STORAGE SUPERSERVER®
SSG-521E-E1CR24H
SSG-521E-E1CR24L

USER'S MANUAL

Revision 1.0b

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Manual Revision 1.0b

Release Date: December 04, 2024   vc

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Preface

About this Manual

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

Please refer to the SSG-521E-E1CR24H/SSG-521E-E1CR24L server specifications page on our website for updates on supported memory, processors and operating systems (http:// www. supermicro. com).

Notes

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

• Supermicro product manuals: http://www.supermicro.com/support/manuals/

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

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

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

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

Secure Data Deletion

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

Warnings

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

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

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

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Chapter 4 Motherboard Connections

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Chapter 6 Optional Components

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Appendix A Standardized Warning Statements for AC Systems

Appendix B System Specifications

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Chapter 1

Introduction

1.1 Overview

This chapter provides a brief outline of the functions and features of the SSG-521E-E1CR24H and the SSG-521E-E1CR24L. Both systems are based on the X13SEDW-F motherboard and the CSE-826S2TS-R1K62P1 chassis. The following provides an overview of the specifications and capabilities of the SSG-521E-E1CR24H/SSG-521E-E1CR24L.

System Overview	
Motherboard	X13SEDW-F
Chassis	CSE-826S2TS-R1K62P1
Processors	Single 5th/4th Generation Intel® Xeon® Scalable processor (HBM), CPU TDP supports up to 300 W in a Socket E (LGA-4677)
Memory	Up to 4 TB of ECC RDIMM/RDIMM 3DS DDR5 memory with speeds of up to 5600 MT/s in 16 memory slots
Storage	24 hot-swap 3.5" SAS3/SATA3 drive bays Two rear hot-swap 2.5" SATA3 drive bays Two onboard M.2 NVMe slots PCIe 3.0 (22 x 110 mm) (Optional) Four rear hot-swap 2.5" NVMe U.2 drive bays
Expansion Slots	Four PCIe 5.0 x8 slots (full-height, full-length) Two PCIe 5.0 x16 slots (full-height, full-length) Two PCIe 5.0 x16 AIOM slots
I/O Ports	One RJ45 dedicated IPMI LAN port Two rear USB 3.0 ports One rear VGA port One rear COM port Two SuperDOM ports
System Cooling	Four heavy duty 8-cm fans with optimal fan speed control
Power	Two redundant 1600 W power supplies, 96Plus Titanium level
Form Factor	2U: (WxHxD) 17.2 x 3.5 x 34 in.

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

The following safety models associated with the SSG-521E-E1CR24H/SSG-521E-E1CR24L have been certified as compliant with UL or CSA: 826S-R16X13 or 826S-16.

Models

- SSG-521E-E1CR24H includes the HW RAID support via Broadcom® S3908.

- SSG-521E-E1CR24L includes the HBA controller support via Broadcom® S3808.

1.2 System Features

The following views of the system display the main features.

Front View

Figure 1-1. Front View

System Features: Front	
Feature	**Description**
Control Panel	Front control panel with LEDs and buttons (see Control Panel for details)

Logical Storage Drive Numbers	
Item	**Description**
0-11	12 (front) hot-swap 3.5" SAS3/SATA3 drive bays
12-23	12 (riser) hot-swap 3.5" SAS3/SATA3 drive bays

Drive Carrier Indicators

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

Drive Carrier LED Indicators			
	Color	**Blinking Pattern**	**Behavior for Device**
Activity LED	Blue	Solid On	Idle SAS/NVMe drive installed
	Blue	Blinking	I/O activity
	Off		Idle SATA drive installed
Status LED	Red	Solid On	Failure of drive with RSTe support
	Red	Blinking at 1 Hz	Rebuild drive with RSTe support
	Red	Blinking with two blinks and one stop at 1 Hz	Hot spare for drive with RSTe support
	Red	On for five seconds, then off	Power on for drive with RSTe support
	Red	Blinking at 4 Hz	Identify drive with RSTe support
	Green	Solid on	Safe to remove NVMe drive
	Amber	Blinking at 1 Hz	Do not remove NVMe drive

Control Panel
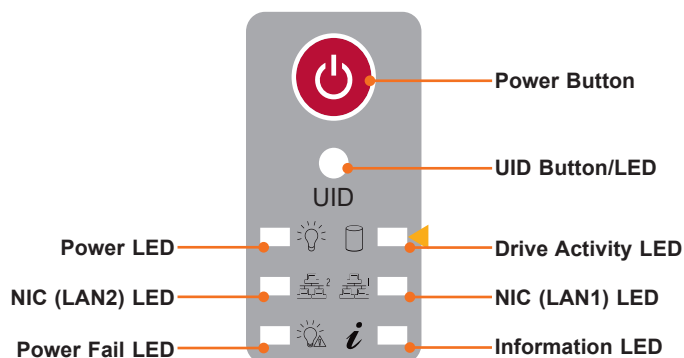
Figure 1-2. Control Panel

Control Panel Features	
Feature	**Description**
Power Button	The main power switch applies or removes primary power from the power supplies to the server but maintains standby power.
UID Button/LED	The unit identification (UID) button turns on or off the blue light function of the Information LED and a blue LED on the rear of the chassis.
Power LED	Indicates power is being supplied to the system power supply units. This LED is illuminated when the system is operating normally.
Drive Activity LED	Indicates activity on the storage drives when flashing.
NIC (LAN1) LED	Indicates network activity on LAN1 when flashing.
NIC (LAN2) LED	Indicates network activity on LAN2 when flashing.
Power Fail LED	Indicates a power supply module has failed.
Information LED	Alerts operator to several states, as noted in the table below.

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

Rear View

The SSG-521E-E1CR24H/SSG-521E-E1CR24L can be configured with PCIe slots or NVMe SSDs. The NVMe kit is not included in the standard system configuration. The system's rear will differ depending on the configuration, as shown below.
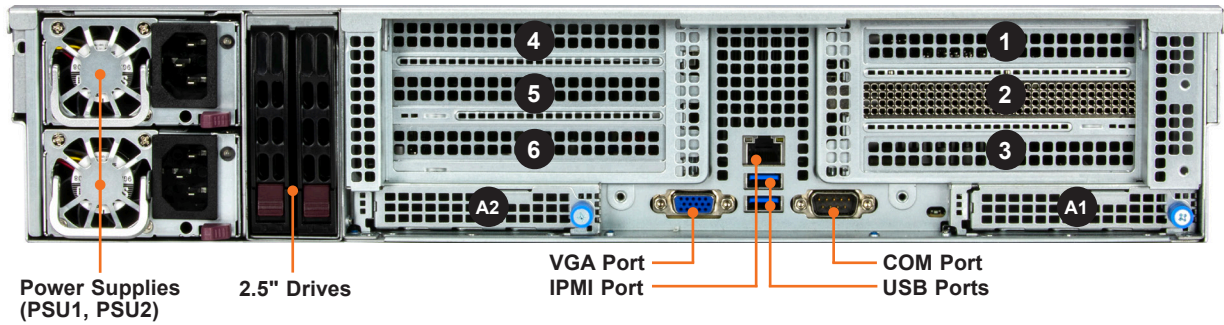
Figure 1-3. Rear View: Standard Configuration
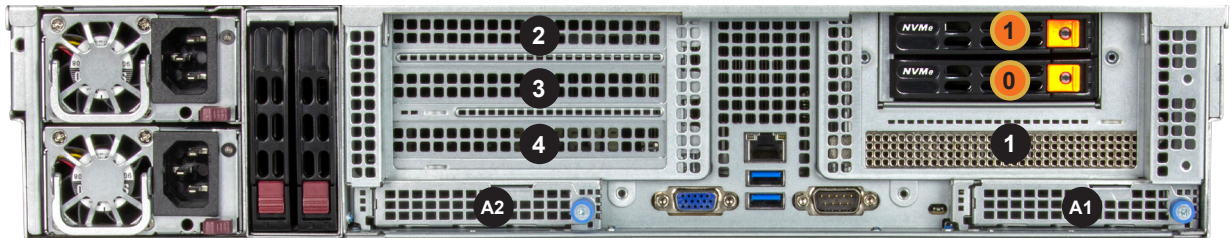
Figure 1-4. Rear View: Configuration B
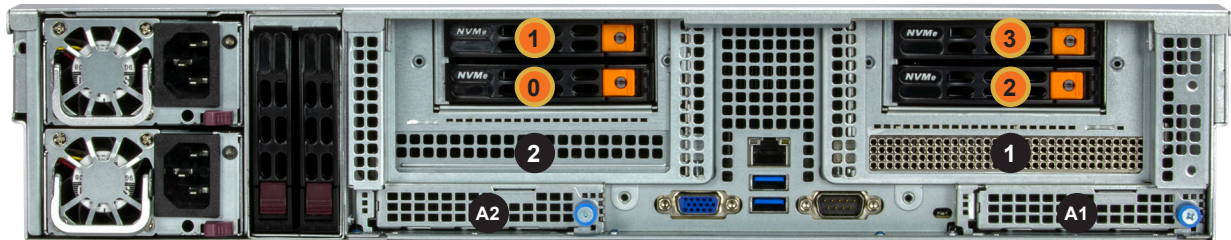
Figure 1-5. Rear View: Configuration C

Note: The left riser card bracket, MCP-240-00206-0N, is used in Configuration B. MCP-240-002007-0N is the right riser card bracket, and both MCP-240-00206-0N and MCP-240-00207-0N are used in Configuration C.

System Features: Rear	
Feature	**Description**
Power Supplies	Two redundant power supply modules (PSU1 on top, PSU2 below)
2.5" Drives	Two hot-swap 2.5" SATA3 storage drives
VGA Port	One video port
IPMI Port	One dedicated LAN port for IPMI
USB Ports	Two USB 3.0 ports
COM Port	One serial communication port

Expansion Slot Locations			
Slot	**Configuration A**	**Configuration B**	**Configuration C**
1	PCIe 5.0 x8	PCIe 5.0 x16*	PCIe 5.0 x16*
2	PCIe 5.0 x8*	PCIe 5.0 x8	PCIe 5.0 x16
3	PCIe 5.0 x16	PCIe 5.0 x8	N/A
4	PCIe 5.0 x8	PCIe 5.0 x16	N/A
5	PCIe 5.0 x8	N/A	N/A
6	PCIe 5.0 x16	N/A	N/A
A1	PCIe 5.0 x16 AIOM	PCIe 5.0 x16 AIOM	PCIe 5.0 x16 AIOM
A2	N/A	N/A	PCIe 5.0 x16 AIOM

Logical Storage Drive Numbers	
Item	**Description**
0 - 3	Optional four hot-swap 2.5" NVMe** drive bays (with riser kit)

* Occupied by AOC-S3808L-L8IT-P/AOC-S3908L-H8IR-32DD-P SAS controller card.

** NVMe support requires additional parts. See the Optional Parts list for more details.

1.3 System Architecture

This section shows the locations of the system's main components.
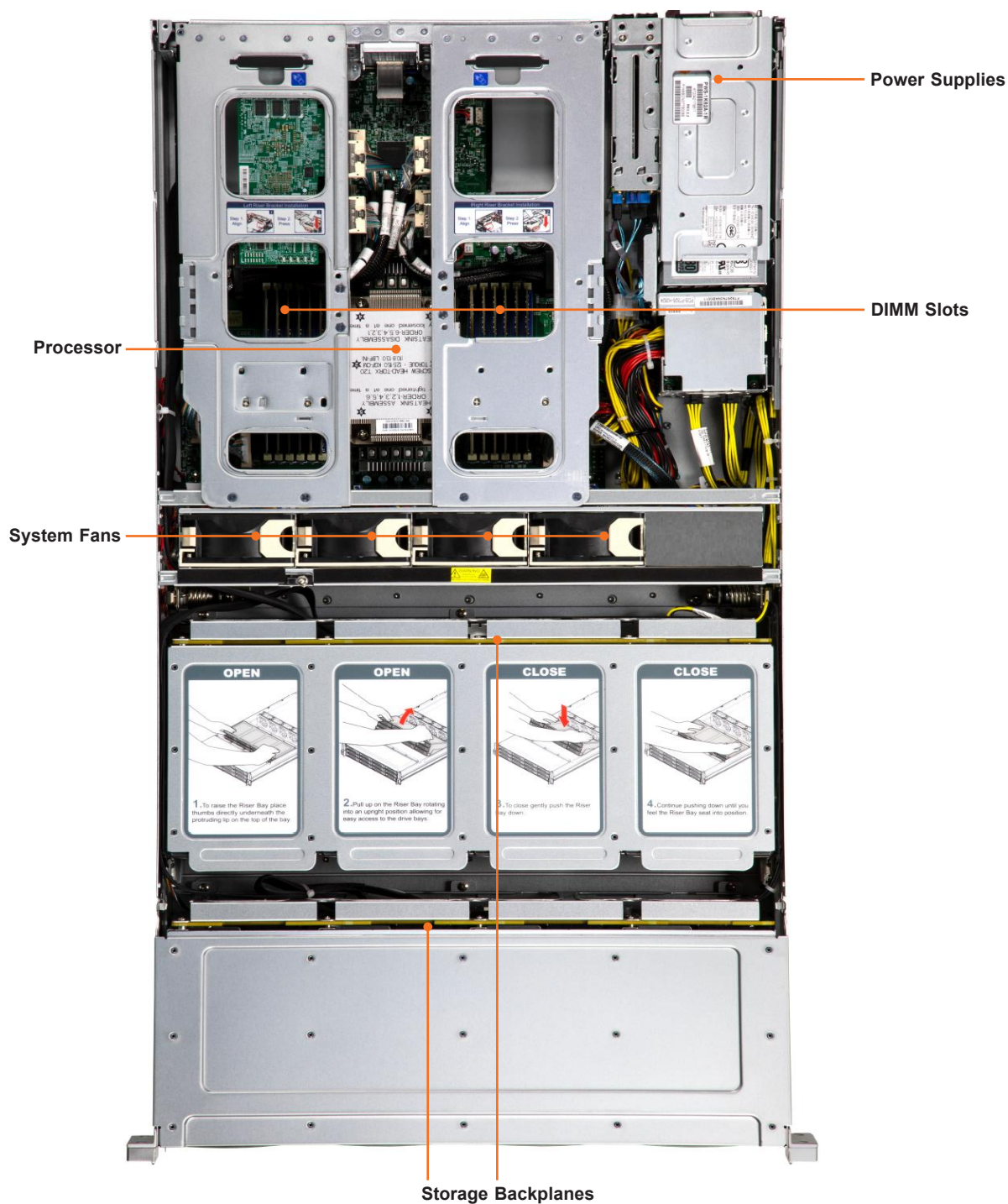
Figure 1-6. Main Component Locations

System Features: Top	
Feature	**Description**
Power Supplies	Dual redundant modules (PWS-1K62A-1R)
DIMM Slots	16 DDR5 DIMM slots
Processor	Single 5th/4th Gen Intel Xeon Scalable processor with heatsinks (SNK-P0088P)
System Fans	Four 8-cm fans with optimal fan speed control (FAN-0168L4)
Storage Backplanes	Dual storage backplane (BPN-SAS3-826SA, BPN-SAS3-826SE1)

1.4 Motherboard Layout

Below is a layout of the X13SEDW-F motherboard with the jumper, connector and LED locations shown. See the table on the following page for descriptions. For detailed descriptions, pinout information and jumper settings, refer to Chapter 4 or the Motherboard Manual.
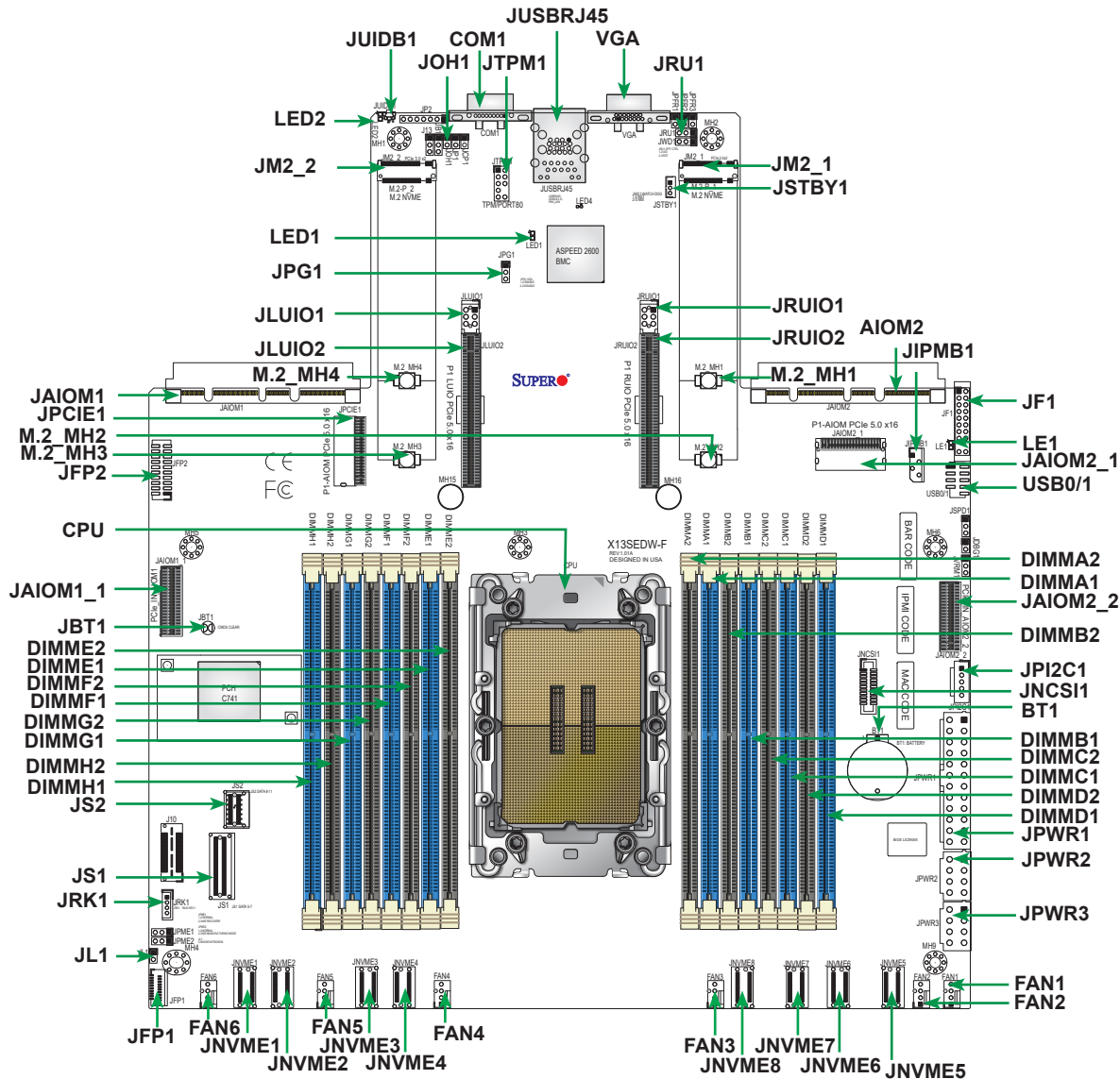
Figure 1-5. Motherboard Layout

Notes:

- "■" indicates the location of Pin 1.

- Jumpers/LED indicators not indicated are used for testing 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	Default Setting
JBT1	CMOS Clear	Open (Normal)
JPG1	VGA Enable/Disable	Pins 1–2 (Enabled)
JRU1	Front Control Board (JFP1) Signal Reset	Pins 1–2 UID Pins 2–3 Reset

| LED	Description	Status
LE1	Power LED	LED On: Onboard Power On
LED1	BMC Heartbeat LED	Blinking Green: BMC Normal
LED2	UID LED	Solid Blue: Unit Identified

Connector	Description
BT1	Onboard Battery
COM1	COM Port
FAN1–FAN6	CPU/System Fan Headers (FAN1: CPU Fan)
JAIOM1	PCIe 5.0 (default x8) AIOM (Advanced I/O Module)
JAIOM2	PCIe 5.0 (default x0) AIOM (Advanced I/O Module)
JAIOM1_1	PCIe 5.0 x8 Input Connector for Upgrading AIOM1 to PCIe 5.0 x16
JAIOM2_1	Right-Angle PCIe 5.0 x8 Input Connector for Upgrading AIOM2 to PCIe 5.0 x8
JAIOM2_2	PCIe 5.0 x8 Input Connector for Upgrading AIOM2 to PCIe 5.0 x16 (with JAIOM2_1 in use)
JF1	Front Control Panel Header
JFP1	Front Control Board Header for Signals (can be used independently)
JFP2	Front Control Board Header for VGA and USB (to be used in conjunction with JFP1)
JIPMB1	4-Pin BMC External I²C Header
JL1	Chassis Intrusion Header
JLUIO1, JLUIO2	Left LUIO PCIe 5.0 x16
JM2_1, JM2_2	PCIe 3.0 x2 M.2 Slots from PCH (Support M-Key 2280 and 22110)
JOH1	Overheat/Fan Fail LED Header
JNCSI1	NC-SI Header for IPMI Support
JNVME1–JNVME8	PCIe 5.0 x4 MCIO Ports with Support of NVMe Connections (0/1/2/3/4/5/6/7) or Upgrading for Riser and AIOM
JPCIE1	PCIe 5.0 x8 Upgrading Connector for AIOM, NVMe, or Riser
JPI²C1	Power I²C System Management Bus (Power SMB) Header
JPWR1	24-pin ATX Power Connector (Required)
JPWR2, JPWR3	12 V 8-pin CPU Power Connector (To provide alternative power for special enclosure when the 24-pin ATX power is not in use.)
JRK1	Intel RAID Key Header
JRUIO1, JRUIO2	Right LUIO PCIe 5.0 x16
JS1	SATA0–SATA7 Intel PCH SATA 3.0 Ports (with RAID 0, 1, 5, and 10)

Connector	Description
JS2	SATA8–SATA11 Intel PCH SATA 3.0 Ports (with RAID 0, 1, 5, and 10)
JSTBY1	Standby Power Header
JTPM1	Trusted Platform Module/Port 80 Header
JUIDB1	Unit Identifier Switch
JUSBRJ45	Rear I/O USB2/3 Ports (USB 3.2 Gen 1) and Dedicated BMC LAN Port
M.2_MH1–M.2_MH4	M.2 Mounting Holes
USB0/1	Front Accessible USB 2.0 Headers
VGA	VGA Port

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 webpage http://www.supermicro.com/support/manuals/.

Motherboard Block Diagram
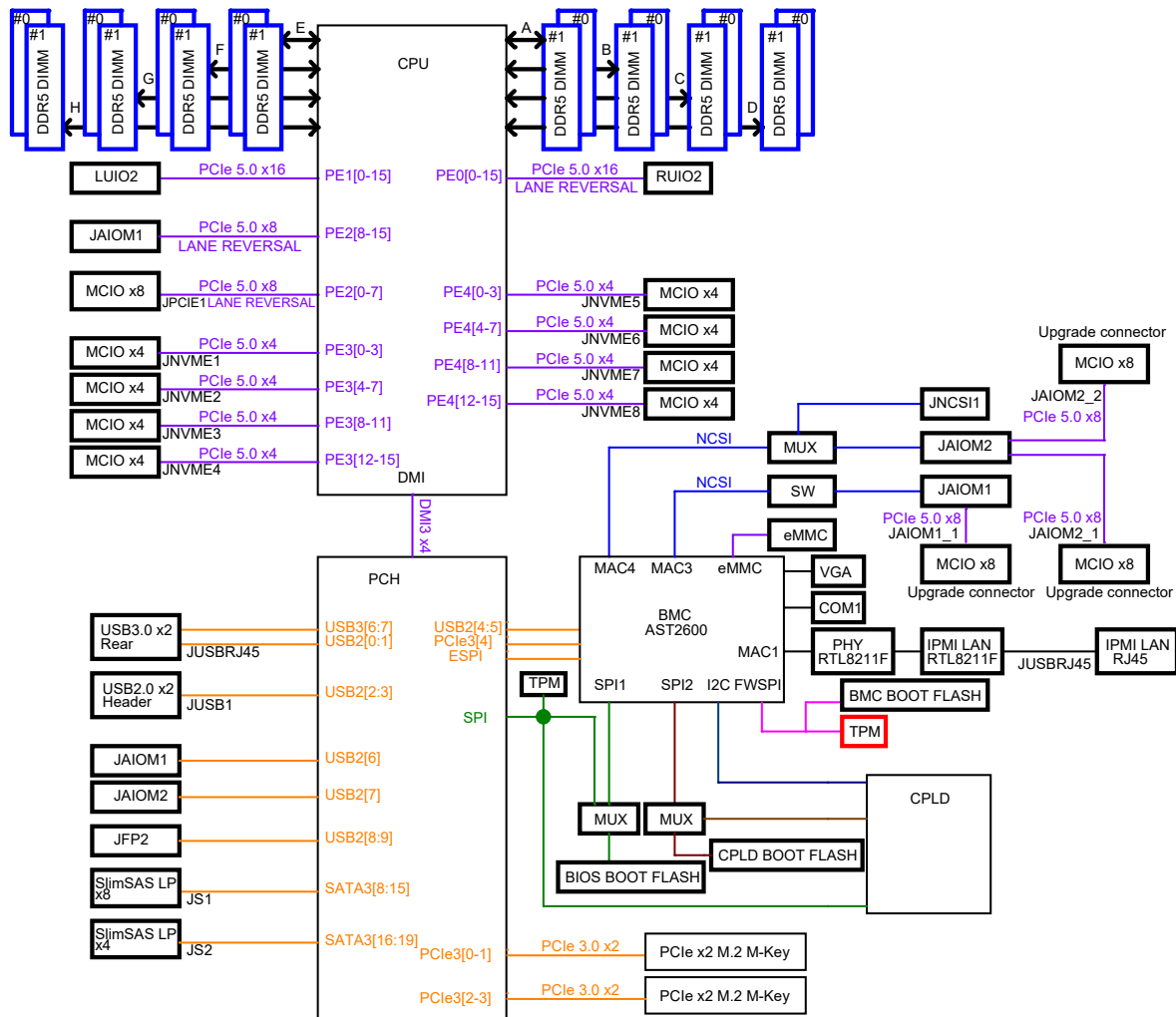
Figure 1-6. Motherboard Block Diagram

Note: This is a general block diagram and may not exactly represent the features on your motherboard. See the previous pages for the actual specifications of the X13SEDW-F.

Chapter 2

Server Installation

2.1 Overview

This chapter provides advice and instructions for mounting your system in a server rack. If your system is not already fully integrated with processors, system memory etc., refer to Chapter 3 for details on installing those specific components.

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

2.2 Unpacking the System

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

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

2.3 Preparing for Setup

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

Choosing a Setup Location

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

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

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

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

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are extended to the floor so that the full weight of the rack rests on them.

- In single rack installations, stabilizers should be attached to the rack. In multiple rack installations, the racks should be coupled together.

- Always make sure the rack is stable before extending a server or other component from the rack.

- You should extend only one server or component at a time - extending two or more simultaneously may cause the rack to become unstable.

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

Server Precautions

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

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

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

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

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

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

Rack Mounting Considerations

Ambient Operating Temperature

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

Airflow

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

Mechanical Loading

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

Circuit Overloading

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

Reliable Ground

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

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

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

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

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

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

2.4 Installing the Server into a Rack

This section provides information on installing the CSE-826S2TS-R1K62P1 chassis into a rack unit with the quick-release rails provided. There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. 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 26.5" and 36.4" deep.

Separating the Sections of the Rack Rails

The chassis package includes two rail assemblies in the rack mounting kit. Each assembly consists of three sections: An inner rail that secures directly to the chassis, an outer rail that secures to the rack, and a middle rail that slides in the outer rail. These assemblies are specifically designed for the left and right side of the chassis.
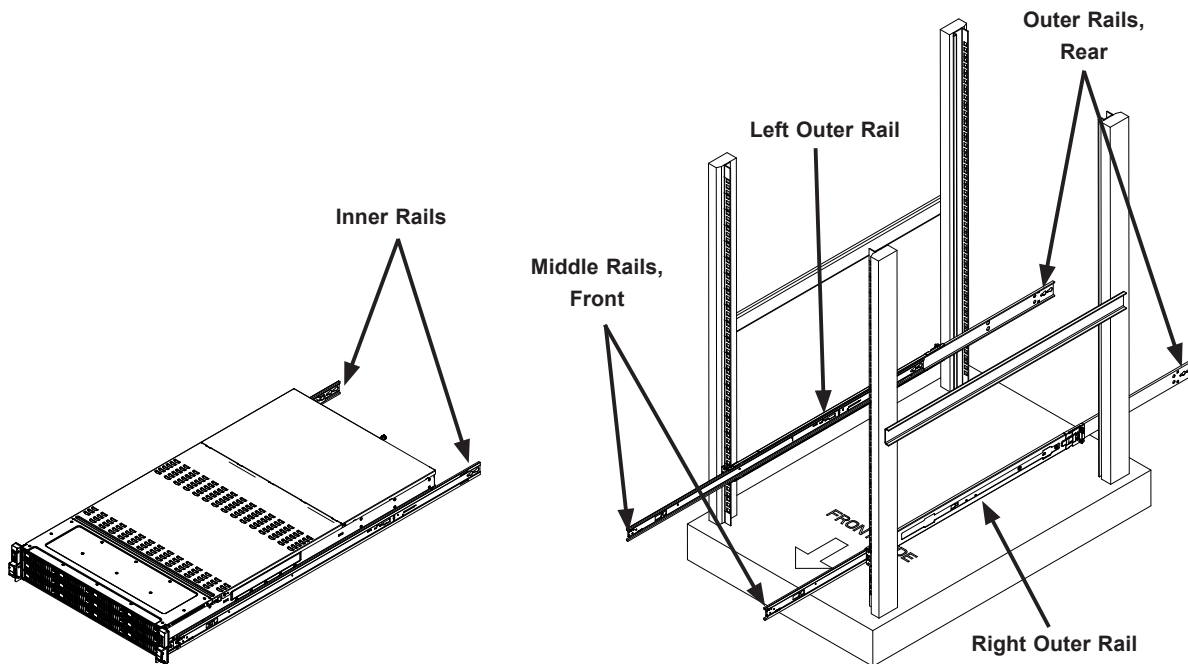
Figure 2-1. Identifying the Inner Rails, Middle Rails and Outer Rails

Note: Figures are for illustrative purposes only. Your actual chassis may differ. Always install servers into racks from the bottom up.

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

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

Releasing the Inner Rail

It is necessary to release the inner rail from the middle and outer rails before installing the inner rail on the chassis.

Releasing the Inner Rail from the Middle and Outer Rails

1. Lift the front latch on the inner rail and pull the inner rail out of the middle rail, and the middle rail out of the outer rail until the rails are fully extended.

2. Press down the locking lever on the inside of the inner rail to release the inner rail. Continue to pull the inner rail out of the middle rail.
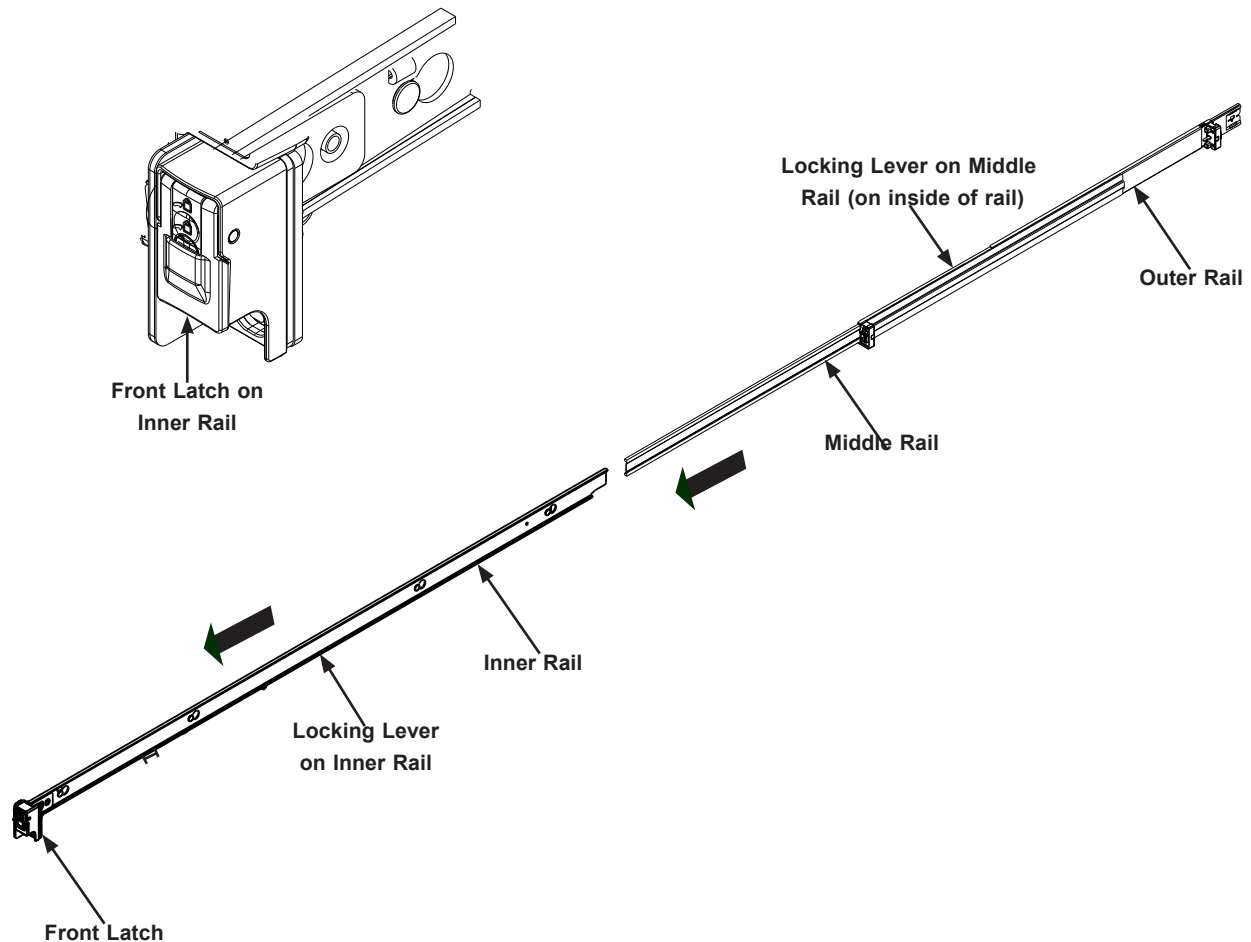
Figure 2-2. Extending the Rails and Releasing the Inner Rail

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

Installing the Inner Rails on the Server

Installing the Inner Rails

1. Confirm that the left and right inner rails have been correctly identified.

2. Place the inner rail firmly against the side of the chassis, aligning the pins on the side of the chassis with the slotted thru holes in the inner rail.

3. Slide the inner rail toward the rear of the chassis until the pins are at the end of the narrow slot, which secures the inner rail to the chassis. An optional screw may be added for extra security.

4. Repeat for the other inner rail.
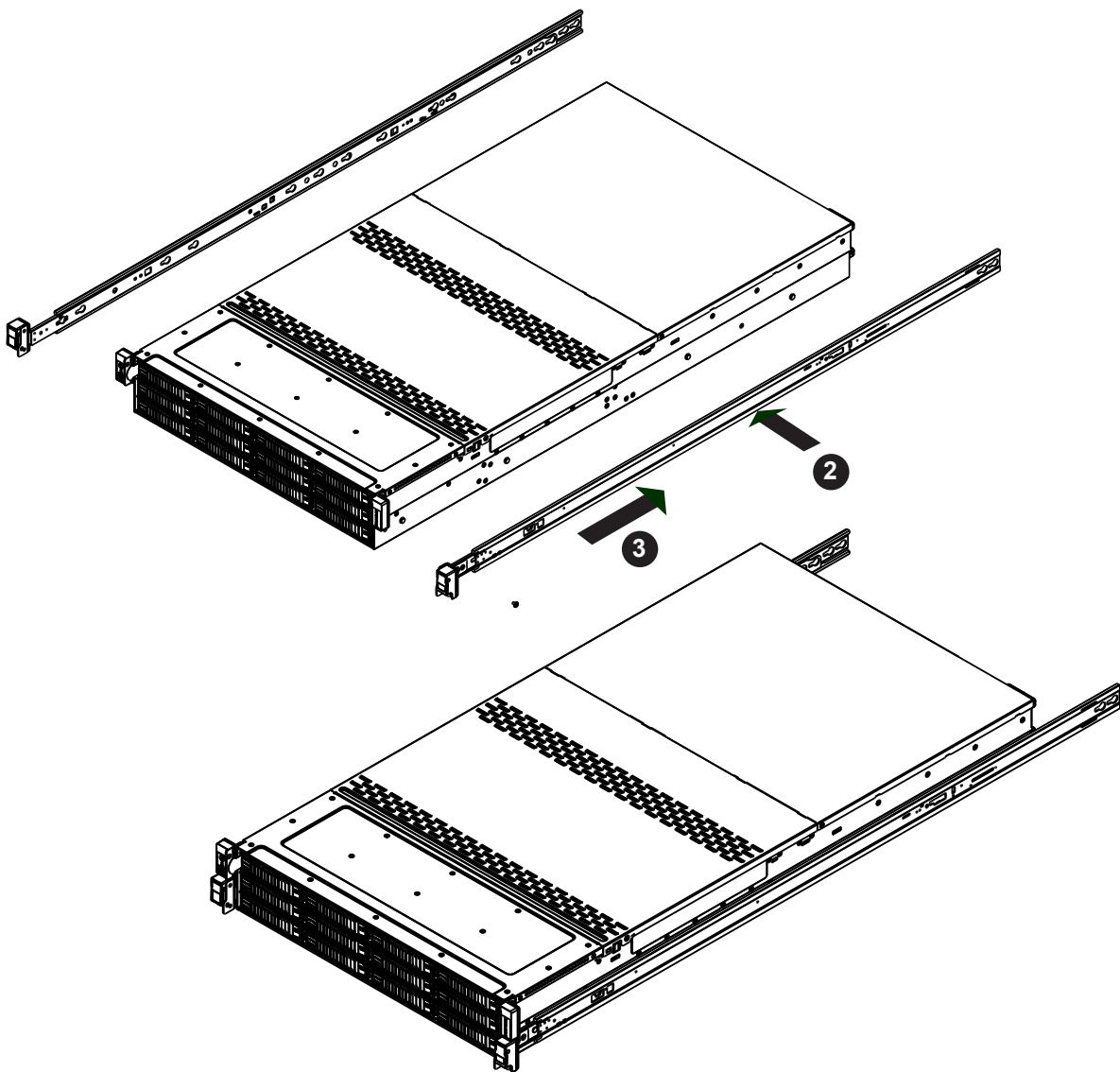
Figure 2-3. Installing the Inner Rails

Installing the Outer Rails on the Rack

Installing the Outer Rails

1. Confirm that the left and right outer rails have been correctly identified.

2. Release the small locking lever on the inside of the middle rail and push the middle rail back into the outer rail.

3. Insert the pins at the front of the outer rail into the square holes on the front of the rack. Push until the latch snaps into place.

4. The outer rail is actually two pieces that slide to lengthen. Pull out the rear of the outer rail, adjusting the length until the square pin assembly passes, then fits against the back of the rear post. Be careful to keep the rail level.

5. Insert the pins at the rear of the outer rail into the square holes on the rear of the rack. Push until the latch snaps into place.

6. Repeat for the other outer rail.

Locking Lever on the Middle Rail
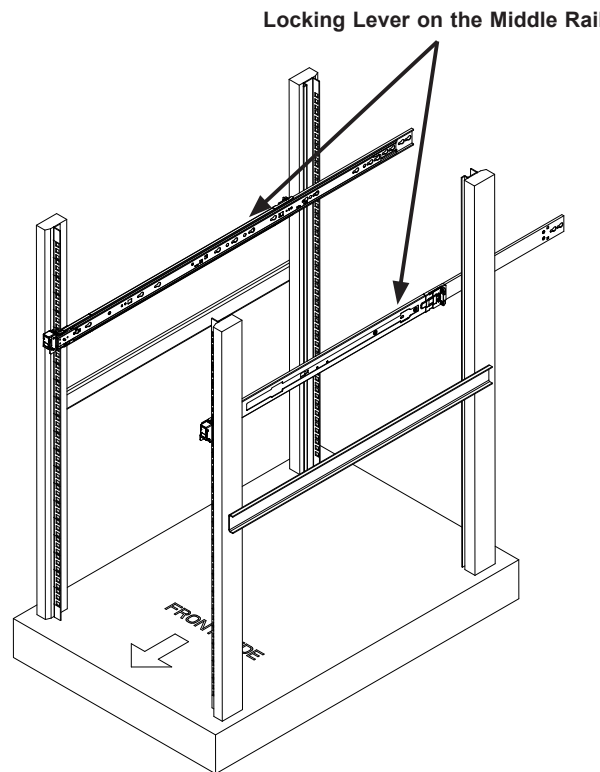
Figure 2-4. Installing the Outer Rails

Note: Figures are for illustrative purposes only. Your actual chassis may differ. Always install servers into racks from the bottom up.

Installing the Server into the Rack

After the rails are installed on the chassis and on the rack, the server can be installed in the rack. It is heavy and requires two to three people to lift.

Installing the Server into a Rack

1. Pull both middle rails out the front of the outer rail until each clicks to a stop.

2. Align the inner rails on the chassis with the front of the middle rails.

3. Slide the inner rails on the chassis into the middle rails, keeping the pressure even on both sides. When partially in, the locking levers will stop further progress.

4. Press down the locking levers on the inside of the inner rails and push the chassis all the way into the rear of the rack. The front latches will click into place.

The chassis is now mounted in the rack. It can be pulled partially out for service by lifting both front latches.
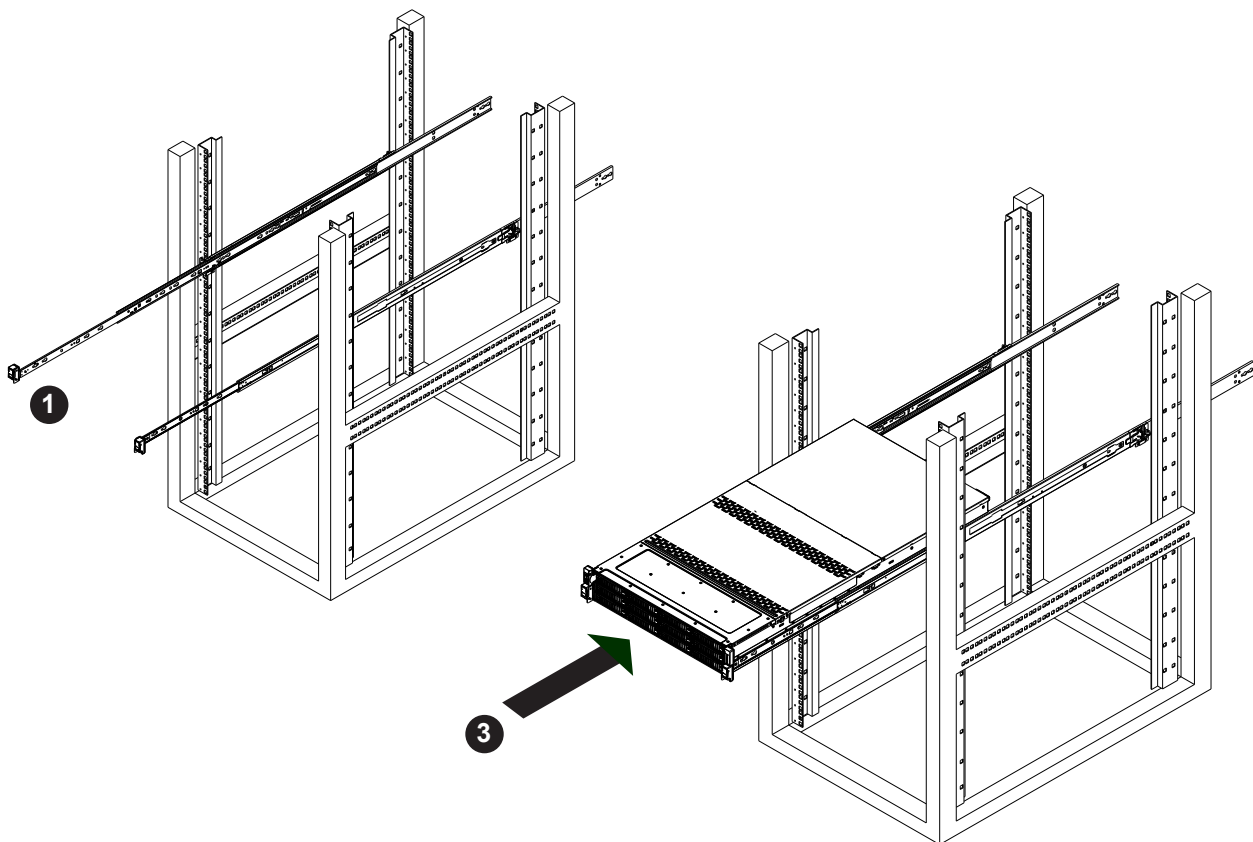
Figure 2-5. Installing the Server into the Rack

Note: Figures are for illustrative purposes only. Your actual chassis may differ. Always install servers into racks from the bottom up.

Removing the Server From the Rack

Caution: The server is heavy and requires two to three people to lift it out.

Removing the Server

1. Lift the right and left front latches which are just below the LED control panels on the front edges of the chassis.

2. Pull the chassis forward until it clicks to a stop.

3. Press down the locking lever on the inside of the inner rail (Figure 2-2) to release the server. Continue to pull the server out of the middle rails.
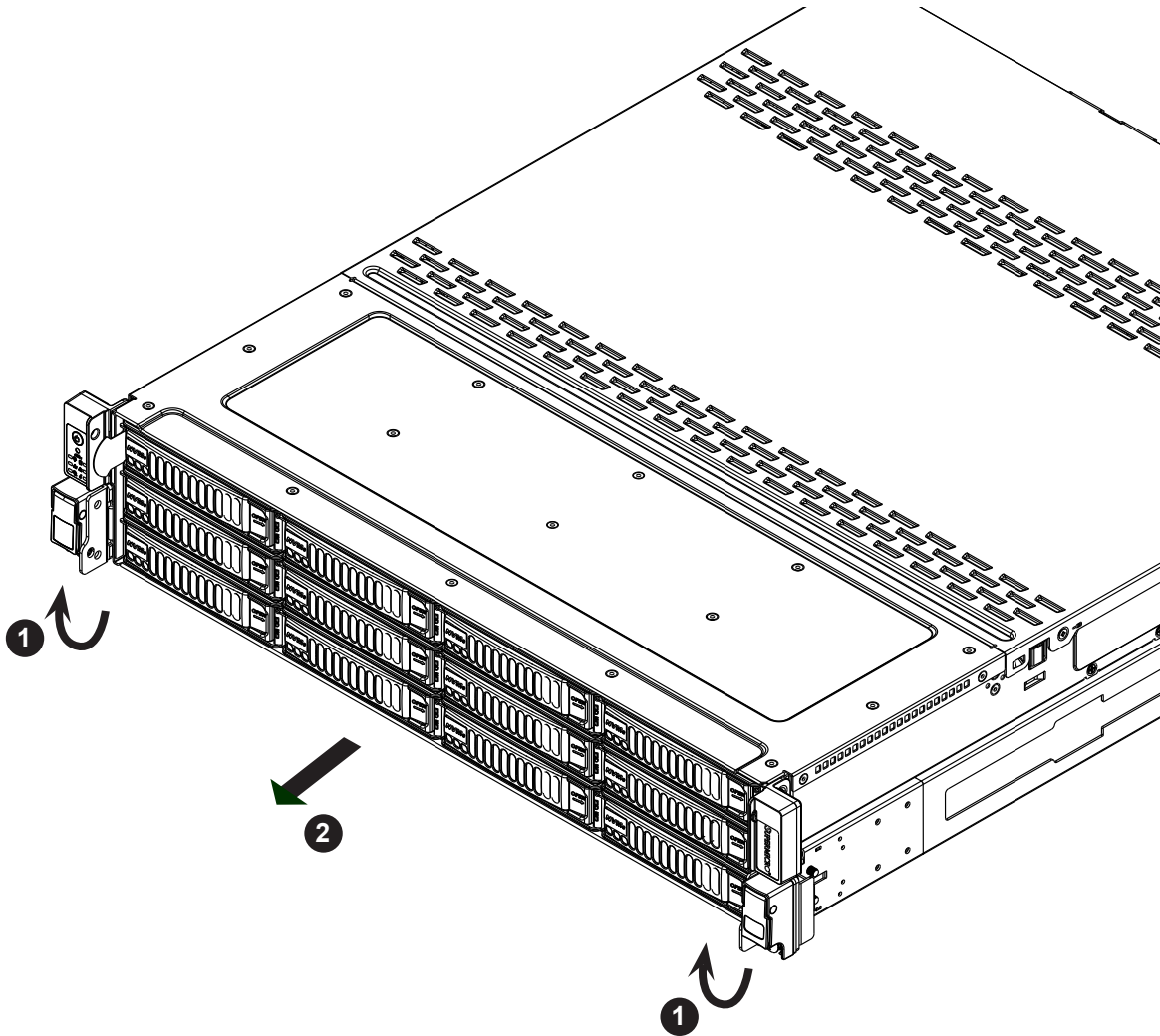
Figure 2-6. Removing the Server from the Rack

Removing the Outer Rails from the Rack

In the uncommon event that it is necessary to remove the outer rails from the rack, follow these instructions. The chassis must be out of the rack.

Releasing the Outer Rails

1. On the front of the outer rail, slide the small plastic safety slider (red in drawing) up and hold it while pushing the plastic release button (green in drawing) just below it.

2. While holding the release button in, pull the outer rail forward to disengage the pins and the front of the rail from the rack.

3. Support the front of the outer and middle rail assembly while releasing the rear.

4. Remove the outer rail from the rear of the rack in the same way as the front. Slide the safety slider up and push and hold the release button, then pull the rear pins out of the rack and remove the rail.
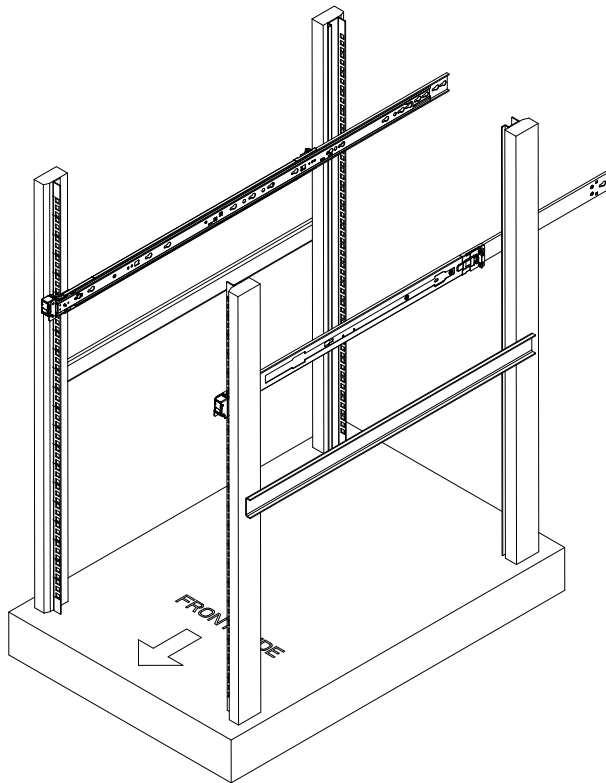
Figure 2-7. Removing the Outer Rails

2.5 Installing the Cable Management Arm

The SC826 chassis supports a cable management arm (CMA) that allows servicing while the server is running. The CMA keeps the rear cables organized and clear of the rail mechanisms when the system is extended out the front of the rack. The kit includes six fabric Velcro cable ties.

WCMA W1428 is packed with one full piece of cable management arm, six Velcro straps and user menu.

1 * WCMA
6 * Velcro strap
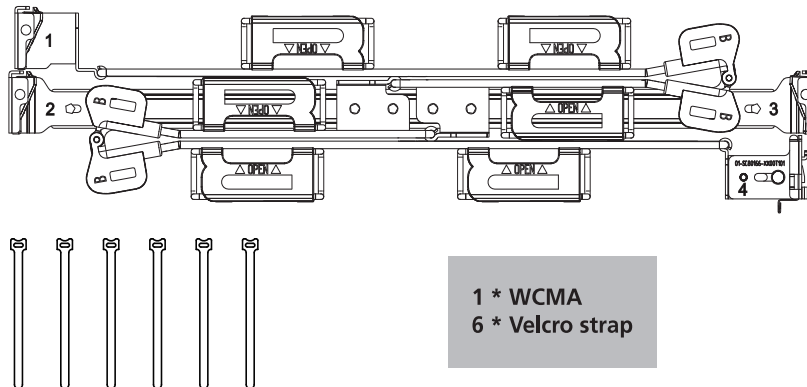
Figure 2-8. Cable Management Arm and Velcro Straps

The CMA attaches to the rack mounting rails by means of four connectors. They are labeled on the connectors 1, 2, 3, and 4.

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.

Note: Example only--
your chassis will look different
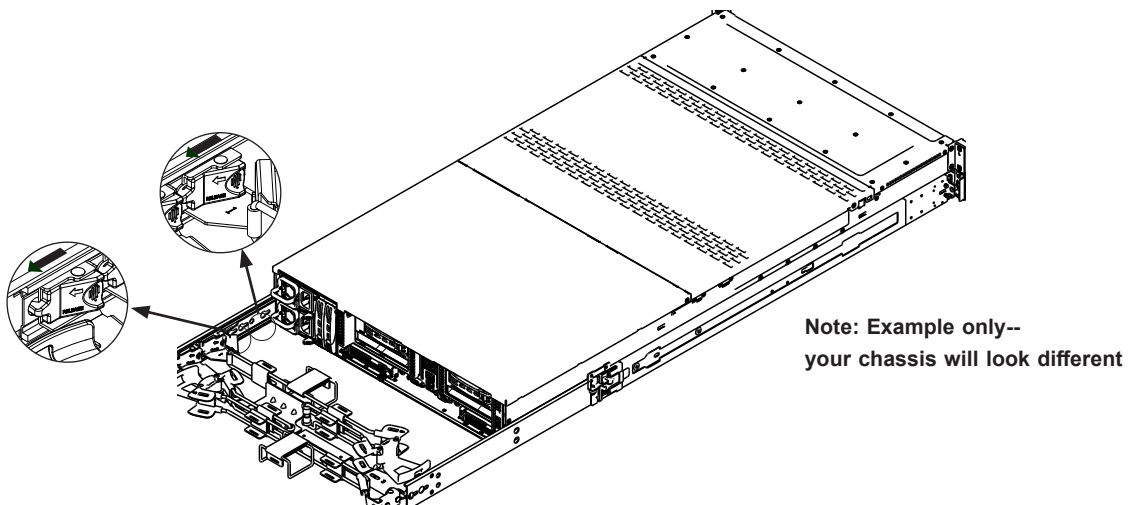
Figure 2-9. Installing the Connectors 1 and 2
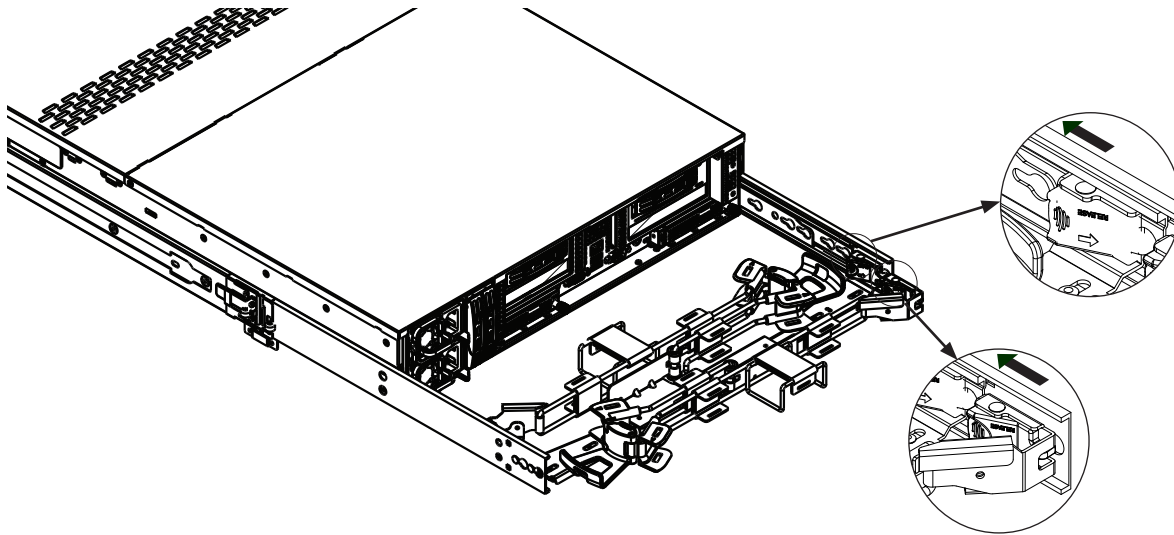
Figure 2-10. Installing the Connectors 3 and 4

1. Slide CMA connector #3 forward onto the two posts on the rear of the left middle rail. It snaps into place.

2. 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.
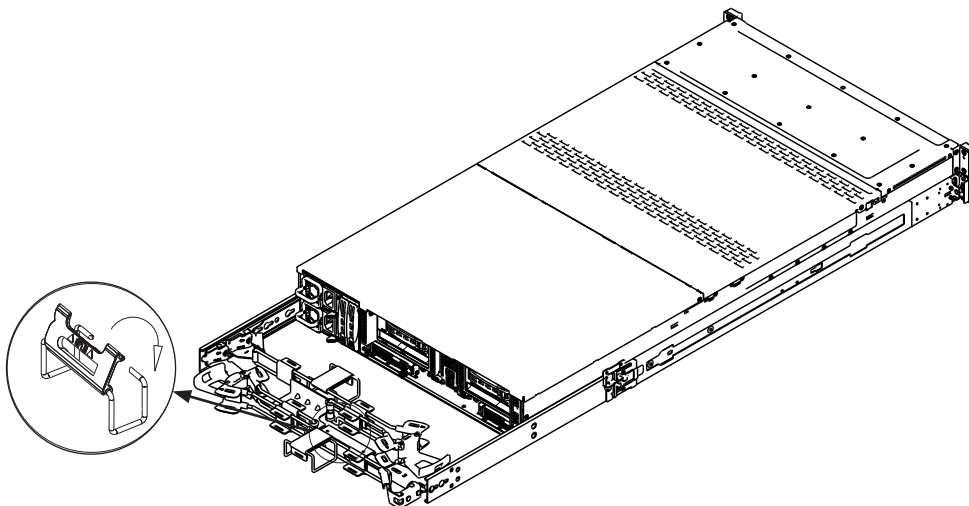
Figure 2-11. Routing the Cables

3. Open the six red plastic caps and route the cables into the wire carrier.

4. Use the six Velcro straps to secure the cables to the CMA. Use a strap on either side of each joint and one on each connector.

5. Slide the chassis forward and backward in the rack to confirm that the cable management arm is operating smoothly.

If at some time you must remove the cable management arm, follow the below procedure.

Removing the Cable Management Arm

1. Remove cables from the CMA, releasing the Velcro straps and the red plastic caps.

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 3

Maintenance and Component Installation

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

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

3.1 Removing Power

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

1. Use the operating system to power down the system.

2. After the system has completely shut-down, disconnect the AC power cord(s) from the power strip or outlet. (If your system has more than one power supply, remove the AC power cords from all power supply modules.)

3. Disconnect the power cord(s) from the power supply module(s).

Note: This caution statement applies when changing any component or subsystem that is not hot-swap/hot-plug.

3.2 Accessing the System

The chassis features a removable top cover for access to the internal components.

Removing the Top Cover

Mid-chassis Cover

The mid-chassis cover can be removed to access the mid-chassis drives or fans while the server continues to operate.

Removing the Mid-chassis Cover

Remove the two screws securing each side of the cover, push in the release buttons, then lift the cover.

Warning: Except for short periods of time, do not operate the server without the cover in place. The chassis cover must be in place to allow for proper airflow and to prevent overheating.
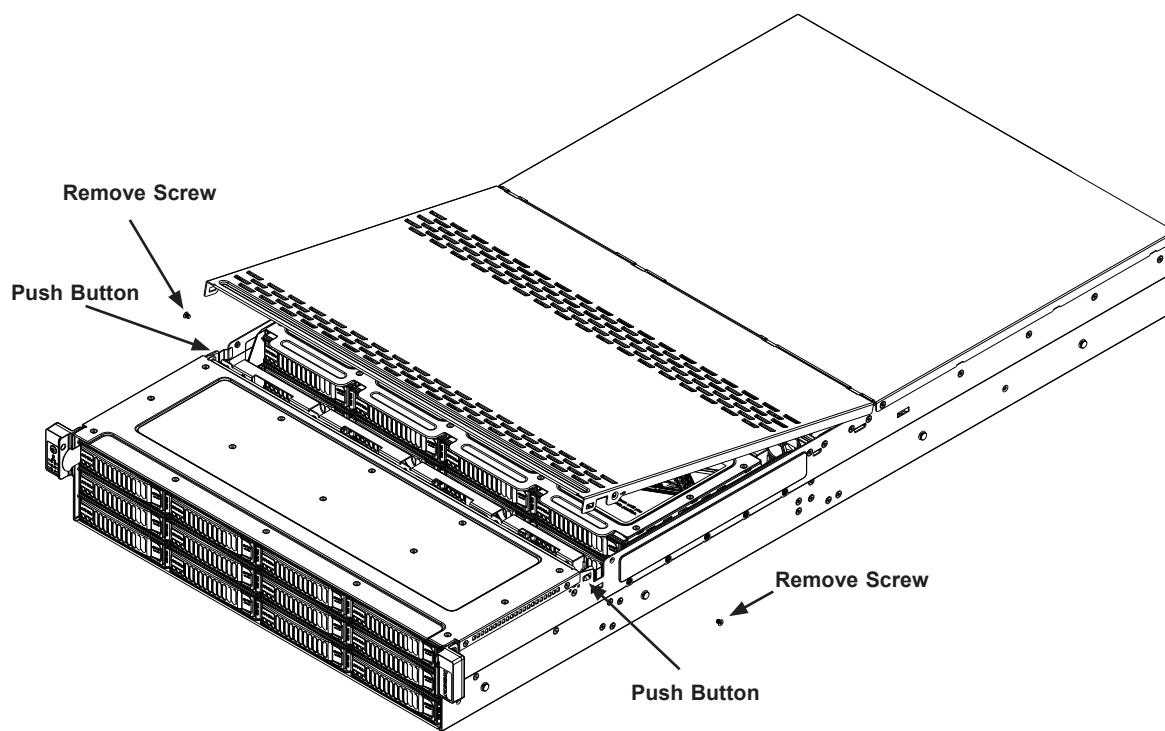
Figure 3-1. Removing the Chassis Cover

Rear Cover

Removing the Rear Cover

Remove the two screws on the side of the chassis and the thumbscrew at the rear of the chassis, then slide the cover to the rear and off.

Remove the Screw

Remove the Screw
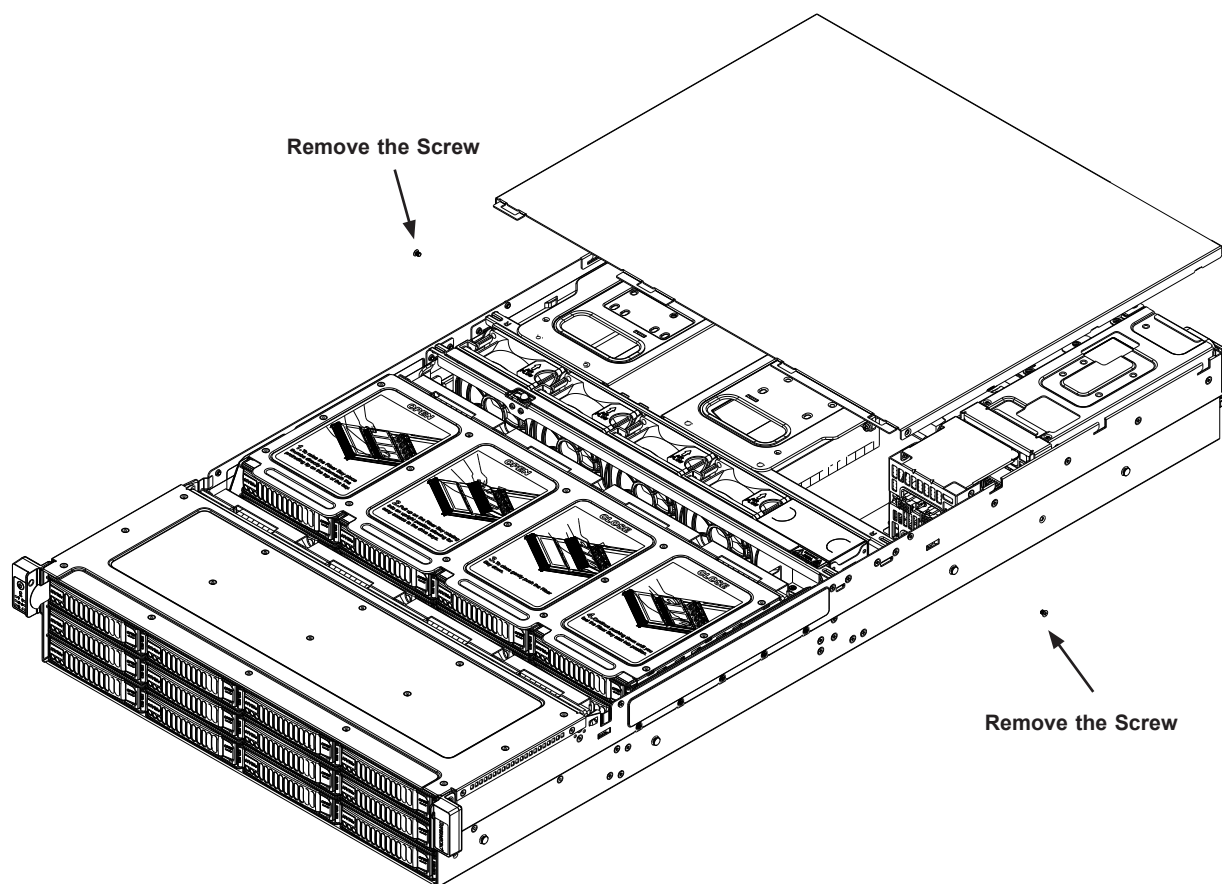
Figure 3-2. Removing the Rear Cover

3.3 Processor and Heatsink Installation

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

Notes:

- Use ESD protection.

- Shut down the system and then unplug the AC power cord from all power supplies.

- Check that the plastic protective cover is on the CPU socket and none of the socket pins are bent. If they are, contact your retailer.

- When handling the processor, avoid touching or placing direct pressure on the LGA lands (gold contacts). Improper installation or socket misalignment can cause serious damage to the processor or socket, which may require manufacturer repairs.

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

- Thermal grease is pre-applied on a new heatsink. No additional thermal grease is needed.

- Refer to the Supermicro website for updates on processor support.

- All graphics in this manual are for illustration purposes only. Your components may look different.

- Please order the CPU carrier to pair with the CPU.

CPU carrier for 4th and 5th Generation Intel Xeon Scalable Processors (XCC)	SKT-1333L-0000-FXC
CPU carrier for 4th and 5th Generation Intel Xeon Scalable Processors (MCC)	SKT-1424L-001B-FXC
CPU carrier for 4th Generation Intel Xeon Scalable Processors (HBM)	SKT-1425H-101C-FXC

The 5th/4th Generation Intel Xeon Scalable Processor
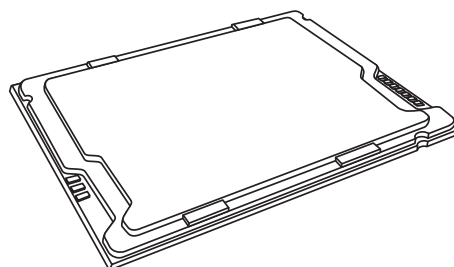
Intel Xeon Processor

Overview of the Processor Carrier Assembly

The processor carrier assembly contains the Intel Xeon processor and a processor carrier.

1. Intel Xeon Processor
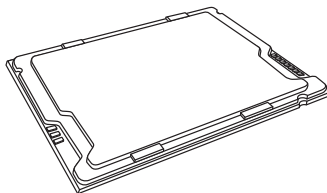
2. Processor Carrier
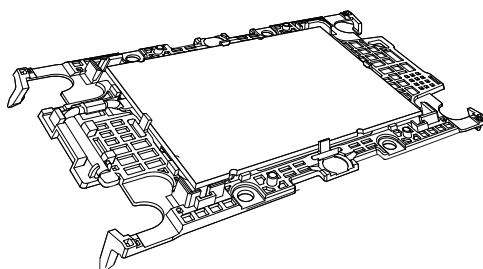
Overview of the CPU Socket

The CPU socket is protected by a plastic protective cover.

1. Plastic Protective Cover
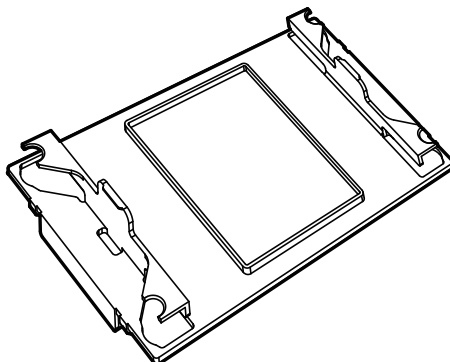
2. CPU Socket
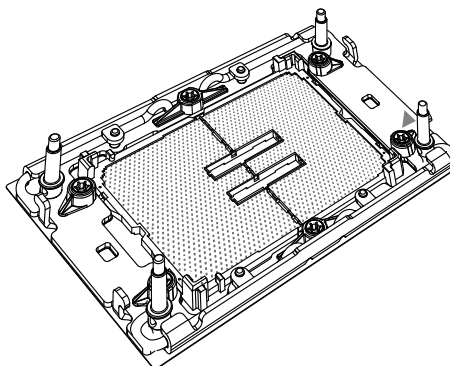
Overview of the Processor Heatsink Module

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

1. Heatsink with Thermal Grease
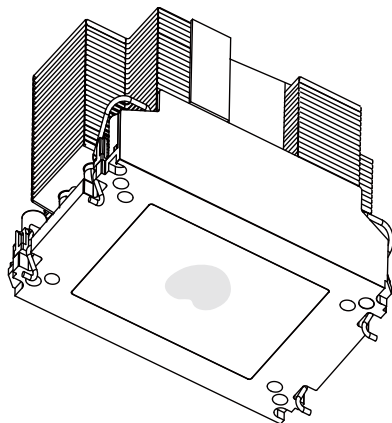
2. Processor Carrier
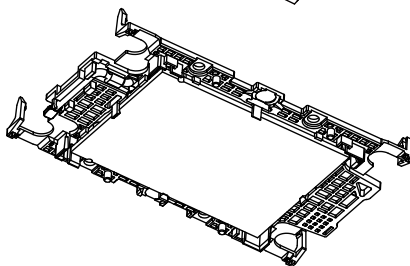
3. Intel Xeon Processor
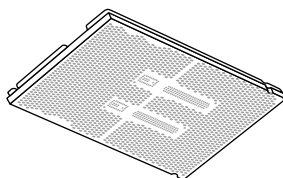
Processor Heatsink Module (PHM)
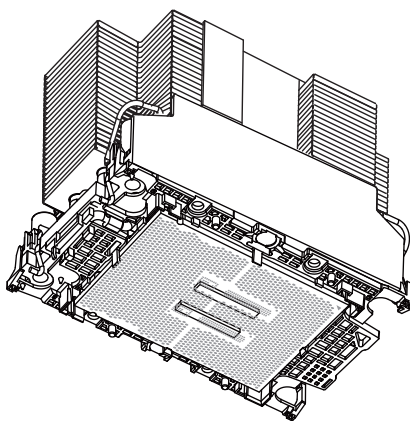
Bottom View

Creating the Processor Carrier Assembly

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

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

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. See the images below.

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

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

Pin 1

Make sure the lever is pressed down before installing the processor.

A

B

Processor Carrier Assembly
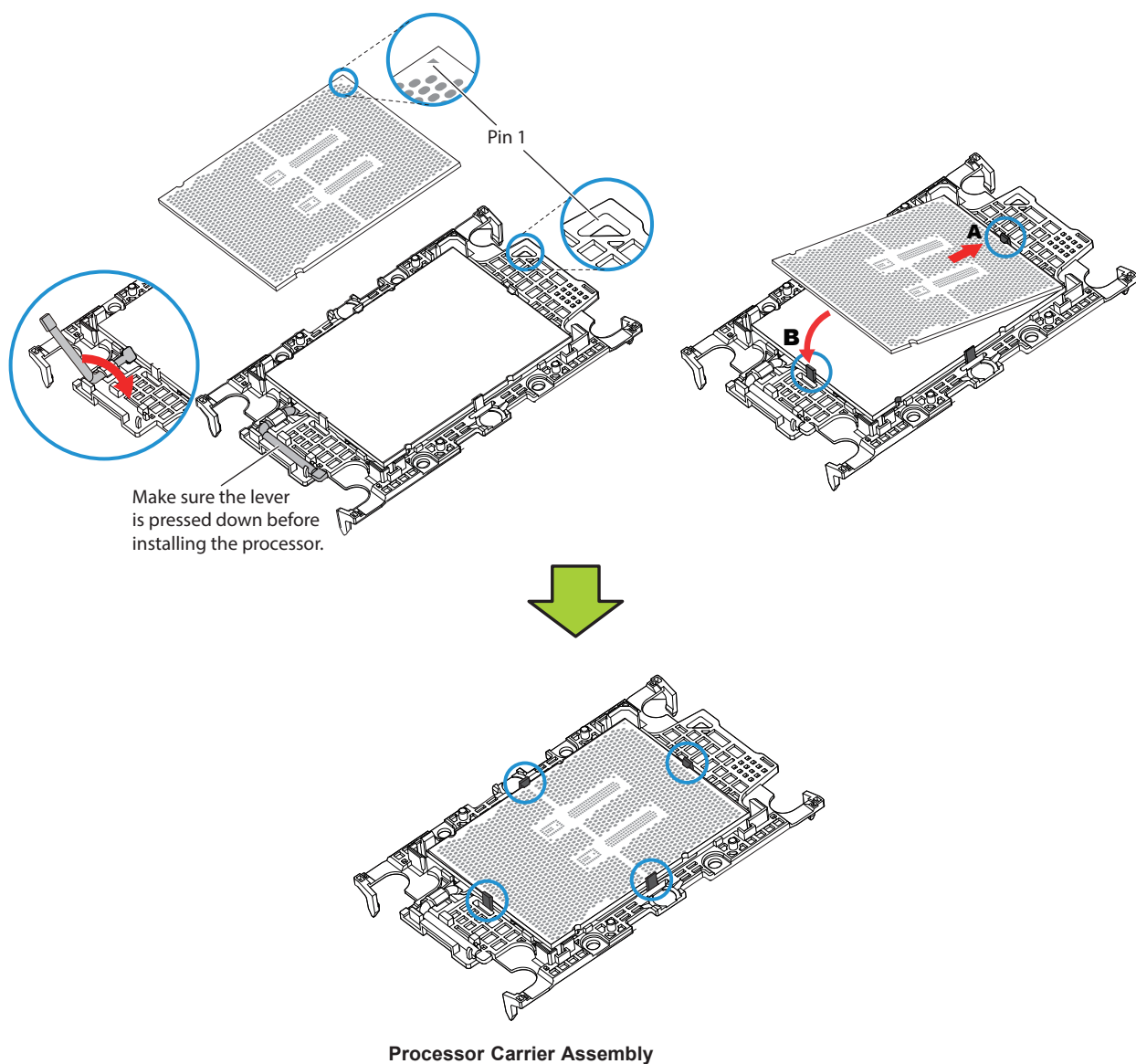
Assembling the Processor Heatsink Module

After creating the processor carrier assembly for the processor, 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 assembly so the processor's gold contacts are facing up, then align the holes of the processor carrier assembly with the holes on the heatsink. Press the processor carrier assembly down until it snaps into place. The plastic clips of the processor carrier assembly will lock at the four corners.

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

Processor Carrier Assembly
(Upside Down)

Triangle on the CPU

Thermal grease

Triangle on the processor carrier

Airflow direction
(Refer to the airflow arrow on the heatsink label to orient the heatsink)

Check each corner to ensure that the processor carrier is firmly attached to the heatsink.
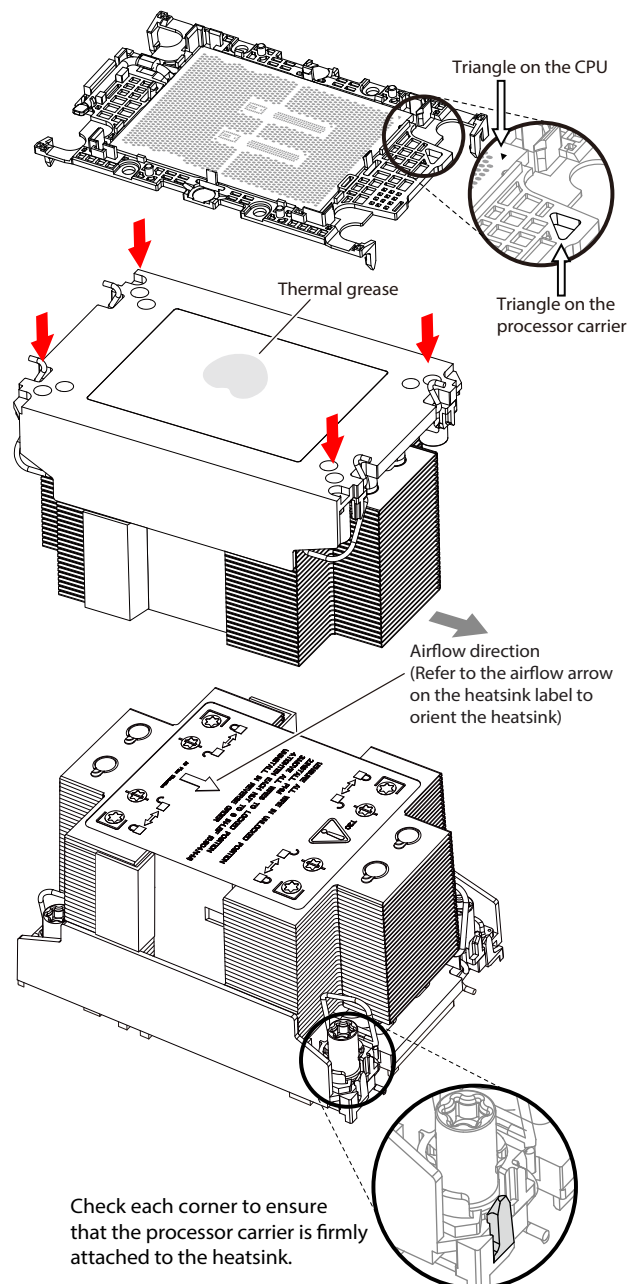
Preparing the CPU Socket for Installation

This motherboard comes with a plastic protective cover installed on the CPU 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.
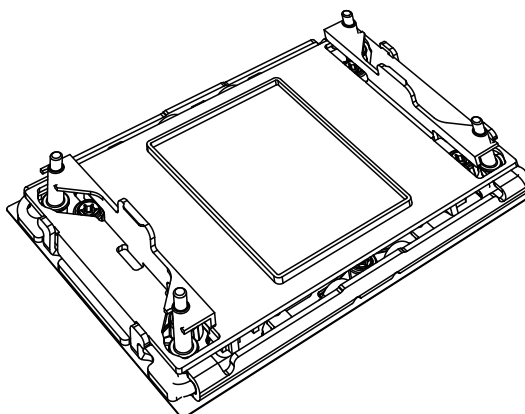
CPU Socket with Plastic Protective Cover

Remove the plastic protective cover from the CPU socket. Do not touch or bend the socket pins.

Socket Pins
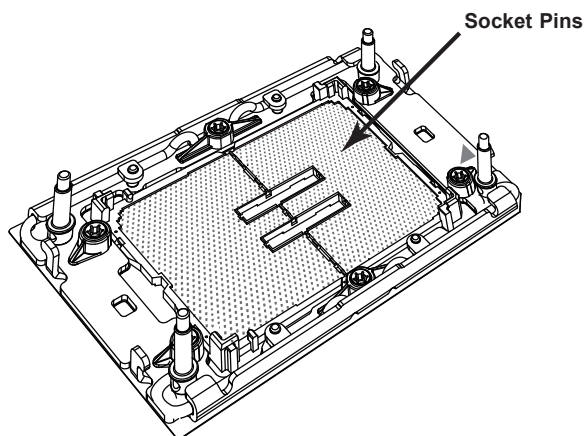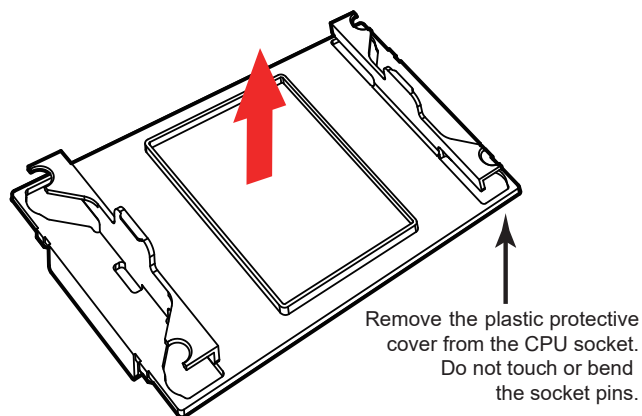
Installing the Processor Heatsink Module

After assembling the Processor Heatsink Module (PHM), install it onto the CPU socket:

1. Align pin 1 of the PHM with the printed triangle on the CPU socket. See the left image below.

2. Make sure all four holes of the heatsink are aligned with the socket, then gently place the heatsink on top of the CPU socket.

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

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

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

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

Airflow direction

Pin 1

Printed Triangle

Mount the Processor Heatsink Module
onto the CPU socket (on the motherboard).

T30 Torque Driver

**Use a force
of 8 in-lbf**

8.0
in-lbf
0.904
N-m

Press the rotating wires outwards to latch
the PHM and then tighten the four screws.

43
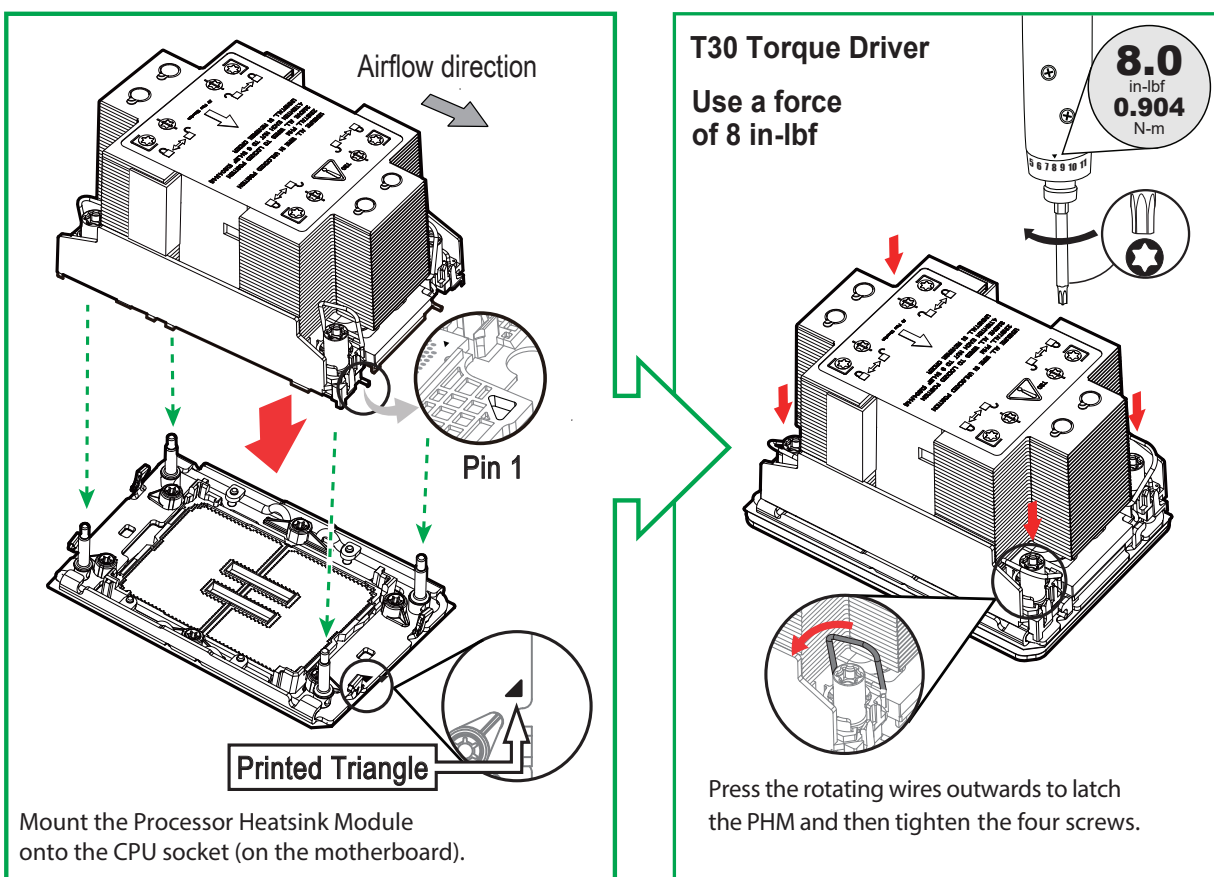
Removing the Processor Heatsink Module

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 T30 torx-bit screwdriver to loosen the four screws. You can start with any screw, but make sure to loosen the screws in a diagonal pattern.

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

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

4. To remove the CPU, move the lever to its unlocked position and gently remove the CPU.

Press the four rotating wires inwards to unlatch the PHM.

CPU Socket
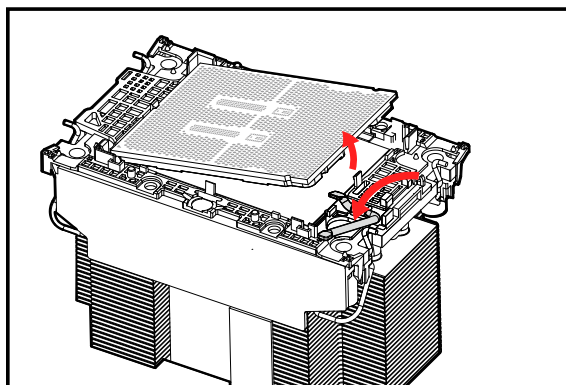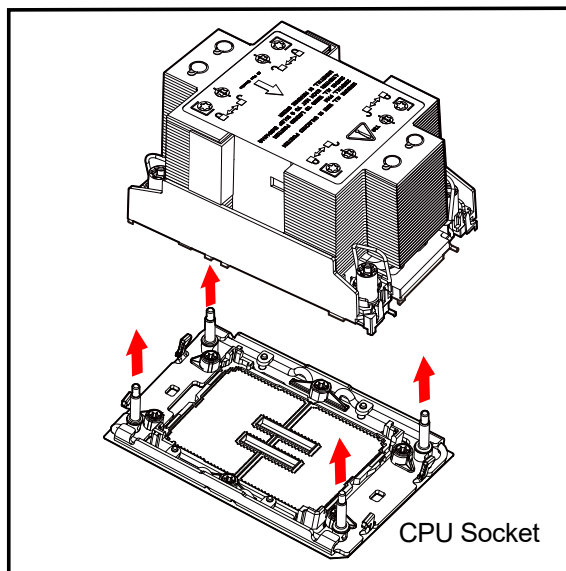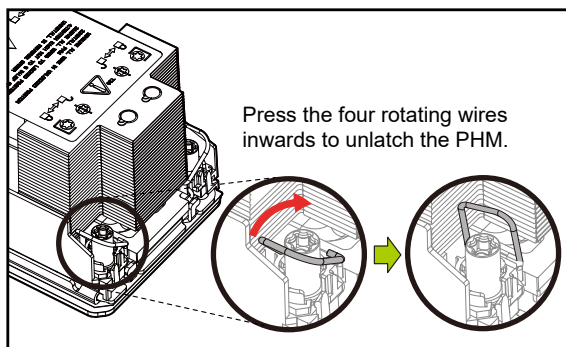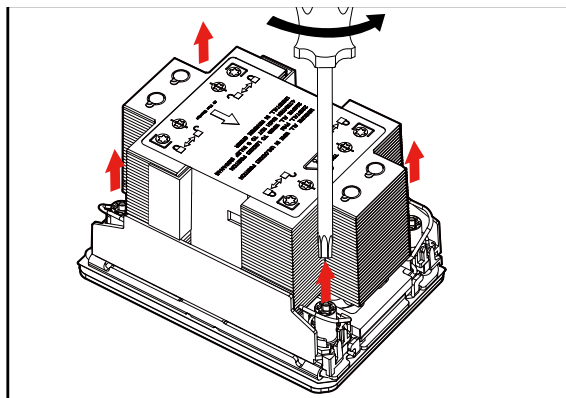
3.4 Memory

Note: Check the Supermicro website for recommended memory modules.

Important: Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

Memory Support

The X13SEDW-F motherboard supports up to 4 TB of ECC RDIMM and RDIMM 3DS DDR5 memory in 16 memory slots. The 4th Generation Intel Xeon Scalable Processor memory has speeds of up to 4800 MT/s (4400 MT/s when fully populated), while the 5th Generation Intel Xeon Scalable Processor memory has speeds of up to 5600 MT/s (4800 MT/s when fully populated). Refer to the table below for the recommended DIMM population order.

1 CPU, 16 DIMM Slots	
Number of DIMMs	**Memory Population Sequence**
1	DIMMA1 DIMME1 DIMMB1 DIMMF1
2	DIMMA1 / DIMMG1 DIMMC1 / DIMME1
4	DIMMA1 / DIMMG1 / DIMMC1 / DIMME1
6	DIMMA1 / DIMMG1 / DIMMC1 / DIMME1 / DIMMD1 / DIMMF1 DIMMA1 / DIMMG1 / DIMMC1 / DIMME1 / DIMMB1 / DIMMH1 DIMMC1 / DIMME1 / DIMMB1 / DIMMH1 / DIMMD1 / DIMMF1 DIMMA1 / DIMMG1 / DIMMB1 / DIMMH1 / DIMMD1 / DIMMF1
8	DIMMA1 / DIMMG1 / DIMMB1 / DIMMH1 / DIMMD1 / DIMMF1 / DIMMC1 /DIMME1
12	DIMMA1 / DIMMA2 / DIMMB1 / DIMMC1 / DIMMC2 / DIMMD1 / DIMME1 / DIMME2 / DIMMF1 / DIMMG1 / DIMMG2 / DIMMH1 DIMMA1 / DIMMB1 / DIMMB2 / DIMMC1 / DIMMD1 / DIMMD2 / DIMME1 / DIMMF1 / DIMMF2 / DIMMG1 / DIMMH1 / DIMMH2
16	DIMMA1 / DIMMA2 / DIMMB1 / DIMMB2 / DIMMC1 / DIMMC2 / DIMMD1 / DIMMD2 / DIMME1 / DIMME2 / DIMMF1 / DIMMF2 / DIMMG1 / DIMMG2 / DIMMH1 / DIMMH2

1 HBM CPU, 16 DIMM Slots	
Number of DIMMs	**Memory Population Sequence**
0	
1	DIMMA1 DIMME1
2	DIMMA1 / DIMMG1 DIMMC1 / DIMME1
4	DIMMA1 / DIMMG1 / DIMMC1 / DIMME1
8	DIMMA1 / DIMMG1 / DIMMC1 / DIMME1 / DIMMD1 / DIMMF1 / DIMMB1 / DIMMH1
16	DIMMA1 / DIMMA2 / DIMMB1 / DIMMB2 / DIMMC1 / DIMMC2 / DIMMD1 / DIMMD2 / DIMME1 / DIMME2 / DIMMF1 / DIMMF2 / DIMMG1 / DIMMG2 / DIMMH1 / DIMMH2

Compatible and Incompatible DIMM Types in a Channel and a System			
DIMM Type	**RDIMM**	**RDIMM 3DS**	**9x4 RDIMM**
RDIMM	Compatible	Incompatible	Incompatible
RDIMM 3DS	Incompatible	Compatible	Incompatible
9x4 RDIMM	Incompatible	Incompatible	Compatible

DDR5 Memory Support for the 4th Generation Intel® Xeon® Scalable Processors-SP					
Type	**Ranks Per DIMM and Data Width (Stack)**	**DIMM Capacity (GB)**		**Speed (MT/s)**	
				One DIMM per Channel [1]	**Two DIMMs per Channel**
		Memory Density 16 Gb	**Memory Density 24 Gb[2]**	**1.1 Volts**	
RDIMM	SRx8 (RC D)	16 GB	24 GB	4800*	4400*
	SRx4 (RC C)	32 GB	48 GB		
	SRx4 (RC F) 9x4	32 GB	NA		
	DRx8 (RC E)	32 GB	48 GB		
	DRx4 (RC A)	64 GB	96 GB		
	DRx4 (RC B) 9x4	64 GB	NA		
RDIMM 3DS	(4R/8R) x4 (RC A)	2 H-128 GB 4 H-256 GB	NA		

*Memory speed and capacity support depends on the processors used in the system.

Note 1: 1DPC applies to 1SPC or 2SPC implementations (SPC – sockets per channel).

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

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

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

DDR5 Memory Support for the 5th Generation Intel® Xeon® Scalable Processors-SP					
Type	Ranks Per DIMM and Data Width (Stack)	DIMM Capacity (GB)		Speed (MT/s)	
				One DIMM per Channel [1]	Two DIMMs per Channel
		Memory Density 16 Gb	Memory Density 24 Gb	1.1 Volts	
RDIMM	SRx8 (RC D)	16 GB	24 GB[2]	5600*	4400*
	SRx4 (RC C)	32 GB	48 GB[2]		
	SRx4 (RC F) 9x4	NA	NA		
	DRx8 (RC E)	32 GB	48 GB[2]		
	DRx4 (RC A)	64 GB	96 GB		
	DRx4 (RC B) 9x4	NA	NA		
RDIMM 3DS	(4R/8R) x4 (RC A)	2 H-128 GB 4 H-256 GB	NA		

*Memory speed and capacity support depends on the processors used in the system.

Note 1: 1DPC applies to 1SPC or 2SPC implementations (SPC – sockets per channel).

Note 2: 24 Gb, 24 GB, and 48 GB DRAM density is not supported in 2DPC.

Note 3: Memory speed will be 5600 MT/s 1DPC and 4400 MT/s 2DPC.

Note 4: For 1DPC 5600 speed, DDR5-5600 DIMMs are required.

Note 5: Mixing DRAM Density (16 Gb/24 Gb) and/or Frequency is not allowed.

General Guidelines for Optimizing Memory Performance

- It is recommended to use DDR5 memory of the same type, size, and speed.

- Mixed DIMM speeds can be installed. However, all DIMMs will run at the speed of the slowest DIMM.

- To achieve the best memory performance, a balanced memory population is recommended.

- The motherboard will not support an odd number of modules except for a single DIMM module necessary for board operation. To achieve the best memory performance, a balanced (even number) memory population is recommended.
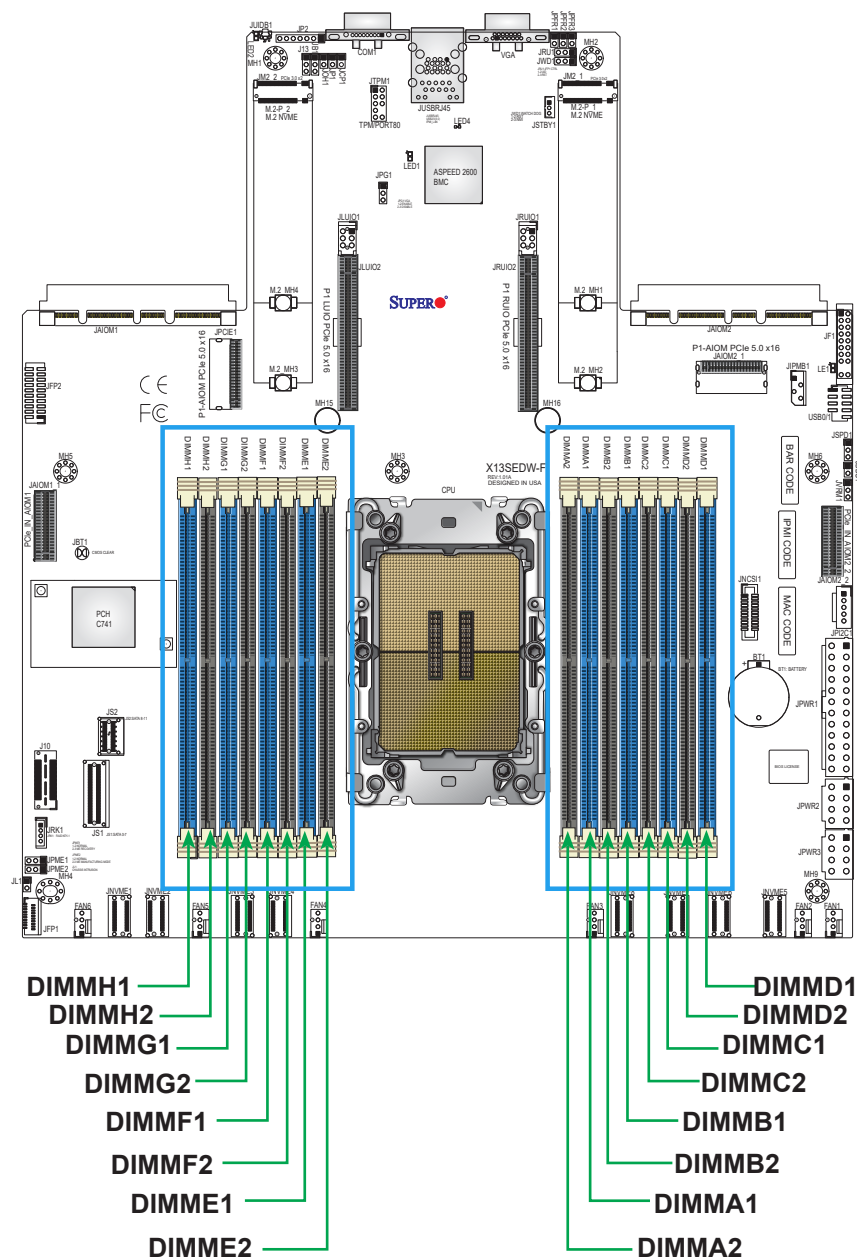
Figure 3-3. DIMM Numbering

DIMM Installation

1. Insert the desired number of DIMMs into the memory slots based on the Recommended Memory Population Guide tables on the previous page.

2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.

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

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

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

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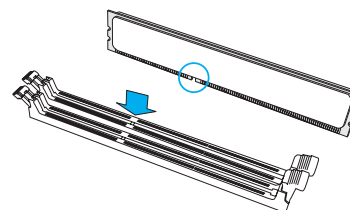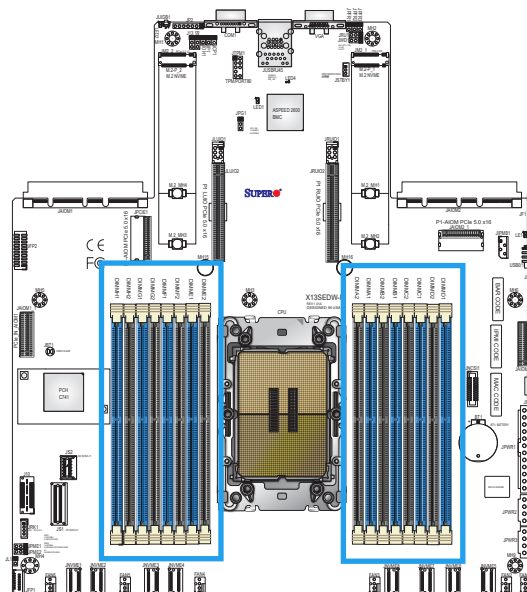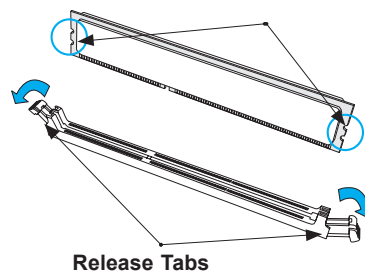
DIMM Removal

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

Notches

Release Tabs

Push both ends straight down into the memory slot.

3.5 Motherboard Battery

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

Replacing the Battery

Begin by removing power from the system.

1. Push aside the small clamp that covers the edge of the battery. When the battery is released, lift it out of the holder.

2. To insert a new battery, slide one edge under the lip of the holder with the positive (+) side facing up. Then push the other side down until the clamp snaps over it.

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

LITHIUM BATTERY

BATTERY HOLDER
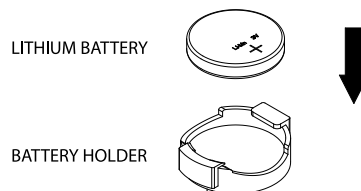
Figure 3-4. Installing the Onboard Battery

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

3.6 Storage Drives

The systems support 24 hot-swap 3.5" SAS3/SATA3. For compatible storage drives, use the X13SEDW-F motherboard page.

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

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

Installing Drives

Figure 3-5. Logical Drive Numbers

Removing Drive Carriers from the Server

1. To access mid-chassis drives, open the mid-chassis cover and lift the drive rack.

2. Slide the release button toward the side of the drive carrier, which extends the drive carrier handle.

3. Use the drive carrier handle to pull the drive out of the chassis.
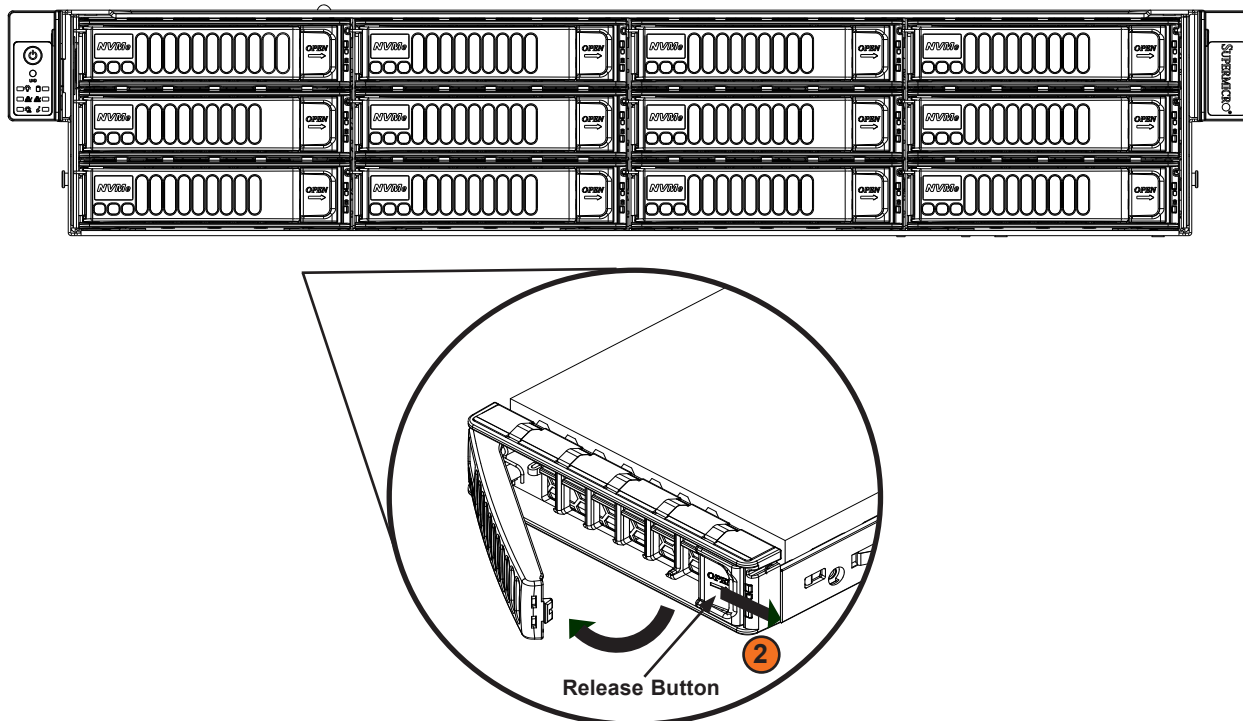
Figure 3-6. Removing a Drive Carrier

**Additional 12
internal drives**
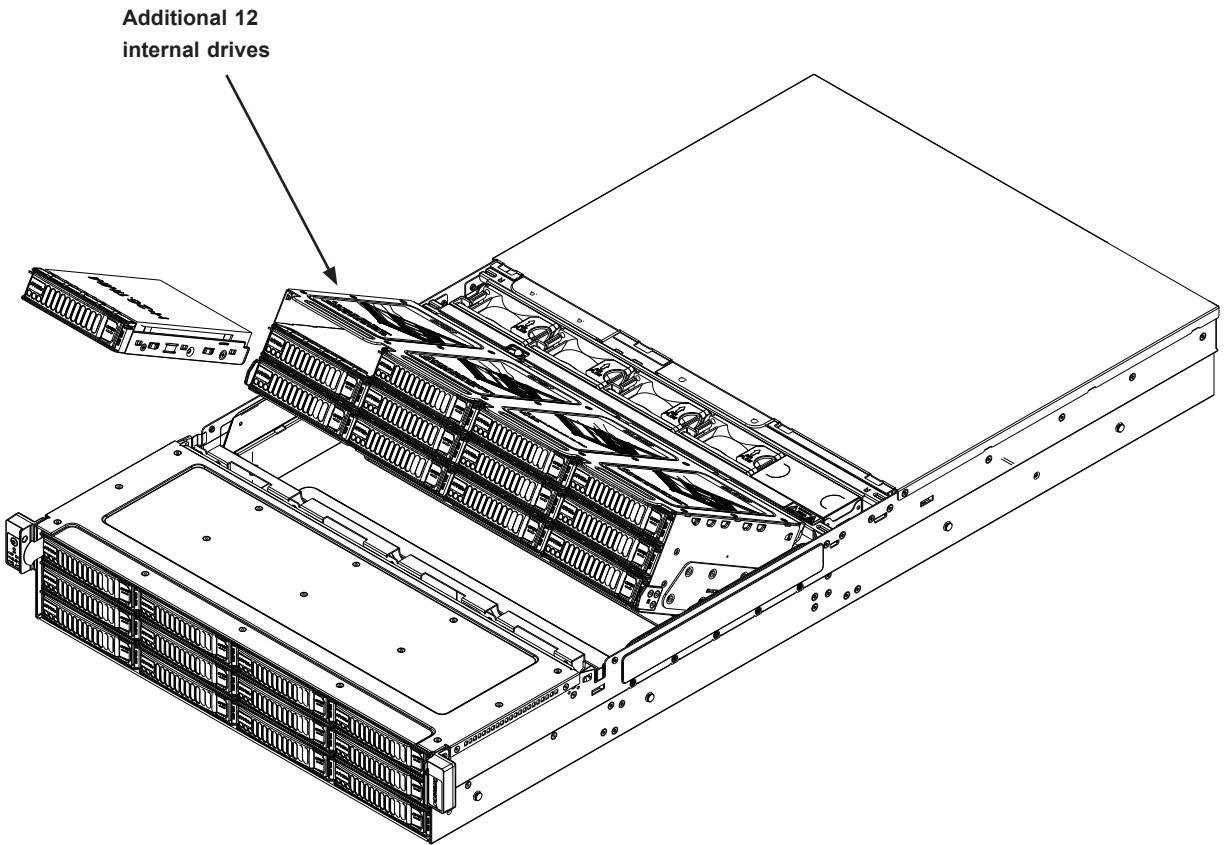
Figure 3-7. Removing Internal Drives

Installing a Drive

1. Remove the screws securing the dummy drive to the carrier.

2. Remove the dummy drive from the carrier.
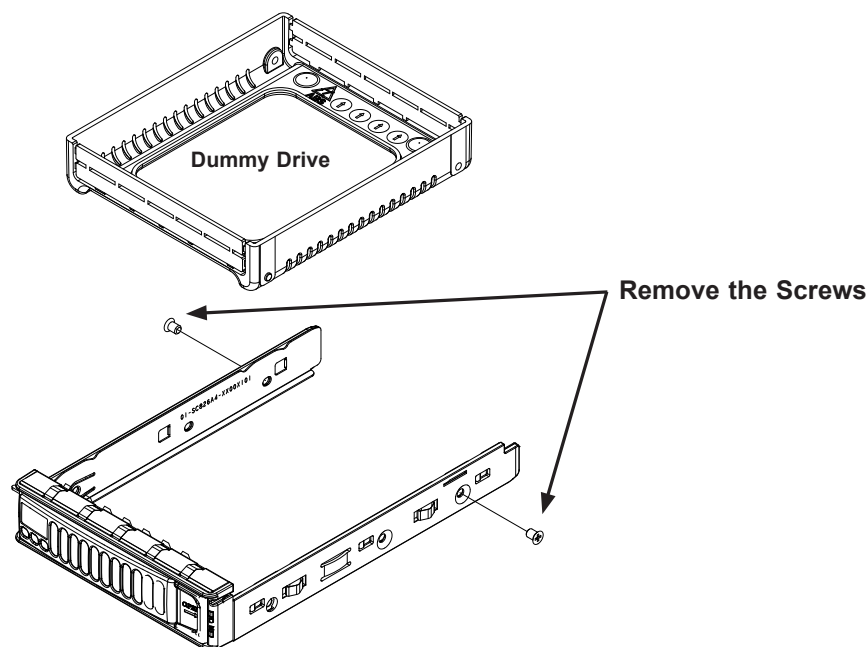
Figure 3-8. Removing a Dummy Drive from the Drive Carrier

3. Insert the drive into the carrier with the printed circuit board side facing downward and so that the mounting holes in the drive align with those in the carrier.

4. Secure the drive to the carrier with the four screws included with the drive.

5. Insert the drive and carrier into its bay, keeping the carrier oriented so that the release button is on the right. When the carrier reaches the rear of the bay, the release handle will retract.

6. Using the thumb, push the drive carrier handle until it clicks into the locked position.
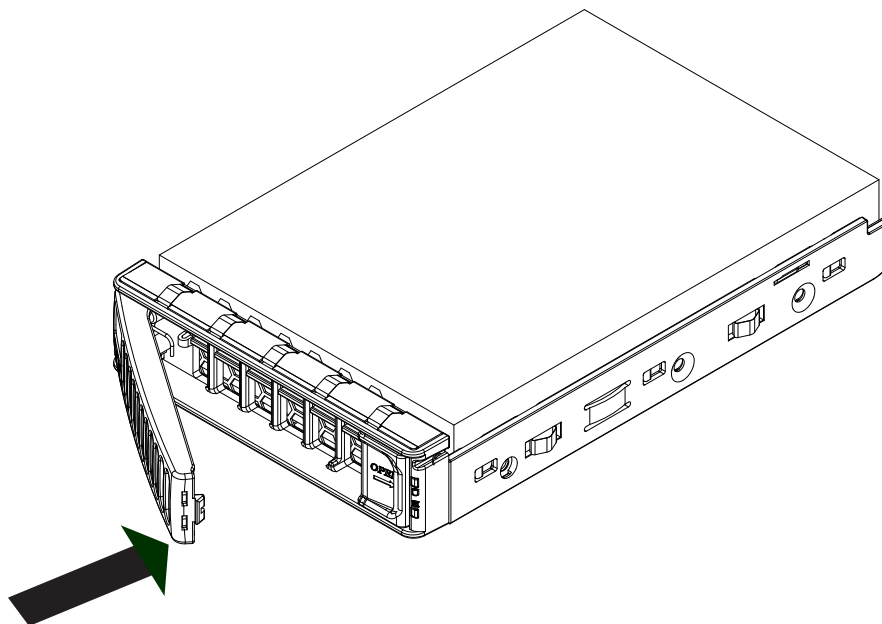
Figure 3-9. Locking the Drive Carrier in Place

Caution: Except for short periods of time, such as swapping storage drives, do not operate the server with the drive bays empty.

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

Installing Rear Storage Drives

The four optional drives and two standard vertically-mounted drives in the rear of the chassis are installed in the same way as the main storage drives.
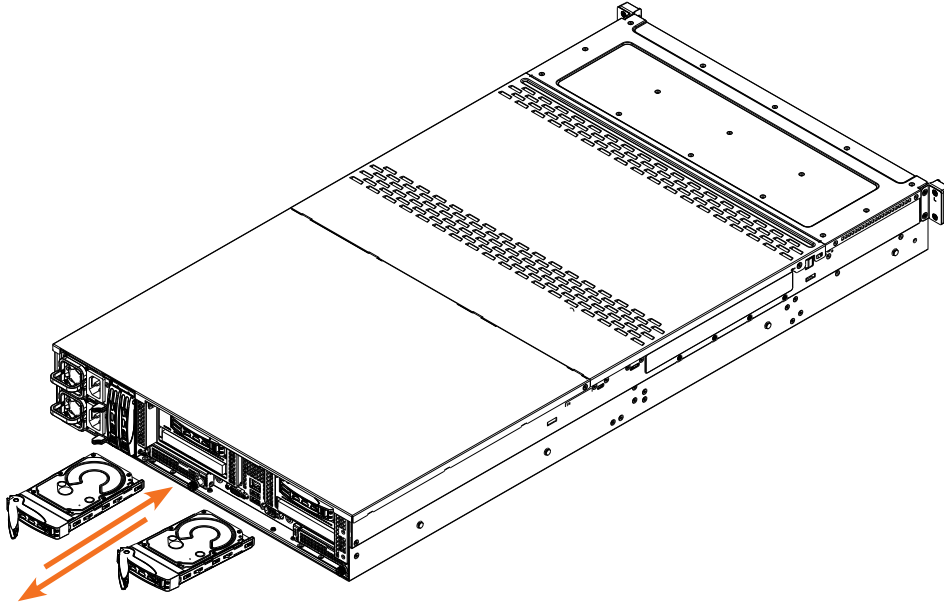
Figure 3-10. Installing and Removing a 2.5" Drive

Removing a Rear Hot-Swap Drive Carrier from the Server

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

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

3. Two standard vertically-mounted drives in the rear of the chassis are installed in the same way as the main storage drives.
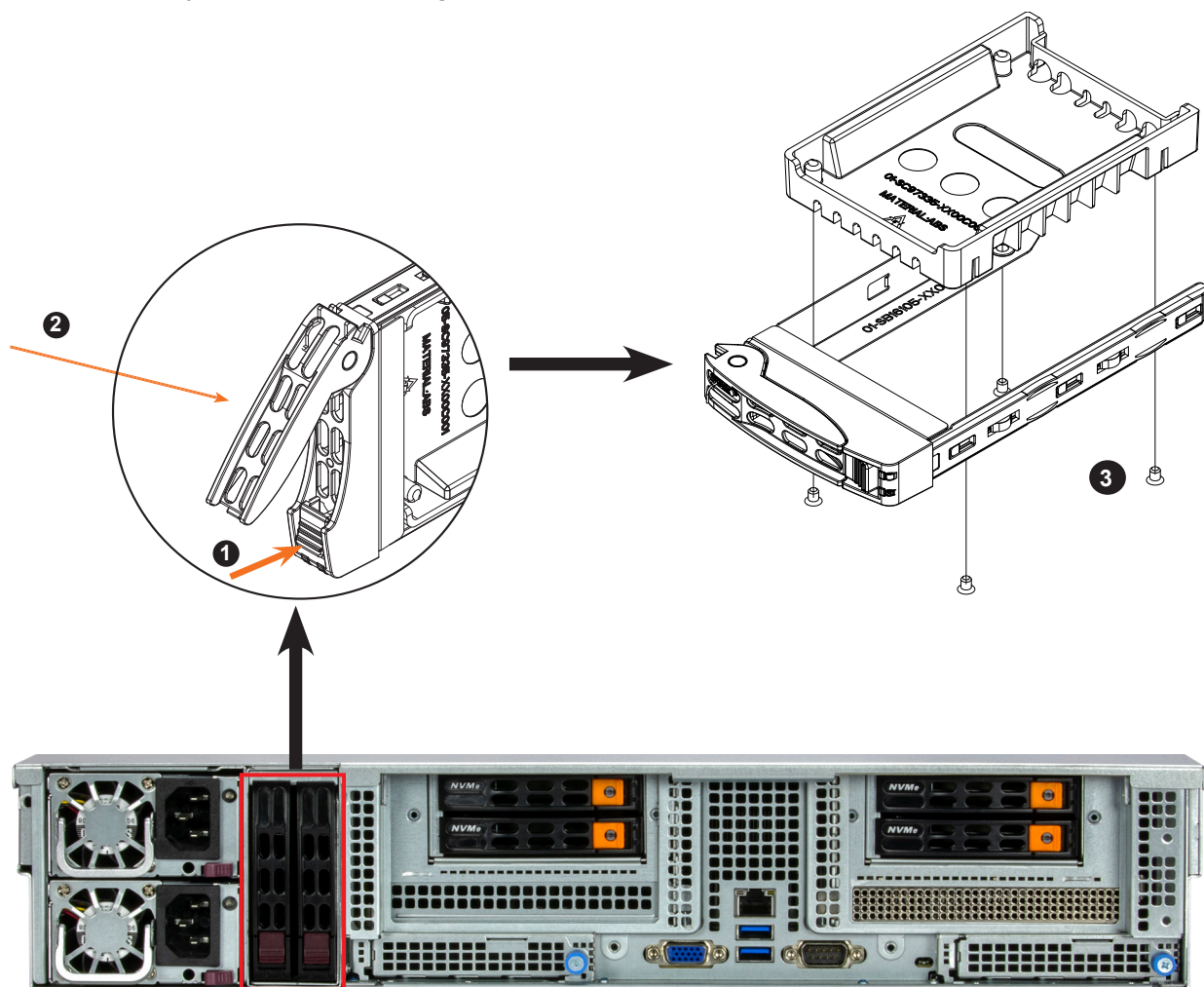
Figure 3-11. Removing a Rear Hot-Swap Drive Carrier

Removing a Rear Hot-Swap Drive Carrier from the Server

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

2. Use the drive carrier handle to pull the drive out of the chassis.
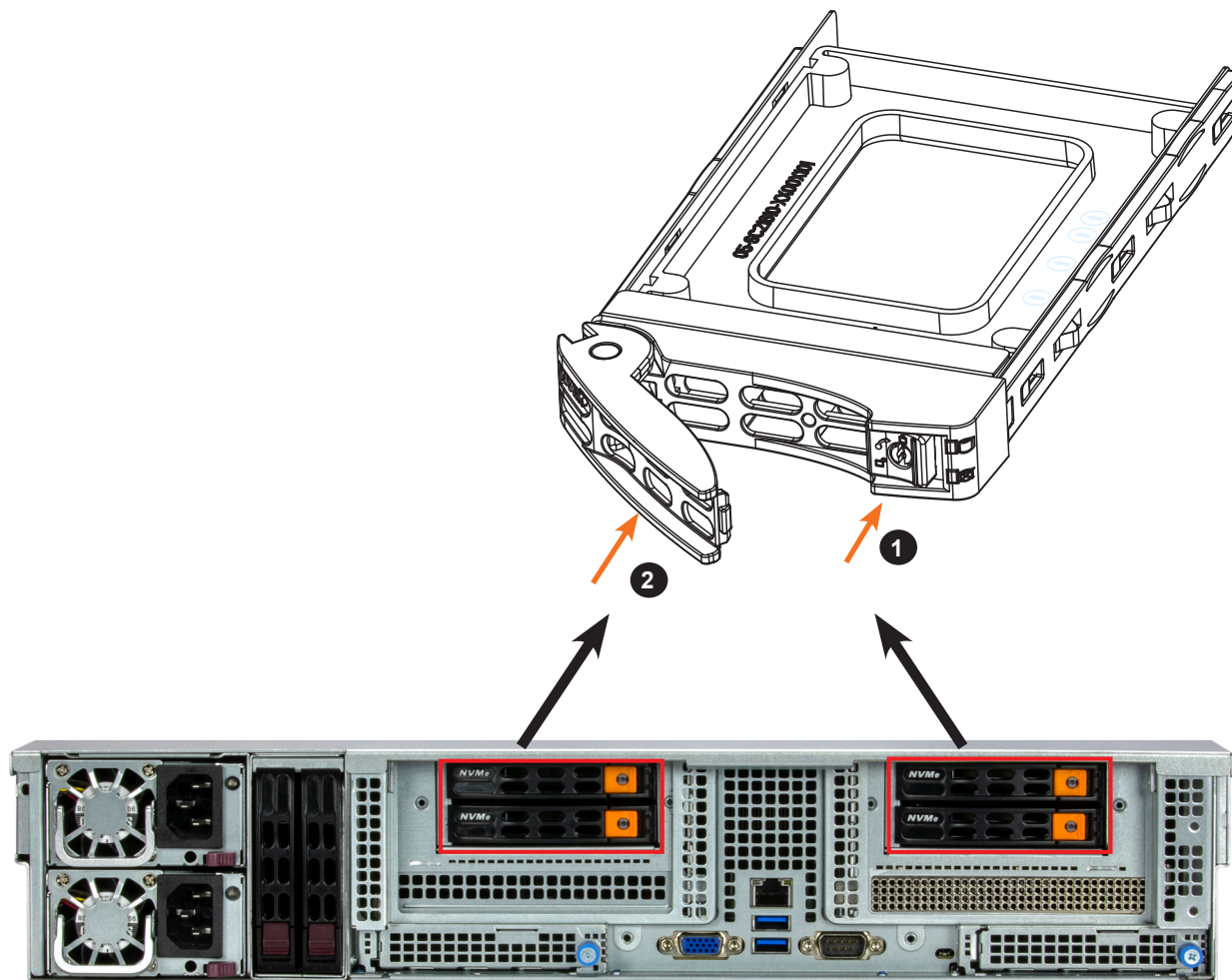
Figure 3-12. Extending the Drive Carrier Handle

Installing a Storage Drive

1. Remove the dummy drive, which comes pre-installed in the drive carrier. Pull out the two locking clasps on the left outside of the carrier and lift out the dummy drive.

2. Install the drive directly into the tray and push in the two locking clasps to secure the drive in place.

3. Insert the drive carrier into its bay, keeping the release button on the right. When the carrier reaches the rear of the bay, the release handle will retract. Push the handle in until it clicks into its locked position.
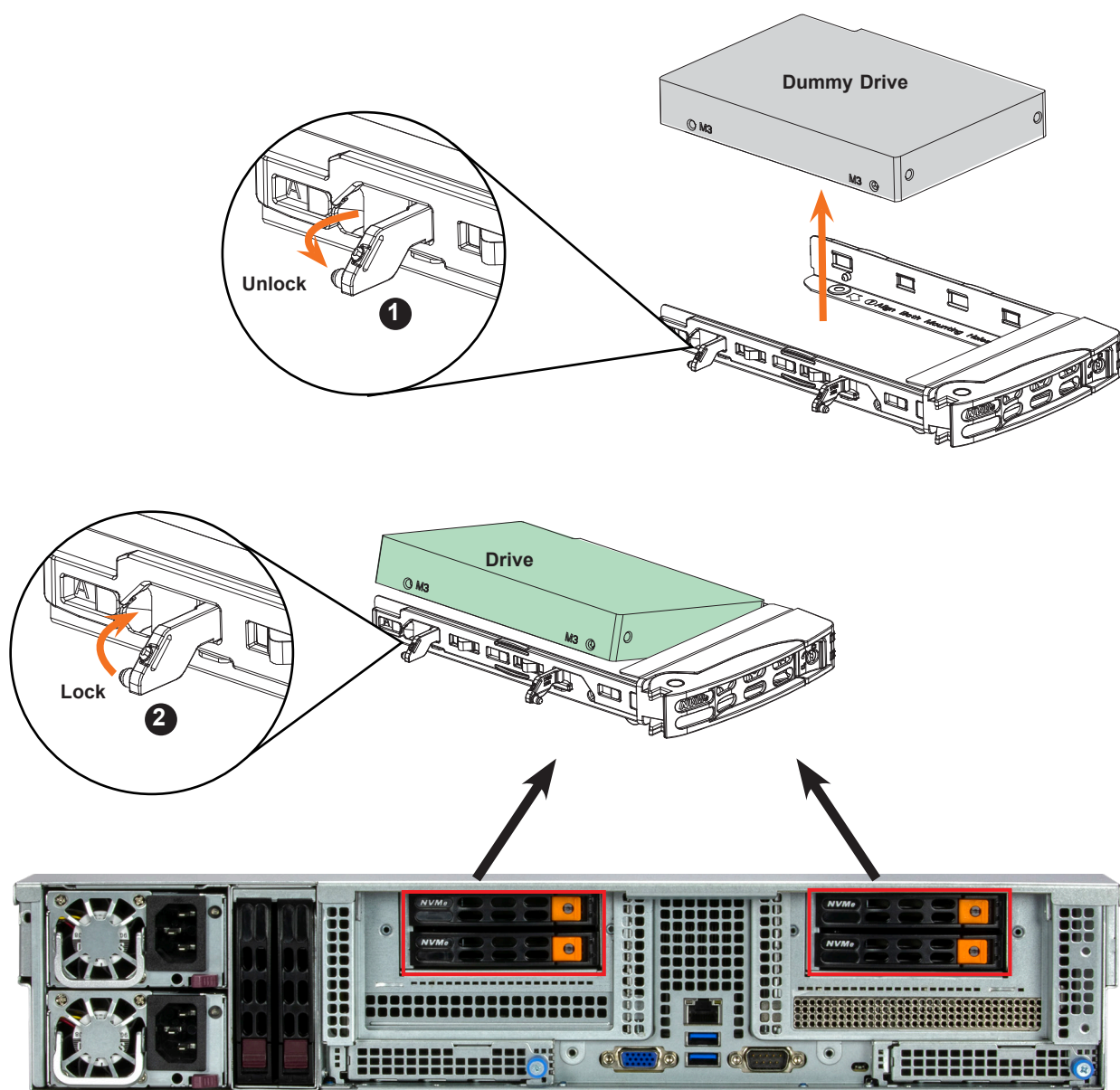
Figure 3-13. Removing a Dummy Drive

3.7 System Cooling

Four 8-cm heavy-duty fans provide cooling for the system. They can be replaced without powering down the system. Optional fan information can be found on the following page.

Replacing a System Fan

1. If necessary, open the chassis while the power is running to determine which fan requires changing. (Never run the server for an extended period of time with the chassis open.)

2. Remove the chassis from the rack and seat it on a work bench (safety area). Open the mid-chassis cover as described earlier in this section.

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

4. Place the new 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.

5. The fan will automatically begin running at the correct speed.
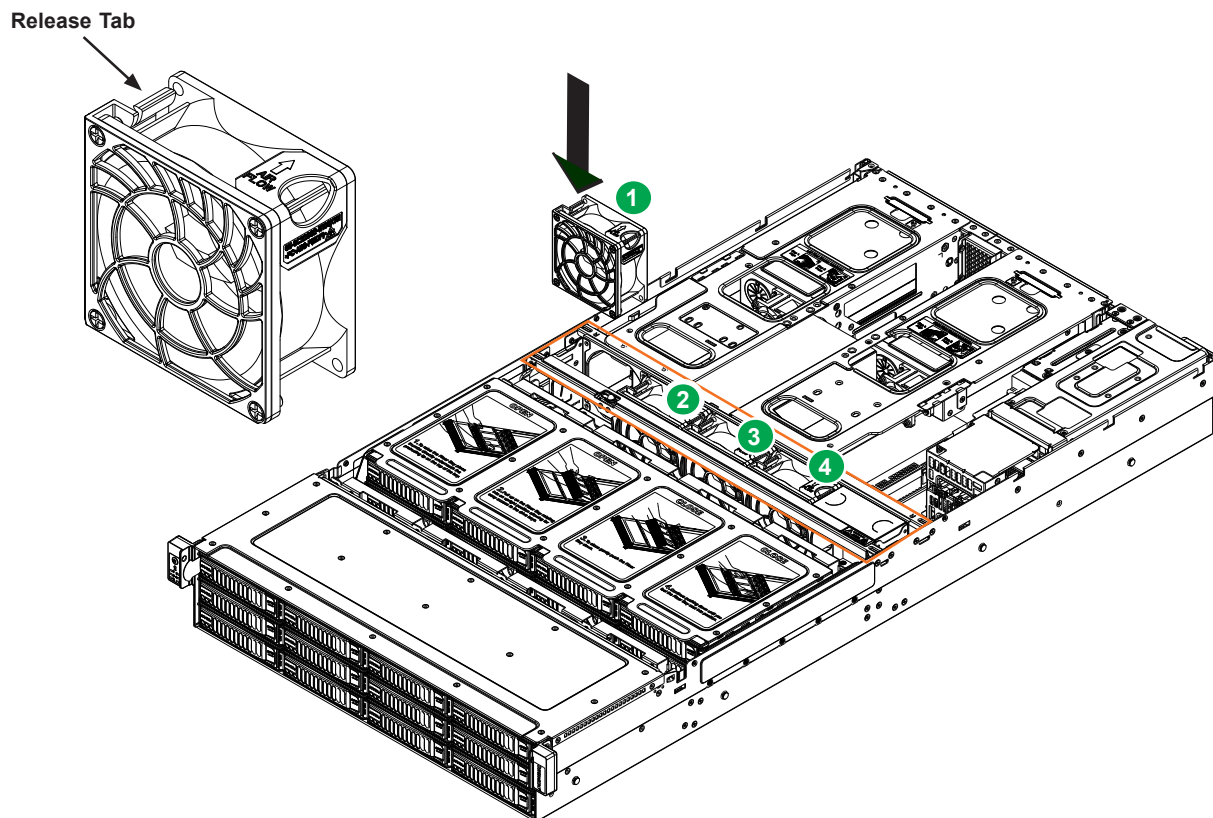
Figure 3-14. Fan Positions
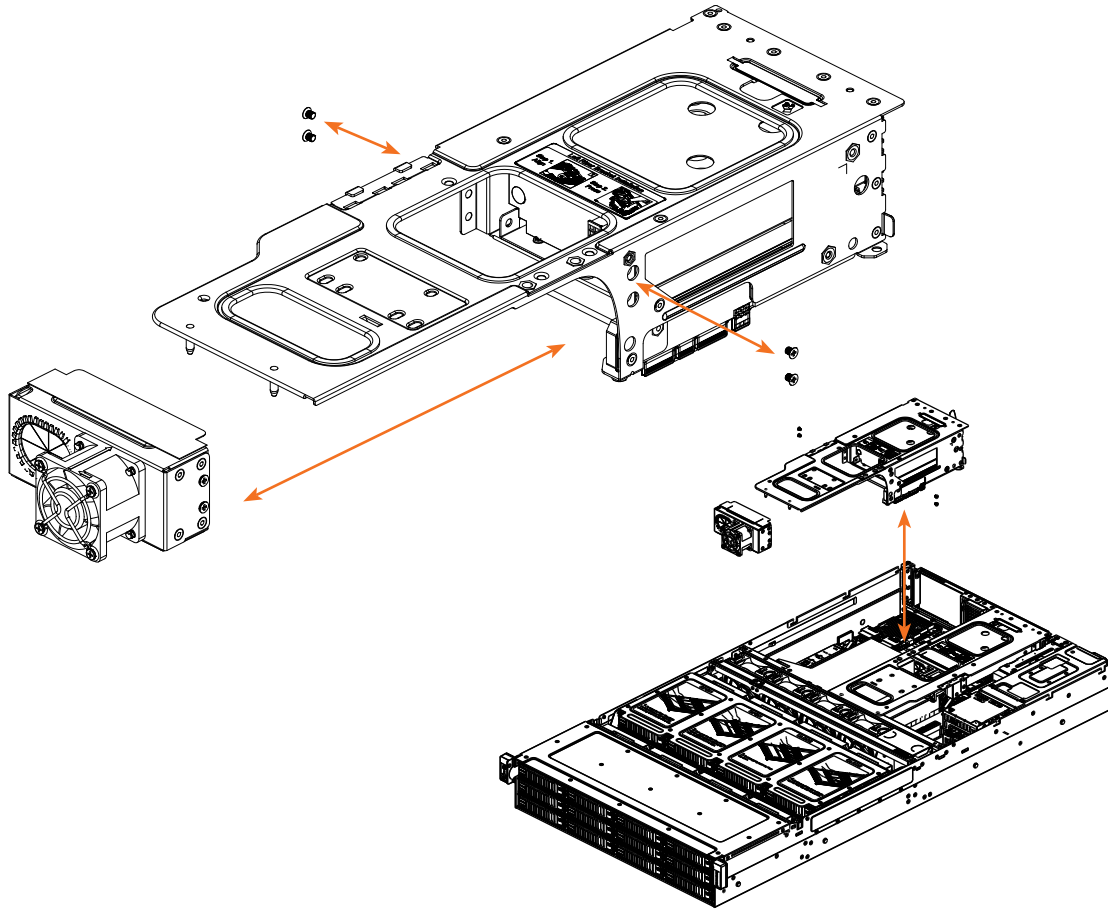
Figure 3-15. Fan for NVMe Drives

Note: Optional system cooling fan for NVMe storage drives. See the Optional Parts for more details.

Installing a Air Shroud

Air shrouds concentrate airflow to maximize fan efficiency. They do not require screws for installation.

Installing a Air Shroud

1. Power down the system and remove the covers as described earlier in this section.

2. Place the mylar air shroud in the chassis. It fits just behind the fans and under the power supply housing, as shown below.
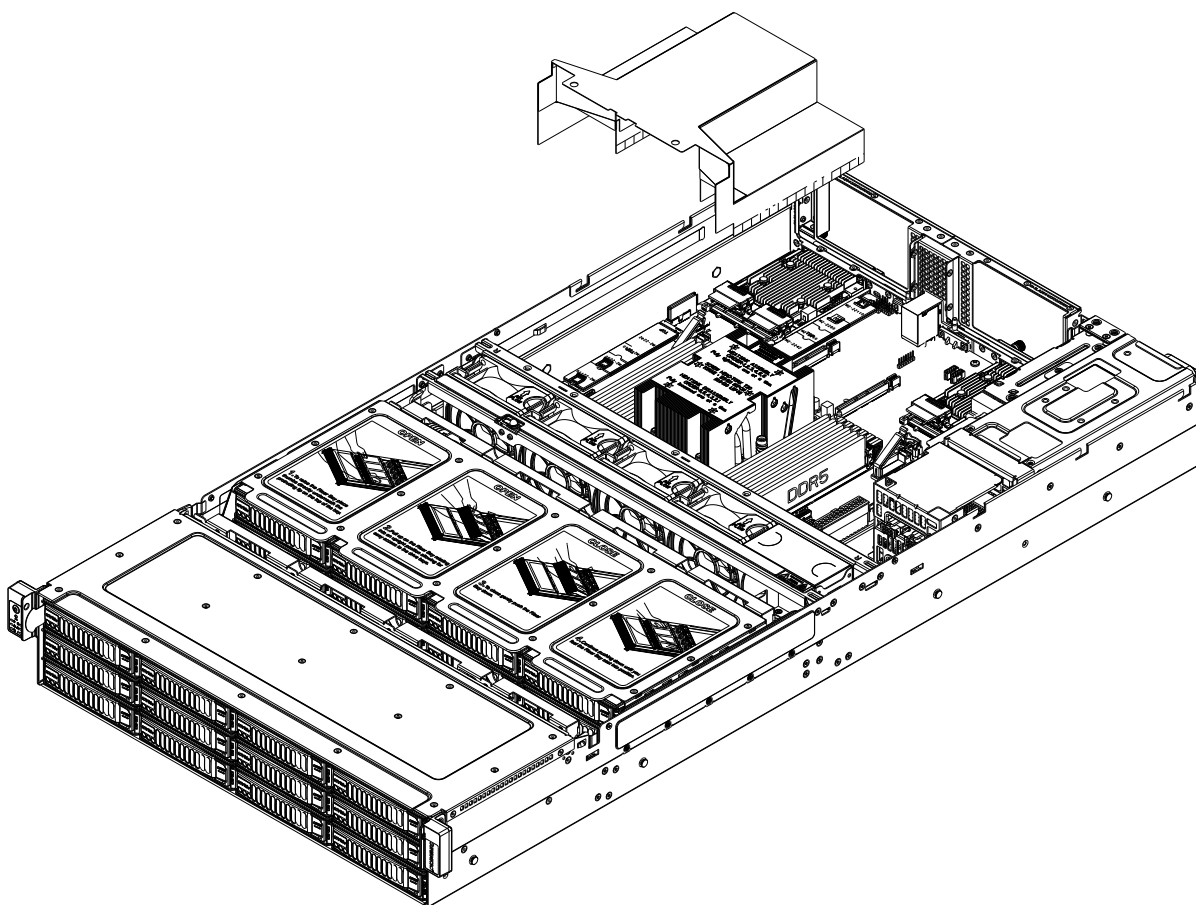
Figure 3-16. Mylar Air Shroud Installation

3. Align the mounting holes in the air shroud with those in the chassis for the riser card bracket to be able to secure it. No screws required.

4. Replace both chassis covers and power up the system.

Mounting Holes
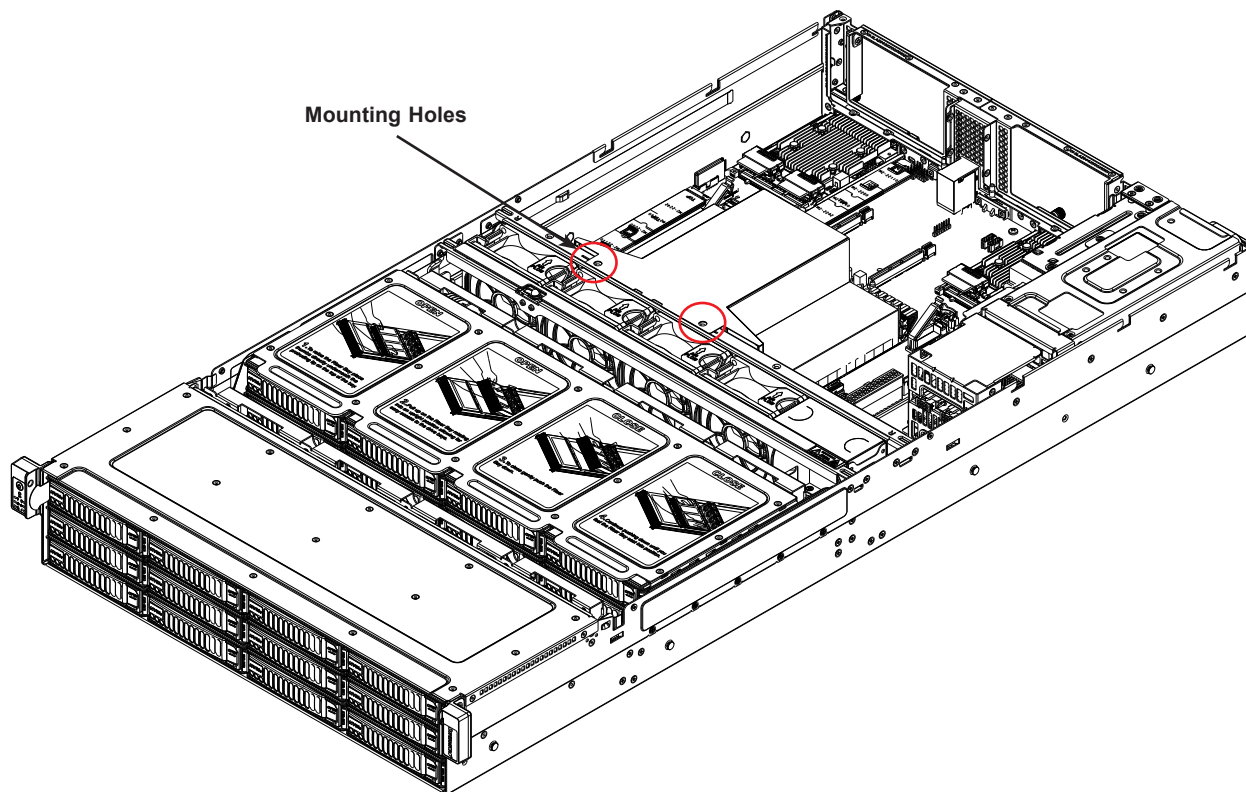
Figure 3-17. Air Shroud Installation

3.8 Power Supply

The chassis features redundant 1600 Watt power supplies. The power modules can be changed without powering down the system. New units can be ordered directly from Supermicro or authorized distributors.

These power supplies are auto-switching capable. This feature enables them to automatically sense the input voltage and operate at a 100-120 v or 180-240 v. An amber light will be illuminated on the power supply when the power is off. An illuminated green light indicates that the power supply is operating.

Changing the Power Supply

1. Unplug the AC cord from the module to be replaced.

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

3. Pull the power supply out using the handle provided.
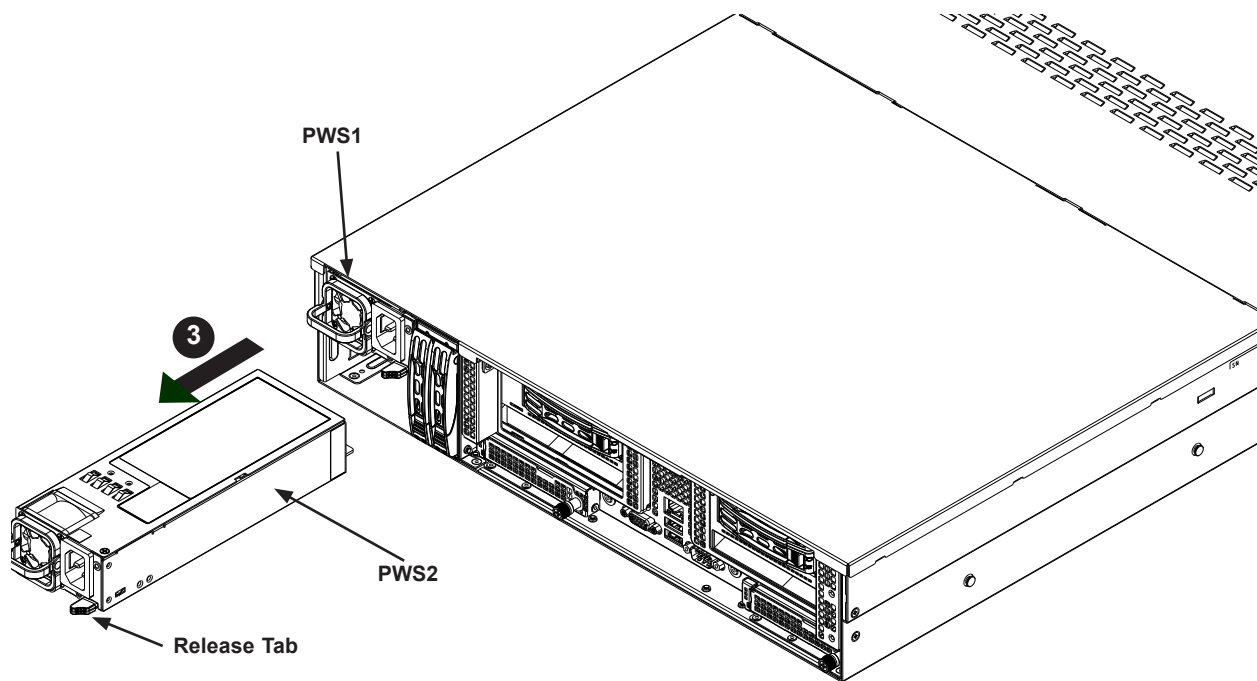
Figure 3-18. Power Supply Release Tab

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

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

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

3.9 PCI Expansion Cards

The AS -2015S-E1CR24H/AS -2015S-E1CR24L supports four PCIe 5.0 x16 slots, two PCIe 5.0 x8 slots, and two PCIe 5.0 x16 AIOM slots. The expansion slots will differ depending on the configuration.
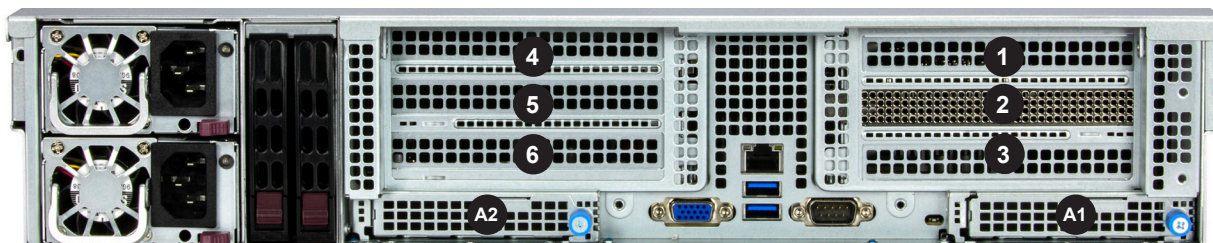
Figure 3-19. Expansion Slots: Standard Configuration
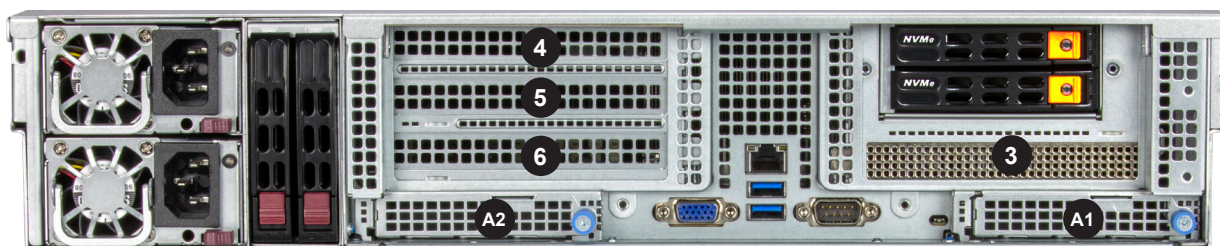
Figure 3-20. Expansion Slots: Configuration B

Figure 3-21. Expansion Slots: Configuration C

Expansion Slot Locations			
Slot	Configuration A	Configuration B	Configuration C
1	PCIe 5.0 x8	PCIe 5.0 x16*	PCIe 5.0 x16*
2	PCIe 5.0 x8*	PCIe 5.0 x8	PCIe 5.0 x16
3	PCIe 5.0 x16	PCIe 5.0 x8	N/A
4	PCIe 5.0 x8	PCIe 5.0 x16	N/A
5	PCIe 5.0 x8	N/A	N/A
6	PCIe 5.0 x16	N/A	N/A
A1	PCIe 5.0 x16 AIOM	PCIe 5.0 x16 AIOM	PCIe 5.0 x16 AIOM
A2	N/A	N/A	PCIe 5.0 x16 AIOM

* Occupied by AOC-S3808L-L8IT-P/AOC-S3908L-H8IR-32DD-P SAS controller card.

Installing an Expansion Card

1. Power down the system as described in section 3.1 and remove the cover.

2. Unscrew and remove the chassis slot cover.

3. Insert the expansion card into a slot on the motherboard while aligning the expansion card backplate with the open slot in the rear of the chassis. Secure with a screw.

4. Replace the cover and power the system back on.

Installing an AIOM Card

The AIOM card provides options for network connection. It is inserted into an AIOM slot on the motherboard. This installation is usually performed by a system integrator or manufacturer.

Installing an AIOM Card

1. Power down the system as described earlier in this section.
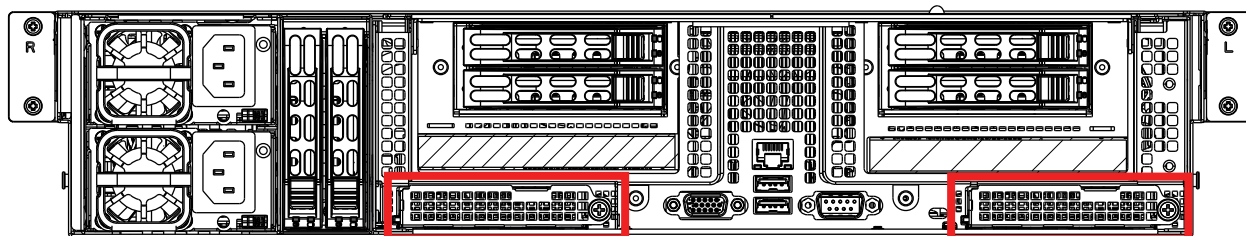
Figure 3-22. AIOM Card Position on Chassis Rear

Insert the AIOM card into this slot

AIOM card with the bracket installed
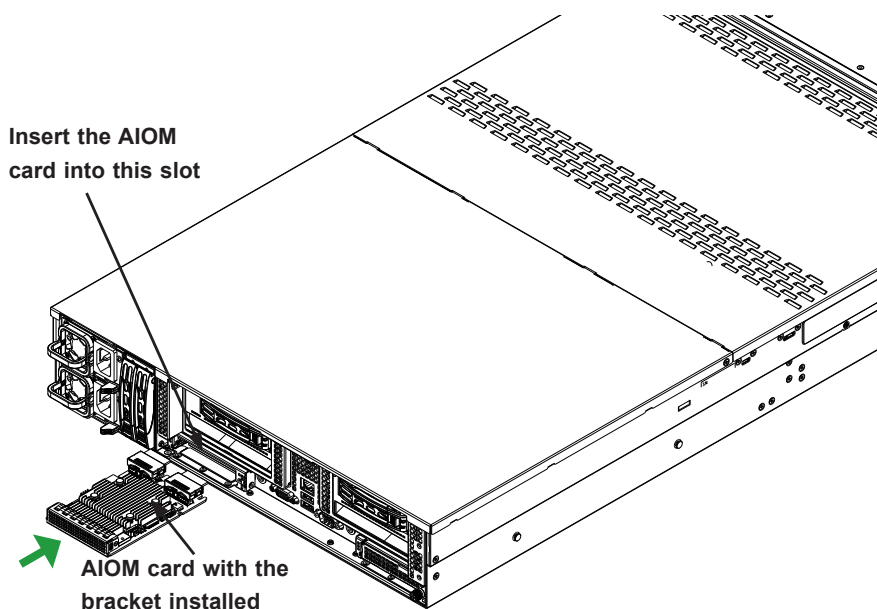
Figure 3-23. Inserting AIOM Card

2. Remove the small section of the chassis rear to allow access to the motherboard AIOM slot. Unscrew the single retaining screw to remove the cover.

3. Position the card with its cover bracket in front of the AIOM slot and gently push in both sides of the card until it slides into the slot.

4. Secure the AIOM card cover bracket to the chassis with the screw.

Installing Internal Drives

Internally-mounted 3.5" drives can be installed in the chassis. Removing the server from the rack is required for this installation.

Installing the Internal 3.5" Drives

1. In step one, shutting down the power should come before removing the chassis from the rack and putting it on a bench. Follow the steps for shutting down power and removing the mid-chassis cover from the system from Sections 3.1 and 3.2.

2. After removing the mid chassis cover, you will see the storage drive cage for the storage drives.
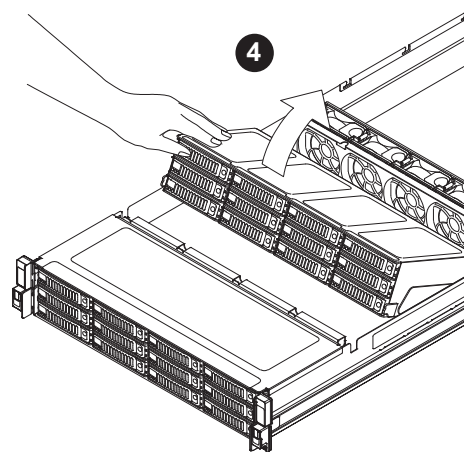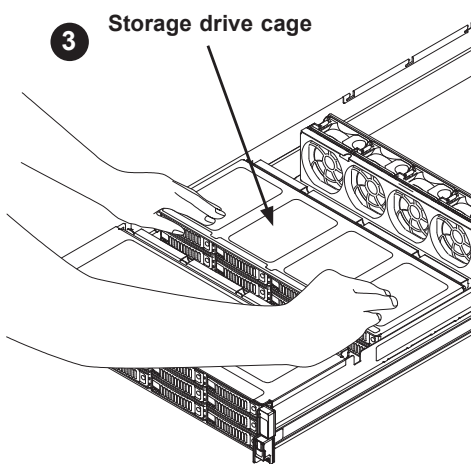
3. To raise the storage drive cage, place thumbs directly underneath the protruding lip on top of the cage.

4. Pull up on the storage drive cage as seen on the illustration for easy access to the drive bays.
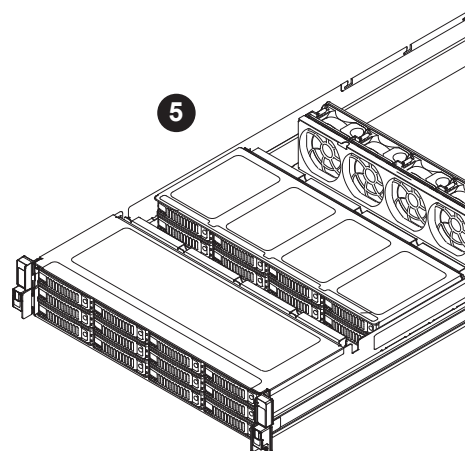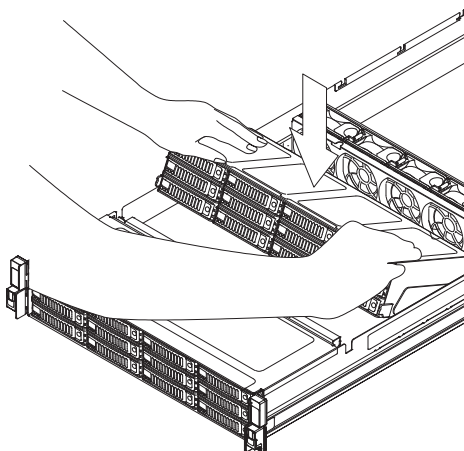
5. After installing the storage drives, gently reseat the drive cage into position in the chassis.

3.10 Cable Routing Diagram

Use this section to route or reroute cables. Proper routing is important to maintain airflow through the system.

Cable part numbers and descriptions are available at the Online Cable Matrix.

X13 Cable Plan - 2U 24 Simply Double (Default Configuration)

- 24x 3.5" SAS3/SATA3, 2x 2.5" SATA3, 4x PCIe x8, 2x PCIe x16, 1x AIOM x16
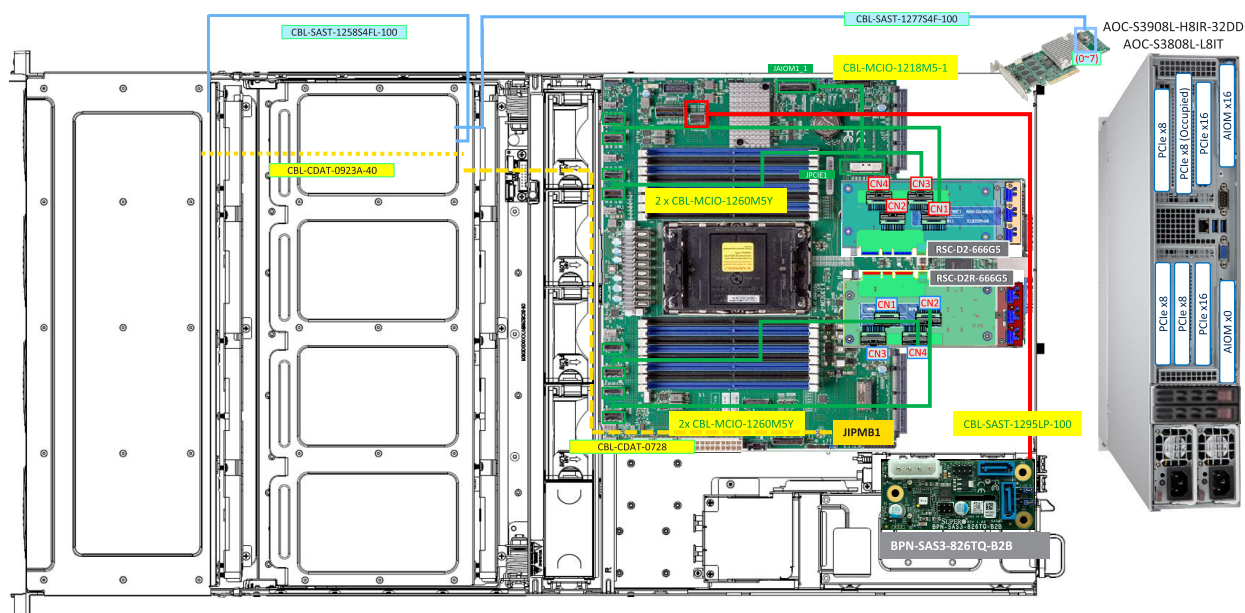
X13 Cable Plan - 2U 24 Simply Double (2x NVMe)

- 24x 3.5" SAS3/SATA3, 2x 2.5" SATA3, 2x Gen5 U.2 NVMe, 2x PCIe x8, 2x PCIe x16, 1x AIOM x16
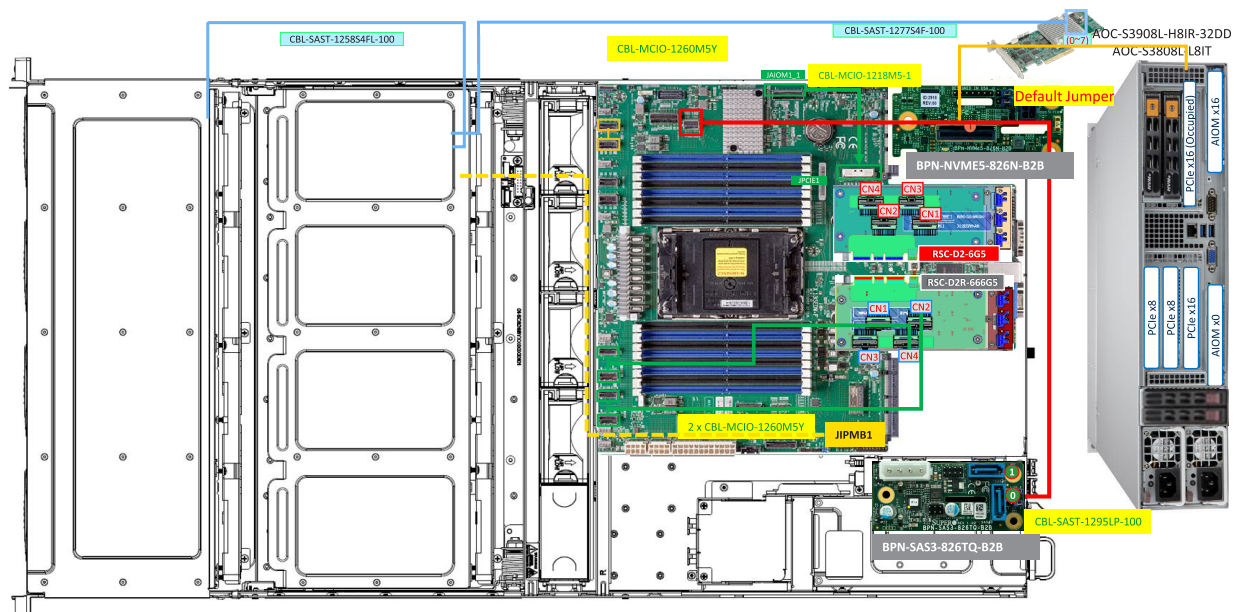
X13 Cable Plan - 2U 24 Simply Double (4x NVMe)

- 24x 3.5" SAS3/SATA3, 2x 2.5" SATA3, 4x Gen5 U.2 NVMe, 2x PCIe x16, 2x AIOM x16
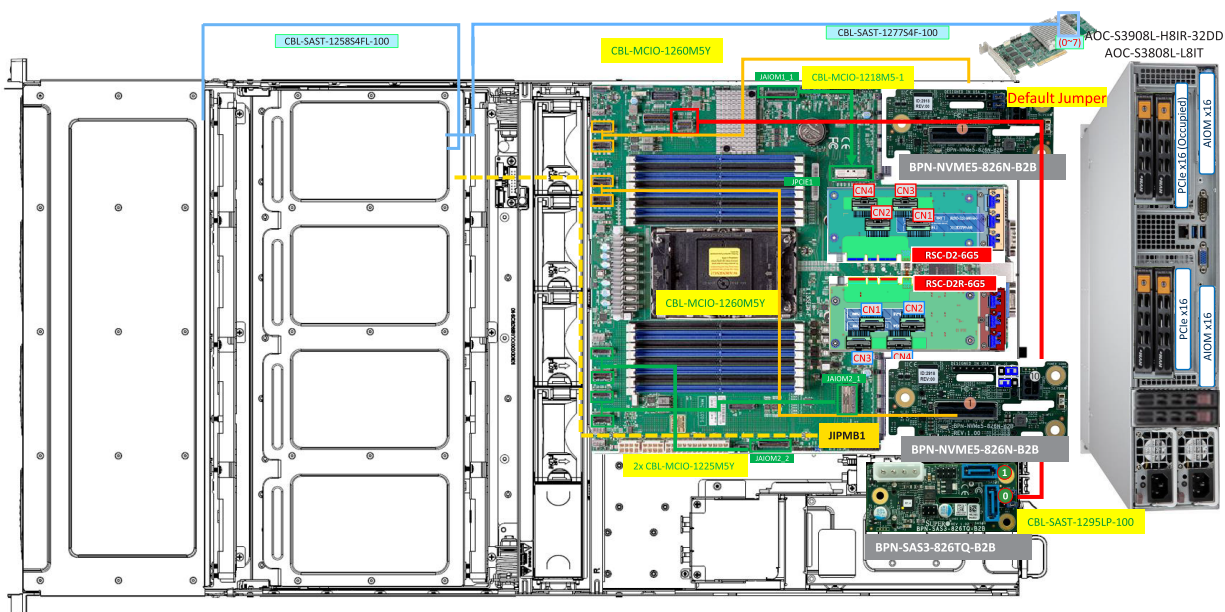
Cable Plan - NVMe/SATA Backplane

NVMe/SATA BPN			
Con	CBL		BPN
JNVME1	P2	CBL-MCIO-	NVME5
JNVME2	P3	1260M5Y	BPN1
JNVME3	P2	CBL-MCIO-	NVME5
JNVME4	P3	1260M5Y	BPN2
JS2	CBL-SAST-	P1	SAS3 CN1
	1295LP-100	P2	SAS3 CN2
		P5	SAS3 SGPIO
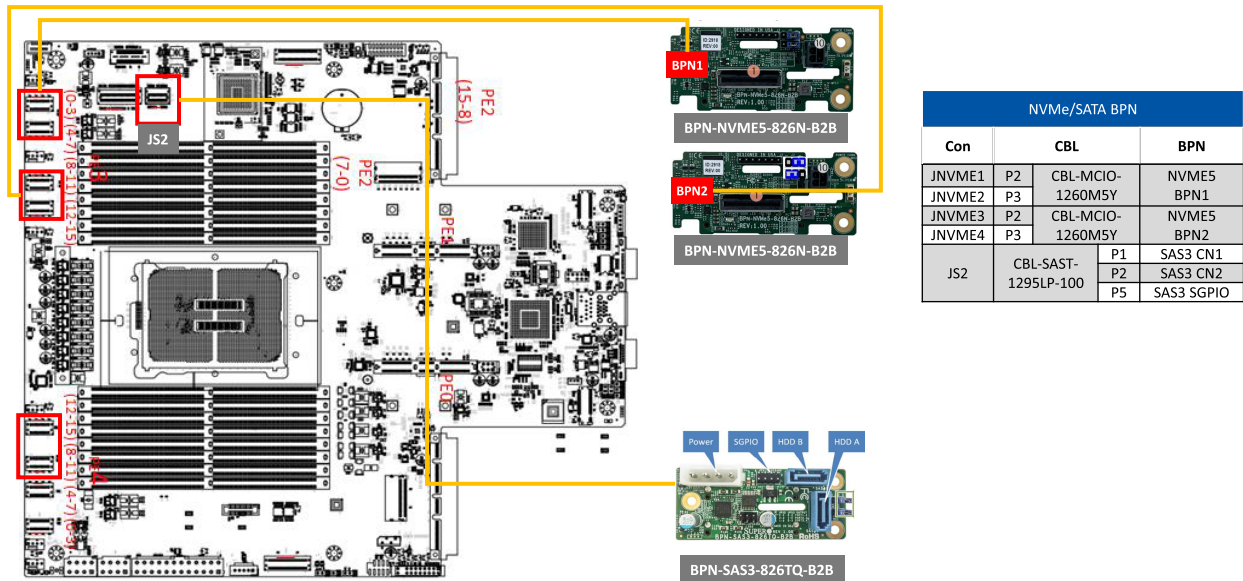
Root Port Sequence

JRUIO:PE0 (15-0)
JLUIO:PE1 (0-15)
JPCIE1:PE2 (7-0)
JAIOM1:PE2 (15-8)
JNVME1: PE3 (0-3)
JNVME2: PE3 (4-7)
JNVME3: PE3 (8-11)
JNVME4: PE3 (12-15)
JNVME8: PE4 (12-15)
JNVME7: PE4 (8-11)
JNVME6: PE4 (4-7)
JNVME5: PE4 (0-3)
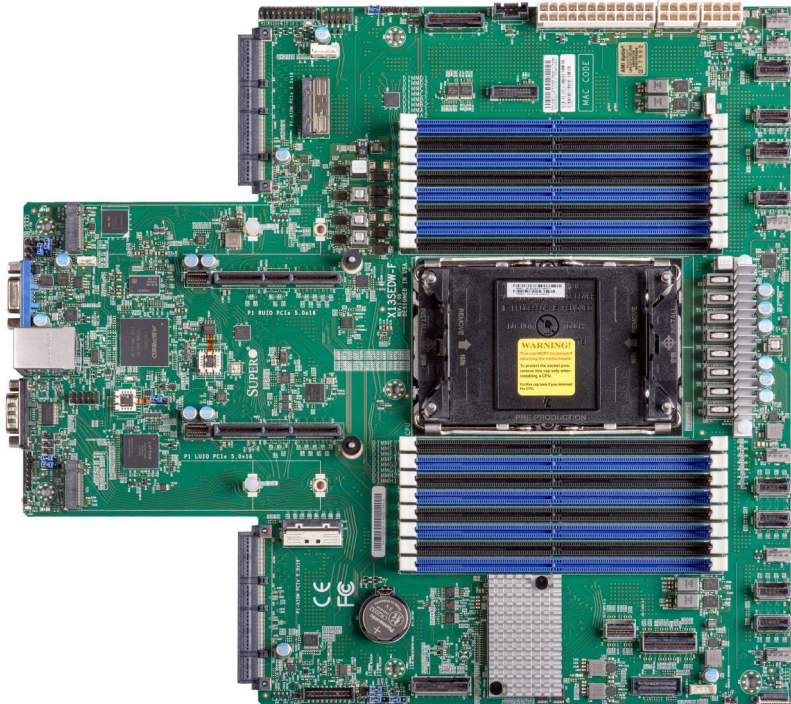
Chapter 4

Motherboard Connections

This section describes the jumpers, connections and LEDs on the motherboard and provides pinout definitions. Some connections might not be used in this system. A motherboard layout indicating component locations may be found in Chapter 1. More detail can be found in the Motherboard Manual.

4.1 Power Connections

Power Connectors

JPWR1 is the 24-pin power connector for ATX power source. JPWR2 and JPWR3 are the 12 V DC power connectors that provide power to the CPU in conjunction with JPWR1 or they can be used as the sole 12 V DC only power inputs when JPWR1 is not in use.

ATX Power 24-pin Connector Pin Definitions			
Pin#	Definition	Pin#	Definition
13	+3.3 V	1	+3.3 V
14	-12 V	2	+3.3 V
15	Ground	3	Ground
16	PS_ON	4	+5 V
17	Ground	5	Ground
18	Ground	6	+5 V
19	Ground	7	Ground
20	Res (NC)	8	PWR_OK
21	+5 V	9	5 VSB
22	+5 V	10	+12 V
23	+5 V	11	+12 V
24	Ground	12	+3.3 V

8-pin CPU Power Pin Definitions	
Pin#	Definition
1–4	GND
5–8	12 V

4.2 Headers and Connectors

Chassis Intrusion

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

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

4-Pin External BMC I²C Header

A System Management Bus header for IPMI 2.0 is located at JIPMB1. Connect a cable to this header to use the IPMB I²C connection on your system. Refer to the table below for pin definitions.

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

Fan Headers

There are six 4-pin fan headers (FAN1–FAN6) on the motherboard. All these 4-pin fan headers are backwards compatible with the traditional 3-pin fans. However, fan speed control is available for 4-pin fans only by Thermal Management via the IPMI 2.0 interface. Refer to the table below for pin definitions.

Fan Header Pin Definitions	
Pin#	**Definition**
1	Ground (Black)
2	2.5 A/+12 V (Red)
3	Tachometer
4	PWM_Control

Intel RAID Key Header

The JRK1 header allows you to enable RAID functions for NVMe connections. Refer to the table below for pin definitions.

Intel RAID Key Header Pin Definitions	
Pin#	Definition
1	GND
2	PU 3.3 V Stdby
3	GND
4	PCH RAID KEY

M.2 Slots

This motherboard has two M.2 slots (JM2_1, JM2_2). M.2 was formerly known as Next Generation Form Factor (NGFF) and serves to replace mini PCIe. M.2 allows for a variety of card sizes, increased functionality, and spatial efficiency. The M.2 connectors on the motherboard supports PCIe 3.0 from PCH in the 2280 and 22110 form factors.

NC-SI Header for BMC Support

A Network-Controller Sideband Interface (NC-SI) header is located at JNCSI1 on the motherboard. For remote management, connect the appropriate cable from this header to an add-on card to provide the out-of-band (sideband) connection between the onboard Baseboard Management Controller (BMC) and a Network Interface Controller (NIC). For the network sideband interface to work properly, you will need to use a NIC add-on card that supports NC-SI and also need to have a special cable. Contact Supermicro at www.supermicro.com to purchase the cable for this header.

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: http://www.supermicro.com/manuals/.

Overheat/Fan Fail LED Header

The JOH1 header is used to connect an LED indicator to provide warnings of chassis overheating and fan failure. This LED will blink when a fan failure occurs. Refer to the tables below for pin definitions.

Overheat LED Header Status	
State	Definition
Solid	Overheat
Blinking	Fan Fail

Overheat LED Pin Definitions	
Pin#	Signal
1	Pull high to +3.3 V power through 330-ohm resistor
2	OH Active

Power SMB (I²C) Header

Power System Management Bus (I²C) header at JPI²C1 monitors the power supply, fan and system temperatures. Refer to the table below for pin definitions.

Power SMB Header Pin Definitions	
Pin#	Definition
1	Clock
2	Data
3	Power Fail
4	Ground
5	+3.3 V

SATA 3.0 Ports

This motherboard has two SlimSAS LP connectors located at JS1 (SlimSAS LP x8) and JS2 (SlimSAS LP x4). JS1 supports SATA0–7 and JS2 supports SATA8–11.

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. Refer to the table below for pin definitions.

Standby Power Pin Definitions	
Pin#	Definition
1	+5 V Standby
2	Ground
3	No Connection

TPM/Port 80 Header

A Trusted Platform Module (TPM)/Port 80 header is located at JTPM1 to provide TPM support and Port 80 connection. Use this header to enhance system performance and data security. Refer to the table below for pin definitions. Visit the following link for more information on the TPM: http://www.supermicro.com/manuals/other/TPM.pdf.

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

4.3 Jumpers

Explanation of Jumpers

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

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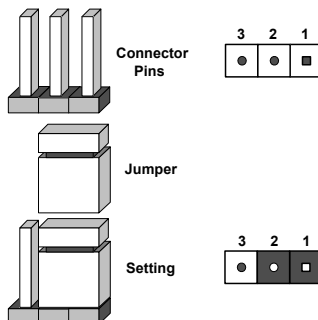
CMOS Clear

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

To Clear CMOS

1. First power down the system and unplug the power cord(s).

2. Remove the cover of the chassis to access the motherboard and remove the battery from the motherboard.

3. Short the CMOS pads with a metal object such as a small screwdriver for at least four seconds.

4. Remove the screwdriver (or shorting device).

5. Replace the cover, reconnect the power cord(s), and power on the system.

Note: Clearing CMOS will also clear all passwords.

Front Control Board Signal Reset

Jumper JRU1 is used to configure the signal settings for the Front Control Board (JFP1). Close pins 1 and 2 to reset the Front Control Board signals for UID use. Close pins 2 and 3 to configure JFP1 signals for reset use. The default setting is on pins 1–2 to reset JFP1 for power button use. Refer to the table below for jumper settings.

Front Control Board Signal Reset Jumper Jumper Settings	
Jumper Setting	Definition
Pins 1–2	Configure JFP1 Signals for UID (Default)
Pins 2–3	Configure JFP1 Signals for Reset

VGA Enable/Disable

JPG1 allows you to enable or disable the VGA port using the onboard graphics controller.

VGA Enable/Disable Jumper Settings	
Jumper Setting	Definition
Pins 1–2	Enabled
Pins 2–3	Disabled

4.4 LED Indicators

BMC Heartbeat LED

A BMC Heartbeat LED is located at LED1 on the motherboard. When LED1 is blinking, the BMC is functioning normally. Refer to the table below for more information.

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

Onboard Power LED

LED1 is the onboard Power LED. When this LED is on, the system is on. Turn off the system and unplug the power cord before removing or installing components. Refer to the table below for more information.

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

4.5 Rear I/O
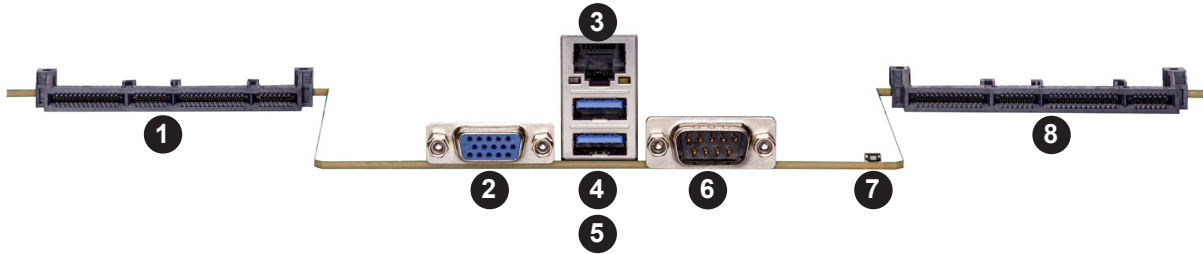
Figure 4-1. I/O Port Locations and Definitions

Rear I/O Ports			
#	Description	#	Description
1	AIOM2	5	USB3
2	VGA	6	COM1
3	BMC LAN	7	UID Switch
4	USB2	8	AIOM1

AIOM1–AIOM2

Supermicro introduces the Advanced I/O Module (AIOM), the latest expansion card feature offering PCIe 5.0 lanes in each slot which can be utilized to offer additional LAN ports, VPU, storage devices, etc. on the motherboard. Visit the Supermicro website for all available module options. Keep in mind that it is mandatory that power be unplugged prior to removing or installing an AIOM module card to either one of these two expansion slots.

COM Port

The motherboard has one COM port. COM1 is located next to JUSBRJ45.

COM Port Pin Definitions			
Pin#	Definition	Pin#	Definition
1	SP_DCDA	6	SP_DSRA
2	SP_RXDA	7	SP_RTSA
3	SP_TXDA	8	CTS
4	SP_DTRA	9	SP_RIA
5	GND	10	NC

LAN Port

The motherboard has one dedicated BMC LAN port. It is located next to the VGA port and above USB2/3 ports on the back panel. It can accept RJ45 cables. Refer to the LED indicator section for LAN LED information.

Universal Serial Bus (USB) Ports

The motherboard has two USB 2.0 headers (USB0/1), and two USB 3.2 Gen 1 ports (USB2/3) on the I/O back panel. The onboard headers can be used to provide front side USB access with a cable (not included).

Unit Identifier Switch (UID-SW): One button with two functions

A Unit Identifier (UID) switch and two LED Indicators are located on the motherboard. The UID switch is located next to the VGA port on the back panel.

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

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

UID Switch Pin Definitions	
Pin#	**Definition**
1	Button In
2	Ground
G1	Ground
G2	Ground

UID LED Pin Definitions	
Color	**Status**
Blue: On	Unit Identified

VGA Port

A video (VGA) port is located on the I/O back panel.

4.6 Front Control Panel

JF1 contains header pins for various buttons and indicators that are normally located on a control panel at the front of the chassis. These connectors are designed specifically for use with a Supermicro chassis. See the figure below for the descriptions of the front control panel buttons and LED indicators.

	1	2	
PWR — Power Button	○	○	Ground
Reset — Reset Button	○	○	Ground
3.3V	○	○	Power Fail LED
UID LED	○	○	OH/Fan Fail LED
3.3V Stby	○	○	NIC2 Activity LED
3.3V Stby	○	○	NIC1 Activity LED
3.3V Stby	○	○	Drive Activity LED
3.3V Stby	○	○	PWR LED
X	○	○	X
NMI	○	○	Ground
	19	20	

Figure 4-2. JF1 Header Pins

Power Button

The Power Button connection is located on pins 1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button. To turn off the power when the system is in suspend mode, press the button for 4 seconds or longer. Refer to the table below for pin definitions.

Power Button Pin Definitions (JF1)	
Pin#	Definition
1	Signal
2	Ground

Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1. Attach it to a hardware reset switch on the computer case to reset the system. Refer to the table below for pin definitions.

Reset Button Pin Definitions (JF1)	
Pin#	Definition
3	Reset
4	Ground

Power Fail

The Power Fail LED connection is located at pins 5 and 6. Refer to the table below for pin definitions.

Power Fail LED Pin Definitions (JF1)	
Pin#	Definition
5	3.3 V
6	Power Fail LED

Information LED (OH/Fan Fail/PWR Fail/UID LED)

The Information LED (OH/Fan Fail/PWR Fail/UID LED) connection is located on pins 7 and 8 of JF1. The LED on pin 7 is active when the UID switch on the rear I/O panel is pressed. The LED on pin 8 provides warnings of overheat, power failure, or fan failure. Refer to the table below for more information.

Information LED-UID/OH/PWR Fail/Fan Fail LED Pin Definitions (JF1)	
Status	Description
Solid Red	An overheat condition has occured. This may be caused by cable congestion.
Blinking Red (1 Hz)	Fan failure: check for an inoperative fan.
Blinking Red (0.25 Hz)	Power failure: check for a non-operational power supply.
Solid Blue	Local UID is activated. Use this function to locate a unit in a rack mount environment that might be need of service.
Blinking Blue (300 msec)	Remote UID is on. Use this function to identify a unit from a remote location that might be in need of service.

NIC1/NIC2 (LAN1/LAN2)

The Network Interface Controller (NIC) LED connection for LAN port 1 is located on pins 11 and 12 of JF1, and LAN port 2 is on pins 9 and 10. Attach the NIC LED cables here to display network activity. Refer to the table below for pin definitions.

NIC1/NIC2 LED Pin Definitions (JF1)	
Pin#	**Definition**
9	NIC 2 Activity LED
11	NIC 1 Activity LED

Drive Activity LED

The drive activity LED connection is located on pins 13 and 14 of JF1. Attach a cable to pin 14 to show drive activity status. Refer to the table below for pin definitions.

Drive activity LED Pin Definitions (JF1)	
Pins	**Definition**
13	3.3 V Stdby
14	Drive activity Active

Power LED

The Power LED connection is located on pins 15 and 16 of JF1. Refer to the table below for pin definitions.

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

NMI Button

The non-maskable interrupt button header is located on pins 19 and 20 of JF1. Refer to the table below for pin definitions.

NMI Button Pin Definitions (JF1)	
Pins	**Definition**
19	Control
20	Ground

Chapter 5

Software

After the hardware has been installed, you can install the Operating System (OS), configure RAID settings and install the drivers.

5.1 Microsoft Windows OS Installation

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

Installing the OS

1. Create a method to access the MS Windows installation ISO file. That might be a USB flash or media drive, or the BMC KVM console.

2. Boot from a bootable device with Windows OS installation. You can see a bootable device list by pressing **F11** during the system startup.
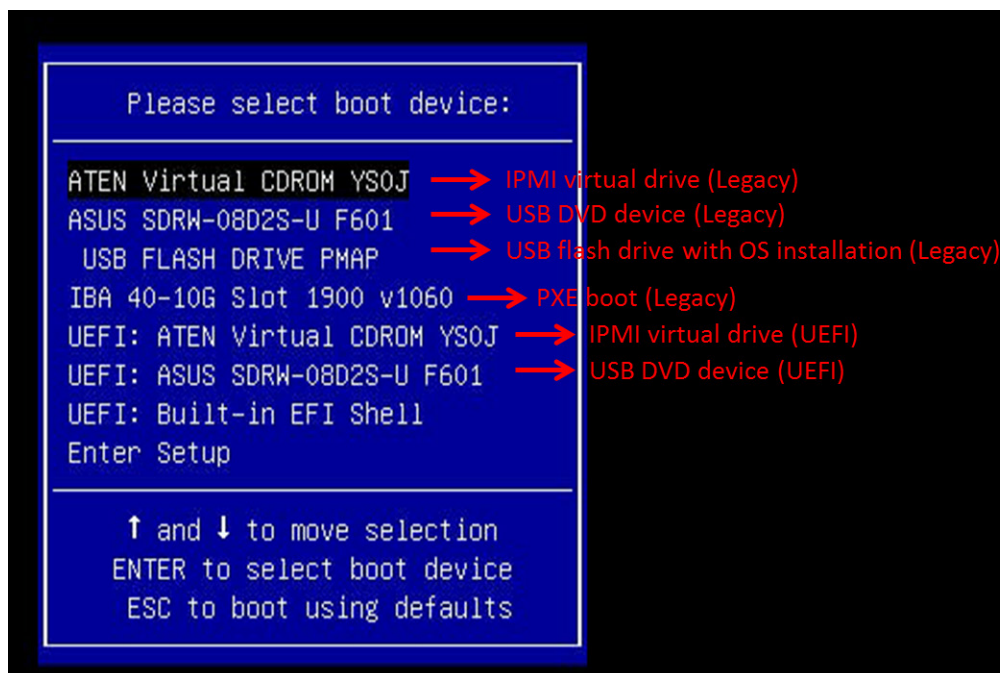
Figure 5-1. Select Boot Device

3. During Windows Setup, continue to the dialog where you select the drives on which to install Windows. If the disk you want to use is not listed, click on "Load driver" link at the bottom left corner.
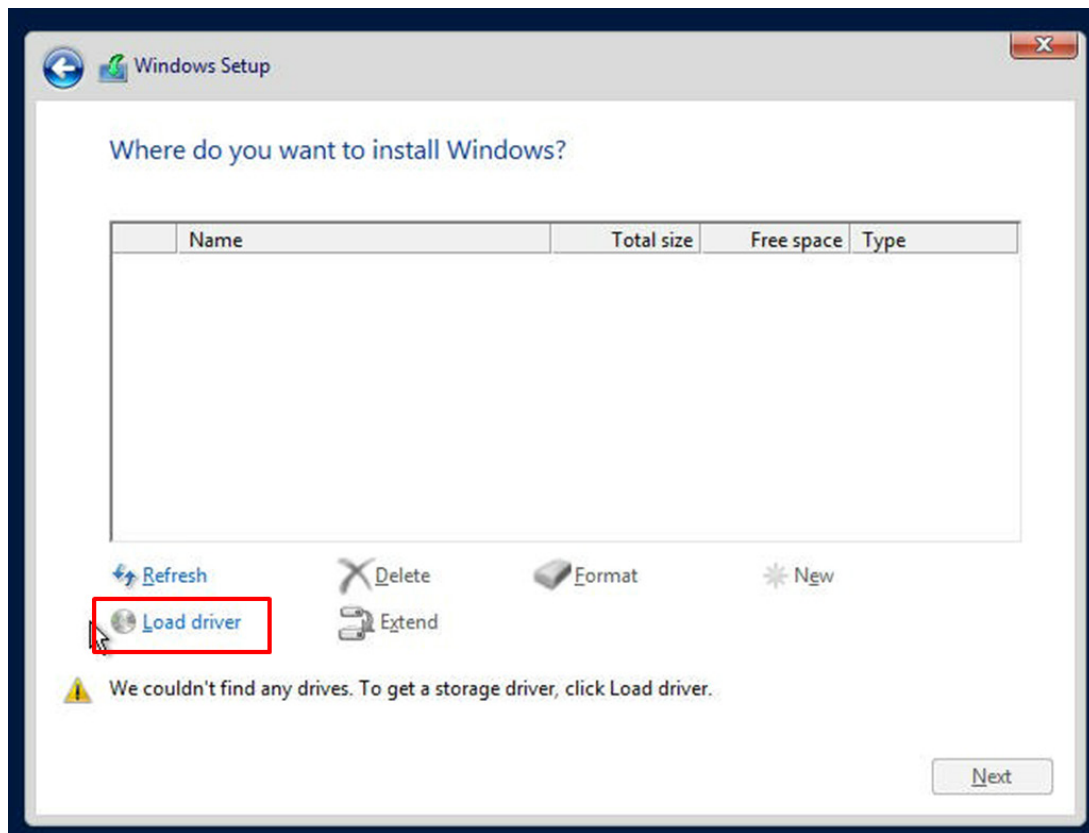
Figure 5-2. Load Driver Link

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

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

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

4. Once all devices are specified, continue with the installation.

5. After the Windows OS installation has completed, the system will automatically reboot multiple times.

5.2 Driver Installation

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

After accessing the website, go into the CDR_Images (in the parent directory of the above link) and locate the ISO file for your motherboard. Download this file to a USB flash drive 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 www.supermicro.com > Products. Find the product page for your motherboard, and "Download the Latest Drivers and Utilities".

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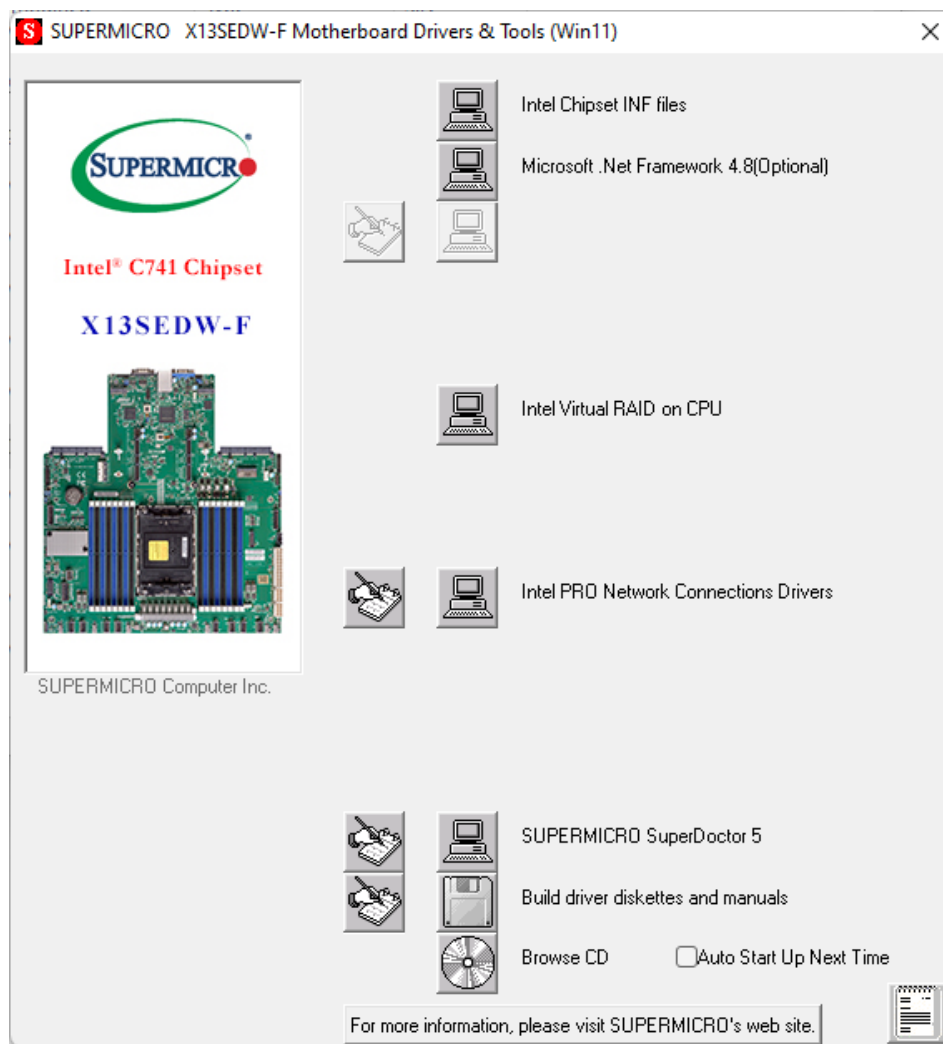
Figure 5-3. Driver and Tool Installation Screen

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

5.3 SuperDoctor® 5

The Supermicro SuperDoctor 5 is a program that functions in a command-line or web-based interface for Windows and Linux operating systems. The program monitors such system health information as CPU temperature, system voltages, system power consumption, fan speed, and provides alerts via email or Simple Network Management Protocol (SNMP).

SuperDoctor 5 comes in local and remote management versions and can be used with Nagios to maximize your system monitoring needs. With SuperDoctor 5 Management Server (SSM Server), you can remotely control power on/off and reset chassis intrusion for multiple systems with SuperDoctor 5 or BMC. SuperDoctor 5 Management Server monitors HTTP, FTP, and SMTP services to optimize the efficiency of your operation.

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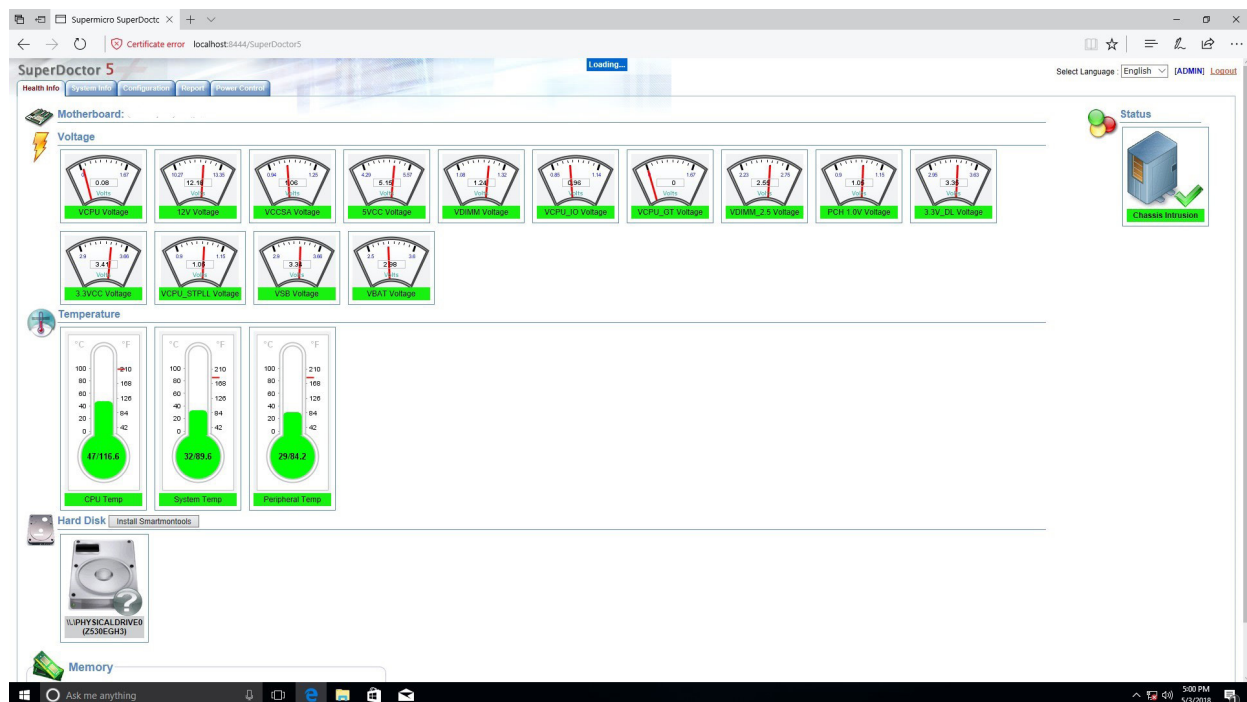
Figure 5-4. SuperDoctor 5 Interface Display Screen (Health Information)

5.4 BMC

The motherboard provides remote access, monitoring and management through the baseboard management controller (BMC) and other management controllers distributed among different system modules. There are several BIOS settings that are related to BMC. For general documentation and information on BMC, visit our website at: www.supermicro.com/en/solutions/management-software/bmc-resources

BMC ADMIN User Password

For security, each system is assigned a unique default BMC password for the ADMIN user. This can be found on a sticker on the chassis and a sticker on the motherboard. The sticker also displays the BMC MAC address.
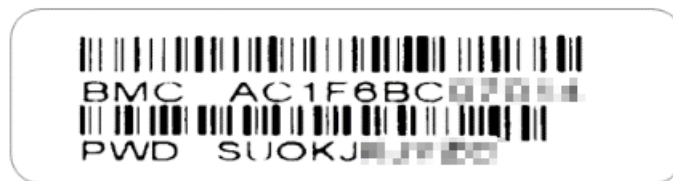
Figure 5-5. BMC Password Label

Chapter 6

Optional Components

This chapter describes optional system components and installation procedures.

Optional Parts List	
Description	**Part Number**
Converter tray	MCP-220-00140-0B
Network cards	AOC-S25G-M2S
	AOC-SGP-I2
	AOC-S40G-I2Q
Power cords	CBL-PWCD-0579-1
	CBL-PWCD-0300-IS
	CBL-PWCD-0579
Short rail	MCP-290-11808-0N
NVMe kit (up to two NVMe drive support)	CBL-0296L
	MCP-240-00206-0N
	RSC-D-6G5
	CBL-PWEX-1136-70
	CBL-MCIO-1225M5Y
NVMe kit (up to four NVMe drive support)	CBL-0296L
	MCP-240-00207-0N
	RSC-DR-6G5
	MCP-240-00206-0N
	RSC-D-6G5
	CBL-PWEX-1136-40
	CBL-PWEX-1136-70
	CBL-MCIO-1225M5Y
TPM security modules	AOM-TPM-9671V-O
	AOM-TPM-9670V-O

6.1 Additional Storage Drives

The system supports 24 hot-swap 3.5" SATA3/SAS3 drives, accessible from the chassis front.

6.2 Storage Control Card and Cable(s)

Supermicro offers storage controller cards for various data protection and drive RAID levels. Please refer to the product page for the latest cards and add-on options.

6.3 TPM Security Module

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

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

Details and installation procedures are at:

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

- AOM-TPM-9671V-O

- AOM-TPM-9670V-O

6.4 Intel Virtual RAID on CPU (VROC)

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

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

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

Stripe sizes are 4K, 8K, 16K, 32K, 64K, 128K.

Requirements and Restrictions

- **Intel VROC is only available when the system is configured for UEFI boot mode.**

- To enable the **mdadm** command and support for RSTe, install the patch from

    - Linux: https://downloadcenter.intel.com/download/28158/Intel-Virtual-RAID-on-CPU-Intel-VROC-and-Intel-Rapid-Storage-Technology-enterprise-Intel-RSTe-Driver-for-Linux-

    - Windows: https://downloadcenter.intel.com/download/28108/Intel-Virtual-RAID-on-CPU-Intel-VROC-and-Intel-Rapid-Storage-Technology-enterprise-Intel-RSTe-Driver-for-Windows-

- To enable Intel VROC, a hardware key must be inserted on the motherboard, and the appropriate processor's Virtual Management Devices must be enabled in the BIOS setup.

- It is possible to enable Intel VROC without a hardware key installed, but only RAID0 will be enabled.

- Intel VROC is not compatible with secure boot. This feature must be disabled.

- When creating bootable OS RAID1 devices, you must have both devices on the same CPU, and a VMD on that CPU.

- Spanning drives when creating RAID devices is not recommended to due to performance issues, even though it is supported.

Supported SSDs and Operating Sytems

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

Additional Information

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

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

Hardware Key

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

Intel® VROC Keys			
VROC Package	**Description**	**Part Number**	**Intel MM Number**
Standard	RAID 0, 1, 10 Supports 3rd party SSDs	AOC-VROCSTNMOD	951605
Premium	RAID 0, 1, 5, 10 Supports 3rd party SSDs	AOC-VROCPREMOD	951606
Intel SSD only	RAID 0, 1, 5, 10 Supports Intel SSDs only	AOC-VROCINTMOD	956822
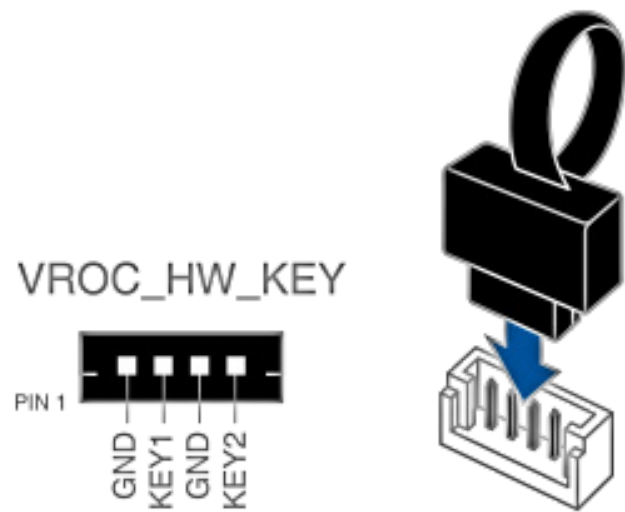
Figure 6-1. Intel VROC RAID Key and Motherboard Connector JRK1

Configuring NVMe RAID Manually

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

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

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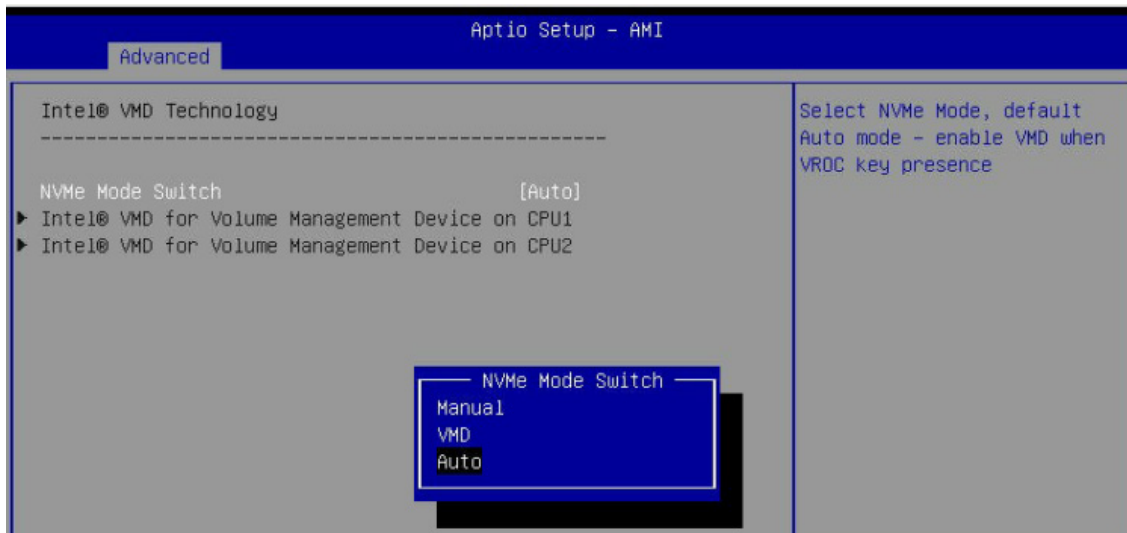
Figure 6-2. BIOS, Selecting VMD Mode

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

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

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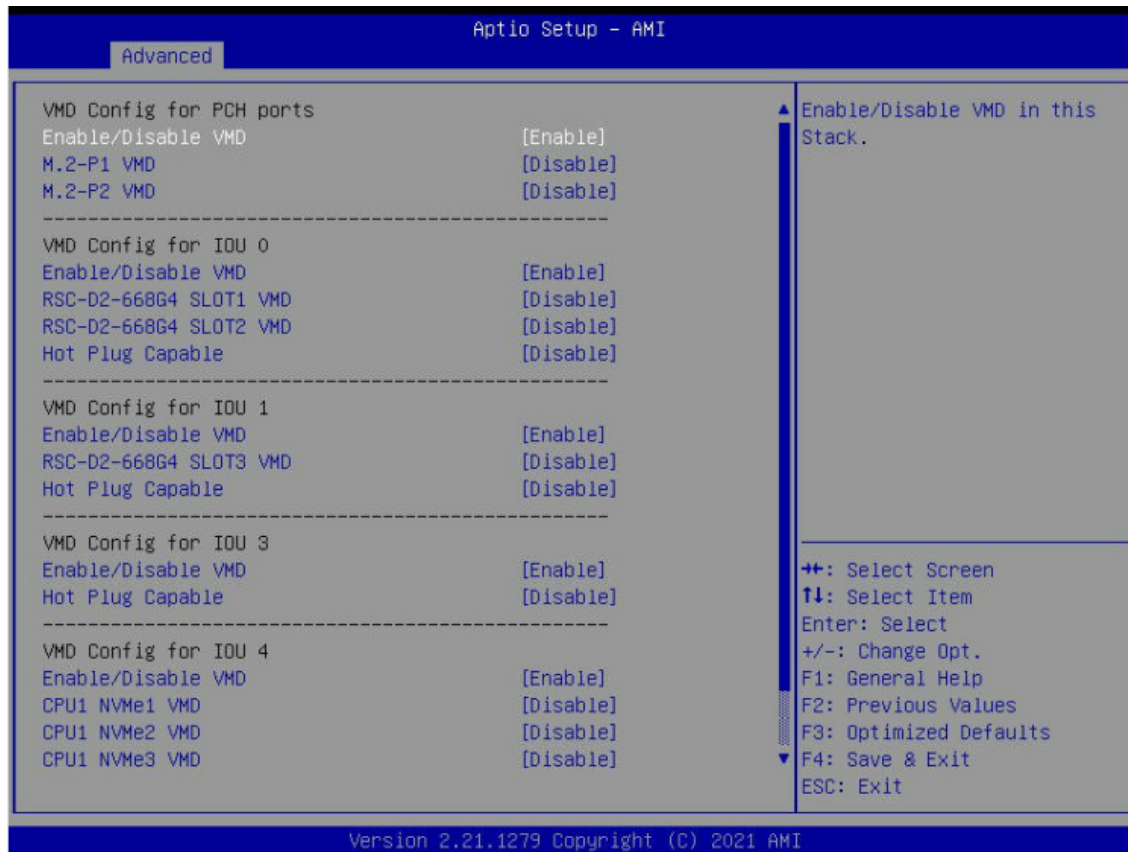
Figure 6-3. BIOS, Manual Mode (Example—your server may look different.)

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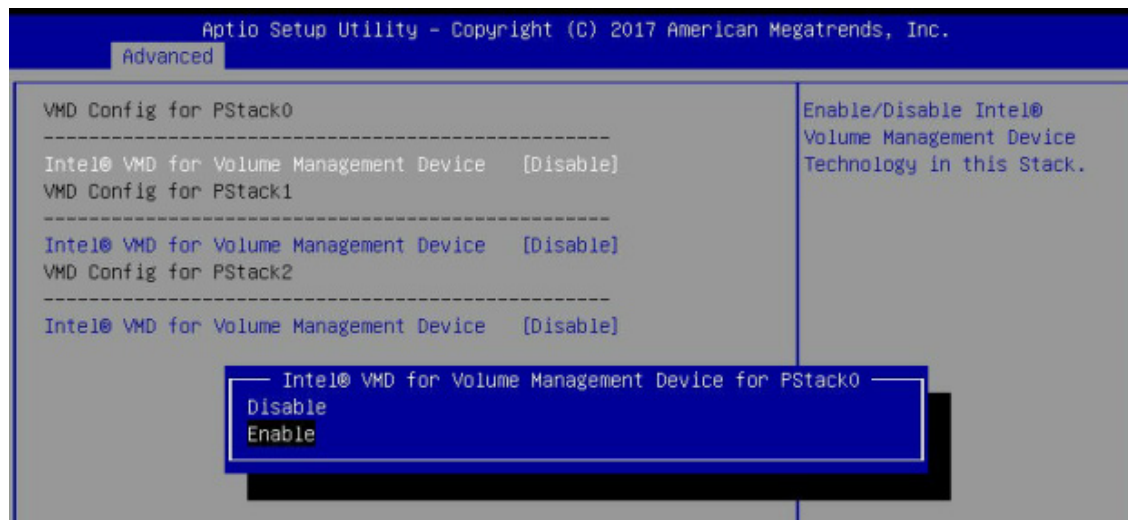
Figure 6-4. BIOS, Enabling VMD for Pstack0

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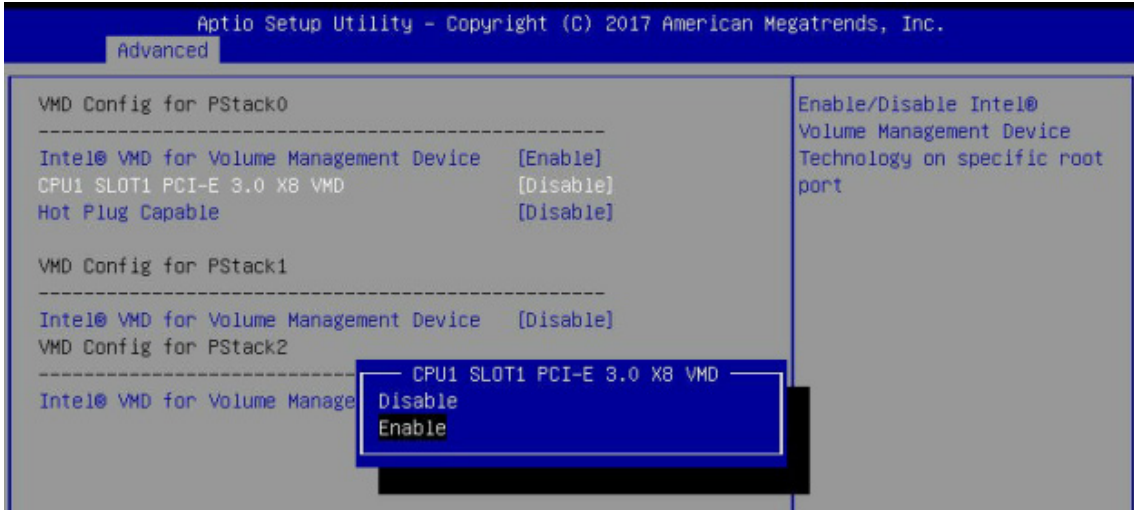
Figure 6-5. BIOS, Enabling VMD Functionality per Slot

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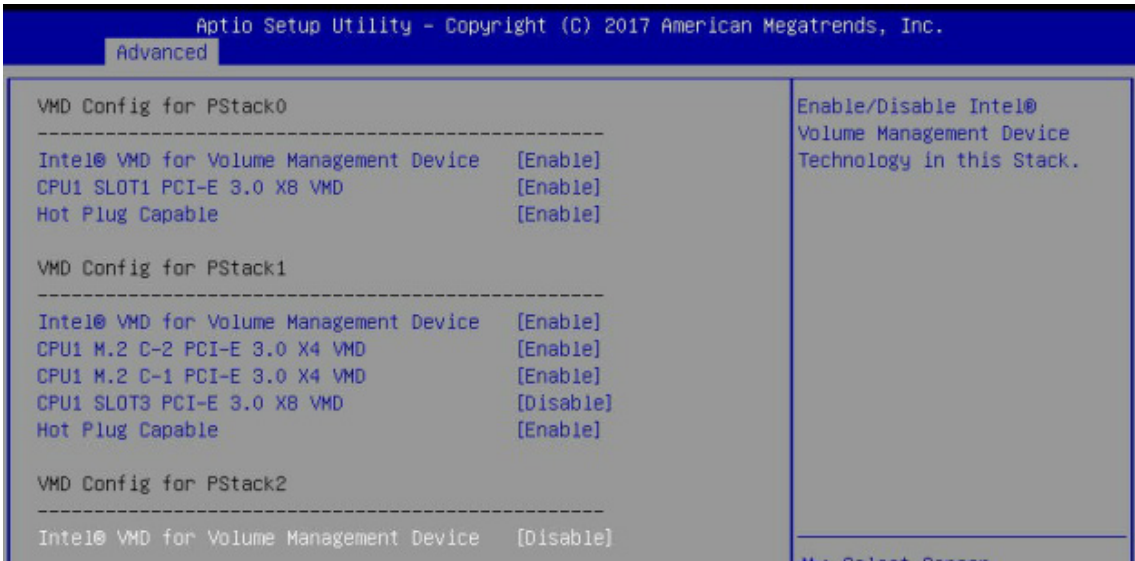
Figure 6-6. BIOS, Enabling CPU1 Example
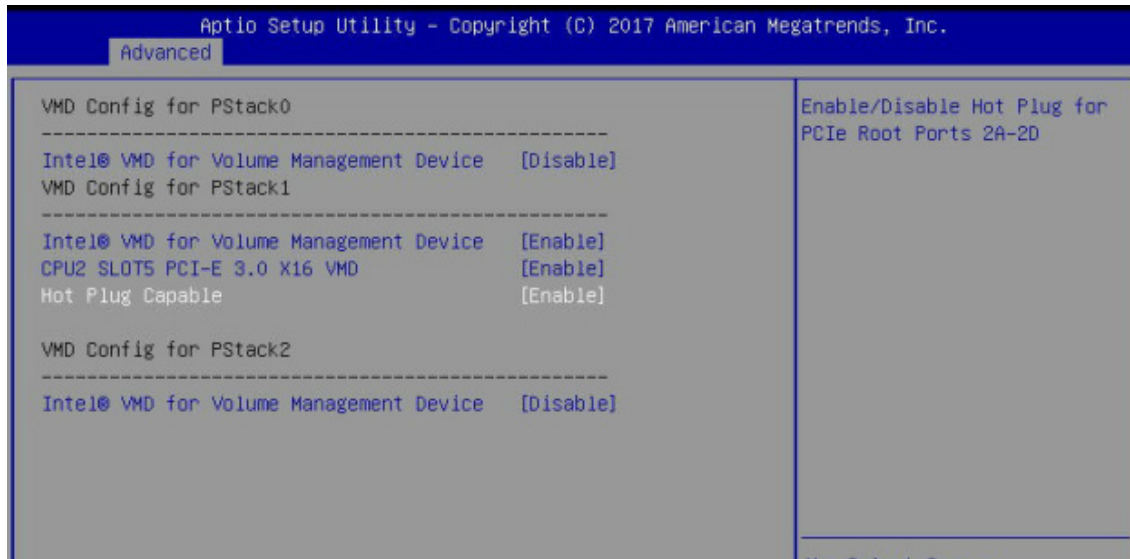
Figure 6-7. BIOS, Enabling CPU2 Example

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

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

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

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

8. Set **Name**.

9. Set **RAID Level**.

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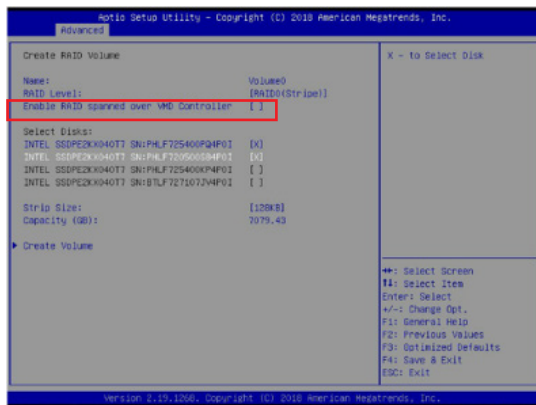
Figure 6-8. Created Volume *without* enabling RAID spanned over VMD controller
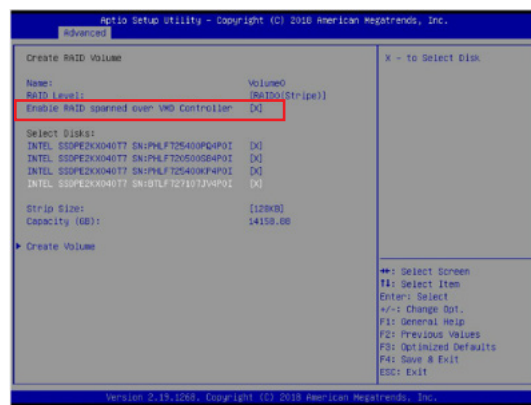
Figure 6-9. Created Volume *with* enabling RAID spanned over VMD controller

11. Select specific disks for RAID with an [X].

- RAID0: Select at least two [2 - 24] disks

- RAID1: Select only two disks

- RAID5: Select at least three [3 - 24] disks

- RAID10: Select only four disks

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

13. Select **Create Volume**.

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

15. Press [F4] to save and reboot.

Status Indications

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

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

IBPI SFF 8489 Defined Status LED States

Hot Swap Drives

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

Hot-unplug

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

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

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

3. Detach the device. Check [3] for details.

4. Physically remove the device.

Hot-plug

• Physically install the device.

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

Related Information Links

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

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

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

Chapter 7

Troubleshooting and Support

7.1 Information Resources

Website

A great deal of information is available on the Supermicro website, supermicro.com.
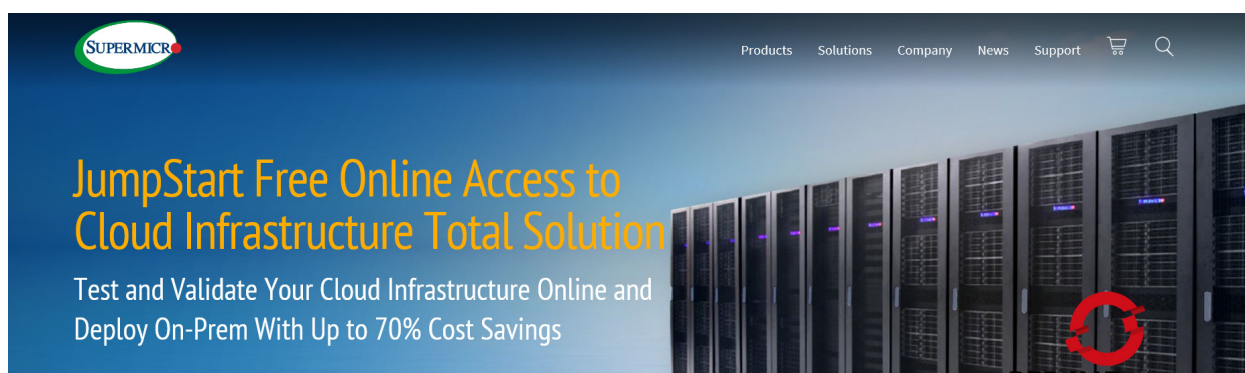
Figure 7-1. Supermicro Website

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

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

Direct Links for the SSG-521E-E1CR24H/SSG-521E-E1CR24L System

Web SSG-521E-E1CR24H and SSG-521E-E1CR24L specifications page

X13SEDW-F motherboard page for links to the Quick Reference Guide, User Manual, validated storage drives, etc.

Direct Links for General Support and Information

Frequently Asked Questions

Add-on card descriptions

TPM User Guide

General Memory Configuration Guide: X13

SuperDoctor5 Large Deployment Guide

For validated memory, use our Product Resources page

Direct Links (continued)

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

Security Center for recent security notices

Supermicro Phone and Addresses

7.2 Baseboard Management Controller (BMC)

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

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

Figure 7-2. BMC Sample

7.3 Troubleshooting Procedures

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

General Technique

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

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

2. Set all jumpers to their default positions.

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

No Power to the System

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

• Make sure AC power is being supplied to the power supply.

• Check that the power cord is plugged into a power outlet that supply 100-127 Vac, 50-60 Hz, 12-15 A and 200-240 Vac, 50-60 Hz, 7-8.5 A.

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

No Video

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

2. Use the speaker to determine if any beep codes are present. Refer to Appendix A for details on beep codes.

3. 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, check the following:

1. Check for any error beep from the motherboard speaker.

- If there is no error beep, try to turn on the system without DIMM modules installed. If there is still no error beep, replace the motherboard.

- If there are error beeps, clear the CMOS settings by unplugging the power cord and contacting both pads on the CMOS clear jumper (JBT1). Refer to Clear CMOS in Chapter 2.

2. Remove all components from the motherboard, especially the DIMM modules. Make sure that system power is on and that memory error beeps are activated.

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

Memory Errors

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

2. Confirm that you are using the correct memory. Also, it is recommended that you use the same memory type and speed for all DIMMs in the system. See Section 3.4 for memory details.

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

4. Check the power supply voltage 115 V/230 V switch.

Losing the System Setup Configuration

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

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.

3. If the above steps do not fix the setup configuration problem, contact your vendor for repairs.

When the System Becomes Unstable

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

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

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

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

3. Storage support: Make sure that all storage drives work properly. Replace the bad drives with good ones.

4. System cooling: Check the system cooling to make sure that all heatsink fans and CPU/system fans, etc., work properly. Check the hardware monitoring settings in the BMC to make sure that the CPU and system temperatures are within the normal range. Also check the front panel Overheat LED and make sure that it is not on.

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

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

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

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

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

3. Using the minimum configuration for troubleshooting: Remove all unnecessary components (starting with add-on cards first), and use the minimum configuration (but with a CPU and a

memory module installed) to identify the trouble areas. Refer to the steps listed in Section A above for proper troubleshooting procedures.

4. Identifying bad components by isolating them: If necessary, remove a component in question from the chassis, and test it in isolation to make sure that it works properly. Replace a bad component with a good one.

5. Check and change one component at a time instead of changing several items at the same time. This will help isolate and identify the problem.

6. To find out if a component is good, swap this component with a new one to see if the system will work properly. If so, then the old component is bad. You can also install the component in question in another system. If the new system works, the component is good and the old system has problems.

7.4 Crash Dump Using BMC

In the event of a processor internal error (IERR) that crashes your system, you may want to provide information to support staff. You can download a crash dump of status information using BMC.

Check the BMC Error Log

1. Access the BMC web interface.

2. Click the **Server Health** tab, then **Event Log** to verify an IERR error.
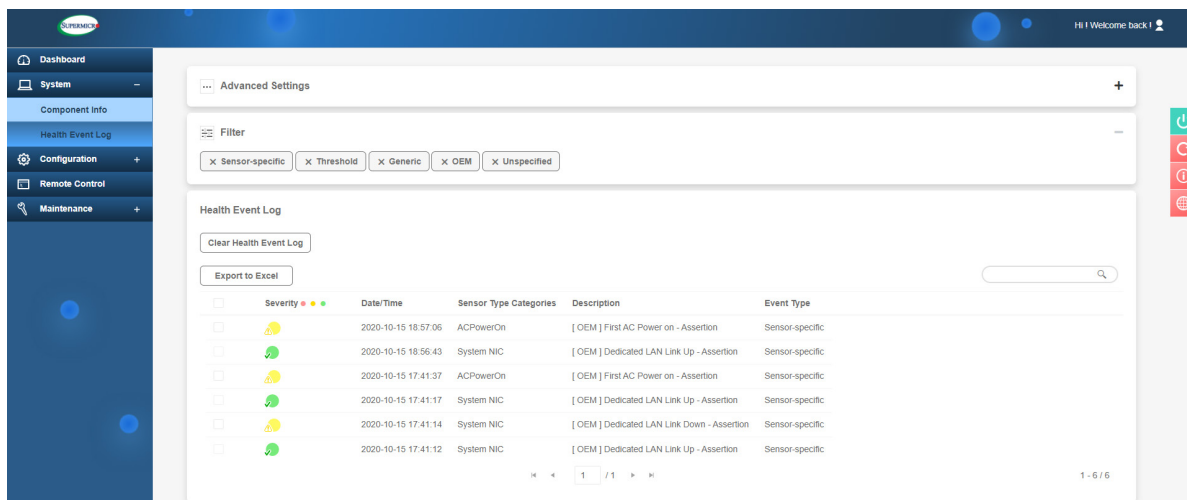
Figure 7-3. BMC Event Log

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

7.5 CMOS Clear

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

To Clear CMOS

1. First power down the system completely.

2. Remove the cover of the chassis to access the motherboard.

3. Remove the onboard battery from the motherboard.

4. Short the CMOS pads with a metal object such as a small screwdriver for at least four seconds.

JBT1 contact pads

5. Remove the screwdriver or shorting device.

6. Replace the cover, reconnect the power cords and power on the system.

Notes: Clearing CMOS will also clear all passwords.

Do not use the PW_ON connector to clear CMOS.

7.6 BMC Reset

The BMC can be reset using the UID button.

- Reset – Press and hold the button. After six seconds, the LED blinks at 2 Hz. The BMC resets and the reset duration is ~250 ms. Then the BMC starts to boot.

- Restore factory default configuration – Hold the button for twelve seconds. The LED blinks at 4 Hz while defaults are configured. **Note**: All BMC settings including username and password will be removed except the FRU and network settings.

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

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

7.7 Where to Get Replacement Components

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

7.8 Reporting an Issue

Technical Support Procedures

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

1. Please review the Troubleshooting Procedures in this manual and Frequently Asked Questions on our website before contacting Technical Support.

2. BIOS upgrades can be downloaded from our website. **Note**: Not all BIOS can be flashed depending on the modifications to the boot block code.

3. If you still cannot resolve the problem, include the following information when contacting us for technical support:

   - System, motherboard, and chassis model numbers and PCB revision number

   - BIOS release date/version (this can be seen on the initial display when your system first boots up)

   - System configuration

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

Returning Merchandise for Service

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

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

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

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

Vendor Support Filing System

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

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

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

7.9 Feedback

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

Appendix A

Standardized Warning Statements for AC Systems

About Standardized Warning Statements

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

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

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

Warning Definition

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

警告の定義

この警告サインは危険を意味します。

人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、

電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

此警告符号代表危险。

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

此警告符號代表危險。

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

Warnung

WICHTIGE SICHERHEITSHINWEISE

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

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

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

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

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

CONSERVEZ CES INFORMATIONS.

תקנון הצהרות אזהרה

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

احذر! خطرٌ عُ هذا الزهز ةُ جسذ اصابة ف تتسبب أى وُي حالة ف اكَ .
قبل أى تعول على أي هعذات،كي على علن بالوخاطز ال اُجوة عي الذوائز
الكهزبائ ةٍ
وكي على درا ةُ بالووارسات النقائ ةٍ لو عٌ وقع أي حادث
استخذم رقن الب اٍى الو صُص ف هًا ةُ كل تحذ زٌ للعشر تزجوتها

안전을 위한 주의사항

경고!

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

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

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

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

BEWAAR DEZE INSTRUCTIES

Installation Instructions

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

設置手順書
システムを電源に接続する前に、設置手順書をお読み下さい。

警告
将此系统连接电源前,请先阅读安装说明。

警告
將系統與電源連接前，請先閱讀安裝說明。

Warnung

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

¡Advertencia!

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

Attention

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

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

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

Circuit Breaker

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

サーキット・ブレーカー

この製品は、短絡（過電流）保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

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

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

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

Waarschuwing

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

Power Disconnection Warning

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

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

電源切断の警告

システムコンポーネントの取り付けまたは取り外しのために、シャーシー内部にアクセスするには、システムの電源はすべてのソースから切断され、電源コードは電源モジュールから取り外す必要があります。

警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה מפני ניתוק חשמלי

אזהרה!

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

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

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

انصل إىل امناطق انداخهيت نههيكم نتثبيج أو إزانت مكناث الجهاز

경고!

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

Waarschuwing

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

Equipment Installation

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

機器の設置

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

警告
只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告
只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה!

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

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

경고!

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

Waarschuwing

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

Restricted Area

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

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

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

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

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

Warnung

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

¡Advertencia!

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

Attention

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

אזור עם גישה מוגבלת
אזהרה!
יש להתקין את היחידה באזורים שיש בהם הגבלת גישה. הגישה ניתנת בעזרת
כלי אבטחה בלבד)מפתח, מנעול וכד.(

تخصيص هذه انحذة نترك بُها ف مناطق محظورة تم .
مَكن انتصبل إن منطقت محظورة فقط من خلال استخذاو أداة خاصت،
أو أ وس هُت أخري نلالأمما قفم ومفتاح

경고!
이 장치는 접근이 제한된 구역에 설치하도록 되어있습니다. 특수도구, 잠금 장치 및 키, 또는 기타 보안 수단을 통해서만 접근 제한 구역에 들어갈 수 있습니다.

Waarschuwing

Dit apparaat is bedoeld voor installatie in gebieden met een beperkte toegang. Toegang tot dergelijke gebieden kunnen alleen verkregen worden door gebruik te maken van speciaal gereedschap, slot en sleutel of andere veiligheidsmaatregelen.

Battery Handling

Warning! There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions

電池の取り扱い

電池交換が正しく行われなかった場合、破裂の危険性があります。交換する電池はメーカーが推奨する型、または同等のものを使用下さい。使用済電池は製造元の指示に従って処分して下さい。

警告

电池更换不当会有爆炸危险。请只使用同类电池或制造商推荐的功能相当的电池更换原有电池。请按制造商的说明处理废旧电池。

警告

電池更換不當會有爆炸危險。請使用製造商建議之相同或功能相當的電池更換原有電池。請按照製造商的說明指示處理廢棄舊電池。

Warnung

Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr. Ersetzen Sie die Batterie nur durch den gleichen oder vom Hersteller empfohlenen Batterietyp. Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.

Attention

Danger d'explosion si la pile n'est pas remplacée correctement. Ne la remplacer que par une pile de type semblable ou équivalent, recommandée par le fabricant. Jeter les piles usagées conformément aux instructions du fabricant.

¡Advertencia!

Existe peligro de explosión si la batería se reemplaza de manera incorrecta. Reemplazar la batería exclusivamente con el mismo tipo o el equivalente recomendado por el fabricante. Desechar las baterías gastadas según las instrucciones del fabricante.

אזהרה!

קיימת סכנת פיצוץ של הסוללה במידה והוחלפה בדרך לא תקינה. יש להחליף
את הסוללה בסוג התואם מחברת יצרן מומלצת.
סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

<div dir="rtl">

هناك خطر من انفجار في حالة اسحبذال البطارية بطريقة غير صحيحة فعليل

اسحبذال البطارية

فقط بنفس النع أو ما يعادلها مما أوصث به الشرمة المصنعة

جخلص من البطاريات المسحعملة وفقا لحعليمات الشرمة الصانعة

</div>

경고!

배터리가 올바르게 교체되지 않으면 폭발의 위험이 있습니다. 기존 배터리와 동일하거나 제조사에서 권장하는 동등한 종류의 배터리로만 교체해야 합니다. 제조사의 안내에 따라 사용된 배터리를 처리하여 주십시오.

Waarschuwing

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

Redundant Power Supplies

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

冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。

ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

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

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

Warnung

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

¡Advertencia!

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

Attention

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

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

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

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

Waarschuwing

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

Backplane Voltage

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

バックプレーンの電圧

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

修理する際には注意ください。

警告
当系统正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告
當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

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

¡Advertencia!

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

Attention

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

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

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

경고!

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

Waarschuwing

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

Comply with Local and National Electrical Codes

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

地方および国の電気規格に準拠

機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

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

Attention

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

תיאום חוקי החשמל הארצי

אזהרה!

התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمتثل للقاويه المحلية والطية المتعلقة

بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

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

Product Disposal

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

製品の廃棄

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

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

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

¡Advertencia!

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

Attention

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

סילוק המוצר

אזהרה!

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

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

경고!

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

Waarschuwing

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

Fan Warning

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

ファンの警告

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

警告!

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

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

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

경고!

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

Waarschuwing

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

Power Cable and AC Adapter

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

電源コードとACアダプター

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

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

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

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

Warnung

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

¡Advertencia!

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

Attention

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

כבלים חשמליים ומתאמי AC

אזהרה!

כאשר מתקינים את המוצר, שי להשתמש בכבלים, ספקים ומתאמים AC אשר נרכשו או שהותאם לצרור. עקבו והתקינת לבכה של הנכון הדמי ללול, לכול תחומיות הבטיחות תוירדל ומאתוה ראשו, ההתקנה לכב לבכ. הנקתהה למשחה ירישכמב שומישה יקוחל מאתהב. למשמח רצק או הלקתל מורגל לולע, רחא גוסמ מאתמ או לבכ של דוק מהילע עיפומ ראשאכ) CSA-ב וא UL ב- םיכמסומה םילבכב שמתשהל רוסיא סייק, תוחיטבה יקוחו. דבלב Supermicro י"ע מאתוה רשא רצומב קר אלא, רחא ילמשח רצומ לכ רובע UL/CSA)

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

전원 케이블 및 AC 어댑터

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

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

Stroomkabel en AC-Adapter

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

Appendix B

System Specifications

Processors

Single 5th/4th Generation Intel® Xeon® Scalable processor (HBM), CPU TDP supports up to 300 W TDP in a Socket E (LGA-4677)

Chipset

Intel® C741

BIOS

AMI 32 MB SPI Flash EEPROM

Memory

Up to 4 TB of ECC RDIMM/RDIMM 3DS DDR5 memory with speeds of up to 5600 MT/s in 16 memory slots

Storage Drives

24 hot-swap 3.5" SAS3/SATA3 drive bays
Two rear hot-swap 2.5" SATA3 drive bays
Two onboard M.2 NVMe slots PCIe 3.0 (22 x 110 mm)
(Optional) Four rear hot-swap 2.5" NVMe U.2 drive bays

PCI Expansion Slots

Four PCIe 5.0 x8 slots (full-height, full-length)
Two PCIe 5.0 x16 slots (full-height, full-length)
Two PCIe 5.0 x16 AIOM slots

Input/Output

One RJ45 dedicated IPMI LAN port
Two rear USB 3.0 ports
One rear VGA port
One rear COM port
Two SuperDOM ports

Motherboard

X13SEDW-F: 13" (L) x 13" (W) (33.02 cm x 33.02 cm)

Chassis

CSE-826S2TS-R1K62P1: 4U; (WxHxD) 17.2 x 7 x 26.5 in. (437 x 178 x 673 mm)

System Cooling

Four heavy duty 8-cm fans with optimal fan speed control
One air shroud

Power Supply

Model: PWS-1K62A-1R, two 1600W redundant modules, 80Plus Platinum Level
AC Input
   1000 W: 100-127 Vac / 50-60 Hz
   1600 W: 200-240 Vac / 50-60 Hz
+12V
   Max: 83.3 A / Min: 0 A (100 Vac-127 Vac)
   Max: 133 A / Min: 0 A (200 Vac-240 Vac)
+12 V SB
   Max: 2.1A / Min: 0A

Operating Environment

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

Certified Safety Models

Compliant with UL or CSA: 826-R8X12, 826-8

Regulatory Compliance

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

Applied Directives, Standards

EMC/EMI: 2014/30/EU (EMC Directive)
Electromagnetic Compatibility Regulations 2016
FCC Part 15
ICES-003
VCCI-CISPR 32
AS/NZS CISPR 32
BS/EN 55032
BS/EN 55035
CISPR 32
CISPR 35
BS/EN 61000-3-2
BS/EN 61000-3-3
BS/EN 61000-4-2
BS/EN 61000-4-3
BS/EN 61000-4-4
BS/EN 61000-4-5
BS/EN 61000-4-6
BS/EN 61000-4-8
BS/EN 61000-4-11

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

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

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

Perchlorate Warning

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

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

VCCI－A