

SuperServer®

SYS-222BT-DNR

USER'S MANUAL

Revision 1.0a MNL-2722

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Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SYS-222BT-DNR server. Installation and maintenance should be performed by certified service technicians only.

Notes

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

- Supermicro product manuals: https://www.supermicro.com/support/manuals
- Product drivers and utilities: https://www.supermicro.com/wdl
- Product safety info: https://www.supermicro.com/about/policies/safety_information.cfm
- 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
- Frequently Asked Questions: https://www.supermicro.com/FAQ/index.php
- If you still have questions after referring to our FAQs, contact our support team. Region-specific Technical Support email addresses can be found at: "Contacting Supermicro" on page 12
- If you have any feedback on Supermicro product manuals, contact our writing team at: Techwriterteam@supermicro.com

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

Conventions Used in the Manual

Special attention should be given to the following symbols for proper installation and to prevent damage done to the components or injury to yourself.



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



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

Important: Important information given to ensure proper server installation or to relay safety precautions.

Note: Additional information given to differentiate various models or to provide information for proper server setup.

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Chapter 1:

Introduction

This chapter provides a brief outline of the functions and features of the SYS-222BT-DNR system. It is based on the X14DBT-B motherboard and the CSE-217BD2-R2K22P chassis.

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1.1 System Overview

The server is an X14 BigTwin system that supports dual Intel® Xeon® 6700 series processors in a 2U form factor. The system is based on the X14DBT-B motherboard and the CSE-217BD2-R2K22P chassis.

The following provides an overview of the specifications and capabilities of the SuperServer SYS-222BT-DNR.

System Overview	
Motherboard	X14DBT-B
Chassis	CSE-217BD2-R2K22P
Processor	Supports dual Intel® Xeon® 6700 series processors with E-cores (in Socket E2 LGA4710) with four UPIs (24 GT/s max.) and a thermal design power (TDP) up to 250 W Dual processors with TDPs up to 330 W can be supported under limited conditions. Please contact Supermicro support for details.
Memory	16 DIMM slots support ECC DDR5 memory with speeds up to 6400 MT/s (1DPC)
Drive Support (Per Node)	12 front hot-swap 2.5" PCIe 5.0 NVMe drive bays Two M.2 PCIe 5.0 x4 NVMe slots Default: M-key 22110; VROC required for RAID
Expansion Slots (Per Node)	Two PCIe 5.0 x8 slots (low-profile) One PCIe 5.0 x16 slot (low-profile) One PCIe 5.0 x16 AIOM slot (OCP 3.0 compatible)
I/O Ports (Per Node)	One RJ45 1 GbE dedicated BMC LAN port Two USB 3.0 Gen2 Type-A ports One VGA port
System Cooling	Four 16.5K RPM heavy duty 80x80x38 mm fans Optional: liquid cooling [direct to chip (D2C) cold plate]
Power	Two 2200 W redundant Titanium Level (96%) power supplies
Form Factor	2U: 17.7 x 3.5 x 28.8 in. / 449 x 88 x 730 mm (WxHxD)

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

The following safety models associated with the SuperServer SYS-222BT-DNR have been certified as compliant with UL or CSA: 217B-R36X14, 217B-R22X14, 217B-36 or 217B-22.

1.2 System Features

The following views of the system display the main features. Refer to the System Specifications appendix of this manual for additional specifications.

Front View

The SYS-222BT-DNR is a 2U 2-Node BigTwin. The following views of the system display the main features.



Figure 1-1. Front View

Front Features	
Feature	**Description**
Node A and B	The system supports two independent hot-swappable computing nodes (left is Node A, right is Node B).
Control Panel (per node)	Two control panels with LEDs and buttons for each node. See the Control Panel for more details.
Service Tag	Pull-out service or asset tag has the BMC password details.
Thumbscrew (per node)	Two thumbscrews (left and right) to secure the server onto the rack.

Logical Storage Drive Numbers		
Node	**Item**	**Description**
A	0-11	12 hot-swap 2.5" PCIe 5.0 NVMe drive bays
B	12-23	12 hot-swap 2.5" PCIe 5.0 NVMe drive bays

Control Panel

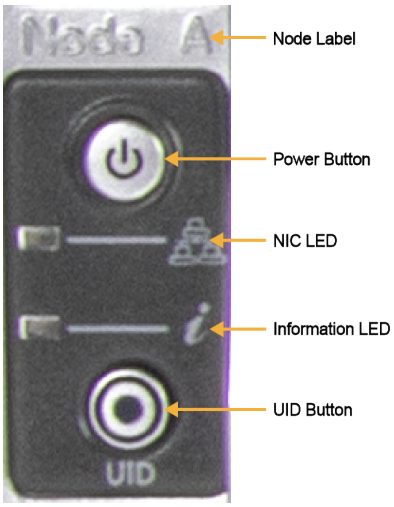


Figure 1-2. Control Panel (per node)

Control Panel Features	
Feature	**Description**
Node Label	Label with the name of the node that is connected to the control panel. Labels for nodes A and B are above their control panel.
Power Button	The main power switch applies or removes primary power from the power supplies to the server but maintains standby power.
NIC LED	Indicates network activity on the LAN when flashing.
Information LED	Alerts operator to several states, as noted in the table below.
UID Button	The unit identification (UID) button turns on or off the blue indicator of the Information LED and a blue LED on the rear of the system. These are used to locate the server in large racks and server banks.

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 is updating.

Rear View

The illustration below shows the features included on the rear of the SYS-222BT-DNR system, including the power supply module display status lights.

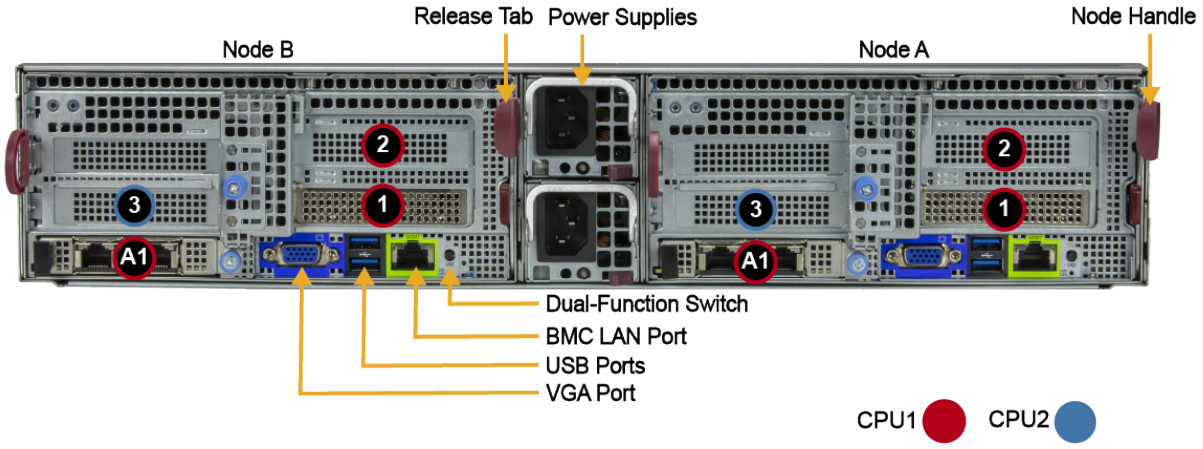


Figure 1-3. Rear View

Front Features	
Feature	**Description**
Node A and B	The system supports two independent hot-swappable computing nodes.
VGA Port (per node)	One video port
USB Ports (per node)	Two USB 3.0 Gen2 (type-A) ports
BMC LAN Port (per node)	One RJ45 1 GbE dedicated BMC LAN port
Dual-Function Switch (per node)	A switch that can function as either a UID LED switch or a BMC reset switch for this particular node.
Release Tab	Unlock handle to release the node from the chassis
Power Supplies	Two 2200 W redundant Titanium Level power supplies
Node Handle	Two (left and right) handles supporting server removal

Expansion Slot Locations	
Feature	**Description**
1	PCIe 5.0 x8 slot (low-profile)
2	PCIe 5.0 x8 slot (low-profile)
3	PCIe 5.0 x16 slot (low-profile)
A1	PCIe 5.0 x16 AIOM slot

Power Supply Indicators

There are two power supply indicators on the rear of each power supply module. 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 normally. These indicators also emit different behaviors to alert of the status of the power supply:

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

1.3 System Architecture

This section covers the locations of the system's main components and provides a motherboard block diagram.

Main Components

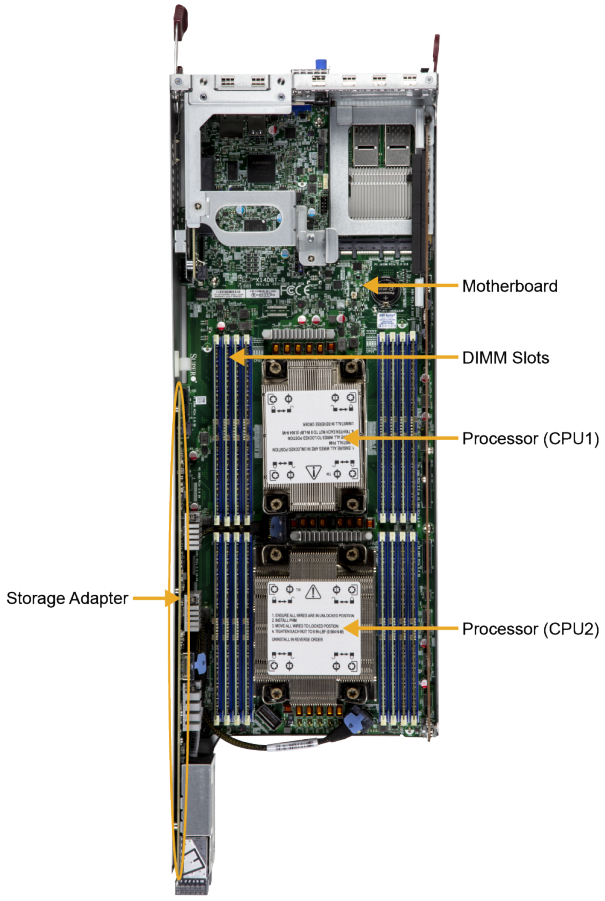


Figure 1-4. SYS-222BT-DNR Main Component Locations

Top Features	
Feature	**Description**
Motherboard	X14DBT-B
DIMM Slots	16 DDR5 DIMM slots
Processors (CPU1, CPU2)	Dual Intel® Xeon® 6700 series processors with E-cores (in Socket E2 LGA4710)
Storage Adapter	2U storage controller card (SCC-P12NR3G5-B2)

Motherboard Motherboard Block Diagram

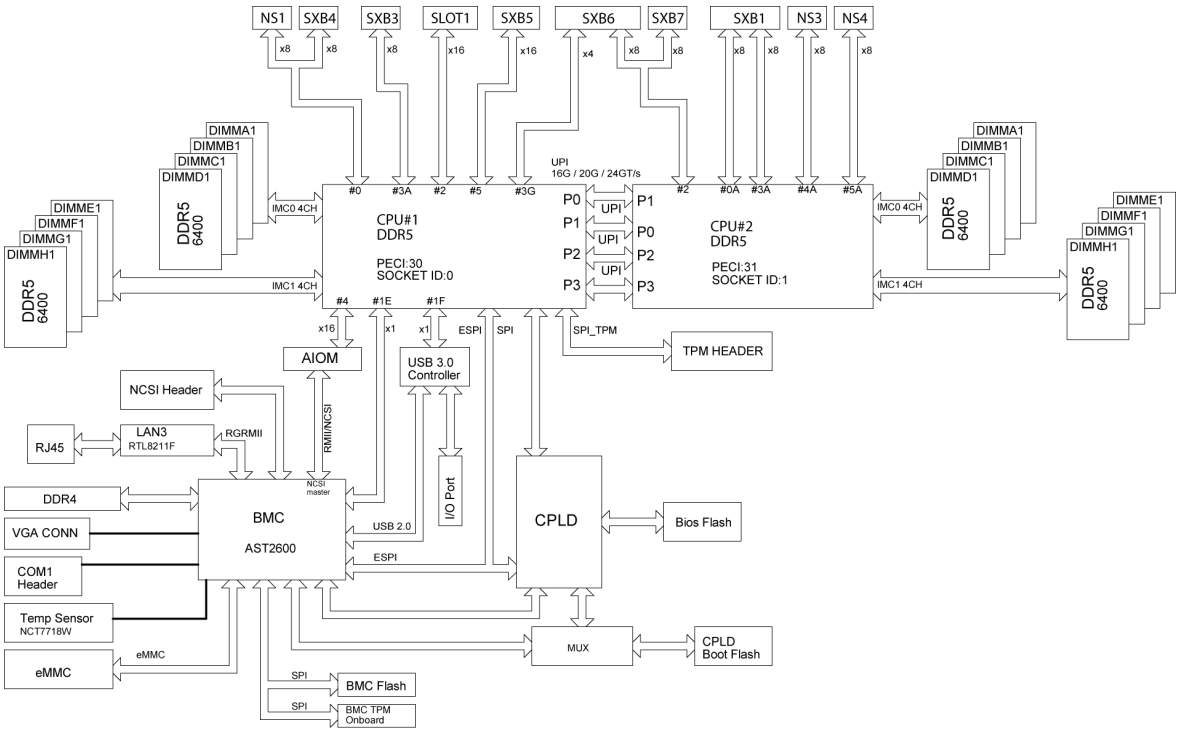


Figure 1-5. X14DBT-B Block Diagram

Note: This is a general block diagram and may not exactly represent the features on your motherboard. For the actual specifications of your motherboard, see "Motherboard Quick Reference" on the next page.

1.4 Motherboard Quick Reference

For details on the X14DBT-B motherboard layout and other quick reference information, refer to the content below.

Motherboard Layout

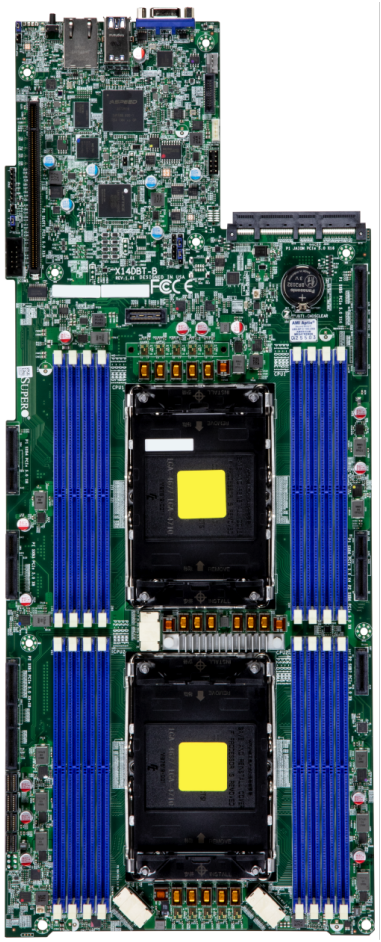


Figure 1-6. X14DBT-B Motherboard Image

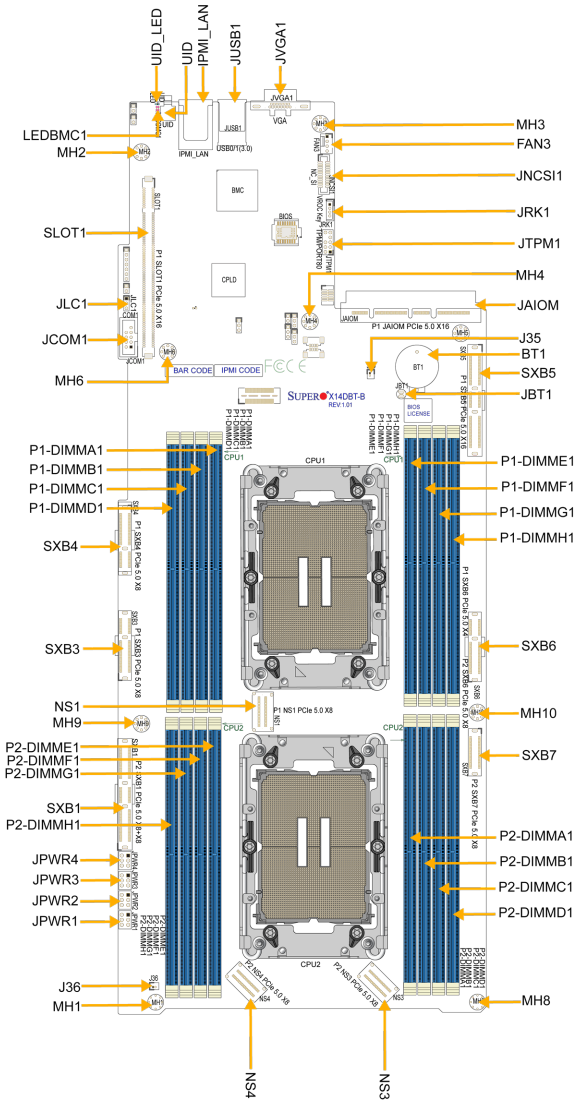


Figure 1-7. X14DBT-B Motherboard Layout

Note: Components not documented are for internal testing only.

Notes:

- For detailed information on jumpers, connectors, and LED indicators, see "Maintenance and Component Installation" on page 34.
- "■" indicates the location of pin 1.
- "MH" indicates the location of a mounting hole.
- Components not documented are for internal testing purposes only.
- Use only the correct type of onboard CMOS battery as specified by the manufacturer. To avoid possible explosion, do not install the onboard battery upside down.

Quick Reference

Quick Reference Table

Jumper	Description	Jumper Settings
JBT1	CMOS Clear	Open: Normal
JLC1	Cooling Selection	Pins 1–2: Air Cooling Pins 2–3: Liquid Cooling

LED	Description	Status
LEDBMC	BMC Heartbeat LED	Blinking Green: BMC Normal (Active), Solid Green: BMC Resetting or Cold Rebooting
UID_LED	Unit Identifier (UID) LED	Solid Blue: Unit Identification LED

Connector	Description
BT1	Onboard Battery
FAN3	4-pin Cooling Fan Header
IPMI_LAN	Dedicated BMC LAN
J35/J36	Coolant Leakage Sensors
JAIOM	Supermicro Advanced Input/Output Module (AIOM) PCIe 5.0 x16 Connector for I/O support
JCOM1	Serial (COM) Port
JNSCI1	Network Controller Sideband Interface (NC-SI) Connector

Connector	Description
JPWR1–JPWR4	6-Pin +12 V Power Connectors
JRK1	Intel VROC RAID Key Header
JTPM1	Trusted Platform Module / Port 80 Connector
JUSB1 (USB0/1)	USB 3.2 Ports
JVGA1	Backplane VGA Port
NS1	PCIe 5.0 x8 Connector (for NVMe SCC)
NS3	PCIe 5.0 x8 Connector (for NVMe SCC)
NS4	PCIe 5.0 x8 Connector (for NVMe SCC)
SLOT1	PCIe 5.0 x16 Connector
SXB1	PCIe 5.0 x8 + x8 Connector
SXB3/SXB4	PCIe 5.0 x8 Connectors
SXB5	PCIe 5.0 x16 Connector
SXB6	PCIe 5.0 x4 + x8 Connector
SXB7	PCIe 5.0 x8 Connector

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 following link: https://www.supermicro.com/support/manuals.

Chapter 2:

Server Installation

This chapter provides advice and instructions for mounting your server in a server rack. If your server is not already fully integrated with processors, system memory, etc., refer to "Maintenance and Component Installation" on page 34 for details on installing those specific components.

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

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2.1 Unpacking the System

Inspect the box the SYS-222BT-DNR server was shipped in 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 power outlet nearby. Be sure to read the precautions and considerations noted in "Standardized Warning Statements for AC Systems" on page 137.

2.2 Preparing for Setup

The box in which the SYS-222BT-DNR server was shipped should include the rackmount hardware needed to install it into the rack. Read this section in its entirety before you begin the installation.

Choosing a Setup Location

- The server should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated.
- Leave enough clearance in front of the rack so that you can open the front door completely (~25 inches) and approximately 30 inches of clearance in the back of the rack to allow sufficient space for airflow and access when servicing.
- This product should be installed only in a Restricted Access Location (dedicated equipment rooms, service closets, etc.).
- This product is not suitable for use with visual display workplace devices according to §2 of the German Ordinance for Work with Visual Display Units.

Rack Precautions

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

System Precautions

- Review the electrical and general safety precautions in "Standardized Warning Statements for AC Systems" on page 137.
- 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



Warning! Stability hazard. The rack may tip over causing serious personal injury. Before extending the rack to the installation position, read the installation instructions. Do not put any load on the slide-rail mounted equipment in the installation position. Do not leave the slide-rail mounted equipment in the installation position.



Avertissement!
Danger d'instabilité. Le rack peut basculer et provoquer des blessures corporelles graves.
Avant d'étendre le rack en position d'installation, lire les instructions d'installation. Ne pas charger l'équipement monté sur rail de glissière en position d'installation. Ne pas laisser l'équipement monté sur rail de glissière en position d'installation.

Important: 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:

- If this unit is the only unit in the rack, it should be mounted at the bottom of the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top, placing 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.
- Do not pick up the server with the front handles. They are designed to pull the system from a rack only.

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.).

2.3 Installing the Rails

This section provides information on installing the CSE-217BD2-R2K22P 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 28" and 33.5" deep.

Rack-Mounting Instructions

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.

Overview of the Rack Rails

The package includes two rail assemblies. Each is specifically designed for the left or right side of the chassis, and so marked. Each rail consists of two sections: a front section which secures to the front post of the rack and a rear section which adjusts in length and secures to the rear post of the rack.

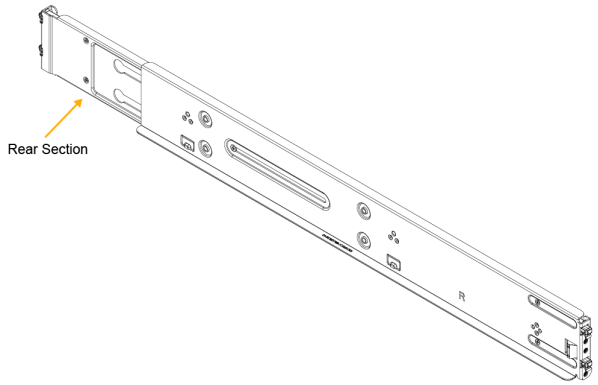


Figure 2-1. Rackmount Rail (Right rail assembly shown)

Adjusting the Rail Length

Each rail assembly has a locking screw to adjust the length of the rail to fit the depth of your rack.

Installing the Rails onto the Rack

1. Loosen the adjusting screw to allow the rear section to slide in the front section.
2. Push the small hooks on the front section of the rail into the holes on the front post of the rack and then down, until the spring-loaded pegs snap into the rack holes. Secure the rail to the rack with screws.
3. Pull out the rear section of the outer rail, adjusting the length until it fits within the posts of the rack and align the small hooks with the appropriate holes on the rear post of the rack. Be sure the rail is level, then mount the rear section onto the rack. Secure the rail with screws.
4. Tighten the adjusting screw.

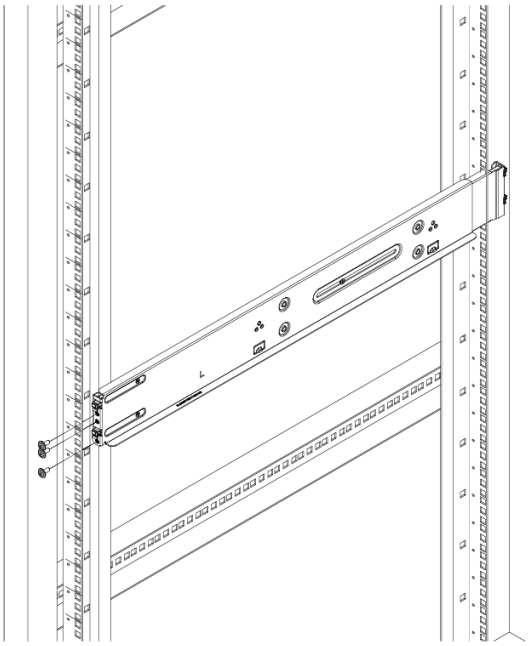


Figure 2-2. Attaching the Rail Front to the Rack (Left rail assembly shown)

Note: Images displayed are for illustrative purposes only. The components installed in your system may or may not look exactly the same as the graphics shown in the manual.

2.4 Inserting Chassis

Slide the chassis into the rack so that the bottom of the chassis **rests evenly** onto the bottom lip of the rails. Then use the thumbscrews on the front panel headers to secure the system.

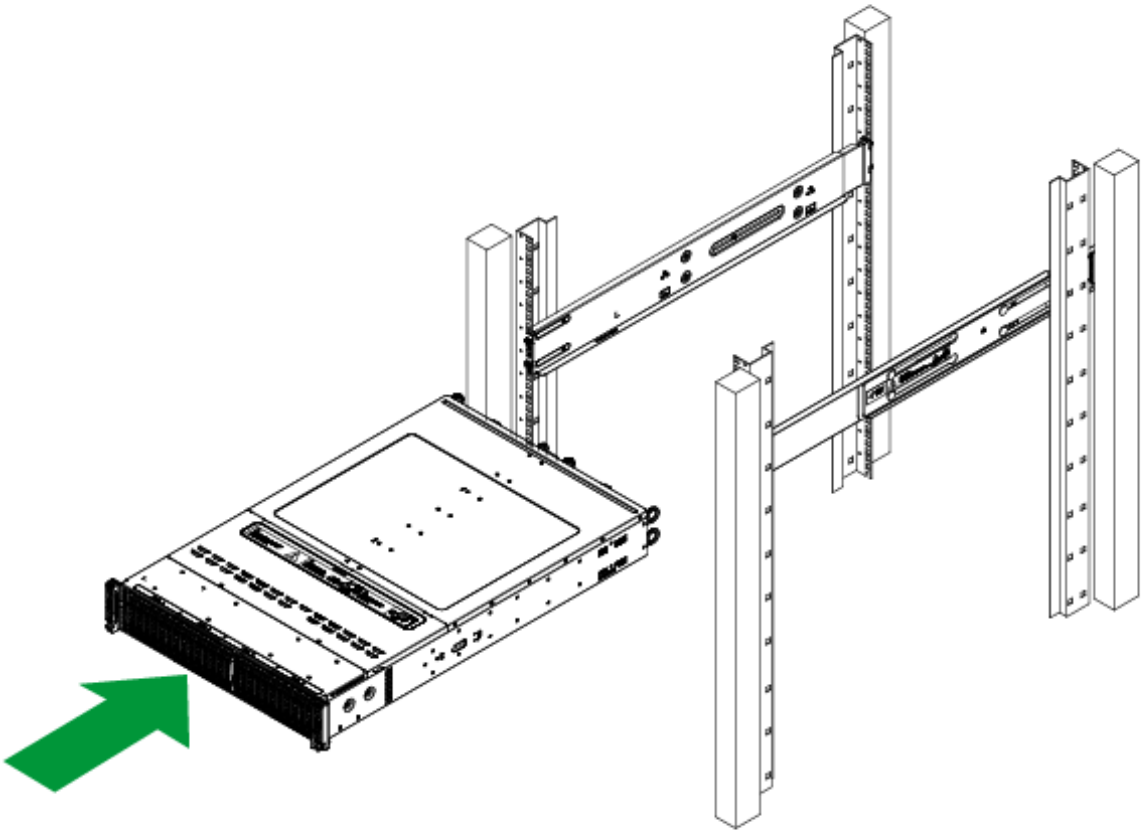


Figure 2-3. Sliding the Chassis into the Rack

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

Chapter 3:

Maintenance and Component Installation

This chapter provides instructions on installing and replacing main system components for the SYS-222BT-DNR server. To prevent compatibility issues, only use components that match the specifications and/or part numbers given.

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

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3.1 Removing Power

Use the following procedure to ensure that power has been removed from the SYS-222BT-DNR system. This step is necessary when removing or installing non-hot-swap components or when replacing a non-redundant power supply.

1. Use the operating system to power down the system.
2. After the system has completely shut-down, disconnect the AC power cord(s) from the power strip or outlet. (If your system has more than one power supply, remove the AC power cords from all power supply modules.)
3. Disconnect the power cord(s) from the power supply module(s).
4. After the power cords are disconnected, wait until the amber LEDs on the power supplies turn off before servicing a system.

3.2 Accessing the System

The SYS-222BT-DNR system features a removable top cover, which allows easy access to the inside of the chassis. You may access some chassis components, such as fans, by removing the cover, and each node can be removed individually as described below.

Removing a Computing Node Drawer

1. Use the operating system to power down the node.
2. Remove any cables attached to the outside of the nodes.
3. Press the release latch downwards and use the handles to pull the node from the chassis.

Removing the Chassis Cover

1. Remove the two screws located on top of the cover.
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.

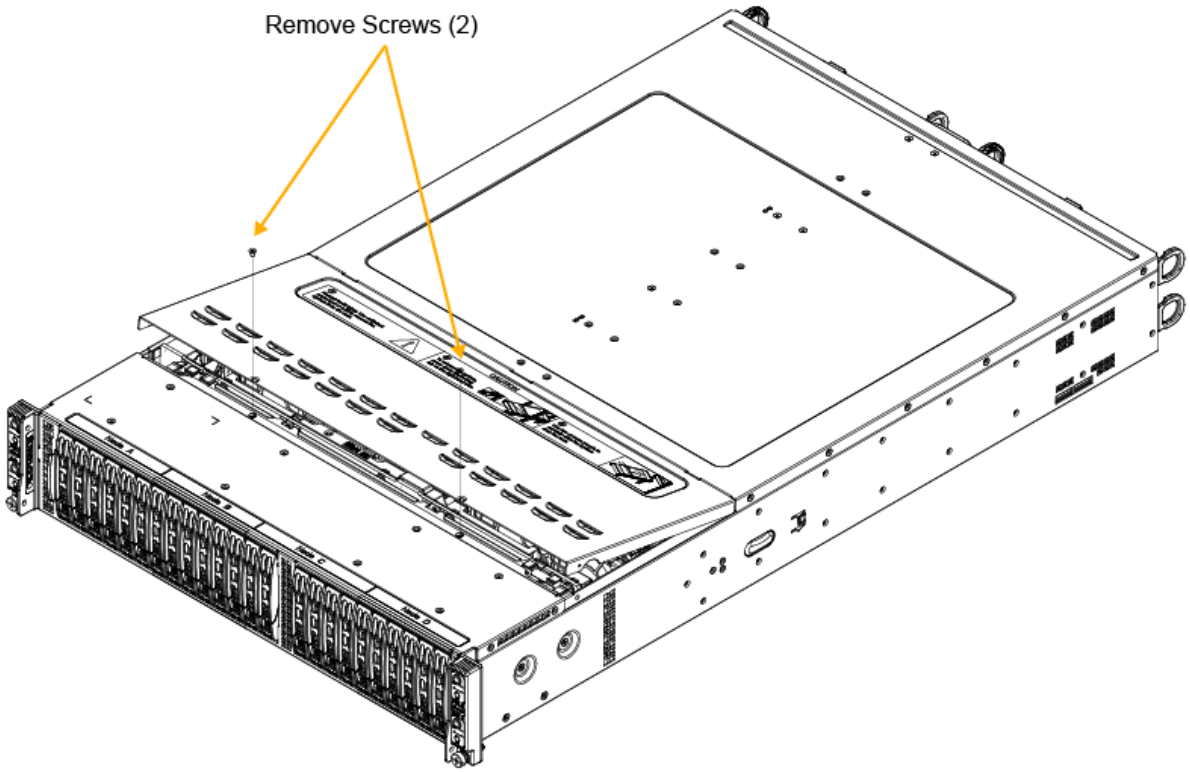


Figure 3-1. Removing the Chassis Cover



Warning! 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.

3.3 Static-Sensitive Devices

Electrostatic Discharge (ESD) can damage electronic components. To avoid damaging your motherboard, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing the board from the antistatic bag.
- Handle the motherboard only by its edges. Do not touch its components, peripheral chips, memory modules, or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure that your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners, and the motherboard.
- Use only the correct type of onboard CMOS battery. To avoid possible explosion, do not install the onboard battery upside down.

3.4 Processor and Heatsink Installation

This section provides procedures to install the processor(s) and heatsink(s).

Notes:

- Take industry standard precautions to avoid ESD damage. For details, see "Static-Sensitive Devices" on the previous page.
- Before starting, make sure that the plastic socket cap is in place and none of the socket pins are bent. If any damage is noted, contact your retailer.
- Do not connect the system power cord before the processor and heatsink installation is complete.
- 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 processor socket.
- When buying a processor separately, use only a Supermicro certified heatsink.
- Refer to the Supermicro website for the most recent processor support.
- When installing the 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.

LGA 4710 Socket E2 Processors

Processor Top View

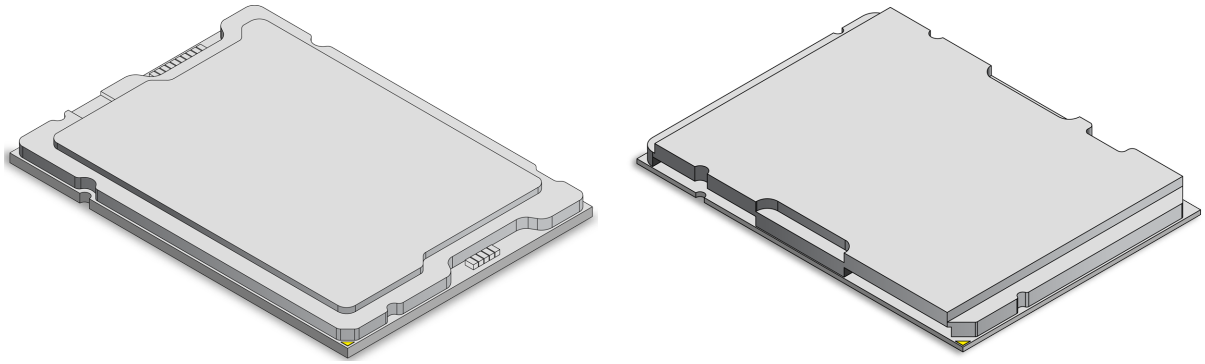


Figure 3-2. Processor (SP XCC left, SP HCC/LCC right)

Note: The motherboard supports three processor SKUs: SP XCC, SP HCC, and SP LCC. Each SKU supports a specific carrier; the SP XCC processor supports Carrier E2A while SP HCC and SP LCC support Carrier E2B. Make sure the processors of the same SKU are on the motherboard.

Overview of the Processor Carrier Assembly

The processor carrier assembly contains the processors and processor carriers.

Processor

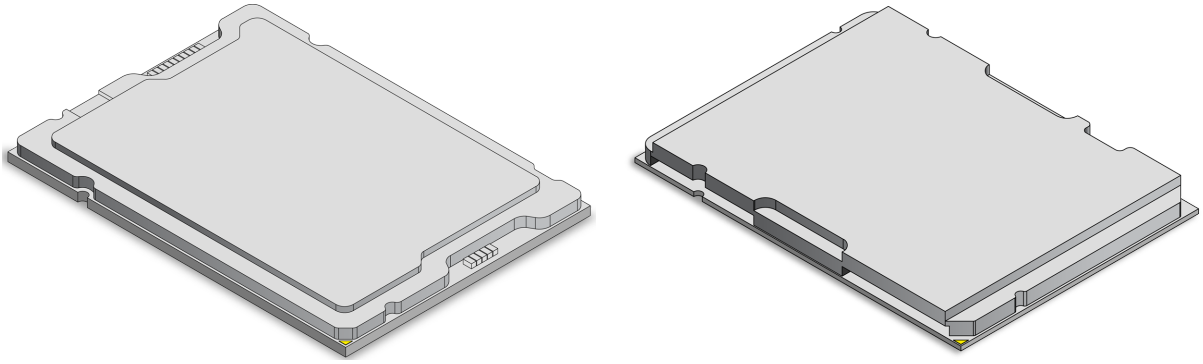


Figure 3-3. Processor (SP XCC left, SP HCC/LCC right)

Processor Carriers

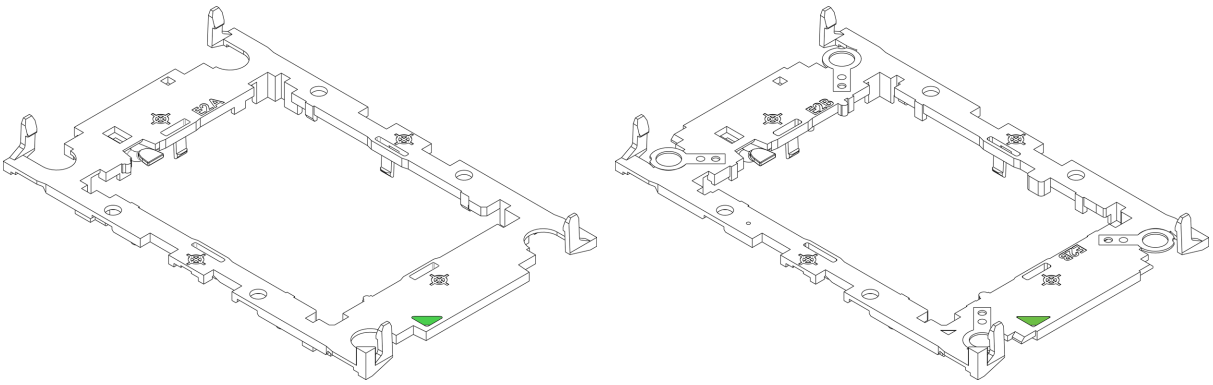


Figure 3-4. Carrier (SP XCC E2A left, SP HCC/LCC E2B right)

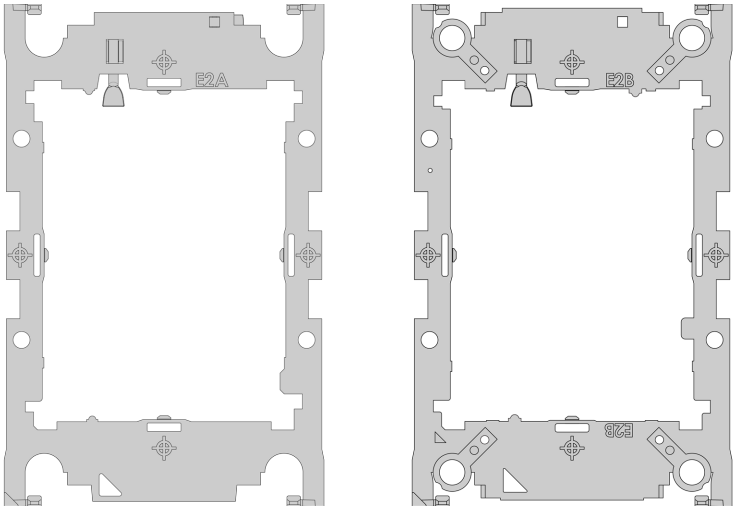


Figure 3-5. Carrier Top View (SP XCC E2A left, SP HCC/LCC E2B right)

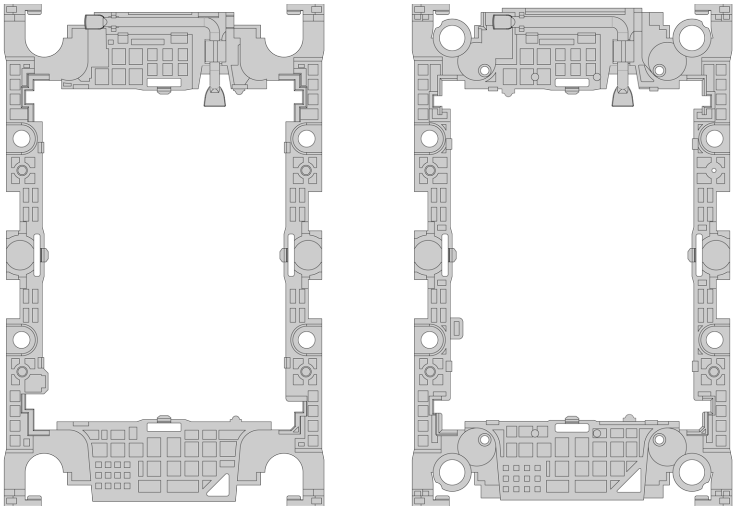


Figure 3-6. Carrier Bottom View (SP XCC E2A left, SP HCC/LCC E2B right)

Overview of the Processor Socket

The processor socket is protected by a plastic protective cover.

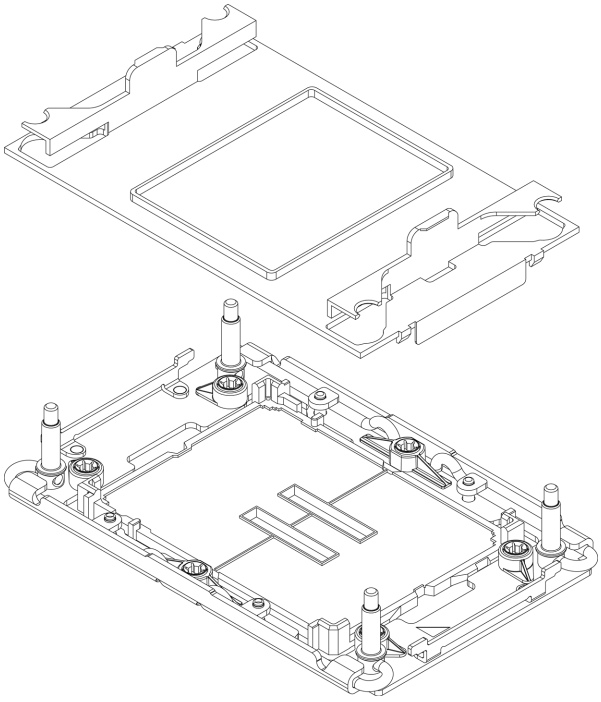


Figure 3-7. Plastic Protective Cover and Processor Socket

Overview of the Processor Heatsink Module

The Processor Heatsink Module (PHM) contains a heatsink, a processor carrier, and the processor.

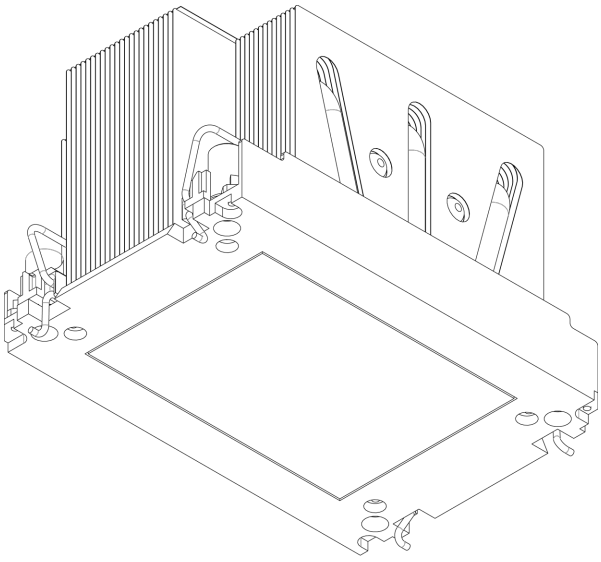


Figure 3-8. Heatsink (2U)

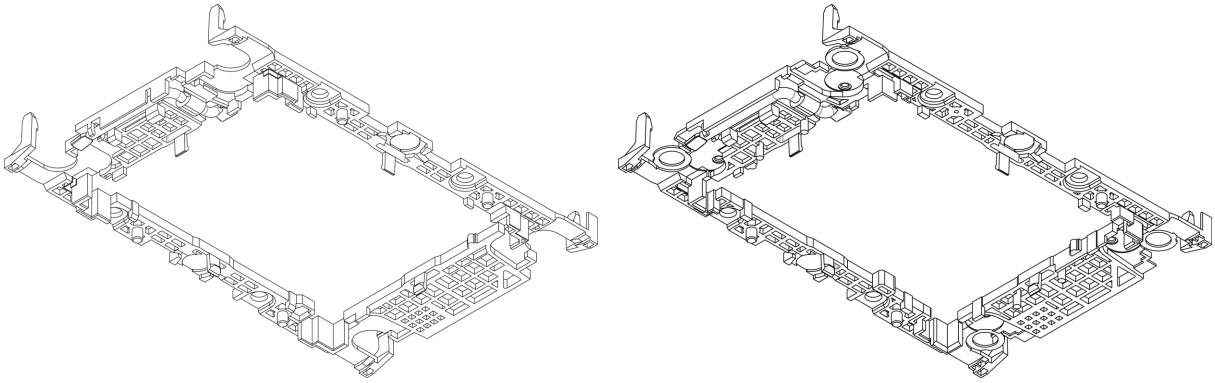


Figure 3-9. Carrier (SP XCC E2A left, SP HCC/LCC E2B right)

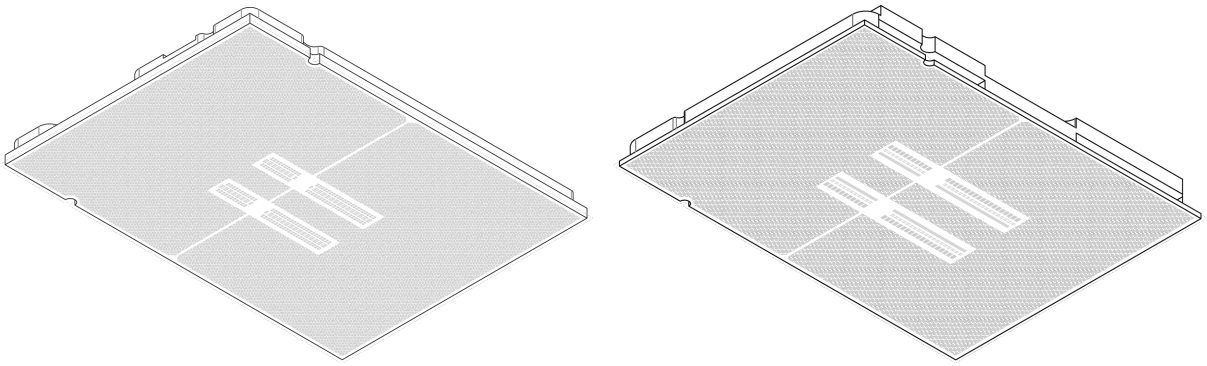


Figure 3-10. Processor (SP XCC E2A left, SP HCC/LCC E2B right)

Creating the Processor Carrier Assembly

To install a processor into the processor carrier, follow the steps below:

1. Before installation, make sure the lever on the processor carrier is pressed down as shown below.

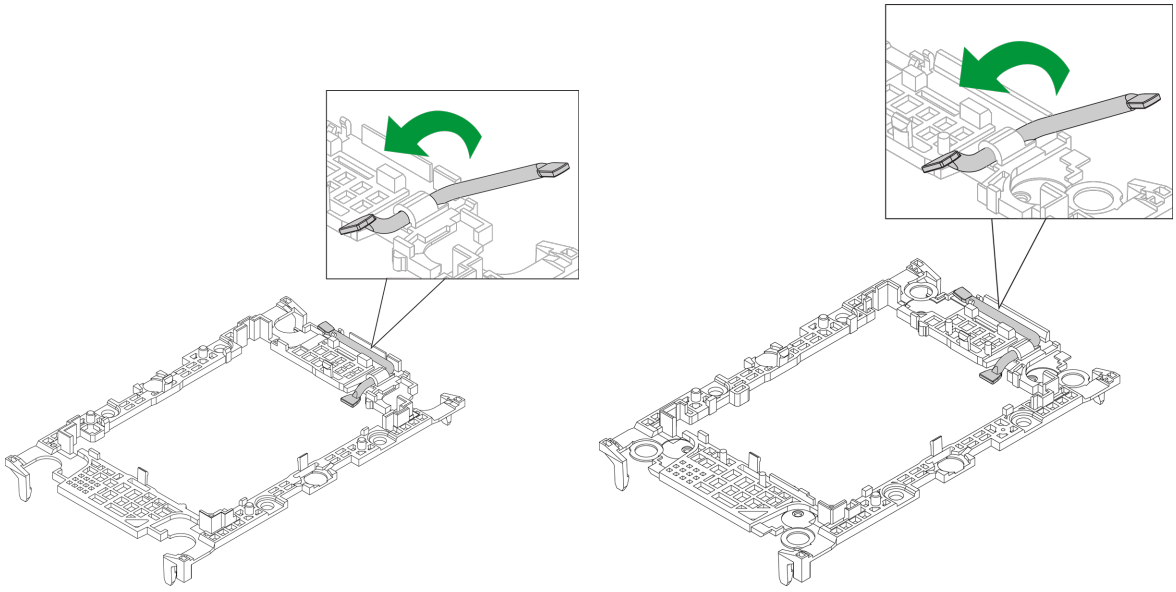


Figure 3-11. Carrier Lever (SP XCC left, SP HCC/LCC right)

2. Hold the processor with the LGA lands (gold contacts) facing up. Locate the small, gold triangle in the corner of the processor and the corresponding hollowed triangle on the processor carrier. These triangles indicate pin 1.

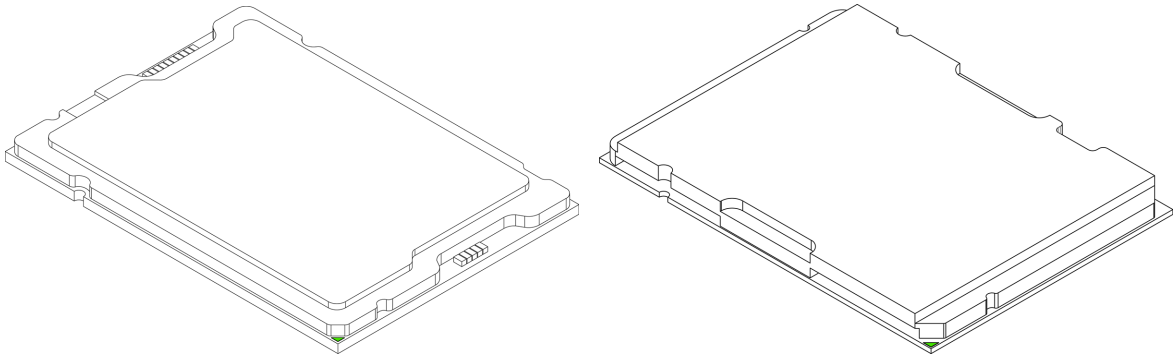


Figure 3-12. Processor (SP XCC E2A left, SP HCC/LCC E2B right)

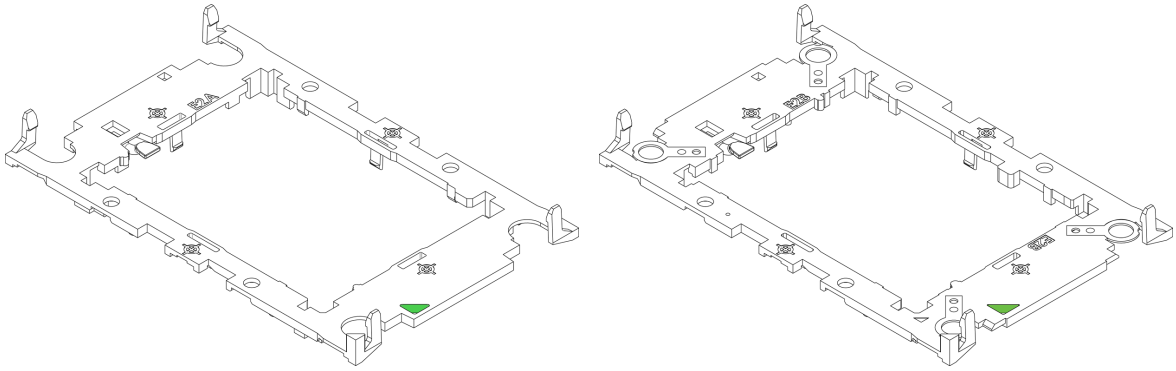


Figure 3-13. Carrier (SP XCC E2A left, SP HCC/LCC E2B right)

3. Use the triangles as a guide to carefully align and place one end of the processor into the latch marked A, and place the other end of processor into the latch marked B as shown below.

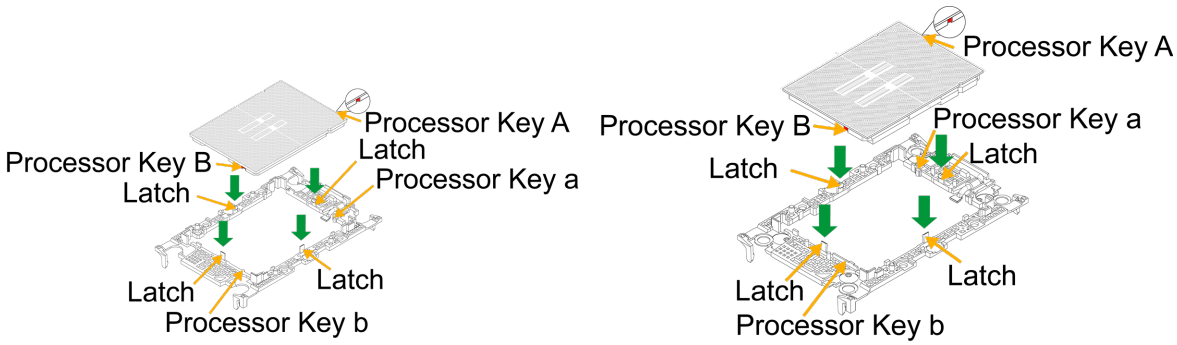


Figure 3-14. Keys and Latches Locations (SP XCC E2A left, SP HCC/LCC E2B right)

4. Examine all corners to ensure that the processor is firmly attached to the carrier.

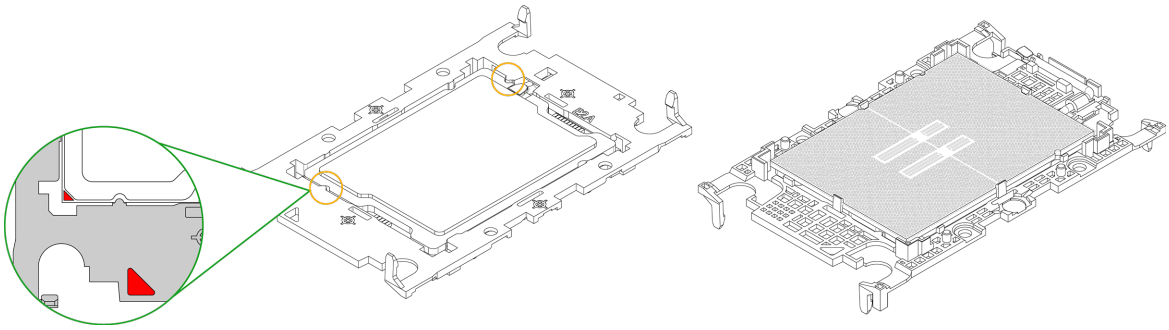


Figure 3-15. SP XCC E2A Keys and Latches

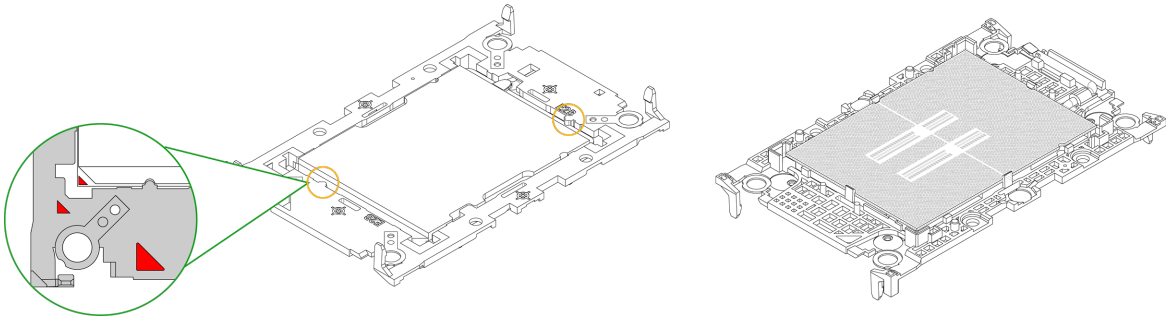


Figure 3-16. SP HCC/LCC E2B Keys and Latches Together

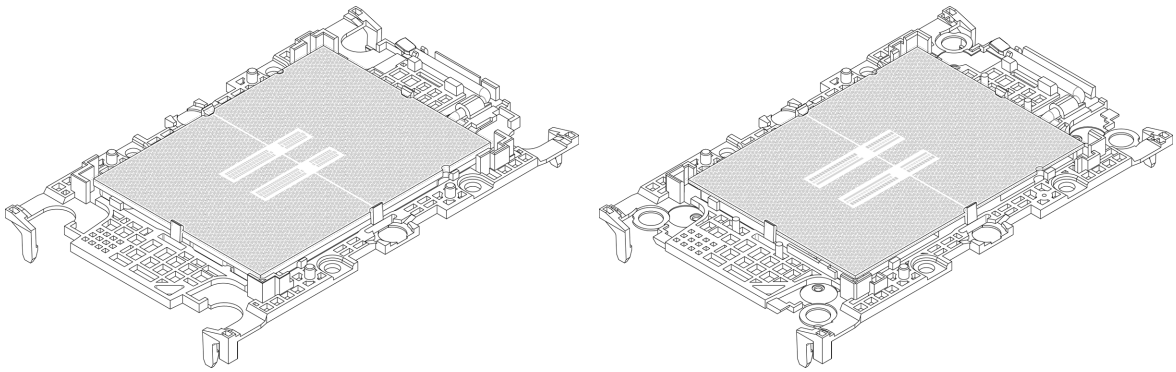


Figure 3-17. Carrier Assembly Complete (SP XCC E2A left, SP HCC/LCC E2B right)

Assembling the Processor Heatsink Module

After installing the processor into the carrier, mount it onto the heatsink to create the processor heatsink module (PHM):

1. Note the label on top of the heatsink, which marks the airflow direction. Turn the heatsink over and orient the heatsink so the airflow arrow is pointing towards the triangle on the processor.
2. If this is a new heatsink, the thermal grease has been pre-applied. Otherwise, apply the proper amount of thermal grease.
3. Hold the processor carrier so the processor's gold contacts are facing up, then align the holes of the processor carrier with the holes on the heatsink. Press the processor carrier down until it snaps into place. The plastic clips of the processor carrier will lock at the four corners.

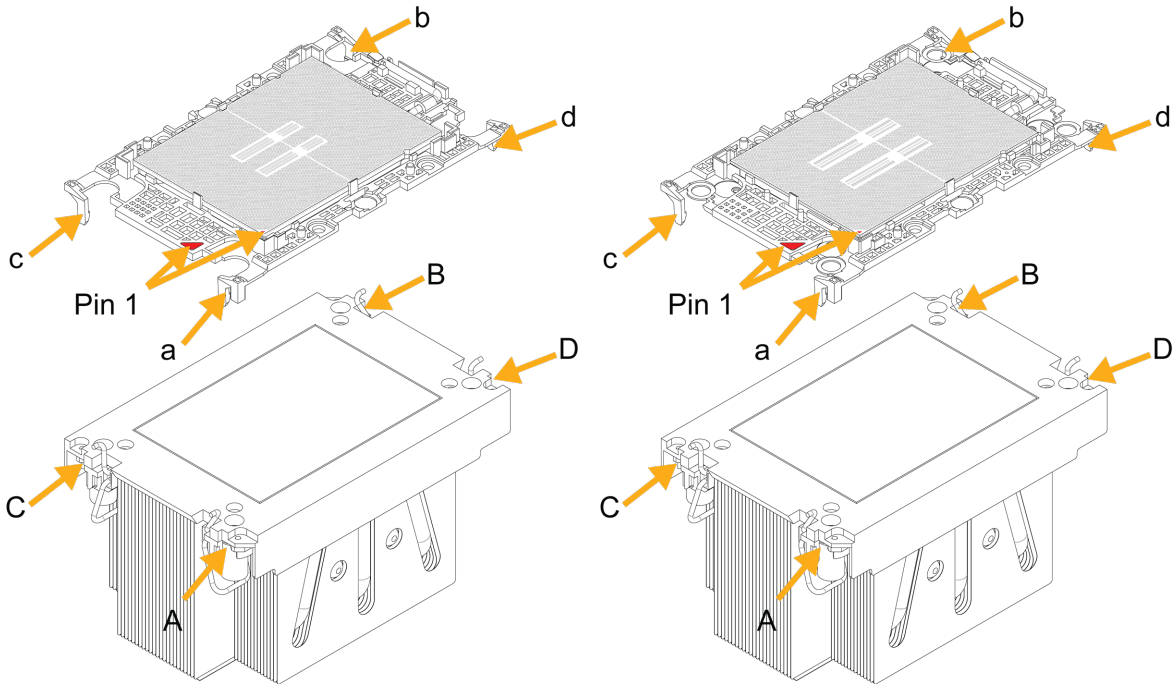


Figure 3-18. Carrier with 2U Heatsink (SP XCC left, SP HCC/LCC right)

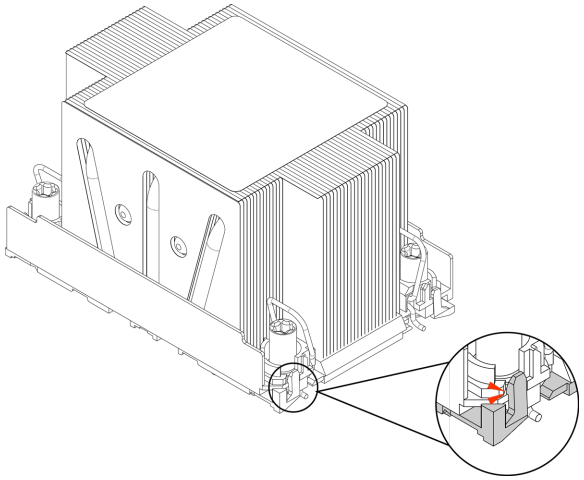


Figure 3-19. PHM Plastic Clips Locked (2U)

4. Examine all corners to ensure that the plastic clips on the processor carrier are firmly attached to the heatsink.

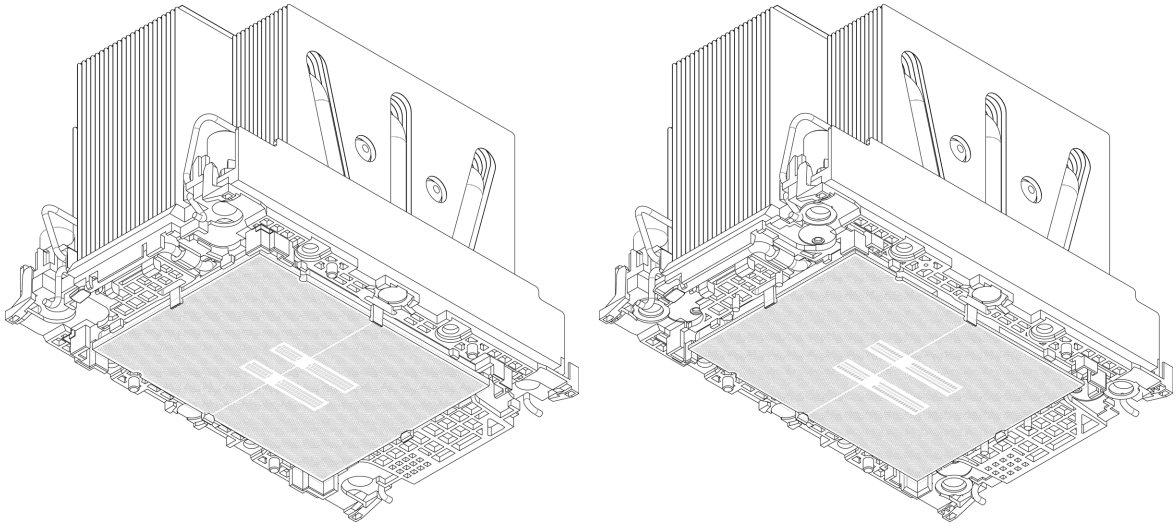
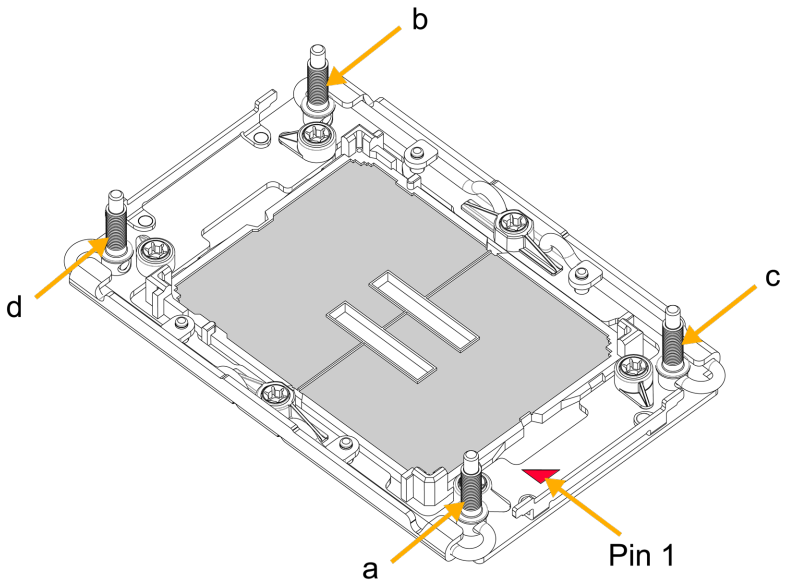


Figure 3-20. 2U PHM Completed (SP XCC left, SP HCC/LCC right)

Preparing to Install the PHM into the Processor Socket

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

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



a, b, c, d: Threaded Fasteners

Figure 3-21. Threaded Fasteners

2. Locate four PEEK nuts (marked A, B, C, and D) and four rotating wires (marked 1, 2, 3, and 4) on the heatsink.

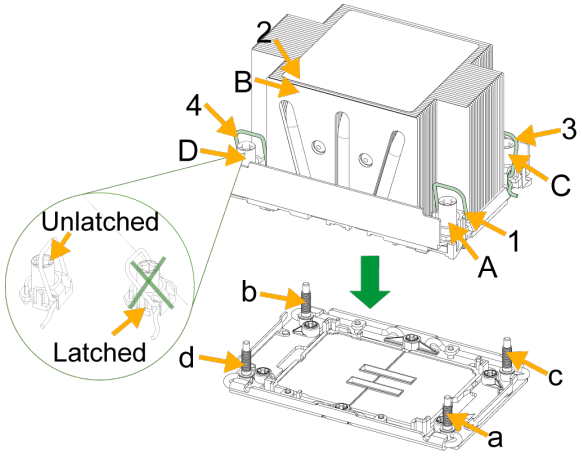


Figure 3-22. PEEK Nuts and Rotating Wires (2U)

3. Check the rotating wires (marked 1, 2, 3, and 4) to make sure that they are at unlatched positions before installing the PHM into the processor socket.

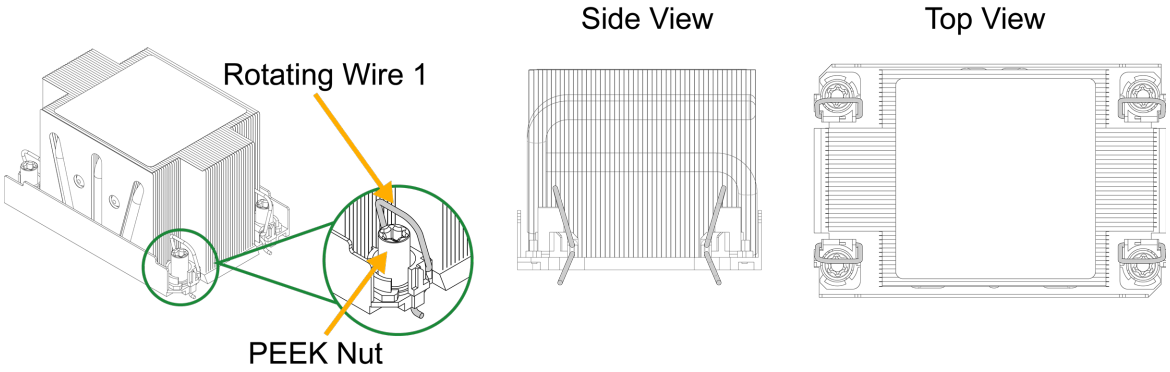


Figure 3-23. 2U Unlatched Positions

Preparing the Processor Socket for Installation

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

1. Press the tabs inward.

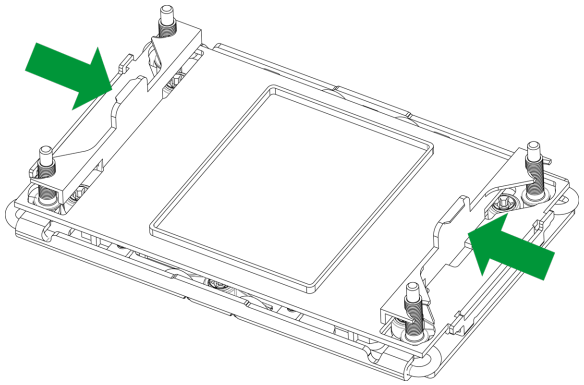


Figure 3-24. Processor Socket with Plastic Protective Cover

2. Pull up the protective cover from the socket.

   Note: Do not touch or bend the socket pins.

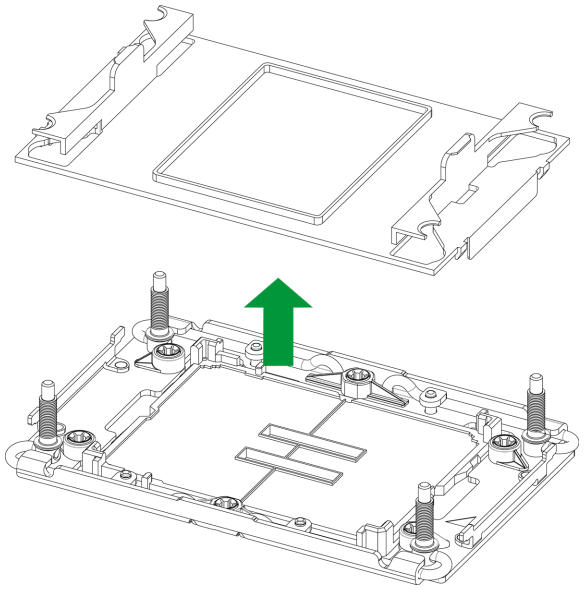


Figure 3-25. Plastic Protective Cover Removed

Installing the Processor Heatsink Module

1. Align pin 1 of the PHM with the printed triangle on the processor socket.
2. Make sure all four PEEK nuts of the heatsink (marked A, B, C, and D) are aligned with the threaded fasteners (marked a, b, c, and d), then gently place the heatsink on top of the processor socket.

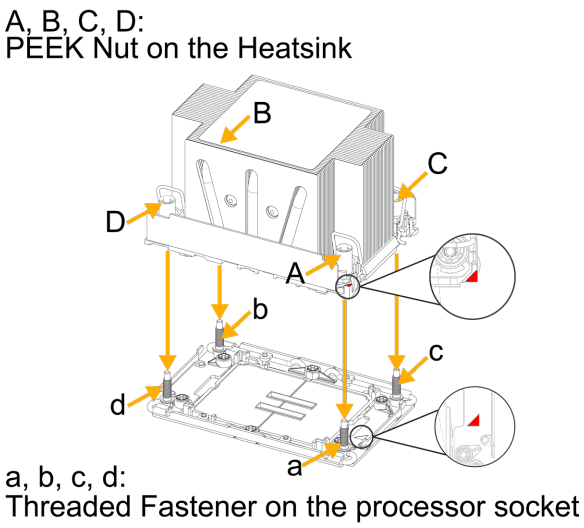


Figure 3-26. Aligning the Heatsink with the Socket (2U)

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

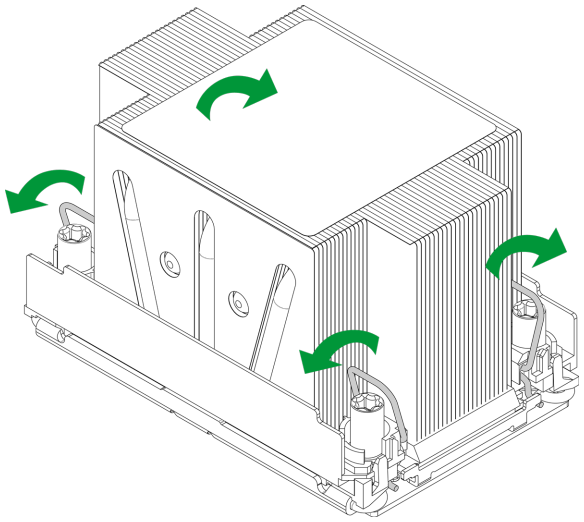


Figure 3-27. Latching the PHM (2U)

4. With a T30 bit torque driver set to a force of 8.0 lbf-in (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.

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

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

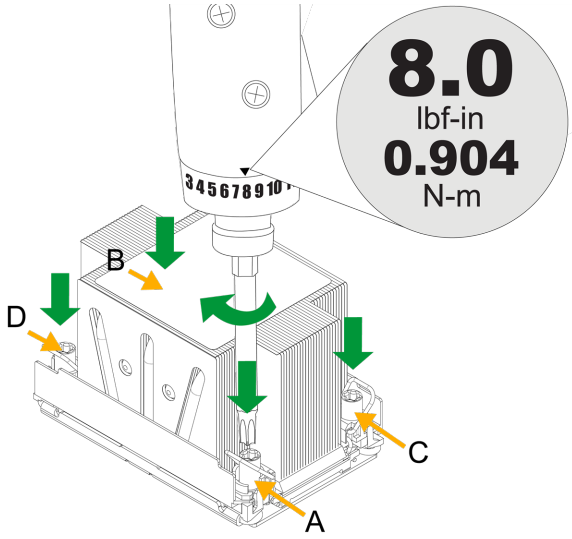


Figure 3-28. Installing the PHM with a Torque Driver (2U)

Removing the Processor Heatsink Module

Before removing the processor heatsink module (PHM) from the motherboard, shut down the system and then unplug the AC power cord from all power supplies.

Then follow the steps below:

1. Use a screwdriver to loosen the four screws. You can start with any screw, but make sure to loosen the screws in a diagonal pattern.

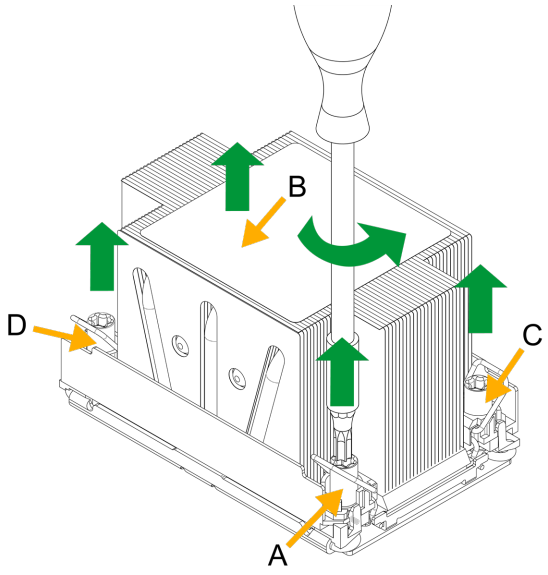


Figure 3-29. Loosening the Screws (2U)

2. Press the four rotating wires inwards to unlatch the PHM from the socket.

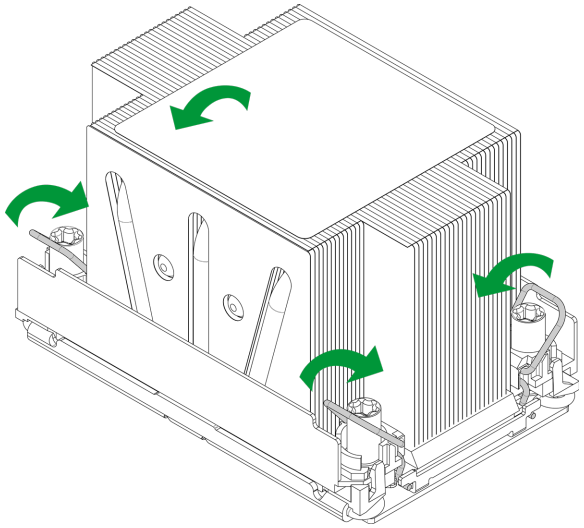


Figure 3-30. Unlatching the PHM (2U)

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

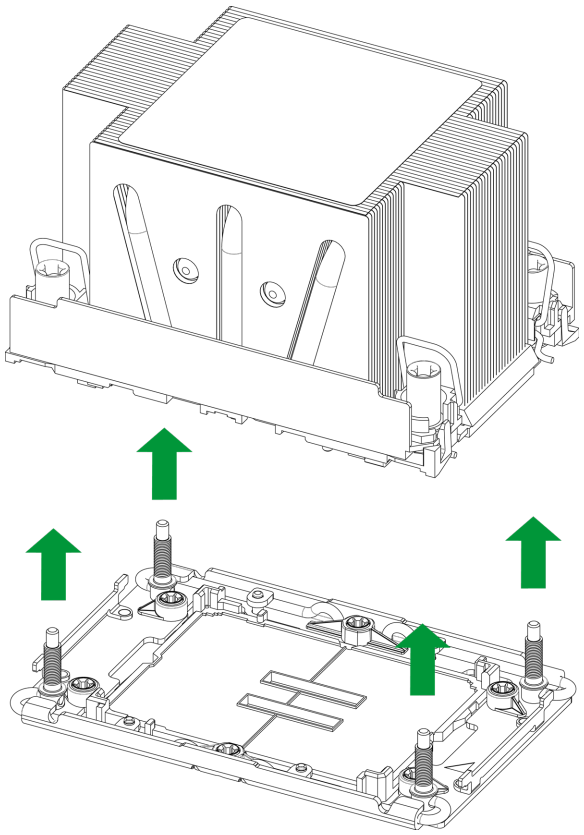


Figure 3-31. Removing the PHM from the Socket (2U)

4. To remove the processor from the heatsink, gently lift the lever from the processor carrier.

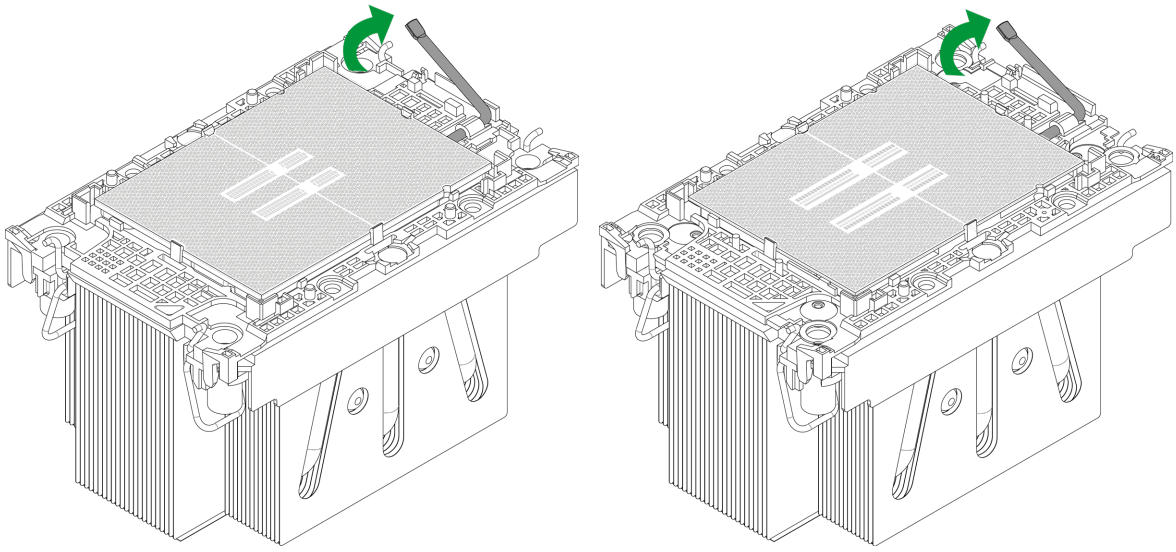


Figure 3-32. Carrier with 2U Heatsink (SP XCC left, SP HCC/LCC right)

5. To remove the processor, move the lever to its unlocked position and gently remove the processor.

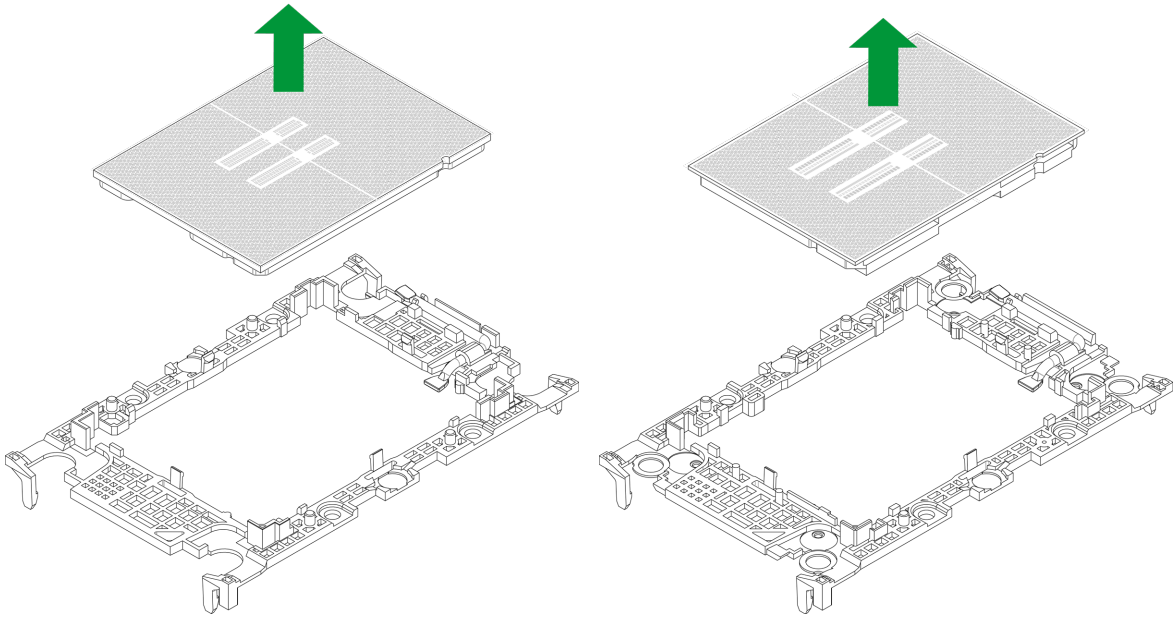


Figure 3-33. Removing the Processor (SP XCC left, SP HCC/LCC right)

3.5 Memory Support and Installation

Important: To prevent any damage, exercise extreme care when installing or removing memory modules.

Note: Check the Supermicro website for recommended memory modules.

Memory Support for X14DBT-B

The X14DBT-B motherboard supports ECC DDR5 memory with speeds up to 6400 MT/s (1DPC), and MRDIMM DDR5 memory with speeds up to 8000 MT/s (1DPC or 1 slot per channel) in 16 DIMMs.

Note: Memory speed/capacity support depends on the processors used in the system.

DDR5-6400 Memory Support for the Intel® Xeon® 6700-series Processor with E-cores					
Type	Ranks Per DIMM, Data Width (Stack)	DIMM Capacity (GB)			Speed (MT/s); Voltage (V); Slots per Channel (SPC) and DIMMs per Channel (DPC)
		DRAM Density			
		16 Gb	24 Gb	32 Gb	1DPC/2SPC
		1DPC	1DPC	1DPC	+1.1 V
RDIMM	1Rx4	32 GB	-	-	6400, 6000, 5600, 5200, 4800 (DDR5-6400 rated RDIMMs only)
	2Rx8	32 GB	-	-	
	2Rx4	64 GB	96 GB	-	
	2Rx4	-	-	128 GB	
3DS RDIMM	4Rx4	-	-	256 GB	

DDR5-6400 Memory Support for the Intel® Xeon® 6700/6500-series Processor with P-cores					
Type	Ranks Per DIMM, Data Width (Stack)	DIMM Capacity (GB)			Speed (MT/s); Voltage (V); Slots per Channel (SPC) and DIMMs per
		DRAM Density			
		16 Gb	24 Gb	32 Gb	1DPC/2SPC
		1DPC	1DPC	1DPC	+1.1 V

DDR5-6400 Memory Support for the Intel® Xeon® 6700/6500-series Processor with P-cores					
RDIMM	1Rx8	16 GB	24 GB	-	6400, 6000, 5600, 5200, 4800 (DDR5-6400 rated RDIMMs only)
	1Rx4	32 GB	48 GB	-	
	2Rx8	32 GB	48 GB	-	
	2Rx4	64 GB	96 GB	128 GB	
3DS RDIMM	8Rx4	-	-	-	
	4Rx4	-	-	256 GB	
MRDIMM	2Rx8	32 GB	-	-	8000, 7200 (MRDIMM-8800 only)
	2Rx4	64 GB	-	-	

Memory Population Table (with 16 DIMM slots)

Intel® Xeon® 6700-series Processor with E-Cores DDR5 Memory Population Table (2 Processors and 16 DIMMs Installed, 1DPC)	
1 Processor:	***Memory Population Sequence (1DPC)***
1 Processor and 1 DIMM (Recommended)	P1-DIMMA1
1 Processor and 4 DIMMs	P1-DIMMA1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1
1 Processor and 4 DIMMs	P1-DIMMB1/P1-DIMMD1/P1-DIMMH1/P1-DIMMF1
1 Processor and 8 DIMMs (Recommended)	P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1
2 Processor:	***Memory Population Sequence (1DPC)***
2 Processors and 2 DIMMs (Recommended)	P1-DIMMA1 P2-DIMMA1
2 Processors and 8 DIMMs	P1-DIMMA1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1 P2-DIMMA1/P2-DIMMC1/P2-DIMME1/P2-DIMMG1
2 Processors and 8 DIMMs	P1-DIMMB1/P1-DIMMD1/P1-DIMMF1/P1-DIMMH1 P2-DIMMB1/P2-DIMMD1/P2-DIMMF1/P2-DIMMH1
2 Processors and 16 DIMMs (Recommended)	P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1 P2-DIMMA1/P2-DIMMB1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMG1/P2-DIMMH1

Intel® Xeon® 6700/6500-series Processor with P-Cores DDR5 Memory Population Table (2 Processors and 16 DIMMs Installed, 1DPC)	
1 Processor:	***Memory Population Sequence (1DPC)***
1 Processor and 1 DIMM (Recommended)	P1-DIMMA1
1 Processor and 4 DIMMs (Recommended)	P1-DIMMA1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1
1 Processor and 4 DIMMs (Recommended)	P1-DIMMB1/P1-DIMMD1/P1-DIMMH1/P1-DIMMF1
1 Processor and 8 DIMMs (Recommended)	P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1
2 Processors:	***Memory Population Sequence (1DPC)***
2 Processors and 2 DIMMs (Recommended)	P1-DIMMA1 P2-DIMMA1
2 Processors and 8 DIMMs (Recommended)	P1-DIMMA1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1 P2-DIMMA1/P2-DIMMC1/P2-DIMME1/P2-DIMMG1
2 Processors and 8 DIMMs (Recommended)	P1-DIMMB1/P1-DIMMD1/P1-DIMMF1/P1-DIMMH1 P2-DIMMB1/P2-DIMMD1/P2-DIMMF1/P2-DIMMH1
2 Processors and 16 DIMMs (Recommended)	P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1 P2-DIMMA1/P2-DIMMB1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMG1/P2-DIMMH1

Notes:

- The memory configurations with an asterisk (*) are recommended by Supermicro for optimal memory performance.
- RDIMMs must be all DDR5-6400 rated DIMMs.
- MRDIMMs must be all DDR5-8800 rated MRDIMMs.
- All DIMMs in a channel must have the same number of ranks (unless explicitly specified otherwise).
- All DDR5 DIMM must be in the same speed per processor socket.
- Mixing vendor is allowed for RDIMM.

DIMM Installation

Important: To avoid causing any damage to the memory module or the DIMM socket, do not use excessive force when pressing the release tabs on the ends of the DIMM socket. Handle memory modules with care. To avoid ESD-related damage to your memory modules or components, carefully follow all the instructions given in "Static-Sensitive Devices" on page 39.

1. Insert the desired number of DIMMs into the memory slots based on the recommended DIMM population table earlier in this section.
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.

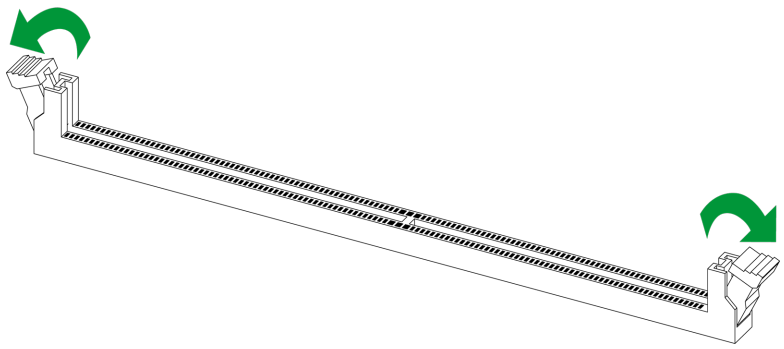


Figure 3-34. Unlocking the DIMM Slot

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

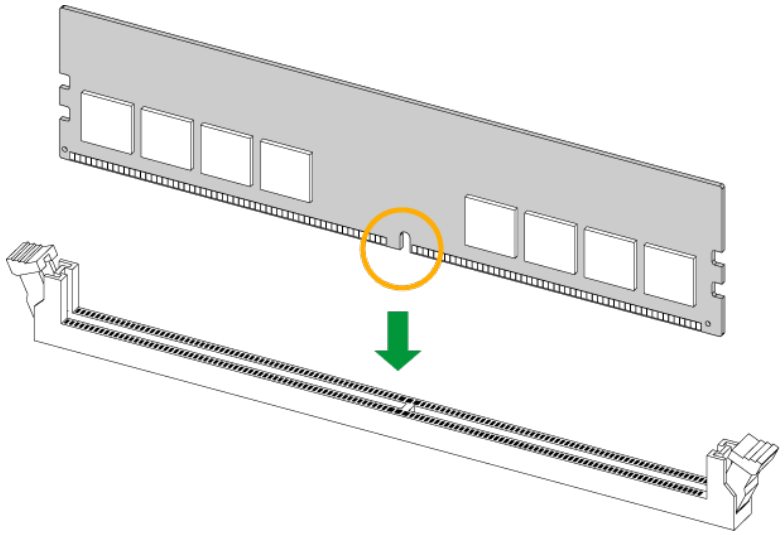


Figure 3-35. Aligning the DIMM Slot with the Receptive Point

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

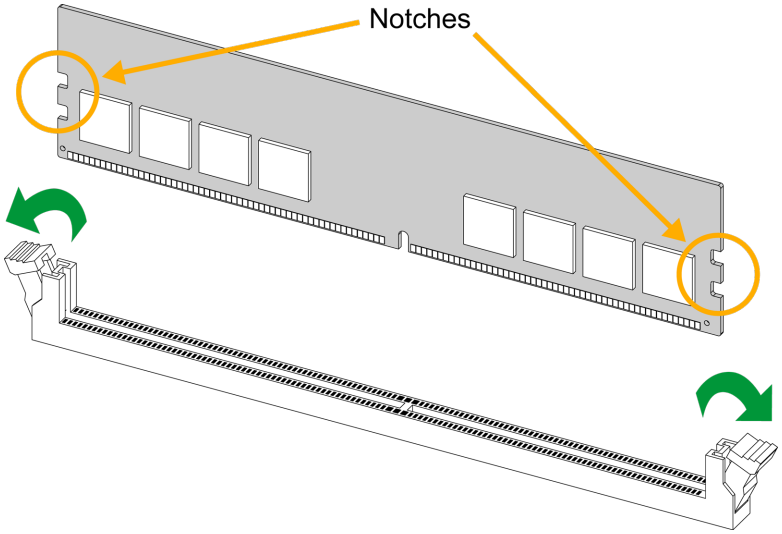


Figure 3-36. Aligning the Notches

5. Press 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 into the slot.

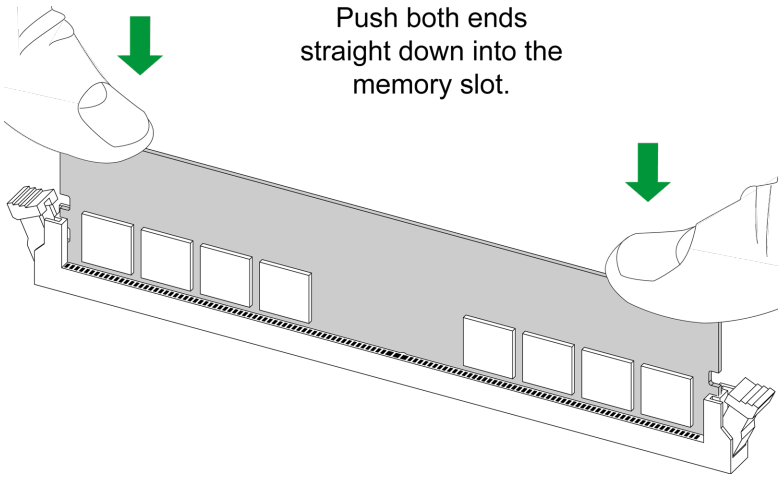


Figure 3-37. Securing the DIMM

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.

DIMM Removal

Important: To avoid causing any damage to the memory module or the DIMM socket, do not use excessive force when pressing the release tabs on the ends of the DIMM socket. Handle memory modules with care. To avoid ESD-related damage to your memory modules or components, carefully follow all the instructions given in "Static-Sensitive Devices" on page 39.

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

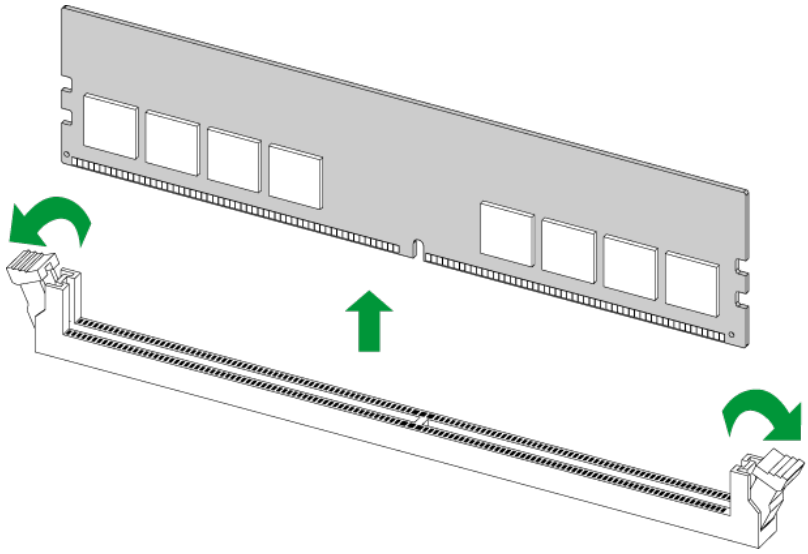


Figure 3-38. Unlocking the DIMM Slot

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.

3.6 Motherboard Battery Removal and Installation

Battery Removal

To remove the onboard battery, follow the steps below:

1. Power off your system and unplug your power cable.
2. Place the system on a workbench.
3. Remove the top cover from the system.
4. Locate the onboard battery as shown below.
5. Using a tool such as a pen or a small screwdriver, push the battery lock outwards to unlock it. Once unlocked, the battery will pop out from the holder.
6. Remove the battery.

Proper Battery Disposal

Important: 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. Comply with the regulations set up by your local hazardous waste management agency to dispose of your used battery properly.

Battery Installation

To install an onboard battery, follow steps 1 and 2 above and continue below:

Important: When replacing a battery, be sure to only replace it with the same type.

1. Identify the battery's polarity. The positive (+) side should be facing up.
2. Insert the battery into the battery holder and push it down until you hear a click to ensure that the battery is securely locked.

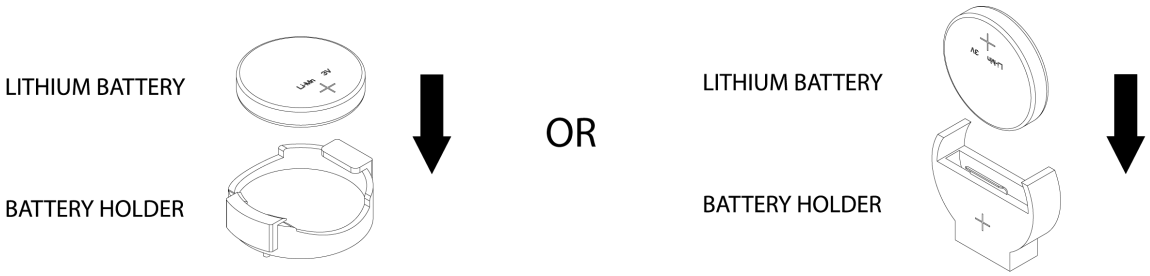


Figure 3-39. Installing a Battery

3.7 Storage Drives

The SYS-222BT-DNR system features 2.5" hot-swappable drive bays. Each of the two nodes support 12 storage drives for a total of 24 drives. All drives on each node support NVMe PCIe 5.0.

Installing Drives

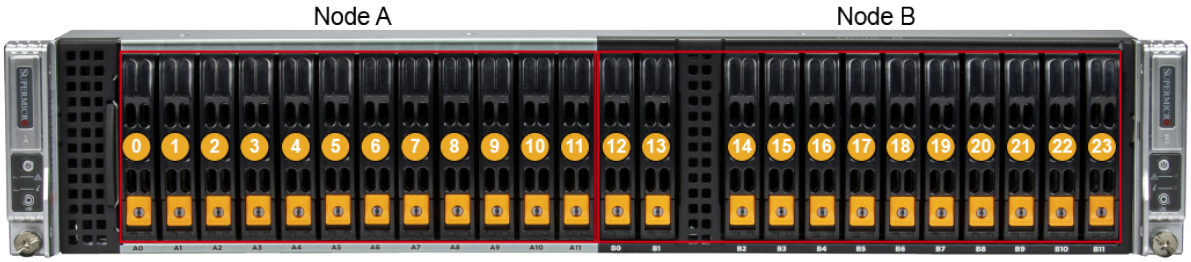


Figure 3-40. Logical Drive Numbers

Logical Storage Drive Numbers		
Node	**Item**	**Description**
A	0-11	12 hot-swap 2.5" PCIe 5.0 NVMe drive bays
B	12-23	12 hot-swap 2.5" PCIe 5.0 NVMe drive bays

Drive Carrier Indicators

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

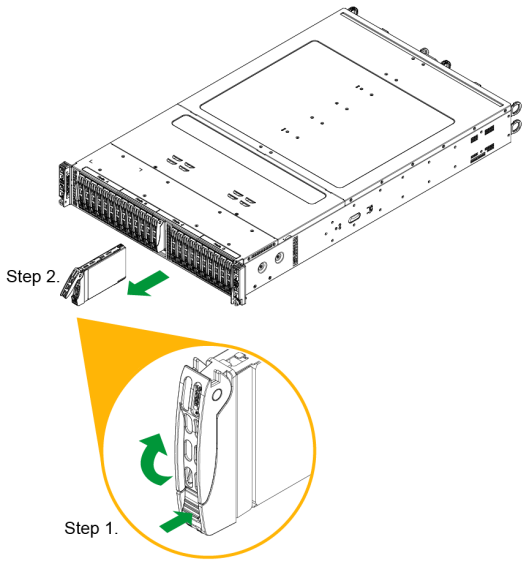
Drive Carrier LED Indicators			
	Color	**Blinking Pattern**	**Behavior for Device**
Activity LED	Blue	Solid On	SATA/SAS/NVMe drive installed
	Blue	Blinking	I/O Activity
	Off		Idle SATA or no drive
Status LED	Red	Solid On	Failure of drive with RSTe support
	Red	Blinking at 1 Hz	Rebuild drive with RSTe support
	Red	Blinking with two blinks and one stop at 1 Hz	Hot spare for drive with RSTe support
	Red	On for five seconds, then off	Power on for drive with RSTe support
	Red	Blinking at 4 Hz	Identify drive with RSTe support
	Green	Solid On	Save to remove in NVMe device (not supported in VMD mode)
	Amber	Blinking at 1 Hz	Attention state—do not remove NVMe device (not supported in VMD mode)
	Off		Idle SATA or no drive

Drive Configuration

The server contains two separate computing node drawers, each with its own motherboard. Each node controls a set of 12 drives. If a node drawer is pulled out of the chassis, the drives associated with that node will power down.

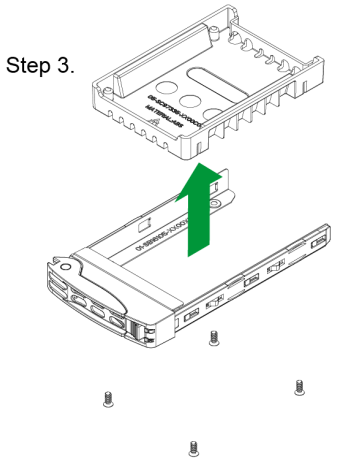
Node Drawer Locations	
Node A	**Node B**
Controls Storage Drives: 0-11	Controls Storage Drives: 12-23

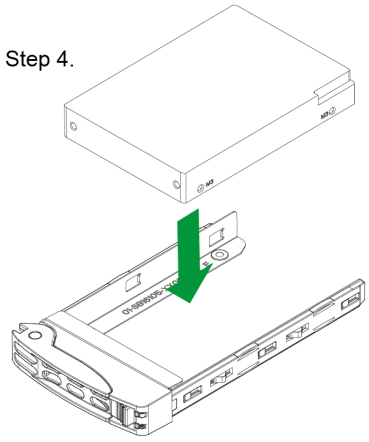
Installing Storage Drives



Removing Drive Carriers and Installing a Storage Drive

1. Press the release button on the drive carrier. This extends the drive carrier handle.
2. Use the handle to pull the carrier out of the chassis.
3. Remove the dummy drive from the carrier.





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

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

6. Insert the drive and carrier into its bay vertically, keeping the carrier oriented so that the release button is on the bottom. When the carrier reaches the rear of the bay, the release handle starts to retract.

7. Push the upper part of the drive carrier handle until it clicks into the locked position.

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.

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.

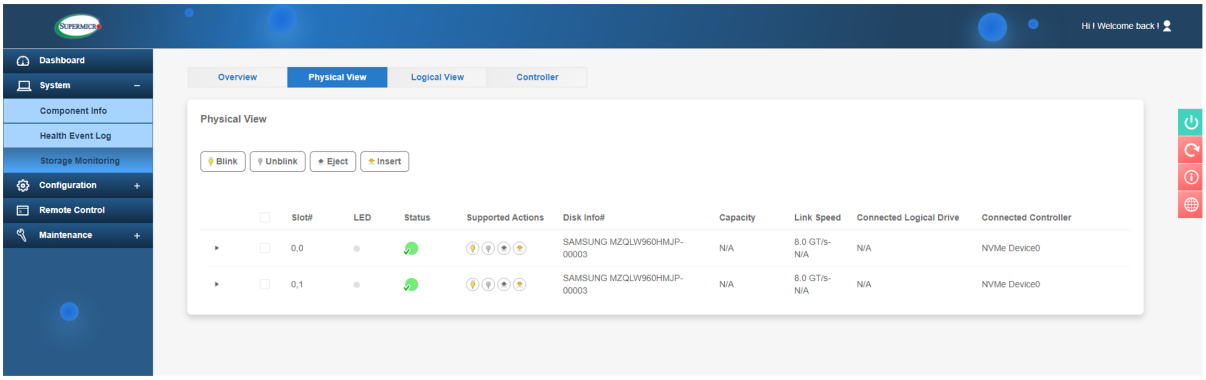


Figure 3-41. BMC Screenshot

Replacing a 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.

3.8 System Cooling

Refer to the following sections for information about the cooling capabilities of the SYS-222BT-DNR server.

Fans

Fan speed is controlled by a system temperature setting in BMC. If a fan fails, the remaining fans will ramp up to full speed. The system can continue to run with a failed fan. Replace any failed fan at your earliest convenience with the same type and model.

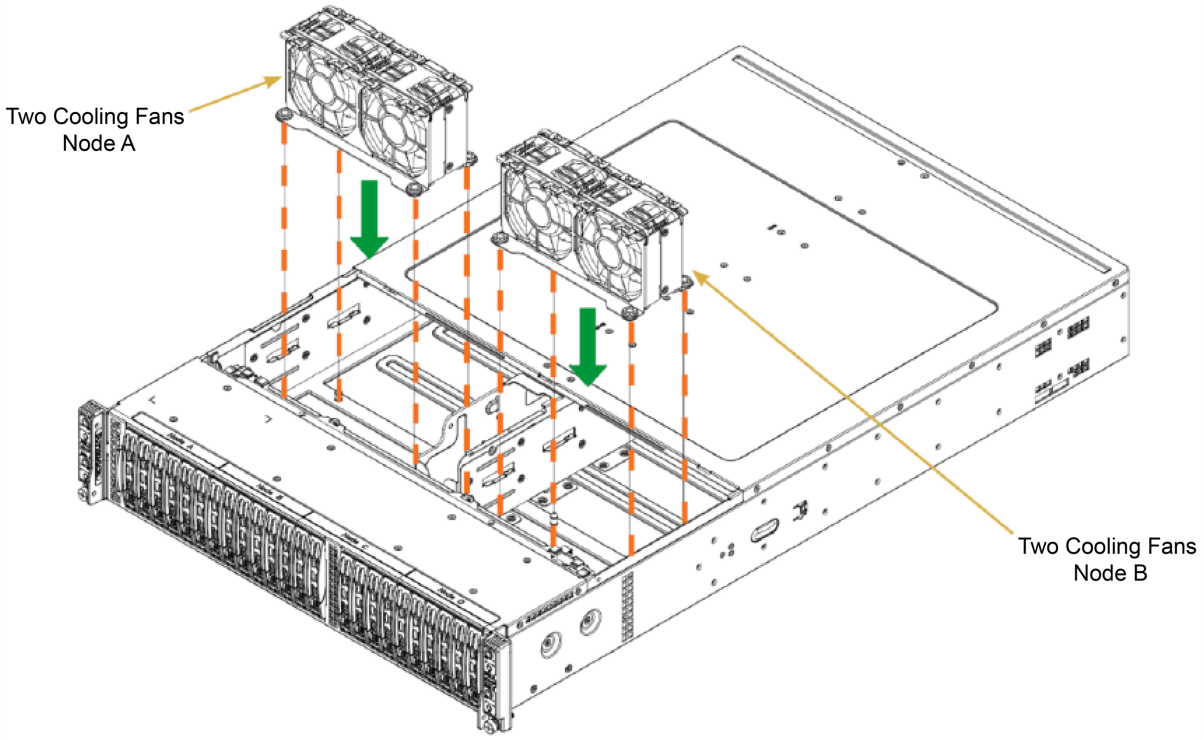


Figure 3-42. System Fan Placement

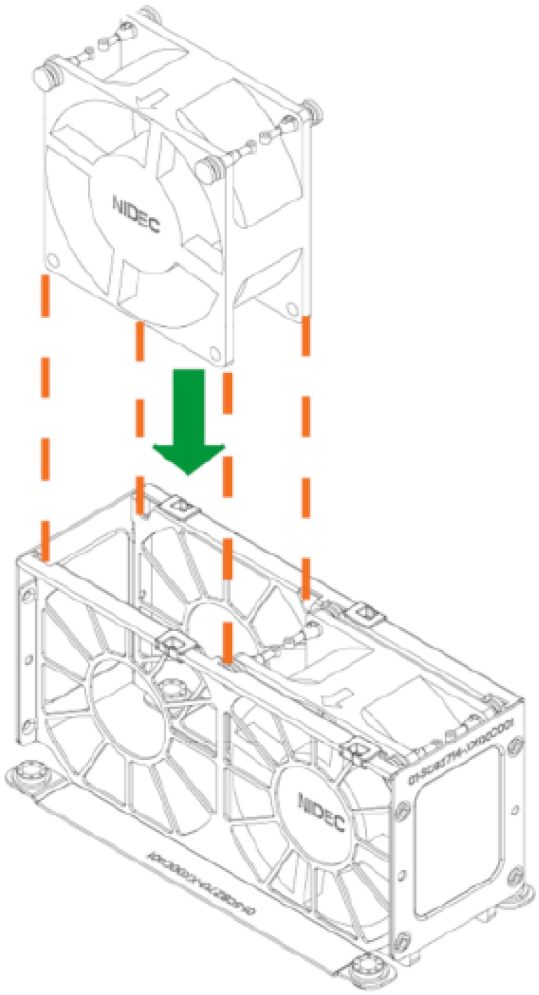


Figure 3-43. Replacing a System Fan in the Fan Housing

Changing a System Fan

1. Determine which fan is failing. If possible, use BMC. If not, remove the chassis cover while the power is on, and examine the fans to determine which one has failed.
2. Remove power from the system.
3. Remove the fan cable from the backplane for the failed fan and the adjacent fan.
4. Lift the fan housing up and out of the chassis.
5. Push the fan up from the bottom and out of the top of the housing.
6. Place the replacement fan into the vacant space in the housing while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as the arrows on the other fans.
7. Put the fan housing back into the chassis and reconnect the cable.
8. Power on the system to confirm that the fan is working properly before replacing the chassis cover.

Air Shroud

Air shrouds concentrate airflow to maximize fan efficiency. The SYS-222BT-DNR server requires one air shroud for each node.

Installing the Air Shroud

The system requires air shrouds for each node to maximize airflow efficiency.

- The motherboard, any expansion cards, and all components must be installed in the node tray.
- Place the air shroud as pictured below.

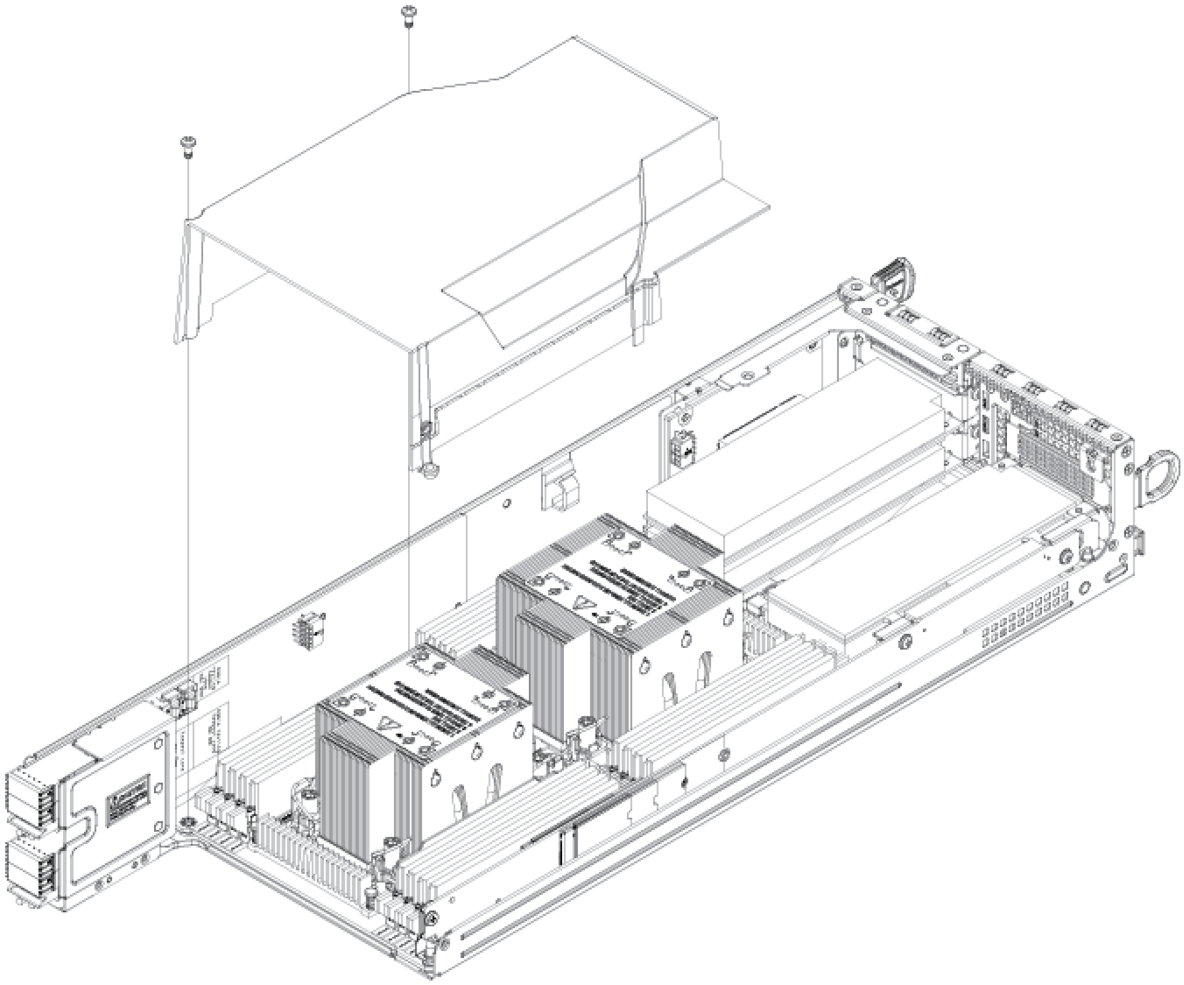


Figure 3-44. Installing the Air Shroud

Checking the Airflow

- Make sure there are no objects obstructing the airflow in and out of the chassis.
- Except for brief periods while swapping hard drives, do not operate the server without the drive carriers in the drive bays.
- Make sure no wires or foreign objects obstruct airflow through the chassis. Pull all excess cabling out of the airflow path or use shorter cables.

3.9 Expansion Cards

Refer to the following sections for information on the expansion cards supported by the SYS-222BT-DNR server.

AIOM Cards

The system supports various AIOM cards to provide networking functionality. See the Supermicro product page for details about the different AIOM cards.

Removing the AIOM Card

1. Press the release tab and loosen the thumbscrew on the AIOM card.
2. Grasp the release tab and the thumbscrew and pull the AIOM out of the node tray.

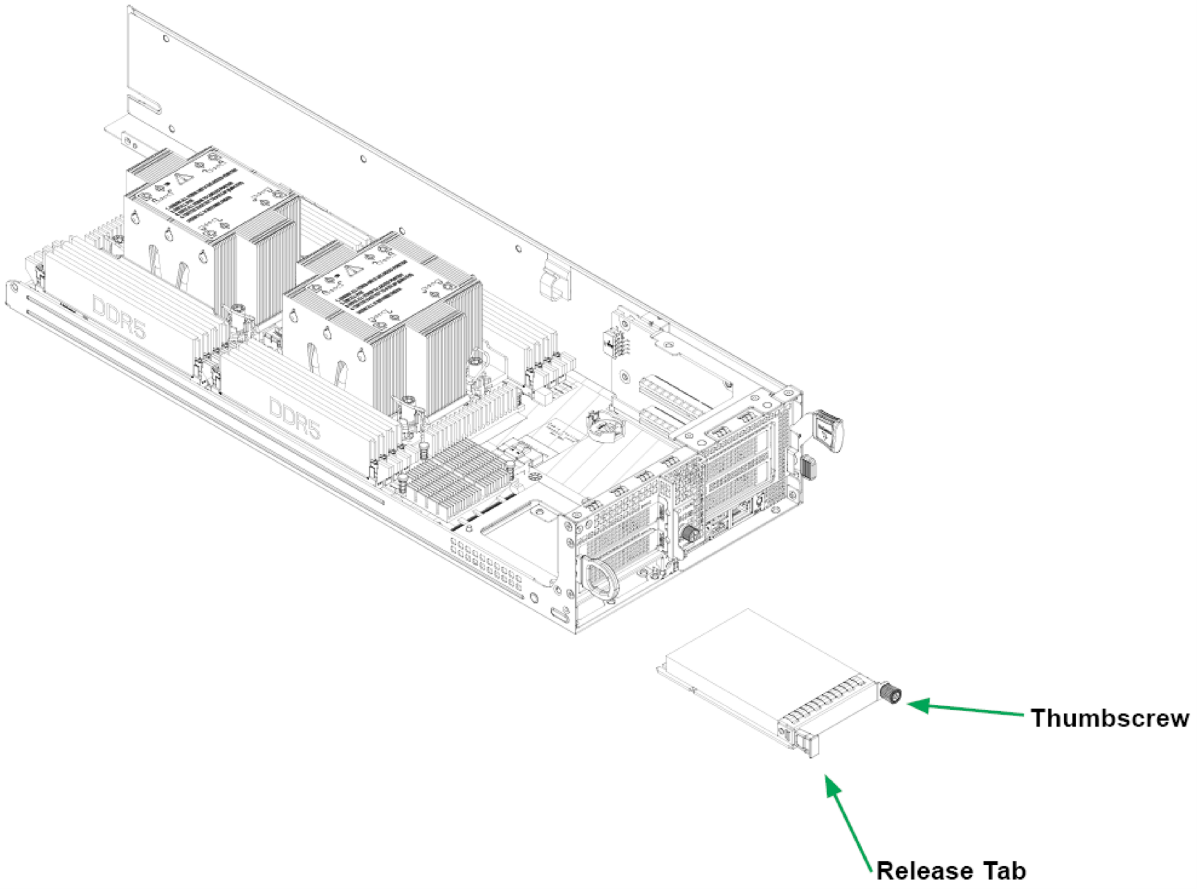


Figure 3-45. AIOM Card vs Node Positioning

Installing the AIOM Card

1. If necessary, loosen the thumbscrew and remove the shield
2. Insert the card into the node until it is connected to the motherboard slot.
3. Tighten the thumbscrew.

PCIe Expansion Cards

The system supports three expansion cards in each node. Riser cards are used to mount the expansion cards.

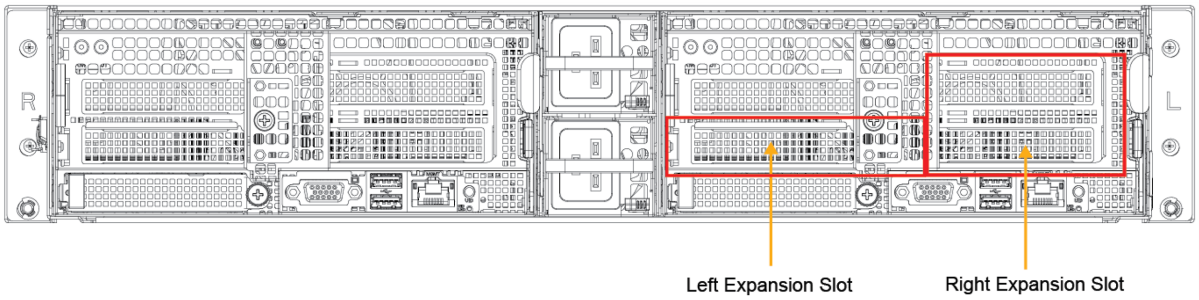


Figure 3-46. PCIe Slot Configuration

Expansion Slot Locations (per node)		
Location	**Slot Type**	**Riser Card**
Left	PCIe 5.0 x16 low-profile slot (CPU2) in each node	SCC-P2NM2G5-B1 or SCC-A2NM2241GH-B1
	PCIe 5.0 x16 low-profile slot (CPU1) in each node	SCC-A2NM2241G3-B1E
Right	PCIe 5.0 x8 low-profile slot (CPU1) in each node	RSC-P2R-88G5

Populating Expansion Slots

1. If necessary, power down the node, remove it from the chassis, remove the expansion card screw and set aside.
2. Remove the PCI slot shields.

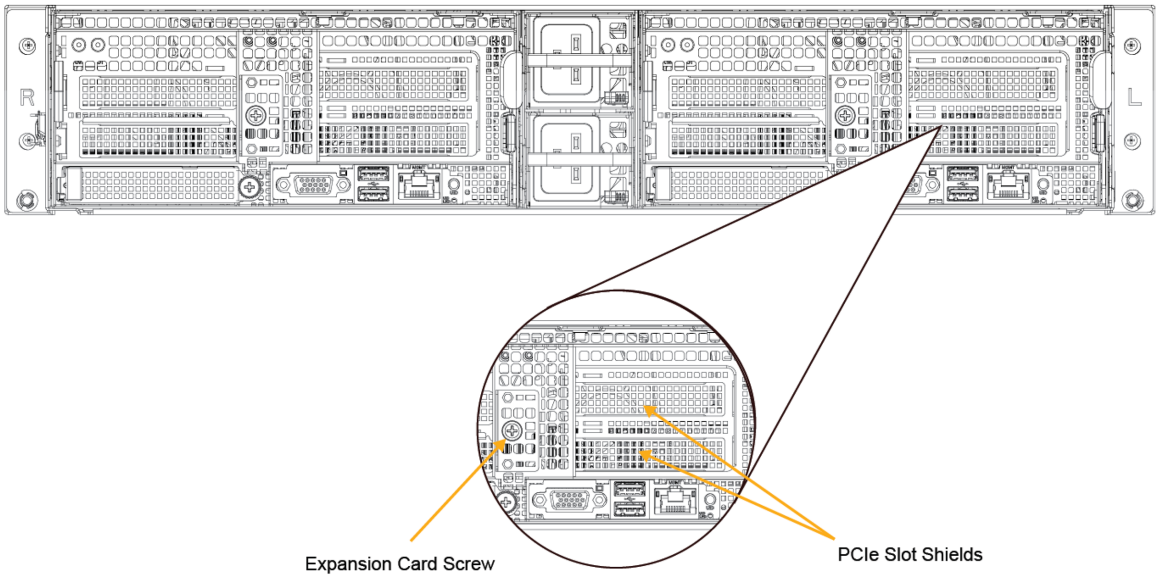


Figure 3-47. PCIe Slot Shields

3. If the riser card (p/n RSC-P2R-88G5) is not installed, attach the riser card to the riser card bracket.
4. Insert one or two expansion cards into the riser slot to create an assembly.

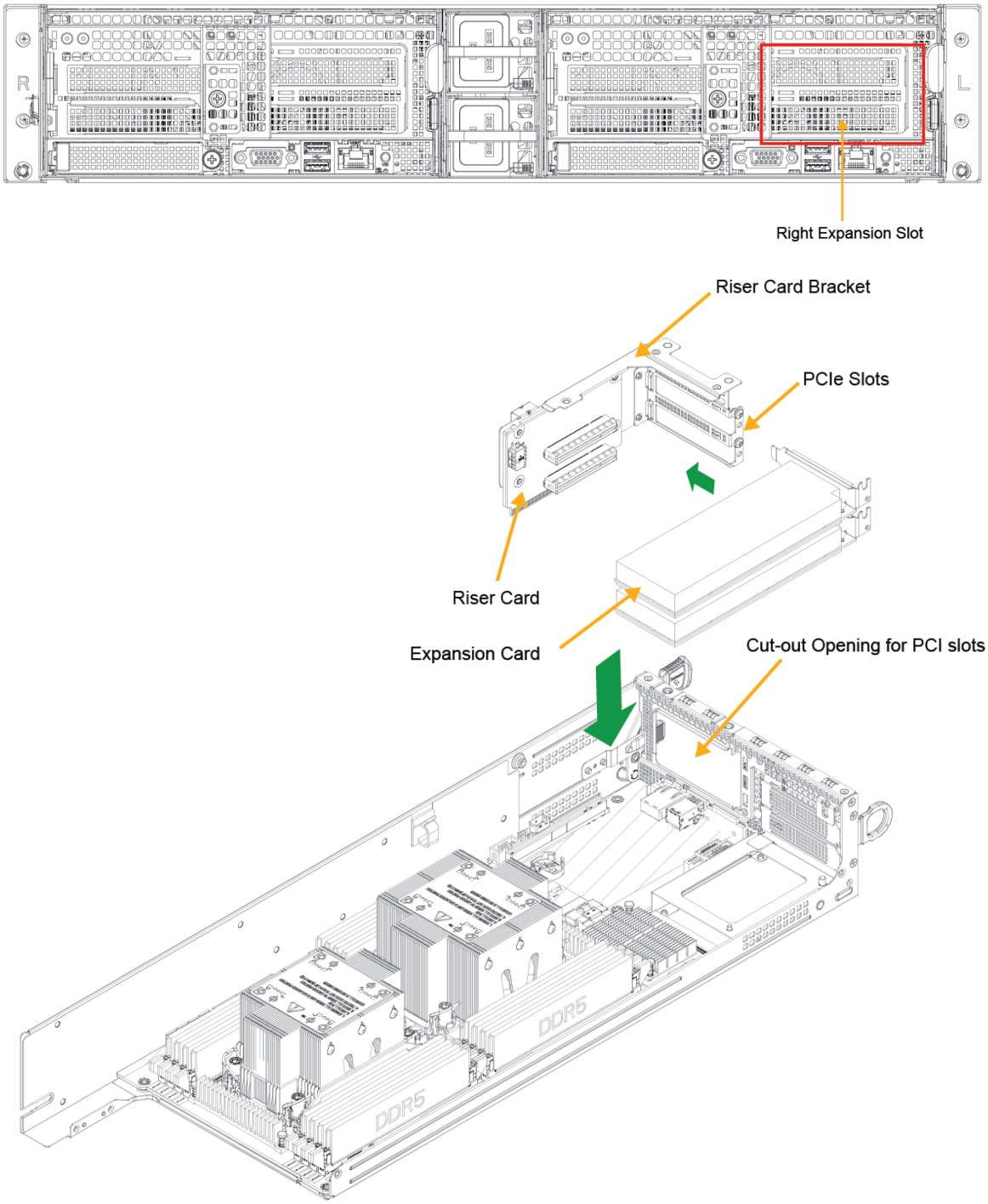


Figure 3-48. Installing an Expansion Card (Right slot)

5. Align the assembly with SLOT1 on the motherboard and the PCI slot shield at the chassis rear.
6. Insert the assembly into the motherboard and install a screw to hold the expansion card to the chassis.
7. Connect cables.

8. Reinstall the expansion card screw, reinsert the node into the chassis and power up the system.

Populating the Left Expansion Slot

1. Power down the node and remove it from the chassis.
2. Remove the expansion card screw and set aside. Remove the PCIe slot shield.
3. Attach brackets onto the M.2 carrier-and-riser card, if necessary.

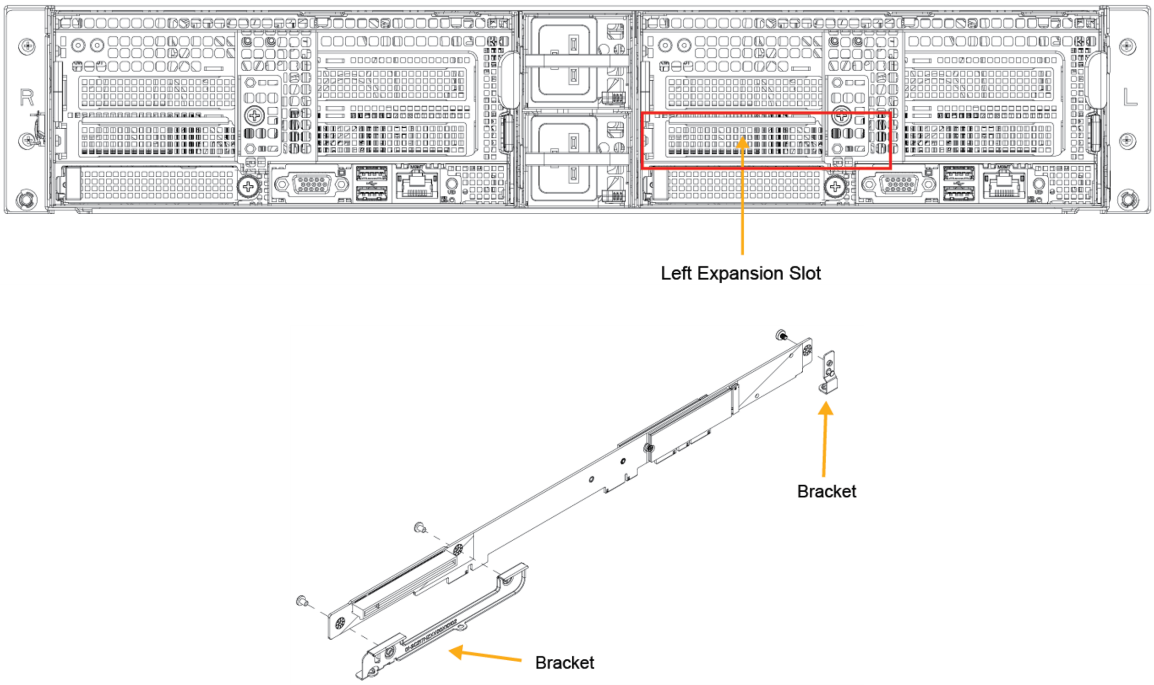
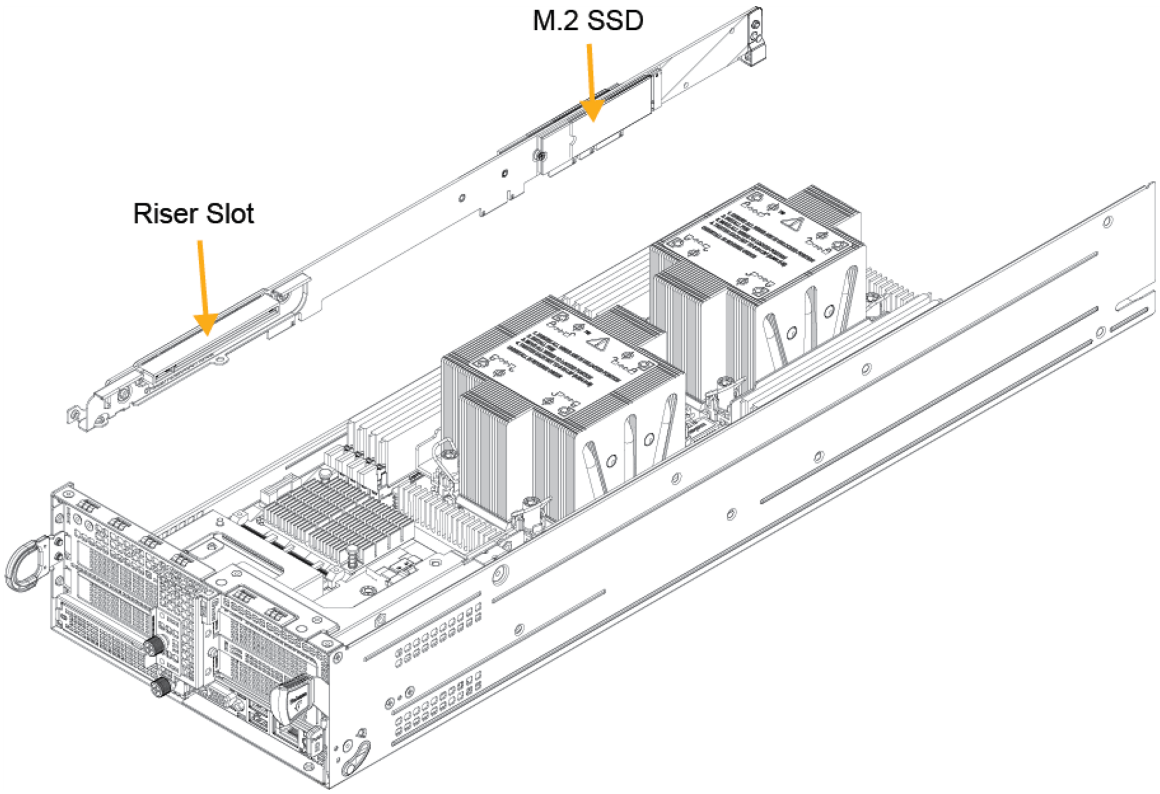


Figure 3-49. Installing Brackets

4. Insert an expansion card into the riser slot of the M.2 carrier-and-riser card to create an assembly (not shown).
5. Install the M.2 SSD, if necessary (not shown).



6. Align the assembly with SLOT2 on the motherboard and the PCI slot shield at the node rear and insert the assembly into the motherboard.
7. Connect cables, if necessary.
8. Reinstall the expansion card screw, reinsert the node into the chassis, and power up the system.

3.10 Cable Routing Diagrams

The below diagrams indicate the cable routing for the CPU cables. When disconnecting cables to add or replace components, refer to the diagrams so you can reroute them in the same manner. If cables are not connected or routed properly it may lead to device detection or performance issues.

Cable Routing Diagram

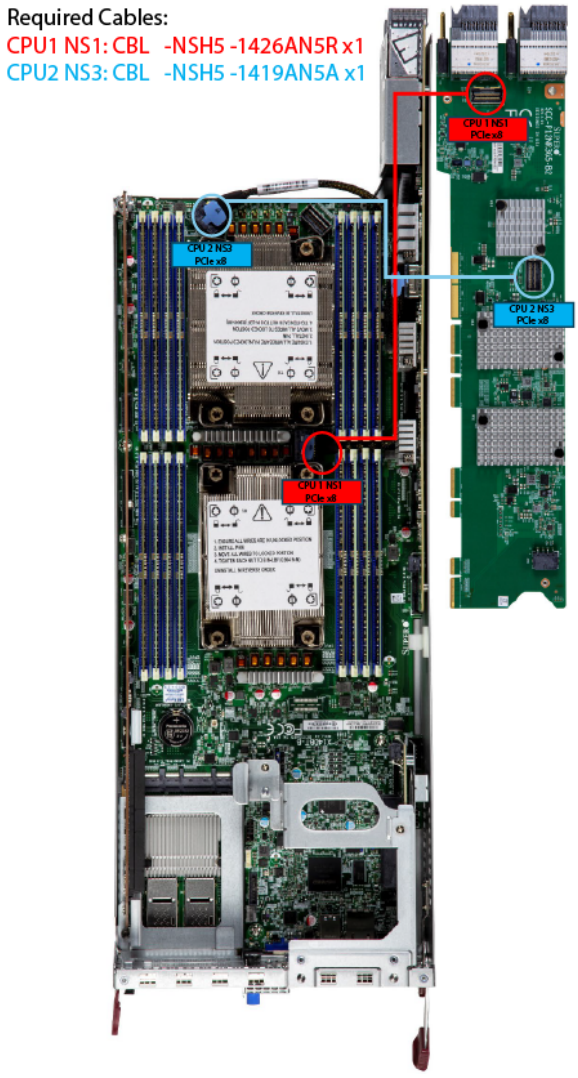


Figure 3-50. Cable Routing Diagram

3.11 Power Supply

The SYS-222BT-DNR server includes two hot-plug power supply modules. These modules will automatically sense and operate at an input voltage between 100–240 V. 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.

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

Replacing the Power Supply

1. Unplug the AC 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 power cord back into the power supply module.

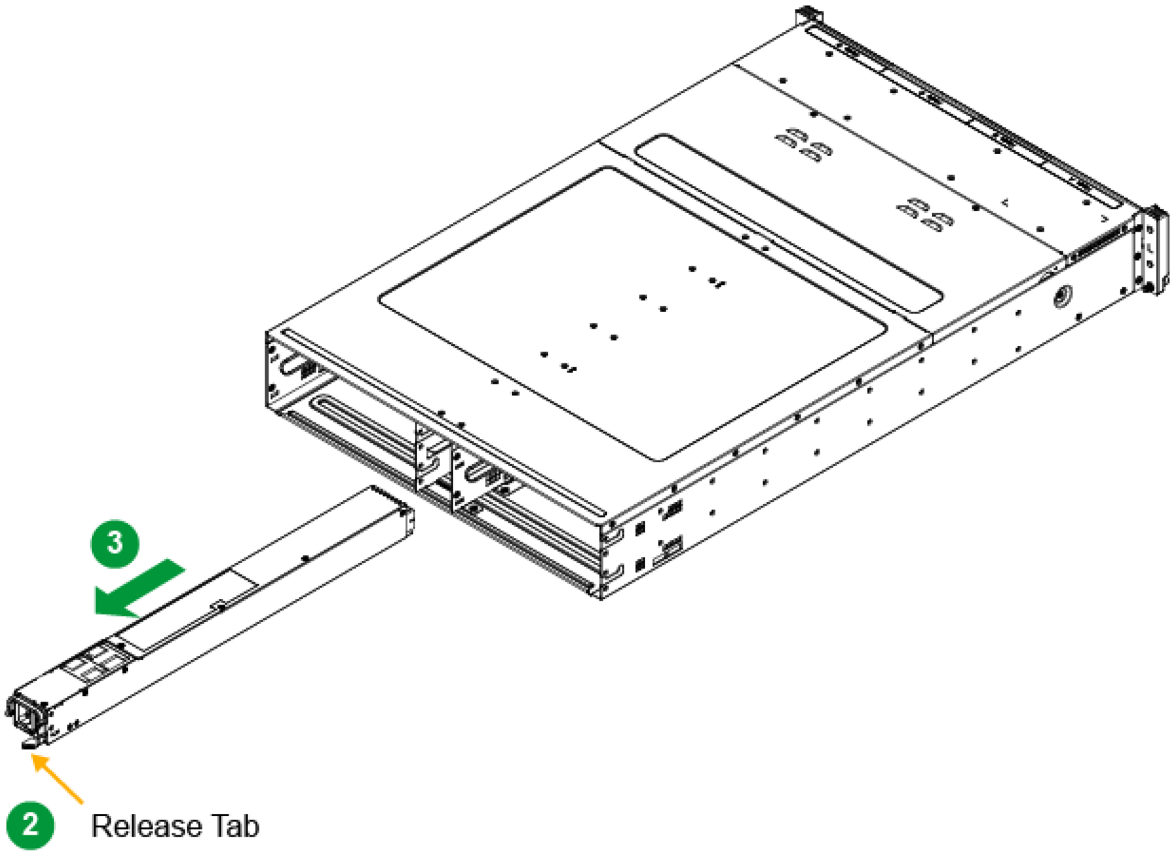


Figure 3-51. Installing a Power Supply Module

Chapter 4:

Motherboard Connections, Jumpers, and LEDs

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 the "Introduction" on page 13. More detail can be found in the X14DBT-B motherboard manual.

Review the "Standardized Warning Statements for AC Systems" on page 137 before installing or removing components.

4.1 Power Supply and Power Connections 81

Power Supply 81

Power Connections 81

Headers and Connections 81

I/O Ports 83

Jumper Settings 86

LED Indicators 87

4.1 Power Supply and Power Connections

For information about the power supply and power connections of the SYS-222BT-DNR server, refer to the following content.

Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. It is even more important for processors that have high CPU clock rates where noisy power transmission is present.

The X14DBT-B board accommodates four 6-Pin +12 V power connectors (JPWR1–JPWR4). Although most power supplies generally meet the specifications required by the processors, some are inadequate. All these power connections are also required to ensure adequate power supply to the system.

Important: To avoid damaging the power supply or the motherboard, Be sure to also connect the power supplies to four power connectors (JPWR1–JPWR4) on the motherboard. Failure to do so may void the manufacturer warranty on your power supply and motherboard.

It is strongly recommended that you use a high quality power supply that meets ATX power supply Specification 2.02 or above. It must also be SSI compliant.

Power Connections

Four power connectors (JPWR1–JPWR4) are on the front side of the motherboard.

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.

Headers and Connections

For information about the headers on the X14DBT-B motherboard, refer to the following content.

Power Connections

Four power connectors (JPWR1–JPWR4) are on the front side of the motherboard.

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.

Fan Header

A fan header, located at FAN3 on the motherboard, is used for a system cooling fan. Fan speed control for this fan is supported by thermal management via BMC 2.0 interface.

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.

TPM/Port 80 Header

The JTPM1 header on the X14DBT-B motherboard 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. Information on the TPM is available at the following page:

https://www.supermicro.com/manuals/other/AOM-TPM-9670V_9670H__X12_H12.pdf

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.

Trusted Platform Module Header

Pin Definitions: 10 Total

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	No Connection
9	+1.8 V Standby	10	SPI_IRQ#

NC-SI Connection

The Network Controller Sideband Interface (NC-SI) connection is located at JNCSI1 on the X14DBT-B motherboard. This connection is used to connect a Network Interface Card (NIC) to the motherboard to allow the onboard Baseboard Management Controller (BMC) to communicate with a network.

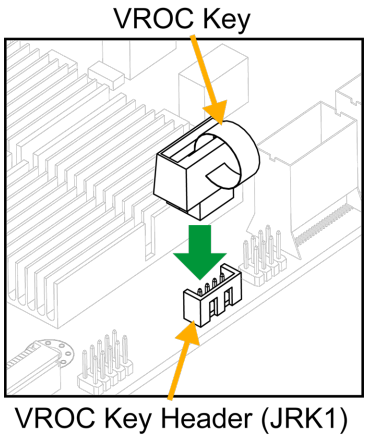
Note: For detailed instructions on how to configure Network Interface Card (NIC) settings, refer to the Network Interface Card Configuration User's Guide posted on the web page under the link: https://www.supermicro.com/support/manuals.

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.

VROC RAID Key Header

A VROC RAID Key header is located at JRK1 on the X14DBT-B motherboard. Install a VROC RAID key on JRK1 for NVMe RAID support as shown in the illustration below.

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.



Intel VROC Key Pin Definitions: Four Total	
Pin#	**Definition**
1	GND
2	+3.3 V Standby
3	GND
4	CPU RAID Key

Note: Images displayed are for illustrative purposes only. The components installed in your system may or may not look exactly the same as the graphics shown in the manual.

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 following link: https://www.supermicro.com/support/manuals.

Liquid Cooling Leakage Sensor Headers

Liquid cooling leakage sensor headers are located at J35 and J36 on the X14DBT-B motherboard. These headers are reserved for liquid cooling support in systems. Liquid cooling leakage sensor headers are used to detect leakage of the coolant used in your liquid cooling system.

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.

I/O Ports

For information about the I/O connectors and ports of the SYS-222BT-DNR server, refer to the following content.

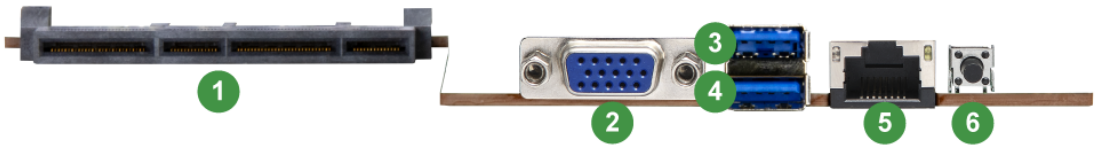


Figure 4-1. X14DBT-B I/O Ports

I/O Ports	
1	Advanced Input/Output Module Connector
2	VGA Port
3	USB 3.2 Port
4	USB 3.2 Port
5	Dedicated BMC LAN Port
6	Unit Identifier Button

BMC Dedicated LAN

A BMC dedicated LAN (IPMI_LAN) supports Ethernet connections through an RJ45 cable. For LAN LED information, see "LED Indicators" on page 87.

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.

VGA Port

A video (VGA) port is located on the I/O ports of the motherboard. The VGA port provides analog interface support between the computer and the video displays.

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.

Unit Identifier Button

A Unit Identifier (UID) button and two LED indicators are located on the motherboard. The UID button is located near the I/O ports of the X14DBT-B motherboard.

Note: After pushing and holding the UID button for 12 seconds, all BMC settings including username and password will revert back to the factory default. Only the network settings and FRU are retained.

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.

Function	User Input	Behavior	LED Activity
UID LED Indicator	Push once Push again	Turns on the UID LED Turns off the UID LED	UID LED turns solid blue UID LED turns off
BMC Reset	Push and hold for 6 seconds Push and hold for 12 seconds	BMC will do a cold boot BMC will reset to factory default	BMC Heartbeat LED turns solid green BMC Heartbeat LED turns solid green

UID Button Pin Definitions: Four Total	
Pin#	**Definition**
1	Button In
2	GND
G1	GND
G2	GND

UID LED Pin Definitions: Four Total	
Color	**Status**
1	Button In
2	GND
G1	GND
G2	GND

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

A Supermicro proprietary Advanced I/O Module (AIOM) PCIe 5.0 x16 connector used for an add-on module is located at P1 JAIOM PCIe 5.0 x16 on the X14DBT-B motherboard. This AIOM connector provides input/output connections on the I/O face of your system.

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.

COM Port

A COM (communication) port (COM1) that supports serial link interface is located on the rear side of your system.

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.

Universal Serial Bus (USB) 3.2 Ports

Two USB 3.2 ports (USB 0/1) are located at JUSB1 on the X14DBT-B motherboard.

USB0/1 (USB 3.2 Gen 2) Port Pin Definitions: 18 Total			
Pin#	**Definitions**	**Pin#**	**Definitions**
1	VBUS	10	VBUS
2	D-	11	D-
3	D+	12	D+
4	GND	13	GND
5	STDA_SSRX-	14	STDA_SSRX-
6	STDA_SSRX+	15	STDA_SSRX+
7	GND	16	GND
8	STDA_SSTX-	17	STDA_SSTX-
9	STDA_SSTX+	18	STDA_SSTX+

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.

Jumper Settings

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.

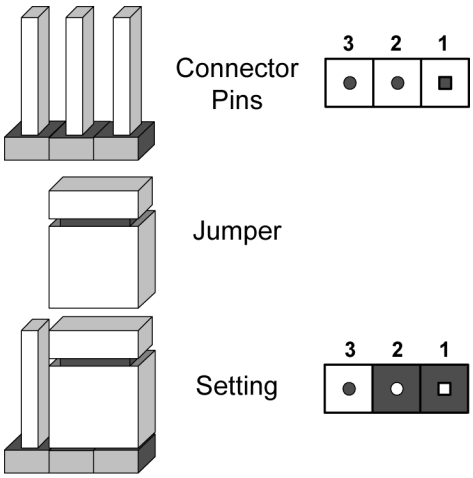


Figure 4-2. Jumping Connector Pins

CMOS Clear

JBT1 on the X14DBT-B motherboard 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.

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.



1. First power down the system and unplug the power cord(s).
2. Remove the cover of the chassis to access the motherboard.
3. Remove the onboard battery from the motherboard.
4. Short the CMOS pads, JBT1, with a metal object such as a small screwdriver for at least four seconds.

   Note: Clearing CMOS will also clear all passwords.

5. Remove the screwdriver (or shorting device).
6. Replace the cover, reconnect the power cord(s), and power on the system.

LED Indicators

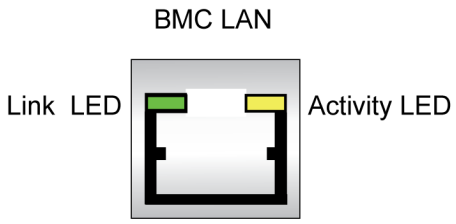
For information about the LED indicators on the SYS-222BT-DNR server, refer to the following content.

BMC LAN LEDs

The dedicated BMC LAN connection on the X14DBT-B motherboard features two LEDs. The LED on the right indicates activity, and the LED on the left indicates the speed of the connection.

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.

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



BMC Heartbeat LED

A BMC Heartbeat LED is located on the X14DBT-B motherboard. When this LED is blinking, the BMC is functioning normally.

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.

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

Unit ID (UID) LED

The UID LED indicator is located on the X14DBT-B motherboard. This UID indicator provides easy identification of a system that may need to be serviced.

For a detailed diagram of the X14DBT-B motherboard, see the layout under "Motherboard Quick Reference" on page 22.

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

Chapter 5:

Software

After the SYS-222BT-DNR server has been installed, you can install the Operating System (OS), configure RAID settings, and install the drivers.

5.1 Microsoft Windows OS Installation **90**

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BMC ADMIN User Password 93

Logging into the BMC **93**

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 https://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, or the BMC KVM console.
2. Retrieve the proper drivers. 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 bootup.

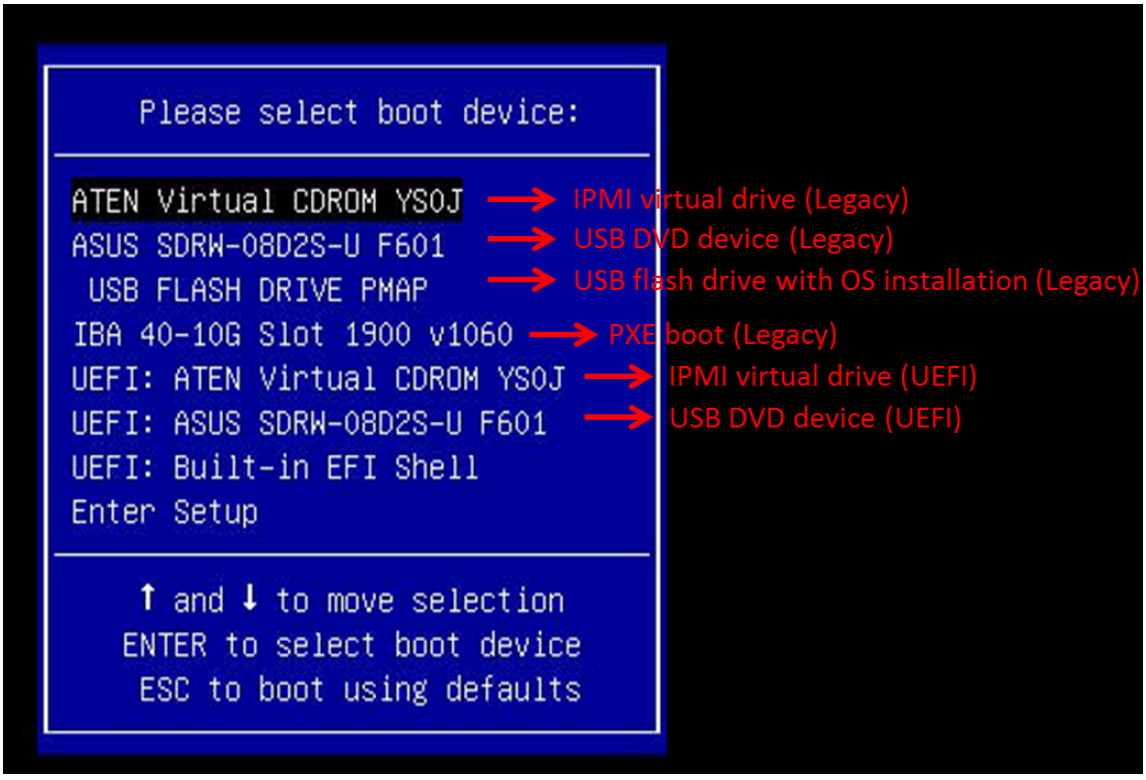


Figure 5-1. Selecting the Boot Device

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

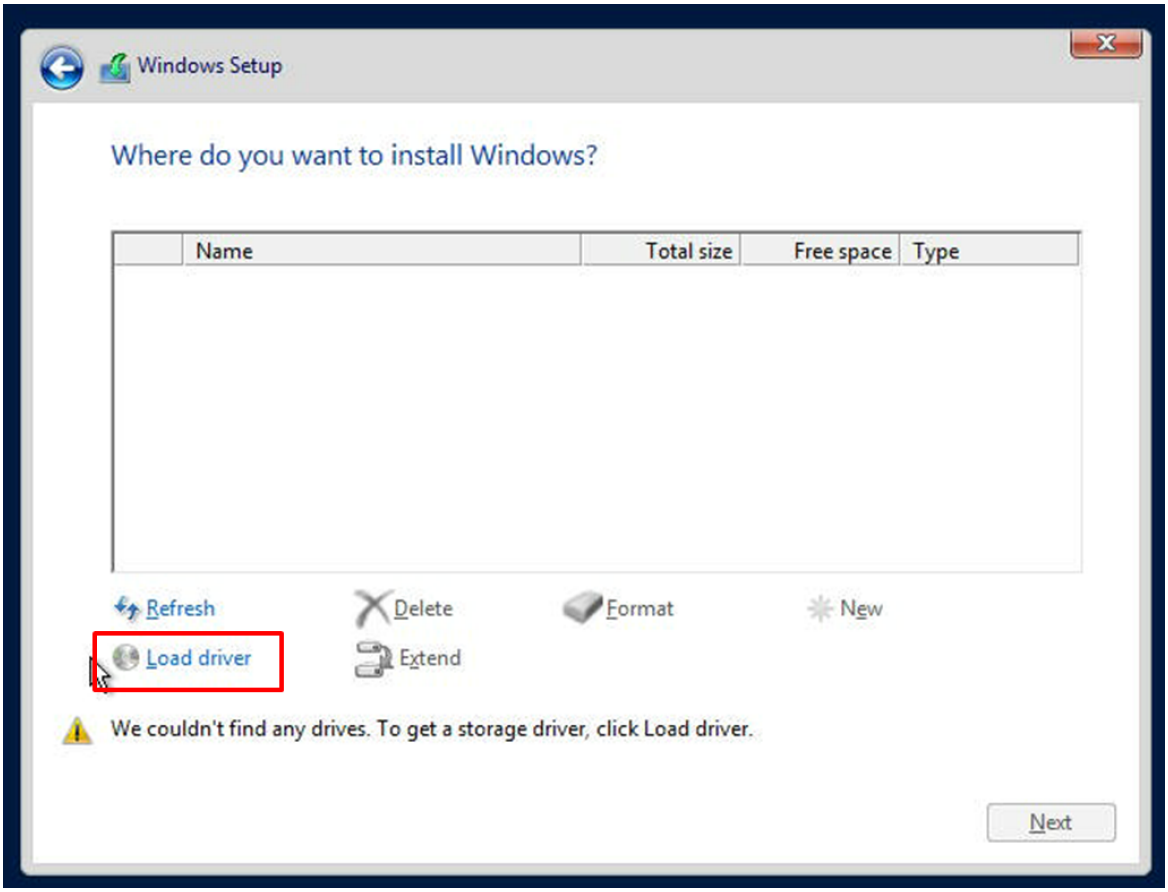


Figure 5-2. Loading the Driver Link

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

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

5.2 Driver Installation

The Supermicro website contains drivers and utilities for your system at the following page:

https://www.supermicro.com/wdl.

Some of these drivers and utilities 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 https://www.supermicro.com. 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.

Note: Click the icons showing a hand writing on paper to view the readme files for each item. Click the computer icons to the right of these items to install each item (from top to 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 contents.

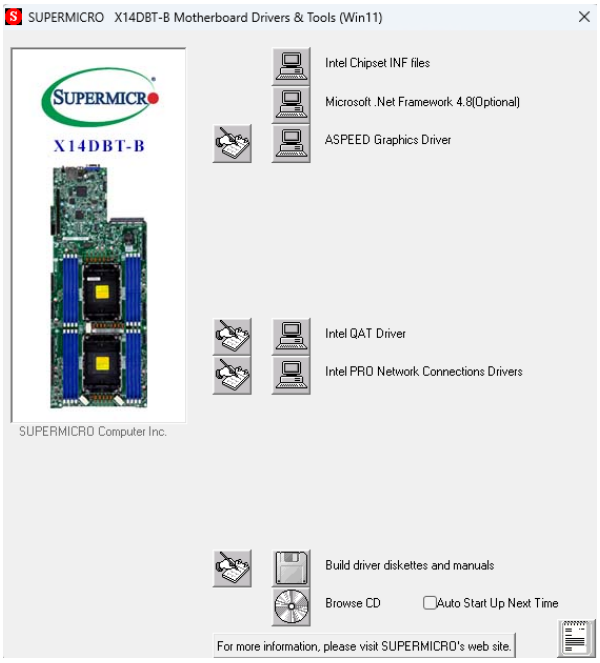


Figure 5-3. Drivers & Tools Screenshot

5.3 BMC

The X14DBT-B 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 the following page:

https://www.supermicro.com/en/solutions/management-software/bmc-resources

BMC ADMIN User Password

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

Logging into the BMC

Supermicro ships standard products with a unique password for the BMC ADMIN user. This password can be found on a label on the motherboard.

When logging in to the BMC for the first time, use the unique password provided by Supermicro to log in. You can change the unique password to a user name and password of your choice for subsequent logins.

For more information regarding BMC passwords, visit our website at https://www.supermicro.com/en/support/BMC_Unique_Password.

Chapter 6:

Optional Components

This chapter describes alternate configurations and optional system components for the SYS-222BT-DNR server.

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6.3 Intel Virtual RAID on CPU (VROC) **98**
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Additional Information 98
Hardware Key 99
Configuring Intel VMD 99
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6.1 Cable Management Arm

The SYS-222BT-DNR server supports a cable management arm (CMA), 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.

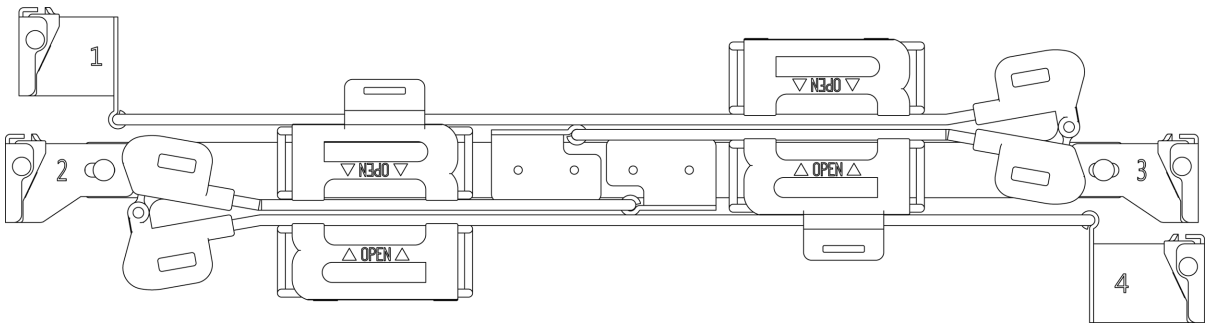


Figure 6-1. Cable Management Arm

Cable Arm Details		
Optional Part	**Part Number**	**Description**
Cable Arm	MCP-290-00168-0N	7.5" deep cable arm
Rail Set	MCP-290-11901-0N	41.2" rails (optimized for 1200-mm deep racks)

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). It snaps into place.
2. Slide CMA connector #2 forward onto the two posts on the rear of the right middle rail. It snaps into place.

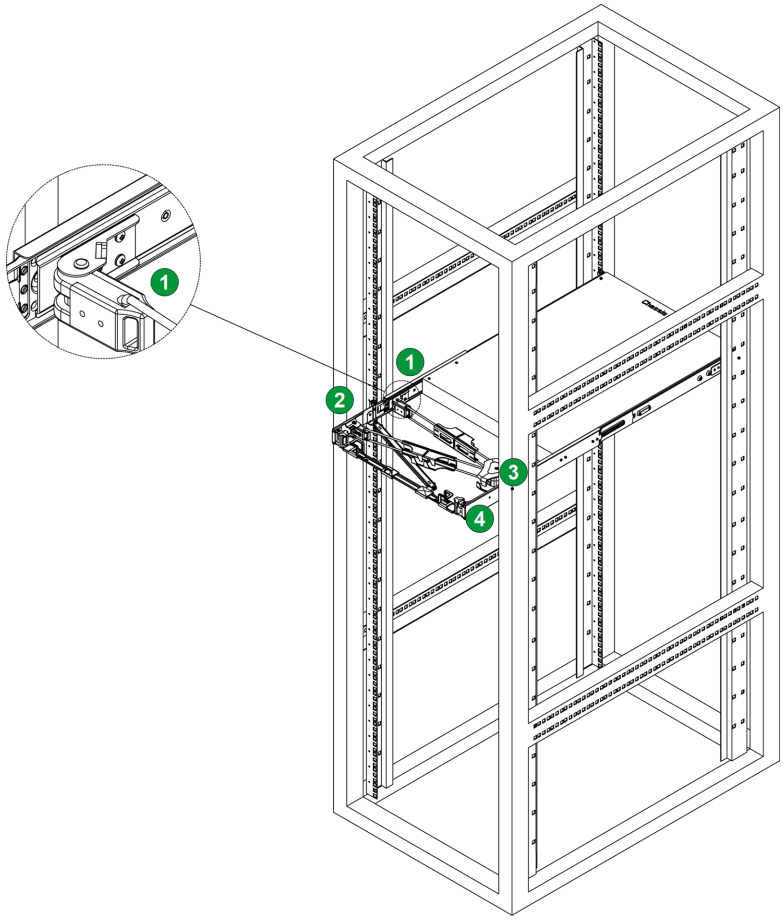


Figure 6-2. Installing the Connectors

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.

6.2 TPM Security Module

SPI capable TPM 2.0 (or 1.2) with Infineon 9670 controller, vertical 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 X14DBT-B motherboard to deny access if the TPM associated with the storage drive is not installed in the SYS-222BT-DNR server.

For details and installation procedures, refer to the following page:

https://www.supermicro.com/manuals/other/AOM-TPM-9670V_9670H__X12_H12.pdf

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

6.3 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.

Additional Information

- Latest SSD and operating system information: https://www.intel.com/content/www/us/en/support/articles/000030310/memory-and-storage/ssd-software.html

- Additional information for the Supermicro add-on card and linked manuals: https://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

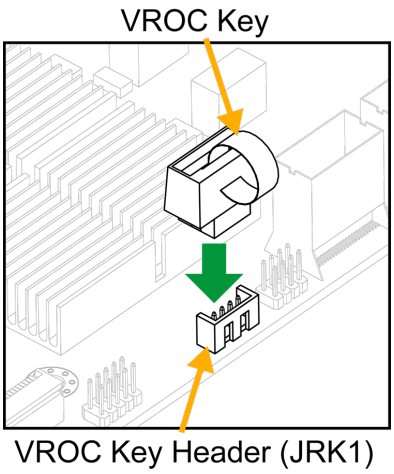


Figure 6-3. Intel VROC RAID Key and Motherboard Connector JRK1

Configuring Intel VMD

VMD must be enabled on PCIe ports which have NVMe drives attached to them in order for those drives to be added to a VROC RAID configuration. The default BIOS setting for the NVMe Mode Switch is Auto which automatically enables VMD on all installed NVMe drives.

NVMe Mode Switch:

- Auto: Enables VMD for all NVMe ports if VROC Key is installed.
- VMD: Enables VMD for all NVMe ports despite the lack of the VROC Key.
- Manual: Allows the user to select specific NVMe ports on which to enable VMD.

The NVMe Mode Switch can be viewed or selected at BIOS > Advanced > Chipset Configuration > North Bridge > IIO Configuration > Intel® VMD Technology.

Note: Without a VROC Key, there is no RAID support with the Auto switch. Only RAID 0 is supported with the VMD and Manual switches.

Configuring VMD Manually

The steps for manually configuring VMD on specific NVMe ports in UEFI BIOS are shown below. Example screenshots may differ from your server.

Important:

- If there is an existing RAID configuration, delete the RAID volume associated with the VMD controller before disabling the controller. Failure to do so may lead to unexpected behavior.
- The effects of physically changing or swapping a CPU on the VMD controller have not been thoroughly tested or documented.

1. Reboot the server and press [DEL] key to access the BIOS options.
2. Switch to Advanced > Chipset Configuration > North Bridge > IIO Configuration > Intel® VMD Technology.
3. Select VMD Mode Switch, then select Manual.

   Note that Socket 0 contains CPU1; Socket 1 contains CPU2.

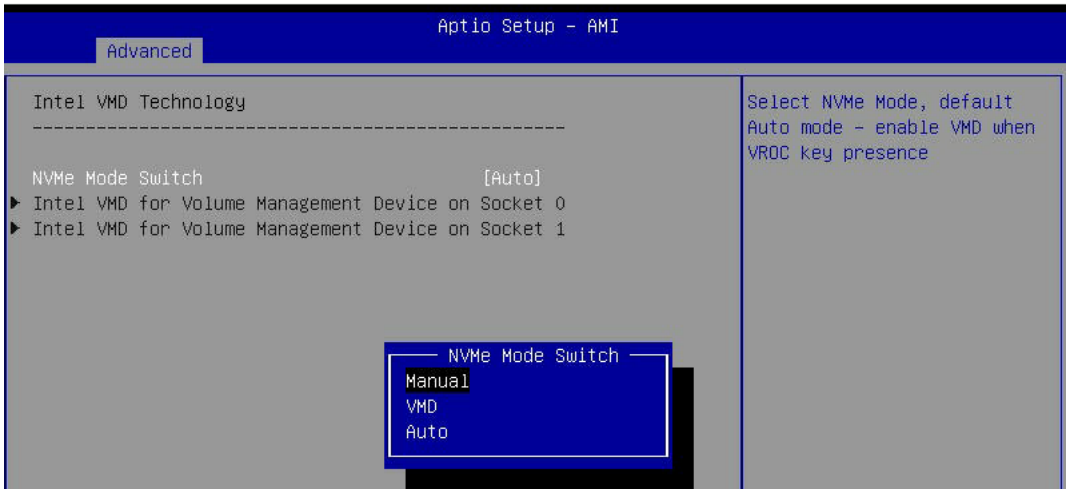


Figure 6-4. BIOS, Selecting VMD Mode

4. VMD must only be enabled on NVMe port resources. If VMD is enabled on other PCIe ports, the functionality of those ports will be impacted. See the table below.

   Select “Intel VMD for Volume Management Device on” on Socket 0 (CPU1) or Socket 1 (CPU2) to enable VMD for devices under the respective CPU.

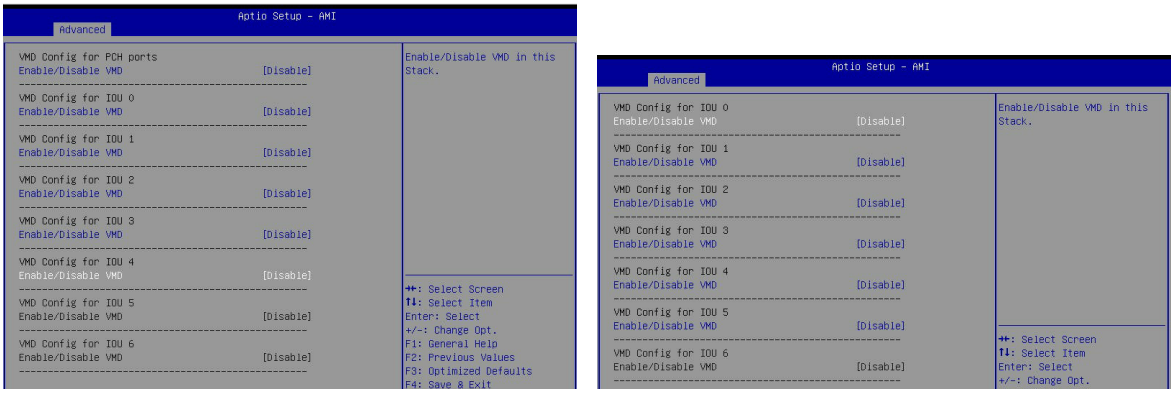


Figure 6-5. Intel VMD for Volume Management Device on Socket 0 and Socket 1

5. Choose Enable for “Enable/Disable VMD” for IOU 3 to list the available devices under IOU 3.

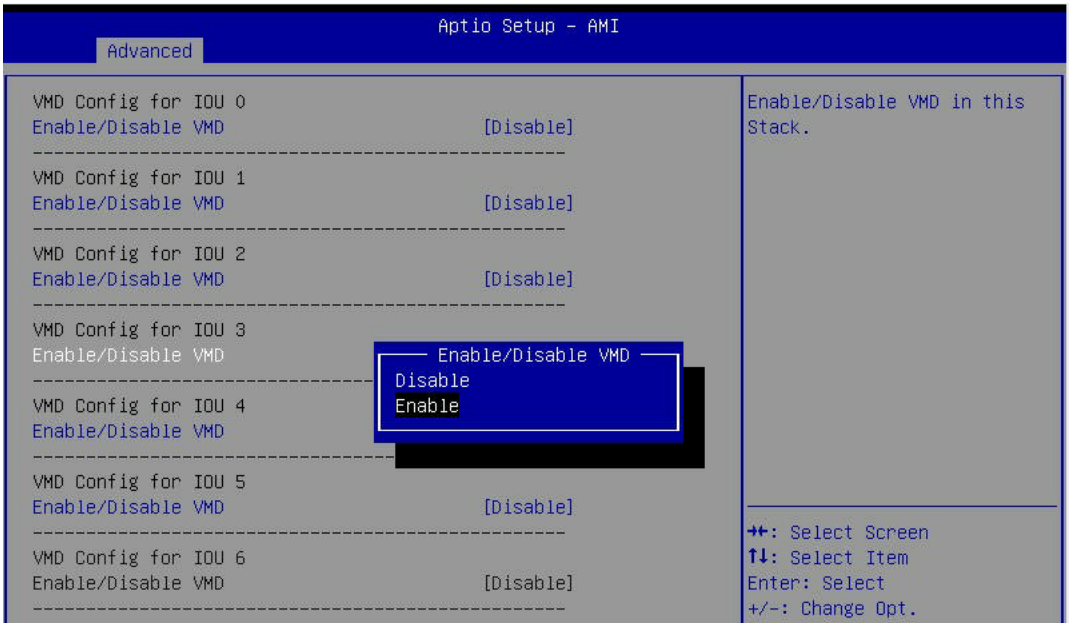


Figure 6-6. BIOS, Enabling VMD on Socket 1 (CPU2) (Example)

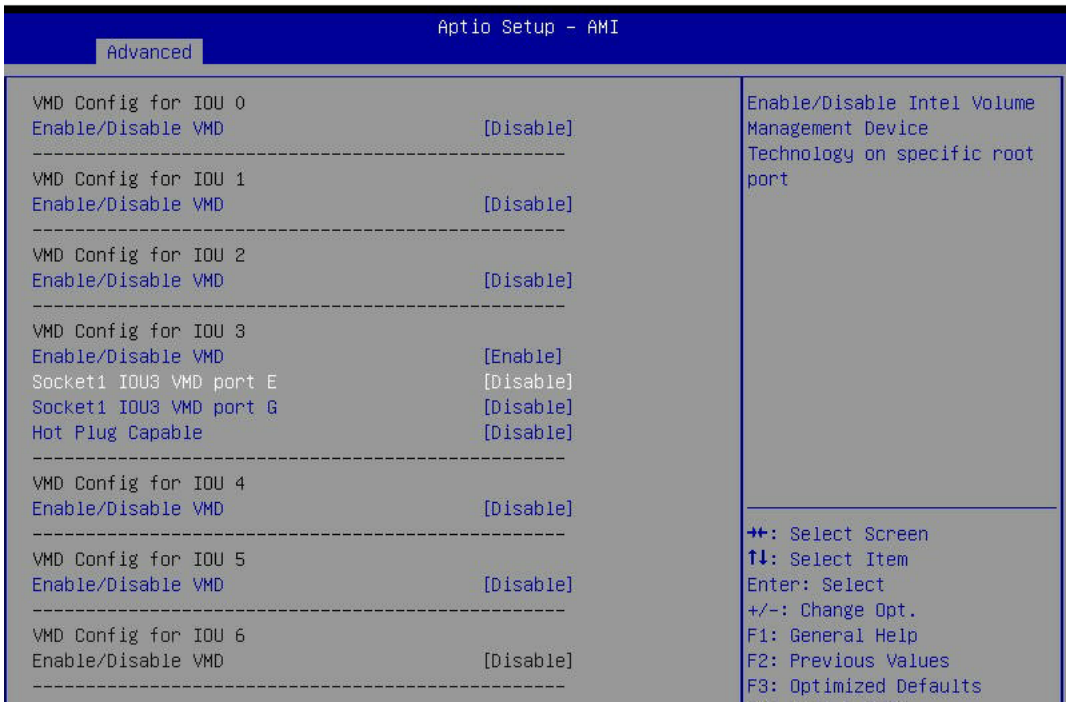


Figure 6-7. BIOS, Enabling VMD on Socket 1 (Example)

6. Enable the NVMe port resource according to table above for the NVMe drives that will be used in a RAID configuration.

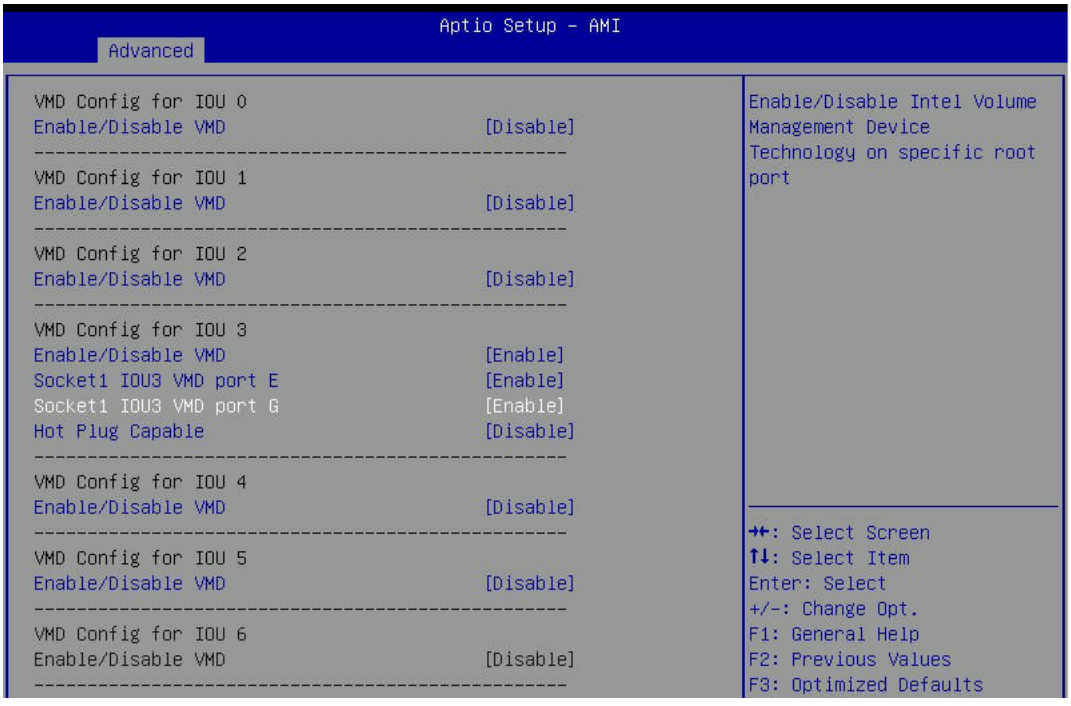


Figure 6-8. BIOS, Enabling Socket 1 (Example)

7. Choose whether to make the NVMe drives in this IOU Hot Plug Capable by selecting Enabled or Disabled.
8. Repeat steps 4 through 7 for each IOU # on each CPU to enable VMD on the desired NVMe ports.

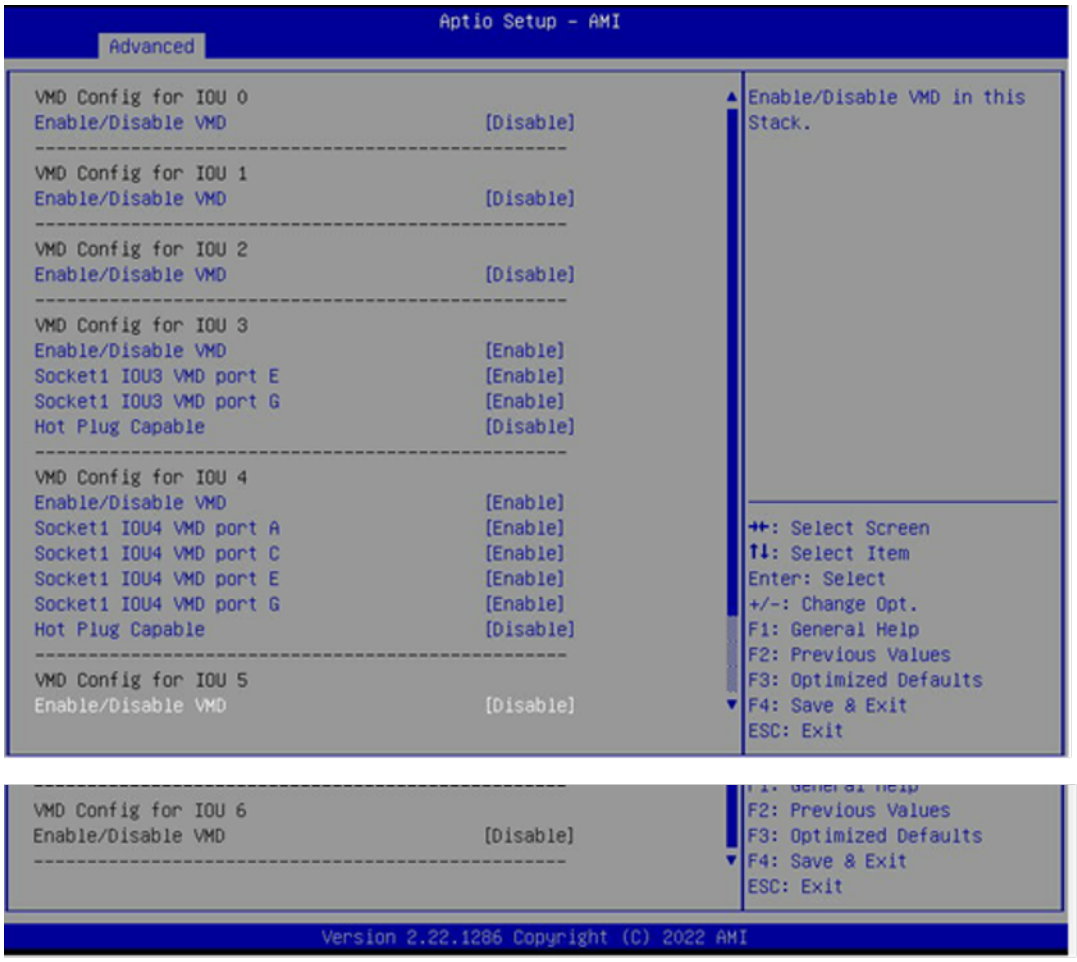


Figure 6-9. BIOS, Enabling Socket 1 Completed (Example)
(This example shows SYS-621H-TN12R with 12 NVMe. Other systems will look different.)

9. Press [F4] to save the configuration and reboot the system.

Creating NVMe RAID Configurations

1. Open Advanced > Intel(R) Virtual RAID on CPU > All Intel VMD Controllers > Create RAID Volume.

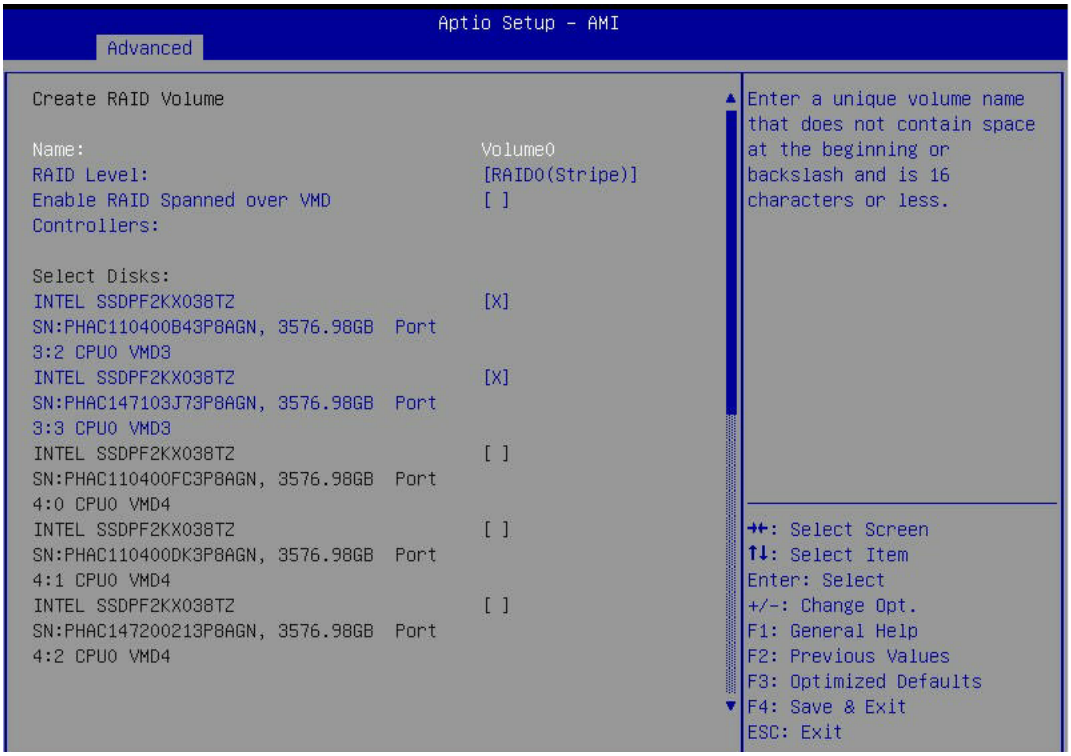


Figure 6-10. Creating Volume Without Enabling RAID Spanned over VMD Controller

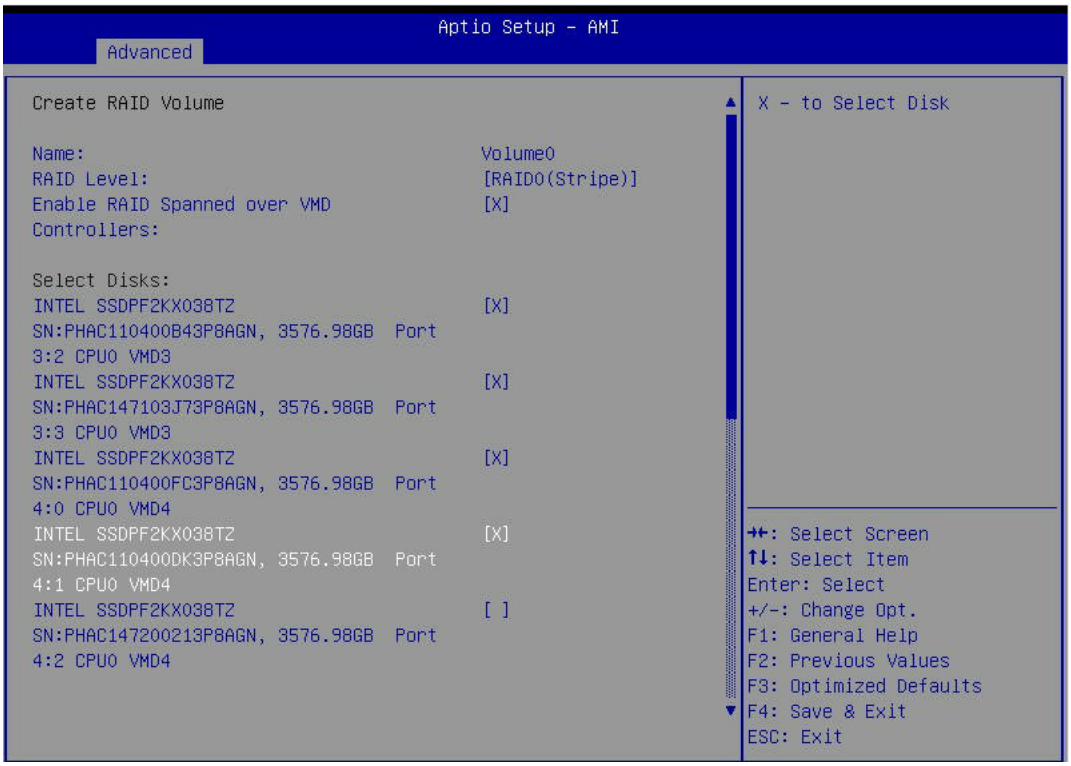


Figure 6-11. Creating Volume With Enabling RAID Spanned over VMD Controller

2. Set Name.
3. Set RAID Level.
4. If cross-controller RAID is required, select Enable RAID spanned over VMD Controller.
5. Select specific disks for RAID with an [X].
   - RAID0: Select at least two [2–24] disks
   - RAID1: Select only two disks
   - RAID5: Select at least three [3–24] disks
   - RAID10: Select only four disks
6. Select Strip Size (Default 64 KB).
7. Select Create Volume.
8. If another RAID is needed, start again at step 1.

Status Indications

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

Drive Carrier Status LED Indicator	
Status	**State (red)**
Normal function	Off
Locating	4 Hz blinking
Fault	Solid on
Rebuilding	1 Hz blinking
IBPI SFF 8489 Defined Status LED States	

Hot-Swap Drives

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

Hot-Unplug

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

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

2. Unmount the VMFS volumes on the device. Check link [2] below for details.

3. Detach the device. Check link [3] below 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

6.4 Storage Control Cards

The optional storage controller cards are 1U long riser cards that support 4 or 2 NVMe M.2's with Hardware RAID 0/1.

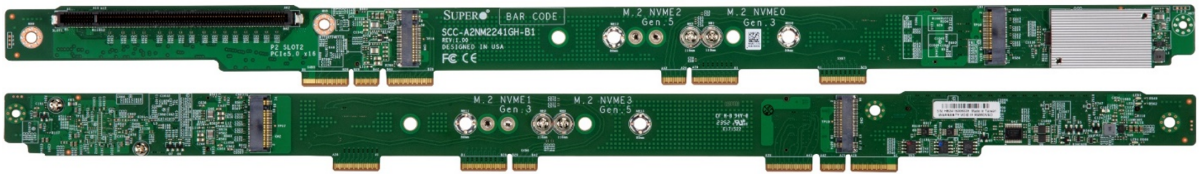


Figure 6-12. Storage Controller Card (SCC-A2NM2241GH-B1)



Figure 6-13. Storage Controller Card (SCC-A2NM2241G3-B1E)

Storage Control Card Options	
Part Number	**Description**

SCC-A2NM2241GH-B1	Marvell long riser
	• Supports 4x 22110 mm NVMe M.2
	  • 2x M.2 up to PCIe Gen5 direct from CPU1
	  • 2x M.2 up to PCIe Gen3 from Marvell NR2241 chip
	• Additional x16 riser slot (CPU2)

SCC-A2NM2241G3-B1E	Single processor long riser • Long riser for single processor configurations • Supports 2x 22110 mm, double sided NVMe M.2 up to PCIe Gen3 from Marvell NR2241 controller • Additional x16 riser slot (CPU1)

6.5 DIMM Memory Spacer

The Dummy Memory Dimm spacer redirects system airflow to more critical thermal regions within each node. Blank DIMMs can be installed into any unpopulated DIMM socket to provide additional thermal support and ventilation.

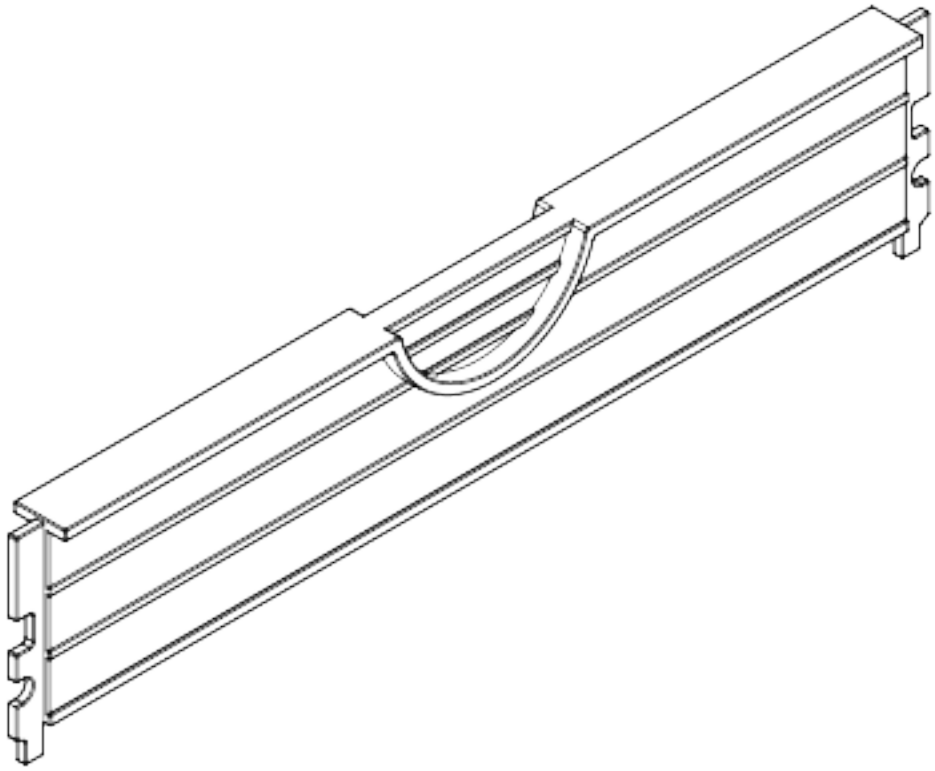


Figure 6-14. DIMM Memory Spacer (P/N: MCP-650-00011-0B)

Chapter 7:

Troubleshooting and Support

The following content contains information on common issues and how to resolve them.

7.1 Online Resources **110**
7.2 Baseboard Management Controller (BMC) **111**
7.3 Troubleshooting Procedures **112**
Before Power On 112
No Power 112
No Video 112
System Boot Failure 112
Memory Errors 113
Losing the System's Setup Configuration 113
If the System Becomes Unstable 113
7.4 CMOS Clear **115**
7.5 Motherboard Battery **116**
7.6 Where to Get Replacement Components **117**
7.7 Technical Support Procedures **118**
Returning Merchandise for Service 118
7.8 Feedback **120**

7.1 Online Resources

A great deal of information is available on the Supermicro website. From the top menu of the Supermicro home page at https://www.supermicro.com:

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

Direct Links for the SYS-222BT-DNR System

- SuperServer SYS-222BT-DNR specifications page
- X14DBT-B 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: https://www.supermicro.com/FAQ/index.php
- TPM User Guide: https://www.supermicro.com/manuals/other/AOM-TPM-9670V_9670H__X12_H12.pdf
- Product Resources page for validated memory details: https://www.supermicro.com/support/resources/mem.cfm
- Product Matrices page for links to tables summarizing specs for systems, motherboards, power supplies, riser cards, add-on cards, and more: https://www.supermicro.com/en/support/product-matrices
- Security Center for recent security notices: https://www.supermicro.com/en/support/security_center
- Supermicro Phone and Addresses: https://www.supermicro.com/en/about/contact

7.2 Baseboard Management Controller (BMC)

The SYS-222BT-DNR server 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, visit our website at the following page:

https://www.supermicro.com/en/solutions/management-software/bmc-resources

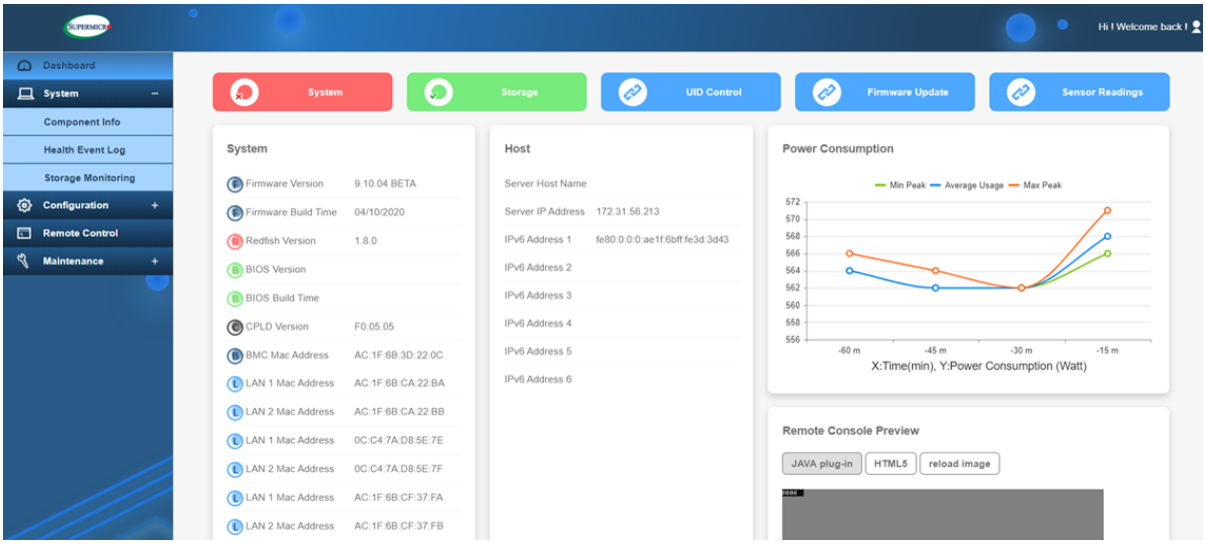


Figure 7-1. BMC Dashboard

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" on page 118 section in this chapter. Always disconnect the AC power cord before adding, changing or installing any non hot-swap hardware components. If the below steps do not fix the setup configuration problem, contact your vendor for repairs.

Before Power On

1. Make sure that there are no short circuits between the motherboard and chassis.
2. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse.
3. Remove all add-on cards.
4. Install the processor (making sure it is fully seated) and connect the front panel connectors to the motherboard.

No Power

1. Make sure that there are no short circuits between the motherboard and the chassis.
2. The battery on your motherboard may be old. Check to verify that it still supplies approximately 3 VDC. If it does not, replace it with a new one.

No Video

1. If the power is on, but you do not have video, remove all add-on cards and cables.
2. Remove all memory modules and turn on the system (if the alarm is on, check the specs of memory modules, reset the memory, or try a different one).

System Boot Failure

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

1. Remove all components from the motherboard, especially the DIMMs. Power on the system and check if the power-on LED and the BMC Heartbeat LED are on, and system fans are spinning.

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

Memory Errors

When suspecting faulty memory is causing the system issue, check the following:

1. Make sure that the memory modules are compatible with the system and are properly installed. See "Maintenance and Component Installation" on page 34 for installation instructions. (For memory compatibility, refer to the "Tested Memory List" link on the motherboard's product page to see a list of supported memory.)
2. Check if different speeds of DIMMs have been installed. It is strongly recommended that you use the same RAM type and speed for all DIMMs in the system.
3. Make sure that you are using the correct type of DIMMs recommended by the manufacturer.
4. Check for bad DIMMs or slots by swapping a single module among all memory slots and check the results.

Losing the System's Setup Configuration

1. Make sure that you are using a high-quality power supply. A poor-quality power supply may cause the system to lose the CMOS setup information. Refer to "Introduction" on page 13 for details on recommended power supplies.
2. The battery on your motherboard may be old. Check to verify that it still supplies approximately 3 VDC. If it does not, replace it with a new one.

If the System Becomes Unstable

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

1. Processor/BIOS support: Make sure that your processor is supported and that you have the latest BIOS installed in your system.
2. Memory support: Make sure that the memory modules are supported. Refer to the product page on our website at https://www.supermicro.com. Test the modules using memtest86 or a similar utility.

   Note: Click on the "Tested Memory List" link on the motherboard's product page to see a list of supported memory.

3. Storage Drive support: Make sure that all storage drives work properly. Replace the failed storage drives with good ones.
4. System cooling: Check the system cooling to make sure that all heatsink fans and processor/system fans, etc., work properly. Check the hardware monitoring settings in the BMC to make sure that the processor and system temperatures are within the normal range. Also, check the front panel Overheat LED and make sure that it is not on.
5. Adequate power supply: Make sure that the power supply provides adequate power to the system. Make sure that all power connectors are connected. Refer to our website for more information on the minimum power requirements.
6. Proper software support: Make sure that the correct drivers are used.

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

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

7.4 CMOS Clear

JBT1 on the X14DBT-B motherboard is used to clear CMOS, which will also clear any passwords. For information on clearing CMOS, refer to "CMOS Clear" on page 87 earlier in this manual.

7.5 Motherboard Battery

For information on removing, disposing of, and replacing the motherboard battery of your system, refer to "Motherboard Battery Removal and Installation" on page 62.

7.6 Where to Get Replacement Components

If you need replacement parts for your SYS-222BT-DNR server, 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 on the Supermicro website:

https://www.supermicro.com

Under the "Buy" menu, click the "Where to Buy" link.

7.7 Technical Support Procedures

Before contacting Technical Support, take the following steps. Also, note that as a motherboard manufacturer, Supermicro also sells motherboards through its channels, so it is best to first check with your distributor or reseller for troubleshooting services. They should know of any possible problems with the specific system configuration that was sold to you.

1. Refer to "Troubleshooting Procedures" on page 112 or see the FAQs on our website (https://www.supermicro.com/FAQ/index.php) before contacting Technical Support.
2. BIOS upgrades can be downloaded from our website (https://www.supermicro.com/support/resources/bios_ipmi.php).
3. If you still cannot resolve the problem, include the following information when contacting Supermicro for technical support:
   - Motherboard model and PCB revision number
   - BIOS release date/version (This can be seen on the initial display when your system first boots up.)
   - System configuration
4. An example of a Technical Support form is on our website at https://webpr3.supermicro.com/SupportPortal.
5. Distributors: For immediate assistance, have your account number ready when placing a call to our Technical Support department. For Supermicro contact information, refer to "Contacting Supermicro" on page 12.

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 the server to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and the shipping package is 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 can be requested online at the following page:

https://www.supermicro.com/RmaForm

Whenever possible, repack the server in the original Supermicro carton, using the original packaging material. If these are no longer available, be sure to pack the server securely, using packaging material to surround the server 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 alternation, misuse, abuse or improper maintenance of products.

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

7.8 Feedback

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

Chapter 8:

UEFI BIOS

The following content contains information on BIOS configuration with the SYS-222BT-DNR server.

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8.2 Main Setup **124**
8.3 Advanced Setup Configurations **126**
8.4 Event Logs **127**
8.5 BMC **129**
8.6 Security **130**
8.7 Boot **132**
8.8 Save & Exit **134**

8.1 Introduction

This chapter describes the AMIBIOS™ Setup utility for the motherboard. The BIOS is stored on a chip and can be easily upgraded using the UEFI script (flash.nsh), the BMC WebUI, or the SuperServer Automation Assistant (SAA) utility.

Note: Due to periodic changes to the BIOS, some settings may have been added or deleted and might not yet be recorded in this manual. Refer to the Manual Download area of our website for any changes to BIOS that may not be reflected in this manual.

Updating BIOS

It is recommended that you do not upgrade your BIOS if you are not experiencing any problems with your system. Updated BIOS files are located on our website at the following page:

https://www.supermicro.com/support/resources/bios_ipmi.php

Check our BIOS warning message and the information on how to update your BIOS on our website. Select your motherboard model and download the BIOS file to your computer. Also, check the current BIOS revision to make sure that it is newer than your BIOS before downloading.

Important: Do not shut down or reset the system while updating the BIOS to prevent possible system boot failure! Read the motherboard README file carefully before you perform the BIOS update.

To update the BIOS under the UEFI Shell, unzip the BIOS file onto a bootable USB device and then boot into the built-in UEFI Shell. For motherboards with BMC support, type "flash.nsh <BIOS filename><BMC Username><BMC Password>" to start the BIOS update. The flash.nsh script will invoke the SAA (EFI) tool automatically to perform the BIOS update, beginning with uploading the BIOS image to BMC. After uploading the BIOS image, the system will reboot to continue the process. The BMC will take over and continue the BIOS update in the background. The process will take 3–5 minutes. Refer to the README file for more information.

Starting the Setup Utility

To enter the BIOS Setup utility, press the <Delete> key while the system is booting-up. In most cases, the <Delete> key is used to invoke the BIOS Setup screen. There are a few cases when other hot keys are used, such as <F1>, <F2>, etc. Each main BIOS menu option is described in this manual.

The Main BIOS screen has two main frames. The left frame displays all the options that can be configured. “Grayed-out” options cannot be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When a BIOS submenu or item is selected in the left frame, it is highlighted in white. Often a text message will accompany it. (Note that BIOS has default text messages built in. We retain the option to include, omit, or change any of these text messages.) Settings printed in Bold are the default values.

A "►" indicates a submenu. Highlighting such an item and pressing the <Enter> key open the list of settings within that submenu.

The BIOS Setup utility uses a key-based navigation system called hot keys. Most of these hot keys (<F1>, <F2>, <F3>, <F4>, <F5>, <F6>, <Enter>, <ESC>, the arrow keys, etc.) can be used at any time during the setup navigation process.

8.2 Main Setup

The Main setup screen appears when the AMI BIOS Setup utility is first entered. To return to the Main setup screen, select the Main tab at the top of the screen. The Main BIOS setup screen is shown below.

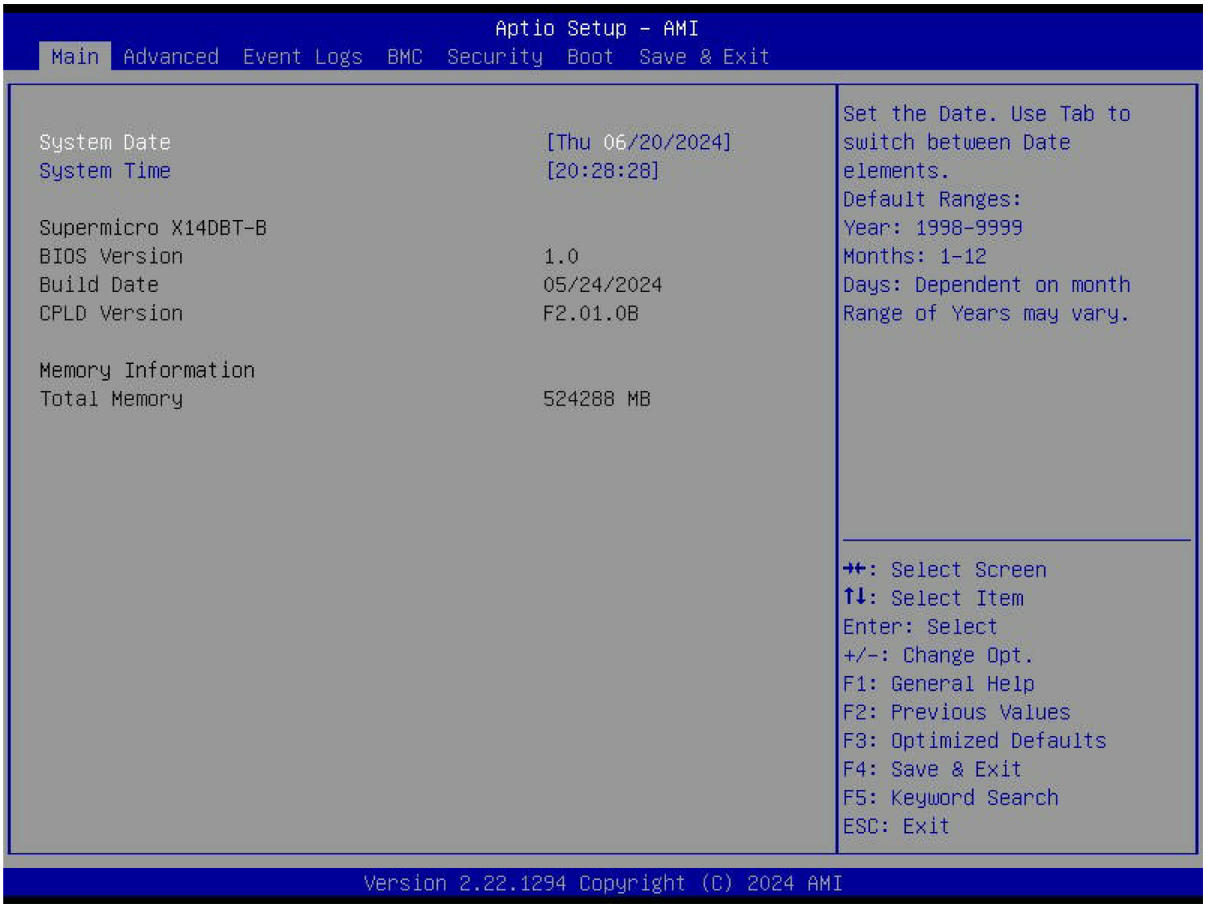


Figure 8-1. Main Setup Page

System Date/System Time

Use the two features to change the system date and time. Highlight **System Date** or **System Time** using the arrow keys. Enter new values using the keyboard. Press the <Tab> key or the arrow keys to move between fields. The date must be entered in MM/DD/YYYY format. The time is entered in HH:MM:SS format.

Note: The time is in the 24-hour format. For example, 5:30 P.M. appears as 17:30:00.

Supermicro X14DBT-B

BIOS Version

This feature displays the version of the BIOS ROM used in the system.

Build Date

This feature displays the date when the version of the BIOS ROM used in the system was built.

CPLD Version

This feature displays the version of the Complex-Programmable Logical Device (CPLD) used in the system.

Memory Information

Total Memory

This feature displays the total size of memory available in the system.

8.3 Advanced Setup Configurations

Use the arrow keys to select the Advanced submenu and press <Enter> to access the submenu items.

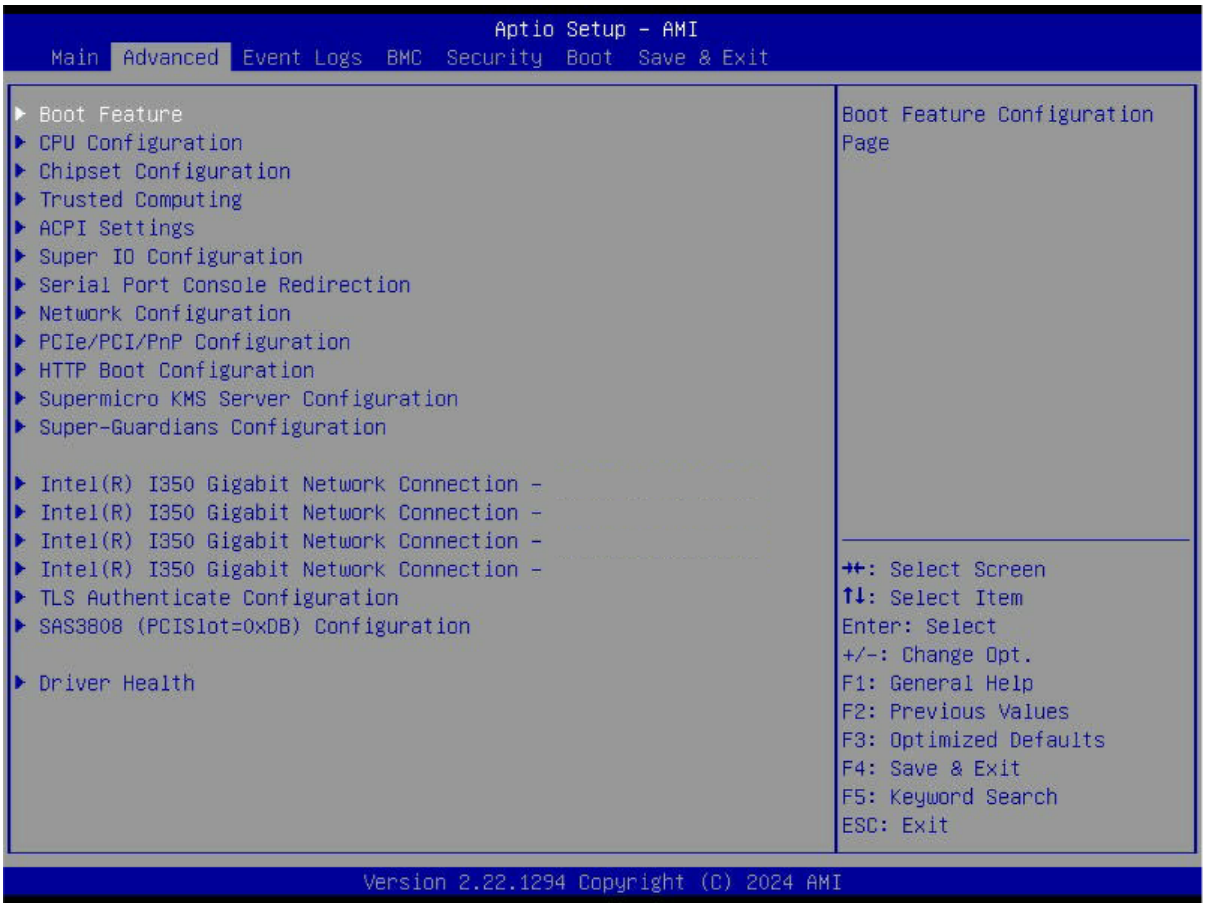


Figure 8-2. Advanced Setup Page

Important: Take caution when changing the Advanced settings. An incorrect value, an improper DRAM frequency, or a wrong BIOS timing setting may cause the system to malfunction. When this occurs, revert the setting to the manufacture default settings.

8.4 Event Logs

Use this menu to configure Event Logs settings.

Note: After you've made any changes in this section, please be sure to reboot the system for the changes to take effect.

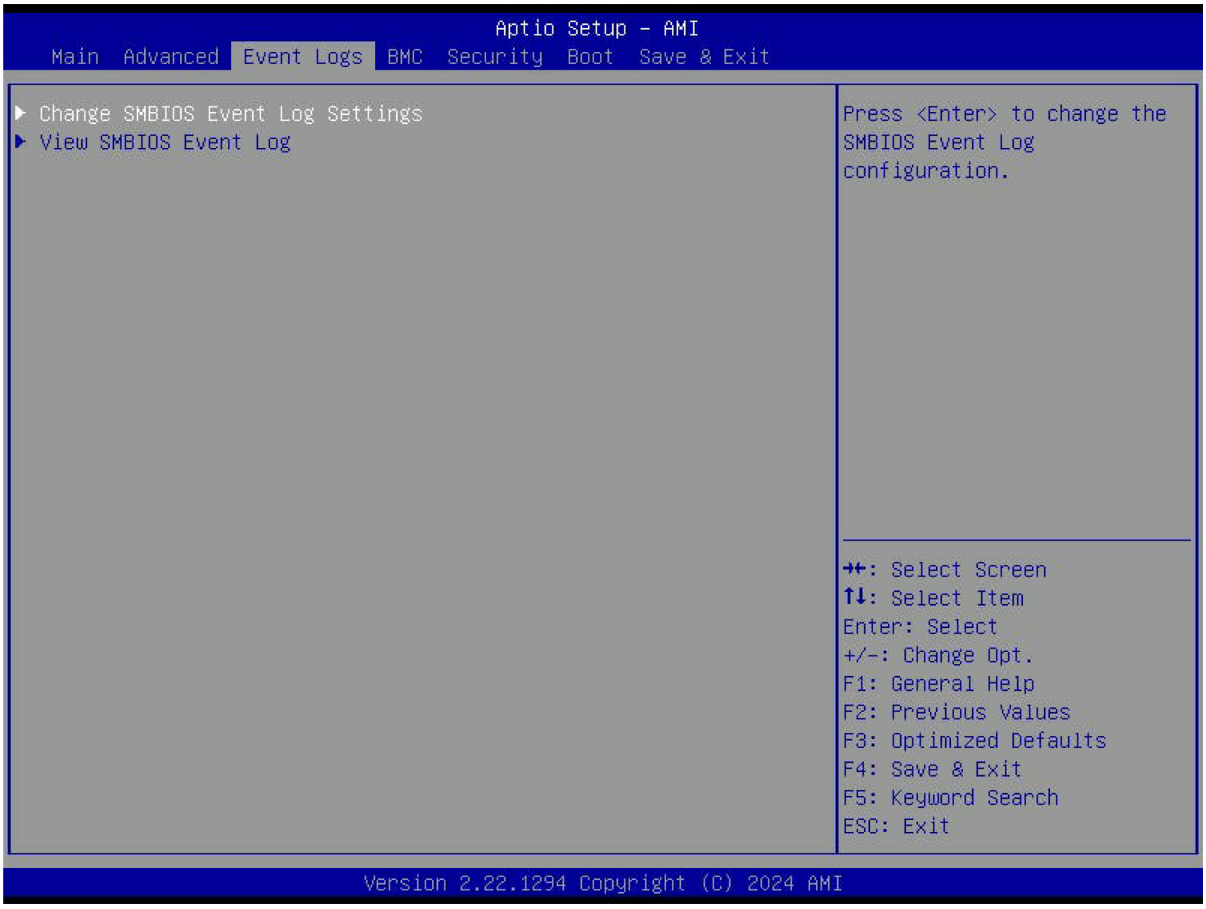


Figure 8-3. Event Logs Page

►Change SMBIOS Event Log Settings

Note: Reboot the system for the changes in this section to take effect.

Enabling/Disabling Options

SMBIOS Event Log

Select Enabled to enable System Management BIOS (SMBIOS) Event Logging during system boot. The options are Disabled and **Enabled**.

Erasing Settings

Erase Event Log (Available when "SMBIOS Event Log" is set to Enabled)

Select No to keep the event log without erasing it upon next system bootup. Select (Yes, Next reset) to erase the event log upon next system reboot. The options are **No**, (Yes, Next reset), and (Yes, Every reset).

When Log is Full (Available when "SMBIOS Event Log" is set to Enabled)

Select Erase Immediately to immediately erase all errors in the SMBIOS event log when the event log is full. Select Do Nothing for the system to do nothing when the SMBIOS event log is full. The options are **Do Nothing** and Erase Immediately.

SMBIOS Event Log Standard Settings

Log System Boot Event (Available when "SMBIOS Event Log" is set to Enabled)

Select Enabled to log system boot events. The options are Enabled and **Disabled**.

MECI (Available when "SMBIOS Event Log" is set to Enabled)

Enter the increment value for the multiple event counter. Enter a number between 1 and 255. The default setting is **1**. (MECI is the abbreviation for Multiple Event Count Increment.)

METW (Available when "SMBIOS Event Log" is set to Enabled)

Use this feature to determine how long (in minutes) should the multiple event counter wait before generating a new event log. Enter a number between 0 and 99. The default value is **60**. (METW is the abbreviation for Multiple Event Count Time Window.)

►View SMBIOS Event Log

Use this feature to view the event in the system event log. Select this feature and press <Enter> to view the status of an event in the log. The following information is displayed: DATE / TIME / ERROR CODE / SEVERITY.

8.5 BMC

Use this menu to configure Baseboard Management Console (BMC) settings.



Figure 8-4. BMC Setup Page

BMC Firmware Revision

This feature indicates the BMC firmware revision used in this system.

BMC STATUS

This feature indicates the status of the BMC firmware installed in this system.

8.6 Security

This menu allows you to configure the following security settings for the system.

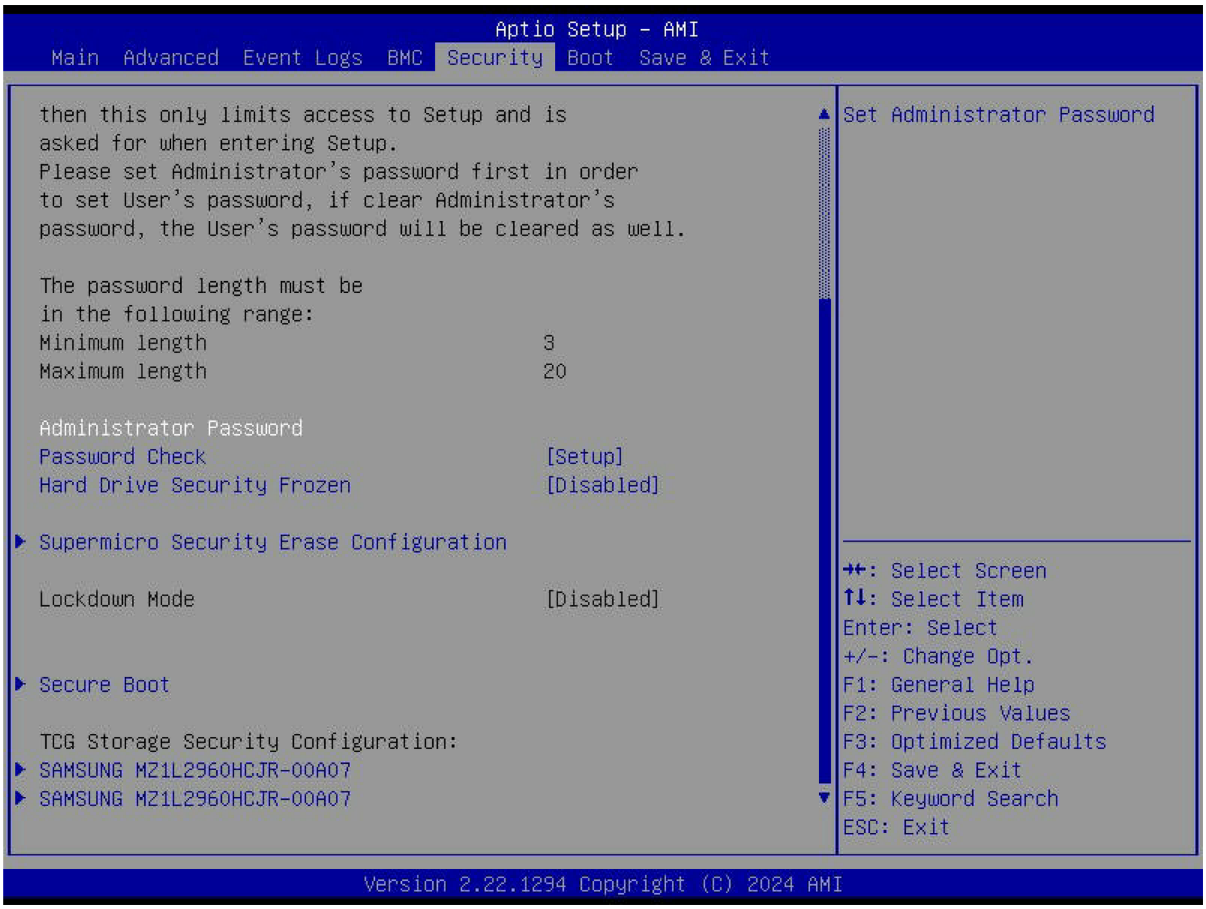


Figure 8-5. Security Setup Page

Disable Block Sid and Freeze Lock (Available when your storage devices support TCG)

Select Enabled to allow SID authentication to be performed in TCG storage devices. The options are **Disabled** and Enabled.

The following information is displayed:

- Administrator Password
- User Password
- Password Description

Administrator Password

This feature indicates if an administrator password has been installed. Use this feature to set the administrator password, which is required to enter the BIOS Setup utility. The length of the password can be between three and 20 characters long.

User Password (Available when "Administrator Password" has been set)

This feature indicates if a user password has been installed. Use this feature to set the user password which is required to enter the BIOS Setup utility. The length of the password can be between three and 20 characters long.

Password Check

Select Setup for the system to check for a password upon entering the BIOS Setup utility. Select Always for the system to check for the passwords needed at bootup and upon entering the BIOS Setup utility. The options are **Setup** and Always.

Hard Drive Security Frozen

Select Enabled to freeze the Lock Security feature for HDD to protect key data in hard drives from being altered. The options are **Disabled** and Enabled.

Lockdown Mode (Available when the DCMS key is activated)

Select Enabled to support the Lockdown Mode, which prevents the existing data or keys stored in the system from being altered or changed in an effort to preserve system integrity and security. The options are **Disabled** and Enabled.

8.7 Boot

Use this menu to configure Boot settings.

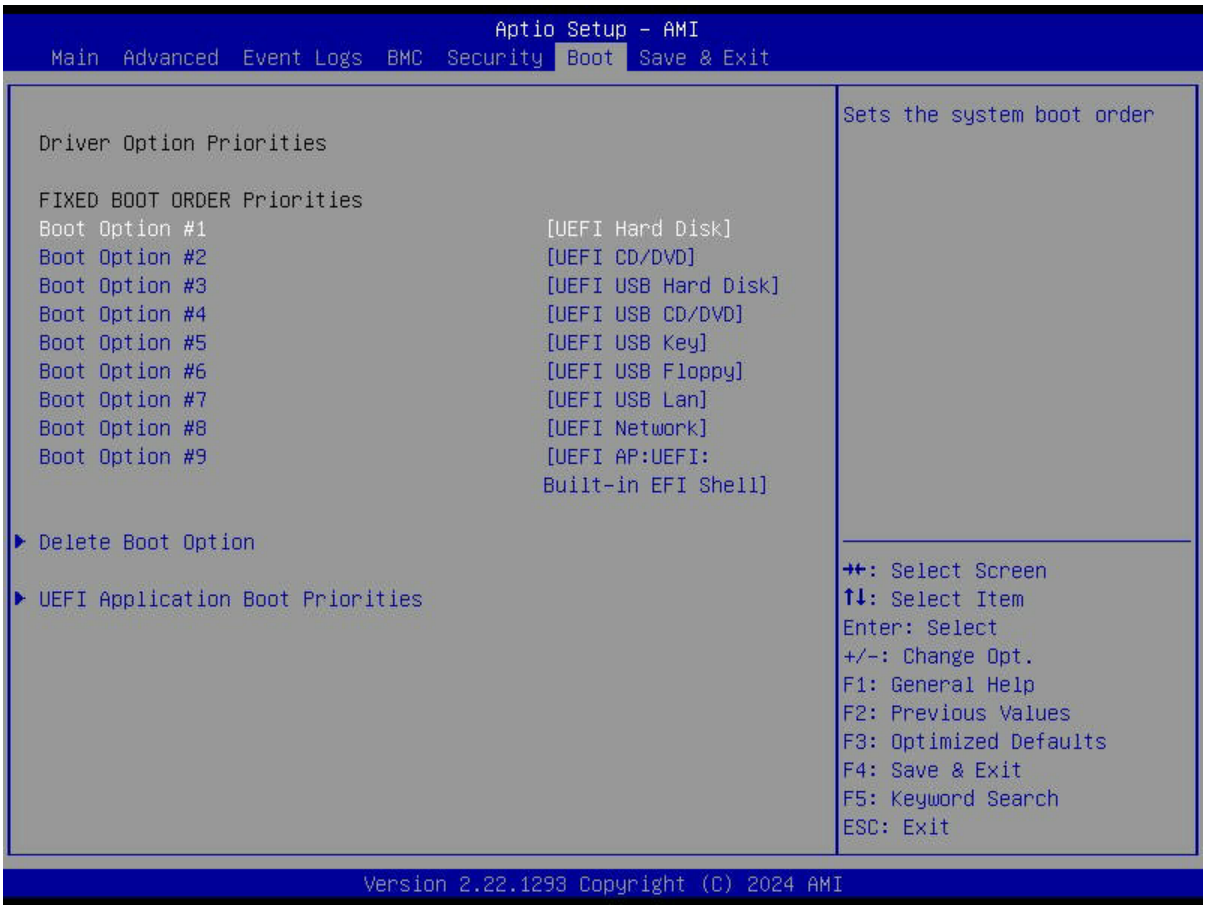


Figure 8-6. Boot Setup Page

FIXED BOOT ORDER Priorities

Use this feature to prioritize the order of a bootable device from which the system will boot. Press <Enter> on each item sequentially to select the device.

- Boot Option #1 – Boot Option #9

►Add New Boot Option

Use this feature to add a new boot option to the boot priority features for system boot.

Note: This submenu is available when any storage device is detected by the BIOS.

Add boot option

Use this feature to specify the name for the new boot option.

Path for boot option

Use this feature to enter the path for the new boot option in the format fsx:\path\filename.efi.

Boot option File Path

Use this feature to specify the file path for the new boot option.

Create

After setting the name and the file path for the boot option, press <Enter> to create the new boot option in the boot priority list.

►Delete Boot Option

Use this feature to select a boot device to delete from the boot priority list.

Delete Boot Option

Use this feature to remove an EFI boot option from the boot priority list.

►UEFI NETWORK Drive BBS Priorities

Use this feature to set the system boot order of detected devices.

►UEFI Application Boot Priorities

Use this feature to set the system boot order of detected devices.

►UEFI USB Key Drive BBS Priorities

Use this feature to set the system boot order of detected devices.

►UEFI Hard Disk Drive BBS Priorities

Use this feature to set the system boot order of detected devices.

8.8 Save & Exit

Select Save & Exit from the BIOS Setup screen to configure the settings below.

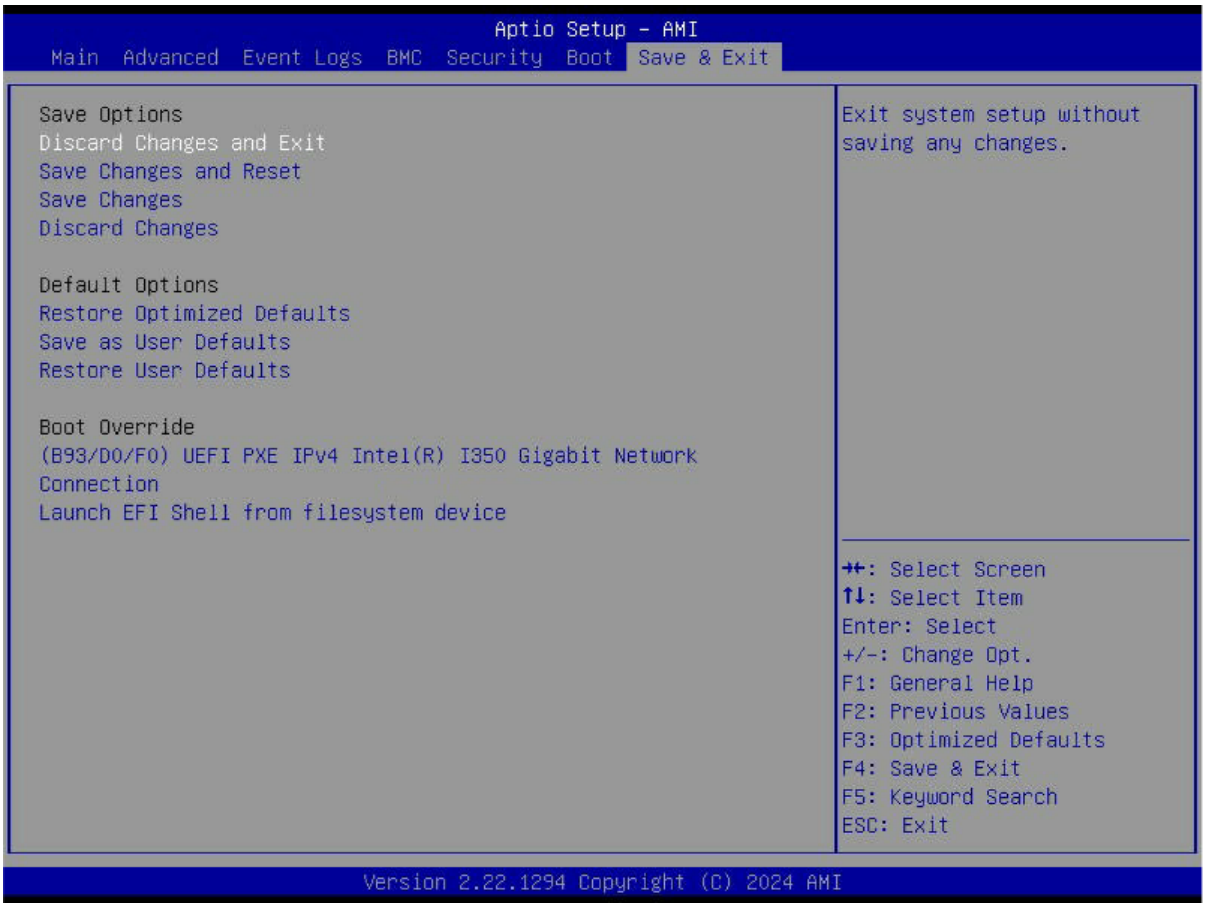


Figure 8-7. Save & Exit Setup Page

Save Options

Discard Changes and Exit

Use this feature to exit from the BIOS Setup utility without making any permanent changes to the system configuration and reboot the computer.

Save Changes and Reset

On completing the system configuration changes, use this feature to exit the BIOS Setup utility and reboot the computer for the new system configuration parameters to take effect.

Save Changes

On completing the system configuration changes, use this feature to save all changes made. This will not reset (reboot) the system.

Discard Changes

Select this feature and press <Enter> to discard all changes made and return to the BIOS Setup utility.

Default Options

Restore Optimized Defaults

Select this feature and press <Enter> to load manufacturer optimized default settings, which are intended for maximum system performance but not for maximum stability.

Note: After pressing <Enter>, reboot the system for the changes to take effect, which ensures that this system has the optimized default settings.

Save as User Defaults

Select this feature and press <Enter> to save all changes as the default values specified to the BIOS Setup utility for future use.

Restore User Defaults

Select this feature and press <Enter> to retrieve user-defined default settings that have been saved previously.

Boot Override

Note: Use this section to override the Boot priorities sequence in the Boot menu, and immediately boot the system with a device specified here instead of the one specified in the boot list. This is a one-time boot override.

Appendix A:

BIOS Codes

For information about BIOS codes for the SYS-222BT-DNR server, refer to the following content.

BIOS Error POST (Beep) Codes

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

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

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

These fatal errors are usually communicated through a series of audible beeps that can be heard on an external buzzer connected to JD1. The table shown below lists some common errors and their corresponding beep codes encountered by users.

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

Additional BIOS POST Codes

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

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

Appendix B:

Standardized Warning Statements for AC Systems

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 section in its entirety before installing or configuring components in the Supermicro SYS-222BT-DNR server.

These warnings may also be found on our website at the following page:

https://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.

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。

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 جسذ ةٌ هذا الز هز عٌ خطز !تحذ زٌ.

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

الكهزبائ ةٍ

وكي على درا ةٌ بالووارسات النقائ ةٍ لو عٌ وقنع أي حادث

استخذم رقن الب إى الو صٌنص ف هًا ةٌ كل تحذ زٌ للعثٌر تزجوتها

안전을 위한 주의사항

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.

警告!

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.

אַזהָרָה!

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

تحذير!

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

경고!

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.

警告!

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 250 V、20 A。

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 250 V、20 A。

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.

אזהרה!

מוצר זה מסתמך על הגנה המותקנת במבנים למניעת קצר חשמלי. יש לוודא כי

המכשיר המגן מפני הקצר החשמלי הוא לא יותר מ-250 V, 20 A

تحذير!

هذا المنتج يعتمد على معداث الحمايت مه الدوائر القصيرة التي تم تثبيتها في

المبنى

تأكد من أن تقييم الجهاز الوقائي ليس أكثر من : 20 A, 250 V

경고!

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

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).

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!

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

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

تحذير!

يجب فصم انتظاو من جميع مصادر انطاقت وإزانت سهك انكهرباء من وحدة امداد

انطاقت قبم

انصسل إنى انمناطق انداخهيت نههيكم نتثبيج أو إزانت مكنناث 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.

警告!

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.

تحذير!

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).

警告!

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.

אזהרה!

יש להתקין את היחידה באזורים שיש בהם הגבלת גישה. הגישה ניתנת בעזרת

'כלי אבטחה בלבד (מפתח, מנעול וכד.)

تحذير!

اتخصيص هذه انحذة نترك بُها ف مناطق محظورة تم .

مَكن انصل 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.

警告!

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.

¡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.

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.

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.

تحذير!

هناك خطر الانفجار إذا تم استبدال البطارية بنوع غير صحيح.

اسحبذال البطارية

فقط بنفس النمع 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.

警告!

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.

אזהרה!

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

את היחידה.

تحذير!

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.

警告!

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.

אזהרה!

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

העבודה.

تحذير!

هناك خطر مه التيار الكهزبائي أوالطاقة المىجىدة على اللىحة

عندما يكىن 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.

警告!

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.

אזהרה!

התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تحذير!

تركيب المعدات الكهربائية يجب أن يمتثل للقناويه المحلية والبطبية 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.

警告!

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.

אזהרה!

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

تحذير!

عند التخلص النهائي من هذا المنتج ينبغي التعامل معه وفقا لجميع القوانين والأنظمة الوطنية

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



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 והמאווררים עדיין עובדים. יש להרחיק למרחק בטוח את

האצבעות וכלי עבודה שונים מהפתחים בתוך המאוורר

تحذير!

تحذير! أجزاء متحركة خطرة. ابتعد عن شفرات المروحة المتحركة.من الممكن أن

المراوح لا تزال تدور عند 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.

警告!

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.

אזהרה!

ךרוצל ומאתוה וא ושכרנ רשא AC ימאתמו יקפס ,ילבכב שמתשהל שי ,רצומה תא יניקתמ רשאכ לכב שומיש . עקתהו לבכה לש הנוכנ הדימ ללוכ ,תוימוקמה תוחיטבה תושירדל ומאתוה רשאו ,הנקתהה למשחה ירישכמב שומישה יקוחל מאתהב .ילמשח רצק וא הלקתל מורגל לולע ,רחא גוסמ מאתמ וא לבכ לש דוק מהילע עיפומ רשאכ) CSA- ב וא UL - ב מיכמסומה מילבכב שמתשהל רוסיא מייק ,תוחיטבה יקוחו דבלב Supermicro י"ע מאתוה רשא רצומב קר אלא ,רחא ילמשח רצומ לכ רובע UL/CSA).

تحذير!

تالباكلا ءارشب مق وأ ةددحملا وأ ةرفوتملا تاليصوتلا مادختساب مق ،جتنملا بيكرت دنع

كلذ يف امب ةيلحملا ةمالسلا تابلطتمو نيناوقب مازتلالا عم ددرتملا رايتلا تالوحمو ةيئابر هكلا

قيرح وأ لطع يف ببستي دق برخأ تالوحمو تالباك يأ مادختسا .ميلسلا سباقلاو لصوملا مجح.

CSA وأ UL لبق نم ةدمتعملا تالباكلا مادختسا تادعملاو ةيئابر هكلا تز هجألل ةمالسلا نوناق رظحي

Supermicro لبق نم ةددحملاو ةينعملا تاجتنملا ريغ برخأ تادعم يأ عم (UL/CSA) ةمالع لمحت يتلاو.

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.

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 C:

System Specifications

Processors
Supports dual Intel® Xeon® 6700 series processors with E-cores (in Socket E2 LGA4710) with four UPIs (24 GT/s max.) and a thermal design power (TDP) up to 250 W Dual processors with TDPs up to 330 W can be supported under limited conditions. Please contact Supermicro support for details.
Chipset
System on Chip
BIOS
AMI 32 MB Flash ROM
Memory
16 DIMM slots support ECC DDR5 memory with speeds up to 6400 MT/s (1DPC)
Storage Drives (Per Node)
12 front hot-swap 2.5" PCIe 5.0 NVMe drive bays Two M.2 PCIe 5.0 x4 NVMe slots Default: M-key 22110; VROC required for RAID
PCI Expansion Slots (Per Node)
Two PCIe 5.0 x8 slots (low-profile) One PCIe 5.0 x16 slot (low-profile) One PCIe 5.0 x16 AIOM slot (OCP 3.0 compatible)
Input/Output (Per Node)
One RJ45 1 GbE dedicated BMC LAN port Two USB 3.0 Gen2 Type-A ports One VGA port
Motherboard
X14DBT-B
Chassis
CSE-217BD2-R2K22P
System Cooling
Four 16.5K RPM heavy duty 80x80x38 mm fans Optional: liquid cooling (direct to chip (D2C) cold plate)

Power Supply

Two 2200 W redundant Titanium Level (96%) power supplies

Input 1200 W: 100-127 Vac

1200 W: 100-127 Vac / 50-60 Hz

2090 W: 180-220 Vac (for UL/cUL only)

2090 W: 180-220 Vac / 50-60 Hz (for UL/cUL safety rating only)

1800 W: 200-220 Vac

1800 W: 200-220 Vac / 50-60 Hz (for TUV/CB/others safety rating only)

1980 W: 220-230 Vac

1980 W: 220-230 Vac / 50-60 Hz (for TUV/CB/others safety rating only)

2200 W: 220-240 Vac (for UL/cUL only)

2200 W: 220-240 Vac / 50-60 Hz (for UL/cUL safety rating only)

2090 W: 230-240 Vac

2090 W: 230-240 Vdc (for CCC only)

2090 W: 230-240 Vdc / 50-60 Hz (for CQC safety rating only)

2090 W: 230-240 Vac / 50-60 Hz (for TUV/CB/others safety rating only)

+12 V Max: 100 A / Min: 0 A (100 Vac-127 Vac) (for TUV/CB/others safety rating only)

Max: 174.17 A / Min: 0 A (180 Vac-220 Vac) (for UL/cUL safety rating only)

Max: 150 A / Min: 0 A (200 Vac-220 Vac) (for TUV/CB/others safety rating only)

Max: 165 A / Min: 0 A (220 Vac-230 Vac) (for TUV/CB/others safety rating only)

Max: 183.33 A / Min: 0 A (220 Vac-240 Vac) (for UL/cUL safety rating only)

Max: 174.17 A / Min: 0 A (230 Vdc-240 Vdc) (for CQC safety rating only)

Max: 174.17 A / Min: 0 A (230 Vac-240 Vac) (for TUV/CB/others safety rating only)

Max: 100 A / Min: 0 A (100-127 Vac)

Max: 150 A / Min: 0 A (200-220 Vac)

Max: 165 A / Min: 0 A (220-230 Vac)

Max: 174.17 A / Min: 0 A (180-220 Vac, UL/cUL only)

Max: 174.17 A / Min: 0 A (230-240 Vac)

Max: 174.17 A / Min: 0 A (230-240 Vdc, CCC only)

Max: 183.33 A / Min: 0 A (220-240 Vac, UL/cUL only)

12 V SB Max: 2.1 A / Min: 0 A

Operating Environment
Operating Temperature: 10°C to 35°C (50°F to 95°F)
Non-operating Temperature: -30°C to 60°C (-22°F to 140°F)
Operating Relative Humidity: 8% to 80% (non-condensing)
Non-operating Relative Humidity: 8% to 90% (non-condensing)
Regulatory Compliance
FCC, ICES, CE, VCCI, RCM, UKCA, NRTL, CB
Certified Safety Models
Compliant with UL or CSA: HS101-R12X14, HS101-R16X14 or HS101-R13DX14
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 61000-4-11
Environment:
2011/65/EU (RoHS Directive)
EC 1907/2006 (REACH)
2012/19/EU (WEEE Directive)
California Proposition 65
Product Safety: 2014/35/EU (LVD Directive)
UL/CSA 62368-1 (USA and Canada)
Electrical Equipment (Safety) Regulations 2016
IEC/BS/EN 62368-1

Perchlorate Warning

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

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

VCCI－A

Appendix D:

Storage Controller Card

Overview

Overview

For product support and updates, please refer to our website at https://www.supermicro.com.

Technical Specifications

General

- NVMe RAID Controller M.2 carrier riser card for X14 BigTwin
- Supports M.2 M-key connectors for the following lengths: 110 mm
- Each NVMe M.2 SSD links to a full 2x PCIe Gen 5
- Supports RAID 0, 1
- Supports activity/fail/rebuild LED onboard for each M.2 SSD
- Gen 5 x16 PCIe slot riser card function

OS Support

The following operating systems and their later versions are supported:

- Windows
- Linux
- VMware

Contact Supermicro tech support at https://www.supermicro.com for assistance with any hardware limitations associated with your motherboard. (Note: For proper system configuration and setup, please refer to the product page at https://www.supermicro.com for any limitations associated with your motherboard.)

Physical Dimensions

Card PCB dimensions: 1.24" x 18.05" (H x L)

Hardware Components

Expansion Card Layout and Components

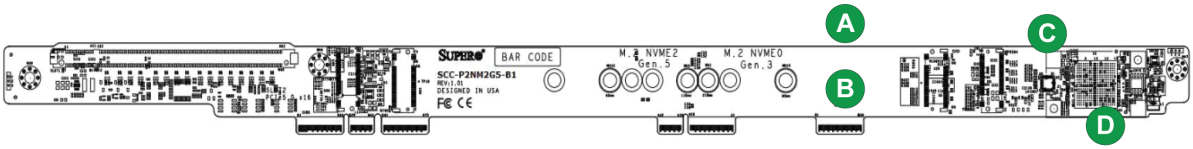


Figure E-1. The SCC-P2NM2G5-B1 Top Layout

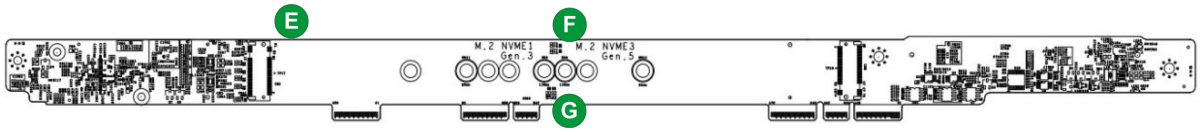


Figure E-2. The SCC-P2NM2G5-B1 Bottom Layout

Major Components

The following major components are on the SCC-P2NM2G5-B1:

A. M.2 Slot 1 Activity LED

B. M.2 Slot 1 Fault LED

C. M.2 Slot 1

D. 1.8 V Indicator LED

E. M.2 Slot 2

F. M.2 Slot 2 Activity LED

G. M.2 Slot 2 Fault LED

Connectors and LEDs

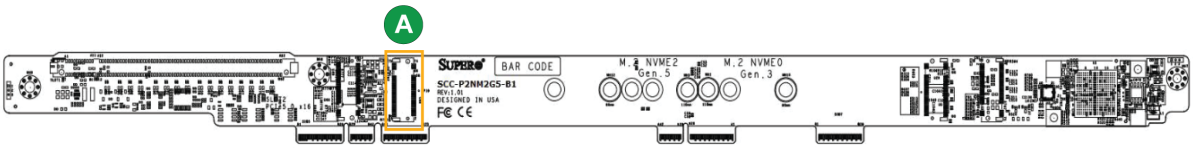


Figure E-3. The SCC-P2NM2G5-B1 Top NVMe Connector

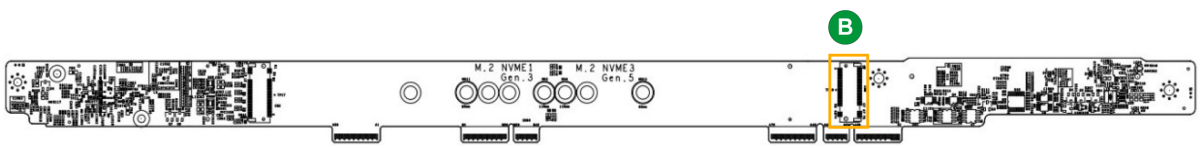


Figure E-4. The SCC-P2NM2G5-B1 Bottom NVMe Connector

A. M.2 Socket 1, designated CN6

B. M.2 Socket 2, designated CN5

M.2 Sockets

There are two M.2 sockets on the expansion card, designated CN5 and CN6. The card can support one NVMe SSD on CN5 or one NVMe SSD on CN6.

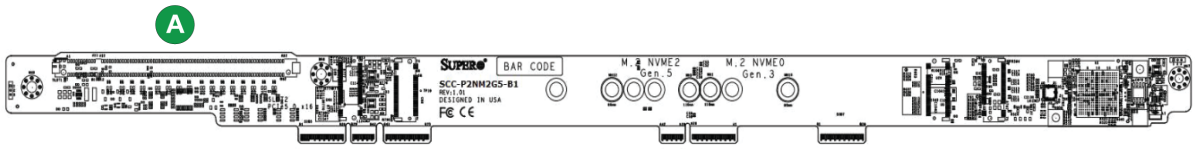


Figure E-5. PCIe 5.0 x16 Slot

A. Slot 2, PCIe 5.0 x16 Slot

PCIe 5.0 x16 Slot

There is a PCIe 5.0 x16 slot on the top of the expansion card.

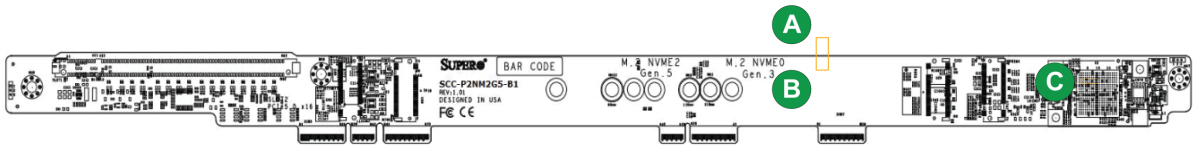


Figure E-6. The SCC-P2NM2G5-B1 Top LEDs

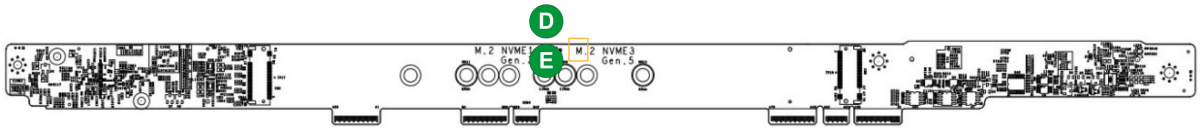


Figure E-7. The SCC-P2NM2G5-B1 Bottom LEDs

A. Activity LED, designated LED2

B. Fault LED, designated LED5

C. 1.8 V Indicator LED, designated LED1

D. Activity LED, designated LED3

E. Fault LED, designated LED6

Activity and Fail LEDs

There are two Activity LEDs on the SCC-P2NM2G5-B1, designated LED2 and LED3, and two Fault LEDs, designated LED5 and LED6. See the table below for information.

Activity and Fault LED Status		
LED	**Color**	**Status**
LED2	Green	Blinks whenever there is read or write activity on M.2 Socket 1
LED3	Green	Blinks whenever there is read or write activity on M.2 Socket 2
LED5	Red	Turns on whenever there is a drive failure on M.2 Socket 1
LED6	Red	Turns on whenever there is a drive failure on M.2 Socket 2

1.8 V Indicator LED

There is one 1.8 V Indicator LED on the SCC-P2NM2G5-B1, designated LED1. See the table below for information.

1.8 V Indicator LED Status		
LED	**Color**	**Status**
LED1	Green	Turns on whenever 1.8 V power is ready

Standoffs

The SCC-P2NM2G5-B1 standoffs support M.2 SSDs of 22x110 mm length on the top and bottom side. Please contact your Supermicro Sales representative for more information. Place the standoffs as indicated below:

M.2 Standoff Options	
M.2 Length	**Standoff Positions**
22 mm x 110 mm	1
22 mm x 110 mm	2

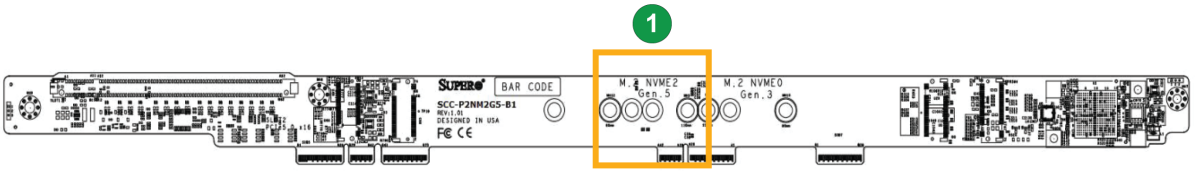


Figure E-8. The SCC-P2NM2G5-B1 Top Standoff Positions

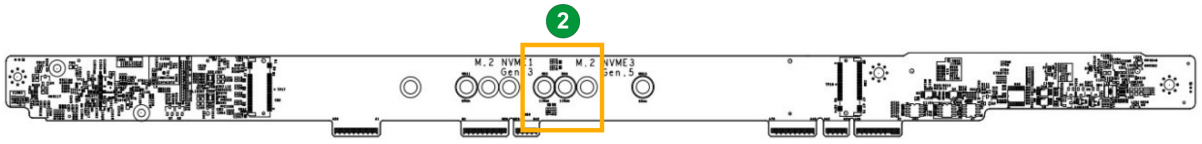


Figure E-9. The SCC-P2NM2G5-B1 Bottom Standoff Positions

Installation

Static-Sensitive Devices

Electrostatic Discharge (ESD) can damage electronic components. To avoid damaging your expansion card, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing the expansion card from the antistatic bag.
- Handle the expansion card by its edges only; do not touch its components or peripheral chips.
- Put the expansion card back into the antistatic bags when not in use.
- For grounding purposes, make sure that your system chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the expansion card.

Installing or Removing the Carrier Card

The SCC-P2NM2G5-B1 supports up to two M.2 SSDs of 110 mm length. Visit the Supermicro website for a current list of supported M.2 SSDs.

Removing the Carrier Card

1. Power down the system and remove the power cord from the rear of the power supply.
2. Remove the node from the system.
3. Use industry-standard anti-static equipment (such as gloves or wrist strap) and follow the "Precautions" above to avoid damage caused by ESD.
4. Remove any DIMMs obstructing access to the carrier card.
5. Remove the two screws from the left side (viewed from the chassis front) of the node chassis that secure the carrier card to the node chassis.

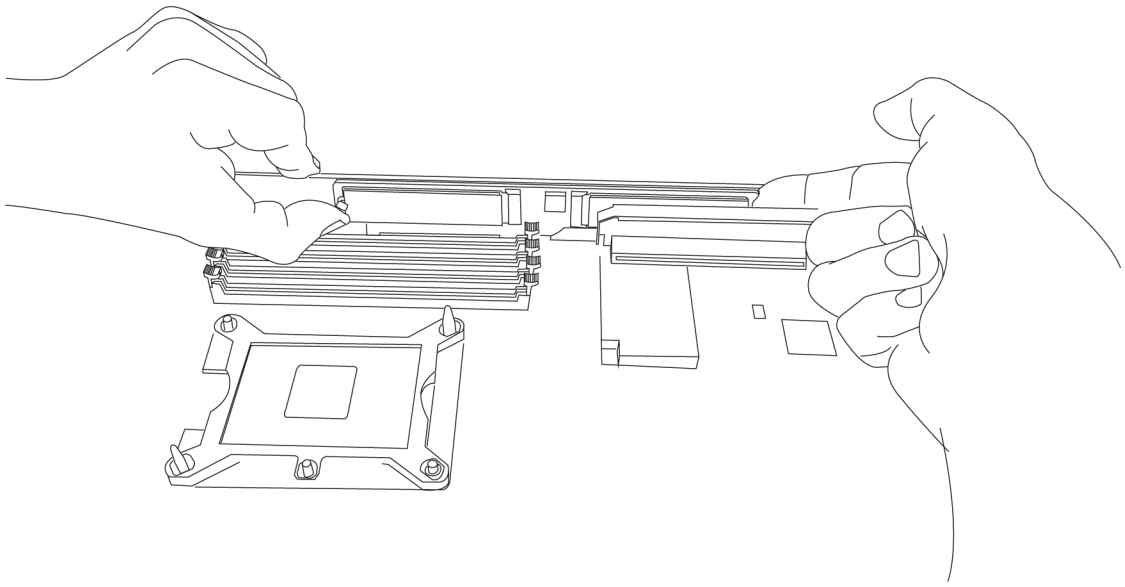


Figure F-1. Removing the Carrier Card

6. Pull the card of the socket by both notched edges (front and back) of the card. Be careful not to exert any force on any M.2 SSDs already installed on the card.
7. If you want to remove an installed SSD, unscrew the screw from the standoff and allow the M.2 SSD to lift up at an angle, then remove the M.2 SSD from the slot.

Installing the M.2 SSDs

1. Insert the SSD into the slot on the top side of the carrier card.

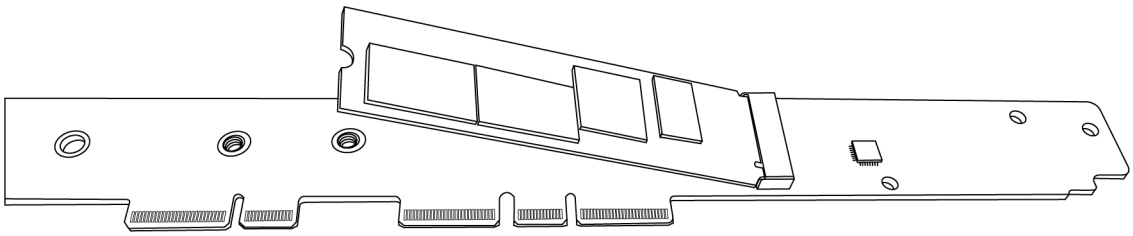


Figure F-2. Inserting the SSD

2. Lay the SSD flat on the carrier card and align the notch at the end of the SSD with the mounting hole.

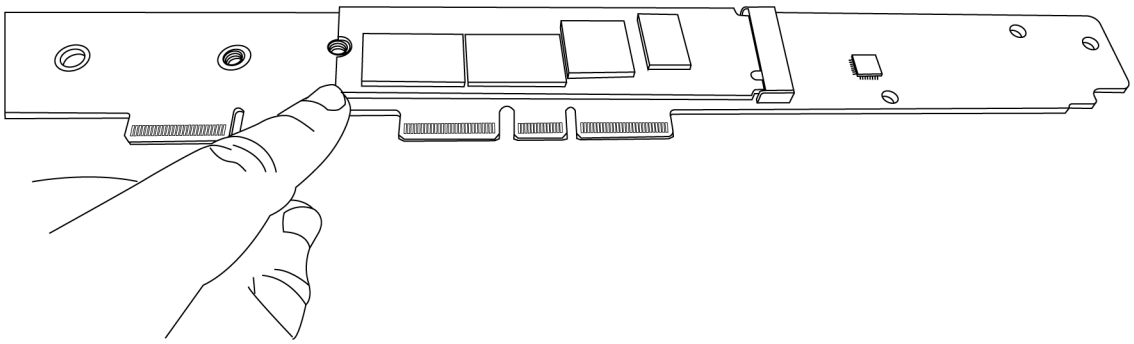


Figure F-3. Laying Down the SSD

3. Secure the SSD in place by screwing in the screw.

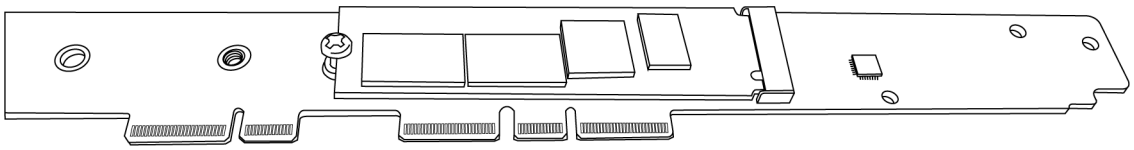


Figure F-4. Securing the SSD with a Screw

4. If installing a second SSD, repeat steps 1-3 on the bottom side of the carrier. It is recommended to use the same SSD form factor on both sides of the carrier card.

Installing the Riser Bracket and Inserting the Carrier Card into the Node

1. Remove the expansion card screw and set it aside. Remove the PCI slot shield.

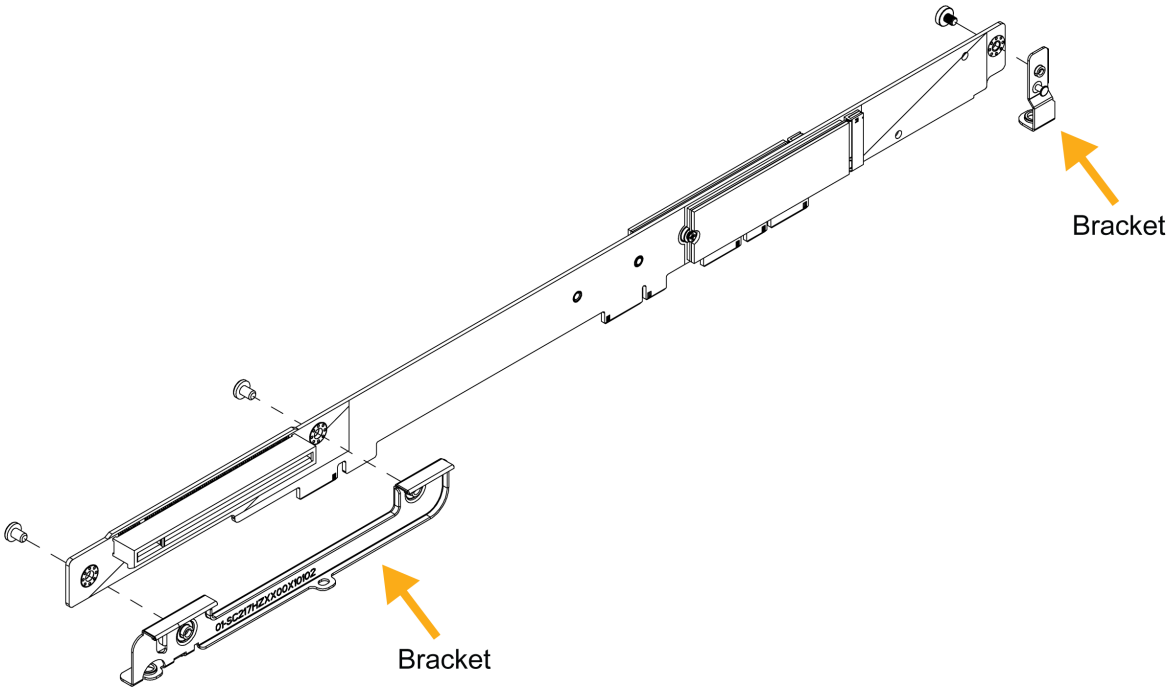


Figure F-5. Installing Brackets

2. Attach brackets onto the M.2 carrier-and-riser card, if necessary. Insert an expansion card into the riser slot of the M.2 carrier-and-riser card to create an assembly (not shown).
3. Align the assembly with SLOT2 on the motherboard and the PCI slot shield at the node rear and insert the assembly into the motherboard.
4. Reinstall the expansion card screw, reinsert the node into the chassis, and power up the system.

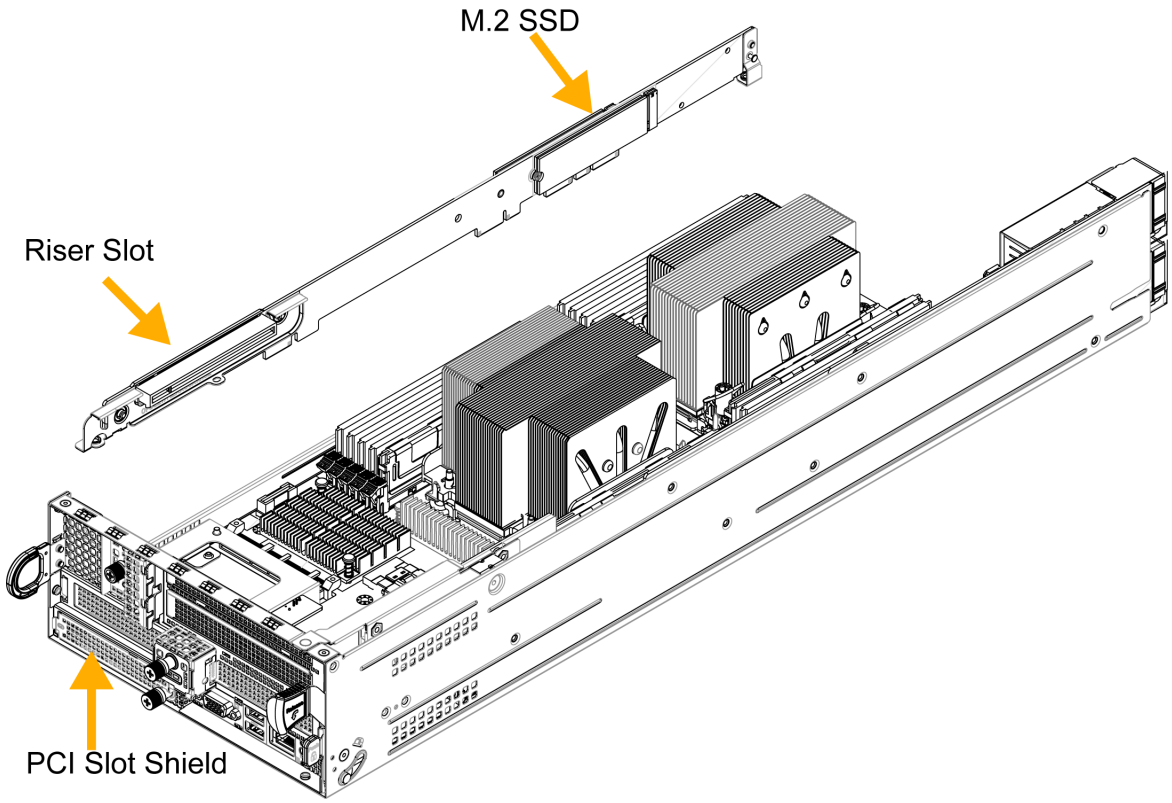


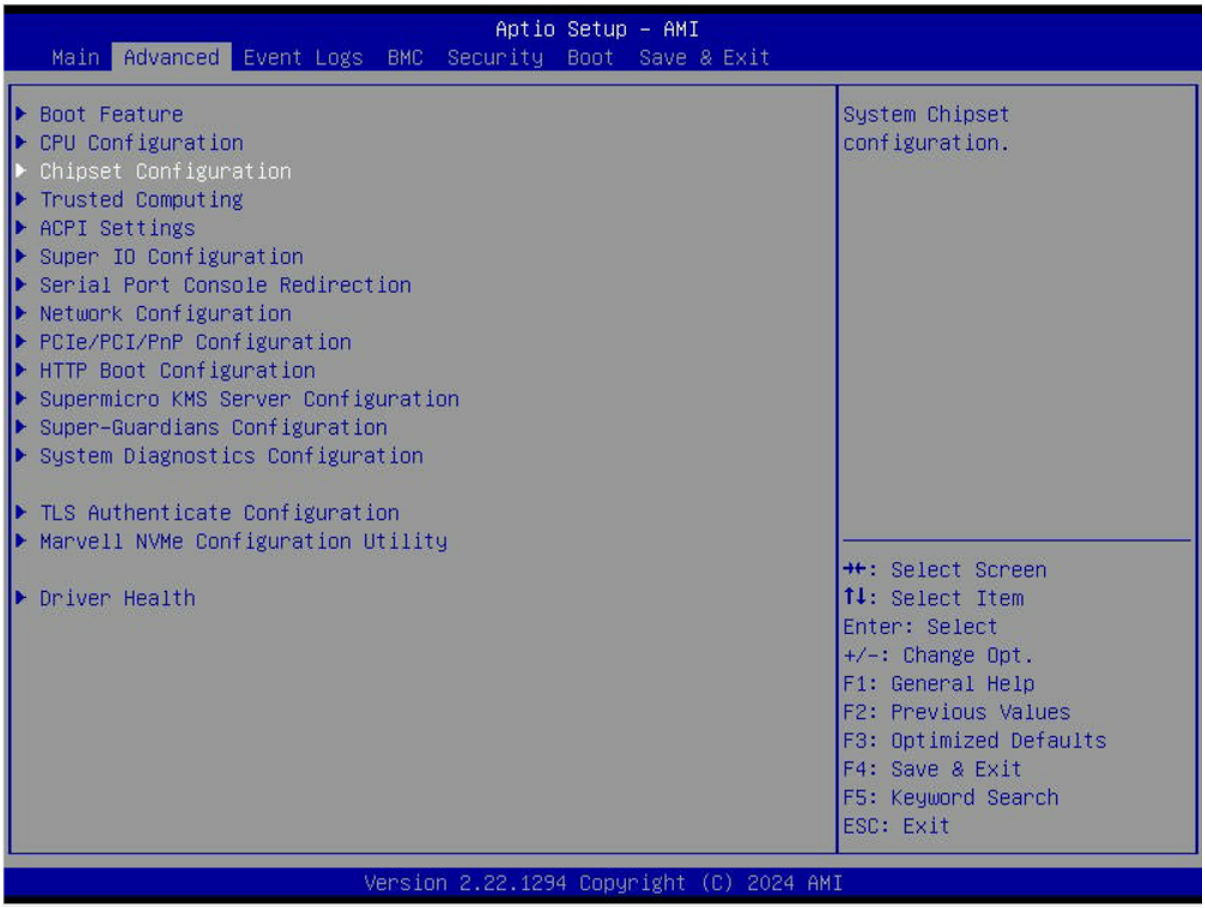
Figure F-6. Installing the Carrier-and-Riser Card into the Node

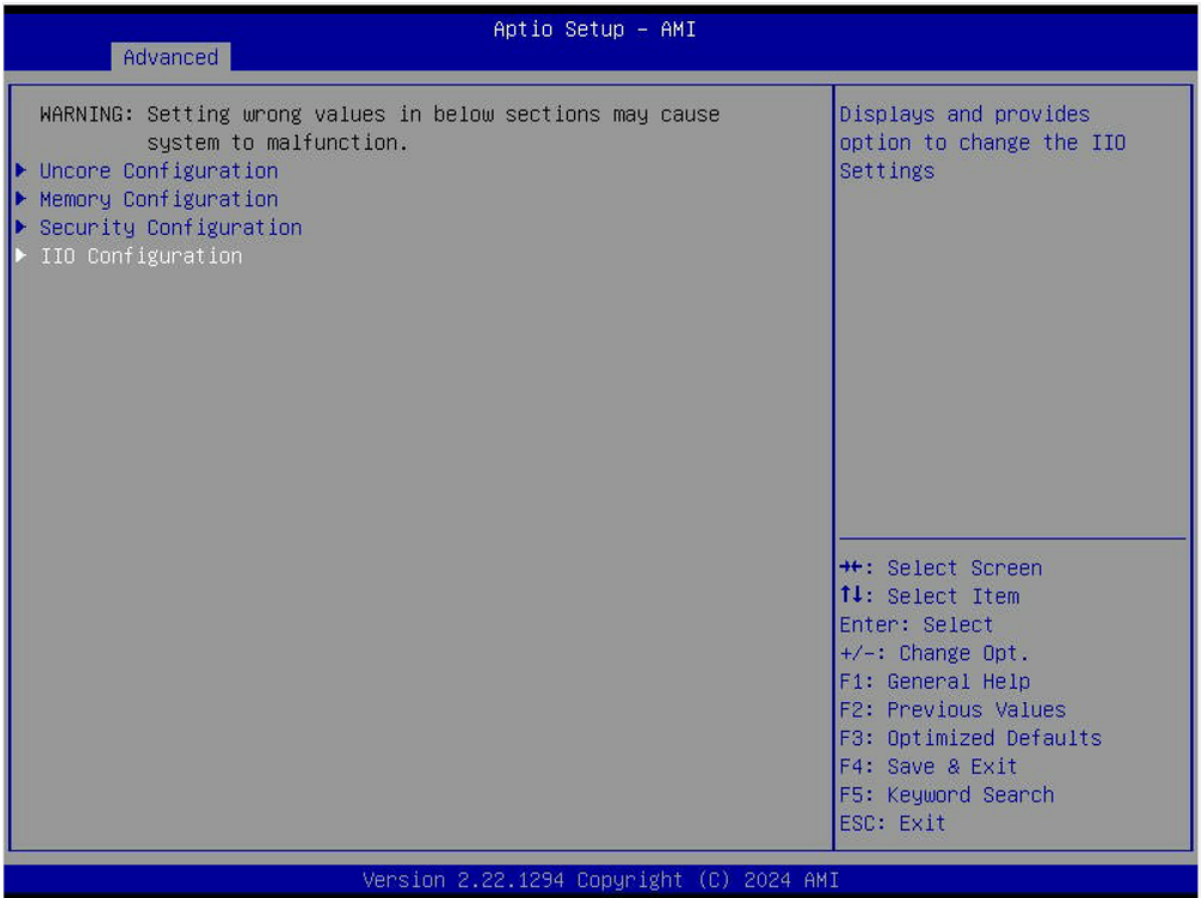
Additional Settings

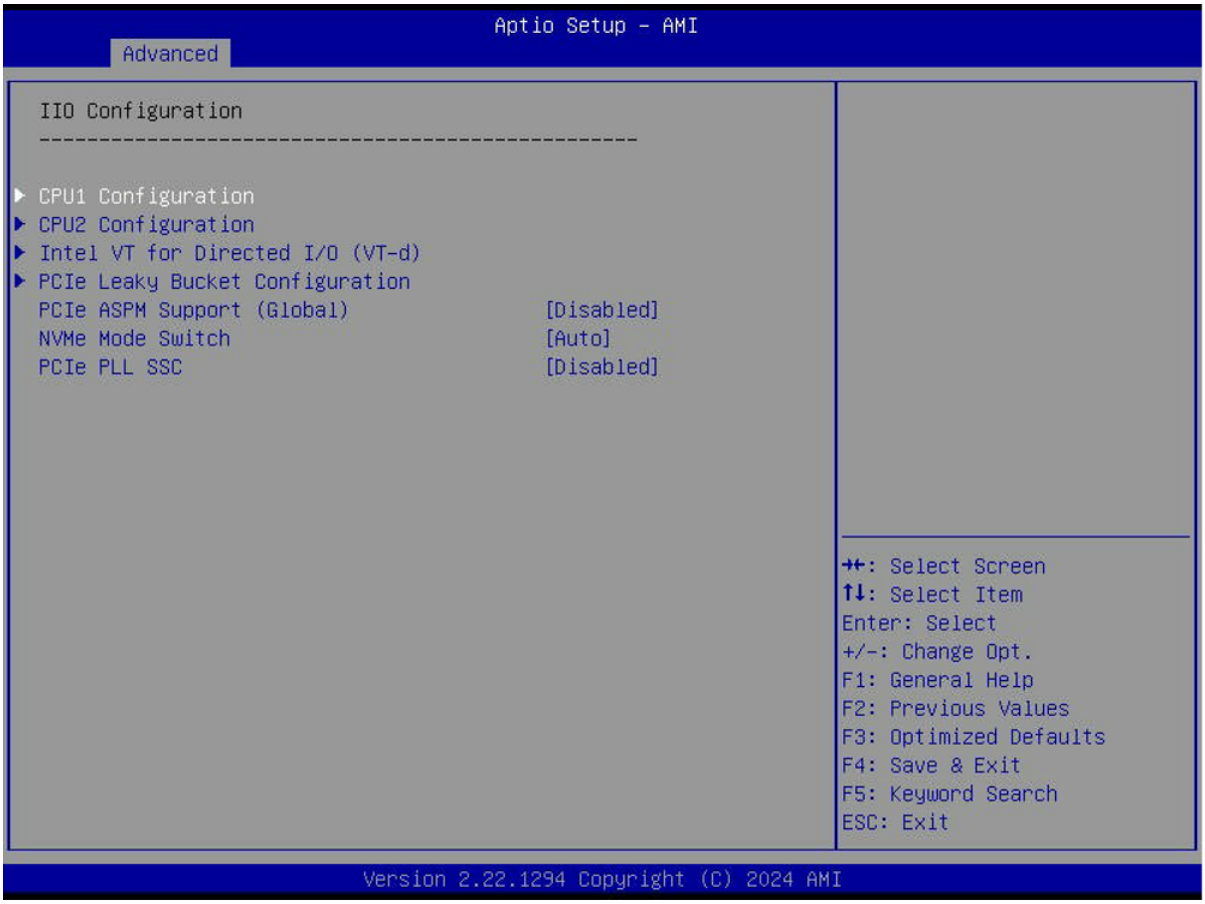
Depending on the system, motherboard, and BIOS version, the following BIOS settings may be necessary for the proper operation of M.2 NVMe drives.

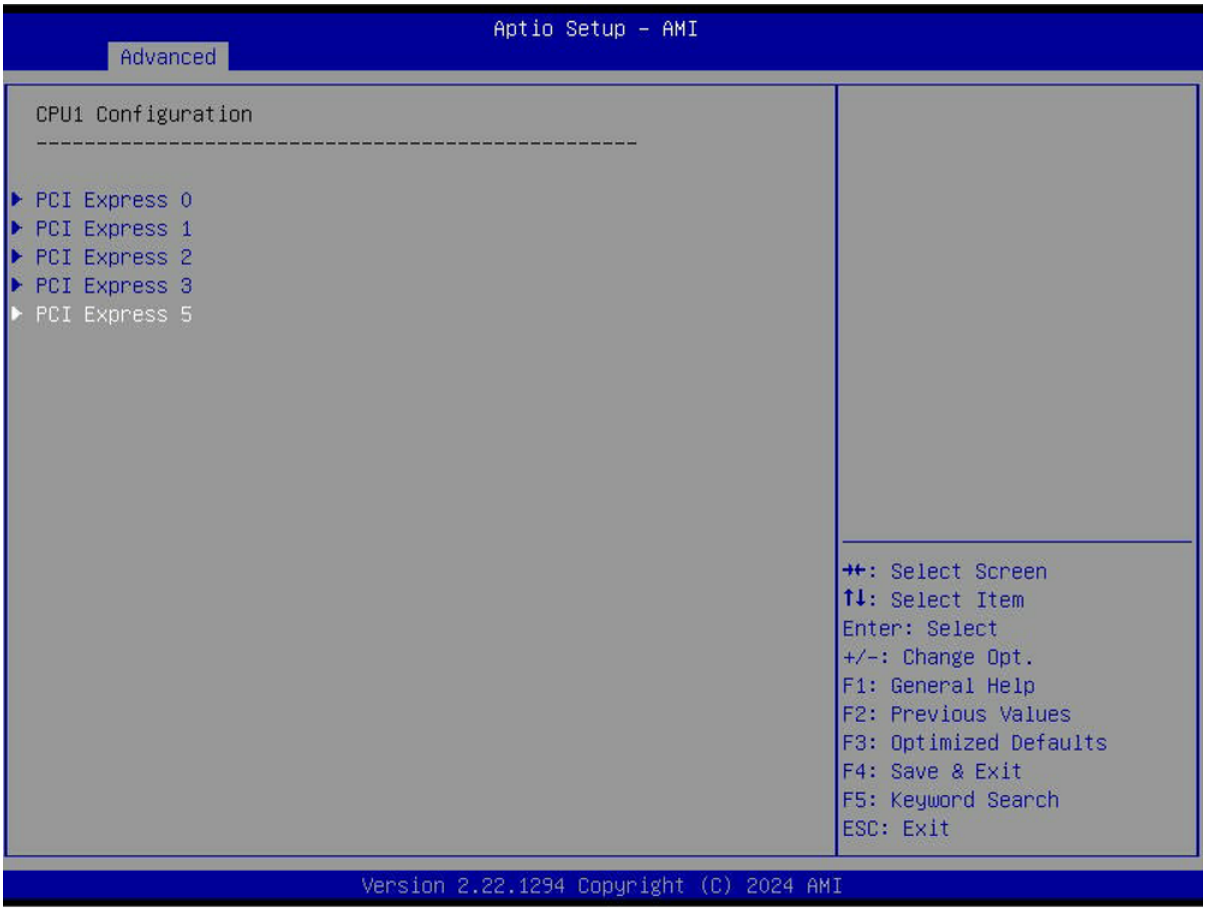
Set the **Requested Link Speed** to **Auto** for SCC-P2NM2G5-B1 and M.2-2. This option may be found under **BIOS Setup** -> **Advanced** -> **Chipset Configuration** -> **IIO Configuration** -> **CPU1 Configuration** -> **PCI Express 5**-> **SCC-P2NM2G5-B1 M.2-1/M.2-2**

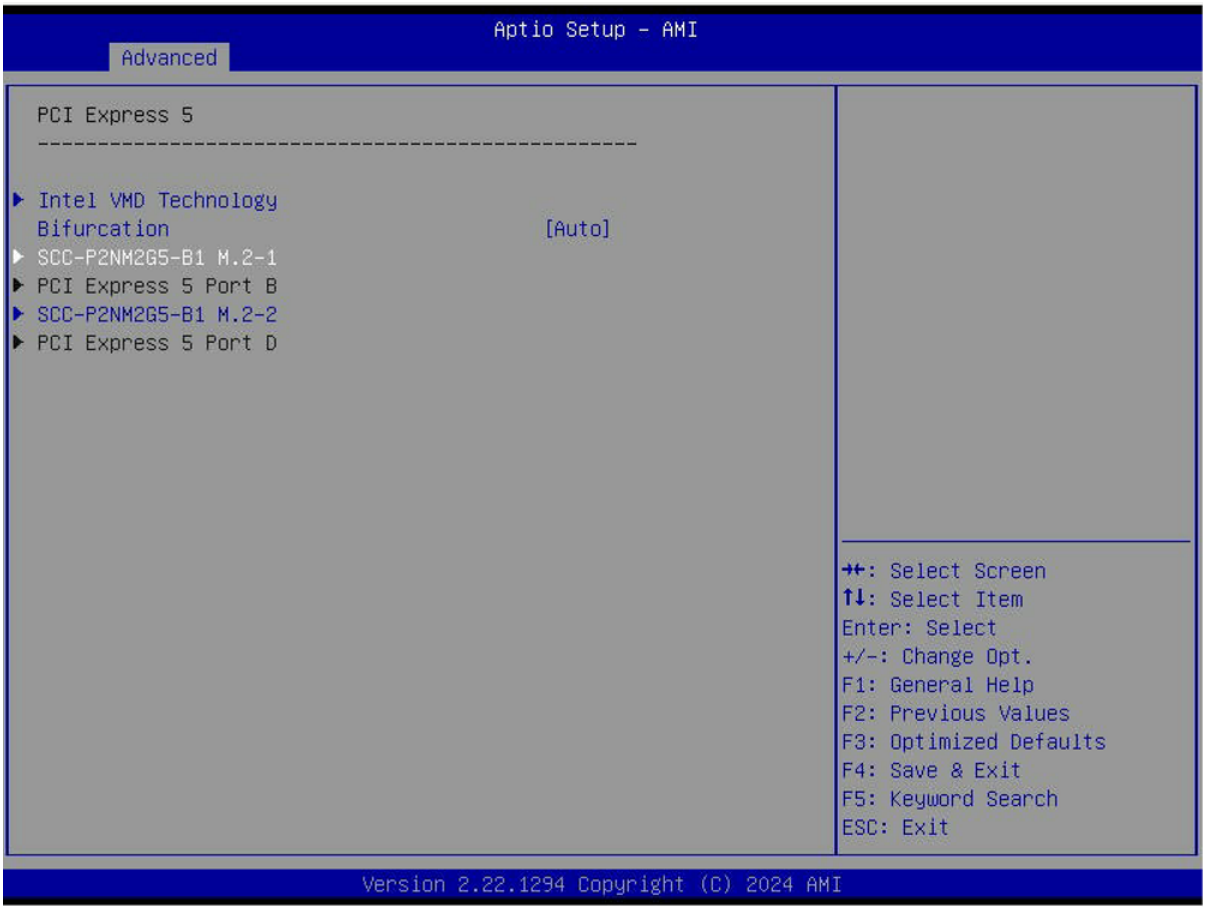
Refer to the applicable system or motherboard User's Manual.

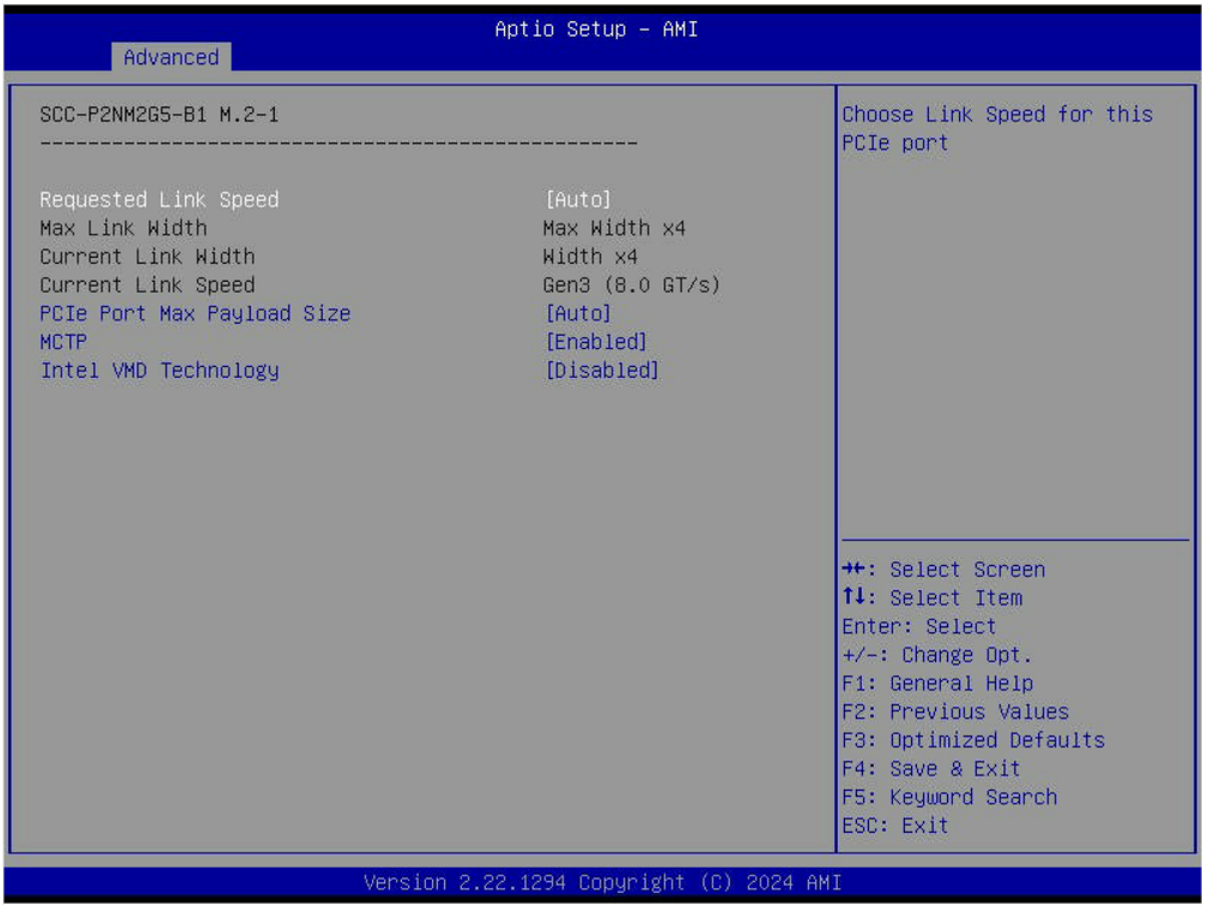

Aptio Setup – AMI
Main Advanced Event Logs BMC Security Boot Save & Exit
Boot Feature
CPU Configuration
Chipset Configuration
Trusted Computing
ACPI Settings
Super IO Configuration
Serial Port Console Redirection
Network Configuration
PCIe/PCI/PnP Configuration
HTTP Boot Configuration
Supermicro KMS Server Configuration
Super-Guardians Configuration
System Diagnostics Configuration
TLS Authenticate Configuration
Marvell NVMe Configuration Utility
Driver Health
System Chipset configuration.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
F5: Keyword Search
ESC: Exit
Version 2.22.1294 Copyright (C) 2024 AMI


Aptio Setup – AMI
Advanced
WARNING: Setting wrong values in below sections may cause system to malfunction.
Uncore Configuration
Memory Configuration
Security Configuration
IIO Configuration
Displays and provides option to change the IIO Settings
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
F5: Keyword Search
ESC: Exit
Version 2.22.1294 Copyright (C) 2024 AMI


Aptio Setup – AMI
Advanced
IIO Configuration
CPU1 Configuration
CPU2 Configuration
Intel VT for Directed I/O (VT-d)
PCIe Leaky Bucket Configuration
PCIe ASPM Support (Global) [Disabled]
NVMe Mode Switch [Auto]
PCIe PLL SSC [Disabled]
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
F5: Keyword Search
ESC: Exit
Version 2.22.1294 Copyright (C) 2024 AMI


Aptio Setup – AMI
Advanced
CPU1 Configuration
PCI Express 0
PCI Express 1
PCI Express 2
PCI Express 3
PCI Express 5
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
F5: Keyword Search
ESC: Exit
Version 2.22.1294 Copyright (C) 2024 AMI


Aptio Setup - AMI
Advanced
PCI Express 5
Intel VMD Technology
Bifurcation [Auto]
SCC-P2NM2G5-B1 M.2-1
PCI Express 5 Port B
SCC-P2NM2G5-B1 M.2-2
PCI Express 5 Port D
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
F5: Keyword Search
ESC: Exit
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Aptio Setup - AMI
Advanced
SCC-P2NM2G5-B1 M.2-1
Requested Link Speed [Auto]
Max Link Width Max Width x4
Current Link Width Width x4
Current Link Speed Gen3 (8.0 GT/s)
PCIe Port Max Payload Size [Auto]
MCTP [Enabled]
Intel VMD Technology [Disabled]
Choose Link Speed for this PCIe port
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
F5: Keyword Search
ESC: Exit
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Optional RAID Configuration

This chapter provides instructions on how to configure RAID.

RAID Minimum Drive Requirements

The SCC-P2NM2G5-B1 carrier card supports up to two M.2 SSDs with RAID 0 and RAID 1.

RAID	Minimum Hard Drives
RAID 0	2
RAID 1	2

RAID Configuration in Redfish API

To view the Marvell controller, drive, and volume details:

URI: /BMCIP/redfish/v1/Systems/1/Storage/MRVL.HA-RAID

Method: GET

Response: 200

To create a virtual drive for Marvell:

URI: /BMCIP/redfish/v1/Systems/1/Storage/MRVL.HA-RAID/Actions/Oem/Storage.

CreateVD

Method: POST

Body: {

"PD":["MRVL.HA-RAID.0.StorageModule/Drives/Disk.Bay.0","MRVL.HARAID.

0.StorageModule/Drives/Disk.Bay.1"],

"RaidLevel":"RAID1",

"StripeBlock":"128K",

"VDName":"VD_0",

“Namespace”:1

}

Response: 200

To delete a virtual drive for Marvell:

URI: /BMCIP/redfish/v1/Systems/1/Storage/MRVL.HA-RAID/Volumes/Controller.0.Volume.0/Actions/Oem/Volume.DeleteVD

Method: POST

Body: {}

Response: 200