



H13SRD-F

USER'S MANUAL

Revision 1.2

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Manual Revision 1.2

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Preface

About This Manual

This manual is written for system integrators, IT technicians and knowledgeable end users. It provides information for the installation and use of the H13SRD-F motherboard.

About This Motherboard

The H13SRD-F motherboard supports an AMD EPYC™ 4005, 4004 and AMD Ryzen™ 7000 processor with a TDP of up to 170 W in an AM5 socket. The motherboard supports up to 192 GB ECC and Non-ECC DDR5 UDIMM memory with speeds of up to 5600 MT/s in two DIMM slots or 3600 MT/s in four DIMM slots. It features superior I/O expandability, including one PCIe 5.0 x8 open-end slot with 75 W power, one PCIe 5.0 x8 Micro-LP slot with two USB 2.0 connections, one M.2 M-Key PCIe 5.0 x2 slot in the 2280 and 22110 form factors, and one USB 3.2 Gen2 x1 (10 Gbps) Type-C port. It also offers the most advanced data protection capability with a Trusted Platform Module (TPM) 2.0 chip onboard.

Note that this motherboard is intended to be installed and serviced by professional technicians only. For processor/memory updates, refer to our website at <http://www.supermicro.com/products/>.

Conventions Used in the Manual

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



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



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



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



Note: Additional Information given to differentiate various models or provides information for correct system setup.

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Chapter 1

Introduction

Congratulations on purchasing your computer motherboard from an industry leader. Supermicro boards are designed to provide you with the highest standards in quality and performance.

In addition to the motherboard, several important parts that are included with the system are listed below. If anything listed is damaged or missing, contact your retailer.

1.1 Checklist

Main Parts List		
Description	Part Number	Quantity
Supermicro Motherboard	H13SRD-F	1
Quick Reference Guide	MNL-2555-QRG	1

Important Links

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

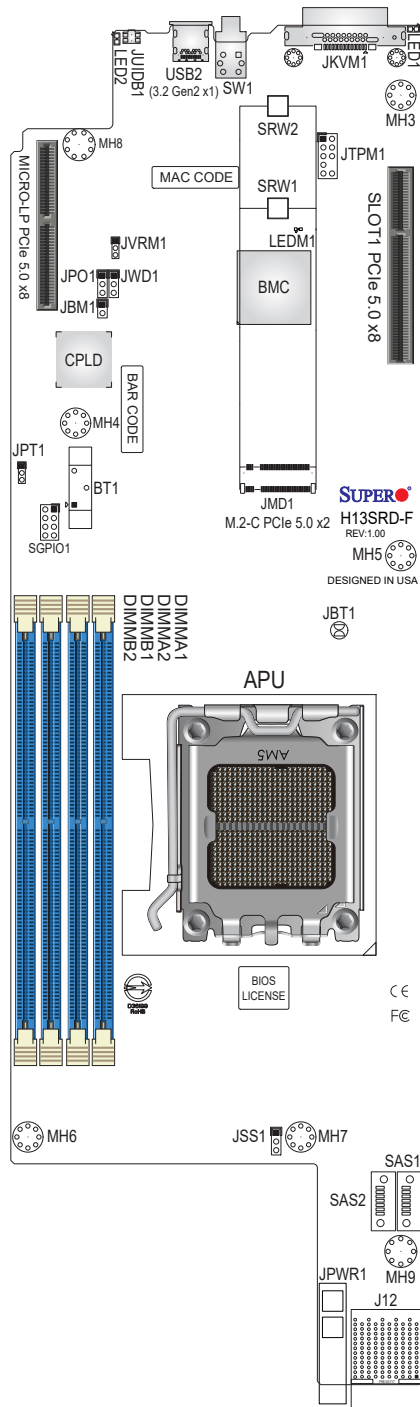
- Frequently Asked Questions: <https://www.supermicro.com/FAQ/index.php>
- Supermicro product manuals: <https://www.supermicro.com/support/manuals/>
- Product drivers and utilities: <https://www.supermicro.com/wdl/driver/>
- Product safety info: https://www.supermicro.com/about/policies/safety_information.cfm
- A secure data deletion tool designed to fully erase all data from storage devices can be found at our website: https://www.supermicro.com/about/policies/disclaimer.cfm?url=/wdl/utility/Lot9_Secure_Data_Deletion_Utility/
- If you have any questions, contact our support team at: support@supermicro.com

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

Figure 1-1. H13SRD-F Motherboard Image

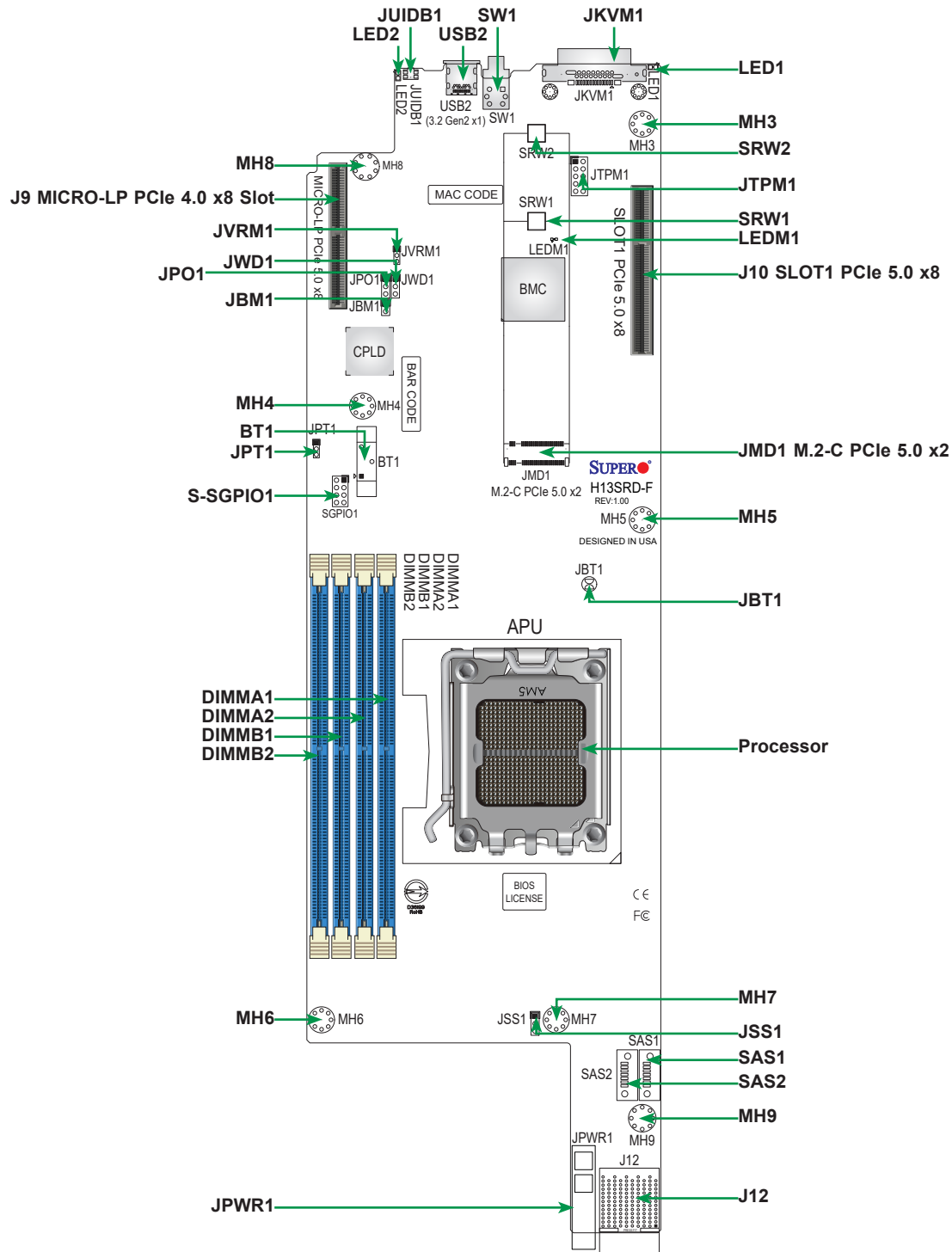


 **Note:** All graphics shown in this manual were based upon the latest PCB revision available at the time of publication of the manual. The motherboard you received may or may not look exactly the same as the graphics shown in this manual.



Note: Components not documented are for internal testing only.

H13SRD-F Quick Reference



Notes:

- See [Chapter 2](#) for detailed information on jumpers, I/O ports, and connections. Jumpers and LED indicators not indicated are used for testing only.
- "■" indicates the location of Pin 1.

Quick Reference Table

Jumper	Description	Default Setting
JSS1	AOC SAS Enable/Disable	Pins 1-2: Disabled
JBM1	Disable IPMI Share LAN	Pins 1-2 Open: Enabled
JPO1	CPU Throttle when PWR_FAIL	Pins 2-3: Disabled
JPT1	Onboard TPM 2.0 Enable/Disable	Pins 1-2: Enabled
JWD1	Watch Dog Timer	Pins 1-2: Reset (Default) Pins 2-3: NMI

LED	Description	Status
LED1	OH/Power Fail/FAN Fail	Blinking Red: Power Fail or FAN Fail Solid Red: Overheat
LED2	Unit Identifier LED	Solid Blue: Unit Identified
LEDM1	BMC Heartbeat LED	Blinking Green: BMC Normal

Connector	Description
BT1	Onboard Battery
JPWR1	12 V Input Power Connector
JKVM1	KVM Connector for USB0/1, COM1, VGA
JTPM1	Trusted Platform Module/Port 80 Connector
JUIDB1	UID Switch
SAS1, SAS2	AOC SATA/SAS Input Connector (Link to AOC SAS Card)
S-SGPIO1	Serial Link General Purpose I/O Header
SW1	Power Switch, Power LED
USB0/1	Two USB 2.0 Ports via JKVM1
USB2	USB 3.2 Gen2 x1 (10 Gbps) Type-C Connector
JMD1	M.2 M-Key 2280/22110 Slot (PCIe 5.0 x2)
J9	Micro Low-Profile PCIe 5.0 x8 Slot with two USB 2.0 connections
J10	PCIe 5.0 x8 Slot (Open-End support up to 75 W)
J12	MicroCloud Backplane Connector for 2x PCIe 5.0 x4 / Dedicated IPMI LAN / 2x AOC SATA/SAS

Motherboard Features

Motherboard Features	
Processor	
Supports an AMD EPYC™ 4005, 4004 and AMD Ryzen™ 7000 processors with a TDP of up to 170 W in an AM5 socket	
Memory	
Supports up to 192 GB of ECC and Non-ECC DDR5 UDIMM memory with speeds of 5600 MT/s in two DIMM slots or 3600 MT/s in four DIMM slots	
Chipset	
System on Chip	
DIMM Size	
8 GB, 16 GB, 32 GB, or 48 GB at 1.1 V	
 Note: For the latest processor/memory updates, refer to our website at http://www.supermicro.com/products/motherboard .	
Expansion Slots	
- One PCIe 5.0 x8 Open-End Slot with 75 W power - One Micro-LP Slot PCIe 5.0 x8 with two USB 2.0 connections - One M.2 M-Key 2280/22110 PCIe 5.0 x2 Slot - One MicroCloud Backplane Connector for 2x PCIe 5.0 x4 / Dedicated IPMI LAN / 2x AOC SATA/SAS	
Graphics	
Aspeed AST2600 for one VGA port by KVM connector	
I/O Devices	
- AOC SATA/SAS - USB 3.2 - KVM Port	- Two AOC SATA/SAS Ports - One USB 3.2 Gen2 x1 (10 Gbps) Type-C Connector - One VGA Port - One COM Port - Two USB 2.0 Ports

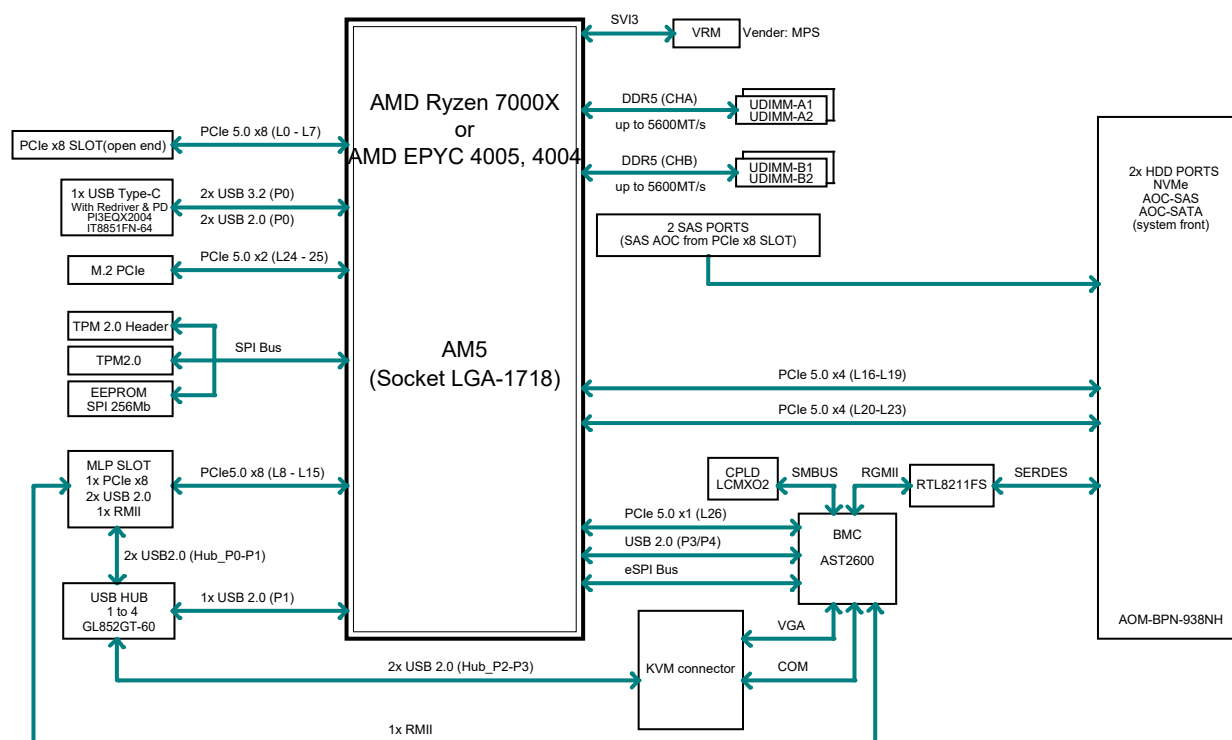


Note: The table above is continued on the next page.

Motherboard Features	
BIOS	
• 256 Mb AMI BIOS® SPI Flash BIOS • ACPI 6.4, Plug and Play (PnP), and SMBIOS 3.5 or later	
Power Management	
• ACPI power management (supports S5) • Power button override mechanism • Power-on mode for AC power recovery	
System Health Monitoring	
• Onboard voltage monitoring for +3.3 V, +5 V, +12 V, +3.3 VStb, +5 VStb, Vcore, and Vmem • CPU thermal trip support • Platform Environment Control Interface (PECI)/TSI	
System Management	
• Trusted Platform Module (TPM) support • SuperDoctor® 5 • SUM-InBand, SUM-OOB • Intelligent Platform Management Interface (IPMIView, SMCIPMITOOL, IPMICFG)	
LED Indicators	
• CPU/System Overheat LED • Fan Failed Indicator LED • UID/Remote UID LED	
Environment	
• Operating Temperature Range: 0°C – 60°C	
Dimensions	
• 15.69" (L) x 4.75" (W) for 3U 8-node MicroCloud server	

 **Note:** The processor maximum thermal design power (TDP) is subject to chassis and heatsink cooling restrictions. For proper thermal management, check the chassis and heatsink specifications for proper processor TDP sizing.

Figure 1-5.
System Block Diagram



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

1.2 Processor and Chipset Overview

Built upon the functionality and capability of the AMD EPYC[™] 4005, 4004 and AMD Ryzen[™] 7000 processors, the H13SRD-F motherboard provides system performance, power efficiency, and feature sets to address the needs of next-generation computer users, and dramatically increases system performance for a multitude of server applications.

The motherboard supports the following features:

- AMD Zen 4 Core Complex Dies (CCDs)
- USB Type-C for USB 3.2 Gen2 x1 (10 Gbps)
- PCIe 5.0
- ACPI Power Management
- 192 GB of ECC and Non-ECC DDR5 UDIMM memory with speeds of up to 5600 MT/s in two DIMM slots or 3600 MT/s in four DIMM slots

1.3 Special Features

Recovery from AC Power Loss

The Basic I/O System (BIOS) provides a setting that determines how the system will respond when AC power is lost and then restored to the system. You can choose for the system to remain powered off, in which case you must press the power switch to turn it back on, or for it to automatically return to the power-on state. See the Advanced BIOS Setup section for this setting. The default setting is **Last State**.

1.4 System Health Monitoring

Onboard Voltage Monitors

The onboard voltage monitor will continuously scan crucial voltage levels. Once a voltage becomes unstable, a warning is given, or an error message is sent to the screen. The user can adjust the voltage thresholds to define the sensitivity of the voltage monitor.

Fan Status Monitor with Firmware Control

The system health monitor chip can check the RPM status of a cooling fan. The processor and chassis fans are controlled by the BIOS Thermal Management.

Environmental Temperature Control

The thermal control sensor monitors the processor temperature in real time and will turn on the thermal control fan whenever the processor temperature exceeds a user-defined threshold. The overheat circuitry runs independently from the processor. Once the thermal sensor detects that the processor temperature is too high, it will automatically turn on the thermal fans to prevent the processor from overheating. The onboard chassis thermal circuitry can monitor the overall system temperature and alert the user when the chassis temperature is too high.



Note: To avoid possible system overheating, provide adequate airflow to your system.

System Resource Alert

This feature is available when used with SuperDoctor 5® in the Windows OS or in the Linux environment. SuperDoctor is used to notify the user of certain system events. For example, you can configure SuperDoctor to provide you with warnings when the system temperature, processor temperatures, voltages and fan speeds go beyond a predefined range.

1.5 ACPI Features

The Advanced Configuration and Power Interface (ACPI) specification defines a flexible and abstract hardware interface that provides a standard way to integrate power management features throughout a computer system, including its hardware, operating system and application software. This enables the system to automatically turn on and off peripherals such as USB flash drive or media drives, network cards, storage drives, and printers.

In addition to enabling operating system-directed power management, ACPI also provides a generic system event mechanism for Plug and Play, and an operating system-independent interface for configuration control. ACPI leverages the Plug and Play BIOS data structures, while providing a processor architecture-independent implementation that is compatible with appropriate Windows operating systems. For detailed information regarding OS support, refer to the Supermicro website.

1.6 Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. This is even more important for processors that have high CPU clock rates. In areas where noisy power transmission is present, you may choose to install a line filter to shield the computer from noise. It is recommended that you also install a power surge protector to help avoid problems caused by power surges.

Chapter 2

Installation

2.1 Static-Sensitive Devices

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

Precautions

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

Unpacking

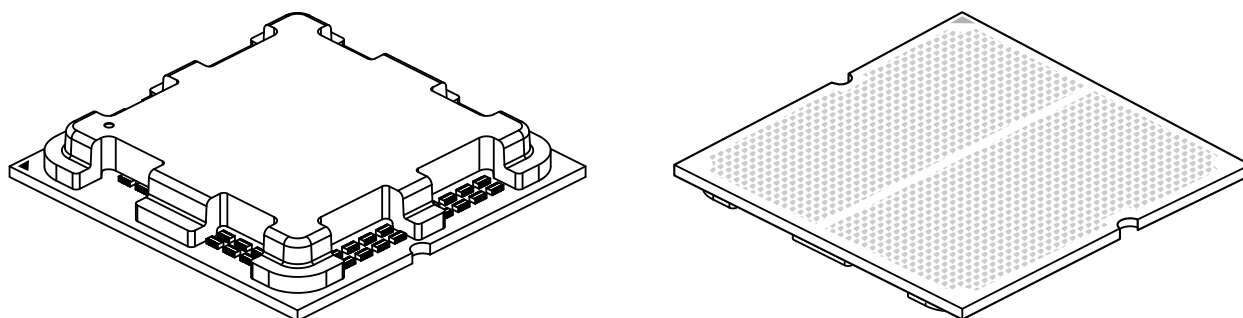
The motherboard is shipped in antistatic packaging to avoid static damage. When unpacking the motherboard, make sure that the person handling it is static protected.

2.2 Processor and Heatsink Installation

Notes:

- Use ESD protection.
- Shut down the system and then unplug the AC power cord from all power supplies.
- Check that the plastic protective cover is on the processor socket and none of the socket pins are bent. If they are, contact your retailer.
- When handling the processor, avoid touching or placing direct pressure on the LGA lands (gold contacts). Improper installation or socket misalignment can cause serious damage to the processor or socket, which may require manufacturer repairs.
- Thermal grease is pre-applied on a new heatsink. No additional thermal grease is needed.
- Refer to the Supermicro website for updates on processor support.
- All graphics in this manual are for illustrative purposes only. Your components may look different.
- Installing the processor does not require a screwdriver. Do not unscrew the processor socket.
- When installing the heatsink, ensure a torque driver with a Phillips #1 bit set to the correct force is used for each screw.

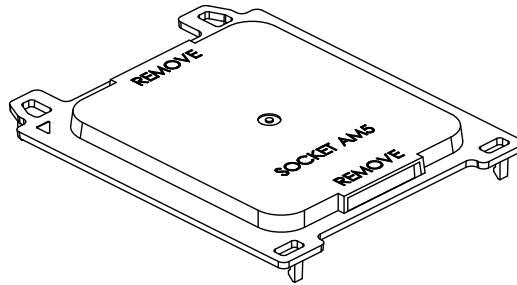
The AMD EPYC™ 4005, 4004 and AMD Ryzen™ 7000



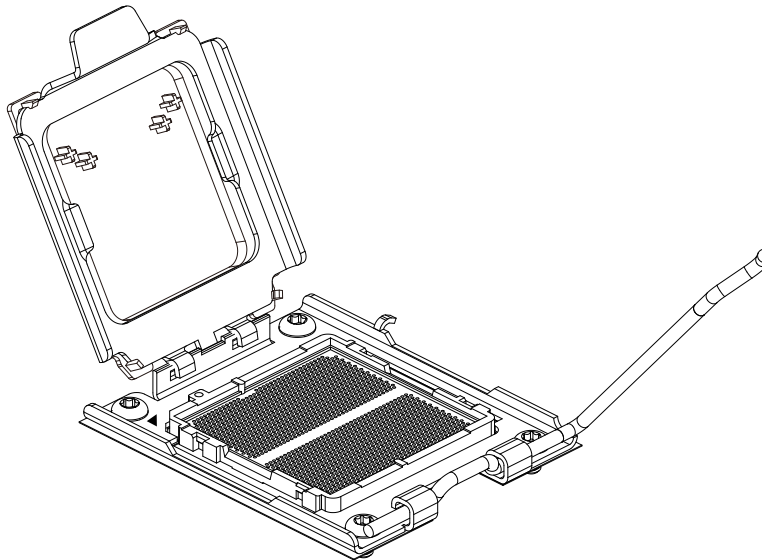
Overview of the Processor Socket

The processor socket is protected by an outer plastic protective cover.

1. Outer Plastic Cover

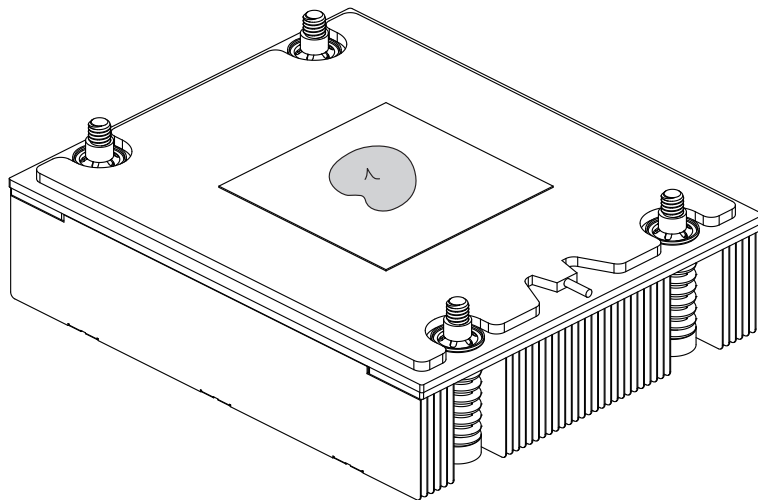
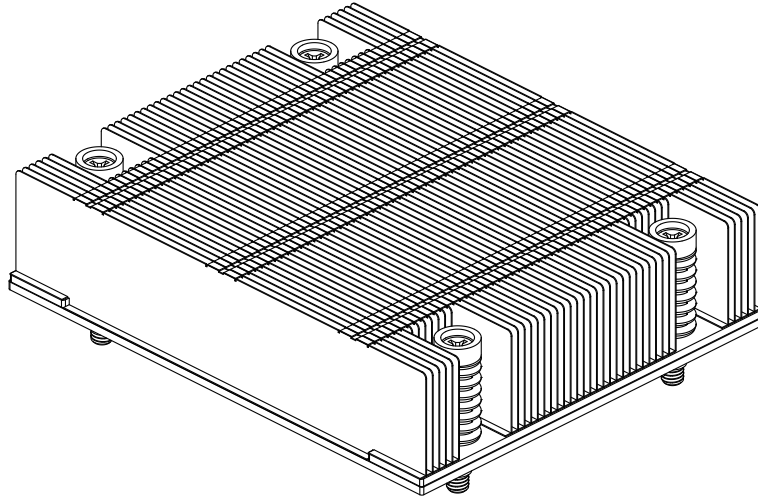


2. Socket AM5



Overview of the Heatsink

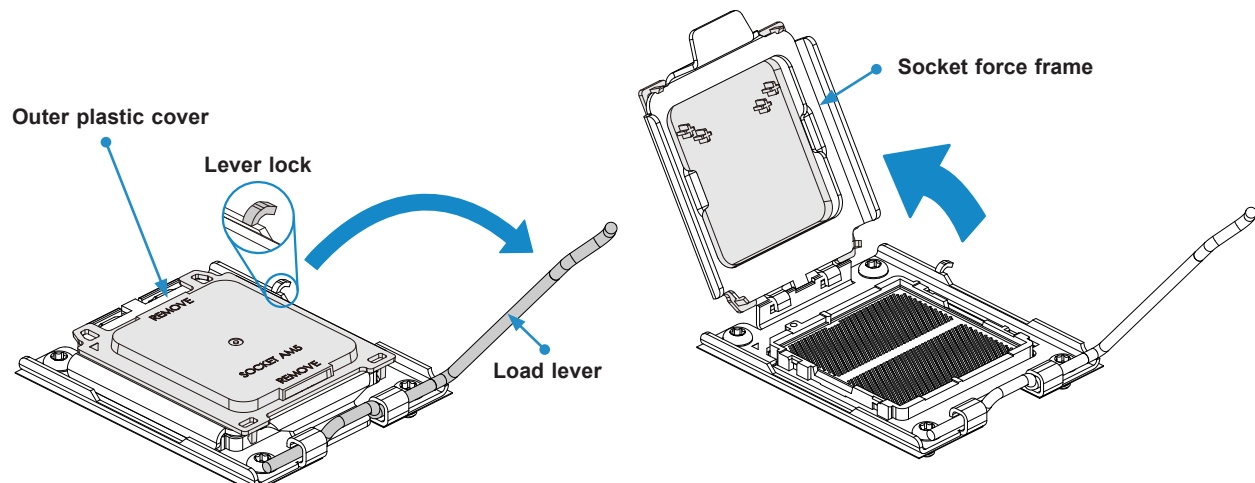
The heatsink is attached to the socket with Phillips #1 screws after the processor is secured. If this is a new heatsink, thermal grease is pre-applied.



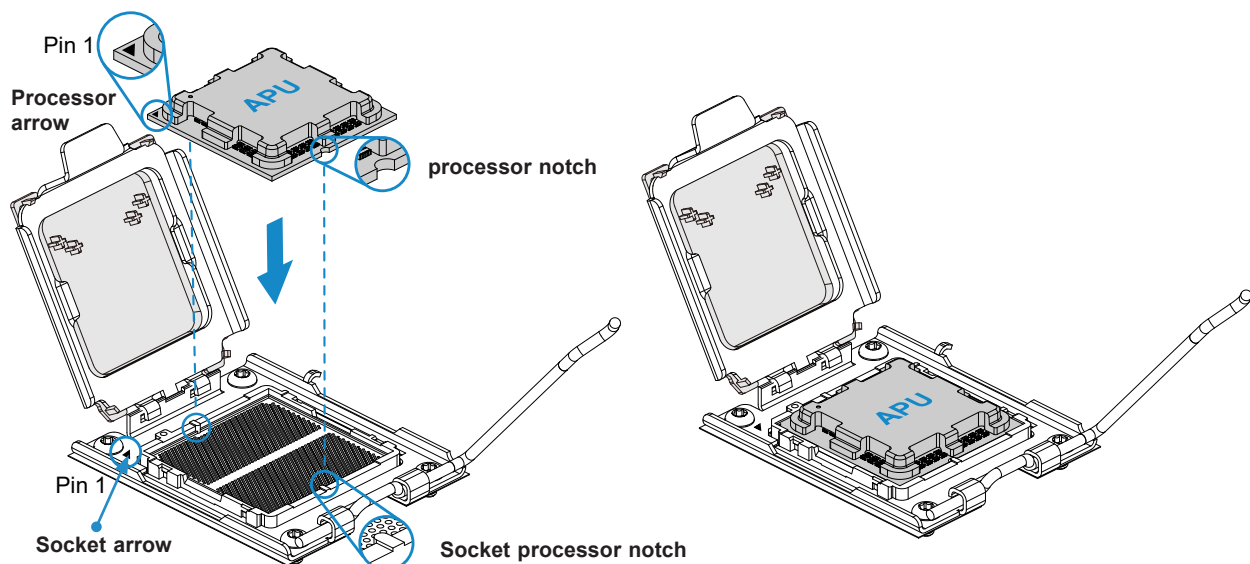
Installing the Processor

 **Note:** Do not remove the plastic cover covering the outside of the socket. This cover will pop out during installation of the processor.

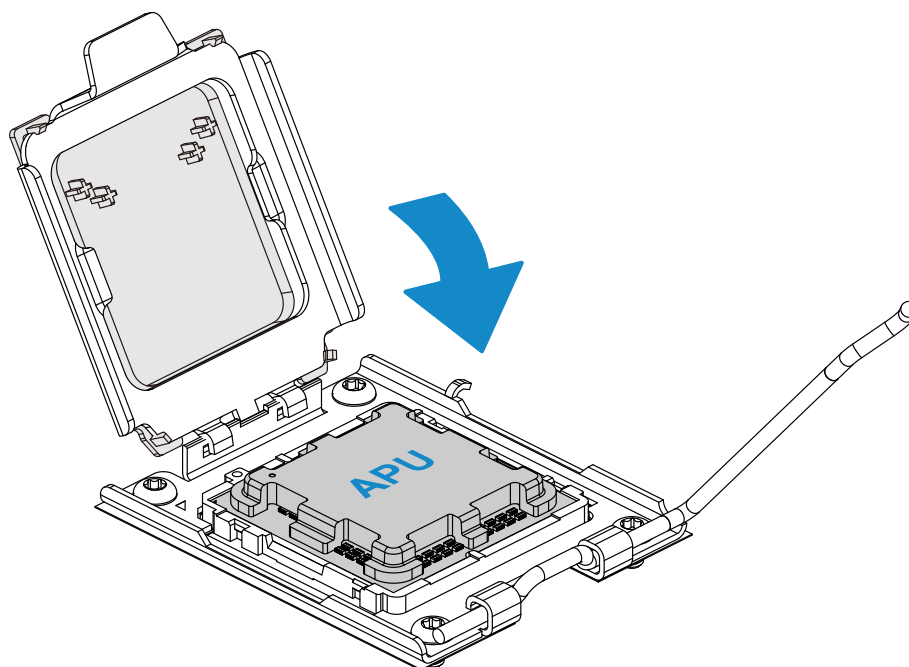
1. Use a finger to push down the lever, then move the lever rightward. Pull the lever until it passes over the processor socket.



2. Pick up the processor on its left and right edges. Hold the processor over the socket and align the arrow on the top-left corner of the processor with the arrow on the top-left corner of the socket. Gently lower it onto the AM5 socket pins.

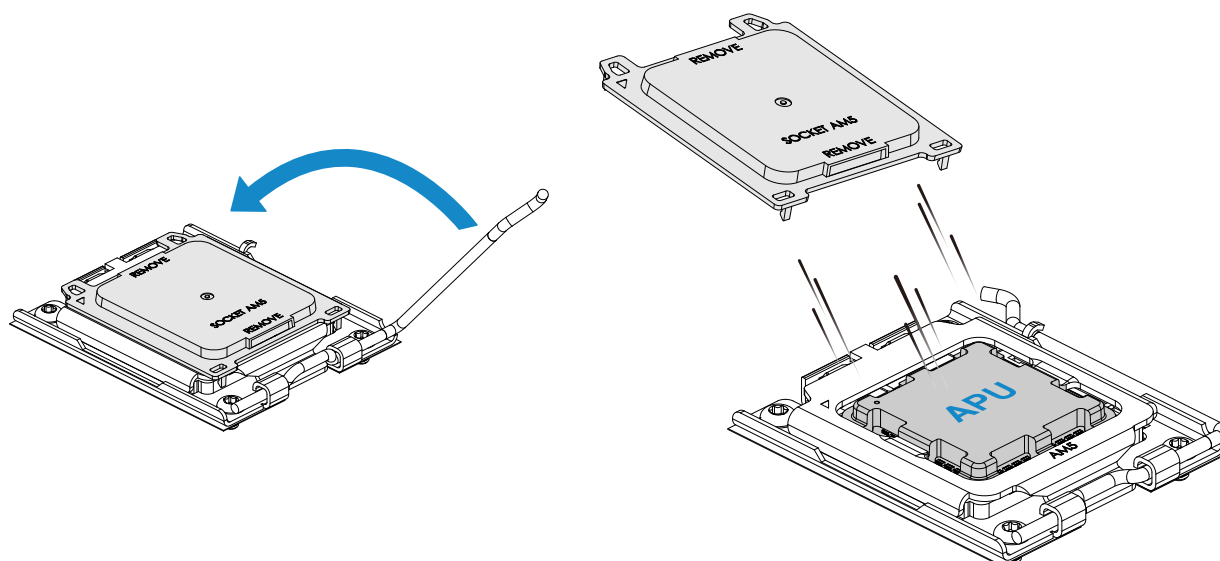


3. With the processor in the socket, lower the socket force frame.

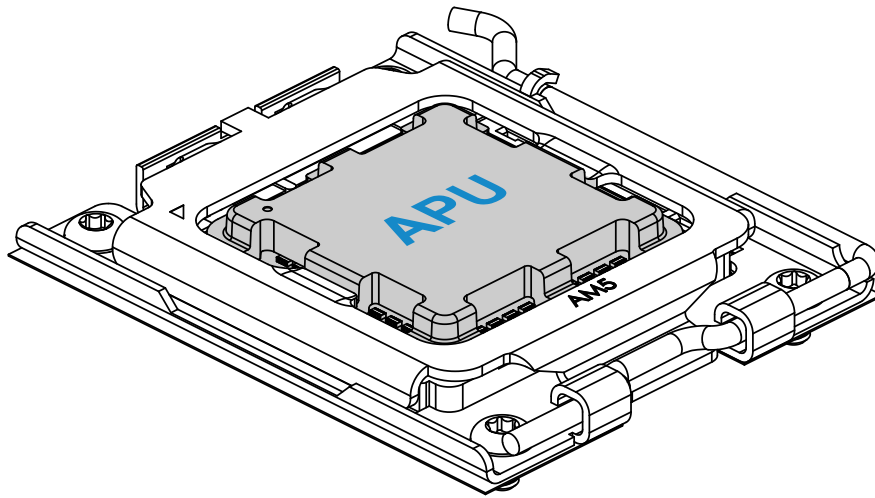


4. Reattach the lever arm onto the right side of the socket. The outer plastic cover will pop out when the lever arm is reattached.

 **Note:** Store the outer plastic cover. Attach the outer plastic cover to the socket force frame when storing or transporting the motherboard without a processor.

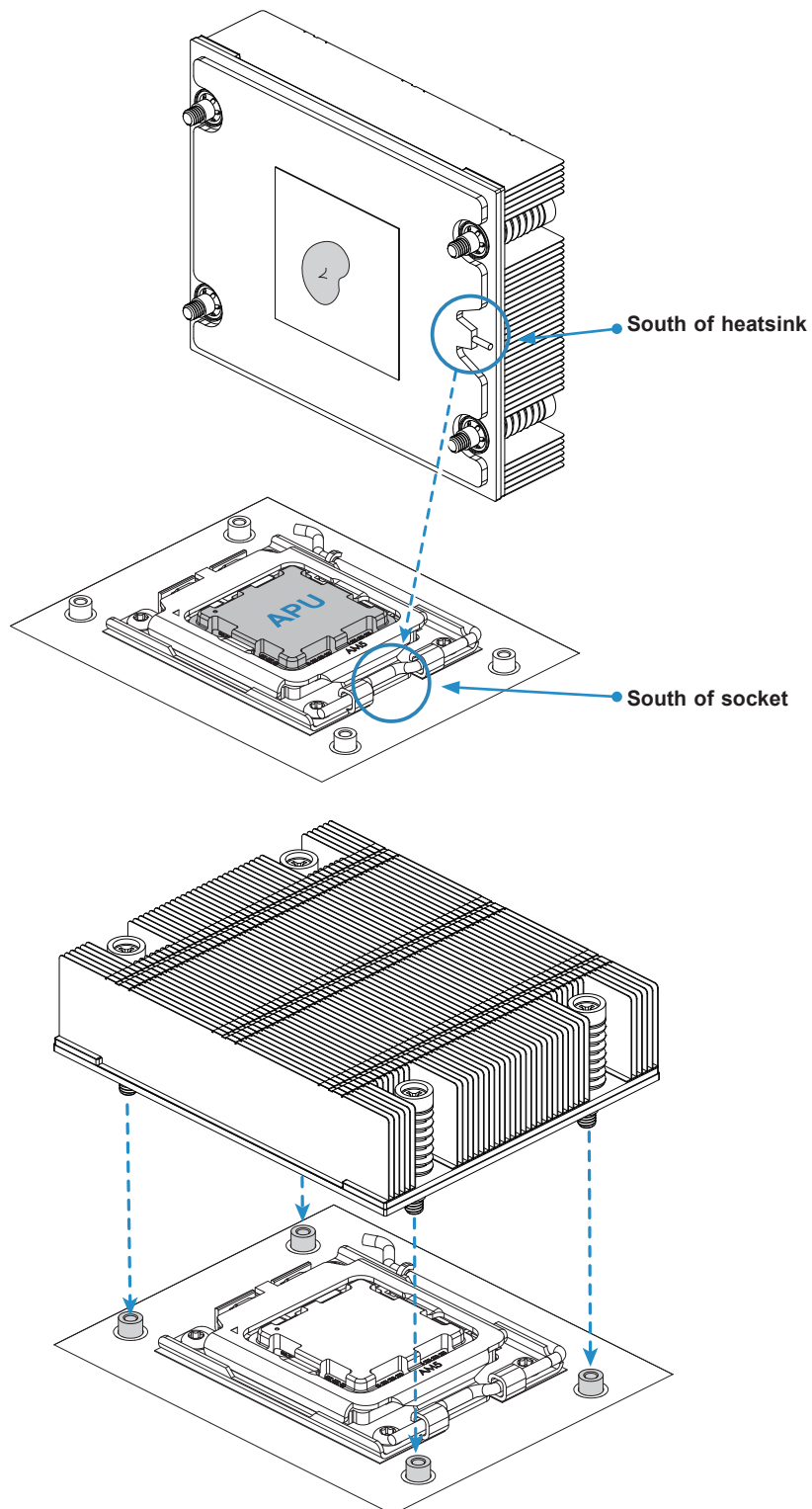


5. When finished, the socket force frame will secure the processor.



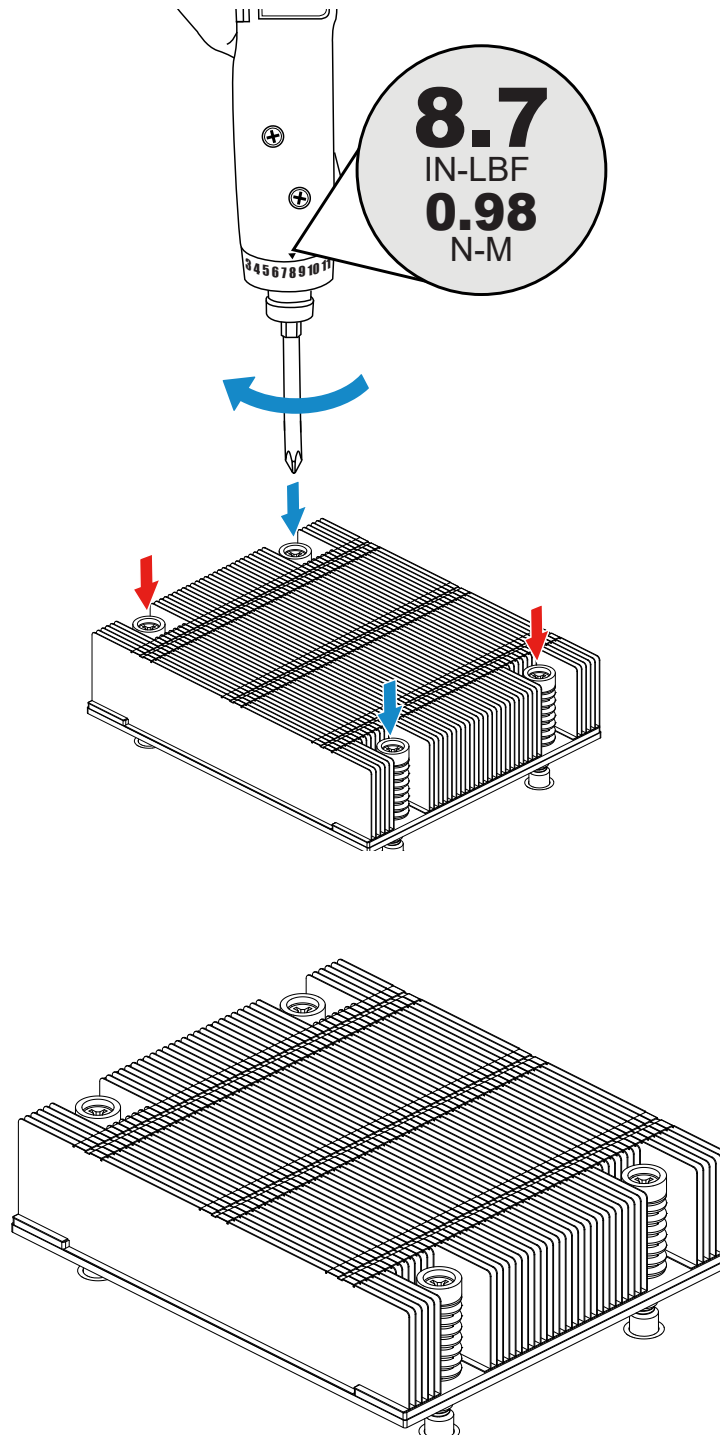
Installing the Heatsink

1. After the processor is secure, you must install the heatsink to the socket frame. Ensure a proper amount of thermal grease is applied to the heatsink. Lower the heatsink down until the four screws on the heatsink align with the four screw holes on the socket frame.



2. Align the heatsink to the socket. With a Phillips #1 bit torque driver set to a force of 8.7 in-lbf (0.98 N-m), gradually secure the heatsink by starting with two screws on opposite corners. When finished, the heatsink will be secured over the socket and processor.

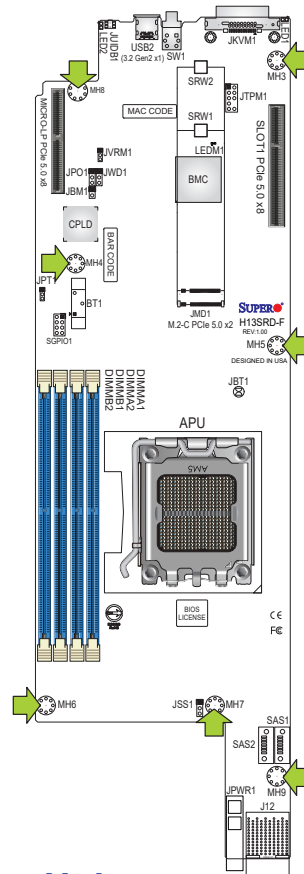
 **Important:** Do not use a force greater than 8.7 in-lbf (0.98 N-m). Exceeding this force may over-torque the screw, causing damage to the processor, heatsink, and screw.



2.3 Motherboard Installation

All motherboards have standard mounting holes to fit different types of chassis. Make sure that the locations of all the mounting holes for both the motherboard and the chassis match. Although a chassis may have both plastic and metal mounting fasteners, metal ones are highly recommended because they ground the motherboard to the chassis. Make sure that the metal standoffs click in or are screwed in tightly.

Tools Needed

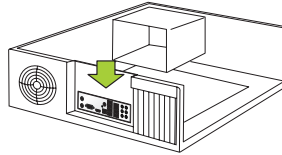


Location of Mounting Holes

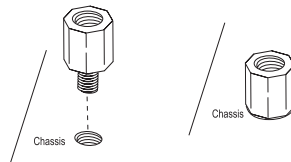
-  **Note 1:** Do not use a force greater than 8 in-lbf (0.904 N-m) on each mounting screw during motherboard installation. Exceeding this force may over-torque the screw, causing damage to the motherboard and screw.
-  **Note 2:** Some components are very close to the mounting holes. Take precautionary measures to avoid damaging these components when installing the motherboard to the chassis.

Installing the Motherboard

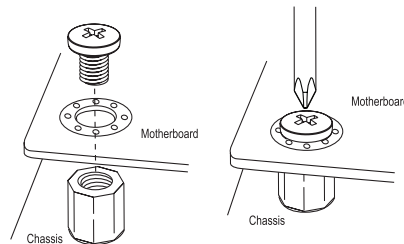
1. Install the I/O shield into the back of the chassis, if applicable.



2. Locate the mounting holes on the motherboard. See the previous page for the location.



3. Locate the matching mounting holes on the chassis. Align the mounting holes on the motherboard against the mounting holes on the chassis.



4. Install standoffs in the chassis as needed.
5. Install the motherboard into the chassis carefully to avoid damaging other motherboard components.
6. Using the torque driver, insert a pan head #6 screw into a mounting hole on the motherboard and its matching mounting hole on the chassis.
7. Repeat Step 6 to insert #6 screws into all mounting holes.
8. Check that the motherboard is securely placed in the chassis.



Note: Images displayed are for illustrative purposes only. Your chassis or components might look different from those shown in this manual.

2.4 Memory Support and Installation



Note: Check the Supermicro website for recommended memory modules.



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

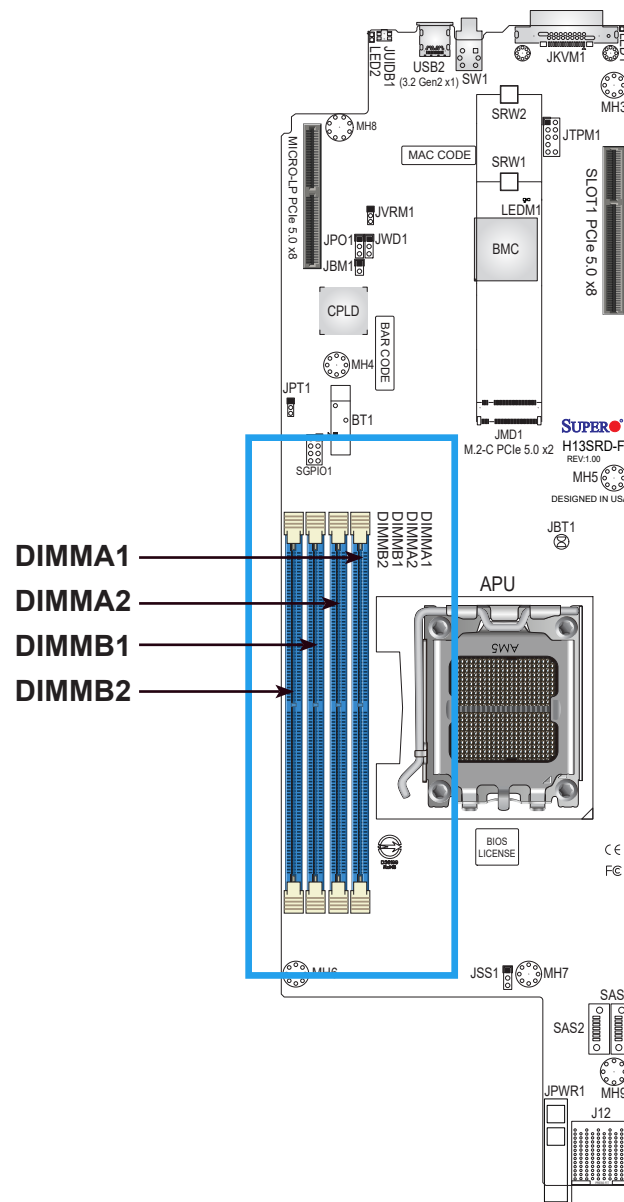
Memory Support

The H13SRD-F supports up to 192 GB of ECC and Non-ECC DDR5 UDIMM memory with speeds of up to 5600 MT/s in two DIMM slots or 3600 MT/s in four DIMM slots. Refer to the table below for DIMM support information.

1 Processor, 4 DIMM Slots							
Channel	DIMM Slot	DIMM Configuration and Maximum Memory Speed (MT/s)					
		1	2	3	4	5	6
Channel A	DIMMA1					Up to 3600 MT/s	Up to 3600 MT/s
	DIMMA2	Up to 5600 MT/s		Up to 5600 MT/s		Up to 3600 MT/s	Up to 3600 MT/s
Channel B	DIMMB1				Up to 3600 MT/s		Up to 3600 MT/s
	DIMMB2		Up to 5600 MT/s	Up to 5600 MT/s	Up to 3600 MT/s		Up to 3600 MT/s

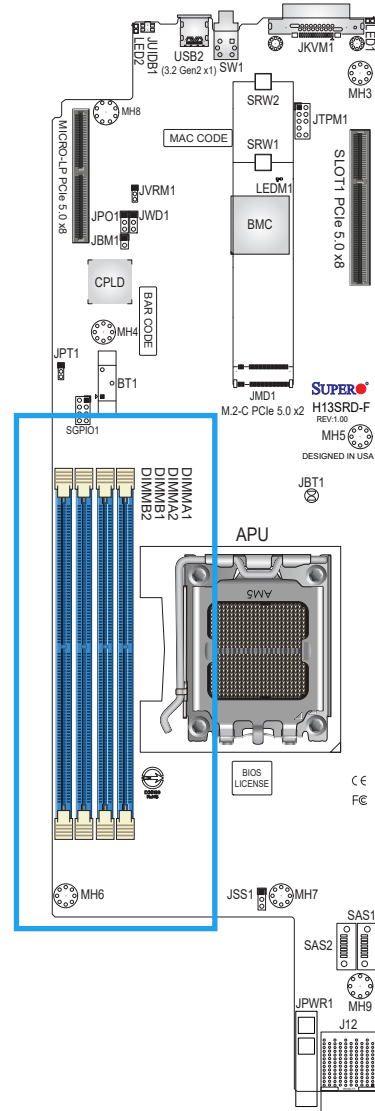
General Guidelines for Optimizing Memory Performance

- The blue or black slots must be populated first.
- It is recommended to use DDR5 memory of the same type, size, and speed.
- Mixed DIMM speeds can be installed. However, all DIMMs will run at the speed of the slowest DIMM.
- The motherboard will not support an odd-numbered amount of DIMM modules except for a single DIMM module necessary for board operation.



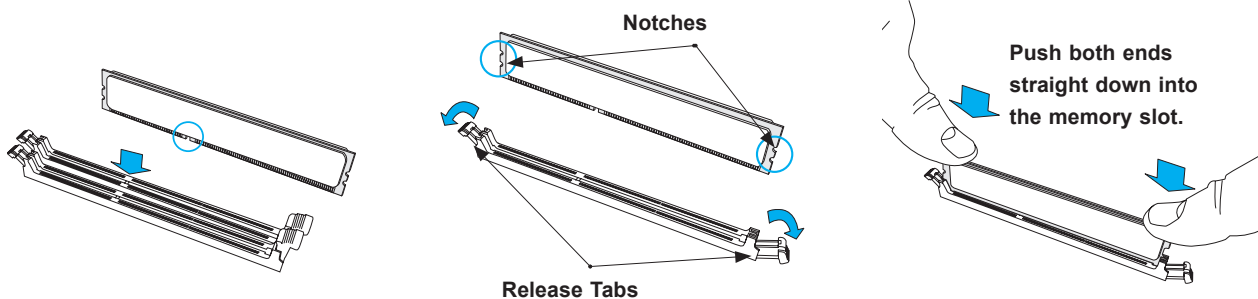
DIMM Installation

1. Insert DIMM modules in the following order: DIMMA2, DIMMB2, then DIMMA1, DIMMB1, and insert the desired number of DIMMs into memory slots based on the memory population sequence on page 30. For the system to work properly, use memory modules of the same type and speed.
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.
3. Align the key of the DIMM module with the receptive point on the memory slot.
4. Align the notches on both ends of the module against the receptive points on the ends of the slot.
5. Push both ends of the module straight down into the slot until the module snaps into place.
6. Press the release tabs to the lock positions to secure the DIMM module into the slot.



DIMM Removal

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



2.5 Rear Panel I/O Ports

See Figure 2-1 below for the locations and descriptions of the various I/O ports on the rear of the motherboard.

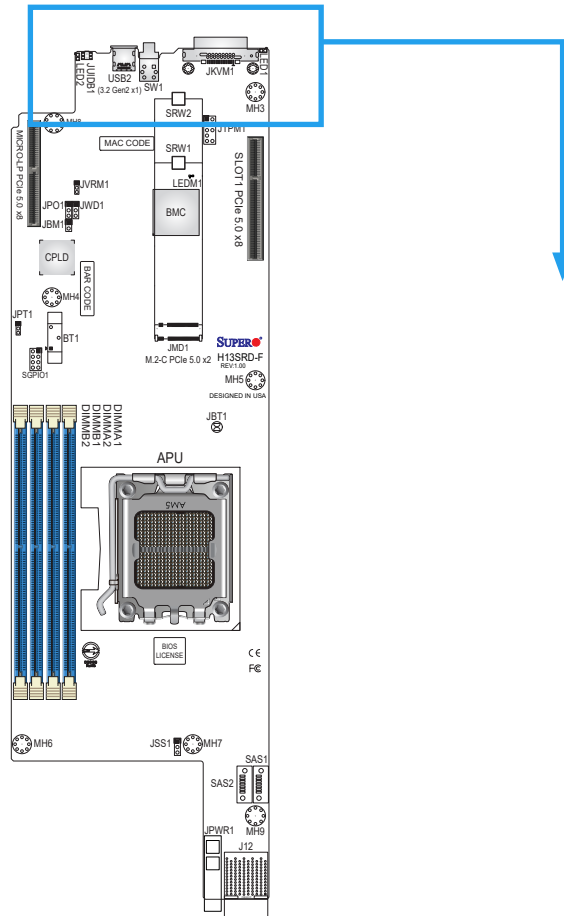


Figure 2-1. Rear Panel I/O Port Locations and Definitions



Rear Panel I/O Ports	
#	Description
1.	KVM Connector
2.	Power Switch, Power LED
3.	USB 3.2 Gen2 x1 (10 Gbps) Type-C
4.	Unit Identifier Button

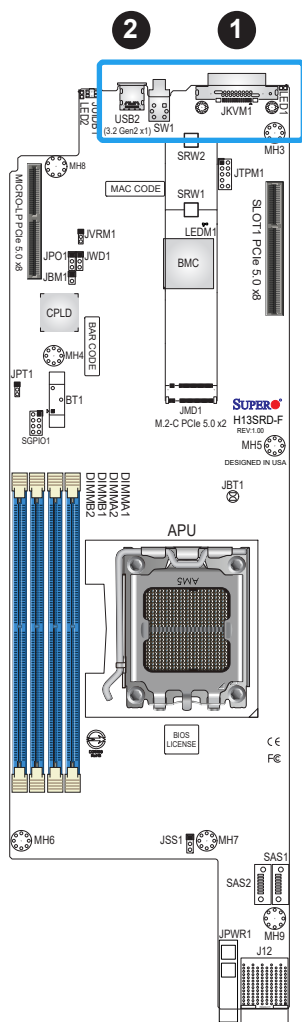
KVM Connector

The Keyboard, Video, and Mouse (KVM) connector at JKVM1 supports a set of keyboard, monitor, and mouse to control multiple computers. It also provides two USB 2.0 connections (USB0/1), one serial connection (COM1), and a VGA connection (VGA).

USB 3.2 Gen2 x1 (10 Gbps) Type-C Connector

There is one USB 3.2 Gen2 x1 (10 Gbps) Type-C connector on the rear I/O panel. This port provides access to USB2.

Rear I/O Panel USB 3.2 Gen2 x1 (10 Gbps) Type-C Pin Definitions			
Pin#	Definition	Pin#	Definition
A1	GND	B1	GND
A2	TX1+	B2	TX2+
A3	TX1-	B3	TX2-
A4	VBUS	B4	VBUS
A5	CC1	B5	CC2
A6	D1+	B6	D2+
A7	D1-	B7	D2-
A8	SB1	B8	SB2
A9	VBUS	B9	VBUS
A10	RX1-	B10	RX2-
A11	RX1+	B11	RX2+
A12	GND	B12	GND



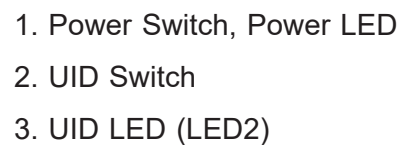
1. KVM Connector
2. USB 3.2 Gen2 x1 (10 Gbps) Type-C Connector

Press the button at SW1 to power on the motherboard. This button can also power off the motherboard instantly or when held for four seconds. The settings for this button can be configured with the Power Button Function feature in the UEFI BIOS.

A Unit Identifier (UID) switch and an LED Indicator are located on the motherboard. The UID switch is located at JUIDB1 on the rear panel I/O. The UID LED is located near the UID switch at LED2. When you press the UID switch, the UID LED will be turned on. Press the UID switch again to turn off the LED indicator. The UID Indicator provides easy identification of a system unit that may be in need of service.

 **Note:** UID can also be triggered via IPMI on the motherboard. For more information on IPMI, refer to the IPMI User's Guide posted on our website at <https://www.supermicro.com/support/manuals/>.

UID LED	
Pin Definitions	
Color	Status
Blue: On	Unit Identified

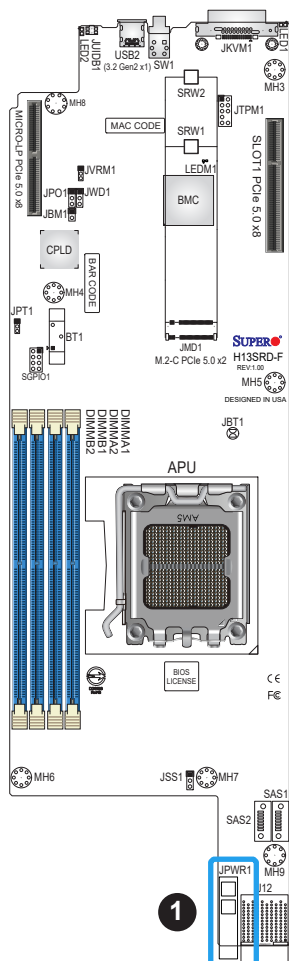


2.6 Connectors & Headers

Power Connections

Power Connector

JPWR1 is the 12 V input power connector for the backplane power connector.



1. Backplane power

Headers

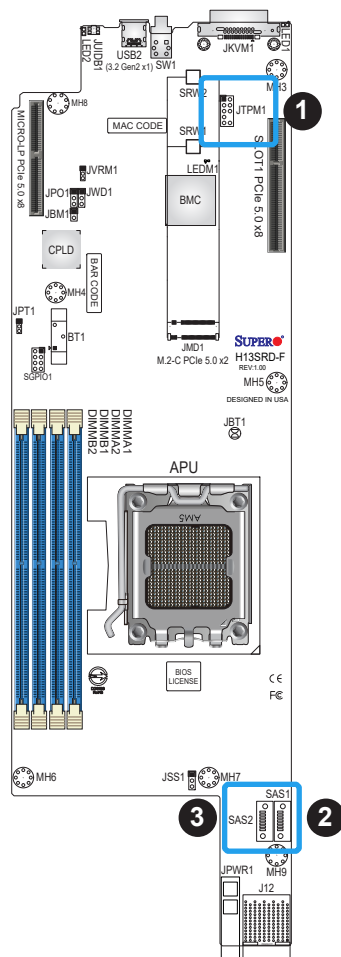
Trusted Platform Module (TPM)/Port 80

A Trusted Platform Module (TPM) header is located at JTPM1 to provide TPM support and a Port 80 connection. Use this header to enhance system performance and data security. Refer to the table below for pin definitions. 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	Key
9	+3.3 V	10	SPI_IRQ#

AOC SATA/SAS Input Connector

The AOC SATA/SAS Input Connector connects to an AOC SAS Card for SAS1 and SAS2. Jumper JSS1 allows enabling and disabling the function of these ports.

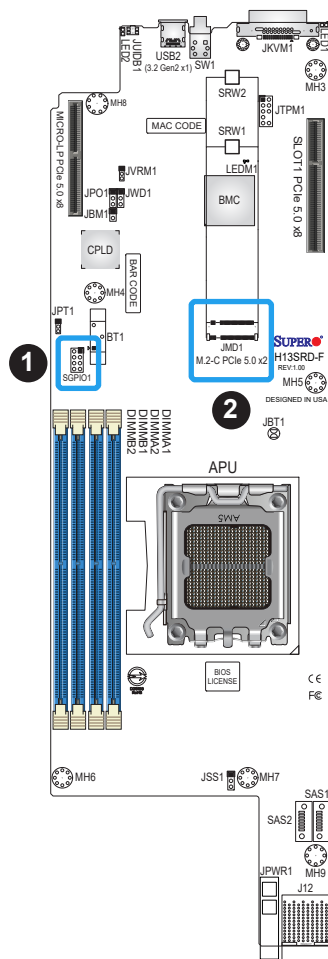


1. TPM/Port 80
2. SAS1
3. SAS2

There is one Serial Link General Purpose Input/Output (S-SGPIO) header located on the motherboard. Refer to the table below for pin definitions.

S-SGPIO Header			
Pin Definitions			
Pin#	Definition	Pin#	Definition
1	NC	2	NC
3	Ground	4	SSATA Data
5	SSATA Loa	6	Ground
7	SSATA Clock	8	NC

There is one M.2 slot located at JMD1. M.2 was formerly known as Next Generation Form Factor (NGFF) and serves to replace mini PCIe. M.2 allows for a variety of card sizes, increased functionality, and spatial efficiency. JMD1 supports an M-Key PCIe 5.0 x2 device in the 2280 and 22110 form factors.



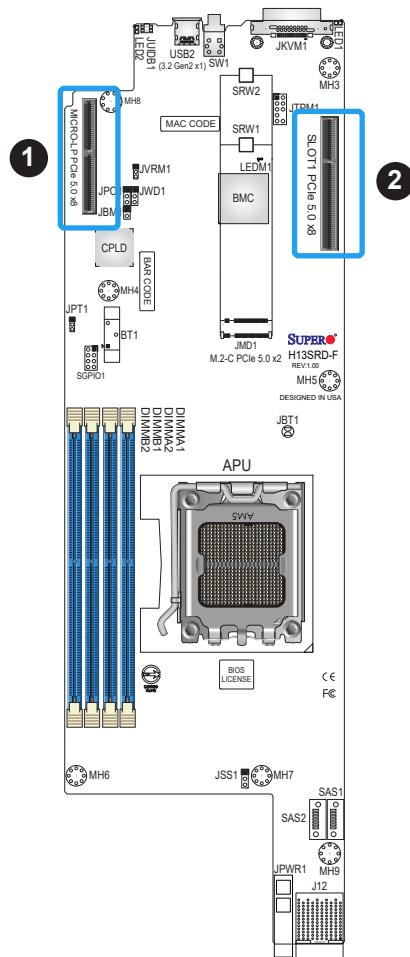
1. S-SGPIO Connector
2. M.2 M-Key 2280/22110 Connector

Micro Low-Profile PCIe 5.0 x8 Slot with two USB 2.0 connections

There is one Micro-LP PCIe 5.0 x8 slot with two USB 2.0 connections at J9. This slot is used for a Supermicro Micro-LP Network card.

PCIe 5.0 x8 Slot (Open-End support up to 75 W)

There is one PCIe 5.0 x8 Open-End Slot with 75 W power at J10. This slot is used for an Add-On Card (AOC).

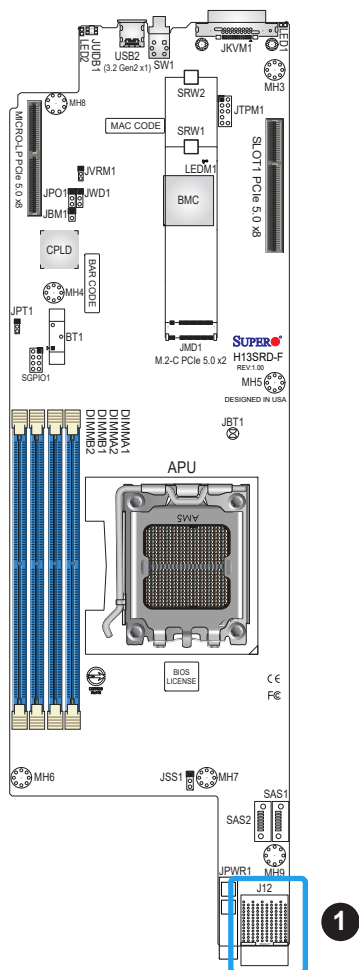


1. Micro-LP PCIe 5.0 x8 Slot

2. PCIe 5.0 x8 Open-End Slot

MicroCloud Backplane Connector

There is one MicroCloud Backplane Connector for 2x PCIe 5.0 x4 / Dedicated IPMI LAN / 2x AOC SATA/SAS at J12.



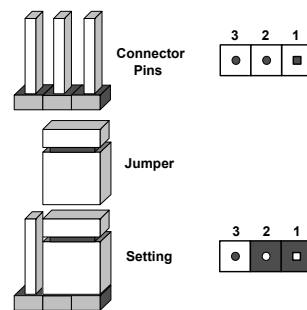
1. MicroCloud Backplane Connector

2.7 Jumper Settings

How Jumpers Work

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

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



CMOS Clear

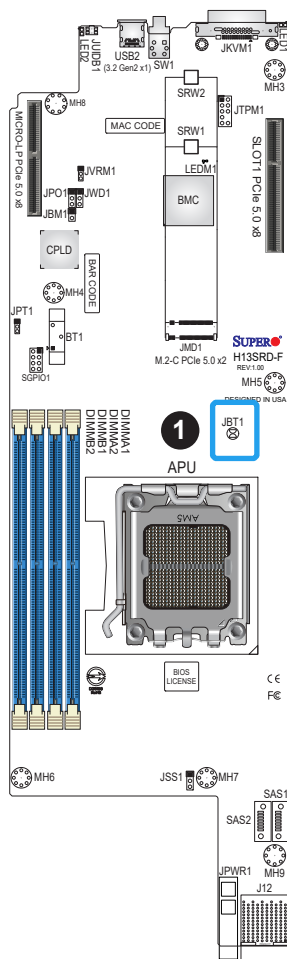
JBT1 is used to clear CMOS, which will also clear any passwords. Instead of pins, this jumper consists of contact pads to prevent accidentally clearing the contents of CMOS.

To Clear CMOS

1. First power down the system and unplug the power cord(s).
2. Remove the cover of the chassis to access the motherboard.
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 cord(s), and power on the system.



Note: Clearing CMOS will also clear all passwords.



JBT1 contact pads

1. CMOS Clear

AOC SAS Enable/Disable

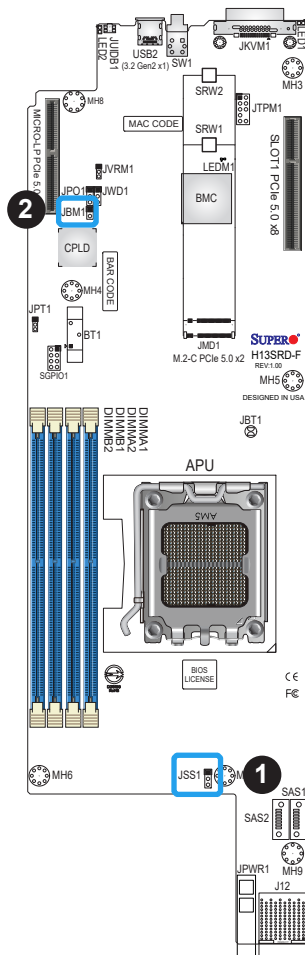
Change the setting of jumper JSS1 to configure the functionality of SAS1 and SAS2. The default setting is Disabled.

AOC SAS Enable/Disable Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Disabled (Default)
Pins 2-3	Enabled

IPMI Shared LAN

Set the jumper JBM1 to configure the IPMI shared access on LAN1. The default setting is Enabled.

IPMI Shared LAN Jumper Settings	
Jumper Setting	Definition
Pins 1-2 Open	Enabled (Default)
Pins 1-2 Closed	Disabled

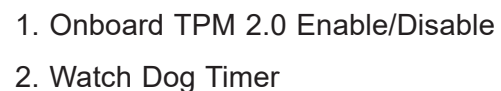


1. AOC SAS Enable/Disable
2. IPMI Shared LAN

Use JPT1 to enable or disable support for the onboard TPM 2.0 module. The default setting is Enabled.

Watch Dog Timer

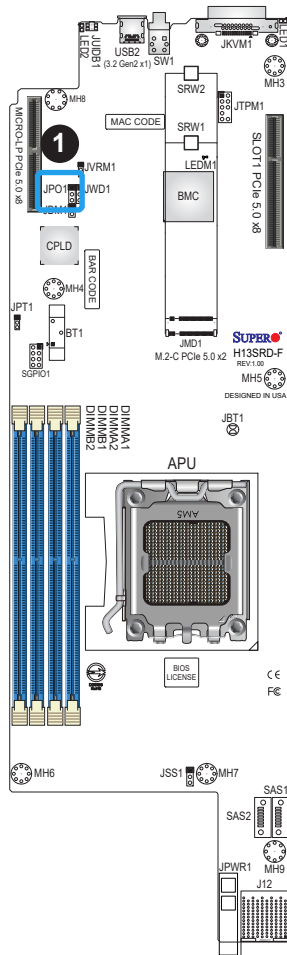
Watch Dog Timer Jumper Settings	
Jumper Setting	Definition
Pins 1-2	RST (default)
Pins 2-3	NMI
Open	Disabled



CPU Throttle when PWR_Fail

Jumper JPO1 can enable the CPU Throttle mechanism to protect the processor from damage due to excessive heat. This is a safeguard for preventing damage to the system. When an overheating condition occurs, thermal throttling kicks in. Three options are available to handle overheating: Power off, CPU Throttle – decrease CPU frequency to the minimum (800 Mhz), and Performance – do nothing.

CPU Throttle when PWR_Fail Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled (Default)



2.8 LED Indicators

OH/Power/Fan Fail LED

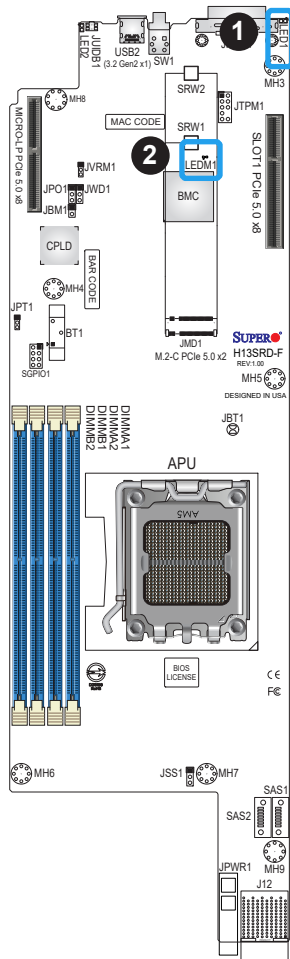
LED1 is the OH/Power/Fan Fail LED.

OH/Power/Fan Fail LED	
LED Color	Definition
Blinking Red	Power Fail or FAN Fail
Solid Red	Overheat

BMC Heartbeat LED

LEDM1 is the BMC Heartbeat LED. When the LED is blinking green, the BMC is working.

BMC Heartbeat LED	
Color/State	Definition
Blinking Green	BMC Normal



- 1. OH/Power/Fan Fail LED
- 2. BMC Heartbeat LED

Chapter 3

Troubleshooting

3.1 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' and/or 'Returning Merchandise for Service' section(s) in this chapter. Always disconnect the AC power cord before adding, changing or installing any non hot-swap hardware components.

Before Power On

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

No Power

1. Make sure that there are no short circuits between the motherboard and the chassis.
2. Make sure that the ATX power connectors are properly connected.
3. Check that the 115 V/230 V switch, if available, on the power supply is properly set.
4. Turn the power switch on and off to test the system, if applicable.
5. The battery on your motherboard may be old. Check to verify that it still supplies approximately 3 VDC. If it does not, replace it with a new one.

No Video

1. If the power is on but you have no video, remove all add-on cards and cables.
2. Use the speaker to determine if any beep codes are present. Refer to Appendix A for details on beep codes.
3. Remove all memory modules and turn on the system. If the alarm is on, check the specs of memory modules, reset the memory or try a different one.

System Boot Failure

If the system does not display POST or does not respond after the power is turned on, check the following:

1. Check for any error beep from the motherboard speaker.
 - If there is no error beep, try to turn on the system without DIMM modules installed. If there is still no error beep, replace the motherboard.
 - If there are error beeps, clear the CMOS settings by unplugging the power cord and contacting both pads on the CMOS clear jumper (JBT1). Refer to Section 2-7 in Chapter 2.
2. Remove all components from the motherboard, especially the DIMM modules. Make sure that system power is on and that memory error beeps are activated.
3. Turn on the system with only one DIMM module installed. If the system boots, check for bad DIMM modules or slots by following the Memory Errors Troubleshooting procedure in this chapter.

Memory Errors

When a no-memory beep code is issued by the system, check the following:

1. Make sure that the memory modules are compatible with the system and that the DIMMs are properly and fully installed. Click on the Tested Memory List link on the motherboard product page to see a list of supported memory.
2. Check if different speeds of DIMMs have been installed. It is strongly recommended that you use the same RAM type and speed for all DIMMs in the system.
3. Make sure that you are using the correct type of DIMM modules recommended by the manufacturer.
4. Check for bad DIMM modules or slots by swapping a single module among all memory slots and check the results.

5. Make sure that all memory modules are fully seated in their slots. Follow the instructions given in Section 2-4 in Chapter 2.
6. Follow the instructions given in the DIMM population tables listed in Section 2-4 to install your memory modules.

Losing the System's Setup Configuration

1. Make sure that you are using a high-quality power supply. A poor-quality power supply may cause the system to lose the CMOS setup information. Refer to Section 1-6 for details on recommended power supplies.
2. The battery on your motherboard may be old. Check to verify that it still supplies approximately 3 VDC. If it does not, replace it with a new one. If the above steps do not fix the setup configuration problem, contact your vendor for repairs.

When the System Becomes Unstable

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

1. APU/BIOS support: Make sure that your APU 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: Click on the Tested Memory List link on the motherboard product page to see a list of supported memory.

3. Storage drive support: Make sure that all storage drives work properly. Replace the bad storage drives with good ones.
4. System cooling: Check the system cooling to make sure that all heatsink fans and processor/system fans, etc., work properly. Check the hardware monitoring settings in the IPMI to make sure that the APU and system temperatures are within the normal range. Also check the rear 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 appropriate power connectors are connected. Refer to our website for more information on the minimum power requirements.
6. Proper software support: Make sure that the correct drivers are used.

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

3.2 Technical Support Procedures

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

1. Go through the Troubleshooting Procedures and Frequently Asked Questions (FAQ) sections in this chapter or see the FAQs on our website (<http://www.supermicro.com/FAQ/index.php>) before contacting Technical Support.
2. BIOS upgrades can be downloaded from our website (http://www.supermicro.com/ResourceApps/BIOS_IPMI_Intel.html).
3. If you still cannot resolve the problem, include the following information when contacting Supermicro for technical support:
 - Motherboard model and PCB revision number
 - BIOS release date/version (This can be seen on the initial display when your system first boots up.)
 - System configuration
4. An example of a Technical Support form is on our website at <https://webpr3.supermicro.com/SupportPortal/>.
 - Distributors: For immediate assistance, have your account number ready when placing a call to our Technical Support department. We can be reached by email at support@supermicro.com.

3.3 Frequently Asked Questions

Question: What type of memory does my motherboard support?

Answer: The motherboard supports up to 192 GB of ECC and Non-ECC DDR5 UDIMM memory with speeds of up to 5600 MT/s in two DIMM slots or 3600 MT/s in four DIMM slots. To enhance memory performance, do not mix memory modules of different speeds and sizes. Follow all memory installation instructions given on Section 2-4 in Chapter 2.

Question: How do I update my BIOS?

Answer: It is recommended that you **do not** upgrade your BIOS if you are not experiencing any problems with your system. Updated BIOS files are located on our website at http://www.supermicro.com/ResourceApps/BIOS_IPMI_Intel.html. Check our BIOS warning message and the information on how to update your BIOS on our website. Select your motherboard model and download the BIOS file to your computer. Also, check the current BIOS revision to make sure that it is newer than your BIOS before downloading. You can choose from the zip file and the .exe file. If you choose the zip BIOS file, unzip the BIOS file onto a bootable USB device. Run the batch file using the format FLASH.BAT filename.rom from your bootable USB device to flash the BIOS. Then, your system will automatically reboot.

Important: Do not shut down or reset the system while updating the BIOS to prevent possible system boot failure!



Note: The SPI BIOS chip used on this motherboard cannot be removed. Send your motherboard back to our RMA Department at Supermicro for repair. For BIOS Recovery instructions, refer to the AMI BIOS Recovery Instructions posted at <http://www.supermicro.com/support/manuals/>.

3.4 Battery Removal and Installation

Battery Removal

To remove the onboard battery, follow the steps below:

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

Proper Battery Disposal

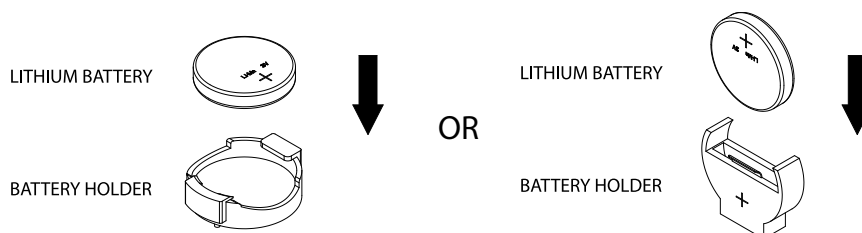
Handle used batteries carefully. Do not damage the battery in any way; a damaged battery may release hazardous materials into the environment. Do not discard a used battery in the garbage or a public landfill. Comply with the regulations set up by your local hazardous waste management agency to dispose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

Battery Installation

1. To install an onboard battery, follow steps 1 and 2 above and continue below:
2. Identify the battery's polarity. The positive (+) side should be facing up.
3. Insert the battery into the battery holder and push it down until you hear a click to ensure that the battery is securely locked.



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



3.5 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/>).

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.

Chapter 4

UEFI BIOS

4.1 Introduction

This chapter describes the AMIBIOS™ Setup utility for the motherboard. The BIOS is stored on a chip and can be easily upgraded using a flash program.



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

Starting the Setup Utility

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

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

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

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

4.2 Main Setup

When you first enter the AMI BIOS setup utility, you enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab on the top of the screen. The Main BIOS setup screen is shown below. The following Main menu items be displayed:



System Date/System Time

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



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

Supermicro H13SRD-F

BIOS Version

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

Build Date

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

CPLD Version

This feature displays the CPLD version.

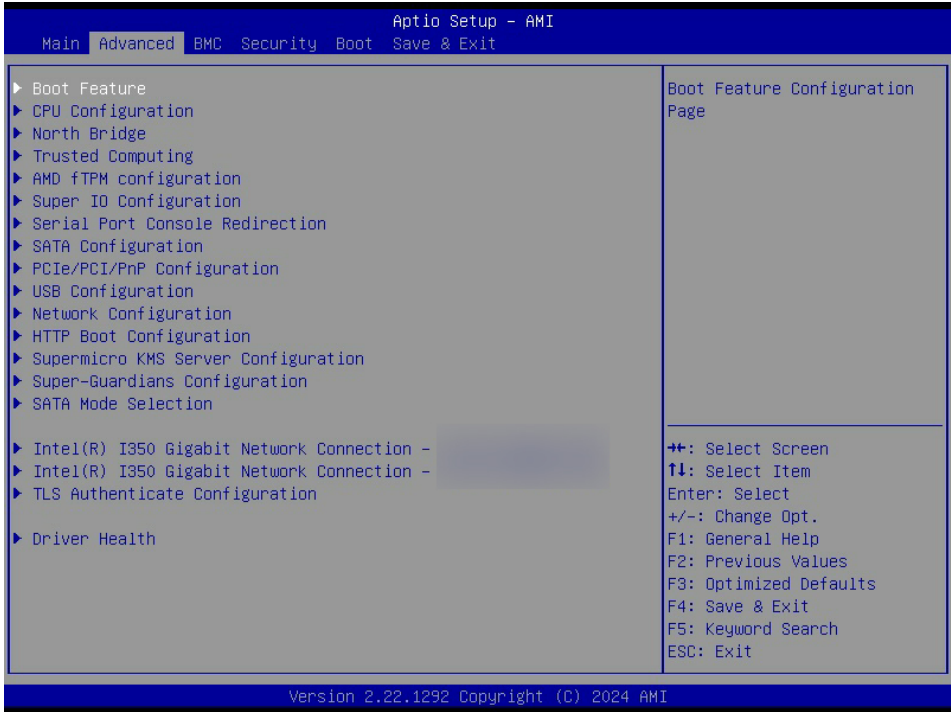
Memory Information

Total Memory

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

4.3 Advanced Setup Configurations

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



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

▶ Boot Feature

Quiet Boot

Use this feature to select the screen display between the POST messages or the OEM logo upon bootup. Select Disabled to display the POST messages. Select Enabled to display the OEM logo instead of the normal POST messages. The options are Disabled and **Enabled**.

 **Note:** BIOS Power-on Self Test (POST) messages are always displayed regardless of the setting of this feature.

Option ROM Messages

Use this feature to set the display mode for the Option ROM. Select Keep Current to use the current AddOn ROM display settings. Select Force BIOS to use the Option ROM display mode set by the system BIOS. The options are **Force BIOS** and Keep Current.

Bootup NumLock State

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

Wait For "F1" If Error

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

INT19 Trap Response

Interrupt 19 is the software interrupt that handles the boot disk function. When this feature is set to Immediate, the ROM BIOS of the host adaptors will "capture" Interrupt 19 at bootup immediately and allow the drives that are attached to these host adaptors to function as bootable disks. If this feature is set to Postponed, the ROM BIOS of the host adaptors will not capture Interrupt 19 immediately and allow the drives attached to these adaptors to function as bootable devices at boot up. The options are **Immediate** and Postponed.

Re-try Boot

When Extensible Firmware Interface (EFI) Boot is selected, the system BIOS will automatically reboot the system from an EFI boot device after an initial boot failure. The options are **Disabled** and EFI Boot.

Power Configuration**Watch Dog Function**

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

Restore on AC Power Loss

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

Power Button Function

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

►CPU Configuration

Module Version:

This feature displays the Module Version.

PSS Support

Use this feature to enable or disable the generation of ACPI_PCC, _PSS, and _PCT objects. The options are Disabled and **Enabled**.

PPC Adjustment (Available when PSS Support is set to "Enabled")

Use this feature to adjust _PPC, the PState object. The options are **PState 0** and PState 1.

NX Mode

Use this feature to enable or disable the No Execute (NX) page protection function. When this feature is Disabled, execution of code in memory pages will be prevented. The options are Disabled and **Enabled**.

SVM Mode

Use this feature to enable or disable CPU Virtualization. The options are Disabled and **Enabled**.

SMT Control

Use this feature to enable or disable simultaneous multithreading. The options are Disable and **Auto**.

Core Performance Boost

Use this feature to configure the Core Performance Boost mode. The options are Disabled and **Auto**.

►CPU Information

This feature displays general information about the CPU installed on the motherboard.

The following information is displayed:

- Socket0:
- Core(s) Running @ MHz and mV
- Processor Family:
- Processor Model:
- CPUID:

- Max Speed:
- Min Speed:
- Microcode Patch Level:

----- **Cache per core** -----

- L1 Instruction Cache:
- L1 Data Cache:
- L2 Cache:
- Total L3 Cache per Socket:

► North Bridge Configuration

Above 4G MMIO Limit

Use this feature to set the Above 4G MMIO Limit between 38 to 43 bits. This feature works only when "Above 4G Decoding is enabled" under "PCIe/PCI/PnP Configuration." The options are **40bit (1TB)**, 41bit (2TB), 42bit (4TB), 43bit (8TB), 44bit (16TB), 45bit (32TB), 46bit (64TB), 47bit (126TB), and 48bit (256TB).

IOMMU

Use this feature to enable or disable IOMMU. The options are Disabled, Enabled, and **Auto**.

Memory Information

The following information is displayed:

- Ending Address
- DIMMA1
- DIMMA2
- DIMMB1
- DIMMB2

► Trusted Computing

When a Trusted-Platform Module (TPM) device is detected in your machine, the following information will display:

- TPM 2.0 Device Found
- Firmware Version:
- Vendor:

Security Device Support

Select Enable to enable BIOS support for onboard security devices, which are not displayed in the OS. If this feature is set to Enable, TCG EFI protocol and INT1A interface will not be available. The options are Disable and **Enable**.

*When "Security Device Support" is set to Enable, the following information will display:

- Active PCR banks
- Available PCR banks

SHA256 PCR Bank (Available when "Security Device Support" is set to Enable)

Select Enabled to enable SHA256 PCR Bank support to enhance system integrity and data security. The options are **Enabled** and Disabled.

SHA384 PCR Bank (Available when "Security Device Support" is set to Enable)

Select Enabled to enable SHA384 PCR Bank support to enhance system integrity and data security. The options are **Enabled** and Disabled.

Pending Operation (Available when "Security Device Support" is set to Enable)

Use this feature to schedule a TPM-related operation to be performed by a security (TPM) device at the next system boot to enhance system data integrity. Your system will reboot to carry out a pending TPM operation. The options are **None** and TPM Clear.



Note: Your system will reboot to carry out a pending TPM operation.

Platform Hierarchy (Available when "Security Device Support" is set to Enable)

Select Enabled for TPM Platform Hierarchy support, which allows the manufacturer to use the cryptographic algorithm to define a constant key or a fixed set of keys to be used for initial system boot. These early boot codes are shipped with the platform and are included in the list of "public keys." During system boot, the platform firmware uses the trusted public keys to verify a digital signature in an attempt to manage and control the security of the platform firmware used in a host system via a TPM device. The options are Disabled and **Enabled**.

Storage Hierarchy (Available when "Security Device Support" is set to Enable)

Select Enabled for TPM Storage Hierarchy support that is intended to be used for non-privacy-sensitive operations by a platform owner such as an IT professional or the end user. Storage Hierarchy has an owner policy and an authorization value, both of which can be set and are held constant (-rarely changed) through reboots. This hierarchy can be cleared or changed independently of the other hierarchies. The options are Disabled and **Enabled**.

Endorsement Hierarchy (Available when "Security Device Support" is set to Enable)

Select Enabled for Endorsement Hierarchy support, which contains separate controls to address privacy concerns because the primary keys in the hierarchy are certified by the TPM key or by a manufacturer with restrictions on how an authentic TPM device that is attached to an authentic platform can be accessed and used. A primary key can be encrypted and certified with a certificate created by using TPM2_ActivateCredential, which allows you to independently enable "flag, policy, and authorization values" without involving other hierarchies. A user with privacy concerns can disable the endorsement hierarchy while still using the storage hierarchy for TPM applications, permitting the platform software to use the TPM. The options are Disabled and **Enabled**.

Device Select

When this feature is set to Auto, TPM 1.2 devices will be enumerated if TPM 2.0 are not detected. The options are TPM 2.0 and **Auto**.

►AMD fTPM Configuration**AMD fTPM Switch**

Use this feature to setup AMD fTPM. The options are AMD CPU fTPM and **Route to SPI TPM**.

Erase fTPM NV for factory reset

When a new CPU is installed, select "Enabled" to reset fTPM. If the system has BitLocker or an encryption-enable system, then the system will not boot without a recovery key. Select "Disabled" to keep the previous fTPM record and continue system boot. fTPM will not be enabled with a new CPU unless fTPM is reset (reinitialized). Swap back to the old CPU to recover TPM related keys and data. The options are Disabled and **Enabled**.

► Super IO Configuration

The following information is displayed:

- Super IO Chip

► Serial Port 1 Configuration

Serial Port 1

Select Enabled to enable serial port 1. The options are Disabled and **Enabled**.

Device Settings (Available when "Serial Port 1" is set to Enabled)

This feature displays the base I/O port address and the Interrupt Request address of serial port 1.

Change Settings (Available when "Serial Port 1" is set to Enabled)

This feature specifies the base I/O port address and the Interrupt Request address of serial port 1. Select Auto for the BIOS to automatically assign the base I/O and IRQ address to serial port 1. The options are **Auto**, (IO=3F8h; IRQ=4;), (IO=2F8h; IRQ=4;), (IO=3E8h; IRQ=4;), and (IO=2E8h; IRQ=4;).

► Serial Port 2 Configuration

Serial Port 2

Select Enabled to enable serial port 2. The options are Disabled and **Enabled**.

Device Settings (Available when "Serial Port 2" is set to Enabled)

This feature displays the base I/O port address and the Interrupt Request address of serial port 1.

Change Settings (Available when "Serial Port 2" is set to Enabled)

This feature specifies the base I/O port address and the Interrupt Request address of SOL. Select Auto for the BIOS to automatically assign the base I/O and IRQ address to serial port 1. The options are **Auto**, (IO=2F8h; IRQ=3;), (IO=3F8h; IRQ=3;), (IO=3E8h; IRQ=3;), and (IO=2E8h; IRQ=3;).

Serial Port 2 Attribute

Select SOL to use this serial port as a Serial Over LAN (SOL) port for console redirection. The options are **SOL** and COM.

► Serial Port Console Redirection

COM1

Console Redirection

Select Enabled to enable the COM port for Console Redirection, which will allow a client machine to be connected to a host machine at a remote site for networking. The options are **Disabled** and Enabled.

► Console Redirection Settings (Available when "Console Redirection" above is set to Enabled)

Terminal Type

Use this feature to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII Character set. Select VT100Plus to add color and function key support. Select ANSI to use the Extended ASCII Character Set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are VT100, **VT100Plus**, VT-UTF8, and ANSI.

Bits Per Second

Use this feature to set the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 38400, 57600, and **115200** (bits per second).

Data Bits

Use this feature to set the data transmission size for Console Redirection. The options are 7 and **8** (bits).

Parity

A parity bit can be sent along with regular data bits to detect data transmission errors. Select Even if the parity bit is set to 0, and the number of 1's in data bits is even. Select Odd if the parity bit is set to 0, and the number of 1's in data bits is odd. Select None if you do not want to send a parity bit with your data bits in transmission. Select Mark to add a mark as a parity bit to be sent along with the data bits. Select Space to add a Space as a parity bit to be sent with your data bits. The options are **None**, Even, Odd, Mark, and Space.

Stop Bits

A stop bit indicates the end of a serial data packet. Select 1 Stop Bit for standard serial data communication. Select 2 Stop Bits if slower devices are used. The options are **1** and 2.

Flow Control

Use this feature to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None** and Hardware RTS/CTS.

VT-UTF8 Combo Key Support

Select Enabled to enable VT-UTF8 Combination Key support for ANSI/VT100 terminals. The options are Disabled and **Enabled**.

Recorder Mode

Select Enabled to capture the data displayed on a terminal and send it as text messages to a remote server. The options are **Disabled** and Enabled.

Resolution 100x31

Select Enabled for extended-terminal resolution support. The options are Disabled and **Enabled**.

Putty KeyPad

This feature selects Function Keys and KeyPad settings for Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, LINUX, XTERMR6, SCO, ESCN, and VT400.

SOL

Console Redirection

Select Enabled to enable the COM port for Console Redirection, which will allow a client machine to be connected to a host machine at a remote site for networking. The options are Disabled and **Enabled**.

► Console Redirection Settings (Available when "Console Redirection" above is set to Enabled)

Terminal Type

Use this feature to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII Character set. Select VT100Plus to add color and function key support. Select ANSI to use the Extended ASCII Character Set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are VT100, **VT100Plus**, VT-UTF8, and ANSI.

Bits Per Second

Use this feature to set the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 38400, 57600, and **115200** (bits per second).

Data Bits

Use this feature to set the data transmission size for Console Redirection. The options are 7 and **8** (bits).

Parity

A parity bit can be sent along with regular data bits to detect data transmission errors. Select Even if the parity bit is set to 0, and the number of 1's in data bits is even. Select Odd if the parity bit is set to 0, and the number of 1's in data bits is odd. Select None if you do not want to send a parity bit with your data bits in transmission. Select Mark to add a mark as a parity bit to be sent along with the data bits. Select Space to add a Space as a parity bit to be sent with your data bits. The options are **None**, Even, Odd, Mark, and Space.

Stop Bits

A stop bit indicates the end of a serial data packet. Select 1 Stop Bit for standard serial data communication. Select 2 Stop Bits if slower devices are used. The options are **1** and 2.

Flow Control

Use this feature to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None** and Hardware RTS/CTS.

VT-UTF8 Combo Key Support

Select Enabled to enable VT-UTF8 Combination Key support for ANSI/VT100 terminals. The options are Disabled and **Enabled**.

Recorder Mode

Select Enabled to capture the data displayed on a terminal and send it as text messages to a remote server. The options are **Disabled** and Enabled.

Resolution 100x31

Select Enabled for extended-terminal resolution support. The options are Disabled and **Enabled**.

Putty KeyPad

This feature selects Function Keys and KeyPad settings for Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, LINUX, XTERMR6, SCO, ESCN, and VT400.

► Legacy Console Redirection Settings

Legacy Serial Redirection Port

Use this feature to select a COM port to display redirection of Legacy OS and Legacy OPRM messages. The options are **COM1** and SOL. Note that the options displayed are based on your motherboard.

Resolution

Use this feature to select the number of rows and columns used in Console Redirection for Legacy OS support. The options are 80x24 and **80x25**.

Redirection After BIOS POST

Use this feature to enable or disable legacy console redirection after BIOS POST. When BootLoader is selected, legacy console redirection is disabled before booting the OS. When Always Enable is selected, legacy console redirection remains enabled upon OS bootup. The options are **Always Enable** and BootLoader.

Serial Port for Out-of-Band Management/Windows Emergency Management Services (EMS)

The feature allows you to configure Console Redirection settings to support Out-of-Band Serial Port management.

Console Redirection EMS

Select Enabled to use the SOL port for Console Redirection. The options are **Disabled** and Enabled.

► Console Redirection Settings (Available when "Console Redirection EMS" above is set to Enabled)

Out-of-Band Mgmt Port

The feature selects a serial port in a client server to be used by the Microsoft Windows Emergency Management Services (EMS) to communicate with a remote host server. The options are **COM1** and SOL. Note that the SOL option is unavailable if there is no BMC support.

Terminal Type EMS

Use this feature to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII character set. Select VT100Plus to add color and function key support. Select ANSI to use the extended ASCII character set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are VT100, VT100Plus, **VT-UTF8**, and, ANSI.

Bits Per Second EMS

This feature sets the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 57600, and **115200** (bits per second).

Flow Control EMS

Use this feature to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None**, Hardware RTS/CTS, and Software Xon/Xoff.

The following information is displayed:

- Data Bits EMS
- Parity EMS
- Stop Bits EMS

► SATA Configuration

SATA Mode

Use this feature to set the SATA mode. The options are RAID Mode, and **AHCI Mode**.

► PCIe/PCI/PnP Configuration

The following information is displayed:

- PCI Bus Driver Version

PCI Devices Common Settings:

Above 4G Decoding (Available when the system supports 64-bit PCI decoding)

Select Enabled to decode a PCI device that supports 64-bit in the space above 4G Address. The options are Disabled and **Enabled**.

Re-Size BAR Support

When this feature is set to Enabled, resizable Base Address Register (BAR) will be available for PCIe devices that support this feature. The options are Disabled and **Enabled**.

SR-IOV Support

Select Enabled for Single-Root IO Virtualization support. The options are **Disabled** and Enabled.

BME DMA Mitigation

If this setting is set to Enabled, the PCI Bus Driver will enable the Bus Master Attribute for DMA transactions. If this setting is set to Disabled, the PCI Bus Driver will disable the Bus Master Attribute for Pre-Boot DMA protection. The options are **Disabled** and Enabled.

ASPM Support

Use this feature to set the Active State Power Management (ASPM) level. When this feature is set to Force L0s, all links will be forced to L0s State. When this feature is set to Auto, BIOS auto-configures ASPM. The options are **Disabled**, Auto, and Force L0s.

Relaxed Ordering

Use this feature to enable or disable Relaxed Ordering support. Relaxed Ordering allows certain transaction to violate PCI bus strict-ordering rules for a transaction to be completed prior to other enqueued transactions. The options are Disabled and **Enabled**.

No Snoop

Use this feature to enable or disable PCIe device snooping. The options are Disabled and **Enabled**.

NVMe Firmware Source

Use this feature to select the NVMe firmware to support booting. The options are **Vendor Defined Firmware** and AMI Native Support. The default option, Vendor Defined Firmware, is pre-installed on the drive and may resolve errata or enable innovative functions for the drive. The other option, AMI Native Support, is offered by the BIOS with a generic method.

NVMe RAID Mode

Use this feature to enable or disable NVMe RAID mode. The options are **Disabled** and Enabled.

SLOT1 PCIe 5.0 x8 / MICRO-LP PCIe 5.0 x8 / M.2-C OPRM

Select EFI to allow you to boot the computer using the EFI device installed on the PCIe slot specified. The options are Disabled and **EFI**.

►USB Configuration

The following information is displayed:

- USB Devices

XHCI Hand-off

This is a work-around solution for operating systems that do not support Extensible Host Controller Interface (XHCI) hand-off. The XHCI ownership change should be claimed by the XHCI driver. The options are **Enabled** and Disabled.

Port 60/64 Emulation

Select Enabled for I/O port 60h/64h emulation support, which provides complete legacy USB keyboard support for operating systems that do not support legacy USB devices. The options are Disabled and **Enabled**.

►Network Configuration

Network Stack

Select Enabled to enable Preboot Execution Environment (PXE) or Unified Extensible Firmware Interface (UEFI) for network stack support. The options are Disabled and **Enabled**.

IPv4 PXE Support (Available when "Network Stack" is set to Enabled)

Select Enabled to enable IPv4 PXE boot support. If this feature is disabled, it will not create the IPv4 PXE boot option. The options are Disabled and **Enabled**.

IPv4 HTTP Support (Available when "Network Stack" is set to Enabled)

Select Enabled to enable IPv4 HTTP boot support. If this feature is disabled, it will not create the IPv4 HTTP boot option. The options are **Disabled** and Enabled.

IPv6 PXE Support (Available when "Network Stack" is set to Enabled)

Select Enabled to enable IPv6 PXE boot support. If this feature is disabled, it will not create the IPv6 PXE boot option. The options are Disabled and **Enabled**.

IPv6 HTTP Support (Available when "Network Stack" is set to Enabled)

Select Enabled to enable IPv6 HTTP boot support. If this feature is disabled, it will not create the IPv6 HTTP boot option. The options are **Disabled** and Enabled.

PXE Boot Wait Time (Available when "Network Stack" is set to Enabled)

Use this feature to set the wait time (in seconds) that the system BIOS will wait for you to press the <ESC> key to abort PXE boot instead of proceeding with PXE boot by connecting to a network server immediately. Press <+> or <-> on your keyboard to change the value. The default setting is **0**.

Media Detect Count

Use this feature to select the wait time (in seconds) for the BIOS ROM to detect the presence of a LAN media either via the Internet connection or via a LAN port. Press <+> or <-> on your keyboard to change the value. The default setting is 1.

► MAC:XX:XX:XX:XX:XX:XX-IPv4 Network Configuration

► MAC:XX:XX:XX:XX:XX:XX-IPv4 Network Configuration

Configured

Select Enabled to show whether the network address has been successfully configured. The options are **Disabled** and Enabled.

Enabled DHCP (Available when "Configured" is set to Enabled)

Select Enabled to support Dynamic Host Configuration Protocol (DHCP). DHCP allows the BIOS to search for a DHCP server attached to the network and request the next available IP address for this computer. The options are **Disabled** and Enabled.

Local IP Address (Available when "Configured" is set to Enabled and "Enabled DHCP" is set to Disabled)

Use this feature to enter an IP address for the local machine.

Local NetMask (Available when "Configured" is set to Enabled and "Enabled DHCP" is set to Disabled)

Use this feature to set the netmask for the local machine.

Local Gateway (Available when "Configured" is set to Enabled and "Enabled DHCP" is set to Disabled)

Use this feature to set the gateway address for the local machine.

Local DNS Servers (Available when "Configured" is set to Enabled and "Enabled DHCP" is set to Disabled)

Use this feature to set the Domain Name System (DNS) server address for the local machine.

Save Changes and Exit

Press <Enter> to save changes and exit. The options are Yes and No.

► **MAC:XX:XX:XX:XX:XX:XX-IPv6 Network Configuration**

► **MAC:XX:XX:XX:XX:XX:XX-IPv6 Network Configuration**

► **Enter Configuration Menu**

The following information is displayed:

- Interface Name
- Interface Type
- MAC address
- Host addresses
- Route Table
- Gateway addresses
- DNS addresses

Interface ID

Use this feature to change/enter the 64 bit alternative interface ID for the device. The string format is colon separated. The default setting is the MAC address above.

DAD Transmit Count

This feature displays the number of consecutive neighbor solicitation messages that have been sent while performing duplicate address detection on a tentative address.

Policy

Use this feature to select how the policy is to be configured. The options are **automatic** and **manual**.

► **Advanced Configuration (Available when "Policy" is set to manual)**

New IPv6 address

Use this feature to enter the IPv6 address for the local machine.

New Gateway addresses

Use this feature to set the gateway address for the local machine.

New DNS addresses

Use this feature to set the DNS server address for the local machine.

Commit Changes and Exit

Press <Enter> to save changes and exit.

Discard Changes and Exit

Press <Enter> to discard changes and exit.

Save Changes and Exit

Press <Enter> to save changes and exit. The options are Yes and No.

► HTTP Boot Configuration

HTTP Boot Policy

Use this feature to set the HTTP boot policy. The options are Apply to all LANs, **Apply to each LAN**, and Boot Priority #1 instantly.

HTTPS Boot Checks Hostname

Use this feature to allow HTTPS Boot to check if the hostname of the TLS certificate matches the hostname provided by the remote server. Selecting Disabled is a violation of RFC6125. The options are **Enabled** and Disabled (WARNING: Security Risk!!).

Priority of HTTP Boot**Instance of Priority 1**

This feature sets the rank target port. The default setting is **1**.

Select IPv4 or IPv6 (Available when "Instance of Priority 1" is greater than 0)

This feature specifies which connection the target LAN port should boot from. The options are **IPv4** and IPv6.

Boot Description (Available when "Instance of Priority 1" is greater than 0)

Use this feature to enter a boot description. The boot description cannot be longer than 75 characters. Be sure to enter a boot description, otherwise the boot option for the URI cannot be created.

Boot URI (Available when "Instance of Priority 1" is greater than 0)

Enter a Boot Uniform Research Identifier (URI). The boot URI cannot be longer than 128 characters. This Boot URI determines how IPv4 Boot Option and IPv6 Boot Option will be created. This feature is only supported on EFI Boot Mode.

► Supermicro KMS Server Configuration

Supermicro KMS Server IP address

Use this feature to enter the Supermicro Key Management Service (KMS) server IPv4 address in dotted-decimal notation.

Second Supermicro KMS Server IP address

Use this feature to enter the second Supermicro KMS server IPv4 address in dotted-decimal notation.

Supermicro KMS TCP Port number

Use this feature to enter the Supermicro KMS TCP port number. The valid range is 100 - 9999. The default setting is **5696**.

KMS Time Out

Use this feature to enter the KMS server connecting time-out (in seconds). The default setting is **5** (seconds).

TimeZone

Use this feature to enter the correct time zone. The default setting is **0** (not specified).

Client UserName

Press <Enter> to set the client identity (UserName). The length is 0 – 63 characters.

Client Password

Press <Enter> to set the client identity (Password). The length is 0 – 31 characters.

KMS TLS Certificate / Size

This feature displays the Transport Layer Security (TLS) certificate and its size for CA Certificate, Client Certificate, and Client Private Key.

►CA Certificate

For the CA certificate, use this feature to enroll factory defaults or load the KMS TLS certificates from the file. The options are **Update**, Delete, and Export.

►Client Certificate

For the client certificate, use this feature to enroll factory defaults or load the KMS TLS certificates from the file. The options are **Update**, Delete, and Export.

►Client Private Key

For the client private key, use this feature to enroll factory defaults or load the KMS TLS certificates from the file. The options are **Update**, Delete, and Export.

► Super-Guardians Configuration

Super Guardians is a unified security solution to facilitate KMS, TPM, or USB-based authentication controls for Supermicro X13 motherboards. Use this submenu to configure the authentication policy, method, and KMS server settings.

Super-Guardians Protection Policy

Use this feature to enable the Super-Guardians Protection Policy. The options are **Storage**, **System**, and **"System and Storage."** Set this feature to **Storage** to protect and have secure access to Trusted Computing Group (TCG) NVMe devices with the Authentication-Key (AK). Set this feature to **System** to protect and have secure access to your system/motherboard with the AK. Set this feature to **"System and Storage"** to protect and have secure access to your TCG NVMe devices/system/motherboard with the AK.

KMS Security Policy

Set this feature to **Enabled** to enable the Key Management Service (KMS) Security Policy. When this feature has not previously been set to **Enabled**, the options are **Disabled** and **Enabled**. Changes take effect after you save settings and reboot the system.



Note 1: Be sure that the KMS server is ready before configuring this feature.



Note 2: Use the professional KMS server solutions (e.g., Thales Server) or the Supermicro PyKMIP Software Package to establish the KMS server.

When this feature has previously been set to **Enabled**, the options are **Enabled**, **Reset**, and **Key Rotation**. Set this feature to **Key Rotation** to obtain an existing Authentication-Key from the KMS server and create a new Authentication-Key. To disable the KMS Security Policy, set this feature to **Reset**. When this feature is set to **reset**, the system and TCG NVMe devices chosen in "Super-Guardians Protection Policy" will be in the unprotected mode.

KMS Server Retry Count

Use this feature to specify how many times the system will attempt reconnecting to the KMS server. Press <+> or <-> on your keyboard to change the value. The default setting is **5**. If the value is **0**, the system will retry infinitely. The valid range is 0 to 10.

TPM Security Policy

Use this feature to enable or disable the TPM Security Policy. When this feature has not previously been set to Enabled, the options are **Disabled** and Enabled. Changes take effect after you save settings and reboot the system.



Note: Install a Trusted Platform Module 2.0 device to your system before configuring this feature.

When this feature has previously been set to Enabled, the options are **Enabled** and Reset. To disable the TPM Security Policy, set this feature to Reset. When this feature is set to reset, the system and TCG NVMe devices chosen in "Super-Guardians Protection Policy" will be in the unprotected mode.

Load Authentication-Key

Use this feature to toggle whether the BIOS should automatically load an Authentication-Key named TPMAuth.bin from a USB flash drive. The options are **Disabled** and Enabled. Set this feature to Enabled to load the Authentication-Key. After an Authentication Key is loaded, this option will be reset to Disabled. Changes take effect after you save settings and reboot the system.



Note 1: Connect a USB flash drive with the Authentication-Key (TPMAuth.bin) to your system before configuring this feature.



Note 2: Load the Authentication-Key after installing a TPM device. The TPM function will not work properly without an Authentication-Key.

Save Authentication-Key

Use this feature to toggle whether the BIOS should automatically save an Authentication-Key with the name TPMAuth.bin to a USB flash drive. The options are **Disabled** and Enabled. After an Authentication Key is saved, this option will be reset to Disabled. Changes take effect after you save settings and reboot the system.



Note 1: Connect a USB flash drive to your system before configuring this feature. Save the Authentication-Key and keep a backup.



Note 2: Load the Authentication-Key after installing a TPM device. The TPM function will not work properly without an Authentication-Key.

USB Security Policy

Use this feature to configure USB Security Policy settings. When this feature has not previously been set to Enabled, this feature will toggle whether the BIOS should automatically save a USB Authentication-Key named "USBAuth.bin" to a USB flash drive and begin the USB Security Policy. The options are **Disabled** and Enabled. Changes take effect after you save settings and reboot the system.



Note: Connect a USB flash drive to your system before configuring this feature. Save the USB Authentication-Key and keep a backup.

When this feature has been previously set to Enabled, the options are **Enabled** and Reset. To disable the USB Security Policy, set this feature to Reset. When this feature is set to reset, the system and TCG NVMe devices chosen in "Super-Guardians Protection Policy" will be in the unprotected mode.

► SATA Mode Selection

SATA 1 and 2 Storage RAID Support

The options are **Disabled**, RAID 0, and RAID 1. This feature is only for onboard SATA Port 1 and 2.

► Intel(R) I350 Gigabit Network Connection - XX:XX:XX:XX:XX:XX

► Intel(R) I350 Gigabit Network Connection - XX:XX:XX:XX:XX:XX



Note 1: This feature is available when "Onboard LAN Option ROM Type" is set to EFI.



Note 2: The Ethernet controller and MAC addresses shown above are based on your system.

► NIC Configuration

Link Speed

Use this feature to specify a port speed for the selected boot protocol. The default option is **Auto Negotiated**.

Wake On LAN

If this feature is set to Enabled, the LAN port will be enabled when the system is powered on. The options are Disabled and **Enabled**.

Blink LEDs

Use this feature to identify the physical network port by blinking the associated LED. The default setting is **0** (up to 15 seconds).

The following information is displayed:

- UEFI Driver
- Adapter PBA
- Device Name
- Chip Type
- PCI Device ID
- PCI Address
- Link Status
- MAC Address
- Virtual MAC Address

► TLS Authentication Configuration

This submenu allows you to configure Transport Layer Security (TLS) settings.

► Server CA Configuration

This feature allows you to configure the client certificate that is to be used by the server.

► Enroll Certification

This feature allows you to enroll the certificate in the system.

► Enroll Certification Using File

This feature allows you to enroll the security certificate in the system by using a file.

Certification GUID

Press <Enter> and input the certification Global Unique Identifier (GUID).

► Commit Changes and Exit

Use this feature to save all changes and exit TLS settings.

► Discard Changes and Exit

Use this feature to discard all changes and exit TLS settings.

► Delete Certification

This feature is used to delete the certificate if it has been enrolled in the system. The options are **Disabled** and **Enabled**.

► Client Certification Configuration

This feature allows you to configure the client certificate to be used by the server.

► Enroll Certification

This feature allows you to enroll the certificate in the system.

► Enroll Certification Using File

This feature allows you to enroll the security certificate in the system by using a file.

Certification GUID

Press <Enter> and input the certification Global Unique Identifier (GUID).

► Commit Changes and Exit

Use this feature to save all changes and exit TLS settings.

► Discard Changes and Exit

Use this feature to discard all changes and exit TLS settings.

► Delete Certification

This feature is used to delete the certificate if a certificate has been enrolled in the system.

► Driver Health

This feature displays the health information of the drivers installed in your system, including LAN controllers, as detected by the BIOS. Select one and press <Enter> to see the details.



Note: This section is provided for reference only, for the driver health status will differ depending on the drivers installed in your system. It's also based on your system configuration and the environment that your system is operating in.

4.4 BMC

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



BMC Firmware Revision

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

BMC STATUS

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

► System Event Log

Enabling/Disabling Options

SEL Components

Select Enabled to enable all system event logging upon system boot. The options are Disabled and **Enabled**.

Erasing Settings

Erase SEL

Select (Yes, On next reset) to erase all system event logs upon next system boot. Select (Yes, On every reset) to erase all system event logs upon each system reboot. Select No to keep all system event logs after each system reboot. The options are **No**, (Yes, On next reset), and (Yes, On every reset).

When SEL is Full

This feature allows you to determine what the BIOS should do when the system event log is full. Select Erase Immediately to erase all events in the log when the system event log is full. The options are **Do Nothing** and Erase Immediately.



Note: After making changes on a setting, be sure to reboot the system for the changes to take effect.

► BMC Network Configuration

Update BMC LAN Configuration

Select Yes for the BIOS to implement all IP/MAC address changes upon next system boot. The options are **No** and Yes.

Configure IPv4 Support

BMC LAN Selection

Use this feature to select the type of the BMC LAN. The default setting is **Failover**.

BMC Network Link Status:

This feature displays the status of the BMC network link for this system. The default setting is **Dedicated LAN**.

Configuration Address Source (Available when "Update BMC LAN Configuration" is set to Yes)

Use this feature to select the source of the IPv4 connection. If Static is selected, you will need to know the IP address of IPv4 connection and enter it to the system manually in the field. If DHCP is selected, the BIOS will search for a Dynamic Host Configuration Protocol (DHCP) server in the network that is attached to and request the next available IP address for this computer. The options are Static and **DHCP**.

Station IP Address (Available when "Configuration Address Source" is set to Static)

This feature displays the Station IP address in decimal and in dotted quad form (i.e., 172.29.176.131).

Subnet Mask (Available when "Configuration Address Source" is set to Static)

This feature displays the sub-network that this computer belongs to. The value of each three-digit number separated by dots should not exceed 255.

Station MAC Address (Available when "Configuration Address Source" is set to Static)

This feature displays the Station MAC address for this computer. Mac addresses are six two-digit hexadecimal numbers.

Gateway IP Address (Available when "Configuration Address Source" is set to Static)

This feature displays the Gateway IP address for this computer. This should be in decimal and in dotted quad form (i.e., 172.29.0.1).

Configure IPv6 Support

IPv6 Address Status

This feature displays the status of the IPv6 address.

IPv6 Support

Use this feature to enable IPv6 support. The options are **Enabled** and Disabled.

Configuration Address Source (Available when "IPv6 Support" is set to Enabled)

Use this feature to select the source of the IPv6 connection. If Static Configuration is selected, you will need to know the IP address of IPv6 connection and enter it to the system manually in the field. If the Dynamic Host Configuration Protocol (DHCP) related option is selected, the BIOS will search for a DHCP server in the network that is attached to and request the next available IP address for this computer. The options are Static Configuration, **DHCPv6 Stateless**, and DHCPv6 Stateful.

IPv6 Address (Static) (Available when "Configuration Address Source" is set to Static Configuration)

This feature displays the station IPv6 address. Press <Enter> to change the setting.

Prefix Length (Available when "Configuration Address Source" is set to Static Configuration)

This feature displays the prefix length. Press <Enter> to change the setting.

Gateway IP (Available when "Configuration Address Source" is set to Static Configuration)

Use this feature to enter the IPv6 gateway IP address. Press <Enter> to change the setting.

Advanced Settings (Available when "Configuration Address Source" is set to DHCPv6 Stateless)

Use this feature to select if the Domain Name System (DNS) server IP address should be found automatically. The options are **Auto obtain DNS server IP** and Manually obtain DNS server IP.

Preferred DNS server IP (Available when "Advanced Settings" is set to Manually obtain DNS server IP)

Use this feature to enter the DNS server IP address. Press <Enter> to change the setting.

Alternative DNS server IP (Available when "Advanced Settings" is set to Manually obtain DNS server IP)

Use this feature to enter the DNS server IP address. Press <Enter> to change the setting.

Configure VLAN Support

VLAN Support (Available when "Update BMC LAN Configuration" is set to Yes)

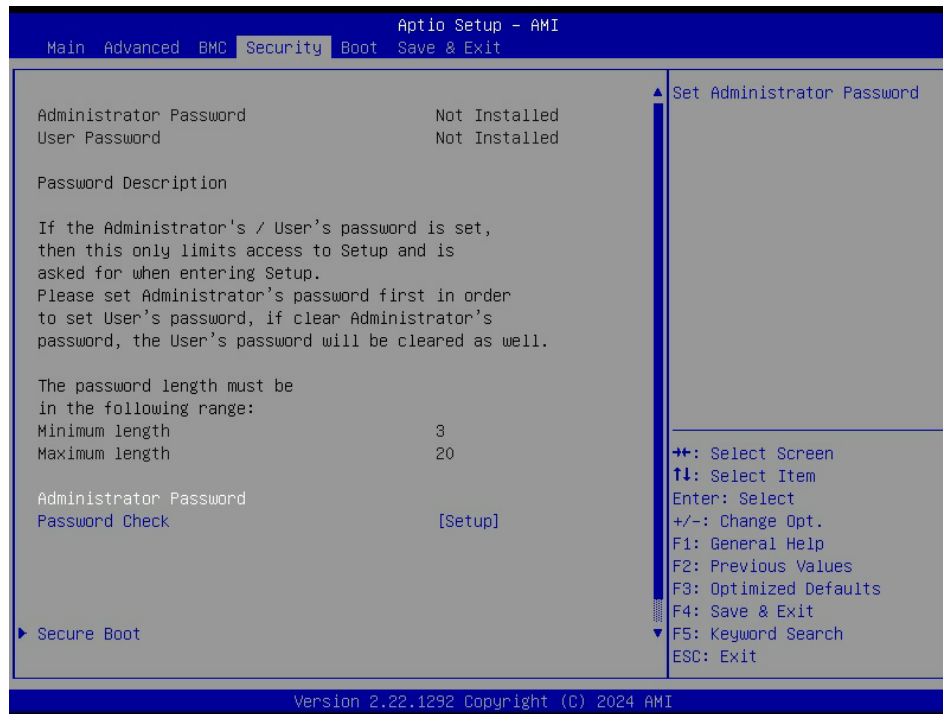
This feature displays the status of VLAN support. The options are **Disable** and Enable.

VLAN ID (Available when "VLAN" is set to Enable)

Use this feature to create a new LAN ID by using an existing VLAN or creating a new VLAN ID. Enter a valid value between 0 – 4094.

4.5 Security

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



Administrator Password

Press <Enter> to create a new, or change an existing, Administrator password.

Password Check

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

► Supermicro Security Erase Configuration

This section displays the following information if a storage device is detected by the system:

- HDD Name
- HDD Serial Number
- Security Mode

Security Function

Select Password to set an HDD/SATA password, which will allow you to configure the security settings of the HDD/SATA device. Select Security Erase-Password to enter a SATA user password to erase the password and the contents previously stored in the HDD/SATA device. Select Security Erase-Without Password to use the manufacturer default password "11111111" as the SATA user password and to erase the contents of the HDD/SATA device by using this default password. The options are **Disable** and Security Erase-Without Password.



Note: Security Erase-PSID is only supported by the M.2 TCG function.

► Secure Boot

This section displays the contents of the following secure boot features:

- System Mode
- Vendor Keys
- Secure Boot

Secure Boot

Use this feature to enable secure boot. The options are **Disabled** and Enabled.

Secure Boot Mode

Use this item to configure Secure Boot variables without authentication. The options are Standard and **Custom**.

► Enter Audit mode

This submenu can only be used if the current System Mode is set to User (refer to Exit Deployed Mode). The PK variable will be erased on transition to Audit Mode.

► Key Management

Provision Factory Defaults

Use this feature to install the factory default secure boot keys after the platform reset and while the system is in setup mode. The options are **Disabled** and Enabled.

► Restore Factory Keys

Force System to User Mode. Install factory default Secure Boot key databases.

► **Reset to Setup Mode**

This feature deletes all Secure Boot key databases from NVRAM.

► **Enroll EFI Image**

This feature allows the image to run in Secure Boot Mode. Enroll SHA256 Hash Certificate of the image into the Authorized Signature Database.

► **Export Secure Boot variables**

This feature allows you to copy NVRAM content of Secure boot variables to files in a root folder on a file system device.

Secure Boot Variable

► **Platform Key (PK)**

Update

Select Yes to load the new Platform Keys (PK) from the manufacturer's defaults. Select No to load the Platform Keys from a file.

► **Key Exchange Key**

Update

Select Yes to load the Key Exchange Key (KEK) from the manufacturer's defaults. Select No to load the Key Exchange Keys from a file.

Append

Select Yes to add the KEK from the manufacturer's defaults list to the existing KEK. Select No to load the KEK from a file.

► **Authorized Signatures**

Update

Select Yes to load the DB from the manufacturer's defaults. Select No to load the DB from a file.

Append

Select Yes to add the DB from the manufacturer's defaults list to the existing DB. Select No to load the DB from a file.

►Forbidden Signatures

Update

Select Yes to load the DBX from the manufacturer's defaults. Select No to load the DBX from a file.

Append

Select Yes to add the DBX from the manufacturer's defaults list to the existing DBX. Select No to load the DBX from a file.

►Authorized TimeStamps

Update

Select Yes to load the DBT from the manufacturer's defaults. Select No to load the DBT from a file.

Append

Select Yes to add the DBT from the manufacturer's defaults list to the existing DBT. Select No to load the DBT from a file.

►OsRecovery Signature

Update

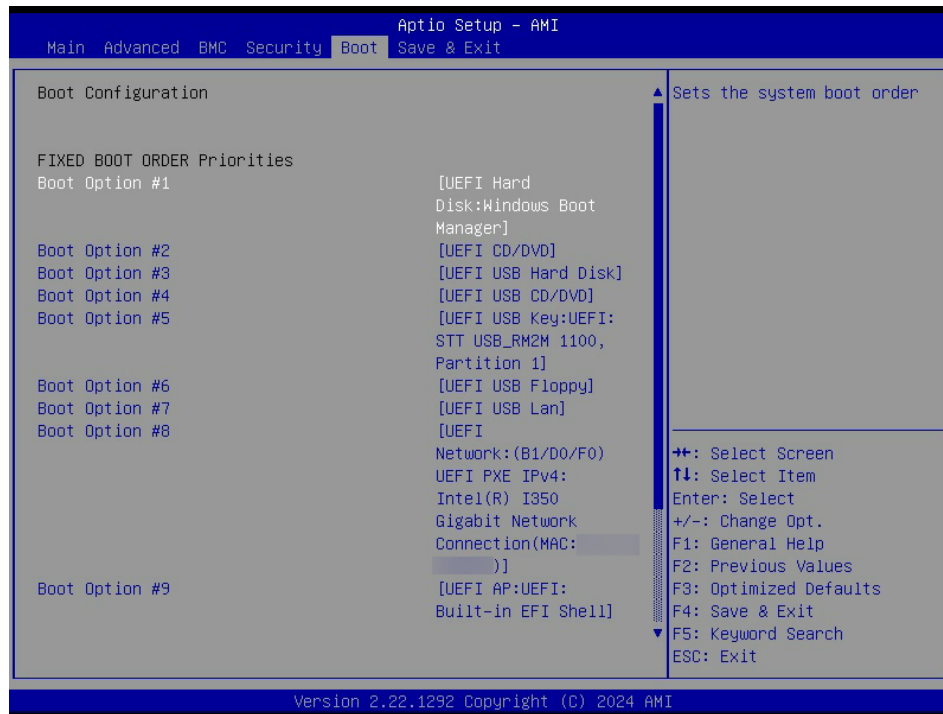
Select Yes to load the DBR from the manufacturer's defaults. Select No to load the DBR from a file.

Append

Select Yes to add the DBR from the manufacturer's defaults list to the existing DBR. Select No to load the DBR from a file.

4.6 Boot

Use this menu to configure Boot settings.



Fixed Boot Order Priorities

This option prioritizes the order of bootable devices that the system boots from. Press <Enter> on each entry from top to bottom to select devices.

- Boot Option #1
- Boot Option #2
- Boot Option #3
- Boot Option #4
- Boot Option #5
- Boot Option #6
- Boot Option #7
- Boot Option #8
- Boot Option #9

►Add New Boot Option

►Delete Boot Option

This feature allows you to select a boot device to delete from the boot priority list.

Delete Boot Option

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

►UEFI NETWORK Drive BBS Priorities

This feature sets the system boot order of detected devices.

- Boot Option #1
- Boot Option #2
- Boot Option #3

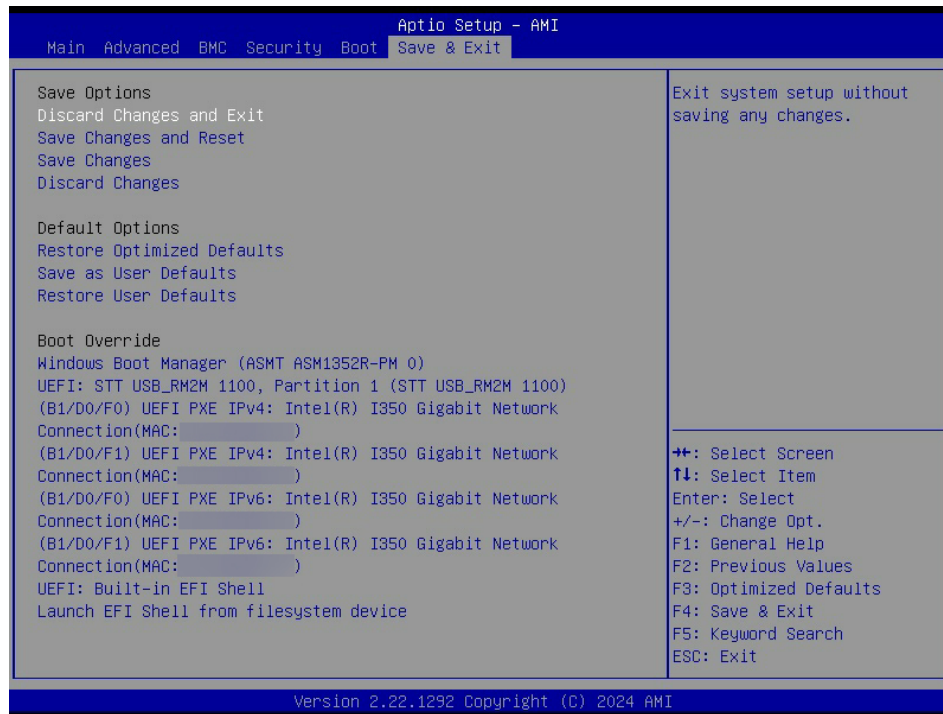
►UEFI Application Boot Priorities

This feature sets the system boot order of detected devices.

- Boot Option #1

4.7 Save & Exit

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



Save Options

Discard Changes and Exit

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

Save Changes and Reset

When you have completed the system configuration changes, use this feature to leave the BIOS Setup utility and reboot the computer for the new system configuration parameters to become effective.

Save Changes

When you have completed the system configuration changes, use this feature to save all changes you've made. This will not reset (reboot) the system.

Discard Changes

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

Default Options

Restore Optimized Defaults

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

Save as User Defaults

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

Restore User Defaults

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

Boot Override

This feature allows you to override the Boot priorities sequence in the Boot menu, and immediately boot the system with a device specified instead of the one specified in the boot list. This is a one-time override.

Appendix B

Software

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

B.1 Microsoft Windows OS Installation

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

Installing the OS

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

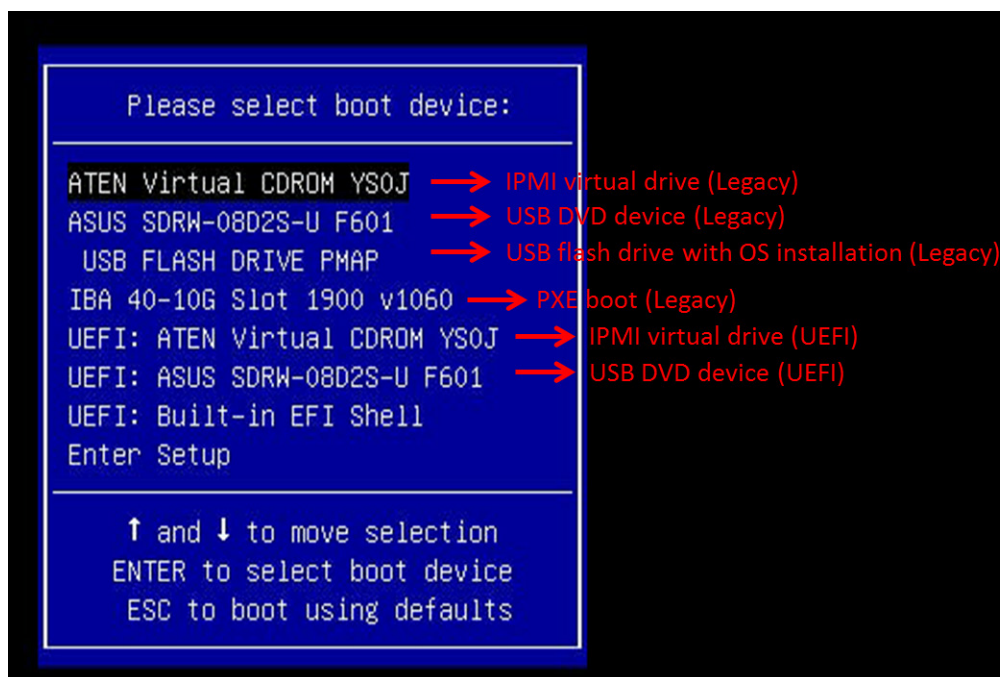


Figure B-1. Select Boot Device

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

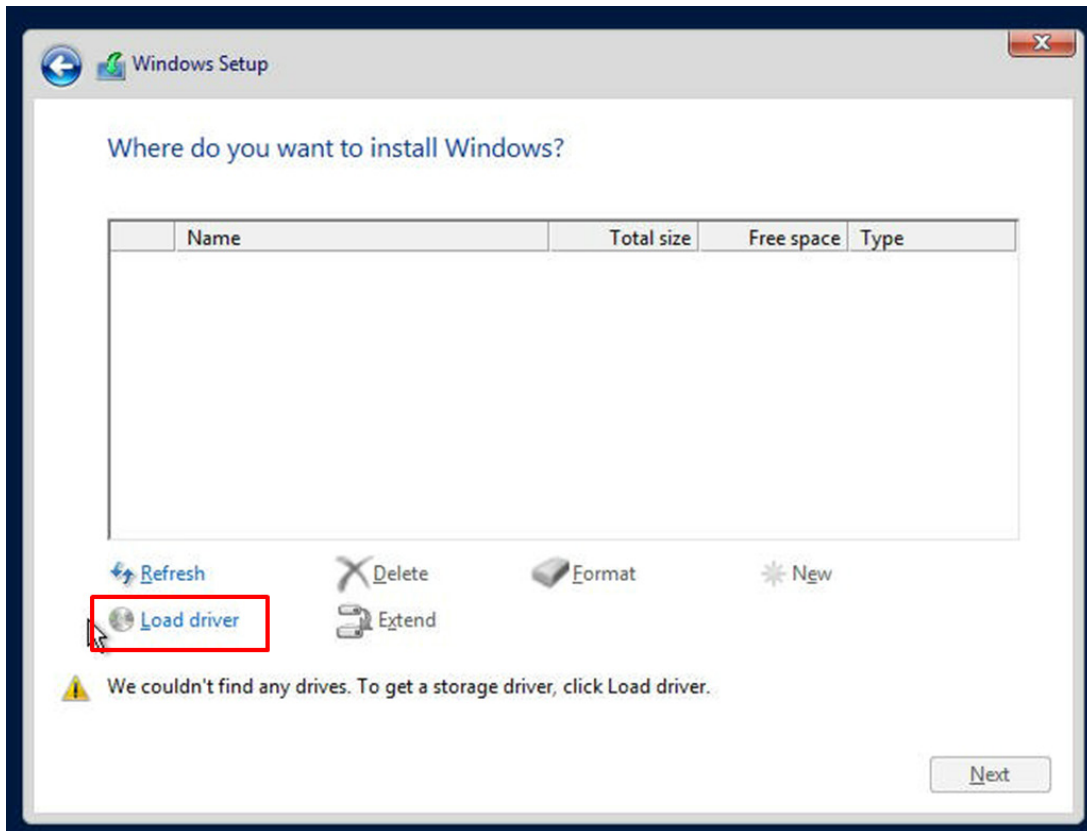


Figure B-2. Load Driver Link

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

- For RAID, choose the SATA/sSATA RAID driver indicated then choose the storage drive on which you want to install it.
 - For non-RAID, choose the SATA/sSATA AHCI driver indicated then choose the storage drive on which you want to install it.
5. Once all devices are specified, continue with the installation.
 6. After the Windows OS installation has completed, the system will automatically reboot multiple times.

B.2 Driver Installation

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

After accessing the website, locate the ISO file for your motherboard. Download this file to a USB flash or media drive and mount the ISO file as virtual media using the iKVM console for access. You may also use a utility to extract the ISO file if preferred.

Another option is to go to the Supermicro website and search for the motherboard. Find the product page for your motherboard and download the latest drivers and utilities.

Insert the flash drive and the screenshot shown below should appear.

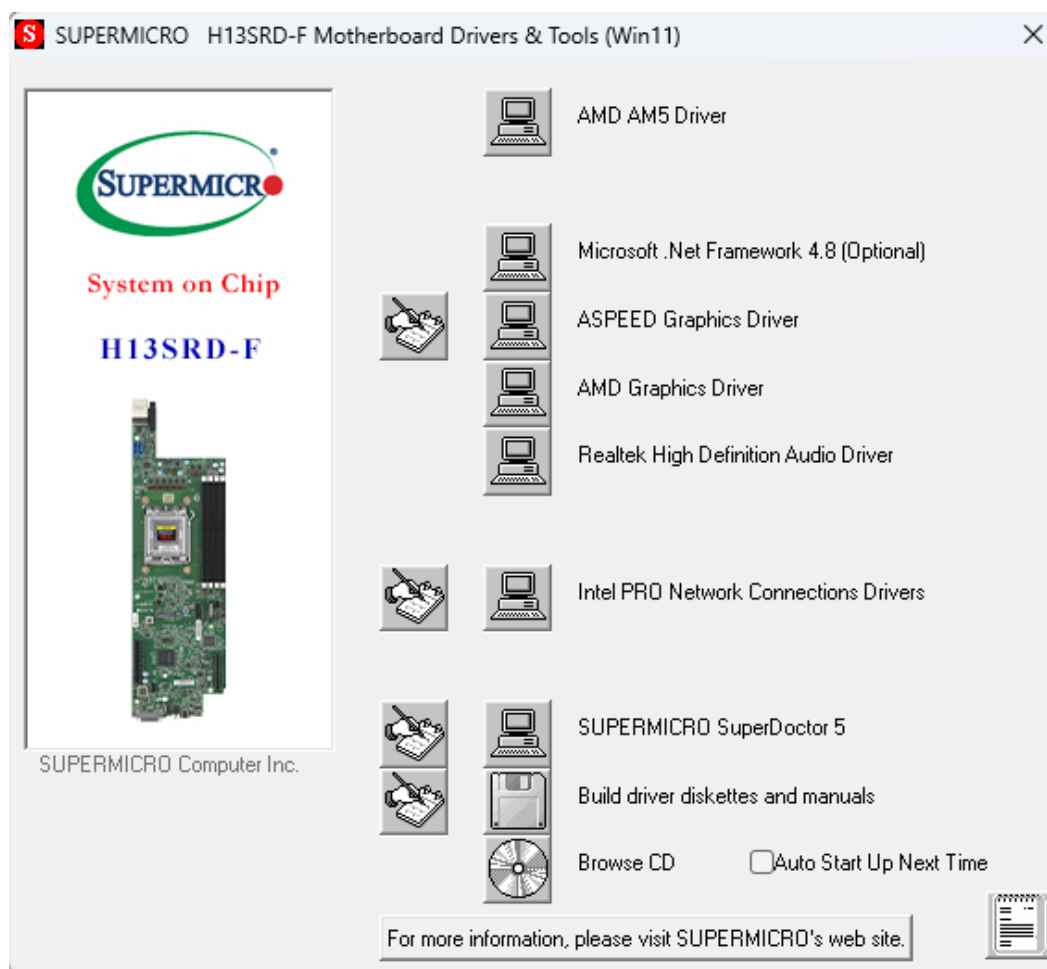


Figure B-3. Driver & Tool Installation Screen

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

B.3 SuperDoctor® 5

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

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



Note: The default User Name and Password for SuperDoctor 5 is ADMIN / ADMIN.

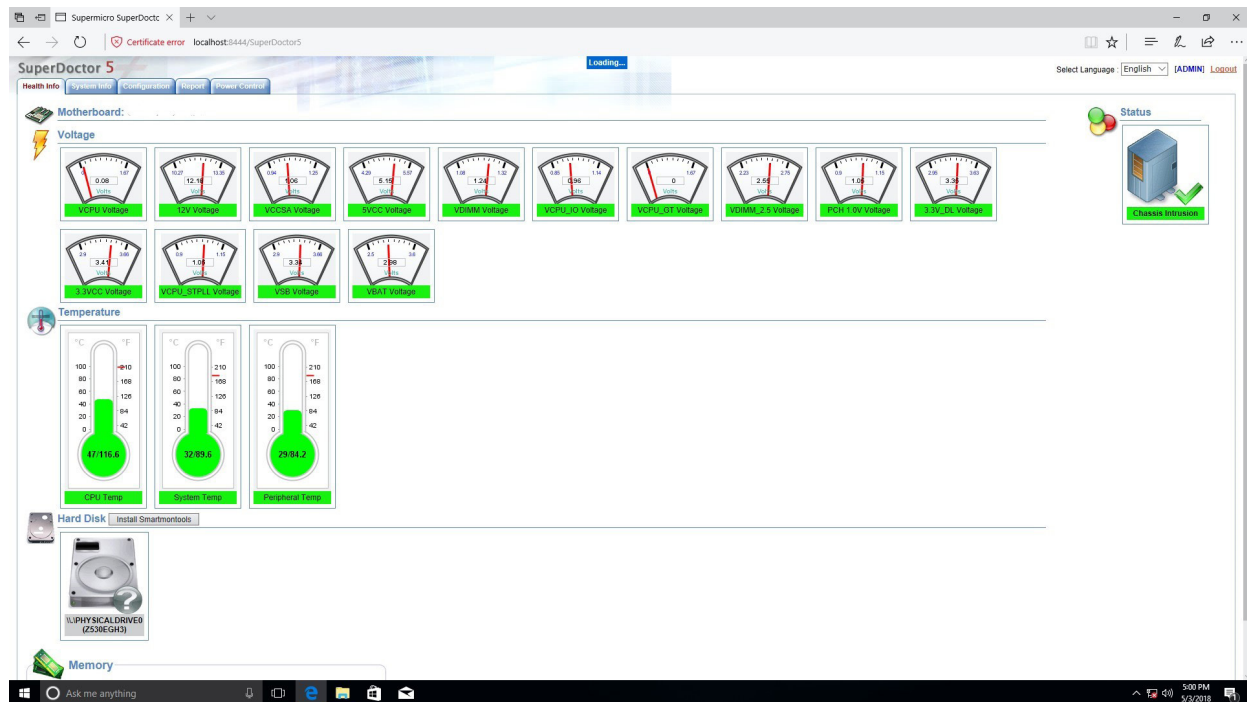


Figure B-4. SuperDoctor 5 Interface Display Screen (Health Information)

Appendix C

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 section in its entirety before installing or configuring components.

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

Battery Handling



IMPORTANT: 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.

استبدال البطارية

فقط بنفس النوع أو ما يعادلها مما أوصت به الشركة المصنعة

جخلص من البطاريات المسحمة وفقاً لتعليمات الشركة 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.

Product Disposal



IMPORTANT! 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.

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

경고!

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

Waarschuwing

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