SuperServer®
SYS-221HE-TNR
SYS-221HE-TNRD

USER'S MANUAL

Revision 1.0

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Manual Revision 1.0

Release Date: October 18, 2024

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-221HE-TNR/TNRD server specifications page on our website for updates on supported memory, processors, and operating systems (http://www.supermicro.com).

Notes

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

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

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This manual may be periodically updated without notice. Please check the Supermicro website for possible updates to the manual revision level.

Secure Data Deletion

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

Warnings

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

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

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

Contents

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Chapter 1

Introduction

1.1 Overview

This chapter provides a brief outline of the functions and features of the SuperServer® SYS-221HE-TNR/TNRD. It is based on the X13DEM motherboard and the CSE-HE211-R000NFP chassis.

The following provides an overview of the specifications and capabilities.

System Overview	
Motherboard	X13DEM
Chassis	CSE-HE211-R000NFP
Processor Support	Supports dual 4th and 5th Gen Intel® Xeon® Scalable Processors (in Socket E LGA 4677) with up to four UPIs (20 GT/s max.) and a TDP (Thermal Design Power) up to 350 W. Supports SP XCC, Max Series (HBM), and SP MCC SKUs.
Memory	Supports up to 8 TB 3DS RDIMM/RDIMM DDR5 ECC memory in 32 DIMM slots - 4th Gen CPU: speeds of up to 4800 MT/s (1DPC) and up to 4400 MT/s (2DPC) - 5th Gen CPU: speeds of up to 5600 MT/s (1DPC) and up to 4400 MT/s (2DPC) Note: Memory speed/capacity support depends on the processors used in the system.
Chipset	Intel C741
Drive Support	Six 2.5" hot-swap NVMe/SATA3/SAS hybrid drive bays Two M.2 NVMe PCIe 3.0 x2/SATA3 hybrid ports in the 2280 and 22110 form factors
Expansion Slots	Optional six PCIe 5.0 x8 slots or four PCIe 5.0 x16 slots
I/O Ports	One RJ45 dedicated BMC LAN port Two front USB 2.0 ports One VGA port
System Cooling	Six 6-cm heavy duty fans with optimal fan speed control Four memory air shrouds
Power	SYS-221HE-TNR: two 2000 W (Titanium Level 96%) redundant power supplies with PMBus SYS-221HE-TNRD: two 1300 W redundant DC -48V power supplies with PMBus
Form Factor	2U rackmount 3.5 x 17.2 x 22.6 in / 89 x 437 x 574 mm (H x W x D)

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

The following safety models associated with the SYS-221HE-TNR/TNRD have been certified as compliant with UL or CSA: HE211R-R20X13, HE211R-20, HE211R-R13DX13, HE211R-13D.

1.2 System Features

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

Front View

Figure 1-1. System: Front View

System Features: Front	
Feature	**Description**
System Fans	Six 6-cm heavy duty fans with optimal fan speed control

Logical Storage Drive Numbers	
Item	**Description**
0 _ 3	2.5" hot-swap NVMe Gen5/SATA3/SAS drive bays (NVMe from CPU1)
4 _ 5	2.5" hot-swap NVMe Gen5/SATA3/SAS drive bays (NVMe from CPU2)

Rear View

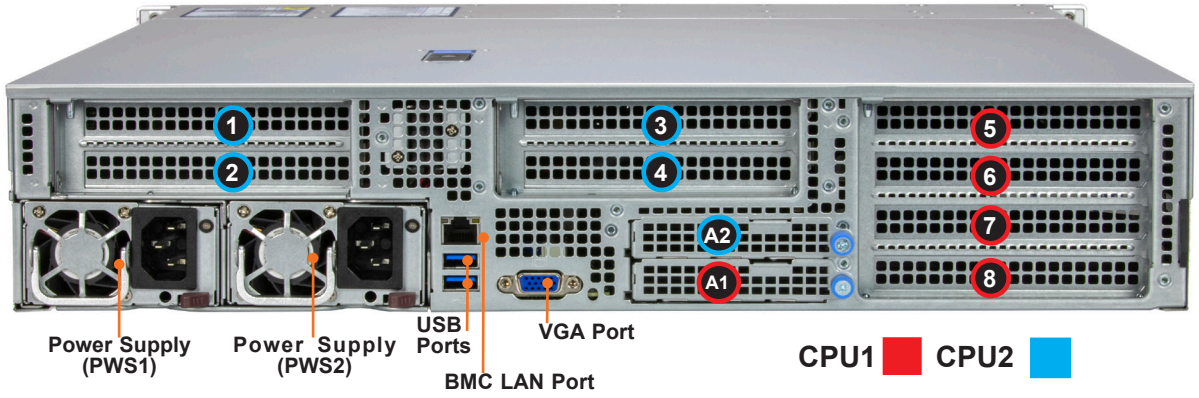


Figure 1-2. Rear View (SYS-221HE-TNR shown above)

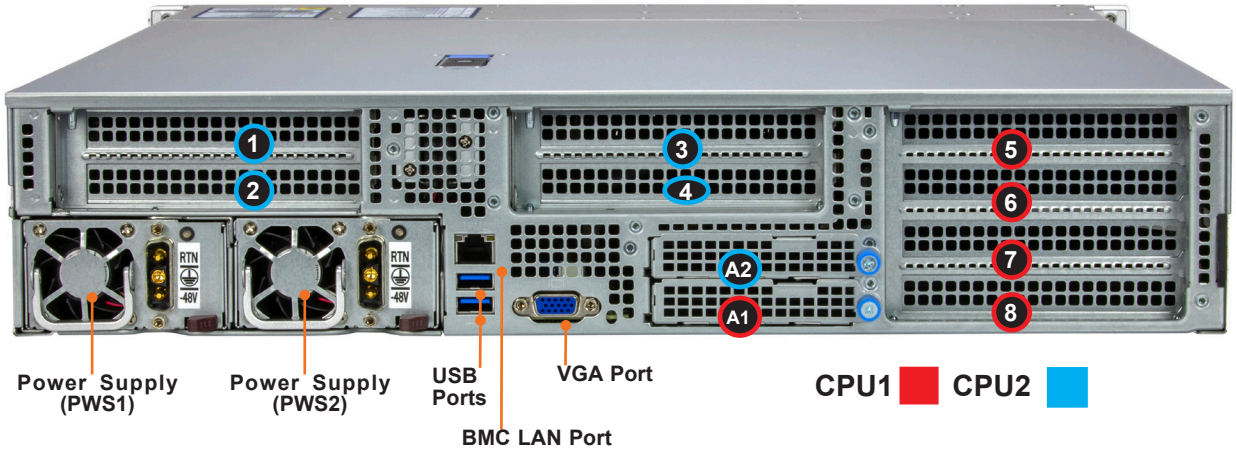


Figure 1-3. Rear View (SYS-221HE-TNRD shown above)

Note: See the following page for details on the features shown above.

System Features: Rear	
Feature	**Description**
Power Supplies	Two redundant power supply modules, PWS1 on the left and PWS2 on the right SYS-221HE-TNR: 2000 W AC Power Supplies with PMBus SYS-221HE-TNRD: 1300 W DC Power Supplies with PMBus
USB	Two USB 2.0 ports
BMC LAN Port	One RJ45 dedicated BMC LAN port
VGA Port	One video port
Control Panel	One control panel (see Control Panel for details)
A1	AIOM/OCP NIC 3.0 Slot
A2	AIOM/OCP NIC 3.0 Slot
1 _ 4	1 - Optional: PCIe 5.0 x16 slot (FH, 10.5"L) or PCIe 5.0 x8 (in x16) slot 2 - Optional: PCIe 5.0 x8 (in x16) slot (FH, 10.5"L. Slot 2 is disabled if slot 1 is configured as PCIe 5.0 x16) 3 - PCIe 5.0 x16 slot (FH, 10.5"L) or PCIe 5.0 x8 (in x16) slot 4 - Optional: PCIe 5.0 x8 (in x16) slot (FH 10.5"L. Slot 4 is disabled if slot 3 is configured as PCIe 5.0 x16)
5 _ 8	5 - Optional PCIe 5.0 x16 slot (FH, 10.5”L) or PCIe 5.0 x8 (in x16) slot 6 - Optional PCIe 5.0 x8 (in x16) slot (FH 10.5”L). Slot 6 is disabled if slot 5 is configured as PCIe 5.0 x16 7 - Optional PCIe 5.0 x16 slot (FHHL) or PCIe 5.0 x8 (in x16) slot 8 - Optional PCIe 5.0 x8 (in x16) slot (FHHL). Slot 8 is disabled if slot 7 is configured as PCIe 5.0 x16

Note: FHFL = full height, full length, FHHL = full height, half length

Power Supply Indicators		
Power Supply Condition	**Green LED**	**Amber LED**
No power to the power supply	OFF	OFF
Power supply critical events causing a shutdown/failure/OCP/OVP/Fan Fail/OTP/UVP	OFF	ON
Power supply warning events where the power supply continues to operate: high temperature, over voltage, under voltage, etc.	OFF	1 Hz blinking
AC or DC present only 12VSB ON (PS OFF)	1 Hz blinking	OFF
Output ON and OK	ON	OFF
One of the power cords is unplugged and in redundant mode	OFF	ON

Control Panel

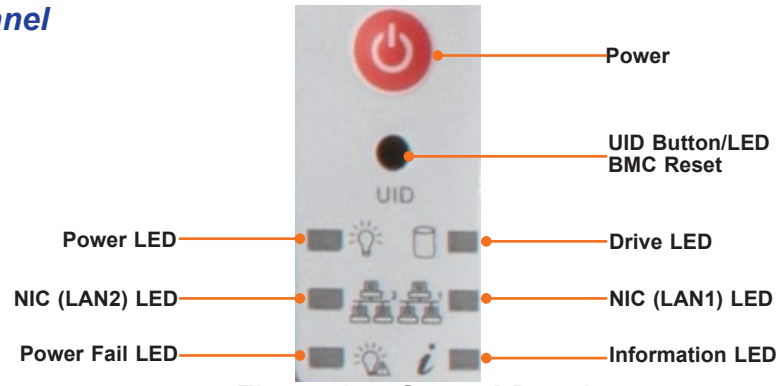


Figure 1-4. Control Panel

Control Panel Features	
Feature	**Description**
Power button	The main power switch applies or removes primary power from the power supply to the server but maintains standby power.
UID button/LED BMC button	The unit identification (UID) button turns on or off the blue light function of the Information LED and a blue LED on the rear of the chassis. This button can also be used to reset the BMC. See Section 7.8.
Power LED	Steady on – Power on Blinking at 4 Hz – Checking BIOS/BMC integrity Blinking at 4 Hz and "i" LED is blue – BIOS firmware updating Two blinks at 4 Hz, one pause 2 Hz and "i" LED blue – BMC firmware updating Blinking at 1 Hz and "i" LED red – Fault detected
Drive LED	Indicates activity on a PCH connected storage device (SATA drives and M.2 SATA) when flashing.
NIC (LAN1) LED	Indicates network activity on odd numbered LAN ports. A1 (ports 1 & 3) and A2 (ports 1 & 3).
NIC (LAN2) LED	Indicates network activity on even numbered LAN ports. A1 (ports 2 & 4) and A2 (ports 2 & 4).
Power Fail LED	Indicates a power supply module has failed.
Information LED	Alerts operator to several states, as noted in the table below.

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

1.3 System Architecture

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

Main Components

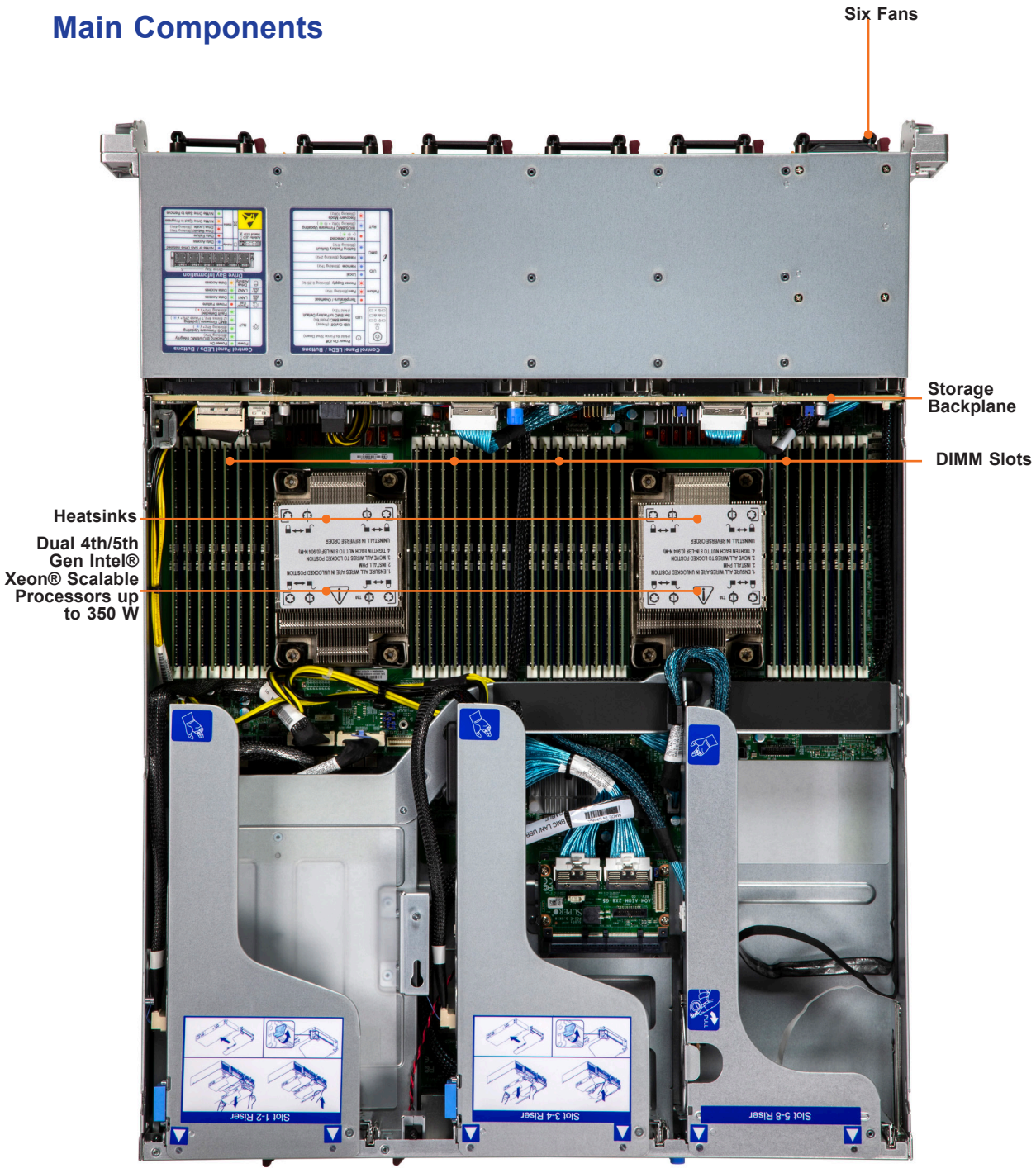


Figure 1-5. Main Component Locations

System Features: Top	
Feature	**Description**
Heatsinks	Two heatsinks on two CPUs.
Storage Backplane	Backplane to connect the storage drives to the motherboard
Processors	Dual 4th or 5th Gen Intel® Xeon® Scalable Processors up to 350 W
System Fans	Six internal systems fans
Memory Slots	32 DIMM DDR5 slots

System Block Diagram

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

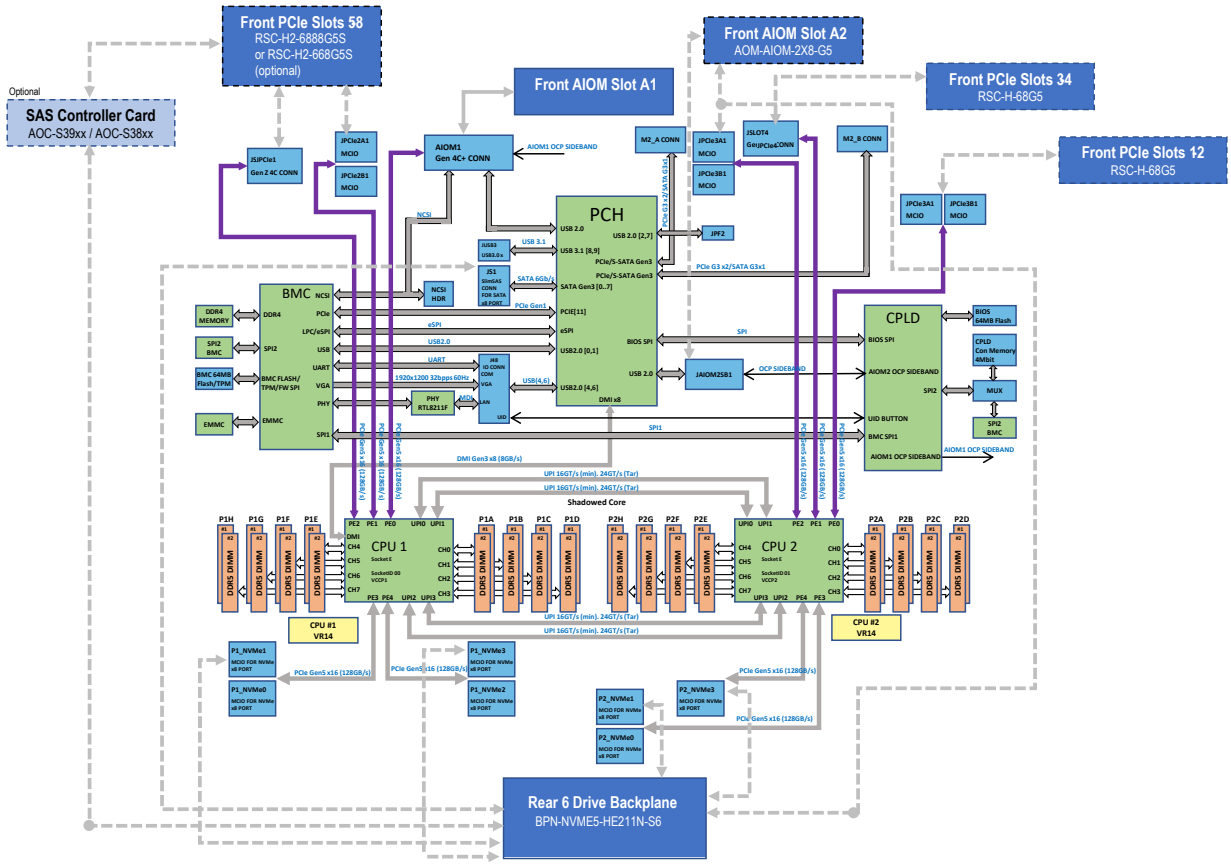


Figure 1-6. System Block Diagram

1.4 Motherboard Layout

Below is a layout of the X13DEM motherboard with a 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.

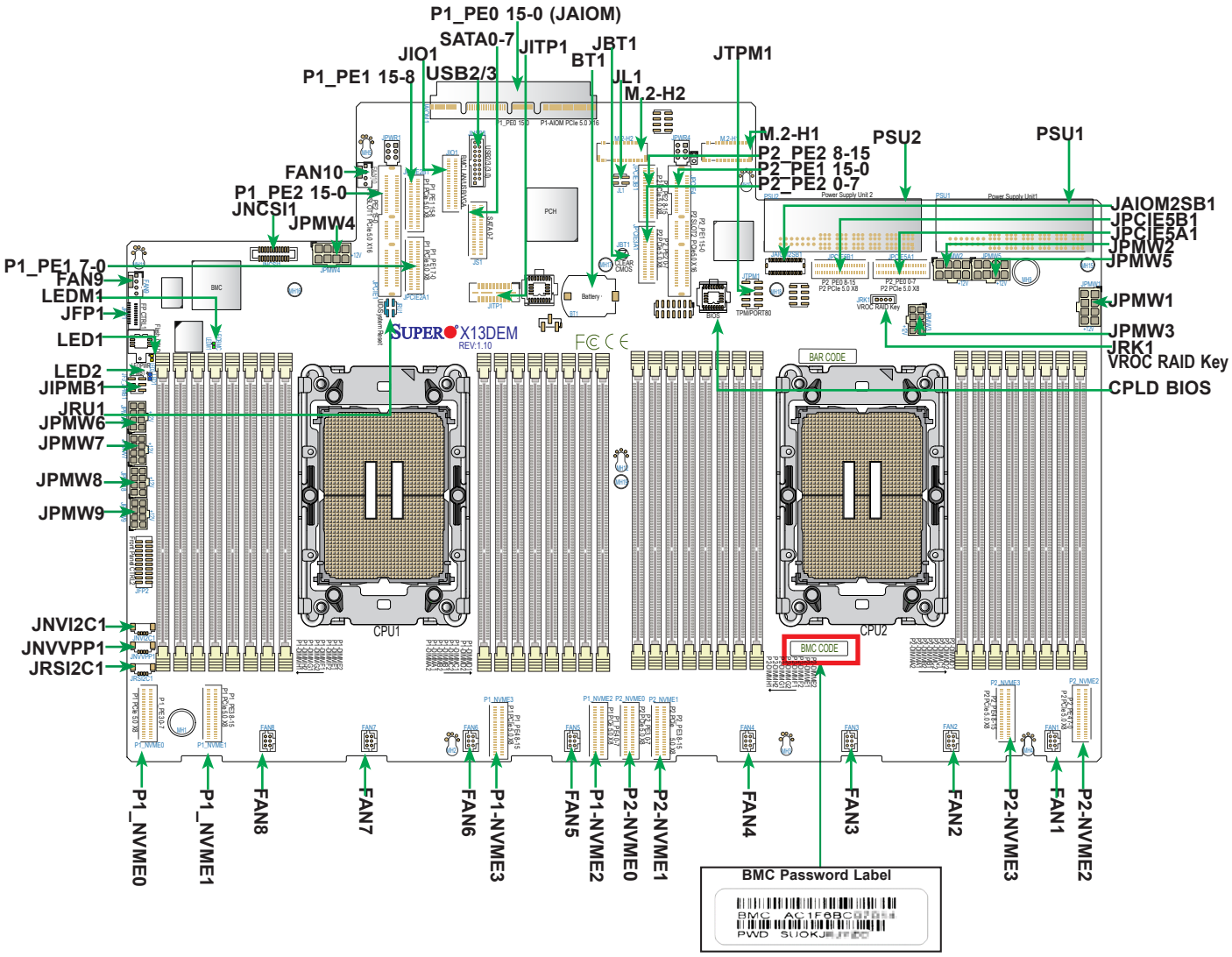


Figure 1-7. Motherboard Layout

Quick Reference Table

Jumper	Description	Default Setting
JBT1	CMOS Clear	Open (Normal)
JRU1	UID LED/System Reset Jumper	Pins 1/2: UID LED (Default)

LED	Description	Status
LED1 (UID-LED)	Unit Identifier (UID) LED	Solid Blue: Unit Identified
LED2 (LEDPWR)	Power LED	LED On: Onboard Power On
LEDBMC (LEDM1)	BMC Heartbeat LED	Blinking Green: BMC Normal (Active), Solid Green: (During BMC Reset or during a Cold Reboot)

Connector	Description
Battery (BT1)	Onboard battery
BMCLAN/USB/VGA (JIO1)	Low-profile (LP) Slim SAS I/O connector used for dedicated BMC LAN/USB/VGA connections
FAN1-FAN8, FAN9/ FAN10	Eight 6-pin cooling fan headers (FAN1~FAN 8) and two 4-pin cooling fan headers (FAN9-FAN10)
JAIOM1 (P1_PE0 15-0)	Supermicro Advanced Input/Output Module (AIOM) PCIe 5.0 x16 connector for rear I/O support
JAIOM2SB1	Supermicro Advanced Input/Output Module (AIOM2) sideband connector
JFP1	Front Control Panel header
JPMW1 - JPMW9	+12V power connectors 1~9
PS1/PS2	Power Supply Unit1/Power Supply Unit2 for system power use (See Note 1 below.)
JIPMB1 (JF3_JIPMB1)	6-pin BMC external I2C header
JL1	Chassis Intrusion header
JNCSI1	NC-SI (Network Controller Sideband Interface) connector (See Note 2 below.)
JNVI2C1	NVMe SMBus I2C header used for PCIe SMBus clock and data connections with hot-plug support.
JNVVPP1	NVMe VPP SMBus (System Management Bus) with hot-plug support
JTPM1	Trusted Platform Module/Port 80 connector
JRSI2C1	Auxiliary I²C header used for PCIe cards to allow the BMC/BIOS to read information from internal drives or FRUs (Field Replaceable Units) effectively

Note: For details on how to configure Network Interface Card (NIC) settings, please refer to the Network Interface Card Configuration User's Guide posted on our website under the link: http://www.supermicro.com/support/manuals/.

M.2-H1/M.2-H2	PCIe 3.0 x2/SATA3 Hybrid M.2 slots (with support of M-Key 2280 and 22110)
MH1/MH9	Mounting holes for built-in thumbscrews used to securely attach the motherboard to the chassis (Refer to the motherboard layout for mounting hole detailed information.)
MH2/MH3/MH4/MH5/ MH10/MH11/MH12	Mounting holes for T-pins used to help lock the motherboard to the proper location in the chassis (Refer to the motherboard layout for mounting hole detailed information.)
MH15 - MH19	Mounting holes for standoffs used for heatsink support (Refer to the motherboard layout for mounting hole detailed information.)
P1_NVME 0-3	(P1) PCIe 5.0 x8 MCIO connectors supported by CPU1 with four NVMe connections (0/1/2/3)
P2_NVME 0-3	(P2) PCIe 5.0 x8 MCIO connectors supported by CPU2 with four NVMe connections (0/1/2/3)
P1_PE0 15-0 (JAIOM1)	PCIe 5.0 x16 AIOM (OCP3.0-compliant) slot supported by CPU1
P1_PE1 7-0 (JPCIE2A1)	(P1) PCIe 5.0 x8 MCIO connector
P1_PE1 15-8 (JPCIE2B1)	(P1) PCIe 5.0 x8 MCIO connector supported by CPU1
P1_PE2 15-0 (JPCIE1)	(P1-SLOT1) PCIe 5.0 x16 slot supported by CPU1
P2_PE0 0-7 (JPCIE5A1)	(P2) PCIe 5.0 x8 MCIO connector supported by CPU2
P2_PE0 8-15 (JPCIE5B1)	(P2) PCIe 5.0 x8 MCIO connector supported by CPU2
P2_PE1 15-0 (JPCIE4)	(P2-SLOT2) PCIe 5.0 x16 slot supported by CPU2
P2_PE2 0-7 (JPCIE3A1)	(P2) PCIe 5.0 x8 MCIO connector supported by CPU2
P2_PE2 8-15 (JPCIE3B1)	(P2) PCIe 5.0 x8 MCIO connector supported by CPU2
SATA 0-7 (JS1)	SlimSAS LP (MCIO) connector with support for eight Intel® PCH SATA 3.0 connections (RAID 0, RAID 1, RAID 5, and RAID 10 supported)
USB2/3 (3.2) (JUSB3)	Rear USB header with support for two USB 3.2 Gen1 ports
VROC RAID Key (JRK1)	Intel VROC key header for NVMe RAID support (See the note below.)

Note: For detailed instructions on how to configure VROC RAID settings, please refer to the VROC RAID Configuration User's Guide posted on the webpage under the link: http://www.supermicro.com/support/manuals/.

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 in any way. If any equipment appears damaged, file a damage claim with the carrier who delivered it.

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 or DC power outlet nearby. Be sure to read the precautions and considerations noted or in Appendix A or Appendix B respectively.

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 (approximately 25 inches) and approximately 30 inches of clearance in the back of the rack to allow sufficient space for airflow and access when servicing.
- This product should be installed only in a Restricted Access Location (dedicated equipment rooms, service closets, etc.).

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

Rack Precautions

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

Server Precautions

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

Rack Mounting Considerations

Ambient Operating Temperature

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

Airflow

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

Mechanical Loading

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

Circuit Overloading

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

Reliable Ground

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

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

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

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

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

2.4 Installing the Rails

This section provides information on installing the chassis into a rack unit with the rails provided. There are a variety of rack units on the market, which may mean that the assembly procedure will differ slightly from the instructions provided. You should also refer to the installation instructions that came with the rack unit you are using. **Note:** This rail will fit a rack between 26.8" and 36.4" deep.

Identifying the Rails

The chassis package includes two rail assemblies. Each assembly consists of three sections: An inner rail that secures directly to the chassis, an outer rail that secures to the rack, and a middle rail which extends from the outer rail. These assemblies are specifically designed for the left and right side of the chassis and labeled.

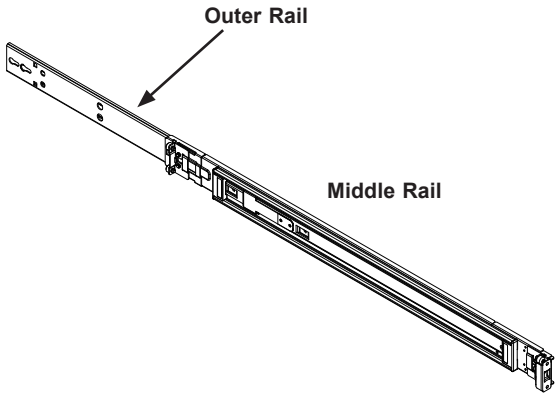


Figure 2-1. Identifying the Outer Rail, Middle Rail and Inner Rail
(Left Rail Assembly Shown)

Note: Both front chassis rails and the rack rails have a locking tab, which serves two functions. First, it locks the server into place when installed and pushed fully into the rack (its normal operating position. In addition, these tabs lock the server in place when fully extended from the rack. This prevents the server from coming completely out of the rack when pulled out for servicing.

Releasing the Inner Rail

Each inner rail has a locking latch. This latch prevents the server from coming completely out of the rack when when the chassis is pulled out for servicing.

To mount the rail onto the chassis, first release the inner rail from the outer rails.

1. Pull the inner rail out of the outer rail until it is fully extended as illustrated below.
2. Press the locking tab down to release the inner rail.
3. Pull the inner rail all the way out.

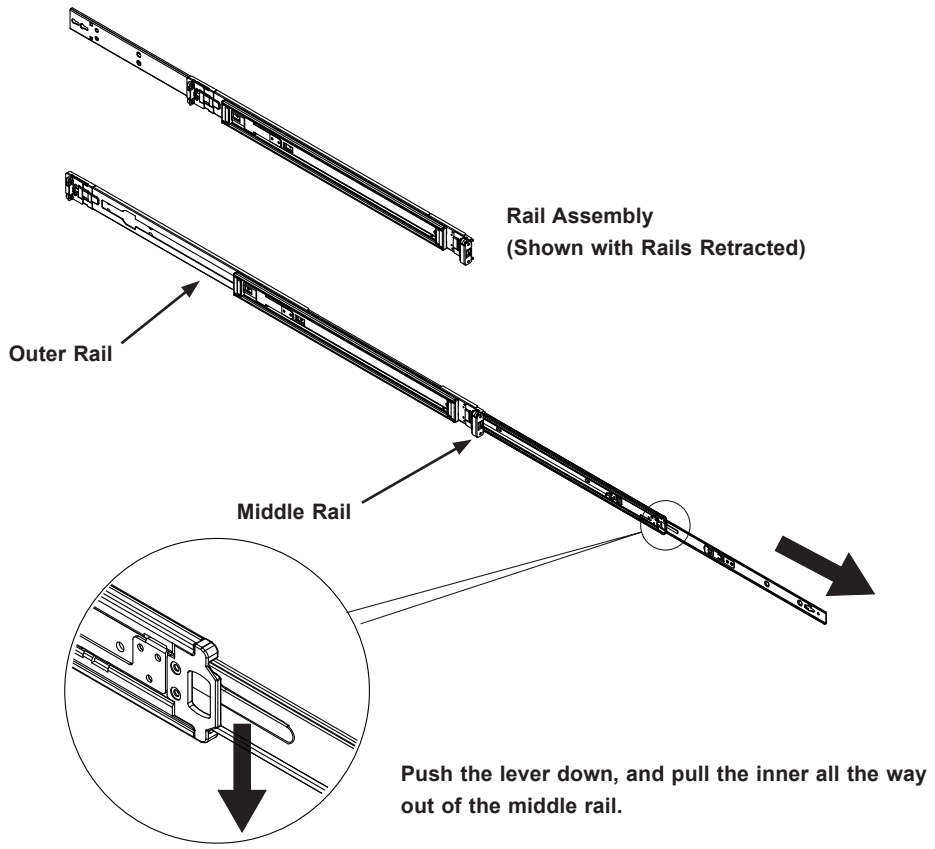


Figure 2-2. Extending and Releasing the Inner Rail

Installing the Inner Rails

Begin the rack mounting procedure by installing the inner rails to the chassis.

1. Identify the left and right inner rails. They are labeled.
2. Place the inner rail firmly against the side of the chassis, aligning the hooks on the side of the chassis with the holes in the inner rail.
3. Slide the inner rail forward toward the front of the chassis and under the hooks until the quick release bracket snaps into place, securing the rail to the chassis.
4. Optionally, you can further secure the inner rail to the chassis with a screw.

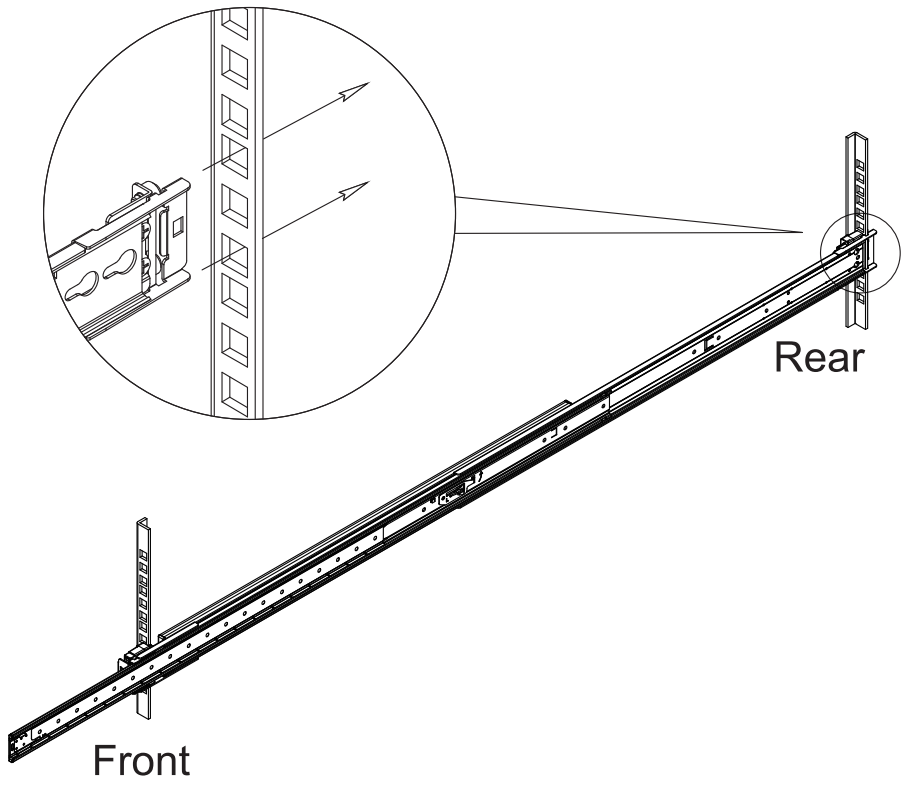


Figure 2-3. Installing the Rails

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

Installing the Outer Rails onto the Rack

Installing the Outer Rails

1. Press upward on the locking tab at the rear end of the middle rail.
2. Push the middle rail back into the outer rail.
3. Hang the hooks on the front of the outer rail onto the square holes on the front of the rack. If desired, use screws to secure the outer rails to the rack.
4. Pull out the rear of the outer rail, adjusting the length until it just fits within the posts of the rack.
5. Hang the hooks of the rear section of the outer rail onto the square holes on the rear of the rack. Take care that the proper holes are used so the rails are level. If desired, use screws to secure the rear of the outer rail to the rear of the rack.
6. Repeat for the other outer rail.

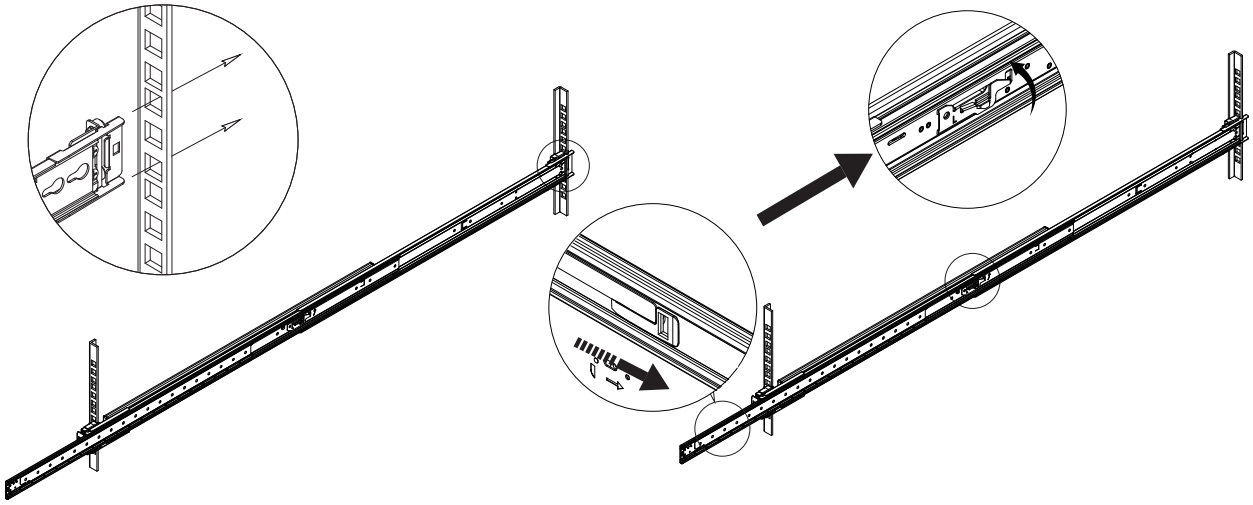


Figure 2-4. Installing the Outer Rails to the Rack

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.

2.5 Installing the Server into a Rack

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

Installing the Server into a Rack

1. Extend the outer rails as illustrated above.
2. Align the inner rails of the chassis with the outer rails on the rack.
3. Slide the inner rails into the outer rails, keeping the pressure even on both sides. When the chassis has been pushed completely into the rack, it should click into the locked position.
4. Optional screws may be used to hold the front of the chassis to the rack.

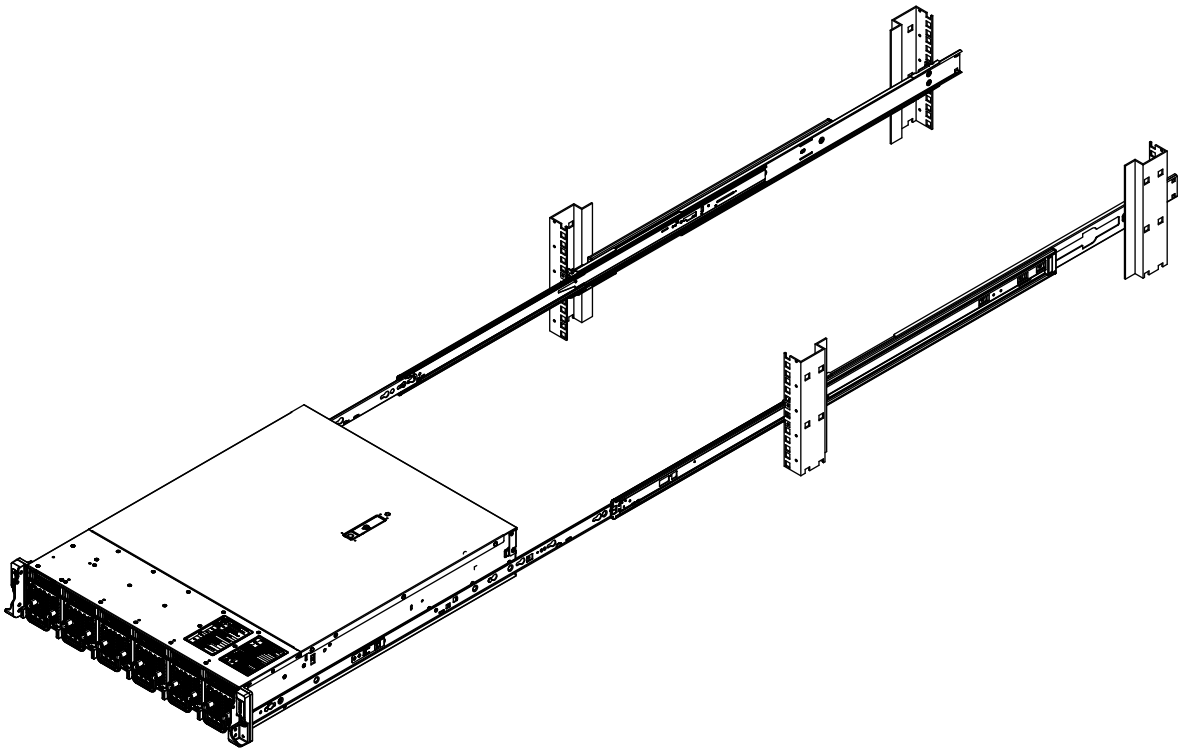


Figure 2-5. Installing the Server into the Rack

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

Removing the Server from the Rack

Caution! It is dangerous for a single person to off-load the heavy chassis from the rack without assistance. Be sure to have sufficient assistance supporting the chassis when removing it from the rack. Use a lift.

1. If necessary, loosen the thumbscrews on the front of the chassis that hold it in the rack.
2. Pull the chassis forward out the front of the rack until it stops.
3. Press the release latches on each of the inner rails downward simultaneously and continue to pull the chassis forward and out of the rack.

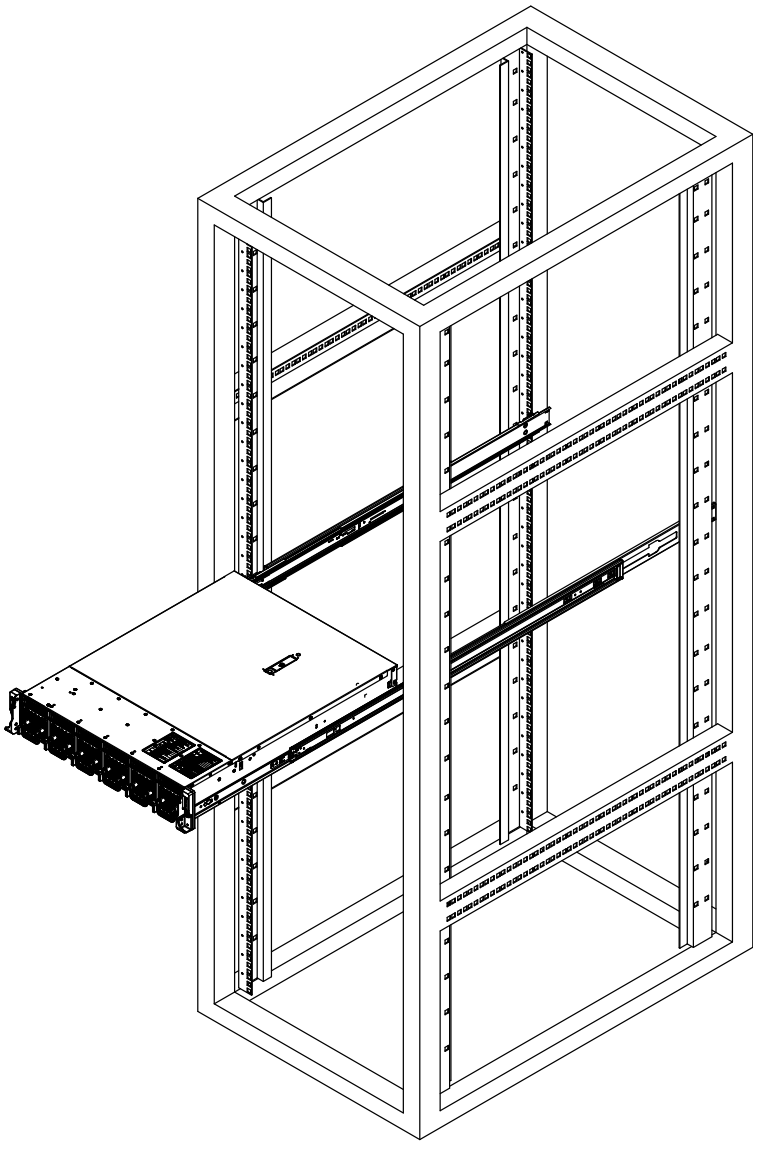


Figure 2-6. Removing the Server from the Rack

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

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 requires 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 or DC power cord(s) from the power strip or outlet. (If your system has more than one power supply, remove the AC or DC power cords from all power supply modules.)
3. Disconnect the power cord(s) from the power supply module(s).

3.2 Accessing the System

The CSE-HE211-R000NFP chassis features a removable top cover, which allows easy access to the inside of the chassis.

Removing the Top Cover

1. Press the release button and slide the cover toward the rear.
2. Lift the top cover up.

Check that all ventilation openings on the top cover and the top of the chassis are clear and unobstructed.

Caution: Except for short periods of time, do not operate the server without the cover in place. The chassis cover must be in place to allow for proper airflow and to prevent overheating.

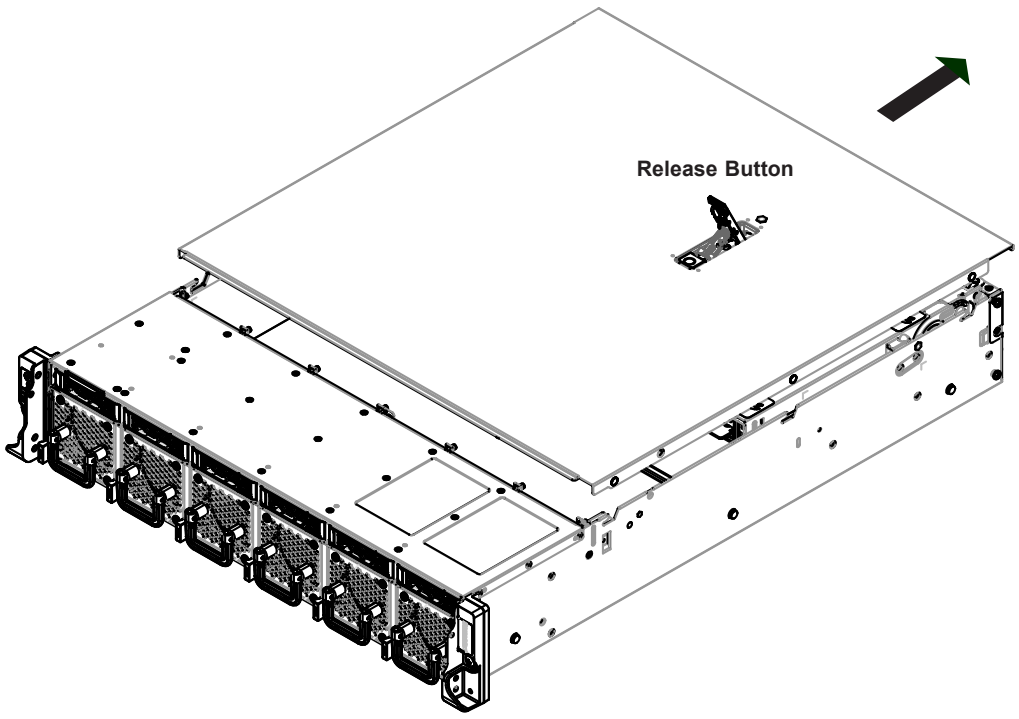


Figure 3-1. Removing the Chassis Cover

3.3 Processor and Heatsink Installation

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

- Please carefully follow the instructions given on the previous page to avoid ESD-related damages.
- Unplug the AC power cords from all power supplies after shutting down the system.
- Check that the plastic protective cover is on the CPU socket, and none of the socket pins are bent. If they are, contact your retailer.
- When handling the processor, avoid touching or placing direct pressure on the LGA lands (gold contacts). Improper installation or socket misalignment can cause serious damage to the processor or CPU socket, which may require manufacturer repairs.
- When installing the processor and heatsink, ensure a torque driver set to the correct force is used for each screw.
- Thermal grease is pre-applied on a new heatsink. No additional thermal grease is needed.
- Refer to the Supermicro website for updates on processor and memory support.
- All graphics in this manual are for illustrations only. Your components may look different.
- The 4th Gen Intel® Xeon® Scalable Processor comes with three CPU SKUs: SP XCC, SP MCC, and Max Series (HBM). The 5th Gen Intel® Xeon® Scalable Processor comes with two CPU SKUs: SP XCC and SP MCC.
- The SP XCC CPU supports Carrier E1A, HBM CPU supports Carrier E1C, and SP MCC CPU supports Carrier E1B.
- The installation process is the same for both 4th and 5th Gen Intel Xeon Scalable processors.

Installation Overview

After preparing the system and following ESD precautions, there are four steps to installing the processor and heatsink onto the motherboard.

1. Attach the processor to a plastic carrier to create the processor carrier assembly.
2. Attach the processor carrier assembly to the heatsink to create the processor heatsink module (PHM).
3. Prepare the socket for PHM installation.
4. Install the PHM.

Removal Overview

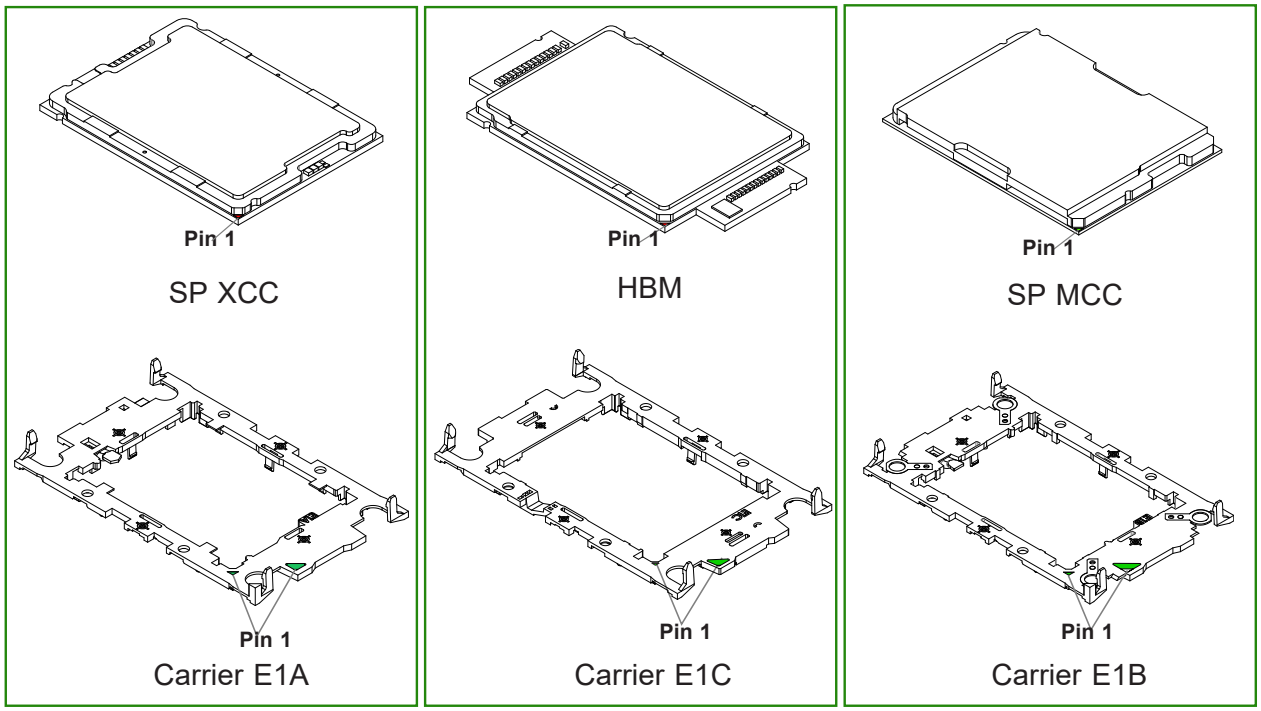
After preparing the system and following ESD precautions, there are three steps to removing the processor and heatsink from the motherboard.

1. Remove the PHM from the motherboard.
2. Remove the processor carrier assembly from the heatsink.
3. Remove the processor from the carrier.

Create the Processor Carrier Assembly

Process Carrier Assembly

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

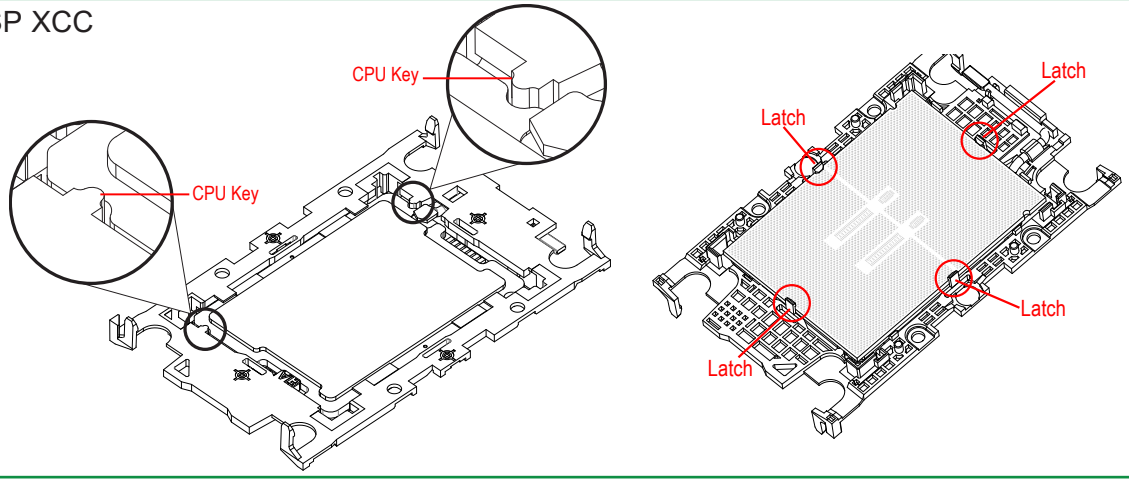


The Processor with its Matching Carrier

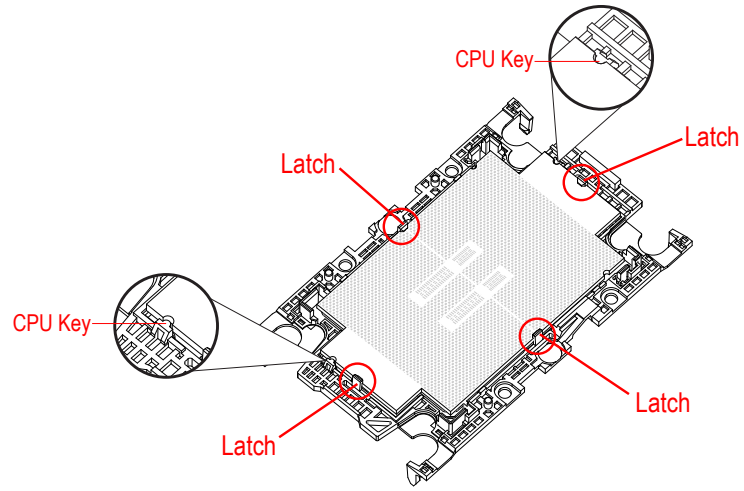
Note: Please note that HBM (1 TB/s bandwidth maximum) is only applicable for 4th Gen Intel® Xeon® Scalable Processors.

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

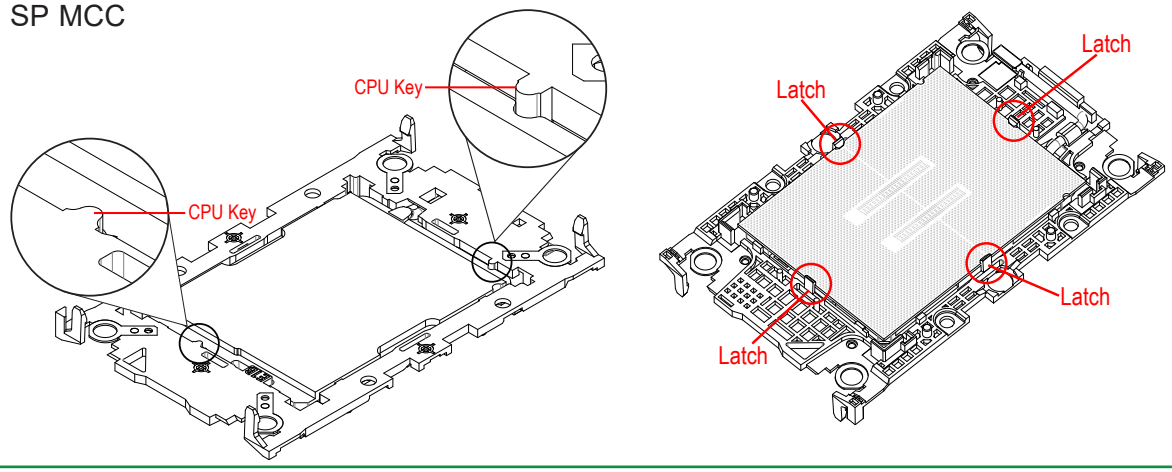
SP XCC



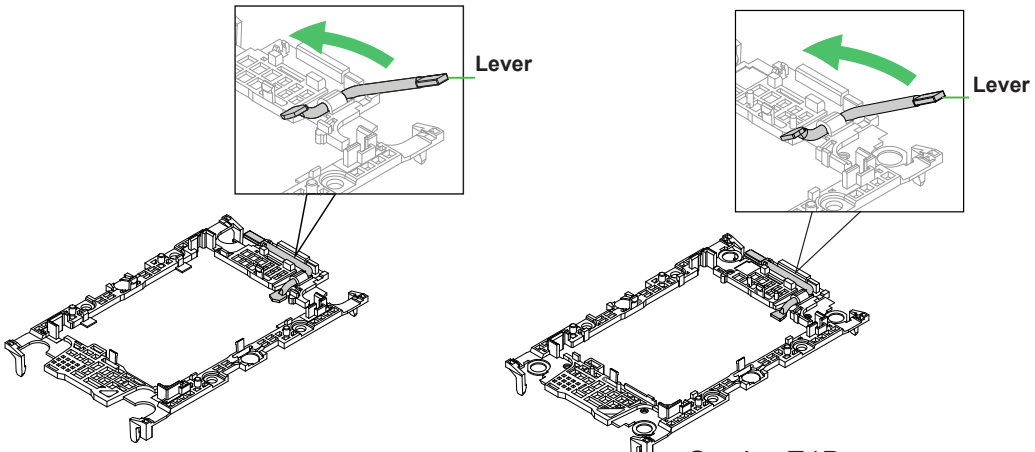
HBM



SP MCC



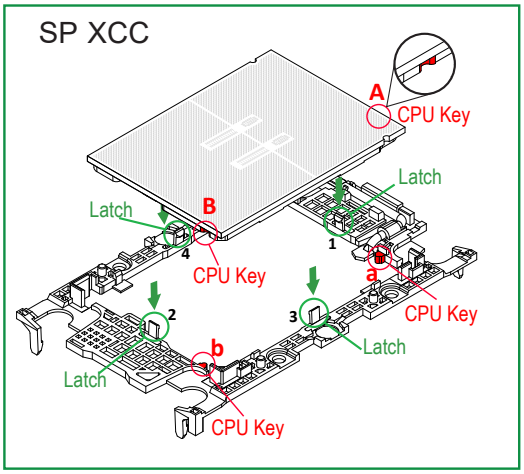
3. Locate the lever on the CPU socket and press it down as shown below.

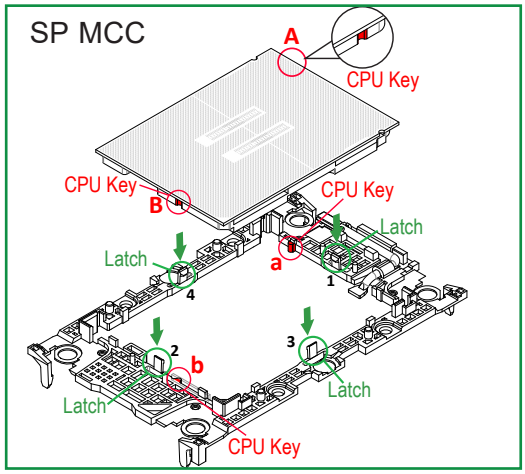


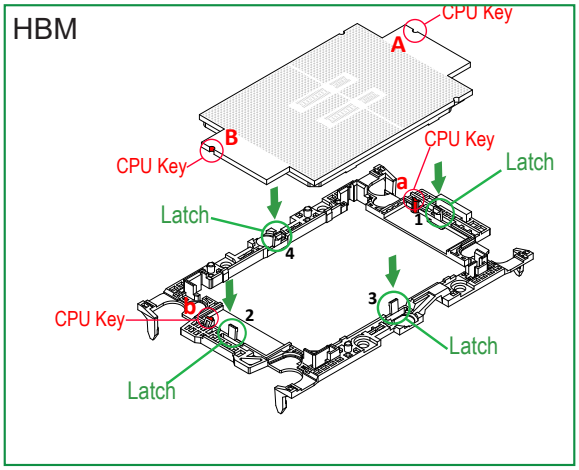
Carrier E1A Carrier E1B

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

5. Once they are properly aligned, carefully insert the CPU into the carrier, making sure that the CPU is properly secured by latches 1, 2, 3, and 4.

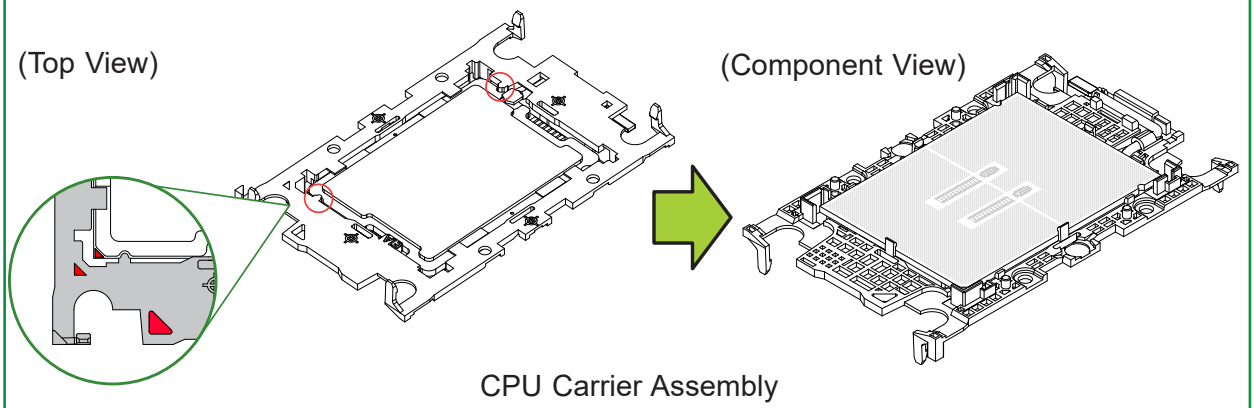






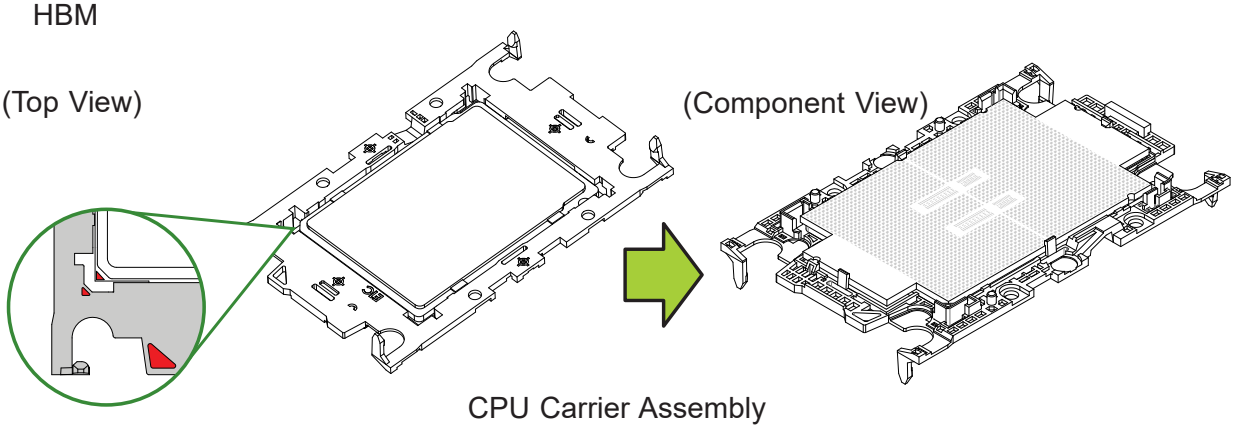
6. After the processor is placed inside the carrier, examine the four sides of the processor, making sure that the processor is properly seated on the carrier.

SP XCC



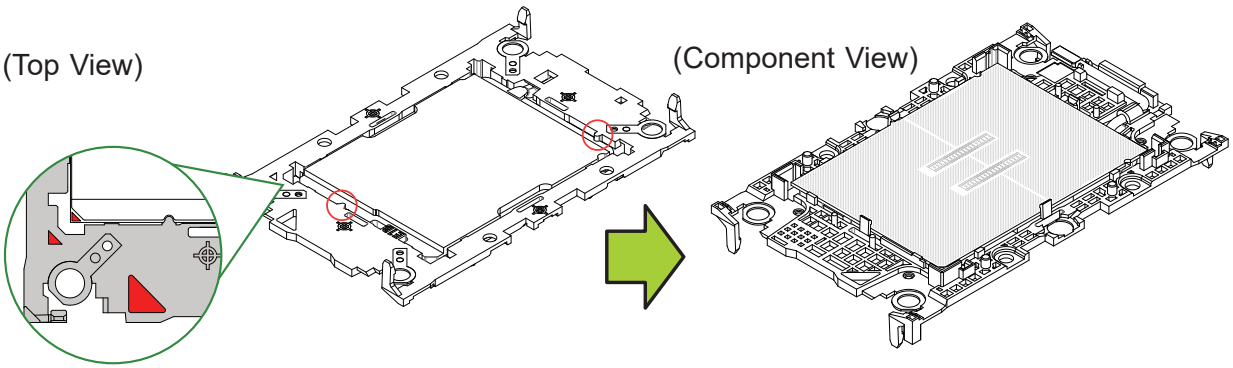
CPU Carrier Assembly

HBM



CPU Carrier Assembly

SP MCC



CPU Carrier Assembly

Creating the PHM

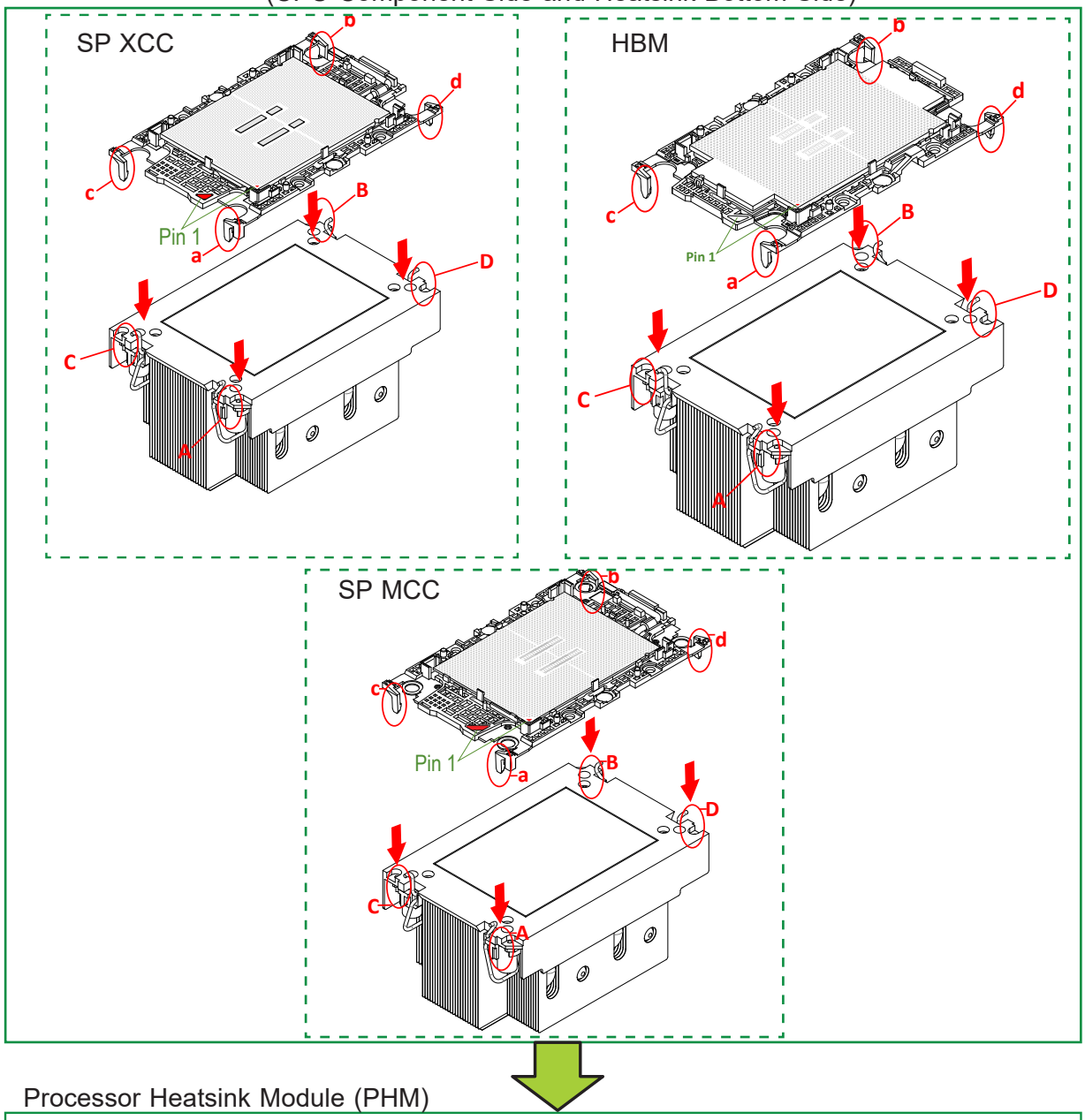
After creating the processor carrier assembly, please follow the instructions below to mount the processor carrier into the heatsink to form the PHM.

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

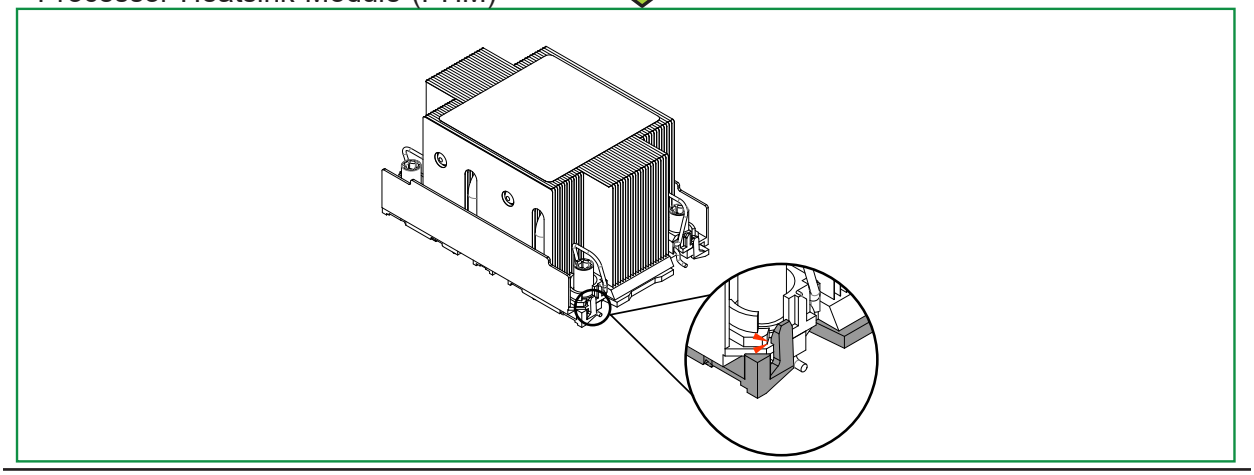
1. Turn the heatsink over with the thermal grease, which is on the reverse side of the heatsink, facing up. Pay attention to the two triangle cutouts (A, B) located at the diagonal corners of the heatsink as shown in the drawing below.
2. Hold the processor carrier component side facing up, and locate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

CPU Carrier Assembly (for 2U Heatsink)

(CPU Component Side and Heatsink Bottom Side)



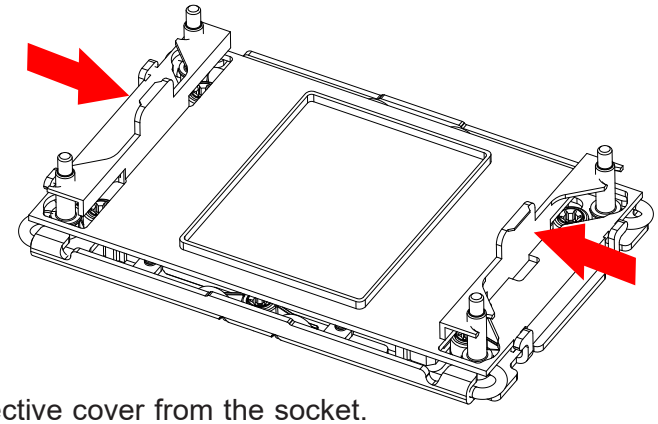
Processor Heatsink Module (PHM)



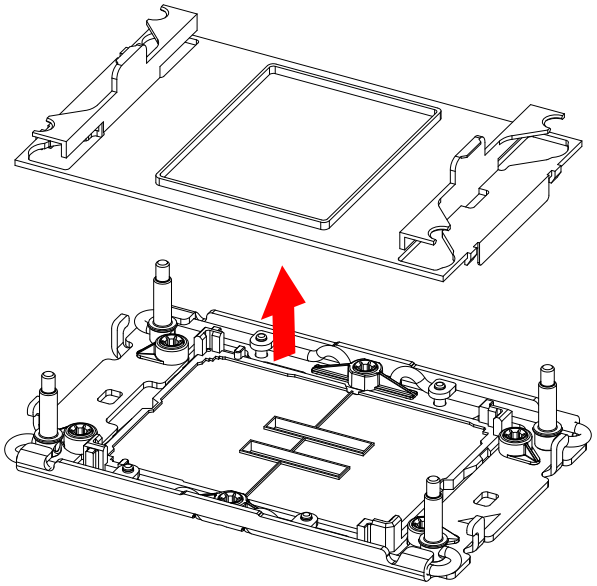
Preparing the CPU Socket for Installation

This motherboard comes with a plastic protective cover installed on the CPU socket. Remove it from the socket by following the instructions below:

1. Press the tabs inward.



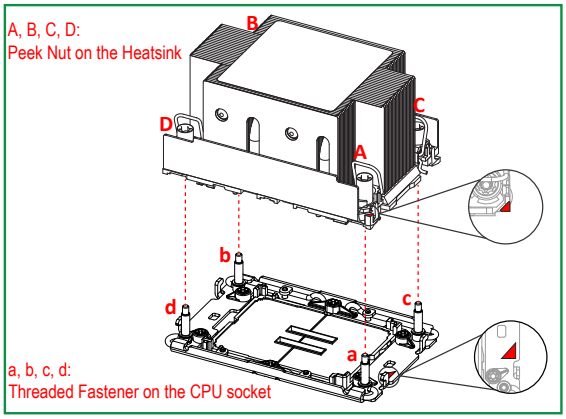
2. Pull up the protective cover from the socket.



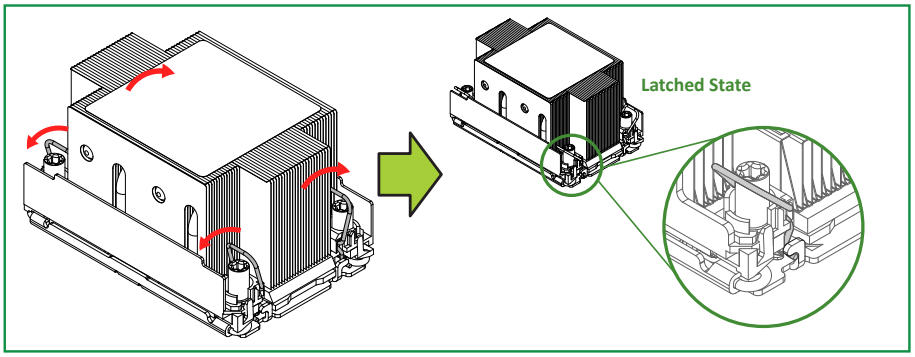
Installing the PHM into the CPU Socket

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

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



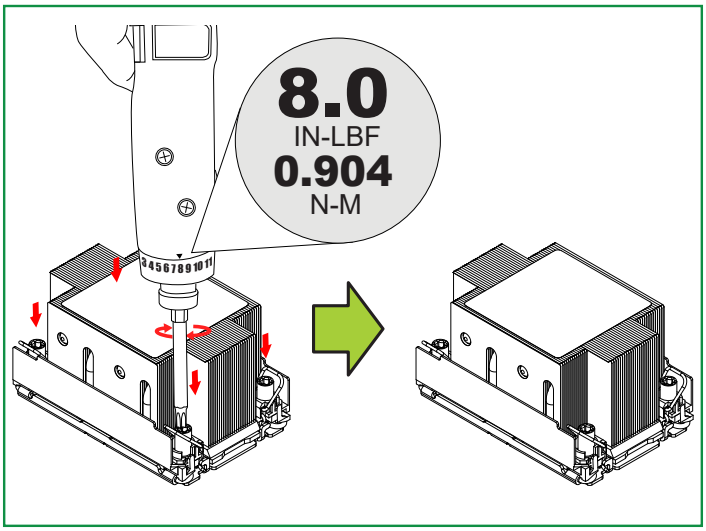
3. Once they are aligned, gently place the heatsink on top of the CPU socket, making sure that each PEEK nut is properly attached to its corresponding threaded fastener. Press all four rotating wires outwards and make sure that the heatsink is securely latched onto the CPU socket.



4. 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.

Note: Do not use a force greater than 8.0 in-lbf (0.904 N-m). Exceeding this force may over-torque the screw, causing damage to the processor, heatsink, and screw.

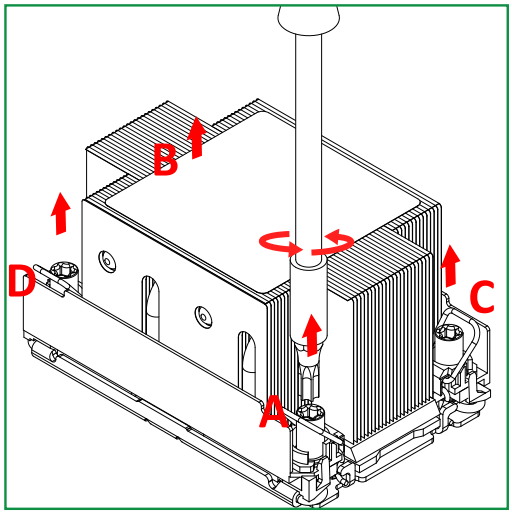
5. Examine all corners of the heatsink to ensure that the PHM is firmly attached to the CPU socket.



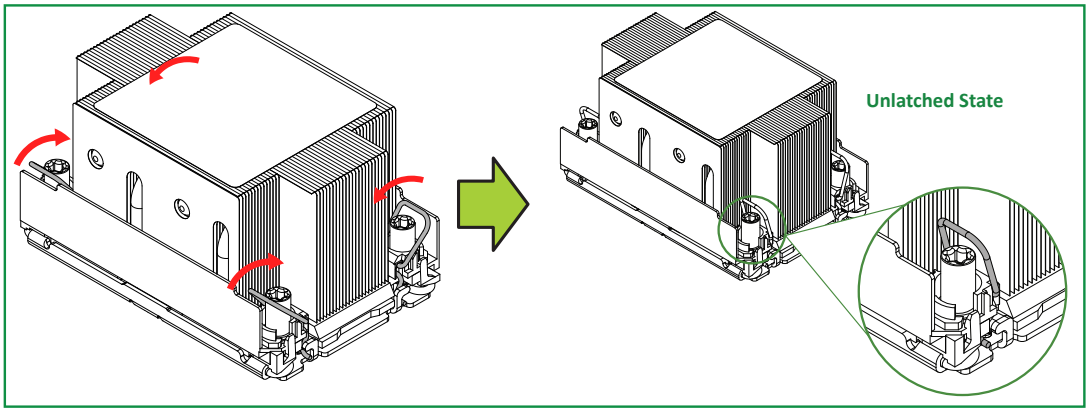
Removing the PHM from the CPU Socket

Before removing the PHM from the motherboard, be sure to shut down the system and unplug the power cables from the power supply. Then follow the steps below:

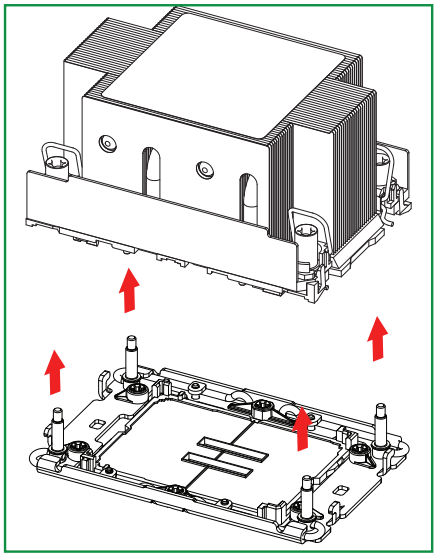
1. Use a T30 screwdriver to loosen the four PEEK nuts on the heatsink in the sequence of A, B, C, and D.



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



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

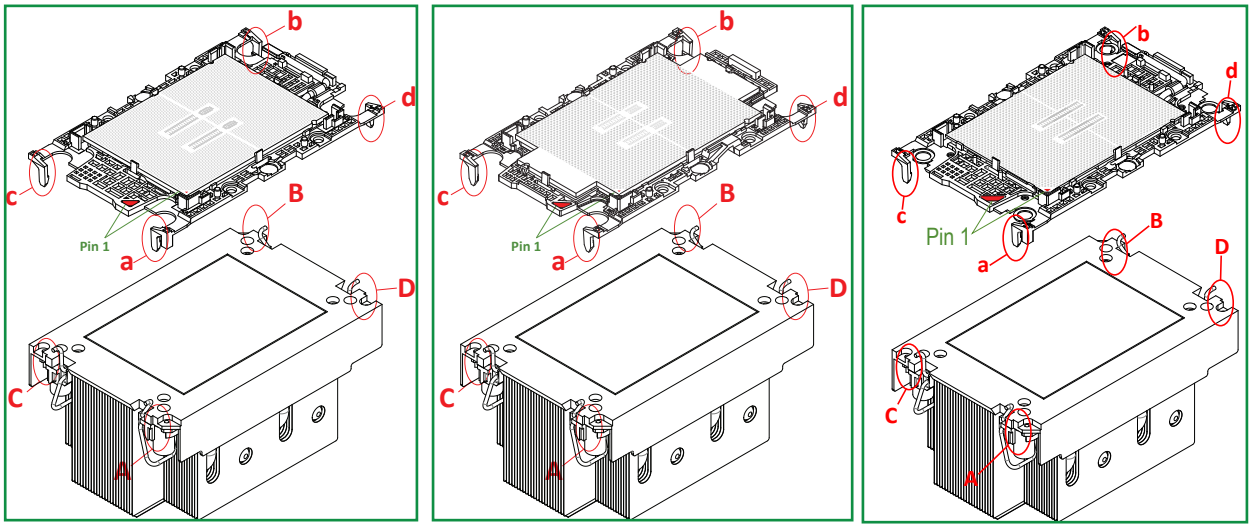


Removing the Processor Carrier Assembly from the PHM

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

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

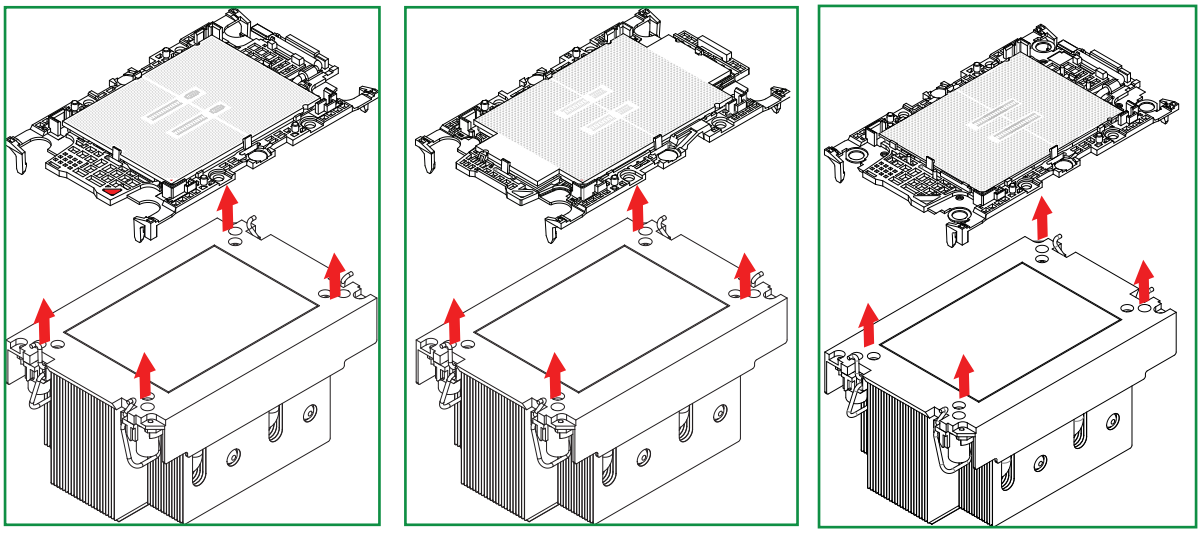
2U Heatsink (View of Component Side and Heatsink Bottom Side)



SP XCC HBM SP MCC

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

2U Heatsink (View of Component Side and Heatsink Bottom Side)

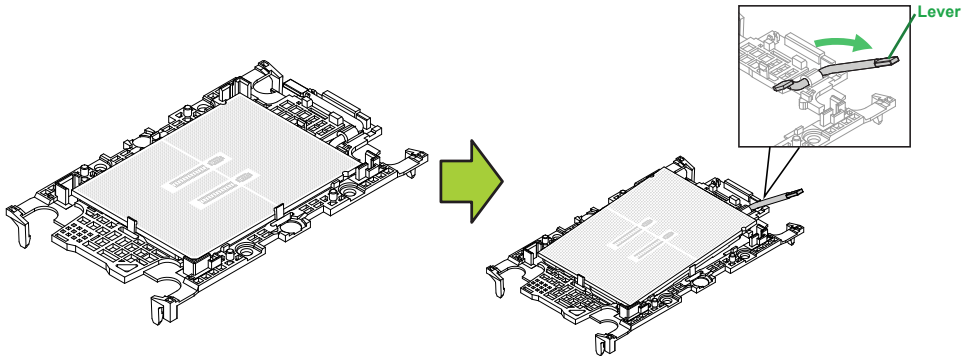


SP XCC HBM SP MCC

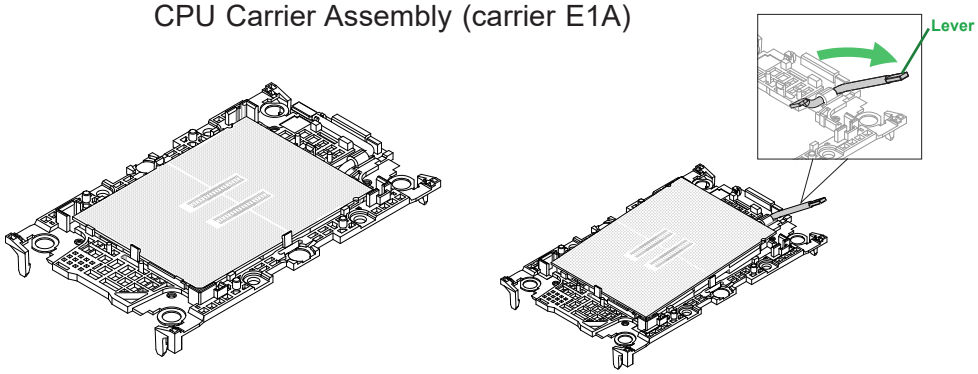
Removing the Processor from the Processor Carrier Assembly

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

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



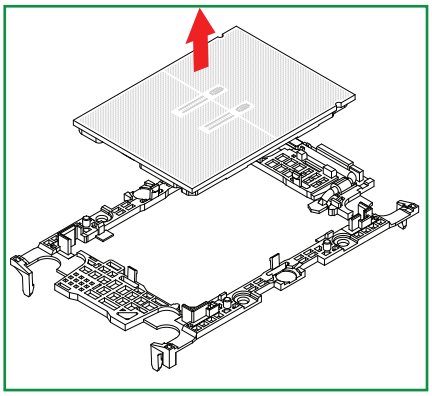
CPU Carrier Assembly (carrier E1A)



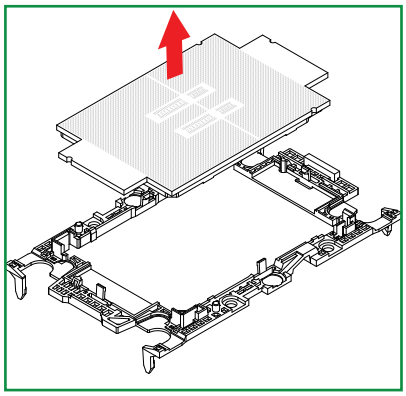
CPU Carrier Assembly (carrier E1B)

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

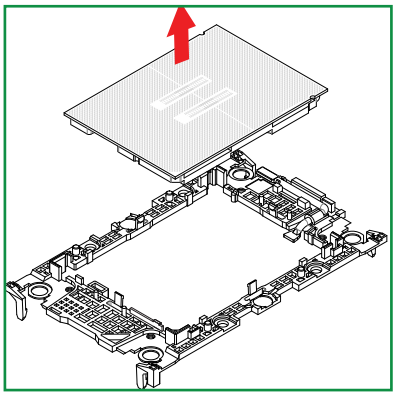
   Note: Please handle the processor with care to avoid damaging the processor and its pins.



SP XCC



HBM



SP MCC

3.4 Memory Support and Installation

Memory Support

The X13DEM motherboard supports 32 DIMM slots and up to 8 TB of RDIMM/RDIMM 3DS DDR5 memory and speeds of up to 5600 MT/s.

Memory Installation Sequence

Memory for this motherboard is populated using the "Fill First" method. The DIMM slots with blue release tabs are considered the first DIMM of their channel, and those with white release tabs are the second of the channel. When installing memory modules, be sure to populate the memory slots with the blue release tabs first and then populate those with the white release tabs.

General Memory Population Requirements

1. Be sure to use the memory modules of the same type and speed on the motherboard. Mixing of memory modules of different types and speeds is not allowed.
2. Using unbalanced memory topology such as populating two DIMMs in one channel while populating one DIMM in another channel will result in reduced memory performance.
3. Populating memory slots with a pair of DIMM modules of the same type and size will result in interleaved memory, which will improve memory performance.

DDR5 Memory Population Table (with XCC & MCC CPUs and 32 DIMMs Installed)	
1 CPU:	***Memory Population Sequence***
1 CPU & 1 DIMM	P1-DIMMA1 P1-DIMME1 P1-DIMMB1 P1-DIMMF1
1 CPU & 2 DIMMs	P1-DIMMA1/P1-DIMMG1 P1-DIMMC1/P1-DIMME1
1 CPU & 4 DIMMs	P1-DIMMA1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1
1 CPU & 6 DIMM	P1-DIMMA1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1 P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1/P1-DIMMH1 P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMH1 P1-DIMMA1/P1-DIMMB1/P1-DIMMD1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1
1 CPU & 8 DIMMs	P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1
1 CPU & 12 DIMMs	P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1 P1-DIMMA1/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMD1/P1-DIMMD2/P1-DIMME1/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMH1/P1-DIMMH2
1 CPU & 16 DIMMs	P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMMD2/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1/P1-DIMMH2
2 CPUs: (Recommended)	***Memory Population Sequence***
2 CPUs & 2 DIMMs	**CPU1:** P1-DIMMA1, **CPU2:** P2-DIMMA1 **CPU1:** P1-DIMME1, **CPU2:** P2-DIMME1 **CPU1**: P1-DIMMB1, **CPU2:** P2-DIMMB1 **CPU1:** P1-DIMMF1, **CPU2:** P2-DIMMF1
2 CPUs & 4 DIMMs	**CPU1:** P1-DIMMA1/P1-DIMMG1, **CPU2:** P2-DIMMA1/P2-DIMMG1 **CPU1:** P1-DIMMC1/P1-DIMME1, **CPU2:** P2-DIMMC1/P2-DIMME1
2 CPUs & 8 DIMMs	**CPU1:** P1-DIMMA1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1 **CPU2:** P2-DIMMA1/P2-DIMMC1/P2-DIMME1/P2-DIMMG1
2 CPUs & 10 DIMMs	**CPU1:** P1-DIMMA1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1 **CPU2:** P2-DIMMA1/P2-DIMMC1/P2-DIMME1/P2-DIMMG1
2 CPUs & 12 DIMMs	**CPU1:** P1-DIMMA1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1 **CPU2:** P2-DIMMA1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMG1 **CPU1:** P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1/P1-DIMMH1 **CPU2:** P2-DIMMA1/P2-DIMMB1/P2-DIMMC1/P2-DIMME1/P2-DIMMG1/P2-DIMMH1 **CPU1:** P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMH1 **CPU2:** P2-DIMMB1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMH1 **CPU1:** P1-DIMMA1/P1-DIMMB1/P1-DIMMD1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1 **CPU2:** P2-DIMMA1/P2-DIMMB1/P2-DIMMD1/P2-DIMMF1/P2-DIMMG1/P2-DIMMH1
2 CPUs & 16 DIMMs	**CPU1**: P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1 **CPU2**: P2-DIMMA1/P2-DIMMB1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMG1/P2-DIMMH1
2 CPUs & 22 DIMMs	**CPU1:** P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMMD2/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1/P1-DIMMH2 **CPU2:** P2-DIMMA1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMG1
2 CPUs & 24 DIMMs	**CPU1:** P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMMD2/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1/P1-DIMMH2 **CPU2**: P2-DIMMA1/P2-DIMMB1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMG1/P2-DIMMH1
2 CPUs & 32 DIMMs	**CPU1:** P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMMD2/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1/P1-DIMMH2 **CPU2:** P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMB2/P2-DIMMC1/P2-DIMMC2/P2-DIMMD1/P2-DIMMD2/P2-DIMME1/P2-DIMME2/P2-DIMMF1/P2-DIMMF2/P2-DIMMG1/P2-DIMMG2/P2-DIMMH1/P2-DIMMH2

DDR5 Memory Population Table (with Max Series ((HBM)) CPUs and 32 DIMMs Installed)	
1 CPU:	***Memory Population Sequence***
1 CPU & 1 DIMM	P1-DIMMA1 P1-DIMME1
1 CPU & 2 DIMMs	P1-DIMMA1/P1-DIMMG1 P1-DIMMC1/P1-DIMME1
1 CPU & 4 DIMMs	P1-DIMMA1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1
1 CPU & 8 DIMMs	P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1
1 CPU & 16 DIMMs	P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMMD2/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1/P1-DIMMH2
2 CPUs: (Recommended)	***Memory Population Sequence***
2 CPUs & 2 DIMMs	**CPU1:** P1-DIMMA1, **CPU2:** P2-DIMMA1 **CPU1:** P1-DIMME1, **CPU2:** P2-DIMME1
2 CPUs & 4 DIMMs	**CPU1:** P1-DIMMA1/P1-DIMMG1, **CPU2:** P2-DIMMA1/P2-DIMMG1 **CPU1:** P1-DIMMC1/P1-DIMME1, **CPU2:** P2-DIMMC1/P2-DIMME1
2 CPUs & 8 DIMMs	**CPU1:** P1-DIMMA1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1 **CPU2:** P2-DIMMA1/P2-DIMMC1/P2-DIMME1/P2-DIMMG1
2 CPUs & 16 DIMMs	**CPU1**: P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1 **CPU2**: P2-DIMMA1/P2-DIMMB1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMG1/P2-DIMMH1
2 CPUs & 32 DIMMs	**CPU1:** P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMMD2/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1/P1-DIMMH2 **CPU2:** P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMB2/P2-DIMMC1/P2-DIMMC2/P2-DIMMD1/P2-DIMMD2/P2-DIMME1/P2-DIMME2/P2-DIMMF1/P2-DIMMF2/P2-DIMMG1/P2-DIMMG2/P2-DIMMH1/P2-DIMMH2

Notes:

1. Max Series (HBM) CPU supports 1DPC (4800 MT/s)/2DPC (4400 MT/s) to optimize the memory bandwidth. Max Series (HBM) CPU supports 1, 2, 4, 8, or 16 DIMMs in Flat Mode as well as Cache Mode, and 0 DIMMs in HBM-Only mode. HBM-Only mode runs exclusively using HBM memory.

2. For the best memory performance in Flat mode and Cache mode, please use 4, 8, or 16 DIMM configurations. (At least one DIMM per memory controller for balanced configuration)

   4 DIMMs -> populate 1 DIMM/iMC (Integrated Memory Controller)

   8 DIMMs -> populate 1 DIMM/Channel, 2 DIMM/iMC

   16 DIMMs -> populate 2 DIMM/Channel, 4 DIMM/iMC

3. All other configurations not listed above are not supported.

4. For the 2-socket design, each socket has to be populated identically.

DDR5 Memory Support for the 4th Gen Intel Xeon Scalable Processors					
Type	Ranks Per DIMM & Data Width (Stack)	DIMM Capacity (GB)		Speed (MT/s); Voltage (V); DIMM Per Channel (DPC)	
				1DPC (Note)	2DPC
		16Gb	24Gb	1.1V	
RDIMM	SRx8 (RC D)	16GB	24Gb	4800	4400
	SRx4 (RC C)	32GB	48Gb		
	SRx4 (RC F) 9x4	32GB	N/A		
	DRx8 (RC E)	32GB	48Gb		
	DRx4 (RC A)	64GB	96Gb		
	DRx4 (RC B) 9x4	64GB	N/A		
RDIMM 3DS	(4R/8R) x4 (RC A)	2H-128GB 4H-256GB	N/A		

Note 1: 1DPC applies to 1SPC or 2SPC implementation (SPC - sockets per channel).

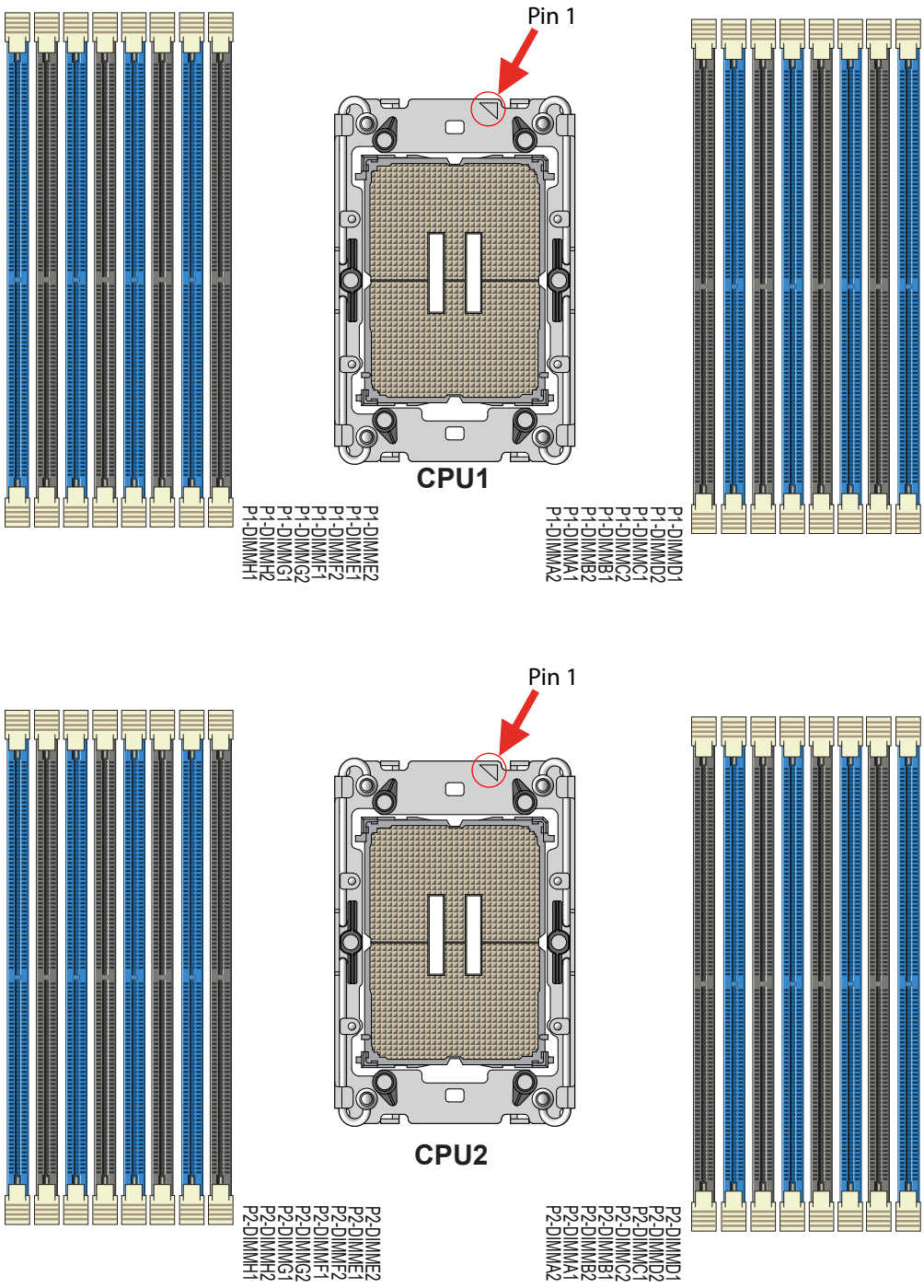
Note 2: 24Gb XXC only with limited configs: 1DPC all DIMM types, 2DPC 96 GB only. Only 8 and 16 DIMM configs, no fallbacks.

Note 3: Memory speed will be 4800 MT/s 1DPC and 4400 MT/s 2DPC.

Note 4: Mixing DRAM Density (16 Gb/ 24 Gb) and/or frequency is not allowed.

DDR5 Memory Support for the 5th Gen Intel Xeon Scalable Processors					
Type	Ranks Per DIMM & Data Width (Stack)	DIMM Capacity (GB)		Speed (MT/s); Voltage (V); DIMM Per Channel (DPC)	
				1DPC (Note)	2DPC
		16Gb	24Gb	1.1V	
RDIMM	SRx8 (RC D)	16GB	24Gb	5600	4400
	SRx4 (RC C)	32GB	48Gb		
	SRx4 (RC F) 9x4	N/A	N/A		
	DRx8 (RC E)	32GB	48Gb		
	DRx4 (RC A)	64GB	96Gb		
	DRx4 (RC B) 9x4	N/A	N/A		
RDIMM 3DS	(4R/8R) x4 (RC A)	2H-128GB 4H-256GB	N/A		

Note: 1DPC applies to 1SPC or 2SPC implementation (SPC - sockets per channel).

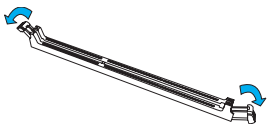


Memory Population on X13DP Motherboards with 32 DIMMs Installed

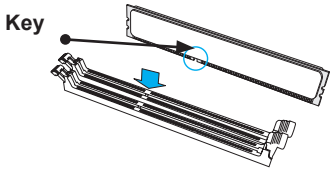
Note: All graphics shown in this user document are for illustrative purposes only. The components installed in your system may look different from the graphics shown here.

DIMM Installation

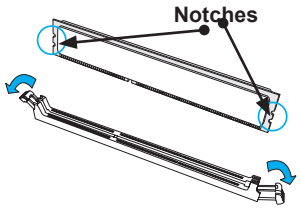
1. Insert the desired number of DIMMs into the slots based on the recommended DIMM population tables shown above.
2. Push the release tabs on both ends of the DIMM slot outwards to unlock it.



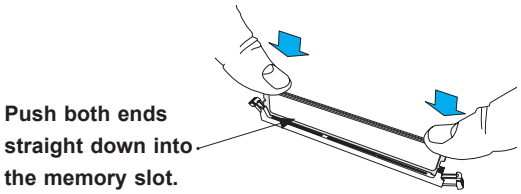
3. Align the key of the DIMM module with the receptive point on the memory slot.



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



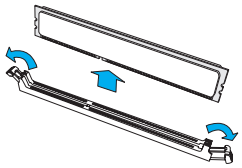
5. Push both ends of the module straight down into the slot until the module snaps into place.



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

DIMM Removal

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



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

3.5 Motherboard Battery

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

Replacing the Battery

Begin by removing power from the system.

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

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

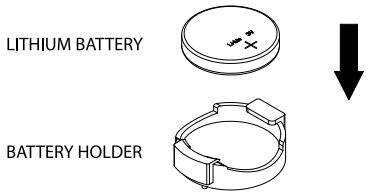


Figure 3-2. Installing the Onboard Battery

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

3.6 Storage Drives

The system supports six hot-swap NVMe/SATA3/SAS hybrid drive bays and two M.2 NVMe/SATA3 slots. For compatible storage drives, see the X13DEM motherboard page.

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

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

Checking the Temperature of an NVMe Drive

There are two ways to check using BMC.

Checking a Drive

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

Installing Drives

The front of the system has six storage drive bays that support NVMe and SATA3 drives.

Figure 3-3. 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.

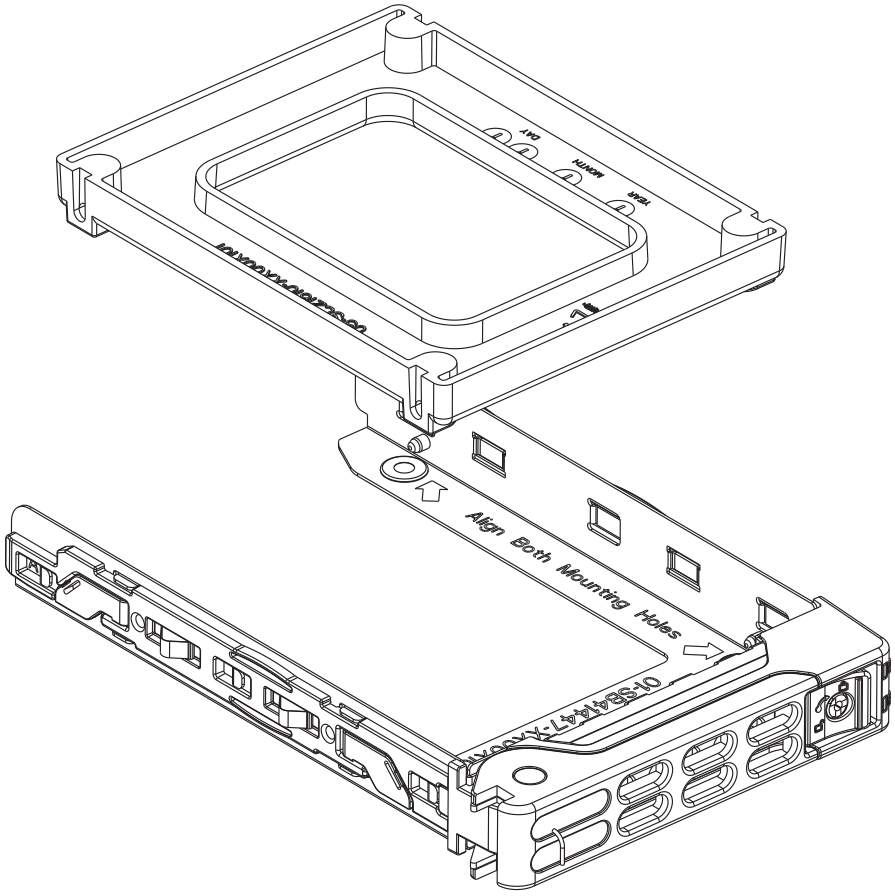


Figure 3-4. Removing a Drive Carrier

Installing a Drive into a Drive Carrier

1. Insert a drive into the carrier with the PCB side facing down and the connector end toward the rear of the carrier.
2. Align the drive in the carrier so that the screw holes of both lineup. Note that there are holes in the carrier marked “SATA” to aid incorrect installation.
3. Secure the drive to the carrier with four screws.
4. Insert the drive carrier into its bay, keeping the carrier oriented so that the drive is on the top of the carrier and the release button is on the right side. When the carrier reaches the rear of the bay, the release handle will retract.
5. Push the handle in until it clicks into its locked position.

Note: Your operating system must have RAID support to enable the hot-plug capability of the hard drives.

Note: Enterprise-level hard disk drives are recommended for use in Supermicro chassis and servers.

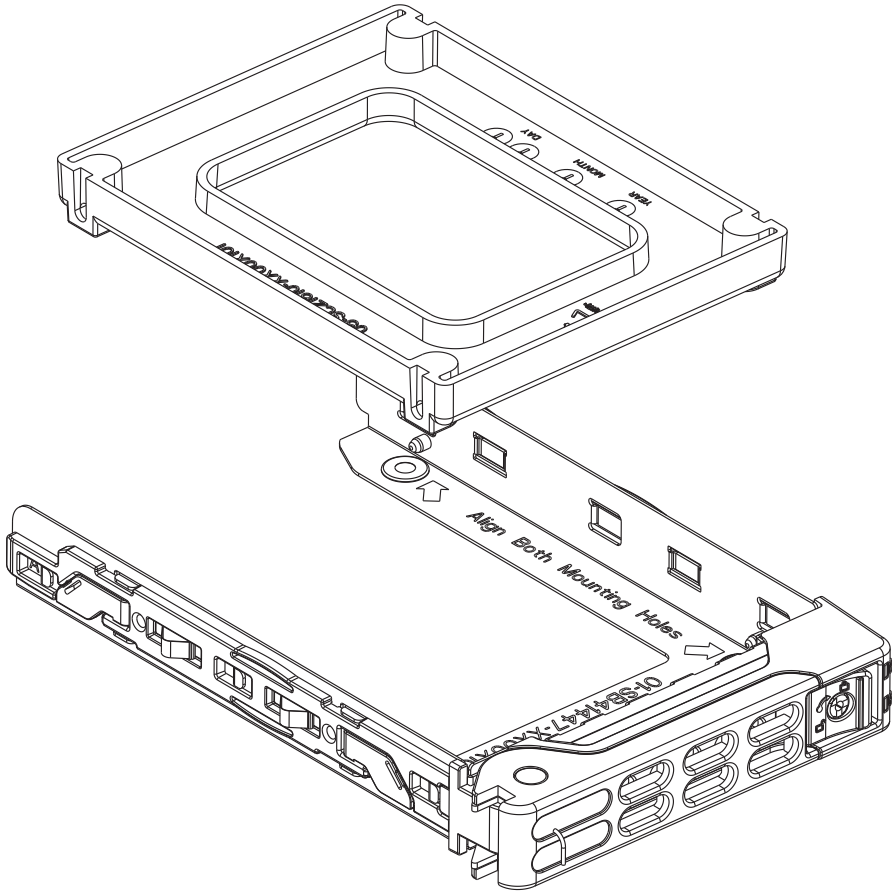


Figure 3-5. Removing the Dummy Drive from a Carrier

Hot-Swap for NVMe Drives

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

Note: If you are using VROC, see the VROC appendix in this manual instead.

Ejecting a Drive

1. **BMC > Server Health > NVMe SSD**
2. Select Device, Group, and Slot, and click **Eject**. After ejecting, the drive Status LED indicator turns green.
3. Remove the drive.

Note that *Device* and *Group* are categorized by the CPLD design architecture.

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

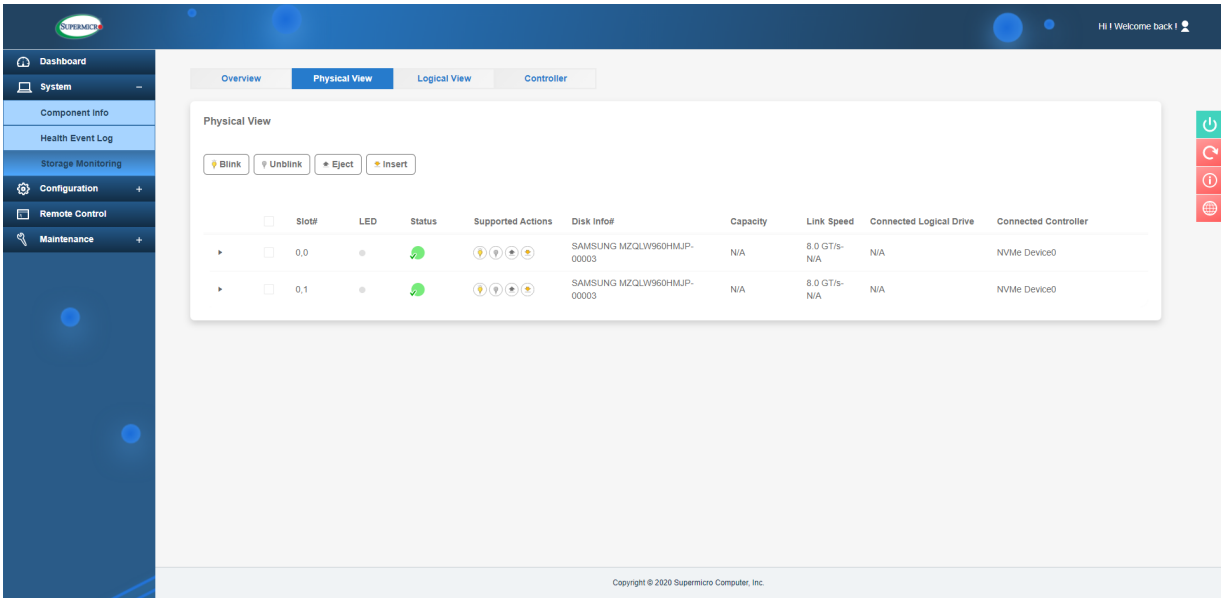


Figure 3-6. BMC Screenshot

Replacing the Drive

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

Installing M.2 Solid State Drives

The X13DEM has two M.2 slots for two PCIe 3.0 NVMe/SATA M.2 drives in the 2280 and 22110 form factors. The M.2 slots allow for a variety of card sizes with increased functionality and storage efficiency.

Installing M.2 Drives

1. Remove power from the system and then remove the top cover as described in Sections 3.1 and 3.2.
2. Begin by removing the riser brackets from the chassis.
3. Insert the M.2 sideways into the connector so that it lays flat, then secure it to the bracket with the plastic clip.
4. Repeat as necessary for more M.2 drives.
5. With the drives installed and secured to the bracket, replace the bracket back into the chassis as before.
6. Finish by replacing the cover and restoring power to the system.

3.7 System Cooling

Fans

Six 6-cm heavy-duty fans provide cooling for the system. Fans are hot-swappable and can be replaced without powering down the system. The electrical connections are automatically made when a fan is inserted into its slot.

Make sure the chassis cover is only off for a short time and makes a good seal when replaced for the cooling air to circulate properly through the system.

Changing a System Fan

1. Determine which fan is failing using BMC if possible. If not, remove the chassis cover while the power is on and examine the fans to determine which one has failed.
2. Pull the system partially out from the rack.
3. With the top cover partially pushed back, depress the release buttons on the front section of the top cover to swing it open on its hinges.
4. Squeeze the fan tabs of the failed fan and lift the fan housing up and out of the chassis.
5. To install a fan, push it into the proper location until it clicks.
6. Finish by fully closing the cover and pushing the system back into the rack.

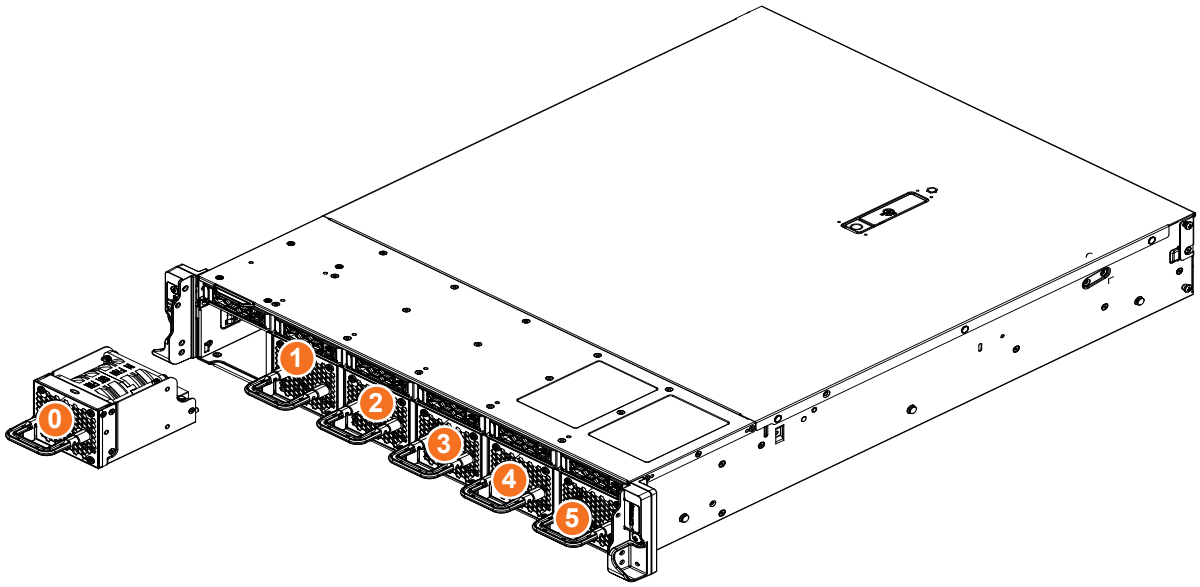


Figure 3-7. Installing a Fan (positions indicated)

Air Shrouds

Air shrouds concentrate airflow to maximize fan efficiency.

Air Shroud for Memory (CPU1/2)

Four 2U air shrouds cool the DIMM slots controlled by CPUs 1 and 2 (see figure below).

1. Remove power from the system as described in Section 3.1.
2. Remove the system from the rack and remove the cover as described in Section 3.2.
3. Remove riser card brackets and riser card supporting bar.
4. Place each air shroud over eight DIMM slots at a time for both CPU1 and CPU2-controlled DIMM slots, as illustrated below.
5. Re-assemble riser card supporting bar and riser card brackets.
6. Close the cover and push the system back into the rack.

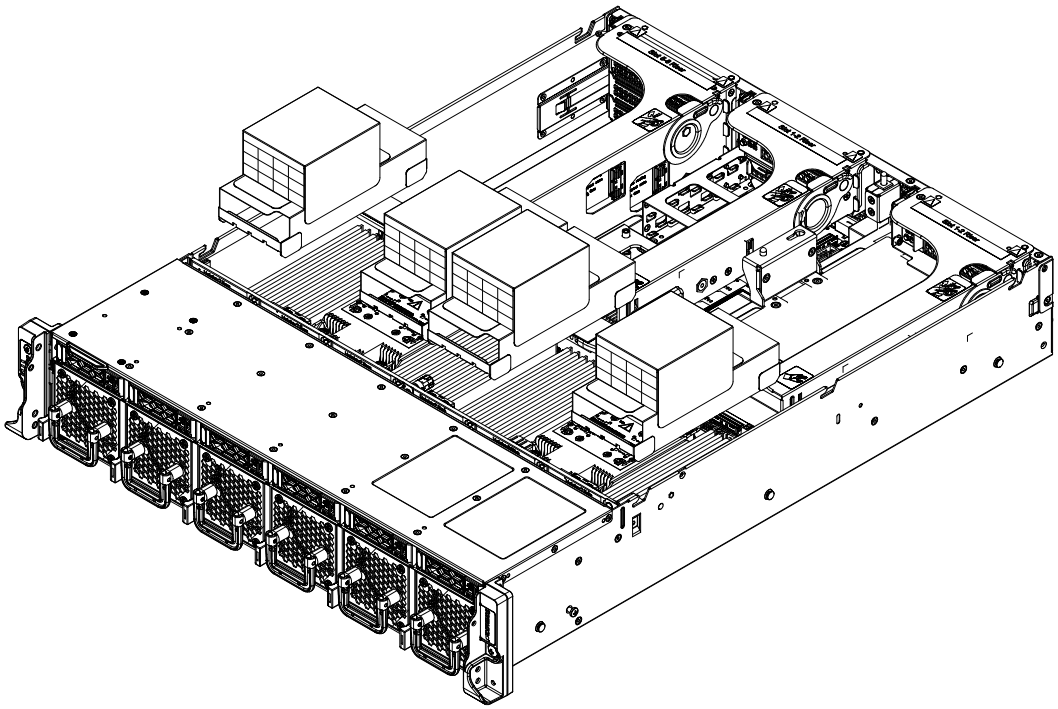


Figure 3-8. Installing Air Shrouds for CPU1/2 DIMMs

3.8 Expansion Cards

The SYS-221HE-TNR/TNRD includes three riser cards to support the use of expansion (add-on) cards.The system also has flexible networking options with two AIOM networking slot (OCP NIC 3.0 compatible).

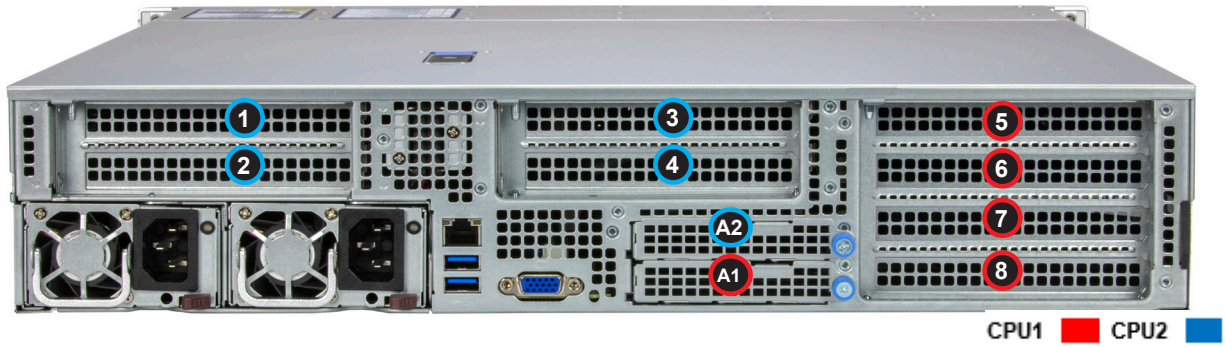


Figure 3-9. Expansion Card Chassis Slots

Expansion Card Slot Configurations

Enabling any of the eight expansion card slots in this system requires optional parts that are sold separately. See below for expansion card slot configuration ordering information.

Each expansion card slot is assigned to specific motherboard PCIe x8 MCIO connectors or PCIe x16 slots. The following table shows the possible expansion card slot configuration options and the corresponding motherboard PCIe connector assignment.

Expansion Card Slot Configurations		
Slot Configurations	**Slot Width**	**Motherboard Connection**
Up to eight PCIe x8 slots	Slot 1: PCIe x8	Cable connection from JPCIE5A1 (CPU2)
	Slot 2: PCIe x8	Cable connection from JPCIE5B1 (CPU2)
	Slot 3: PCIe x8	Cable connection from JPCIE4 (CPU2)
	Slot 4: PCIe x8	Cable connection from JPCIE4 (CPU2)
	Slot 5: PCIe x8	Cable connection from JPCIE2A1 (CPU1)
	Slot 6: PCIe x8	Cable connection from JPCIE2B1 (CPU1)
	Slot 7: PCIe x8	Edge connection from JPCIE1 (CPU1)
	Slot 8: PCIe x8	Edge connection from JPCIE1 (CPU1)
Up to four PCIe x16 slots	Slot 1: PCIe x16	Cable connection from JPCIE5A1 + JPCIE5B1 (CPU2)
	Slot 2: No connection	No connection
	Slot 3: PCIe x16	Cable connection from JPCIE4 (CPU2)
	Slot 4: No connection	No connection
	Slot 5: PCIe x16	Cable connection from JPCIE2A1 + JPCIE2B1 (CPU1)
	Slot 6: No connection	No connection
	Slot 7: PCIe x16	Edge connection from JPCIE1 (CPU1)
	Slot 8: No connection	No connection

The SYS-221HE-TNR/TNRD includes three riser cards (slots 1-2 and slots 3-4 support RSC-H2-68G5 and slots 5-8 support either one RSC-H2-6888G5S or one RSC-H2-668G5S) to support the use of expansion (add-on) cards. The riser cards have already been pre-installed into the motherboard. Below are the riser cards and their respective PCIe slots and cable connections details.

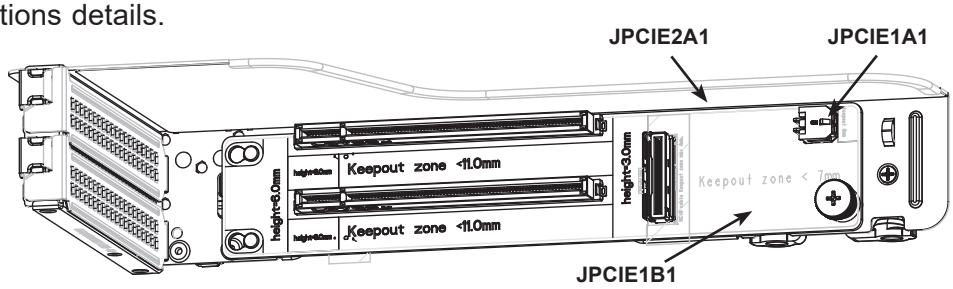


Figure 3-10. RSC-H-68G5 Riser Card

Cables for PCIe Slots					
	PCIe Slot 1/3	**PCIe Slot 2/4**	**JPCIE1A1**	**JPCIE1B1**	**JPCIE2A1**
Config. 1	PCIe 5.0 x16	N/A	Right Angle Connector	Right Angle Connector	N/A
Config. 2	PCIe 5.0 x8	PCIe 5.0 x8	Right Angle Connector	N/A	Straight Connector

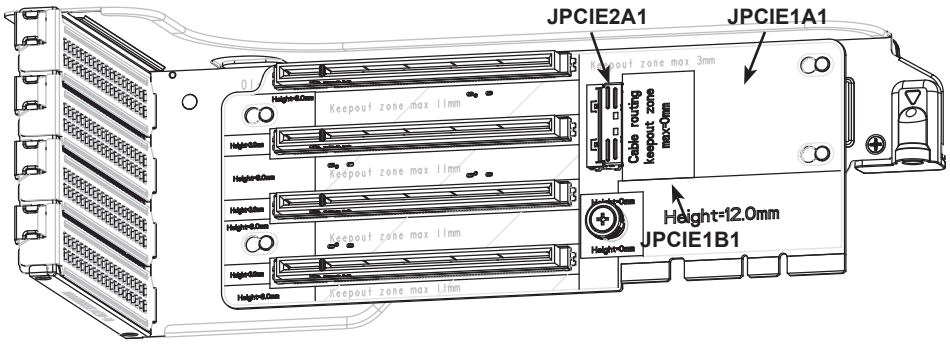


Figure 3-11. RSC-H2-668G5S Riser Card

Cables for PCIe Slots					
	PCIe Slot 5	**PCIe Slot 6**	**JPCIE1A1**	**JPCIE1B1**	**JPCIE2A1**
Config. 1	PCIe 5.0 x16	N/A	Straight Connector	Straight Connector	N/A
Config. 2	PCIe 5.0 x8	PCIe 5.0 x8	Straight Connector	N/A	Straight Connector

Cables for PCIe Slots			
	PCIe Slot 7	**PCIe Slot 8**	**Optional Parts**
Configuration 1	PCIe 5.0 x8	PCIe 5.0 x8	
Configuration 2	PCIe 5.0 x16	N/A	RSC-H2-668G5S

The SYS-221HE-TNR/TNRD includes three riser cards to support the use of expansion (add-on) cards.

Before following the procedure below to install expansion cards, first turn off and remove power from the system as described in section 3.1 then remove the top cover.

Installing Expansion Cards

1. Remove the top cover and pull up the riser card brackets.
   - For the right side (looking from the node front), open the clip of each slot on the right.
2. Remove the blank PCI shield from the chassis.
3. Slide the expansion card shield into the open shield slot while plugging the expansion card into the riser card.

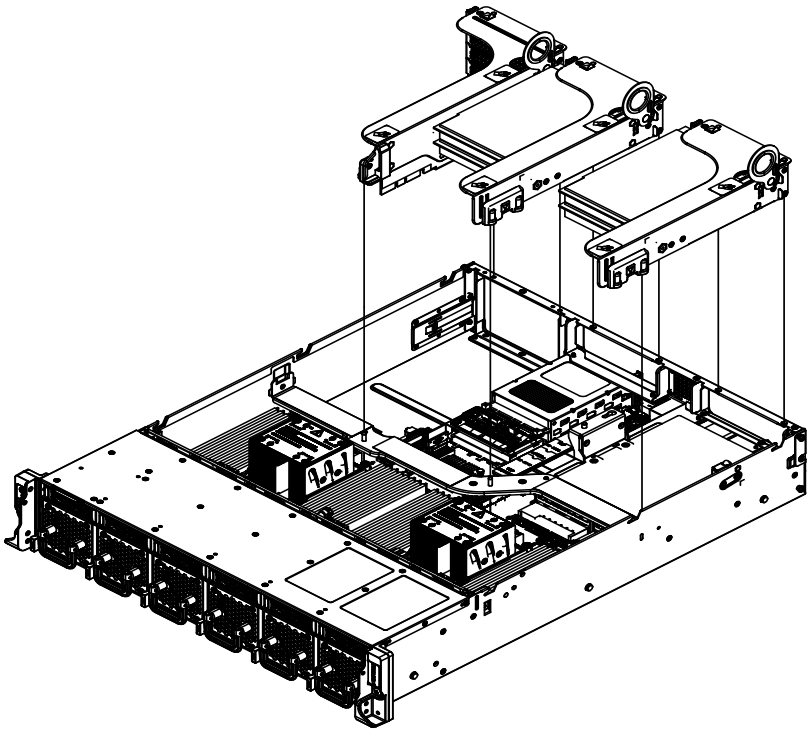


Figure 3-12. Installing Riser Cards

3.9 AIOM Network Cards

The system provides network connection by means of up to two AIOMs OCP 3.0 network port cards. The second AIOM slot A2 is optional

Figure 3-13. AIOM Chassis Slot

AIOM Configuration			
Item	**Mechanical**	**Electrical**	**Thermal**
A1	Small Form Factor, OCP 3.0	x16 (CPU1)	Up to 50 W*
A2	Small Form Factor, OCP 3.0	x16 (CPU2)	Up to 35 W*

*AIOM cards exceeding the 15 W Slot Power Envelope may require restricted conditions to meet the thermal specifications of the AIOM card. Contact your Supermicro account representative for more information.

Installing AIOM Cards

1. Remove power as described in Section 3.1.
2. Remove the blank cover plate (A1 or A2) by unscrewing the thumbscrew.
3. Slide the AIOM card in the opening until it seats in the connector slot.
4. Secure with the thumbscrew.

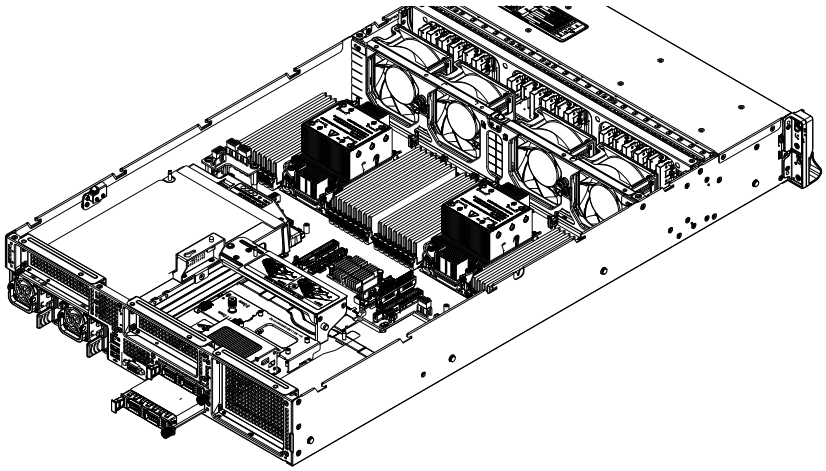


Figure 3-14. Installing AIOMs

3.10 Power Supply

The system includes two hot-plug power supply modules: it supports both models SYS-221HE-TNR - AC (2000 W) and SYS-221HE-TNRD - DC (1300 W) power supplies. The AC modules will automatically sense the AC power supply and operate at an input voltage between 100 V to 240 V. The DC power supply operates at an input voltage -48 Vdc. Note that different input voltages will result in different maximum power output levels.

In the event of a power module failure, the other power module will continue to power the system on its own. Failed power supply modules can be replaced without powering down the system. Replacement modules can be ordered directly from Supermicro.

An amber light on the power supply is illuminated when the power is switched off. A green light indicates that the power supply is operating.

Replacing the Power Supply

1. Unplug the AC or DC power cord from the failed power supply module.
2. Push and hold the release tab on the back of the power supply.
3. Grasp the handle of the power supply and pull it out of its bay.
4. Push the new power supply module into the power bay until it clicks into the locked position.
5. Plug the AC or DC power cord back into the power supply module.

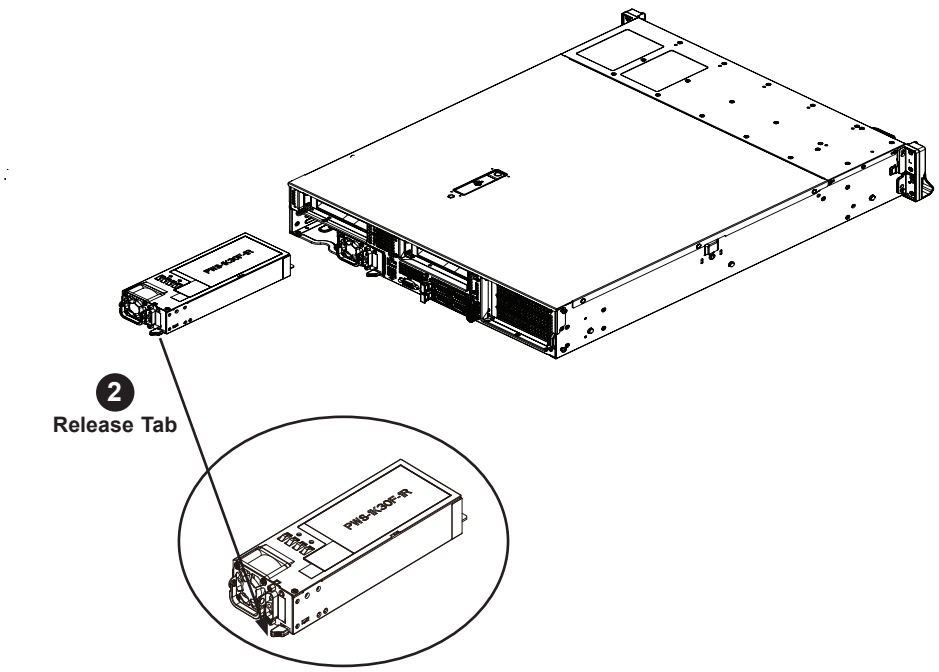


Figure 3-15. Installing a Power Supply Module

Note: The same procedure is used to replace both AC and DC power supplies.

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 and Appendix B before installing or removing components.

4.1 Power Connections

Power Supply Connectors

Two power supply connections, located at PSU1/PSU2, provide main power to your system, and five 8-pin power connectors (JPMW1~ JPMW5) are used for +12 V devices. All these power connectors meet the ATX SSI EPS 12 V specification and must be connected to your power supply to provide adequate power to your system.

Important: To provide adequate power to your system, be sure to connect the main power supplies (PSU1/PSU2), five 8-pin PWR connectors (JPMW1 ~ JPMW5), and additional two 6-pin power connectors (JPWR1 and JPWR4) to the power supply. Failure to do so may void the manufacturer warranty on your power supply and motherboard.

12 V 8-pin Power Pin Definitions

Pin#	Definition
1 - 4	Ground
5 - 8	+12 V

Required Connection

4.2 Headers and Connectors

Fan Headers

There are eight 6-pin fan headers (FAN1-FAN8) and two 4-pin fan headers (FAN9/FAN10) on the motherboard. These fan headers are used for the cooling fans for your system. Fan speed control for these fans is supported by Thermal Management via the BMC 2.0 interface.

TPM/Port 80 Header

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

Trusted Platform Module Header Pin Definitions

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

6-pin BMC External I²C Header

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

NC-SI Connector

The NC-SI (Network Controller Sideband Interface) connector is located at (JNCSI1). This connector is used to connect a Network Interface Card (NIC) to the motherboard to allow the onboard BMC (Baseboard Controller) to communicate with a network.

PCIe I²C Header

A PCIe I²C (SMBus) header is located at JRSI2C1 on the motherboard. The PCIe SMbus connector is used for PCIe cards to allow the BMC or the BIOS to read disk drive information or FRUs more effectively.

Chassis Intrusion

A Chassis Intrusion header is located at JL1 on the motherboard. Attach the appropriate cable from the chassis to inform you when the chassis is opened. Refer to the table below for pin definitions.

Chassis Intrusion Pin Definitions	
Pin#	**Definition**
1	Intrusion Input
2	Ground

Control Panel

The front control panel header (JFP1) contains header pins for various buttons and indicators that are normally located on a control panel at the front of the chassis. These connectors are designed specifically for use with Supermicro chassis. See the figure below for the descriptions of the front control panel buttons and LED indicators.

Power On and BMC/BIOS Status LED Button

The Power On and BMC/BIOS Status LED button is located on pin 1 of the front control panel header located at JFP1. Momentarily contacting pin 1 of JFP1 will power on/off the system or display BMC/BIOS status. Refer to the table below for more information.

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

System Reset Button/Front UID Switch

The System Reset Button/Front UID switch connection is located on pin 2 of JFP1, which is used in conjunction with the Reset Button/UID Switch Select Jumper located at JRU1. To configure pin 2 of JFP1 for front UID switch use in a chassis that supports front UID connection, close pin 1 and pin 2 of jumper JRU1. To set pin 2 of JFP1 for BMC Reset, close pin 3 and pin 4 of jumper JRU1. Please refer to the jumper section for more information on JRU1.

UID LED

The unit identifier LED connection is located on pin 3 of JFP1.

Fail LED (Information LED for OH/FF/PF)

The Fail LED (Information LED for OH/Fan Fail/PWR Fail) connection is located on pin 4 of JFP1. The LED provides warnings of overheating, power failure, or fan failure.

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

LAN1/LAN2 (NIC1/NIC2)

The NIC (Network Interface Controller) LED connection for LAN Port 1 is located on pin 6 of JFP1, and LAN Port 2 is on pin 5. Refer to the table below.

LAN1/LAN2 LED LED States	
Color	**State**
NIC 2:Blinking green	LAN 2: Active
NIC 1: Blinking green	LAN 1: Active

Drive Activity LED

The drive activity LED connection is located on pin 7 of JFP1. When this LED is blinking green, it indicates drive activity. Refer to the table below.

Drive LED LED State	
Color	**State**
Blinking Green	Drive Active

Standby Power LED

The LED indicator for standby power is located on pin 8 of JFP1. If this LED is on, standby power is on.

RoT (Root of Trust) Power LED

The Power LED for RoT (Root of Trust) connection is located on pin 9 of JFP1. If this LED is on, power for the RoT chip is on.

Standby Power

A Standby Power (I^2C) connection is located on in 10 - pin 14 of JFP1 to provide power to the system when it is in standby mode. Refer to the table below for Pin definitions.

3.3 V Standby PWR Pin Definitions	
Pin#	**Definition**
10	P3V3 Standby
11	Ground
12	I^2C Data
13	I^2C Clock
14	Ground

Power Fail LED Indicators

Power Failure LED Indicators are located on pin 15 and pin 19 of JFP1. Refer to the table below for pin definitions.

FP Power LED Pin Definitions (JFP1)	
Pin#	**Definition**
15	PWR Failure LED-Positive
19	PWR Failure LED-Negative

FP USB Power

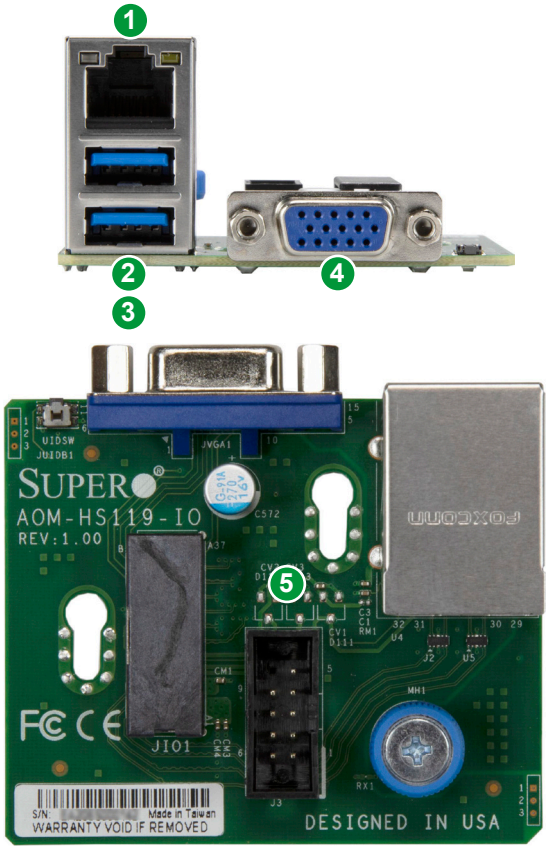
Front Panel USB power connections are located on pin 16 - pin 18 of JFP1 to provide power to front USB devices. Refer to the table below for Pin definitions.

FP USB PWR Pin Definitions	
Pin#	**Definition**
16	+5 V USB PWR
17	
18	

4.3 Input/Output Ports

I/O Ports

The low-profile slimSAS I/O connector, located at JIO1, is used to connect the motherboard to an I/O mezzanine board, AOM-HS119-IO, to provide VGA/COM/BMC/USB connections.



I/O Ports from AOM-HS119-IO	
#	**Description**
1	BMC LAN Port
2	USB 0 (2.0)
3	USB 1 (2.0)
4	VGA Port
5	COM Port Header

AIOM Sideband Connector (JAIOM2SB1)

A Supermicro proprietary Advanced I/O Module (AIOM) sideband connector is located at JAIOM1 on the motherboard. This AIOM slot provides support for AIOM sideband connections.

Advanced I/O Module (AIOM) for Rear I/O Support (JAIOM1)

A Supermicro proprietary Advanced I/O Module (AIOM) connector used for a PCIe 5.0 x16 add-on module is located at JAIOM1. This AIOM connector (P1_PE0 15-0), supported by CPU1, provides input/output connections on the rear side of your system.

VGA Connection

There is one VGA connection in the system. The rear VGA connection is located on the BMCLAN/USB/VGA slot (JIO1) on the rear side of the motherboard. The VGA connection provides analog interface support between the computer and the video displays.

Universal Serial Bus (USB) 3.2 Header

A USB header that supports two USB 3.2 Gen1 ports (USB2/3) is located at JUSB3 on the rear side of the motherboard. These USB ports can be used for USB support via USB cables (not included).

Rear I/O Panel USB 2/3 (3.2 Gen1) Pin Definitions

Pin#	Definition	Pin#	Definition
A1	VBUS	B1	Power
A2	D-	B2	USB_N
A3	D+	B3	USB_P
A4	GND	B4	GND
A5	Stda_SSRX-	B5	USB3_RN
A6	Stda_SSRX+	B6	USB3_RP
A7	GND	B7	GND
A8	Stda_SSTX-	B8	USB3_TN
A9	Stda_SSTX+	B9	USB3_TP

BMC LAN/USB/VGA/COM Slot (JIO1)

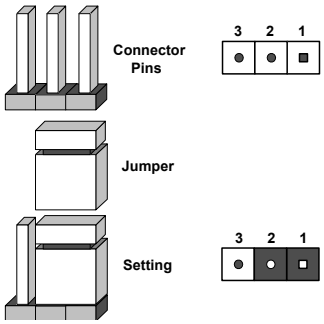
The low-profile slimSAS I/O connector, located at JIO1, is used to connect an I/O mezzanine board to the motherboard. This connector provides dedicated BMC LAN, VGA, and COM port header connections for rear side access. Please also refer to the LED Indicator section for LAN LED information.

4.4 Jumpers

Explanation of Jumpers

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

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



BMC and PCH I²C/SDA to VRM/BMC and PCH I²C/SCl to VRM Select Jumper

Use jumper JVRM1 to select between BMC and PCH I²C/SDA for VRM support or BMC and PCH I²C/SCl for VRM support**.** Connect a cable to JVRM1 to enable BMC and PCH I²C/SDA for VRM support. See the table below for jumper settings.

BMC and PCH I²C/SDA to VRM and BMC and PCH I²C/SCL to VRM Select Jumper Jumper Settings	
Jumper Setting	**Definition**
Closed	BMC and PCH I²C/SDA for VRM support (**Default)**
Open	BMC and PCH I²C/SCl for VRM support

UID LED and BMC_Reset Button Select Jumper

Jumper JRU1 is used in conjunction with Pin 2 of Front Control Panel header 1 (JFP1) to function as a BMC_Reset button or a UID LED button. To configure Pin 2 of JFP1 for front UID button use in a chassis that supports front UID connection, close Pins 1 and 2 of jumper JRU1. To set Pin 2 of JFP1 for BMC reset support, close Pins 3 and 4 of jumper JRU1. Refer to the table below for more information on JRU1.

Front UID Switch/Reset Button Select Jumper (JRU1) Jumper Settings	
State	**Description**
Close Pin 1 and Pin 2 of JRU1	Pin 2 of JFP1: used for front UID switch support **(Default)**
Close Pin 3 and Pin 4 of JRU1	Pin 2 of JFP1: used for BMC Reset support

CPLD JTAG Enable Jumper

Use jumper JPFR1 to enable CPLD (Complex Programmable Logic Device) JTAG support. Connect a cable to JPFR1 to support CPLD JTAG. See the table below for jumper settings.

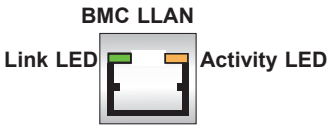
CPLD JTAG Enable Jumper Jumper Settings	
Jumper Setting	**Definition**
Closed	CPLD JTAG Enabled **(Default)**
Open	CPLD JTAG Disabled

4.5 LED Indicators

BMC LAN LEDs

A dedicated BMC LAN connection is provided on the low-profile Slim SAS I/O connector (JIO1) located on the rear side of the motherboard. The LED on the right indicates activity, and the LED on the left indicates the speed of the connection. Refer to the table below for more information.

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



Unit ID LED

The front UID LED indicator is located at LED1. This UID indicator provides easy identification of a system that may need service.

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

Onboard Power LED

The Onboard Power LED is located at LEDPWR (LED2) on the motherboard. When this LED is on, the system power is on. Be sure to turn off the system power and unplug the power cords before removing or installing components. Refer to the table below for more information.

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

BMC Heartbeat LED

A BMC Heartbeat LED is located at LEDBMC (LEDM1) on the motherboard. When LEDBMC is blinking green, the BMC is functioning normally.

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

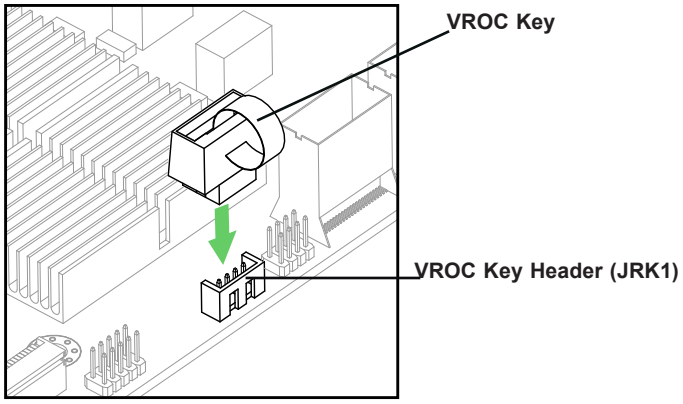
4.6 Storage Ports

VROC RAID Key Header

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

Note: For detailed instructions on how to configure VROC RAID settings, refer to the VROC RAID Configuration User's Guide posted on the web page under the link: http://www.supermicro.com/support/manuals/.

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



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

NVMe SMBus Headers

NVMe SMBus (I^2C) header (JNVI2C1), used for PCIe SMBus clock and data connections, provides hot-plug support via a dedicated SMBus interface. This feature is only available for a Supermicro complete system with an Supermicro proprietary NVMe add-on card and a proper cable installed. See the table below for pin definitions.

NVMe SMBus Header Pin Definitions	
Pin#	**Definition**
1	Data
2	Ground
3	Clock
4	VCCIO

NVMe VPP Bus Connector

A NVMe VPP Bus connector is located at JNVVPP1 on the motherboard. The NVMe VPP connector provides hot plug support for the NVMe devices, which will allow the user to replace NVMe devices without shutting down and powering off the system.

PCIe 3.0 M.2-H1/M.2-H2 Slots

Two PCIe 3.0/SATA3 Hybrid M.2 slots are located at M.2-H1 and M.2-H2 on the motherboard. These M.2/SATA3 Hybrid slots support PCIe 3.0 x4 M.2 NVMe/SATA3 SSDs in the 2280 and 22110 form factors. To accommodate the 2280 and 22110 form factors, two M.2 mounting holes (MH17/MH18) are provided on the motherboard. Use mounting hole MH17 for M.2-H2 slot support, and MH18 for M.2-H1 slot support. M.2 allows for a variety of card sizes, increased functionality, and spatial efficiency.

MCIO NVMe Connectors

MCIO NVMe connectors, located at P1_NVME 0~3 and P2_NVME 0~3, provide eight PCIe 5.0 x8 connections on the motherboard. P1_NVME 0~3 connections are supported by CPU1, and P2_NVME 0~3 connections supported by CPU2. Use these MCIO connectors to support high-speed PCIe storage devices.

> **Note**: When installing an NVMe device on a motherboard, be sure to connect the first NVMe port (P1_NVME0) first for your system to work properly.

SATA 3.0 0-7 Ports

A SATA 3.0 header, located at JS1, supports eight SATA 3.0 connections (SATA0~7) on the motherboard. These SATA 3.0 ports are supported by the Intel C741 PCH chipset. Connect a proper SATA cable to JS1 to use SATA 3.0 connections.

Low-profile (LP) Slim SAS I/O Connector

A low-profile slim SAS I/O connector, located on JIO1, provides dedicated BMC LAN/USB/VGA support on the rear side of the motherboard.

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 Microsoft Windows installation ISO file. That can be a USB flash or media drive.
2. Retrieve the proper RST/RSTe driver. Go to the Supermicro web page for your motherboard and click on "Download the Latest Drivers and Utilities", select the proper driver, and copy it to a USB flash drive.
3. Boot from a bootable device with Windows OS installation. You can see a bootable device list by pressing **F11** during the system startup.

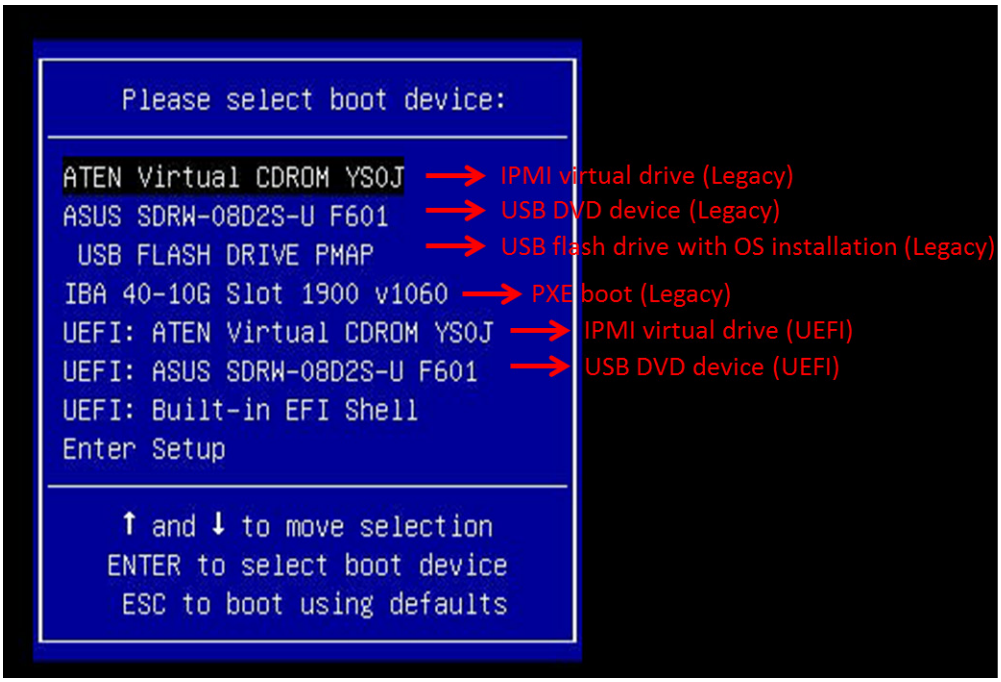


Figure 5-1. Select Boot Device

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

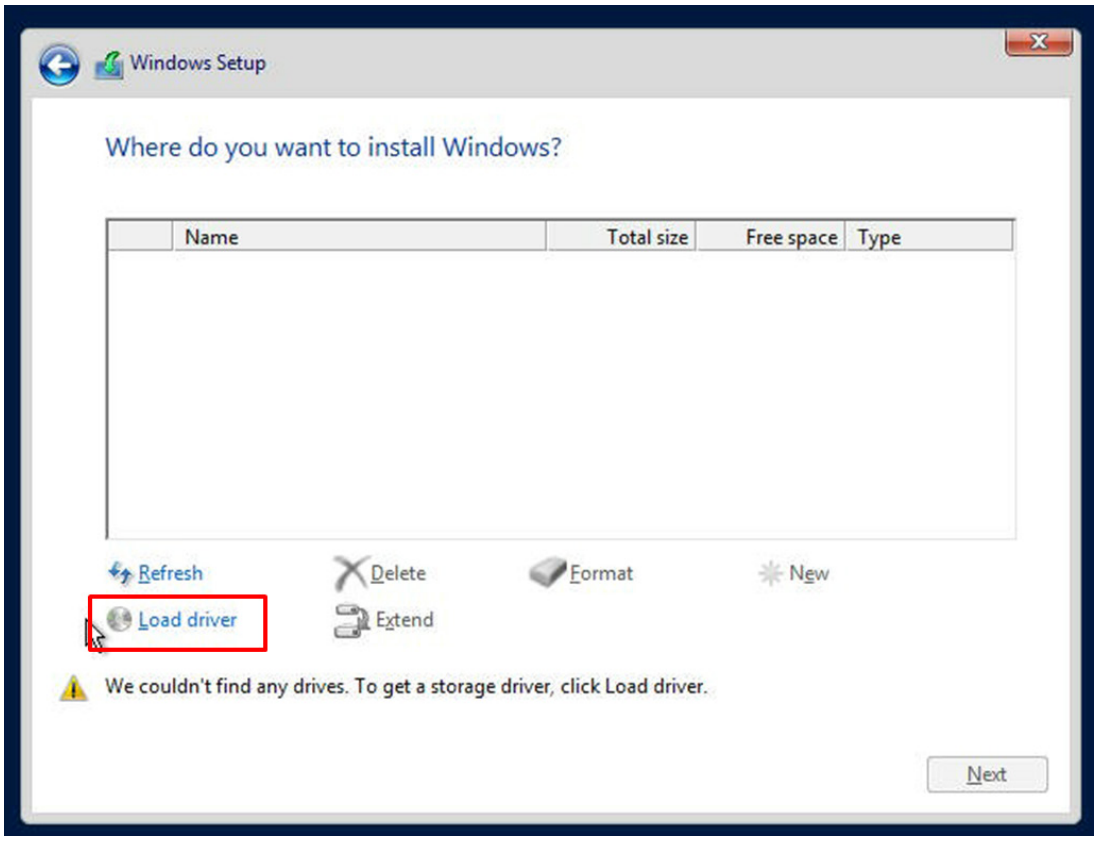


Figure 5-2. Load Driver Link

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

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

5. Once all devices are specified, continue with the installation.
6. After the Windows OS installation has been 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 a USB flash or media drive. (You may also use a utility to extract the ISO file if preferred.)

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

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

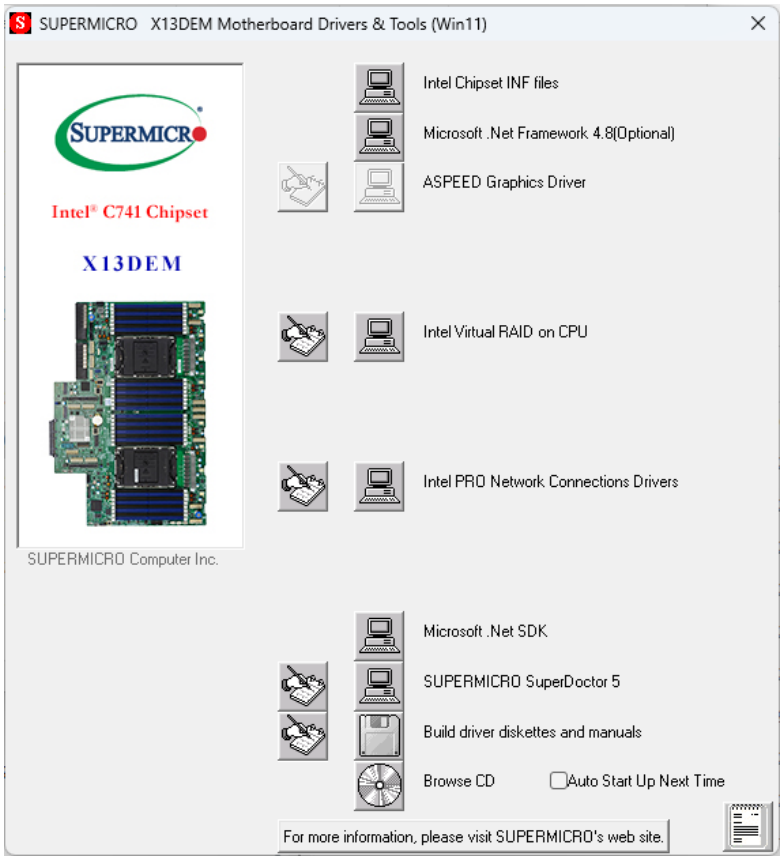


Figure 5-3. Driver and Tool Installation Screen

Note: Click the icons showing handwriting 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 reboot 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 content.

5.3 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. If necessary, the password can be reset using the Supermicro IPMICFG tool.

Figure 5-4. BMC Password Label

See Chapter 1 for the label location.

Chapter 6

Optional Components

This chapter describes alternate configurations and optional system components.

Optional Parts
Storage drive options
Power options
Cable Management Arm
TPM security module
Intel VROC RAID Key

6.1 Storage Protocols Supported

The storage drive bays can support SATA and NVMe in any combination.

SATA – The default configuration supports up to six SATA drives.

NVMe – The system supports up to six NVMe drives. Additional cables are required.

6.2 Power Supply Modules

Power Supply Module Options		
Watts	**Part Number**	**80Plus Level**
1200	PWS-1K22A-1R (optional)	Titanium
1300	PWS-1K30F-1R (default DC PWS)	-
2000	PWS-2K08F-1R (default)	Titanium

6.3 Cable Management Arm

The system supports a cable management arm (CMA, p/n MCP-290-00168-0N), which keeps the rear cables organized and clear of the rail mechanisms when the system is extended out the front of the rack for maintenance.

The CMA attaches to the rack mounting rails using four connectors. They are labeled as connectors 1, 2, 3, and 4.

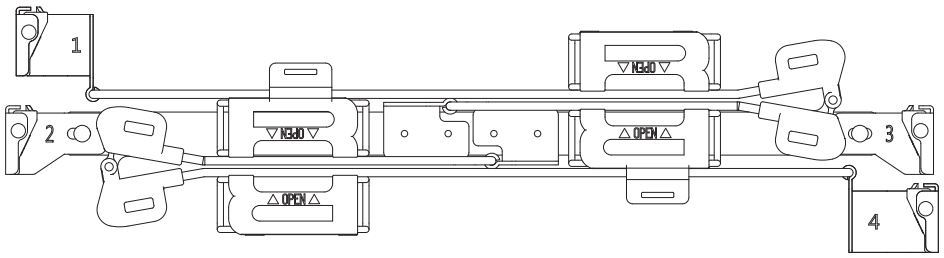


Figure 6-1. Cable Management Arm

Installing the Cable Management Arm

1. Slide CMA connector #1 forward onto the two posts on the rear of the right *inner* rail (right side when viewed from the front) until it snaps into place.
2. Slide CMA connector #2 forward onto the two posts on the rear of the right *middle* rail until it snaps into place.

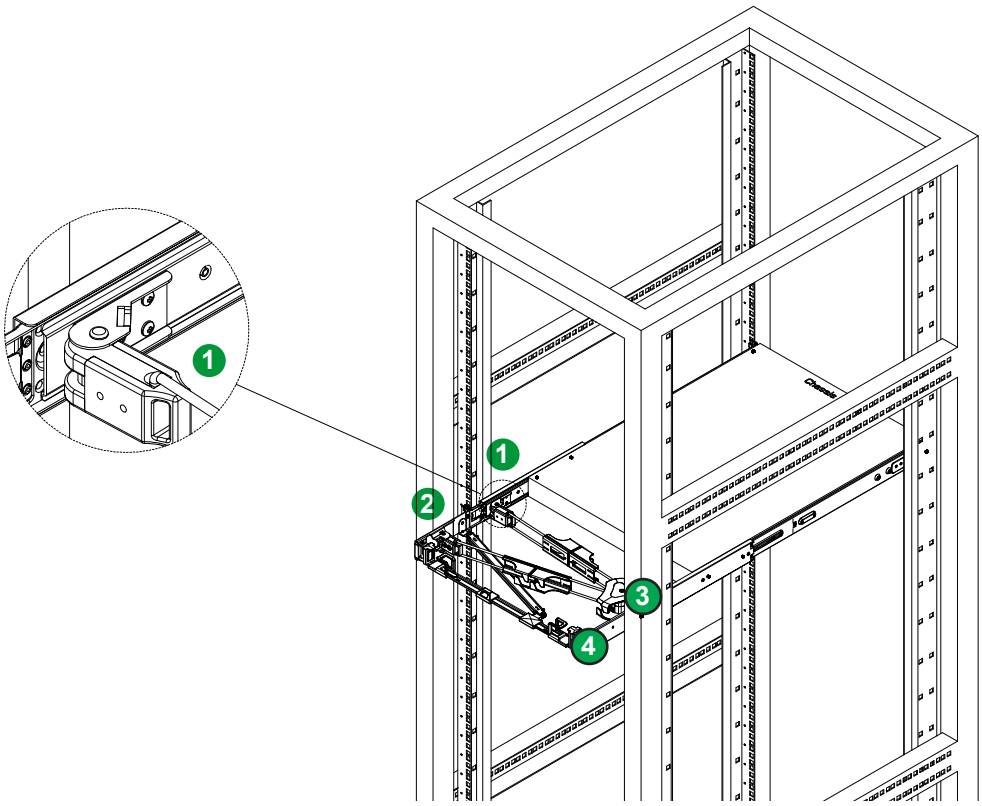


Figure 6-2. Installing the Connectors

3. Slide CMA connector #3 forward onto the two posts on the rear of the left middle rail. It snaps into place.
4. For CMA connector #4, align the metal tabs with the slots on the rear of the left outer rail and push it forward. It snaps into place.
5. Route the cables through the holding brackets, leaving enough slack.

Removing the Cable Management Arm

1. Remove cables from the CMA,
2. For CMA connector #4, pull the metal release tab toward the center of the rack and slide the connector toward the rear to release it.
3. For CMA connectors #3, #2, and #1, depress the front edge of the yellow plastic rocker lock and slide the connector toward the rear to release it.

6.4 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 storage drives. It enables the motherboard to deny access if the TPM associated with the storage drive is not installed in the system.

Details and installation procedures are at:

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

- AOM-TPM-9670V (TCG 2.0)
- AOM-TPM-9671V (TCG 1.2)

6.5 Intel Virtual RAID on CPU (VROC)

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

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

Stripe 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 due to performance issues, even though it is supported.

Supported SSDs and Operating Sytems

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

Additional Information

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

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

Hardware Key

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

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

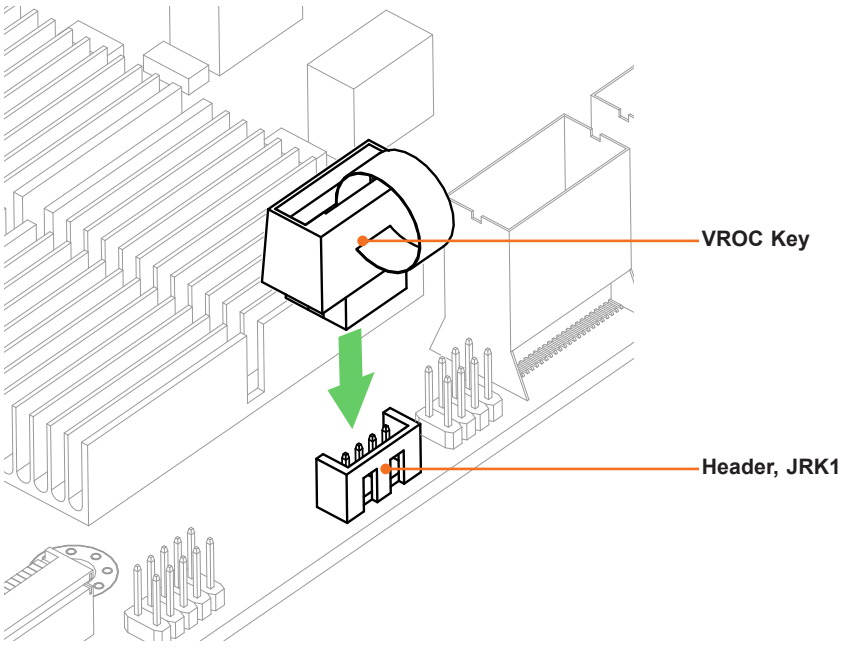


Figure 6-3. Intel VROC RAID Key and Motherboard Connector JRK1

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 the [DEL] key to access the BIOS options.
2. Switch to **Advanced > Chipset Configuration > North Bridge > IIO Configuration > Intel® VMD Technology**.

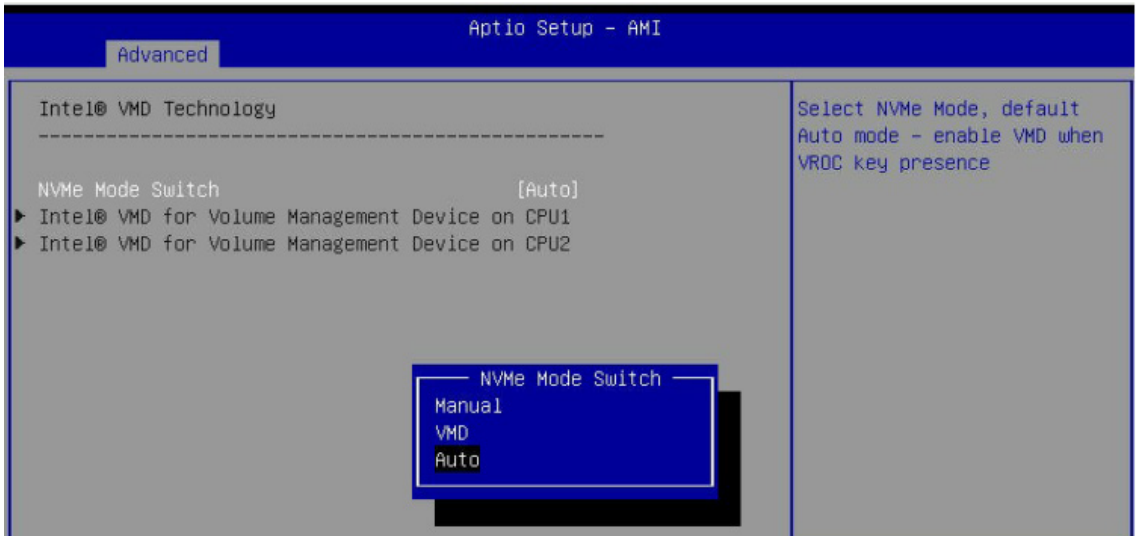


Figure 6-4. BIOS, Selecting VMD Mode

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 shows example choices in Manual mode.

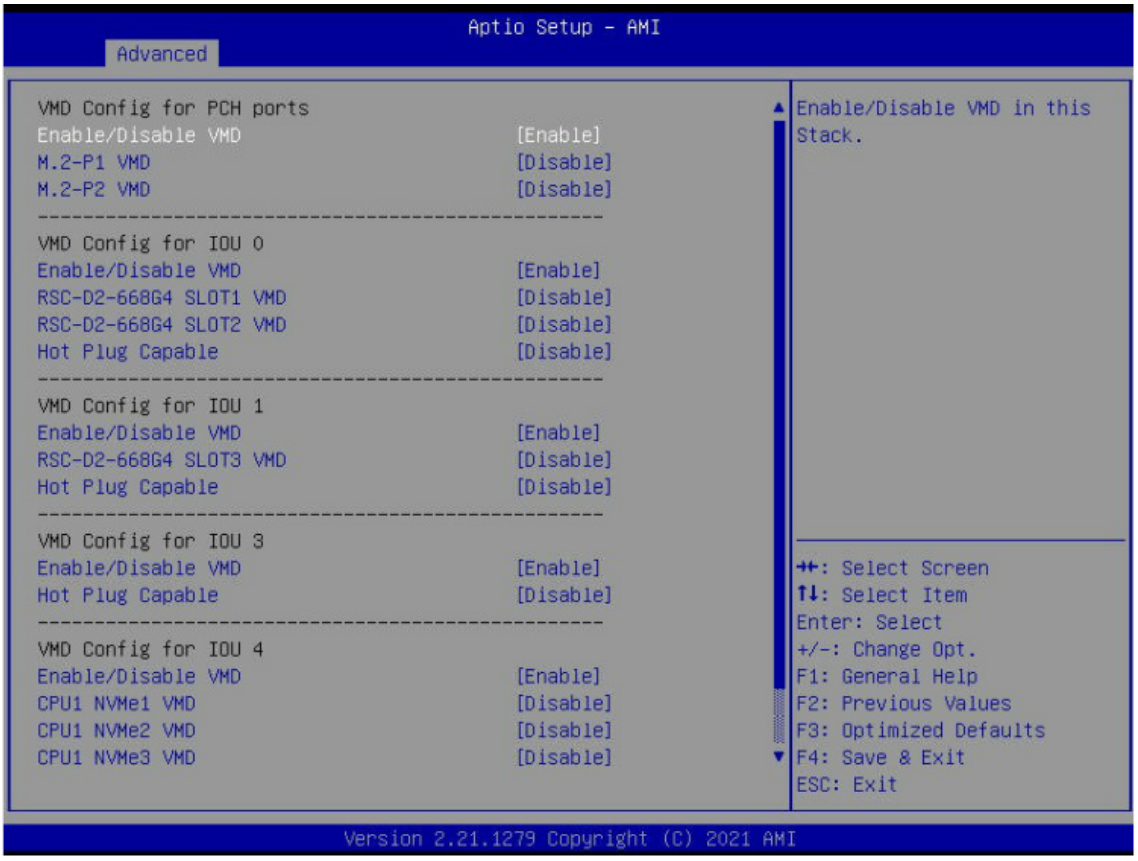


Figure 6-5. BIOS, Manual Mode (Example—your server may look different.)

3. Select the desired PStack# to Enable or Disable the corresponding Intel VMD controller

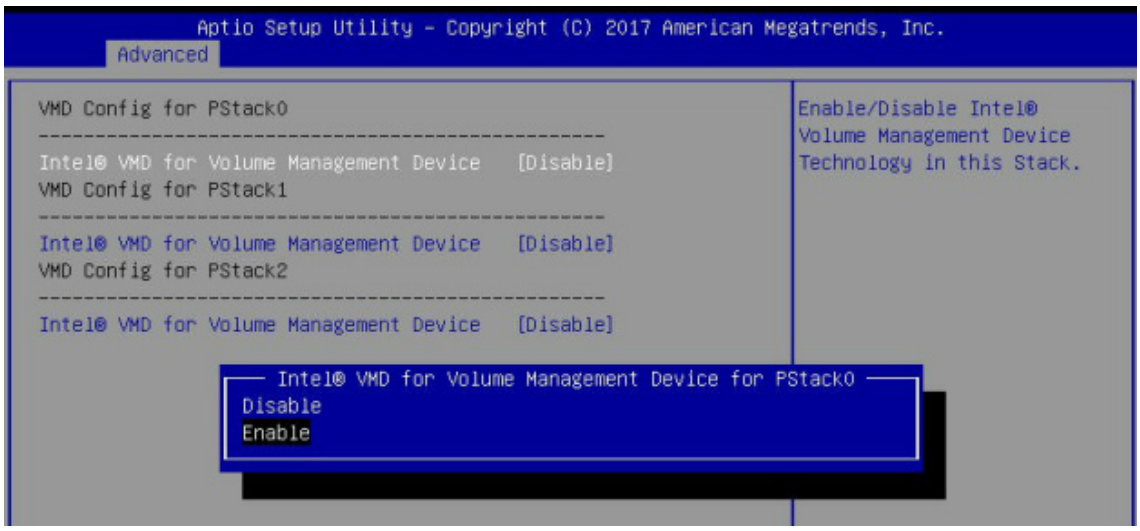


Figure 6-6. BIOS, Enabling VMD for Pstack0

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.

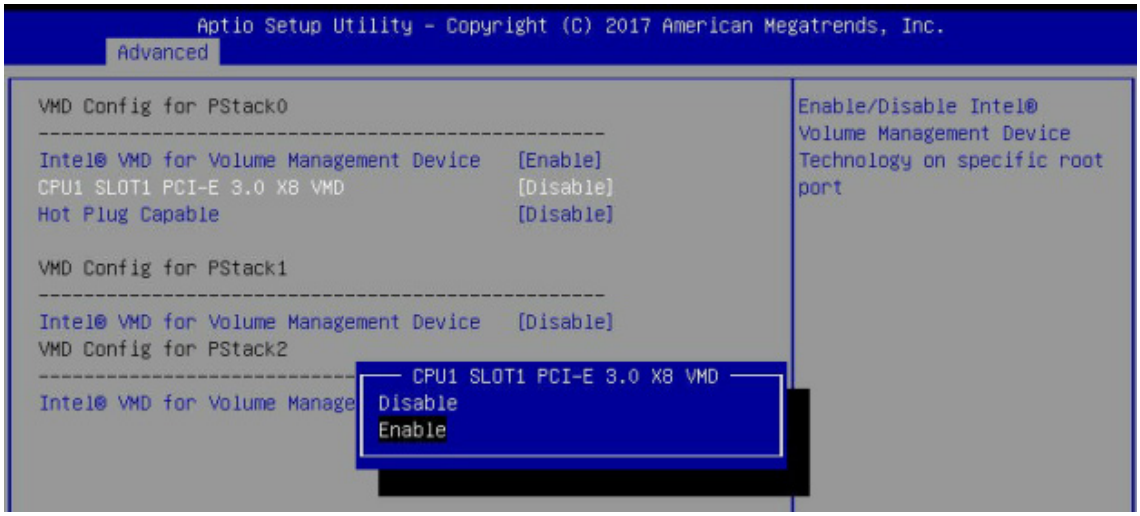


Figure 6-7. BIOS, Enabling VMD Functionality per Slot

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 6-8) and CPU2 Slot5 (Figure 6-9) (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 6-8. BIOS, Enabling CPU1 Example

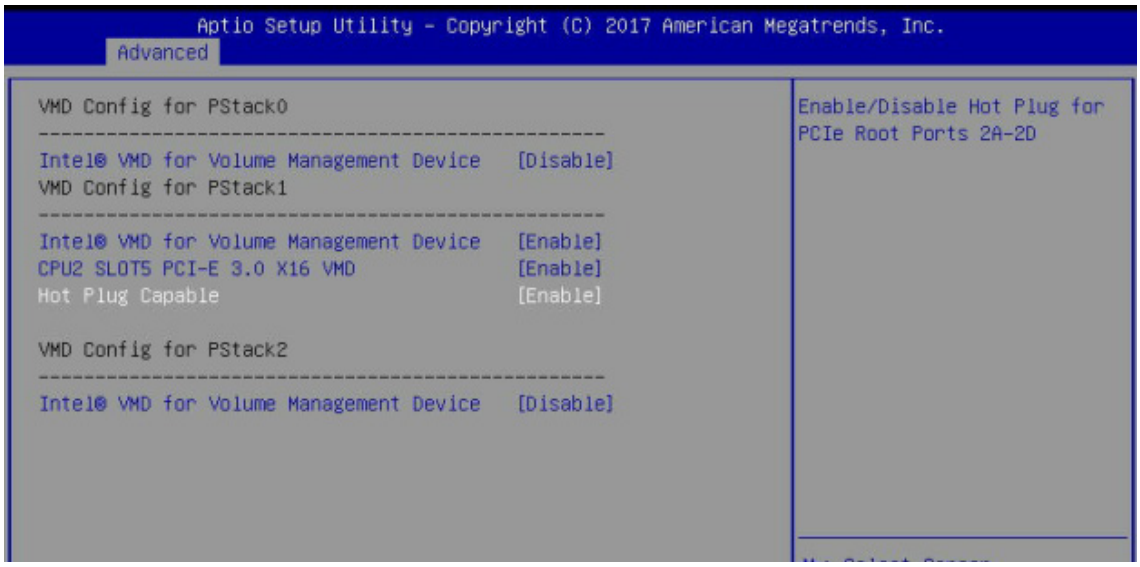


Figure 6-9. BIOS, Enabling CPU2 Example

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 have 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**.

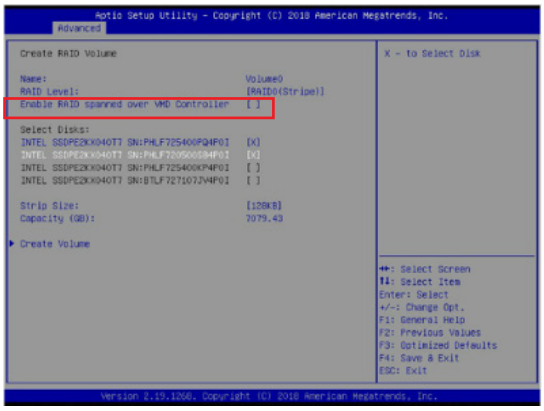


Figure 6-10. Created Volume *without* enabling RAID spanned over VMD controller

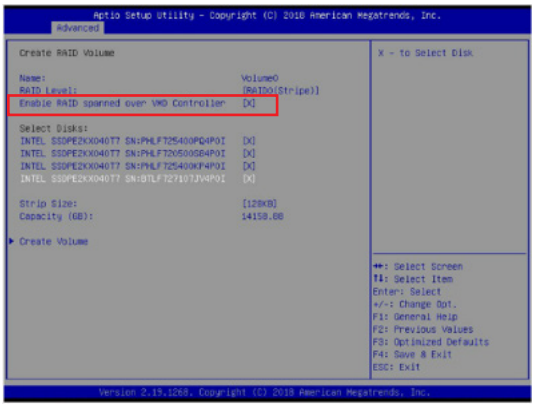


Figure 6-11. Created Volume *with* enabling RAID spanned over VMD controller

11. Select specific disks for RAID with an [X].
    - RAID0: Select at least two disks
    - RAID1: Select only two disks
    - RAID5: Select at least three disks
    - RAID10: Select only four disks
12. Select **Stripe 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.

Status Indications

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

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

IBPI SFF 8489 Defined Status LED States

Hot-Swap Drives

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

Hot-unplug

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

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

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

Hot-plug

- Physically install the device.

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

Related Information Links

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

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

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

Chapter 7

Troubleshooting and Support

7.1 Information Resources

Website

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

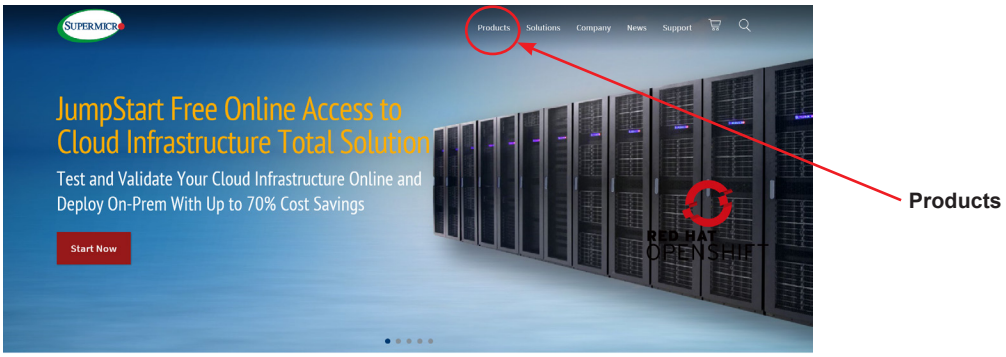


Figure 7-1. Supermicro Website

- Specifications for servers and other hardware are available by the **Products** option.

Direct Links for the SYS-221HE-TNR/TNRD System

SYS-221HE-TNR and SYS-221HE-TNRD specifications page

X13DEM motherboard page for links to the Quick Reference Guide, User Manual, validated storage drives, etc.

Direct Links for General Support and Information

Frequently Asked Questions

Add-on card descriptions

TPM User Guide

General Memory Configuration Guide: X13

BMC User Guide

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.

Direct Links (continued)

Security Center for recent security notices

Supermicro Phone and Addresses

7.2 Baseboard Management Controller (BMC)

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

For general documentation and information on BMC, please visit our website at: https://www.supermicro.com/manuals/other/BMC_Users_Guide_X13.pdf.

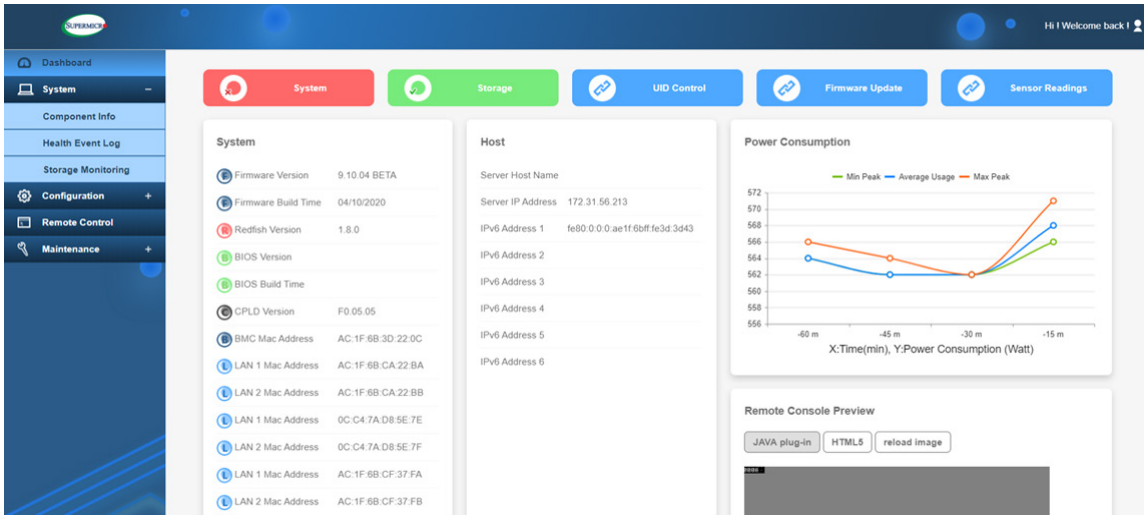


Figure 7-2. BMC Sample

7.3 Troubleshooting Procedures

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

General Technique

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

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

No Power

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

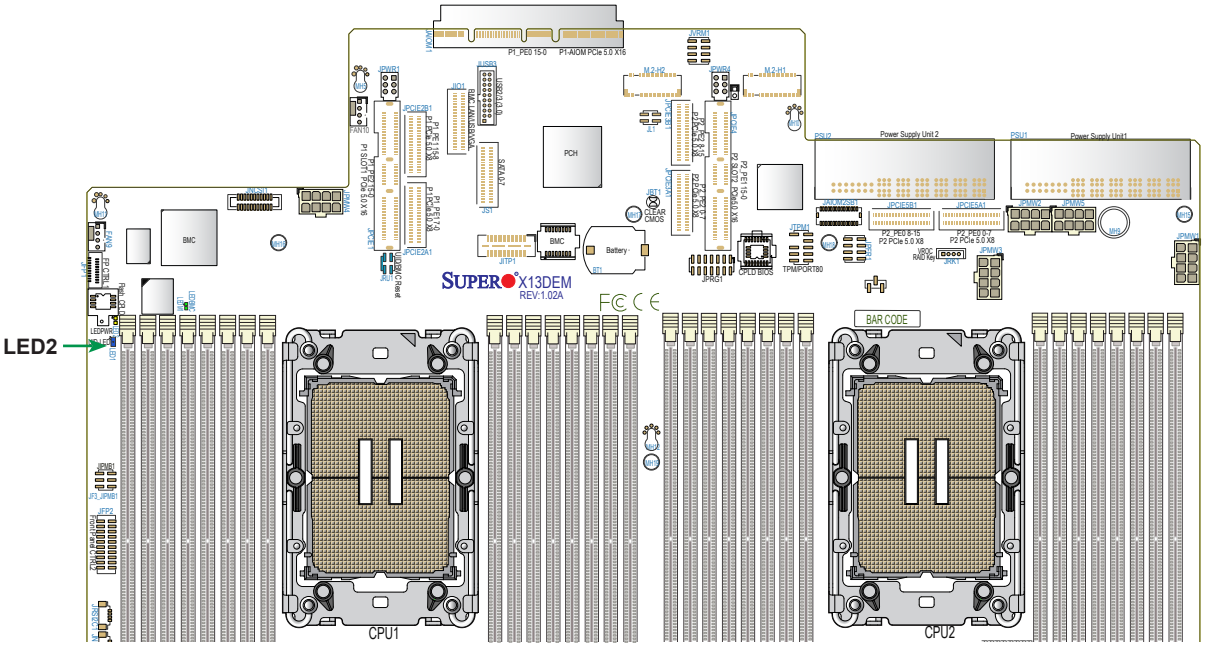


Figure 7-3. Location of the MB Power LED

- Make sure that the power connector is connected to the power supply.
- Check that the motherboard battery still supplies approximately 3 VDC. If it does not, replace it.
- Check that the system input voltage is 100-120 VAC or 180-240 VAC.
- 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 3.4 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 3 VDC. 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 Crash Dump Using BMC

In the event of a processor internal error (IERR) that crashes your system, you may want to provide information to support staff. You can download a crash dump of status information using BMC. The BMC manual is available at https://www.supermicro.com/manuals/other/BMC_Users_Guide_X13.pdf.

Check BMC Error Log

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

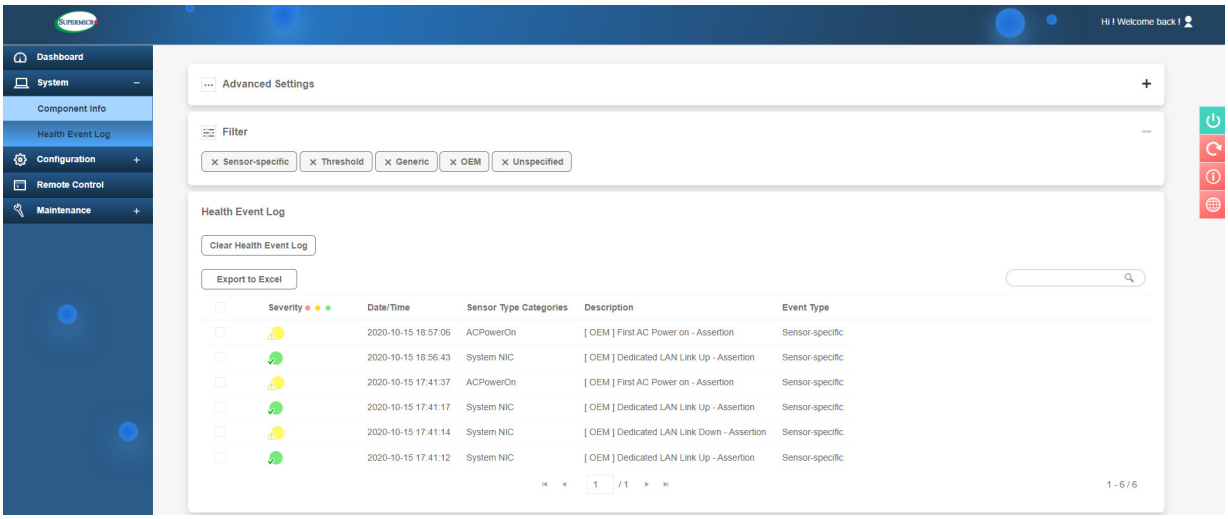


Figure 7-4. BMC Event Log

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

7.5 UEFI BIOS Recovery

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

Overview

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

Recovering the UEFI BIOS Image

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

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

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

Recovering the Main BIOS Block with a USB Device

This feature allows the user to recover the main BIOS image using a USB-attached device without additional utilities used. A USB flash or media drive 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 disc Root “\” directory of a USB flash or media drive.

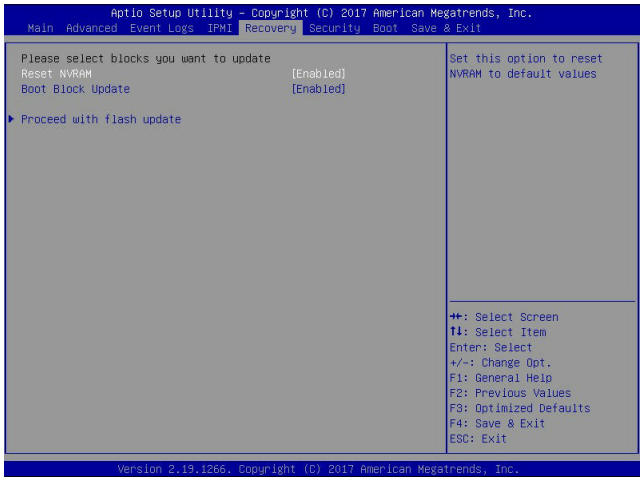
   Note 1: If you cannot locate the "Super.ROM" file in your drive disk, visit our website at www.supermicro.com to download the BIOS package. Extract the BIOS binary image into a USB flash device and rename it "Super.ROM" for the BIOS recovery use.

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

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

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

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

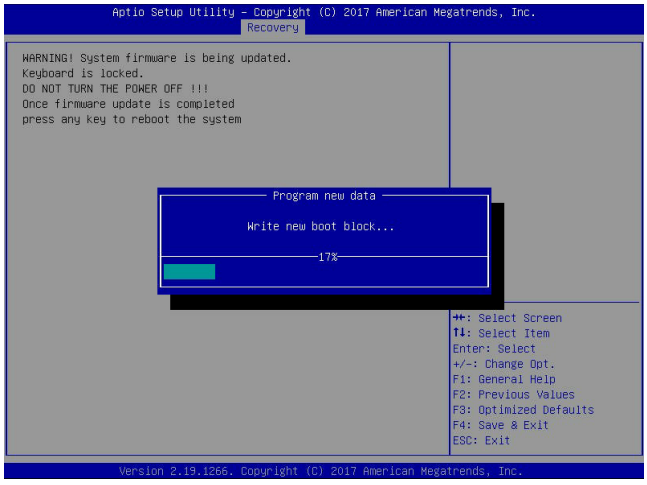


4. When the screen as shown above displays, use the arrow keys to select the item "Proceed with flash update" and press the <Enter> key. You will see the BIOS recovery progress as shown in the screen below.

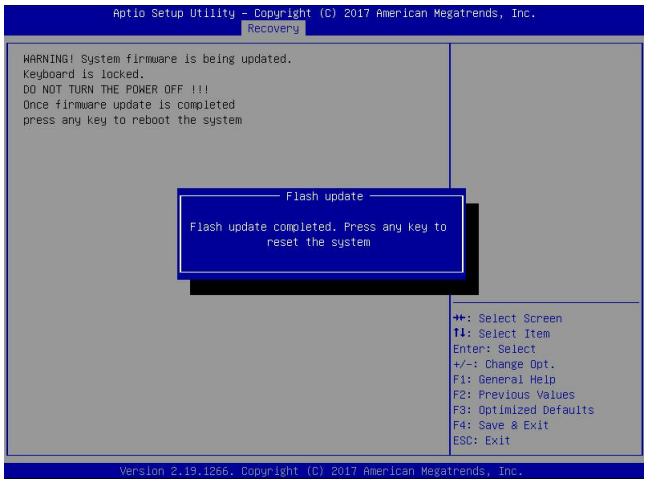
   Note: *Do not interrupt the BIOS flashing process until it has completed*.

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

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

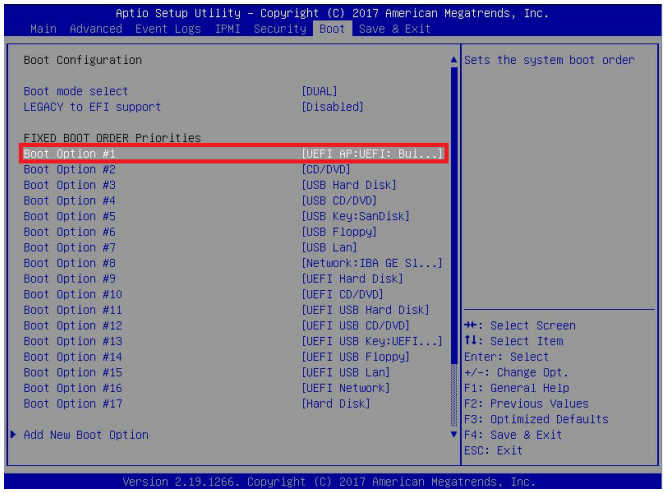


7. Press <Del> continuously during system boot to enter the BIOS Setup utility. From the top of the tool bar, select Boot to enter the submenu. From the submenu list, select Boot

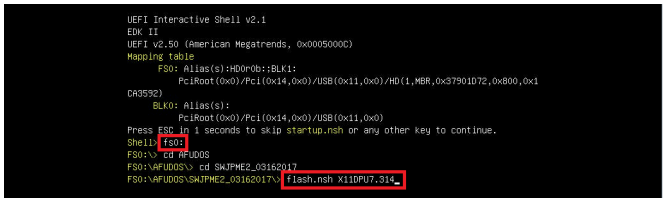


Option #1 as shown below. Then, set Boot Option #1 to [UEFI AP:UEFI: Built-in EFI Shell]. Press <F4> to save the settings and exit the BIOS Setup utility.

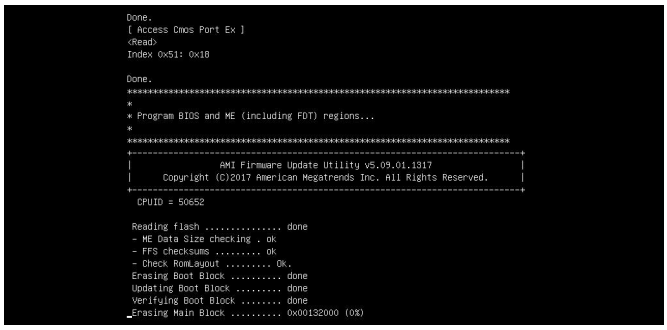
8. When the UEFI Shell prompt appears, type fs# to change the device directory path. Go to the directory that contains the BIOS package you extracted earlier from Step 6. Enter flash.nsh BIOSname.### at the prompt to start the BIOS update process.



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

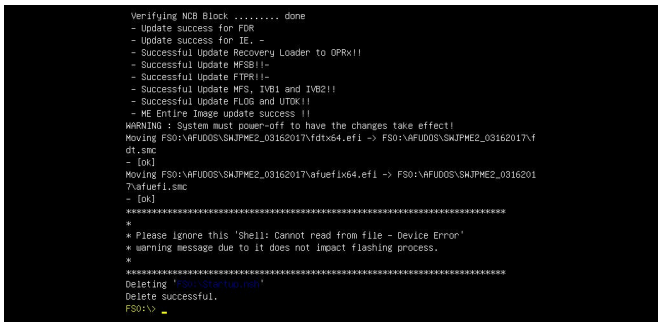


9. The screen above indicates that the BIOS update process is complete. When you see the screen above, unplug the AC power cable from the power supply, clear CMOS, and plug



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

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



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

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

7.6 CMOS Clear

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

To Clear CMOS

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

Notes: Clearing CMOS will also clear all passwords.

Do not use the PW_ON connector to clear CMOS.

JBT1 contact pads

7.7 Where to Get Replacement Components

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

7.8 BMC

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

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

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

7.9 Reporting an Issue

Technical Support Procedures

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

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

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

Returning Merchandise for Service

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

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

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

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

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

Vendor Support Filing System

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

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

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

7.10 Feedback

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

Appendix A

Standardized Warning Statements for AC Systems

About Standardized Warning Statements

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

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

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

Warning Definition

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

警告の定義

この警告サインは危険を意味します。

人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、

電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

此警告符号代表危险。

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

此警告符號代表危險。

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

Warnung

WICHTIGE SICHERHEITSHINWEISE

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

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

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

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

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

CONSERVEZ CES INFORMATIONS.

תקנון הצהרות אזהרה

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

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

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

안전을 위한 주의사항

경고!

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

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

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

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

BEWAAR DEZE INSTRUCTIES

Installation Instructions

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

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告

将此系统连接电源前,请先阅读安装说明。

警告

將系統與電源連接前，請先閱讀安裝說明。

Warnung

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

¡Advertencia!

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

Attention

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

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

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

Circuit Breaker

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

サーキット・ブレーカー

この製品は、短絡（過電流）保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

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

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

경고!

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

Waarschuwing

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

Power Disconnection Warning

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

電源切断の警告

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

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

警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה מפני ניתוק חשמלי

!אזהרה

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

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

경고!

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

Waarschuwing

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

Equipment Installation

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

機器の設置

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

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה!

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

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

경고!

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

Waarschuwing

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

Restricted Area

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

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

אזור עם גישה מוגבלת

אזהרה!

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

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

CAUTION: There is risk of explosion if the battery is replaced by an incorrect type. 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

バッテリーを間違ったタイプに交換すると爆発の危険があります。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

如果更换的电池类型不正确，则存在爆炸危险。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

如果更換的電池類型不正確，則有爆炸危險。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

Es besteht Explosionsgefahr, wenn die Batterie durch einen falschen Typ ersetzt wird. Ersetzen Sie die Batterie nur durch den gleichen oder vom Hersteller empfohlenen Batterietyp. Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.

ATTENTION

Il existe un risque d'explosion si la batterie est remplacée par un type incorrect. 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 riesgo de explosión si la batería se reemplaza por un tipo incorrecto. 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 אם הסוללה תוחלף בסוג שגוי. יש להחליף

את הסוללה בסוג התואם מחברת יצרן מומלצת.

סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

هناك خطر الانفجار إذا تم استبدال البطارية بنوع غير صحيح.
اسحبذال البطارية
فقط بنفس النع أو ما يعادلها مما أوصث به الشرمة المصنعة
جخلص من البطاريات المسحعملة وفقا لحعليمات الشرمة الصانعة

경고!

배터리를 잘못된 종류로 교체하면 폭발의 위험이 있습니다. 기존 배터리와 동일하거나 제조사에서 권장하는 동등한 종류의 배터리로만 교체해야 합니다. 제조사의 안내에 따라 사용된 배터리를 처리하여 주십시오.

WAARSCHUWING

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

Redundant Power Supplies

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

冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。

ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告

此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

Warnung

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

¡Advertencia!

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

Attention

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

אם קיים יותר מספק אחד

אזהרה!

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

قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة .

يجب إزالة كافة الاتصالات لعسل الوحدة عن الكهرباء

경고!

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

Waarschuwing

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

Backplane Voltage

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

バックプレーンの電圧

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

修理する際には注意ください。

警告

当系统正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告

當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

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

¡Advertencia!

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

Attention

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

מתח בפנל האחורי

אזהרה!

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

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

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

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

Comply with Local and National Electrical Codes

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

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

警告
设备安装必须符合本地与本国电气法规。

警告
設備安裝必須符合本地與本國電氣法規。

Warnung
Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

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

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

תיאום חוקי החשמל הארצי

אזהרה!

התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمتثل للقاويه المحلية والبطية المتعلقة
بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

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

Product Disposal

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

製品の廃棄

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

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

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

¡Advertencia!

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

Attention

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

סילוק המוצר

אזהרה!

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

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

경고!

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

Waarschuwing

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

Fan Warning

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

ファンの警告

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

警告!

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה!

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

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

경고!

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

Waarschuwing

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

Power Cable and AC Adapter

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

電源コードとACアダプター

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

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

AC ימאתמו סיילמשח סילבכ

!הרהזא

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

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

전원 케이블 및 AC 어댑터

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

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

Stroomkabel en AC-Adapter

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

Appendix B

Standardized Warning Statements for DC Systems

B.1 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。

您目前所處的工作環境可能讓您受傷。在您使用任何設備之前，請注意觸電的危險，並且要熟悉預防事故發生的標準工作程序。請依照每一注意事項後的號碼找到相關的翻譯說明內容。

Warnung

WICHTIGE SICHERHEITSHINWEISE

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

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

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

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

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

CONSERVEZ CES INFORMATIONS.

תקנון הצהרות אזהרה

הצהרות הבאות הן אזהרות על פי תקני התעשייה, על מנת להזהיר את המשתמש מפני חבלה

פיזית אפשרית. במידה ויש שאלות או היתקלות בבעיה כלשהי, יש ליצור קשר עם מחלקת תמיכה

טכנית של סופרמיקרו. טכנאים מוסמכים בלבד רשאים להתקין או להגדיר את הרכיבים.

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

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

안전을 위한 주의사항

경고!

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

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

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

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

BEWAAR DEZE INSTRUCTIES

Installation Instructions

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

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告

将此系统连接电源前,请先阅读安装说明。

警告

將系統與電源連接前，請先閱讀安裝說明。

Warnung

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

¡Advertencia!

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

Attention

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

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

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

Circuit Breaker

Warning! This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 60VDC, 20A.

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60VDC、20A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60VDC,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60VDC,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: 60VDC, 20A 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: 60VDC, 20A.

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 :60VDC, 20A.

מוצר זה מסתמך על הגנה המותקנת במבנים למניעת קצר חשמלי. יש לוודא כי
המכשיר המגן מפני הקצר החשמלי הוא לא יותר מ-60VDC, 20A

هذا المنتج يعتمد على معداث الحمايت مه الدوائرالقصيرة التي تم تثبيتها في
المبنى
تأكد من أن تقييم الجهاز الوقائي ليس أكثر من : 20A, 60VDC

경고!

이 제품은 전원의 단락(과전류)방지에 대해서 전적으로 건물의 관련 설비에 의존합니다.
보호장치의 정격이 반드시 60VDC(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 60VDC, 20A.

Power Disconnection Warning

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

電源切断の警告

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

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

警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה מפני ניתוק חשמלי

!אזהרה

יש לנתק את המערכת מכל מקורות החשמל ויש להסיר את כבל החשמלי מהספק

.לפני גישה לחלק הפנימי של המארז לצורך התקנת או הסרת רכיבים

يجب فصم اننظاو من جميع مصادر انطاقت وإزانت سهك انكهرباء من وحدة امداد
انطاقت قبم
انصل إنى 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

Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet werden.

¡Advertencia!

Solamente el personal calificado debe instalar, reemplazar o utilizar este equipo.

Attention

Il est vivement recommandé de confier l'installation, le remplacement et la maintenance de ces équipements à des personnels qualifiés et expérimentés.

אזהרה!

צוות מוסמך בלבד רשאי להתקין, להחליף את הציוד או לתת שירות עבור הציוד.

والمدربيه لتزكيب واستبدال أو خدمة هذا الجهاس يجب أن يسمح فقط للمظفيه المؤهليه

경고!

훈련을 받고 공인된 기술자만이 이 장비의 설치, 교체 또는 서비스를 수행할 수 있습니다.

Waarschuwing

Deze apparatuur mag alleen worden geïnstalleerd, vervangen of hersteld door geschoold en gekwalificeerd personeel.

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
'כלי אבטחה בלבד)מפתח, מנעול וכד.)

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

CAUTION: There is risk of explosion if the battery is replaced by an incorrect type. 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

バッテリーを間違ったタイプに交換すると爆発の危険があります。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

如果更换的电池类型不正确，则存在爆炸危险。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

如果更換的電池類型不正確，則有爆炸危險。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

Es besteht Explosionsgefahr, wenn die Batterie durch einen falschen Typ ersetzt wird. Ersetzen Sie die Batterie nur durch den gleichen oder vom Hersteller empfohlenen Batterietyp. Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.

ATTENTION

Il existe un risque d'explosion si la batterie est remplacée par un type incorrect. 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 riesgo de explosión si la batería se reemplaza por un tipo incorrecto. 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 אם הסוללה תוחלף בסוג שגוי. יש להחליף
את הסוללה בסוג התואם מחברת יצרן מומלצת.
סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

هناك خطر الانفجار إذا تم استبدال البطارية بنوع غير صحيح.
اسحبذال البطارية
فقط بنفس النع أو ما يعادلها مما أوصث به الشرمة المصنعة
جخلص من البطاريات المسحعملة وفقا لحعليمات الشرمة الصانعة

경고!

배터리를 잘못된 종류로 교체하면 폭발의 위험이 있습니다. 기존 배터리와 동일하거나 제조사에서 권장하는 동등한 종류의 배터리로만 교체해야 합니다. 제조사의 안내에 따라 사용된 배터리를 처리하여 주십시오.

WAARSCHUWING

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

Redundant Power Supplies

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

冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。

ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

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

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

Warnung

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

¡Advertencia!

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

Attention

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

אם קיים יותר מספק אחד
אזהרה!
ליחדה יש יותר מחיבור אחד של ספק. יש להסיר את כל החיבורים על מנת לרוקן את היחידה.

قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة .
يجب إزالة كافة الاتصالات لعسل الوحدة عن الكهرباء

경고!

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

Waarschuwing

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

Backplane Voltage

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

バックプレーンの電圧

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

修理する際には注意ください。

警告

当系统正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告

當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

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

¡Advertencia!

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

Attention

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

מתח בפנל האחורי

!אזהרה

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

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

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

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

Comply with Local and National Electrical Codes

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

地方および国の電気規格に準拠

機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告
设备安装必须符合本地与本国电气法规。

警告
設備安裝必須符合本地與本國電氣法規。

Warnung
Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

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

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

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

تركيب المعدات الكهربائية يجب أن يمتثل للقاويه المحلية والبطية المتعلقة
بالكهرباء

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

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

Product Disposal

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

製品の廃棄

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

警告
本产品的废弃处理应根据所有国家的法律和规章进行。

警告
本產品的廢棄處理應根據所有國家的法律和規章進行。

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

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

Attention

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

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

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

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

Waarschuwing

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

Fan Warning

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

ファン・ホットスワップの警告

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

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

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

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה!

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

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

경고!

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

Waarschuwing

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

DC Power Supply

Warning! When stranded wiring is required, use approved wiring terminations, such as closedloop or spade-type with upturned lugs. These terminations should be the appropriate size for the wires and should clamp both the insulation and conductor.

警告

より線が必要な場合、承認済みのケーブル終端（上向きの端子を備えたクローズループ型またはU字型の終端など）を使用してください。使用するワイヤーに適したサイズで、絶縁体および導体が両方ともクランプされている終端でなければなりません。

警告

需要多股佈線時，請使用經核准的佈線終端，例如閉環或鏟型接線片。 這些終端的大小應適合線路，並且可以同時夾住絕緣體和導體。

警告

需要使用绞线连接时，请使用经认可的连接端子，如闭环端子或具有接线柱的铲形端子。这些端子的大小应与线缆相吻合，并且可以将绝缘部分和导体夹紧固定。

Warnung

Wenn Litzenverdrahtung erforderlich ist, sind zugelassene Verdrahtungsabschlüsse, z.B. für einen geschlossenen Regelkreis oder gabelförmig, mit nach oben gerichteten Kabelschuhen zu verwenden. Diese Abschlüsse sollten die angemessene Größe für die Drähte haben und sowohl die Isolierung als auch den Leiter festklemmen.

¡Advertencia!

Cuando se necesite hilo trenzado, utilizar terminales para cables homologados, tales como las de tipo "bucle cerrado" o "espada", con las lengüetas de conexión vueltas hacia arriba. Estos terminales deberán ser del tamaño apropiado para los cables que se utilicen, y tendrán que sujetar tanto el aislante como el conductor.

Attention

Quand des fils torsadés sont nécessaires, utiliser des douilles terminales homologuées telles que celles à circuit fermé ou du type à plage ouverte avec cosses rebroussées. Ces douilles terminales doivent être de la taille qui convient aux fils et doivent être refermées sur la gaine isolante et sur le conducteur.

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.

تحذير

عندما يكون مطلوبا الأسلاك الذين تقطعت بهم السبل، واستخدام الأسلاك إنهاء الموافقة عليها، مثل حلقة مغلقة أو الأشياء بأسمائها الحقيقية النوع مع العروات مقلوبة. وينبغي هذه الإنهاءات يكون الحجم المناسب للأسلاك ويجب كبح كل من العزل وموصل.

주의!

꼬인 배선이 요구 될 때에는 폐회로나 돌출부가 위로 튀어 나온 Spade형태의 승인된 배선 터미네이션들을 사용하세요.

이 터미네이션들은 배선들을 위해 적절한 크기여야 하고, 절연체와 도체 모두를 고정시킬 수 있어야 합니다.

Waarschuwing

Wanneer geslagen bedrading vereist is, dient u bedrading te gebruiken die voorzien is van goedgekeurde aansluitingspunten, zoals het gesloten-lus type of het grijperschop type waarbij de aansluitpunten omhoog wijzen. Deze aansluitpunten dienen de juiste maat voor de draden te hebben en dienen zowel de isolatie als de geleider vast te klemmen.

DC Power Disconnection

Warning! Before performing any of the following procedures, ensure that power is removed from the DC circuit.

警告

次の手順を開始する前に、DC回路から電源が切断されていることを確認してください。

警告

進行以下任一操作程序前，請確保直流電路已斷電。

警告

请在进行以下任一操作程序前，确保直流电路的电源已经断开。

Warnung

Vor Ausführung der folgenden Vorgänge ist sicherzustellen, daß die Gleichstromschaltung keinen Strom erhält.

¡Advertencia!

Antes de proceder con los siguientes pasos, comprobar que la alimentación del circuito de corriente continua (CC) esté cortada (OFF).

Attention

Avant de pratiquer l'une quelconque des procédures ci-dessous, vérifier que le circuit en courant continu n'est plus sous tension.

אזהרה !

לפני ביצוע אחת הפעולות הבאות, ודא כי אספקת החשמל למעגל הזרם הישר DC הינה מנותקת.

تحذير

عندما يكون مطلوبا الأسلاك الذين تقطعت بهم السبل، واستخدام الأسلاك إنهاء الموافقة عليها، مثل حلقة مغلقة أو الأشياء بأسمائها الحقيقية النوع مع العروات مقلوبة. وينبغي لهذه الإنهاءات يكون الحجم المناسب للأسلاك ويجب حبك كل من العزل وموصل.

주의!

다음 절차들을 수행하기 전에, 전원이 DC회로로부터 제거되었는지를 확인해 주십시오.

Waarshuwing

Wanneer geslagen bedrading vereist is, dient u bedrading te gebruiken die voorzien is van goedgekeurde aansluitingspunten, zoals het gesloten-lus type of het grijperschop type waarbij de aansluitpunten omhoog wijzen. Deze aansluitpunten dienen de juiste maat voor de draden te hebben en dienen zowel de isolatie als de geleider vast te klemmen.

Hazardous Voltage or Energy Present on DC Power Terminals

Warning! Hazardous voltage or energy may be present on DC power terminals. Always replace cover when terminals are not in service. Be sure uninsulated conductors are not accessible when cover is in place.

警告

直接電力端子に危険な電圧やエネルギーが発生している可能性があります。使用していない端子には常にカバーをつけてください。カバーがついているときは非絶縁形コンダクターに接触していないことを確認してください。

警告

直流電源終端可能產生危險的電壓或能量。終端不使用時，請務必蓋上機蓋。當蓋上機蓋，確認不絕緣導體無法使用。

警告

直流电源终端可能会产生危险的电压或能量。终端不使用时，请务必盖上机盖。机盖盖上后，请确保导体未绝缘部分无法使用。

Warnung

In mit Gleichstrom betriebenen Terminals kann es zu gefährlicher Spannung kommen. Die Terminals müssen abgedeckt werden, wenn sie nicht in Betrieb sind. Stellen Sie bei Benutzung der Abdeckung sicher, dass alle nicht isolierten, stromführenden Kabel abgedeckt sind.

¡Advertencia!

Puede haber energía o voltaje peligrosos en los terminales eléctricos de CC. Reemplace siempre la cubierta cuando no estén utilizándose los terminales. Asegúrese de que no haya acceso a conductores descubiertos cuando la cubierta esté colocada.

Attention

Le voltage ou l'énergie électrique des terminaux à courant continu peuvent être dangereux. Veillez à toujours replacer le couvercle lors les terminaux ne sont pas en service. Assurez-vous que les conducteurs non isolés ne sont pas accessibles lorsque le couvercle est en place.

אזהרה !

מקור מתח מסוכן עלול להיות נוכח על הקטבים של זרם ה-DC. החלף תמיד את המכסה כאשר הקטבים לא בשימוש. ודא כי המוליכים הלא מבודדים אינם נגישים כאשר המכסה נמצא במקומו.

تحذير

قد الجهد الخطرة أو الطاقة تكون موجودة على محطات الطاقة العاصمة. استبدال غطاء دائما عندما الغطاء عندما إليها الوصول يمكن ال غير معزول ال الموصلات فيه شك ال. مما في الخدمة. في محطات ليست في مكان.

주의!

DC전원 단자들에 위험한 전압이나 에너지가 발생할 수 있습니다.

단말기들을 운영하지 않을 때에는 덮개로 다시 덮어 놓아 주십시오. 덮개가 제자리에 있어야만 절연되지 않은 도체들의 접근을 막을 수 있습니다.

Waarshuwing

Op DC-aansluitingspunten kunnen zich gevaarlijke voltages of energieën voordoen. Plaats altijd de afsluiting wanneer de aansluitingspunten niet worden gebruikt Zorg ervoor dat blootliggende contactpunten niet toegankelijk zijn wanneer de afsluiting is geplaatst.

Appendix C

System Specifications

Processors
Supports dual 4th and 5th Gen Intel Xeon Scalable Processors (in Socket E LGA 4677) with four UPIs (20 GT/s max.) and a TDP (Thermal Design Power) up to 350 W. Supports SP XCC, Max Series (HBM), and SP MCC SKUs.
Chipset
Intel C741
BIOS
AMI 256 Mb SPI Flash EEPROM
Memory
Supports up to 8 TB 3DS RDIMM/RDIMM DDR5 ECC memory in 32 DIMM slots - 4th Gen CPU: speeds of up to 4800 MT/s (1DPC) and up to 4400 MT/s (2DPC) - 5th Gen CPU: speeds of up to 5600 MT/s (1DPC) and up to 4400 MT/s (2DPC) Note: Memory speed/capacity support depends on the processors used in the system.
Storage Drives
Six 2.5" hot-swap NVMe/SATA hybrid drive bays Two M.2 NVMe PCIe 3.0 x2/SATA3 hybrid ports in the 2280 and 22110 form factors
PCI Expansion Slots
Optional six PCIe 5.0 x8 slots or four PCIe 5.0 x16 slots
Input/Output
Network: One RJ45 dedicated BMC LAN port USB: Two front USB 3.0 ports Video: One VGA port
Motherboard
X13DEM; Length 17.0", Width 10.7" (431.8 x 271.8 mm)
Chassis
CSE-HE211-R000NFP 2U rackmount, 3.5 x 17.2 x 22.6 in / 89 x 437 x 574 mm (H x W x D)
System Cooling
Six 6-cm heavy duty fans with optimal fan speed control Four memory air shrouds

Power Supply

Model: (default) PWS-2K08F-1R, 2000W redundant modules, 80Plus Titanium level; Optional:1200W
AC Input
1000W: 100-127Vac / 50-60Hz
1800W: 200-220Vac / 50-60Hz
1980W: 220-230Vac / 50-60Hz
2000W: 220-240Vac / 50-60Hz
2000W: 230-240Vac / 50-60Hz
+12V
Max: 83A (100Vac-127Vac)
Max: 150A (200Vac-220Vac)
Max: 165A (220Vac-230Vac)
Max: 166A (220Vac-240Vac)
Max: 166A (230Vac-240Vac)
12V SB
Max: 3.5A / Min: 0A

DC Input
1300W: Input voltage opearates at -48Vdc
+12V
Max: 108.3A
12V SB
Max: 2.1A / Min: 0A

Operating Environment

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

Regulatory Compliance

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

Applied Directives, Standards

EMC/EMI: 2014/30/EU (EMC Directive)
Electromagnetic Compatibility Regulations 2016
FCC Part 15
ICES-003
VCCI-CISPR 32
AS/NZS CISPR 32
BS/EN55032
BS/EN55035
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

Environment:
Delegated Directive (EU) 2015/863
Directive 2011/65/EU (RoHS)
REACH Regulation EC 1907/2006
WEEE Directive 2012/19/EU
California Proposition 65

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

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

Perchlorate Warning

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

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

VCCI ー A