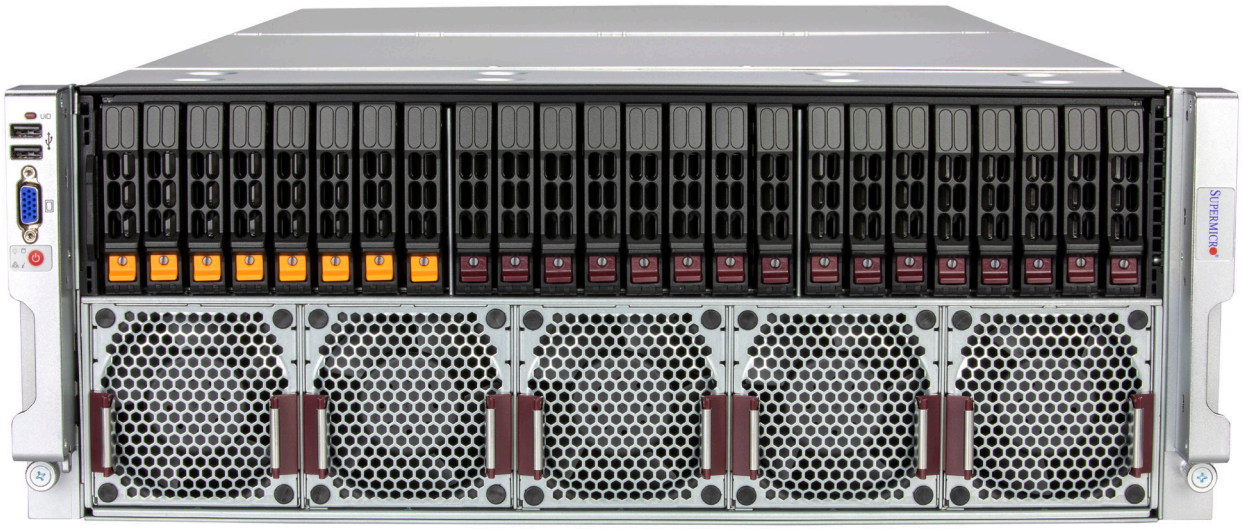
A+ Server
AS -4145GH-TNMR



USER'S MANUAL

Revision 1.0

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Manual Revision 1.0

Release Date: March 07, 2025

Preface

About this Manual

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

Please refer to the AS -4145GH-TNMR 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/driver
- Product safety info: http://www.supermicro.com/about/policies/safety_information.cfm

If you have any questions, please contact our support team at:
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This manual may be periodically updated without notice. Please check the Supermicro website for possible updates to the manual revision level.

Secure Data Deletion

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

Warnings

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

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

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

Contents

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Chapter 1

Introduction

1.1 Overview

This chapter provides a brief outline of the functions and features of the SuperServer AS -4145GH-TNMR. The system is based on the H13QSH motherboard and the CSE-418H2TS-R5K4AWP chassis.

The following provides an overview of the specifications and capabilities.

System Overview	
Motherboard	H13QSH
Chassis	CSE-418H2TS-R5K4AWP
Processor	AMD Instinct™ MI300A Accelerated Processing Units (APUs) in an AM5 socket
Memory	Up to 512 GB of non-ECC HBM3 onboard memory
Drive Support	Default Eight 2.5" NVMe drive bays Option A Sixteen 2.5" NVMe drive bays Option B Twenty-four 2.5" SAS/SATA* drive bays *requires optional kits (see Chapter 6)
Expansion Slots	Default Four PCIe 5.0 x16 FHHL slots PCIe 5.0 x8 FHHL slot Option A Four PCIe 5.0 x16 FHHL slots Six PCIe 5.0 x8 FHHL slot Two PCIe 5.0 x8 AIOM slots (OCP 3.0 compatible) Option B Six PCIe 5.0 x16 FHHL slots Two PCIe 5.0 x16 AIOM slots (OCP 3.0 compatible)
I/O Ports	One Display Port Two USB 3.0 ports One COM port One 1GbE Dedicated BMC LAN
System Cooling	Ten heavy-duty, counter-rotating 8-cm fans (five in front, five on top)
Power	Four redundant power supply modules 2700 W (Titanium Level)
Form Factor	4U: 7 x 17.3 x 33.4 in. / 177 x 438 x 849 mm

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

The following safety models associated with the AS -4145GH-TNMR have been certified as compliant with UL or CSA: 418H2-Q27H13, 418H2-27.

1.2 System Features

The AS -4145GH-TNMR supports up to 24 front drives.

Front View

Figure 1-1. System: Front View

System Features: Front	
Feature	**Description**
VGA Port	Graphics port
USB Ports	Two USB 2.0 ports
Control Panel	Details on the next page
0 - 23	SAS/SATA/NVME drive bays (according to configuration)

Drive Carrier LED Indicator			
LED	**Color**	**Blinking Pattern**	**Behavior for Device**
Activity LED	Blue	Solid On	SAS/SATA/NVMe drive installed
	Blue	Blinking	I/O activity
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 (not supported in VMD mode)
	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 device (not supported in VMD mode)
	Amber	Blinking at 1 Hz	Attention state---do not remove NVMe device (not supported in VMD mode)

Control Panel

The chassis front features a control panel to monitor node function and power off and on the entire system.

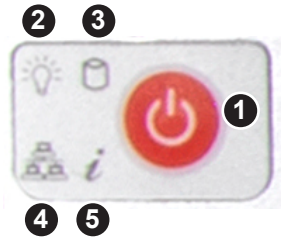


Figure 1-2. Control Panel

Control Panel Features		
Item	**Feature**	**Description**
1	Main Power button	Used to apply or remove power from the power supply to the server system. Whether on or off, standby power to the system remains on.
2	Power Fail LED	Illuminated when one of the power supplies fails while any node is powered on. It is off during normal operation.
3	Storage Drive Activity	Indicates activity on any installed storage drive.
4	Network Status	Indicates LAN port activity
5	Information LED	Alerts operator to several states, as noted in the table below.

Information LED	
Status	**Description**
Continuously on and red	An overheat condition has occurred. (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	UID has been activated locally to locate the server in a rack environment.
Blinking blue	UID has been activated using the BMC to locate the server in a rack environment.

Rear View

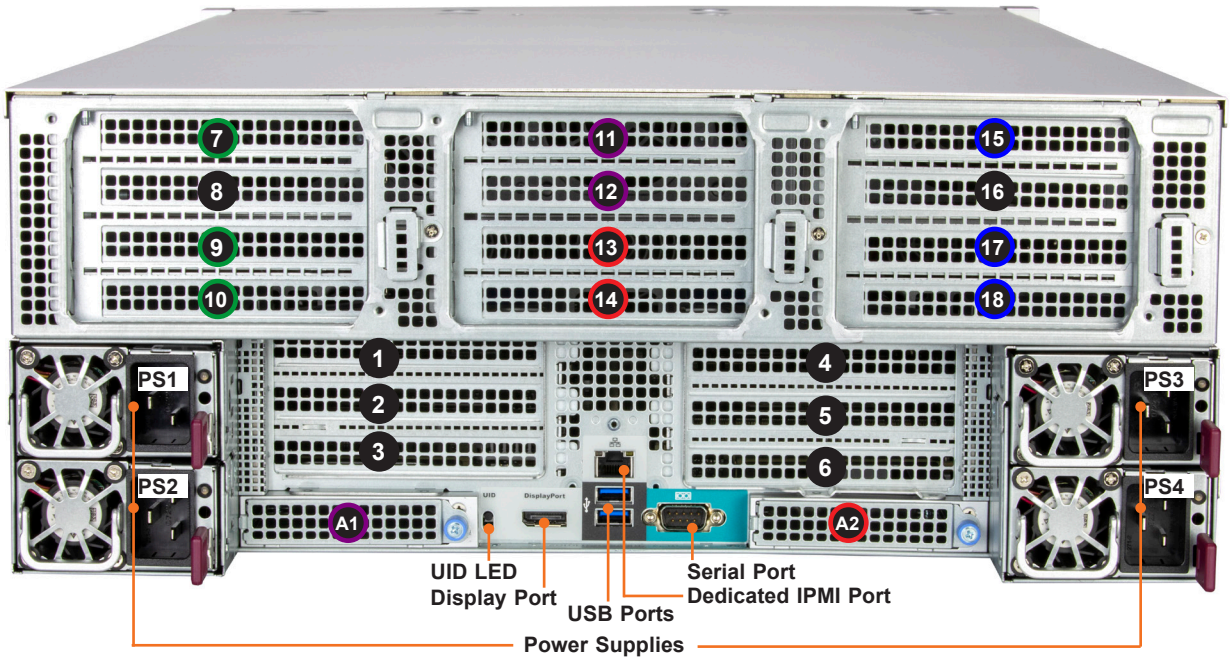


Figure 1-3. System: Rear View

PCIe Slot Configuration	
Slot Number	**Slot Description**
7 11 13 15	PCIe 5.0 x16, FHFL
9 10 12 14 17 18	PCIe 5.0 x8, FHFL
A1 A2	PCIe 5.0 x8, AIOM
1 2 3 4 5 6 8 16	PCIe 5.0 (optional)

APU1 APU2

APU3 APU4

System Features: Rear	
Feature	**Description**
Power Supplies	Four redundant 2700 W power supply modules.
UID LED	The unit identification (UID) LED turns on when activated to help locate the server in a rack environment.
DisplayPort	One digital display interface port
Serial Port	One COM (serial) port
Dedicated IPMI LAN Port	One RJ45 1 GbE dedicated IPMI LAN port
USB Ports	Two USB 3.0 ports

1.3 System Architecture

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

Main Components

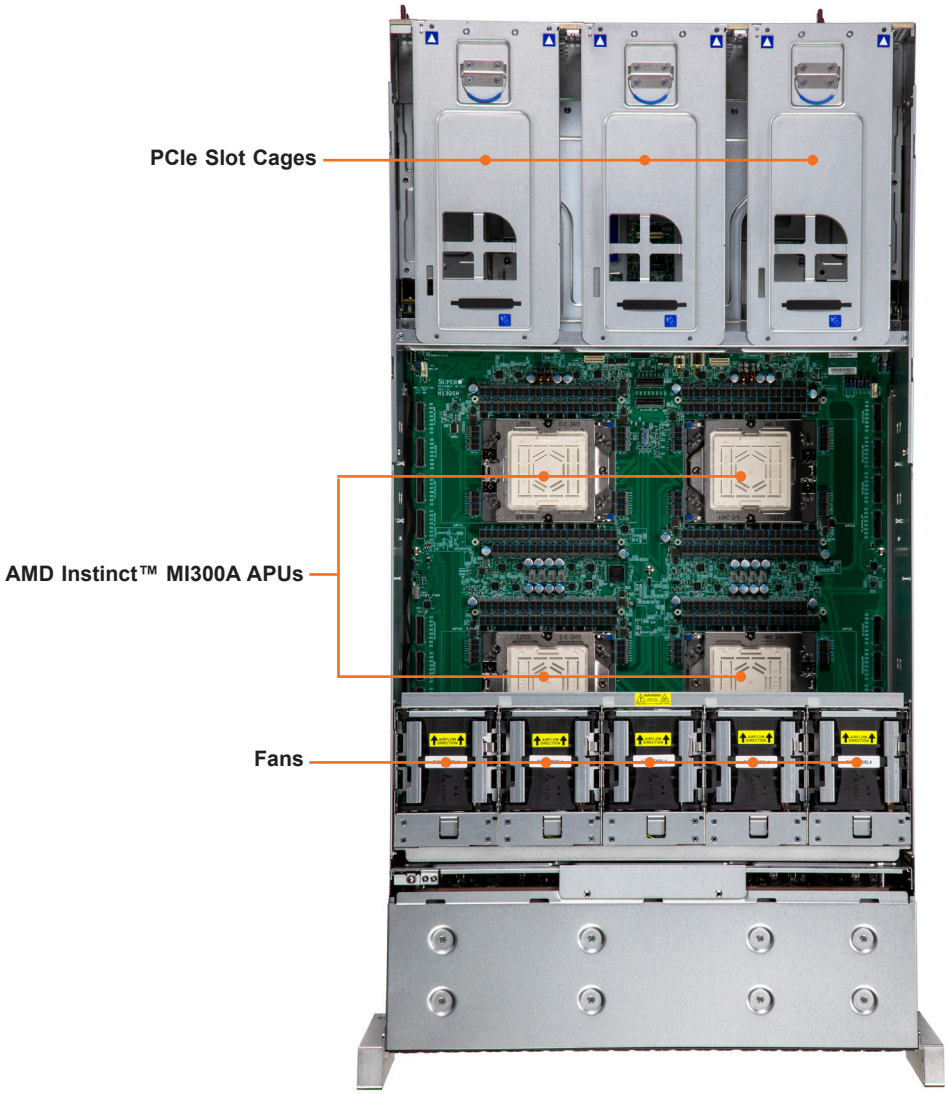


Figure 1-4. Main Component Locations

System Features: Top	
Feature	**Description**
PCI Slot Cages	Upper PCI slot cages
Processors	Four AMD Instinct™ MI300A Accelerated Processing Units (APUs)
System fans	Ten heavy-duty, counter-rotating 8-cm fans fans (five front, five top)

System Block Diagram

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

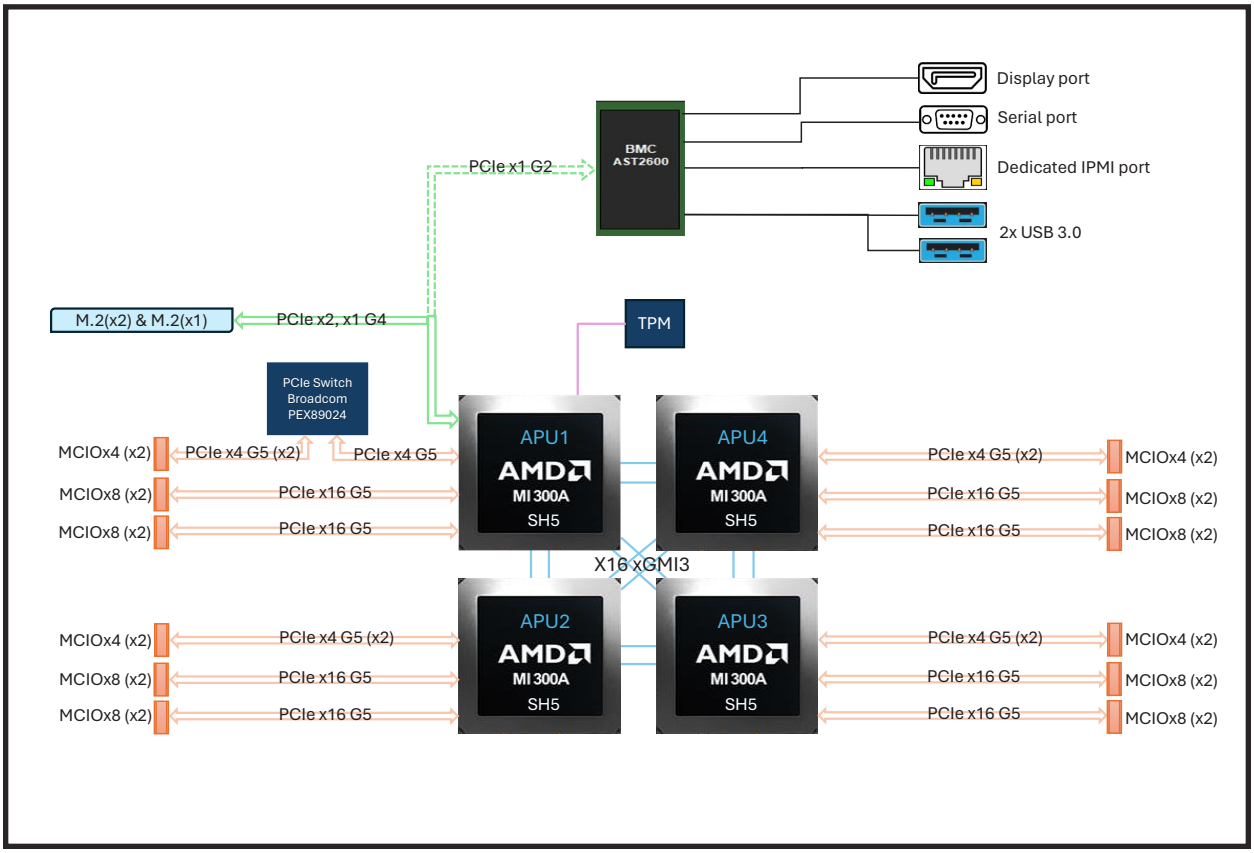


Figure 1-5. System Block Diagram

1.4 Motherboard Layout

Below is a layout of the H13QSH motherboard with jumper, connector and LED locations shown. See the table on the following page for descriptions. For detailed descriptions, pinout information and jumper settings, refer to Chapter 4 or the Motherboard Manual.

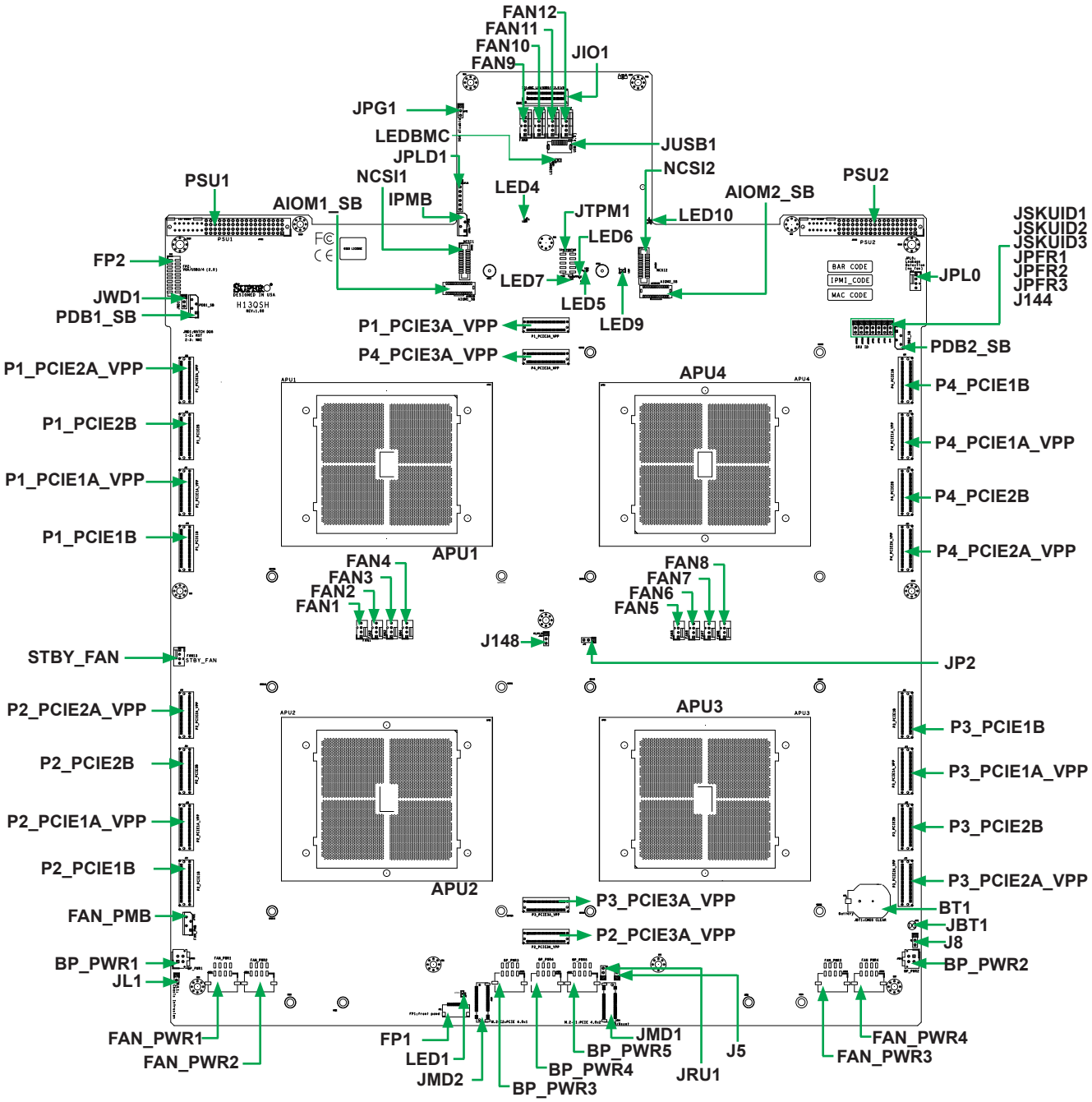


Figure 1-6. Motherboard Layout

Quick Reference Table

Jumper	Description	Default Setting
J5	NMI Switch	Open
JBT1	CMOS Clear	Open (Normal)
JPG1	Video Display Enable	Pins 1/2: Video Display Enabled
JPL0	4-pin Leakage Detection	
JRU1	UID LED/BMC Reset	Closed: Normal (UID LED)
JSKUID1-3	Refer to system manual for details	
JWD1	Watch Dog Timer Enable	Pins 1/2: Reset, Pins 2/3: Non-maskable Interrupt

LED	Description	Status
LED1 (LEDPWR)	Power LED	LED On: Onboard Power On
LEDBMC (LED3)	BMC Heartbeat LED	Blinking Green: BMC Normal (Active), Solid Green: (During BMC Reset or during a Cold Reboot)
LED4	BMC Error	Solid Red: BMC Failure
LED5	APU2 Power Status LED	Solid Red: Power Failure
LED6	APU3 Power Status LED	Solid Red: Power Failure
LED7	APU4 Power Status LED	Solid Red: Power Failure
LED9	PCIE SW Heartbeat	Blinking Green: PCIe SW Normal, Solid Green: (During BMC Reset or during a Cold Reboot)
LED10	PCIE SW Error	Solid Red: SystemError / No PCIe Link

Header/Connector	Description
AIOM1_SB (JAIOM1SB1) /AIOM2_SB (JAIOM2SB1)	Advanced I/O Module (AIOM) PCIe 5.0 x8 Slot Supported by APU
BT1	Onboard CMOS Battery
BMC (JIO1)	Dedicated BMC LAN on the Rear I/O Panel
BP_PWR2 (JPWR1)	4-pin Power Connector for Backplane Devices
BP_PWR1 (JPWR2)	4-pin Power Connector for Backplane Devices
BP_PWR3 (JPWR5)	8-pin Power Connector for Backplane Devices
BP_PWR4 (JPWR6)	8-pin Power Connector for Backplane Devices
BP_PWR5 (JPWR7)	8-pin Power Connector for Backplane Devices
FAN1-8	4-pin Fan Headers
FAN9-12	6-pin Cooling Fan Headers
FAN_PMB (JFAN1)	Fan for I²C Temperature Sensor
FAN_PWR1 (JPWR3)	8-pin Fan Power Connector
FAN_PWR2 (JPWR4)	8-pin Fan Power Connector
FAN_PWR3 (JPWR8)	8-pin Fan Power Connector
FAN_PWR4 (JPWR9)	8-pin Fan Power Connector
FP1	Front Control Panel header with I²C
FP2	Front Control Panel Header with USB and VGA Support
IPMB (JIPMB1)	4-pin BMC External I²C Header (for an IMPI card)

Header/Connector	Description
JL1	Chassis Intrusion Header
JMD1-2 (M.2-C1/M.2-C2)	M.2 M-Key 2280/22110 (supports PCIe 4.0 x2/x1) Slot
JTPM1	Trusted Platform Module/Port 80 Connector
NCSI1 (JNCSI1)/ NCSI2 (JNCSI2)	NCSI Headers for IPMI Support
PSU1 (JPSU1)/ PSU2 (JPSU2)	Supermicro Proprietary Power Supply Units 1/2 for System Use
PDB1_SB/PDB2_SB	SMB I²C for 4U Power Distribution Board
P1_PCIE1B/P1_PCIE2B	JA2 and JA4: PCIe 5.0 x8 by APU1
P2_PCIE1B/P2_PCIE2B	JB2 and JB4: PCIe 5.0 x8 by APU2
P3_PCIE1B/P3_PCIE2B	JC2 and JC4: PCIe 5.0 x8 by APU3
P4_PCIE1B/P4_PCIE2B	JD2 and JD4: PCIe 5.0 x8 by APU4
P1_PCIE1A_VPP/ P1_PCIE2A_VPP	JA1 and JA3: PCIe 5.0 x8 by APU1
P1_PCIE3A_VPP	2x PCIe 5.0 x4 by PESW (APU1)
P2_PCIE1A_VPP/ P2_PCIE2A_VPP/ P2_PCIE3A_VPP	JB1 and JB3: PCIe 5.0 x8 by APU2, JB5: 2 x PCIe 5.0 x4 by APU2
P3_PCIE1A_VPP/ P3_PCIE2A_VPP/ P3_PCIE3A_VPP	JC1 and JC3: PCIe 5.0 x8 by APU3, JC5: 2 x PCIe 5.0 x4 by APU3
P4_PCIE1A_VPP/ P4_PCIE2A_VPP/ P4_PCIE3A_VPP	JD1 and JD3: PCIe 5.0 x8 by APU4, JD5: 2 x PCIe 5.0 x4 by APU4
STBY-FAN (FAN13)	Standby Fan Header
USB2 (3.0) (JUSB1)	Type A USB 3.0 Connector (USB2) for Front Access

Note: Jumpers, connectors, switches, and LED indicators that are not described in the preceding tables are for manufacturing testing purposes only, and are not covered in this manual.

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 AS -4145GH-TNMR was shipped, and note if it was damaged in any way. If any equipment appears damaged, file a damage claim with the carrier who delivered it.

Decide on a suitable location for the rack unit that will hold the server. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. It will also require a grounded AC 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.

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.

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

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

2.4 Procedure for Rack Mounting

This section provides information on installing a 4U chassis into a rack unit with the rails provided. There are a variety of rack units on the market, so the assembly procedure may differ slightly. Also refer to the installation instructions for your rack unit.

Note: This rail will fit a rack between 26.5"and 36.4" deep.

Identifying 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 chassis rail which secures directly to the chassis, an outer rail that secures to the rack, and a middle rail which extends from the outer rail. These assemblies are specifi cally designed for the left and right side of the chassis.

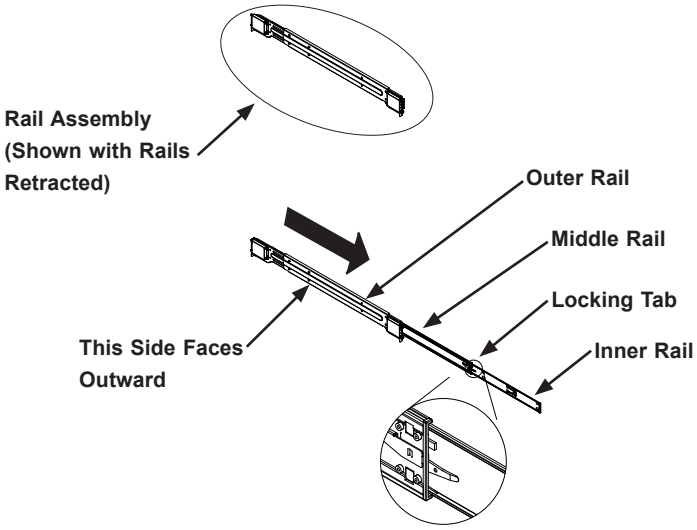


Figure 2-1. Identifying the Sections of the Rack Rails
(Left Rail Assembly Shown)

Installing the Inner Rails on the Chassis

Releasing the Inner Rails

1. Identify the left and right outer rail assemblies.
2. Pull the inner rail out of the outer rail until it is fully extended as illustrated below.
3. Press the locking tab down to release the inner rail.
4. Repeat steps 1-3 for the second outer rail.

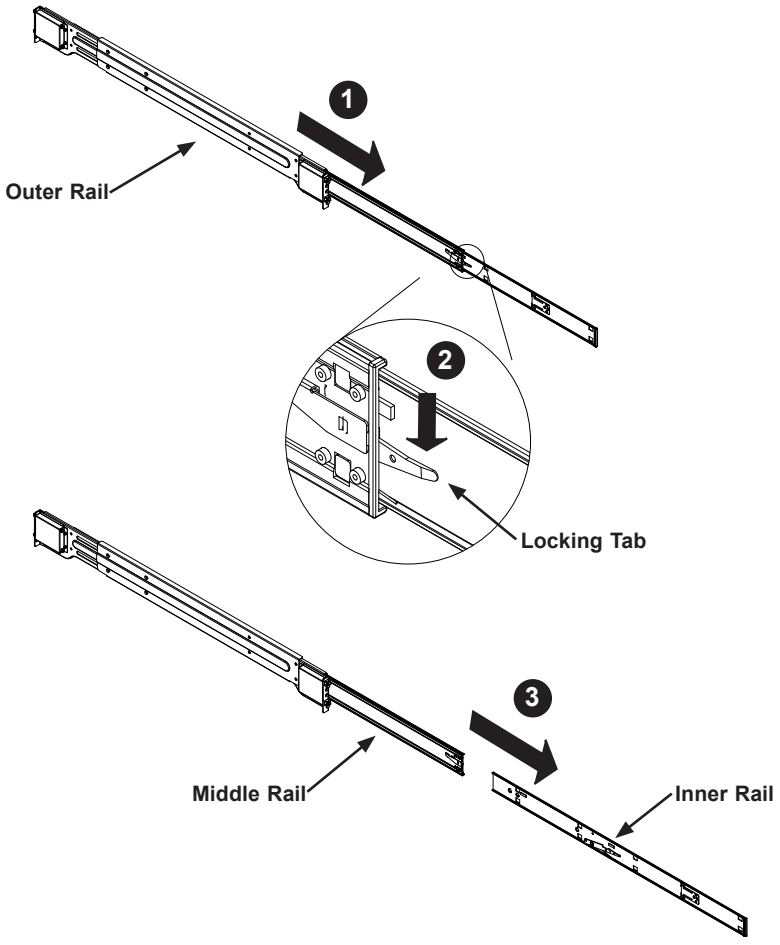


Figure 2-2. Releasing the Inner Rails

Installing the Inner Rails

1. Identify the left and right side inner rails. Place the correct inner rail on the side of the chassis, aligning the hooks of the chassis with the inner rail holes. Make sure the rail faces "outward" so that it will fit with the rack's mounting bracket.
2. Slide the rail toward the front of the chassis to hook the inner rail onto the side of the chassis.
3. If desired, secure the rail with two flat head M4 x 4mm screws.
4. Repeat for the other inner rail.

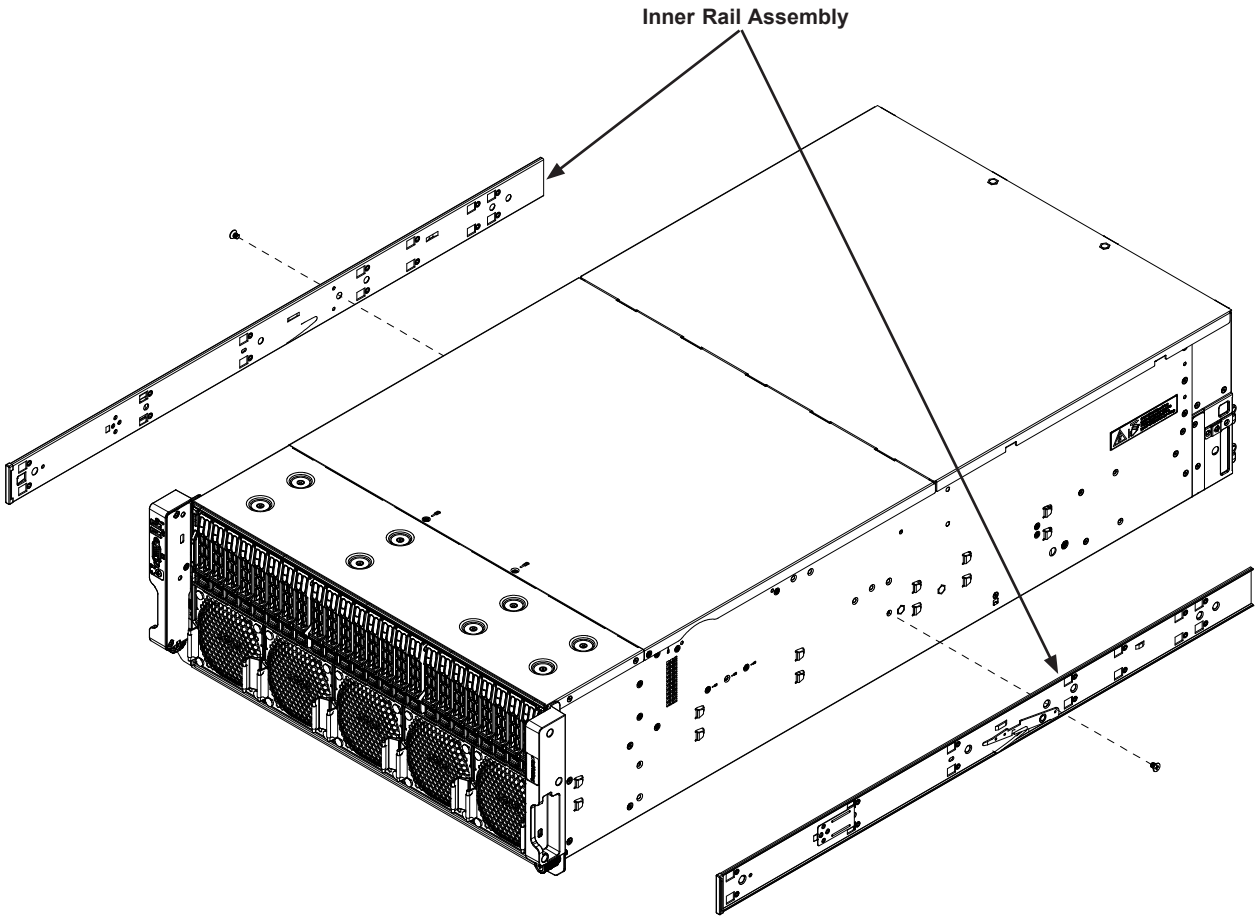


Figure 2-3. Installing the Inner Rails

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

Installing the Outer Rails onto the Rack

Installing the Outer Rails

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

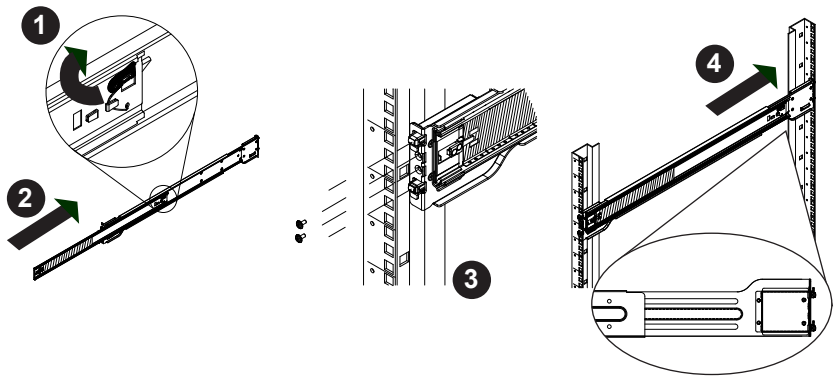


Figure 2-4. Extending and Mounting the Outer Rails

Important: 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.

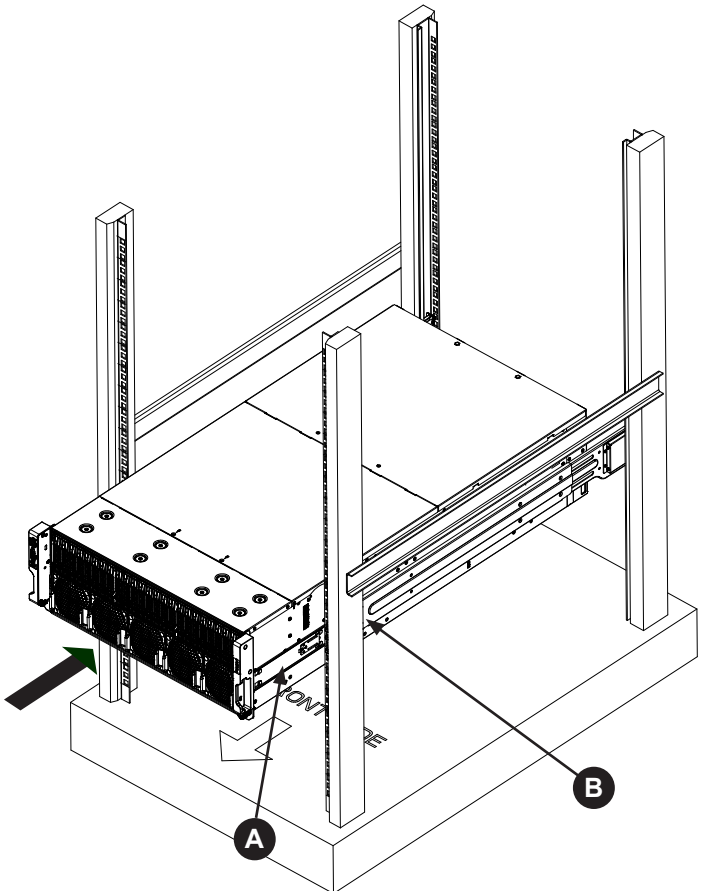


Figure 2-5. Installing the Chassis into a Rack

Note: Figures are for illustrative purposes only. Always install servers into racks in the lower positions first.

Installing the Chassis into a Rack

Installing the Chassis into a Rack:

1. Align the chassis rails (A) with the front of the rack rails (B).
2. Slide the chassis rails into the rack rails, keeping the pressure even on both sides. You may have to depress the locking tabs while inserting. When the server has been pushed completely into the rack, the locking tabs should "click" into the locked position.
3. If screws are used, tighten the screws on the front and rear of the outer rails.
4. (Optional) Insert and tightening the thumbscrews that hold the front of the server to the rack.

Removing the Chassis from the Rack

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

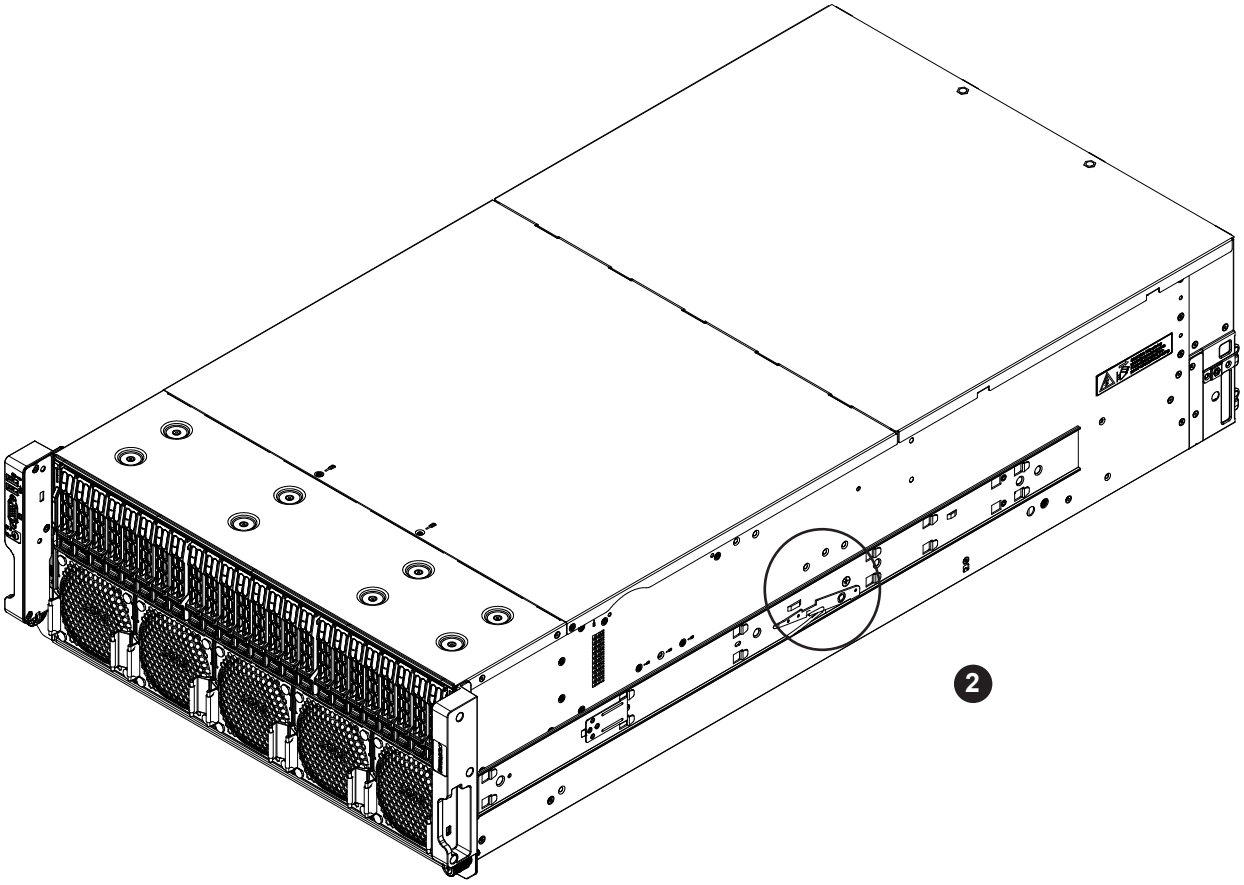


Figure 2-6. Removing the Chassis From the Rack

Removing the Chassis from the Rack

1. Pull the chassis forward out the front of the rack until it stops.
2. Press the release latches on each of the inner rails downward simultaneously and move the chassis forward in the rack.

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

Chapter 3

Motherboard 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 Powering Down the System

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.

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 and remove the AC power cords from all power supply modules.
3. Disconnect the power cord(s) from the power supply module(s).
4. When performing service on non hot-swap components, remove the system from the rack and place it on a bench or desk. Do not service with the system extended from the rack.

3.2 Accessing the System

The CSE-418H2TS chassis features removable top covers, which allow easy access to the inside of the chassis. The cover at the front of the chassis should be removed for access to the fans and the APU area. The rear top cover is above the PCIe slot cages and is removed to install or remove PCIe cards.

Removing the Top Cover

1. If necessary, remove power from the system as described in Section 3.1.
2. Remove the screws securing either cover to the chassis.
3. Lift the front cover at an angle and release the lip from the rear cover.
4. Push the rear cover forward, releasing the hook from the chassis before lifting it up.

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

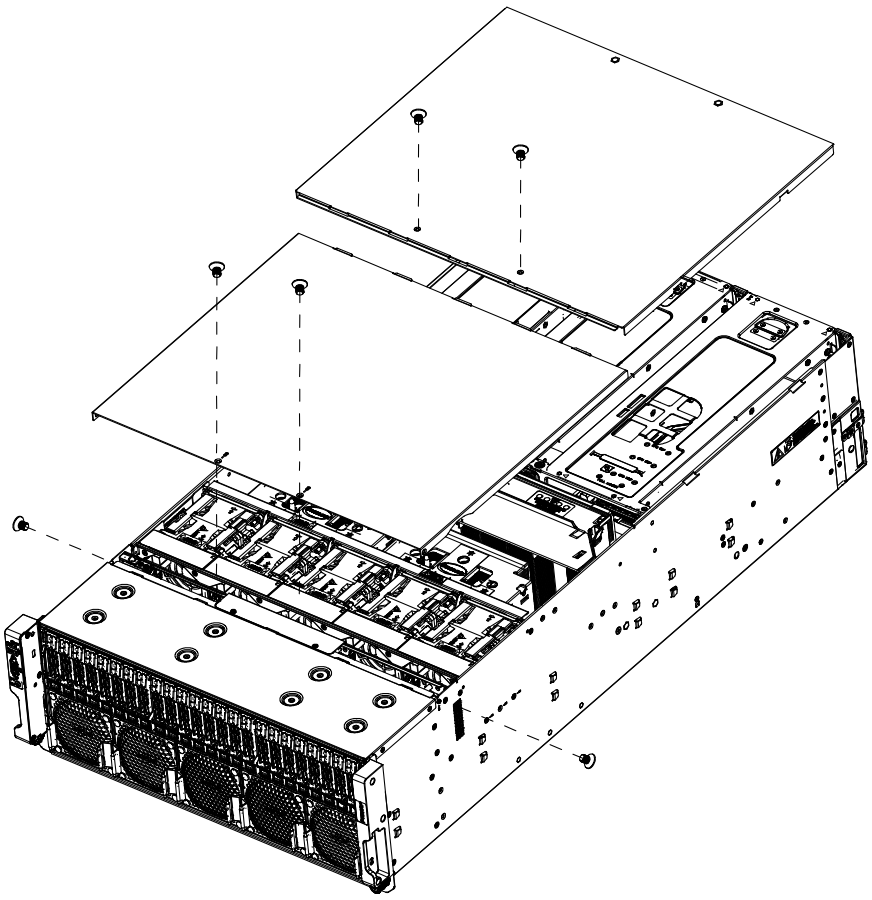


Figure 3-1. Removing the Chassis Cover

3.3 Static-Sensitive Devices

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

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing any PCB (printed circuit board) from its antistatic bag.
- Handle PCBs by their edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the PCBs back into their antistatic bags when not in use.
- Use only the correct type of onboard CMOS battery. Do not install the onboard battery upside down to avoid possible explosion.

3.4 Processor and Heatsink Installation

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

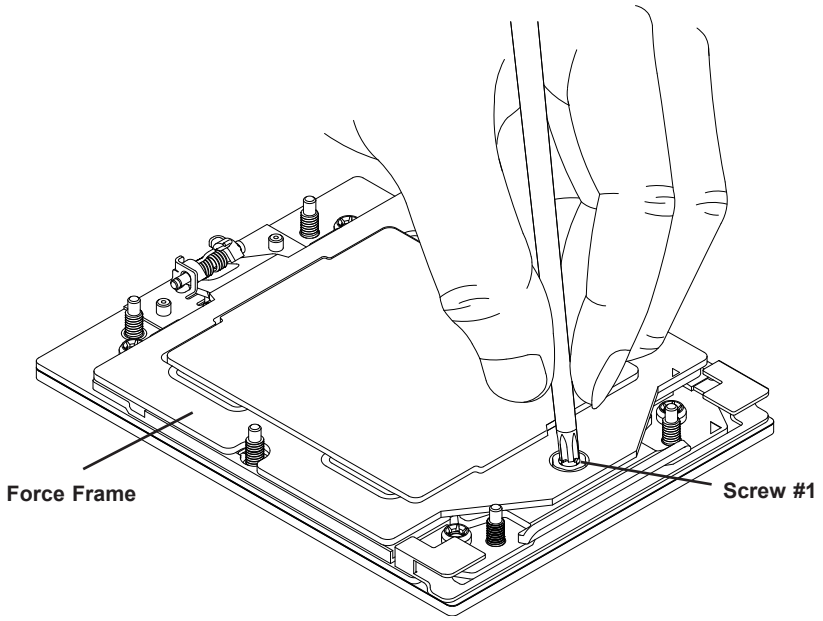
Important: : When handling the processor package, avoid placing direct pressure on the label area of the fan.

Important:

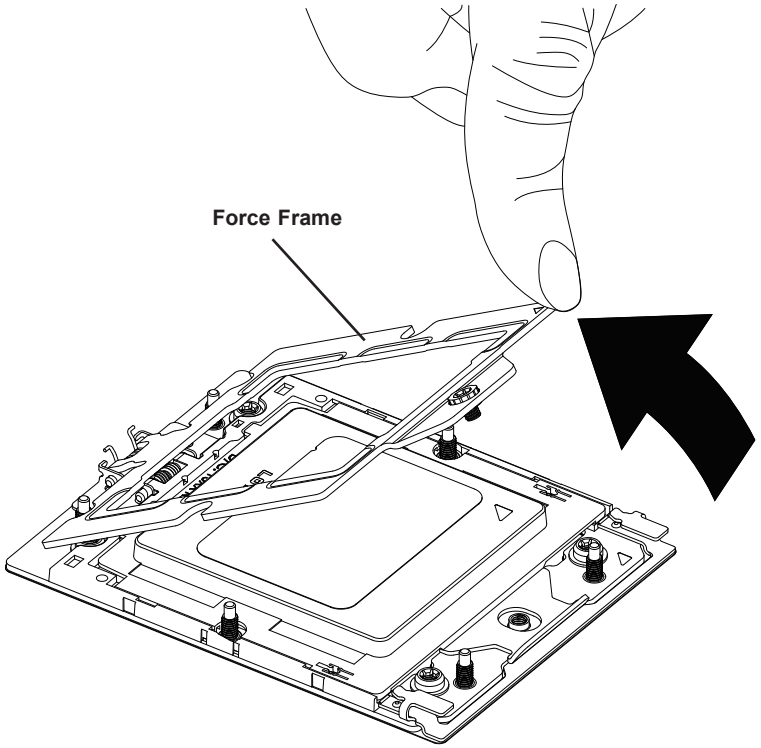
- Please carefully follow the instructions given on the previous page to avoid ESD-related damages.
- When receiving a motherboard without a processor pre-installed, make sure that the plastic APU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.
- 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 APU 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 APU support.
- All graphics in this manual are for illustrations only. Your components may look different.
- For the Processor/Heatsink installation you need to use a T20 bit torque driver when opening/closing the APU socket.
- Always connect the power cord last, and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the APU socket before you install the APU heatsink.
- If you buy an APU separately, make sure that you use an AMD-certified multi-directional heatsink only.
- Make sure to install the motherboard into the chassis before you install the APU heatsink.

Installing the Processor and Heatsink

1. Unscrew the screw #1 holding down the force frame.

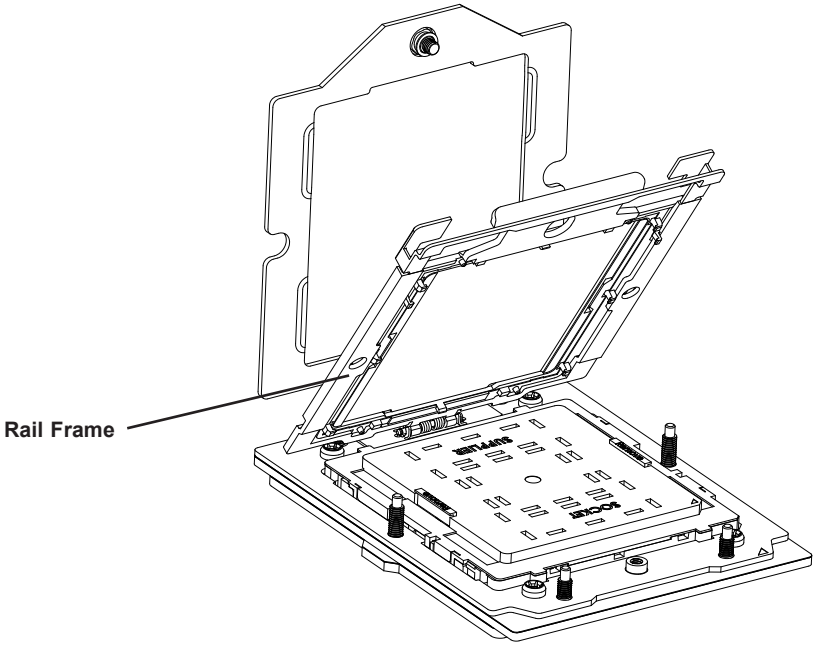


2. The spring-loaded force frame will raise up after the screw securing it (#1) is removed. Gently allow it to lift up to its stopping position.

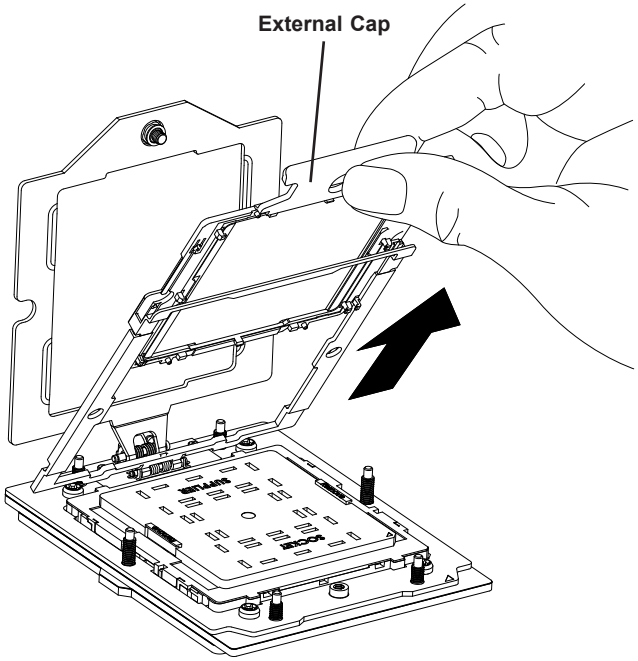


3. Lift the rail frame up by gripping the lift tabs near the front end of the rail frame. While keeping a secure grip of the rail frame, lift it to a position so you can do the next step of removing the external cap.

   Note: The rail frame is spring loaded, so keep a secure grip on it as you lift it so it does not snap up.

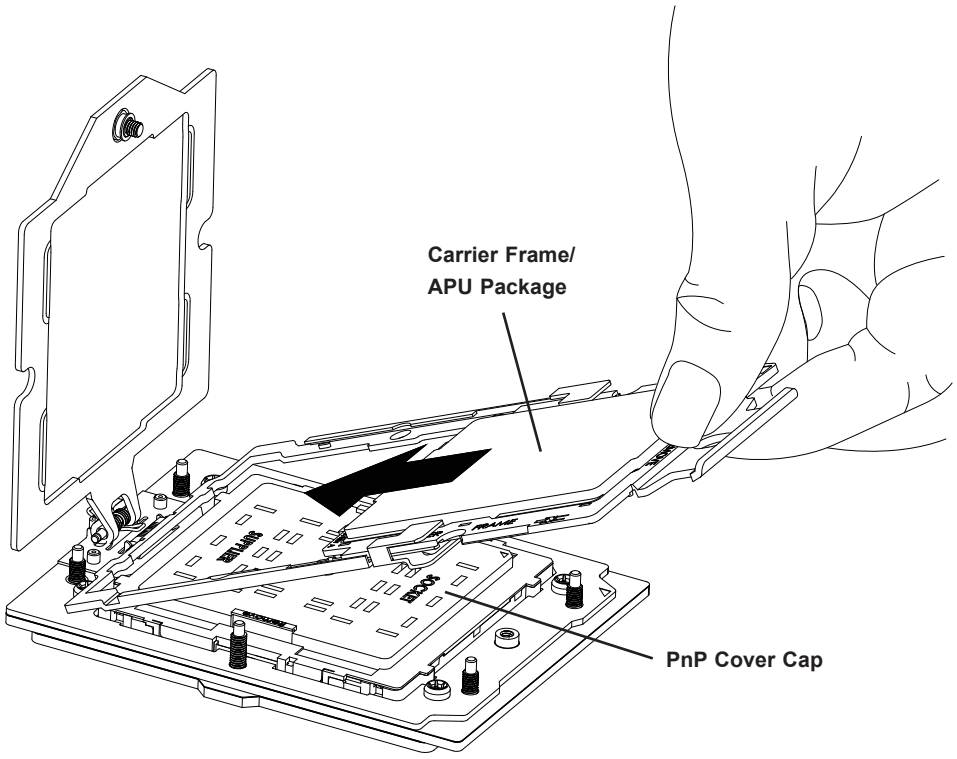


4. Remove the external cap from the rail frame by pulling it upwards through the rail guides on the rail frame.



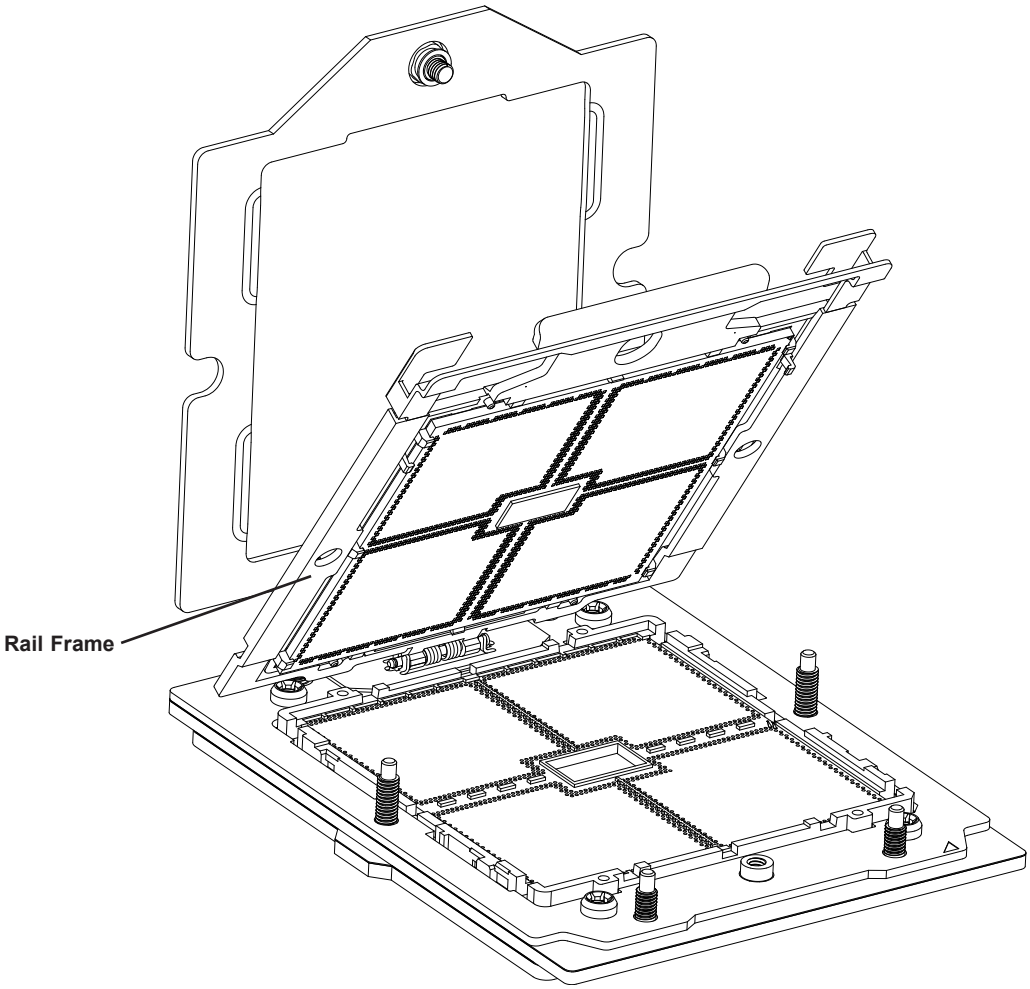
5. The APU package is shipped from the factory with the carrier frame pre-assembled. Grip the handle of the carrier frame/APU package assembly from its shipping tray, and while gripping the handle, align the flanges of the carrier frame onto the rails of the rail frame so its pins will be at the bottom when the rail frame is lowered later.

6. Slide the carrier frame/APU package downwards to the bottom of the rail frame. Ensure the flanges are secure on the rails as you lower it downwards.



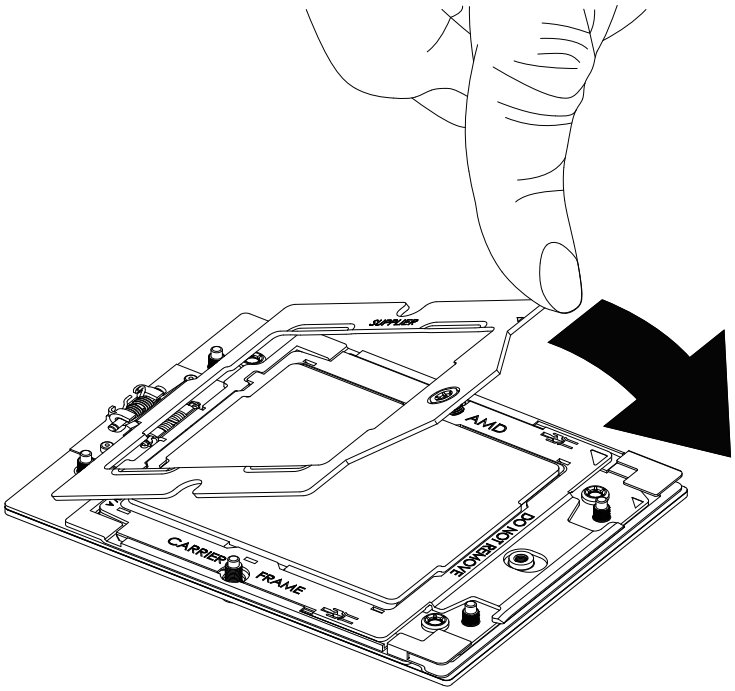
Note: You can only install the APU inside the socket in one direction with the handle at the top. Make sure that it is properly inserted into the APU socket before closing the rail frame plate. If it doesn't close properly, do not force it as it may damage your APU. Instead, open the rail frame plate again, and double-check that the APU is aligned properly.

7. Lift up the rail frame till it securely rests in upright position. Then remove the PnP cover cap from the APU socket below. Grip the two lift tabs marked "Remove" at the middle of the cap and pull vertically upwards to remove the PnP cover cap.

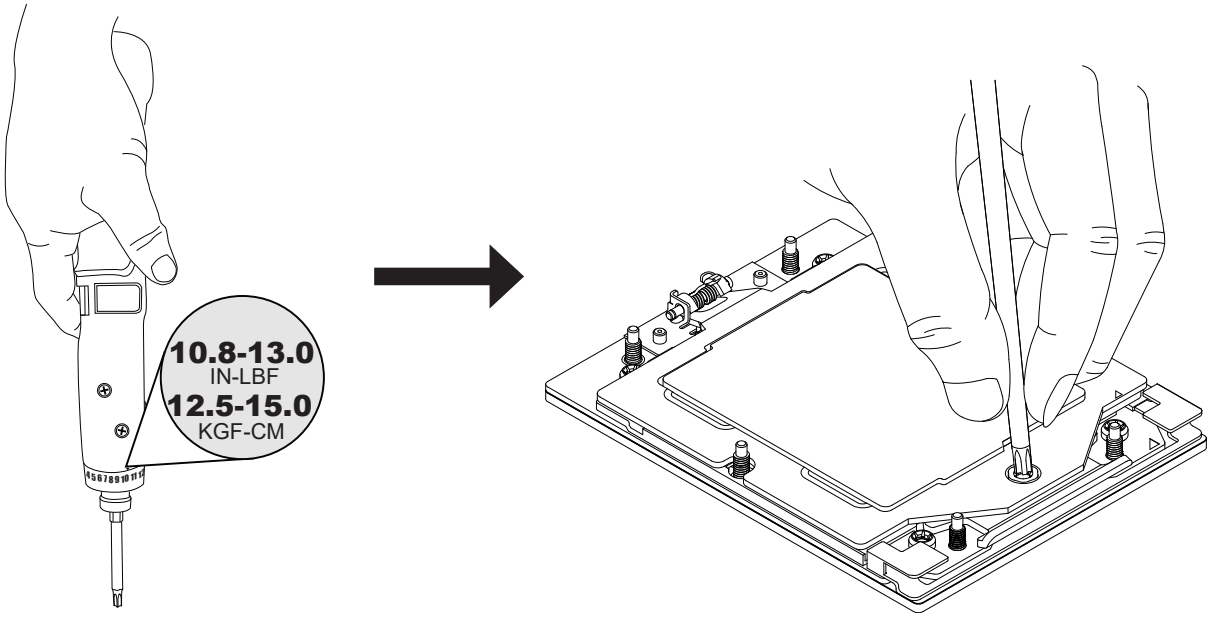


Important: The exposed socket contacts are extremely vulnerable and can be damaged easily. Do not touch or drop objects onto the contacts and be careful removing the PnP cover cap and when placing the rail frame over the socket.

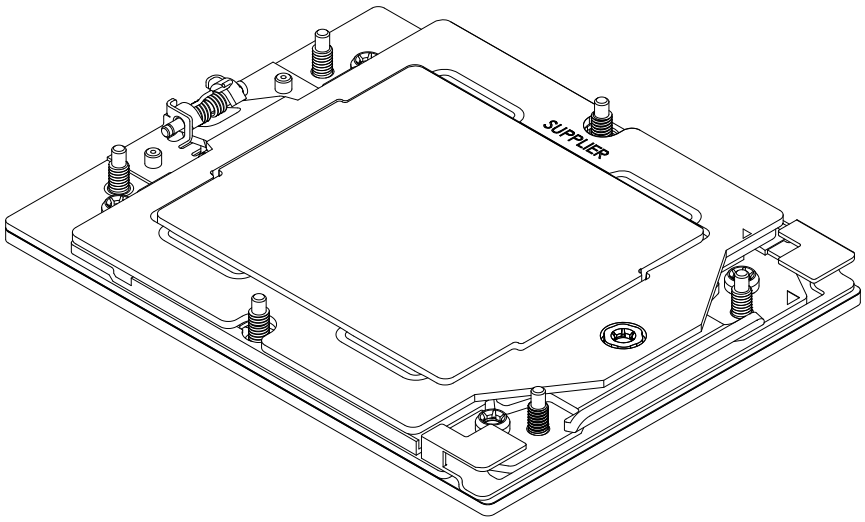
8. Gently lower the rail frame down onto the socket until the latches on the rail frame engage with the socket housing and it rests in place. DO NOT force it into place!



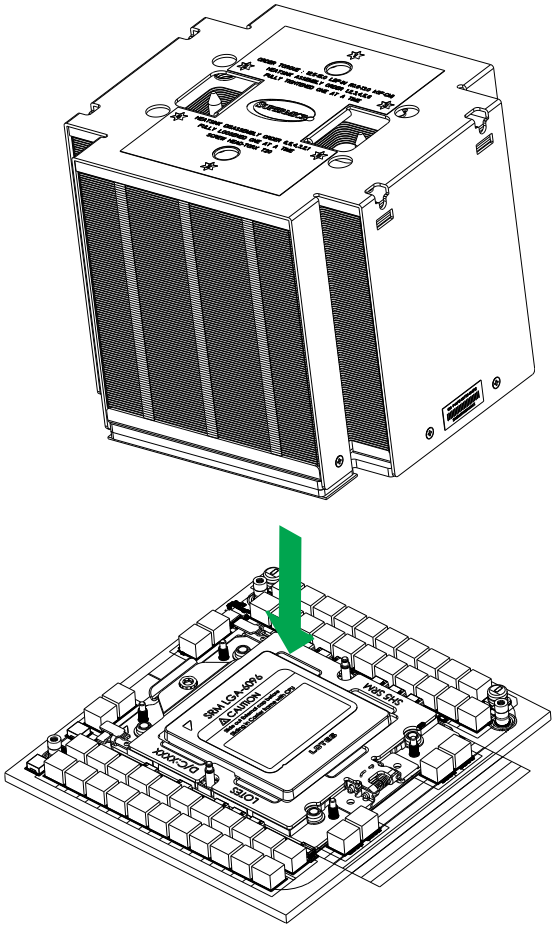
9. The force frame is spring loaded and has to be held in place before it is secured. **Important: Use a T20 bit torque driver with a torque of 12.5-15.0 kgf-cm (10.8-13.0 in-lbf) to prevent damage to the processor.**



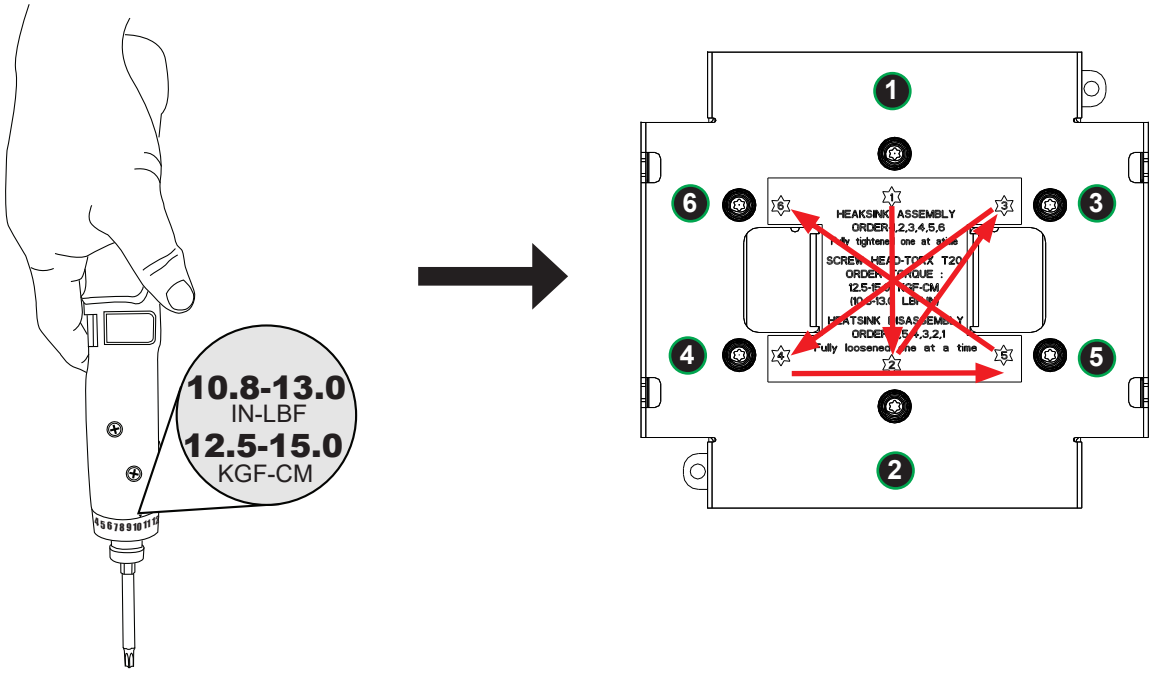
10. Replace and tighten the screws in the same order they were removed. When finished, the force frame will be secure over both the rail frame and APU package.



11. After the force frame is secured and the APU package is in place, now you must install the heatsink to the frame. Lower the heatsink down till it rests securely over the six screw holes on APU package on the socket frame.



12. Using a diagonal pattern, tighten the six screws down on the heatsink in a clockwise fashion until secure. Use a **T20 bit torque driver with a torque of 12.5-15.0 kgf-cm (10.8-13.0 in-lbf)** to prevent damage to the processor. The heatsink will now be secured and you have finished installing the processor and heatsink onto the motherboard. Repeat this procedure for any remaining APU sockets on the motherboard.



Note: Refer to system manual for detailed information of 2U (liquid cooling) and 4U (air cooling) installation.

Un-installing the Processor and Heatsink

1. Remove the heatsink attached to the top of the APU package by reversing the installation procedure.
2. Clean the thermal grease left by the heatsink on the APU package lid to limit the risk of it contaminating the APU package land pads or contacts in the socket housing.
3. Unscrewing the plate and lift the force frame to the vertical position.
4. Lift the rail frame using the lift tabs near the front end of the rail frame. Note that the rail frame is spring loaded, so be careful lifting it up into a vertical position.
5. Grip the handle of the carrier frame and pull upwards to extract it from the rail frame. Return the carrier frame/APU package to its original shipping container.
6. Grip the handle on the external cap and return it to the rail frame sliding it downwards till it rests in the frame.
7. Gripping the rail frame, rotate it downwards till it rests above and locks over the socket housing in its horizontal position.
8. Push and rotate down the force frame till it is over the external cap and rail frame into a horizontal position.
9. While holding down the force frame, secure it back to the socket frame by securing screw #1 in place.

3.5 Memory

The H13QSH supports up to 512 GB of non-ECC HBM3 embedded memory. There are no DIMM slots to populate.

3.6 Motherboard Battery

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

Replacing the Battery

Begin by removing power from the system.

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

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

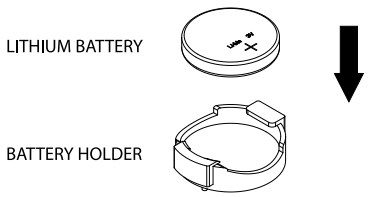


Figure 3-2. Installing the Onboard Battery

Important: 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).

3.7 Chassis Components

Storage Drives

The chassis features sixteen storage drives. These storage drives are contained in drive carriers to facilitate their removal from the system and to help promote proper airflow through the drive bays.

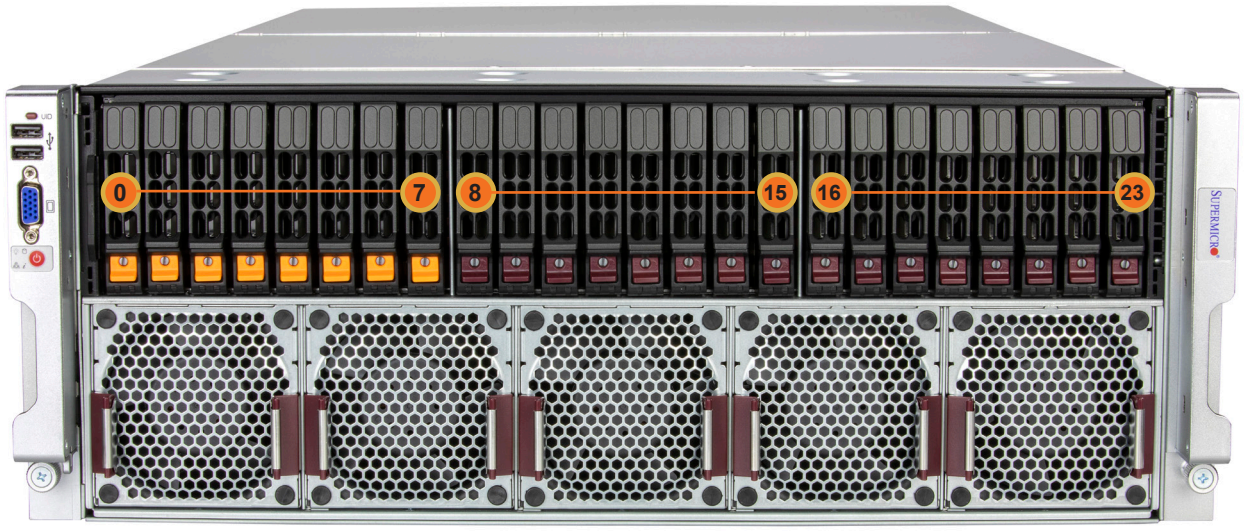


Figure 3-3. Logical Drive Locations

Drive Configurations

The AS -4145GH-TNMR may be set up to support any of the three different drive configurations listed below.

Drive Bay Configuration Options	
Configuration	**Description**
Default	Eight 2.5" NVMe drive bays (bays 0-7)
Option A	Sixteen 2.5" NVMe drive bays (bays 0-15)
Option B	Twenty-four 2.5" SAS/SATA* drive bays *requires optional kits (see Chapter 6)

Removing Drive Carriers from the Chassis

1. Press the release button on the drive carrier, which will extend the drive carrier handle.
2. Use the drive carrier handle to pull the carrier out of the chassis.

Removing a Dummy Drive from the Drive Carrier

1. Remove the drive carrier from the chassis as described in the previous section and lay it on a flat surface.
2. Remove the two screws securing the dummy drive to the drive carrier.
3. Lift the dummy drive from the drive carrier..

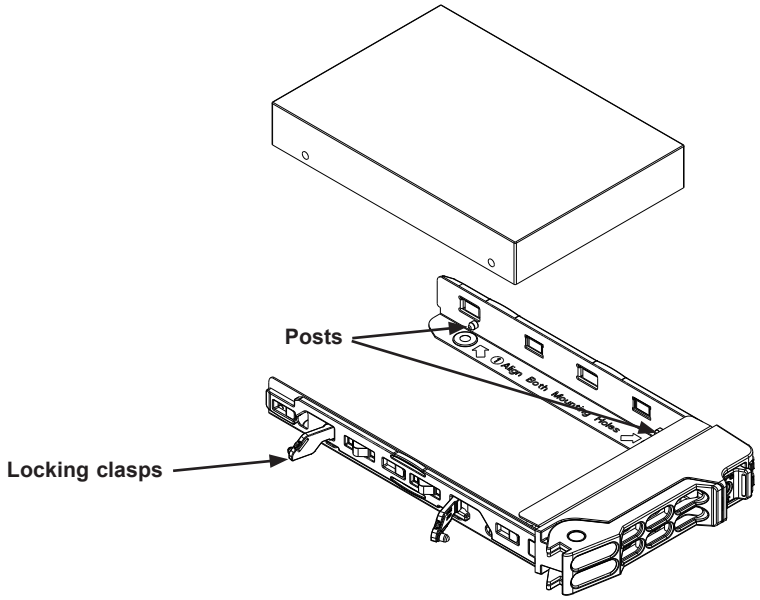


Figure 3-4. Removing a Dummy Drive from the Drive Carrier

Note: Enterprise level storage drives are recommended for use in Supermicro servers. For information on recommended drives, visit the Supermicro website at http://www.supermicro.com/products/nfo/storage.cfm.

M.2 Devices

The H13QSH supports two M.2 NVMe SSDs (M-key).

Caution: DO NOT perform this service with the system mounted inside the rack.

Caution: The handles used for pulling the system from the rack are not intended to be used to pick up or lift the system.

Installing M.2 Drives

1. Power down the system as described in Section 3.1 and remove the AC power cords.
2. Remove the system from the rack and place it on a bench, then remove the cover as described previously.
3. Insert the M.2 sideways into the connector so that it lays flat, then secure it to the bracket with the screw.
4. Repeat as necessary for more M.2 drives.
5. Finish by replacing the cover, plugging in the AC power cords, and restoring power to the system.

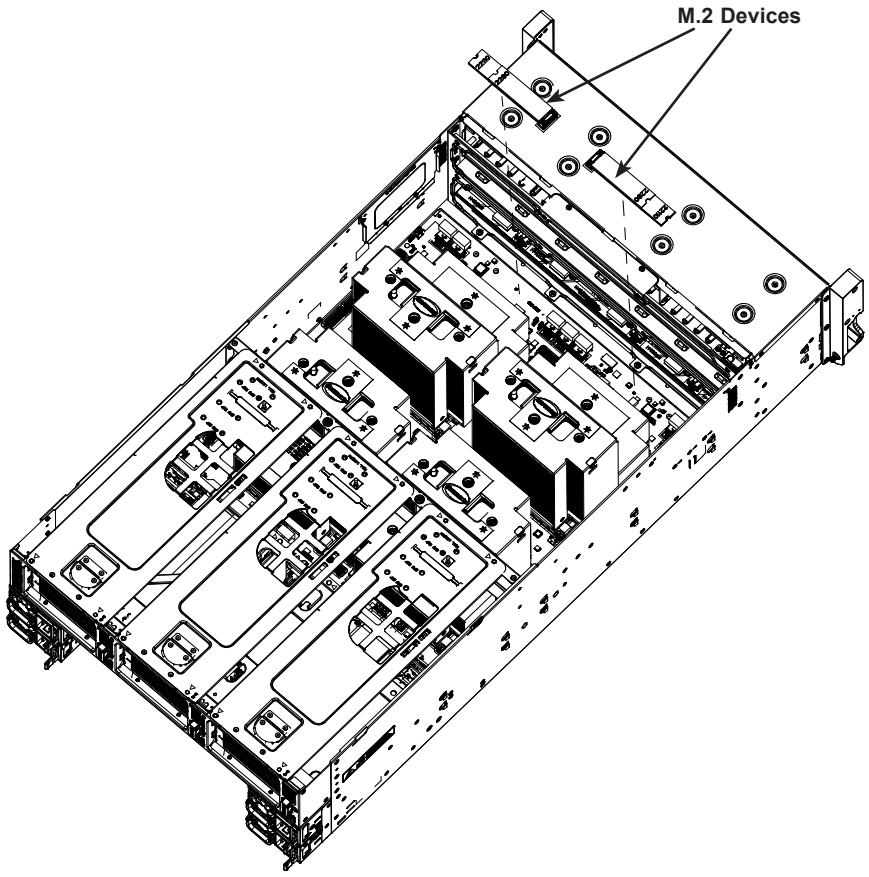


Figure 3-4. Installing M.2 Devices

Expansion Cards

The system can support a total of 18 PCIe (expansion) cards as displayed below. The PCIe slots are housed in cages and are associated with their own APU. Note that the top three cages must first be removed to acccess the bottom two cages.

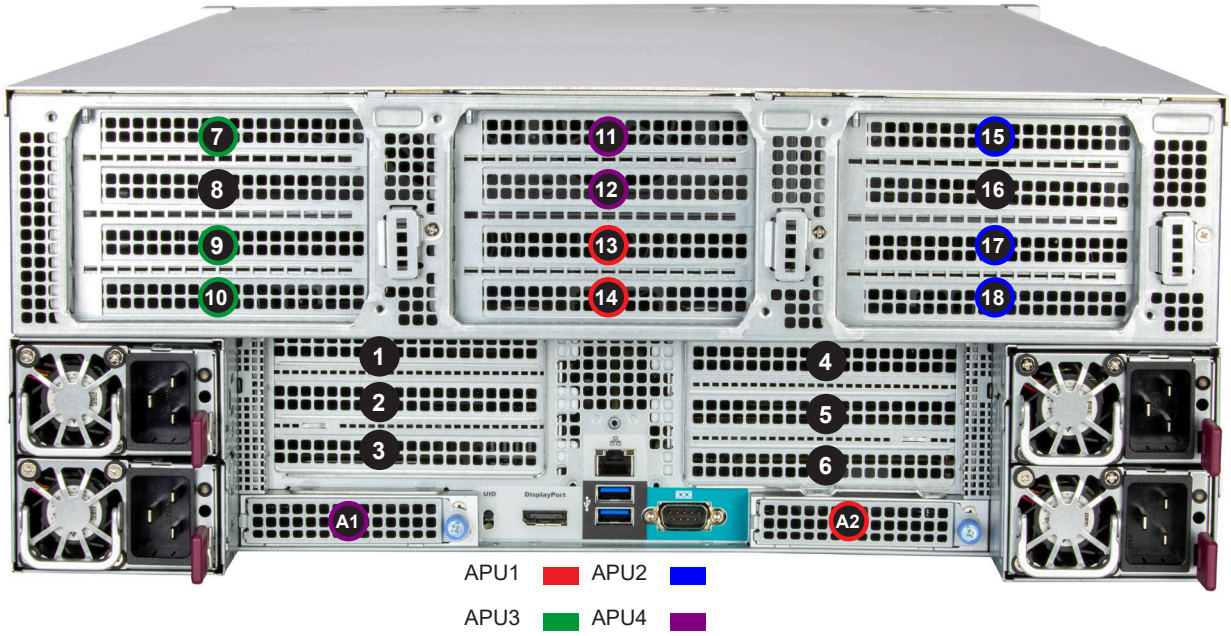


Figure 3-4. Expansion Slot Locations

PCIe Slot Configuration	
Slot Number	**Slot Description**
7 11 13 15	PCIe 5.0 x16, FHFL
9 10 12 14 17 18	PCIe 5.0 x8, FHFL
A1 A2	PCIe 5.0 x8, AIOM
1 2 3 4 5 6 8 16	PCIe 5.0 (optional)

Installing Expansion Cards

1. Power down the system and unplug all four AC power cords, then remove the top rear cover to gain access to the expansion card cages.
2. Remove the screws that secure each cage in the chassis and lift the cage from the rack.
3. Install PCIe card(s) into slot(s) according to the slot description in the above table and secure with a screw. Repeat until all PCIe slots are poluated as desired.
4. To populate the slots in the lower two cages, remove all three upper cages to gain access. Populate the slots and reinstall the cages as described for the upper cages.

5. Any slots to remain unpopulated should keep their slot shields installed to maintain proper airflow and prevent dust and debris from getting in the system

6. Once all the desired slots have been popuated and the cages properly secured inside the chassis, replace the top rear cover, plug in the AC power cords and power up the system.

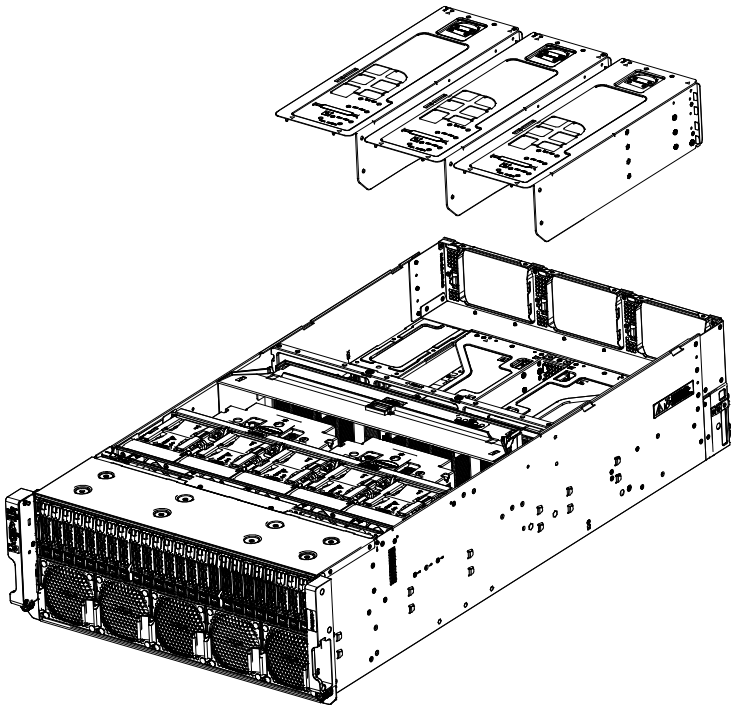


Figure 3-5. Removing the Upper Expansion Slot Cages

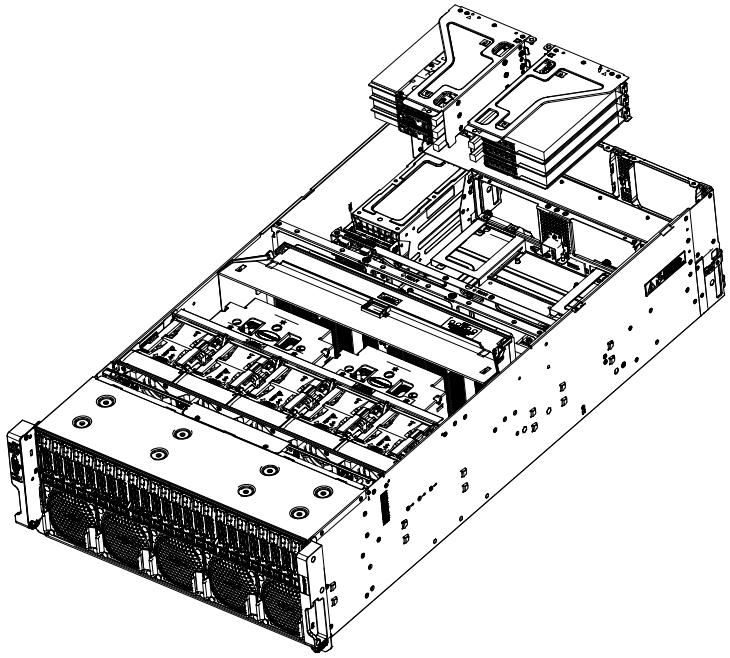


Figure 3-6. Removing the Lower Expansion Slot Cages

System Cooling

Fans

Ten heavy-duty, counter-rotating 8-cm fans circulate air through the chassis to lower the internal temperature. The fans are designed to be easily changed, with no tools required.

Finidng a Failed Fan

Determine which fan must be replaced. Top fans: use IPMI or open the chassis top front cover while the system is operating and observe. Front fans: inspect the fans to see which has stopped

Replacing a System Fan (Top)

1. With the top front cover removed, simultaneously squeeze both release tabs on the fan to be replaced. Do not run the server for extended periods of time with the cover open.
2. Lift the fan module up and out of the chassis.
3. Place the replacement fan into the vacant space in the fan bracket 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.
4. Insert the fan back into the chassis and make sure that it is fully seated.
5. Confirm that the fan is working properly before replacing the chassis cover.

Replacing a System Fan (Front)

1. After determining which fan has failed, simultaneously squeeze both release tabs on the front of the fan to be replaced and pull the fan from the chassis.
2. Insert a new fan back into the vacated fan bay and make sure that it is fully seated.

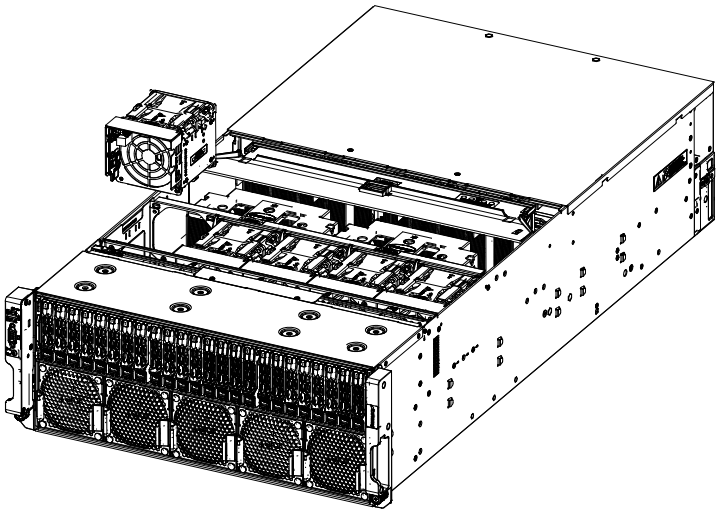


Figure 3-7. Replacing a Fan

Air Shroud

The air shroud is used to concentrate airflow to maximize fan efficiency around the APU area.

Installing the Air Shroud

1. Remove the top front cover of the chassis.
2. Position the air shroud in the chassis as shown below.
3. Lower the air shroud into place and secure it to the chassis.

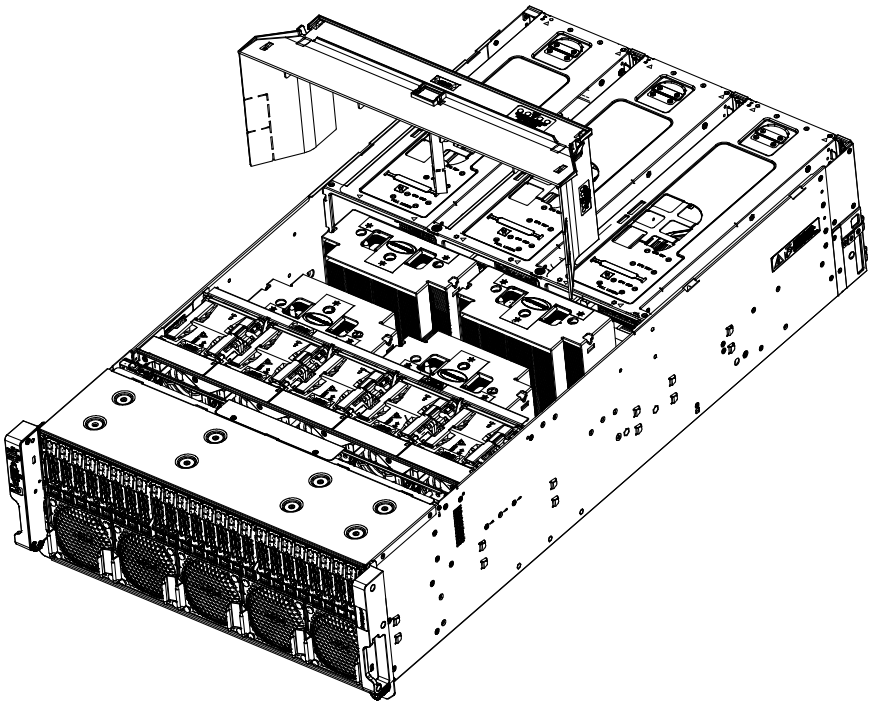


Figure 3-8. Installing the Air Shroud

Power Supply

The chassis features four 2700 W redundant power supplies (3+1). They are hot-swappable, meaning one module can be changed without powering down the system. New power supply modules can be ordered directly from Supermicro or authorized distributors.

These power supplies are auto-switching capable. This feature enables them to automatically sense and operate with a 200-240 VAC input. 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. With the system running, unplug the AC power cord that provide power to the failed module.
2. Press and hold the release tab on the power module.
3. Grasp the handle and pull the power supply out of its bay.
4. Push the replacement power supply module into the empty bay until it clicks into the locked position.
5. Plug the AC power cord back into the power supply module.

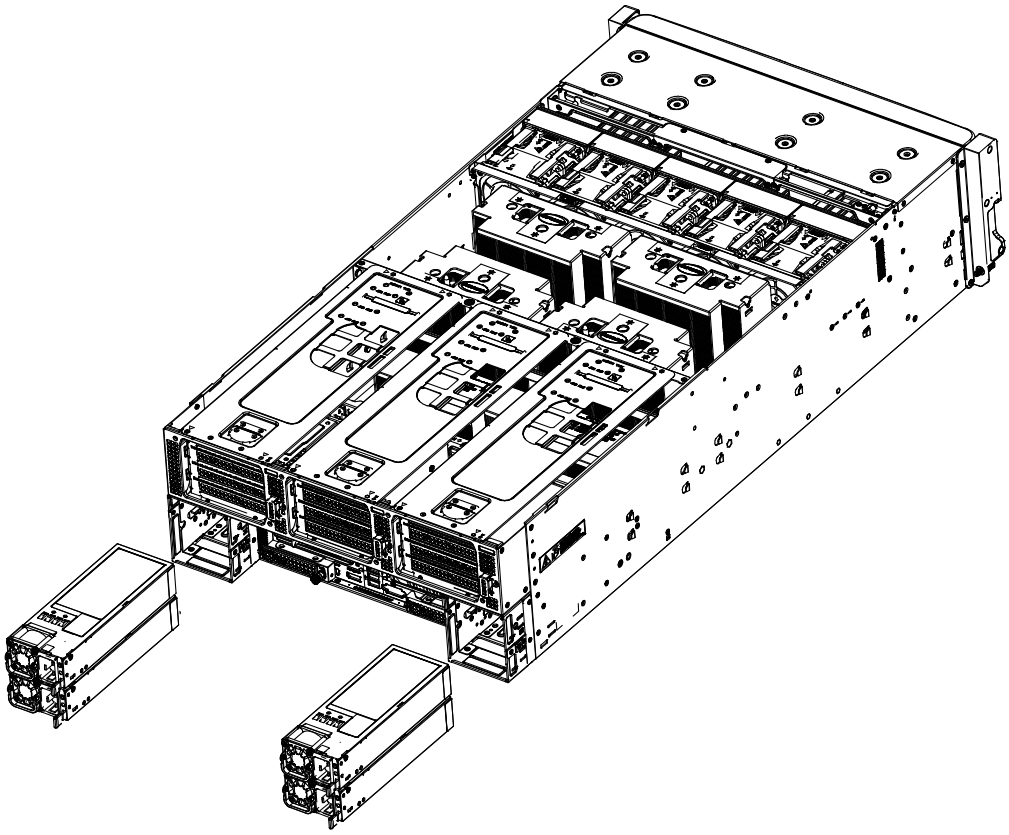


Figure 3-9. Replacing a Power Supply Module

3.8 Cable Routing

Refer to the diagram below for the default cable routing configuration for the AS -4145GH-TNMR.

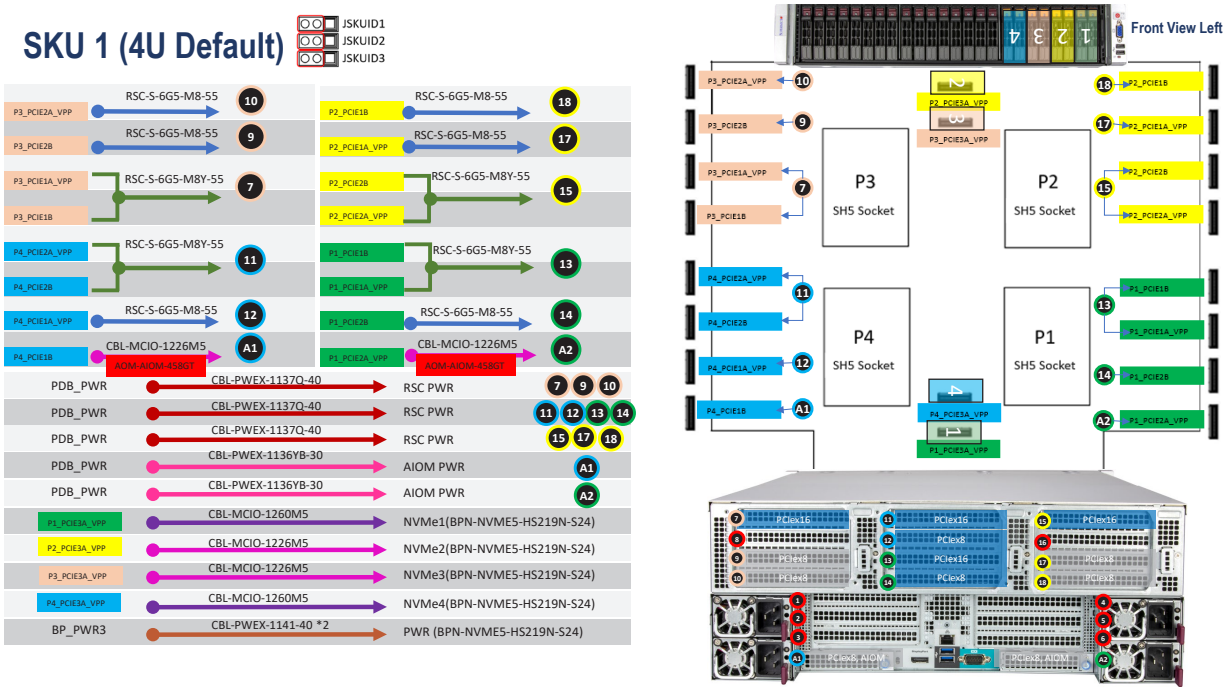


Figure 3-10. Cable Routing Diagram

3.9 BMC

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

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

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

Chapter 4

Motherboard Connections

This section describes the connections on the motherboard and provides pinout definitions. Note that depending on how the system is configured, not all connections are required. The LEDs on the motherboard are also described here. A motherboard layout indicating component locations may be found in Chapter 1. More detail can be found in the Motherboard Manual

Please review the Safety Precautions in Appendix A before installing or removing components.

4.1 Power Connections

JPWR1 is the 12V input power connector for the backplane power connector. This connection is made automatically when inserting the node into the system.

Power Supply Connectors (PSU1/PSU2)

Two PDUs (Power Distribution Units) can be connected to PSU1/PSU2 and support a total of four Supermicro proprietary power supply units that provide the main power to your system.

4-Pin Backplane Power Connector (JPWR1-2)

Four 4-pin power connectors for backplane devices. Refer to the table below for pin definitions.

Power Connector Pin Definitions	
Pin#	**Definition**
1	GND
2	GND
3	12 V
4	5 V

8-Pin Fan Power Connector (JPWR3-9)

Seven 8-pin fan power connectors. Refer to the table below for pin definitions.

Power Connector Pin Definitions			
Pin#	**Definition**	**Pin#**	**Definition**
1	GND	5	12 V
2	GND	6	12 V
3	GND	7	12 V
4	GND	8	12 V

4.2 Headers and Connectors

Fan Headers

There are eight 4-pin fan headers (FAN 1-FAN 8) used for your system cooling fans. Additionally, four 6-pin fan headers (FAN 9-FAN 12), located at the rear side of the chassis, are for fans used to cool the backplane. In addition, an Fan_PMB header used for I^2C temperature sensor cooling is located at JFAN1. Fan speed control for these fans is supported by thermal management via the BMC interface. Refer to the table below for pin definitions.

4-Pin Fan Headers Pin Definitions

Pin#	Definition
1	GND
2	12 V
3	FANIO
4	PWM

6-Pin Fan Headers Pin Definitions

Pin#	Definition
1	GND
2	12 V
3	FANIO
4	PWM
5	12 V
6	GND

Fan_PMB Header Pin Definitions

Pin#	Definition	Pin#	Definition
1	SDA	5	GND
2	GND	6	12 V
3	SCL	7	FANIO
4	P3V3_AUX	8	PWM

STBY-FAN (FAN13)

STBY-FAN is a standby power header for the fan board. Refer to the table below for pin definitions.

STBY-FAN (FAN13) Pin Definitions

Pin#	Definition
1	Fan PWM
2	Fan IO
3	12 V
4	GND

NC-SI Connector

A Network-Controller Sideband Interface (NC-SI) header is located at JNCSI1 on the motherboard. The NCSI header is used to connect a Network Interface Card (NIC) to the motherboard so that the BMC is able to poll the temperature reading from it.

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. Please go to the following link for more information on the TPM: http://www.supermicro.com/manuals/other/TPM.pdf.

Trusted Platform Module Header Pin Definitions

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

PCIe I²C Header

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

BMC SMB I²C Header

A System Management Bus I²C header for the BMC is located at JIPMB1. Connect the appropriate cable here to use the 4-pin BMC external I²C connection on your system.

SMB I²C for 2U Power Distribution Board (PDB) Headers

Two System Management Bus I2C for the power distribution boards are located at PDB1_SB and PDB2_SB. Connect a cable to PDB1_SB for Power Distribution Board 1 support, and connect a cable to PDB2_SB for Power Distribution Board 2 support.

4-Pin Leakage Detection (JPL0)

Refer to the table below for pin definitions.

4-pin Leakage Detection Pin Definitions

Pin#	Definition
1	GND
2	12 V
3	Liquid Detect
4	Present

Chassis Intrusion

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

Chassis Intrusion Pin Definitions

Pin#	Definition
1	Intrusion Input
2	Ground

JMD1/JMD2

Two hybrid M.2 slots are located at JMD1 and JMD2. JMD1 supports an M.2 SATA 2:0/PCIe 4.0 x2 hybrid slot, and JMD2 supports an M.2 SATA 2:4/PCIe 4.0 x1 slot. Both JMD1 and JMD2 slots support PCIe 4.0 devices in the 2280/22110 form factors. M.2 allows for a variety of card sizes, increased functionality, and spatial efficiency.

AIOM Sideband Signal Headers (AIOM1_SB/AIOM2_SB)

Advanced I/O Module (AIOM) PCIe 5.0 x8 slot supported by the APU.

Onboard Battery (BT1)

The onboard backup battery is located at BT1. It provides backup power to the on-chip CMOS, which stores the BIOS setup information. It also provides power to the Real-Time-Clock (RTC) to keep it running.

BMC (JIO1)

This is the I/O board socket used to connect the I/O board to the motherboard.

4.3 Input/Output Ports

See the figures below for the locations and descriptions of the I/O ports on the rear of the motherboard.

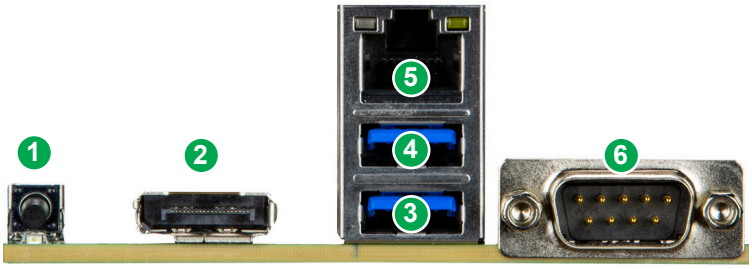


Figure 4-1. Rear I/O Ports

Rear I/O Ports	
#	**Definition**
1	UID Switch/LED
2	DP1
3	USB 0 (3.0)
4	USB 1 (3.0)
5	BMC LAN (IPMI LAN)
6	COM1

I/O Device Display Port

An I/O Device Display Port (DP) is located at JDP1 on the rear I/O panel. This display port provides visual display support for your I/O devices installed on the rear I/O panel.

Universal Serial Bus (USB) Ports and Headers

There are two USB 3.0 ports (USB0/1), located at JUSBRJ45, on the rear I/O panel. Type A USB 3.0 connector (USB 2) is located at JUSB1 for front access. These USB connections can be used for USB support via USB cables (not included).

Rear I/O Panel USB 2/3 (3.0) Pin Definitions

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

BMC LAN

A dedicated BMC LAN (BMC LAN) is located on the rear I/O panel. This dedicated BMC LAN, located below USB Ports, provides Ethernet LAN support for the BMC (Baseboard Management Controller). Connect an RJ45 cable to JUSBRJ45 on the I/O rear panel for BMC LAN support.

COM Port

A COM (communication) port that supports serial link interface is on the motherboard. COM1 (JCOM1) is located on the rear I/O panel.

UID (Unit Idenfication)/BMC Reset Switch and LED Indicators

A UID LED/BMC Reset switch (JUIDB1) is located on the rear side of the motherboard. This switch has dual functions. It can be used to identify a system unit that is in need of service, and it can also be used to reset the BMC settings.

When functioning as a BMC reset switch, JUIDB1 will trigger a cold reboot when the user presses and holds the switch for 6 seconds. It will also restore the BMC to the manufacturer's default setting when the user presses and holds the switch for 12 seconds. When functioning as a UID LED switch, JUIDB1 will turn both rear UID LED (LED1) and front UID LED (pin 2 of FP1) on and off when the user presses the switch on/off.

To achieve these dual purposes, the UID LED/BMC Reset switch works in conjunction with the BMC Heartbeat LED (LED3) and front/rear UID LEDs. Please note that UID can also be triggered via BMC on the motherboard. For details on the UID LEDs and BMC LEDs, refer to the tables below. Also, refer to the BMC User's Guide posted on our website at http://www.supermicro.com for more information on BMC.

UID / BMC Reset Switch (JUIDB1)
Features & Settings

When Used as a UID LED Switch			When Used as a BMC Reset Switch		
Work w/Rear UID LED (LED1) & Front UID LED (FP1: Pin 2)			**Work with BMC Heartbeat LED (LED3)**		
Rear UID LED	LED1	Blue: Unit identified	BMC Heartbeat LED	LED3	Green Blinking: BMC Normal
Front UID LED	Pin 2 of FP1	Blue: Unit identified	BMC Reset: Press & hold the switch (JUIDB1) 6 seconds	LED3: Solid green: during reboot	
Press the switch (JUIDB1) to turn both rear and front UID LED indicators on and off;				Triggering a cold reboot; LED: solid green on during cold reboot	
			BMC Reset: Press & hold the switch (JUIDB1) 12 seconds	LED3: Solid green: during BMC reset	
				BMC: Reset to the manufacturer's default; LED solid on during BMC Reset	

UID / BMC Reset Switch (JUIDB1)
Pin Definitions

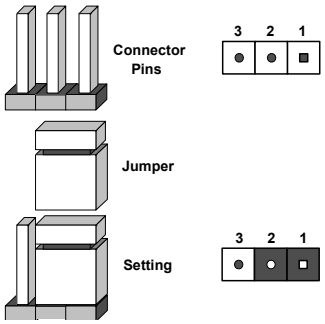
Pin#	Definition
A6	Ground
A7	Ground
A8	Button In
A9	Button In

4.4 Jumpers

Explanation of Jumpers

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

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



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. Pull out the motherboard tray to access the motherboard.
3. Remove the CMOS battery from the motherboard.
4. Wait for around 30 seconds, and then re-install the CMOS battery on the motherboard.
5. Re-install the motherboard tray, reconnect the power cord(s), and power on the system.

Notes: Clearing CMOS will also clear all passwords.

Power Button and Front UID Button Select Jumper

Jumper JRU1 is used to configure pin 2 of Front Control Panel header 1 (FP1) to function as a Power button or as the Front UID button. To set pin 2 of FP1 for Front UID use in a chassis that supports front UID connection, close pin 1 and pin 2 of Jumper JRU1. To set pin 2 of FP1 for Power Signal use, keep jumper JRU1 open. Refer to the table below for JRU1 settings.

Front UID Button/Power Button Select Jumper (JRU1) Jumper Settings	
State	**Description**
Close pin 1 and pin 2 of JRU1	Pin 2 of FP1: used for Front UID button (Default)
Keep pin 1 and pin 2 of JRU1 Open	Pin 2 of FP1: used for system reset with front UID button

Video Display Enable

Jumper JPG1 is used to enable or disable the onboard VGA connector. The default setting is pins 1-2 to enable the connection. See the table below for jumper settings.

Video Display Enabled Jumper Settings (JPG1)	
Jumper Setting	**Definition**
Pins 1-2	Video Display Enabled (Default)
Pins 2-3	Video Display Disabled

SKUID Jumpers (JSKUID1-3)

Different SKUID jumper settings provide different PCIe lane allocations and distributions.

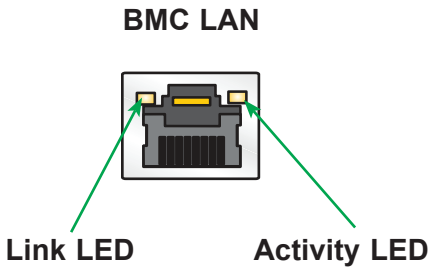
4.5 LED Indicators

BMC LAN Port LEDs

A dedicated BMC LAN connection is located on the rear I/O panel and has two LED indicators. The LED on the right indicates connection and activity, while the LED on the left indicates the speed of the connection. The Link LED may amber, green, or off to indicate the speed of the connection. Refer to the tables below for more information.

Link LED, Connection Link Speed Indicator	
LED Color	**Definition**
Amber	1 Gb/s
Green	100 Mb/s
Off	10 Mb/s

Activity LED		
Color	**State**	**Definition**
None	No Connection	
Yellow	Solid On	Link
Yellow	Flashing	Active



UID LED Indicator

The rear UID LED is located on the I/O board, while the front UID LED is located on the front panel. When you press the UID switch, both the rear and front UID LED indicators will turn on. Press the UID switch again to turn off the LED indicators. Use this UID Indicator to 'mark' the system, so it can be easily identified whether on the front or back (e.g., a system rack with multiple units installed).

UID LED Indicator		
Color	**State**	**Definition**
None	Off	UID Off
Blue	Solid On	Unit Identified by Local Site
Blue	Slow Blinking	Unit Identified by Remote Site
Blue	Slow Blinking	System Recovery

Onboard Power LED (LED1)

The Onboard Power LED (LEDPWR) is located at LED1 on the motherboard. When this LED is on, the system power is on. Be sure to turn off the system power and unplug the power cords before removing or installing components. Refer to the table below for more information.

Onboard Power LED Indicator (LED1) LED Status	
LED Color	**Definition**
Off	System Power Off (power cable not connected)
Green	System Power On

BMC Heartbeat LED (LED3)

A BMC Heartbeat LED is located at LED3 on the motherboard. When LED3 is blinking green, the BMC is functioning normally. See the table below for more information.

BMC Heartbeat LED Indicator (LED3) LED Status		
Color	**State**	**Definition**
Green	Solid On	BMC is not ready
Green	Blinking	BMC Normal
Green	Fast Blinking	BMC: Initializing

PCIe Switch Heartbeat LED (LED9)

A PCIe Switch Heartbeat LED is located at LED9 on the motherboard. When LED9 is blinking green, the PCIe Switch is functioning normally. Refer to the table below for more information.

PCIe Switch Heartbeat LED Indicator (LED9) LED Status		
Color	**State**	**Definition**
Green	Solid On	BMC is not ready
Green	Blinking	BMC Normal
Green	Fast Blinking	BMC: Initializing

PCIe Switch Error (LED10)

This LED will be solid red when the board is in standby power mode. If this LED is solid red when the board is on, there is an error with the PCIe switch.

APU Power Status LED Indicators

APU Power Status LED indicators are located at LED5, LED6, and LED7. When an APU power supply fails, the corresponding Power Status LED will turn solid red. Refer to the table below for more details.

APU Power Staus LED Indicators (LED5, LED6, and LED7) LED Status		
LED#	**Color**	**Definition**
LED5	Solid Red	APU2 Power Failure
LED6	Solid Red	APU3 Power Failure
LED7	Solid Red	APU4 Power Failure

4.6 Front Control Panel

There are two Front Control Panel headers located on this motherboard. Front Control Panel Header 1, located at FP1, contains header pins for various buttons and LED indications with I²C support for front access. Front Control Panel Header 2, located at FP2, provides additional functions, including USB and VGA support to the system. These Front Control Panel headers are designed specifically for use with Supermicro chassis.

1. Pin Definitions of FP1 (JF1)

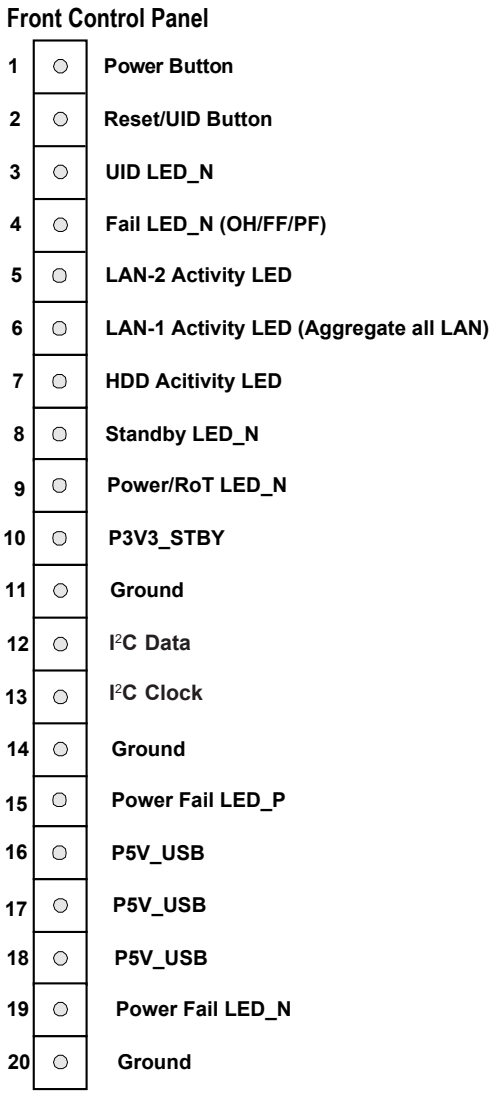


Figure 4-2. FP1 (JF1) Header Pins

Power On and BMC/BIOS Status LED Button

The Power On and BMC/BIOS Status LED button is located on pin 1 of front control panel header 1 (FP1). Momentarily contacting pin 1 of FP1 will power on/off the system or display BMC/BIOS status. Refer to the table below for more information.

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

BMC Reset Button/Front UID Switch

The BMC Reset button/Front UID switch connection is on pin 2 of FP1, and it is used in conjunction with the JRU1 Reset button/UID switch select jumper. Close pin 1 and pin 2 of jumper JRU1 to configure pin 2 of FP1 for front UID switch use in a chassis that supports front UID connection. To set pin 2 of FP1 for BMC Reset, close pin 3 and pin 4 of jumper JRU1.

Front UID Switch/Reset Button Select Jumper (JRU1) Jumper Settings	
State	**Description**
Close pin 1 and pin 2 of JRU1	Pin 2 of FP1: used for front UID switch support
Close pin 3 and pin 4 of JRU1	Pin 2 of FP1: used for BMC Reset support

UID LED

The unit identifier LED connection is located on pin 3 of FP1.

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

The Fail LED (Information LED for OH/Fan Fail/PWR Fail) connection is located on pin 4 of FP1. This LED provides warnings of overheating, power failure, or fan failure. See the table below for FP1 pin definitions.

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

LAN1/LAN2 (NIC1/NIC2)

The NIC (Network Interface Controller) LED connection for LAN Port 1 is located on pin 6 of FP1, and LAN Port 2 is on pin 5. See the table below for FP1 pin definitions.

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

Drive Activity LED

The drive activity LED connection is located on pin 7 of FP1. When this LED is blinking green, it indicates drive activity. Refer to the table below.

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

Standby Power LED

The LED indicator for standby power is located on pin 8 of FP1. If this LED is on, standby power is on.

RoT (Root of Trust) Power LED

The Power LED for RoT (Root of Trust) connection is located on pin 9 of FP1. If this LED is on, power for the RoT chip is on.

Standby Power

A Standby Power (I^2C) connection is located on pin 10 - pin 14 of FP1 to provide power to the system when it is in standby mode. Refer to the table below for pin definitions.

3.3 V Standby PWR Pin Definitions

Pin#	Definition
10	P3V3 Standby
11	Ground
12	I^2C Data
13	I^2C Clock
14	Ground

Power Fail LED Indicator Connections

Power Failure LED Indicator connections are located on pin 15 and pin 19 of FP1. Refer to the table below for pin definitions.

FP Power LED Pin Definitions (FP1)

Pin#	Definition
15	PWR Failure LED-Positive
19	PWR Failure LED-Negative

FP USB Power

Front Panel USB power connections are located on pin 16 - pin 18 of FP1 to provide power to front USB devices. Refer to the table below for pin definitions.

FP USB PWR Pin Definitions

Pin#	Definition
16	+5V USB PWR
17	
18	

2. Front Control Panel Header 2 (FP2)

In addition to Front Control Panel header 1 (FP1), another Front Control Panel header, located at FP2, supports a VGA connector and two USB 2.0 ports (USB 3/4).

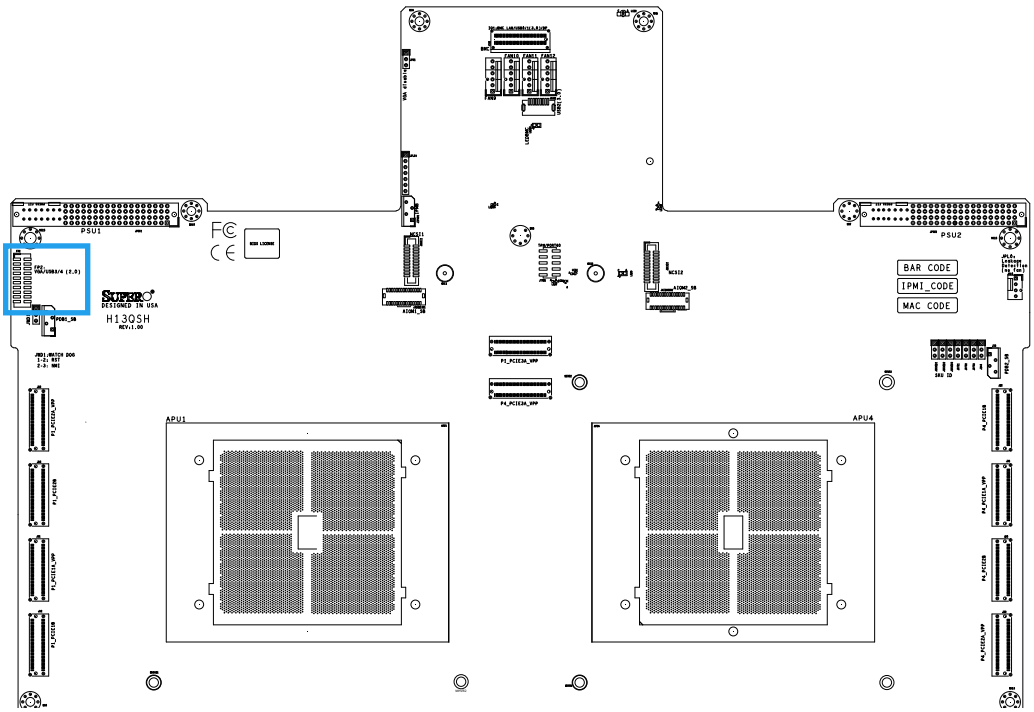


Figure 4-3. Location of FP2

Chapter 5

Software

After the hardware has been installed, you can boot the Operating System (OS). In addition, the following software is supported on the H13QSH.

5.1 Ubuntu® Server 22.04 ISO Installation

Prerequisites

Ubuntu Server 22.04 ISO Image

Obtaining the Ubuntu Server 22.04 ISO for AMD64 CPU architecture (amd64) and save it to your local drive or a shared server. It’s recommended to use Ubuntu Server 22.04.4 LTS.

BMC Network Connection

To utilize the BMC remote functionality, ensure that the network is connected to the BMC.

Ethernet Network Connection via a Network Card

During the Ubuntu 22.04 installation process, network configuration is essential to test the connection to mirror locations for Ubuntu repositories and archives. Please ensure Ethernet connectivity by using a network card. If there's a firewall configuration within your network, the mirror location test may fail. In such cases, disconnect the Ethernet cable for the OS installation. The OS installation can still be successful without an Ethernet connection **for** obtaining the latest updates. For further details, please refer to Step 6. Installing Ubuntu 22.04 OS.

Installing Ubuntu Server 22.04 OS

Step 1. Obtaining the BMC IP Address

Connect the system to a monitor or display using a VGA port or a DisplayPort (Mini DP). Ensure that network is connected to BMC using a network cable and power on the system. The BMC IP address will appear on the right corner of the Supermicro Logo screen.

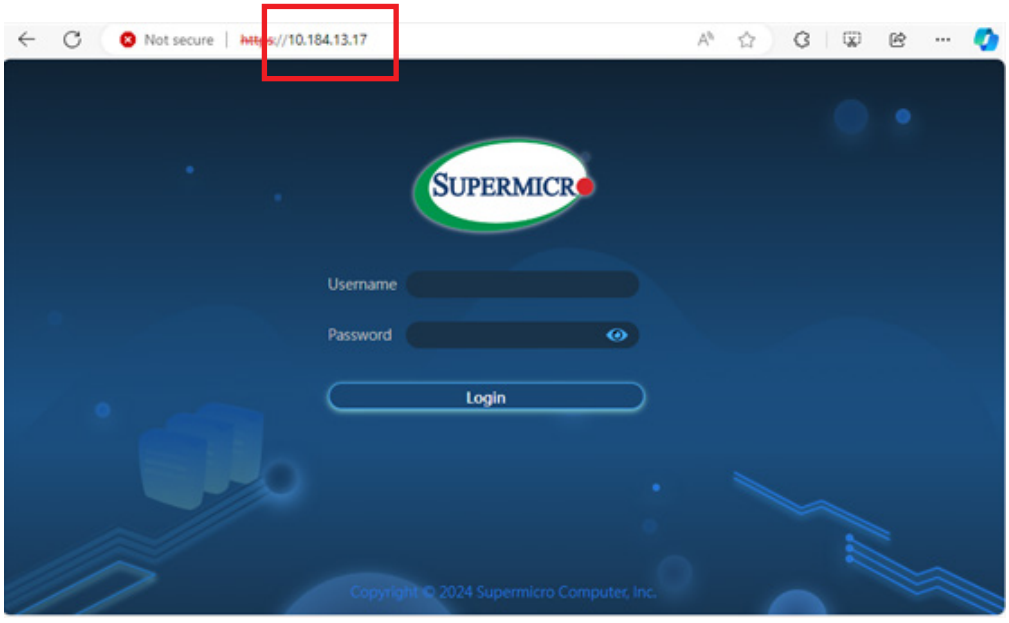
Step 2. Accessing the BMC Remote Server

Log in to BMC Remote Server

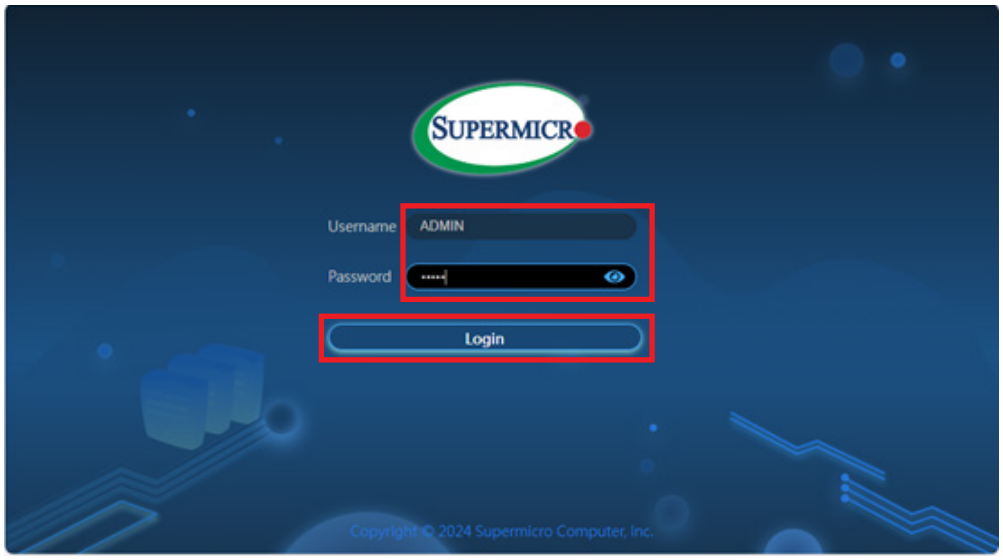
1. In the terminal, execute a ping command to the BMC IP address, such as 10.184.13.17, to verify its connectivity.

2. Launch a new web browser and input the BMC IP address into the URL field.

Outcome: The BMC Remote Console login screen will be displayed.



3. Input the username "**ADMIN**" and the unique BMC password, which is located on the label on the opposite side of the service tag of the system. Click the "**Login**" to proceed.

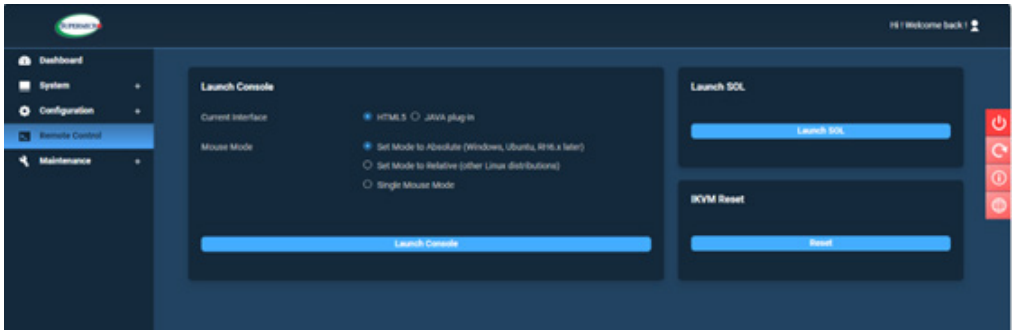


Outcome: The BMC Dashboard offers insights into system overview, configuration, health status, and maintenance.

Step 3. Controlling the System Remotely

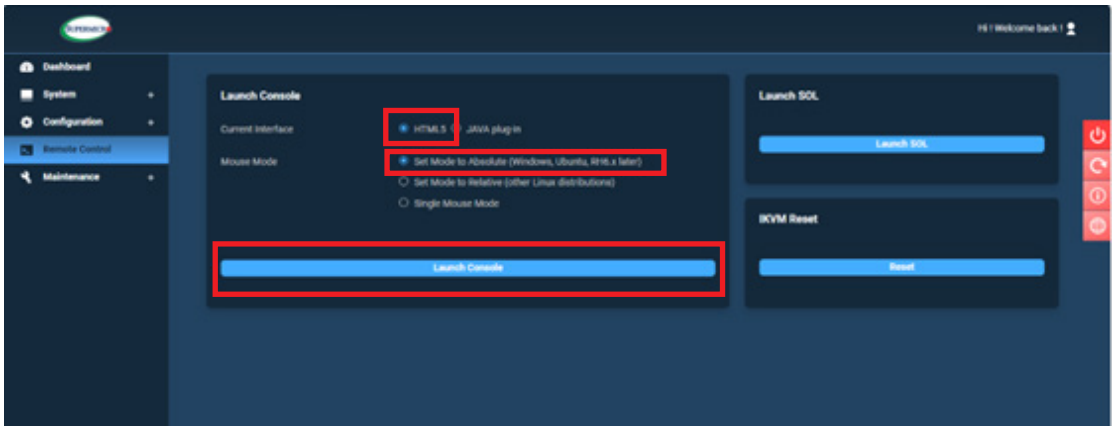
1. The Remote Control menu in the RMC Remote Server enables remote server operations.

2. Use the Launch Console section to configure the remote console interface settings. Choose between the HTML5 interface or a JAVA plug-in.



Launch a HTML5 Remote Browser

1. Set HTML5 as the current interface.
2. Choose the mouse mode according to your operating system, such as "**Set Mode to Absolute (Windows, Ubuntu, RH6.x, or later)**".
3. Click the "**Launch Console**" button to open a console in a new browser window.

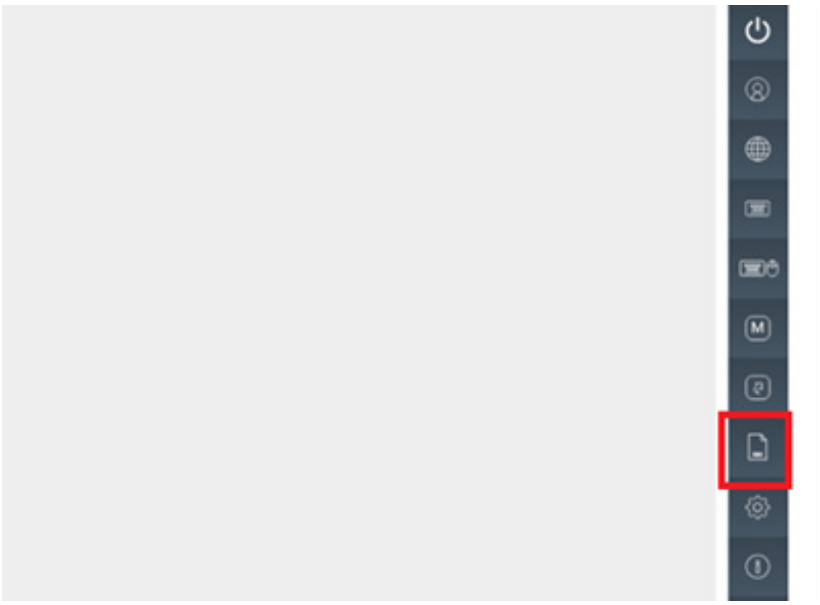


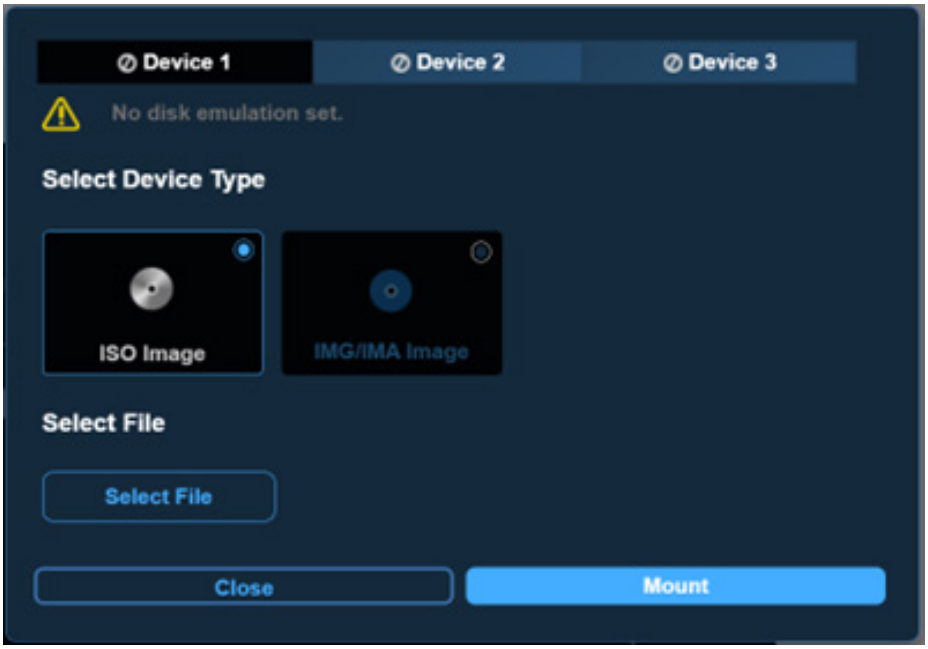
Step 4. Mounting the ISO Image

There are two methods to mount ISO images. If the ISO files are stored locally on your drive, you can mount them directly within the remote control browser. Alternatively, if the ISO files are located on a shared server, you can mount them via the Configuration > Virtual Media menu.

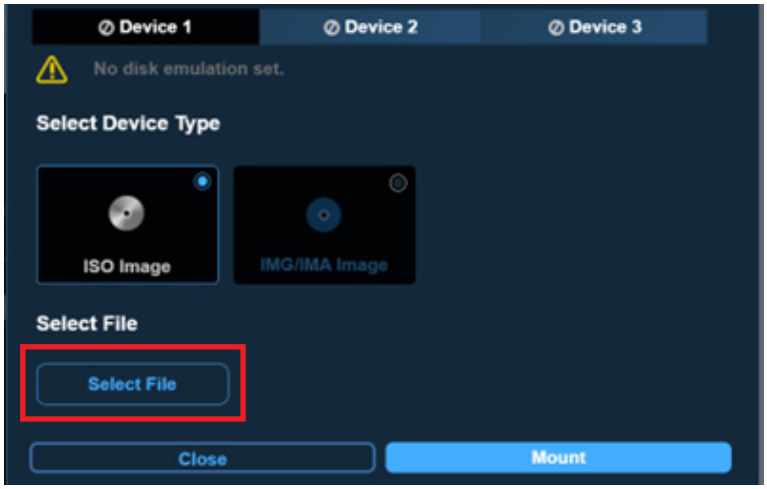
Method One: Mount the ISO Image Using a Local File

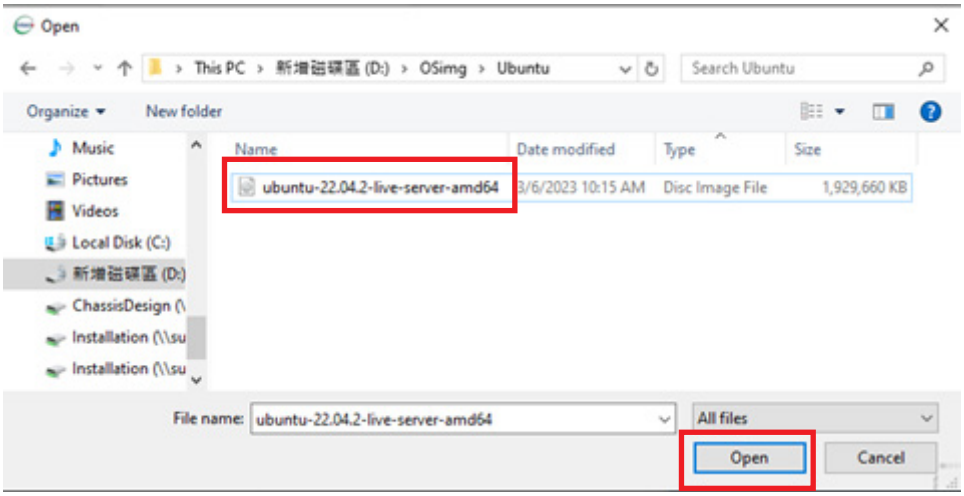
1. In the remote control browser, click the "**Virtual Media**" icon. This action will prompt a dialog box to appear, enabling you to select the image type and files for mounting.





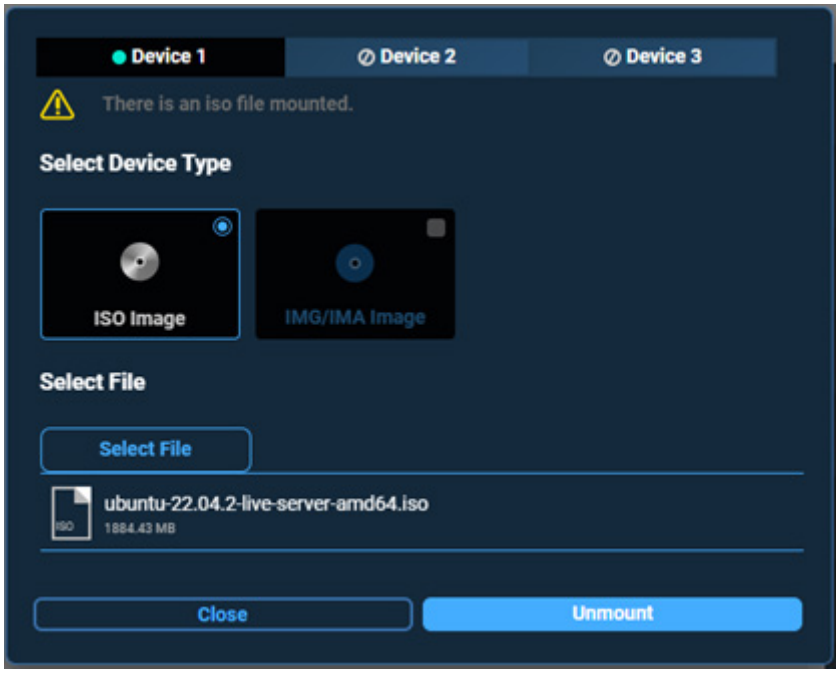
2. Select the "**Choose File**" button to browse and select the RHEL ISO image on your local drive for use.





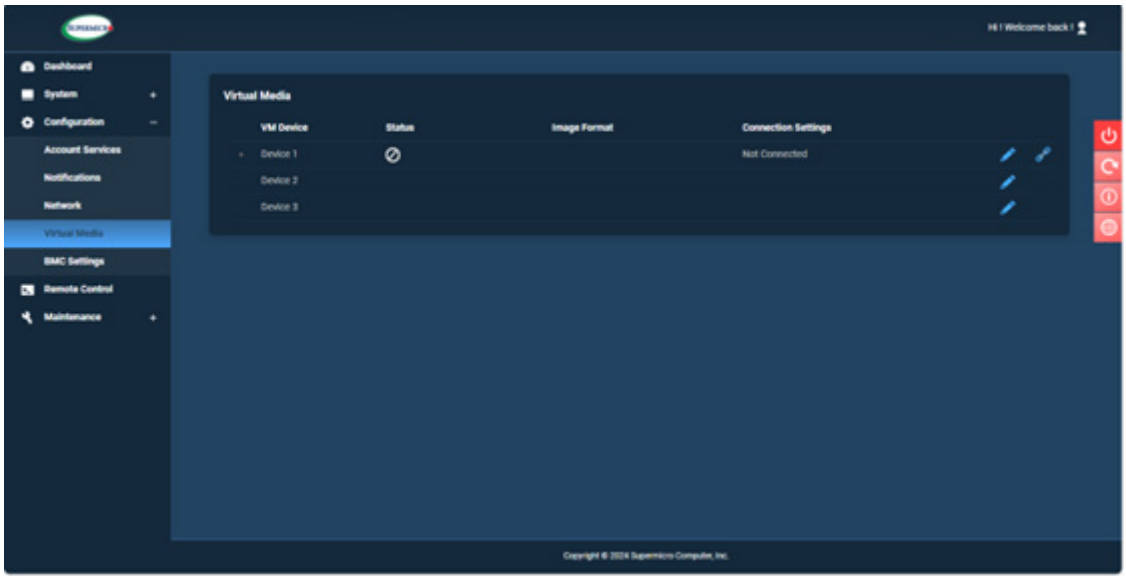
3. Click the "**Mount**" button to attach the chosen iso image.

Result: Upon successful mounting of the ISO image, a green indicator will appear in the "**Device**" tab. Close the dialog to continue.

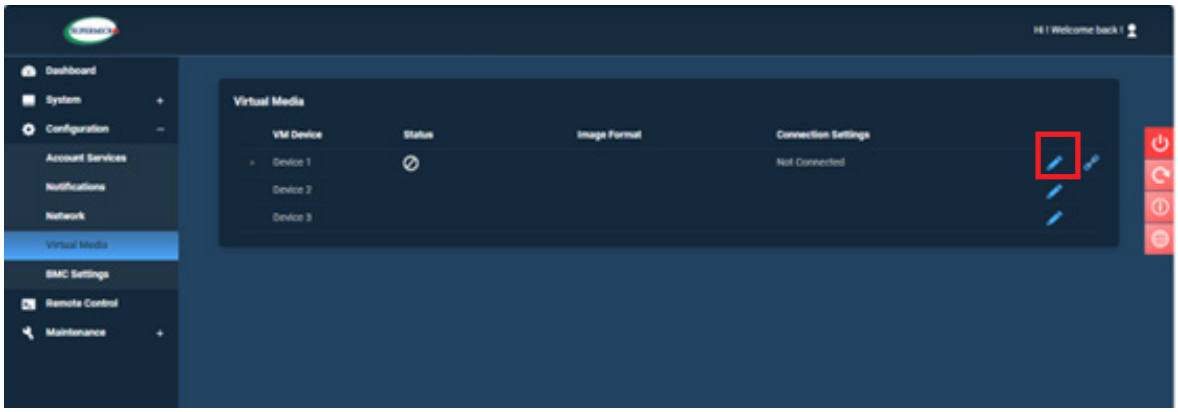


Method Two: Mount the ISO Image through Shared Server

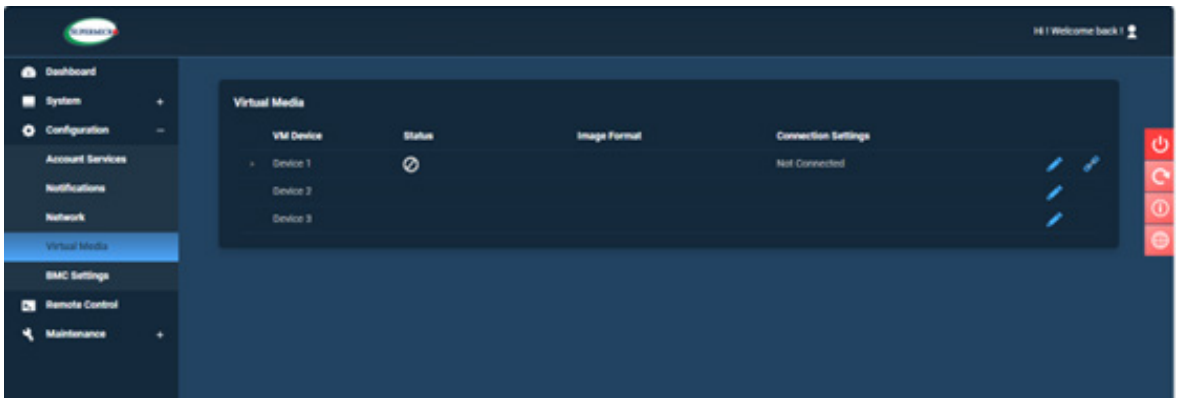
1. On the BMC dashboard, go to Configuration > Virtual Media, this allows you to attach an iso image from the server.

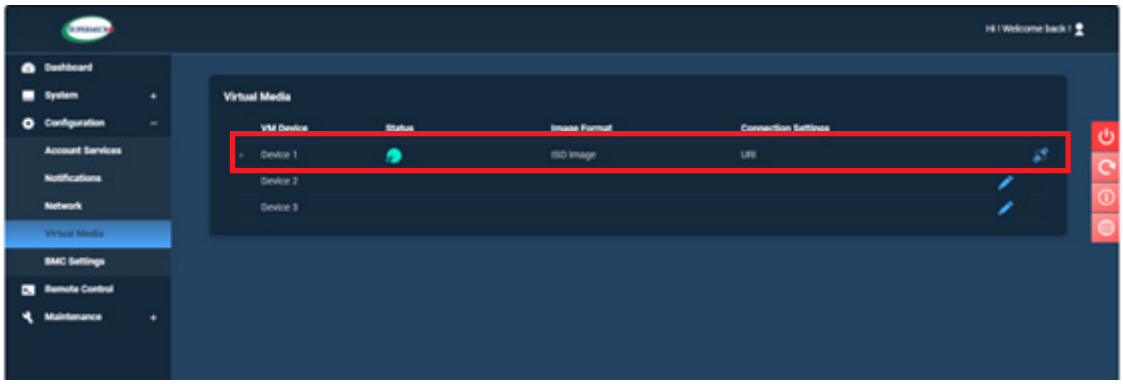


2. Click the "**Edit**" icon to adjust the VM configuration. Enter the server host address and the path to the ISO image. Then, click the "**Save**" to apply the changes.



3. Click the "**Connect**" icon to mount the virtual media. The device status will display as green once the VM is successfully configured.



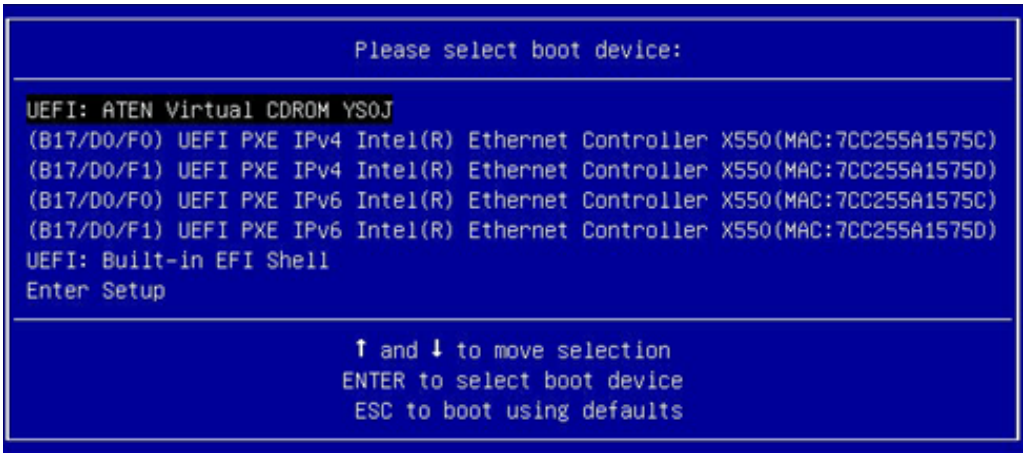


Step 5. Boot from Virtual Media

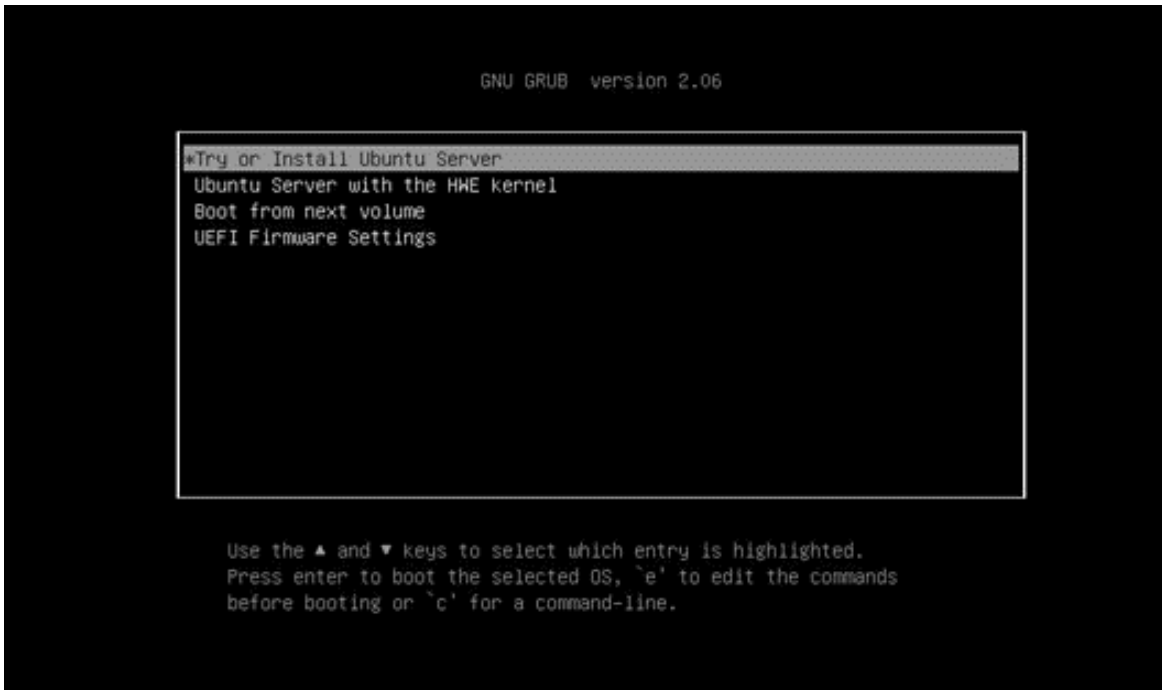
To boot from the mounted image in virtual media, users must manually select the boot device from the Boot Menu during BIOS POST.

1. Power on the system and wait for the Log screen to display. To access the Boot Menu, repeatedly press <**F11**> until "**Invoke Boot Menu**" appears at the bottom left corner of the screen.

Subsequently, the Boot Menu is displayed.

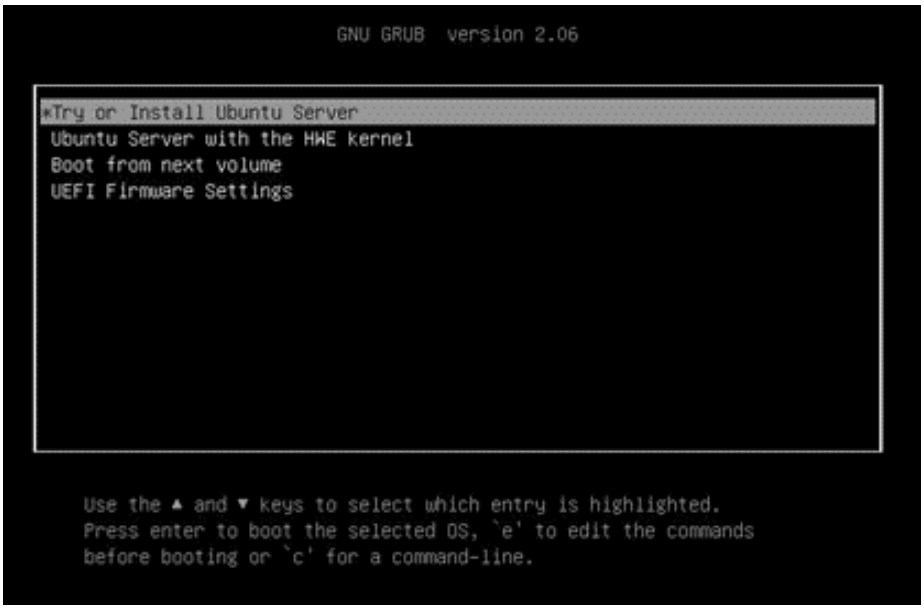


2. Select "**UEFI: ATEN Virtual CDROM YSOJ**" as the boot menu. This selection mounts the ISO image mounted in Virtual Media. Press "Enter" to proceed. The GRUB menu will be displayed.

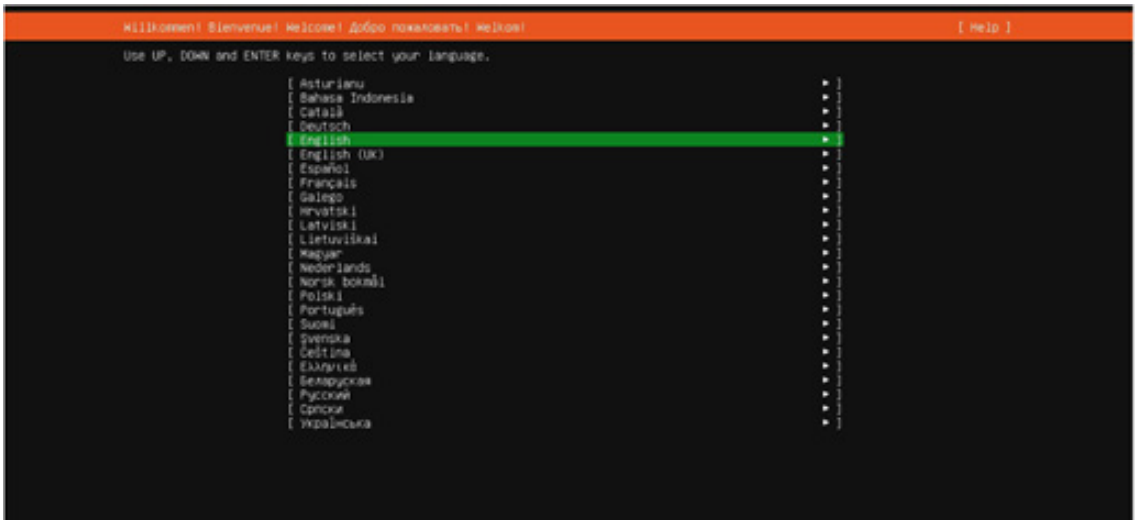


Step 6. Installing Ubuntu Server 22.04 OS

1. Follow the Ubuntu installer steps to continue installation. Choose **"Try or Install Ubuntu Server"** to proceed.

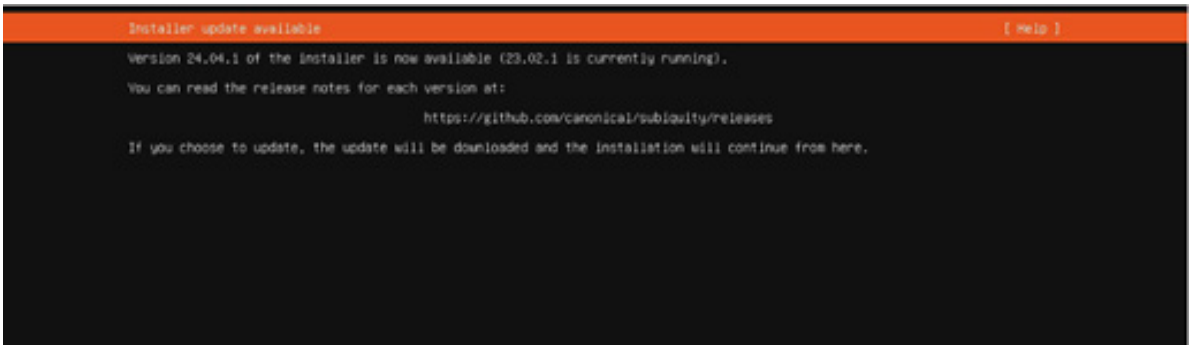


2. Select the language.



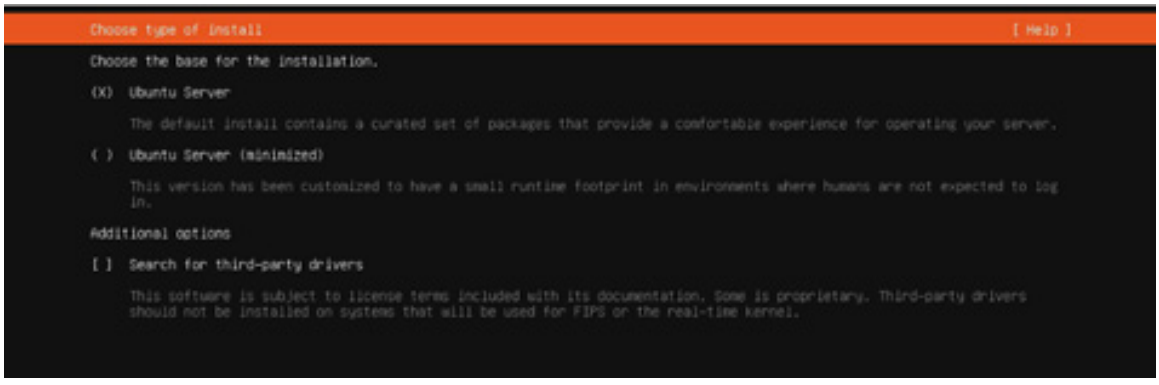
3. Determine whether to update to the new installer or not.

Note: Check whether the system supports the new version before installation.



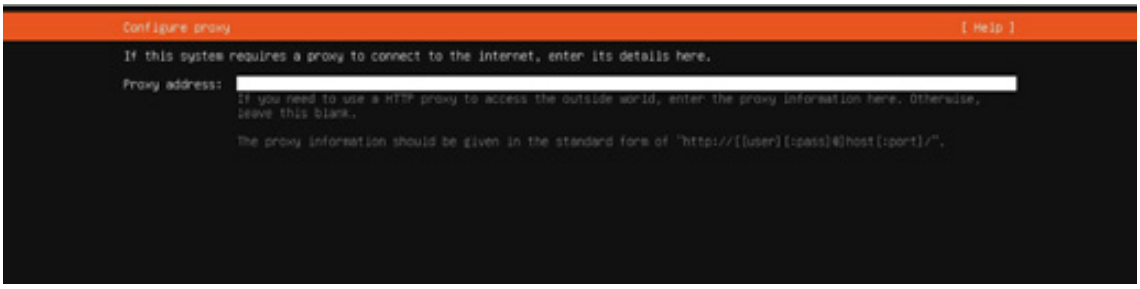
4. Select the keyboard layout.

5. Select the installation type.

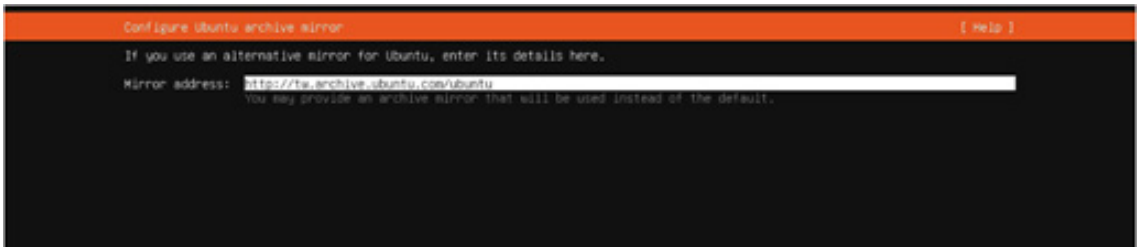


6. Configure the network connection to proceed. If an Ethernet network connection is available, proceed by selecting at least one network configuration option displayed on the installation UI.

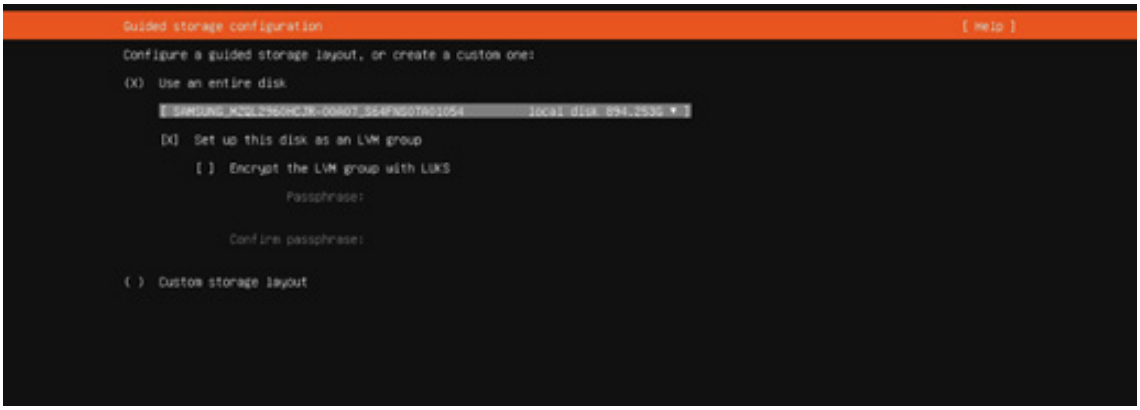
7. Configure a proxy server or not.



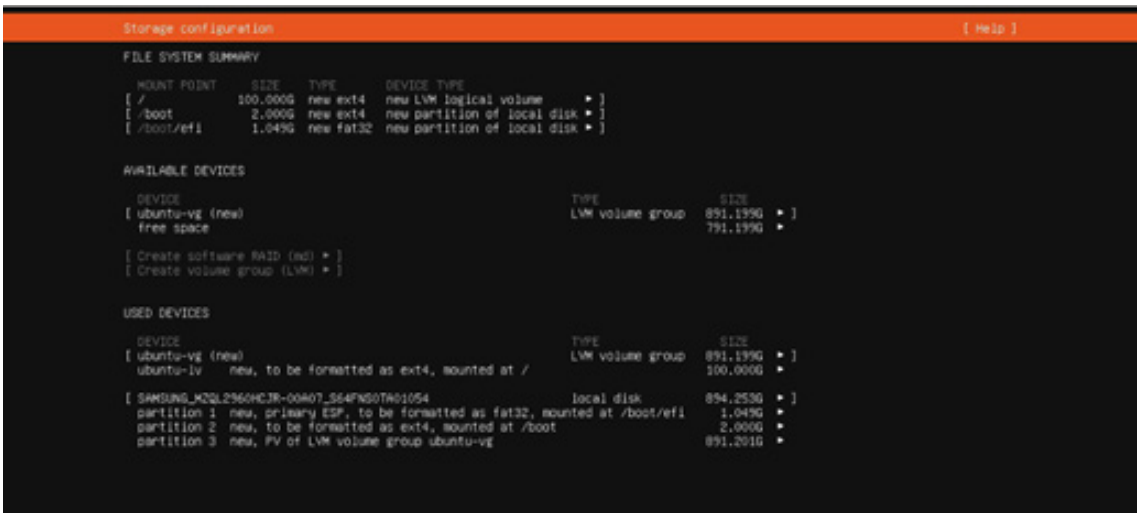
8. Configure an Ubuntu archive mirror.

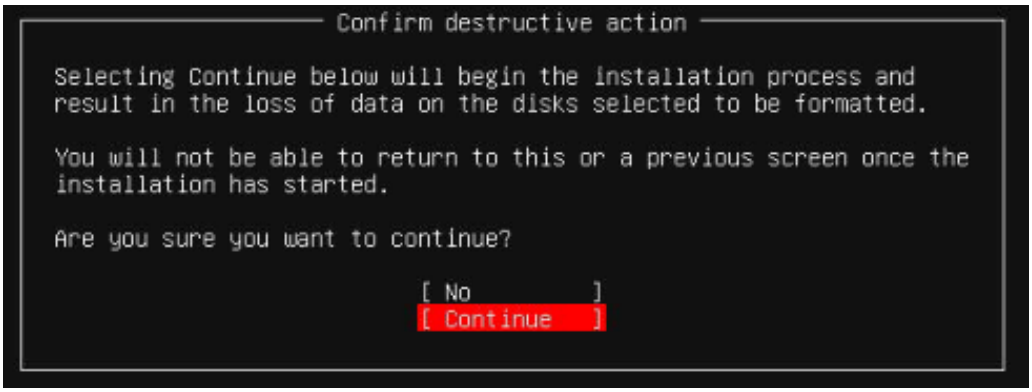


9. Select a drive for OS deployment and customize the storage layout or not.



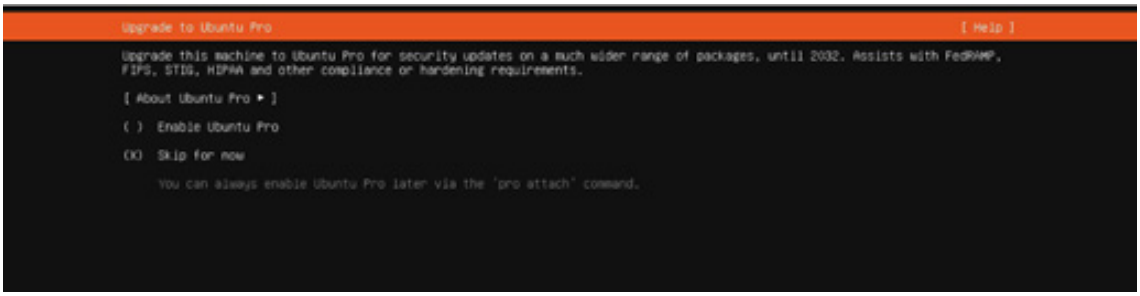
10. Confirm the storage layout and accept the irreversible change.



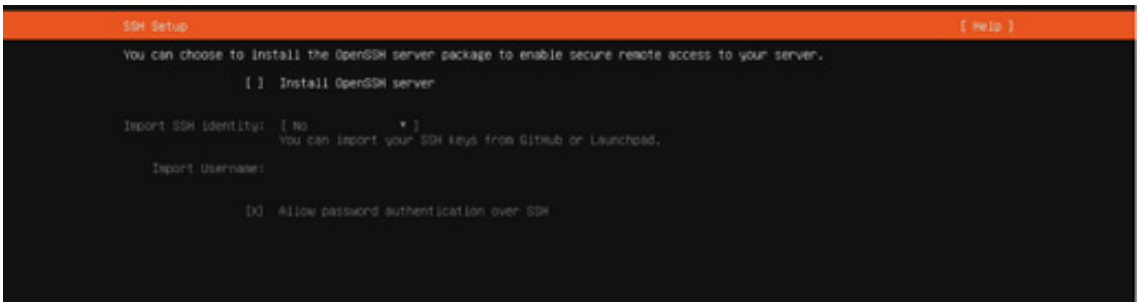


11. Enter the username and password.

12. Determine to upgrade to Ubuntu Pro or not.

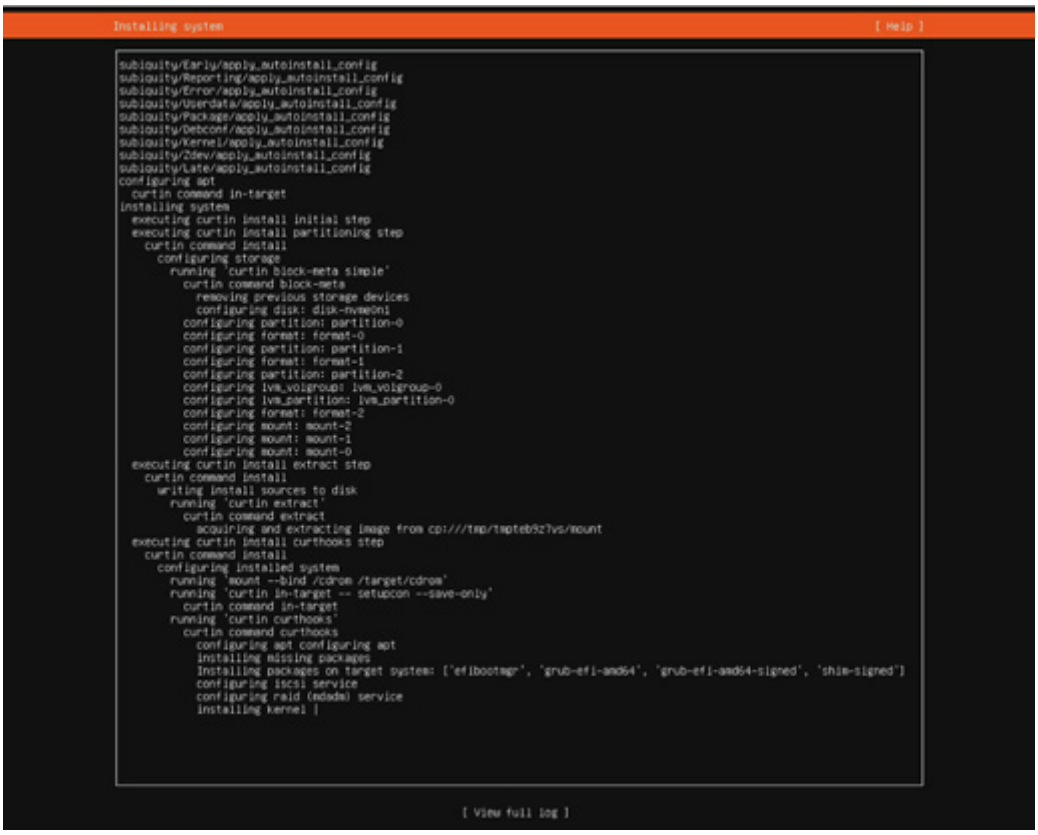


13. Determine to install OpenSSH server or not.

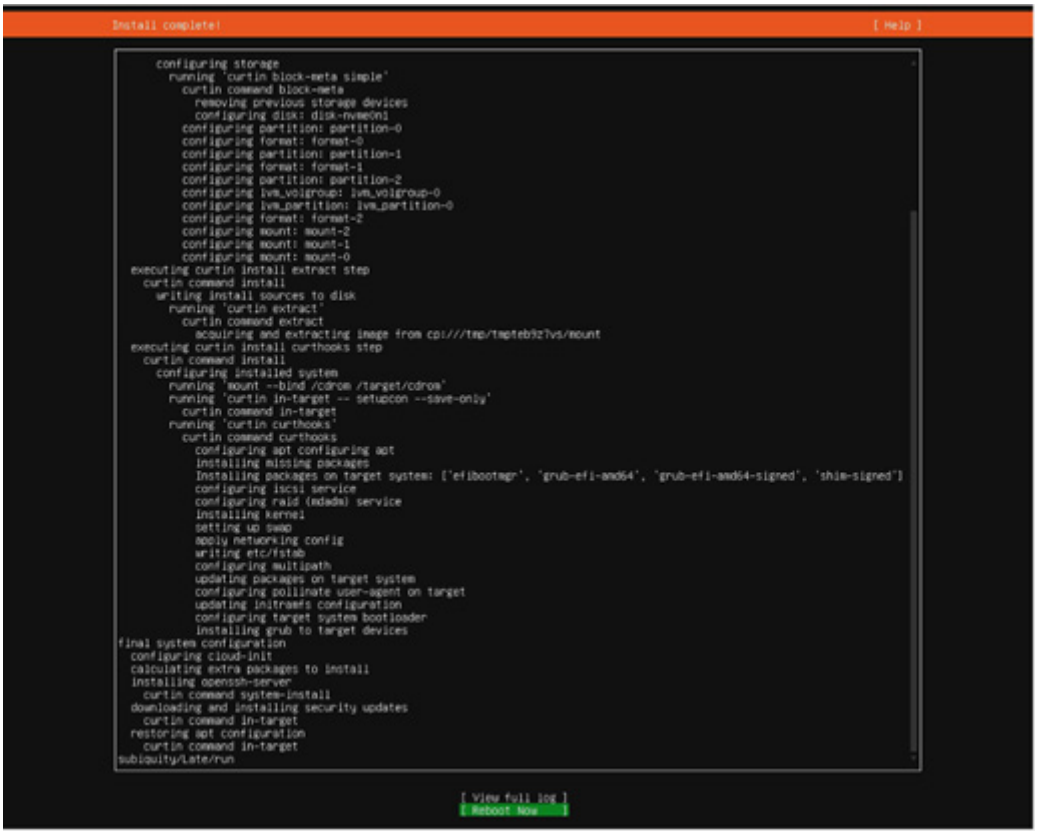


14. Choose the software packages on demand.

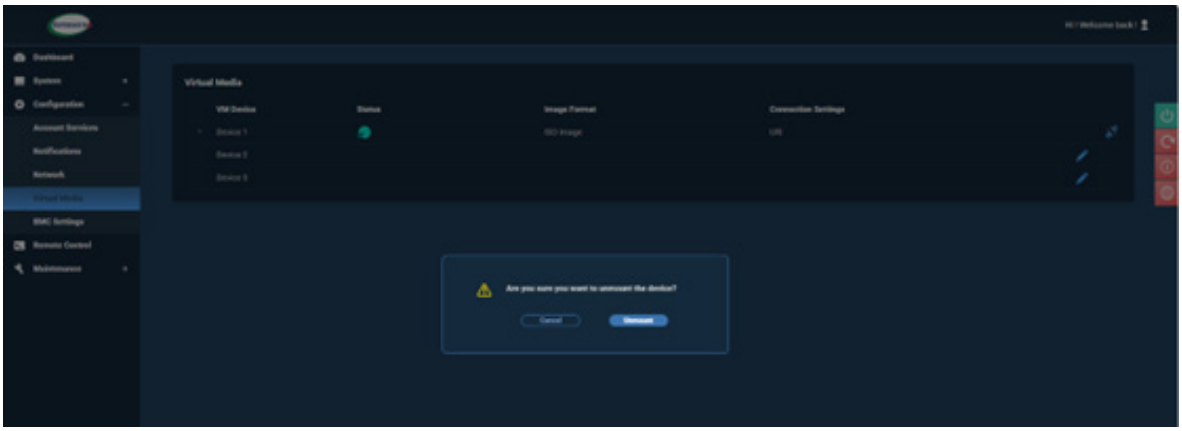
15. Installation begin and wait for the completion.



16. Reboot the system to complete the installation.

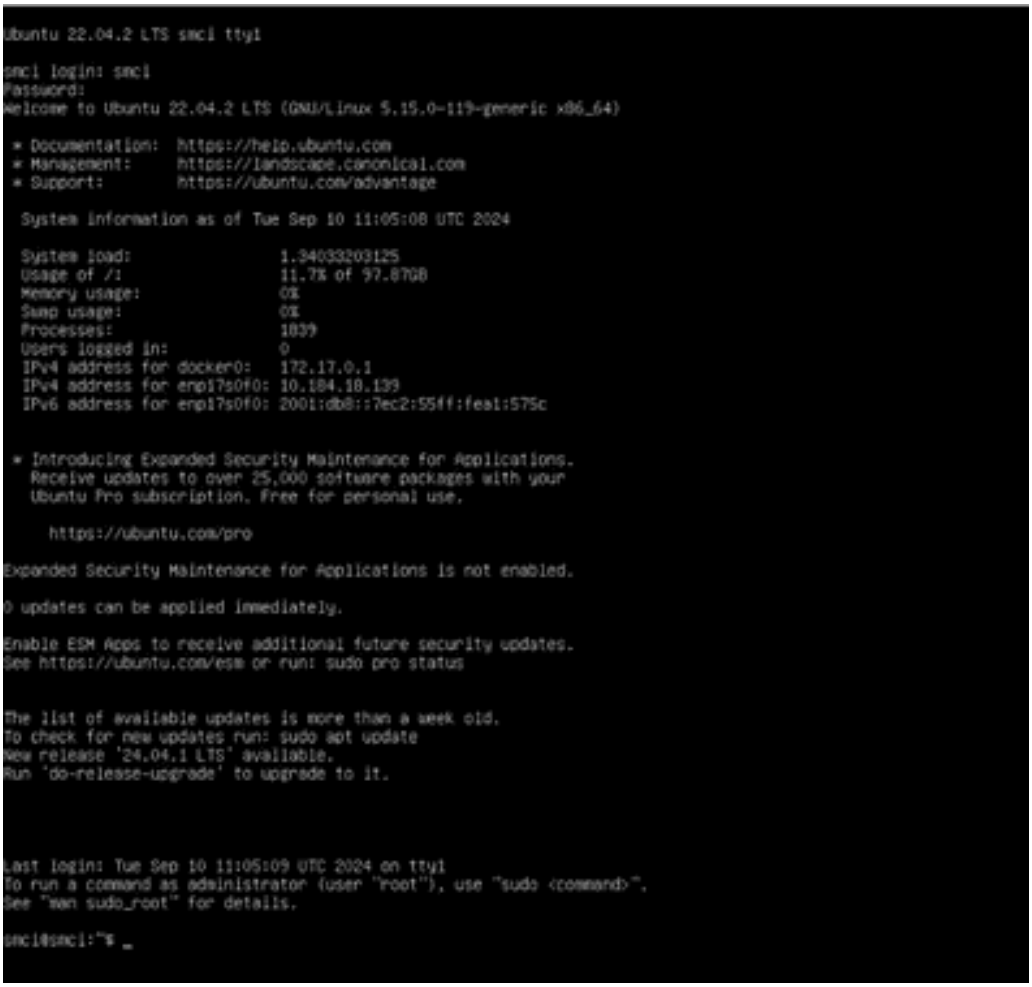


17. Remove the installation medium and press "**ENTER**" to continue the OS initialization.



18. Boot into OS successfully

19. Login with the username and password and start to operate the system as demand.



5.2 Red Hat Enterprise Linux (RHEL) 9.3 ISO Installation

Prerequisites

RHEL 9.3 ISO Image

Obtain RHEL 9.3 ISO for AMD64 CPU architecture (x86_64) and save it to your local drive or a shared server.

BMC Network Connection

To utilize the BMC remote functionality, ensure that the network is connected to the BMC.

Installing RHEL 9.3 OS

Step 1. Obtaining BMC IP Address

Connect the system to a monitor or display using a VGA port or a DisplayPort (DP). Ensure that the network is connected to the BMC using a network cable and power on the system. The BMC IP address will appear on the right corner of the Supermicro Logo screen.

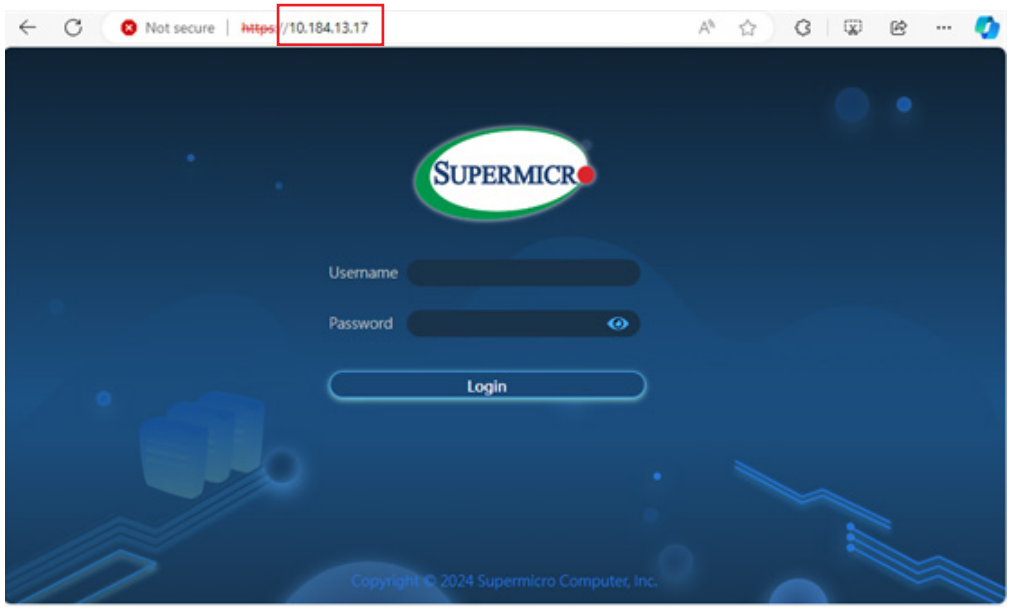
Step 2. Accessing the BMC Remote Server

Log in to the BMC Remote Server

1. In the terminal, execute a ping command to the BMC IP address, such as 10.184.13.17, to verify its connectivity.

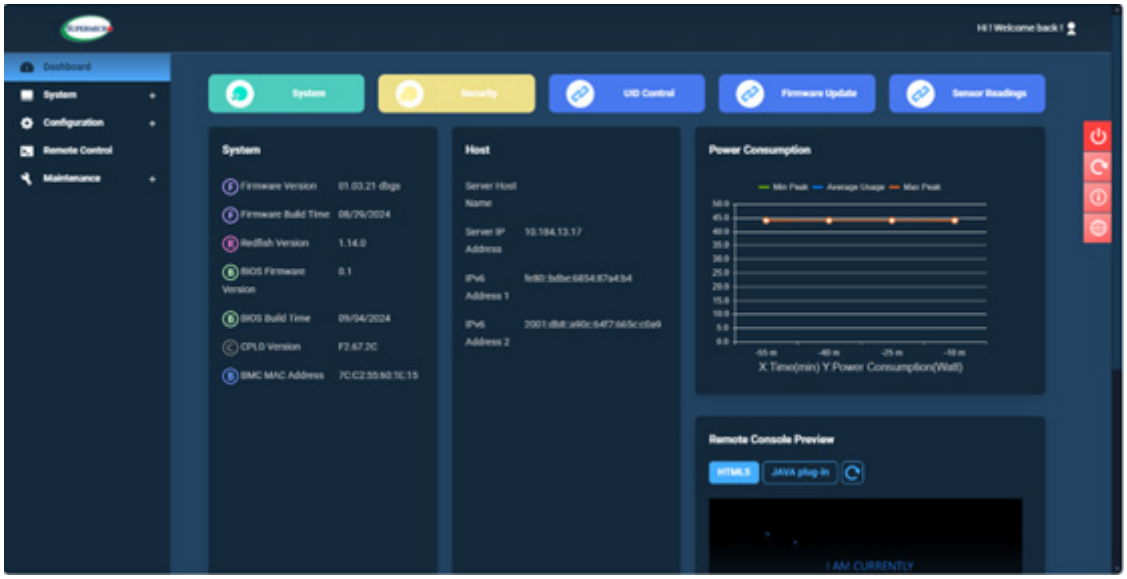
2. Launch a new web browser and input the BMC IP address into the URL field.

Outcome: The BMC Remote Console login screen will be displayed.



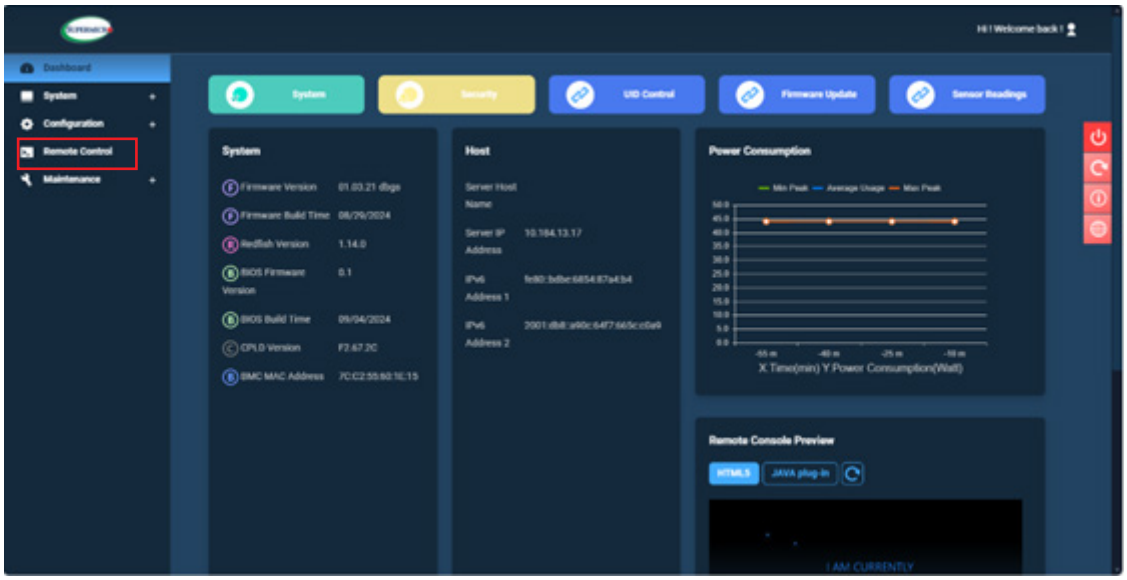
3. Input the username "**ADMIN**" and the unique BMC password, which is located on the label on the opposite side of the service tag of the system. Click the "**Login**" to proceed.

Outcome: The BMC Dashboard offers insights into system overview, configuration, health status, and maintenance.

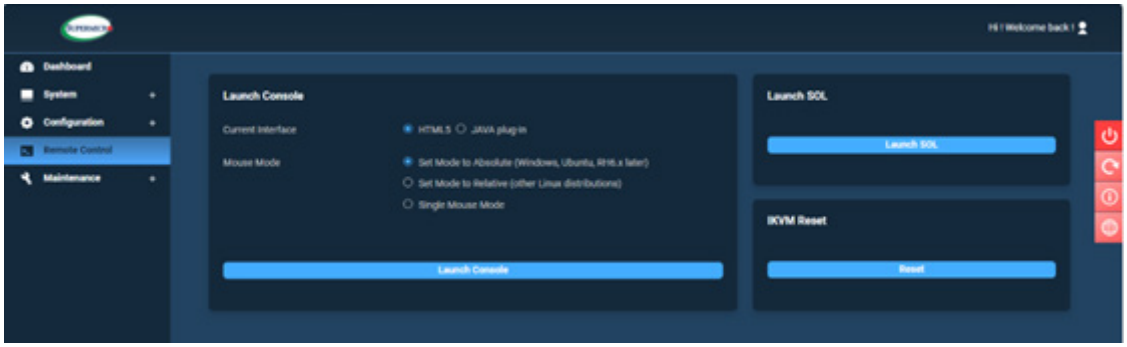


Step 3. Accessing the BMC Remote Server

1. The Remote Control menu in the BMC Remote Server enables remote server operations.

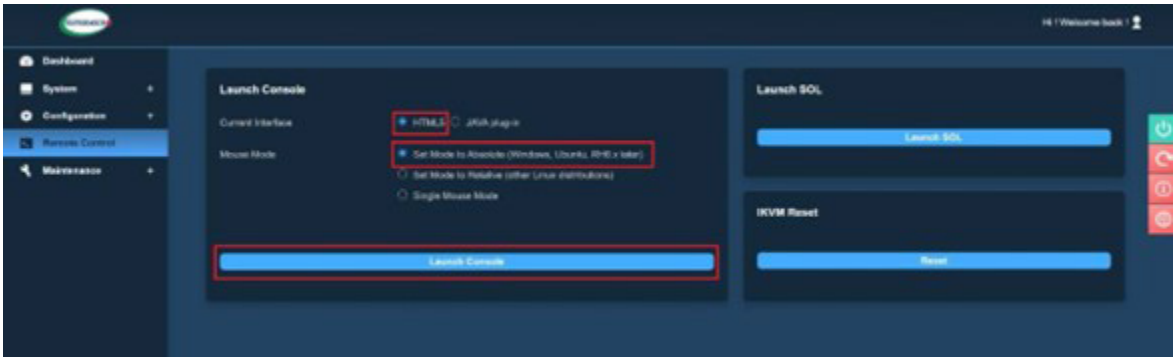


2. Use the Launch Console section to configure the remote console interface settings. Choose between the HTML5 interface or a JAVA plug-in.



Launch an HTML5 Remote Browser

1. Set HTML5 as the current interface.
2. Choose the mouse mode according to your operating system, such as "**Set Mode to Absolute (Windows, Ubuntu, RH6.x, or later)**."
3. Click the "**Launch Console**" button to open a console in a new browser window.

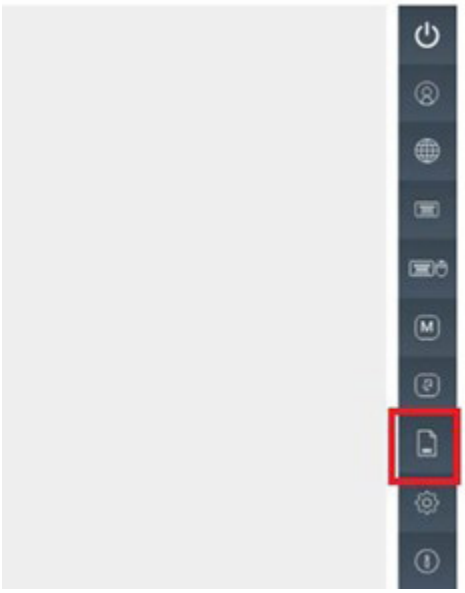


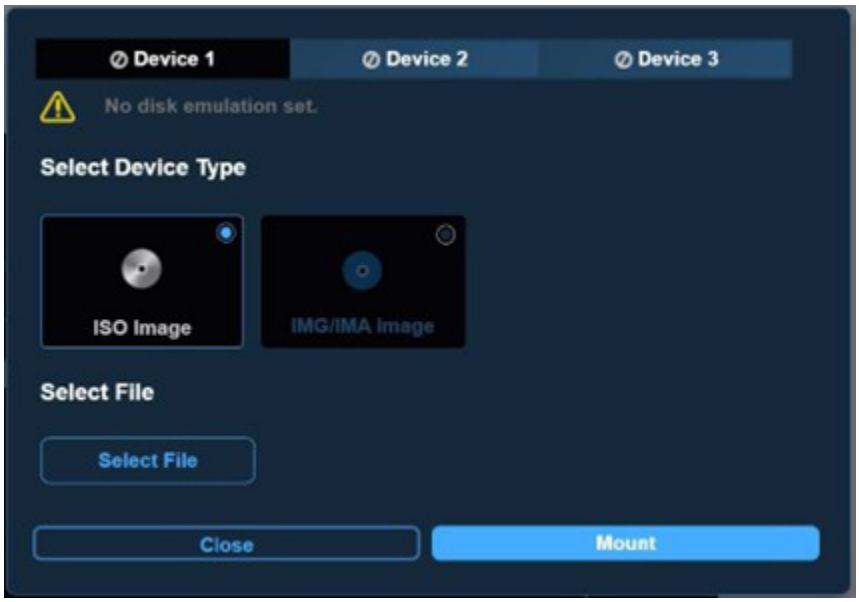
Step 4. Mounting the ISO Image

There are two methods to mount ISO images. If the ISO files are stored locally on your drive, you can mount them directly within the remote control browser. Alternatively, if the ISO files are located on a shared server, you can mount them via the Configuration > Virtual Media menu.

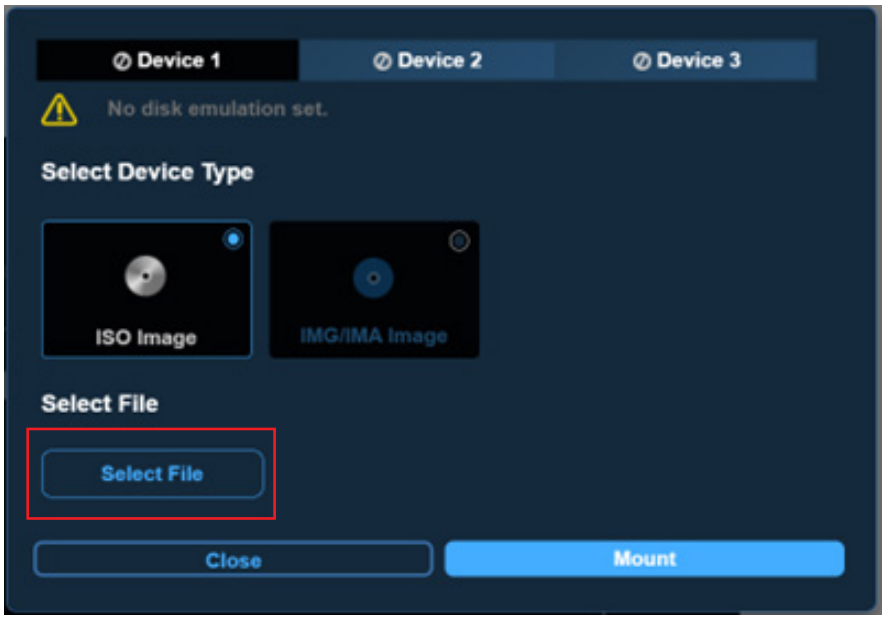
Method One: Mount the ISO Image Using a Local File

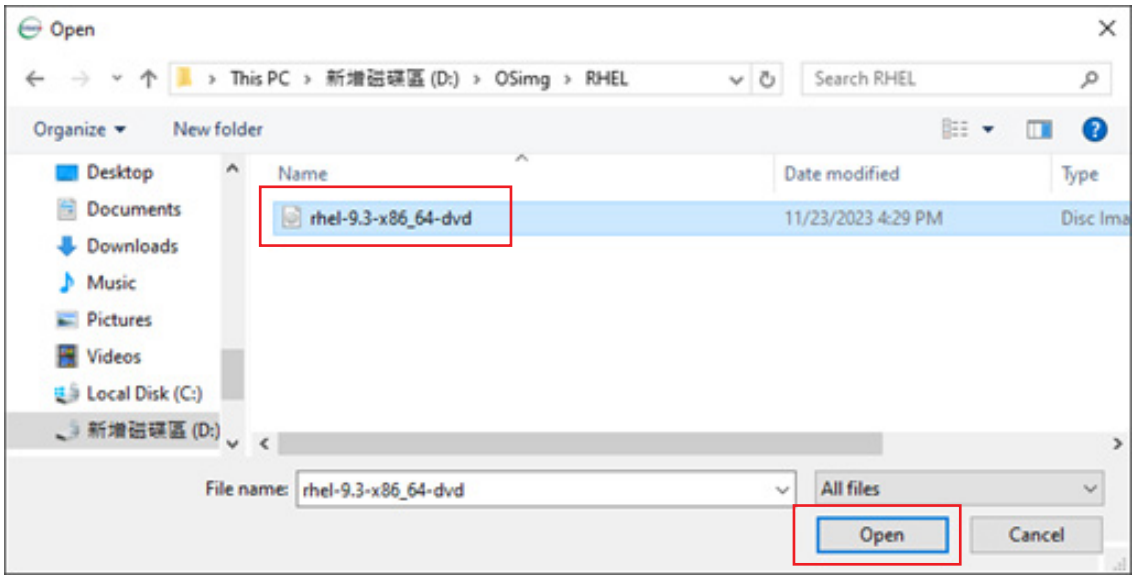
1. In the remote control browser, click the "**Virtual Media**" icon. This action will prompt a dialogue box to appear, enabling you to select the image type and files for mounting.



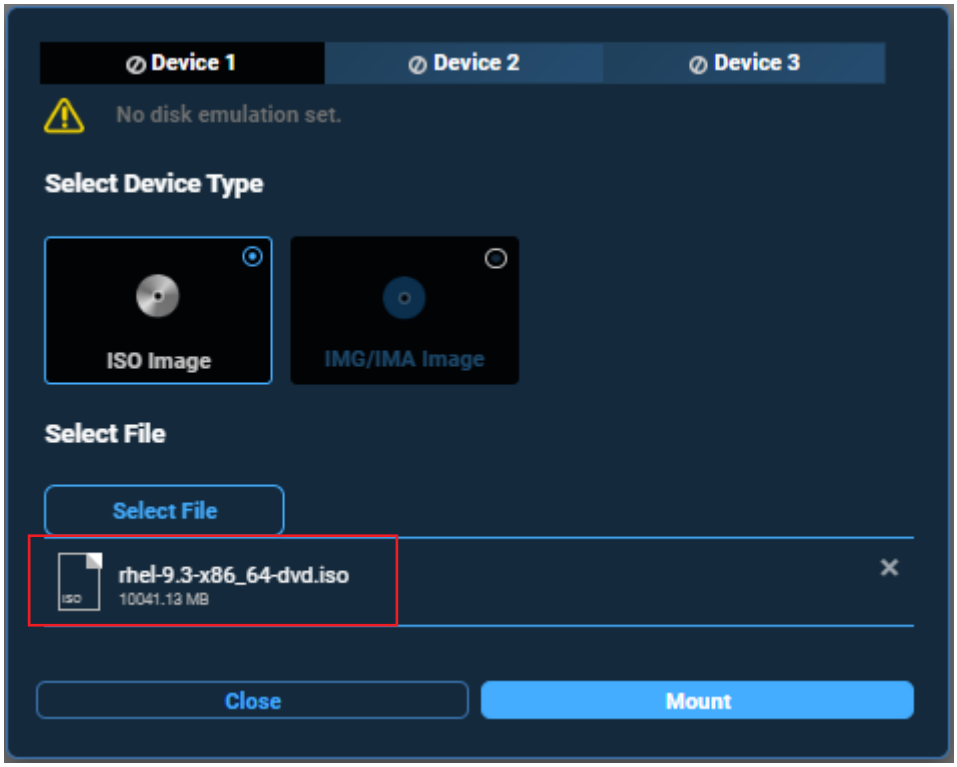


2. Select the "**Choose File**" button to browse and select the RHEL ISO image on your local driver for use.





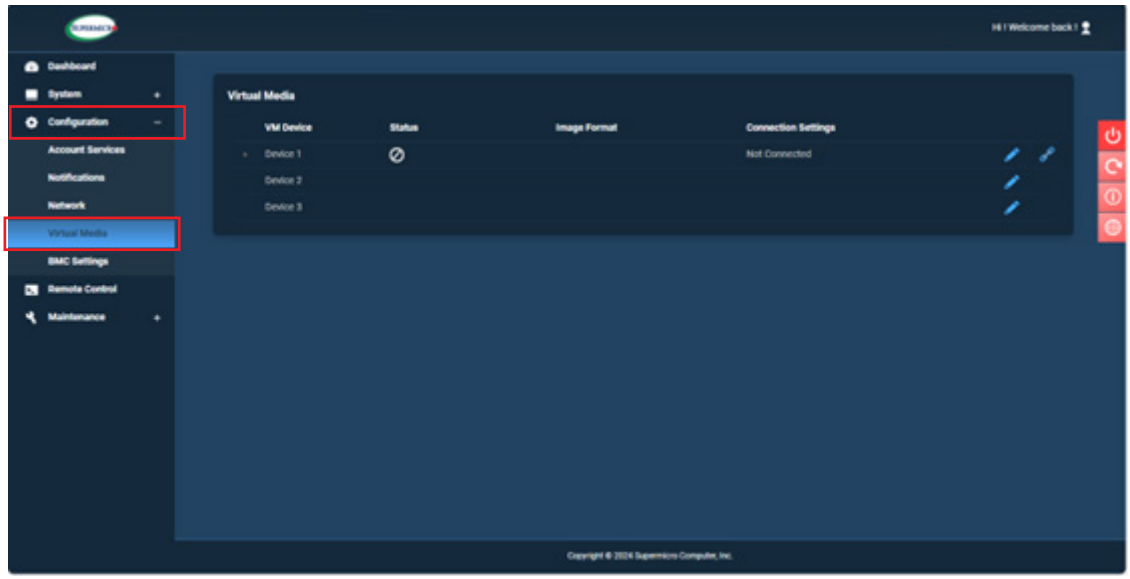
3. Click the "**Mount**" button to attach the chosen ISO image.



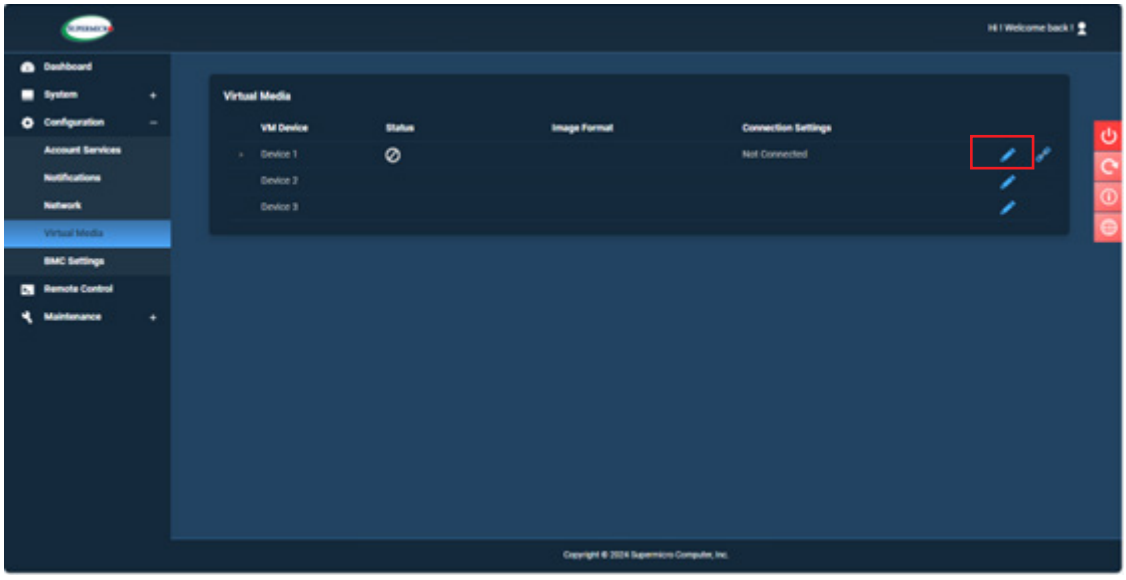
Result: Upon successful mounting of the ISO image, a green indicator will appear in the "**Device**" tab. Close the dialogue to continue.

Method Two: Mount the ISO Image through a Shared Server

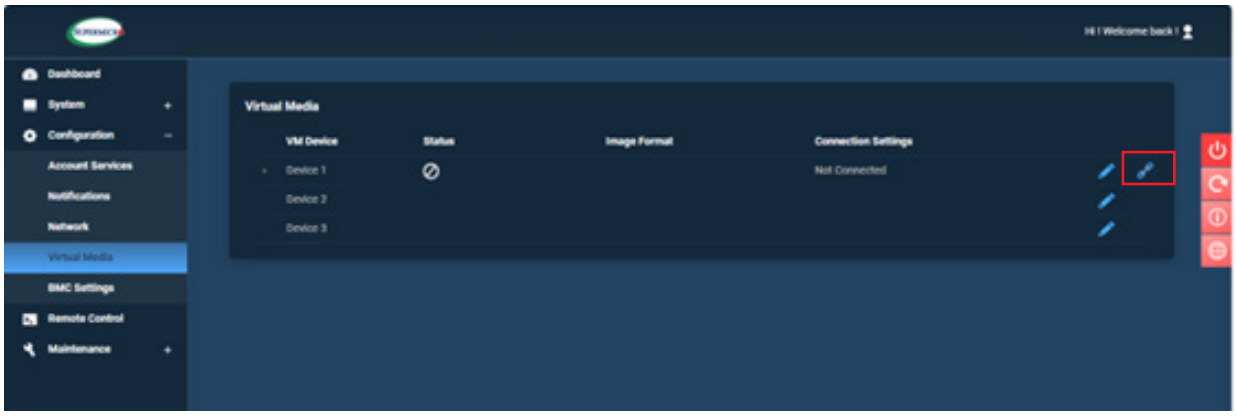
1. On the BMC dashboard, go to Configuration > Virtual Media. This allows you to attach an ISO image from the server.



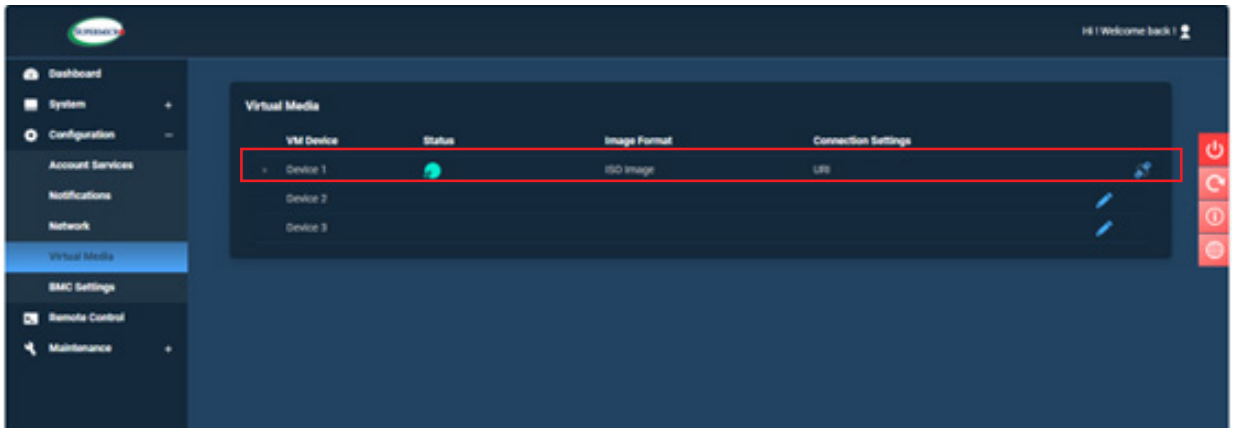
2. Click the "**Edit**" icon to adjust the VM configuration. Enter the server host address and the path to the ISO image. Then, click the "**Save**" to apply the changes.



3. Click the "**Connect**" icon to mount the virtual media.



4. The device status will display as green once the VM is successfully configured.

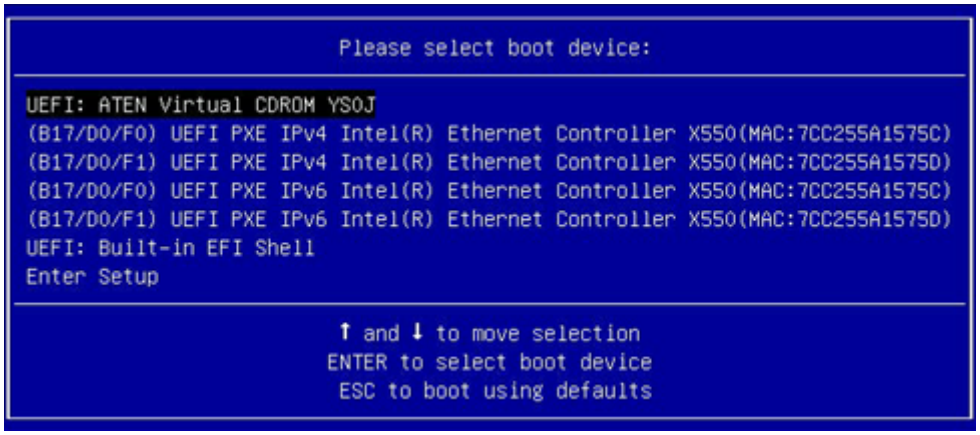


Step 5. Boot from Virtual Media

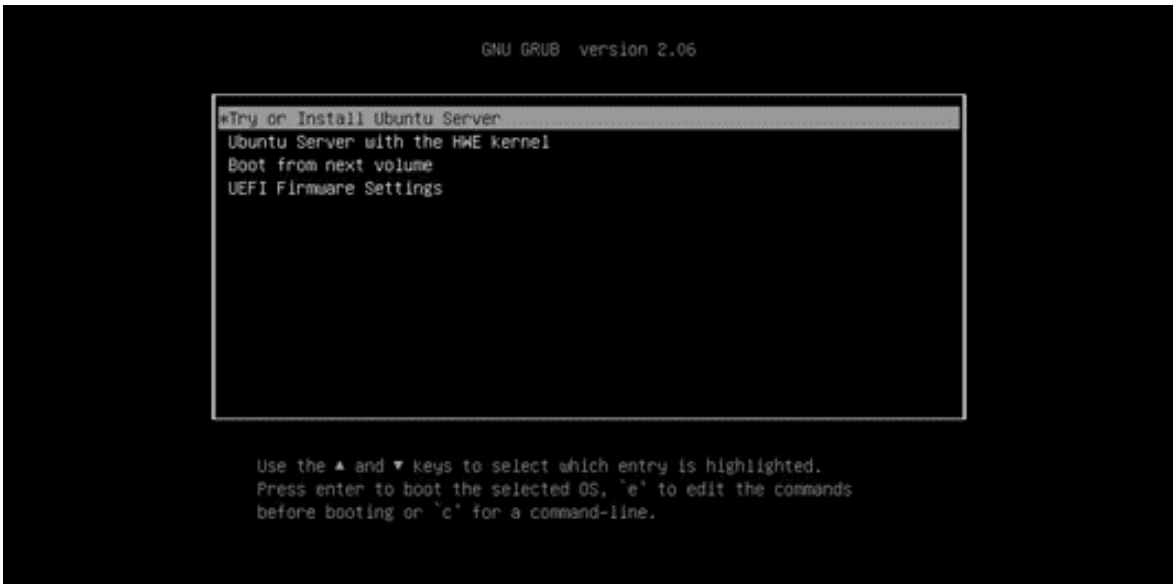
To boot from the mounted image in virtual media, users must manually select the boot device from the Boot Menu during BIOS POST.

1. Power on the system and wait for the Log screen to display. To access the BIOS setup menu, repeatedly press <**F11**> until "**Invoke Boot Menu**" appears at the bottom left corner of the screen.

Subsequently, the Boot Menu is displayed.



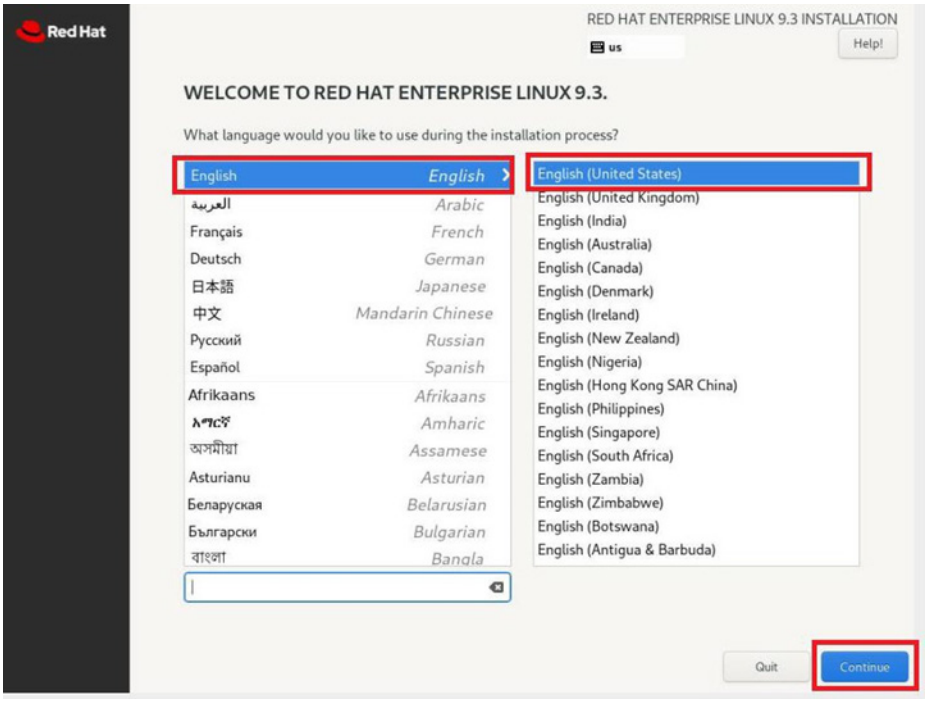
2. Select "**UEFI: ATEN Virtual CDROM YSOJ**" as the boot menu. This selection mounts the ISO image mounted in Virtual Media. Press "Enter" to proceed. The GRUB menu will be displayed.



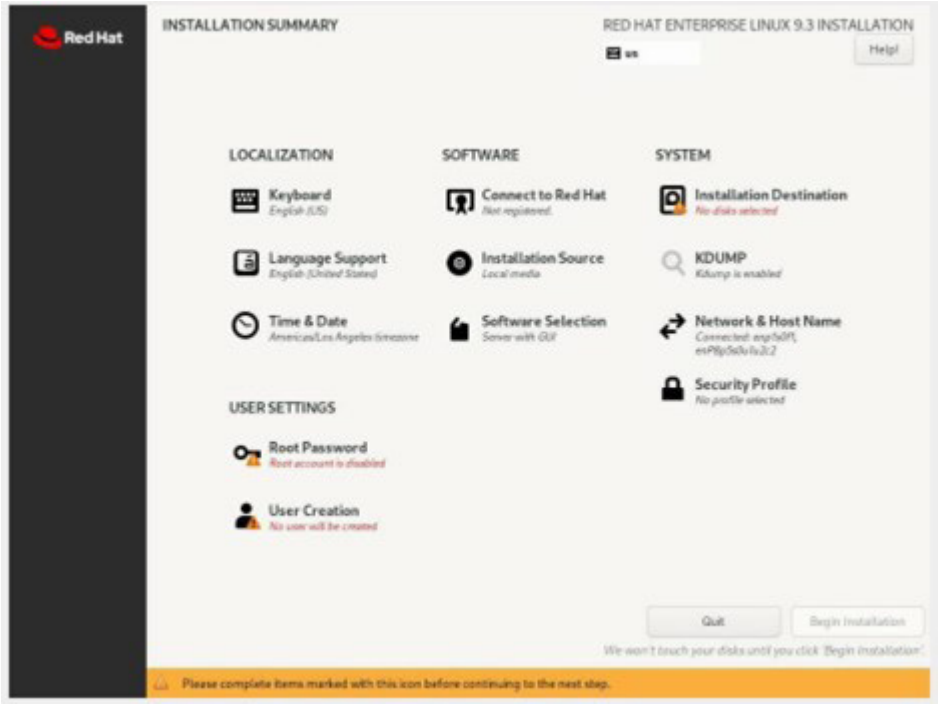
Step 6. Installing the RHEL 9.3 OS

1. Follow the Ubuntu installer steps to continue installation. Choose "**Try or Install Ubuntu Server**" to proceed.

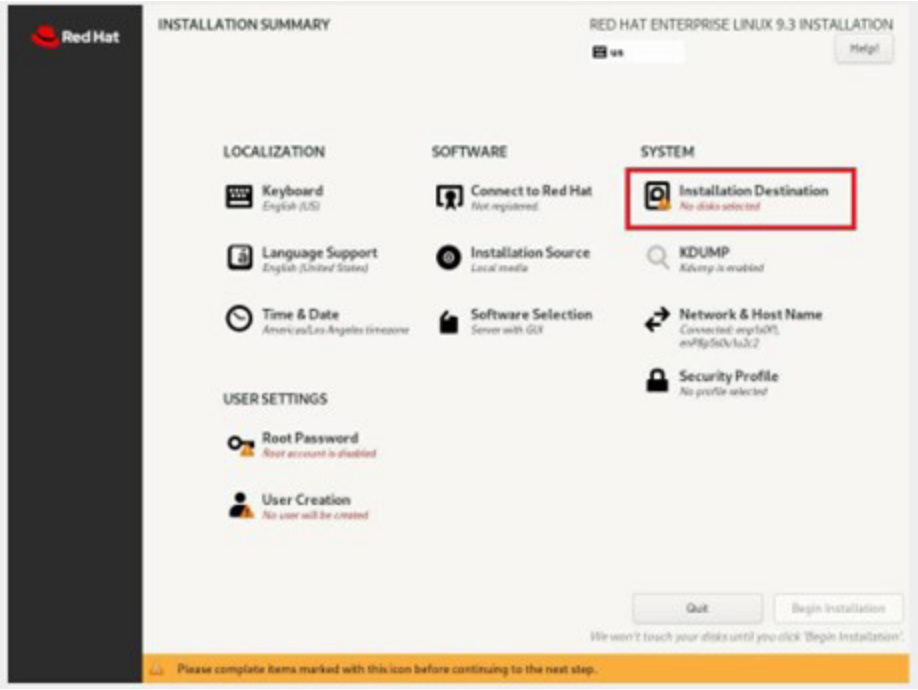
2. Select the language.



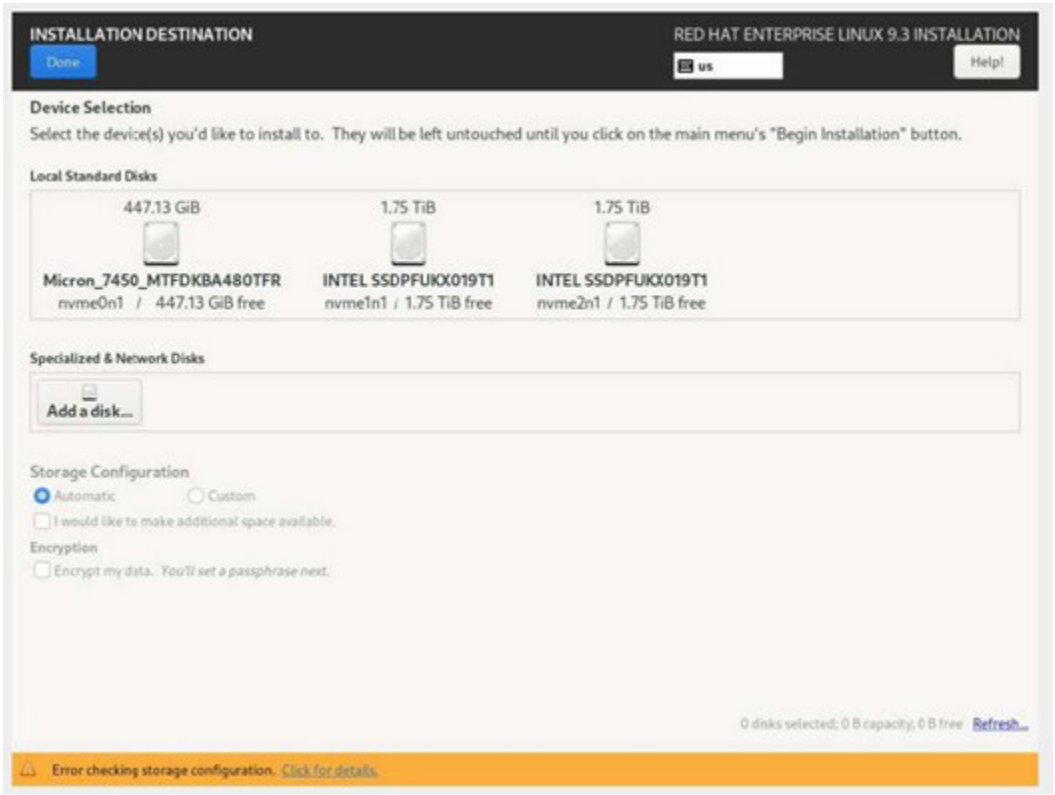
3. The Installation Summary window provides a glance of the configuration you need before you begin the installation.



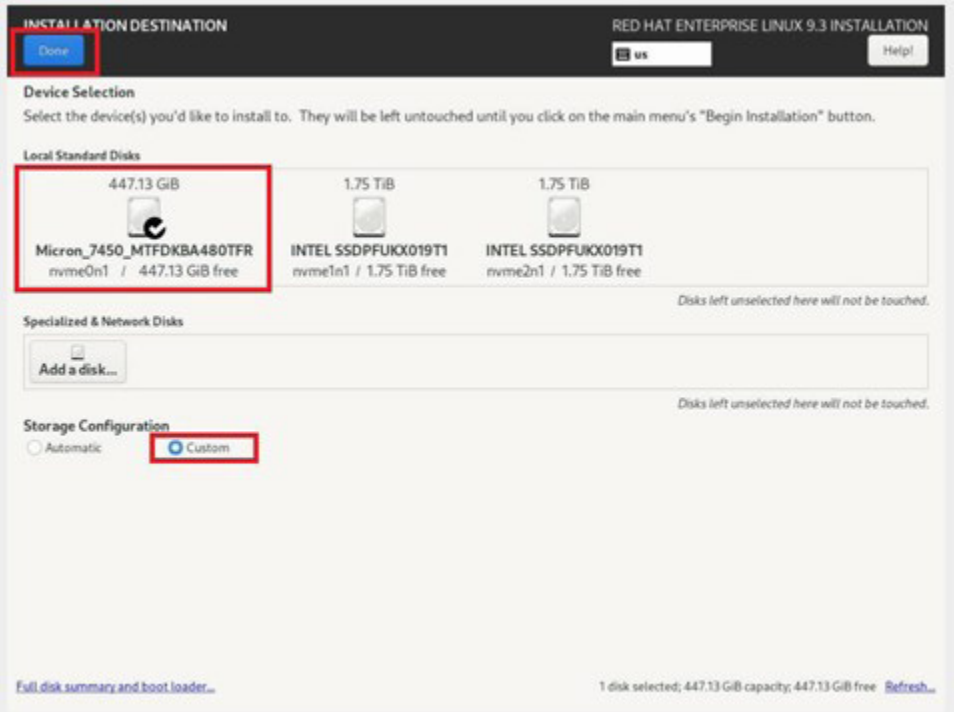
4. Click the "**Installation Destination**" button to select the storage drive.

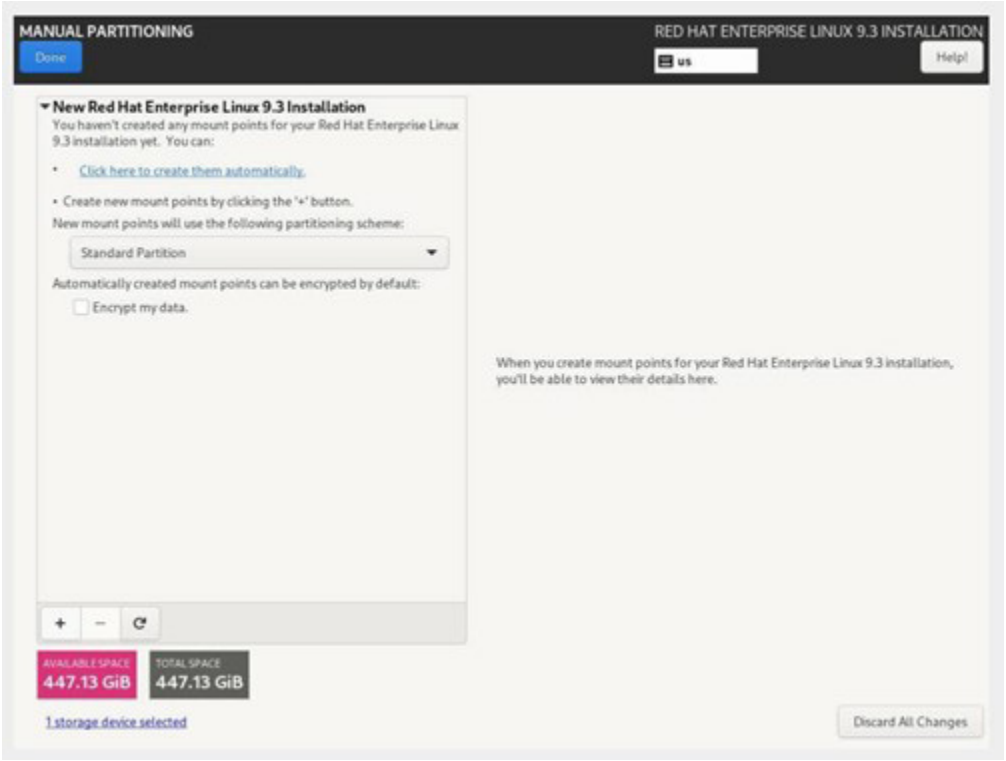


5. Select the drive to which you want to install the RHEL OS.

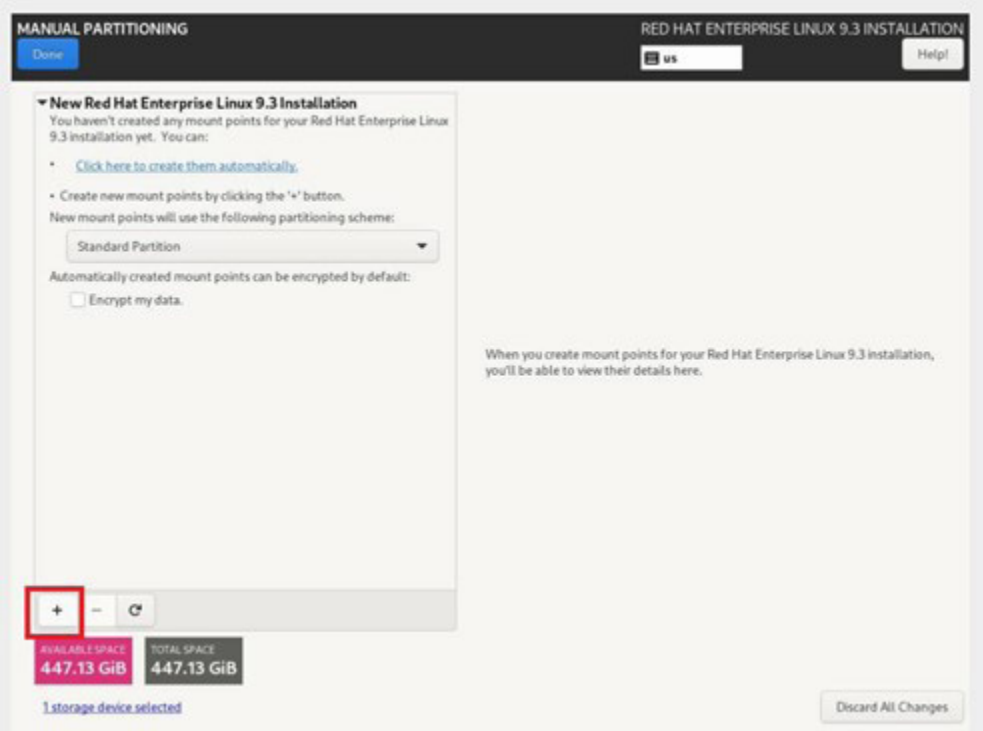


6. Select one of the drives and choose "**Custom**" if you want to customize the drive's volume. This will display the available space on the selected drive.

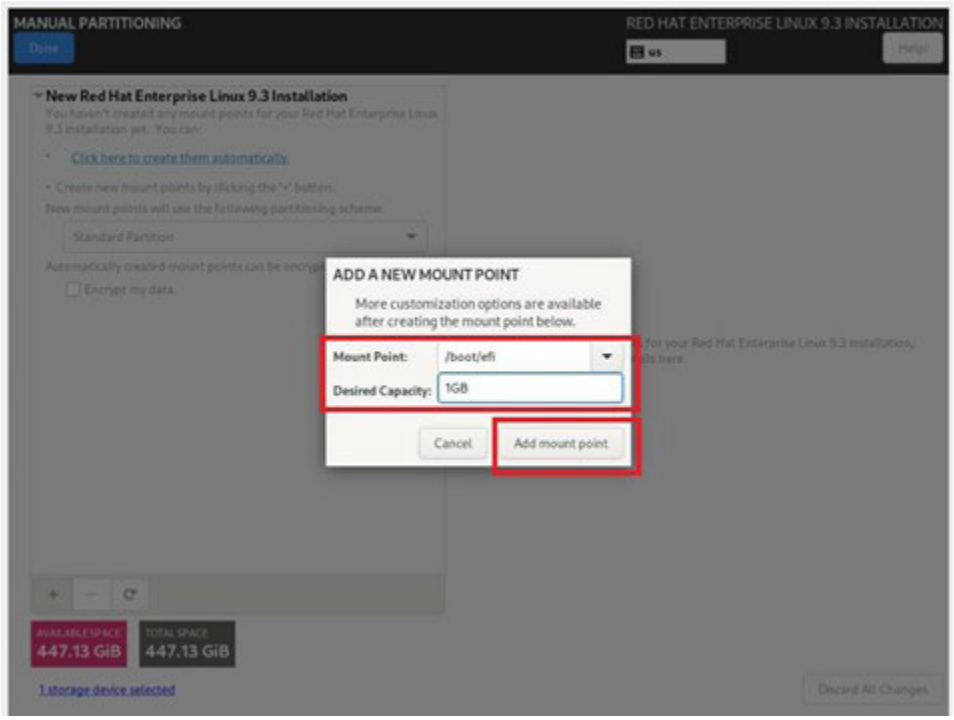




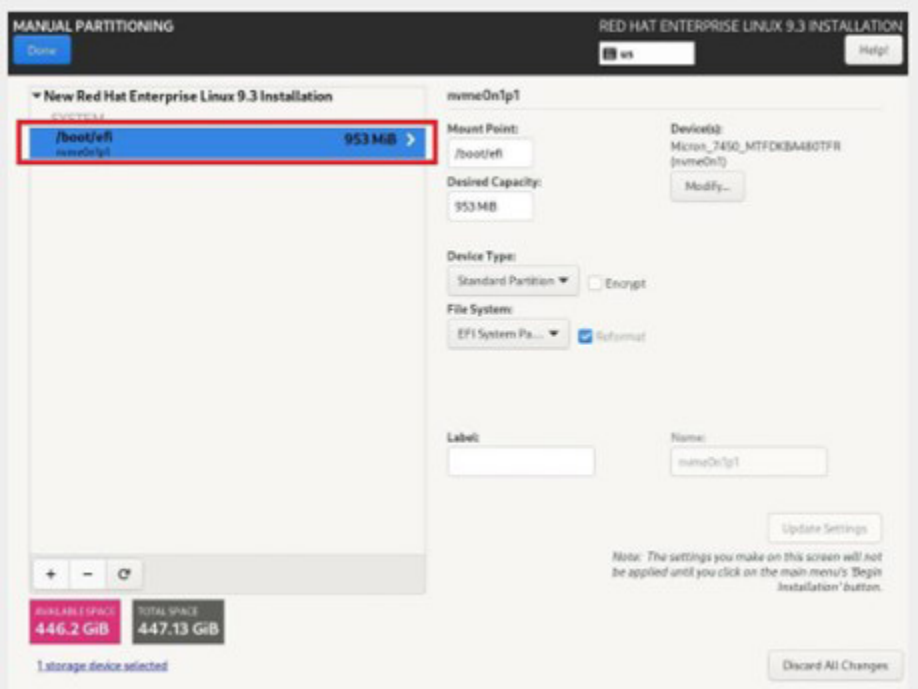
7. For RHEL, you need to have at least three mount points (/boot/efi, /, and swap). Click the "**+**" button to create new mount point "**/boot/efi**" as the boot partition for EFI system.



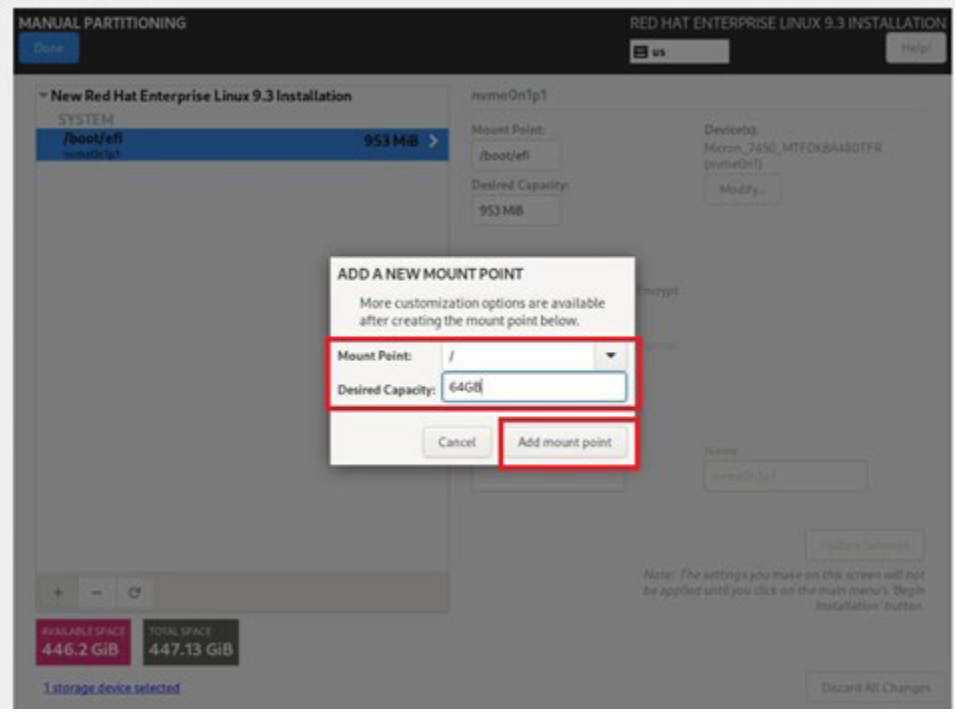
8. The "**Add a new mount point**" dialogue will pop up. Select the mount point "**/boot/efi**" and the storage size. Then, click the "**Add mount point**" button.



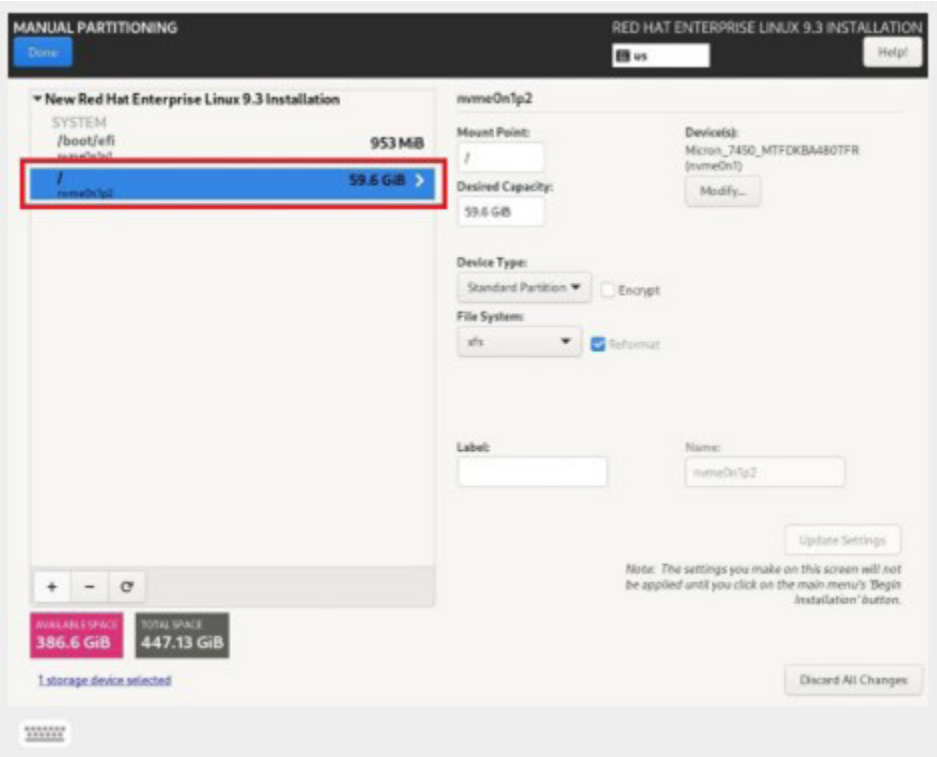
Result: The new mount point "**/boot/efi**" will be added under the "**New Red Hat Enterprise Linux 9.3 Installation**".



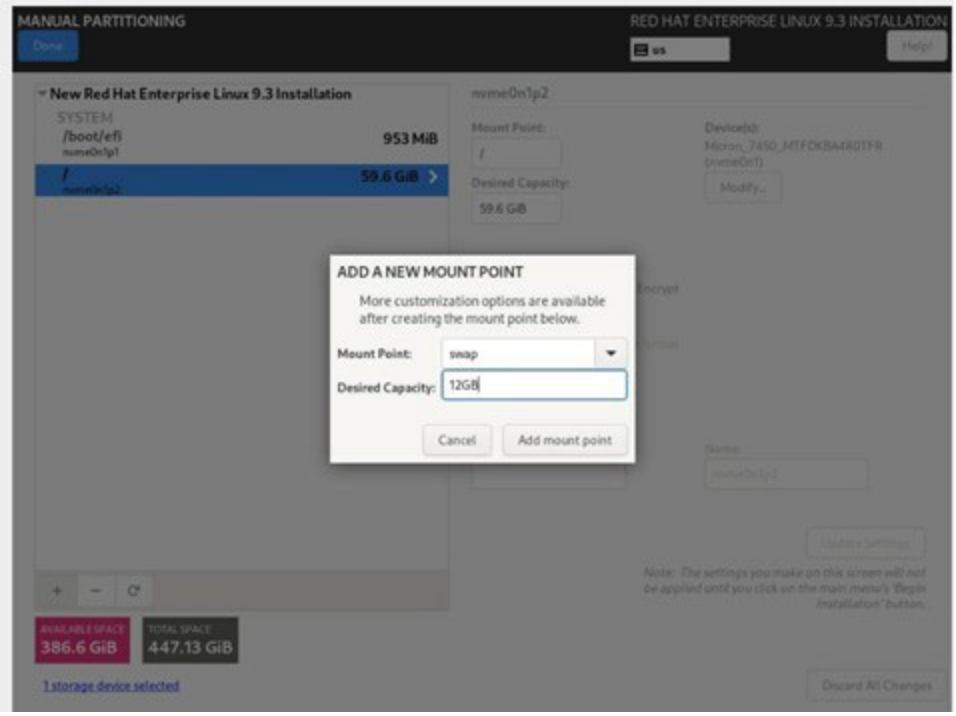
9. Click the "**+**" button to create another new mount point "**/**" as the root directory. Configure the mount point "**/**" and the desired storage size. Then, click the "**Add mount point**" button.



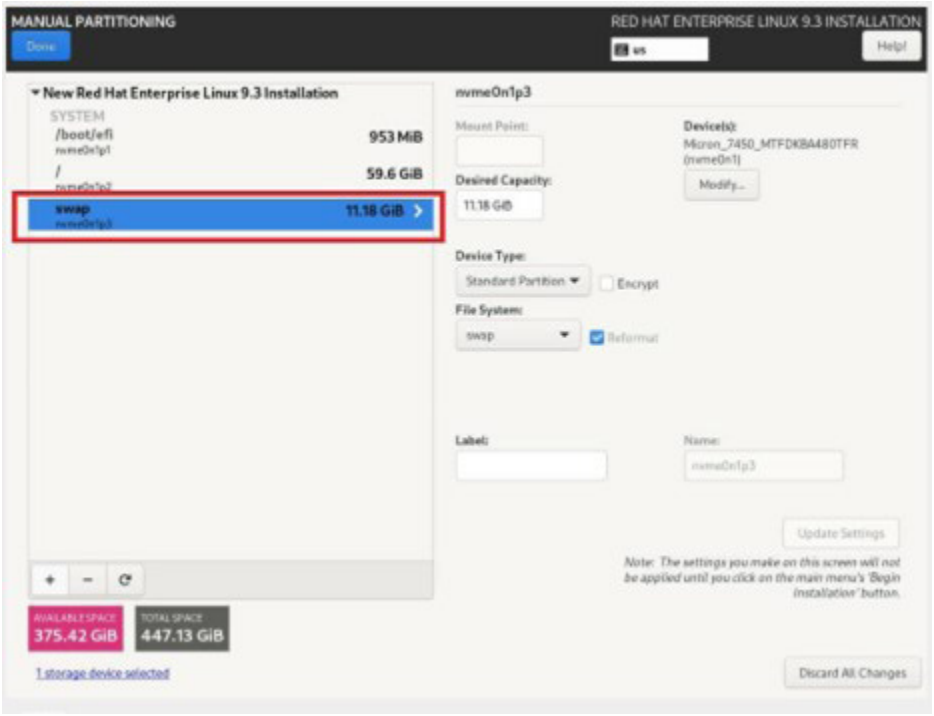
Result: The new mount point "**/**" will be added under the "**New Red Hat Enterprise Linux 9.3 Installation**".



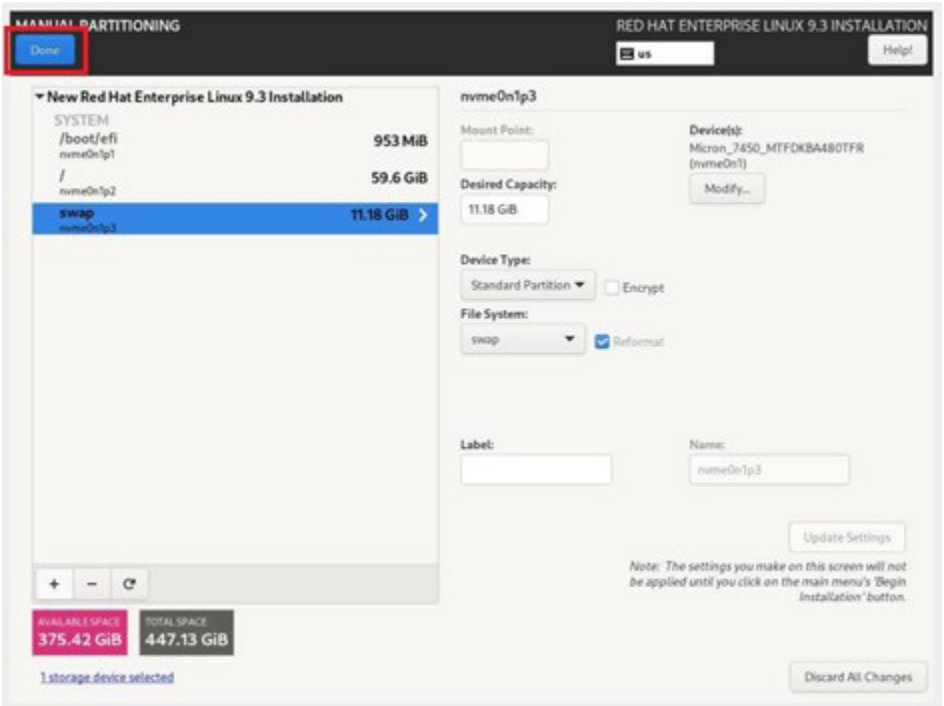
10. Click the "**+**" button to create another new mount point "**swap**" for virtual memory space. Configure the mount point "**swap**" and the desired storage size. Then, click the "**Add mount point**" button.



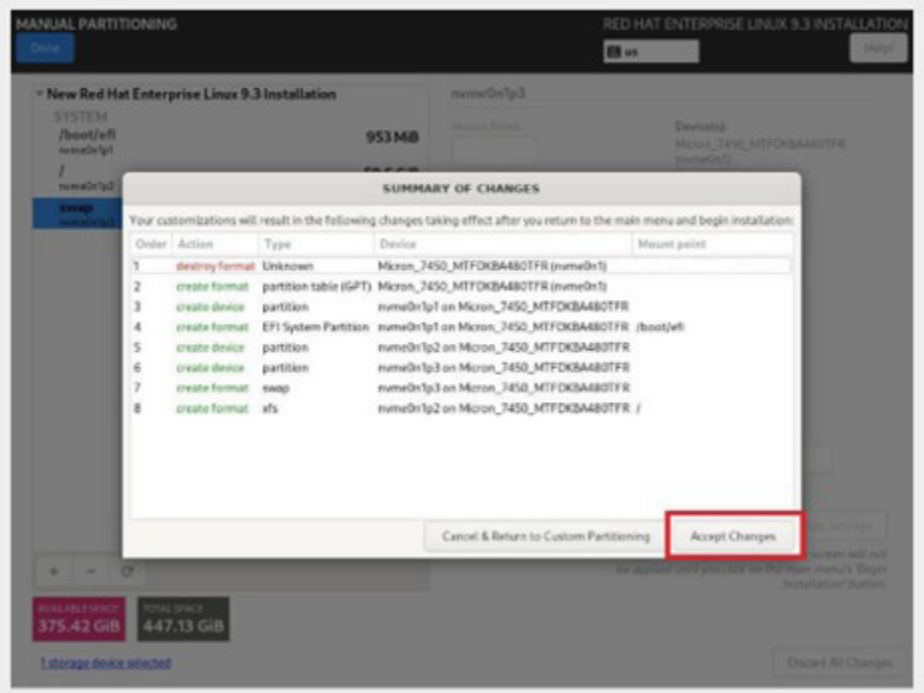
Result: The new mount point "**swap**" will be added under the "**New Red Hat Enterprise Linux 9.3 Installation**".



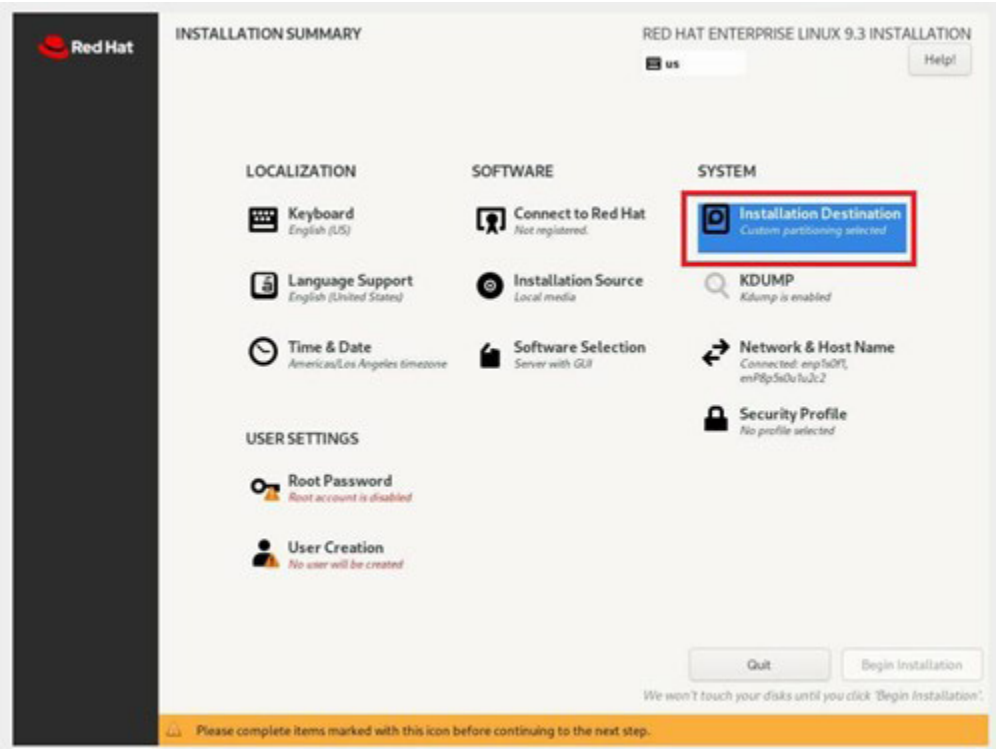
11. Click the "**Done**" button at the left top corner after all the required partitions are created.



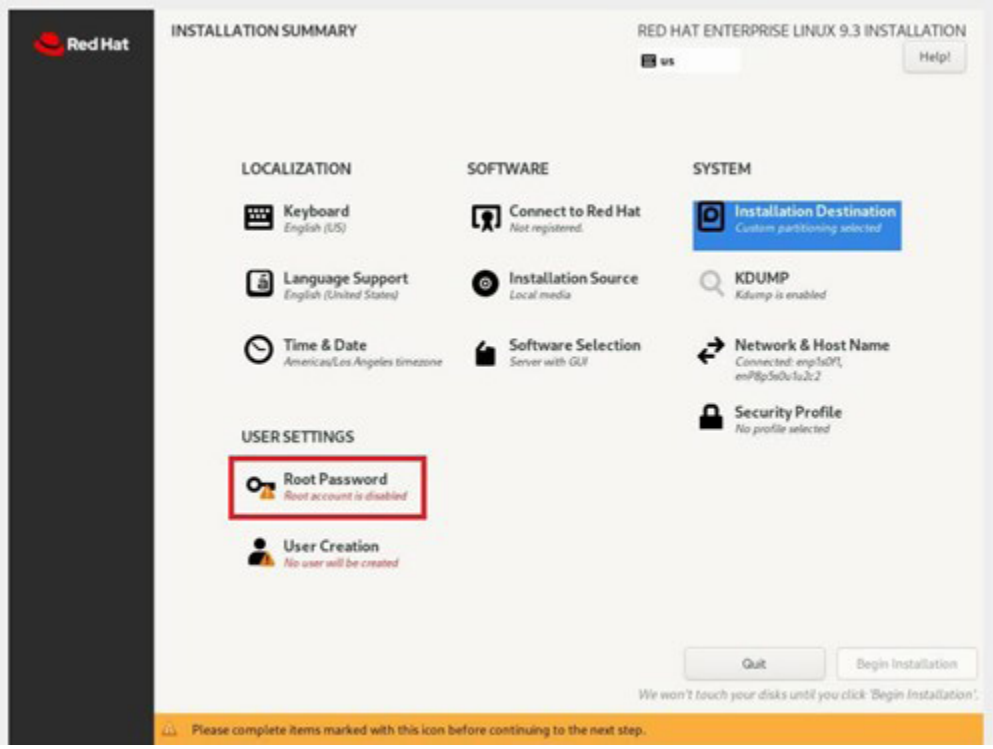
12. Accept the changes to customize the partitions.



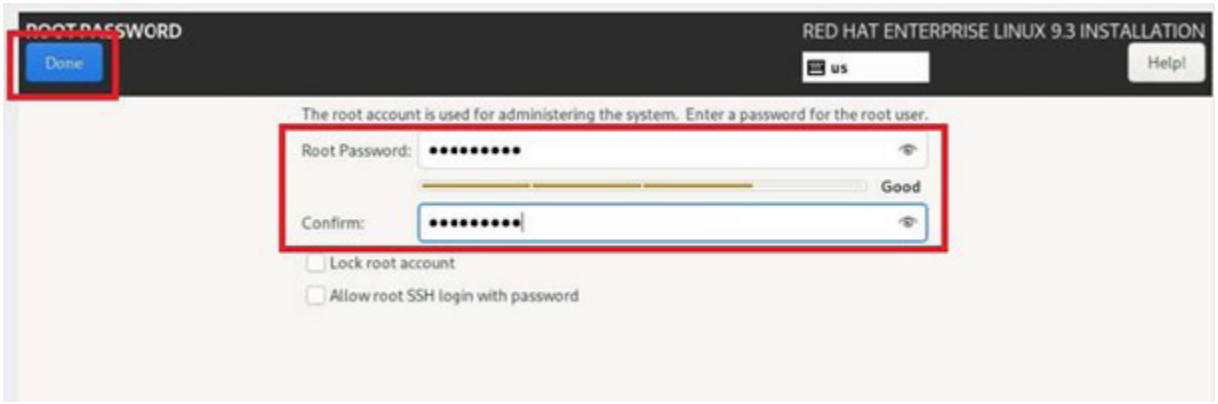
Result: In the "**Installation Summary**" screen, Installation Destination has been updated to "**Custom partitioning selected**."



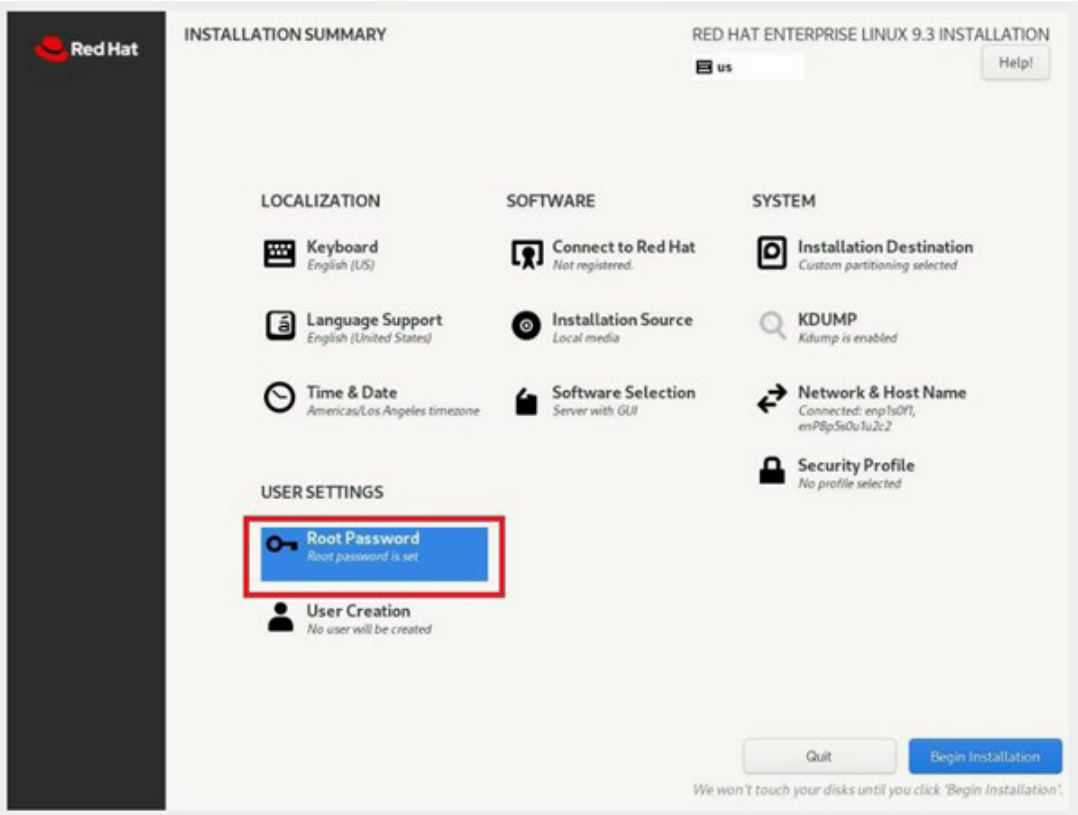
13. Click the "**Root Password**" in the "**Installation Summary**".



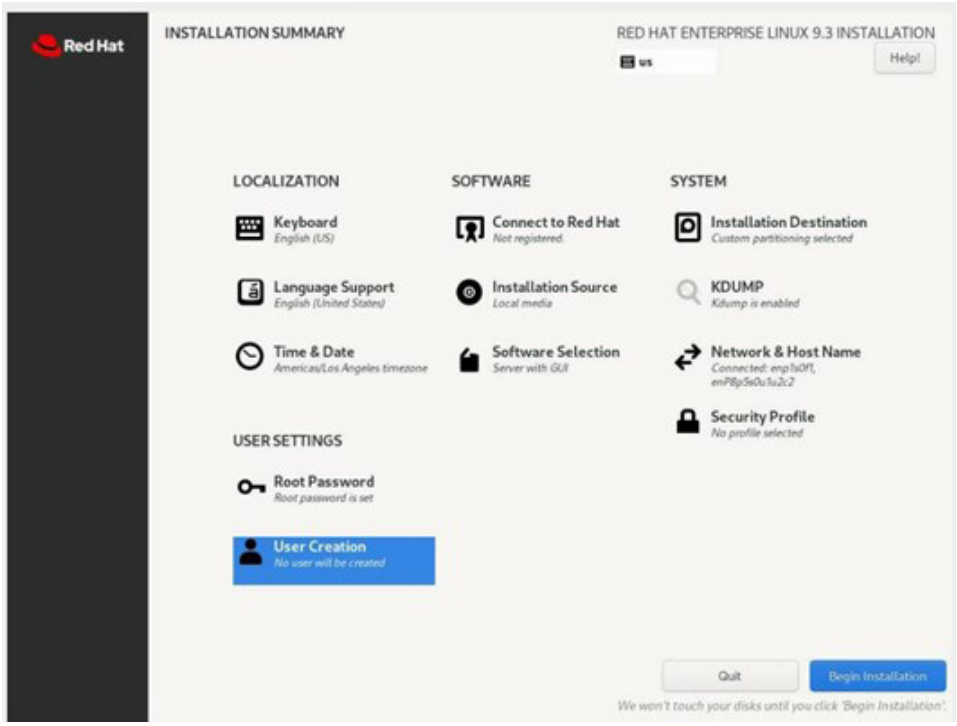
14. Enter the password for the root user.



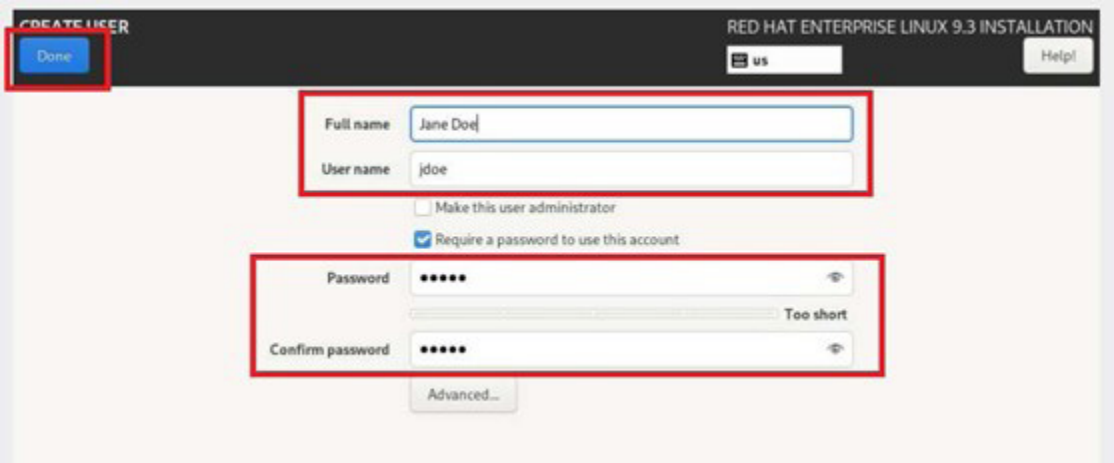
Result: The status of the Root User becomes "**Root Password is set**".



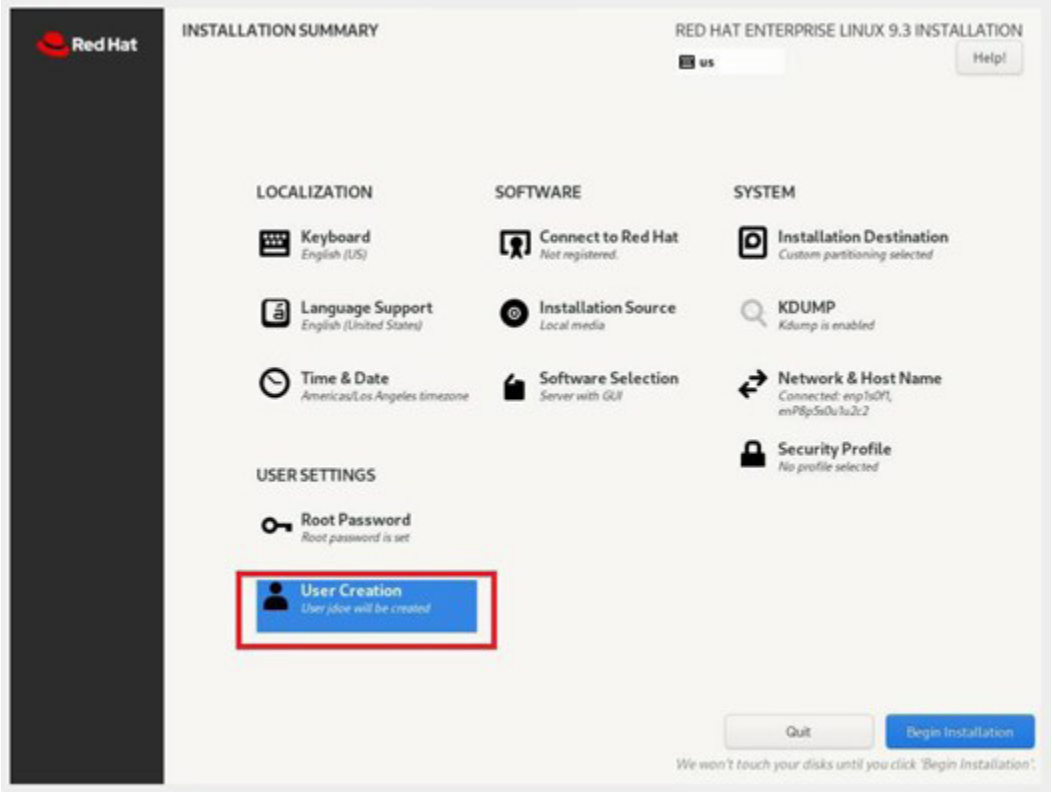
15. Click the "**User Password**" in "**Installation Summary**".



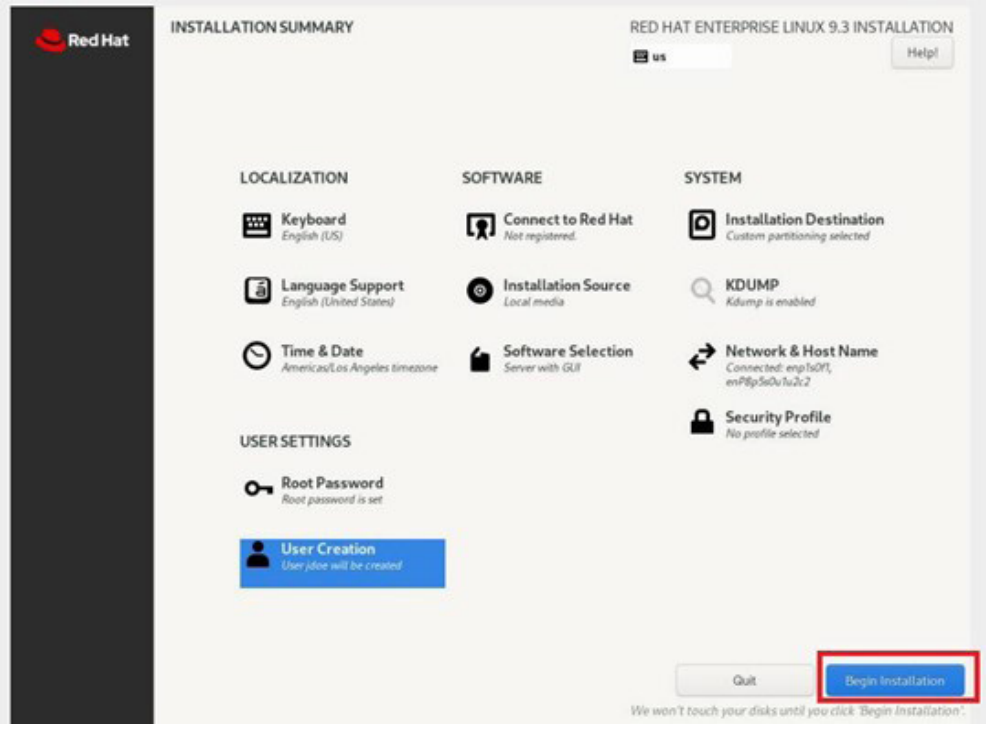
16. Enter "**Full Name**", "**User Name**" , "**Password**", and "**Confirm Password**" details. Once done, click the "**Done**" button.

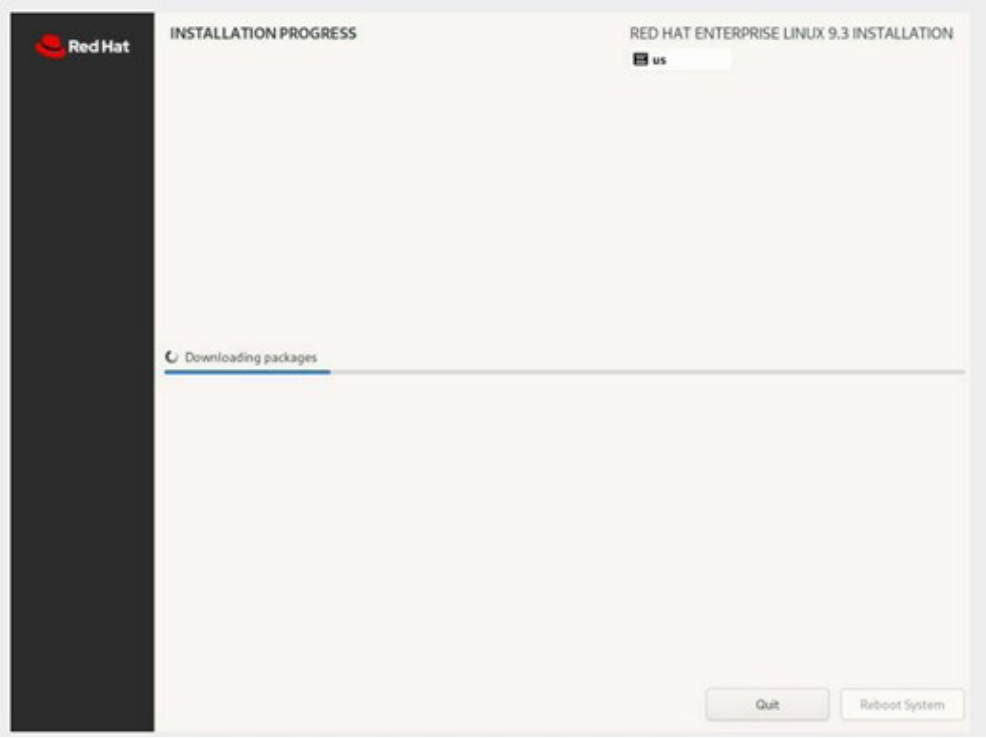


Result: The status of User Creation becomes "**User username is set**".



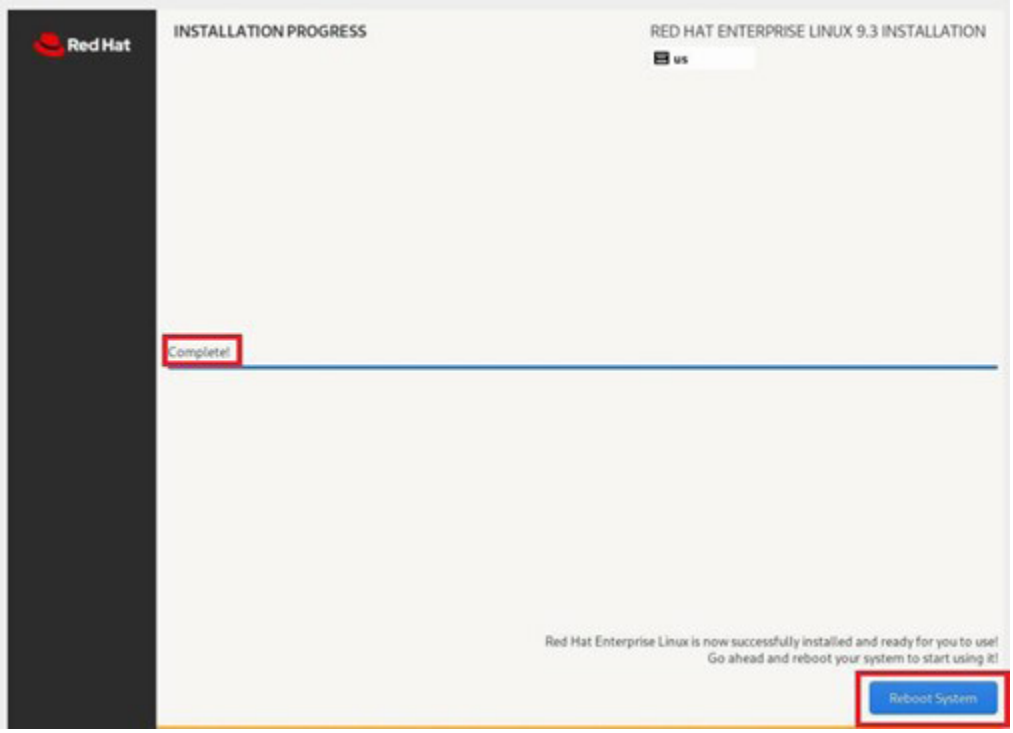
17. After completing all the above steps, click the "**Begin Installation**" to start the installation process.



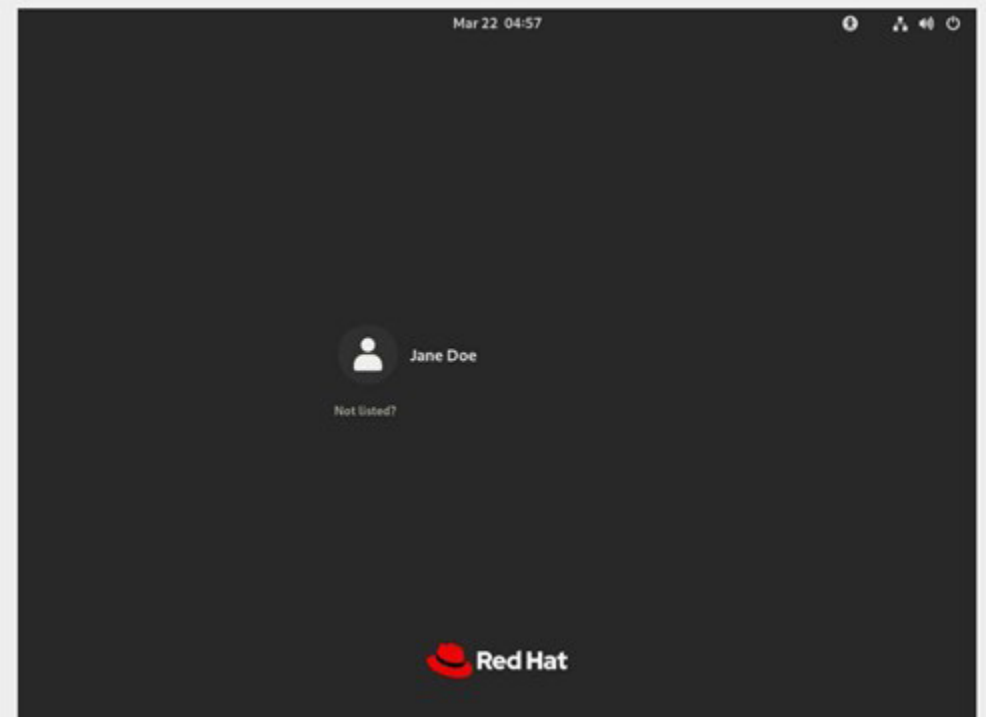


Note: To get a Linux version of Red Hat Enterprise without a graphical user interface (GUI), you need to choose the "Minimal Install" option during installation, which will only install the core system components without any desktop environment like GNOME; essentially providing a text-based interface for server management.

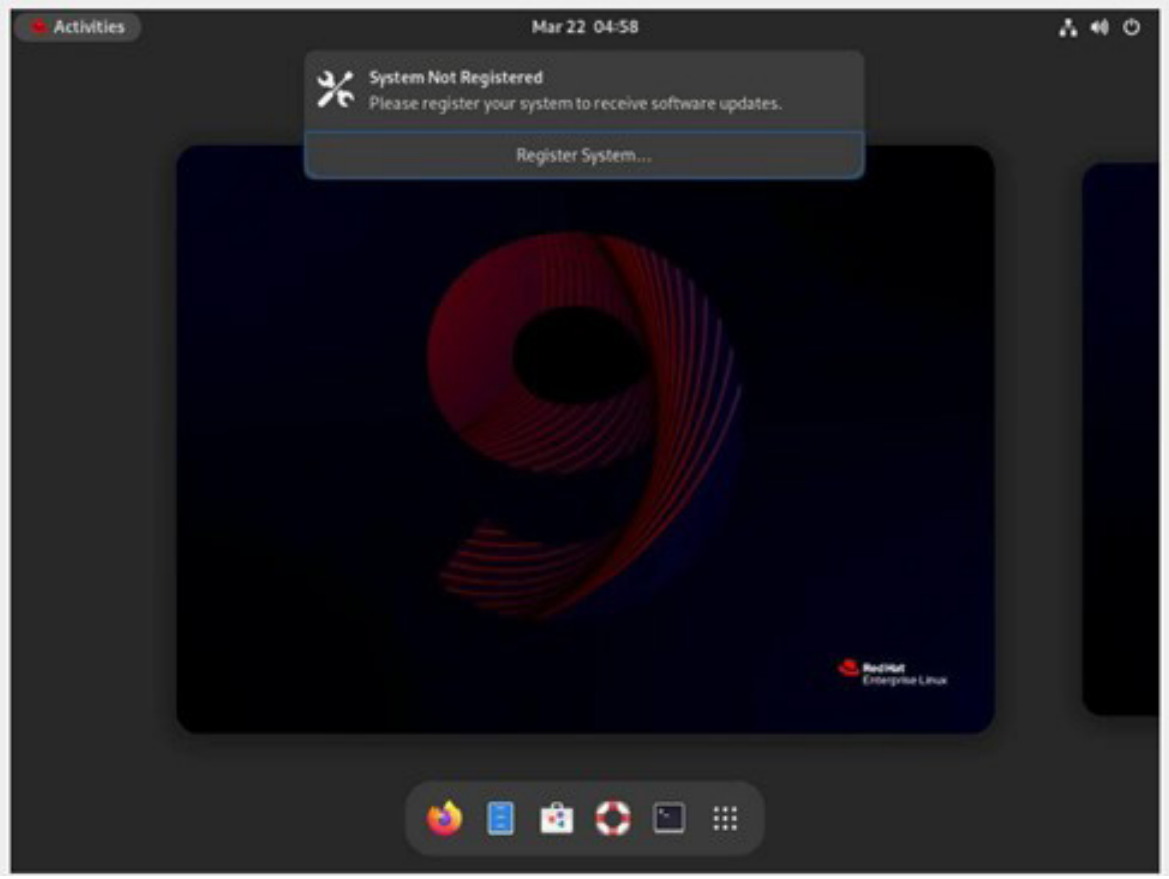
18. After the installation is complete, click the "**Reboot System**" to reboot.



19. After rebooting, the user login page shows up. Enter the user password to log in.



Result: Log in successfully. You can start using this system.



5.3 SUSE Linux Enterprise Server (SLES) 15 SP5 Installation

Prerequisites

SLED 15 SP5 ISO Image

Obtaining the SLES 15 SP5 ISO for AMD64 CPU architecture (x86_64) and save it to your local drive or a shared server.

BMC Network Connection

To utilize the BMC remote functionality, ensure that the network is connected to the BMC.

Installing SLES 15 SP5 OS

Step 1. Obtaining the BMC IP Address

Connect the system to a monitor or display using a VGA port or a DisplayPort (Mini DP). Ensure that network is connected to BMC using a network cable and power on the system. The BMC IP address will appear on the right corner of the Supermicro Logo screen.

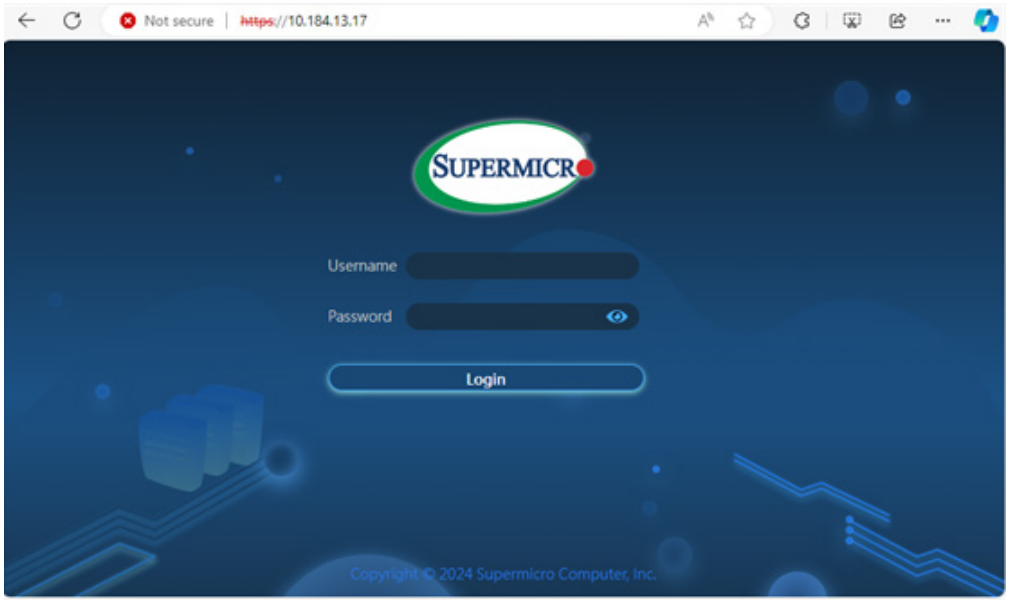
Step 2. Accessing the BMC Remote Server

Log in to BMC Remote Server

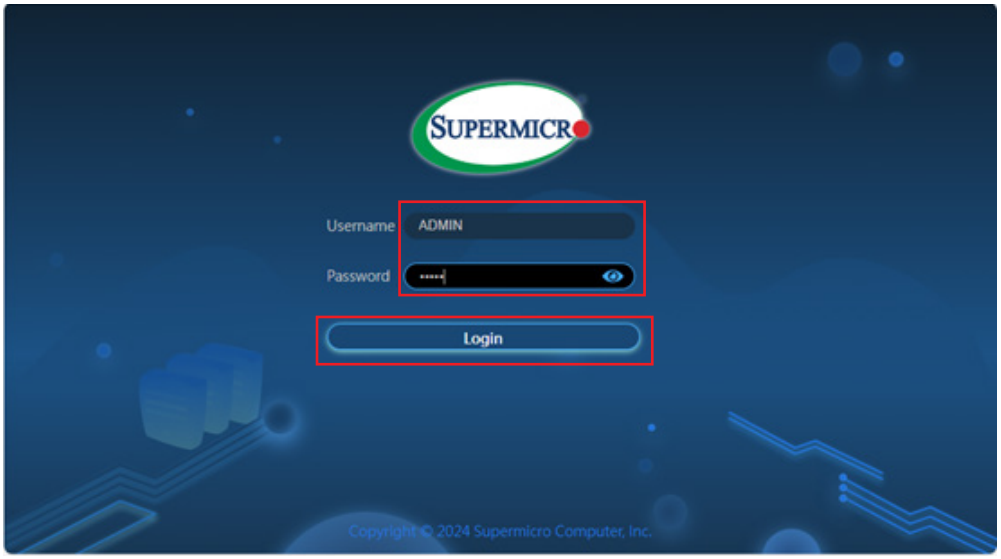
1. In the terminal, execute a ping command to the BMC IP address, such as 10.184.13.17, to verify its connectivity.

2. Launch a new web browser and input the BMC IP address into the URL field.

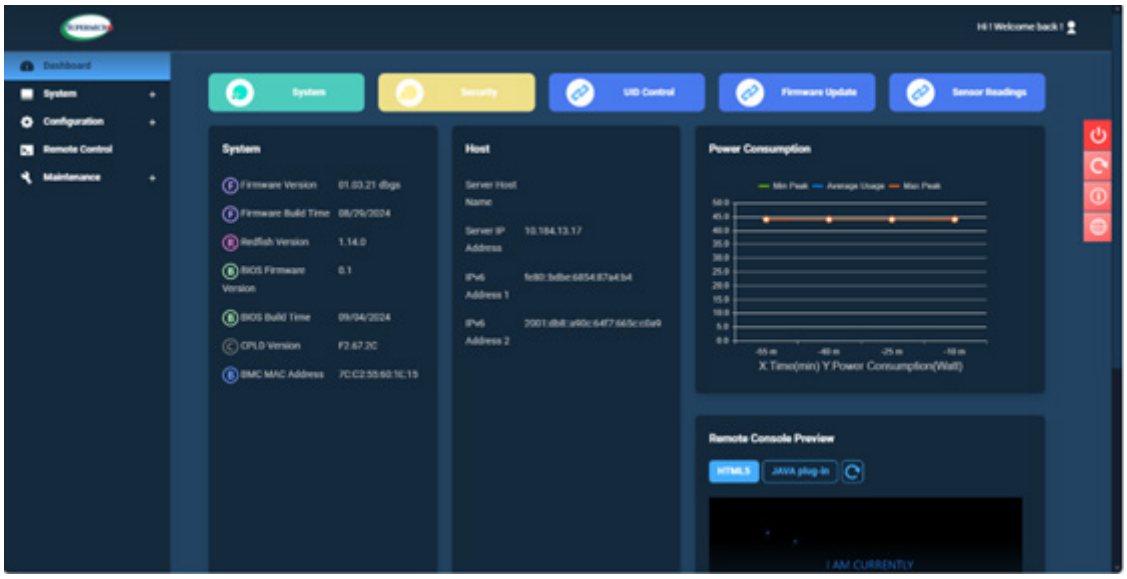
Outcome: The BMC Remote Console login screen will be displayed.



3. Input the username "**ADMIN**" and the unique BMC password, which is located on the label on the opposite side of the service tag of the system. Click the "**Login**" to proceed.



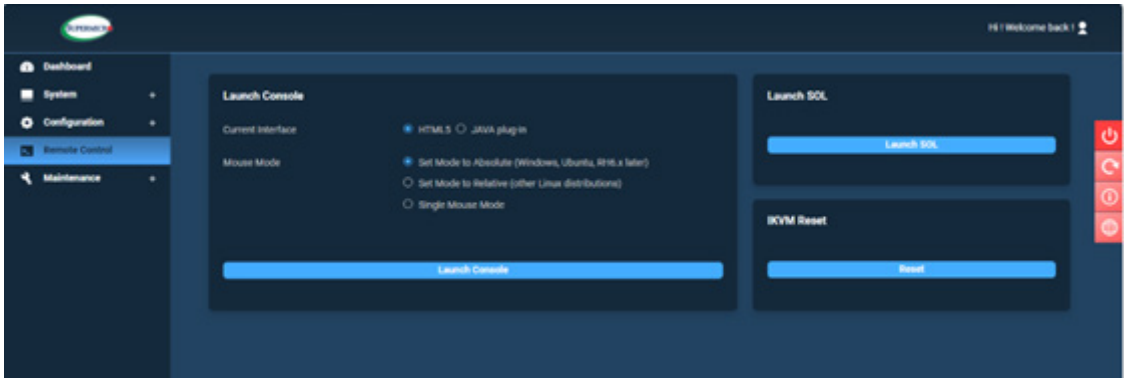
Outcome: The BMC Dashboard offers insights into system overview, configuration, health status, and maintenance.



Step 3. Controlling the System Remotely

1. The Remote Control menu in the BMC Remote Server enables remote server operations.

2. Use the Launch Console section to configure the remote console interface settings. Choose between the HTML5 interface or a JAVA plug-in. Launch an HTML5 remote browser.



To launch an HTML5 Remote Browser

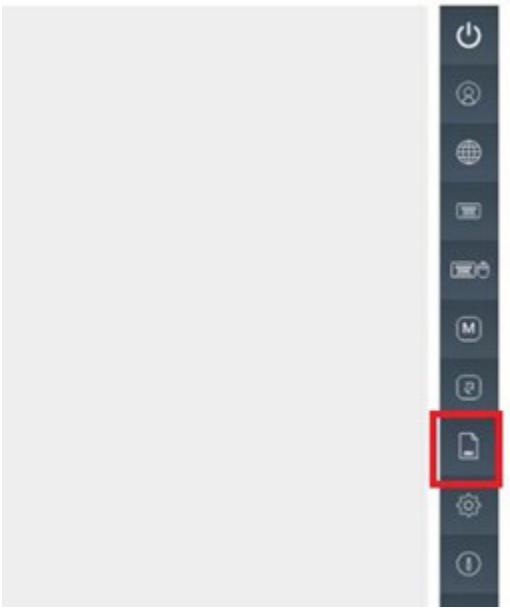
1. Set HTML5 as the current interface.
2. Choose the mouse mode according to your operating system, such as "**Set Mode to Absolute" (Windows, Ubuntu, RH6.x, or later).**"
3. Click the "**Launch Console**" button to open a console in a new browser window.

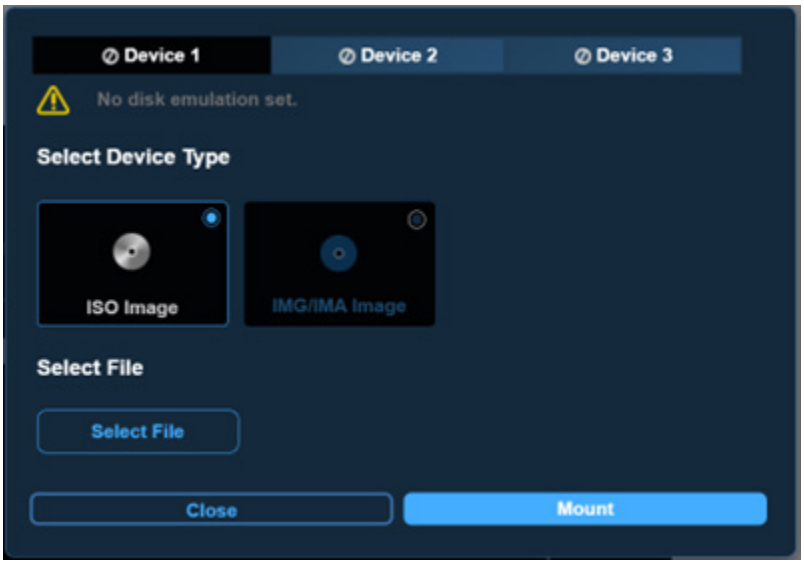
Step 4. Mounting the ISO Image

There are two methods to mount ISO images. If the ISO files are stored locally on your drive, you can mount them directly within the remote control browser. Alternatively, if the ISO files are located on a shared server, you can mount them via the Configuration > Virtual Media menu.

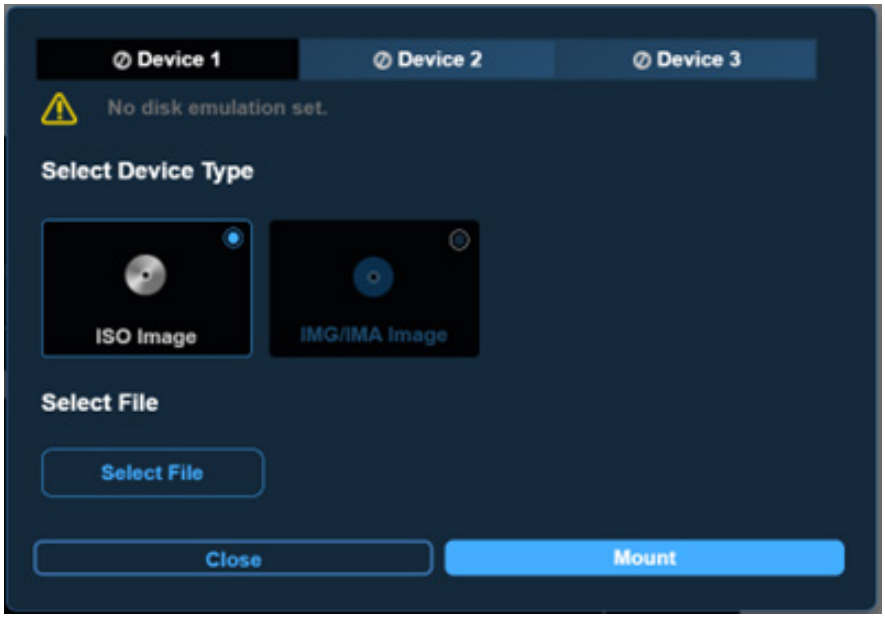
Method One: Mounting the ISO Image Using a Local File

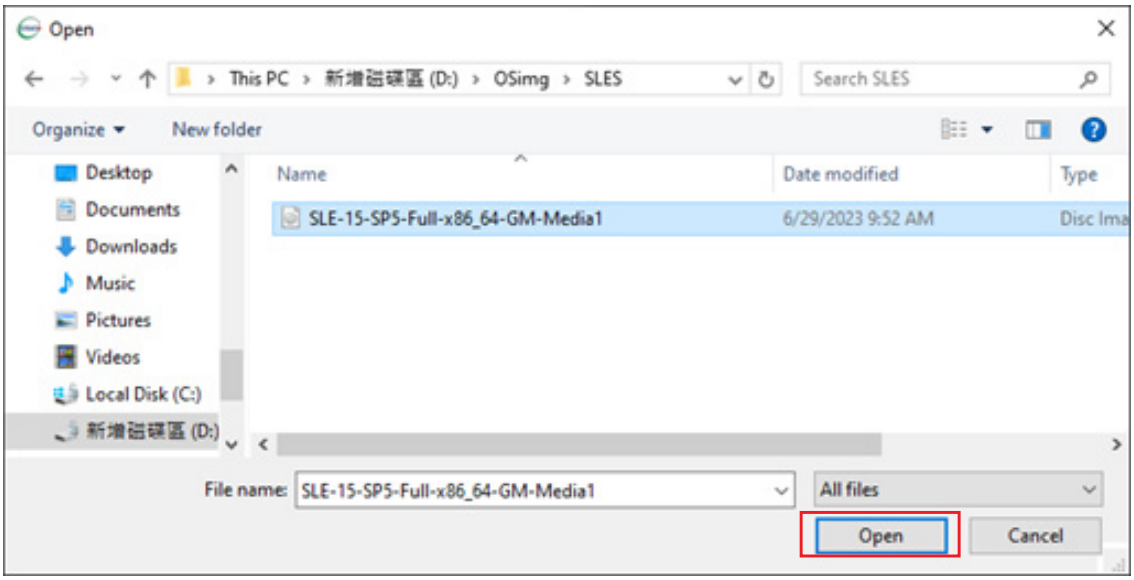
1. In the remote control browser, click the "**Virtual Media**" icon. This action will prompt a dialogue box to appear, enabling you to select the image type and files for mounting.



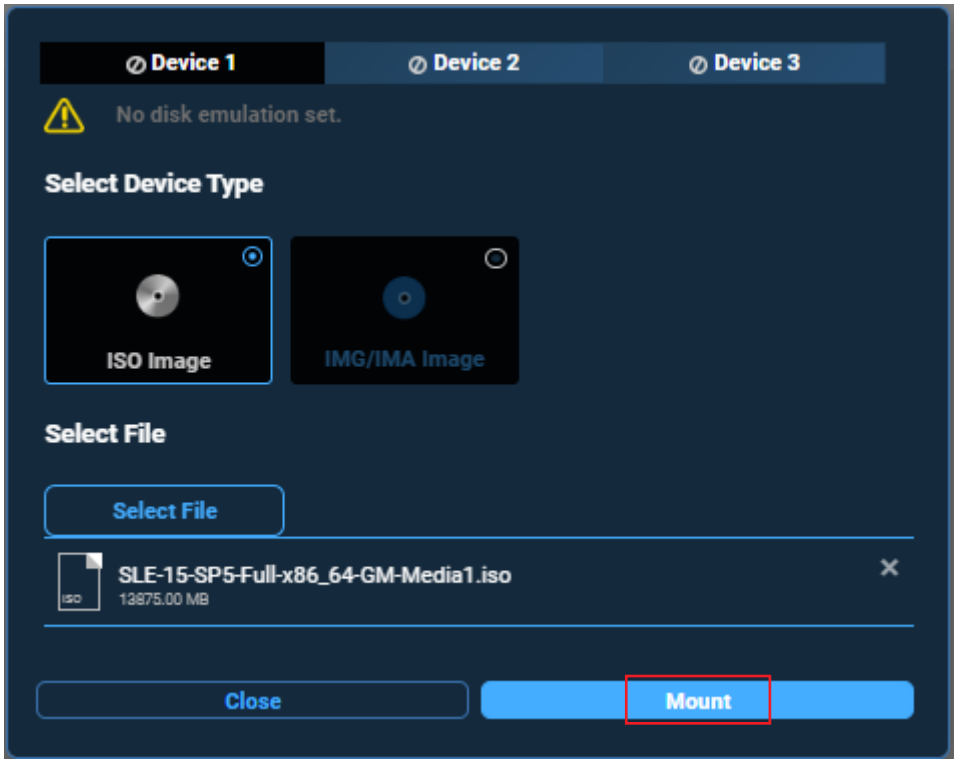


2. Select the "**Choose File**" button to browse and select the SLES ISO image on your local drive for use.

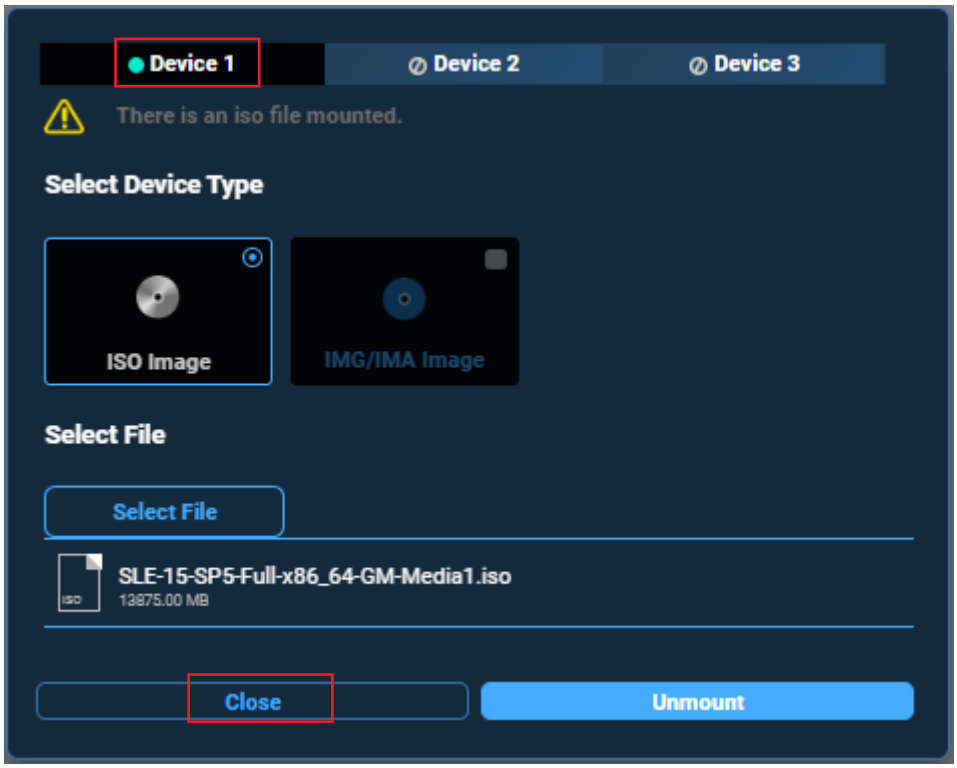




3. Click the "**Mount**" button to attach the chosen ISO image.

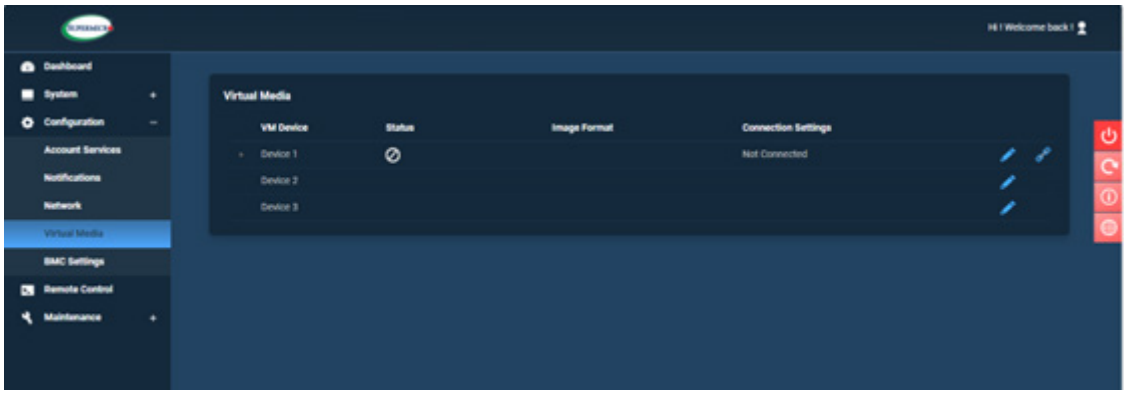


Result: Upon successful mounting of the ISO image, a green indicator will appear in the "**Device**" tab. Close the dialogue to continue.

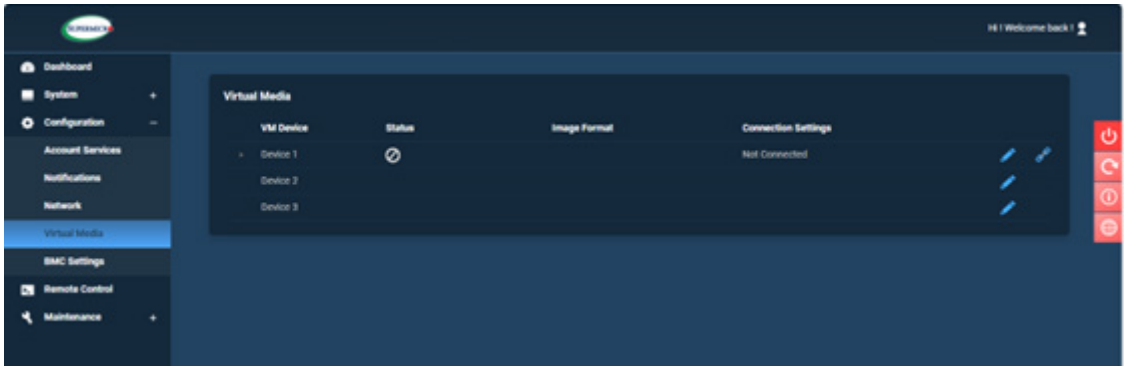


Method Two: Mounting the ISO Image through Shared Server

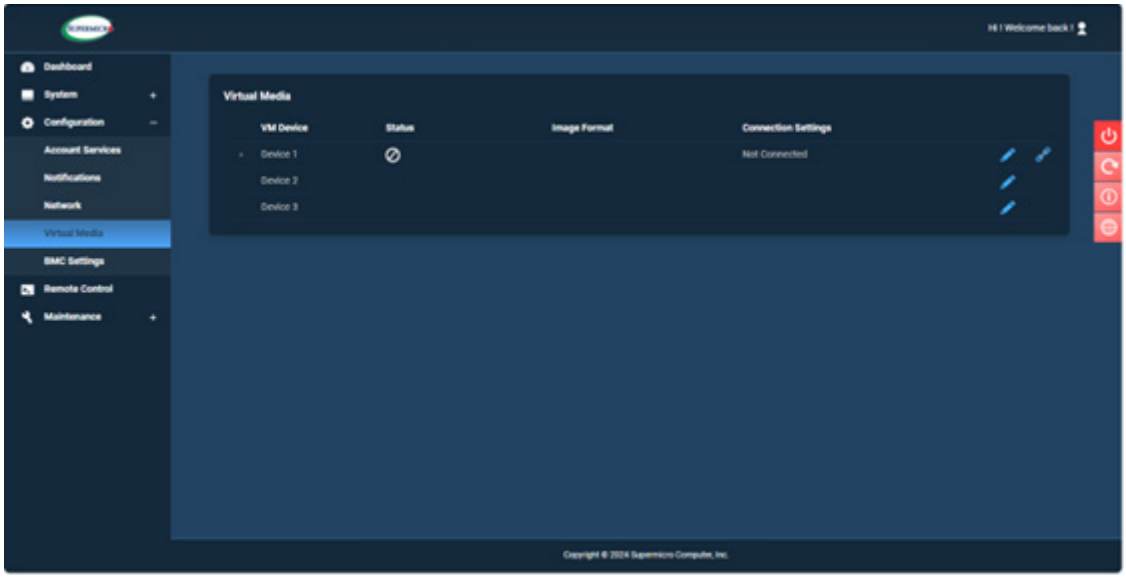
1. On the BMC dashboard, go to Configuration > Virtual Media. This allows you to attach an ISO image from the server.



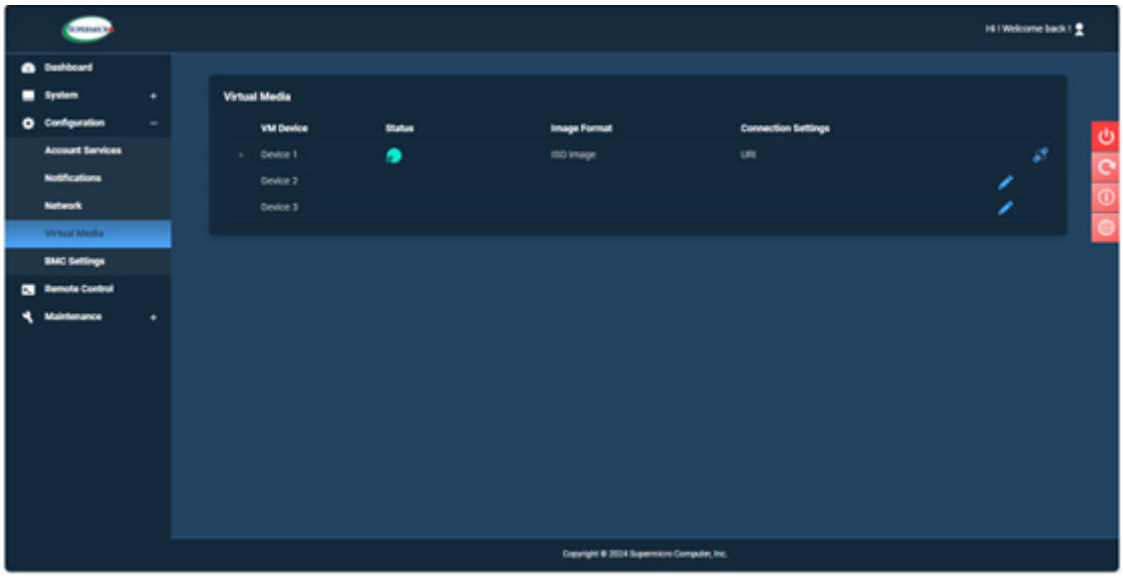
2. Click the "**Edit**" icon to adjust the VM configuration. Enter the server host address and the path to the ISO image. Then, click the "**Save**" to apply the changes.



3. Click the "**Connect**" icon to mount the virtual media.



4. The device status will display as green once the VM is successfully configured.

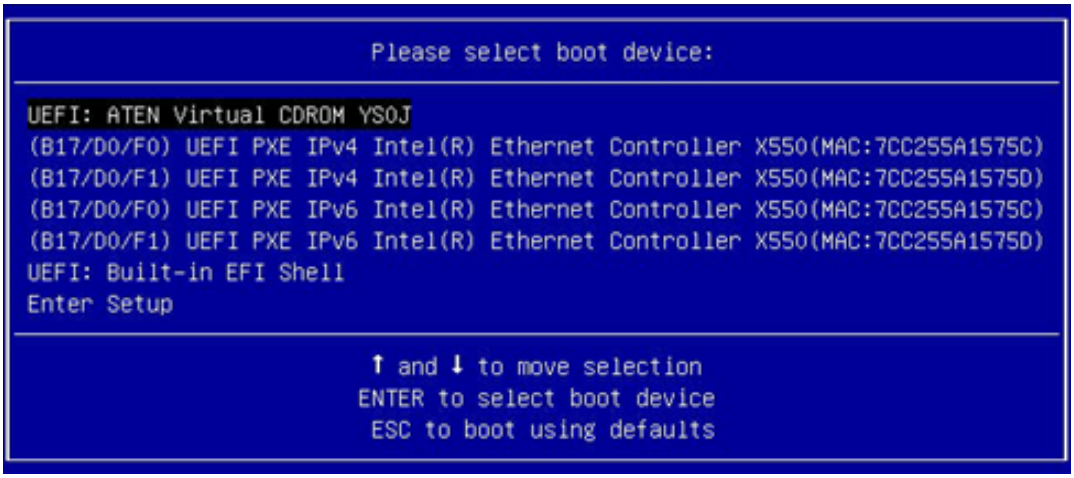


Step 5. Boot from Virtual Media

To boot from the mounted image in virtual media, users must manually select the boot device from the Boot Menu during BIOS POST.

1. Power on the system and wait for the Log screen to display. To access the BIOS setup menu, repeatedly press <**F11**> until "**Invoke Boot Menu**" appears at the bottom left corner of the screen.

Subsequently, the Boot Menu is displayed.

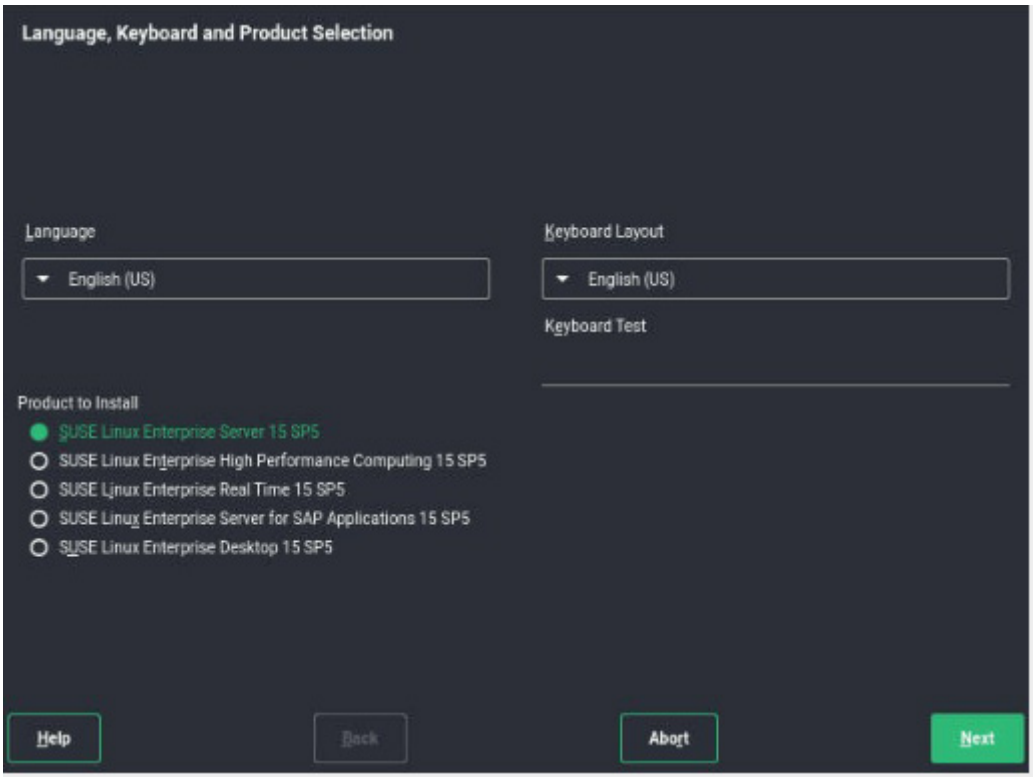


2. Select "**UEFI: ATEN Virtual CDROM YSOJ**" as the boot menu. This option will present the ISO image mounted in Virtual Media. Press "**Enter**" to proceed. You will see the GRUB Menu.

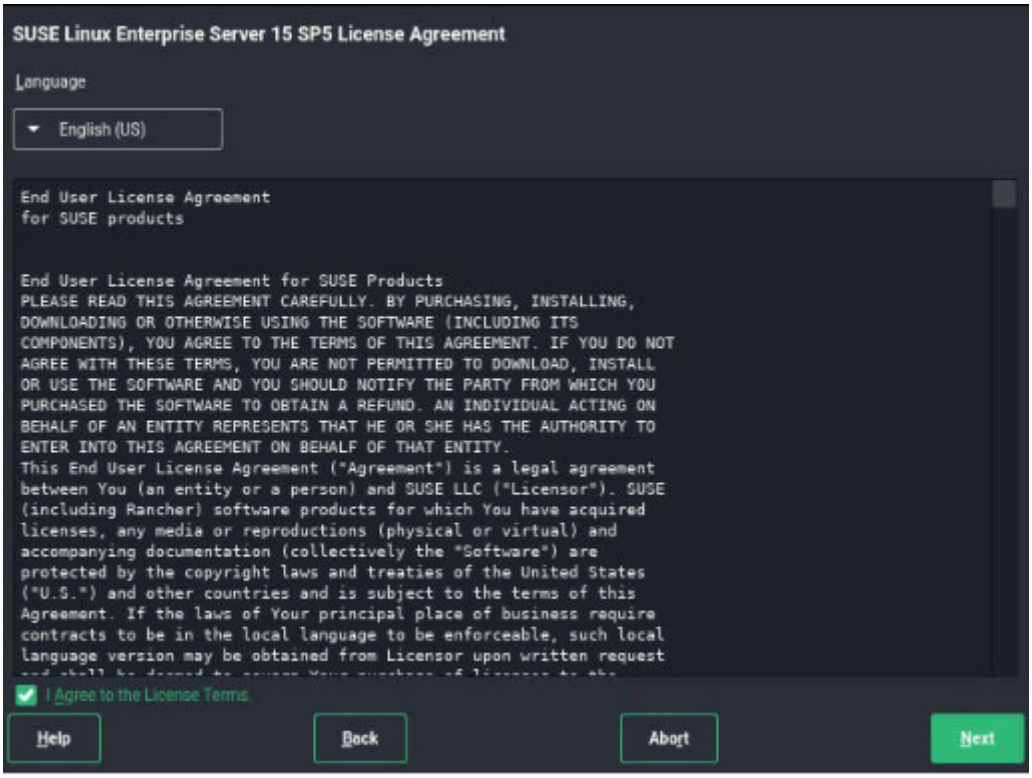
Step 6. Installing SLES 15 SP5 OS

1. Follow the SUSE installer steps to continue the installation. Select "**Installation**" to proceed.

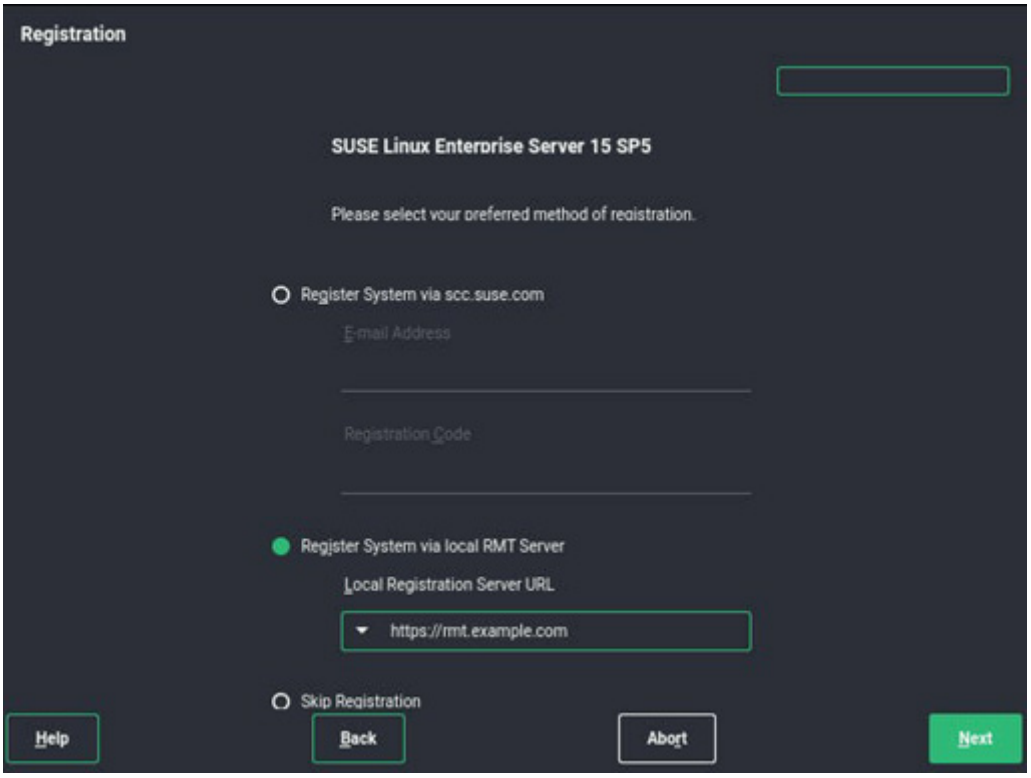
2. Select the **Language**, **Keyboard Layout**, and **Product to Install**.



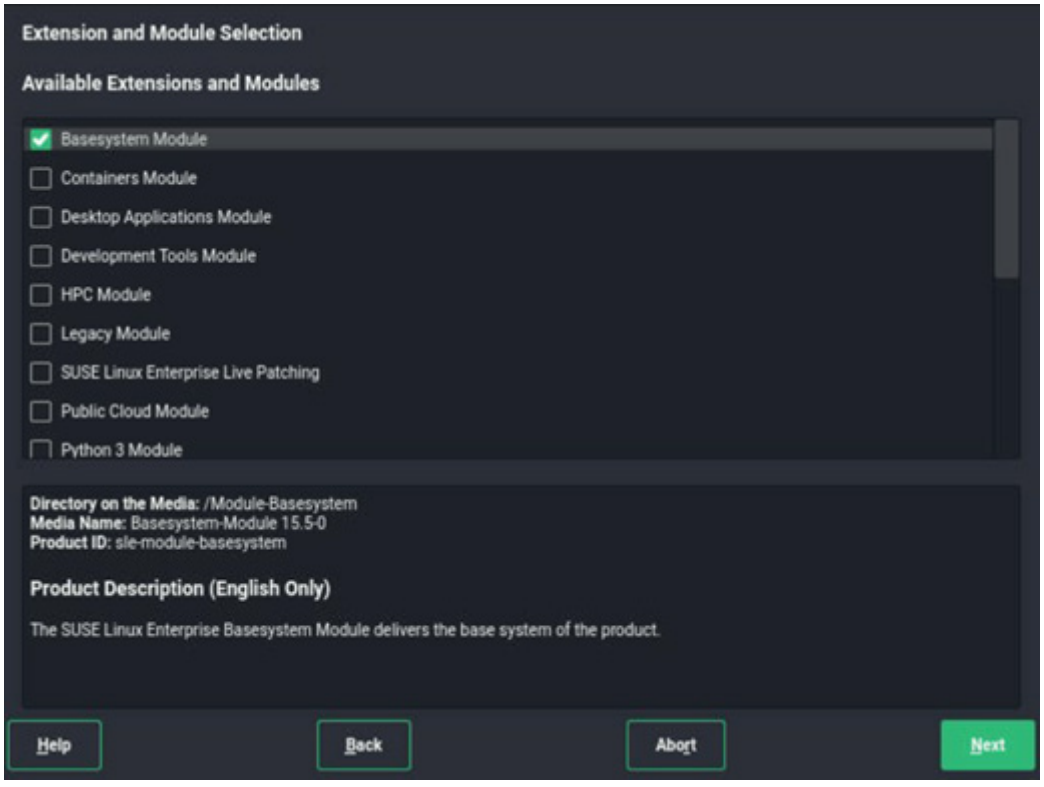
3. Read and agree the License Agreement to continue.



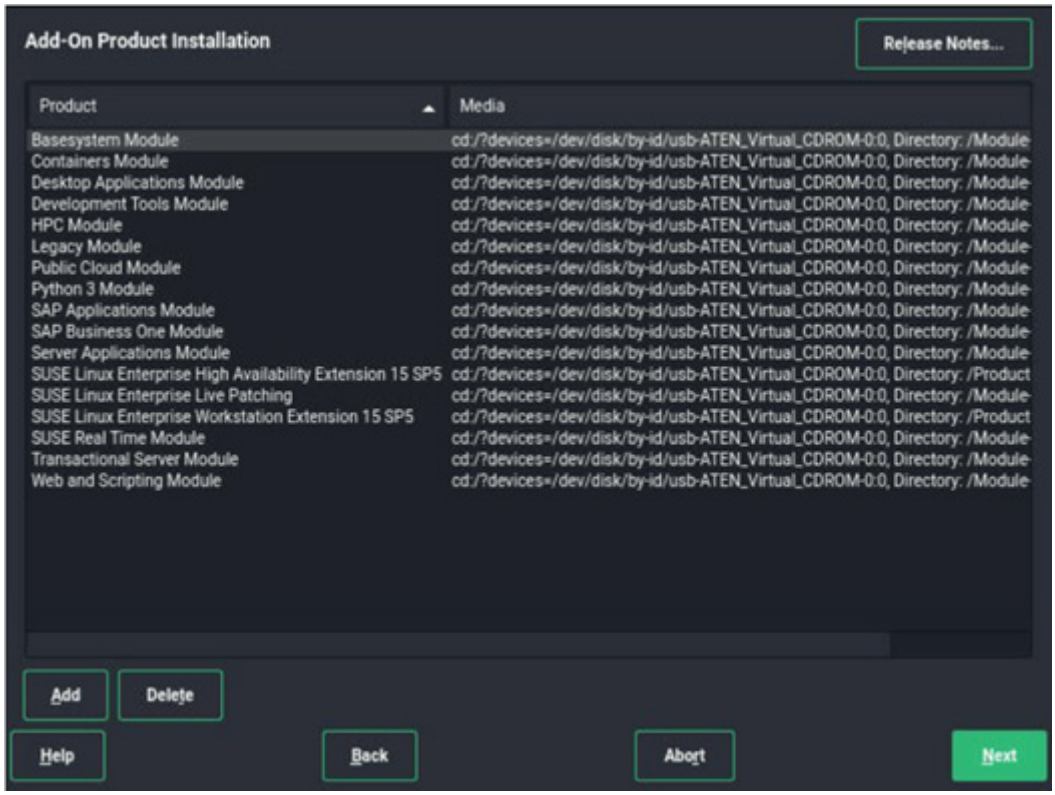
4. Register the system according to the requirements.



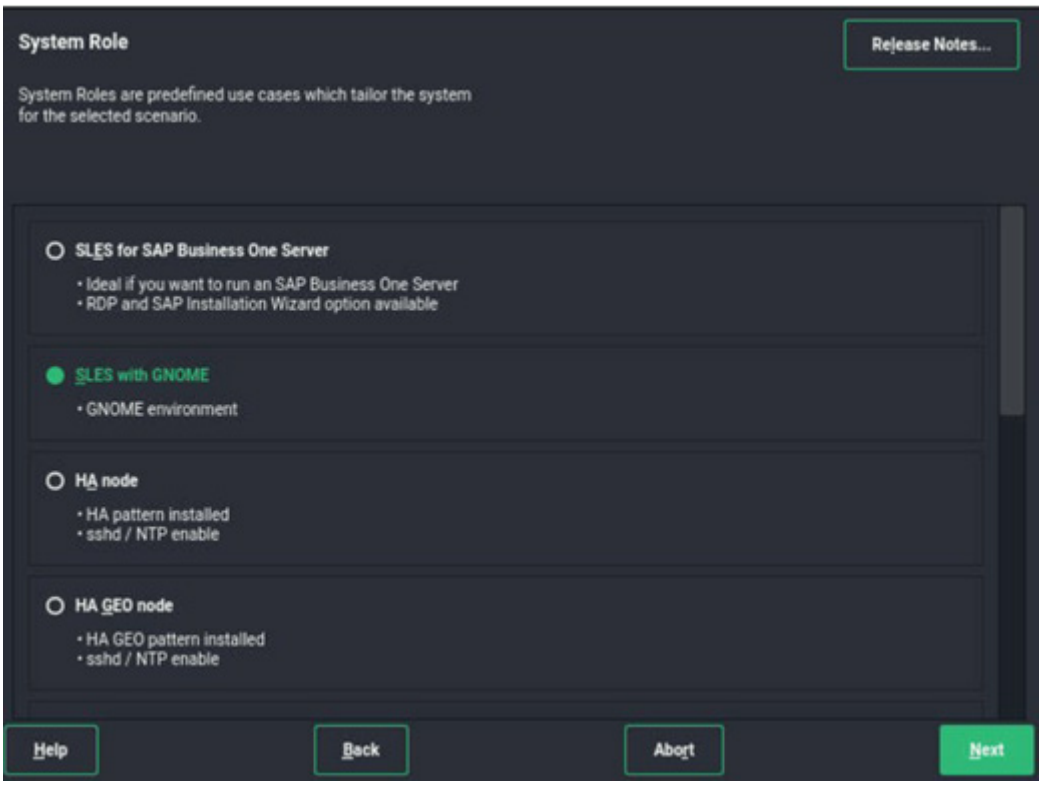
5. Select the Extensions and Modules for installation.



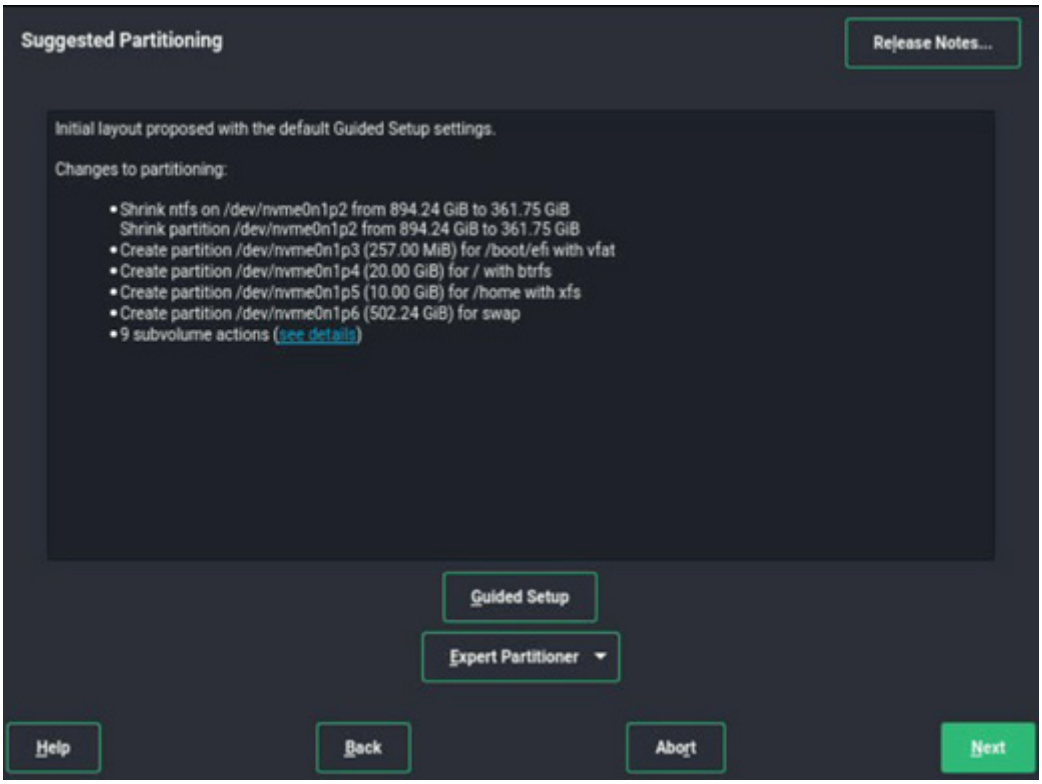
6. Confirm the media sources for the Add-On Product.



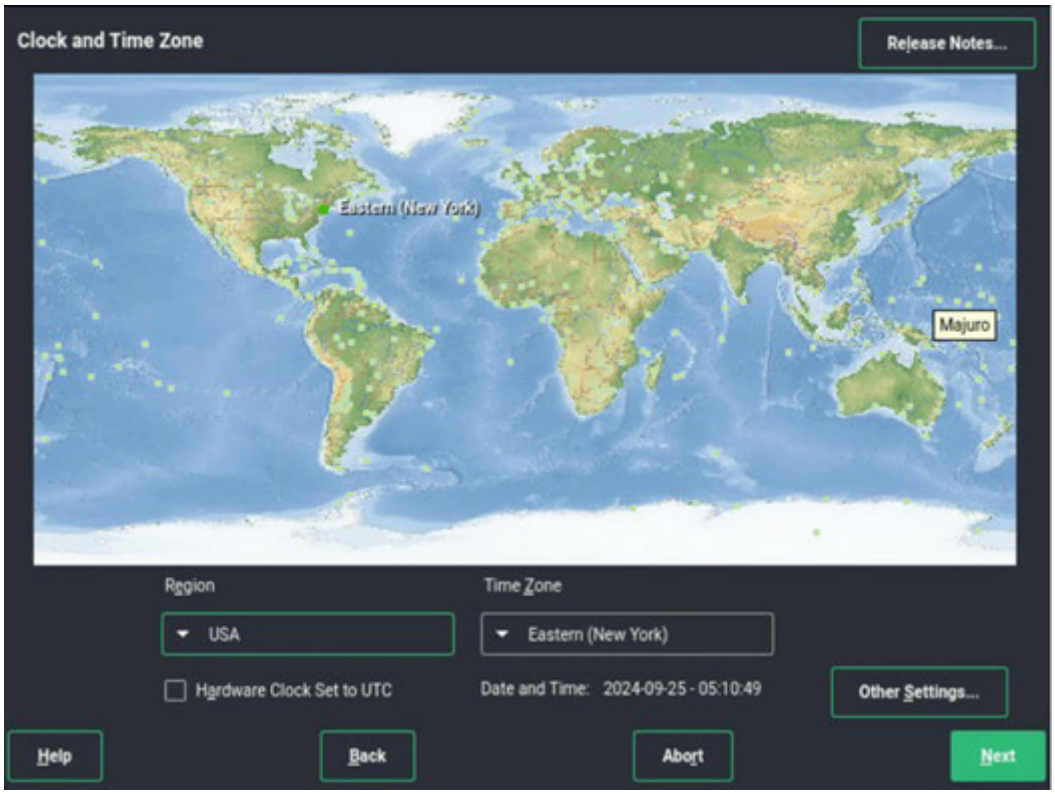
7. Select the System Role.



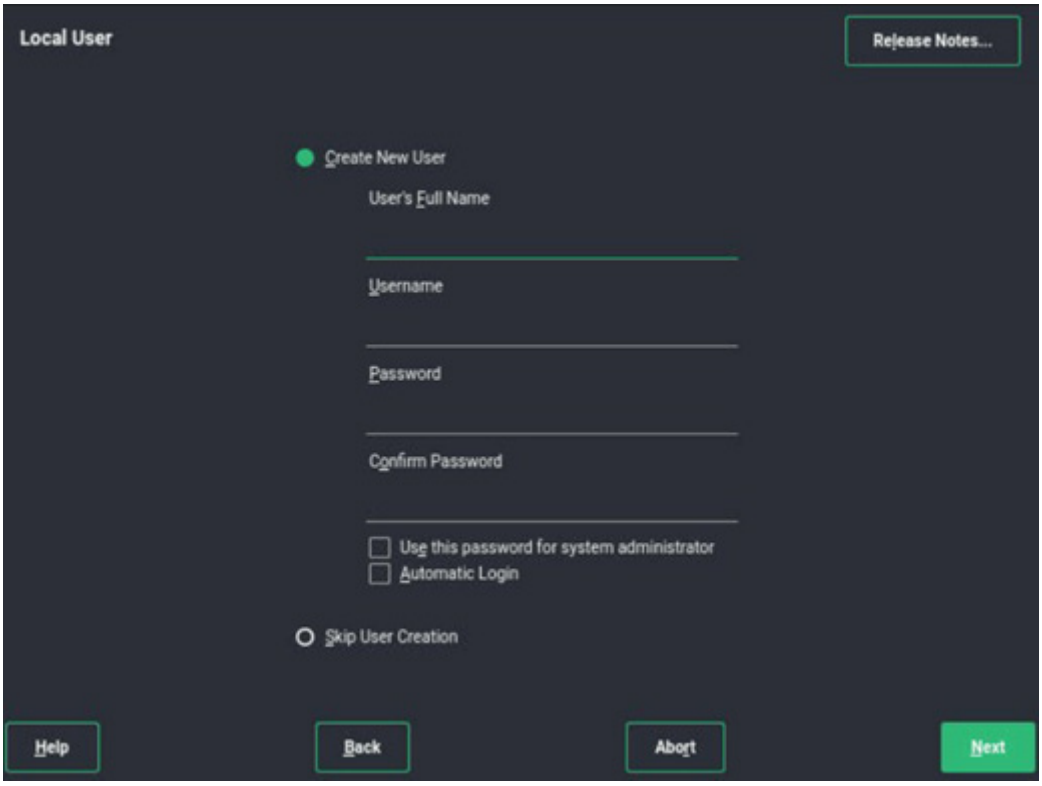
8. Define the partitions.



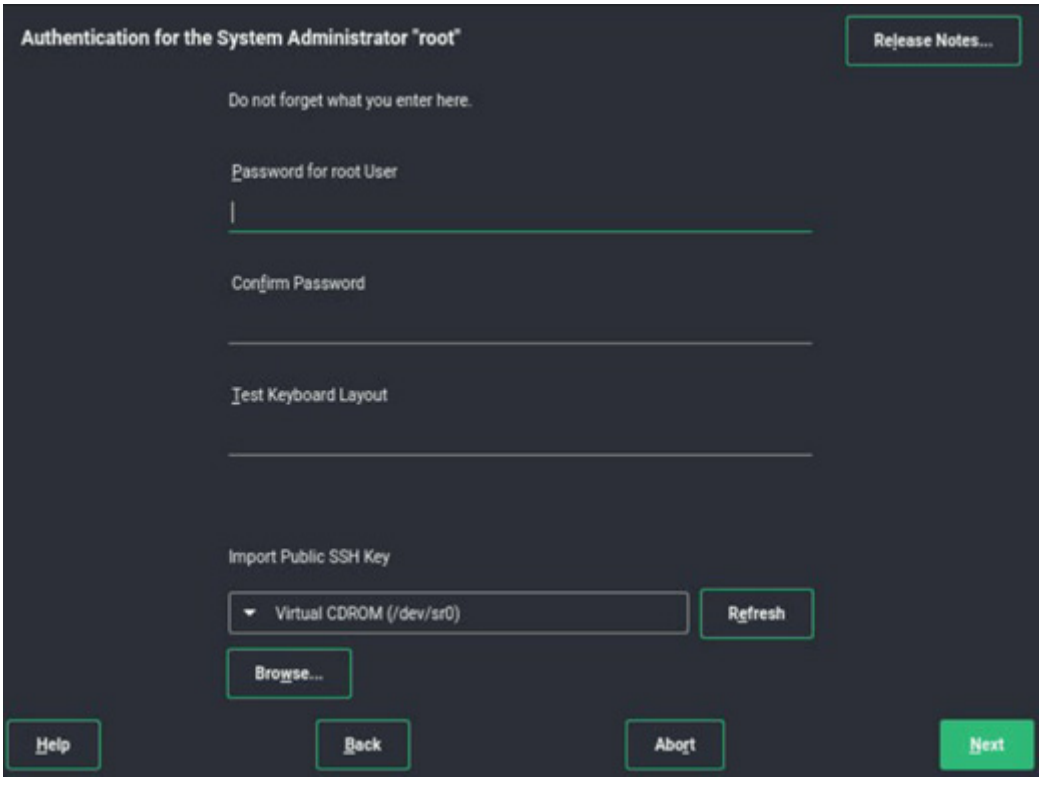
9. Choose the time zone.



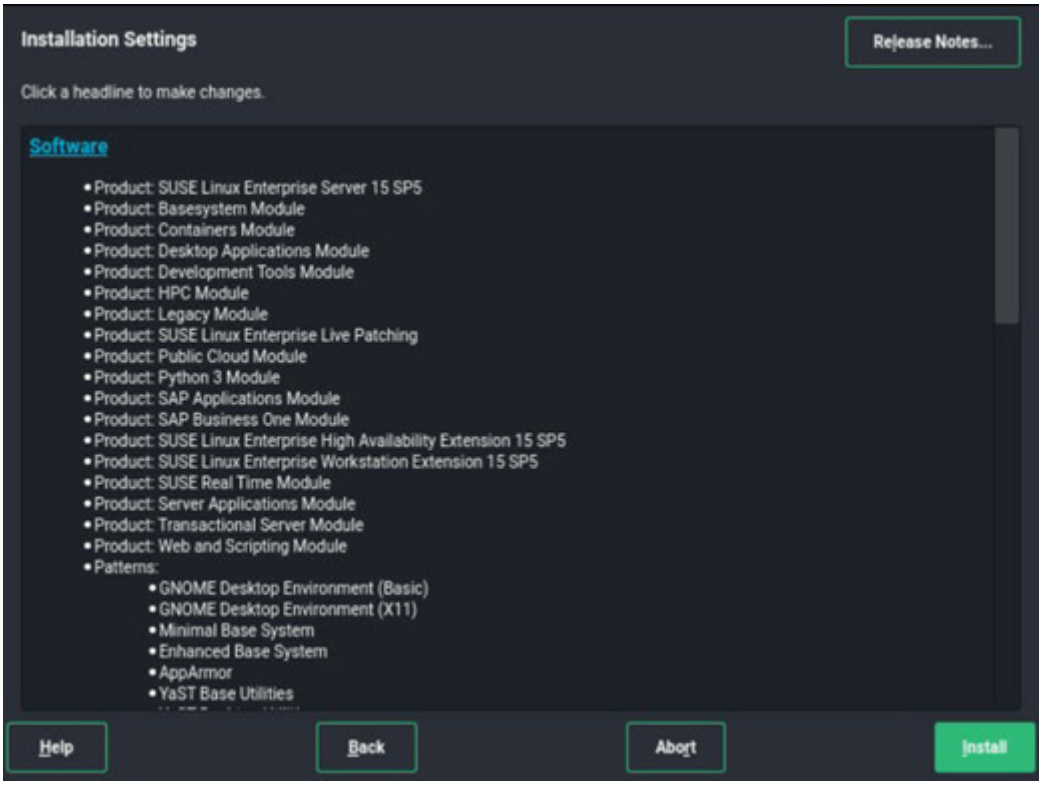
10. Create a new user.



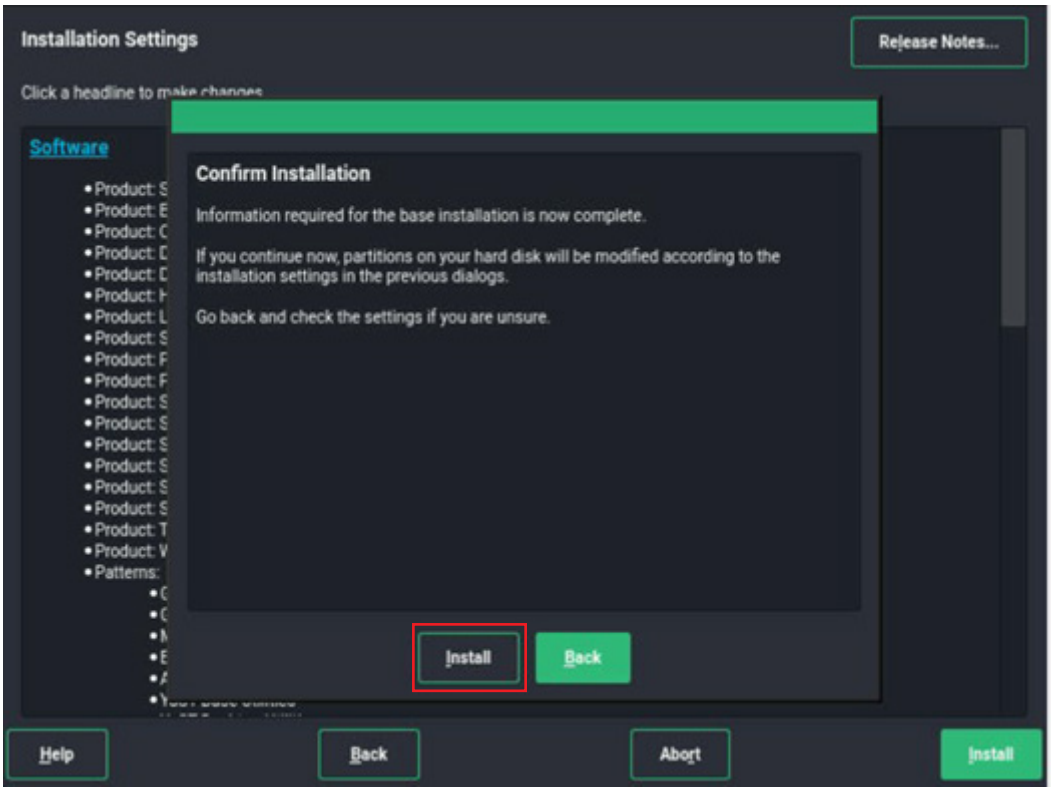
11. Set the password for the system administrator root.



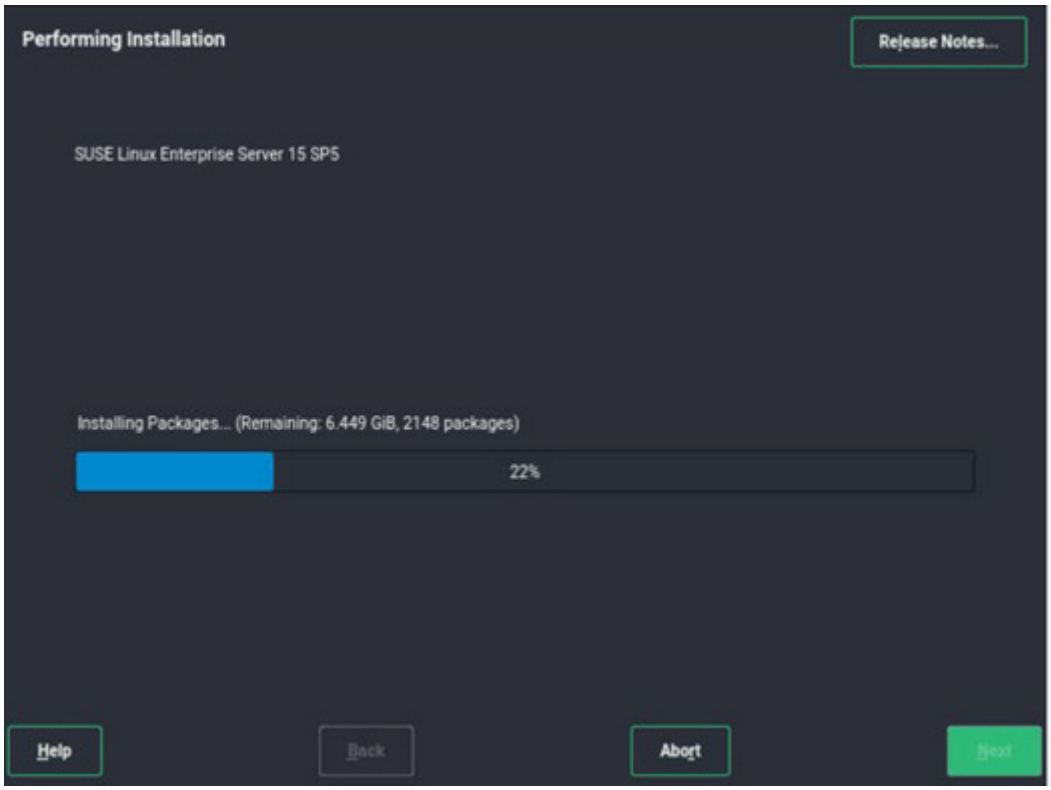
12. Confirm the installation settings before starting the installation.



13. Press "**Install**" to begin the installation.

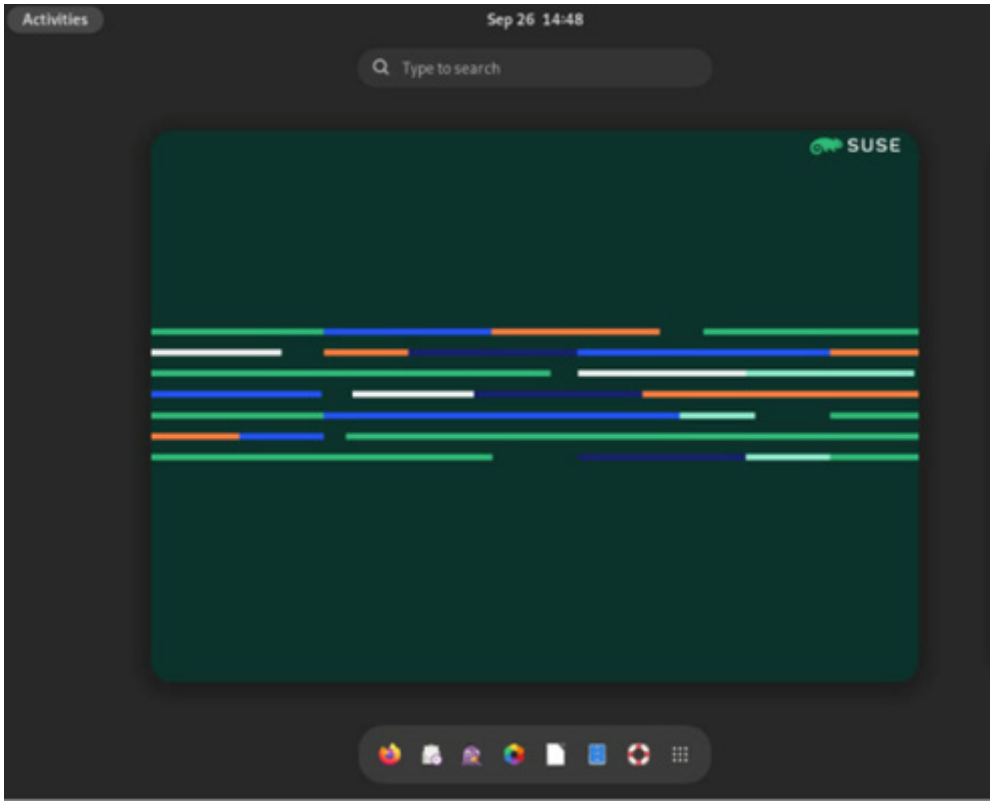


14. The Installation begins.



15. After the installation is complete, the system will automatically reboot until the user login page appears. Enter your user password to log in.

Result: You have successfully logged in and can now start using this system.



5.4 IPMI

The H13QSH supports the Intelligent Platform Management Interface (IPMI). IPMI is used to provide remote access, monitoring and management. There are several BIOS settings that are related to IPMI.

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

For general documentation and information on IPMI, please visit our website at:

http://www.supermicro.com/products/nfo/IPMI.cfm.

Chapter 6

Optional Components

This chapter describes optional system components and installation procedures.

6.1 Optional Parts List

Optional Parts List	
Description	**Included Part Numbers**
AIOM Support Kit	AOM-AIOM-458GT
	CBL-CDAT-1060-30
	CBL-MCIO-1226M5
	CBL-OTHR-0795
	CBL-PWEX-1136YB-30
BlueField 3 B3220 Power Cables	CBL-PWEX-1040
	CBL-PWEX-1148-30
Optional 16 NVMe Drive Bays	CBL-MCIO-1235M5
	CBL-MCIO-1255M5
Optional PCIe Slots	RSC-S-6G5-M8-35
	RSC-S-6G5-M8-55
	RSC-S-6G5-M8Y-35
RAID Controller 16 SATA/SAS Drive Support Kit	AOC-S3916L-H16IR-32DD
	CBL-SAST-1281-100
	MCP-220-00155-0B
RAID Controller 8 SATA/SAS Drive Support Kit	AOC-S3908L-H8IR-16DD
	CBL-SAST-1281-100
	MCP-220-00155-0B
RAID Controller CacheVault(s)	BTR-CVPM05
	MCP-240-00203-0N

Chapter 7

Troubleshooting and Support

7.1 Information Resources

Website

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

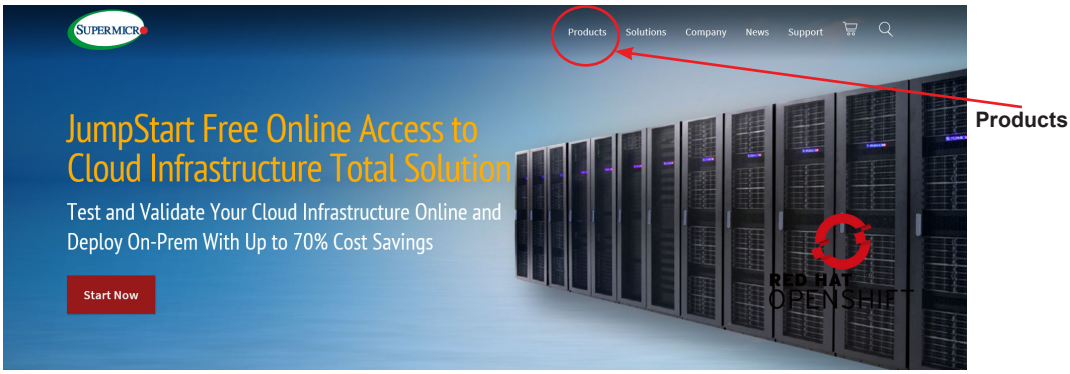


Figure 7-1. Supermicro Website

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

Direct Links for the AS -4145GH-TNMR System

AS -4145GH-TNMR specifications page

H13QSH 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

SuperDoctor5 Large Deployment Guide

For validated memory, see 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 Interface

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

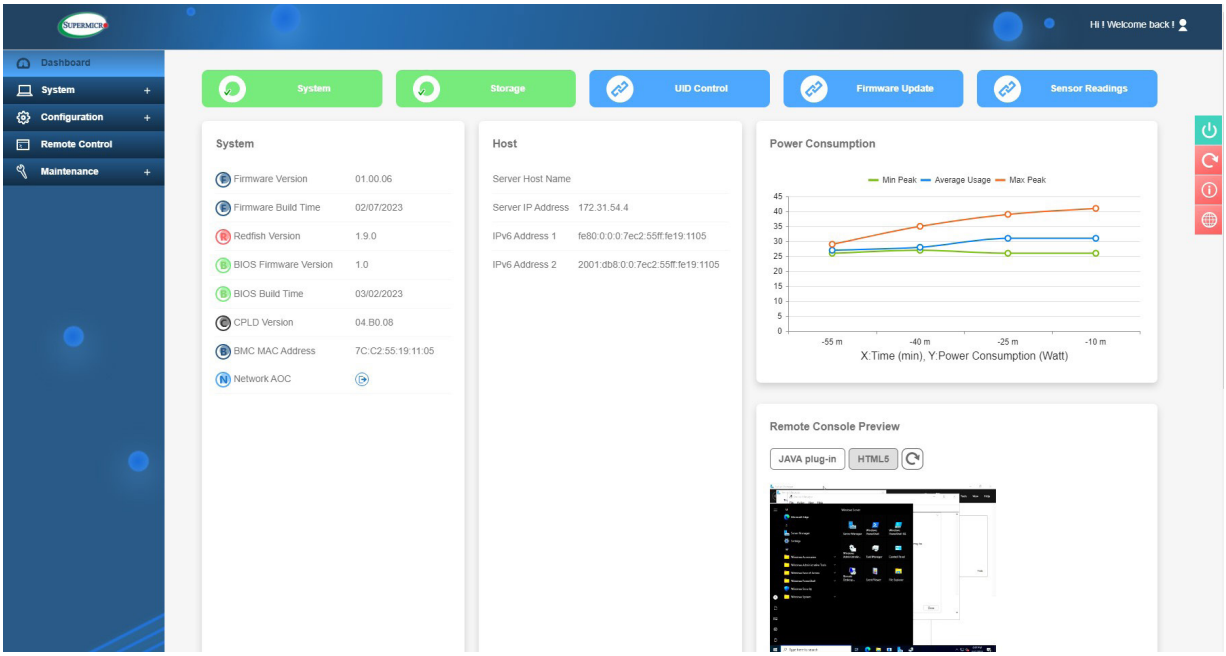


Figure 7-2. BMC Interface: Dashboard View

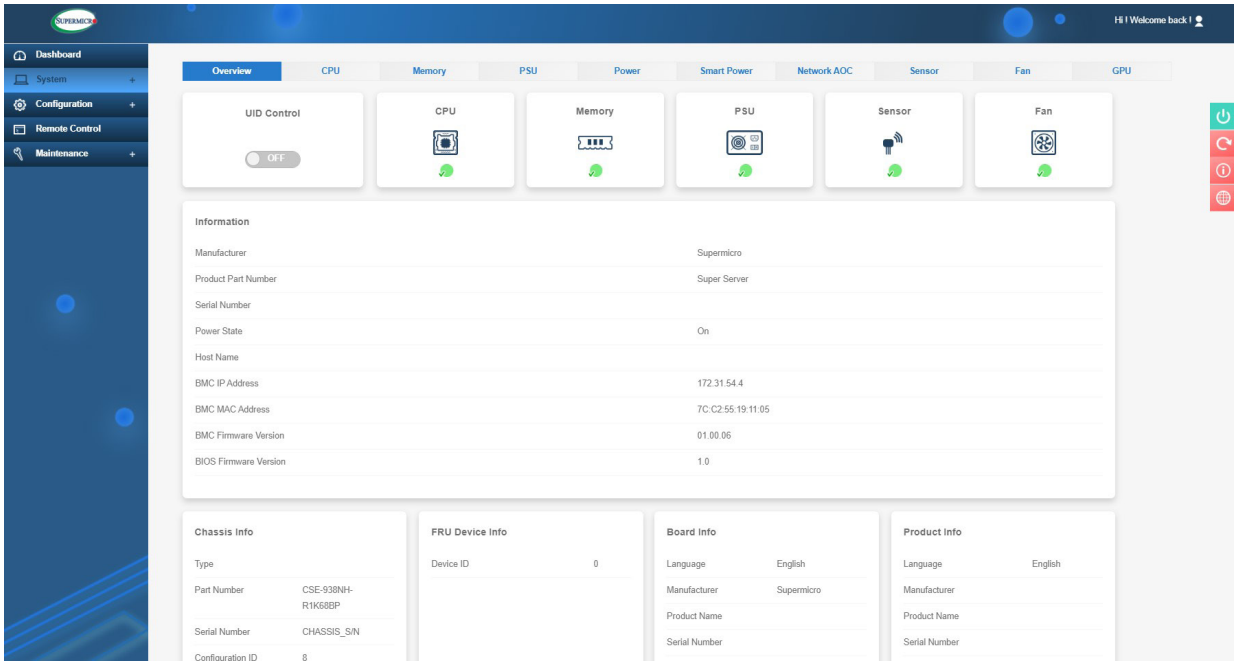


Figure 7-3. BMC Interface: System View

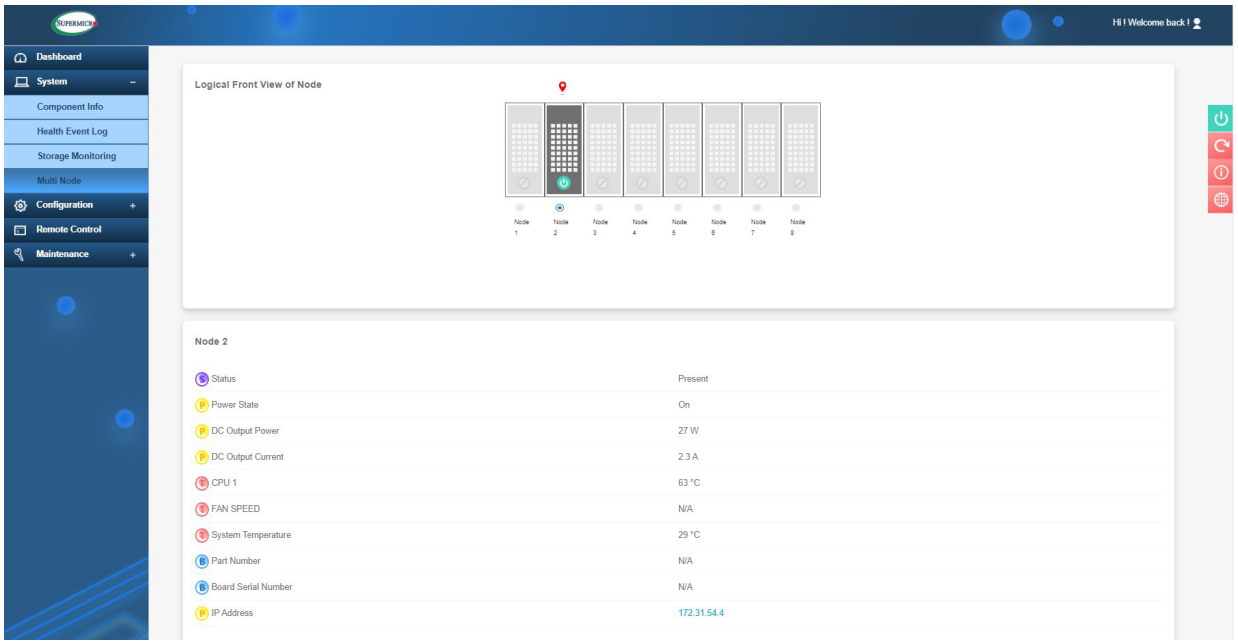


Figure 7-4. BMC Interface: Multi Node View

7.3 Troubleshooting Procedures

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

No Power

1. As you try to power up the system, note any beep codes. The AMI BIOS supplies additional checkpoint codes, which are documented online at http://www.supermicro.com/support/manuals/ ("AMI BIOS POST Codes User's Guide").
2. Make sure that the power connector is connected to your power supply.
3. Make sure that no short circuits exist between the motherboard and chassis.
4. Disconnect all cables from the motherboard, including those for the keyboard and mouse.
5. Remove all add-on cards.
6. Install a CPU, a heatsink, connect the internal speaker (if applicable), and the power LED to the motherboard. Make sure that the heatsink is fully seated.
7. Verify that all jumpers are set to their default positions.
8. Check that the power supplies' input voltage operate at 100-120VAC or 180-240VAC.
9. 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 the add-on cards and cables.
2. As you try to power up the system, note any beep codes. Refer to the next section for details on beep codes.

System Boot Failure

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

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

Memory Errors

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 3.3 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 115V/230V switch.

Losing the System's 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 3VDC. 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.

If 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. HDD support: Make sure that all storage drives work properly. Replace any 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 BMC Error Log

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

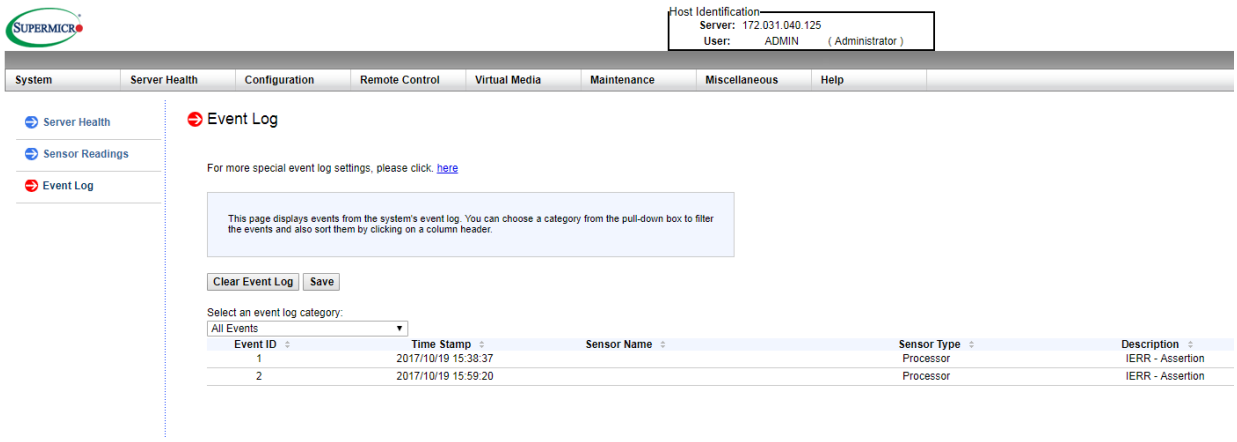


Figure 7-5. BMC Event Log

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

7.5 UEFI BIOS Recovery

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

Overview

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

Recovering the UEFI BIOS Image

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

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

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

Recovering the Main BIOS Block with a USB Device

This feature allows the user to recover the main BIOS image using a USB-attached device without additional utilities used. A USB flash device such as a USB Flash Drive, or a USB CD/DVD ROM/RW device can be used for this purpose. However, a USB storage drive cannot be used for BIOS recovery at this time.

The file system supported by the recovery block is FAT (including FAT12, FAT16, and FAT32) which is installed on a bootable or non-bootable USB-attached device. However, the BIOS might need several minutes to locate the SUPER.ROM file if the media size becomes too large due to the huge volumes of folders and files stored in the device.

To perform UEFI BIOS recovery using a USB-attached device, follow the instructions below.

1. Using a different machine, copy the "Super.ROM" binary image file into the Root "\" directory of a USB device or a writable CD/DVD.

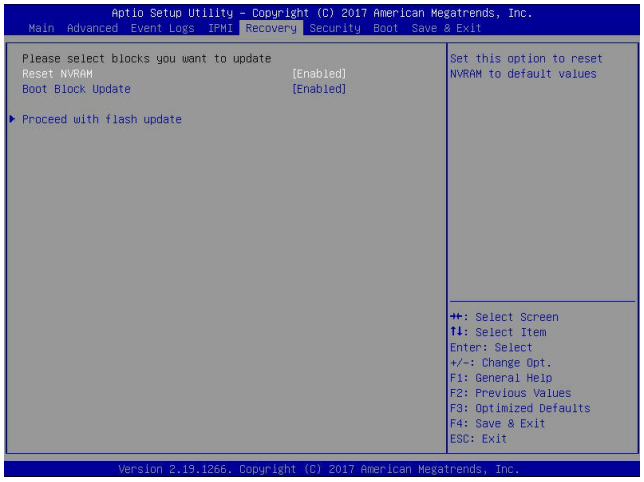
   Note 1: If you cannot locate the "Super.ROM" file in your drive disk, visit our website at www.supermicro.com to download the BIOS package. Extract the BIOS binary image into a USB flash device and rename it "Super.ROM" for the BIOS recovery use.

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

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

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

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

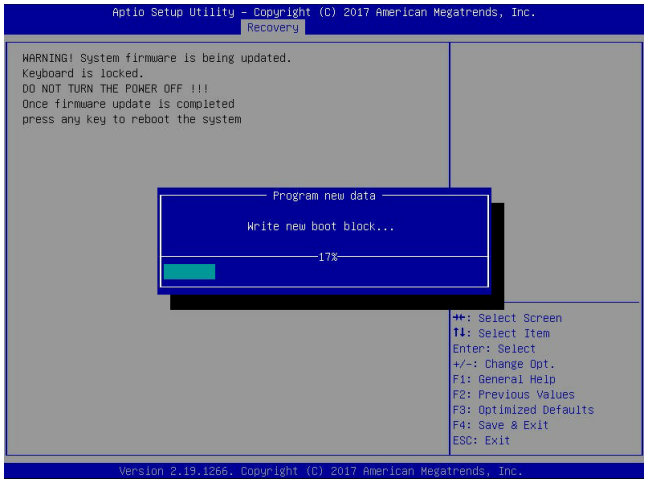


4. When the screen as shown above displays, use the arrow keys to select the item "Proceed with flash update" and press the <Enter> key. You will see the BIOS recovery progress as shown in the screen below.

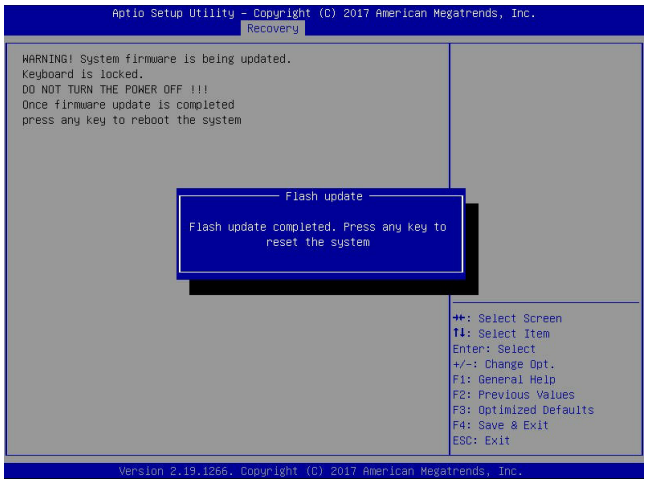
   Note: *Do not interrupt the BIOS flashing process until it has completed*.

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

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

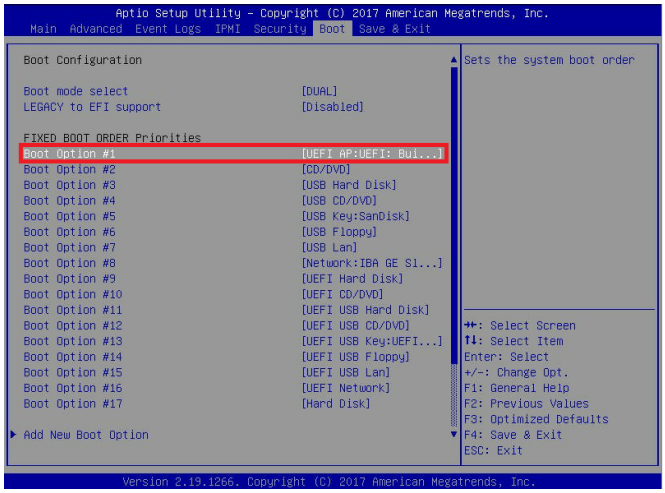


7. Press <Del> continuously during system boot to enter the BIOS Setup utility. From the top of the tool bar, select Boot to enter the submenu. From the submenu list, select Boot

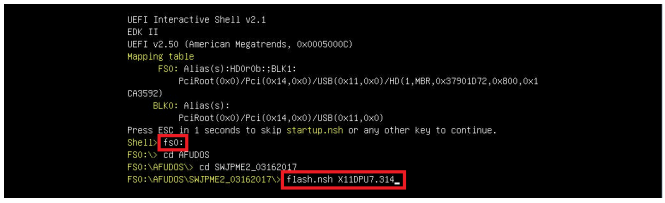


Option #1 as shown below. Then, set Boot Option #1 to [UEFI AP:UEFI: Built-in EFI Shell]. Press <F4> to save the settings and exit the BIOS Setup utility.

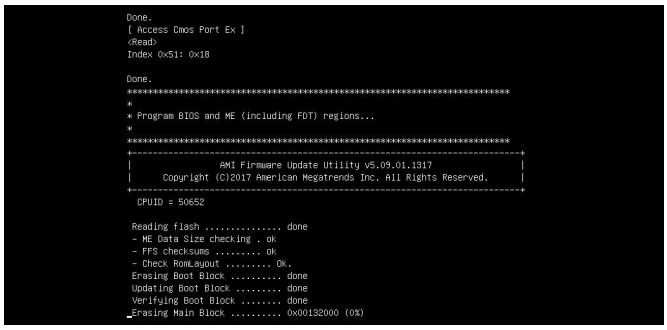
8. When the UEFI Shell prompt appears, type fs# to change the device directory path. Go to the directory that contains the BIOS package you extracted earlier from Step 6. Enter flash.nsh BIOSname.### at the prompt to start the BIOS update process.



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

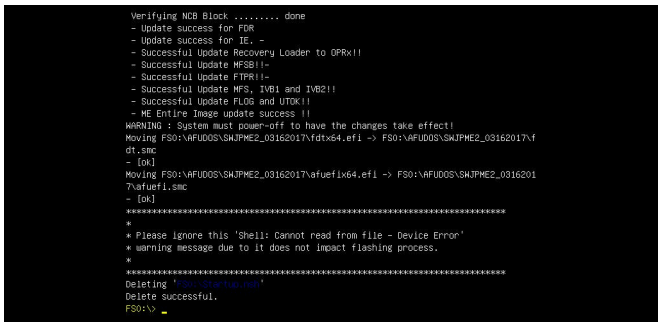


9. The screen above indicates that the BIOS update process is complete. When you see the screen above, unplug the AC power cable from the power supply, clear CMOS, and plug



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

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



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

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

7.6 CMOS Clear

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

To Clear CMOS

1. First power down the system completely.
2. Remove 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.
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.

JBT1 contact pads

7.7 Where to Get Replacement Components

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

7.8 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. Please email us at techwriterteam@supermicro.com to provide feedback on our manuals.

7.10 Contacting Supermicro

Headquarters

Address:	Super Micro Computer, Inc. 980 Rock Ave. San Jose, CA 95131 U.S.A.
Tel:	+1 (408) 503-8000
Fax:	+1 (408) 503-8008
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Website:	www.supermicro.com

Europe

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Tel:	+31 (0) 73-6400390
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Email:	Sales_Europe@supermicro.com (Sales Inquiries) Support_Europe@supermicro.com (Technical Support) RMA_Europe@supermicro.com (RMA Support)
Website:	www.supermicro.nl

Asia-Pacific

Address:	Super Micro Computer, Inc. 3F, No. 150, Jian 1st Rd. Zhonghe Dist., New Taipei City 235 Taiwan (R.O.C)
Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3992
Email:	Sales-Asia@supermicro.com.tw (Sales Inquiries) Support@supermicro.com.tw (Technical Support) RMA@supermicro.com.tw (RMA Support)
Website:	www.supermicro.com.tw

Appendix A

Standardized Warning Statements for AC Systems

About Standardized Warning Statements

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

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

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

Warning Definition

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

警告の定義

この警告サインは危険を意味します。

人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、

電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

此警告符号代表危险。

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

此警告符號代表危險。

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

Warnung

WICHTIGE SICHERHEITSHINWEISE

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

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

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

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

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

CONSERVEZ CES INFORMATIONS.

תקנון הצהרות אזהרה

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

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

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

안전을 위한 주의사항

경고!

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

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

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

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

BEWAAR DEZE INSTRUCTIES

Installation Instructions

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

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告

将此系统连接电源前,请先阅读安装说明。

警告

將系統與電源連接前，請先閱讀安裝說明。

Warnung

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

¡Advertencia!

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

Attention

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

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

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

Circuit Breaker

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

サーキット・ブレーカー

この製品は、短絡（過電流）保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

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

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

경고!

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

Waarschuwing

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

Power Disconnection Warning

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

電源切断の警告

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

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

警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה מפני ניתוק חשמלי

!אזהרה

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

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

경고!

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

Waarschuwing

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

Equipment Installation

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

機器の設置

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

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה!

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

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

경고!

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

Waarschuwing

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

Restricted Area

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

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

אזור עם גישה מוגבלת

אזהרה!

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

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

경고!

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

Waarschuwing

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

Battery Handling

CAUTION: There is risk of explosion if the battery is replaced by an incorrect type. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions

電池の取り扱い

バッテリーを間違ったタイプに交換すると爆発の危険があります。交換する電池はメーカーが推奨する型、または同等のものを使用下さい。使用済電池は製造元の指示に従って処分して下さい。

警告

如果更换的电池类型不正确，则存在爆炸危险。请只使用同类电池或制造商推荐的功能相当的电池更换原有电池。请按制造商的说明处理废旧电池。

警告

如果更換的電池類型不正確，則有爆炸危險。請使用製造商建議之相同或功能相當的電池更換原有電池。請按照製造商的說明指示處理廢棄舊電池。

WARNUNG

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

ATTENTION

Il existe un risque d'explosion si la batterie est remplacée par un type incorrect. Ne la remplacer que par une pile de type semblable ou équivalent, recommandée par le fabricant. Jeter les piles usagées conformément aux instructions du fabricant.

ADVERTENCIA

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

!אזהרה

קיימת סכנת פיצוץ אם הסוללה תוחלף בסוג שגוי. יש להחליף

את הסוללה בסוג התואם מחברת יצרן מומלצת.

סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

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

경고!

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

WAARSCHUWING

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

Redundant Power Supplies

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

冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。

ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

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

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

Warnung

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

¡Advertencia!

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

Attention

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

אם קיים יותר מספק אחד

אזהרה!

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

قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة .

يجب إزالة كافة الاتصالات لعسل الوحدة عن الكهرباء

경고!

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

Waarschuwing

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

Backplane Voltage

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

バックプレーンの電圧

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

修理する際には注意ください。

警告

当系统正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告

當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

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

¡Advertencia!

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

Attention

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

מתח בפנל האחורי

אזהרה!

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

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

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

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

Comply with Local and National Electrical Codes

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

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

警告
设备安装必须符合本地与本国电气法规。

警告
設備安裝必須符合本地與本國電氣法規。

Warnung
Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

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

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

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

تركيب المعدات الكهربائية يجب أن يمتثل للقاويه المحلية والبطية المتعلقة
بالكهرباء

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

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

Product Disposal

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

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

警告
本产品的废弃处理应根据所有国家的法律和规章进行。

警告
本產品的廢棄處理應根據所有國家的法律和規章進行。

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

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

Attention

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

סילוק המוצר

אזהרה!

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

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

경고!

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

Waarschuwing

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

Fan Warning

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

ファンの警告

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

警告!

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה!

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

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

경고!

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

Waarschuwing

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

Power Cable and AC Adapter

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

電源コードとACアダプター

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

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

AC ימאתמו סיילמשח סילבכ

!הרהזא

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

عند تركيب المنتج، قم باستخدام التوصيلات المتوفرة أو المحددة أو قم بشراء الكابلات الكهربائية ومحولات التيار المتردد مع الالتزام بقوانين ومتطلبات السلامة المحلية بما في ذلك الأسلاك وحجم 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 مع أي معدات أخرى غير المنتجات المعينة والمحددة من قبل Supermicro. والتي تحمل علامة (UL/CSA)

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

AMD Instinct™ MI300A Accelerated Processing Units (APUs)s in an Quad Socket SH5 socket; supports APU TDP up to 760W
Note: Refer to the motherboard specifications pages on our website for updates to supported processors.

Chipset

AMD® System-on-Chip

BIOS

32MB AMI BIOS® SPI Flash EEPROM

Memory

Up to 512 GB of non-ECC HBM3 onboard memory

Storage Drives

Default: Eight 2.5" NVMe drive bays
Option A: Sixteen 2.5" NVMe drive bays
Option B: Twenty-four 2.5" SAS/SATA* drive bays
*Requires optional kits (see Chapter 6)

PCI Expansion Slots

Default
Four PCIe 5.0 x16 FHHL slots
Two PCIe 5.0 x8 FHHL slots
Option A
Four PCIe 5.0 x16 FHHL slots
Six PCIe 5.0 x8 FHHL slot
Two PCIe 5.0 x8 AIOM slots (OCP 3.0 compatible)
Option B
Six PCIe 5.0 x16 FHHL slots
Two PCIe 5.0 x16 AIOM slots (OCP 3.0 compatible)

I/O Ports

One Display Port
Two USB 3.0 ports
One COM port
One 1GbE Dedicated BMC LAN

Motherboard

H13QSH; 17.04" (W) x 21.35" (L) (432.8 x 542.3mm)

Chassis

CSE-418H2TS-R5K4AWP; 4U Rackmount, 7 x 17.3 x 33.4 in. / 177 x 438 x 849 mm

System Cooling

Ten heavy-duty, counter-rotating 8-cm fans

Power Supply

Model: PWS-2K70A-1R, four 2700W Titanium Level (96%) redundant power supply modules
AC Input Voltages: 2700 W: 200-240 Vac, 50-60 Hz, 16-13.5 A
Rated Output Voltages: +12 V, 255 A, +12 VSB, 4 A
Max: 225 / Min: 0 A (200 Vac-240 Vac)
12 Vsb: Max: 3.5 A / Min: 0 A

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 80% (non-condensing)
Non-operating Relative Humidity: 5% to 95% (non-condensing)

Regulatory Compliance

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

Applied Directives, Standards

EMC/EMI: 2014/30/EU (EMC Directive) CLASS A
Electromagnetic Compatibility Regulations 2016
FCC Part 15 Subpart B
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:
Delegated Directive (EU) 2015/863
Directive 2011/65/EU (RoHS)
REACH Regulation EC 1907/2006
WEEE Directive 2012/19/EU

California Proposition 65
Warning! This product can expose you to chemicals including lead, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

Perchlorate Warning

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

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

VCCI ー A