SuperServer®

SYS-822GS-NB3RT

USER'S MANUAL

Revision 1.0 MNL-2867

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Manual Revision 1.0

Release Date: October 29, 2025

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-822GS-NB3RT 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 11
- 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.

Contents

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Chapter 1:

Introduction

This chapter provides a brief outline of the functions and features of the SYS-822GS-NB3RT system. It is based on the X14DBG-LC motherboard and the CSE-GP807TS-R000NP chassis.

1.1 Overview

This chapter provides a brief outline of the functions and features of the SuperServer SYS-822GS- NB3RT. The following provides an overview of the system specifications and capabilities.

System Overview	
Motherboard	X14DBG-LC
Chassis	CSE-GP807TS-R000NP
Processor	Intel® Xeon® 6700/6500-series processors with P-cores (in Socket E2 LGA 4710) with four UPIs (up to 24 GT/s) and a thermal design power (TDP) up to 350 W
Memory	32 DIMM slots that support ECC DDR5 memory with speeds up to 6400 MT/s in 1DPC configurations with a maximum of 16 DIMMs, and up to 5200 MT/s in 2DPC configurations with a maximum of 32 DIMMs. Memory speed/capacity support depends on the processors used in the system.
Drive Support	Eight front hot-swap E1.S NVMe drive bays Two front hot-swap M.2 NVMe slots (M-key; RAID support via S3808N controller)
Expansion Slots	Two PCIe 5.0 x16 FHHL slots
I/O Ports	One USB 3.0 Type-A port (front) One USB 2.0 Type-A port (front) One VGA port One mini-DP port
System Cooling	12 heavy-duty fans with optimal fan speed control
Power	Six redundant 6600 W (3 + 3) Titanium Level (96%) power supplies
Form Factor	8U rackmount: 13.8 x 17.6 x 37.4 in. (356 x 449 x 950 mm)

Notes:

- A Quick Reference Guide can be found on the following page of the Supermicro website:

  https://www.supermicro.com/en/products/system/gpu/8u/sys-822gs-nb3rt

- The following safety models associated with the SYS-822GS-NB3RT have been certified as compliant with UL or CSA: GP807-H66X14
- Motherboard field-replaceable unit: PIO-822GS-NB3RT-NODE
- GPU field-replaceable unit: GPU-FRU-B300-6U-AC-NODE

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 following features are located on the front of the SYS-822GS-NB3RT server.

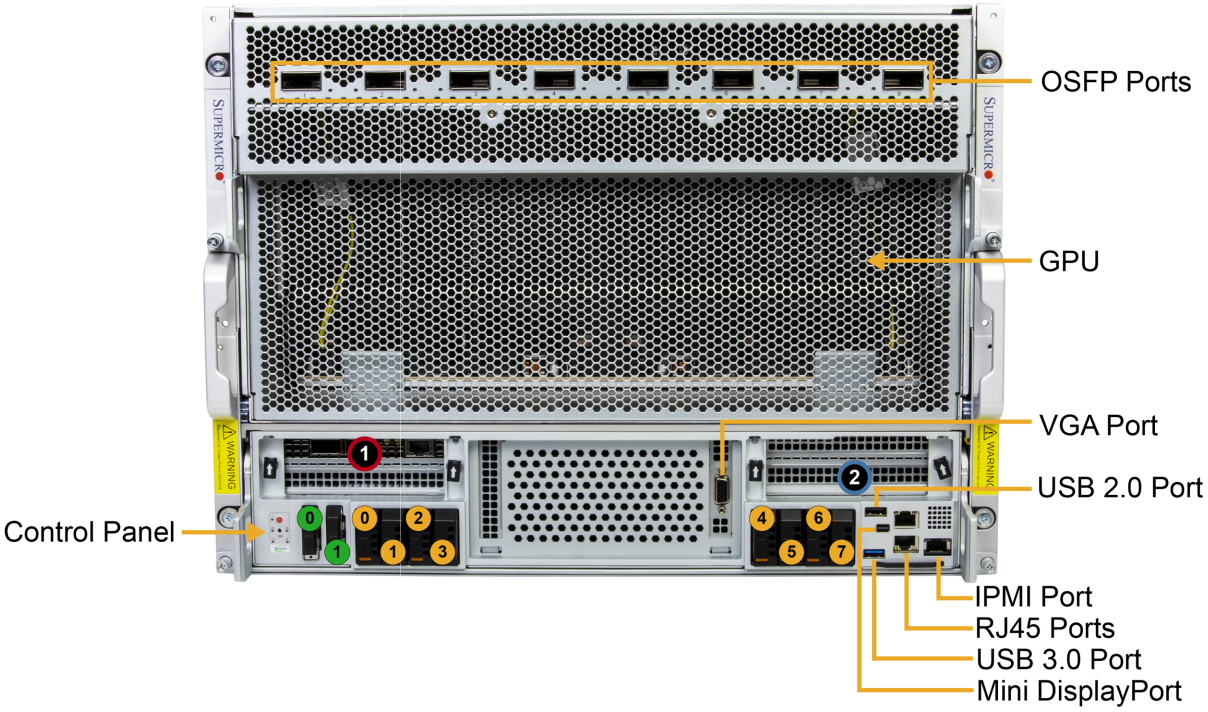


Figure 1-1. SYS-822GS-NB3RT Front View

System Features: Front	
Feature	**Description**
OSFP Ports	Eight OSFP ports
GPU	Eight NVIDIA ConnectX®-8 OSFP ports with up to 800 Gb/s for east-west traffic
VGA Port	One VGA port
USB 2.0 Port	One USB 2.0 Type-A port
IPMI Port	One dedicated IPMI port
RJ45 Ports	Dual 10G RJ45 ports
USB 3.0 Port	One USB port
Mini Display Port	One Mini DisplayPort
Control Panel	See "Control Panel" on page 17 for more information

Logical Storage Drive Locations	
Drive Bay	**Description**
0–7 (Yellow)	Eight hot-swap E1.S NVMe drive bays
0,1 (Green)	Two hot-swap M.2 NVMe drive bays

Expansion Slot Locations	
Slot	**Description**
1, 2	PCIe 5.0 x16 FHHL from PLX switch for north-south traffic

NVMe SSD LED Indicators

Each E1.S NVMe SSD module 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.

Rear I/O Ports			
LED	**Color**	**Pattern**	**Device Behavior**
Activity LED	Blue	Solid	Idle SAS/NVMe storage module installed
	Blue	Blinking	I/O activity
	Off	N/A	Idle SATA drive installed
Status LED	Red	Solid	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	Safe to remove NVMe storage module
	Amber	Blinking at 1 Hz	Do not remove NVMe storage module

Control Panel

The buttons and LEDs located on the SYS-822GS-NB3RT control panel are described below.

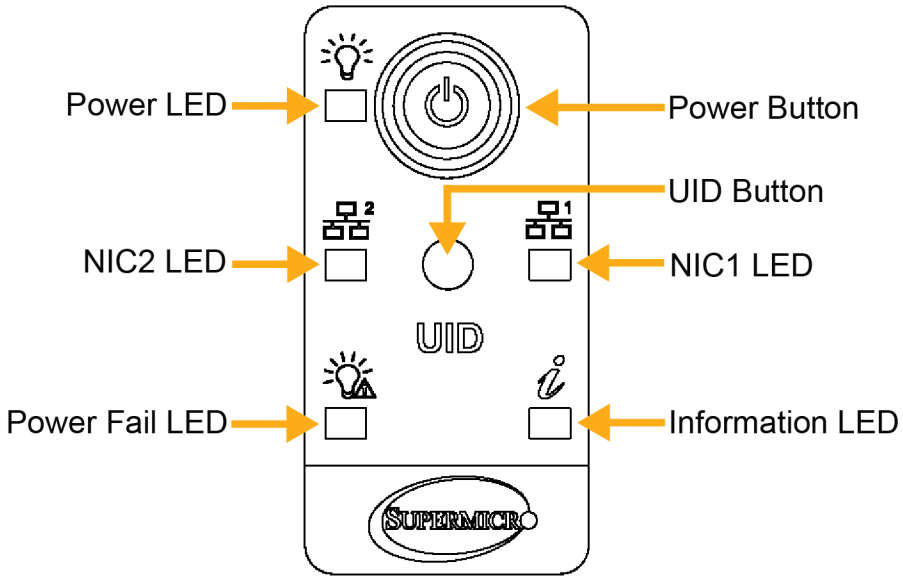


Figure 1-2. SYS-822GS-NB3RT Control Panel

Control Panel Features	
Features	**Description**
Power LED	Indicates if the system is powered on.
Power Button	Applies or removes primary power from the power supply to the server but maintains standby power.
UID Button	Powers the blue light of the Information LED and a blue LED on the rear of the chassis. This LED is used to locate the server in large racks and server banks.
NIC1 and NIC2 LEDs	Indicate activity on the corresponding LAN1 or LAN2 connection on the installed AOC cards.
Power Fail LED	Indicates a power failure in the power supply when flashing.
Information LED	Alerts the operator to several states. See the Information LED table below for details.

Information LED	
Color, Status	**Description**
Red, solid	An overheat condition has occurred.
Red, blinking at 1 Hz	Fan failure; check for an inoperative fan.

Information LED	
Color, Status	**Description**
Red, blinking at 0.25 Hz	Power failure; check for an inoperative 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 via BMC to locate the server in a rack environment.
Blue, blinking at 2 Hz	BMC is resetting.
Blue, blinking at 4 Hz	BMC is setting factory defaults.
Blue, blinking at 10 Hz with Power LED blinking green	BMC/BIOS firmware is updating.

Rear View

The following features are located on the rear of the SYS-822GS-NB3RT server.

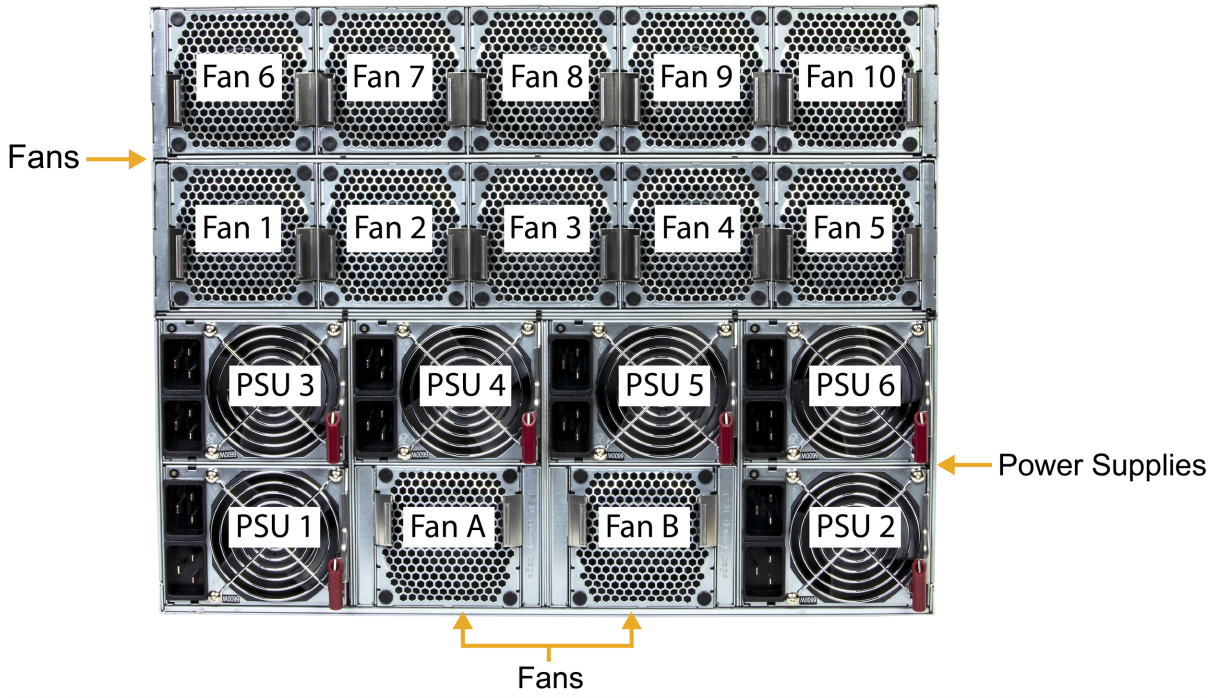


Figure 1-3. SYS-822GS-NB3RT Rear View

System Features: Rear	
Feature	**Description**
Fans	12 heavy-duty fans with optimal fan speed control
Power Supplies	Six redundant 6600 W (3 + 3) Titanium Level (96%) power supplies

1.3 System Architecture

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

Main Components

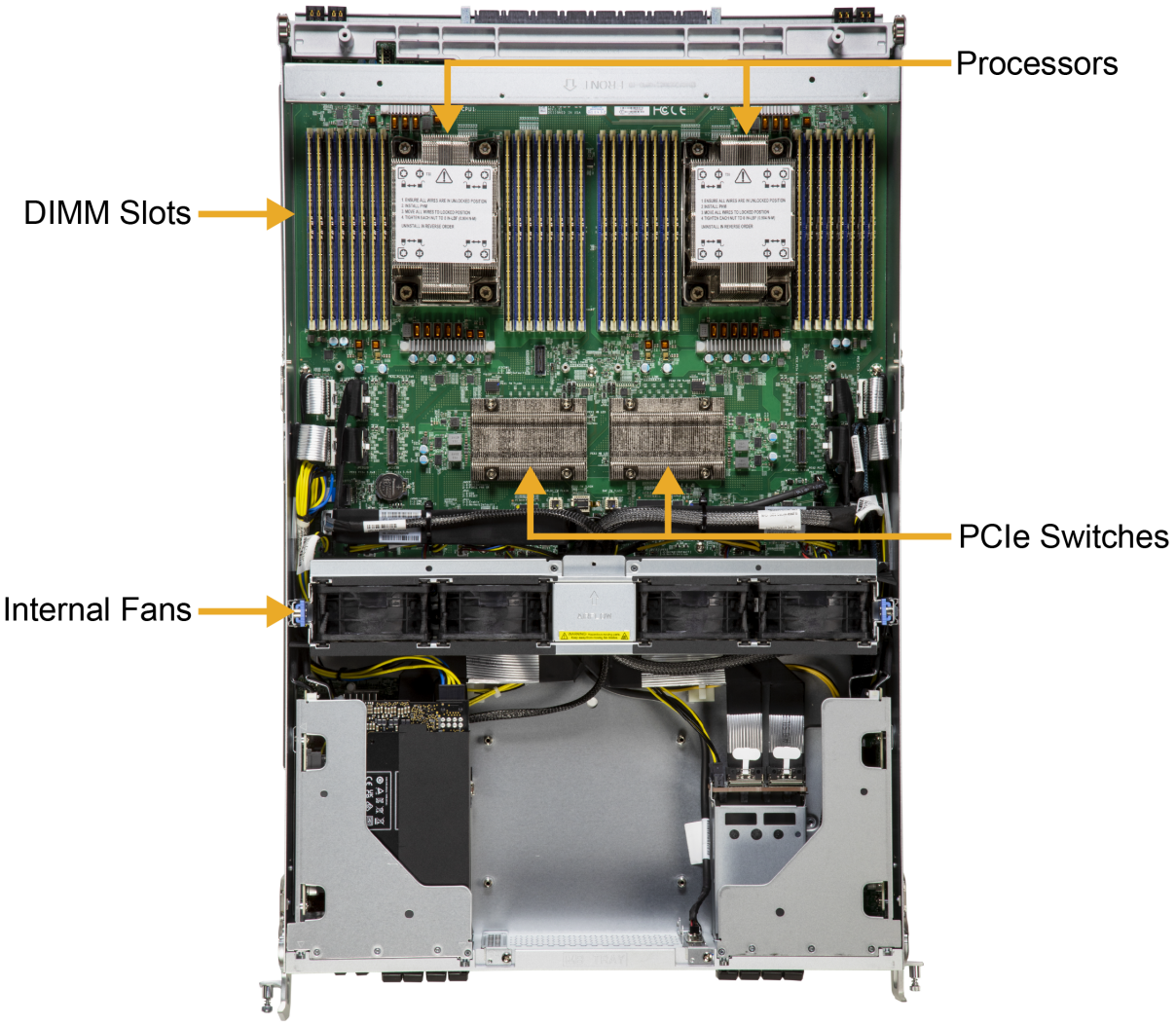


Figure 1-4. SYS-822GS-NB3RT Main Component Locations

Main System Components	
Feature	**Description**
Processors	Intel® Xeon® 6700/6500-series processors with P-cores
DIMM Slots	32 DDR5 DIMM slots
PCIe Switches	Two PCIe switches (covered)
Internal Fans	Four internal fans

Motherboard Block Diagram

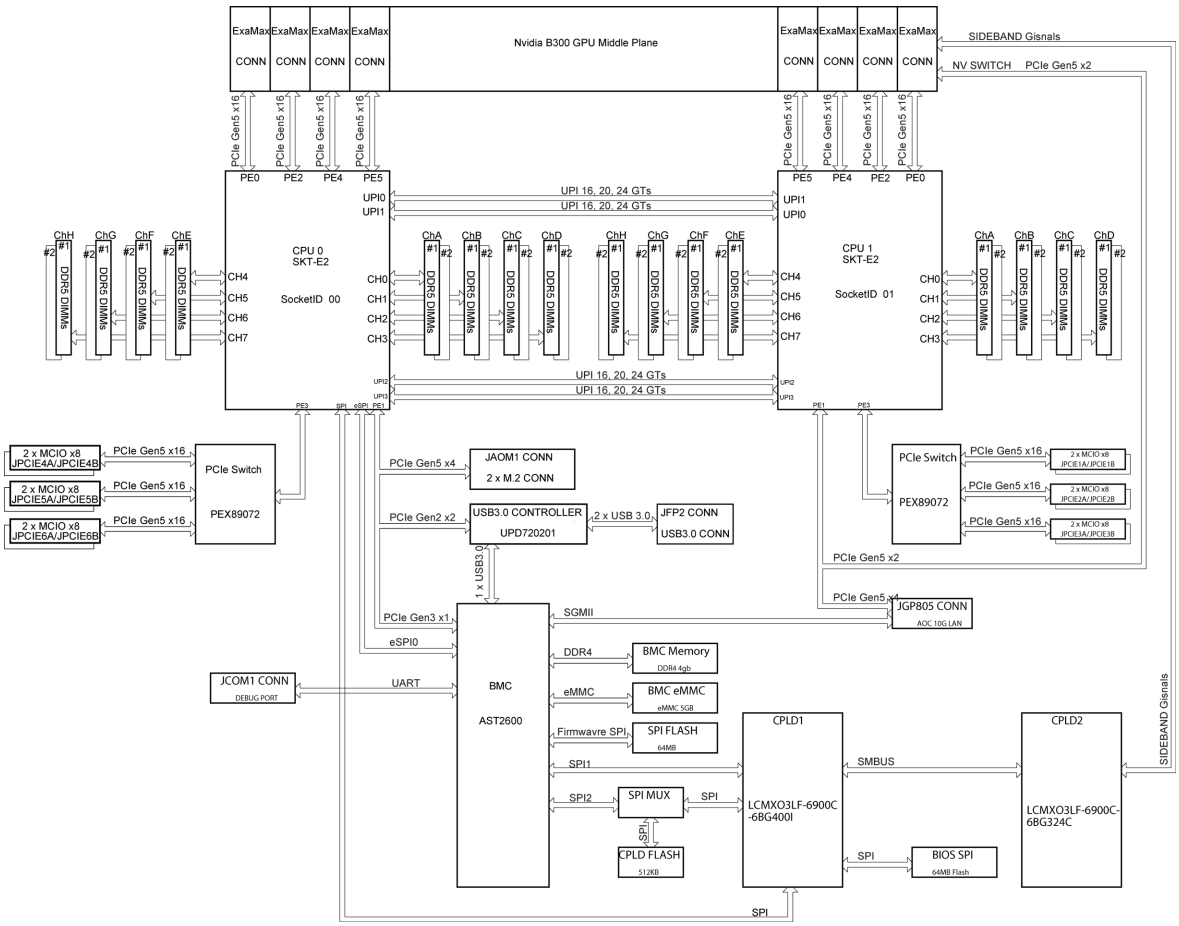


Figure 1-5. X14DBG-LC Motherboard Block Diagram

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 X14DBG-LC motherboard layout and other quick reference information, refer to the content below.

GPU Server Board Overview

This chapter provides detailed information on the components installed on the SYS-822GS-NB3RT server as well as the features supported by the GPU server.

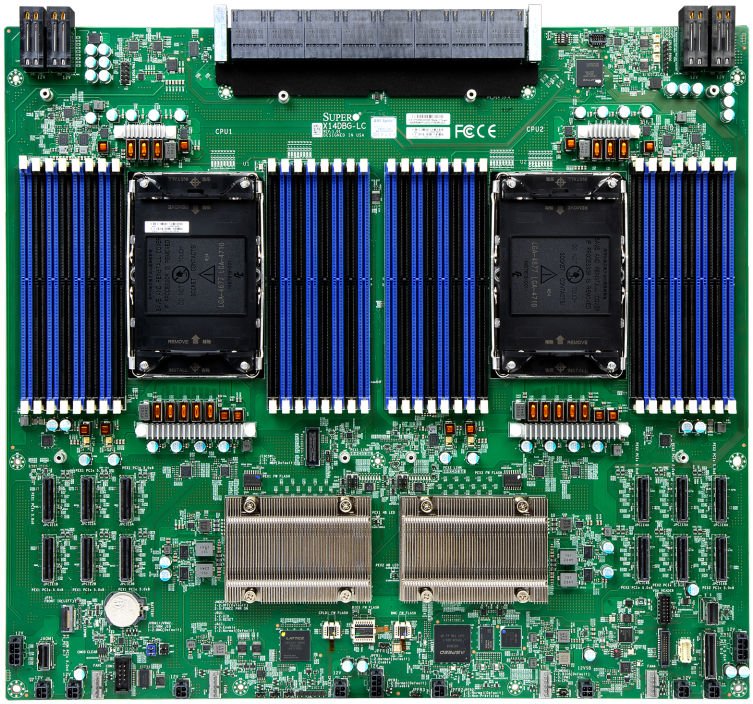


Figure 1-6. X14DBG-LC Motherboard Image

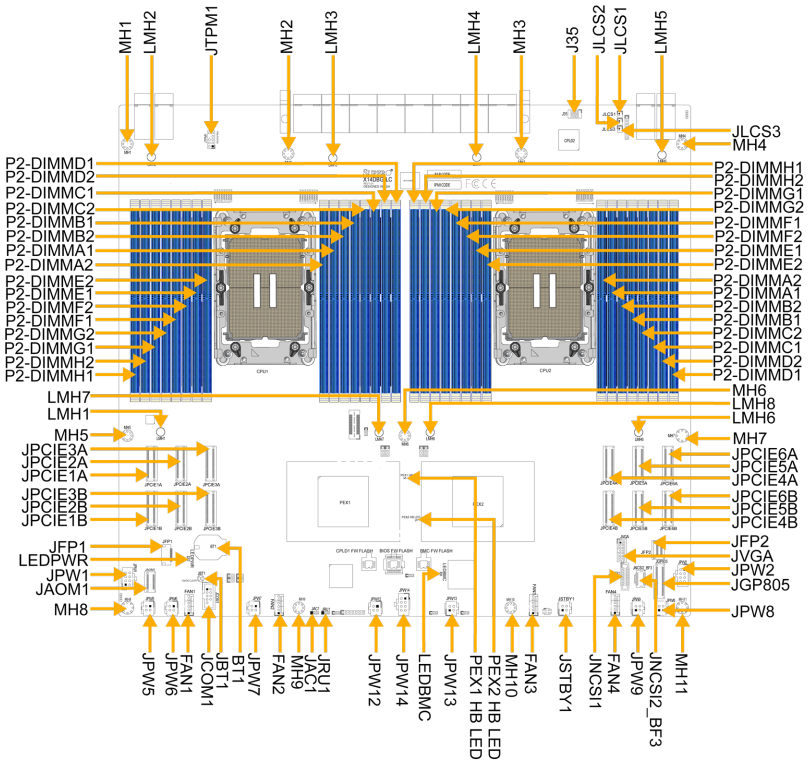


Figure 1-7. X14DBG-LC Motherboard Layout

Notes:

- For detailed information on jumpers, connectors, and LED indicators, see "Maintenance and Component Installation" on page 35.
- "■" 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 Table

Jumper	Description	Jumper Settings
JBT1	CMOS Clear	Open (normal)

LED	Description	Status
LEDBMC	BMC Heartbeat LED	Blinking Green: BMC Normal (Active) Solid Green: BMC resetting or cold rebooting
LEDPWR	Power LED	LED On: Onboard Power On
PEX1 HB LED	PLX Operating State LED	LED On: PLX is powered, the firmware is running, and the internal management processor is alive
PEX2 HB LED	PLX Operating State LED	LED On: PLX is powered, the firmware is running, and the internal management processor is alive

Connector	Description
BT1	Onboard Battery
FAN1–FAN4	System Fan Power Connector
JAOM1	Connections to M.2 adapter cards
JCOM1	Serial (COM) Port
JFP1	Front Panel Header
JGP805	Connections to NIC card
JLCS1–JLCS3	Liquid Leakage Detection Sensor Headers
JPCIE1A–JPCIE6A	Connections to device PCIe bus
JPCIE1B–JPCIE6B	Connections to device PCIe bus
JPW1, JPW2, JPW14	2x4 P12V Power Connector
JPW5–JPW9, JPW12–JPW13	2x2 P12V Power Connector

Connector	Description
JSTBY1	2x2 P12V_STBY Power Connector
JTPM1	Trusted Platform Module/Port 80 Connector
JNCSI1	Connections to NIC NCSI
JNCSI2_BF3	Network Controller Sideband Interface Header for Bluefield 3
JVGA	Onboard VGA Header
LMH1–LMH8	Mounting Holes
MH1–MH10	Mounting Holes

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 35 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.

2.1 Unpacking the System

Inspect the box the SYS-822GS-NB3RT 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 146.

2.2 Preparing for Setup

The box in which the SYS-822GS-NB3RT 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 146.
- 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-GP807TS-R000NP chassis into a rack unit with the rails provided. There are a variety of rack units on the market, which may mean that the assembly procedure will differ slightly from the instructions provided. You should also refer to the installation instructions that came with the rack unit you are using.

Note: This rail will fit a rack between 26.8" and 36.4" deep.

Identifying the Rails

The CSE-GP807TS-R000NP chassis package includes two rail assemblies. Each assembly 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. These assemblies are specifically designed for the left and right side of the chassis and labeled.

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

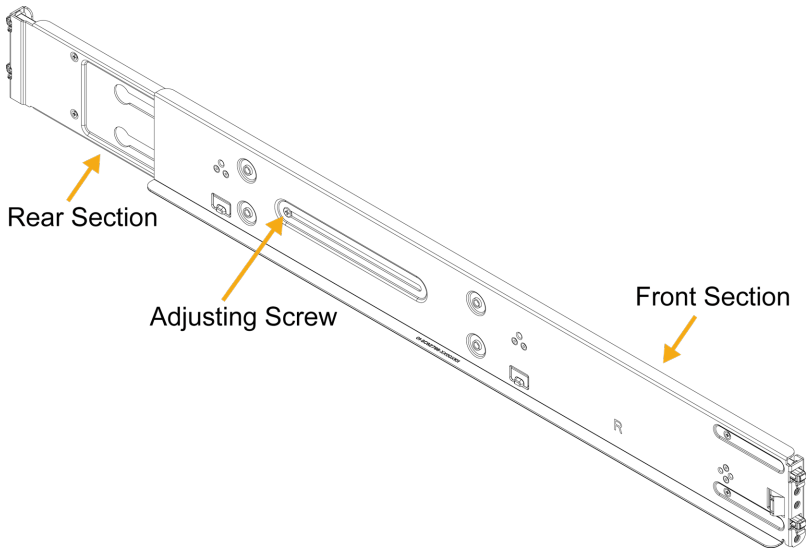


Figure 2-1. Identifying the Rackmount Rail
(Right Rail Assembly Shown)

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.

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

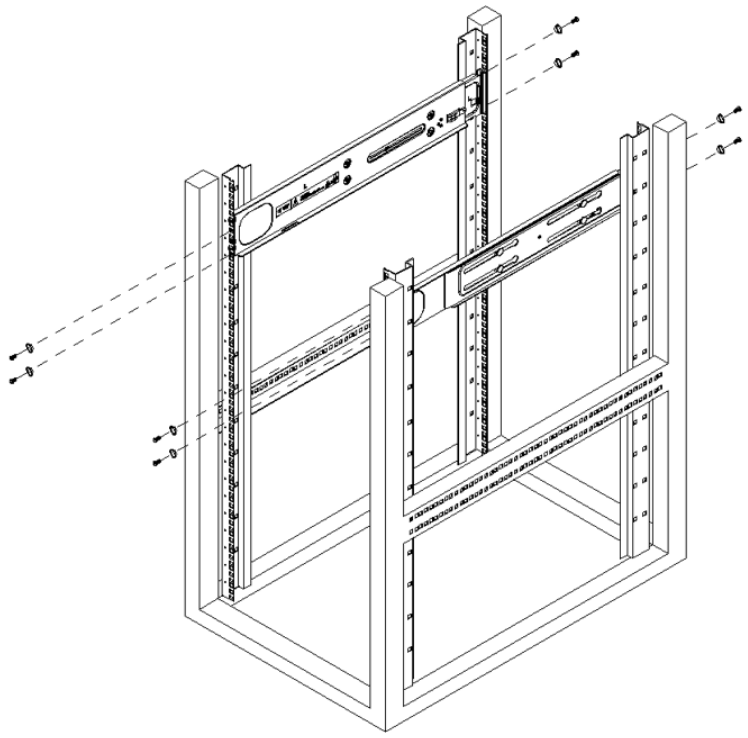


Figure 2-2. Attaching the Rail to the Rack

2.4 Installing the Chassis into the Rack

Important: Use caution when mounting or removing the system from the rack. For large systems, at least one other person must assist during installation or removal. Follow the safety recommendations printed on the rails. Depending on the size of the system, you might need to use a lift.

Slide the chassis into the rack so that the bottom of the SYS-822GS-NB3RT server slides onto the bottom lip of the rails.

Important: Always install servers to the bottom of a rack first.

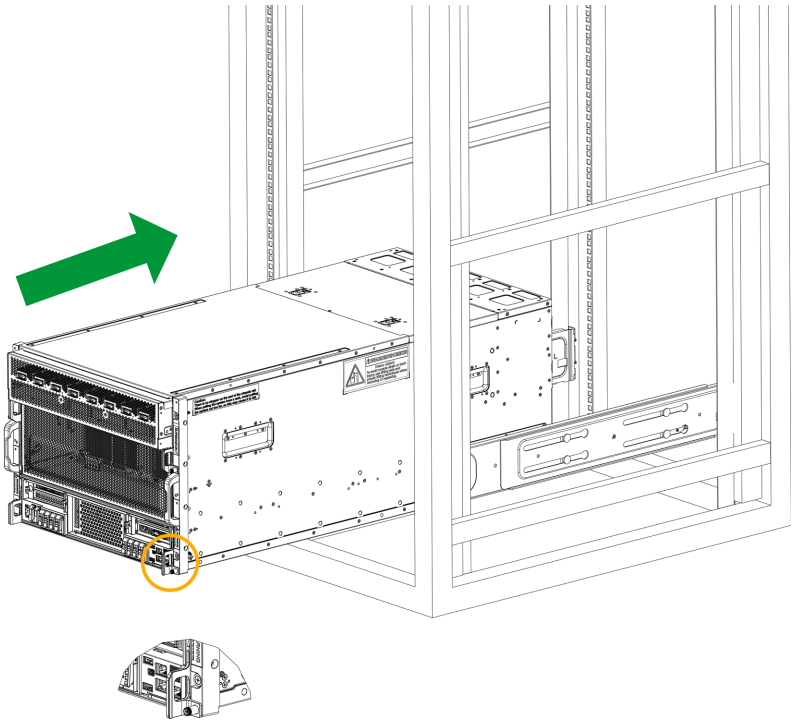


Figure 2-3. Sliding the SYS-822GS-NB3RT into the Rack

Removing the Chassis from the Rack

The process of removing the chassis from the rack is the reverse of the installation procedure.

Important: Use caution when mounting or removing the system from the rack. For large systems, at least one other person must assist during installation or removal. Follow the safety recommendations printed on the rails. Depending on the size of the system, you might need to use a lift.

1. Remove the power to your system, then remove all screws from the GPU and CPU trays. See "Accessing the System" on page 38 for details on removing the GPU and CPU trays.
2. Pull the trays out one at a time until all remaining trays have been removed.
3. Remove the system as illustrated below.
4. If necessary, loosen the thumb screws on the front of the chassis that hold it in the rack.
5. Pull the chassis forward out the front of the rack until it stops.
6. Press the release latches on each of the inner rails downward simultaneously and continue to pull the chassis forward and out of the rack.

Important: Always install servers to the bottom of a rack first.

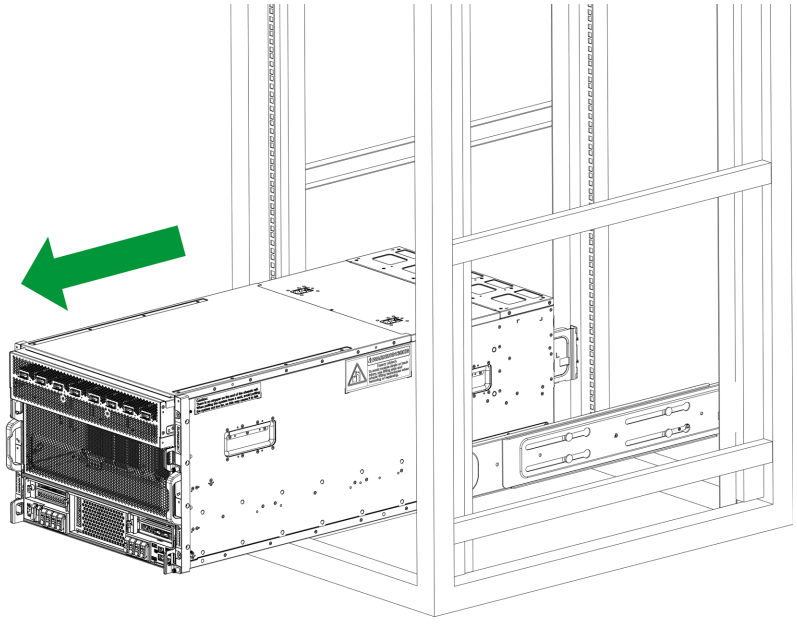


Figure 2-4. Removing the SYS-822GS-NB3RT from the Rack

Chapter 3:

Maintenance and Component Installation

This chapter provides instructions on installing and replacing main system components for the SYS-822GS-NB3RT 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.

3.1 Removing Power

Before performing some setup or maintenance tasks, use the following procedure to ensure that power has been removed from the SYS-822GS-NB3RT server. 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.
3. Disconnect the power cord(s) from the power supply module(s).

3.2 Accessing the System

The SYS-822GS-NB3RT server features a removable GPU and CPU tray, which allows easy access to the inside of the server.

Removing the GPU Tray

The GPU tray houses the system's GPUs. The GPU drawer may be removed from the chassis for maintenance.

1. There are two levers, one located directly on the left and right side of the GPU drawer. Pull these two levers down, as shown.
2. Use these levers to pull the drawer out from the chassis.

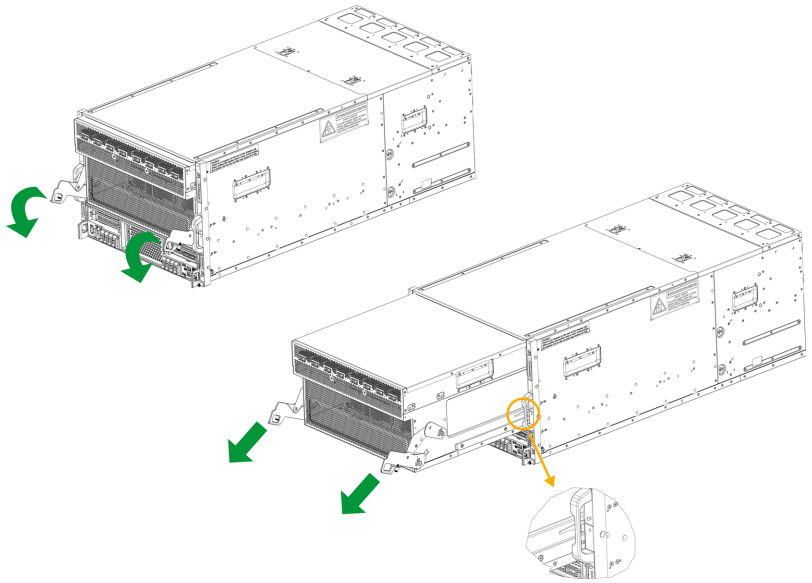


Figure 3-1. Removing the GPU Tray

Reinstalling the GPU Tray

1. To reinstall the GPU drawer, slide the tray into the chassis.
2. Push the levers back until they snap into place.
3. Secure each lever with a screw.

Removing the CPU Tray

The CPU drawer houses the system's motherboard, CPU and related components. The CPU drawer may be removed from the chassis for maintenance.

1. There are two levers, one located directly on the left and right side of the CPU drawer. Pull these two levers down, as shown.
2. Use these levers to pull the drawer out from the chassis

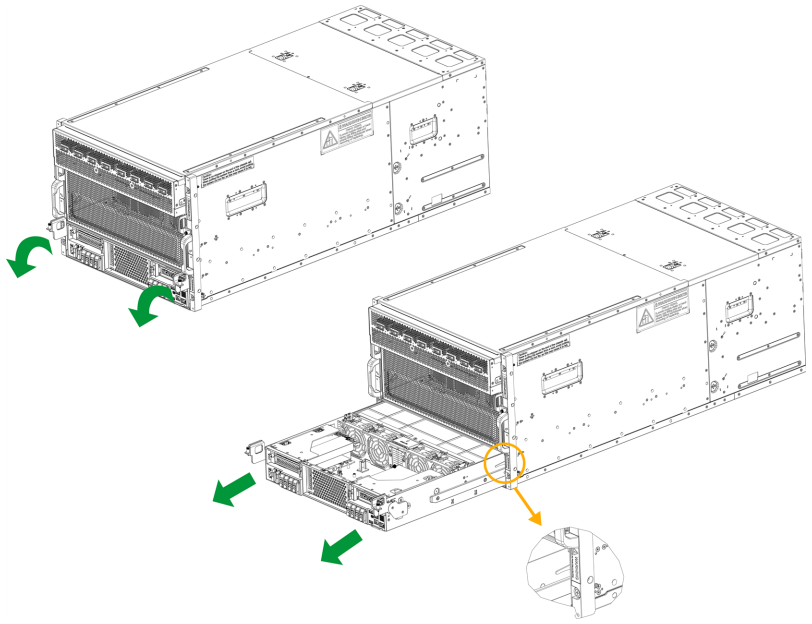


Figure 3-2. Removing the CPU Tray

Reinstalling the CPU Tray

1. To reinstall the CPU drawer, slide the tray into the chassis.
2. Push the levers back until they snap into place.
3. Secure each lever with a screw.

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

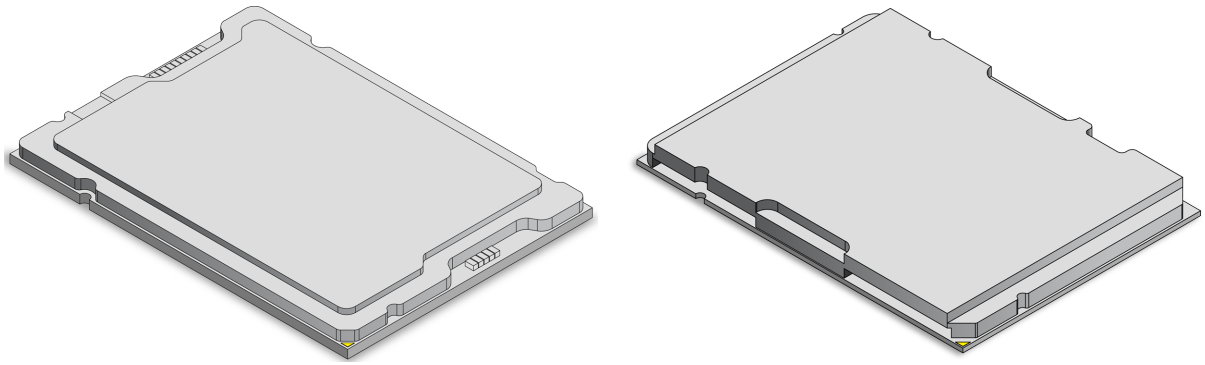


Figure 3-3. Processor (SP XCC left, SP HCC/LCC right)

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

The motherboard supports two types of processors and their associated processor carrier.

Processor Carriers

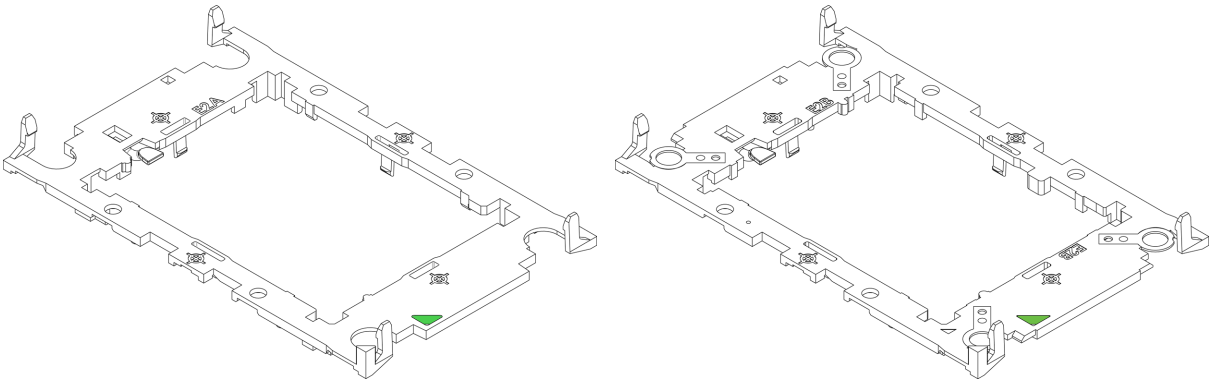


Figure 3-4. Carrier (SP XCC E2A left, SP HCC/LCC E2B right)

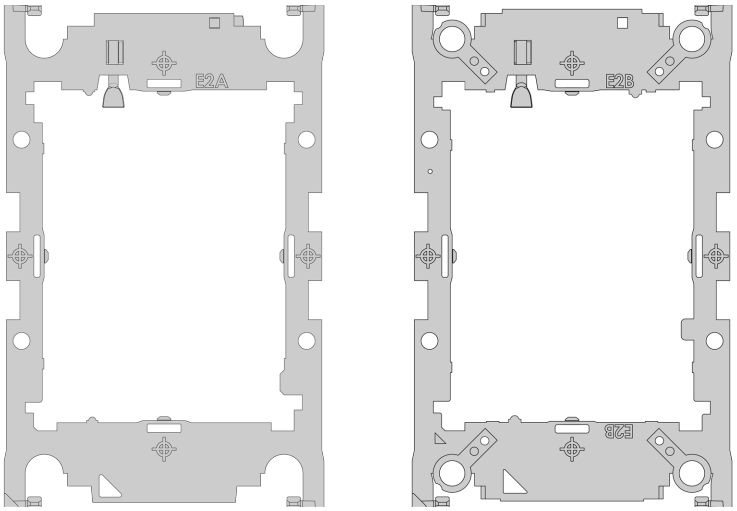


Figure 3-5. Carrier Top View (SP XCC E2A left, SP HCC/LCC E2B right)

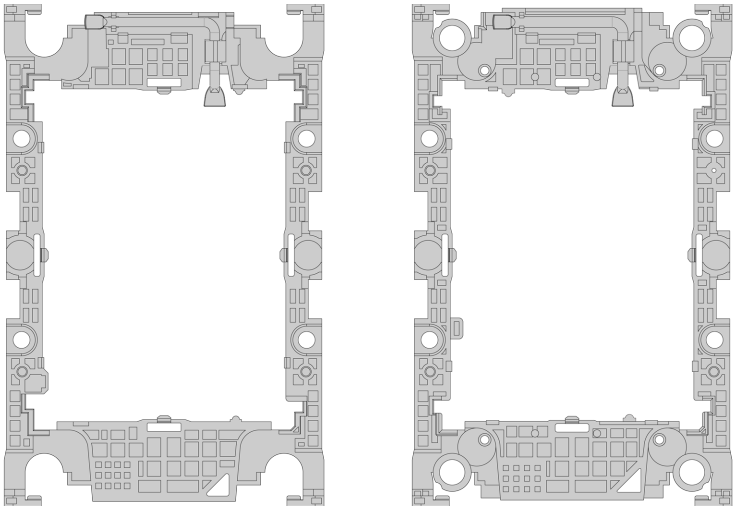


Figure 3-6. Carrier Bottom View (SP XCC E2A left, SP HCC/LCC E2B right)

Overview of the Processor Socket

The processor socket is protected by a plastic protective cover.

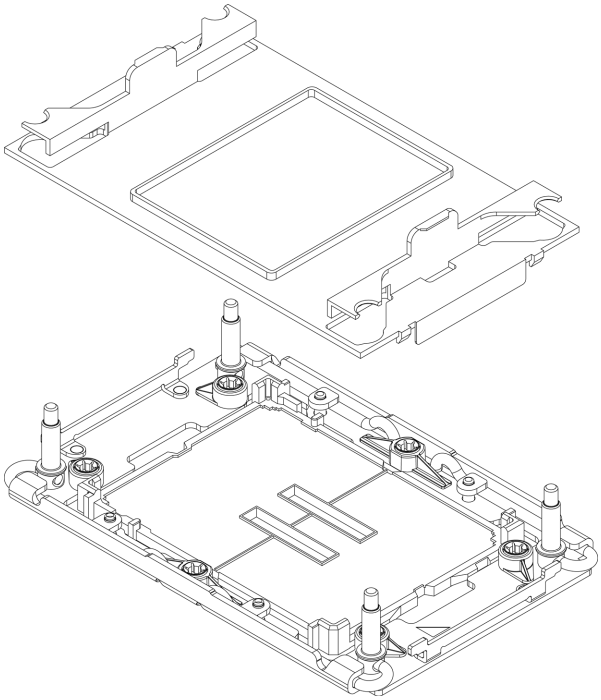


Figure 3-7. Plastic Protective Cover and Processor Socket

Overview of the Processor Heatsink Module

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

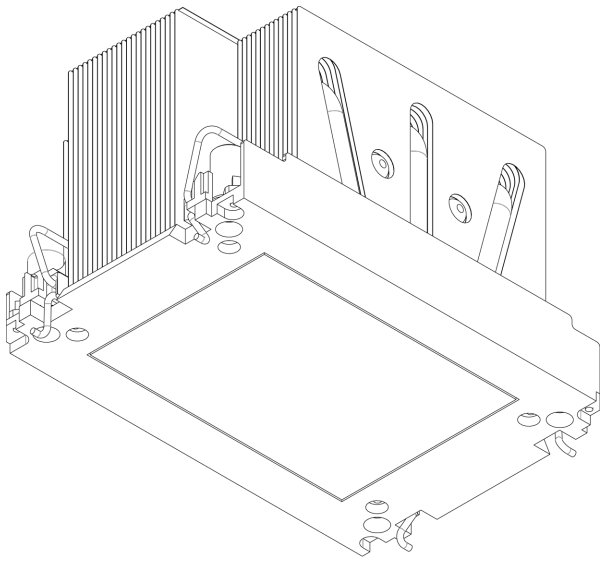


Figure 3-8. Heatsink (2U)

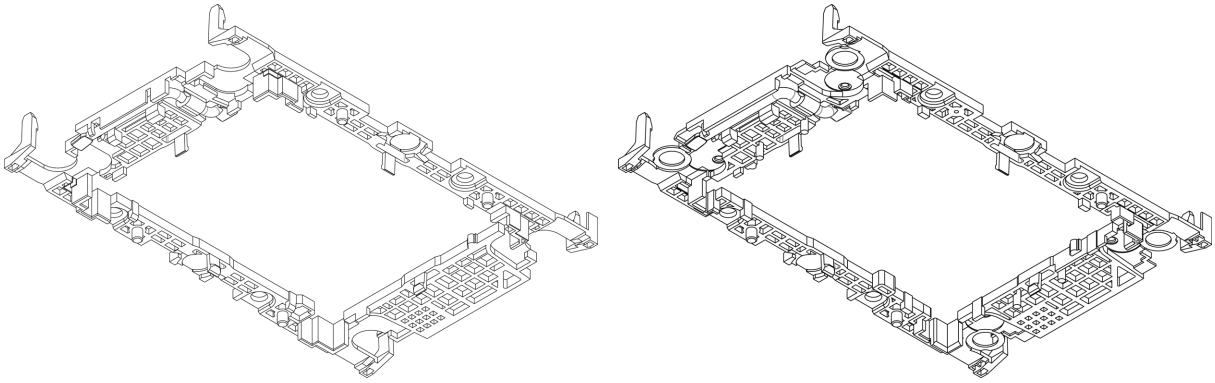


Figure 3-9. Carrier (SP XCC E2A left, SP HCC/LCC E2B right)

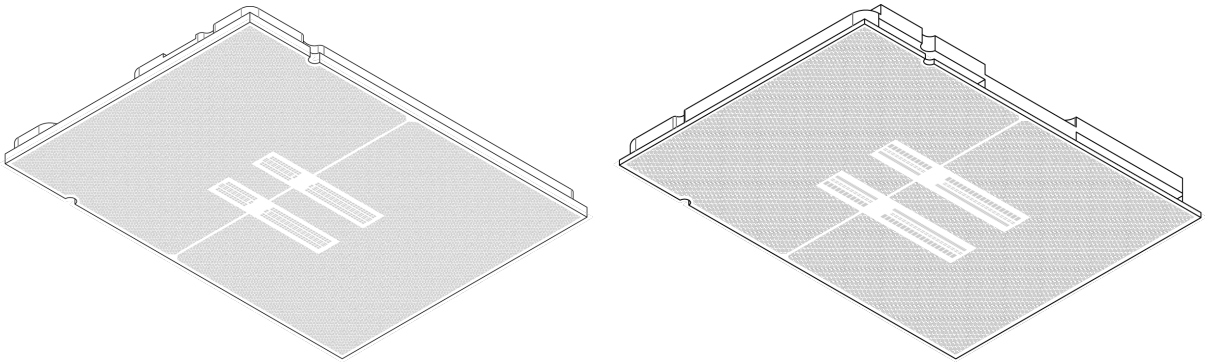


Figure 3-10. Processor (SP XCC E2A left, SP HCC/LCC E2B right)

Installing the Processor

To install the processor, follow the steps below:

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

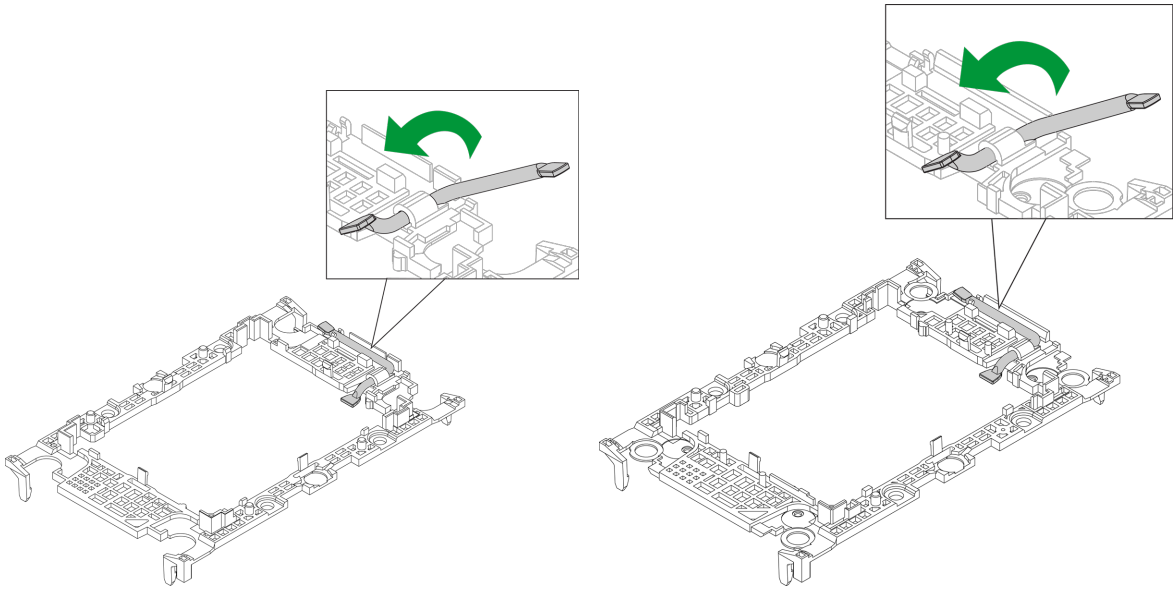


Figure 3-11. Carrier Lever (SP XCC left, SP HCC/LCC right)

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.

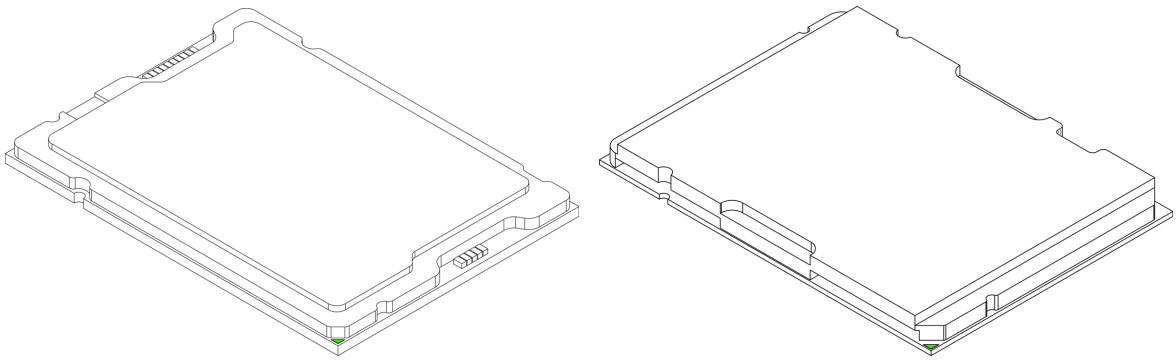


Figure 3-12. Processor (SP XCC E2A left, SP HCC/LCC E2B right)

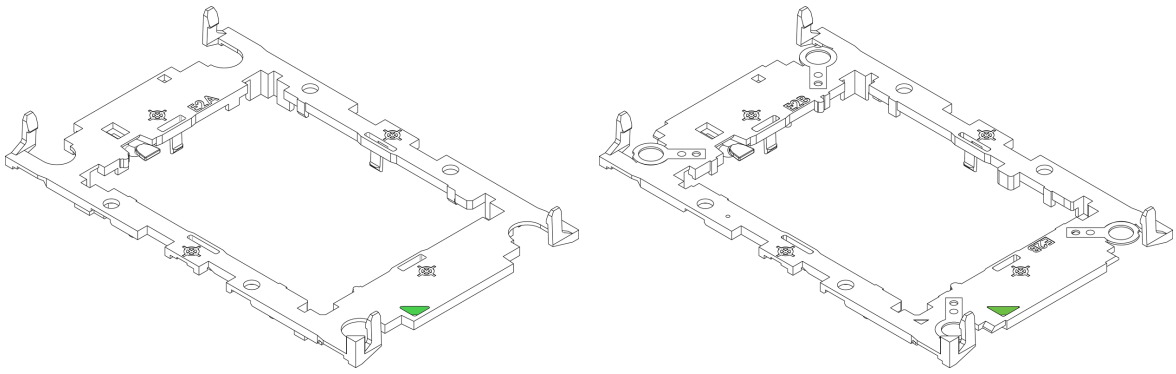


Figure 3-13. Carrier (SP XCC E2A left, SP HCC/LCC E2B right)

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 the processor into the latch marked B as shown below.

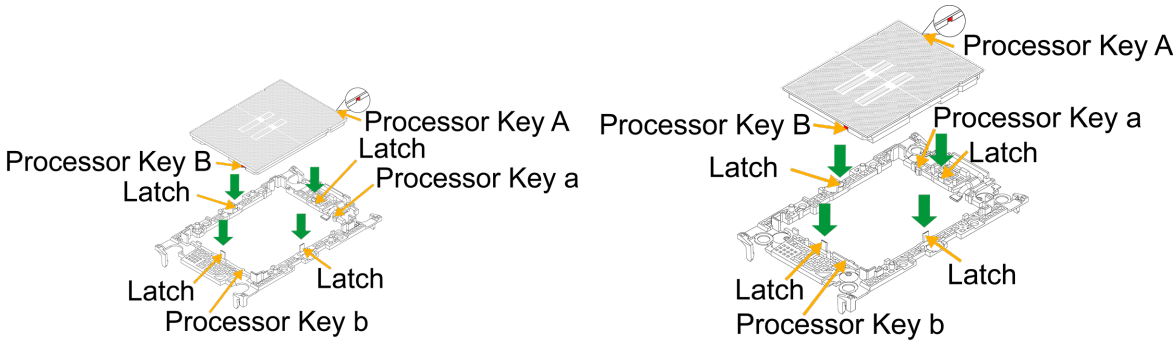


Figure 3-14. Keys and Latches Locations (SP XCC E2A left, SP HCC/LCC E2B right)

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

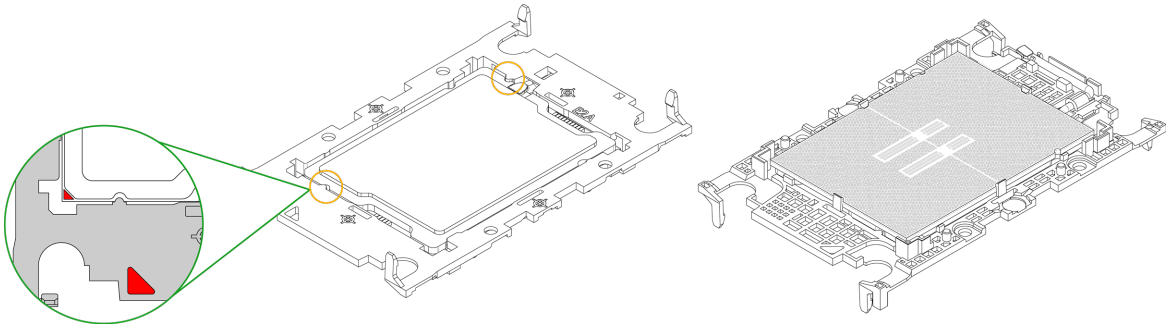


Figure 3-15. SP XCC E2A Keys and Latches

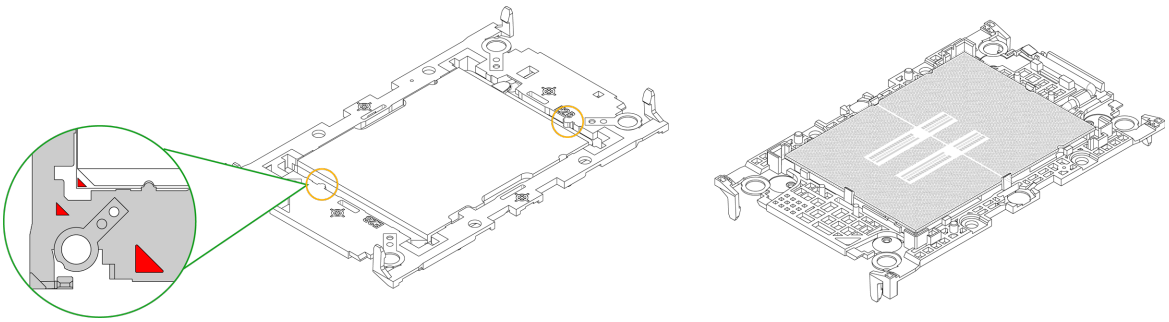


Figure 3-16. SP HCC/LCC E2B Keys and Latches Together

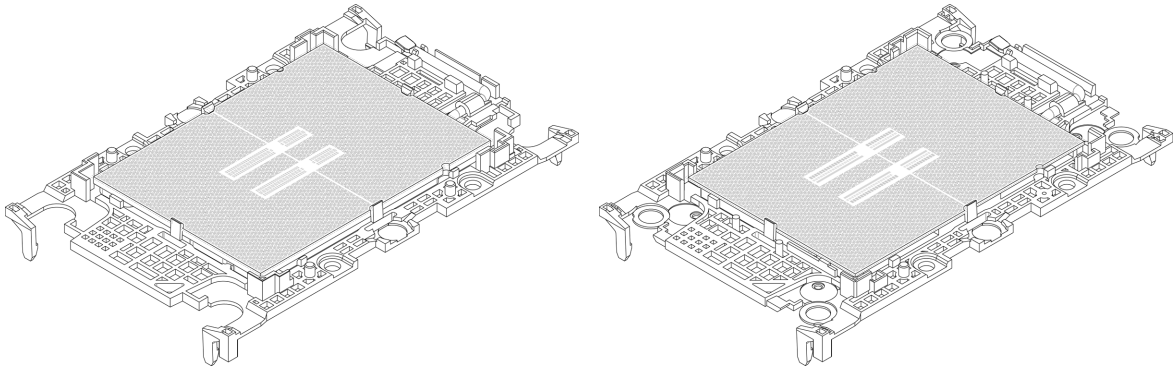


Figure 3-17. Carrier Assembly Completed (SP XCC E2A left, SP HCC/LCC E2B right)

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.

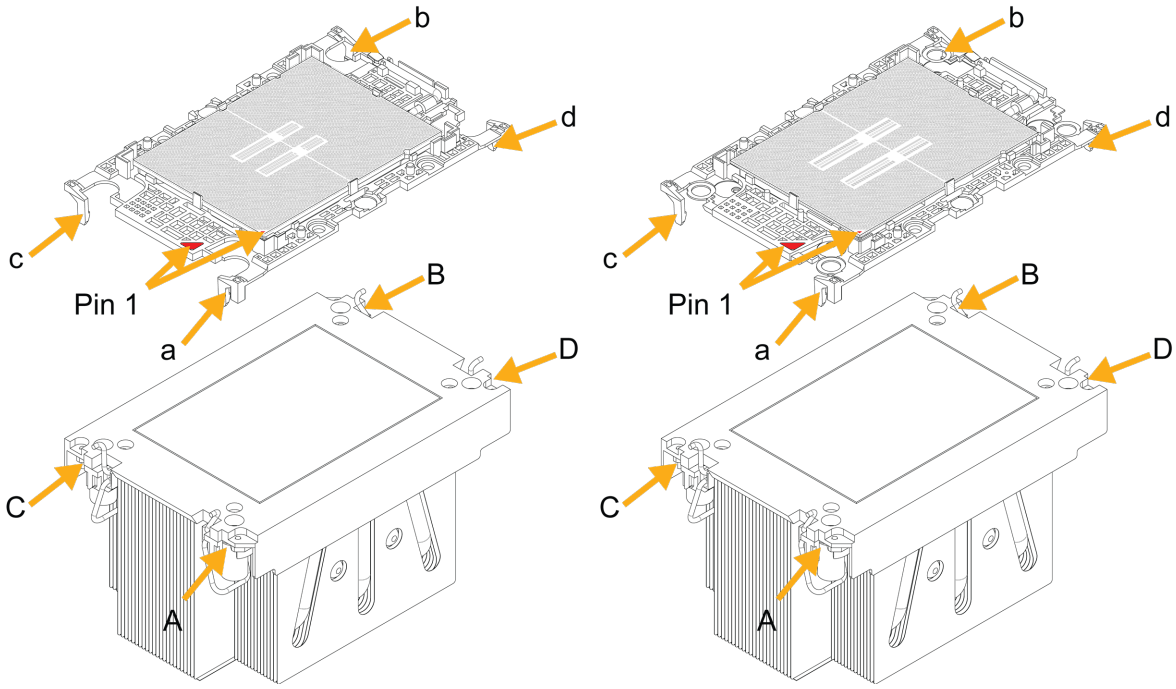


Figure 3-18. Carrier with 2U Heatsink (SP XCC left, SP HCC/LCC right)

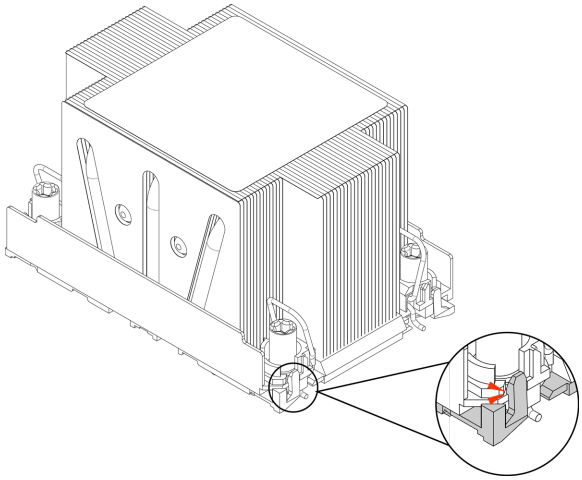


Figure 3-19. PHM Plastic Clips Locked (2U)

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

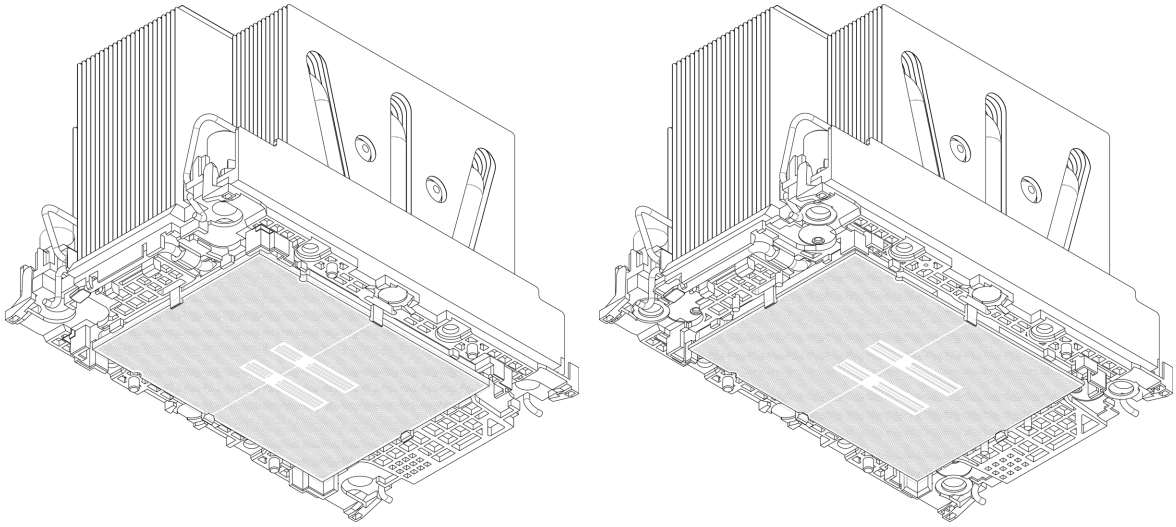
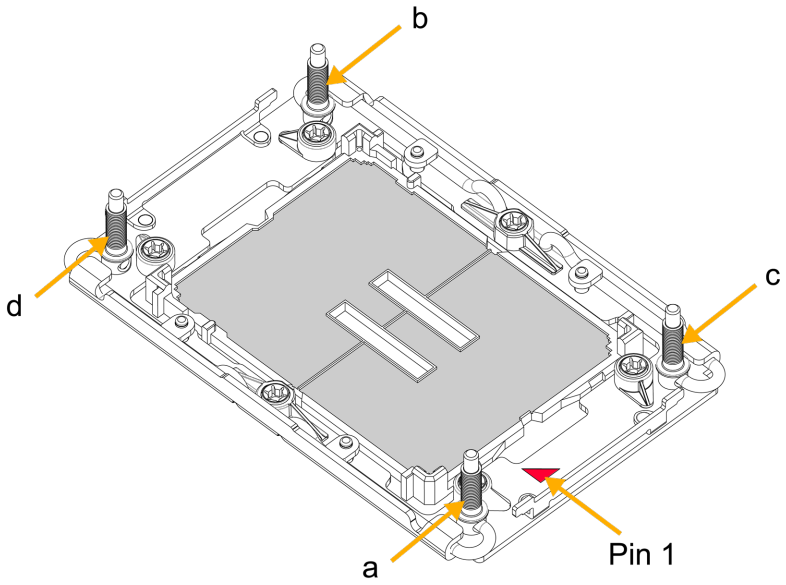


Figure 3-20. 2U PHM Completed (SP XCC left, SP HCC/LCC right)

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.

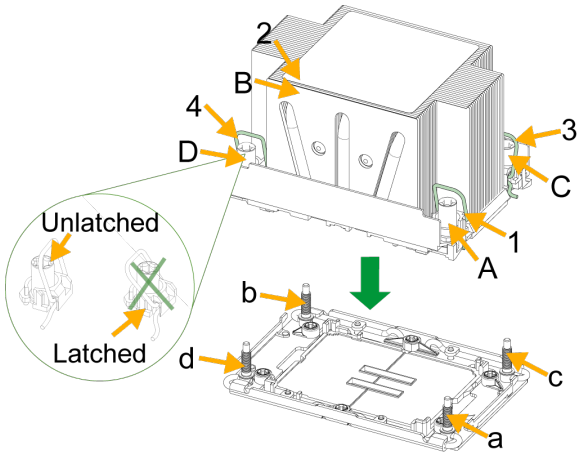


Figure 3-22. PEEK Nuts and Rotating Wires (2U)

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.

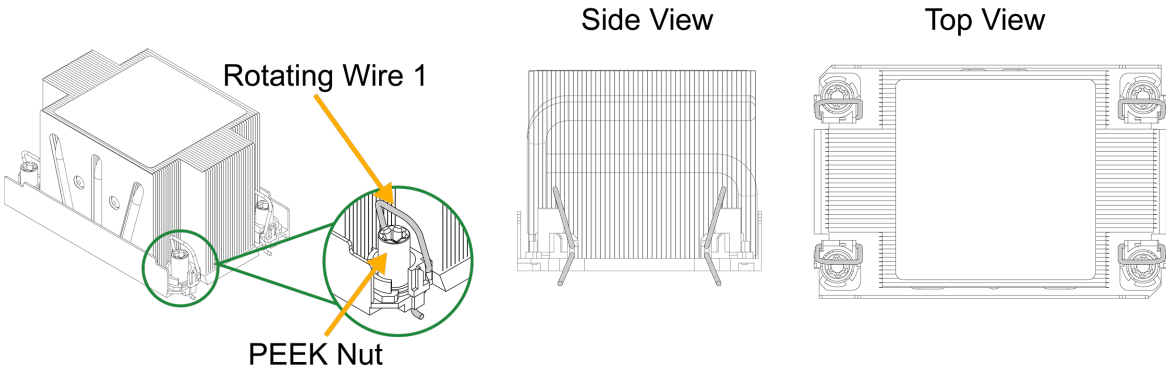


Figure 3-23. 2U Unlatched Positions

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.

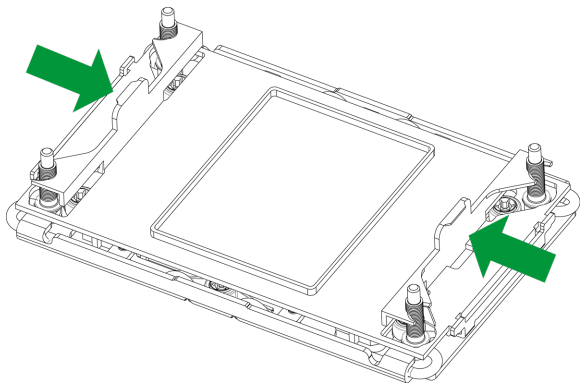


Figure 3-24. Processor Socket with Plastic Protective Cover

2. Pull up the protective cover from the socket.

Note: Do not touch or bend the socket pins.

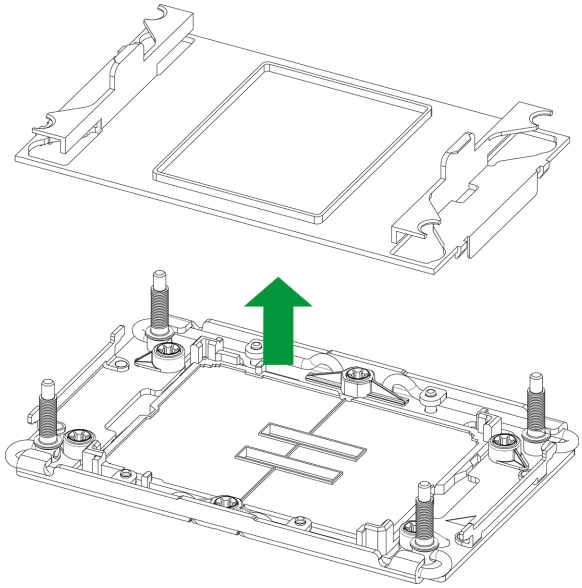


Figure 3-25. Plastic Protective Cover Removed

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.

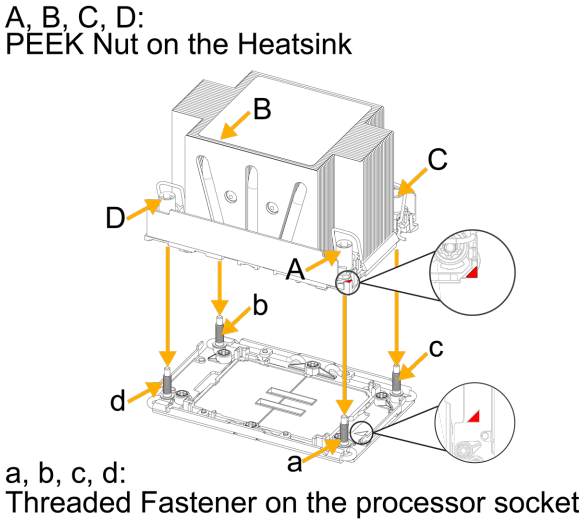


Figure 3-26. Aligning the Heatsink with the Socket (2U)

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

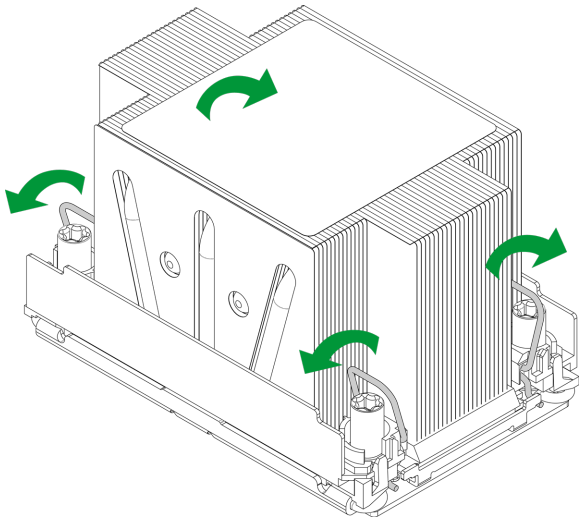


Figure 3-27. Latching the PHM (2U)

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.

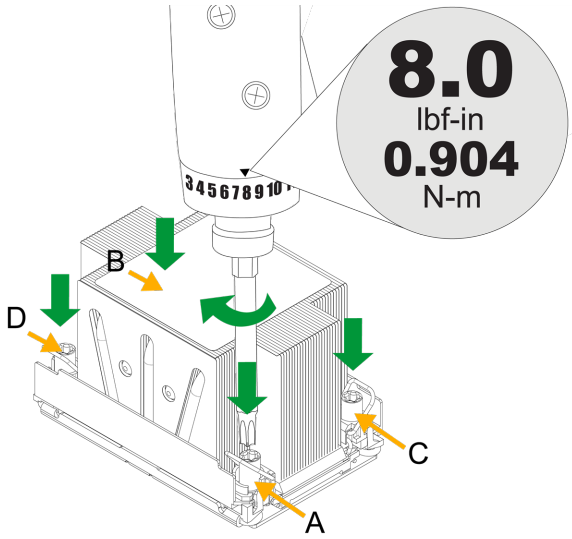


Figure 3-28. Installing the PHM with a Torque Driver (2U)

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.

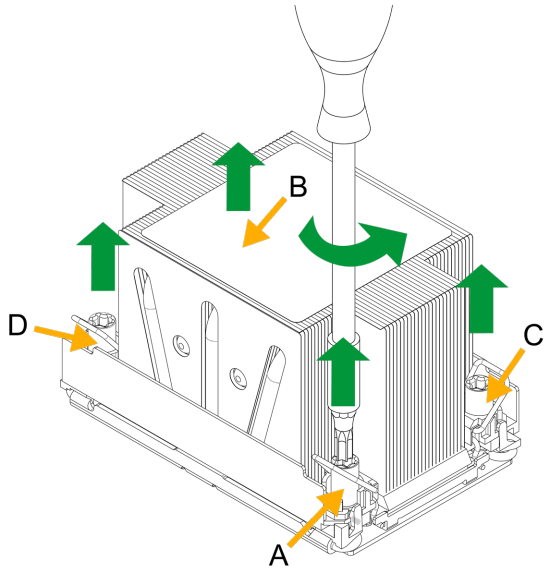


Figure 3-29. Loosening the Screws (2U)

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

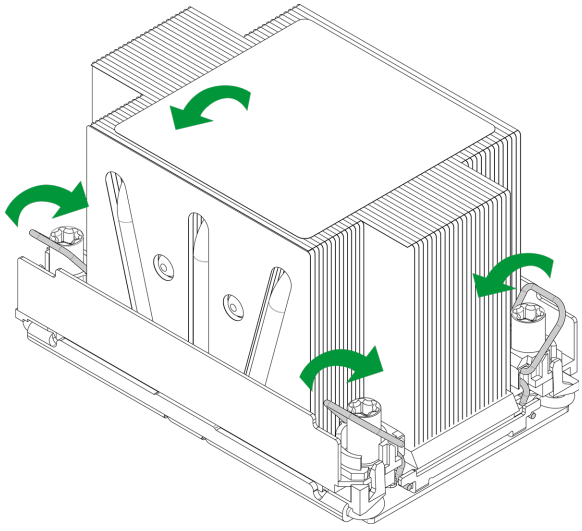


Figure 3-30. Unlatching the PHM (2U)

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

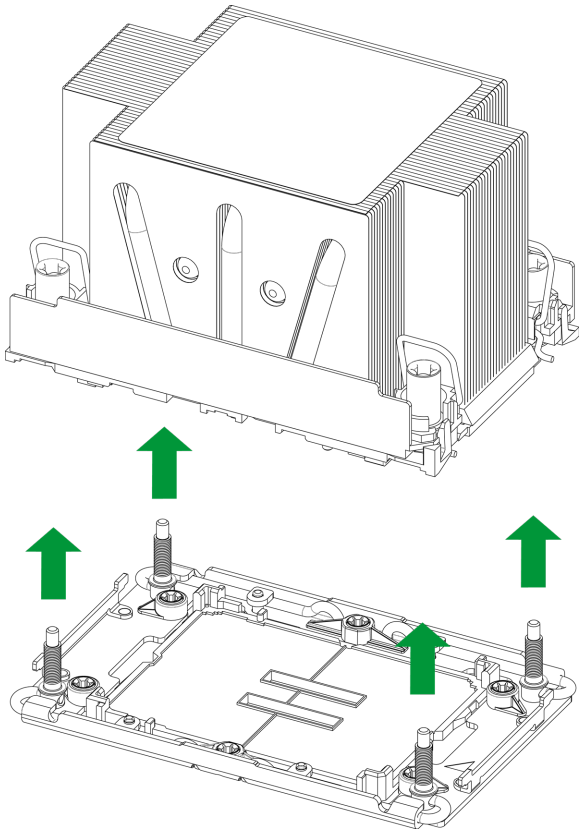


Figure 3-31. Removing the PHM from the Socket (2U)

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

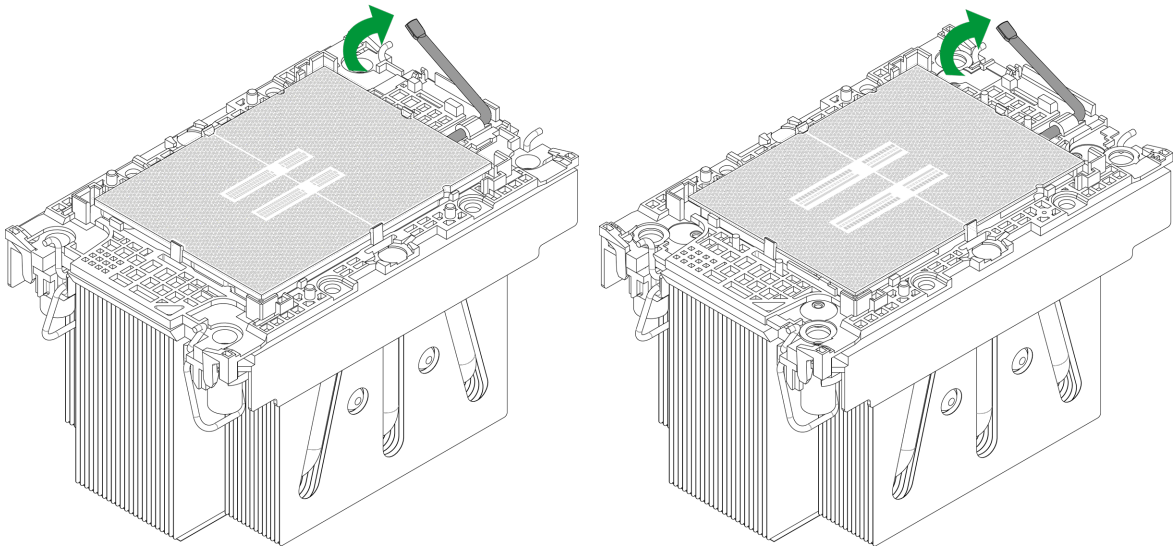


Figure 3-32. Carrier with 2U Heatsink (SP XCC left, SP HCC/LCC right)

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

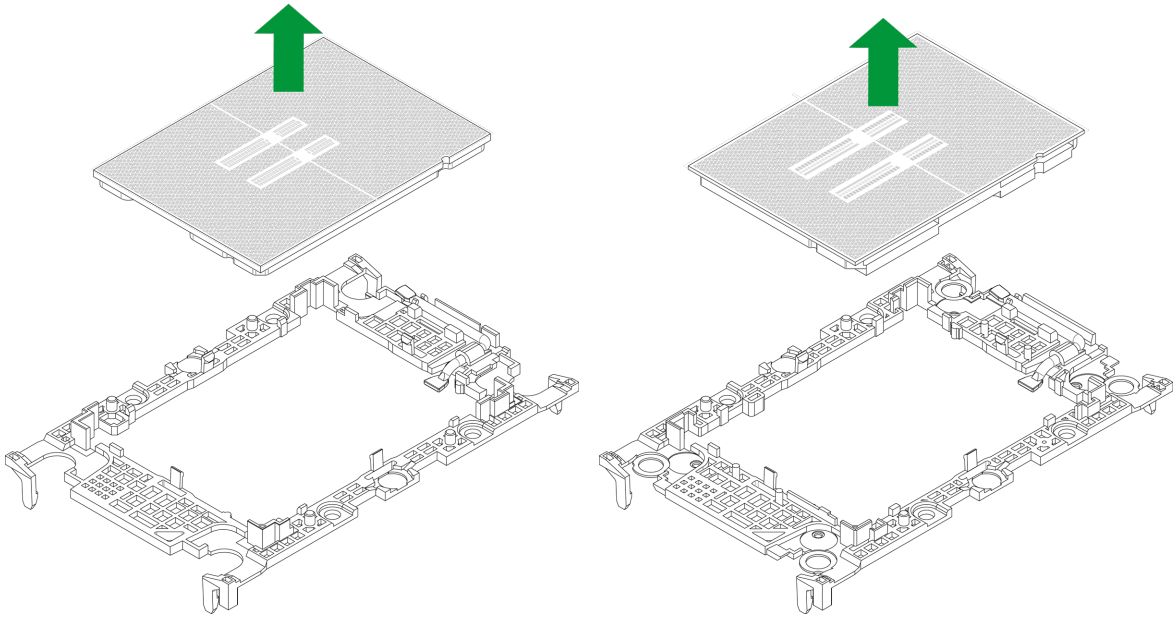


Figure 3-33. Removing the Processor (SP XCC left, SP HCC/LCC right)

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.

General Guidelines for Optimizing Memory Performance

- Using DDR5 memories with the same type, size, speed, ranking, and density is a mandatory requirement.
- First, confirm whether the installed CPU supports P-cores or E-cores, then refer to the corresponding memory population table and install the memory correctly.
- The motherboard will support an odd number of memory modules. However, to achieve the best memory performance, a balanced memory population is recommended.

Memory Support

The X14DBG-LC motherboard supports ECC DDR5 memory with speeds up to 6400 MT/s in 1DPC configurations with a maximum of 16 DIMMs, and up to 5200 MT/s in 2DPC configurations with a maximum of 32 DIMMs.

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

DDR5-6400 Memory Support for Intel® Xeon® 6700-Series Processors 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	2DPC/2SPC
		1DPC	2DPC	1DPC	2DPC	1DPC	2DPC	+1.1 V	
RDIMM	1Rx4	32 GB	-	-	-	-	-	6400, 6000, 5600, 5200, 4800 (DDR5-6400 rated RDIMMs only)	N/A
	2Rx8	32 GB	-	-	-	-	-		N/A
	2Rx4	64 GB	64 GB	96 GB	96 GB	-	-		5200, 4800 (DDR5-6400 rated RDIMMs only)
	2Rx4	-	-	-	-	128 GB	128 GB		
3DS RDIMM	4Rx4					256 GB	256 GB		

CXL Memory Configuration Support for Intel® Xeon® 6700-Series Processors with E-Cores								
Native DDR5 Memory Per Socket				CXL Memory Per Socket				
Slot 0 DIMM Ranks	Slot 0 DIMM Capacity (GB)	DIMM Type	DRAM Density (Gb)	CXL Memory Channels	CXL Memory Type	CXL Capacity Per Device/ Module	CXL Interleave	CXL Mode
2Rx4	64	10x4	16	2+2	DDR5 x8	64 GB	1x4*, 2x2, 4x1	1LM+Vol
2Rx4	64	10x4	16	1+1	DDR5 x16	128 GB	1x2*, 2x1	1LM+Vol
1Rx4	32	10x4	16	2	DDR5 x8	128 GB	1x2*	Intel Flat Memory Mode

Notes:

- The items with an asterisk (*) are the default settings in the BIOS.
- The Intel® Xeon® 6700-series processors with E-cores CXL memory configurations are 1DPC ('Slot 0') only for native DDR5.
- CXL Memory Channel: number of devices per root port, with root ports separated by "+," e.g. 2+2+2+2 = four root ports populated with two devices per root port.
- CXL Interleave: sets x ways, e.g. 2x4 = One set of two modules, interleaved four-way.
- CXL Modes:
  - 1LM + Vol = DDR5 ('1LM') and (volatile) CXL memory visible to SW as separate tiers, separately interleaved.
  - Flat Memory Mode = HW manages data movement between DDR5 and CXL memory, total capacity visible to SW.

DDR5-6400 Memory Support for Intel® Xeon® 6700/6500-Series Processors 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 Channel (DPC)	
		DRAM Density							
		16 Gb		24 Gb		32 Gb		1DPC/2SPC	2DPC/2SPC
		1DPC	2DPC	1DPC	2DPC	1DPC	2DPC	+1.1 V	
RDIMM	1Rx8	16 GB	-	24 GB	-	-	-	6400, 6000, 5600, 5200, 4800 (DDR5-6400 rated RDIMMs only)	5200, 4800 (DDR5-6400 rated RDIMMs only)
	1Rx4	32 GB	-	48 GB	-	-	-		
	2Rx8	32 GB	32 GB	48 GB	-	-	-		
	2Rx4	64 GB	64 GB*^	96 GB	96 GB*^	128 GB*	128 GB*		
3DS RDIMM	4Rx4	-	128 GB	-	-		-		
	8Rx4	-	256 GB	-	-	256 GB*^	256 GB*^-		

Notes:

- The items marked with an asterisk (*) are supported in 1S/2S/4S systems. The items with circumflex (^) are supported in 8S systems. All others support 1S/2S only.
- Intel Xeon 6700/6500-series processors with P-cores support up to 5200 MT/s speed in 2DPC configuration with 6400 MT/s DIMMs only. 5600 MT/s DIMMs are not supported.
- Intel Xeon 6700/6500-series processors with P-cores support 1 DIMM per processor socket with the following DIMM configurations only: 16 GB/24 GB 1Rx8 and 32 GB/48 GB 1Rx8.

CXL Memory Configuration Support for Intel® Xeon® 6700/6500-Series Processors with P-Cores									
Native DDR5 Memory Per Socket				CXL Memory Per Socket					
Slot 0 DIMM Ranks	Slot 0 DIMM Capacity (GB)	DIMM Type	DRAM Density (Gb)	CXL Memory Channels	CXL Memory Type	CXL Capacity Per Device/ Module	CXL Inter leave	CXL Mode	4S and 8S support
2Rx4	96	10x4	24	2+2	DDR5 x8	96 GB#	1x4*, 2x2, 4x1	1LM+Vol	Yes
2Rx4	128	10x4	32	2+2	DDR4 x8#, DDR x8	128 GB	1x4*, 2x2, 4x1	1LM+Vol	Yes
2Rx4	128	10x4	32	2+2	DDR5 x8	128 GB	hetero x12	Hetero	Yes
2Rx4	64	10x4	16	2+2+2	DDR5 x8	128 GB	1x6*, 2x3, 3x2	1LM+Vol	No
2Rx4	64	10x4	16	2	DDR5 x8	128 GB	1x2*	1LM+Vol	No
2Rx4	64	10x4	16	1+1	DDR5 x16	2ch 128 GB	1x2*	Intel Flat Memory Mode	Yes

Notes:

- The items with an asterisk (*) are the default settings in the BIOS.
- The Intel® Xeon® 6700/6500-series processors with P-cores CXL memory configurations are 1DPC ('Slot 0') only for native DDR5.
- CXL Memory Channel: number of devices per root port, with root ports separated by "+". e.g. 2+2+2+2 = four root ports populated with two devices per root port.
- CXL Interleave: sets x ways, e.g. 2x4 = One set of two modules, interleaved four-way
- CXL Modes:
  - 1LM+Vol= Native DDR5 ('1LM') and (volatile) CXL memory visible to SW as separate tiers, separately interleaved.
  - Hetero x12 = DDR5 and (volatile) CXL memory interleaved together in one 12-way set.
  - Flat Memory Mode = HW manages data movement between DDR5 and CXL memory, total capacity visible to SW.

Memory Population Table (with 32 DIMM slots)

Intel® Xeon® 6700-Series Processor with E-Cores DDR5 Memory Population Table **(2 Processors and 32 DIMMs Installed, 1DPC)**	
1 Processor:	***Memory Population Sequence***
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***
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

Intel® Xeon® 6700-Series Processor with E-Cores DDR5 Memory Population Table (2 Processors and 32 DIMMs Installed, 1DPC)	
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-Series Processors with E-Cores DDR5 Memory Population Table (2 Processors and 32 DIMMs Installed, 2DPC)	
1 Processor:	***Memory Population Sequence***
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-DIMMF1/P1-DIMMH1
1 Processor and 8 DIMMs	P1-DIMMB1/P1-DIMMB2/P1-DIMMD1/P1-DIMMD2/P1-DIMMF1/P1-DIMMF2/P1-DIMMH1/P1-DIMMH2
1 Processor and 8 DIMMs	P1-DIMMA1/P1-DIMMA2/P1-DIMMC1/P1-DIMMC2/P1-DIMME1/P1-DIMME2/P1-DIMMG1/P1-DIMMG2
1 Processor and 8 DIMMs (Recommended)	P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1
1 Processor and 16 DIMMs (Recommended)	P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMMD2/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1/P1-DIMMH2
2 Processor:	***Memory Population Sequence***
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

Intel® Xeon® 6700-Series Processors with E-Cores DDR5 Memory Population Table (2 Processors and 32 DIMMs Installed, 2DPC)	
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	P1-DIMMA1/P1-DIMMA2/P1-DIMMC1/P1-DIMMC2/P1-DIMME1/P1-DIMME2/P1-DIMMG1/P1-DIMMG2 P2-DIMMA1/P2-DIMMA2/P2-DIMMC1/P2-DIMMC2/P2-DIMME1/P2-DIMME2/P2-DIMMG1/P2-DIMMG2
2 Processors and 16 DIMMs	P1-DIMMB1/P1-DIMMB2/P1-DIMMD1/P1-DIMMD2/P1-DIMMF1/P1-DIMMF2/P1-DIMMH1/P1-DIMMH2 P2-DIMMB1/P2-DIMMB2/P2-DIMMD1/P2-DIMMD2/P2-DIMMF1/P2-DIMMF2/P2-DIMMH1/P2-DIMMH2
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
2 Processors and 32 DIMMs (Recommended)	P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMMD2/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1/P1-DIMMH2 P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMB2/P2-DIMMC1/P2-DIMMC2/P2-DIMMD1/P2-DIMMD2/P2-DIMME1/P2-DIMME2/P2-DIMMF1/P2-DIMMF2/P2-DIMMG1/P2-DIMMG2/P2-DIMMH1/P2-DIMMH2

Notes:

- DIMMs must be all DDR5-6400 rated RDIMMs.
- All DIMMs in a channel must have the same number of ranks (unless explicitly specified otherwise).
- x8 DIMMs and x4 DIMMs cannot be mixed in the same channel or same processor socket.
- Vendor mixing is not allowed.

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 40.

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.

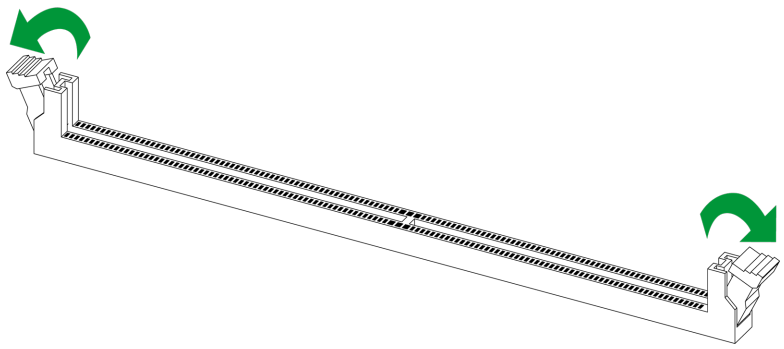


Figure 3-34. Unlocking the DIMM Slot

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

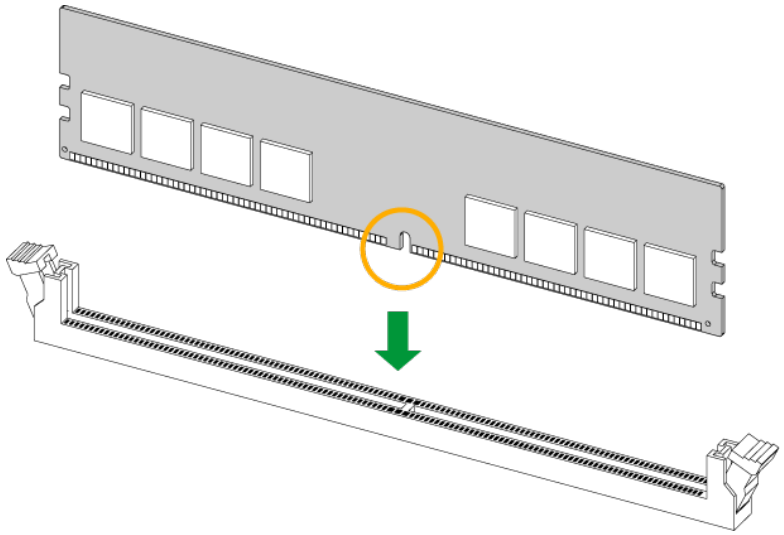


Figure 3-35. Aligning the DIMM Slot with the Receptive Point

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

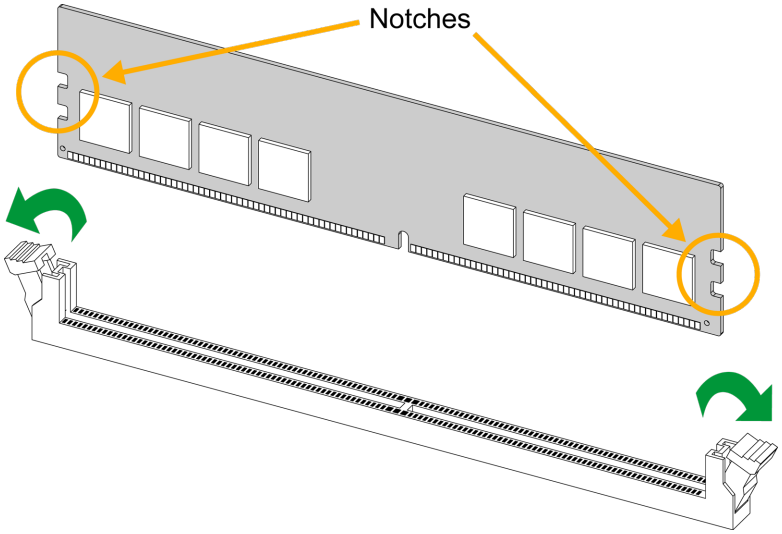


Figure 3-36. Aligning the Notches

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.

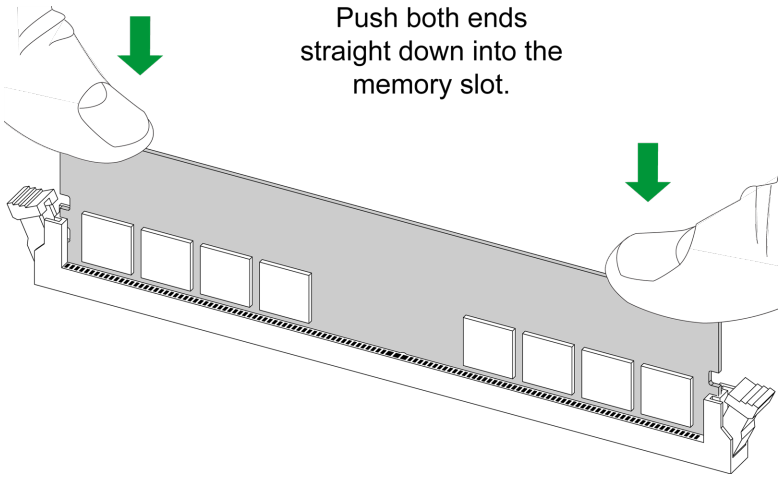


Figure 3-37. Securing the DIMM

For a detailed diagram of the X14DBG-LC 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 40.

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.

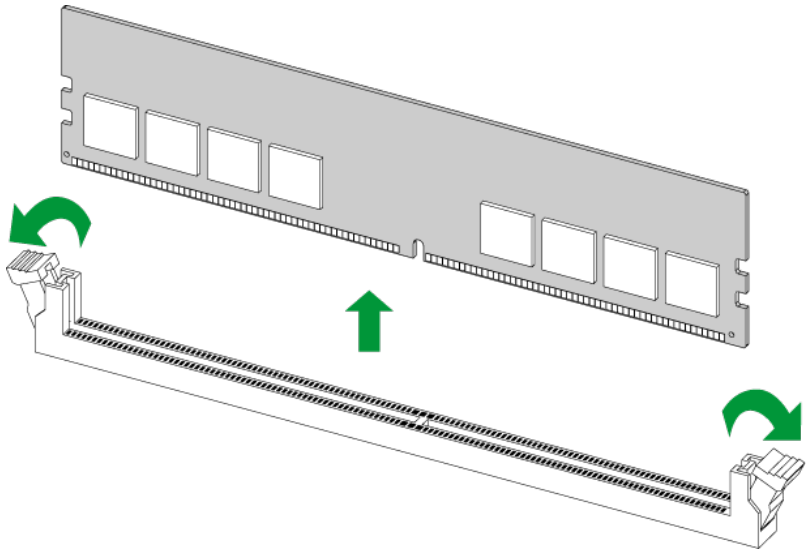


Figure 3-38. Unlocking the DIMM Slot

For a detailed diagram of the X14DBG-LC 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.

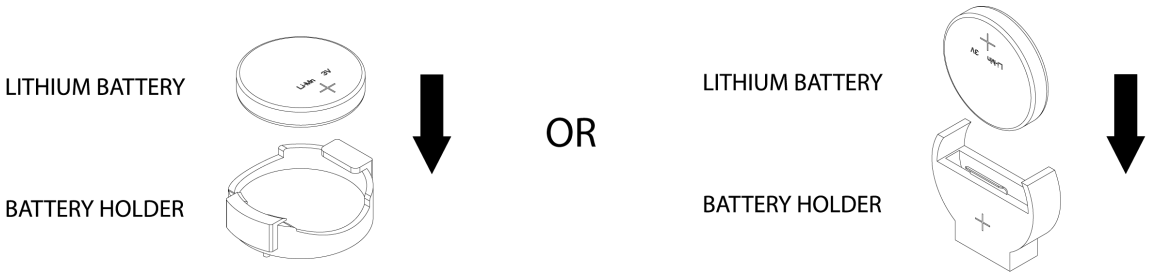


Figure 3-39. Installing a Battery

3.7 Storage Drives

The Intel® Xeon® 6700/6500-series processors with P-cores server includes eight hot-swap E1.S NVMe drive bays and two hot-swap M.2 NVMe drive bays.

Note: Enterprise-level storage modules are recommended for use in Supermicro servers.

Figure 3-40. Logical Drive Numbers

Logical Storage Drive Locations	
Drive Bay	**Description**
0–7 (Yellow)	Eight hot-swap E1.S NVMe drive bays
0, 1 (Green)	Two hot-swap M.2 NVMe drive bays

E1.S NVMe Drive Bays

The SYS-822GS-NB3RT supports eight E1.S NVMe drive bays.

Installing E1.S Drive Bays

1. Remove power from the system.
2. Remove the system from the rack and place on a workbench.
3. Insert the E1.S NVMe drive bay as shown below.
4. Return the system to the rack.

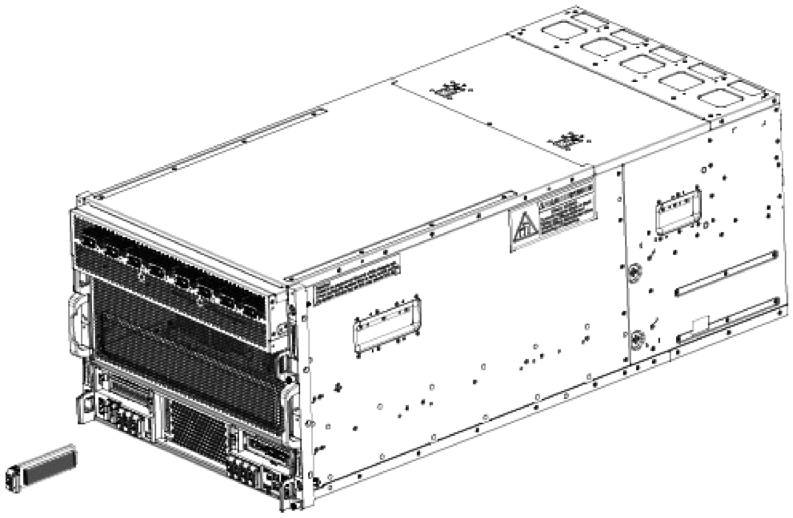


Figure 3-41. Installing E1.S Drive Bays

M.2 NVMe Drive Bays

The SYS-822GS-NB3RT supports two M.2 NVMe drive bays. M.2 is a compact, high-performance storage drive form factor.

Installing M.2 Drive Bays

1. Remove power from the system.
2. Remove the system from the rack and place on a workbench.
3. Insert the M.2 drive bay as shown below.
4. Return the system to the rack.

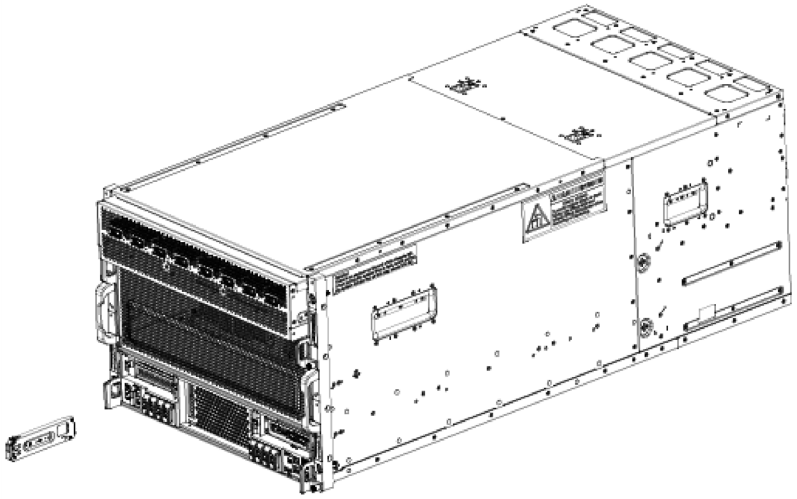


Figure 3-42. Installing M.2 Drive Bays

3.8 System Cooling

Refer to the following sections for information about the cooling capabilities of the SYS-822GS-NB3RT server.

Fans

The SYS-822GS-NB3RT server supports 12 heavy-duty fans with optimal fan speed control.

Fan speed is controlled by a system temperature setting in the 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. Failed fans can be identified through the BMC.

Important: 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.

Changing an Internal Fan

1. Determine which fan is failing. If possible, use BMC. If not, extend the system from the chassis rack and remove the chassis cover while the power is on. Examine the fans to determine which one has failed.
2. Remove power from the system.
3. Remove the system from the rack and place the system on a workbench.
4. Remove the CPU tray from the system.
5. Remove the fan cable from the motherboard for the failed fan and the adjacent fan.
6. Simultaneously squeeze both release tabs on the fan to be replaced. Lift the fan housing up and out of the chassis.
7. 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.
8. Put the fan housing back into the chassis and reconnect the cable.
9. Power on the system to confirm that the fan is working properly before replacing the CPU tray. When you've determined the fan is working, turn off power to the system and remove the power cable.

10. Replace the CPU tray on the system and return the system to the rack. Reconnect the power cable.

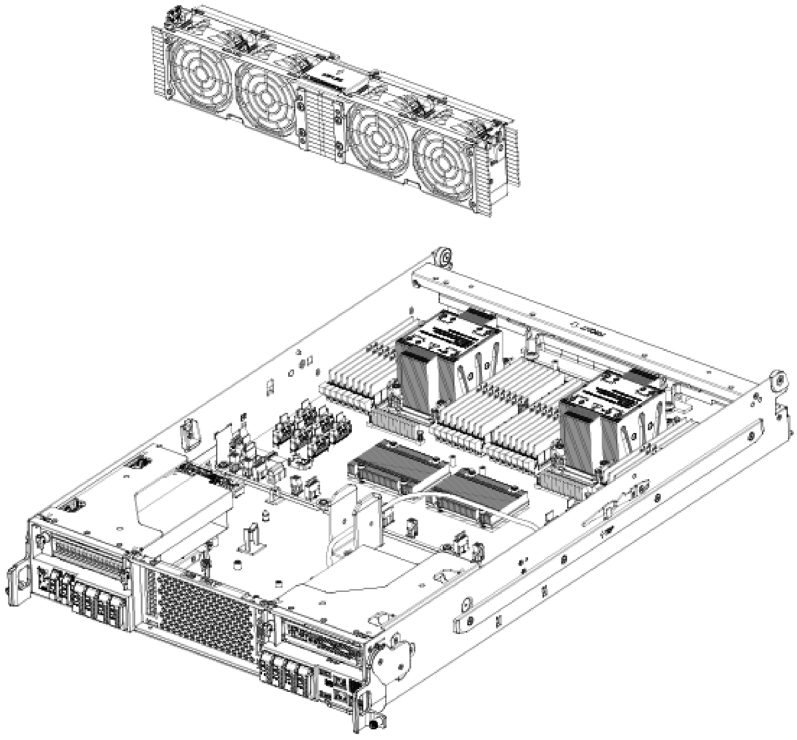


Figure 3-43. Changing an Internal Fan

Changing a Rear Fan

1. Inspect the fans to determine which fan is failing.
2. After determining which fan has failed, remove the system from the rack and place the system on a workbench.
3. Simultaneously squeeze both release tabs on the front of the fan to be replaced and pull the fan from the chassis.
4. Insert a new fan back into the vacated fan bay and make sure that it is fully seated.
5. Power on the system to confirm that the fan is working properly. When you've determined the fan is working, turn off power to the system and remove the power cable.
6. Return the system to the rack.
7. Reconnect the power cable to the system and resume normal operation.

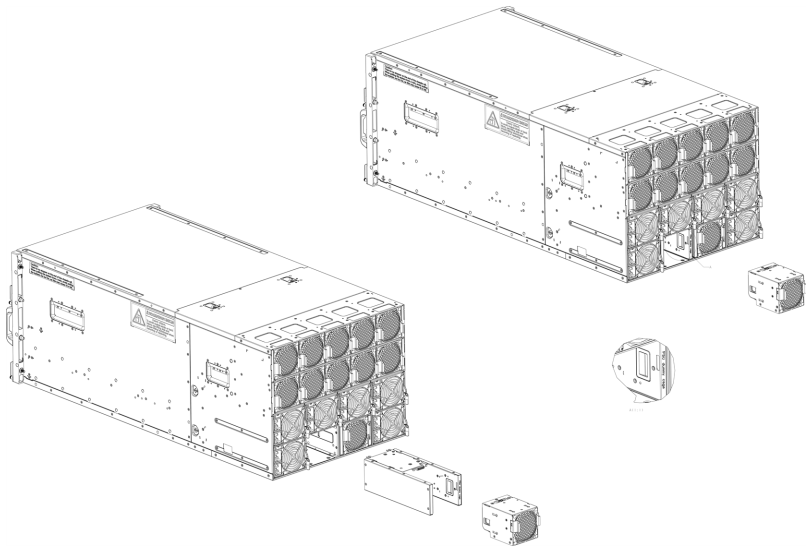


Figure 3-44. Changing a Rear Fan

Air Shrouds

Air shrouds concentrate airflow to maximize fan efficiency. The SYS-822GS-NB3RT contains one air shroud per CPU drawer.

Installing a CPU Air Shroud

1. Remove power from the system.
2. Remove the CPU tray from the system and place on a workbench.
3. Ensure the motherboard, any expansion cards, and all components are installed in the CPU tray before installing the air shroud.
4. Align the air shroud with the motherboard and the rear cross bar.
5. Install directly onto the motherboard, fastening the screws on top of the cross bar.
6. Return the CPU tray to the system.
7. Return the system to the rack.

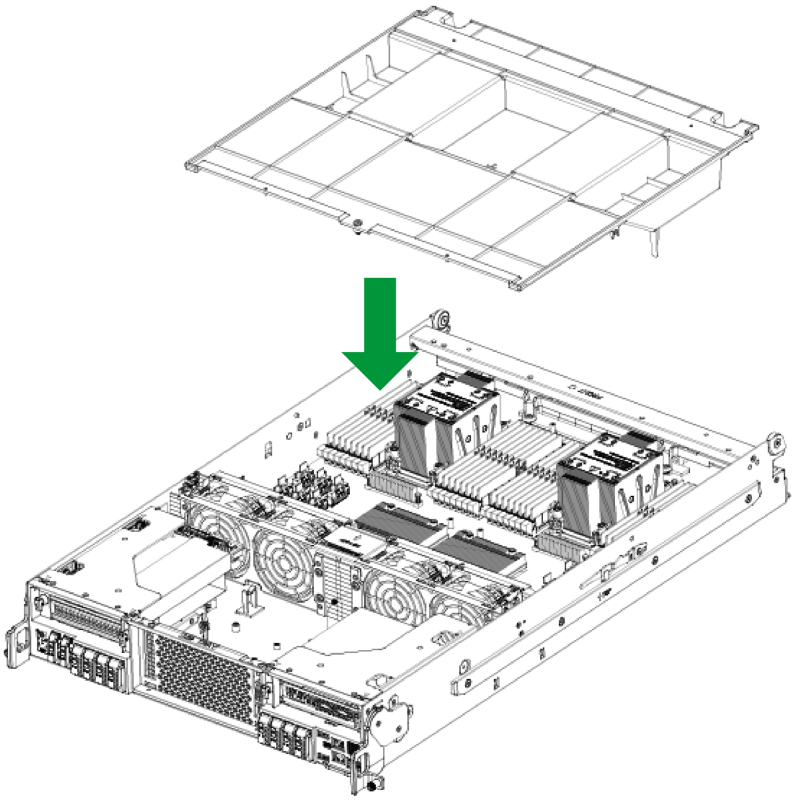


Figure 3-45. Installing a CPU Air Shroud

3.9 Expansion Cards

Refer to the following sections for information on the expansion cards supported by the SYS-822GS-NB3RT server.

PCIe Cards

The front of the SYS-822GS-NB3RT supports two full-height, half-length (FHHL) Gen5 PCIe cards.

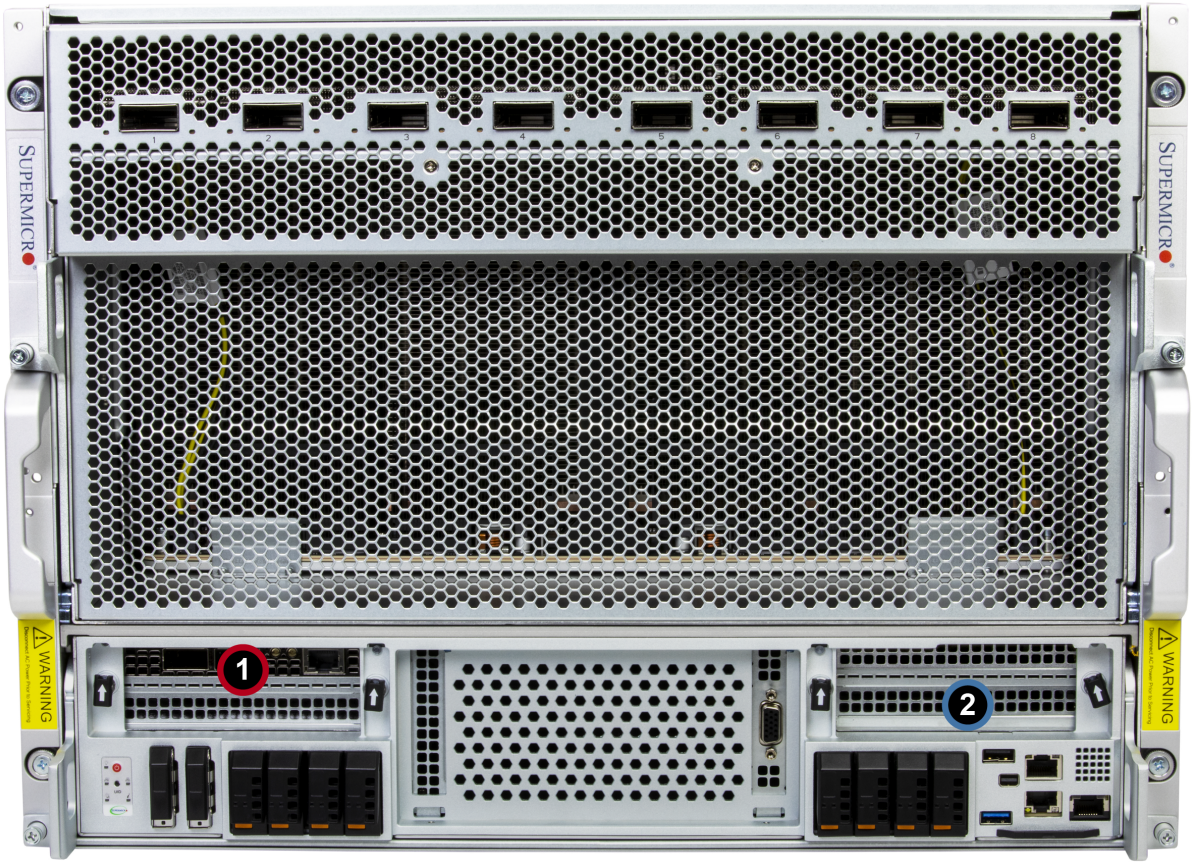


Figure 3-46. Front PCIe Slot Configuration

Expansion Slot Locations	
Slot	**Description**
1, 2	PCIe 5.0 x16 FHHL from PLX switch (N-S)

3.10 Power Supply

The system includes six redundant hot-plug power supply modules. The power supply will automatically sense and operate at an input voltage between 200–240 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 modules 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.

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 an inoperative 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 via BMC to locate the server in a rack environment.
Blue, blinking at 2 Hz	BMC is resetting.
Blue, blinking at 4 Hz	BMC is setting factory defaults.
Blue, blinking at 10 Hz with Power LED blinking green	BMC/BIOS firmware is updating.

Replacing the Power Supply

1. Remove power from the system.
2. Remove the system from the rack and place it on a workbench.
3. Unplug the AC power cord from the failed power supply module.
4. Push and hold the release tab on the back of the power supply.
5. Grasp the handle of the power supply and pull it out of its bay.
6. Push the new power supply module into the power bay until it clicks into the locked position.

7. Return the system to the rack.
8. Plug the AC power cord back into the power supply module.

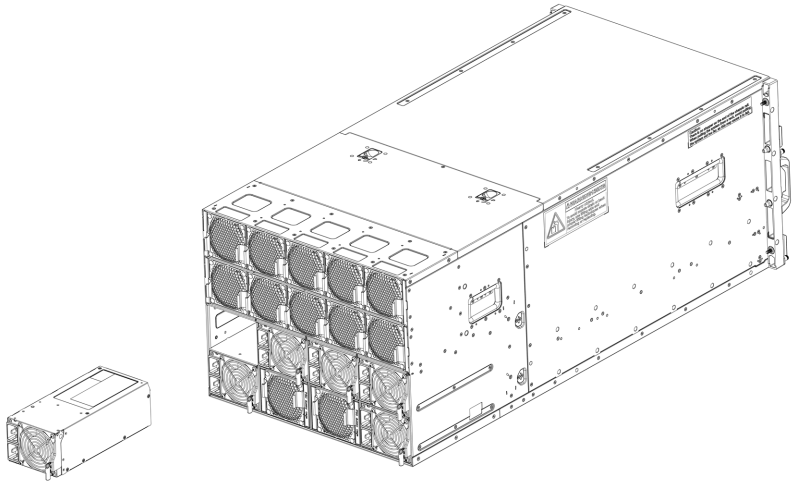


Figure 3-47. Replacing the Power Supply

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 12. More detail can be found in the X14DBG-LC motherboard manual.

Review the "Standardized Warning Statements for AC Systems" on page 146 before installing or removing components.

4.1 Headers and Connections

For information about the headers on the X14DBG-LC motherboard, refer to the following content.

Fan Headers

There are four 6-pin fan headers (FAN1–FAN4) on the X14DBG-LC motherboard. Fan speed control is available for all fans by Thermal Management via the IPMI 2.0 interface.

6-pin Fan Header Pin Definitions: Six Total			
Pin#	**Definition**	**Pin#**	**Definition**
1	GND	4	+12 V
2	+12 V	5	Tachometer
3	GND	6	PWM

Liquid Cooling Leakage Sensor Headers

Liquid cooling leakage sensor headers are located at JLCS1– 3 on the X14DBG- LC motherboard. This header is 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 X14DBG-LC motherboard, see the layout under "Motherboard Quick Reference" on page 22.

NC-SI Connection

The Network Controller Sideband Interface (NC-SI) connection is located at JNCSI1 on the X14DBG-LC 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 X14DBG-LC motherboard, see the layout under "Motherboard Quick Reference" on page 22.

NC-SI Connection for Bluefield-3

The Network Controller Sideband Interface (NC-SI) connection for Bluefield-3 is located at JNCSI2_BF3 on the X14DBG-LC 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.

TPM/Port 80 Header

The JTPM1 header on the X14DBG-LC 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 X14DBG-LC 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	Ground
7	SPI_MOSI	8	No Connection
9	+1.8 V Standby	10	SPI_IRQ#

Standby Power

The Standby Power header is located at JSTBY1 on the motherboard. You must have a card with a Standby Power connector and a cable to use this feature.

For a detailed diagram of the X14DBG-LC motherboard, see the layout under "Motherboard Quick Reference" on page 22.

Standby Power Pin Definitions: Three Total	
Pin#	**Definition**
1	+5 V Standby
2	GND
3	No Connection

VGA Connector

A VGA connector is located at JVGA on the X14DBG-LC motherboard.

For a detailed diagram of the X14DBG-LC motherboard, see the layout under "Motherboard Quick Reference" on page 22.

4.2 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.

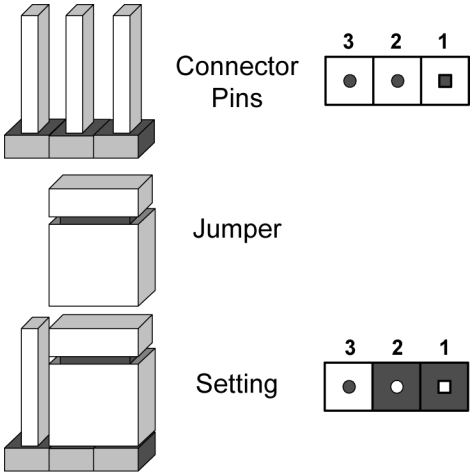


Figure 4-1. Jumping Connector Pins

CMOS Clear

JBT1 on the X14DBG-LC 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 X14DBG-LC 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.

Cooling Select Jumper

There is a Cooling Select jumper on the X14DBG-LC motherboard. Change this jumper based on the cooling solution currently in use.

For a detailed diagram of the X14DBG-LC motherboard, see the layout under "Motherboard Quick Reference" on page 22.

Cooling Select Jumper Jumper Settings	
Jumper Setting	**Definition**
Pins 1–2	Air Cooling
Pins 2–3	Liquid Cooling

4.3 LED Indicators

For information about the LED indicators on the SYS-822GS-NB3RT server, refer to the following content.

BMC Heartbeat LED

A BMC Heartbeat LED is located at LEDBMC on the X14DBG-LC motherboard. When this LED is blinking, the BMC is functioning normally.

For a detailed diagram of the X14DBG-LC motherboard, see the layout under "Motherboard Quick Reference" on page 22.

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

Power LED

The Power LED connection is located on pins 15 and 16 of JF1 on the X14DBG-LC motherboard.

For a detailed diagram of the X14DBG-LC motherboard, see the layout under "Motherboard Quick Reference" on page 22.

Power LED Pin Definitions (JF1)	
Pin#	**Definition**
15	+3.3 V
16	PWR LED

PLX Operating State LED

The PLX operating state LED is located PEX1 HB LED and PEX2 HB LED on the X14DBG-LC motherboard. When this LED is on, the PLX is powered, the firmware is running, and the internal management processor is operational.

Chapter 5:

Software

After the SYS-822GS-NB3RT server has been installed, you can install the Operating System (OS), configure RAID settings, and install the drivers.

5.1 Microsoft Windows OS Installation

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

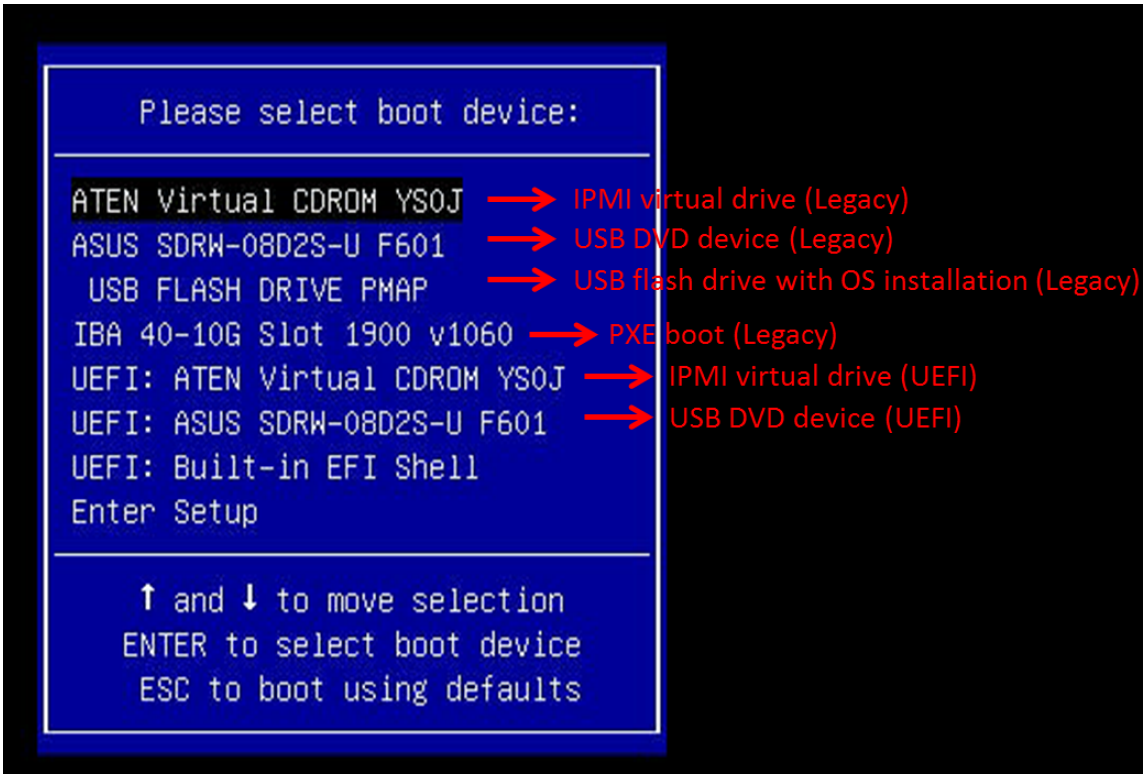


Figure 5-1. Selecting the Boot Device

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.

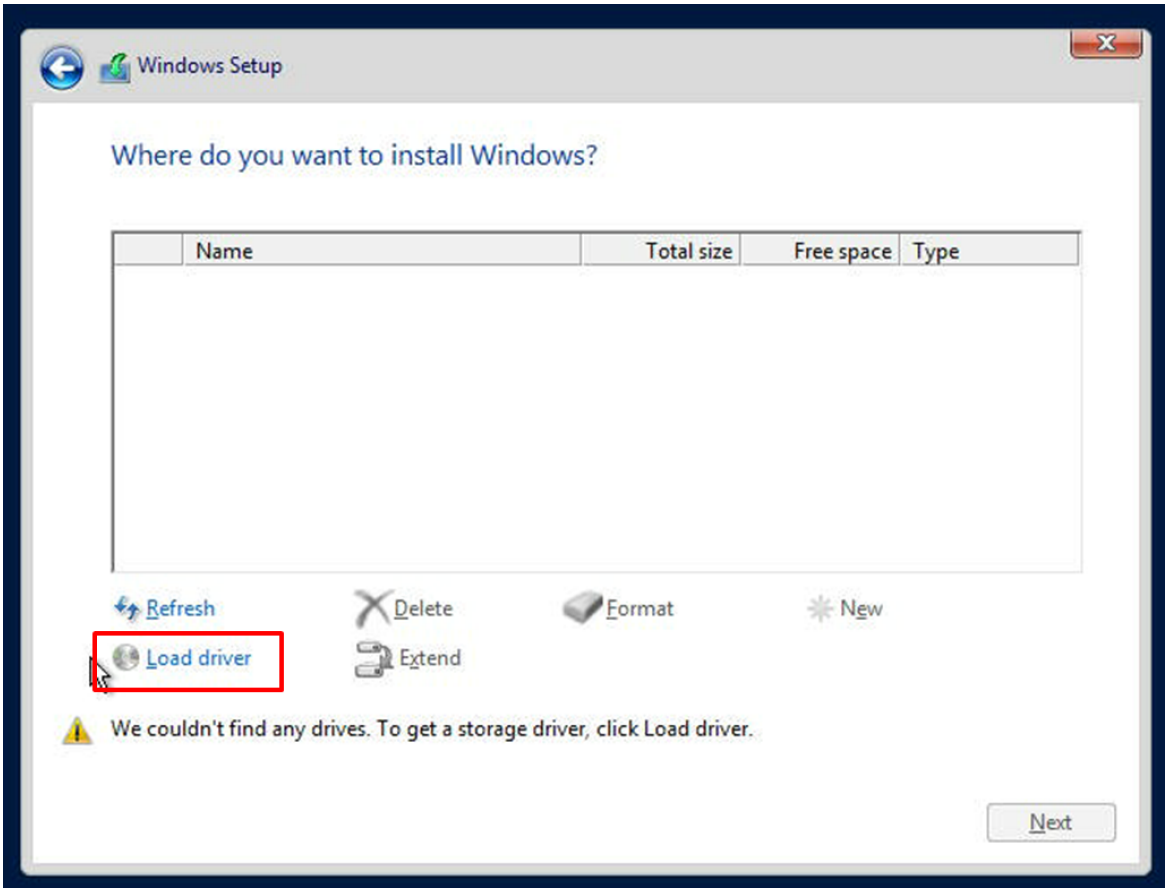


Figure 5-2. Loading the Driver Link

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.

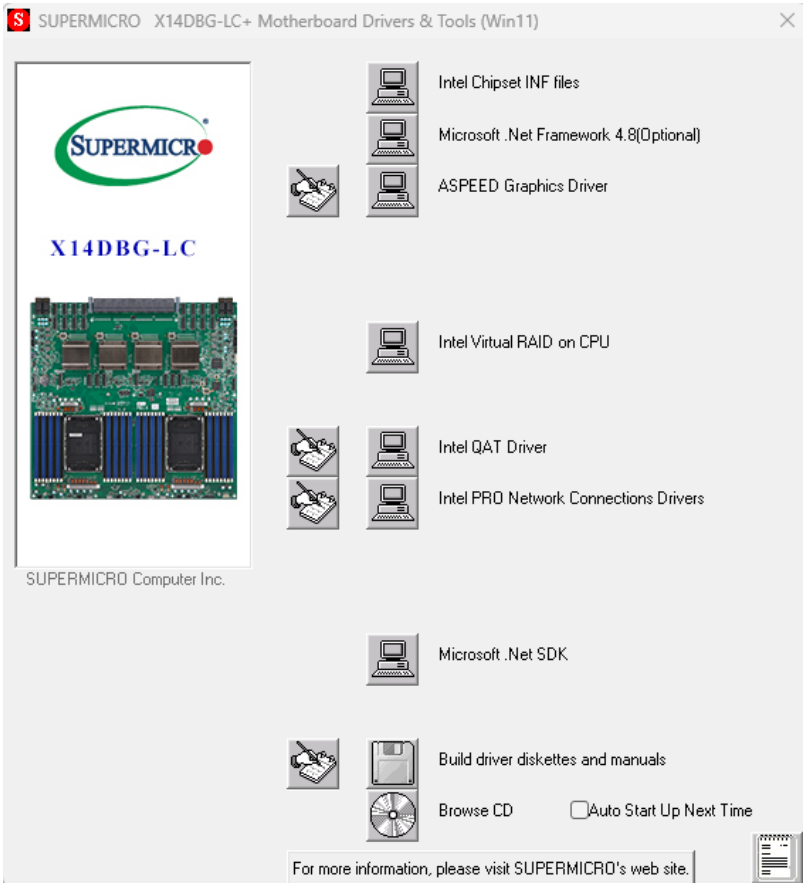


Figure 5-3. Drivers & Tools Screenshot

5.3 BMC

The X14DBG-LC 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

Chapter 6:

Optional Components

This chapter describes alternate configurations and optional system components for the SYS-822GS-NB3RT server.

6.1 TPM Security Module

This is an SPI-capable TPM 2.0 with Infineon 9672 controller.

The JTPM1 header is used to connect a Trusted Platform Module (TPM). A TPM is a security device that supports encryption and authentication in hard drives. It enables the X14DBG-LC motherboard to deny access if the TPM associated with the hard drive is not installed in the SYS-822GS-NB3RT server.

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

https://www.supermicro.com/en/products/accessories/addon/AOM-TPM-9672V.php

- AOM-TPM-9672V (TCG 2.0)

6.2 RAID Cards

These are Super Micro Computer, Inc. 12 Gb/s, multi-port PCIe Gen 4.0 RAID adapter cards.

The AOC-S4116L-H16IR-16DD RAID card supports up to four NVMe drives. Both offer high-performance storage connectivity. This RAID card is built on the Broadcom SAS IC technology and MegaRAID technology to address the growing demand for increased data throughput and scalability requirements across the enterprise-class server platforms.

With high-performance RAID architecture, including hardware RAID 5 and 6, these RAID controller cards support high capacity storage applications. They deliver cost-effective storage solutions using SATA drives and maximum performance and reliability with SAS drives. Using expander backplanes, they support up to 16, 32, and 240 drives (depending on SKU) with RAID 0, 1, 5, 6, 10, 50, and 60.

6.3 Cable Management Arm

The SYS-822GS-NB3RT 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.

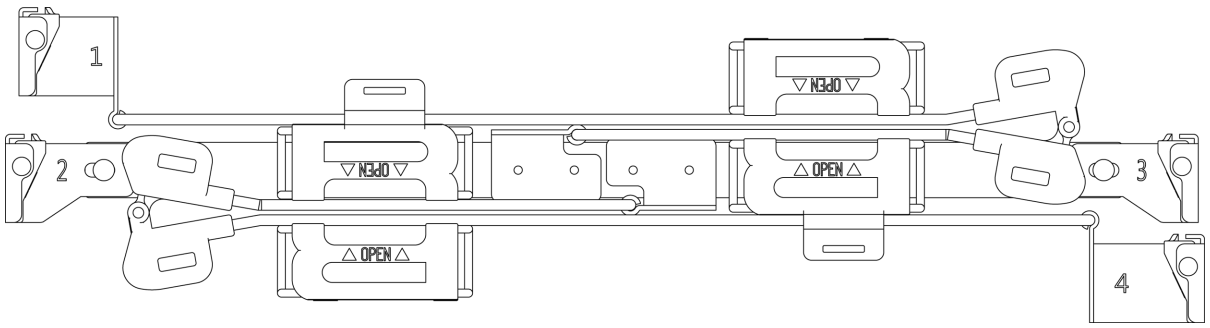


Figure 6-1. Cable Management Arm

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.

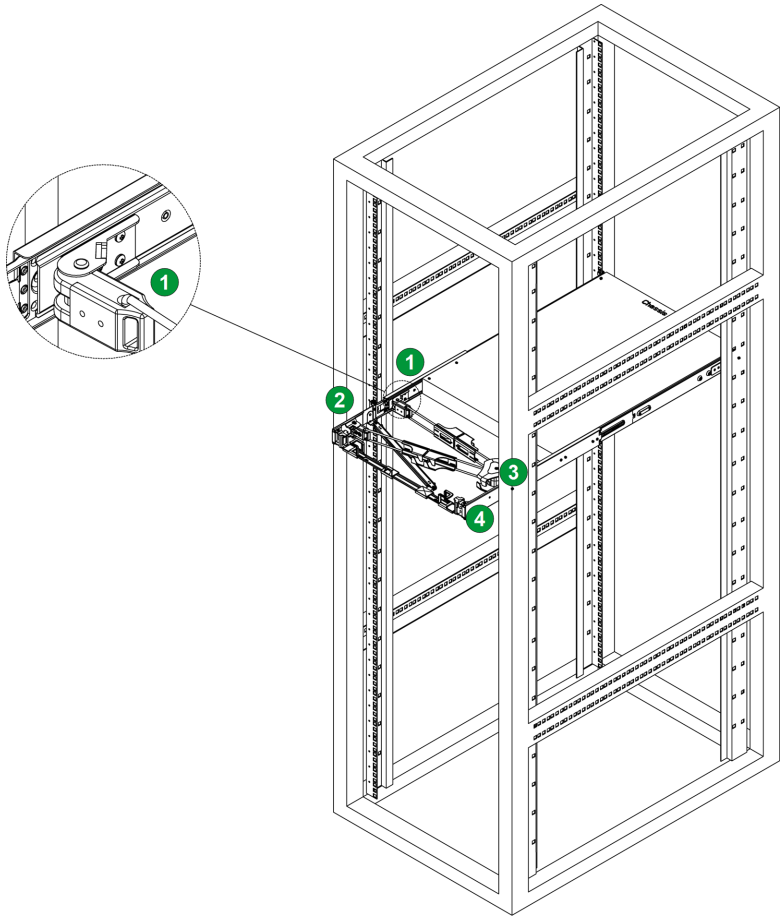


Figure 6-2. Installing the Connectors

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.

Chapter 7:

Troubleshooting and Support

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

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-822GS-NB3RT System

- SYS-822GS-NB3RT system specifications page:

  https://www.supermicro.com/en/products/system/gpu/8u/sys-822gs-nb3rt

- X14DBG-LC motherboard page for links to the quick reference guide, user manual, validated storage drives, and more:

  https://www.supermicro.com/en/products/motherboard/x14dbg-lc

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
- BMC User Guide: https://www.supermicro.com/manuals/other/BMC_IPMI_X14_H14.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-822GS-NB3RT 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

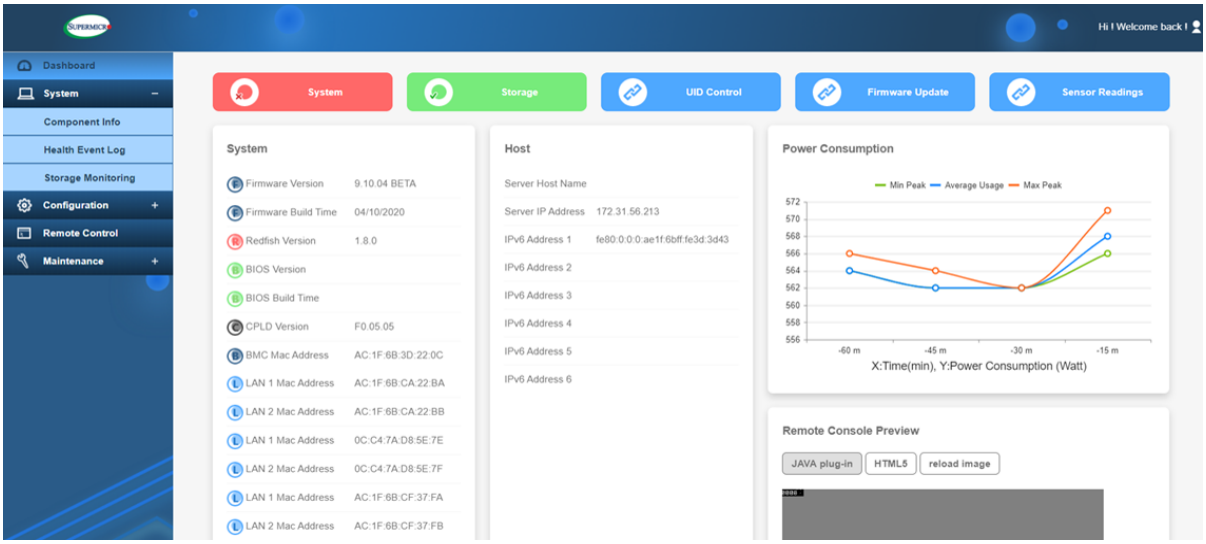


Figure 7-1. BMC Dashboard

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 108 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 35 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 12 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 X14DBG-LC motherboard is used to clear CMOS, which will also clear any passwords. For information on clearing CMOS, refer to "CMOS Clear" on page 86 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 71.

7.6 Where to Get Replacement Components

If you need replacement parts for your SYS-822GS-NB3RT 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 102 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 11.

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-822GS-NB3RT server.

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.

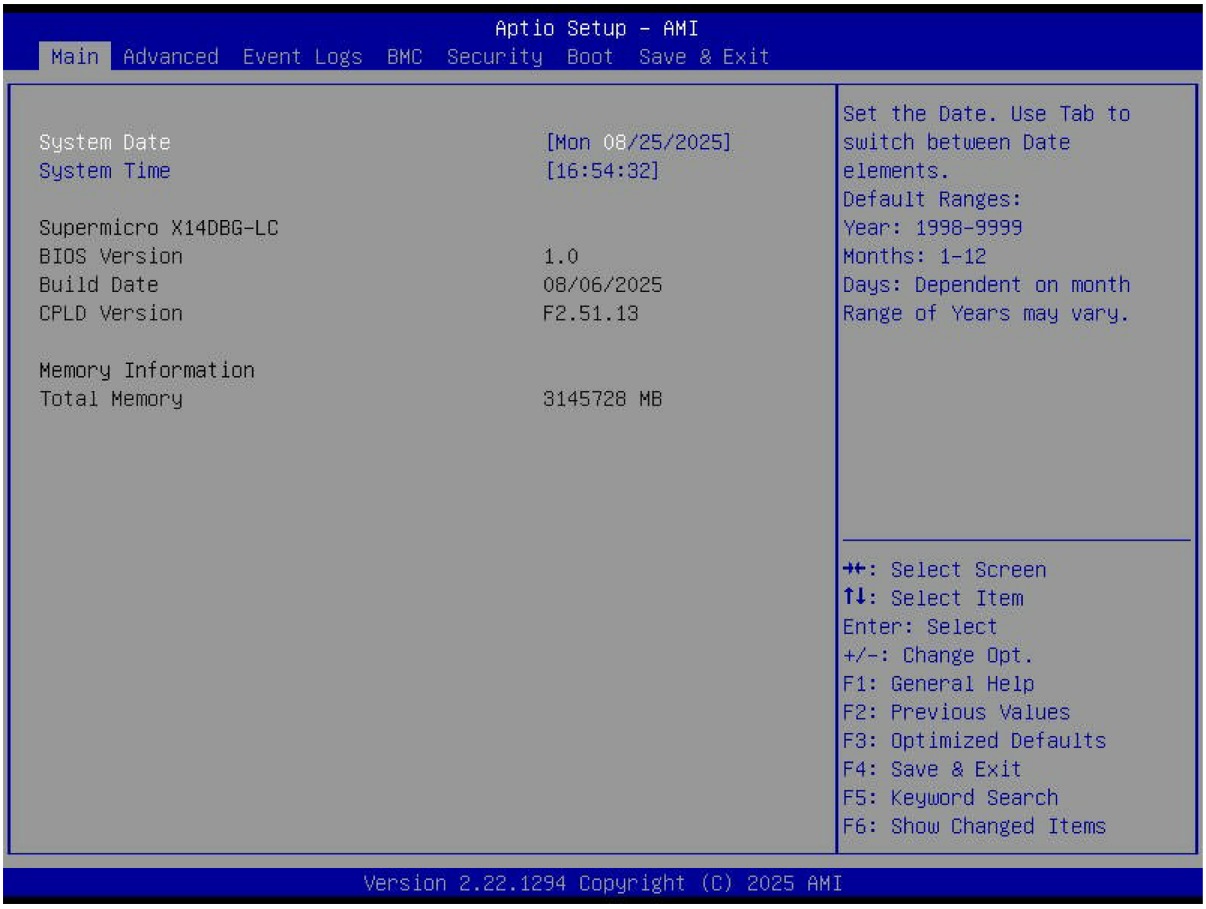


Figure 8-1. Main Setup Page

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 X14DBG-LC

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.

Important: Use 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 settings to the default manufacturing settings.

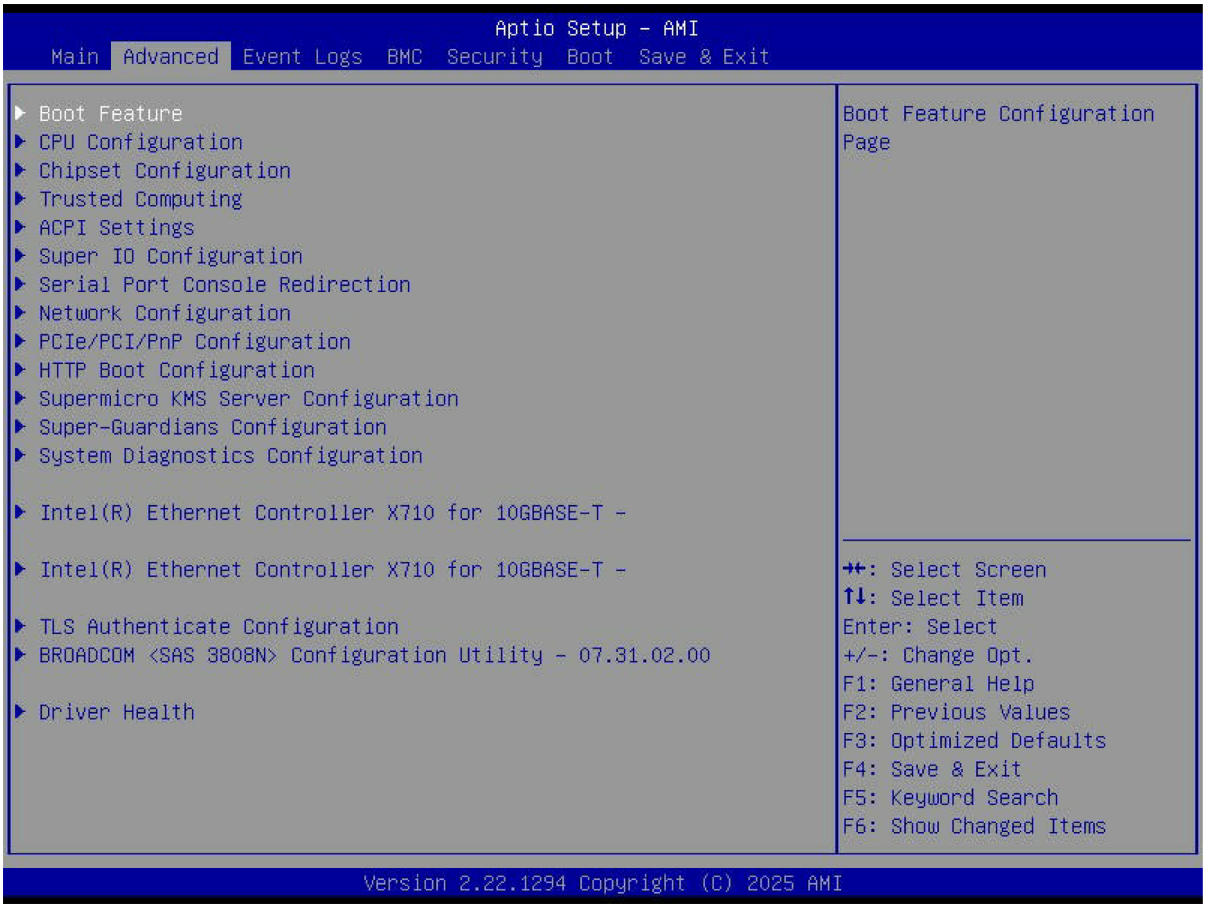


Figure 8-2. Advanced Setup Page

Boot Feature Menu

►Boot Feature

Quiet Boot

Use this feature to select the screen between displaying the Power-on Self Test (POST) messages or the OEM logo upon bootup. Select Disabled to display the POST messages. Select Enabled to display the OEM logo instead of the normal POST messages. The options

are Disabled and **Enabled**.

Note: BIOS POST messages are always displayed regardless of the setting of this feature.

Bootup NumLock State

Use this feature to set the Power-on state for the <Numlock> key. The options are **On** and Off.

Wait For "F1" If Error

Select Enabled to force the system to wait until the <F1> key is pressed if an error occurs. The options are **Disabled** and Enabled.

Re-try Boot

If this feature is set to Enabled, the system BIOS will automatically reboot the system from an Extensible Firmware Interface (EFI) boot device after an initial boot failure. The options are **Disabled** and Enabled.

Power Configuration

Watch Dog Function

Select Enabled to allow the Watch Dog timer to reboot the system when it is inactive for more than five minutes. The options are **Disabled** and Enabled.

Watch Dog Action (Available when "Watch Dog Function" is set to Enabled)

Use this feature to configure the Watch Dog Time_out setting. The options are **Reset** and NMI.

Restore on AC Power Loss

Use this feature to set the power state after a power outage. Select Stay Off for the system power to remain off after a power loss. Select Power On for the system power to be turned on after a power loss. Select Last State to allow the system to resume its last power state before a power loss. The options are Stay Off, Power On, and **Last State**.

Power Button Function

This feature controls how the system shuts down when the power button is pressed. Select 4 Seconds Override to power off the system after pressing and holding the power button for four seconds or longer. Select Instant Off to instantly power off the system as soon as you press the power button. The options are **Instant Off** and 4 Seconds Override.

CPU Configuration Menu

►CPU Configuration

Important: Setting the wrong values for the features included in the following sections may cause the system to malfunction.

The following processor information is displayed:

- Processor BSP Revision
- Processor Socket
- Processor ID
- Processor Frequency
- Processor Max Ratio
- Processor Min Ratio
- Microcode Revision
- L1 Cache RAM (Per Core)
- L2 Cache RAM (Per Core)
- L3 Cache RAM (Per Package)
- Processor 0 Version

Hyper-Threading [ALL]

Select Enabled to use Intel Hyper-Threading Technology to enhance CPU performance. The options are Disabled and **Enabled**. This feature is CPU-dependent.

Hardware Prefetcher

If this feature is set to Enabled, the hardware prefetcher will prefetch data from the main system memory to Level 2 cache to help expedite the data transaction to enhance memory performance. The options are **Enabled** and Disabled.

Note: This feature is NOT available when "Workload Profile" is set to HPC, I/O, or Virtualization.

Adjacent Cache Prefetch

Select Enabled for the CPU to prefetch both cache lines for 128 bytes as comprised. Select Disabled for the CPU to prefetch both cache lines for 64 bytes. The options are **Enabled** and Disabled.

Note: This feature is NOT available when "Workload Profile" is set to HPC, I/O, or Virtualization.

DCU Streamer Prefetcher

If this feature is set to Enabled, the Data Cache Unit (DCU) streamer prefetcher will prefetch data streams from the cache memory to the DCU to speed up data accessing and processing to enhance CPU performance. The options are Enabled, Disabled, and **Auto**.

Note: This feature is NOT available when "Workload Profile" is set to HPC, I/O, or Virtualization.

DCU IP Prefetcher

This feature allows the system to use the sequential load history, which is based on the instruction pointer of previous loads, to determine whether the system will prefetch additional lines. The options are **Enabled** and Disabled.

Note: This feature is NOT available when "Workload Profile" is set to HPC, I/O, or Virtualization.

LLC Prefetch

If this feature is set to Enabled, LLC (hardware cache) prefetching on all threads will be supported. The options are **Disabled** and Enabled. This feature is CPU-dependent.

Note: This feature is available when "Workload Profile" is set to Disabled.

Homeless Prefetch

Select Enabled for Homeless Prefetch support on all threads, which is an Effective Prefetch Strategy (EPS) used to enhance memory performance by reducing communication overhead, network latency, and the wait time needed for barrier synchronization in memory prefetching commonly associated with the home-based software Distributed Shared Memory (DSM) system. The options are Disabled, Enabled, and **Auto**. Please note that the option of Auto is program-specific. This feature is CPU-dependent.

AMP Prefetch

Select Enabled to use a machine learning algorithm to predict the best L2 prefetcher configuration for the currently running workload. This feature can improve the performance of various general-purpose workloads. The options are Disabled and **Enabled**. This feature is CPU-dependent.

APIC Physical Mode

Use this feature to enable the APIC physical destination mode. The options are **Disabled** and Enabled. (APIC is the abbreviation for Extended Advanced Programmable Interrupt Controller.)

TXT Support

Select Enabled to enable Intel Trusted Execution Technology (TXT) support to enhance system integrity and data security. The options are **Disabled** and Enabled. This feature is CPU-dependent.

Note: If this feature is set to Enabled, be sure to disable Device Function On-Hide (EV DFX) support when it is present in the BIOS for the system to work properly.

Intel Virtualization Technology

Select Enabled to enable the Intel Vanderpool Technology for Virtualization platform support, which allows multiple operating systems to run simultaneously on the same computer to maximize system resources for performance enhancement. The options are Disabled and **Enabled**. Changes take effect after you save settings and reboot the system.

Notes:

- This feature is NOT available when "TXT Support" is set to Enabled.
- This feature is NOT available when "Workload Profile" is set to Virtualization.

Enable SMX

Select Enabled to support Safer Mode Extensions (SMX), which provides a programming interface for system software to establish a controlled environment to support the trusted platform configured by the end user and to verify a virtual machine monitor before it is allowed to run. The options are **Disabled** and Enabled.

Note: This feature is available when "TXT Support" is set to Disabled.

PPIN Control

Select Unlock/Enabled to use the Protected Processor Inventory Number (PPIN) in the system. The PPIN is a unique number set for tracking a given Intel Xeon server processor. The options are Lock/Disabled and **Unlock/Enabled**.

AES-NI

Select Enabled to use the Intel Advanced Encryption Standard (AES) New Instructions (NI) to ensure data security. The options are Disabled and **Enabled**.

UMONITOR

Select Enabled to support UMONITOR. The options are **Disabled** and Enabled.

Advanced Power Management Configuration Menu

►Advanced Power Management Configuration

Latency Optimized Mode

Select Enabled to set the power mode to the latency optimized mode to improve the latency. The options are **Disabled** and Enabled. This feature is motherboard-dependent.

Note: This feature is NOT available when "Workload Profile" is set to HPC or Virtualization.

Workload Profile

Use this feature to select a preconfigured workload profile, which is used to tune the resources in your system. The options are **Disabled**, HPC, I/O, and Virtualization. Changes take effect after you save settings and reboot the system.

Note: Select HPC to optimize power performance of High Performance Computing (HPC) workloads for your system running in the HPC environment. Select I/O for I/O intensive workloads to optimize power performance of high volume of data transfers to and from system memory and storage devices or any program. Select Virtualization to optimize power performance of the workload for your system running in the virtualization environment.

Power Performance Tuning

This feature allows either operating system (OS) or BIOS to control the EPB. The options are **OS Controls EPB** and BIOS Controls EPB. (PECI is the abbreviation for Platform Environment Control Interface. EPB is the abbreviation for Intel Performance and Energy Bias Hint.)

Note: This feature is available when "Workload Profile" is set to Disabled.

ENERGY_PERF_BIAS_CFG Mode (ENERGY PERFORMANCE BIAS CONFIGURATION Mode)

Use this feature to configure the proper operation setting for your machine by achieving the desired system performance level and energy saving (efficiency) level at the same time. Select Maximum Performance to maximize system performance to its highest potential; however, this may consume maximal amount of power as energy is needed to fuel processor operation. Select Performance to enhance system performance; however, this may consume more power as energy is needed to fuel the processors for operation. The options are Extreme Performance, Maximum Performance, Performance, **Balanced Performance**, Balanced Power, Power, and Max Power Efficient. Note that the options of Extreme Performance and Max Power Efficient are motherboard-dependent.

Notes:

- This feature is available when "Power Performance Tuning" is set to BIOS Controls EPB.
- This feature is available when "Workload Profile" is set to Disabled.

CPU P State Control Menu

►CPU P State Control

Note: This submenu is available when “Power Performance Tuning” is set to BIOS Controls EPB.

AVX P1

Use this feature to set the appropriate TDP level for the system. The Intel Advanced Vector Extensions (Intel AVX) P1 feature allows you to set the base P1 ratio for Streaming SIMD Extensions (SSE) and AVX workloads. Each P1 ratio has the corresponding AVX Impressed Current Cathodic Protection (ICCP) pre-grant license level, which refers to the selection between different AVX ICCP transition levels. The options are **Nominal**, Level 1, and Level 2. This feature is CPU-dependent.

Note: This feature is available when "SpeedStep (P-States)" is set to Enabled.

Intel SST-PP

Use this feature to choose from two additional Base-Frequency conditions maximum for CPU P State Control. The options are **Auto**, Level 0, Level 1, Level 2, Level 3, and Level 4. The options regarding SST-PP levels are CPU-dependent. (SST-PP is the abbreviation for Speed Select Technology-Performance Profile.)

Note: This feature is available when "SpeedStep (P-States)" is set to Enabled and when the number of SST-PP levels supported by your CPU is no less than two.

Dynamic SST-PP

Use this feature to disable or enable the dynamic SST-PP. The options are **Disabled** and Enabled.

Notes:

- This feature is available when "SpeedStep (P-States)" is set to Enabled and when your CPU supports the Intel Speed Select function.
- This feature is available when "AVX P1" is set to Nominal.
- This feature is NOT available when "Hardware P-States" is set to Disabled or Out of Band Mode.
- This feature is NOT available when "Workload Profile" is set to HPC or Virtualization.

When "SpeedStep (P-States)" is set to Enabled, the information about SST-PP levels supported by your CPU is displayed.

- SST-PP Level
- Capable
- Core Count
- P1 Ratio
- Package TDP (W)
- DTS_Max

SpeedStep (P-States)

Enhanced Intel SpeedStep Technology (EIST) allows the system to automatically adjust processor voltage and core frequency in an effort to reduce power consumption and heat dissipation. Please refer to Intel's website for detailed information. The options are Disabled and **Enabled**.

Note: This feature is available when "Workload Profile" is set to Disabled.

EIST PSD Function

This feature reduces the latency that occurs when one P-state changes to another, thus allowing the transitions to occur more frequently. This will allow for more demand-based P-state switching to occur based on the real-time energy needs of applications so that the power-to-performance balance can be optimized for energy efficiency. The options are **HW_ALL** and SW_ALL.

Note: This feature is available when "SpeedStep (P-States)" is set to Enabled.

Turbo Mode (Available when "SpeedStep (P-States)" is set to Enabled and when "Workload Profile" is set to Disabled)

Select Enabled to allow the CPU to operate at the manufacturer-defined turbo speed by increasing CPU clock frequency. This feature is available when it is supported by the processors used in the system. The options are Disabled and **Enabled**.

Hardware PM State Control Menu

►Hardware PM State Control

Notes:

- This submenu is available when “Power Performance Tuning” is set to BIOS Controls EPB.
- This submenu is NOT available when “Workload Profile” is set to HPC or Virtualization.

Hardware P-States

If this feature is set to Disabled, system hardware will choose a P-state setting for the system based on an OS request. If this feature is set to Native Mode, system hardware will choose a P-state setting based on the OS guidance. If this feature is set to Native Mode with No Legacy Support, system hardware will choose a P-state setting independently without the OS guidance. The options are Disabled, **Native Mode**, Out of Band Mode, and Native Mode with No Legacy Support.

CPU C State Control Menu

►CPU C State Control

Note: This submenu is available when “Power Performance Tuning” is set to BIOS Controls EPB.

Monitor MWAIT

Select Enabled to support MONITOR and MWAIT, which are two instructions in Streaming SIMD Extension 3 (SSE3) to improve synchronization between multiple threads for CPU performance enhancement. The options are Disabled and **Enabled**.

C1 to C1e Promotion

If this feature is set to Enabled, CPU will run at its minimum frequency for lower power consumption in the C1 state. The options are Disabled and **Enabled**. This feature is CPU-dependent.

Note: This feature is available when "Workload Profile" is set to Disabled.

ACPI C1 Enumeration

Use this feature to select the ACPI C1 state or the ACPI C1e state. The options are C1 and **C1e**. This feature is CPU-dependent. (ACPI is the abbreviation for Advanced Configuration and Power Interface.)

Note: This feature is available when "Workload Profile" is set to Disabled.

ACPI C6x Enumeration

Use this feature to configure C6 state or C6 P-state as ACPI C2 or ACPI C3 state. The options are Disabled, C6 as ACPI C2, C6 as ACPI C3, C6-P as ACPI C2, C6-P as ACPI C3, and **Auto**.

Note: This feature is available when "Workload Profile" is set to Disabled.

Package C State Control Menu

►Package C State Control

Note: This submenu is available when “Power Performance Tuning” is set to BIOS Controls EPB.

Package C State

Use this feature to optimize and reduce CPU package power consumption in the idle mode. Please note that the changes you've made in this setting will affect all CPU cores or the circuits of the entire system. The options are C0/C1 state, C2 state, C6 (non Retention) state, No Limit, and **Auto**.

Note: This feature is NOT available when "Workload Profile" is set to I/O.

LTR IIO Input

Use this feature to set the MSR 1FCh Bit[29]. The options are Take IIO LTR input and **Ignore IIO LTR input**.

CPU1 Core Disable Bitmap Menu

►CPU1 Core Disable Bitmap

Available Bitmap[0]:

This feature displays the available Bitmap[0]. This feature is CPU-dependent.

Available Bitmap[1]:

This feature displays the available Bitmap[1]. This feature is CPU-dependent.

CPU Core Count:

This feature displays the number of CPU cores that can be enabled.

CPU1 Cores Enable

Use this feature to set the number of CPU cores to be enabled. Enter 0 to enable all CPU cores. Note that it is required to enable at least one core per CPU. The default setting is **0**.

Chipset Configuration Menu

►Chipset Configuration

Important: Setting the wrong values in this section may cause the system to malfunction.

Uncore Configuration Menu

►Uncore Configuration

The following information is displayed.

- Number of CPU
- Current UPI Link Speed
- Current UPI Link Frequency
- Global MMIO Low Base / Limit
- Global MMIO High Base / Limit
- PCIe Configuration Base / Size

Degrade Precedence

Use this feature to select the degrading precedence option for Ultra Path Interconnect (UPI) connections. Select Topology Precedence to degrade UPI features if system options are in conflict. Select Feature Precedence to degrade UPI topology if system options are in conflict. The options are **Topology Precedence** and Feature Precedence.

Link L0p Enable

Select Enabled for the system BIOS to enable Link L0p support, which allows the CPU to reduce the UPI links from full width to half width in the event when the CPU's workload is low in an attempt to save power. This feature is available for the system that uses Intel processors with UPI technology support. The options are **Disabled**, Enabled, and Auto.

Note: You can change the performance settings for non-standard applications by using this parameter. It is recommended that the default settings be used for standard applications.

Link L1 Enable

Select Enabled for the BIOS to activate Link L1 support, which will power down the UPI links to save power when the system is idle. This feature is available for the system that uses Intel processors with UPI technology support. The options are **Disabled**, Enabled, and Auto.

Note: Link L1 is an excellent feature for an idle system. L1 is used during Package C-States when its latency is hidden by other components during a wakeup.

KTI Prefetch

Keizer Technology Interconnect (KTI) is also known as the Intel Ultra Path Interconnect (UPI) technology. Select Enabled for the KTI prefetcher to preload the L1 cache with data deemed relevant, which allows the memory read to start earlier on a DDR bus in an effort to reduce latency. Select Auto for the KTI prefetcher to automatically preload the L1 cache with relevant data whenever it is needed. The options are Disabled, Enabled, and **Auto**.

IO Directory Cache (IODC)

This feature allows the IODC to generate snoops instead of generating memory lockups for remote IIO (InvItoM) and/or WCiLF (Cores). Select Auto for the IODC to generate snoops (instead of memory lockups) for WCiLF (Cores). The options are Disabled, **Auto**, Enable for Remote InvItoM Hybrid Push, Enable for Remote InvItoM AllocFlow, Enable for Remote InvItoM Hybrid AllocNonAlloc, and Enable for Remote InvItoM and Remote WCiLF.

SNC

Sub NUMA Clustering (SNC) is a feature that breaks up the Last Level Cache (LLC) into clusters based on address range. Each cluster is connected to a subset of the memory controller. Enable this feature to improve average latency and reduce memory access congestion for higher performance. The options are Disabled, Enabled, and **Auto**. This feature is CPU-dependent.

Note: This feature is NOT available when "Workload Profile" is set to I/O or Virtualization.

XPT Prefetch

XPT Prefetch is a feature that speculatively makes a copy to the memory controller of a read request being sent to the LLC. If the read request maps to the local memory address and the recent memory reads are likely to miss the LLC, a speculative read is sent to the local memory controller. The options are Disabled, Enabled, and **Auto**.

Stale AtoS

The in-memory directory has three states: I, A, and S states. The I (-invalid) state indicates that the data is clean and does not exist in the cache of any other sockets. The A (-snoop All) state indicates that the data may exist in another socket in an exclusive or modified state. The S state (-Shared) indicates that the data is clean and may be shared in the caches across one or more sockets. When the system is performing "read" on the memory and if the directory line is in A state, we must snoop all other sockets because another socket may have the line in a modified state. If this is the case, a "snoop" will return the modified data. However, it may be the case that a line "reads" in an A state, and all the snoops come back with a "miss." This can happen if another socket reads the line earlier and then has silently dropped it from its cache without modifying it. If "Stale AtoS" is enabled, a line will transition to the S state when the line in the A state returns only snoop misses. That way, subsequent reads to the line will encounter it in the S state and will not have to snoop, saving the latency and snoop bandwidth. Stale "AtoS" may be beneficial in a workload where there are many cross-socket reads. The options are Disabled, Enabled, and **Auto**.

LLC Dead Line Alloc

Select Enabled to optimally fill the dead lines in the LLC. The options are Disabled, **Enabled**, and Auto.

Memory Configuration Menu

►Memory Configuration

This submenu is used to configure the Integrated Memory Controller (IMC) settings.

Enforce DDR Memory Frequency POR

Select Enforce POR to enforce Plan of Record (POR) restrictions for DDR memory frequency and voltage programming. The options are **Enforce POR**, Enforce Stretch Goals, and Disabled.

Host Memory Frequency

Use this feature to set the maximum memory frequency for onboard memory modules. The options are **Auto**, 4800, 5200, 5600, 6000, 6400, and 7200. Please note that the available options are CPU-dependent.

Global Scrambling

Select Enabled to enable data scrambling to enhance system performance and data integrity. The options are Disabled and **Enabled**.

Memory Topology Menu

►Memory Topology

This submenu displays the information of onboard memory modules as detected by the BIOS, for example:

P1-DIMMA1: 5600MT/s Hynix SRx8 16GB RDIMM

Memory Map Menu

►Memory Map

Intel(R) Flat Memory Mode Support

Enable this feature to allow hardware-managed data movement between DDR5 and CXL memory, making total memory capacity visible to your system. The options are **Disabled** and Enabled.

DDR CXL Heterogeneous Interleave Support

Select Enabled to support heterogeneous interleaving for physical DDR5 and CXL memory. The options are **Disabled** and Enabled.

Memory RAS Configuration Menu

►Memory RAS Configuration

Use this submenu to configure the memory mirroring, Reliability Availability Serviceability (RAS) settings.

Mirror Mode

Use this feature to configure the mirror mode settings for all 1LM/2LM memory modules in the system, which will create a duplicate copy of data stored in the memory to increase memory security, but it will reduce the memory capacity into half. The options are **Disabled** and Full Mirror Mode.

Note: This feature is available when "UEFI ARM Mirror" is set to Disabled.

UEFI ARM Mirror

If this feature is set to Enabled, mirror mode configuration settings for UEFI-based Address Range memory will be enabled upon system boot. This will create a duplicate copy of data stored in the memory to increase memory security, but it will reduce the memory capacity into half. The options are **Disabled** and Enabled. The Address Range Mirroring (ARM) feature supports partial memory mirroring. This feature is CPU-dependent.

Note: This feature is available when "Mirror Mode" is set to Disabled.

Mirror TAD0

Use this feature to enable the mirror mode on the entire memory for Target Address Decoder 0 (TAD0). The options are **Disabled** and Enabled. This feature is CPU-dependent.

Note: This feature is available when "Mirror Mode" is set to Disabled.

ARM Mirror Percentage (Available when "UEFI ARM Mirror" is set to Enabled)

Use this feature to set the percentage of memory space to be used for UEFI ARM mirroring for memory security enhancement. The default setting is **2500**.

Correctable Error Threshold

Use this feature to specify the threshold value for correctable memory-error logging, which sets a limit on the maximum number of events that can be logged in the memory error log at a given time. The default setting is **512**.

Note: This feature is available when "Memory PFA Support" is set to Disabled.

Leaky Bucket Low Bit

Use this feature to set the Low Bit value for the Leaky Bucket algorithm, which is used to check the data transmissions between CPU sockets and the memory controller. The default setting is **12**.

Leaky Bucket High Bit

Use this feature to set the High Bit value for the Leaky Bucket algorithm, which is used to check the data transmissions between CPU sockets and the memory controller. The default setting is **13**.

ADDDC Sparing (Available when populating 1Rx4, 2Rx4, and 4Rx4 DIMMs and when "Memory PFA Support" is set to Disabled)

Select Enabled for Adaptive Double Device Data Correction (ADDDC) support, which will not only provide memory error checking and correction but will also prevent the system from issuing a performance penalty before a device fails. Note that virtual lockstep mode will only start to work for ADDDC after a faulty DRAM module is spared. The options are Disabled and **Enabled**.

DDR PPR Type

Post Package Repair (PPR) is a new feature available for the DDR4/DDR5 technology. PPR provides additional spare capacity within a DDR4/DDR5 DRAM module that is used to replace faulty cell areas detected during system boot. PPR offers two types of memory repairs. Soft

Post Package Repair (sPPR) provides a quick, temporary fix on a raw element in a bank group of a DDR4/DDR5 DRAM device, while hard Post Package Repair (hPPR) will take a longer time to provide a permanent repair on a raw element. The options are PPR Disabled, **Hard PPR**, and Soft PPR.

Note: This feature is available when "Memory PFA Support" is set to Disabled.

Enhanced PPR

Use this feature to set advanced memory test. Select Enabled to always execute for every boot. The options are **Disabled**, Enabled, and Persistent.

Memory PFA Support (Available when the DCMS key is activated)

Select Enabled to enable memory Predictive Failure Analysis (PFA) support. PFA can be used to avoid uncorrectable faults on the same memory page. The options are **Disabled** and Enabled.

Security Configuration Menu

►Security Configuration

Memory Encryption (TME) [Outputs]

The following information is displayed.

- MSE activation state
- MK-TME activation state
- CI activation state
- Cryptographic Algorithm configured

Memory Encryption (TME) [Inputs]

Memory Encryption (TME)

Select Enabled for Intel Total Memory Encryption (TME) support to enhance memory data security. The options are **Disabled** and Enabled.

Total Memory Encryption Multi-Tenant (TME-MT)

Use this feature to support tenant-provided (SW-provided) keys. The options are **Disabled** and Enabled.

Memory Integrity

Use this feature to enable TME-MT memory integrity protection for memory transactions. The options are **Disabled** and Enabled.

The following information is displayed.

- KEY stock amount
- TME-MT key ID bits

TME Encryption Algorithm

Use this feature to set the TME encryption algorithm. The options are AES-XTS-128 and **AES-XTS-256**.

Trust Domain Extensions (TDX) [Outputs]

The following information is displayed.

- TDX activation state

Trust Domain Extensions (TDX) [Inputs]

Trust Domain Extensions (TDX) (Available when your motherboard supports Intel TDX)

Use this feature to enable Intel Trust Domain Extensions (TDX) technology support to enhance control of data security. The options are **Disabled** and Enabled.

Note: To support TDX features, DIMM population must be symmetric across integrated Memory Controllers (IMCs) and at least DIMMs per socket. For each memory controller, populating the first slots (Px-DIMMX1 or DIMMX1 depending on the motherboard design) in all channels is required. Refer to memory population below for your motherboard.

Trust Domain Extensions - Connect (TDX Connect) (Available when "Trust Domain Extensions (TDX)" is set to Enabled)

Use this feature to enable Intel TDX Connect support to improve I/O virtualization by removing the need to establish a secure TD-Device transport-level session. The options are **Disabled** and Enabled. This feature is CPU-dependent.

TDX Secure Arbitration Mode Loader (SEAM Loader) (Available when your motherboard supports Intel TDX and when "Trust Domain Extensions (TDX)" is set to Enabled)

The SEAM Loader (SEAMLDR) is used to load and update Intel TDX modules into the SEAM memory range by verifying the digital signature. The options are **Disabled** and Enabled.

TME-MT/TDX Key Split (Available when "Trust Domain Extensions (TDX)" is set to Enabled)

Use this feature to set the number of bits for TDX. The other bits will be used by TME-MT. The default setting is **1**.

The following information is displayed when "Trust Domain Extensions (TDX)" is set to Enabled.

- TME-MT Keys:
- TDX Keys:

Processor Reserved Memory [Capabilities]

The following information is displayed.

- PRMRR Min Size per domain
- PRMRR Max Size per domain

Processor Reserved Memory [Outputs]

The following information is displayed.

- PRMRR Size per domain
- PRM Size per socket
- PRM Size per system

Software Guard Extensions (SGX) [Outputs]

The following information is displayed when your motherboard supports SGX.

- SGX activation state
- SGX error code [HEX]

Software Guard Extensions (SGX) [Inputs]

The following features are available when your motherboard supports SGX.

Note: To support SGX features, DIMM population must be symmetric across Integrated Memory Controllers (IMCs) and at least DIMMs per socket. For each memory controller, populating the first slots (Px-DIMMX1 or DIMMX1 depending on the motherboard design) in all channels is required. Refer to memory population below for your motherboard.

SGX Factory Reset

Use this feature to perform an SGX factory reset to delete all registration data and force an Initial Platform Establishment flow. Reboot the system for the changes to take effect. The options are **Disabled** and Enabled.

SW Guard Extensions (SGX)

Use this feature to enable Intel Software Guard Extensions (SGX) support. Intel SGX is a set of extensions that increases the security of application code and data by using enclaves in memory to protect sensitive information. The options are **Disabled** and Enabled.

SGX Package Info In-Band Access

Setting this feature to Enabled is required before the BIOS provides software with the key blobs, which are generated for each CPU package. The options are **Disabled** and Enabled.

SGX PRMRR Size Requested (Available when "SW Guard Extensions (SGX)" is set to Enabled)

Use this feature to set the Processor Reserved Memory Range Register (PRMRR) size. The options are **Auto**, 128M, 256M, 512M, 1G, 2G, 4G, 8G, 16G, 32G, 64G, 128G, 256G, and 512G. Please note that the available options are based on your motherboard features, memory size, and memory map.

SGX QoS (Available when "SW Guard Extensions (SGX)" is set to Enabled)

Use this feature to enable Intel SGX Quality of Service (QoS) support. QoS can enhance network performance by prioritizing network traffic. The options are Disabled and **Enabled**.

Select Owner EPOCH Input Type (Available when "SW Guard Extensions (SGX)" is set to Enabled)

Owner EPOCH is used as a parameter to add personal entropy into the key derivation process. A correct Owner EPOCH is required to have access to personal data previously sealed by other platform users. There are two Owner EPOCH modes. One is New Random Owner EPOCH, and the other is manually entered by the user. Each EPOCH is 64-bit. The options are **SGX Owner EPOCH deactivated**, Change to New Random Owner EPOCHs, and Manual User Defined Owner EPOCHs.

Note: Changing the Owner EPOCH value will lose the data in enclaves.

Software Guard Extensions Epoch 0

Use this feature to enter the EPOCH value. The default setting is **0**.

Note: This feature is available when "SW Guard Extensions (SGX)" is set to Enabled. This feature is NOT available when "Select Owner EPOCH Input Type" is set to SGX Owner EPOCH deactivated.

Software Guard Extensions Epoch 1

Use this feature to enter the EPOCH value. The default setting is **0**.

Note: This feature is available when "SW Guard Extensions (SGX)" is set to Enabled. This feature is NOT available when "Select Owner EPOCH Input Type" is set to SGX Owner EPOCH deactivated.

SGXLEPUBKEYHASHx Write Enable (Available when "SW Guard Extensions (SGX)" is set to Enabled)

Use this feature to enable writes to SGXLEPUBKEYHASH[3..0] from OS/SW. The options are Disabled and **Enabled**. Only those CPUs that support Intel SGX Flexible Launch Control (FLC) feature have SGXLEPUBKEYHASH, which contains the hash of the public key for the SGX Launch Enclave (LE) to be signed with.

SGXLEPUBKEYHASH0 (Available when both "SW Guard Extensions (SGX)" and "SGXLEPUBKEYHASHx Write Enable" are set to Enabled)

Use this feature to enter the bytes 0–7 of SGX Launch Enclave Public Key Hash.

SGXLEPUBKEYHASH1 (Available when both "SW Guard Extensions (SGX)" and "SGXLEPUBKEYHASHx Write Enable" are set to Enabled)

Use this feature to enter the bytes 8–15 of SGX Launch Enclave Public Key Hash.

SGXLEPUBKEYHASH2 (Available when both "SW Guard Extensions (SGX)" and "SGXLEPUBKEYHASHx Write Enable" are set to Enabled)

Use this feature to enter the bytes 16–23 of SGX Launch Enclave Public Key Hash.

SGXLEPUBKEYHASH3 (Available when both "SW Guard Extensions (SGX)" and "SGXLEPUBKEYHASHx Write Enable" are set to Enabled)

Use this feature to enter the bytes 24–31 of SGX Launch Enclave Public Key Hash.

SGX Auto MP Registration (Available when "SW Guard Extensions (SGX)" is set to Enabled)

Use this feature to enable/disable SGX Auto Multi-Package Registration Agent (MPA) running automatically at boot time. The options are **Disabled** and Enabled.

8.4 Event Logs

Use this menu to configure Event Logs settings.

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

►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.

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

Use this menu to configure the following security settings for the system.

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.

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.

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.

Launch EFI Shell from filesystem device

Use this feature to launch the EFI shell application (Shell.efi) from one of the available filesystem devices. A filesystem is a virtual, logical, or physical system for organizing, managing, and accessing the files and directories on devices such as SSDs, HDDs, or other storage devices.

Appendix A:

BIOS Codes

For information about BIOS codes for the SYS-822GS-NB3RT 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-822GS-NB3RT 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.

Rack Stability Hazard

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.

警告!

安定性に危険があります。ラックが転倒して、重大な人身事故を引き起こす可能性があります。ラックを設置位置まで伸ばす前に、設置手順をお読みください。設置位置にあるスライドレールに取り付けられた機器に負荷をかけないでください。スライドレールに取り付けられた機器を設置位置に放置しないでください。

警告!

稳定性危险。机架可能会翻倒、造成严重的人身伤害。在将机架延伸到安装位置之前、请阅读安装说明。请勿在安装位置对滑轨安装的设备施加任何负载。请勿将滑轨安装的设备留在安装位置。

警告!

穩定性危險。機架可能會翻倒、造成嚴重的人身傷害。將機架延伸至安裝位置前、請先閱讀安裝說明。請勿在安裝位置的滑軌安裝設備上放置任何負載。請勿將滑軌安裝設備留在安裝位置。

Warnung!

Gefahr der Instabilität. Das Rack kann umkippen und schwere Verletzungen verursachen. Lesen Sie die Installationsanweisungen, bevor Sie das Rack in die Einbauposition ausfahren. Belasten Sie die auf den Gleitschienen montierten Geräte nicht in der Einbauposition. Lassen Sie die auf den Gleitschienen montierten Geräte nicht in der Einbauposition.

¡Advertencia!

Peligro de inestabilidad. El rack podría volcarse y causar lesiones personales graves. Antes de extender el rack a la posición de instalación, lea las instrucciones de instalación. No coloque ninguna carga sobre el equipo montado sobre rieles deslizantes en la posición de instalación. No deje el equipo montado sobre rieles deslizantes en la posición de instalación.

Attention!

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.

אזהרה!

סכנת חוסר יציבות

המתלה עלול להתהפך ולגרום לפציעה חמורה

לפני הארכת המתלה למצב ההתקנה, קרא את הוראות ההתקנה

אין להעמיס כל עומס על הציוד המותקן על מסילת ההחלקה במצב ההתקנה

אל תשאיר את הציוד המותקן על מסילת ההחלקה במצב ההתקנה

تحذير!

خطر عدم الاستقرار.

قد ينقلب الرف مسبباً إصابات جسدية خطيرة.

قبل تمديد الرف إلى موضع التركيب، اقرأ تعليمات التركيب.

لا تضع أي حمولة على الجهاز المثبت على سكة الانزلاق في موضع التركيب.

لا تترك الجهاز المثبت على سكة الانزلاق في موضع التركيب.

경고!

안정성 위험. 랙이 넘어져 심각한 개인 부상을 입을 수 있습니다. 랙을 설치 위치까지 확장하기 전에 설치 지침을 읽으십시오. 설치 위치에서 슬라이드 레일 장착 장비에 하중을 가하지 마십시오. 슬라이드 레일 장착 장비를 설치 위치에 두지 마십시오.

Waarschuwing!

Gevaar voor instabiliteit. Het rek kan kantelen en ernstig persoonlijk letsel veroorzaken. Lees de installatie-instructies voordat u het rek uitschuift naar de installatiepositie. Plaats geen last op de op de glijrail gemonteerde apparatuur in de installatiepositie. Laat de op de glijrail gemonteerde apparatuur niet in de installatiepositie staan.

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

تحذير!

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 ةز 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 B:

System Specifications

Processors
Intel® Xeon® 6700/6500-series processors with P-cores (in Socket E2 LGA 4710) with four UPIs (up to 24 GT/s) and a thermal design power (TDP) up to 350 W
Chipset
System on Chip (SoC)
BIOS
AMI SPI BIOS
Memory
32 DIMM slots that support ECC DDR5 memory with speeds up to 6400 MT/s in (1DPC) configurations with a maximum of 16 DIMMs, and up to 5200 MT/s in (2DPC) configurations with a maximum of 32 DIMMs. (Memory speed/capacity support depends on the processors used in the system.)
Storage Drives
Eight front hot-swap E1.S NVMe drive bays Two M.2 NVMe slots (M-key; RAID support via S3808N controller)
PCI Expansion Slots
Two PCIe 5.0 x16 FHHL slots
Input/Output
One USB 3.0 Type-A port (front) One USB 2.0 Type-A port (front) One VGA port One mini-DP port
Motherboard
X14DBG-LC: Proprietary, 17 x 13.88 in.
Chassis
CSE-GP807TS-R000NP: 8U rackmount, 13.8 x 17.6 x 37.4 in. (356 x 449 x 950 mm)
System Cooling
12 heavy-duty fans with optimal fan speed control

Power Supply
Six 6600 W redundant (3 + 3) Titanium Level (96%) power supplies 5900 W: 200–207.9 VAC/50–60 Hz 6000 W: 208–219.9 VAC/50–60 Hz 6300 W: 220–229.9 VAC 50–60 Hz 6500 W: 230–238.9 VAC/ 50–60Hz 6600 W: 239–240 VAC/50–60Hz +12 V Max: 130 A/Min: 0 A (200 VAC–207.9 VAC) Max: 130 A/Min: 0 A (208 VAC–219.9 VAC) Max: 130 A/Min: 0 A (220 VAC–229.9 VAC) Max: 130 A/Min: 0 A (230 VAC–238.9 Vac) Max: 130 A/Min: 0 A (239 VAC–240 VAC) 12 V SB Max: 4 A/Min: 0 A
Operating Environment
Operating Temperature: 10°C to 35°C (50°F to 95°F) Non-operating Temperature: -40°C to 60°C (-40°F to 140°F) Operating Relative Humidity: 8% to 90% (non-condensing) Non-operating Relative Humidity: 5% to 95% (non-condensing)
Regulatory Compliance
FCC, ICES, CE, UKCA, VCCI, RCM, NRTL, CB
Certified Safety Models
Certified as compliant with UL or CSA: GP807-H66X14
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 https://www.dtsc.ca.gov/hazardouswaste/perchlorate

Applied Directives, Standards

Directives:

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

Electromagnetic Compatibility Regulations 2016

FCC Part 15 Subpart B

ICES-003

VCCI-CISPR 32

AS/NZS CISPR 32

CISPR 32

CISPR 35

BS/EN 55032

BS/EN 55035

BS/EN 61000-3-12

BS/EN 61000-3-11

BS/EN 61000-4-2

BS/EN 61000-4-3

BS/EN 61000-4-4

BS/EN 61000-4-5

BS/EN 61000-4-6

BS/EN 61000-4-8

BS/EN 61000-4-34

Environment:

Delegated Directive (EU) 2015/863

Directive 2011/65/EU (RoHS)

REACH Regulation EC 1907/2006

WEEE Directive 2012/19/EU

California Proposition 65

Product Safety:

2014/35/EU (LVD Directive)

UL/CSA 62368-1 (USA and Canada)

Electrical Equipment (Safety) Regulations 2016

IEC/BS/EN 62368-1

Appendix C:

General Data Center Environmental Specifications

Particulate Contamination Specifications

Air filtration: Data centers must be kept clean to Class 8 of ISO 14644-1 (ISO 2015). The air entering the data center should be filtered with a MERV 11 filter or better. The air within the data center should be continuously filtered with a MERV 8 filter or better.

Conductive dust: Air should be free of conductive dust, zinc whiskers, or other conductive particles.

Corrosive dust: Air should be free of corrosive dust.

Gaseous Contamination Specifications

Copper coupon corrosion rate: <300 Å/month per class G1 as defined by ANSI.ISA71.04-2013, reference by ASHRAE TC 9.9

Silver coupon corrosion rate: <200 Å/month per class G1 as defined by ANSI.ISA71.04-2013, reference by ASHRAE TC 9.9

Note: If testing with silver or copper coupons results in values less that 200 Å/month or 300 Å/month, respectively, then operating up to 70% relative humidity (RH) is acceptable. If the testing shows corrosion levels exceed these limits, then catalyst type pollutants are probably present and RH should be driven to 50% or lower.