIMMG1/P2-DIMMG2/P2-DIMMH1
2 CPUs & 26 DIMMs	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMME1/P1-DIMME2/ P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMC1/P2-DIMMC2/P2-DIMMD1/P2-DIMME1/P2-DIMME2/P2-DIMMF1/ P2-DIMMG1/P2-DIMMG2/P2-DIMMH1
2 CPUs & 28 DIMMs	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMME1/P1-DIMME2/ P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMB2/P2-DIMMC1/P2-DIMMC2/P2-DIMMD1/P2-DIMME1/P2-DIMME2/ P2-DIMMF1/P2-DIMMF2/P2-DIMMG1/P2-DIMMG2/P2-DIMMH1
2 CPUs & 30 DIMMs	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMMD2/P1-DIMME1/ P1-DIMME2/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1/P1-DIMMH2 CPU2: P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMB2/P2-DIMMC1/P2-DIMMC2/P2-DIMMD1/P2-DIMME1/P2-DIMME2/ P2-DIMMF1/P2-DIMMF2/P2-DIMMG1/P2-DIMMG2/P2-DIMMH1
2 CPUs & 32 DIMMs	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMMD2/P1-DIMME1/ P1-DIMME2/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1/P1-DIMMH2 CPU2: P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMB2/P2-DIMMC1/P2-DIMMC2/P2-DIMMD1/P2-DIMMD2/P2-DIMME1/ P2-DIMME2/P2-DIMMF1/P2-DIMMF2/P2-DIMMG1/P2-DIMMG2/P2-DIMMH1/P2-DIMMH2

Note: *Unbalanced configuration (not recommended due to decreased performance)

Intel Optane PMem 200 Series Memory Population Table

Note: Only 83xx/62xx/52xx/4315 processors support PMem 200 Series.

32-DIMM Motherboard PMem Population within 1 CPU socket

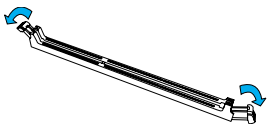
DDR4+ Pmem	Mode	AD Inter-leave	P1-DIMMF1	P1-DIMMF2	P1-DIMME1	P1-DIMME2	P1-DIMMH1	P1-DIMMH2	P1-DIMMG1	P1-DIMMG2	P1-DIMMC2	P1-DIMMC1	P1-DIMMD2	P1-DIMMD1	P1-DIMMA2	P1-DIMMA1	P1-DIMMB2	P1-DIMMB1
4+4	AD MM	One - x4	***PMem***	-	DDR4	-	***PMem***	-	DDR4	-	-	DDR4	-	***PMem***	-	DDR4	-	***PMem***
		One - x4	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	DDR4	-	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	
DDR4 Type and Capacity	
DDR4	See Validation Matrix (DDR4 DIMMs validated with DCPMM)
Capacity	
PMem	Any Capacity (Uniformly for all channels for a given configuration)

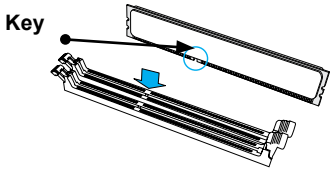
- Mode definitions: AD = App Direct Mode, MM = Memory Mode.
- No mixing of PMem and NVDIMMs within the platform.
- For MM, NM/FM ratio is between 1:4 and 1:16. The capacity not used for FM can be used for AD. (NM = Near Memory; FM = Far Memory).
- Matrix targets configs for optimized PMem to DRAM cache ratio in MM mode.
- For each individual population, different PMem rearrangements among channels are permitted so long as the configuration doesn't break X12 DP 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.

DIMM Installation

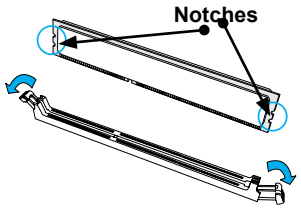
1. Insert the desired number of DIMMs into the slots based on the recommended DIMM population tables shown above.
2. Push the release tabs on both ends of the DIMM slot outwards to unlock it.



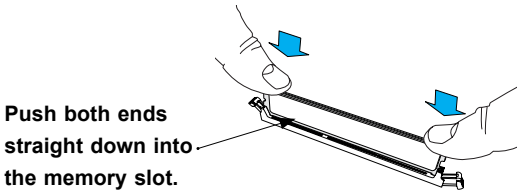
3. Align the key of the DIMM module with the receptive point on the memory slot.



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



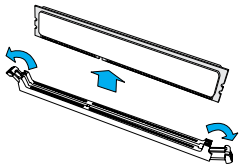
5. Push both ends of the module straight down into the slot until the module snaps into place.



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 loose, remove it from the memory slot.



Warning! To avoid causing any damage to the DIMM module or the DIMM socket, do not use excessive force when pressing the release tabs on the ends of the DIMM socket. Handle DIMMs with care. Be aware and follow the ESD instructions given at he beginning of this chapter.

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.

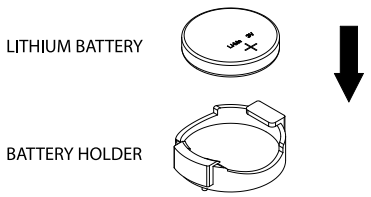


Figure 3-2. Installing the Onboard Battery

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 GPUs

GPU Tray

The GPU tray contains the Nvidia HGX A100 baseboard. Note the handles must be in the unlocked and extended position to install the GPU tray.

Caution: The GPU tray may weigh up to 45 lbs. When moving the tray, exercise caution and use multiple people.

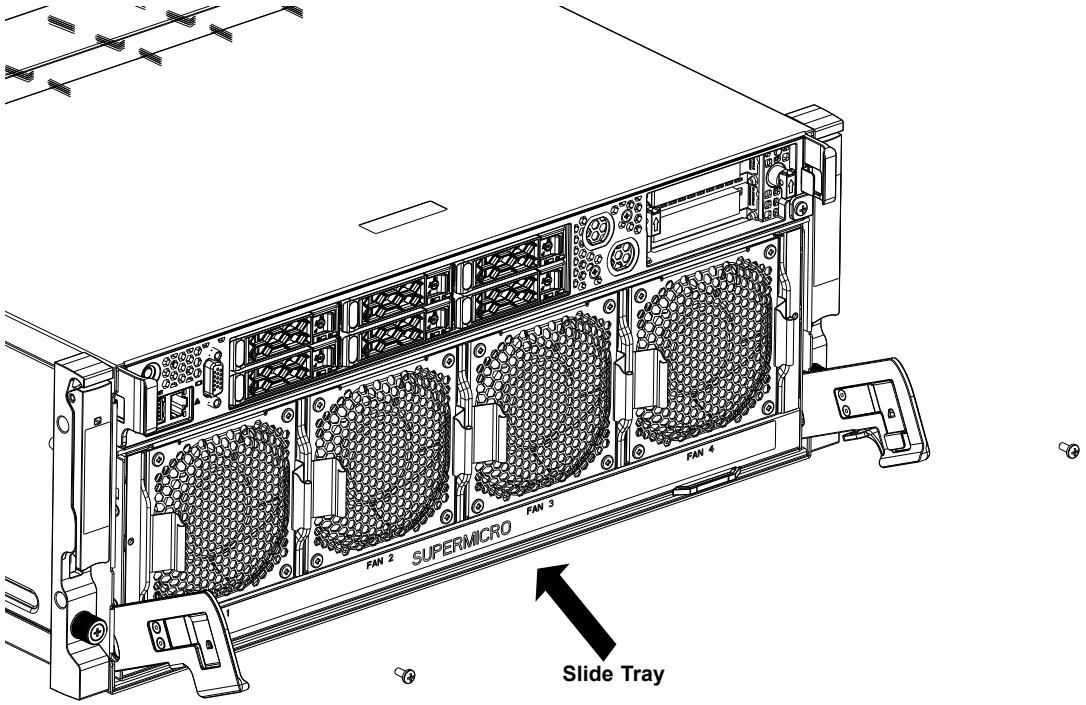


Figure 3-3. Installing the GPU Tray

Installing the GPU Tray

1. The release lever on both side must be in the fully opened position.
2. Slide the tray into the chassis.
3. Lift the two handles until they are upright and snap into place.
4. Secure each handle with a screw.

Switch Tray

The switch tray contains the PCIe 4.0 switch board and Network Interface Cards. Note the handles must be in the unlocked and extended position to install the switch tray.

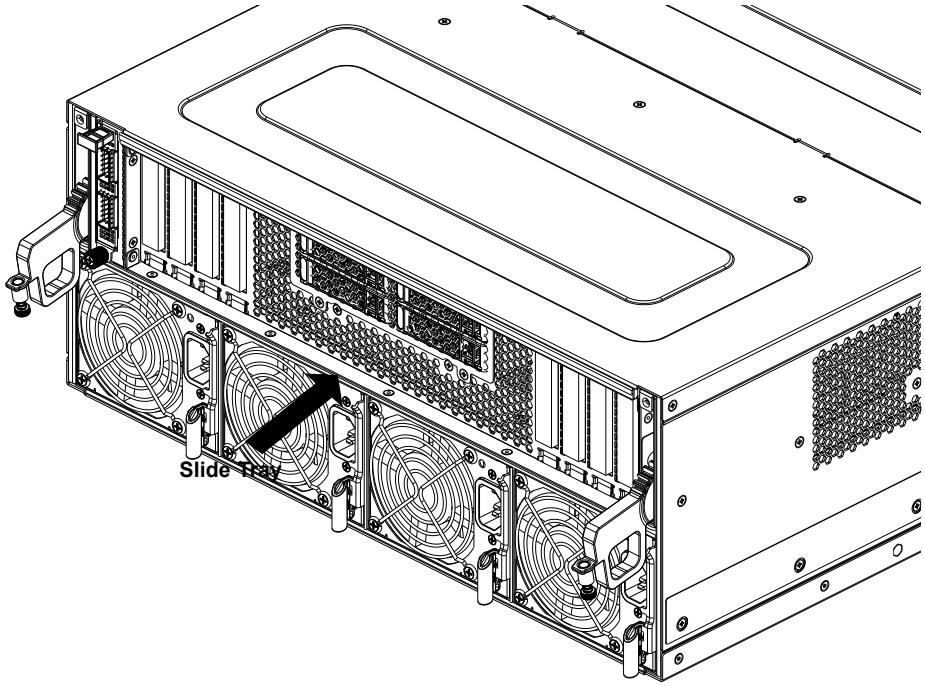


Figure 3-4. Installing the Switch Tray

Installing the Switch Tray

1. The handle on each side must be in the fully pulled-down position.
2. Slide the tray into the chassis.
3. Lift the two handles until they are fully in the upright position.
4. Tighten both thumbscrews.

Replacing GPUs

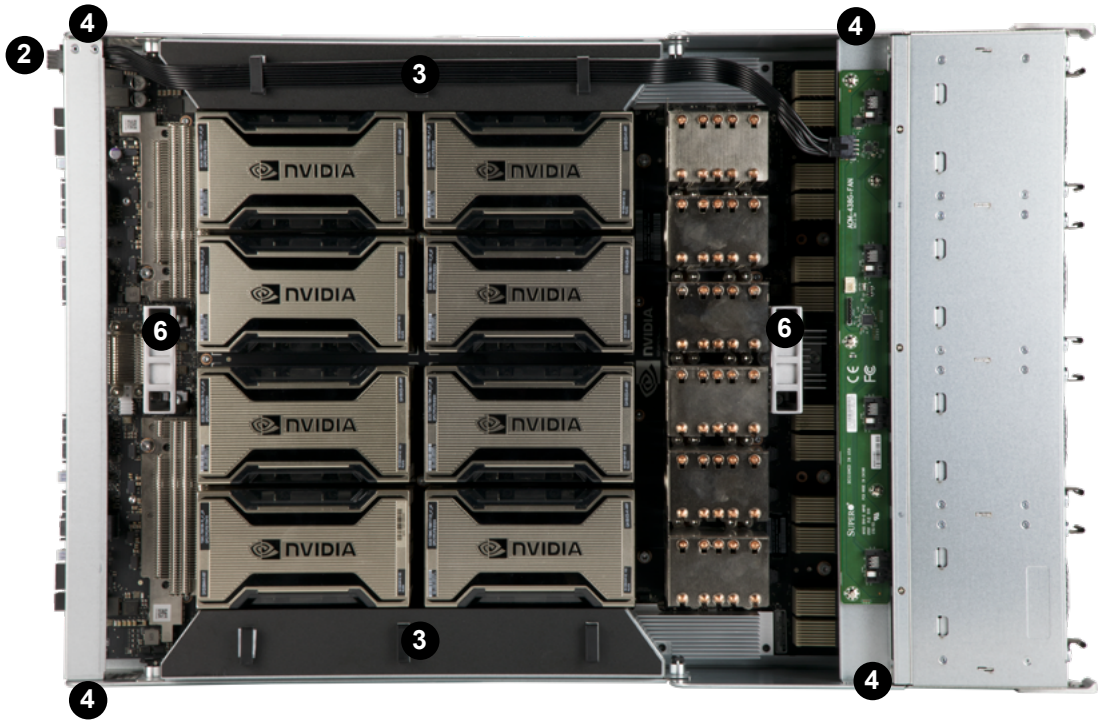
Individual GPU and GPU baseboards are recommended to be serviced by Supermicro due to the optimized density of the system.

Prior to submitting an RMA for GPUs, Nvidia requires that their Field Diagnostic tool is first run to isolate hardware failures and obtain a log file for review. Check with Supermicro Technical Services for more details. In addition, more details can be found in Nvidia reference document Baseboard Field Diagnostics Software Guide DU-09163-001.

Replacing GPU Baseboard Module

1. Run Nvidia's Field Diagnostic tool to isolate failures and obtain a log file for review.
2. Disconnect the GPU baseboard module's 54V power cable.
3. Remove the two GPU air shrouds. Each air shroud has two quick-release latches.
4. Remove the cross-bar and the fan board holder. All four fan modules need to be removed in to remove the FAN board holder. Do not need to remove the fan board from the fan board holder.
5. While holding the GPU module, remove the screws that secure the GPU baseboard to the mechanical tray.
6. Once all screws are loose, grasp both handles of the GPU module and lift it up and out. Be careful not to scratch the GPU baseboard or your hands on the chassis metal edges.

For installation reverse the above steps.



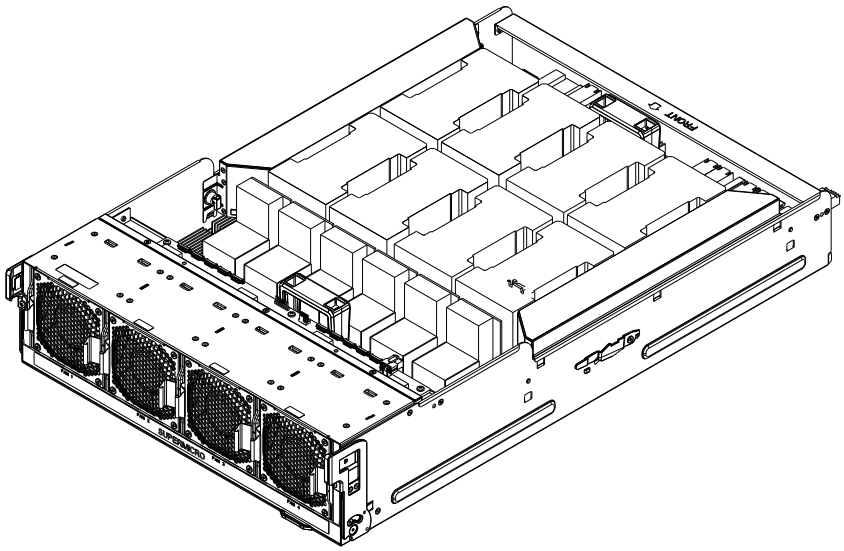


Figure 3-5. GPU Baseboard Replacement

Replacing Individual GPUs

Prior to submitting an RMA for GPUs, Nvidia requires that their Field Diagnostic tool is first run to isolate hardware failures and obtain a log file for review. Check with Supermicro Technical Services for more details. In addition, more details can be found in Nvidia reference document Baseboard Field Diagnostics Software Guide DU-09163-001. Use these tools to determine the failed GPU and locate using the GPU Mapping Table. Be sure to identify the failed GPU correctly and if any questions reach out to Supermicro Technical Service team to help.

Note: DO NOT remove the GPU heatsink from the GPU. Supermicro does not recommend GPU replacement to be done by customers. However, if the customer is familiar with the product and needs to perform a replacement themselves, SMC can provide full instructions as needed.

3.7 Storage Drives

The system supports six 2.5" hot-swap drive bays. All six drives bay are hybrid and can support SATA/SAS/NVMe drives (SAS drives require an HBA controller).

The drives are mounted in drive carriers that simplify their removal from the chassis. These carriers also help promote proper airflow.

Note: Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro website product pages at https://www.supermicro.com/products/nfo/Ultra.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	SAS/NVMe drive installed
	Blue	Blinking	I/O activity
Status LED	Red	Solid On	Failed drive for SAS/SATA/NVMe
	Red	Blinking at 1 Hz	Rebuild drive for SAS/SATA/NVMe
	Red	Blinking with two blinks and one stop at 1 Hz	Hot spare for SAS/SATA/NVMe
	Red	On for five seconds, then off	Power on SAS/SATA/NVMe
	Red	Blinking at 4 Hz	Identity drive for SAS/SATA/NVMe
	Red	Solid On	Safe to remove NVMe device
	Green	Blinking at 1 Hz	Attention state- do not remove NVMe device

Figure 3-6. Logical Drive Numbers

Removing/Installing Drives

Removing Drive Carriers from the Chassis

1. Push the release button on the drive carrier. This releases and extends the drive carrier handle. If the release button does not release it, the handle may be locked: using a flat-head screwdriver, rotate the screw counterclockwise 45 degrees to unlock the handle.

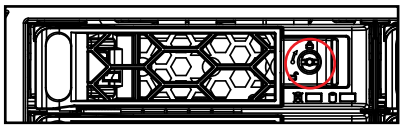


Figure 3-7. Unlocking Handle

2. Use the handle to pull the carrier out of the chassis as shown below.

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.

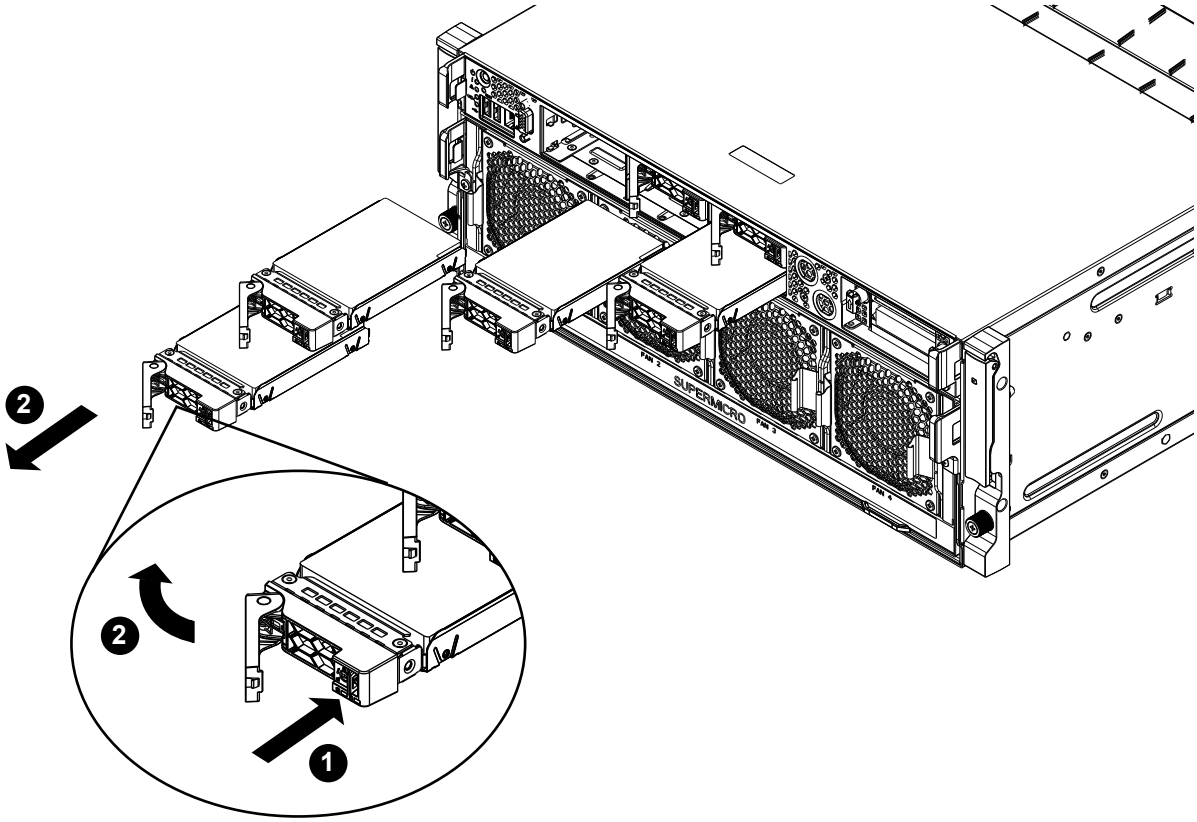


Figure 3-8. Removing a Drive Carrier

Installing a 2.5" NVMe Drive

1. Place the NVMe 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.

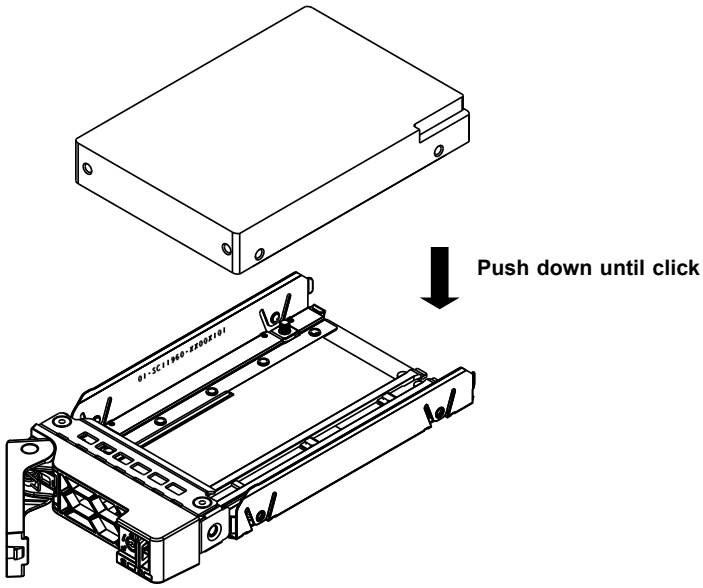


Figure 3-9. Installing Drive to Drive Carrier

Removing a 2.5" NVMe 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.

Hot-Swap for NVMe Drives

Supermicro servers support NVMe surprise hot-swap. For even better data security, NVMe *orderly* hot-swap is recommended. NVMe drives can be ejected and replaced remotely using the BMC.

Ejecting a Drive

1. **BMC > System > Storage Monitoring > Physical View**
2. Select Device, Group and Slot, and click **Eject**. After ejecting, the drive Status LED indicator turns green.
3. Remove the drive.

Note that *Device* and *Group* are categorized by the CPLD design architecture. The 420GP-TNAR/420GP-TNAR+ server has one Device and one Group.

Slot is the slot number on which the NVMe drives are mounted.

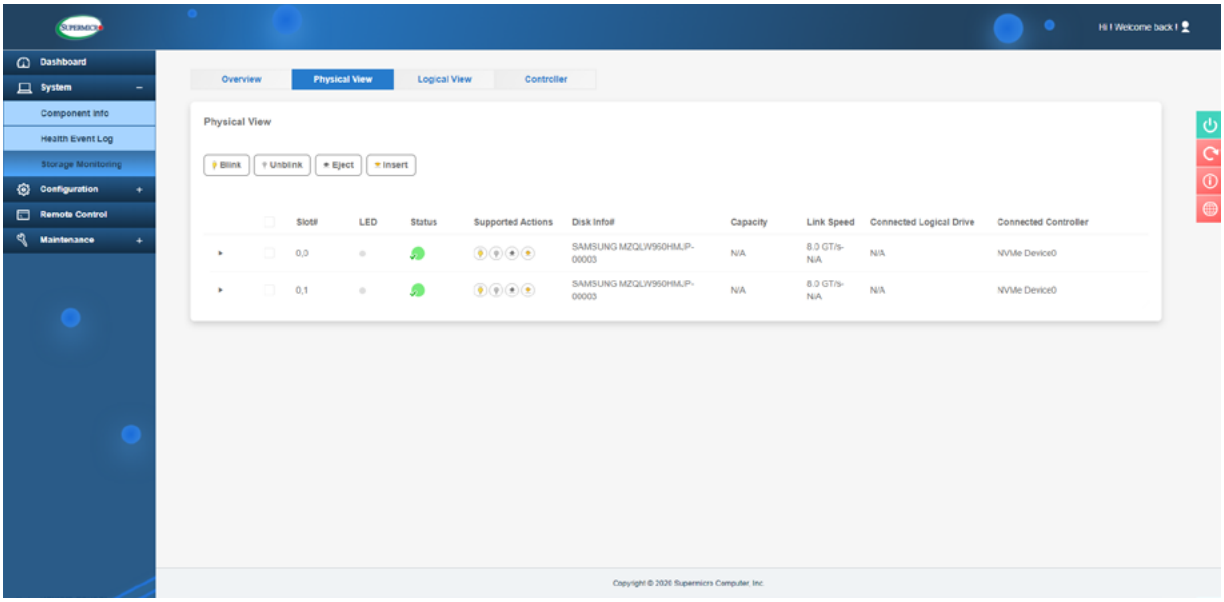


Figure 3-10. BMC Screenshot

Replacing the Drive

1. Insert the replacement drive.
2. **BMC > System > Storage Monitoring > Physical View**
3. Select Device, Group and slot and click **Insert**. The drive Status LED indicator flashes red, then turns off. The Activity LED turns blue.

Checking the Temperature of an NVMe Drive

There are two ways to check using the BMC.

Checking a Drive

- **BMC > Server Health > NVMe SSD –** Shows the temperatures of all NVMe drives, as in the figure above.
- **BMC > Server Health > Sensor Reading > NVME_SSD –** Shows the single highest temperature among all the NVMe drives.

Installing M.2 Solid State Drives

The X12DGO-6 can accommodate two M.2 solid state drives (SSDs). Each M.2 socket supports NVMe PCIe 3.0 x2 (32 Gb/s) or SATA SSD cards in a 2280 or 22110 form factor. The 22110 form factor is recommended because the appropriate standoff comes pre-installed on the motherboard.

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

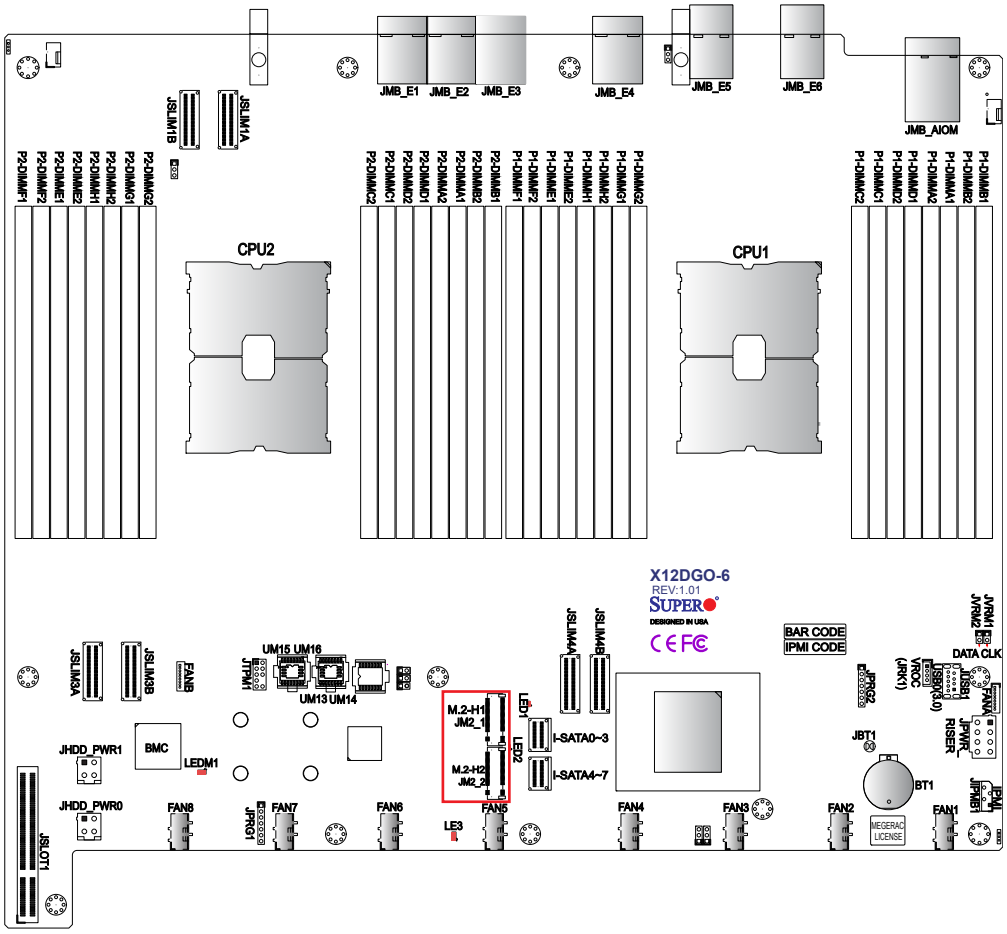


Figure 3-11. M.2 Slot Locations

Installing an M.2 2280 Device

1. Power down the system and remove the CPU tray as described in Section 3.1 and 3.2.
2. Remove any component 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.

3.8 Expansion Cards

The system has two PCIe 4.0 x16 LP slots on the motherboard tray and eight PCIe 4.0 x16 slots on the switch tray.

Note: Expansion cards are recommended to be serviced by Supermicro due to the optimized density of the 4U form factor.

Installing an Expansion Card in the Motherboard Tray

1. Power down the system and remove the motherboard tray as described in Section 3.1 and 3.2.

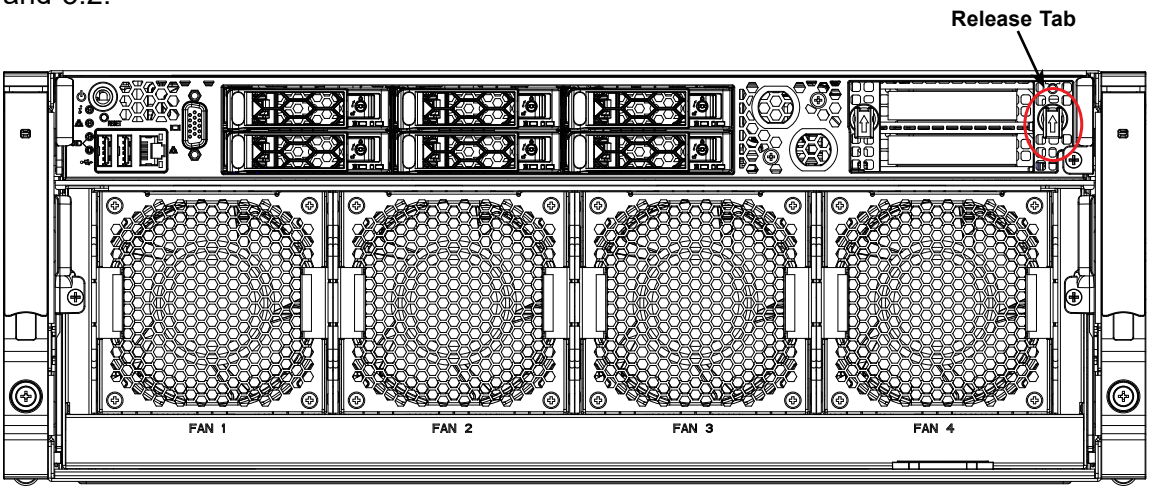


Figure 3-12. Expansion Bracket Release Tab

2. Rotate open both release tabs until the arrows point downward and remove the bracket from the chassis.
3. Insert the expansion card(s) into the riser card slot(s) while aligning the rear PCI shield.
4. Replace the riser card into the motherboard expansion slot while aligning the bracket into the chassis.
5. Rotate the release tab until the arrows point upward and clicks.
6. Replace the motherboard tray into the chassis.

Installing an Expansion Card in the Switch Tray

1. Power down the system and remove the switch tray as described in Section 3.1 and 3.2.
2. Remove the shield and screw where the expansion card will be installed.
3. Install the expansion card and re-install the screw.

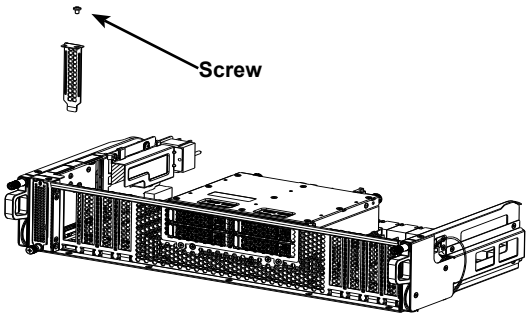


Figure 3-13. Remove Shield and Screw

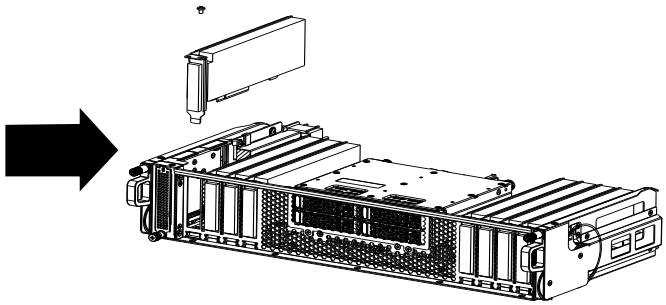


Figure 3-14. Install Card and Screw

Installing AIOM in the Switch Tray

1. Power down the system and remove the switch tray as described in Section 3.1 and 3.2.
2. Loosen the thumbscrew on the AIOM shield and remove it from the chassis.
3. Push the AIOM card into the chassis until the release lever retracts.
4. Tighten the thumbscrew to secure the AIOM card in the chassis.

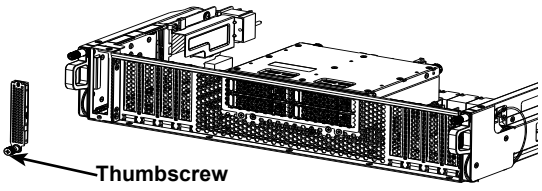


Figure 3-15. Remove Shield

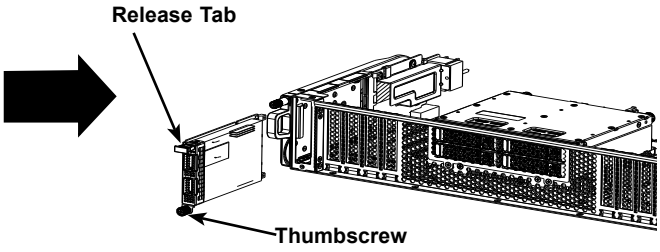


Figure 3-16. Install AIOM

3.9 System Cooling

Fans

The GPU node contains four hot-swappable heavy-duty fans. The fan modules are powered from the fan board mounted within the GPU tray. These fans are powered by 8-pin power connectors. The CPU node contains six counter-rotating fans. Fan speed is controlled by a system temperature setting in BMC. If a fan fails, the remaining fans will ramp up to full speed. The system can continue to run with a failed fan in the GPU node or CPU node. Replace any failed fan at your earliest convenience with the same type and model.

Changing a System Fan

1. Determine which fan is failing. If possible, use BMC. If not, while the power is on, examine the fans to determine which one has failed.
2. Squeeze both tabs at the side of the fan module and pull the fan out of the chassis.
3. Replace the fan with a new one, making sure it is within specifications.

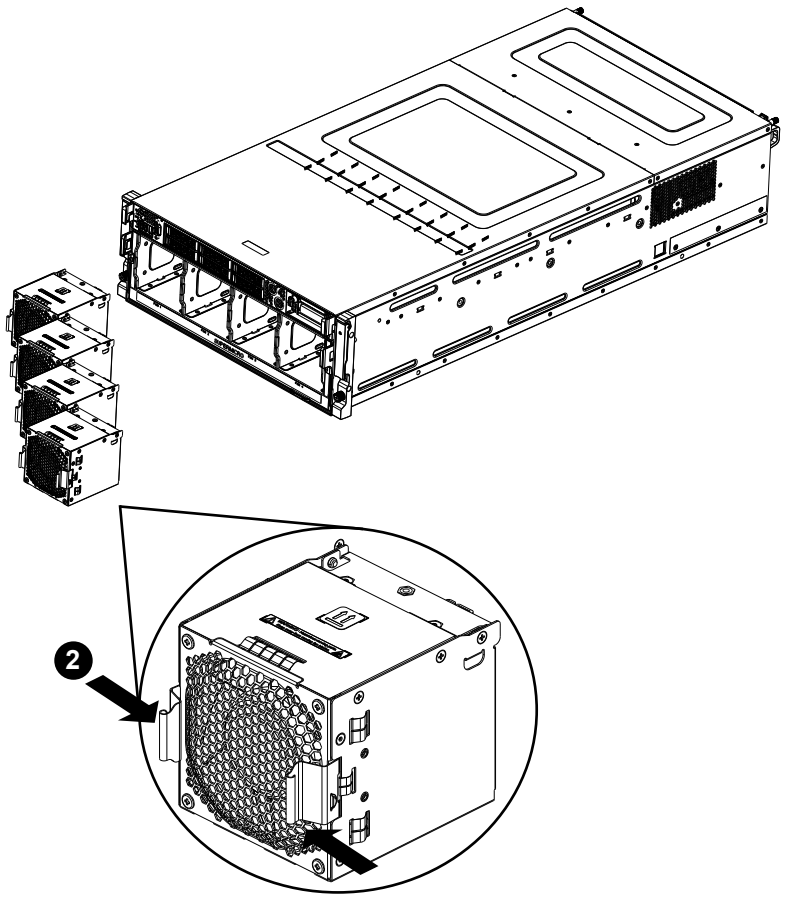


Figure 3-17. GPU Fan Replacement

4. Push the fan into the housing until it is secure and running.
5. Confirm that the fan is working properly checking the server air flow:

- Make sure there are no objects to obstruct air flow in and out of the server.
- If you are using a front bezel, make sure the bezel filter is replaced periodically.
- Do not operate the server without drives or drive trays in the drive bays.
- Use only recommended server parts.
- Make sure no wires or foreign objects obstruct air flow through the chassis. Pull all excess cabling out of the airflow path or use shorter cables.

The control panel LEDs display system heat status. See “Control Panel” in Chapter 1 for details.

Overheating

There are several possible responses if the system overheats.

Overheat Temperature Setting

Some backplanes allow the overheat temperature to be set at 45, 50, or 55 by changing a jumper setting. For more information, consult the backplane user manual at www.supermicro.com. (Click Support, then the Manuals link.)

If the server overheats:

1. Use the LEDs to determine the nature of the overheating condition.
2. Confirm that the chassis covers are installed properly.
3. Make sure all fans are present and operating normally.
4. Check the routing of the cables.
5. Verify that the heatsinks are installed properly. Push the replacement fan module straight inward into the GPU tray until the left and right fan module finger tabs are locked into the GPU tray.

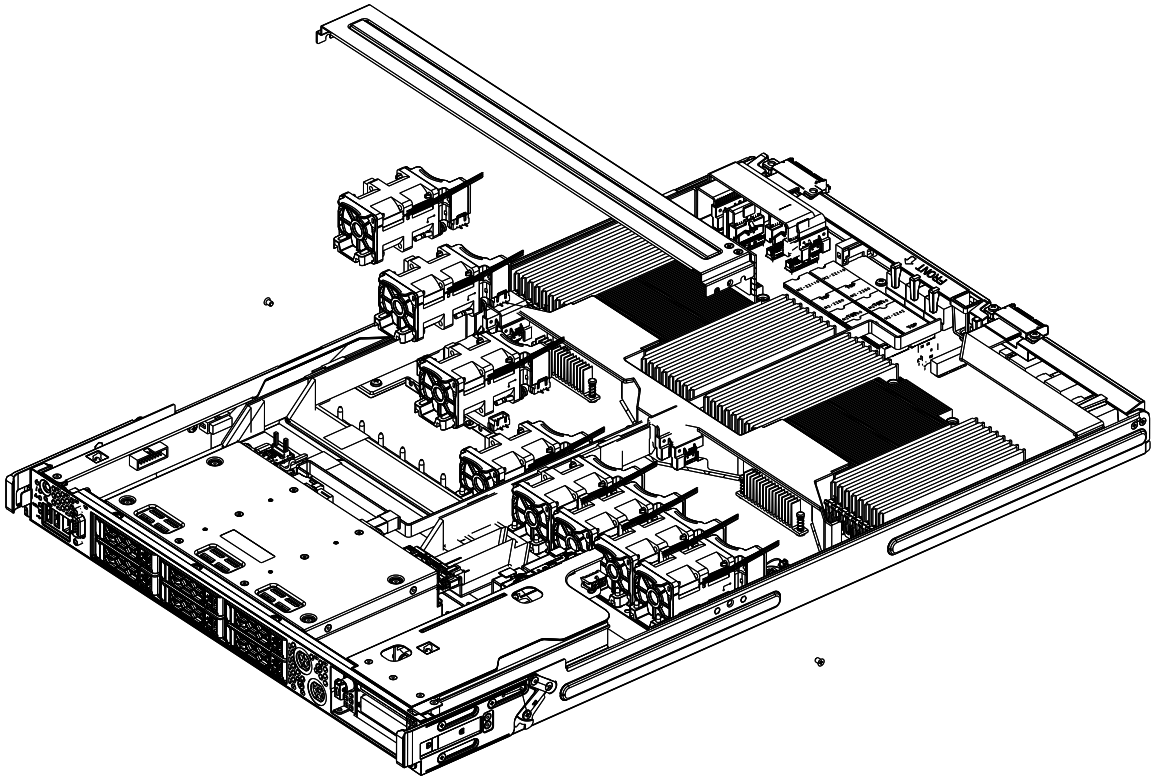


Figure 3-18. CPU Fan Replacement

Note: Figure is for illustration purposes only. Some components shown might not match those in your system.

Changing a CPU Fan

1. Identify the failed fan.
2. Power down the system and remove the motherboard tray as described in Section 3.1 and 3.2.
3. Remove the two screws holding the crossbar to the CPU tray and remove the crossbar.
4. Remove the failed fan's wiring from the motherboard.
5. Remove the four pin securing the fan to the fan tray.
6. Lift the fan from the fan tray and out of the chassis.
7. Place a new fan in the open position in the fan tray. Make sure the arrow indicating the air flow direction points in the same direction as the other fans.
8. Reconnect the fan's wiring.
9. Replace the motherboard tray into the chassis.

Air Shroud

Air shrouds help to funnel the airflow provided by the fans over the system components that generate the most heat.

Installing the Air Shroud

1. Remove the CPU node from the chassis.
2. Ensure the CPU, CPU heatsinks, and configured DIMMs are installed
3. Gently place the air shroud over the CPU heatsinks with the front snap locations lining up with metal chassis middle crossbar. Be careful that the airshroud legs at either end do not interfere with any motherboard components such as DIMMs. Guide the air shroud around cable bundles as necessary.
4. Install three screws to hold the air shroud to the chassis floor.

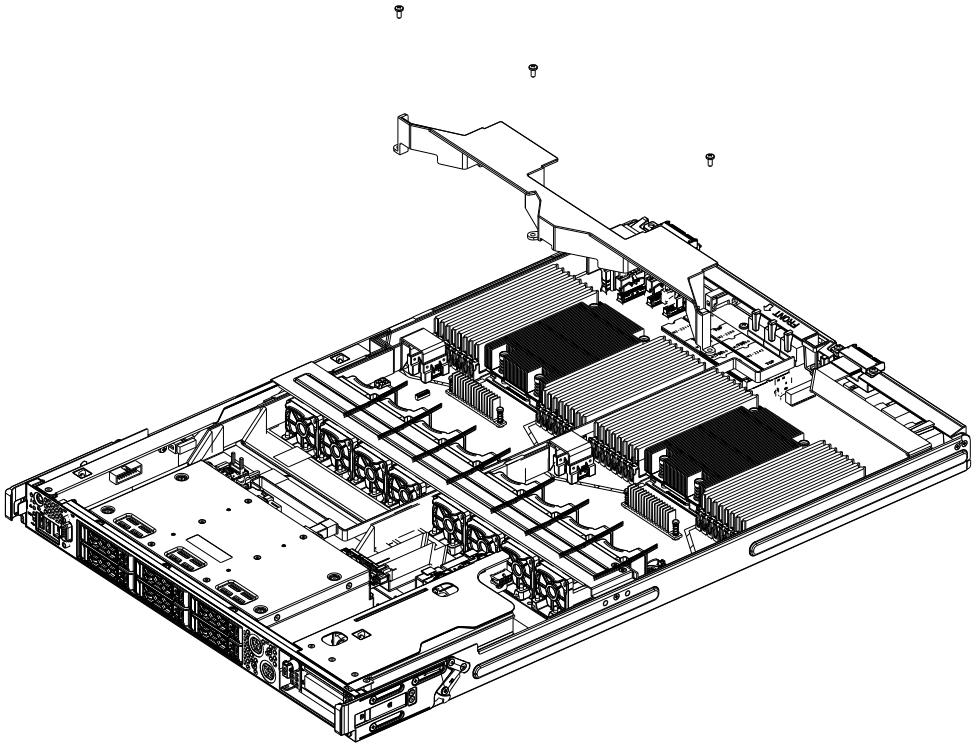


Figure 3-19. Installing Air Shrouds

Note: Figure is for illustration purposes only. Some components shown might not match those in your system.

3.10 Power Supply

The 420GP-TNAR features 2200W (3+1) redundant Platinum Level power supplies while the 420GP-TNAR+ features 3000W (2+2) redundant Titanium Level (96%+) 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 100-120v or 180-240v. 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. Logical numbering of the power supplies is PSU1 to PSU4 from left to right.

Replacing the Power Supply

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

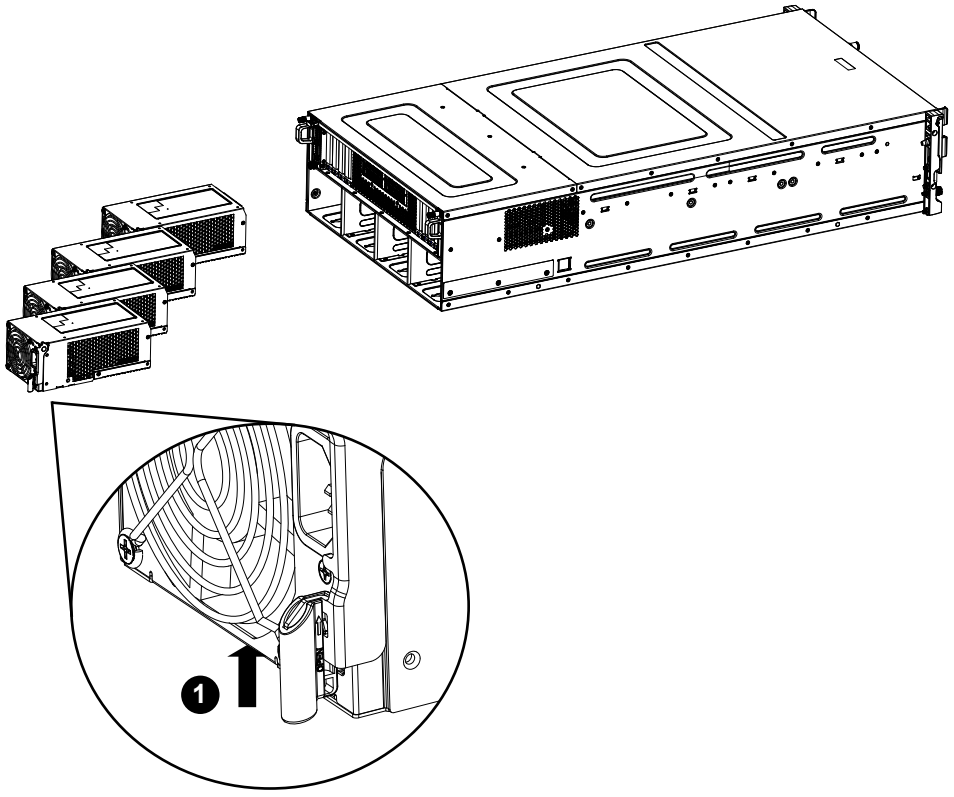


Figure 3-20. Replacing a Power Supply

3. Insert replacement power supply (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.

3.11 BMC

The BMC can be reset using the button on the front control panel or on the chassis rear.

- Reset—Press and hold the button. After six seconds, the LED blinks at 2 Hz. The BMC resets and the reset duration is ~250 ms. Then the BMC starts to boot.
- Restore factory default configuration—Hold the button for twelve seconds. The LED blinks at 4 Hz while defaults are configured.
- Firmware update—the LED blinks at 10Hz during a firmware update.

BMC Reset Options	
Event	**LED (Green)**
Reset	Blinks at 2 Hz
Restore Defaults	Blinks at 4 Hz
Update	Blinks at 10 Hz

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 Power Connections

SMCI-Propietary Power Connectors

Four SMCI proprietary power supply connectors are located at JMB_E5 and JMB_E6 on the motherboard. This connectors are reserved for SMCI proprietary server use only.

Riser Card Power Connector

A riser card power connector is located at JPWR_RISER. It provides power support for the riser cards.

Hard Drive Backplane Power Connectors

Two power connectors are located at JHDD_PWR0 and JHDD_PWR1. They provide power support for the hard drive backplane system.

4.2 Headers and Connectors

Fan Headers

There are eight 4-pin fan headers (FAN1~FAN8) and two 9-pin fan headers for liquid cooling pumps (FANA/FANB). Fan speed control is available for 4-pin fans by Thermal Management via the BMC interface. Refer to the tables below for pin definitions.

4-Pin Fan Header Pin Definitions

Pin#	Definition
1	Ground
2	2.5A/+12V
3	Tachometer
4	PWM_Control

9-Pin Fan Header Pin Definitions

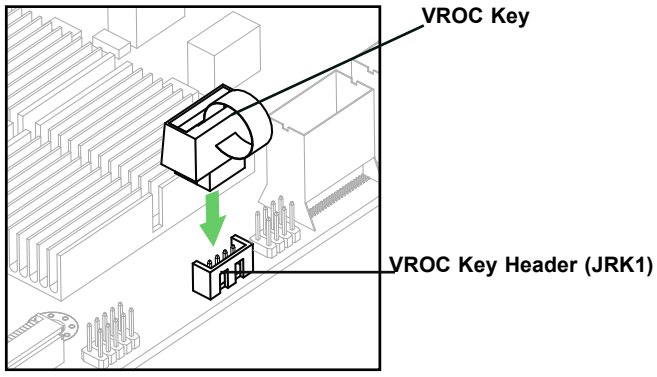
Pin#	Definition
1	Ground
2	P12V
3	FAN_IN
4	PWM_Control
5	PRSNT
6	P3V3_SB
7	I2C_CLK
8	I2C_DAT
9	Ground

VROC RAID Key Header

A VROC RAID Key header is located at JRK1 on the motherboard. For NVMe RAID support, install a VROC RAID Key on JRK1 as shown in the illustration below.

Intel VROC Key Pin Definitions

Pin#	Definition
1	Ground
2	3.3V Standby
3	Ground
4	PCH RAID Key



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

Backplane Connectors

Four backplane connectors are located at JMB_E1, JMB_E2, JMB_E3 and JMB_E4, next to the proprietary power supplies connectors. They provide PCIe signals to the backplane.

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. For more information on TPM go to http://www.supermicro.com/manuals/other/TPM.pdf.

Trusted Platform Module Header Pin Definitions

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

Complex Programmable Logical Device (CPLD) Headers

Two CPLD headers are located at JPRG1 and JPRG2. They provide connections to the complex-programable logical devices.

Hard Drive Backplane Connectors

Two hard drive backplane connectors are located at JSLIM1A and JSLIM1B. They provide PCIe signals to the hard drive backplane system.

Riser Card Connectors

Four riser card connectors are located at JSLIM3A, JSLIM3B, JSLIM4A and JJSLIM4B. They provide connections to the riser cards.

4-pin BMC External I²C Header

A System Management Bus header for BMC is located at JIPMB1. Connect the appropriate cable here to use the BMC I²C connection on your system. Refer to the table below for pin definitions.

External I²C Header Pin Definitions

Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

Universal Serial Bus (USB) Ports and Headers

A internal Type-A USB 3.0 connector is located at JUSB1.

4.3 Input/Output Ports

Front I/O Ports

Front I/O ports are available through the AOM-DGO-IO riser card. The riser card connector for the AOM-DGO-IO is located at JSLOT1 on the motherboard.

Ethernet Ports

A dedicated BMC LAN port is located on the front I/O panel. The LAN port is supported by the iAOM-DGO-IO riser card, which connects to JSLOT1. The dedicated BMC LAN is supported by the onboard AST 2600 BMC and accepts an RJ45 type cable. Refer to the LED Indicator Section for LAN LED information.

Universal Serial Bus (USB) Ports

There are two USB 3.1 ports on the front I/O panel accessible through the AOM-PIO-i2XT riser card, which plugs into JSLOT1.

Front Panel USB 2/3 (3.0) Pin Definitions

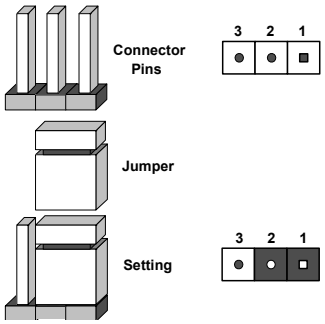
Pin#	Definition	Pin#	Definition
1	VBUS	10	VBUS
2	D-	11	D-
3	D+	12	D+
4	Ground	13	Ground
5	StdA_SSRX-	14	StdB_SSRX-
6	StdA_SSRX+	15	StdB_SSRX+
7	GND_DRAIN	16	GND_DRAIN
8	StdA_SSTX-	17	StdB_SSTX-
9	StdA_SSTX+	18	StdB_SSTX+

4.4 Jumpers

Explanation of Jumpers

To modify the operation of the motherboard, jumpers are used to choose between optional settings. Jumpers create shorts between two pins to change the function associated with it. Pin 1 is identified with a square solder pad on the printed circuit board. See the motherboard layout page for jumper locations.

Note: On a two-pin jumper, "Closed" means the jumper is on both pins and "Open" indicates the jumper is either on only one pin or has been completely removed.



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.

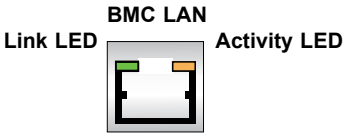
Notes: Clearing CMOS will also clear all passwords. Do not use the PW_ON connector to clear CMOS.

4.5 LED Indicators

BMC LAN LEDs

A BMC LAN is located on the front I/O board. The amber LED on the right indicates activity, while the LED on the left indicates the speed of the connection. Refer to the table below for more information.

BMC LAN LEDs		
	Color/State	**Definition**
Link (left)	Green: Solid Amber: Solid	100 Mbps 1Gbps
Activity (Right)	Amber: Blinking	Active



Unit ID LED

A UID LED indicator is located at LED1. The UID indicator provides easy identification of a system unit that may be in need of service.

UID LED LED Indicator	
LED Color	**Definition**
Blue: On	Unit Identified

Onboard Power LED

The Onboard Power LED is located at LE3. When this LED is on, system power is on. Be sure to turn off the system power and unplug the power cord before removing or installing components. Refer to the table below for more information.

Onboard Power LED Indicator	
LED Color	**Definition**
Off	System Power Off (power cable not connected)
Green	System Power On

BMC Heartbeat LED

A BMC Heartbeat LED is located at LEDM1. When LEDM1 is blinking, the BMC is functioning normally. Refer to the table below for more information.

BMC Heartbeat LED Indicator	
LED Color	**Definition**
Green: Blinking	BMC Normal

M.2 LED

Two M.2 LEDs are located at LED1/LED2. When the M.2 LED is blinking, it indicates that M.2 is functioning normally. Refer to the table below for more information.

M.2 LED State	
LED Color	**Definition**
Green: Blinking	Device Working

4.6 Storage Ports

I-SATA 3.0 and S-SATA 3.0 Connectors

The X12DGO-6 has eight I-SATA 3.0 ports (I-SATA0-3, I-SATA4-7). These SATA ports are supported by the Intel® C621A chipset

M.2 Slot

The X12DGO-6 motherboard has two M.2 slots (JM2_1/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.

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 Microsoft Windows OS Installation

If you will be using RAID, you must configure RAID settings before installing the Windows OS and the RAID driver. Refer to the RAID Configuration User Guides posted on our website at www.supermicro.com/support/manuals.

Installing the OS

1. Create a method to access the MS Windows installation ISO file. That might be a DVD, perhaps using an external USB/SATA DVD drive, or a USB flash drive, or the BMC KVM console.

2. Retrieve the proper RST/RSTe driver. Go to the Supermicro web page for your motherboard and click on "Download the Latest Drivers and Utilities", select the proper driver, and copy it to a USB flash drive.

3. Boot from a bootable device with Windows OS installation. You can see a bootable device list by pressing **F11** during the system startup.

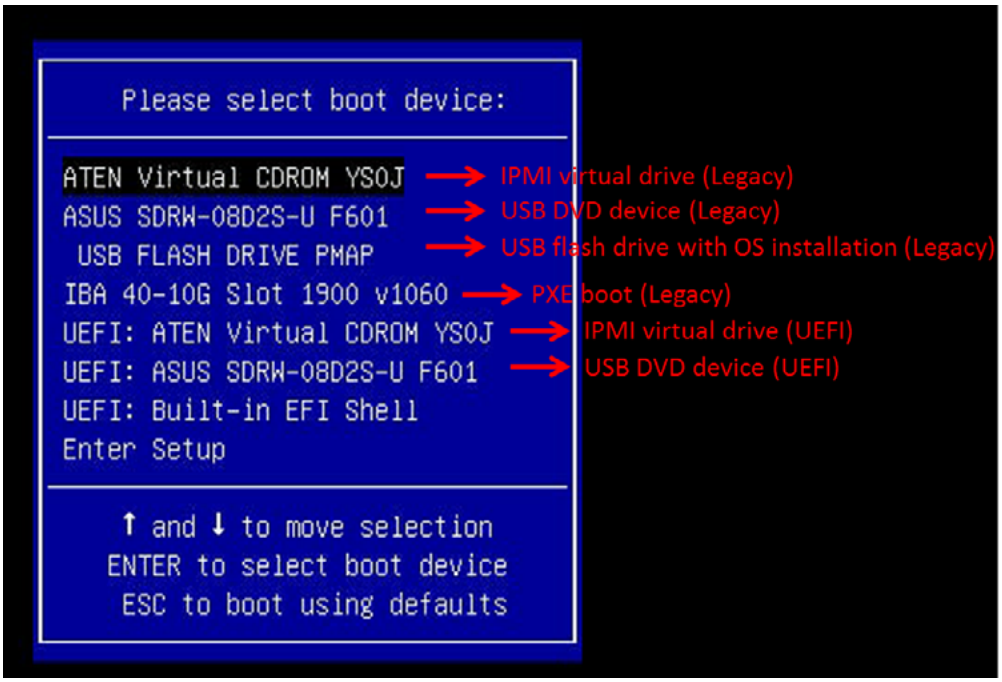


Figure 5-1. Select Boot Device

4. During Windows Setup, continue to the dialog where you select the drives on which to install Windows. If the disk you want to use is not listed, click on “Load driver” link at the bottom left corner.

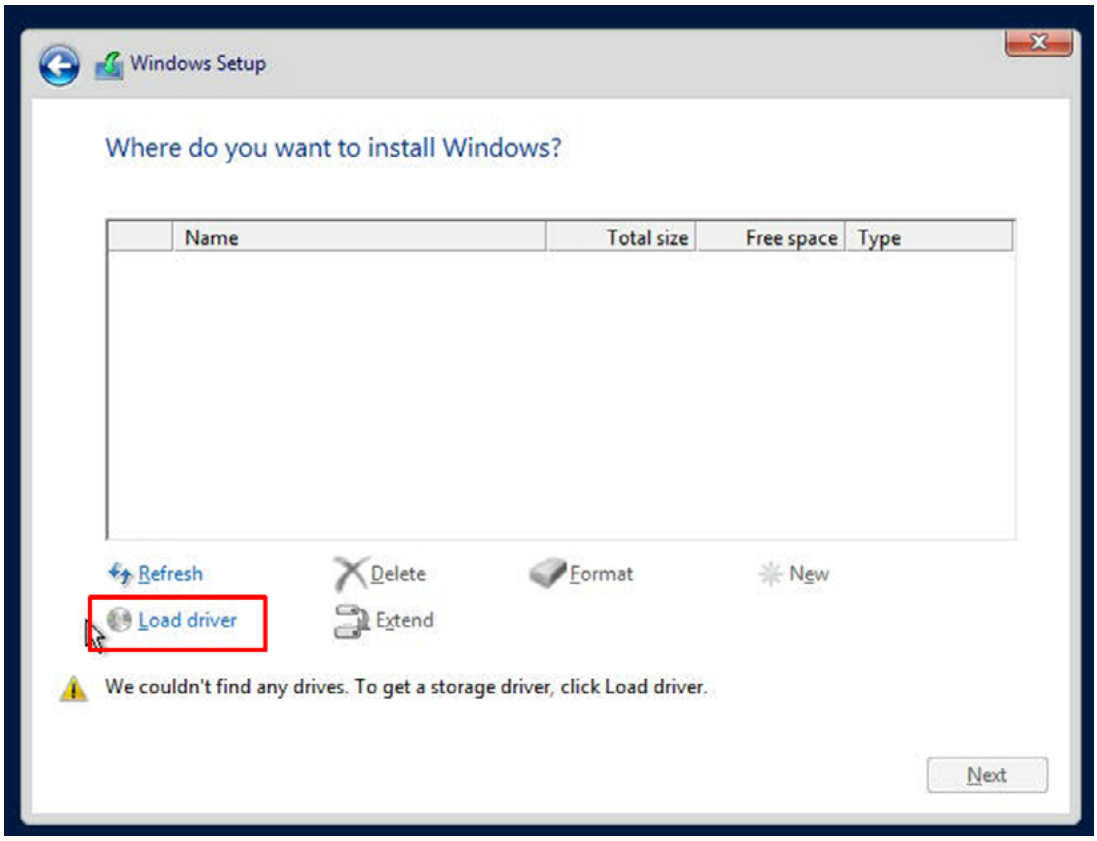


Figure 5-2. Load Driver Link

To load the driver, browse the USB flash drive for the proper driver files.

- For RAID, choose the SATA/sSATA RAID driver indicated then choose the storage drive on which you want to install it.
- For non-RAID, choose the SATA/sSATA AHCI driver indicated then choose the storage drive on which you want to install it.

5. Once all devices are specified, continue with the installation.
6. After the Windows OS installation has completed, the system will automatically reboot multiple times.

5.2 Driver Installation

The Supermicro website contains drivers and utilities for your system at https://www.supermicro.com/wdl/driver. Some of these must be installed, such as the chipset driver.

After accessing the website, go into the CDR_Images (in the parent directory of the above link) and locate the ISO file for your motherboard. Download this file to to a USB flash drive or a DVD. (You may also use a utility to extract the ISO file if preferred.)

Another option is to go to the Supermicro website at http://www.supermicro.com/products/. Find the product page for your motherboard, and "Download the Latest Drivers and Utilities".

Insert the flash drive or disk and the screenshot shown below should appear.

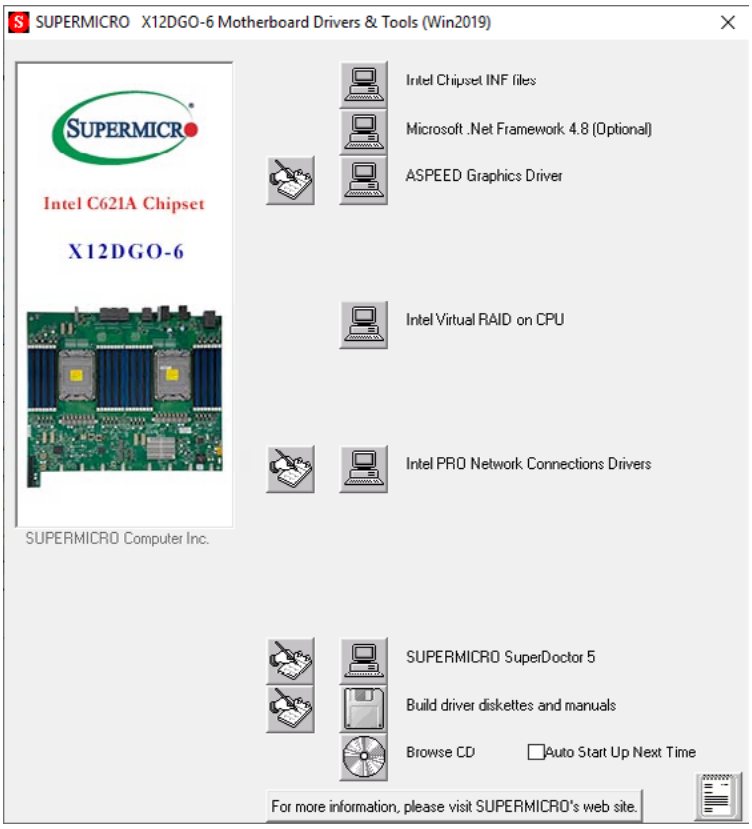


Figure 5-3. Driver & Tool Installation Screen

Note: Click the icons showing a hand writing on paper to view the readme files for each item. Click the computer icons to the right of these items to install each item (from top to the bottom) one at a time. **After installing each item, you must re-boot the system before moving on to the next item on the list.** The bottom icon with a CD on it allows you to view the entire contents.

5.3 SuperDoctor® 5

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.

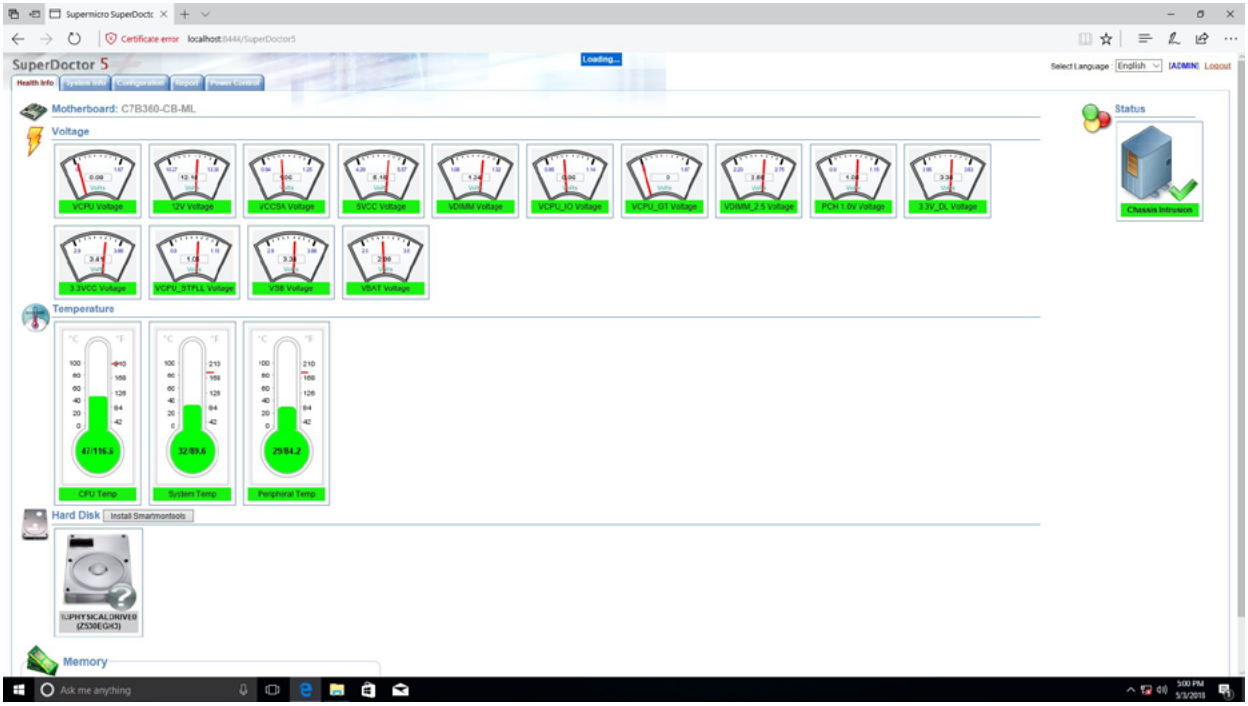


Figure 5-4. SuperDoctor 5 Interface Display Screen (Health Information)

5.4 BMC

The X12DGO-6 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: 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 5-5. BMC Password Label

See Chapter 1 for label location.

Chapter 6

Optional Components

This chapter describes optional system components and installation procedures.

6.1 Optional Parts List

NVMe Option Kit		
Description	**Part Number**	**Quantity**
MicroFit, 2x2 36-cm GPU cable	CBL-PWEX-1231	1
SlimLine LP x8 to SlimLine LP x8, 24-cm cable	CBL-SAST-1224LP-85	2
Hot-swap thin-profile, 2.5" tool-less NVMe drive tray w/ orange tab	MCP-220-00178-0B	4
1U 4-slot SFF backplane to suppors four SAS3/SATA3/NVMe4 storage devices	BPN-NVME4-HS119N-S4R	1

6.2 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 PCI-E 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 Sytems

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

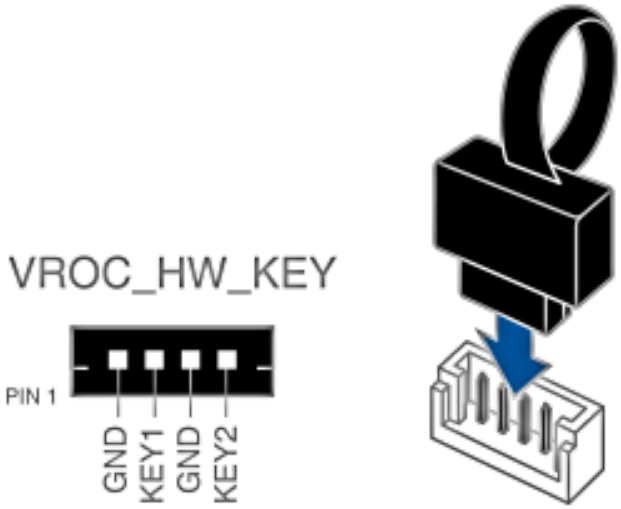


Figure 6-1. Intel® VROC RAID Key and Motherboard Connector JRK1

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** as shown in Figure 6-??.
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

Need new screenshots

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.

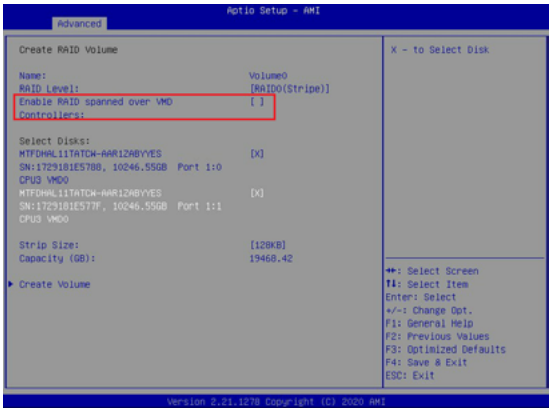


Figure 6-3. Created Volume *without* enabling RAID spanned over VMD Controller

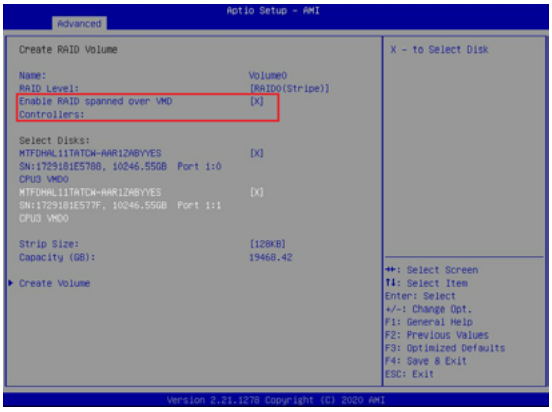


Figure 6-4. Created Volume *with* enabling RAID spanned over VMD Controller

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 blink
Fault	Solid on
Rebuilding	1 Hz Blink

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.

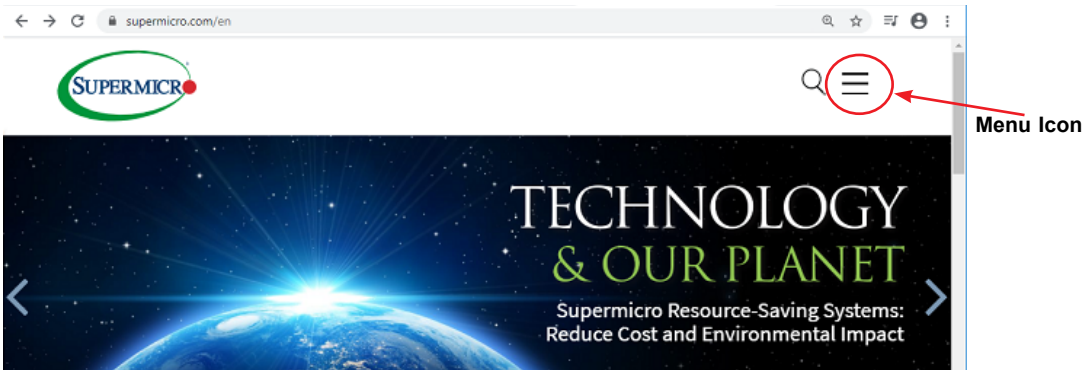


Figure 7-1. Supermicro Website

- 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 420GP-TNAR/420GP-TNAR+ System

SYS-420GP-TNAR/420GP-TNAR+ specifications page

X12DGO-6 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

Direct Links (continued)

SuperDoctor5 Large Deployment Guide

For validated memory, see 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 Baseboard Management Controller (BMC)

The system supports the a Baseboard Management Controller (BMC). BMC is used to provide remote access, monitoring and management. There are several BIOS settings that are related to BMC.

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

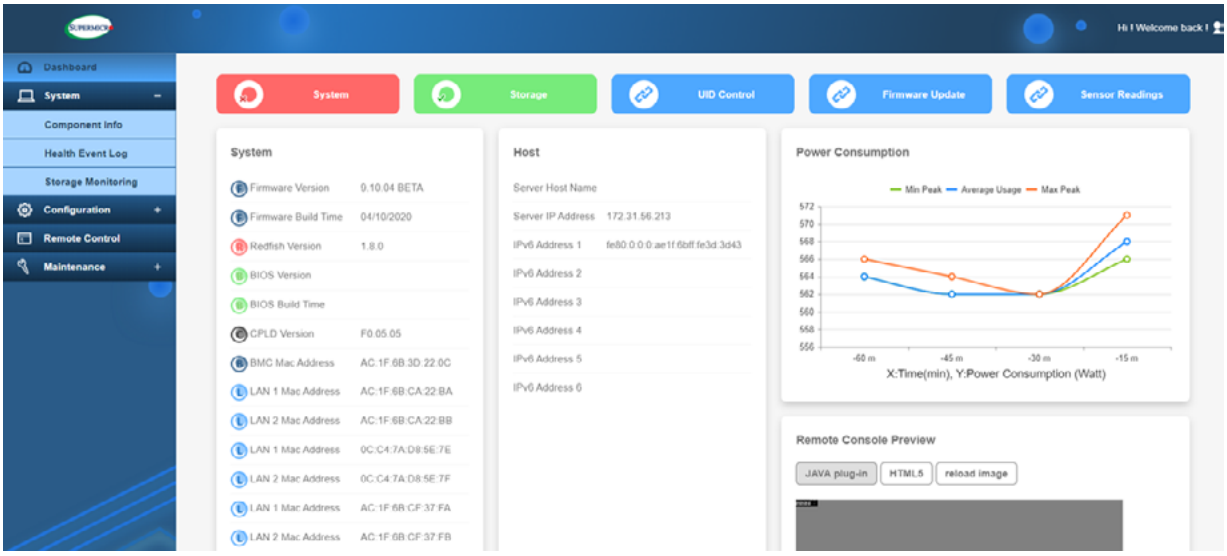


Figure 7-2. BMC Sample

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.

No Power

1. As you try to power up the system, note any beep codes. Refer to the next section for details on beep codes.

2. Check that the power LED on the motherboard is on.

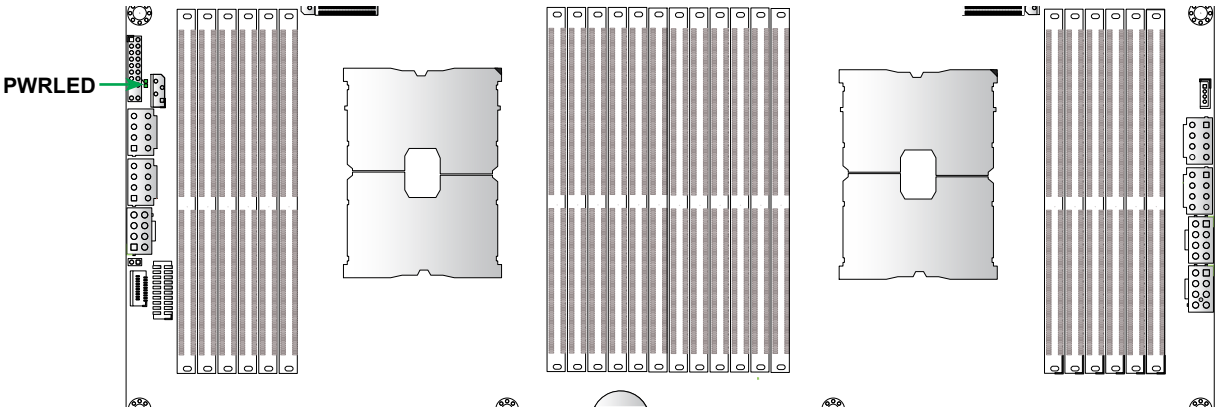


Figure 7-3. Location of the MB Power LED

3. Make sure that the power connector is connected to your power supply.

4. Make sure that no short circuits exist between the motherboard and chassis.

5. Disconnect all cables from the motherboard, including those for the keyboard and mouse.

6. Remove all add-on cards.

7. Install a CPU, a heatsink, connect the internal speaker (if applicable), and the power LED to the motherboard. Make sure that the heatsink is fully seated.

8. Use the correct type of onboard CMOS battery as recommended by the manufacturer. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one. **Warning**: To avoid possible explosion, do not install the battery upside down.

9. Verify that all jumpers are set to their default positions.

10. Check that the power supplies' input voltage operate at 100-120v or 180-240v.

11. Turn the power switch on and off to test the system

No Video

1. If the power is on but you have no video, remove all the add-on cards and cables.
2. As you try to power up the system, note any beep codes. Refer to the next section for details on beep codes.

System Boot Failure

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

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 below.

Memory Errors

1. Make sure that the DIMM modules are properly and fully installed.
2. Confirm that you are using the correct memory. Also, it is recommended that you use the same memory type and speed for all DIMMs in the system. See Section 3.3 for memory details.
3. Check for bad DIMM modules or slots by swapping modules between slots and noting the results.
4. Check the power supply voltage 115V/230V switch.

Losing the System's Setup Configuration

1. 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. .
2. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.
3. If the above steps do not fix the setup configuration problem, contact your vendor for repairs.

When the System Becomes Unstable

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

1. CPU/BIOS support: Make sure that your CPU is supported and that you have the latest BIOS installed in your system.

2. Memory support: Make sure that the memory modules are supported by testing the modules using memtest86 or a similar utility.

   Note: Refer to the product page on our website at http://www.supermicro.com for memory and CPU support and updates.

3. HDD support: Make sure that all hard disk drives (HDDs) work properly. Replace the bad HDDs with good ones.

4. System cooling: Check the system cooling to make sure that all heatsink fans and CPU/system fans, etc., 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 front panel Overheat LED and make sure that it is not on.

5. Adequate power supply: Make sure that the power supply provides adequate power to the system. Make sure that all power connectors are connected. Please refer to our website for more information on the minimum power requirements.

6. Proper software support: Make sure that the correct drivers are used.

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

1. Source of installation: Make sure that the devices used for installation are working properly, including boot devices such as CD.

2. Cable connection: Check to make sure that all cables are connected and working properly.

3. Using 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. Refer to the steps listed in Section A above for proper troubleshooting procedures.

4. Identifying bad components by isolating them: 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.

5. 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.

6. 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.

GPU Detection Issue

1. If there is a GPU detection issue with system, first check the switchboard for amber LEDs, which indicate the GPU link status.
2. If the amber LEDs are not present and only the green LEDs from the switchboard are observed, this means that there is an issue with GPU detection from the switchboard.
3. In this situation, power down the system and reseat the GPU tray. Ensure it's fully seated and locked into the chassis.
4. Power the system back on and check the LEDs again.
5. If the issue persists, perform an AC cycle of the system.
6. After the system has been powered back on, check the LEDs again.
7. If still no change with the LEDs, capture a bug report and collect the field diagnostic logs, which will be required when submitting an RMA request.

7.4 BIOS Error Beep (POST) Codes

During the POST (Power-On Self-Test) routines, which are performed each time the system is powered on, errors may occur.

Non-fatal errors are those which, in most cases, allow the system to continue the boot-up process. The error messages normally appear on the screen.

Fatal errors are those which will not allow the system to continue the boot-up procedure. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

These fatal errors are usually communicated through a series of audible beeps. The table below lists some common errors and their corresponding beep codes encountered by users.

BIOS Error Beep (POST) Codes		
Beep Code	**Error Message**	**Description**
1 short	Refresh	Circuits have been reset (Ready to power up)
5 short, 1 long	Memory error	No memory detected in system
5 long, 2 short	Display memory read/write error	Video adapter missing or with faulty memory
1 long continuous	System OH	System overheat condition

Additional BIOS POST Codes

The AMI BIOS supplies additional checkpoint codes, which are documented online at http://www.supermicro.com/support/manuals/ ("AMI BIOS POST Codes User's Guide").

When BIOS performs the Power On Self Test, it writes checkpoint codes to I/O port 0080h. If the computer cannot complete the boot process, a diagnostic card can be attached to the computer to read I/O port 0080h (Supermicro p/n AOC-LPC80-20).

For information on AMI updates, please refer to http://www.ami.com/products/.

7.5 Crash Dump Using BMC

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 BMC.

Check the BMC Error Log

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

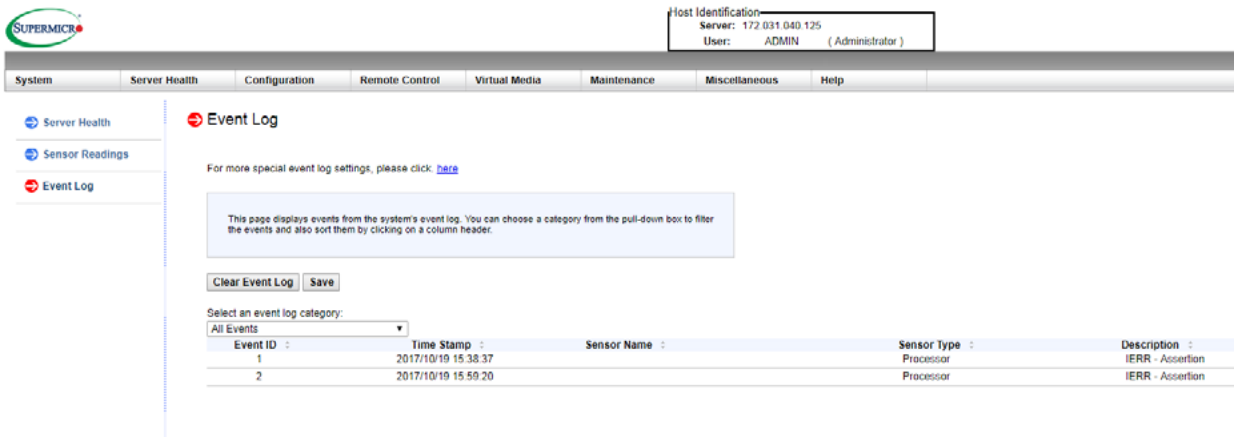


Figure 7-4. BMC Event Log

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

7.6 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.

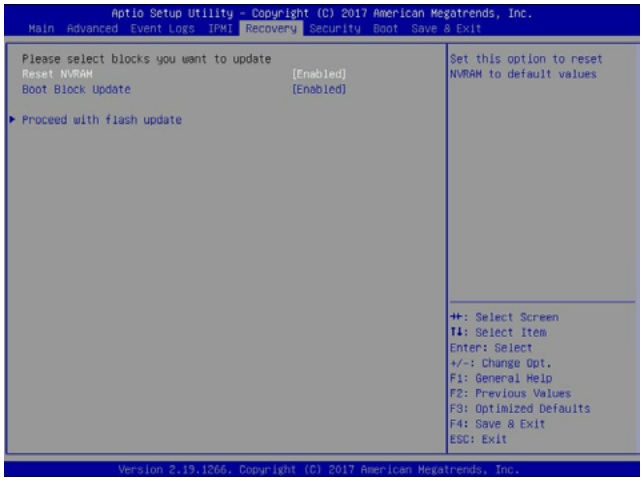
   Note 1: If you cannot locate the "Super.ROM" file in your drive disk, visit our website at www.supermicro.com to download the BIOS package. Extract the BIOS binary image into a USB flash device and rename it "Super.ROM" for the BIOS recovery use.

   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.

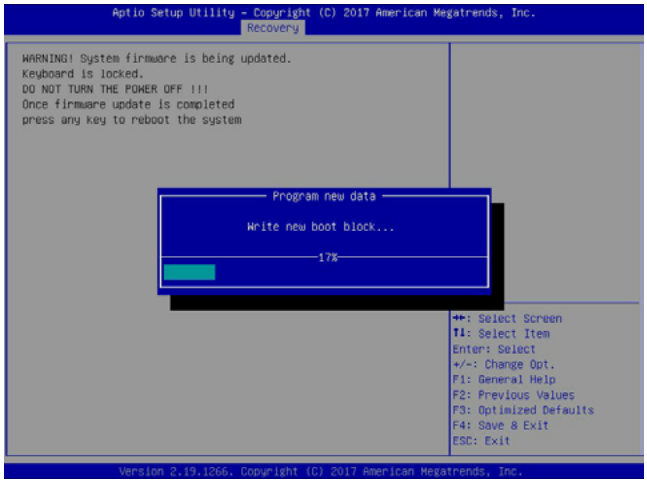


4. When the screen as shown above displays, use the arrow keys to select the item "Proceed with flash update" and press the <Enter> key. You will see the BIOS recovery progress as shown in the screen below.

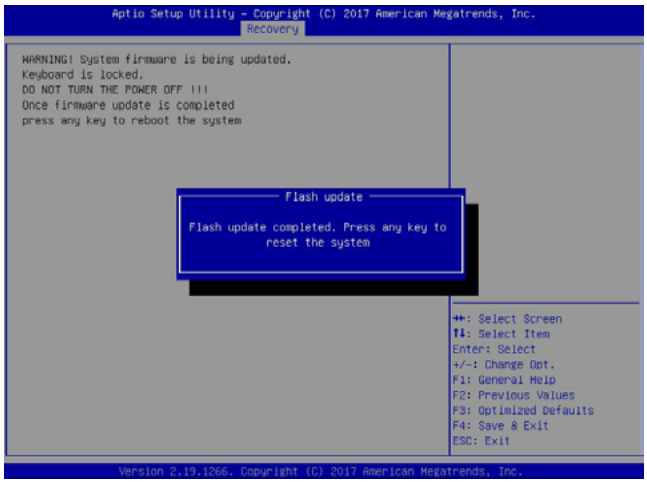
   Note: *Do not interrupt the BIOS flashing process until it has completed*.

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.

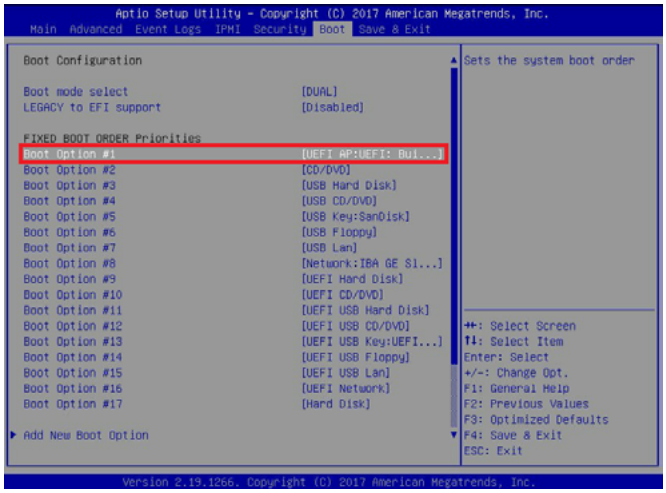


7. Press <Del> continuously during system boot to enter the BIOS Setup utility. From the top of the tool bar, select Boot to enter the submenu. From the submenu list, select Boot

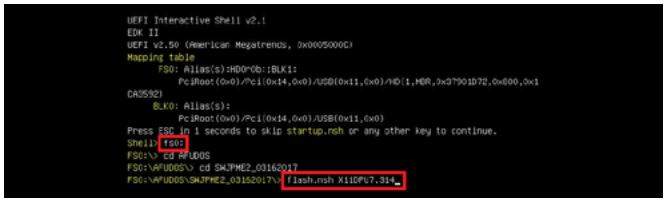


Option #1 as shown below. Then, set Boot Option #1 to [UEFI AP:UEFI: Built-in EFI Shell]. Press <F4> to save the settings and exit the BIOS Setup utility.

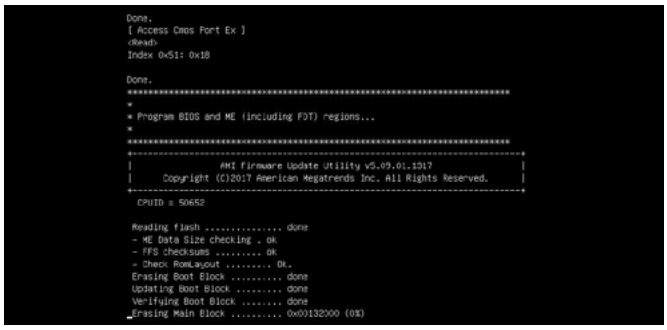
8. When the UEFI Shell prompt appears, type fs# to change the device directory path. Go to the directory that contains the BIOS package you extracted earlier from Step 6. Enter flash.nsh BIOSname.### at the prompt to start the BIOS update process.



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

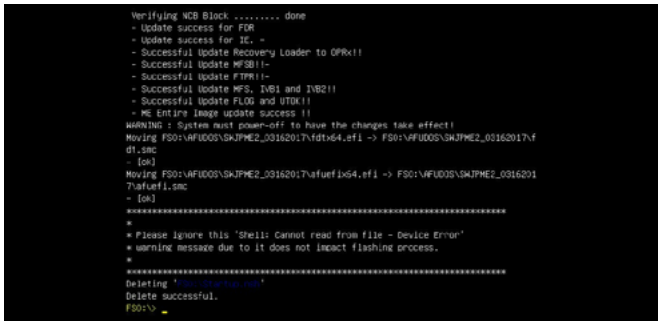


9. The screen above indicates that the BIOS update process is complete. When you see the screen above, unplug the AC power cable from the power supply, clear CMOS, and plug



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.

7.7 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. Remove the cover 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

7.8 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.

7.9 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.

7.10 Feedback

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

7.11 Contacting Supermicro

Headquarters

Address:	Super Micro Computer, Inc. 980 Rock Ave. San Jose, CA 95131 U.S.A.
Tel:	+1 (408) 503-8000
Fax:	+1 (408) 503-8008
Email:	marketing@supermicro.com (General Information) support@supermicro.com (Technical Support)
Website:	www.supermicro.com

Europe

Address:	Super Micro Computer B.V. Het Sterrenbeeld 28, 5215 ML 's-Hertogenbosch, The Netherlands
Tel:	+31 (0) 73-6400390
Fax:	+31 (0) 73-6416525
Email:	sales@supermicro.nl (General Information) support@supermicro.nl (Technical Support) rma@supermicro.nl (Customer Support)
Website:	www.supermicro.nl

Asia-Pacific

Address:	Super Micro Computer, Inc. 3F, No. 150, Jian 1st Rd. Zhonghe Dist., New Taipei City 235 Taiwan (R.O.C)
Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3992
Email:	support@supermicro.com.tw
Website:	www.supermicro.com.tw

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 اىمناطق 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 الأسلاك وحجم الموصل والقابس السليم. استخدام أي كابلات ومحولات أخرى قد يتسبب في عطل أو حريق. يحظر قانون السلامة للأجهزة الكهربائية واستخدام الكابلات المعتمدة من قبل UL أو CSA لجميع المنتجات 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 Generation Intel® Xeon® Scalable processorss in an LGA4189 socket; UPI up to 11.2GT/s; supports CPU TDP up to 270W Note: Refer to the motherboard specifications pages on our website for updates to supported processors.
Chipset
Intel® C621A
BIOS
AMI 128Mb SPI Flash EEPROM
Memory
32 DIMM slots for up to 8TB of 3DS LRDIMM/LRDIMM/3DS RDIMM/RDIMM DDR4 3200/2933/2666 or 8TB of Intel Optane PMem 200 Series with speeds of up to 3200 MHz
Storage Drives
Six 2.5” hot-swap NVMe/SAS/SATA drive bays Four optional rear 2.5” NVMe drives Two NVMe/SATA3 M.2
PCI Expansion Slots
Two front PCIe Gen 4 x16 slots (from CPUs) Eight rear PCIe Gen 4 x16 slot (from PLX) One AIOM PCIe Gen 4 x16
Input/Output
One dedicated BMC port One VGA port Two front USB 3.0 ports
Motherboard
X12DGO-6; (LxW) 16.89 x 15.01 in., (429 x 381 mm)
Chassis
CSE-438G; 4U rackmount, (WxHxD) 17.6 x 6.9 x 35.4 in. (446 x 174 x 900 mm)
System Cooling
Four 9-cm counter-rotating fans (GPU node) Eight 4-cm counter-rotating fans (CPU node) One CPU air shroud Two GPU air shrouds

Power Supply

420GP-TNAR: Model: PWS-2K21G-2R; 80Plus Platinum Level
Total Output Power:
- 1000W with 100 - 127Vac input
- 1800W with 200 - 220Vac input
- 1980W with 200 - 230Vac input
- 2090W with 230 - 240Vac input
- 2200W with 220 - 240Vac input (for UL/cUL only)
- 2090W with 230 - 240Vdc input (for CQC only)

Input:
- 100-127Vac / 12 – 9.5A
- 200-220Vac / 10 -- 9.5A
- 220-230Vac / 10 – 9.5A
- 230-240Vac / 10 -- 9.8A
- 220-240Vac / 11.8 -- 9.6A (UL/cUL only)
- 230-240Vdc / 10 -- 9.8A (CQC only)

420GP-TNAR+: PWS-3K02G-2R; 80Plus Titanium Level
Total Output Power:
- 2880W with 200 - 207Vac input
- 3000W with 207.1 - 240Vac input
- 3000W with 240Vdc input

Input:
- 200-207 Vac / 16 - 15.7A / 50-60 Hz
- 207.1-240 Vac / 16 - 14.5A / 50-60 Hz

Operating Environment

Operating Temperature: 10º to 35º C (50º to 95º F)
Non-operating Temperature: -40º to 60º C (-40º to 140º F)
Operating Relative Humidity: 8% to 90% (non-condensing)
Non-operating Relative Humidity: 5% to 95% (non-condensing)

Regulatory Compliance

FCC, ICES, CE, VCCI, RCM, UKCA, NRTL, CB

Applied Directives, Standards

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

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

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

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”