SUPERMICRO®

SUPERSERVER®
SYS-120TP-DTTR
SYS-120TP-DC8TR
SYS-120TP-DC9TR

USER'S MANUAL

Revision 1.0a

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Preface

About this Manual

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

Please refer to the SYS-120TP-DxxTR 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: https://www.supermicro.com/support/manuals/

• Product drivers and utilities: https://www.supermicro.com/wdl

• Product safety info: https://www.supermicro.com/about/policies/safety_information.cfm

If you have any questions, please contact our support team at:
support@supermicro.com

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.

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Appendix B System Specifications

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Chapter 1

Introduction

1.1 Overview

This chapter provides a brief outline of the functions and features of the SuperServer SYS-120TP-DxxTR. The following provides an overview of the specifications and capabilities.

System Overview	
Motherboard	*(Per node)* X12DPT-PT6 (up to 600W)
Chassis	CSE-809H-R1K05P3
Processor	*(Per node)* Dual 3rd Gen Intel Xeon Scalable processors, P+ (LGA4189) sockets; up to 185W TDP (thermal design power)
Memory	*(Per node)* 16 DIMM slots, DDR4 RDIMM/LRDIMM or Intel Optane PMem 200 Series* (up to 4TB for DDR4, or up to 4TB of PMem and 2TB DDR4) Up to 3200MHz; size up to 256GB * Note: PMem 200 Series are supported on 3rd Gen Intel Xeon Scalable Platinum, Gold and selected Silver processors.

Drive Support	*(Per node)* Four hot-swap 2.5" drive bays:
	   SYS-120TP-DTTR: SATA
	   SYS-120TP-DC8TR: SAS
	   SYS-120TP-DC9TR: SAS
	Two M.2 SSDs with carrier card included
	Two SATA DOMs (disk on module)

Expansion Slots	*(Per node)* Two PCIe 4.0 x16 slots
I/O Ports	*(Per node)* Two 10Gbase-T ports; one dedicated BMC LAN port Two USB 3.0 ports One VGA port
System Cooling	Six 4-cm heavy duty fans with optimal fan speed control *(Per node)* One air shroud, CPU heatsinks
Power	Dual 1000W redundant 80Plus Titanium level modules
Form Factor	1U rackmount; (WxHxD) 17.2 x 1.75 x 28.25" (437 x 45 x 718mm)

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

The following safety models associated with the SYS-120TP-DxxTR have been certified as compliant with UL or CSA: 809H-10, 809H-R10X12.

Models

Models			
Model	**Drives**	**Add-on Card**	**RAID**
SYS-120TP-DTTR	SATA	BPN-ADP-6SATA3P	0, 1, 5, 10
SYS-120TP-DC8TR	SAS/SATA	AOC-S3808L-L8IT-P	IT Mode
SYS-120TP-DC9TR	SAS/SATA	AOC-S3908L-H8IR-16DD-P	0, 1, 5, 6, 10

1.2 System Features

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

Front View
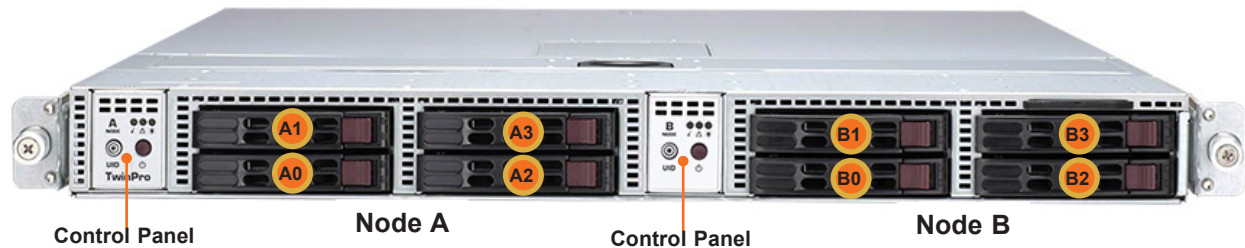
Figure 1-1. Front View

Logical Storage Drive Numbers	
Item	**Description**
0 - 3	2.5" hot-swap SAS3/SATA drive bays for each of nodes A and B

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. For VROC configurations, refer to the VROC section in this manual.

Drive Carrier LED Indicators			
	Color	**Blinking Pattern**	**Behavior for Device**
Activity LED	Blue	Solid On	Idle SAS drive installed
	Blue	Blinking	I/O activity
	Off		Idle SATA or no drive
Status LED	Red	Solid On	Failure of drive with RSTe support
	Red	Blinking at 1 Hz	Rebuild drive with RSTe support
	Red	Blinking at 4 Hz	Identify 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

Control Panel
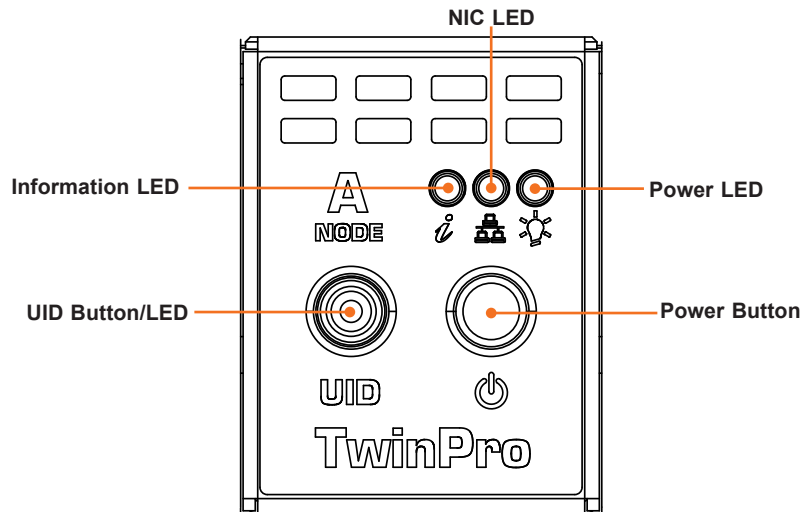
Figure 1-2. Control Panel

Control Panel Features	
Feature	**Description**
Power button	The main power button on each of the control panels is used to apply or remove power from the power supply to associated node Turning power to the system off with this button removes the main power, but keeps standby power supplied to the system. The power button has a built-in LED which will turn green when the power is on.
UID button/LED	When used with a UID compatible motherboard, the UID button is used to turn on or off the blue light function of the LED. This light is displayed in the front as part of the UID button and with a separate LED at the rear of the node. The light helps locate the node in large racks and server banks.
Information LED	See the following table for the status shown by this LED.
NIC LED	This LED indicates network activity on either LAN1 or LAN2 when flashing.
Power LED	Indicates power is being supplied to the system power supply units. This LED is illuminated when the system is operating normally.

Information LED	
Color, Status	**Description**
Red, solid	An overheat condition has occurred.
Red, blinking at 1Hz	Fan failure, check for an inoperative fan.
Red, blinking at 0.25Hz	Power failure, check for a non-operational power supply.
Red, solid, with Power LED blinking green	Fault detected
Blue and red, blinking at 10 Hz	Recovery mode
Blue, solid	UID has been activated locally to locate the server in a rack environment.
Blue, blinking at 1Hz	UID has been activated using the BMC to locate the server in a rack environment.
Blue, blinking at 2Hz	BMC is resetting
Blue, blinking at 4Hz	BMC is setting factory defaults
Blue, blinking at 10Hz with Power LED blinking green	BMC/BIOS firmware is updating

Rear View
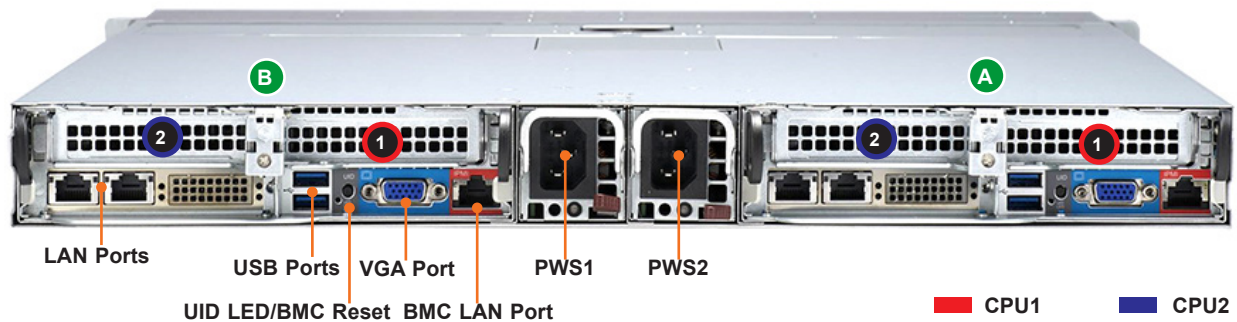
Figure 1-3. System: Rear View

System Features: Rear	
Feature	**Description**
Ⓐ Ⓑ	Two compute nodes
Power Supplies	Dual redundant power supply modules, PWS1 on the left, PWS2 on the right
❶ ❷	PCIe 4.0 x16 low-profile expansion card slots
LAN Ports	Two RJ45 10G network LAN ports (per node)
USB Ports	Two USB 3.0 ports (per node)
UID LED/ BMC Reset	UID button and BMC reset button (per node) (see control panel description)
VGA Port	Video port (per node)
BMC LAN Port	Dedicated BMC LAN port; for indicator details, see BMC LAN LEDs (per node)

Power Supply Indicator

LEDs on the power supplies indicate the status of the module.

Power Supply Indicator	
LED Color and State	**Power Supply Condition**
Solid Green	Indicates that the power supply is on
Blinking Green	Indicates that the power supply is plugged in and turned off by the system.
Blinking Amber	Indicates that the power supply has a warning condition and continues to operate.
Solid Amber	Indicates that the power supply is plugged in, and is in an abnormal state. The system might need service. Please contact Supermicro technical support.
Off	No AC power to modules

Expansion Slots and Riser Cards

This system offers options for riser cards that provide custom PCIe 4.0 capabilities.

PCIe Riser Cards			
Position*	Part Number	Slot	Description
Right side (SXB3)	RSC-PR-6-X2	**1**	x16 low-profile (CPU1)
Left side (SXB4)	RSC-P-6G4	**2**	x16 low-profile (CPU2)

*Position in the node tray when looking from the back of the server.

LAN Speed Indicator

One LED indicates the network speed.

LAN LED (Speed Indicator)	
Color	Speed
Green	10Gbps
Amber	1Gbps
Off	100Mbps or less

Top View, Node

Redundant 1000W Titanium Level
Power Supplies

1 or 2 Hot-swap Dual Processor Nodes
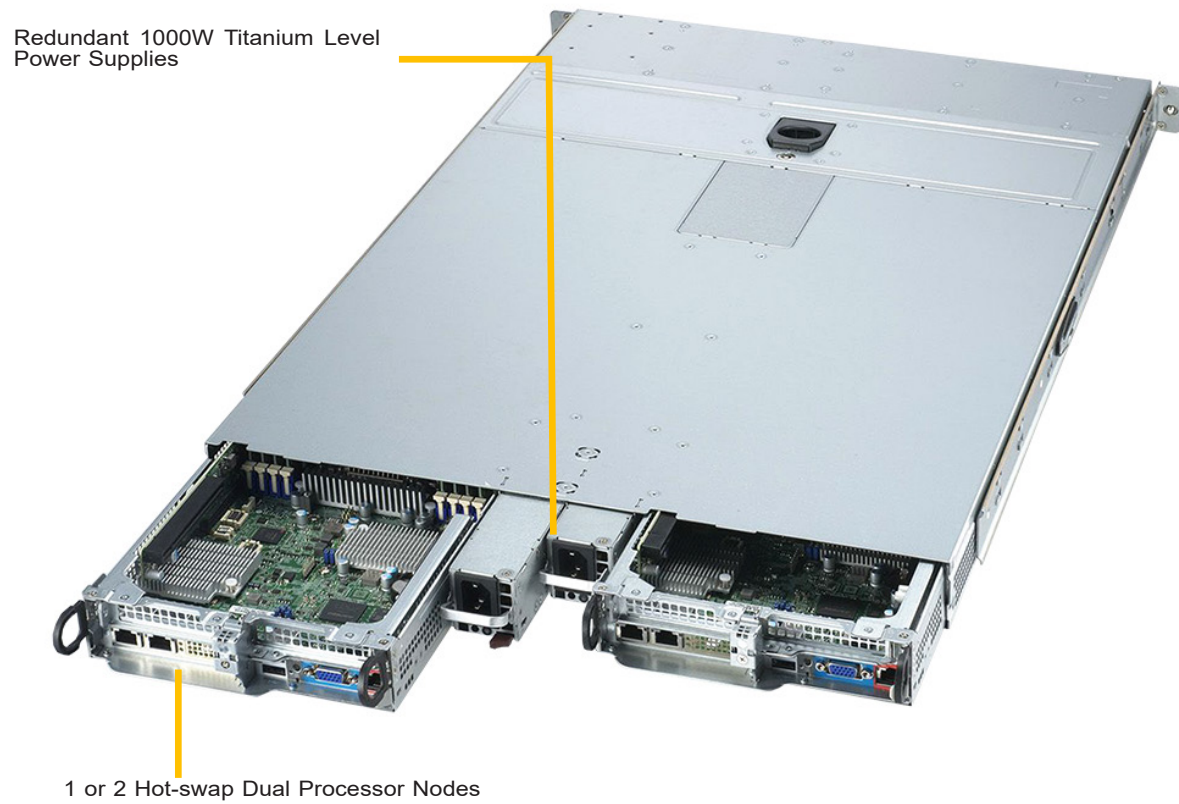
Figure 1-4. Node: Top View

BMC Password

Each node has a unique password for ADMIN user access to the BMC. This password can be found on a sticker on the back of the node. See Chapter 5 for more details.

1.3 System Architecture

This section shows the locations of the main components of a node.

Main Components, Node

Dual 2280 NVMe M.2 Slots

Dual Intel® Xeon® Scalable Processors

Storage Adapter Card

16 DDR4 DIMM Slots

SATA DOM Ports

Motherboard

Riser for CPU2 PCIe 4.0 x16

Riser for CPU1 PCIe 4.0 x16
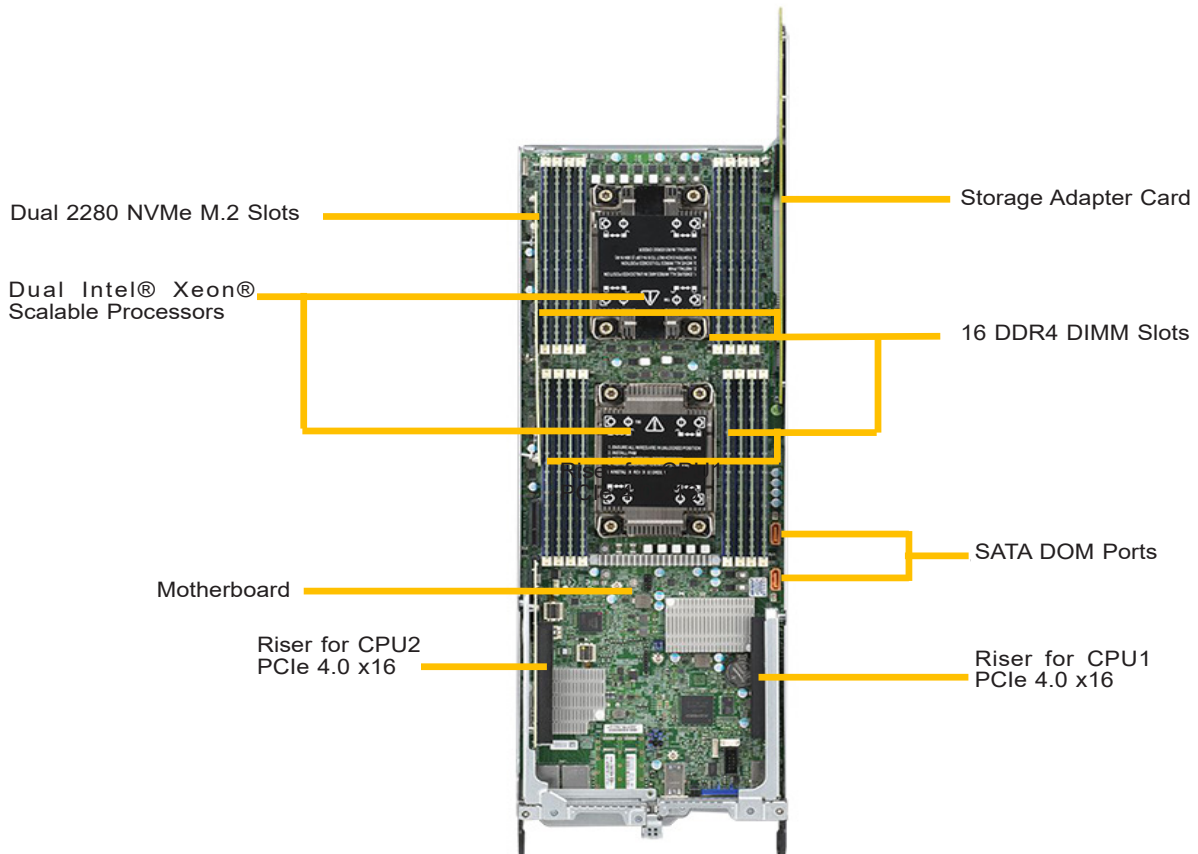
Figure 1-5. Node: Top View of Main Components

1.4 Motherboard Layout

Below is a layout of the X12DPT-PT6 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.
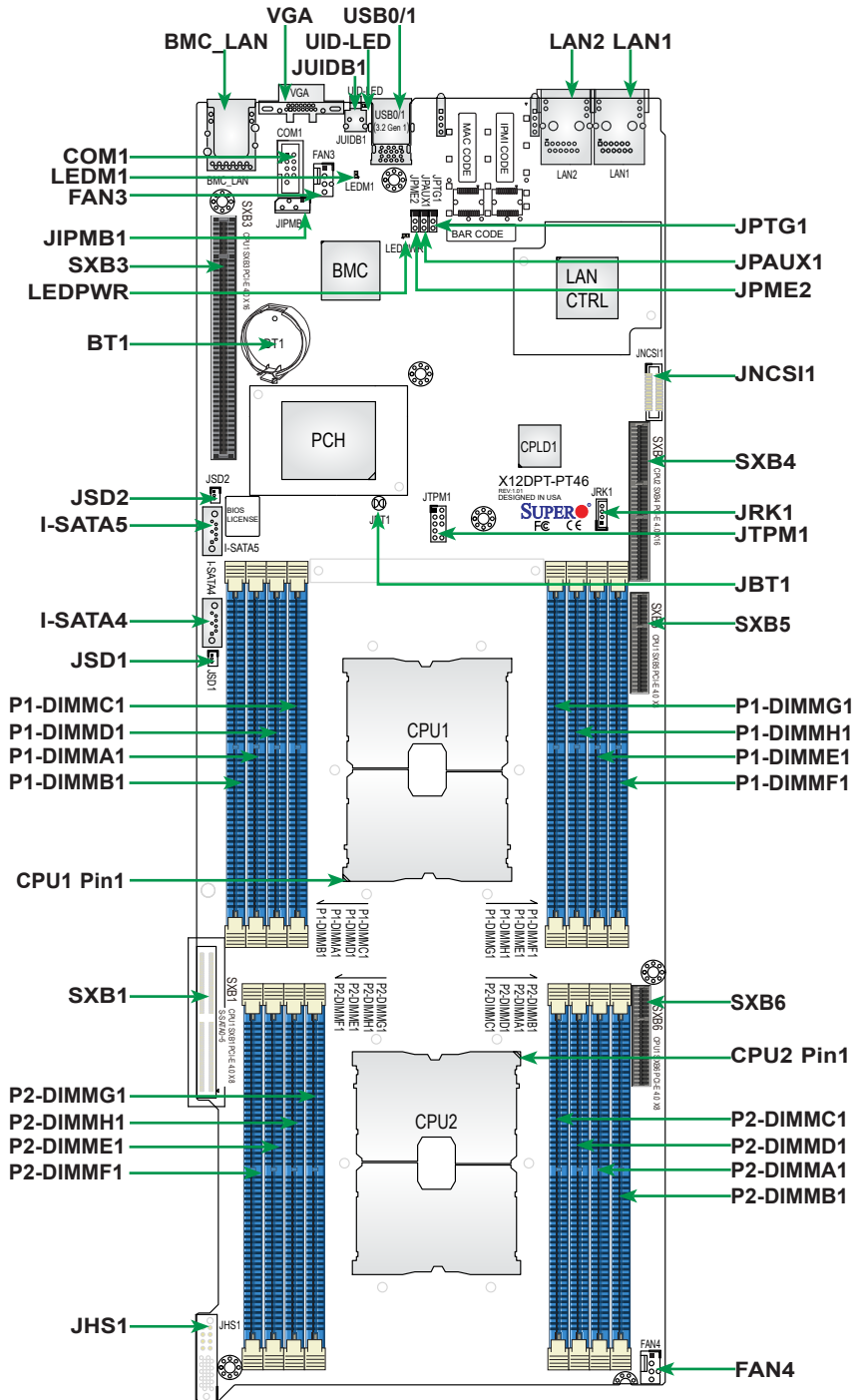
Figure 1-6. Motherboard Layout

Quick Reference

Jumper	Description	Default Setting
JBT1	CMOS clear	Open (Normal)
JPAUX1	10Gb LAN1/LAN2 AUX Power Enable/Disable *Please consult Supermicro before enabling this jumper. There must be sufficient airflow to enable JPAUX1 in standby mode (S5 state).	Pins 2-3 (Disabled)
JPME2	ME Manufacturing Mode	Pins 1-2 (Normal)
JPTG1	10Gb LAN1/LAN2 Enable/Disable	Pins 1-2 (Enabled)

Connector	Description
BMC_LAN	Dedicated BMC LAN port
BT1	Onboard CMOS battery
COM1	Front Accessible COM port header
FAN3, FAN4	4-pin CPU fan headers
JHS1	Supermicro proprietary front control panel header
JIPMB1	4-pin BMC external I²C header
JNCSI1	NC-SI (Network Controller Sideband Interface) connector
JRK1	Intel VROC key header for NVMe RAID
JSD1, JSD2	SATA DOM (Disk-On-Module) power connector
JTPM1	Trusted Platform Module/Port 80 connector
JUIDB1	Unit Identifier (UID) Switch / BMC reset button
LAN1, LAN2	10Gb Base-T ethernet ports
I-SATA4, I-SATA5	Intel PCH powered I-SATA 3.0 ports with support for SuperDOM (Disk on Module) devices
S-SATA0 - S-SATA5	Intel PCH S-SATA 3.0 ports (SW RAID 0, 1, 5, 10)
SXB1	PCIe 4.0 x8 slot supported by CPU1 for Supermicro proprietary riser card and six SATA connections (S-SATA0 - S-SATA5) supported by PCH
SXB3	PCIe 4.0 x16 slot supported by CPU1 for the Supermicro proprietary riser card
SXB4	PCIe 4.0 x16 slot supported by CPU2 for the Supermicro proprietary riser card
SXB5	PCIe 4.0 x8 slot supported by CPU1
SXB6	PCIe 4.0 x8 slot supported by CPU1 for the Supermicro proprietary M.2 adapter card
USB0, USB1	Rear I/O USB ports (USB 3.2 Gen 1)
VGA	Rear VGA port on the I/O back panel

LED	Description	State: Status
LEDM1	BMC heartbeat LED	Blinking Green: BMC Normal (Active) Solid Green: during BMC Reset or during a Cold Reboot
LEDPWR	Power LED	LED On: Onboard Power On
UID-LED	Unit Identifier (UID) LED	Solid Blue: Unit Identified

Motherboard Block Diagram
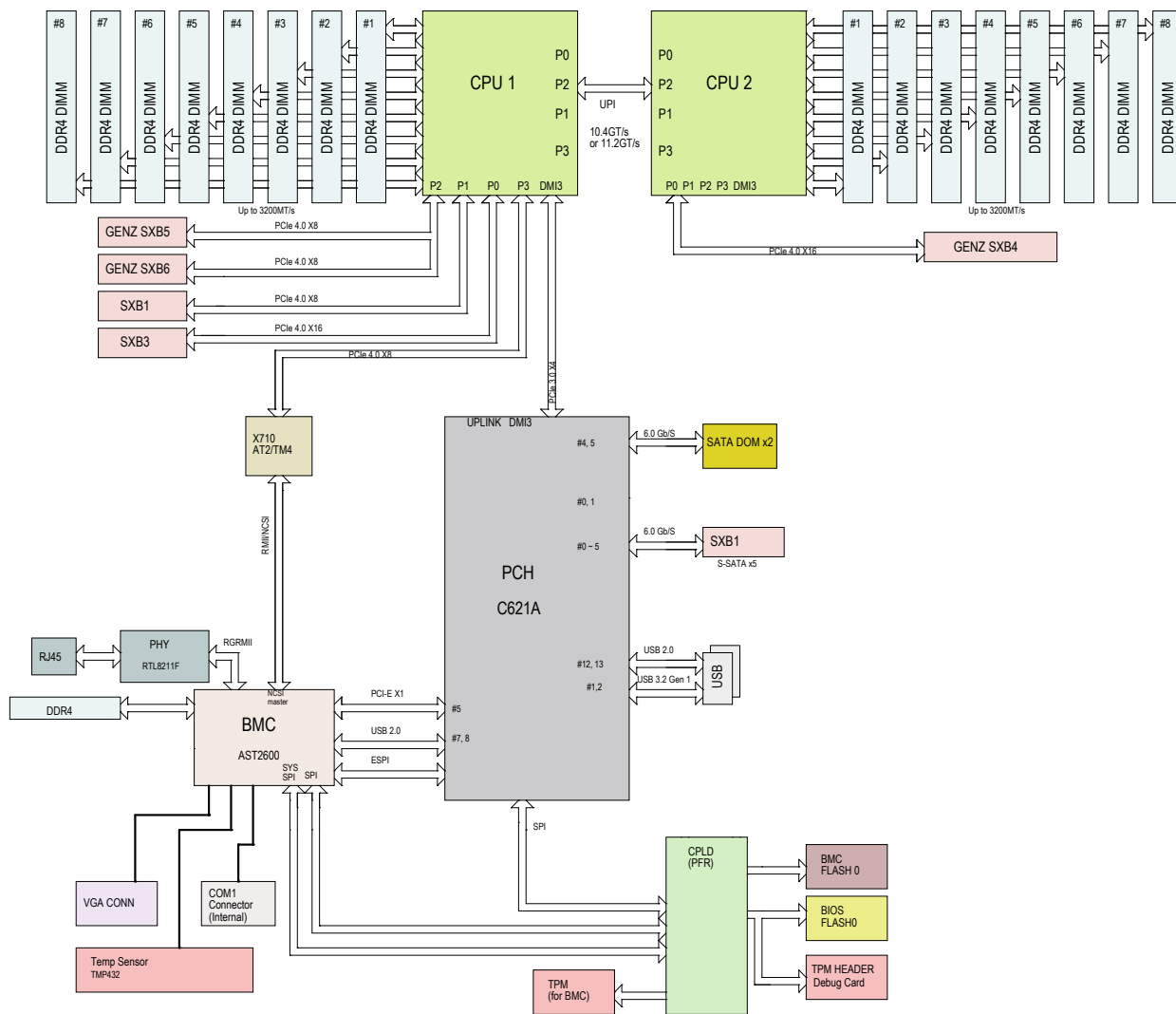
Figure 1-7. Motherboard Block Diagram

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 Unpacking the System

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

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

2.3 Preparing for Setup

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

Choosing a Setup Location

- The system should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated.

- Leave enough clearance in front of the rack so that you can open the front door completely (~25 inches) and approximately 30 inches of clearance in the back of the rack to allow sufficient space for airflow and access when servicing.

- This product should be installed only in a Restricted Access Location (dedicated equipment rooms, service closets, etc.).

- This product is not suitable for use with visual display workplace devices according to §2 of the German Ordinance for Work with Visual Display Units.

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.

- Do not use a two-post "telco" type rack for 2U or larger servers.

Server Precautions

- Review the electrical and general safety precautions in Appendix A.

- Determine the placement of each component in the rack *before* you install the rails.

- Install the heaviest server components at the bottom of the rack first and then work your way up.

- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges and voltage spikes and to keep your system operating in case of a power failure.

- Allow any drives and power supply modules to cool before touching them.

- When not servicing, always keep the front door of the rack and all covers/panels on the servers closed to maintain proper cooling.

Rack Mounting Considerations

Ambient Operating Temperature

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

Airflow

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

Mechanical Loading

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

Circuit Overloading

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

Reliable Ground

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

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

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.

- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.

- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

- Slide rail mounted equipment is not to be used as a shelf or a work space.

2.4 Installing the System into a Rack

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 25.6" and 33" deep.

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.

If you are installing into a two-post "telco" rack, skip to that section later in this chapter.

Identifying the Rails

The chassis comes with two sets of rack rails, one set for the right side of the chassis and one for the left. Each set consists of an inner rail that is pre-attached to the chassis, and an outer rail that attaches to the rack.
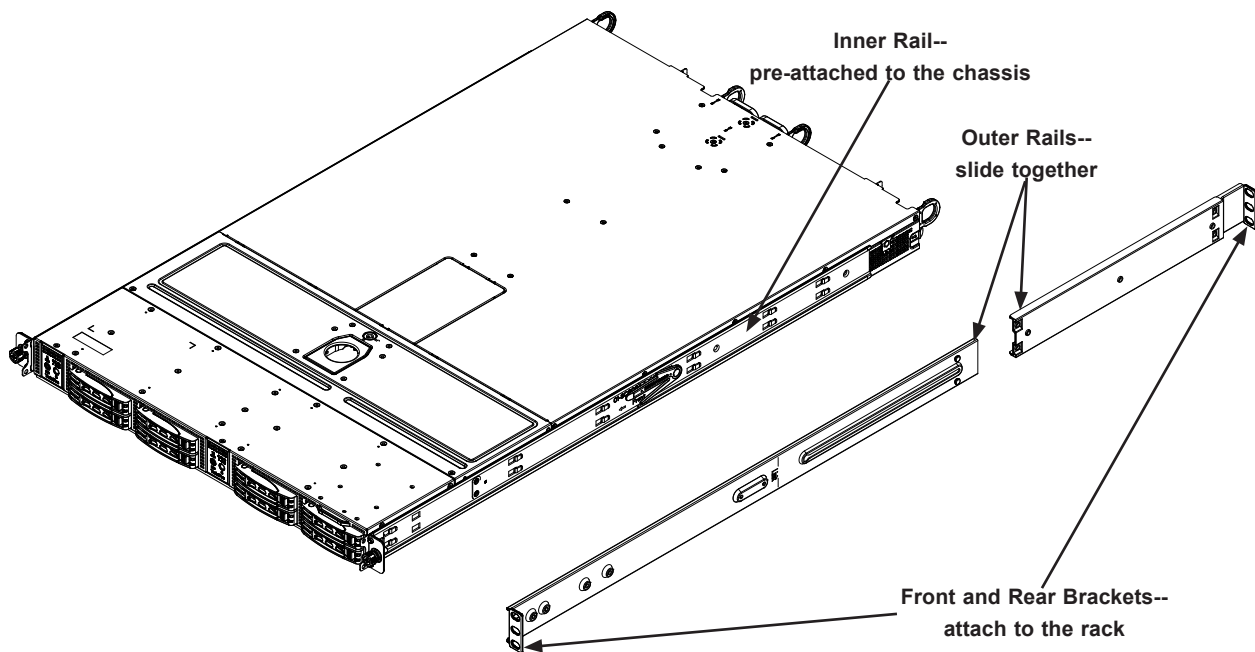
Figure 2-1. Identifying the Sections of the Rack Rails

Slide rail mounted equipment is not to be used as a shelf or a work space.

Warning: do not pick up the server with the front handles. They are designed to pull the system from a rack only.

Assembling the Outer Rails

Each outer rail comes in two sections that must be assembled before mounting onto the rack.

Assembling the Outer Rails

1. Identify the left and right outer rails by examining the ends, which bend outward. Match the left front outer rail with the left rear outer rail and the same for the right rails.

2. Align the round post in the rear rail (B) with the round hole at the end of the slot in the front rail (A), and slide the front section into the rear section.

Secure to the rear of the rack

Slide outer rails together

Round Hole

Secure to the front of the rack

B

A

Assembling the sections of the outer rail

Outer rail assembled

Bracket with Square Pegs
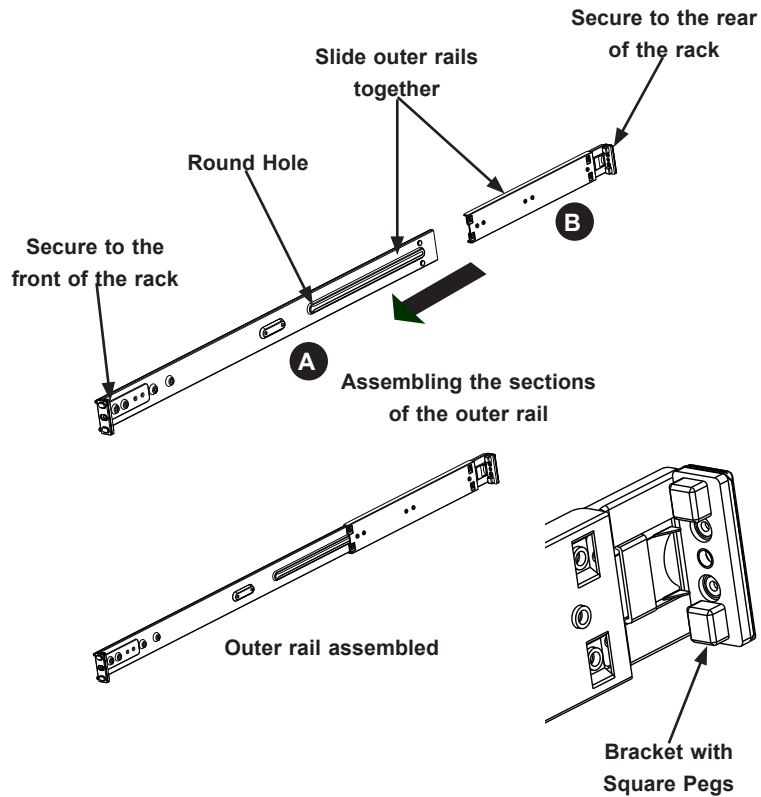
Figure 2-2. Assembling the Outer Rails

Installing the Outer Rails onto the Rack

Each end of the assembled outer rail includes a bracket with square pegs to fit into your rack holes. If you have an older rack with round holes, these brackets must be removed, and you must use screws to secure the rail to the rack.

Outer Rail Installation

1. Align the square pegs on the front end of the rail with the square holes on the front of the rack (C). Push the rail into the rack until the quick release bracket snaps into place, securing the rail to the rack. Keep the rail horizontal.

2. Adjust the rail to reach just past the full depth of your rack.

3. Align the square pegs on the rear end of the rail to the holes on the rack (D) and push the rail into the rack until the quick release bracket snaps into place, securing the rail to the rack.
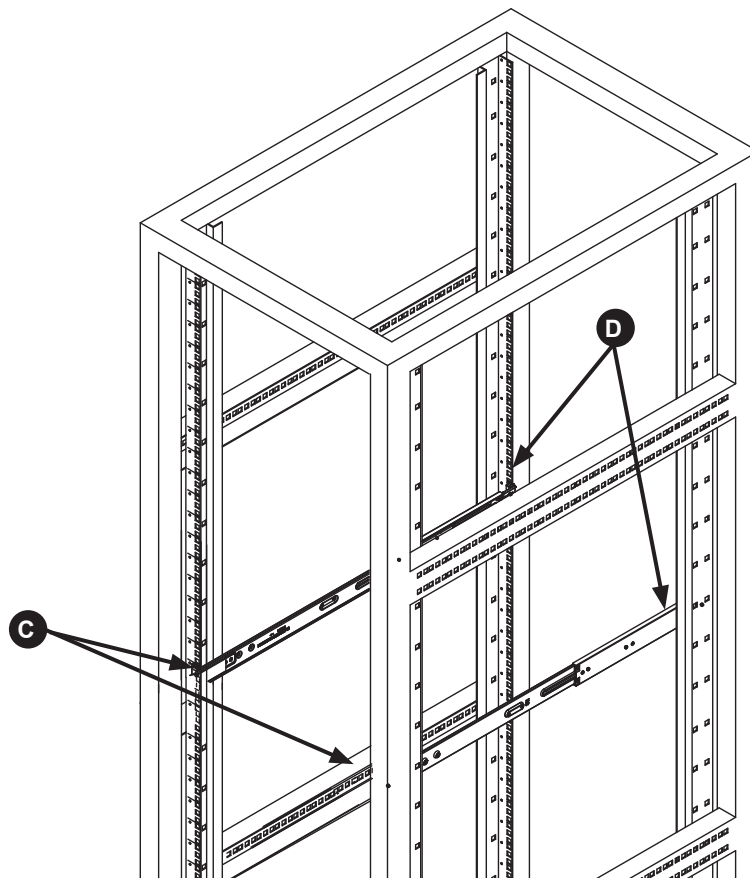
Figure 2-3. Installing the Outer Rails to the Rack

Note: The figure above is for illustrative purposes only. Always install servers at the bottom of the rack first.

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

Sliding the Chassis onto the Rack Rails

Installing the Chassis into a Rack

1. Align the rear of the chassis rails with the front of the rack rails and then push evenly on both sides of the chassis. The spring latch engages when the chassis is part way in. Push the server completely into the rack.

2. (*Optional*) Insert and tighten the thumbscrews that hold the front of the server to the rack.
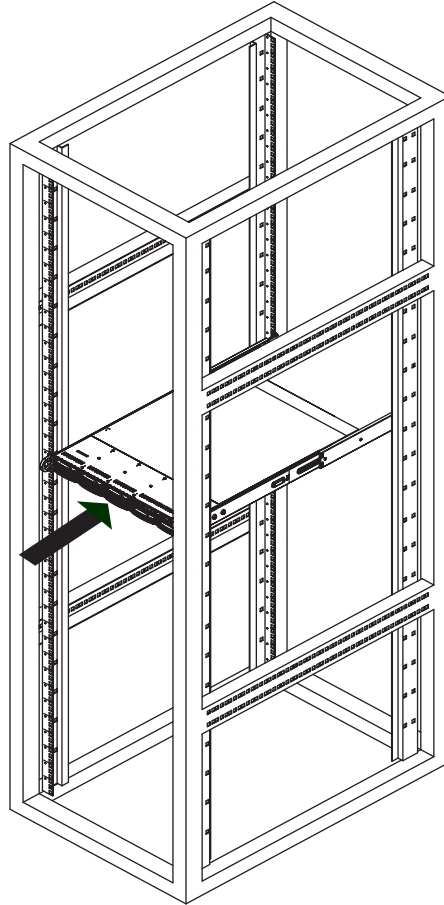
Figure 2-4. Installing the Server into a Rack

Note: The figure above is for illustrative purposes only. Always install servers at the bottom of the rack first.

Warning: Do not pick up the server with the front handles. They are designed to pull the system from a rack only.

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

Removing a Node

A compute node can be removed while the other node continues operating. Power down the node, remove the cables, then pull the node out using the handles.

Figure 3-1. Removing the Compute Node

Removing the Top Cover

The system features a removable top cover, which allows access to the inside of the system.

1. Begin by removing power from the system, follow instructions in section 3.1

2. Unplug both AC power cords from any external power source.

3. Use the key to unlock the cover lock (see figure 3-2).

4. Lift the latch, pulling up and toward the chassis front (see figure 3-3, figure 3-4).

Caution: Except for short periods of time, do not operate the server without the cover in place. The system cover must be in place to allow for proper airflow and to prevent overheating.
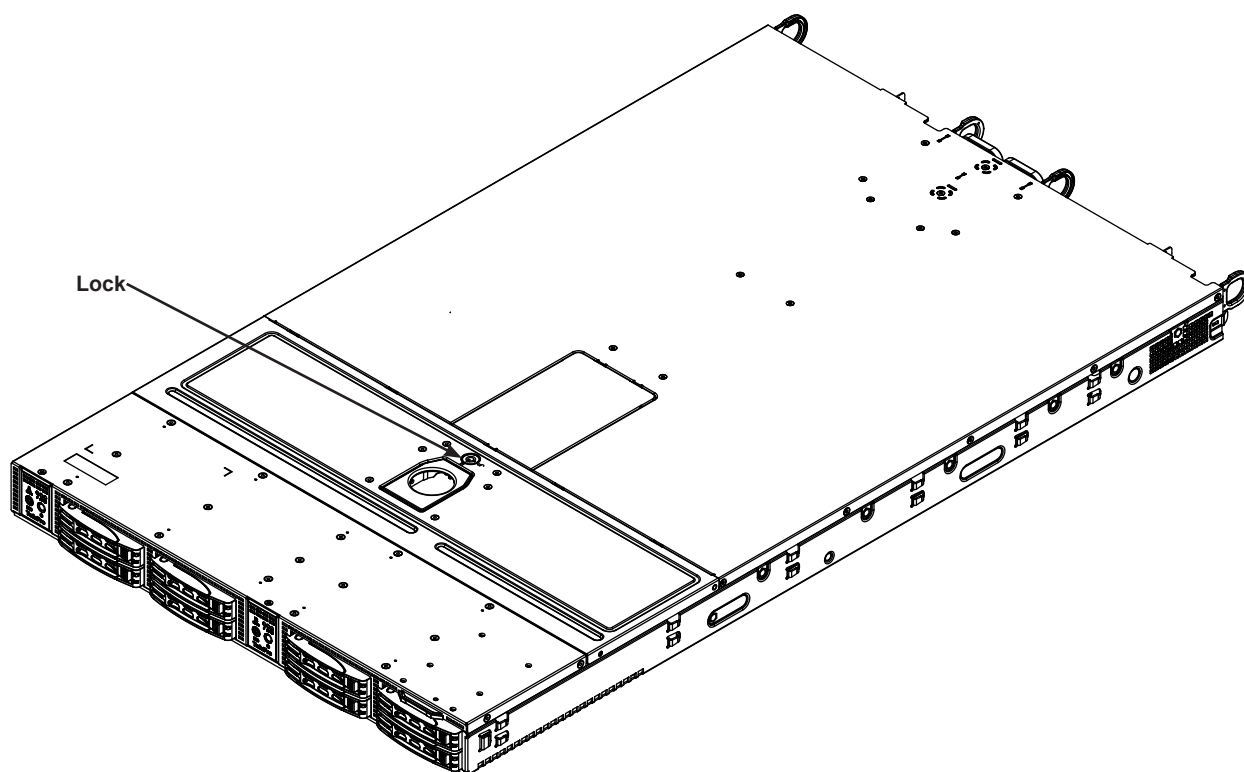
Figure 3-2. Unlocking the Cover Lock
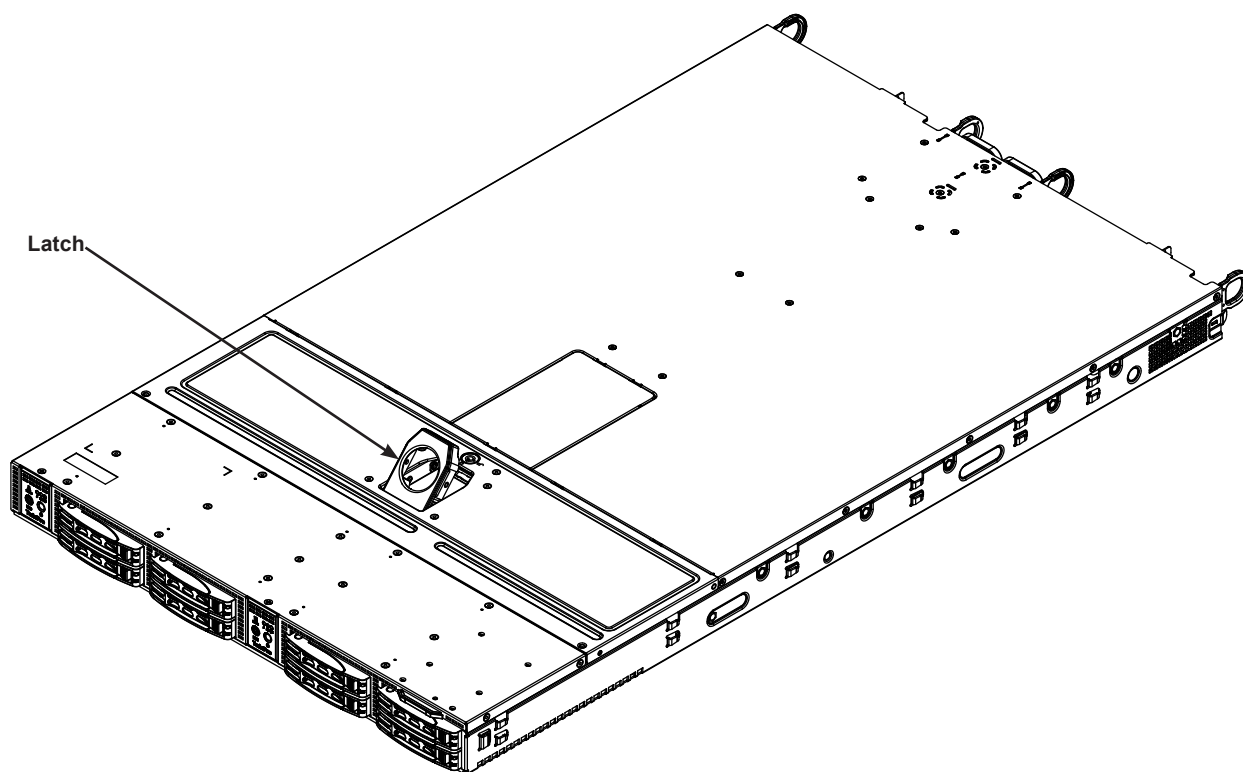
Latch

Figure 3-3. Pulling the Cover Latch
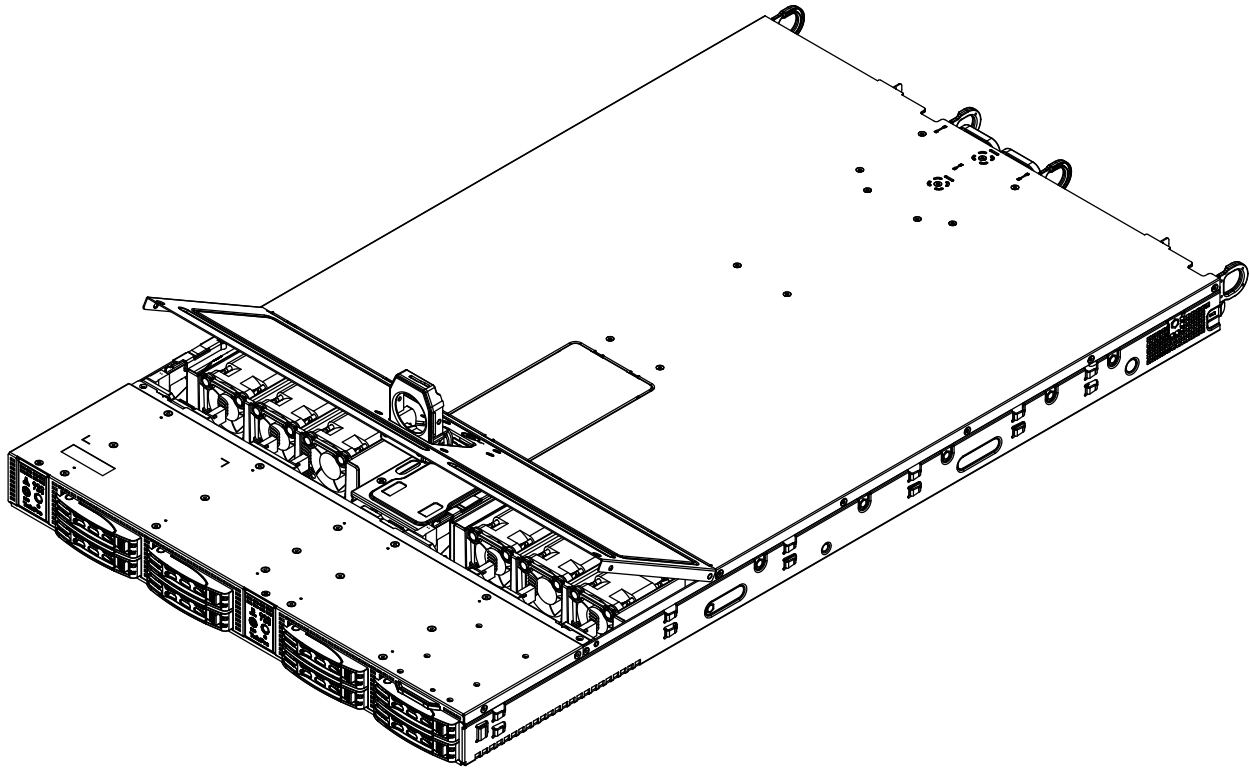
Figure 3-4. Cover Open

3.3 Processor and Heatsink Installation

The processor (CPU) and processor carrier should be assembled together first to form the processor carrier assembly. This will be attached to the heatsink to form the processor heatsink module (PHM) before being installed onto the CPU socket.

Notes:

- Use ESD protection.

- Unplug the AC power cord 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 land grid array (gold contacts).

- When installing the processor and heatsink, ensure a torque driver set to the correct force is used for each screw.

- 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 support.

- 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.

1. Hold the processor with the land grid array (LGA, gold contacts) 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.

Pin 1

Processor

Pin 1
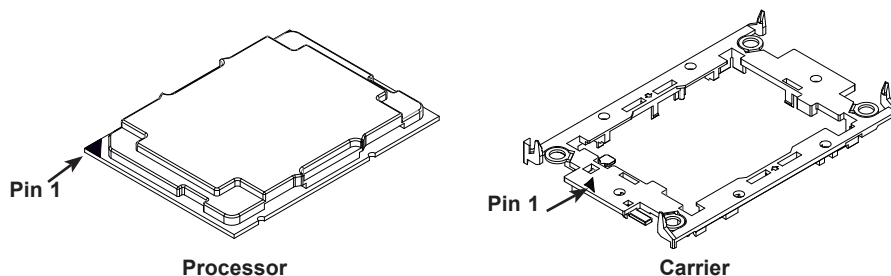
Carrier

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

Processor (Reverse Side Up)

Latch

Latch

Carrier (Top Side Up)

CPU Key

Latch
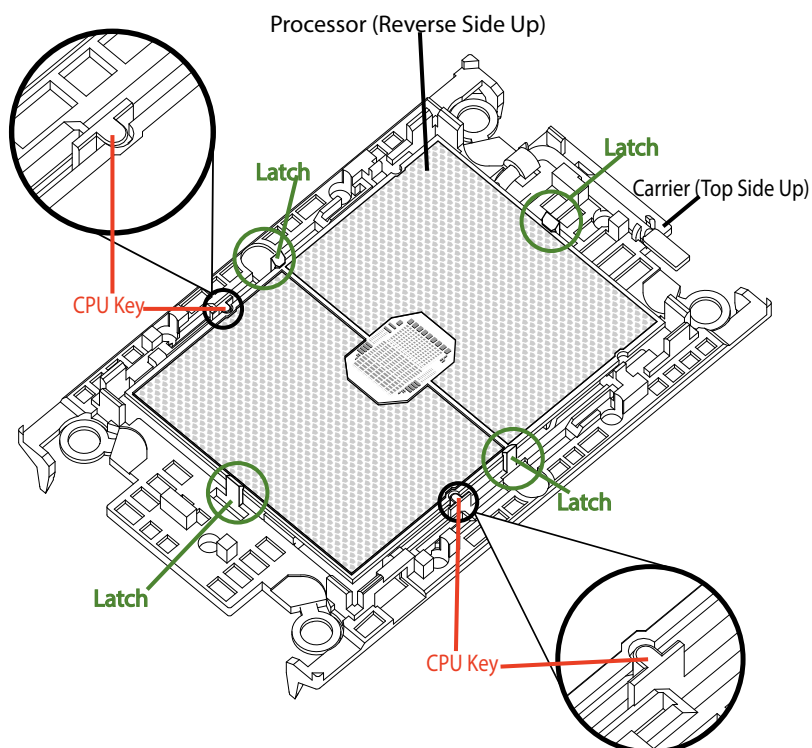
Latch

Latch

CPU Key

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

Lever
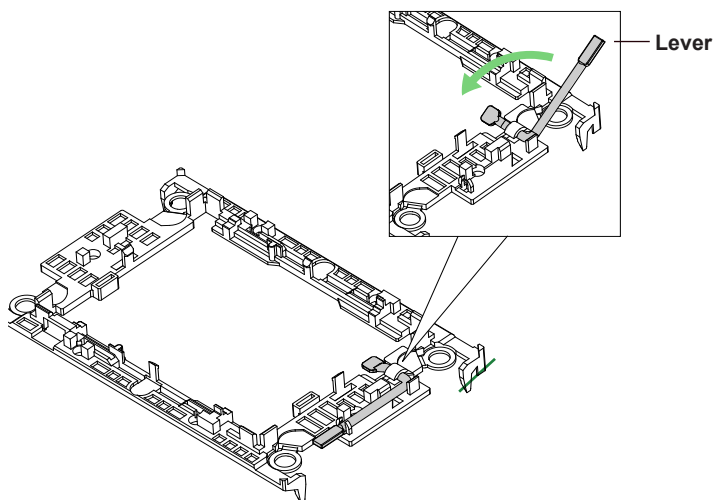
4. Align the CPU keys on the processor (A & B) with those on the carrier (a & b) as shown below.

Latch

CPU Key (on the processor) **B**

CPU Key (on the carrier) **b**

1

A

CPU Key (on the processor)

2

a

CPU Key (on the carrier)
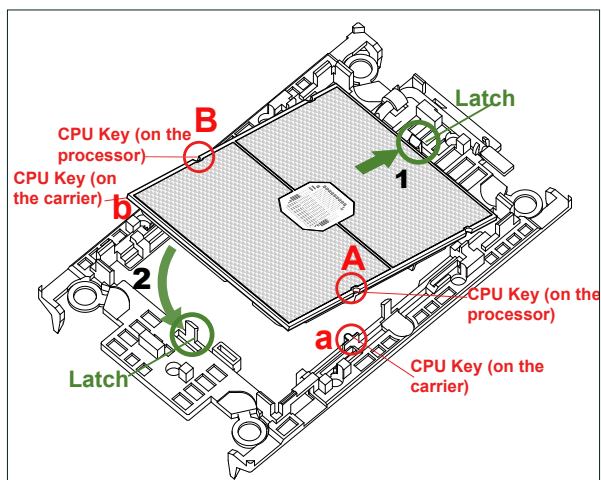
Latch

5. 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 and is properly seated on the carrier.

Processor Carrier Assembly (Top View)

Processor Carrier Assembly (Underside view)
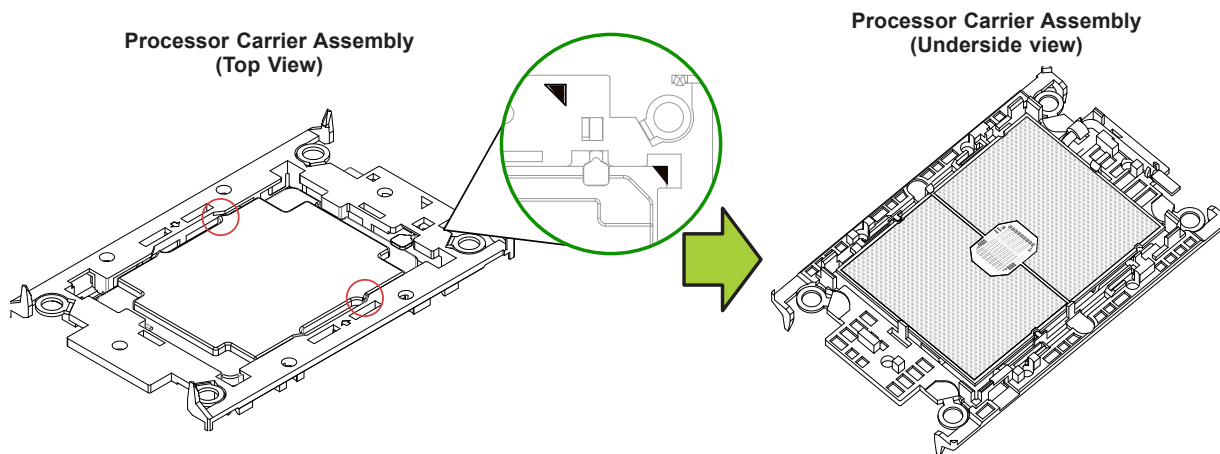
The Processor Heatsink Module (PHM)

After creating the processor carrier assembly, 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. Note the two triangle cutouts (A, B) located at the diagonal corners of the heatsink as shown in the drawing below.

2. On the processor carrier assembly, find pin 1, as noted by the triangles. Hold the processor carrier assembly over so that the gold LGA is facing up.

3. Align clip "a" (pin 1) on the carrier assembly with the triangular cutout A on the heatsink and b, c, d on the carrier assembly with B, C, D on the heatsink.

4. Push the carrier assembly onto the heatsink, making sure that all four clips on each corner are properly secured.

Processor Carrier Assembly

Heatsink
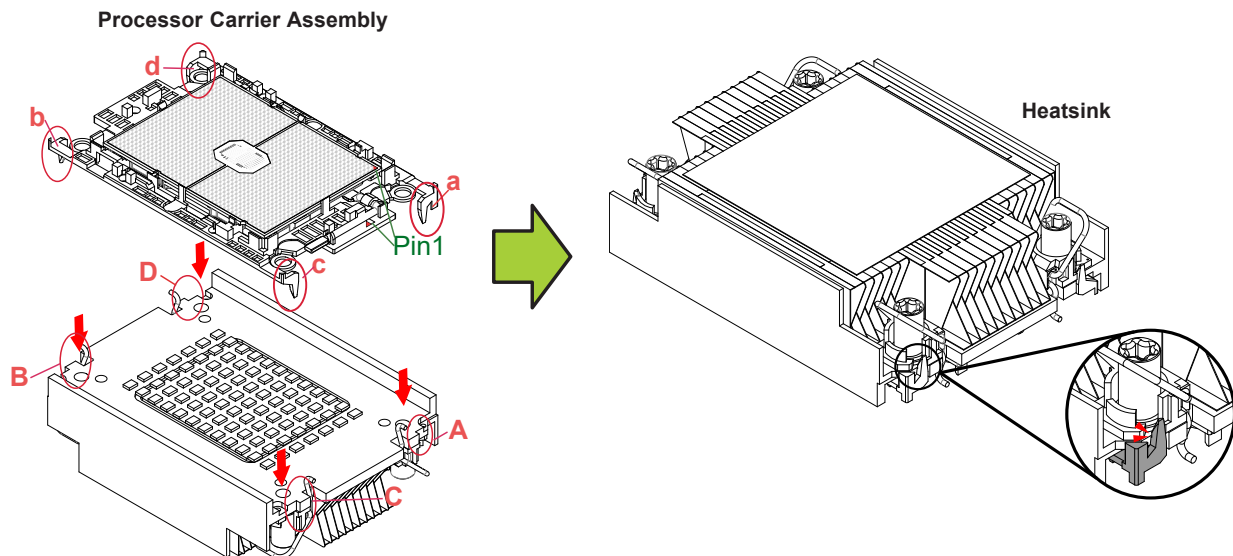
Installing the PHM into the CPU Socket

1. Remove the plastic protective cover from the CPU socket. Gently squeeze the grip tabs then pull the cover off.

CPU Socket with Plastic Protective Cover

Grip Tabs
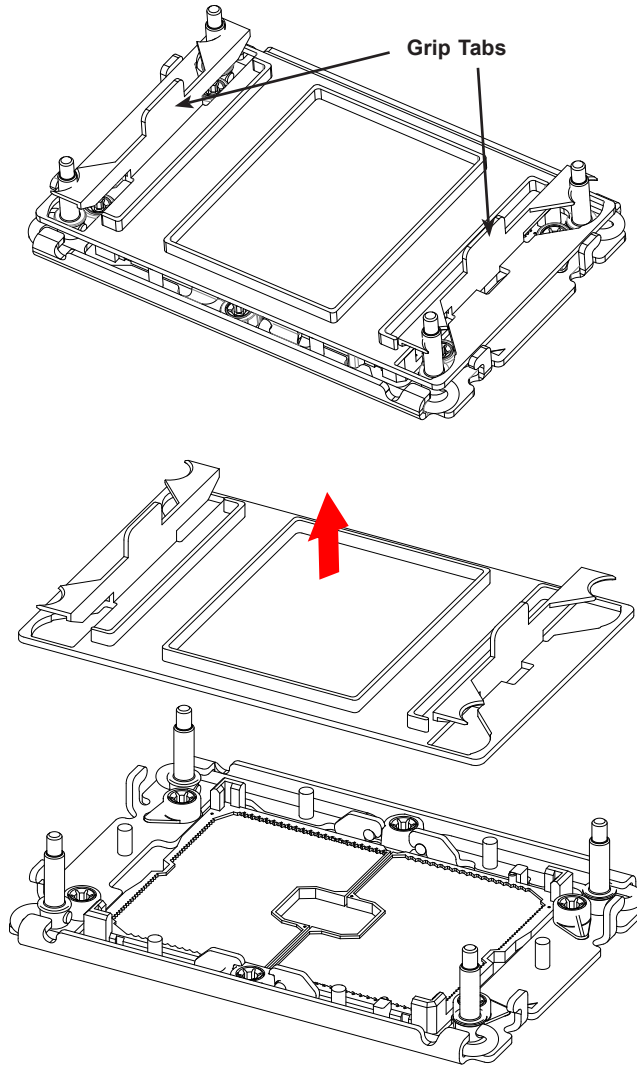
2. Locate four threaded fasteners (a, b, c, d) on the CPU socket.
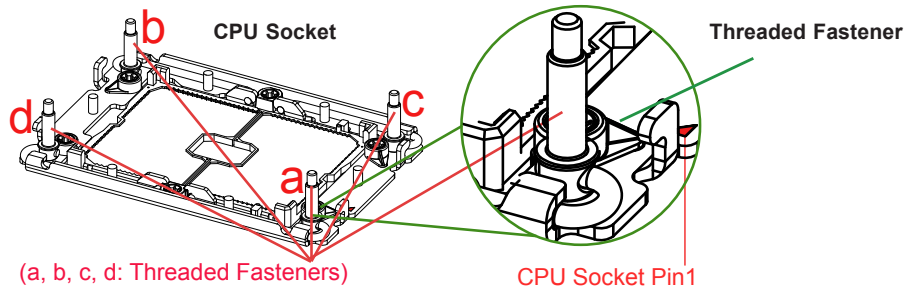
3. Locate four PEEK nuts (A, B, C, D) and four rotating wires (1, 2, 3, 4) on the heatsink as shown below.
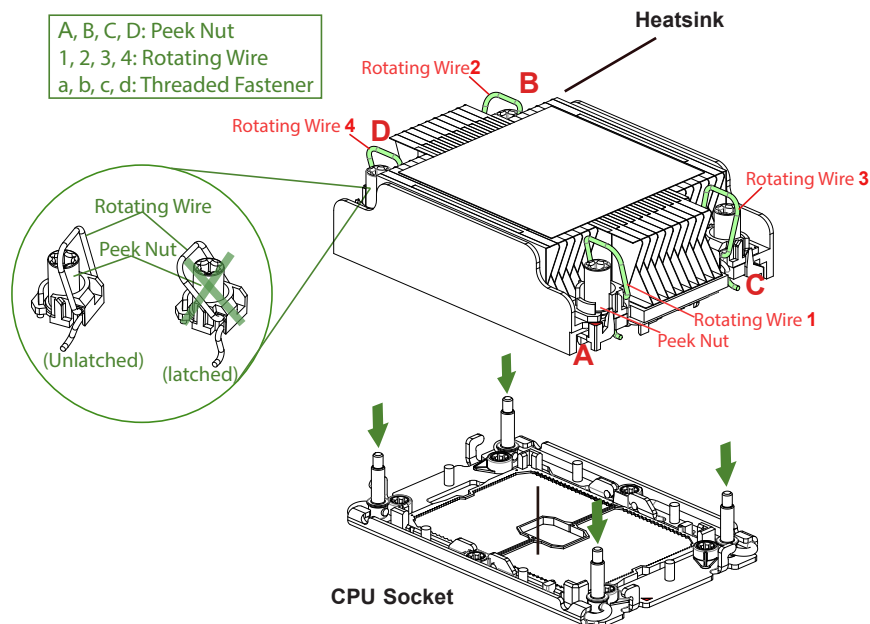
4. Check that the rotating wires (1, 2, 3, 4) are in the unlatched position as shown.
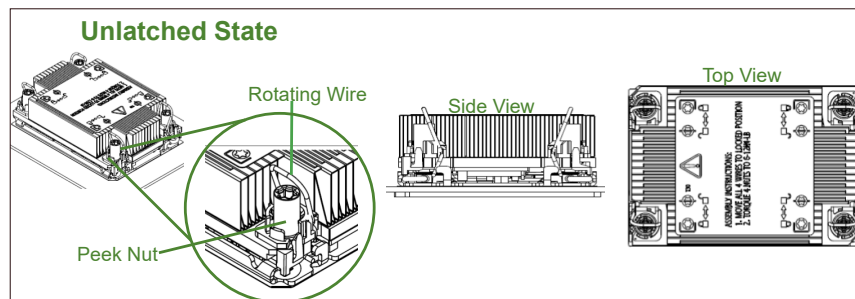
5. Align nut A (next to the triangles and pin 1) on the heatsink with threaded fastener "a" on the CPU socket. Also align nuts B, C, D on the heatsink with threaded fasteners b, c, d on the CPU socket.

6. Gently place the heatsink on the CPU socket, making sure that each nut is properly aligned with its corresponding threaded fastener.

A, B, C, D: Peek Nut on the Heatsink

a, b, c, d:
Threaded Fastener on the CPU socket
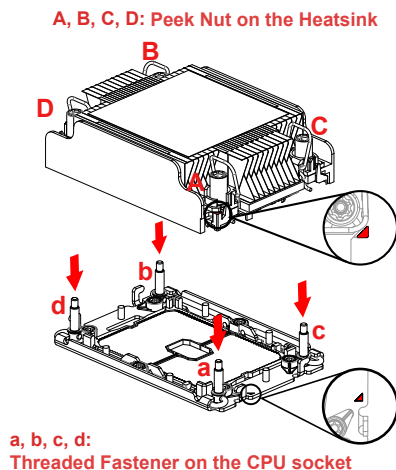
7. Press all four rotating wires outward to latch the PHM onto the CPU socket.

Rotating Wire

Rotating Wire

Latched State

Top View
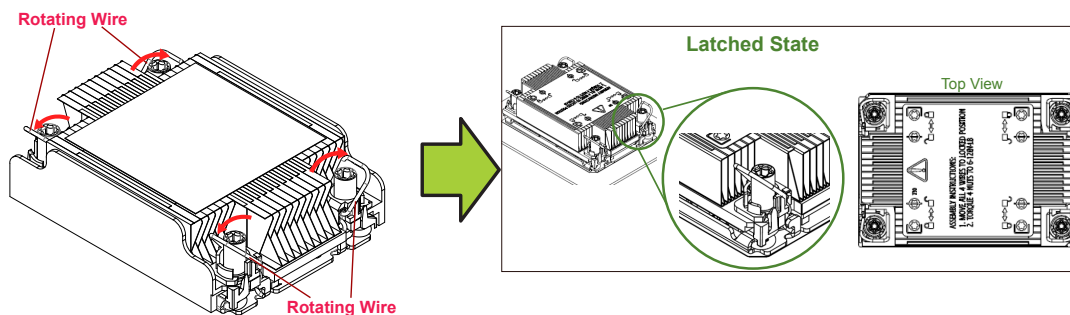
8. With a T30 bit torque driver set to a force of 8.0 in-lbf (0.904 n-m), gradually tighten the four screws to ensure even pressure. You can start with any screw, but make sure to tighten the screws in a diagonal pattern.

8.0
IN-LBF
0.904
N-M
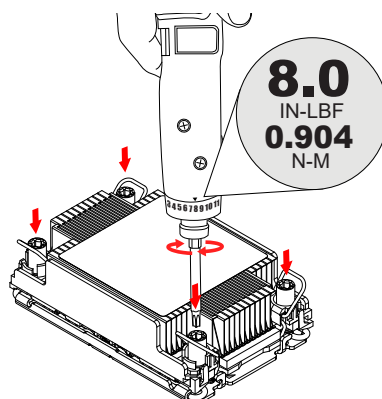
Removing the PHM from the CPU Socket

Be sure the system is shut down and all AC power cords are unplugged.

1. Use a T30-bit screwdriver to loosen the four PEEK nuts on the heatsink in the sequence of A, B, C, and D.
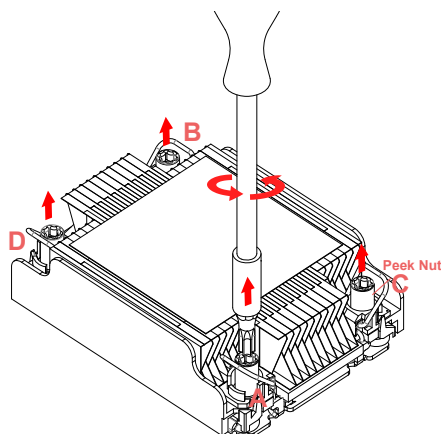
2. Press the four rotating wires inward to unlatch the PHM as shown below.
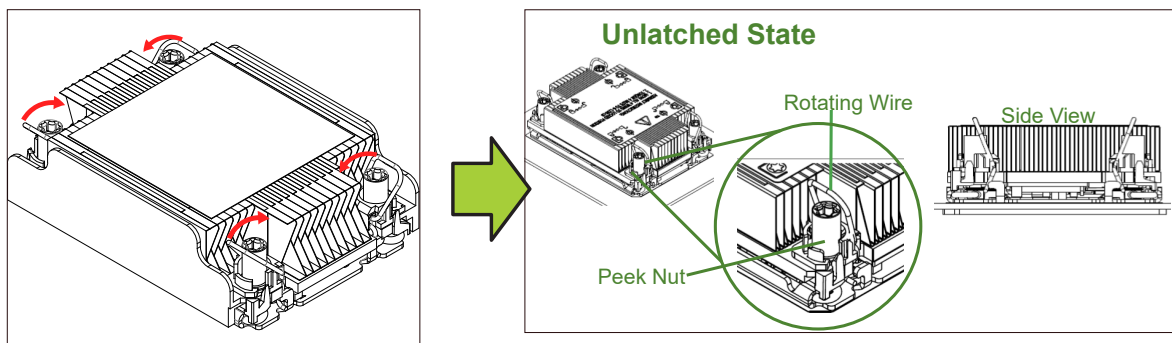
3. Gently lift the PHM upward to remove it from the CPU socket.
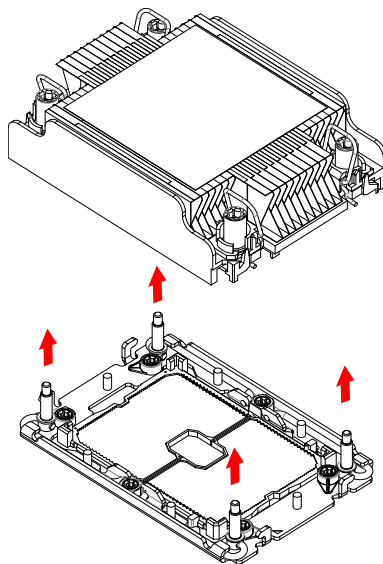
Removing the Processor Carrier Assembly from the PHM

Detach the four plastic clips (a, b, c, d) on the processor carrier assembly from the four corners of the heatsink (A, B, C, D) as shown below, and lift off the processor carrier assembly.
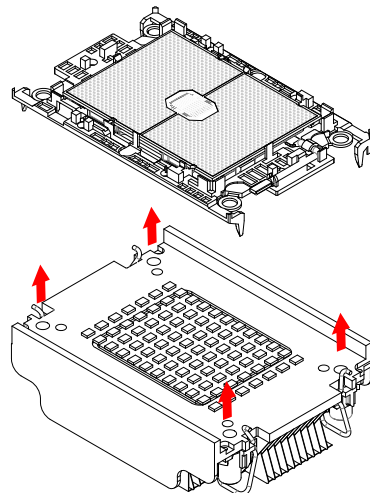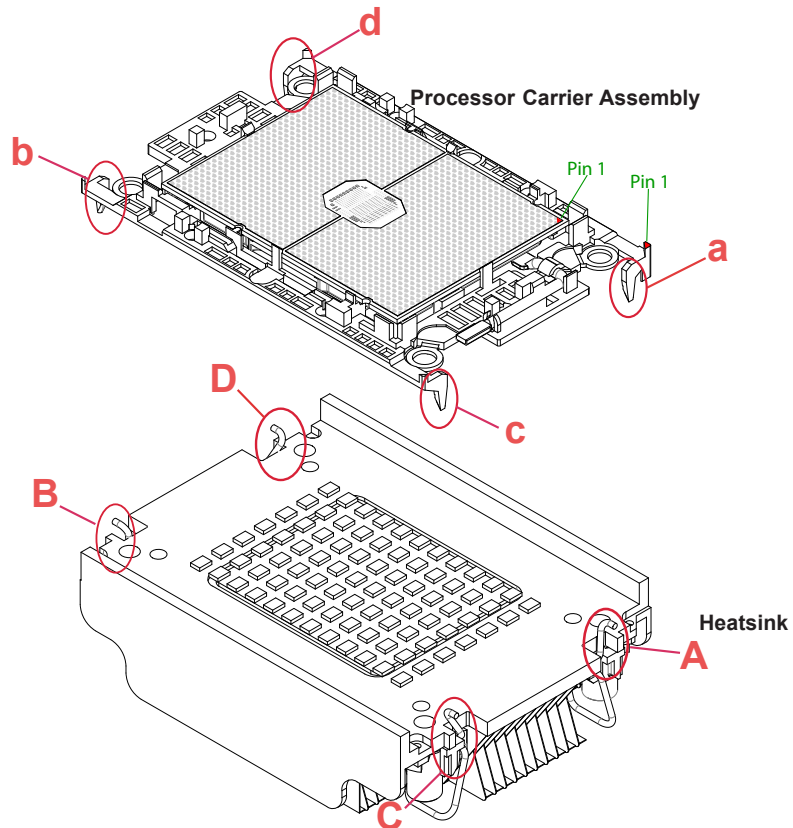
Removing the Processor from the Carrier Assembly

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

Processor Carrier Assembly

Lever
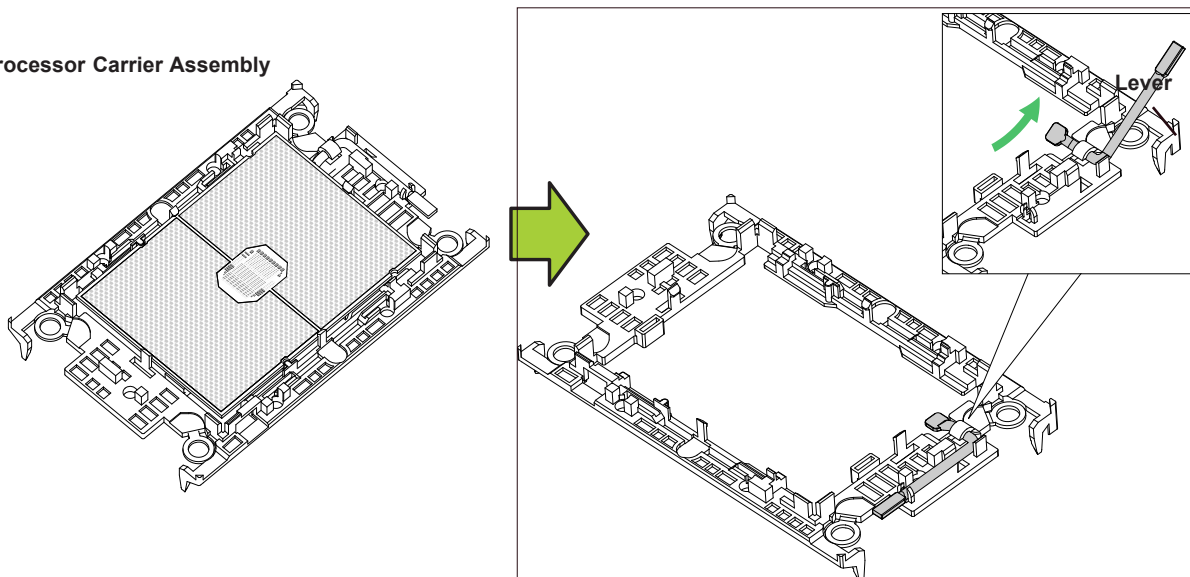
Note: Handle the processor with care to avoid damage.
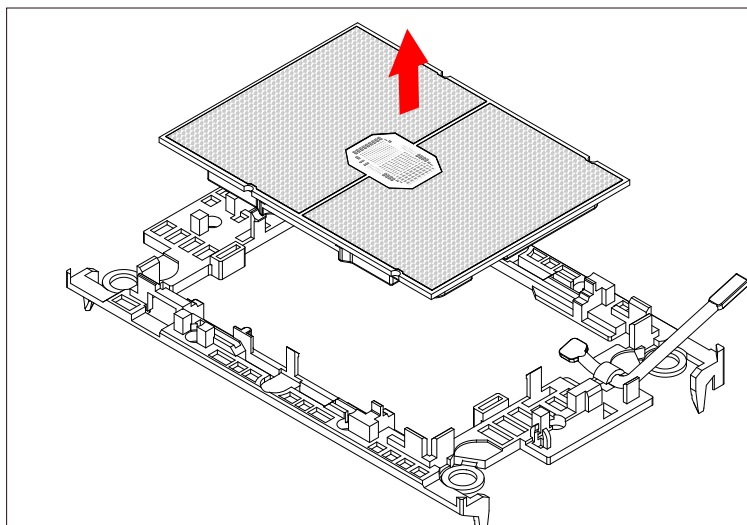
3.4 Memory

Memory Support

The X12DPT-PT6 motherboard has 16 DIMM slots. It supports up to:

- 6TB (PMem + DDR4): 4TB of Intel Optane PMem 200 series (on Platinum, Gold and se-lected Silver processors only) plus 2TB of DDR4.

- 4TB (DDR4 only): 3DS Load Reduced DIMM (3DS LRDIMM), 3DS Registered DIMM (3DS RDIMM), or Non-Volatile DIMMs (NV-DIMM) ECC memory with speeds of up to 3200 MHz.

For validated memory, use our Product Resources page.

DDR4 Memory Support for 3rd Gen Intel Xeon Scalable Processors				
Type	**Ranks Per DIMM and Data Width**	**DIMM Capacity (GB)**		**Speed (MT/s) and Voltage**
		DRAM Density		**One DIMM per Channel**
		8Gb	**16Gb**	**1.2V**
RDIMM	SRx8	8GB	16GB	3200*
	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	
LRDIMM 3Ds	(4R/8R) x4	4H-128GB	2H-128GB 4H-256GB	

*Only the 83xx and 63xx series support 3200MT/s; for other processors, memory speed as supported by the CPU.
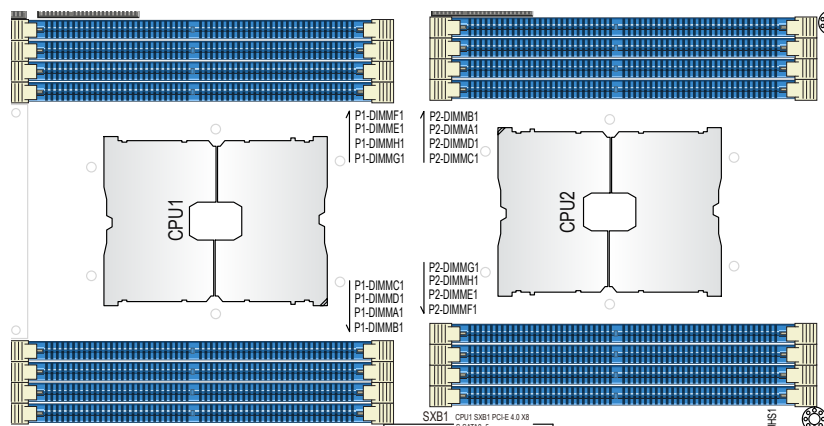
Figure 3-5. Memory Slots

Guidelines Regarding Mixing DIMMs

- All DIMMs must be DDR4 or a mixture of PMem and DDR4.

- x4 and x8 DIMMs can be mixed in the same channel.

- Mixing of LRDIMMs and RDIMMs is not allowed in the same channel, across different channels, and across different sockets.

- Mixing of non-3DS and 3DS LRDIMM is not allowed in the same channel, across different channels, and across different sockets.

- Mixing of PMem modules and RDIMMs is supported

- Mixing DDR4 and PMem memory operating frequencies is not validated within a socket or across sockets. If DIMMs of different frequencies are mixed in the same channel, all DIMs will run at the highest common frequency.

- Always populate the DIMM with the higher electrical loading on a channel in DIMMx1 (farther from CPU) followed by DIMMx2.

DDR4 Memory Population Guidelines

The following memory population table was created based on guidelines provided by Intel to support Supermicro motherboards.

Memory Population for DDR4-only Configurations, 16 DIMM Slots	
CPUs/DIMMs	**DIMM Slots**
1 CPU & 1 DIMM	A1
1 CPUs & 2 DIMMs*	A1, E1
1 CPUs & 4 DIMMs*	A1, C1, E1, G1
1 CPUs & 6 DIMMs	A1, B1, C1, E1, F1, G1
2 CPUs & 8 DIMMs*	A1, B1, C1, D1, E1, F1, G1, H1
2 CPUs & 2 DIMMs*	CPU1: A1 CPU2: A1
2 CPUs & 4 DIMMs*	CPU1: A1, E1 CPU2: A1, E1
2 CPUs & 6 DIMMs	CPU1: A1, C1, E1, G1 CPU2: A1, E1
2 CPUs & 8 DIMMs*	CPU1: A1, C1, E1, G1 CPU2: A1, C1, E1, G1
2 CPUs & 10 DIMMs	CPU1: A1, B1, C1, E1, F1, G1 CPU2: A1, C1, E1, G1
2 CPUs & 12 DIMMs*	CPU1: A1, B1, C1, E1, F1, G1 CPU2: A1, B1, C1, E1, F1, G1
2 CPUs & 14 DIMMs	CPU1: A1, B1, C1, D1, E1, F1, G1, H1 CPU2: A1, B1, C1, E1, F1, G1
2 CPUs & 16 DIMMs*	CPU1: A1, B1, C1, D1, E1, F1, G1, H1 CPU2: A1, B1, C1, D1, E1, F1, G1, H1

* recommended for optimal performance

- Other Intel validated memory configurations are supported, although they may not provide optimal performance. See Intel documentation for more information.

- Must have at least one DIMM per CPU.

Optane PMem 200 Series

For 3rd Gen Intel Xeon Scalable Platinum, Gold and selected Silver processors

Symmetric Population for Each CPU with PMem + DDR4																		
DDR4 & PMem	Modes	AD interleave	DIMM															
			F1	F2	E1	E2	H1	H2	G1	G2	C2	C1	D2	D1	A2	A1	B2	B1
4 DDR4 4 PMem	AD MM	1 - x4	PM	-	DDR4	-	PM	-	DDR4	-	-	DDR4	-	PM	-	DDR4	-	PM
		1 - x4	DDR4	-	PM	-	DDR4	-	PM	-	-	PM	-	DDR4	-	PM	-	DDR4
6 DDR4 1 PMem	AD	One - x1	DDR4	-	DDR4	-	-	-	DDR4	-	-	DDR4	-	PM	-	DDR4	-	DDR4
			-	-	DDR4	-	DDR4	-	DDR4	-	-	DDR4	-	DDR4	-	DDR4	-	PM
			DDR4	-	DDR4	-	PM	-	DDR4	-	-	DDR4	-	-	-	DDR4	-	DDR4
			PM	-	DDR4	-	DDR4	-	DDR4	-	-	DDR4	-	DDR4	-	DDR4	-	-
			DDR4	-	DDR4	-	DDR4	-	-	-	-	PM	-	DDR4	-	DDR4	-	DDR4
			DDR4	-	-	-	DDR4	-	DDR4	-	-	DDR4	-	DDR4	-	PM	-	DDR4
			DDR4	-	DDR4	-	DDR4	-	PM	-	-	-	-	DDR4	-	DDR4	-	DDR4
			DDR4	-	PM	-	DDR4	-	DDR4	-	-	DDR4	-	DDR4	-	-	-	DDR4

AD: App Direct, MM: Memory Mode, PM: PMem

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

PMem Notes

- PMem 200 Series are supported on 3rd gen Intel Xeon Scalable Platinum, Gold and se-lected Silver processors.

- Do not mix 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 and MM + AD modes.

- For each individual population, different PMem rearrangements among channels are permitted so long as the configuration does not break X12 DP Memory population rules.

- Ensure the same DDR4 DIMM type and capacity are used for each DDR4 + PMem popu-lation.

- If the system detects an unvalidated config, then the system issues a BIOS warning. The CLI functionality is limited in non-POR configurations, and select commands will not be supported.

- x4 and x8 DDR4 DIMMs cannot be mixed in the same channel in PMem configurations.

Installing Memory

ESD Precautions

Electrostatic Discharge (ESD) can damage electronic components including memory modules. To avoid damaging DIMM modules, it is important to handle them carefully. The following measures are generally sufficient.

• Use a grounded wrist strap designed to prevent static discharge.

• Handle the memory module by its edges only.

• Put the memory modules into the antistatic bags when not in use.

Installing Memory

Begin by removing power from the system as described in Section 3.1. Follow the memory population sequence in the table above.

1. Push the release tabs outwards on both ends of the DIMM slot to unlock it.
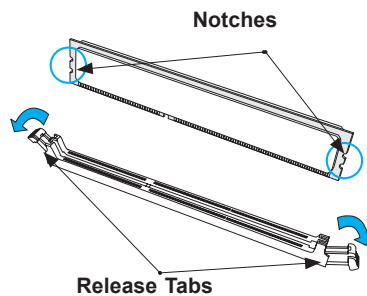
2. Align the key of the DIMM with the receptive point on the memory slot and with your thumbs on both ends of the module, press it straight down into the slot until the module snaps into place.
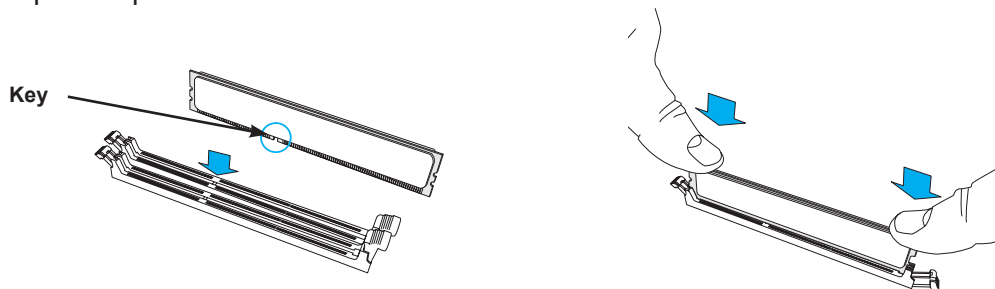
3. Press the release tabs to the locked position to secure the DIMM module into the slot.

Caution: Exercise extreme caution when installing or removing memory modules to prevent damage to the DIMMs or slots.

Removing Memory

To remove a DIMM, unlock the release tabs then pull the DIMM from the memory slot.

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.

LITHIUM BATTERY

BATTERY HOLDER
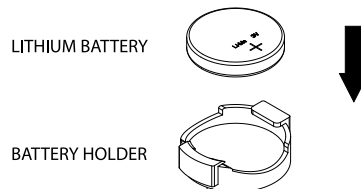
Figure 3-6. Installing the Onboard Battery

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

3.6 Storage Drives

The system supports eight hot-swap 2.5" hybrid storage drive bays, four per node. The drives are mounted in tool-less drive carriers that simplify their removal from the chassis. These carriers also help promote proper airflow.

Note: Enterprise level drives are recommended for use in Supermicro servers. For compatible drives, see the X12DPT-PT6 motherboard page.

Each node also supports two SATA DOMs and two M.2 SSD by means of an adapter card. See Chapter 6 for details.

Installing Drives

The drives are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help to promote proper airflow for the drive bays. For this reason, even carriers without drives must remain in the chassis.

Figure 3-7. Logical Drive Numbers

Removing a Hot-Swap Drive Carrier from the Chassis

1. Press the release button on the drive carrier, which will extend the drive carrier handle.

2. Use the drive carrier handle to pull the drive out of the chassis.
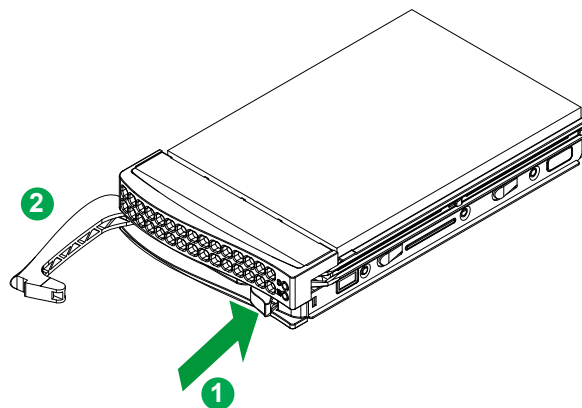
Figure 3-8. Removing a Drive Carrier

Release Button
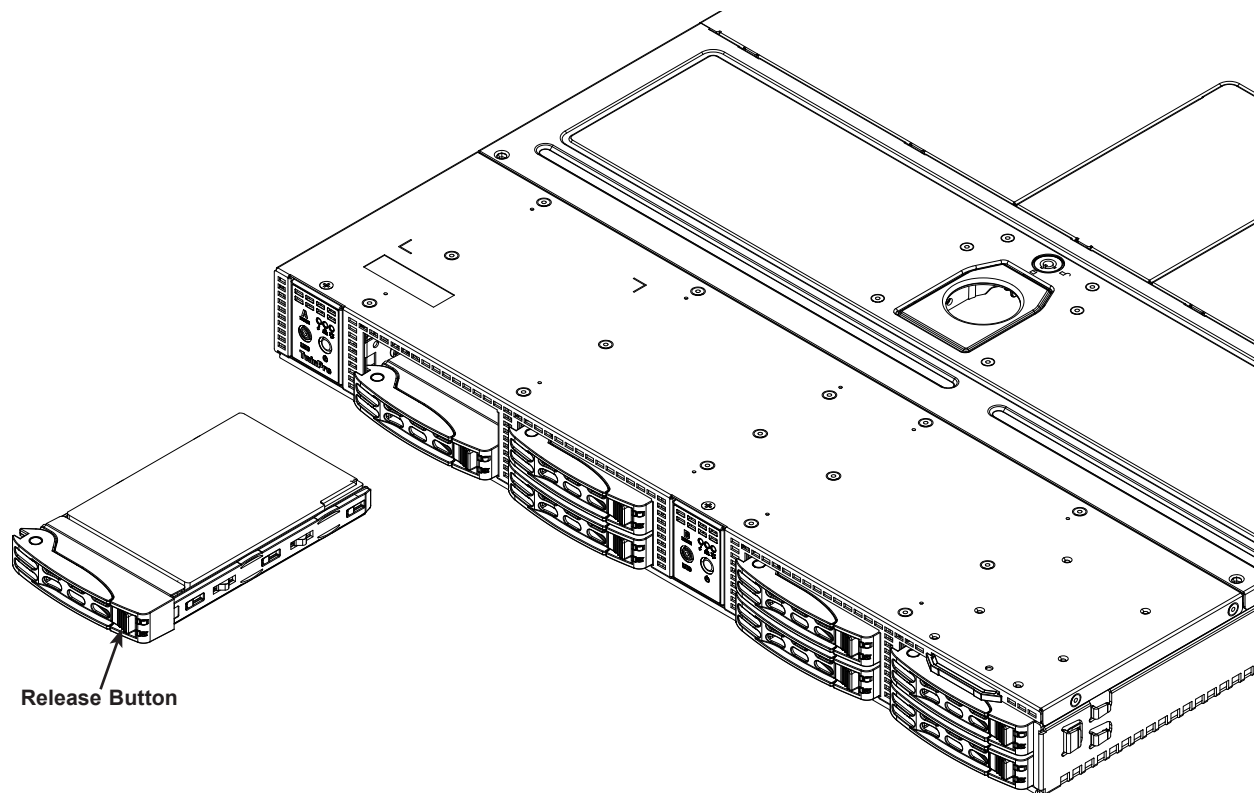
Figure 3-9. Removing a Hard Drive

Note: Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro website at http://www.supermicro.com/products/nfo/files/storage/SBB-HDDCompList.pdf.

Removing Hard Drive Carrier from the Chassis

1. Press the release button on the drive carrier. This extends the drive carrier handle.

2. Use the handle to pull the drive out of the chassis.

3. Remove the dummy drive from the carrier.
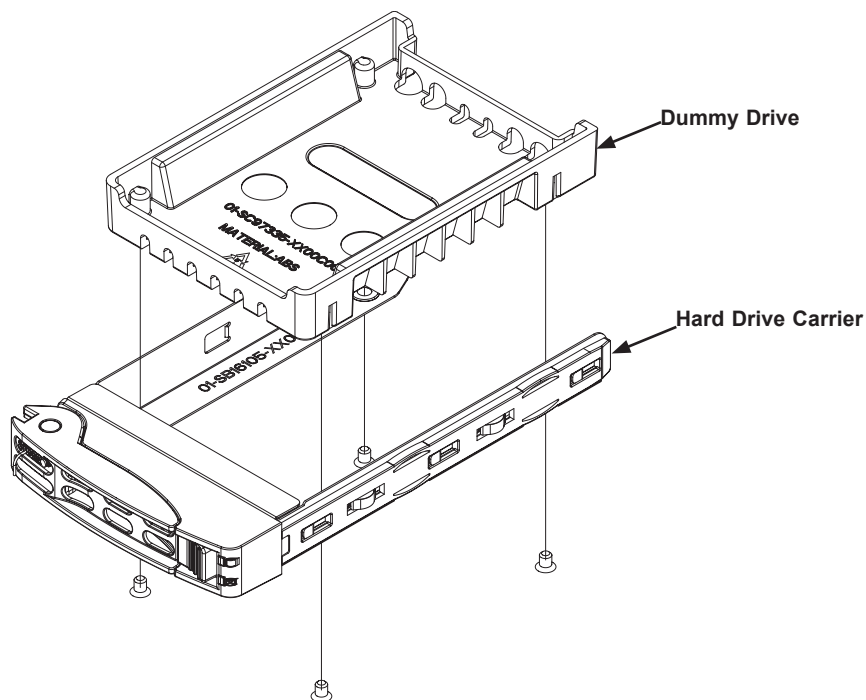
Figure 3-10. Mounting a Drive in a Carrier

Caution!: Except for short periods of time while swapping hard drives, do not operate the server with the hard drive carriers empty or absent.

Installing a Drive into the Carrier

1. Remove the dummy drive from the carrier by removing four screws.

2. Install a new drive into the carrier with the printed circuit board side facing down so that the mounting holes in the drive align with those in the carrier.

3. Secure the hard drive into the carrier with the screws.

4. Open the drive carrier handle and use it push the carrier assembly into the chassis.

5. Gently close the drive carrier handle to secure the drive and carrier into the chassis drive bay.
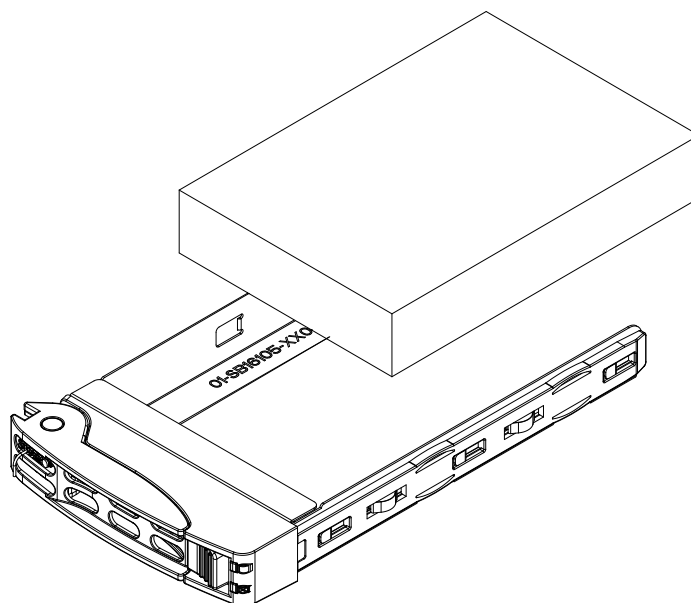
Figure 3-11. Installing a Drive into the Carrier

Installing M.2 Solid State Drives

Each node can accommodate two M.2 solid state drives (SSDs) using a storage controller card (SCC-P2N2M2-P2). This card supports a PCIe Gen4 M.2-NVMe, size 2280/60/42 with regular GenZ-2C pin as the interface connector.
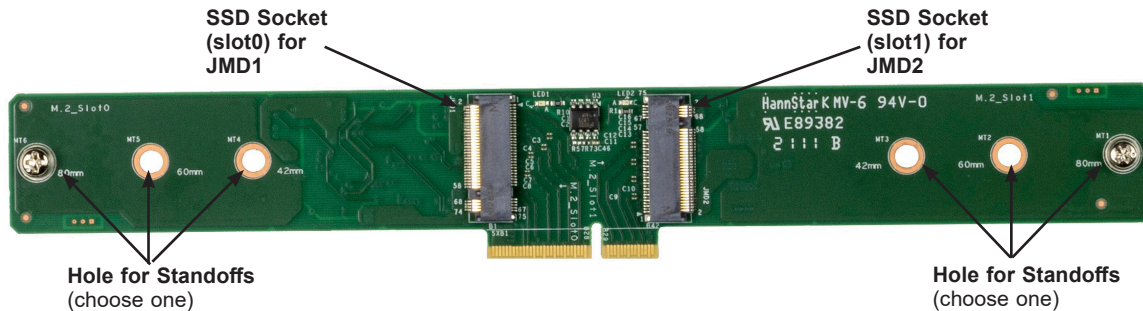
Figure 3-12. M.2 SSD Card

To Install M.2 SSDs

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

1. Pull the controller card up and out of the motherboard slot (SXB6). On the motherboard, remove any DIMMs obstructing access to the carrier card slot.
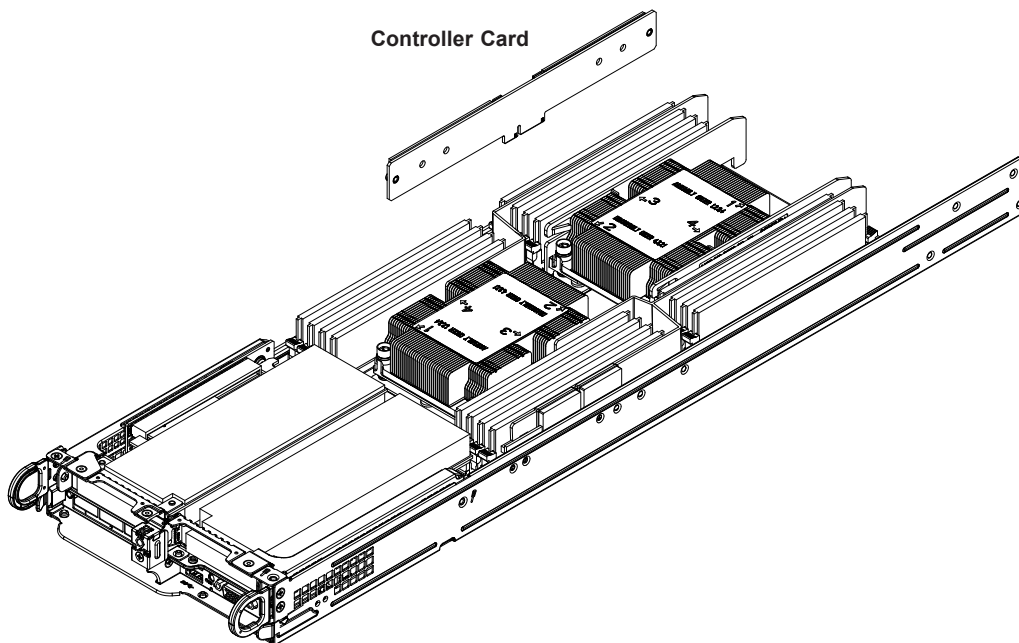
Figure 3-13. M.2 Storage Controller Card Slot

2. For each 22x80mm M.2 SSD, install on the standard standoff with the provided screw. For 22x42mm or 22x60mm SSDs, obtain an additional standoff to support each.
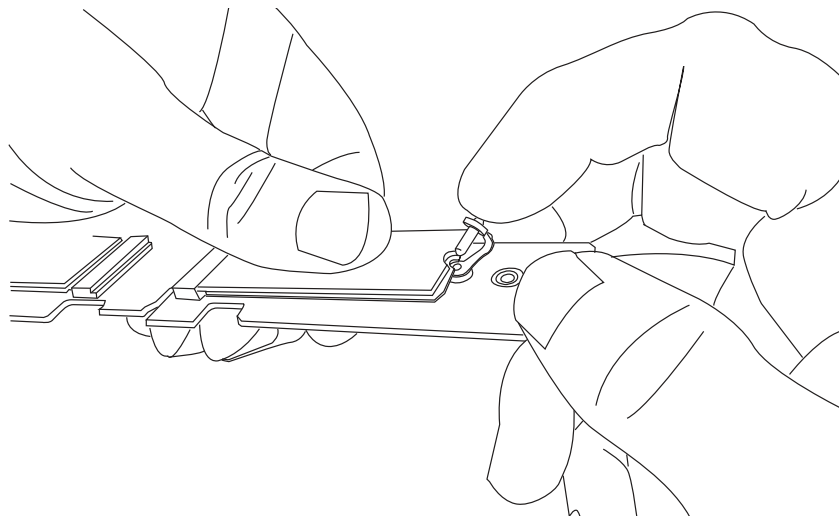
Figure 3-14. Inserting the Standoff Plug
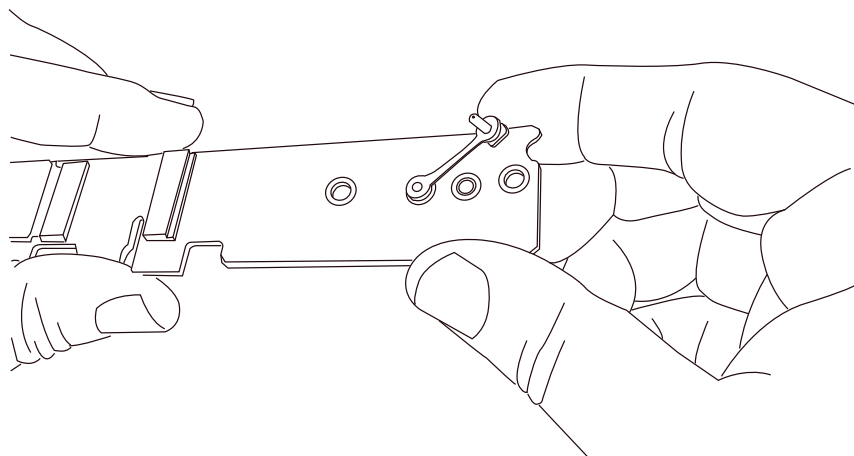
Figure 3-15. Inserting the Standoff
(drawing shows hole for 60 mm SSD)

3. Insert the SSD into the socket on the card. Then push it flat against the card and the plastic standoff.

4. Secure the SSD by firmly inserting the standoff plug.

5. Push the controller card into the slot on the motherboard. With the screws provided, secure it to the side of the node chassis.

6. Replace any DIMMs that may have been removed.

7. Replace the node into the chassis, and power up the system.

3.7 System Cooling

Fans

Six hot-swappable fans provide cooling from the middle of the chassis.

Replacing a System Fan

1. Use IPMI or another monitoring tool, if available, to determine which fan has failed.

2. Open the chassis cover. If a monitoring tool is not available, observe which fan has failed. (Never run the server for an extended period of time with the chassis cover open.)

3. Remove the failed fan's power cord from the motherboard.

4. Press the fan release tab to lift the failed fan from the chassis and pull it completely out of the chassis.

5. Place the new fan into the vacant space in the housing while making sure the arrows on the top of the fan (indicating airflow direction) point in the same direction as the arrows on the other fans.

6. Check that the fan is working properly before replacing the chassis cover.
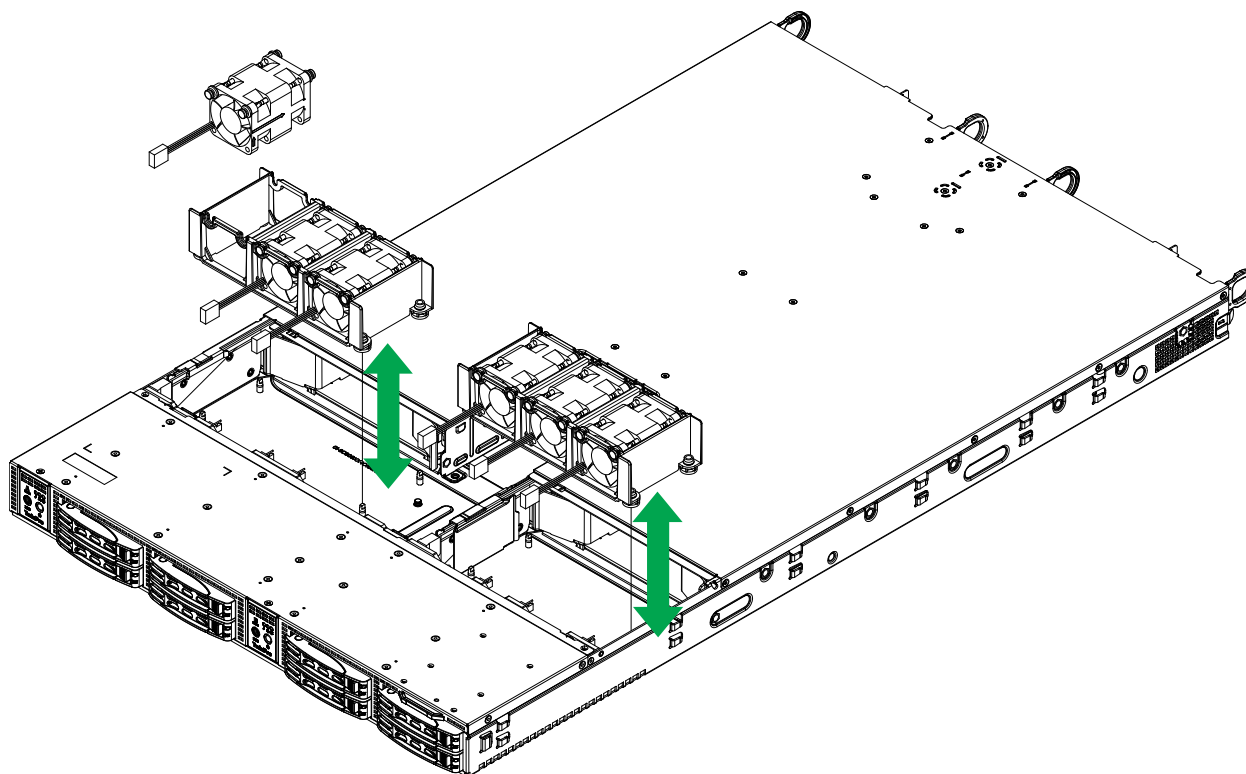
Figure 3-16. System Fan Placement

Air Shrouds

Air shrouds concentrate airflow to maximize cooling efficiency.

Installing the Standard Air Shrouds

1. Screw the guide pins into the sled as shown below.

2. Position the air shrouds and drop them onto the guide pins and into place.

Guide Pins
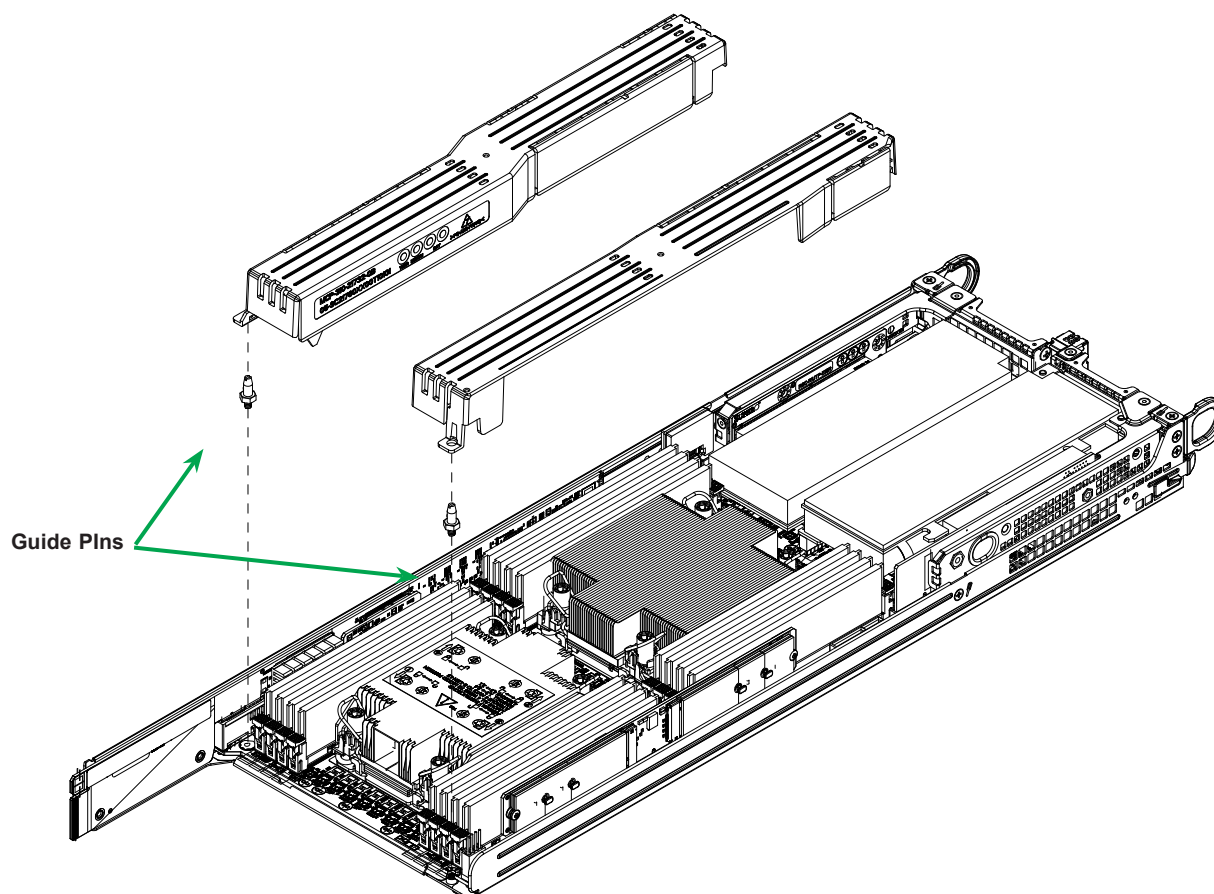
Figure 3-17. Installing the Air Shrouds

3.8 Power Supply

The chassis features redundant power supplies. They are hot-swappable, meaning they 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.
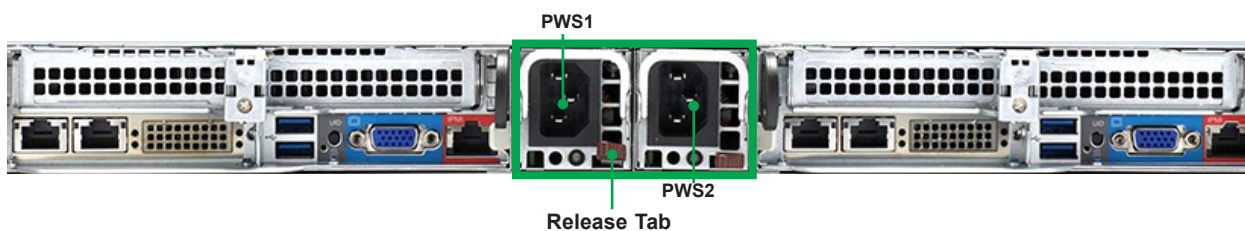
Figure 3-18. Replacing the Power Supply
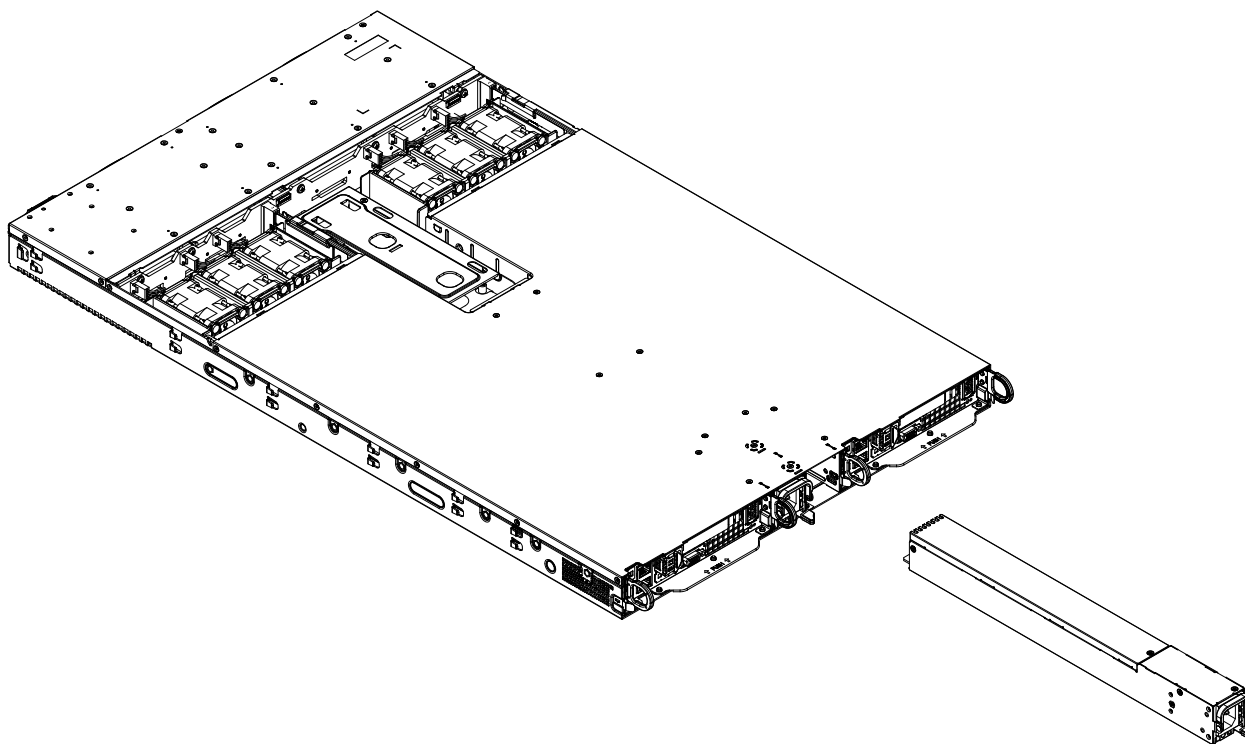
Figure 3-19. Power Supply Module

Changing the Power Supply:

1. Power down the node and unplug the AC cord from the module to be replaced.

2. Push the release tab on the back of the power supply as illustrated.
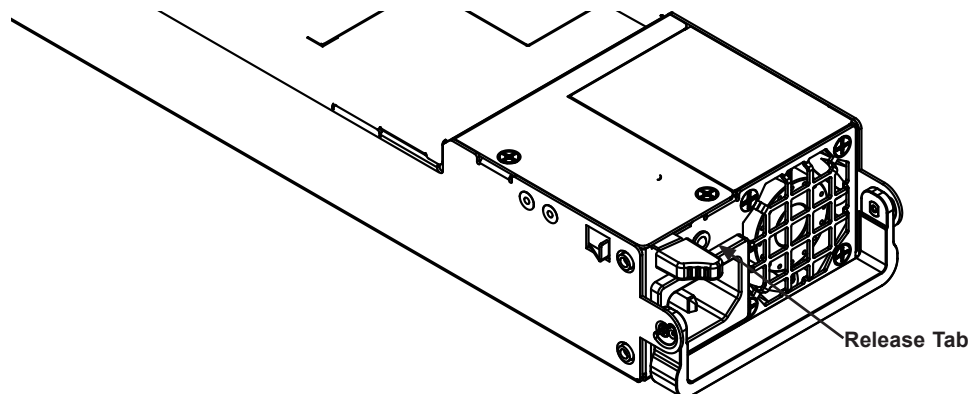
Release Tab

Figure 3-20. Power Supply Release Tab

3. Pull the power supply out using the handle provided.

4. Replace the failed power module with the same model.

5. Push the new power supply module into the power bay until it clicks.

6. Plug the AC power cord back into the module.

3.9 PCI Expansion Slots

Each node offers options for riser cards that provide custom PCIe capabilities—one right-facing riser card, and one left-facing card. The system includes both pre-installed riser cards (p/n RSC-PR-6-X2/RSC-P-6G4) that positions a standard size PCIe x16 card at a 90 degree angle, allowing it to fit inside the chassis.

Figure 3-21. Expansion Card Chassis Slots

Expansion Slots and Riser Cards

This system offers options for riser cards that provide custom PCIe 4.0 capabilities.

PCIe Riser Cards			
Position*	**Part Number**	**Slot**	**Description**
Right side (SXB3)	RSC-PR-6-X2	**1**	x16 low profile (CPU1)
Left side (SXB4)	RSC-P-6G4	**2**	x16 low profile (CPU2)

*Position in the node tray when looking from the back of the server.

Installing Expansion Cards

The riser cards have already been pre-installed into the motherboard. Perform the following steps to install an add-on card:

1. Begin by removing power from the system as described in section 3.1.

2. Remove the chassis cover to access the inside of the system.

3. Remove the PCI slot shield on the chassis by releasing the locking tab.

4. Insert the expansion (add-on) card into the riser card.

5. Secure the card with the locking tab.

6. Return the node drawer and power-up.
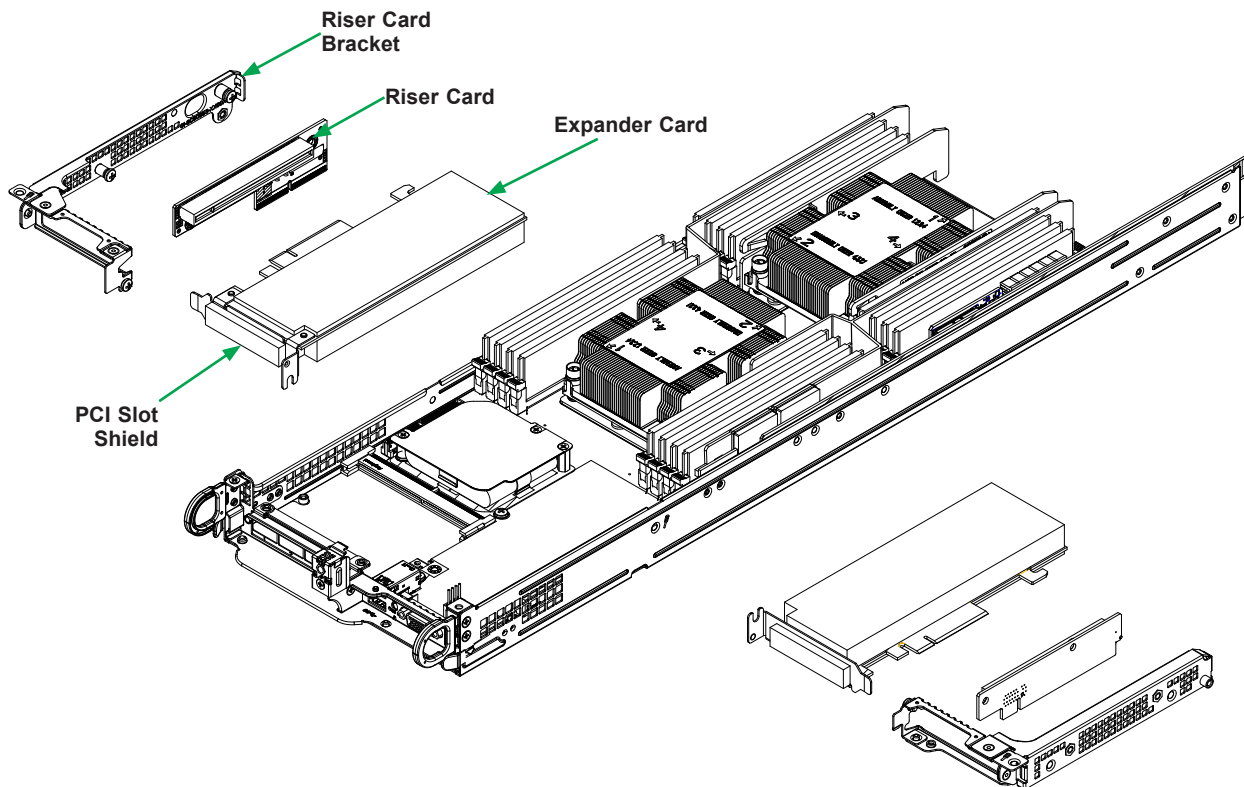
Figure 3-22. Installing the Expansion Card

Installing the Riser Card

1. Use the control panel to power down the computing node, and pull the node drawer out of the chassis.

2. Remove the riser card bracket, removing the screw on the back of the drawer.

3. Align the riser card mounting hole to the bracket standoff and secure the riser card to the bracket using the two screws included in the accessory box.

4. Insert the riser card into the slot on the motherboard.

5. Secure the riser bracket to the rear of the node drawer.
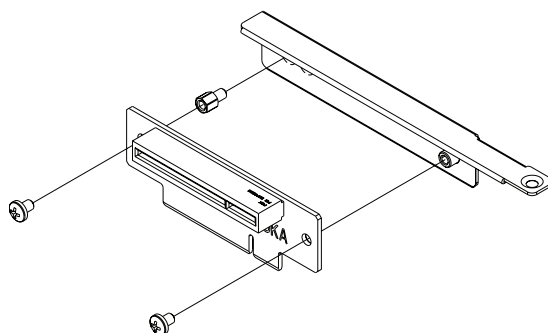
Figure 3-23. Installing the Riser Card

Adapter Cards

Adapter cards connect to the motherboard to the backplane and provide hot-swappable functionality to the node.
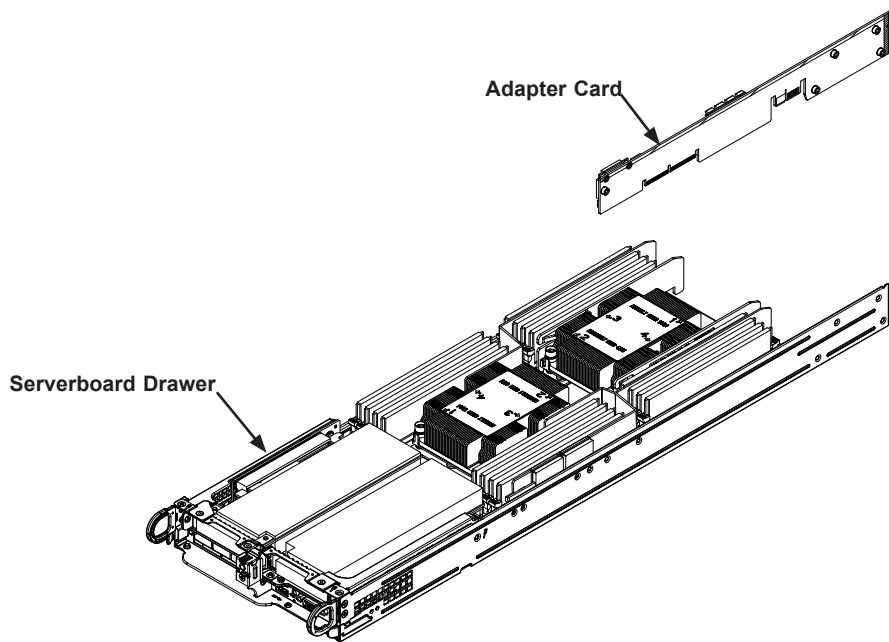
Figure 3-24. Adapter Card Installation

Removing the Adapter Card

1. Remove the node from the back of the chassis. It is necessary to power off the node before any hardware changes.

2. Disconnect the wiring, connecting the adapter card to the motherboard if any is present.

3. Remove the five screws securing the adapter card and the spacer plate to the drawer and set them aside for later use.

4. Remove the adapter card and spacer plate from the motherboard drawer.

5. Set the spacer plate aside for later use.

Installing the Adapter Card

1. Make sure the motherboard has been installed properly in the node drawer before installing the adapter card.

2. Place the adapter card and spacer plate in the node drawer, aligning the holes in the spacer and the adapter card with the holes in the drawer.

3. Secure the adapter card and spacer plate to the motherboard drawer, using the five M3 flathead screws which were previously set aside.

4. Reconnect the wiring from the motherboard to the adapter card if necessary.

5. Return the node drawer to the closed position in the chassis.

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 Connection

JHS1 is a proprietary power and front control panel connector. It connects as the compute node slides into the system enclosure.

4.2 Headers and Connectors

Fan Headers

There are two 4-pin fan headers (FAN3, FAN4) on the motherboard. These connect as the compute node slides into the system enclosure.

TPM Header

The JTPM1 header is used to connect a Trusted Platform Module (TPM)/Port 80, which is available from Supermicro. 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 storage drive is not installed in the system. For more information on the TPM: http://www.supermicro.com/manuals/other/TPM.pdf.

Trusted Platform Module/Port 80 Header Pin Definitions			
Pin#	Definition	Pin#	Definition
1	P3V3	2	SPI_TPM_CS_N
3	PCI-E_RESET_N#	4	SPI_PCH_MISO
5	SPI_PCH_CLK#	6	Ground
7	SPI_PCH_MOSI	8	N/A
9	JTPM1_P3V3A	10	IRQ_TPM_SPIN_N

RAID Key Header

An Intel VROC RAID Key header is located at JRK1. It supports VMD used in creating optional advanced NVMe RAID configurations.

RAID Key Header Pin Definitions	
Pin#	Definition
1	Ground
2	3.3V Standby
3	Ground
4	PCH_RAID_KEY

VROC Key

Header (JRK1)
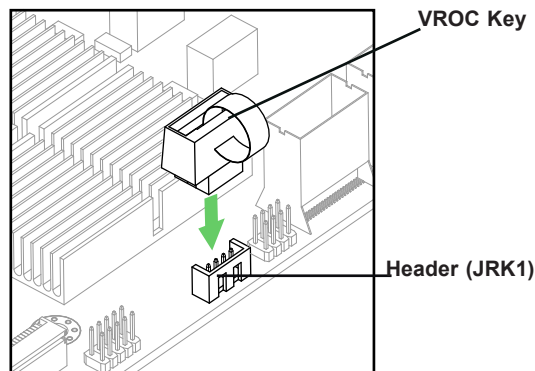
Note: This drawing is for illustration only. Your motherboard may look different.

BMC External I²C Header

A 4-pin system management bus header for the BMC is located at JIPMB1. Connect a cable to this header to use the IPMB I²C connection on your system.

External I²C Header Pin Definitions	
Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

Disk-On-Module Power Connector

Two power connectors for SATA DOM (Disk-On-Module) devices are located at JSD1 and JSD2. Connect appropriate cables here to provide power support for your Serial Link DOM devices.

DOM Power Pin Definitions	
Pin#	Definition
1	5V
2	Ground
3	Ground

NCSI Connector

The NCSI connector (JNSCI1) is used to connect a Network Interface Card (NIC) to the motherboard which will allow the onboard BMC (Baseboard Controller) to communicate with a network.

Note 1: For detailed instructions on how to configure Network Interface Card (NIC) settings, refer to the Network Interface Card Configuration User's Guide posted on the web page under the link: www.supermicro.com/support/manuals/.

Note 2: LAN1 is the default shared LAN port.

I-SATA 3.0 and S-SATA 3.0 Ports

There are two I-SATA 3.0 ports (I-SATA4, I-SATA5) and six S-SATA ports (S-SATA0–5) on the motherboard. These SATA ports are supported by the Intel PCH C621A chipset. I-SATA4 and I-SATA5 can be used with Supermicro SuperDOMs, which are orange SATA DOM connectors with power pins built in and do not require external power cables. S-SATA0–5 are supported by PCH and are connected to Supermicro storage backplane.

4.3 Input/Output Ports

See the figure below for the locations and descriptions of the I/O ports on the rear of the motherboard.
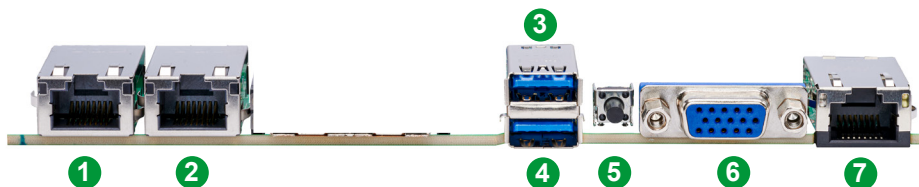
Figure 4-1. Rear I/O Ports

Rear I/O Ports			
#	**Description**	**#**	**Description**
1.	LAN1	5.	UID switch/BMC reset
2.	LAN2	6.	VGA port
3.	USB0 (3.2 Gen1)	7.	Dedicated BMC LAN
4.	USB1 (3.2 Gen1)		

UID Swiitch

A Unit Identifier (UID) switch and a UID LED indicator are located on the rear of the system. When you press the UID switch, both front and rear UID LED indicators are toggled on or off. The UID indicators provide easy identification of a system in a rack. The UID can also be triggered using the BMC.

The BMC can be reset using the UID switch. See Section 7.8 for details.

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.
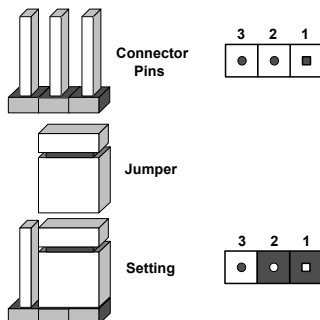
LAN Port Enable/Disable

JPTG1 allows the user to enable or disable the onboard LAN ports. The default setting is pins 1-2 to enable the connection.

LAN Enable/Disable Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Enable
Pins 2-3	Disabled

LAN Port AUX Power Enable/Disable

JPAUX1 allows the user to enable/disable the LAN port AUX power to enable/disable onboard LAN ports when the system is in power off status. The default setting is to short pins 2-3 to disable onboard LAN ports when the system is in power off status. Refer to the table below for jumper settings.

LAN Port AUX Power Enable/Disable Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

ME Recovery

JPME2 is used for ME Firmware Recovery mode, which will limit system resources for essential functions only without putting restrictions on power use. In the single operation mode, online upgrade will be available via Recovery mode.

ME Recovery Jumper Settings	
Jumper Setting	**Definition**
Pins 1-2	Normal (Default)
Pins 2-3	ME Recovery

4.5 LED Indicators

Network LAN LEDs

The Ethernet ports each have two LEDs. One LED indicates activity when flashing green. The other may be green, amber or off to indicate the speed of the connection.

LAN LED (Speed Indicator)	
Color	**Definition**
Green	10Gbps
Amber	1Gbps
Off	100Mbps or less

Dedicated BMC LAN LEDs

A dedicated BMC LAN port is also included on the motherboard. The amber LED on the right of the BMC LAN port indicates activity, while the LED color on the left indicates the speed of the connection.

BMC Link LED	
Color	**Definition**
Off	No Connection
Green	100 Mb/s
Amber	1 Gb/s

Link LED (speed) — Activity LED
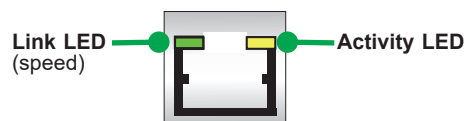
Chapter 5

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 a USB flash or media 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.
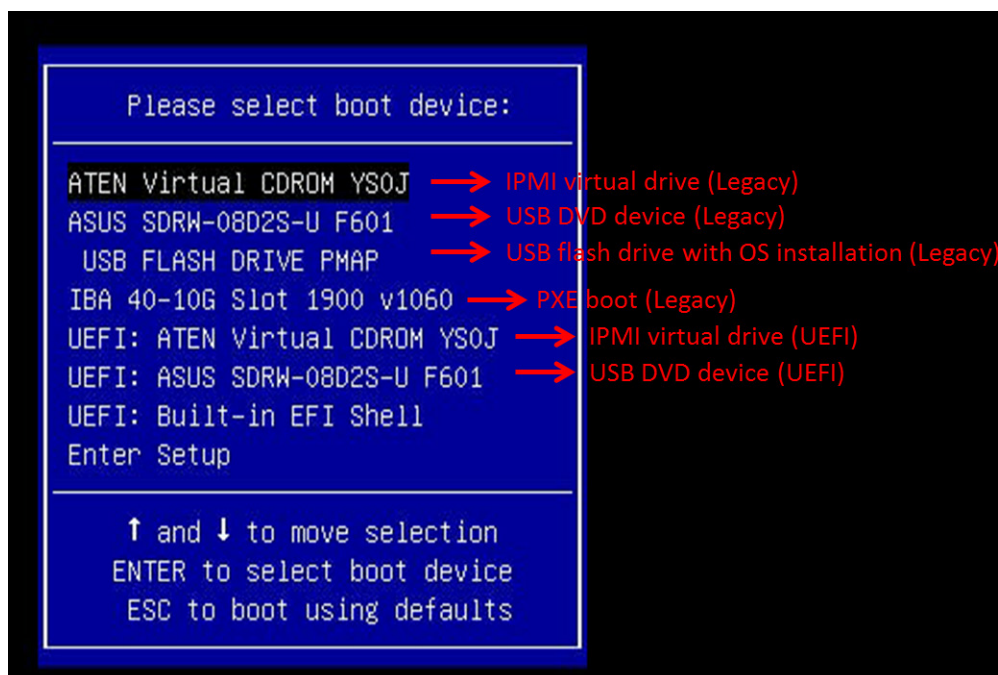
Figure 5-1. Select Boot Device

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.
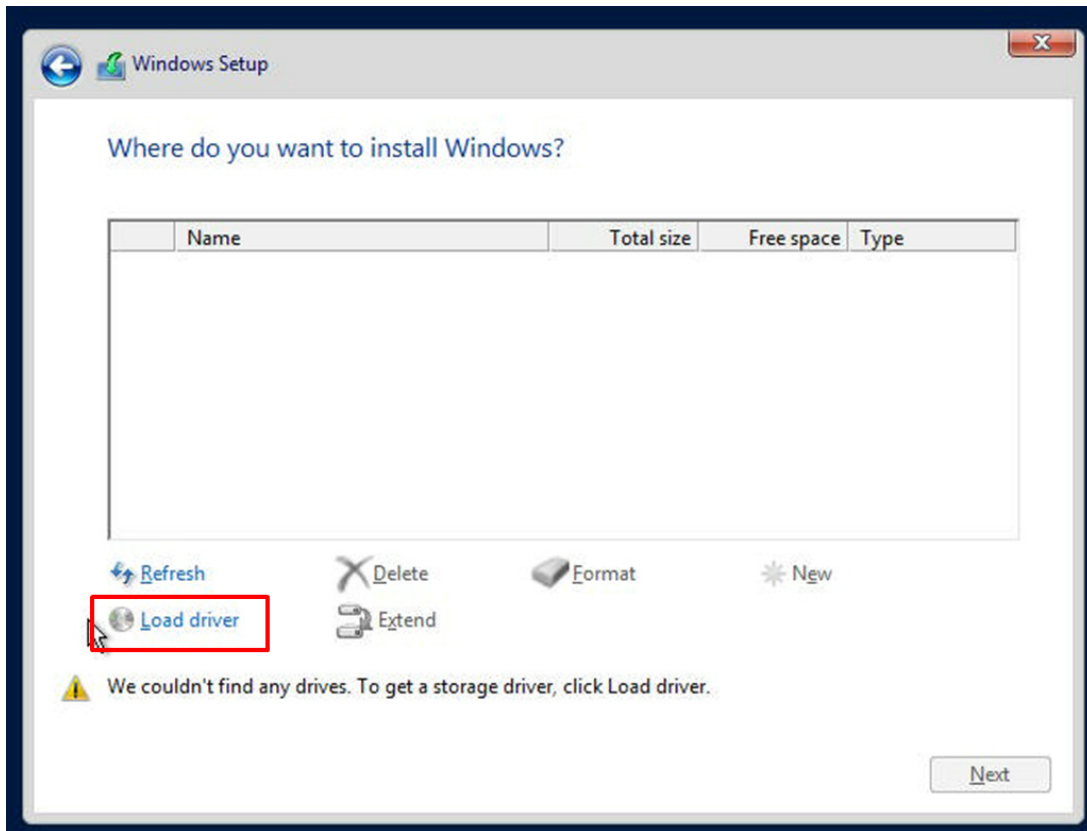
Figure 5-2. Load Driver Link

To load the driver, browse the USB flash or media 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. On the product page for your motherboard, "Download the Latest Drivers and Utilities".

Insert the flash drive or disk and the screenshot shown below should appear.
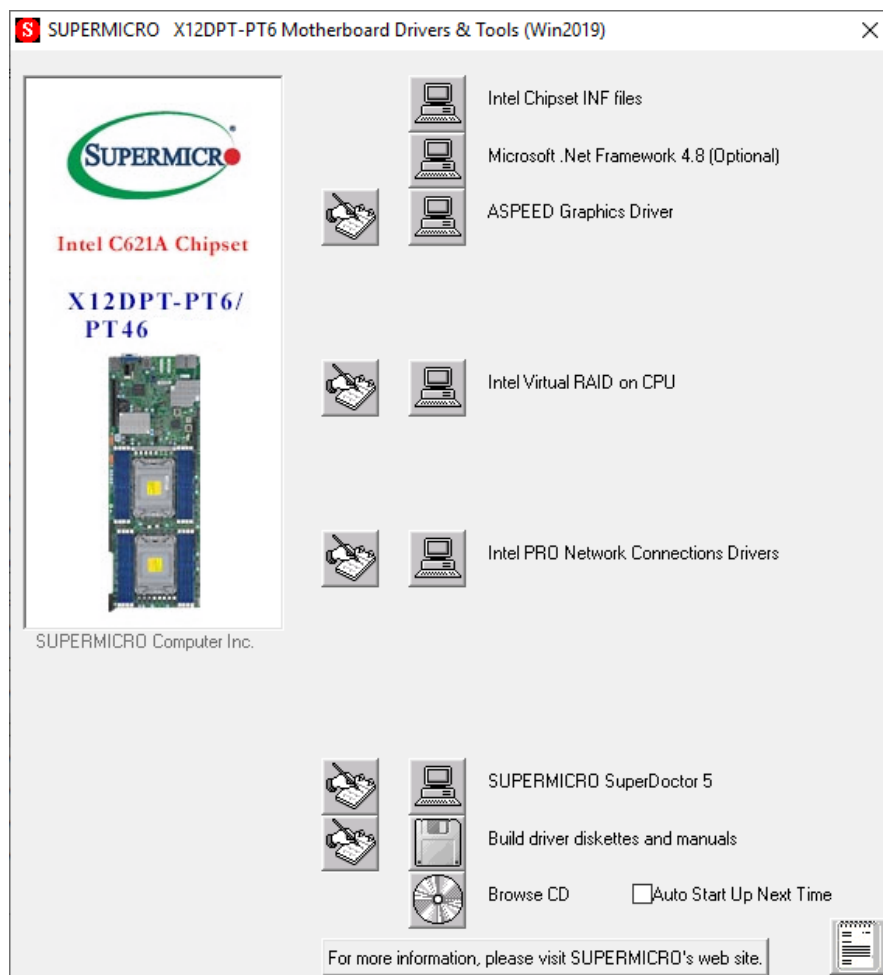
Figure 5-3. Driver and Tool Installation Screen

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 the BMC. SuperDoctor 5 Management Server monitors HTTP, FTP, and SMTP services to optimize the efficiency of your operation.

[SuperDoctor® Manual and Resources](#)
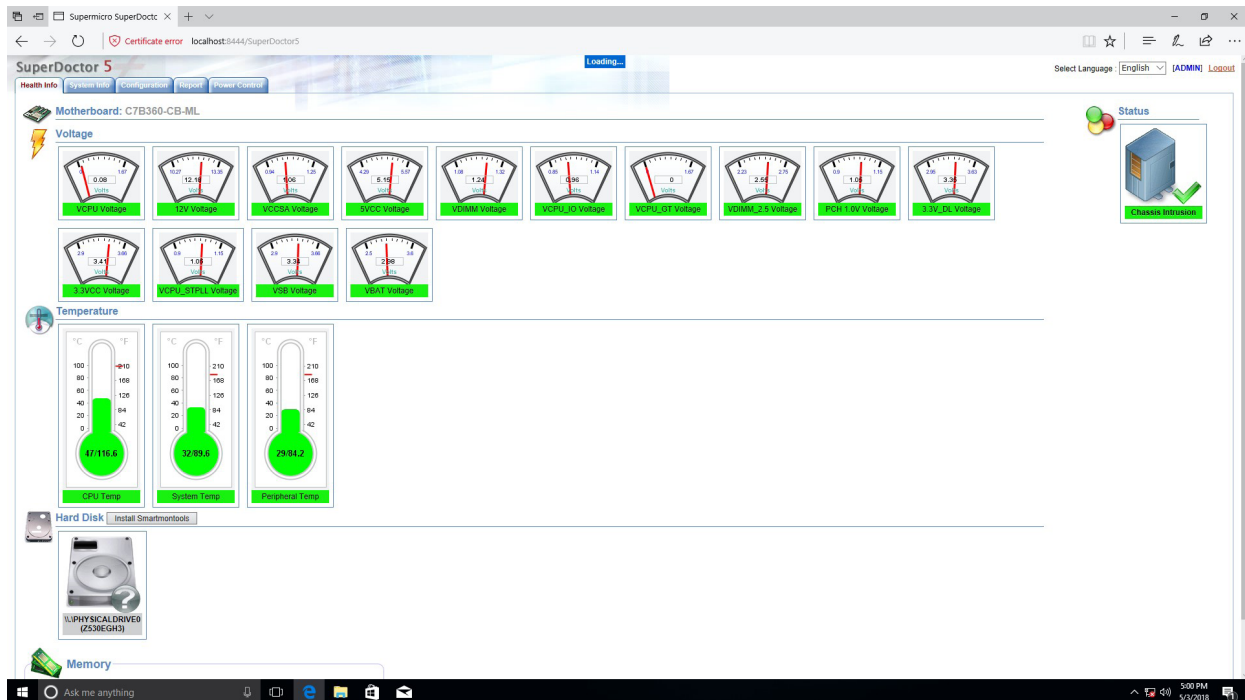
Figure 5-4. SuperDoctor 5 Interface Display Screen (Health Information)

5.4 BMC

The motherboard 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

The sticker can be found on the rear of the node tray.

Chapter 6

Optional Components

This chapter describes alternate configurations and optional system components.

Optional Parts
Storage options
TPM security module
Enabling Intel SGX in the UEFI BIOS Setup Utility
Intel VROC RAID Key

6.1 Storage Options

Each node supports four hot-swap 2.5" drive bays, SATA/SAS drives for SYS-120TP-DTTR, SYS-120TP-DC8TR, and SYS-120TP-DC9TR. Additional storage can be attained using SATA DOM and M.2 SSDs.

SATA DOMs

Each node motherboard supports two SATA DOMs (disk on modules) by I-SATA headers. See Chapter 1, Motherboard Layout for the locations. If needed, power for the SATA DOMs is available from connectors JSD1 and JSD2 on the motherboard.

M.2 SSDs

Two M.2 SSDs per node can be added using the carrier card (SCC-P2N2M2-P2) inserted in the motherboard connector SXB6. The carrier card supports 2280 form factor NVMe SSDs. You can request additional standoffs to support 2260 or 2242 form factors. See Chapter 3 for details.

6.2 TPM Security Module

SPI capable TPM 2.0 (or 1.2) with Infineon 9670 controller, horizontal form factor

The JTPM1 header is used to connect a Trusted Platform Module (TPM). A TPM is a security device that supports encryption and authentication in hard drives. It enables the motherboard to deny access if the TPM associated with the hard drive is not installed in the system.

Details and installation procedures are at:

 http://www.supermicro.com/manuals/other/TPM.pdf.

- AOM-TPM-9671H

- AOM-TPM-9670H

6.3 Enabling Intel SGX in the UEFI BIOS Setup Utility

This section provides instructions to enable Intel Software Guide Extensions support on the UEFI BIOS.

Requirements

To ensure that Intel SGX is supported by your system, be sure to meet the following requirements:

- Use processors that support Intel SGX.

- Use BIOS Rev. 1.1a or a newer version.

- Install DIMM modules based on the memory configuration supported by Intel SGX as listed in the tables below.

Memory Configuration Tables for SGX Support

Memory Configuration Supporting SGX for Dual Processors																
DIMMs	F1	F2	E1	E2	H1	H2	G1	G2	C2	C1	D2	D1	A2	A1	B2	B1
8	X		X		X		X			X		X		X		X
12	X	X	X		X	X	X		X	X	X		X	X	X	
	X	X	X		X		X	X	X	X	X		X		X	X
	X		X	X	X		X	X	X		X	X	X		X	X
	X		X	X	X	X	X		X		X	X	X	X	X	
16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Memory Configuration Supporting SGX for Single Processors								
DIMMs	F1	E1	H1	G1	C1	D1	A1	B1
8	X	X	X	X	X	X	X	X

Processor Requirements

- 3rd Gen Intel Xeon Scalable Processors (in Socket P+ (LGA-4189))

OS Requirements

- Windows Server 2019

- Linux: Ubuntu 20.04, Ubuntu 18.04, Red Hat Enterprise Linux Server 8.2

For more information, refer to the Intel website.

Software Requirements

Intel SGX Platform Software

- For Intel SGX application to work properly in a system, Intel SGX PSW is required to be pre-installed before shipping.

- A standalone Intel SGX PSW for Windows OS is also available. (Please refer to Intel's website.)

Note: Depending on the Windows version, PSW and drivers may already be automatically installed.

Supermicro Platform Support

- Supermicro systems based on X12DP Series or X12SP Series motherboards

Step 1: Entering the UEFI BIOS Utility to Enable TME Support

To enable Intel SGX support on the BIOS setting, enter the BIOS Setup utility by following the instructions below:

1. Press <Del> during system boot to enter the BIOS Setup utility.

2. Select the Advanced tab on the top of the screen.

3. Using the down arrow key, select CPU Configuration and press <Enter>.

4. When the CPU Configuration submenu displays, scroll down to select Total Memory Encryption (TME) and press <Enter>. The TME option dialog will display.

```
                          Aptio Setup - AMI
      Main  Advanced  Event Logs  IPMI  Security  Boot  Save & Exit

  ▶ Boot Feature                                  CPU Configuration
  ▶ CPU Configuration
  ▶ Chipset Configuration
  ▶ Server ME Information
  ▶ PCH SATA Configuration
  ▶ PCH sSATA Configuration
  ▶ Network Configuration
  ▶ PCIe/PCI/PnP Configuration
  ▶ Super IO Configuration
  ▶ Serial Port Console Redirection
  ▶ ACPI Settings
  ▶ Trusted Computing
  ▶ HTTP Boot Configuration
  ▶ SMC-KMS Server Configuration

  ▶ Intel(R) Ethernet Controller X550 - 3C:EC:EF:30:52:3E
  ▶ Intel(R) Ethernet Controller X550 - 3C:EC:EF:30:52:3F
  ▶ Intel(R) I350 Gigabit Network Connection - 3C:EC:EF:2D:32:C4    ➡⬅: Select Screen
  ▶ Intel(R) I350 Gigabit Network Connection - 3C:EC:EF:2D:32:C5    ⬆⬇: Select Item
  ▶ Intel(R) I350 Gigabit Network Connection - 3C:EC:EF:2D:32:C6    Enter: Select
  ▶ Intel(R) I350 Gigabit Network Connection - 3C:EC:EF:2D:32:C7    +/-: Change Opt.
  ▶ TLS Authenticate Configuration                                  F1: General Help
                                                                    F2: Previous Values
  ▶ Driver Health                                                   F3: Optimized Defaults
                                                                    F4: Save & Exit
                                                                    ESC: Exit

                 Version 2.22.1282 Copyright (C) 2021 AMI
```

5. From the option dialog, select Enabled and press <Enter> to enable TME support.

Step 2: Disabling Mirror Mode, ADDDC Sparing*, and Patrol Scrub Support in the Memory-RAS Configuration Submenu

For Intel SGX to function properly, disable the following features in the Memory-RAS submenu first:

- Mirror Mode

- ADDDC (Adaptive Double Device Data Correction) Sparing* (See the notes below.)

- Patrol Scrub

Note 1: The feature "ADDDC Sparing" will only be activated and displayed on the BIOS screen when x4 DRAM DIMMs, which support ADDDC(+1), are installed in the system. Without required DRAMs present, this feature will not be activated but remains dormant, hidden from the user's view. For ADDDC memory support, refer to the Memory RAS Configuration User's Guide posted on our website at: https://www.supermicro.com/manuals/other/Memory_RAS_Configuration_User_Guide.pdf.

Note 2: If ADDDC Sparing does not appear on your BIOS screen, this feature is inactive and masked off by default, and you will not need to disable it manually.

To disable Mirror Mode, Patrol Scrub, and ADDDC Sparing (if needed), follow the instructions below:

1. In the UEFI BIOS Utility, from the Advanced tab menu, select Chipset Configuration and press <Enter>.

2. Select North Bridge and press <Enter>.

3. Select Memory Configuration and press <Enter> as shown below.

4. When the Memory Configuration submenu displays, scroll down to select the Memory RAS Configuration submenu and, press <Enter>. The memory RAS Configuration submenu will display.

5. Check to ensure that Mirror Mode is Disabled as shown below.

```
                                    Aptio Setup - AMI
          Memory RAS Configuration
                                                            Enable/Disable ADDDC Sparing

          ----------------------------------------------
          Memory RAS Configuration Setup
          ----------------------------------------------

          Enable Pcode WA for SAI PG          [Disabled]
          Mirror Mode                         [Disabled]
          UEFI ARM Mirror                     [Disabled]
          Correctable Error Threshold         512
          Partial Cache Line Sparing PCLS     [Enabled]
          ADDDC Sparing                    ┌─── ADDDC Sparing ───┐
          Patrol Scrub                     │ Disabled            │
                                           │ Enabled             │
                                           └─────────────────────┘
                                                            ↔: Select Screen
                                                            ↕: Select Item
                                                            Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Exit
                                                            ESC: Exit

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```

6. Scroll down to check if the feature ADDDC Sparing displays on your screen.

   If ADDDC Sparing does not appear on your screen, this feature is not activated, and you
   do not need to disable it manually.

   If ADDDC Sparing is displayed on your screen, use the arrow keys to select it and press
   <Enter>. The ADDDC Sparing option dialog appears. Select Disabled from the option box
   and press <Enter>.

7. Using the down arrow key, select the feature "Patrol Scrub" and press <Enter>.

8. From the option dialog, select Disabled and press <Enter>.

Step 3: Enabling NUMA and Disabling UMA-Based Clustering Support in the ACPI Submenu

For Intel SGX to function properly, please enable NUMA (Non-Uniform Memory Access) and disable UMA-Based Clustering support in the ACPI submenu by following the instructions below.

1. In the UEFI BIOS Utility, from the Advanced tab menu, scroll down to select ACPI Settings and press <Enter>.

2. Select NUMA and press <Enter>.

3. Select Enabled, and press <Enter>.

4. Scroll down to select UMA-Based Clustering and press <Enter>.

5. When the option dialog displays, select Disable (ALL2ALL) and press <Enter> to disable UMA-Based Clustering support.

```
                              Aptio Setup - AMI
    ┌─────────┐
    │ Advanced │
    └─────────┘

     ACPI Settings                                    UMA Based Clustering
                                                      options include Disable
     NUMA                         [Enabled]           (ALL2ALL), Hemisphere (2
     UMA-Based Clustering         [Disable   (All2All)] cluster), and Quadrant (4
     WHEA Support                 [Enabled]           cluster, not supported on
     High Precision Event Timer   [Enabled]           ICX). These option are only
                                                      valid when SNC is disabled.
                                                      If SNC is enabled,
                                                      UMA-Based Clustering is
                                                      automatically disabled by
                        ┌─ UMA-Based Clustering ─┐    BIOS.
                        │ Disable   (All2All)    │
                        │ Hemisphere (2-clusters) │
                        └────────────────────────┘


                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit

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```

Step 4: Enabling SGX Support in the CPU Configuration Settings

After configuring the memory-related features in the UEFI BIOS utility as instructed above, your system is ready to support Intel Software Guard Extensions. To use SGX, follow the instructions below.

1. In the UEFI BIOS Utility, from the Advanced tab on top of the screen, select CPU Configuration and press <Enter>.

2. Scroll down to select SW Guard Extensions (SGX) and press <Enter>.

3. From the option dialog, select Enabled to enable SGX support.

```
                              Aptio Setup - AMI
        Advanced

                                                          ▲  Enable/Disable Software
  ▶ CPU1 Core Disable Bitmap                                 Guard Extensions (SGX).
    Hyper-Threading [ALL]            [Enable]                Will disable and grayed out
    Hardware Prefetcher              [Enable]                ADDDC , UMA-Based
    Adjacent Cache Prefetch          [Enable]                Clustering SGX, mirror and
    DCU Streamer Prefetcher          [Enable]                enable NUMA. SGX cannot
    DCU IP Prefetcher                [Enable]                co-exists PMem(Persistent
    LLC Prefetch                     [Enable]                Memory),ADDDC, MCA
    Extended APIC                    [Disable]               Recovery-Execution Path,
    VMX                              [Enable]                Run Sure, Memory Mirroing,
    Enable SMX          ┌─ SW Guard Extensions (SGX) ─┐      Address Range Mirroring(in
    PPIN Control        │ Disabled                    │      the same memory regison),
    AES-NI              │ Enabled                     │      dynamice change
  ──────────────────────────────────────────────────────    CPU/memory/Iio, static/Hard
    TME, TME-MT, TDX    └─────────────────────────────┘      Partitioning
  ────────────────────────────────────────────────
    Total Memory Encryption (TME)    [Enabled]          ────────────────────────────
    Total Memory Encryption          [Disabled]         ↔: Select Screen
    Multi-Tenant(TME-MT)                                ↑↓: Select Item
    Max TME-MT Keys                  0x0                Enter: Select
  ────────────────────────────────────────────────     +/-: Change Opt.
    Software Guard Extension (SGX)                      F1: General Help
  ────────────────────────────────────────────────     F2: Previous Values
    SGX Factory Reset                [Disabled]         F3: Optimized Defaults
    SW Guard Extensions (SGX)        [Enabled]       ▼  F4: Save & Exit
                                                        ESC: Exit

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```

4. Press <F4> to save the settings and reboot the system for the changes to take effect.

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6.4 Intel Virtual RAID on CPU (VROC)

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

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; location can be found in Chapter 1). 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
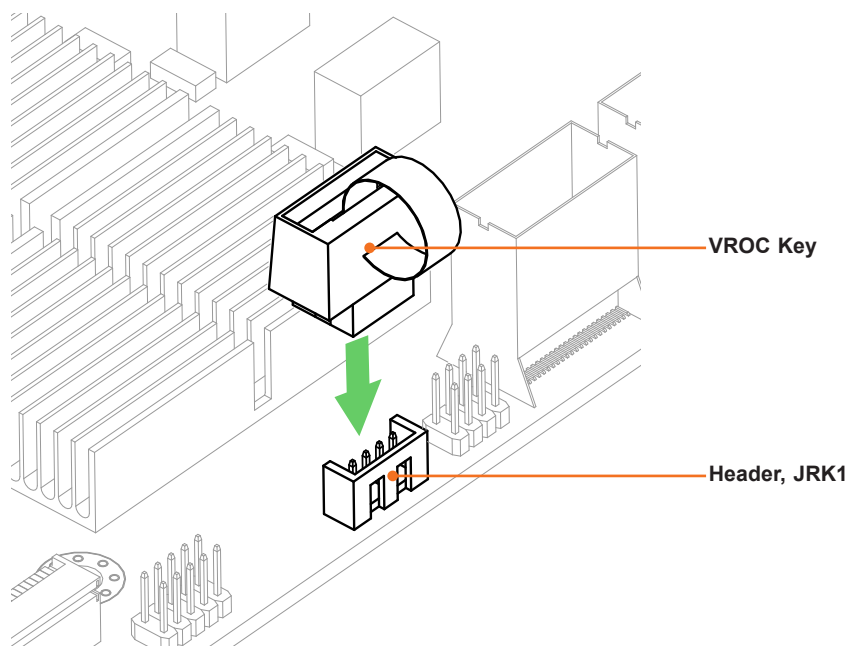
Figure 6-1. Intel VROC RAID Key and Motherboard Connector JRK1

Configuring NVMe RAID Manually

RAID for NVMe SSDs is enabled by default when Intel VROC Raid Key is populated. It may be managed manually through the UEFI BIOS.

1. Reboot the server and press [DEL] key to access the BIOS options.

2. Switch to **Advanced > Chipset Configuration > North Bridge > IIO Configuration > Intel® VMD Technology**.
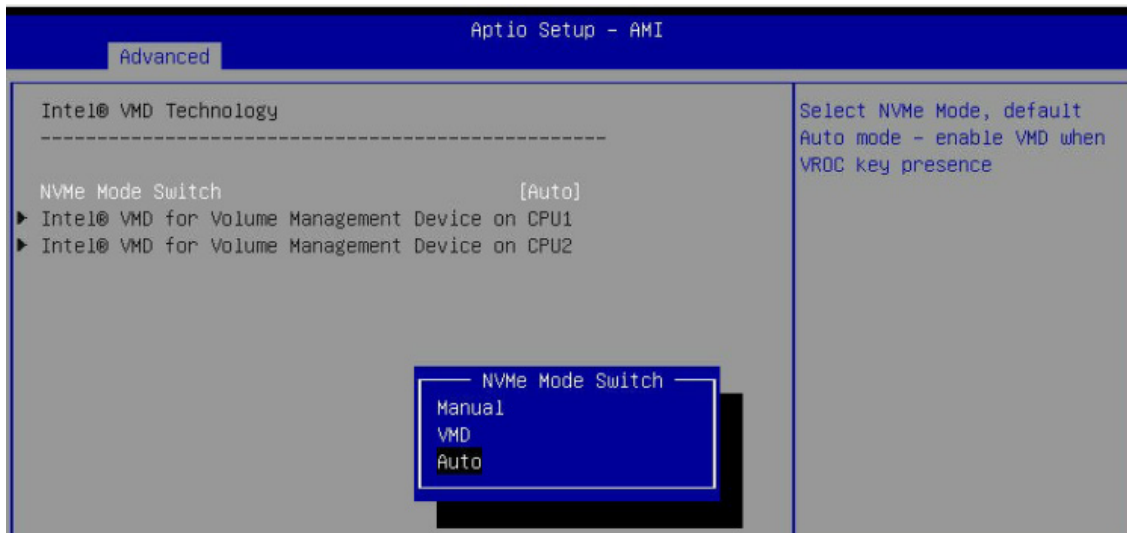
Figure 6-2. BIOS, Selecting VMD Mode

You can select a mode. The default is **Auto**. The **VMD** switch enables VMD mode for all NVMe ports despite the presence of the VROC key. The **Manual** switch allows the user to choose devices on which to enable VMD.

The onboard M.2 NVMe from PCH is located in the CPU1 section.

The screenshot below show example choices in Manual mode.
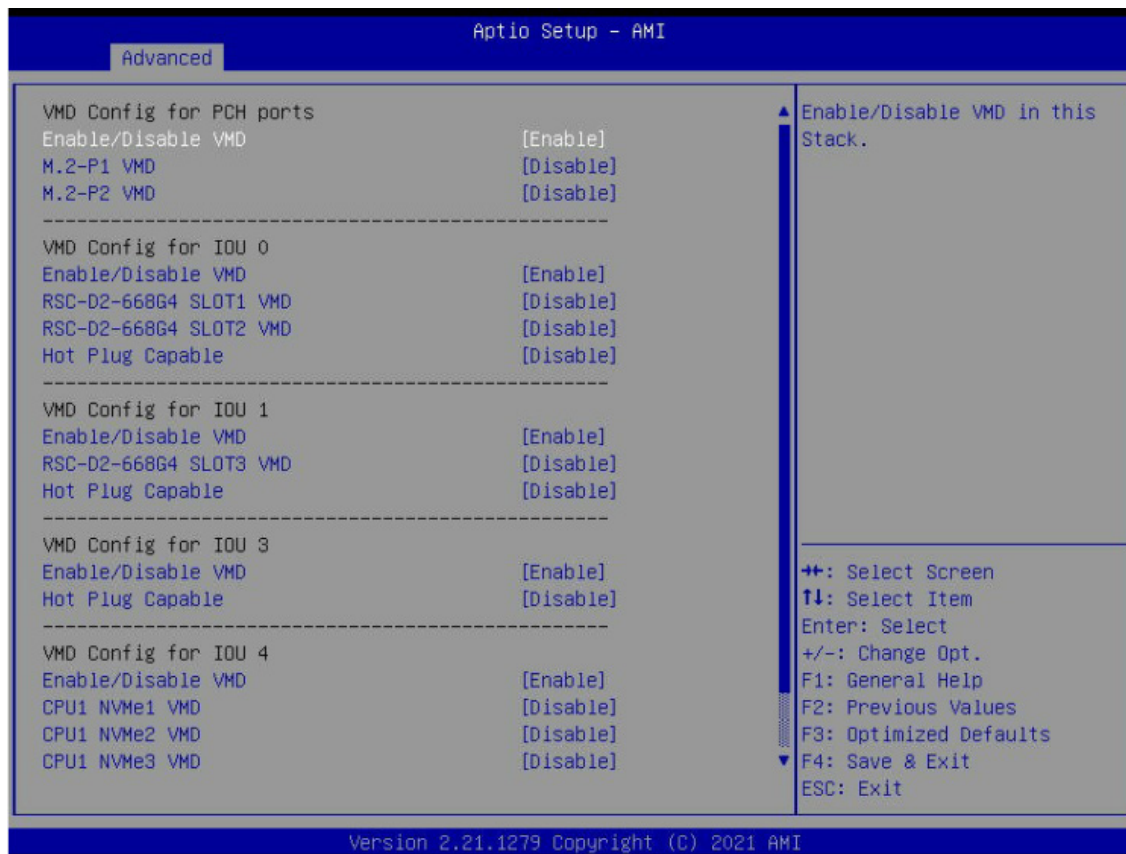
Figure 6-3. BIOS, Manual Mode (Example—your server may look different.)

3. Select the desired PStack# to Enable or Disable the corresponding Intel VMD controller
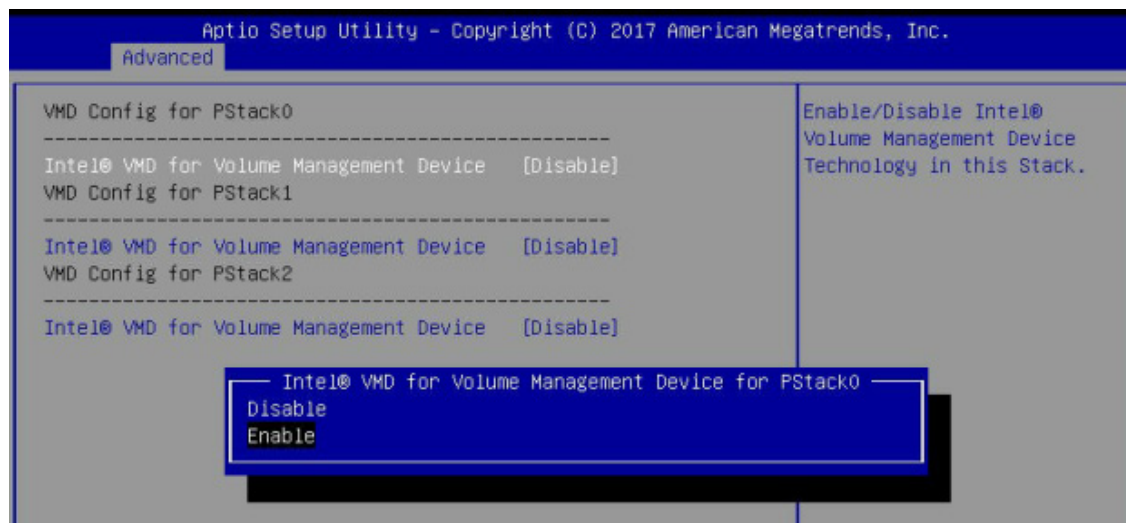
Figure 6-4. BIOS, Enabling VMD for Pstack0

4. Select the desired PCIe slot to Enable or Disable Intel VMD functionality according to the current hardware configuration being used. Hot Plug Capability can also be Enabled or Disabled.
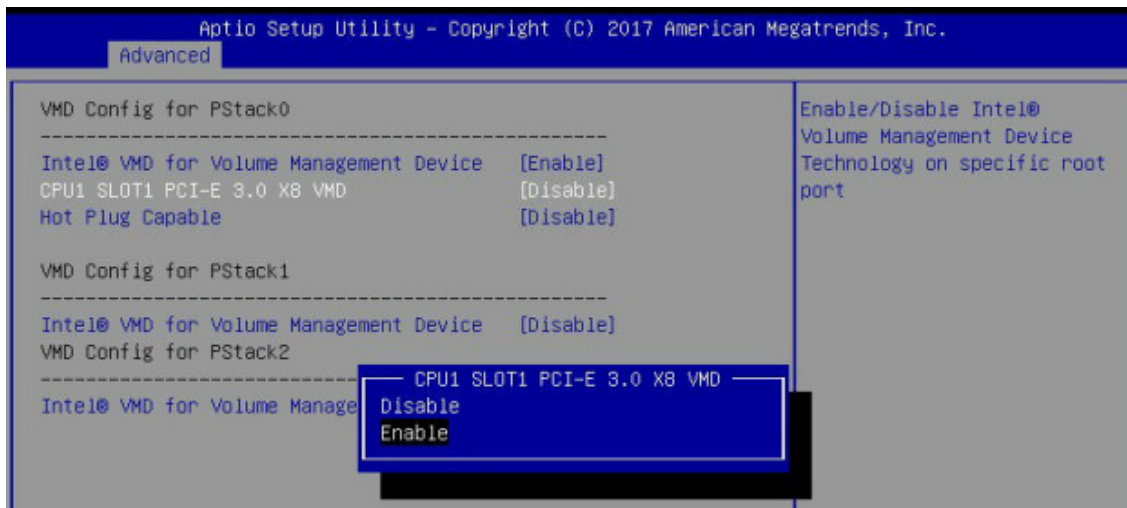
Figure 6-5. BIOS, Enabling VMD Functionality per Slot

5. Repeat steps 3 and 4 for each PStack# on each CPU to be enabled or disabled. In this example, we enabled CPU1 Slot1 (Figure 6-11) and CPU2 Slot5 (Figure 6-12) (four U.2 form factor SSDs), as well as CPU1 M.2 C-1 and CPU1 M2. C-2 (two M.2 form factor SSDs)
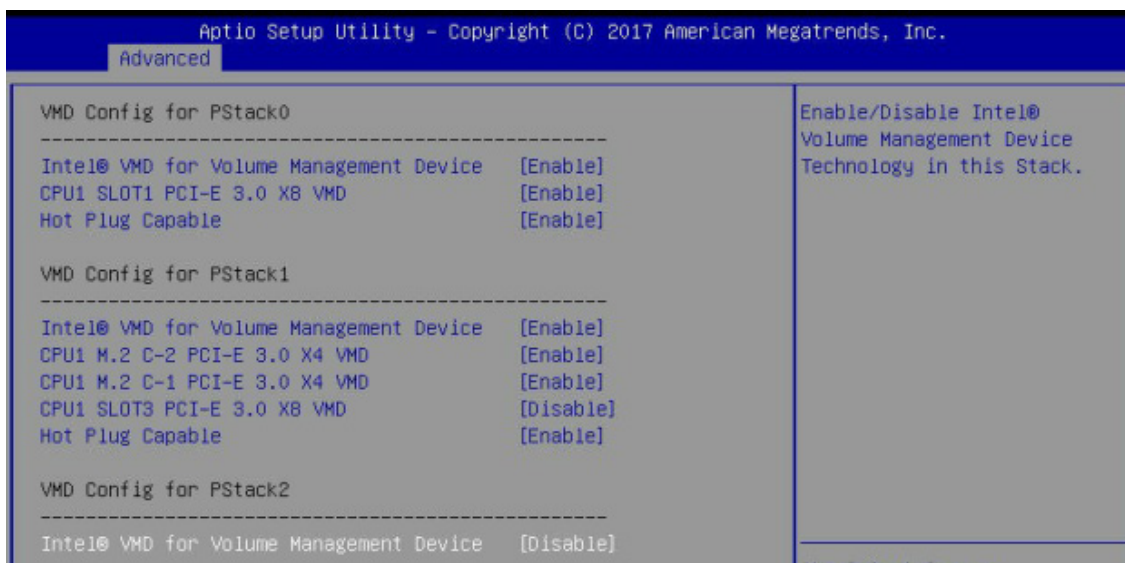
Figure 6-6. BIOS, Enabling CPU1 Example
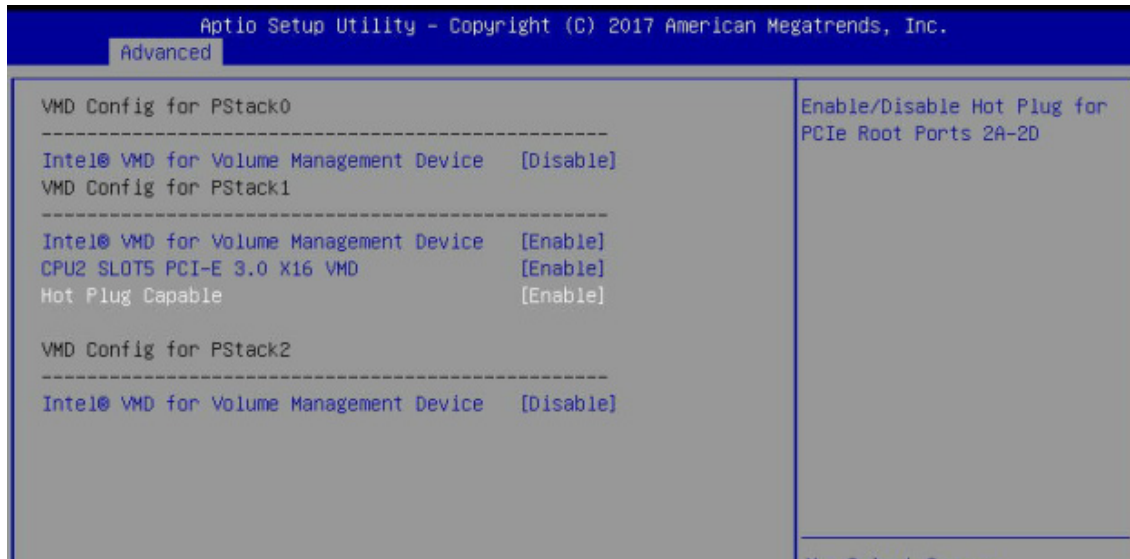
Figure 6-7. BIOS, Enabling CPU2 Example

6. Press [F4] to save the configuration and reboot the system and press [DEL] to enter BIOS.

   Note: Disabling the VMD controller without first deleting the associated existing RAID volume can lead to unexpected behavior. This action is strongly not recommended.

   Note: The effects of physically changing or swapping a CPU on the VMD controller enablement has not yet been thoroughly tested or documented.

7. Switch to **Advanced > Intel(R) Virtual RAID on CPU > All Intel VMD Controllers > Create RAID Volume**.

8. Set **Name**.

9. Set **RAID Level**.

10. If cross-controller RAID is required, select **Enable RAID spanned over VMD Controller**.
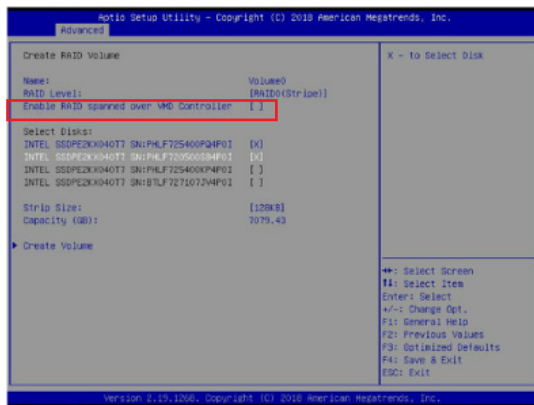
Figure 6-8. Created Volume *without* enabling RAID spanned over VMD controller
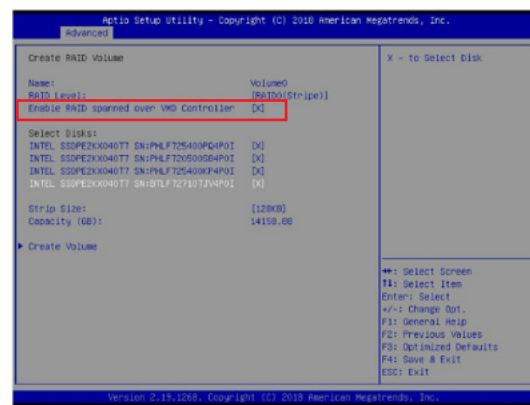
Figure 6-9. Created Volume *with* enabling RAID spanned over VMD controller

11. 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

12. Select **Strip Size** (Default 64KB).

13. Select **Create Volume**.

14. If another RAID is needed, start again at step 9.

15. Press [F4] to save and reboot.

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.
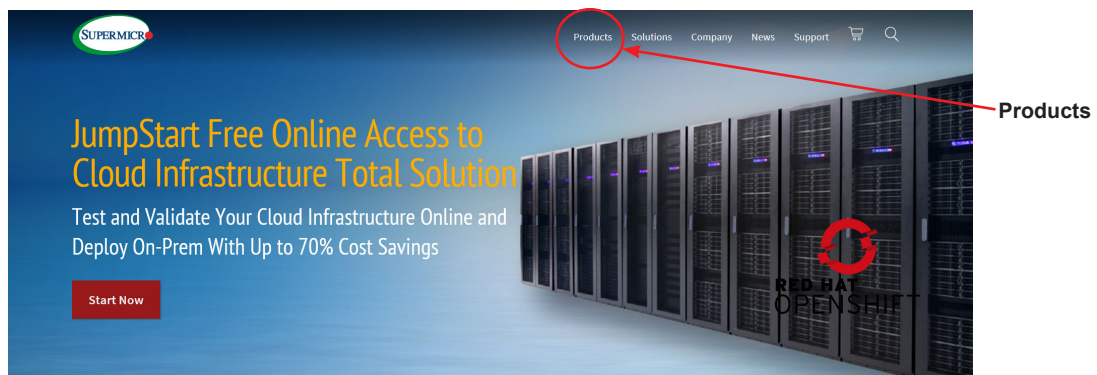
Figure 7-1. Supermicro Website

- Specifications for servers and other hardware are available by clicking on **Products**.

- The **Support** option offers downloads (manuals, BIOS/IPMI, drivers, etc.), FAQs, RMA, warranty, and other service extensions.

Direct Links for the SYS-120TP-DxxTR System

Web SYS-120TP-DxxTR specifications page

X12DPT-PT6 motherboard page for links to the Quick Reference Guide, User Manual, validated storage drives, etc.

AOC-S3808L-L8iT

AOC-S3908L-H8iR-16DD

Direct Links for General Support and Information

Frequently Asked Questions

TPM User Guide

General Memory Configuration Guide

BMC User Guide

Direct Links (continued)

SuperDoctor5 Large Deployment Guide

For validated memory, use our Product Resources page

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

Security Center for recent security notices

Supermicro Phone and Addresses

7.2 BMC Interface

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

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

Note: The Smart Power feature is not supported with a 110v/120v power source and PWS-1K05A-1R power supply in the SYS-120TP-DTTR/DC8TR/DC9TR.
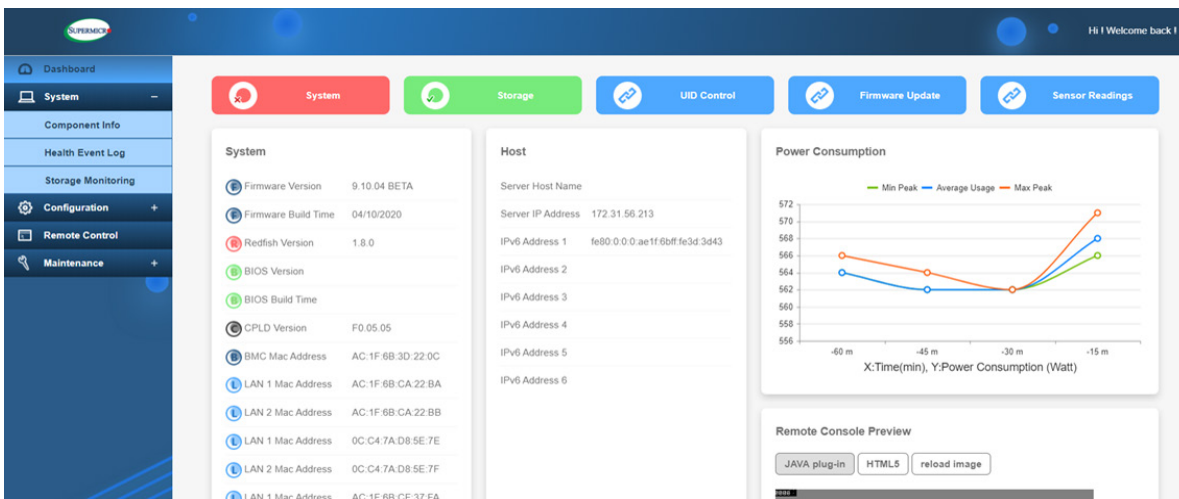
Figure 7-2. BMC Dashboard Sample

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 sections in this chapter. Power down the system before changing any non hot-swap hardware components.

General Technique

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

1. With power off, remove all but one DIMM and other added components, such as add-on cards, from the motherboard. Make sure the motherboard is not shorted to the chassis.

2. Set all jumpers to their default positions.

3. Power up. If the system boots, check for memory errors and add-on card problems.

No Power

- Check that the power LED on the motherboard is on.
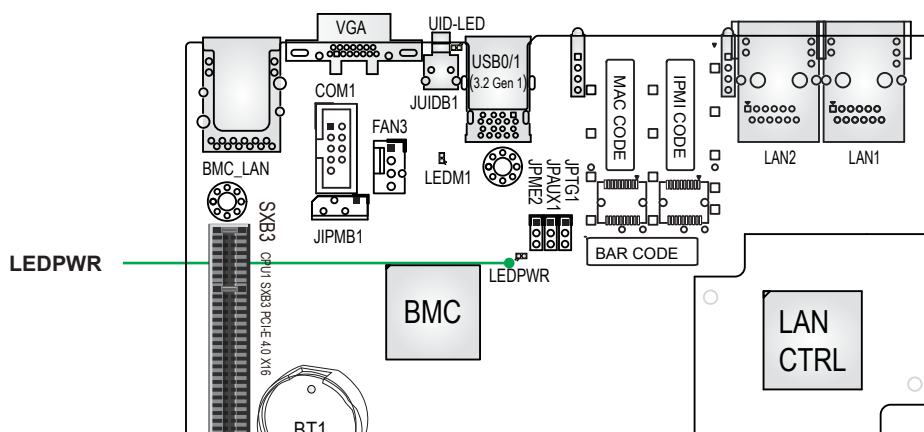
Figure 7-3. Location of the MB Power LED

- Make sure that the power connector is connected to the power supply.

- Check that the motherboard battery still supplies approximately 3VDC. If it does not, replace it.

- Check that the system input voltage is 100-120v or 180-240v.

- Turn the power switch on and off to test the system

No Video

If the power is on but you have no video, remove all add-on cards and cables.

System Boot Failure

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

- 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

- Make sure that the DIMM modules are properly and fully installed.

- 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.

- Check for bad DIMM modules or slots by swapping modules between slots and noting the results.

Losing the System Setup Configuration

- Always replace power supplies with the exact same model that came with the system. A poor quality power supply may cause the system to lose the CMOS setup configuration.

- Check that the motherboard battery still supplies approximately 3VDC. If it does not, replace it.

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:

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

- Memory: Make sure that the memory modules are supported. Refer to the product page on our website at www.supermicro.com. Test the modules using **memtest86** or a similar utility.

- Storage drives: Make sure that all drives work properly. Replace if necessary.

- System cooling: Check that all heatsink fans and system fans work properly. Check the hardware monitoring settings in the BMC to make sure that the CPU and system temperatures are within the normal range. Also check the Control panel Overheat LED.

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

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

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

- Source of installation: Make sure that the devices used for installation are working properly, including boot devices.

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

- Use the minimum configuration for troubleshooting: Remove all unnecessary components (starting with add-on cards first), and use the minimum configuration (but with a CPU and a memory module installed) to identify the trouble areas.

- Identify a bad component by isolating it. Check and change one component at a time.

  - Remove a component in question from the chassis, and test it in isolation. Replace it if necessary.

  - Or swap in a new component for the suspect one.

  - Or install the possibly defective component into a known good system. If the new system works, the component is likely not the cause or the problem.

7.4 BIOS Error 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.

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 the BMC Dashboard

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

Check Error Log

1. Access the BMC web interface.

2. Click the **Server Health** tab, then **Event Log** to verify an IERR error.
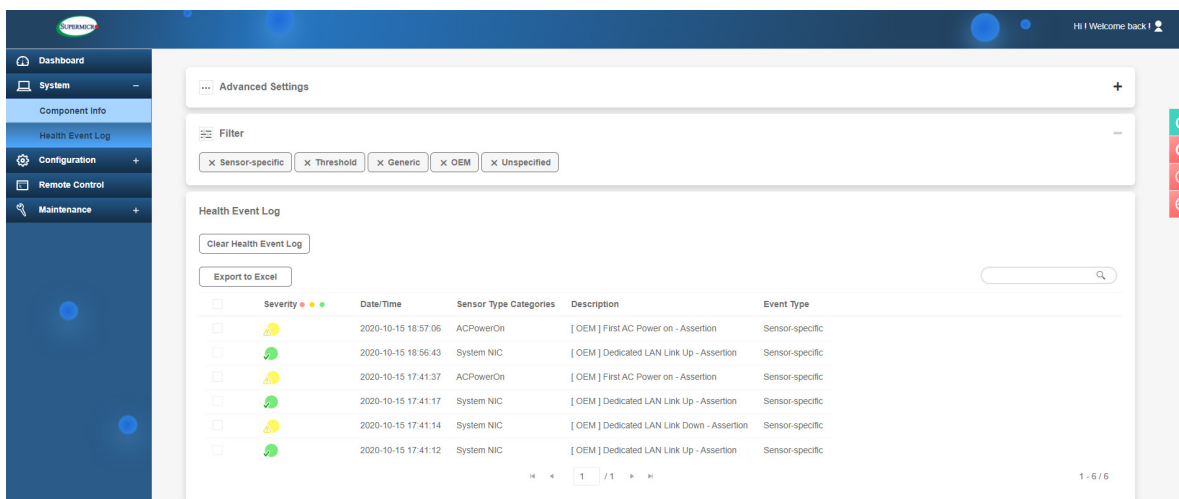
Figure 7-4. BMC Event Log

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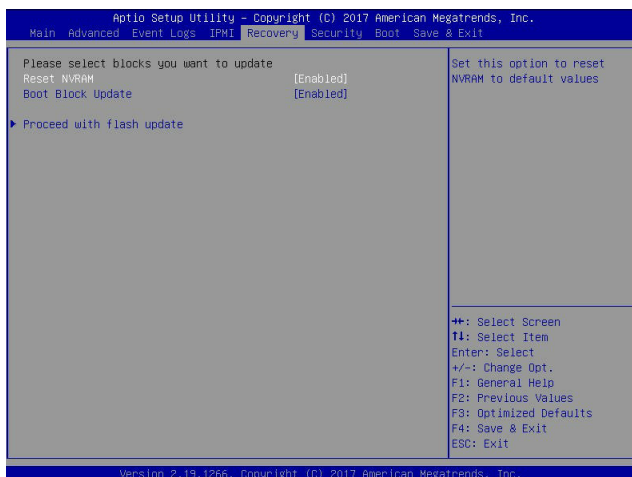
4. When the screen as shown above displays, use the arrow keys to select the item "Proceed with flash update" and press the <Enter> key. You will see the BIOS recovery progress as shown in the screen below.

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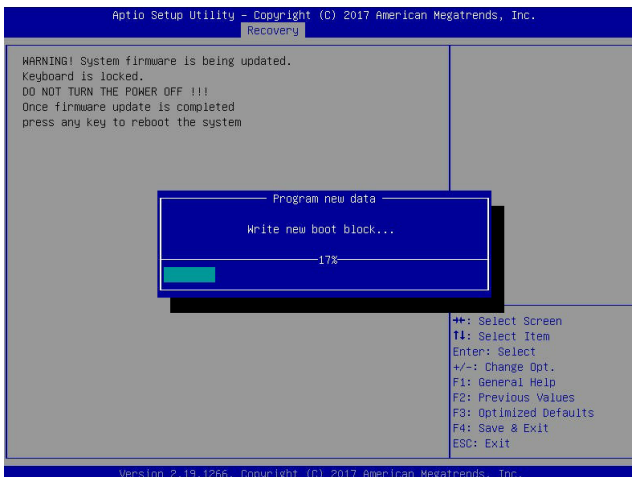
7. Press <Del> continuously during system boot to enter the BIOS Setup utility. From the top of the tool bar, select Boot to enter the submenu.

```
         Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
                                    Recovery

  WARNING! System firmware is being updated.
  Keyboard is locked.
  DO NOT TURN THE POWER OFF !!!
  Once firmware update is completed
  press any key to reboot the system


                           ┌─────────── Flash update ───────────┐
                           │                                     │
                           │ Flash update completed. Press any key to │
                           │          reset the system           │
                           └─────────────────────────────────────┘

                                                    →←: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit

         Version 2.19.1266. Copyright (C) 2017 American Megatrends, Inc.
```

8. 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.

```
         Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
    Main  Advanced  Event Logs  IPMI  Security  Boot  Save & Exit

  Boot Configuration                                   │ Sets the system boot order

  Boot mode select                  [DUAL]
  LEGACY to EFI support             [Disabled]

  FIXED BOOT ORDER Priorities
  Boot Option #1                    [UEFI AP:UEFI: Bui...]
  Boot Option #2                    [CD/DVD]
  Boot Option #3                    [USB Hard Disk]
  Boot Option #4                    [USB CD/DVD]
  Boot Option #5                    [USB Key:SanDisk]
  Boot Option #6                    [USB Floppy]
  Boot Option #7                    [USB Lan]
  Boot Option #8                    [Network:IBA GE S1...]
  Boot Option #9                    [UEFI Hard Disk]
  Boot Option #10                   [UEFI CD/DVD]
  Boot Option #11                   [UEFI USB Hard Disk]
  Boot Option #12                   [UEFI USB CD/DVD]      →←: Select Screen
  Boot Option #13                   [UEFI USB Key:UEFI...] ↑↓: Select Item
  Boot Option #14                   [UEFI USB Floppy]      Enter: Select
  Boot Option #15                   [UEFI USB Lan]         +/-: Change Opt.
  Boot Option #16                   [UEFI Network]         F1: General Help
  Boot Option #17                   [Hard Disk]            F2: Previous Values
                                                           F3: Optimized Defaults
  ▶ Add New Boot Option                                    F4: Save & Exit
                                                           ESC: Exit

         Version 2.19.1266. Copyright (C) 2017 American Megatrends, Inc.
```

9. 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.

```
UEFI Interactive Shell v2.1
EDK II
UEFI v2.50 (American Megatrends, 0x0005000C)
Mapping table
       FS0: Alias(s):HD0r0b::BLK1:
              PciRoot(0x0)/Pci(0x14,0x0)/USB(0x11,0x0)/HD(1,MBR,0x37901D72,0x800,0x1
CA3592)
       BLK0: Alias(s):
              PciRoot(0x0)/Pci(0x14,0x0)/USB(0x11,0x0)
Press ESC in 1 seconds to skip startup.nsh or any other key to continue.
Shell> fs0:
FS0:\> cd AFUDOS
FS0:\AFUDOS\> cd SWJPME2_03162017
FS0:\AFUDOS\SWJPME2_03162017\> flash.nsh X11DPU7.314_
```

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

```
Done.
[ Access Cmos Port Ex ]
<Read>
Index 0x51: 0x18

Done.
***************************************************************************
*
* Program BIOS and ME (including FDT) regions...
*
***************************************************************************
+-------------------------------------------------------------------------+
|               AMI Firmware Update Utility v5.09.01.1317                  |
|       Copyright (C)2017 American Megatrends Inc. All Rights Reserved.    |
+-------------------------------------------------------------------------+
  CPUID = 50652

  Reading flash .............. done
  - ME Data Size checking . ok
  - FFS checksums ......... ok
  - Check RomLayout ......... Ok.
  Erasing Boot Block .......... done
  Updating Boot Block ......... done
  Verifying Boot Block ....... done
 _Erasing Main Block .......... 0x00132000 (0%)
```

10. 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.

```
  Verifying NCB Block ......... done
  - Update success for FDR
  - Update success for IE. -
  - Successful Update Recovery Loader to OPRx!!
  - Successful Update MFSB!!-
  - Successful Update FTPR!!-
  - Successful Update MFS, IVB1 and IVB2!!
  - Successful Update FLOG and UTOK!!
  - ME Entire Image update success !!
  WARNING : System must power-off to have the changes take effect!
  Moving FS0:\AFUDOS\SWJPME2_03162017\fdtx64.efi -> FS0:\AFUDOS\SWJPME2_03162017\f
  dt.smc
  - [ok]
  Moving FS0:\AFUDOS\SWJPME2_03162017\afuefix64.efi -> FS0:\AFUDOS\SWJPME2_0316201
  7\afuefi.smc
  - [ok]
  ***************************************************************************
  *
  * Please ignore this 'Shell: Cannot read from file - Device Error'
  * warning message due to it does not impact flashing process.
  *
  ***************************************************************************
  Deleting '                    '
  Delete successful.
  FS0:\> _
```

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

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

13. 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 node completely.

2. Remove the node 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.

   ◗ ◖ JBT1 contact pads

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.

7.8 BMC Reset

The BMC can be reset using the UID button.

- Reset – Press and hold the button. After six seconds, the LED blinks at 2Hz. 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 4Hz while defaults are configured. **Note**: All BMC settings including username and password will be removed except the FRU and network settings.

Firmware update – When the BMC firmware is being updated, the UID LED blinks at 10Hz.

BMC Reset Options		
Event	**UID LED**	**BMC Heartbeat LED**
Reset	Blue, Blinks at 2Hz	Green, solid
Restore Defaults	Blue, Blinks at 4Hz	Off
Update	Blue, Blinks at 10Hz	

7.9 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.

7.10 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.

7.11 Feedback

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

7.12 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)

      Sales-USA@supermicro.com (Sales Inquiries)

      Government_Sales-USA@supermicro.com (Gov. Sales Inquiries)

      support@supermicro.com (Technical Support)

      RMA@supermicro.com (RMA Support)

      Webmaster@supermicro.com (Webmaster)

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_Europe@supermicro.com (Sales Inquiries)

      Support_Europe@supermicro.com (Technical Support)

      RMA_Europe@supermicro.com (RMA 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: Sales-Asia@supermicro.com.tw (Sales Inquiries)

      Support@supermicro.com.tw (Technical Support)

      RMA@supermicro.com.tw (RMA Support)

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 اً ف حالة وُيي أى تتسبب ف اصابة جسذ ةً هذا الزهز عٌ خطز !تحذ زٌ .

قبل أى تعول على أي هعذات،كي على علن بالوخاطز ال اُجوة عي الذوائز

الكهزبائُ ةٍ

وكي على درا ةً بالووارسات النقائُ ةٍ لو عٌ وقع أي حادث

استخذم رقن الب اٍى الو صُص 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).

CAUTION: This unit has redundant power sources. Please disconnect all the power cords before servicing.

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 امناطق 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 النع 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 خطز مه التيار الكهزبائي أوالطاقة المجددة 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 والطية 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 القوانين واللوائح الوطنية 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

危险的可移动性零件。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 והמאווררים 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 조립품 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.

כבלים חשמליים ומתאמי AC

אזהרה!

כאשר מתקינים את המוצר, שי להשתמש בכבלים, ספקים ומתאמים אשר נרכשו או שכרו לצורכ AC מתאמים ומתאמים. ואשר מתאומ ודרישות הבטיחות המקומיות לכול, לשל מידה הנכונה של הכבל והתקע . שימוש בכבל ומתאמים אחרים יכול לגרום לתקלת או לקצר חשמלי. בהתאם לחוקי השימוש במכשירי חשמל הבטיחות, יקוחו ומתאם או כבל של דוק כאשר מופיע עליהם (CSA) UL או ב- CSA בכבלים מוסמכים להשתמש אסור קייק הבטיחות, וחוקי (UL/CSA רובע לכ מוצר חשמלי ישלמי אחר, אלא קר במוצר אשר הותאמ ע"י Supermicro בלבד.

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

전원 케이블 및 AC 어댑터

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

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

Stroomkabel en AC-Adapter

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

Appendix B

System Specifications

Processors

Dual 3rd Gen Intel Xeon Scalable processors in a P+ (LGA4189) socket with up to 28 cores and a thermal design power (TDP) of up to 185W

Chipset

Intel PCH C621A

BIOS

AMI BIOS; ACPI 3.0 or later, PCI firmware 4.0 support, BIOS rescue hot-key, SPI dual/quad speed support, RTC (Real Time Clock) wakeup, and SMBIOS 3.0 or later

Memory *(per node)*

16 DIMM slots, DDR4 RDIMM/LRDIMM or Intel Optane PMem 200 Series*
  (up to 4TB for DDR4, or up to 4TB of PMem and 2TB DDR4)
Up to 3200MHz; size up to 256GB
* **Note**: PMem 200 Series are supported on 3rd gen Intel Xeon Scalable Platinum, Gold and selected Silver processors.

Storage Drives *(per node)*

Up to four 2.5" hot-swap SATA/SAS drive bays
Two M.2 SSDs with adapter
Two SuperDOMs (disk on module)

PCI Expansion Slots *(per node)*

Two PCIe 4.0 x16, low-profile

Input/Output *(per node)*

Two 10Gbase-T ports; one dedicated BMC LAN port
Two USB 3.0 ports
One VGA port
BMC: Dedicated LAN port

Motherboard *(per node)*

X12DPT-PT6; proprietary 6.8" (W) x 18.86" (L) (173 x 479mm)

Chassis

CSE-809H-R1K05P3; 1U Rackmount, (WxHxD) 17.2 x 1.75 x 28.25" (437 x 45 x 718mm)

System Cooling *(per node)*

Up to six 4-cm heavy-duty PWS fans

Power Supply

Model: PWS-1K05A-1R
AC Input Voltages: 100 - 240V AC auto-range
Rated Input Current: 9-5A
Rated Input Frequency: 50 to 60Hz
Rated Output Power: 1000W
Rated Output Voltages: +12V: 66.7A (100Vac-127Vac) or 83A (200Vac-240Vac), +5V Standby: Max: 4A

Operating Environment

Operating Temperature: 10ºC to 35ºC (50ºF to 95ºF)
Expanded Operating Temperature: 5°C to 40°C (41°F to 104°F)
Non-Operating Temperature: -40°C to 60°C (-40°F to 140°F)
Operating Relative Humidity: 8% to 90% (non-condensing)
Non-Operating Relative Humidity: 5% to 95% (non-condensing)

Regulatory Compliance

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

Certified Safety Models

Compliant with UL or CSA: 809H-10, 809H-R10X12

Applied Directives, Standards

EMC/EMI: 2014/30/EU (EMC Directive) CLASS A

Electromagnetic Compatibility Regulations 2016

FCC Part 15

ICES-003

VCCI-CISPR 32

AS/NZS CISPR 32

BS/EN 55032

BS/EN 55035

CISPR 32

CISPR 35

BS/EN 61000-3-2

BS/EN 61000-3-3

BS/EN 61000-4-2

BS/EN 61000-4-3

BS/EN 61000-4-4

BS/EN 61000-4-5

BS/EN 61000-4-6

BS/EN 61000-4-8

BS/EN 61000-4-11

Product Safety: 2014/35/EU (LVD Directive)

UL/CSA 62368-1 (USA and Canada)

Electrical Equipment (Safety) Regulations 2016

IEC/BS/EN 62368-1

Environment:

2011/65/EU (RoHS Directive)

EC 1907/2006 (REACH)

2012/19/EU (WEEE Directive)

California Proposition 65

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

Perchlorate Warning

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

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

VCCI－A