H13SRH

USER'S MANUAL

Revision 1.0

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Manual Revision 1.0

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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 H13SRH motherboard.

About This Motherboard

The Supermicro H13SRH supports a single AMD Ryzen™ Threadripper™ PRO 7000 WX-Series processor in Socket sTR5 (LGA-4844) with a thermal design power (TDP) of up to 350 W. Built upon the functionality and capability of the single AMD socket sTR5 processor, the H13SRH provides superior graphics capability and system performance while consuming little power. Please note that this motherboard is intended to be installed and serviced by certified service techniciansonly. For processor/memory updates, please 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.

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Chapter 1

Introduction

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

Important Links

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

- Supermicro product manuals: http://www.supermicro.com/support/manuals/
- Product drivers and utilities: https://www.supermicro.com/wdl
- Product safety info: http://www.supermicro.com/about/policies/safety_information.cfm
- 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, please contact our support team at: support@supermicro.com

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

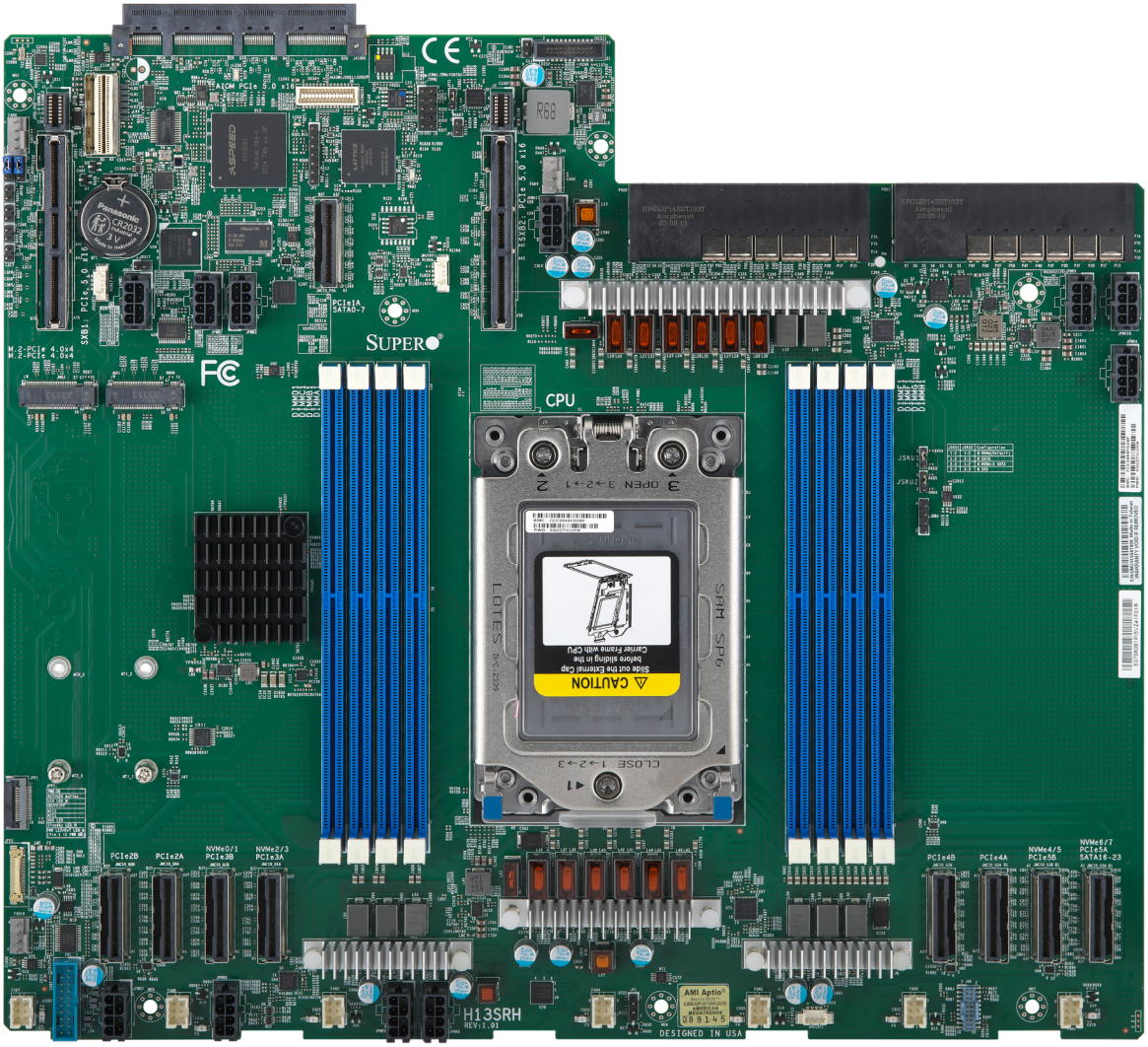


Figure 1-1. H13SRH Motherboard Image

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.

1.1 Quick Reference

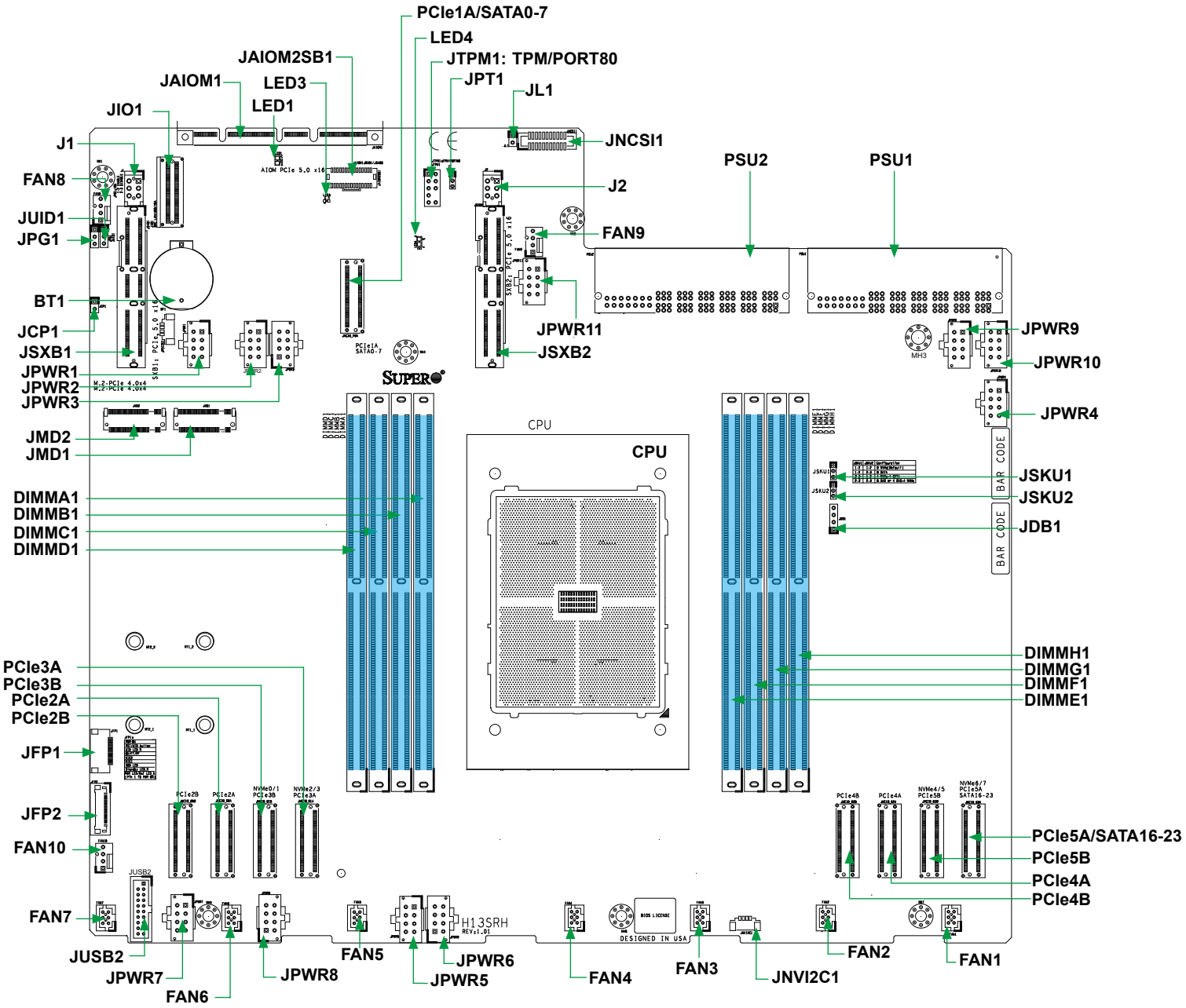


Figure 1-2. H13SRH Layout

Notes:

- Components not documented are for internal testing only.
- See Chapter 2 for detailed information on jumpers, I/O ports.
- Use only the correct type of onboard CMOS battery as specified by the manufacturer. To avoid possible explosion, do not install the onboard battery upside down.

Quick Reference Table

Jumper	Description	Default Setting
JUID1	UID function and reset	Pins 1-2 (UID)
JPG1	VGA Enable / Disable	Pins 1-2 (Enable)
JPT1	TPM Enable/Disable	Pins 1-2 (Enable)
JSKU1 JSKU2	<table><tr><th>JSKU1</th><th>JSKU2</th><th>Configuration</th></tr><tr><td>1-2</td><td>1-2</td><td>8 NVMe (Default)</td></tr><tr><td>1-2</td><td>2-3</td><td>8 SATA</td></tr><tr><td>2-3</td><td>1-2</td><td>4 NVMe + 4 SATA</td></tr><tr><td>2-3</td><td>2-3</td><td>8 SAS</td></tr></table>	
JSXB1-2	Slot1-2 PCIe 5.0 x16	

LED	Description	Status
LED1	BMC Heartbeat LED	Green: Blinking (BMC Normal) Green: Fast Blinking (BMC Initializing)
LED4	Power LED	Solid Green: Power On

Connector	Description
BT1	Onboard Battery
FAN1-FAN7	System Fan
FAN8-FAN10	12 V 4-pin Power Connector (for Optional System Fan)
JAIOM1	Supermicro® Advanced I/O Module (AIOM PCIe 5.0 x16) Slot
JAIOM2SB1	2nd AIOM Sideband Signal
JFP1, JFP2	Front Control Panel Headers 1 and 2
JIO1	Front BMC and Onboard VGA / USB / LAN Module Connector
JMCIO_P0A	PCIe1A/SATA0-7
JMCIO_G0A/G0B, JMCIO_G2A/G2B	PCIe2A/2B, PCIe4A/4B
JMCIO_G1A/G1B	NVMe0-3, PCIe3A/3B
JMCIO_G3B	NVMe4-5, PCIe5B
JMCIO_G3A	NVMe6-7, PCIe5A, SATA16-23
JMD1-2	Two M.2 PCIe 4.0 x4 support 2280/22110
JNCSI1	NCSI Connector
JPWR1-11	12 V 8-Pin Power Connector for a GPU, Backplane, or Add-on Card
JTPM1	TPM (Trusted Platform Module) / Port 80
JUSB2	USB 3.2 Header
PSU1/PSU2	Motherboard Main Power Supply Connector

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

Motherboard Features

CPU

- Single AMD Ryzen™ Threadripper™ PRO 7000 WX-Series Processor in one socket LGA-4844 (socket sTR5) with a thermal design power (TDP) of up to 350 W.

Note: Only Windows 11, version 22H2 offers up to 96 cores and 192 threads.

Memory

- Supports up to 2 TB ECC RDIMM/3DS RDIMM memory with speeds of up to 5200 MT/s (1DPC) or higher with overclocking support in eight ECC DDR5 DIMM slots

DIMM Size

- Up to 256 GB at 12 V

Chipset

- AMD WRX90 (RPOM21) chipset

Expansion Slots

- Eight NVMe (PCIe 5.0 x8), eight SATA 3.0 Hybrid ports
- Two M.2 NVMe (2280/22110)
- Two USB 3.2 Gen1 (type A) ports
- One SPI TPM 2.0 header
- One NCSI header for 2nd AIOM
- One MCIO (PCIe 5.0 x8) for 2nd AIOM
- Four MCIO (PCIe 5.0 x8; attached to CPU), vertical connectors, support up to two double-width GPU cards
- Two PCIe 5.0 x16 slots for riser (SXB1, SXB2; attached to CPU)

Network

- One dedicated BMC LAN
- ASPEED AST2600 BMC chip with ATEN IPMI FW, RoT 2.0 support

Baseboard management Controller (BMC)

- ASPEED AST2600 BMC

Graphics

- ASPEED AST2600 BMC chip with one VGA port

BIOS

- 256 Mb SPI AMI BIOS® SM Flash UEFI BIOS
- ACPI 6.4, SMBIOS 3.5.0, Plug-and-Play (PnP), RTC (Real Time Clock) wakeup, Riser Card Auto-Detection Support

Power Management

- ACPI power management (S4/S5)
- Power button override mechanism
- Power-on mode (AIOM1) for AC power recovery

Note: Table continues on the next page.

System Health Monitoring

- Onboard voltage monitoring for +3.3 V, +5 V, +12 V, +3.3 VStb, +5Stb, CPU temperature, system temperature, memory temperature, and peripheral temperature
- Onboard temperature monitoring for CPU, PCH, system, DIMM, and peripheral
- Onboard temperature monitoring for GPU and NVMe
- CPU thermal trip support

Fan Control

- Fan speed control
- Three 4-pin fan headers and seven 6-pin fan headers

System Management

- IPMIView/SMCIPMITOOL/IPMICFG
- SuperDoctor® 5
- Redundant power supply unit detection sensor
- SDO/SPM/SSM/SUM-OOB/InBand
- Trusted Platform Module (TPM) support
- Plug-in tools thru Redfish

LED Indicators

- CPU / System Overheat LED
- Power / Suspend-state Indicator
- Fan Failed LED
- UID / Remote UID
- HDD Activity LED
- LAN Activity LED

Dimensions

- 13" (W) x11.5" (L), (330.2 x 292.1 mm)

Note 1: The CPU maximum thermal design power (TDP) is subject to chassis and heatsink cooling restrictions. For proper thermal management, please check the chassis and heatsink specifications.

Note 2: For IPMI configuration instructions, please refer to the Embedded IPMI Configuration User's Guide available at https://www.supermicro.com/support/manuals/.

Note 3: For proper BMC configuration, please refer to https://www.supermicro.com/products/nfo/files/IPMI/Best_Practices_BMC_Security.pdf.

Motherboard Block Diagram

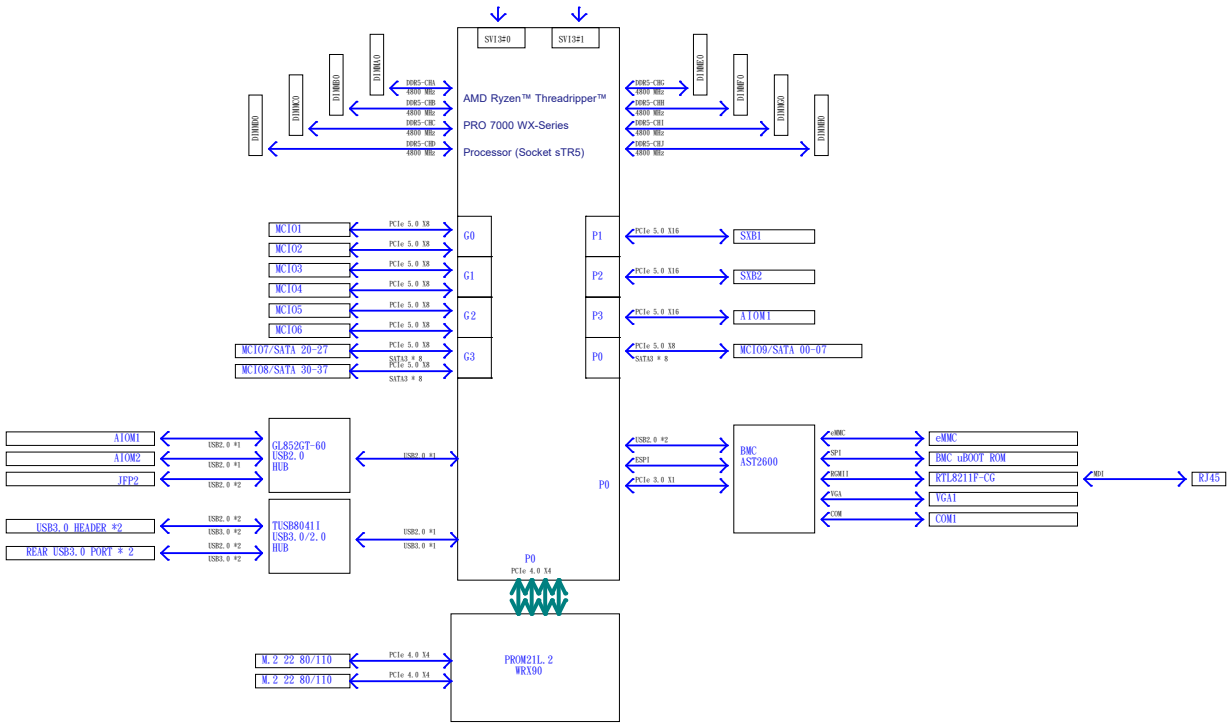


Figure 1-3. Motherboard Block Diagram

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

1.2 Processor and Chipset Overview

The H13SRH motherboard offers maximum I/O expendability, energy efficiency, and data reliability. It is optimized for cloud gaming, media entertainment, and generatiive AI training.

Features Supported

- ACPI Power Management Logic Support Rev. 6.4
- Adaptive Thermal Management/Monitoring
- PCIe 5.0 w/transfer rates of up to 32 GT/s
- SATA 3.0 w/transfer rates of up to 6 Gb/s
- System Management Bus (SMBus) Specification Version 3.5

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

This section describes the health monitoring features of the H13SRH motherboard. The motherboard has an onboard Baseboard Management Controller (BMC) chip that supports system health monitoring. 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.

Onboard Voltage Monitors

The onboard voltage monitor will continuously scan crucial voltage levels. Once a voltage becomes unstable, it will give a warning or send an error message to the screen. Users can adjust the voltage thresholds to define the sensitivity of the voltage monitor. Real time readings of these voltage levels are all displayed in BMC.

Fan Status Monitor with Firmware Control

Users can check the RPM status of the cooling fans through the IPMI Web interface. The chassis fans are controlled by Thermal Management.

Environmental Temperature Control

The thermal control sensor monitors the CPU temperature in real time and will turn on the thermal control fan whenever the CPU temperature exceeds a user-defined threshold. The overheat circuitry runs independently from the CPU. Once the thermal sensor detects that the CPU temperature is too high, it will automatically turn on the thermal fans to prevent the CPU 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, please be sure to provide adequate airflow to your system.

System Resource Alert

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

1.5 ACPI Features

ACPI stands for Advanced Configuration and Power Interface. The 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 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 Windows11 operating systems.

1.6 Power Supply

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

1.7 Super I/O

The ASpeed AST2600 Super I/O provides one high-speed, 16550 compatible Universal Asynchronous Receiver/Transmitter (UART), which supports serial infrared communications. This UART includes a send/receive FIFO, a programmable baud rate generator, complete modem control capability and a processor interrupt system. This UART provides legacy speed with baud rate of up to 115.2 Kbps as well as an advanced speed with baud rates of 250 K, 500 K, or 1 Mb/s, which support higher speed modems.

The Super I/O provides functions that comply with ACPI (Advanced Configuration and Power Interface), which includes support of legacy and ACPI power management through the System Management Interrupt (SMI) or System Control Interrupt (SCI). It also features auto power management to reduce power consumption.

Chapter 2

Installation

2.1 Static-Sensitive Devices

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

Precautions

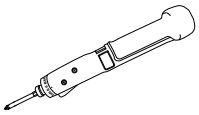
- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing the board from the antistatic bag.
- Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, 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 chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.
- Use only the correct type of CMOS onboard battery as specified by the manufacturer. Do not install the CMOS battery upside down, which may result in a possible explosion.
- When installing the processor and heatsink, ensure a torque driver set to the correct force is used for each screw.

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 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.



Torque Driver (1)

Philips Screws (7)

Standoffs (7)
Only if Needed

Tools Needed

Location of Mounting Holes

Notes:

1. To avoid damaging the motherboard and its components, please do not use a force greater than 8 lbf-in on each mounting screw during motherboard installation.
2. Some components are very close to the mounting holes. Please take precautionary measures to avoid damaging these components when installing the motherboard to the chassis.

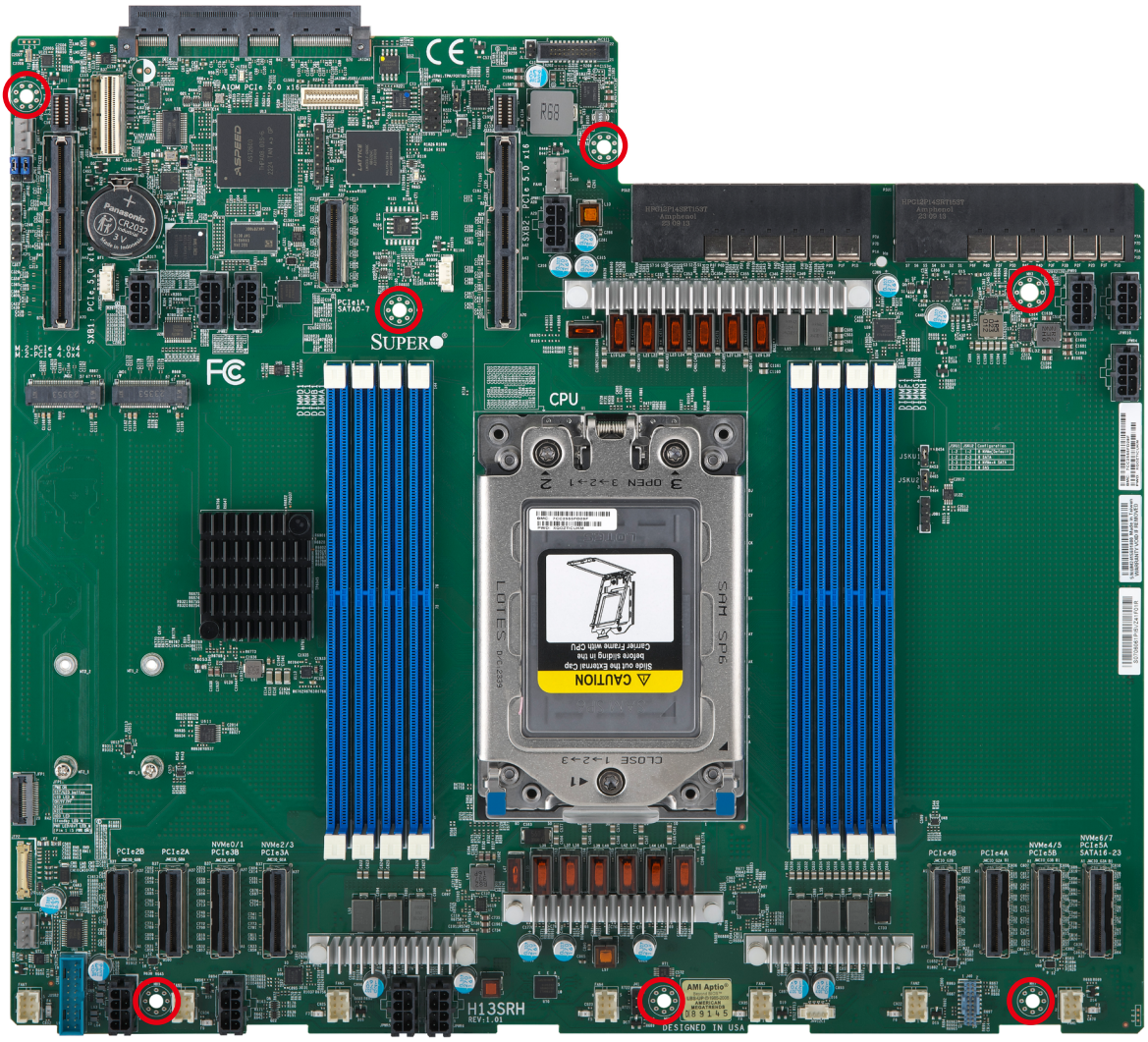
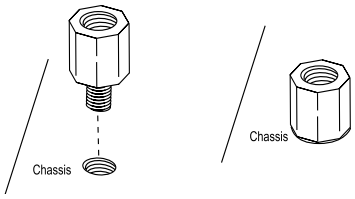


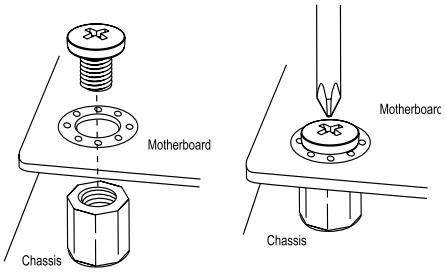
Figure 2-1. Motherboard Mounting Holes

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 the above step to insert #6 screws into all mounting holes.
8. Make sure that the motherboard is securely placed in the chassis.

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

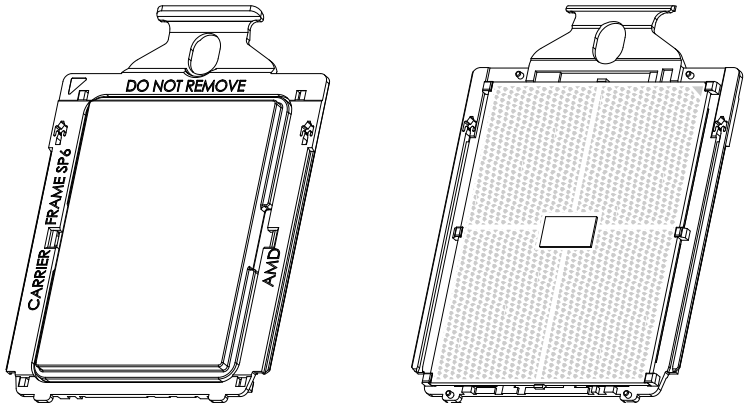
2.3 Processor and Heatsink Installation

Important:

- 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.
- Installing the heatsink requires a Phillips #1 screwdriver.
- When installing the processor and heatsink, ensure a torque driver set to the correct force is used for each screw.

The AMD Ryzen™ Threadripper PRO™ 7000 WX-Series

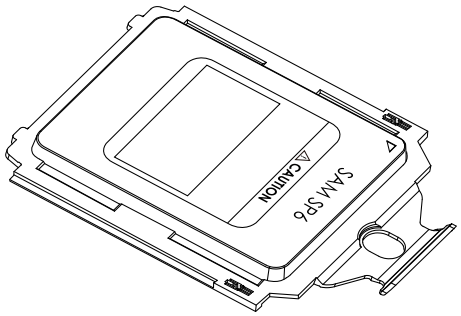
Note: The processor is shipped from the factory with the carrier frame pre-assembled.



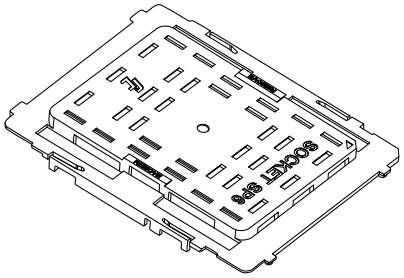
Overview of the Processor Socket

The processor socket is protected by a Pick-and-Place (PnP) Cover Cap and pre-installed with an external cap.

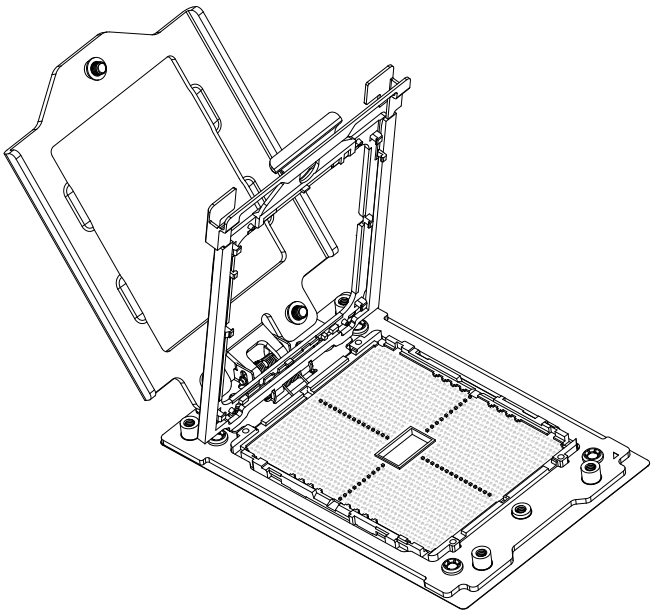
1. External Cap



2. PnP Cover Cap

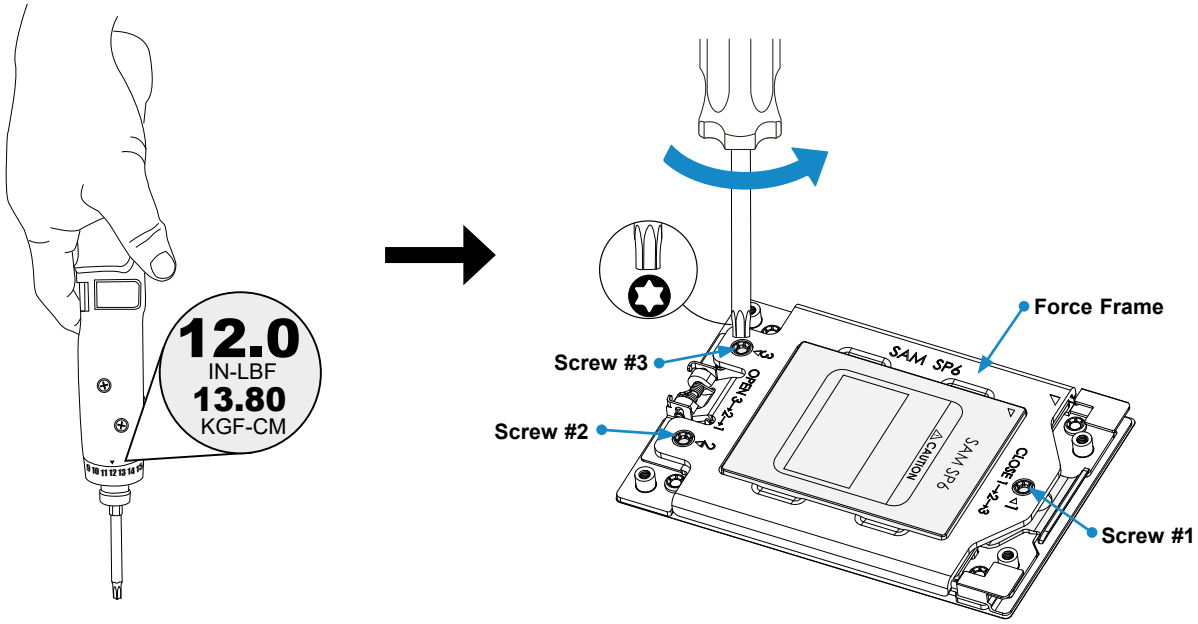


3. Socket sTR5

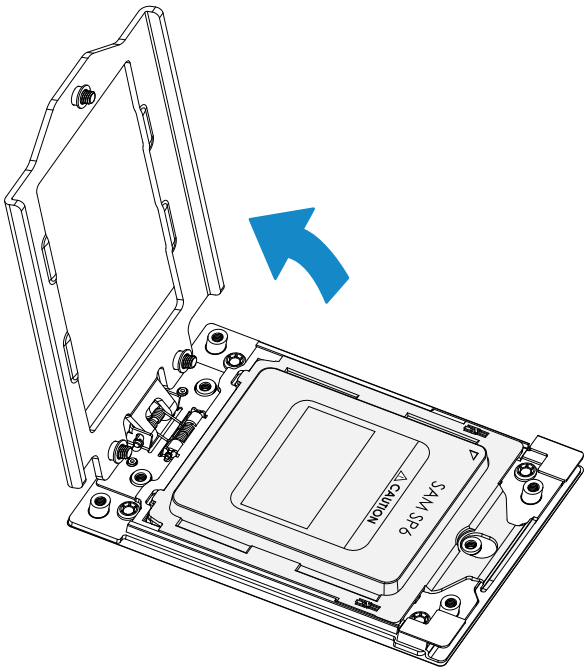


Installing the Processor

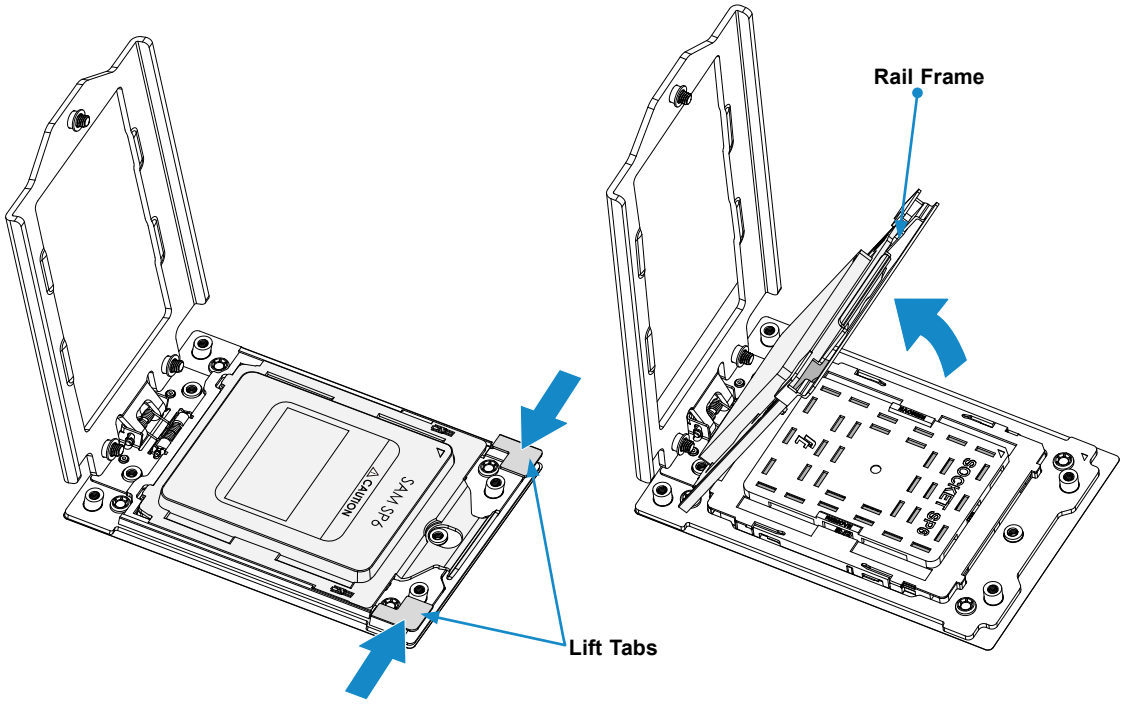
1. Use a T20 bit torque driver with a torque of 13.80 kgf-cm (12.0 in-lbf), unscrew the screws holding down the force frame in the sequence of 3-2-1 to prevent damage to the processor. The screws are numbered on the force frame next to each screw hole.



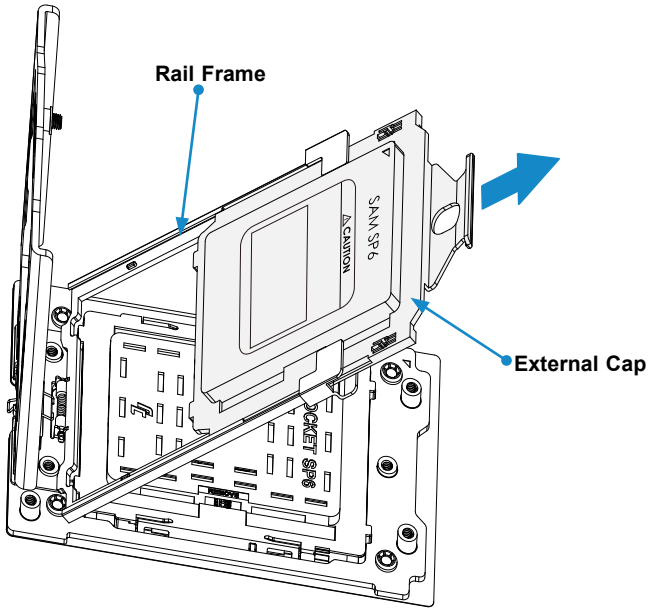
2. The spring-loaded force frame will raise up after the last screw (#1) securing it is removed. Gently lift it up to its stopped position.



3. Grip the two finger lift tabs of the rail frame and lift it up to open it.

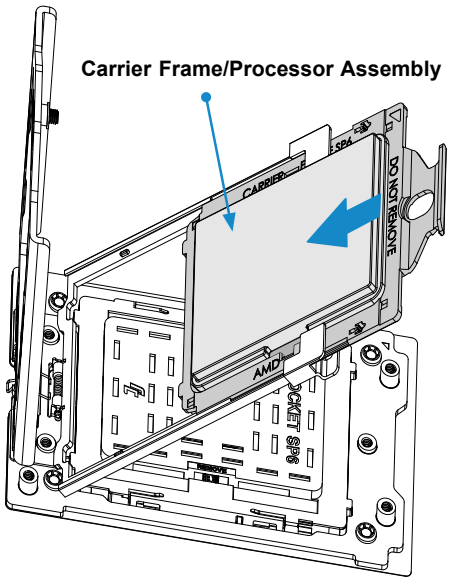


4. Remove the external cap from the rail frame by pulling it out of the rail guides on the rail frame.



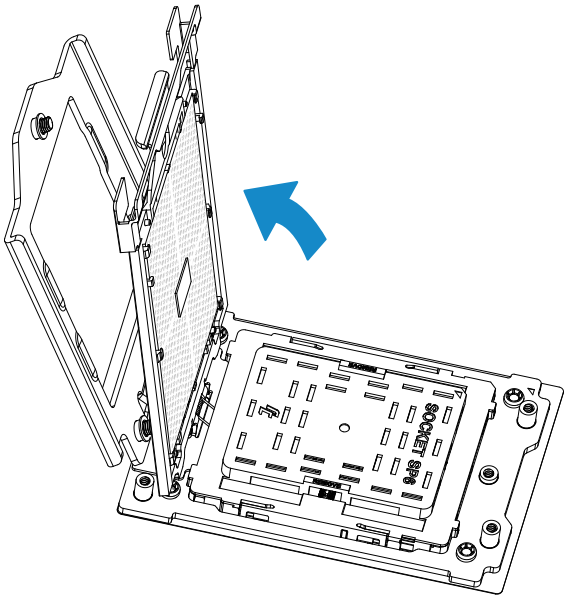
5. Grip the handle of the carrier frame/processor assembly from its shipping tray, and while gripping the handle, align the flanges of the carrier frame onto the rails of the rail frame so its pins will be at the bottom when the rail frame is lowered later.

6. Hold the two finger lift tabs of the rail frame, and slide the carrier frame/processor assembly downwards to the bottom of the rail frame. Ensure the flanges are secure on the rails as you lower it downwards.

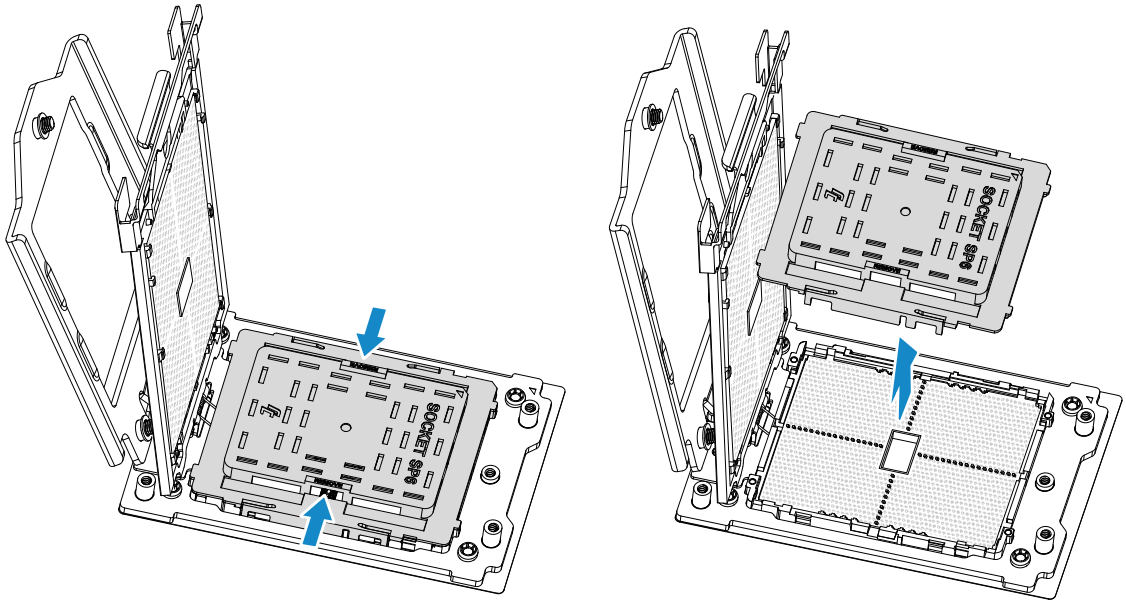


Note: You can only slide the carrier frame/processor assembly in one direction with the handle at the top. Make sure that it is properly inserted.

7. Lift up the rail frame till it securely rests in the upright position. Be careful not to touch the processor pad.

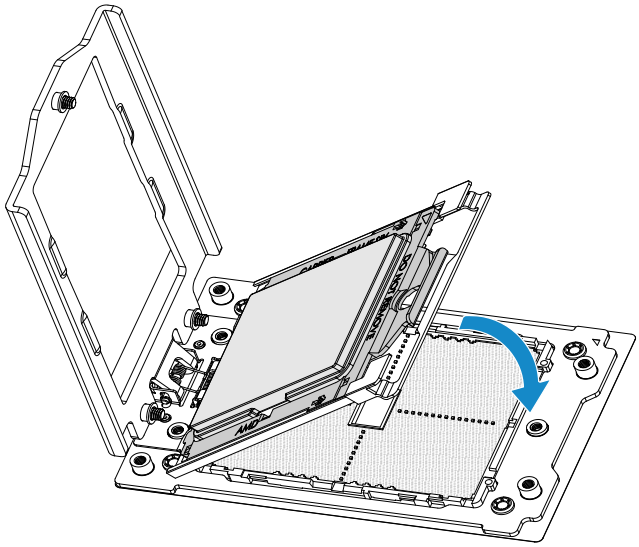


8. Remove the PnP cover cap from the socket.

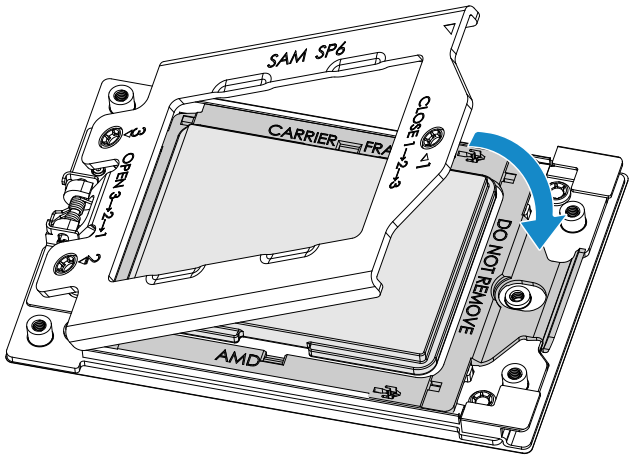


Warning! The exposed socket contacts are extremely vulnerable and can be damaged easily. Do not touch or drop objects onto the contacts, and be careful removing the PnP cover cap and when placing the rail frame over the socket.

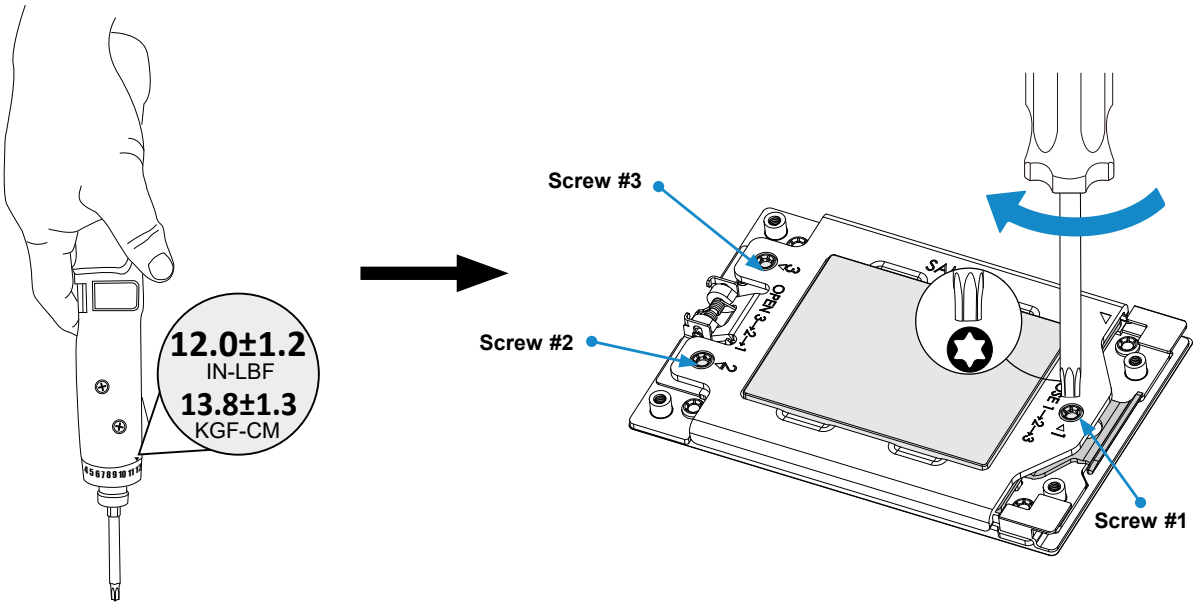
9. Gently lower the rail frame down onto the socket until it clicks into place. If it doesn't close properly, do not force it as it may damage your processor. Instead, open the rail frame again, and double-check that the processor is aligned properly.



10. Gently lower the force frame down onto the rail frame and hold it in place until it is seated in the socket housing. Note that the force frame is spring loaded and has to be held in place before it is secured.Re-screw the screws in the sequence of 1-2-3. When finished, the socket force frame will secure the processor.



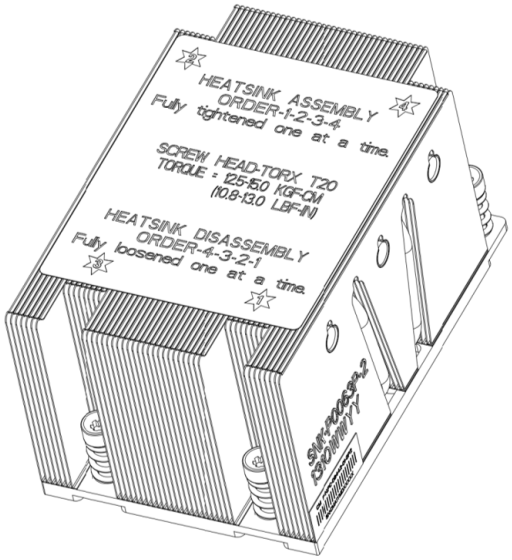
11. Re-screw the screws in the sequence of 1-2-3. When finished, the socket force frame will secure the processor.



Important: Use a T20 bit torque driver with a torque of 13.8±1.3 kgf-cm (12.0±1.2 in-lbf) to prevent damage to the processor.

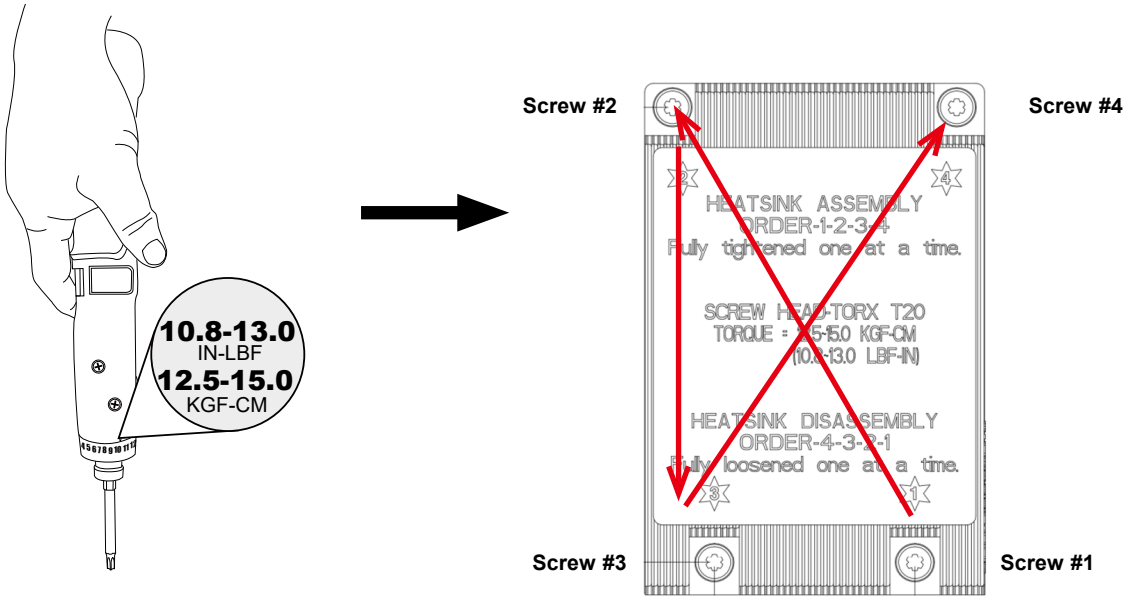
Installing the Heatsink

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



2. As illustrated, tighten the four screws down on the heatsink in the sequence of 1-2-3-4 till it is secured. The heatsink will now be secured and you have finished installing the processor and heatsink onto the motherboard.

Important: Use a T20 bit torque driver with a torque of 12.5-15.0 kgf-cm (10.8-13.0 in-lbf) to prevent damage to the processor.



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 H13SRH supports up to 2 TB ECC RDIMM/3DS RDIMM memory with speeds of up to 5200 MT/s (1DPC) or higher with overclocking support in eight ECC DDR5 DIMM slots.

Note 1: The memory speed and capacity support depend on the processor on your motherboard.

Note 2: Memory addressing up to 1 TB/channel is subject to AMD Infrastructure Roadmap for sTR5 socket processors.

Recommended Memory Channels								
Channel								Nodes per Socket (NPS)
DIMMA	DIMMC	DIMMB	DIMMD	DIMME	DIMMG	DIMMF	DIMMH	
8 Channels								
V	V	V	V	V	V	V	V	NPS4, NPS2, NPS1
6 Channels								
V	V	V		V	V	V		NPS2, NPS1
4 Channels								
V	V			V	V			NPS4, NPS2, NPS1
2 Channels								
V				V				NPS2, NPS1
1 Channel								
V								NPS1

DIMM Module Population

When populating the motherboard with DIMM modules, please keep in mind the following:

- It is recommended to use DDR5 memory of the same type, size, and speed.
- To achieve the best memory performance, a balanced memory population is recommended.

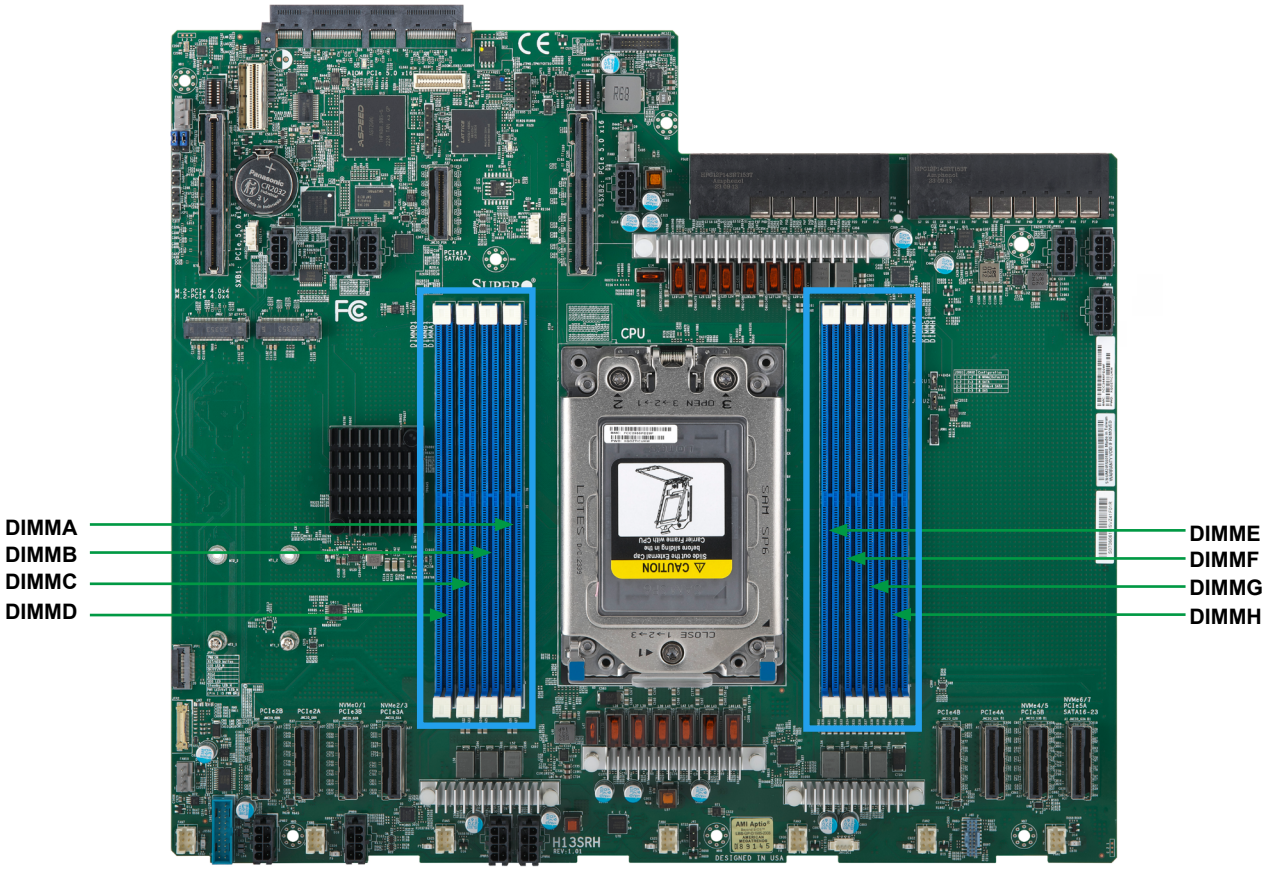
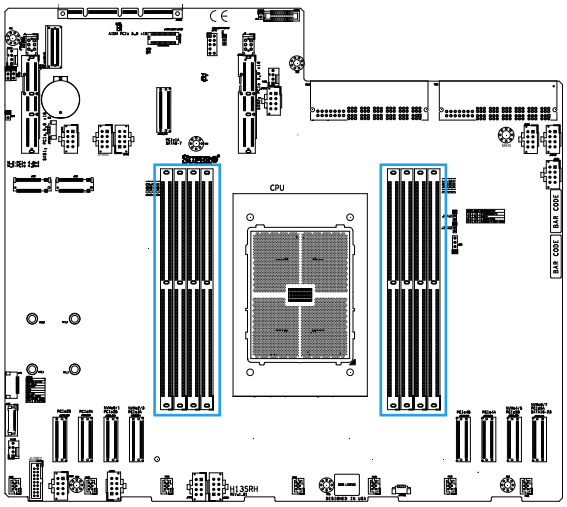


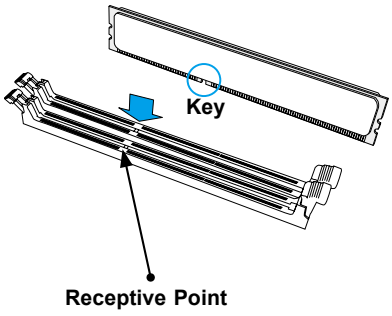
Figure 2-2. DIMM Numbering

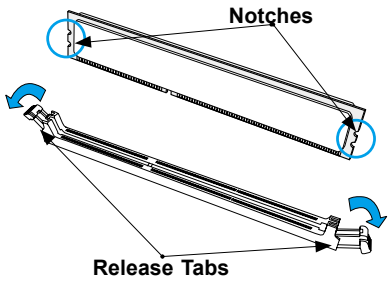
DIMM Installation

Note: The DDR5 DIMM module is NOT hot-swappable and be sure to disconnect power for a minimum of 20 seconds before inserting or removing it.

1. Insert the desired number of DIMMs into the memory slots based on the recommended DIMM population table in this user's manual. See Memory Support for details on memory population guidelines.
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. Press both ends of the module straight down into the slot until the module snaps into place.
6. Press the release tabs to the lock positions to secure the DIMM module into the slot.



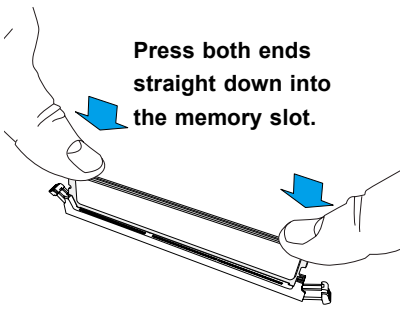




DIMM Removal

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.

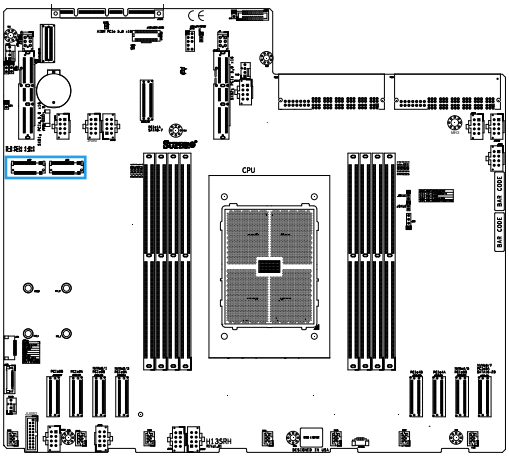
Note: Removing a DDR5 DIMM module at a slant angle will cause module damages. It is strongly recommended that you lift the module straight up out of the slot.



2.5 M.2 Installation

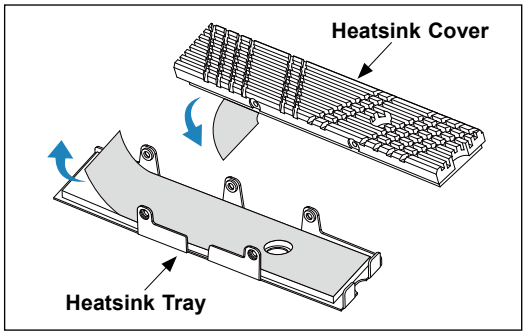
This motherboard has two M.2 M-key slots that support 2280 and 22110 M.2 devices. One standoff is pre-installed into the 22110 mounting hole. Refer to the illustration on the right for the locations of M.2 slots and mounting holes. Follow the steps below to install the M.2 device.

Note: It is strongly recommended that you install an optional Supermicro M.2 heatsink (p/n SNK-C0156L) on the M.2 device.

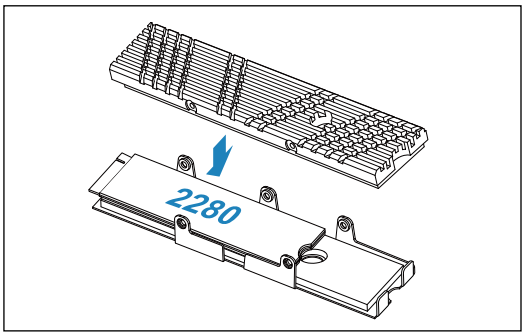


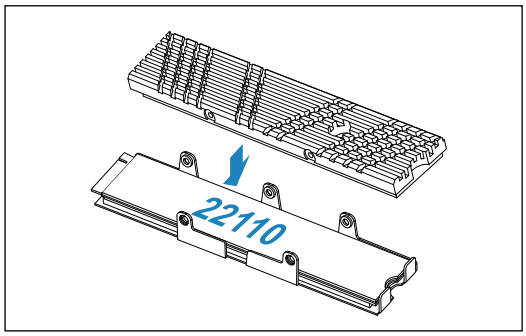
M.2 Heatsink Installation (Optional)

1. Remove the thermal pad protective films from the cover and the tray of the M.2 heatsink.

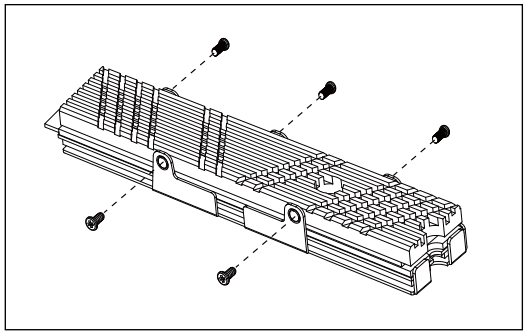


2. Place the M.2 device into the tray, then put the heatsink cover in place. Be careful to align the holes on the tray with the holes on the cover.



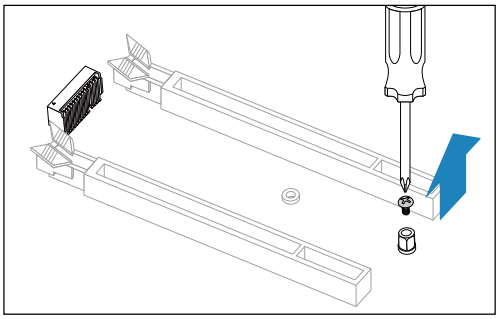


3. Tighten the screws to secure the heatsink assembly.

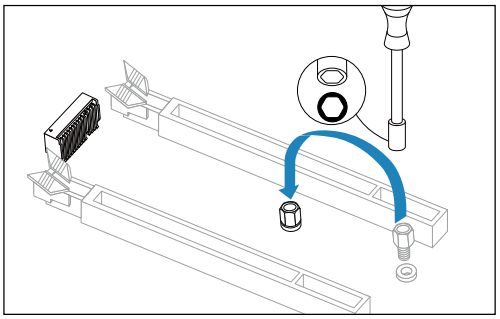


2280 M.2 Device Installation

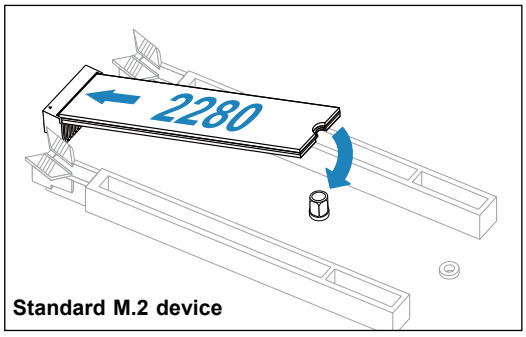
1. Locate the pre-installed standoff on the 22110 mounting hole. Remove the standoff screw and set it aside.



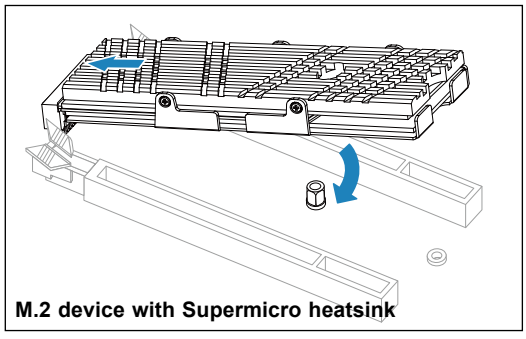
2. Using a hex socket screwdriver, remove and then reinstall the standoff to the position of the 2280 mounting hole.



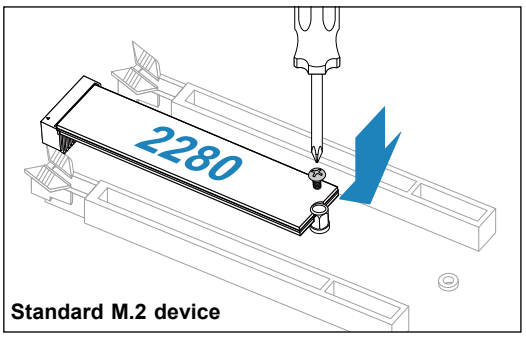
3. Insert the M.2 device or the heatsink assembly into the M.2 socket at a 30-degree angle and press it down.



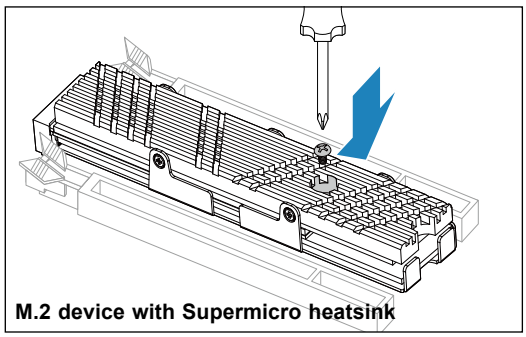
Standard M.2 device


M.2 device with Supermicro heatsink

4. Tighten the standoff screw to secure the M.2 device or the heatsink assembly into place. Do not overtighten so as to avoid damaging the M.2 device.

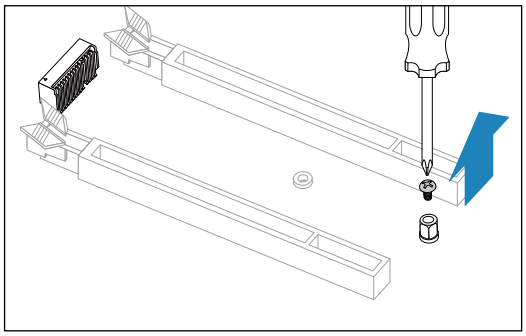


Standard M.2 device

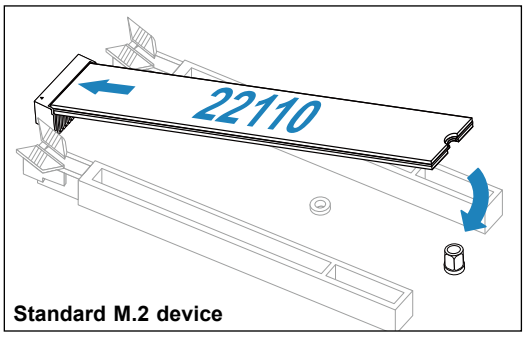

M.2 device with Supermicro heatsink

22110 M.2 Device Installation

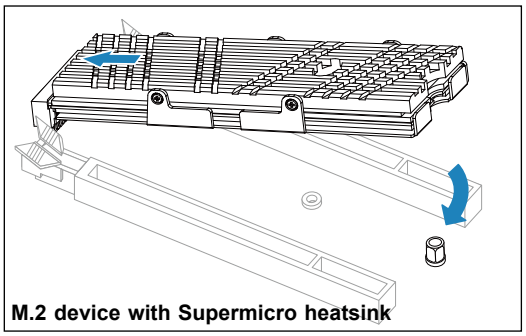
1. Locate the pre-installed standoff. Remove the standoff screw and set it aside.



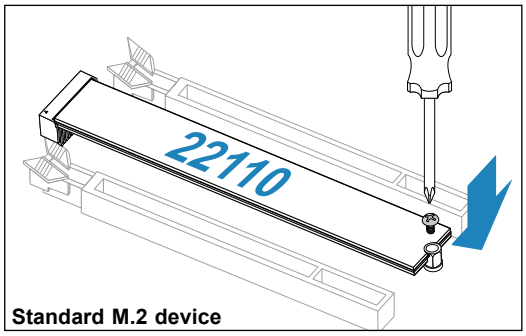
2. Insert the M.2 device or the heatsink assembly into the M.2 socket at a 30-degree angle and press it down.



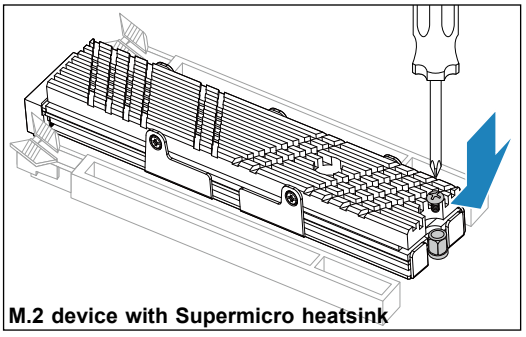
Standard M.2 device


M.2 device with Supermicro heatsink

3. Tighten the standoff screw to secure the M.2 device or the heatsink assembly into place. Do not overtighten so as to avoid damaging the M.2 device.



Standard M.2 device


M.2 device with Supermicro heatsink

2.6 Connectors

Power Connections

12V 8-pin Auxiliary Power Connector (JPWR1-11)

JPWR1-11 is an 8-pin Micro-Hi power input to provide power to a GPU. Refer to the table below for pin definitions.

12V 8-pin Power Connector Pin Definitions

Pin#	Definition	Pin#	Definition
1	Ground	5	+12 V
2	Ground	6	+12 V
3	Ground	7	+12 V
4	Ground	8	+12 V

Headers

NC-SI Connector

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

TPM/Port 80 Header

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

Trusted Platform Module Header Pin Definitions

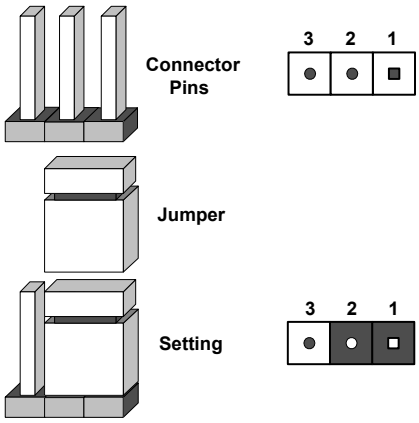
Pin#	Definition	Pin#	Definition
1	+3.3 V	2	SPI_CS#
3	RESET#	4	SPI_MISO
5	SPI_CLK	6	GND
7	SPI_MOSI	8	NC
9	3.3 V Stby	10	SPI_IRQ#

2.7 Jumper Settings

How Jumpers Work

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

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



To Clear CMOS

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

Notes: Clearing CMOS will also clear all passwords.

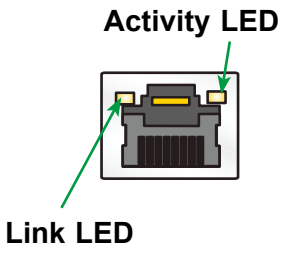
2.8 LED Indicators

BMC LAN Port LEDs

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

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

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



UID LED Indicator (LED3)

The rear LED3 is located next to the UID switch. The front UID LED is located on the front panel. When you press the UID switch, both rear LED8 and front UID LED indicators will turn on. Press the UID switch again to turn off the LED indicators. Use this UID Indicator to 'mark' the system, so the system can be easily identified whether on the front or back (e.g., a system rack with multiple units installed).

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

BMC Heartbeat LED (LED1)

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

BMC Heartbeat LED State		
Color	**State**	**Definition**
Green	Solid On	BMC is not ready
Green	Blinking	BMC Normal
Green	Fast Blinking	BMC: Initializing

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 CPU (making sure it is fully seated) and connect the front panel connectors to the motherboard.

No Power

1. Make sure that no short circuits exist between the motherboard and the chassis.
2. Verify that all jumpers are set to their default positions.
3. Check that the 115 V/230 V switch on the power supply is properly set.
4. Turn the power switch on and off to test the system
5. The CMOS battery on your motherboard may be old. Check to verify that it still supplies approximately 3 VDC. If it does not, replace it with a new one.

No Video

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

System Boot Failure

If the system does not display Power-On-Self-Test (POST) or does not respond after the power is turned on, 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 2.9.

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 are properly installed. See Chapter 2 for installation instructions. (For memory compatibility, refer to the "Tested Memory List" link on the motherboard's product page to see a list of supported memory.)
2. Check if different speeds of DIMMs have been installed. It is strongly recommended that you use the same memory type and speed for all DIMM modules in the system.
3. Make sure that you are using the correct type of ECC DDR5 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.

The System Cannot Retain the 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 for details on 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.
3. 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. CPU/BIOS support: Make sure that your CPU is supported and that you have the latest BIOS installed in your system.
2. Memory support: Make sure that the memory modules are supported by testing the modules using memtest86 or a similar utility.

   Note: Refer to the product page on our website at http://www.supermicro.com for memory and CPU support and updates.
3. Storage drives 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 CPU/system fans, etc., work properly. Check the hardware monitoring settings in the IPMI to make sure that the CPU and system temperatures are within the normal range. Also check the front panel Overheat LED and make sure that it is not on.
5. Adequate power supply: Make sure that the power supply provides adequate power to the system. Make sure that all power connectors are connected. Please refer to our website for more information on the minimum power requirements.
6. Proper software support: Make sure that the correct drivers are used.

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 or media drives.
2. Cable connection: Check to make sure that all cables are connected and working properly.
3. Using the minimum configuration for troubleshooting: Remove all unnecessary components (starting with add-on cards first), and use the minimum configuration (but with a CPU and a memory module installed) to identify the trouble areas. Refer to the steps listed in Section A above for proper troubleshooting procedures.
4. Identifying bad components by isolating them: If necessary, remove a component in question from the chassis, and test it in isolation to make sure that it works properly. Replace a bad component with a good one.
5. Check and change one component at a time instead of changing several items at the same time. This will help isolate and identify the problem.

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

3.2 Technical Support Procedures

Before contacting Technical Support, please take the following steps. Also, note that as a motherboard manufacturer, we do not sell directly to end-users, so it is best to first check with your distributor or reseller for troubleshooting services. They should know of any possible problem(s) with the specific system configuration that was sold to you.

1. Please review the ‘Troubleshooting Procedures’ and 'Frequently Asked Questions' (FAQs) sections in this chapter or see the FAQs on our website before contacting Technical Support.

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

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

   - 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

   An example of a Technical Support form is posted on our website.

   Distributors: For immediate assistance, please have your account number ready when contacting our technical support department by e-mail.

3.3 Frequently Asked Questions

Question: What type of memory does my motherboard support?

Answer: The H13SRH motherboard supports up to 2 TB ECC RDIMM/3DS RDIMM memory with speeds of up to 5200 MT/s (1DPC) or higher with overclocking support in eight ECC DDR5 DIMM slots. To enhance memory performance, do not mix memory modules of different speeds and sizes. See Section 2.4 for details on installing memory.

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.

To update your BIOS:

1. Please check the BIOS warning message and the information on how to update your BIOS on our website.
2. Select your motherboard model and check the current BIOS revision to make sure it is newer than your motherboard's installed BIOS before downloading.
3. Download the zip file and save the BIOS package to your computer.
4. Unzip the BIOS files onto a USB stick with FAT/FAT32 file system.
5. Boot to the motherboard's built-in UEFI Shell and type the following to start the BIOS update process:

   FLASH.nsh BIOSname#.### <ENTER>

   Note: Supermicro no longer supports the BIOS update method in DOS.
6. Perform an A/C power cycle after the message indicating the BIOS update has completed. You may refer to the “Readme” file in BIOS package for more details.

Question: Why can't I turn off the power using the momentary power on/off switch?

Answer: The instant power off function is controlled in BIOS by the Power Button Mode setting. When the On/Off feature is enabled, the motherboard will have instant off capabilities as long as the BIOS has control of the system. When the 4 Seconds Override feature is enabled or when the BIOS is not in control such as during memory count (the first screen that appears when the system is turned on), the momentary on/off switch must be held for more than four seconds to shutdown the system. This feature is required to implement the ACPI features on the motherboard.

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 (see Figure 3-1).
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

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

Battery Installation

1. Power off your system and unplug your power cable.

1. Locate the onboard battery as shown 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.

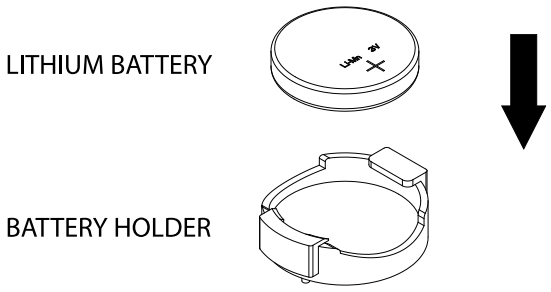


Figure 3-1. Battery Installation

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 the motherboard to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and the shipping package is mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete. For faster service, you can also request a RMA authorization online (https://www.supermicro.com/RmaForm/).

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

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

Chapter 4

BIOS

4.1 Introduction

This chapter describes the AMIBIOS™ Setup utility for the H13SRH motherboard. The BIOS is stored on a chip and can be easily upgraded using the BMC WebUI or the SUM utility.

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

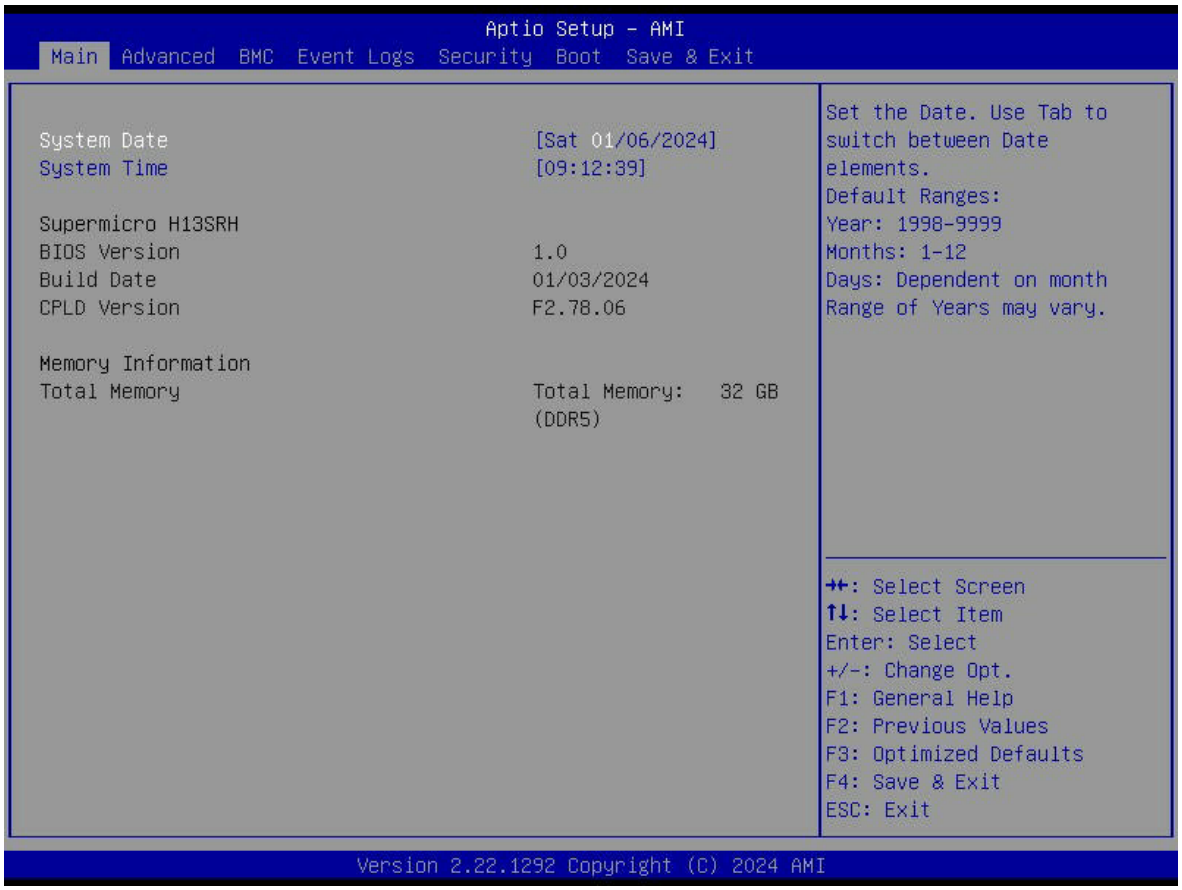
The Main BIOS screen has two main frames. The left frame displays all the options that can be configured. “Grayed-out” options cannot be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it. (Note that 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>, <F4>, <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 will 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.



System Date/System Time

Use this option to change the system date and time. To change system date and time settings, please highlight *System Date* or *System Time* using the arrow keys and 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. The date's default value is 01/01/2015 after RTC reset.

Supermicro H13SRH

BIOS Version

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

Build Date

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

CPLD Version

This item displays the CPLD version of the BIOS ROM used in the system.

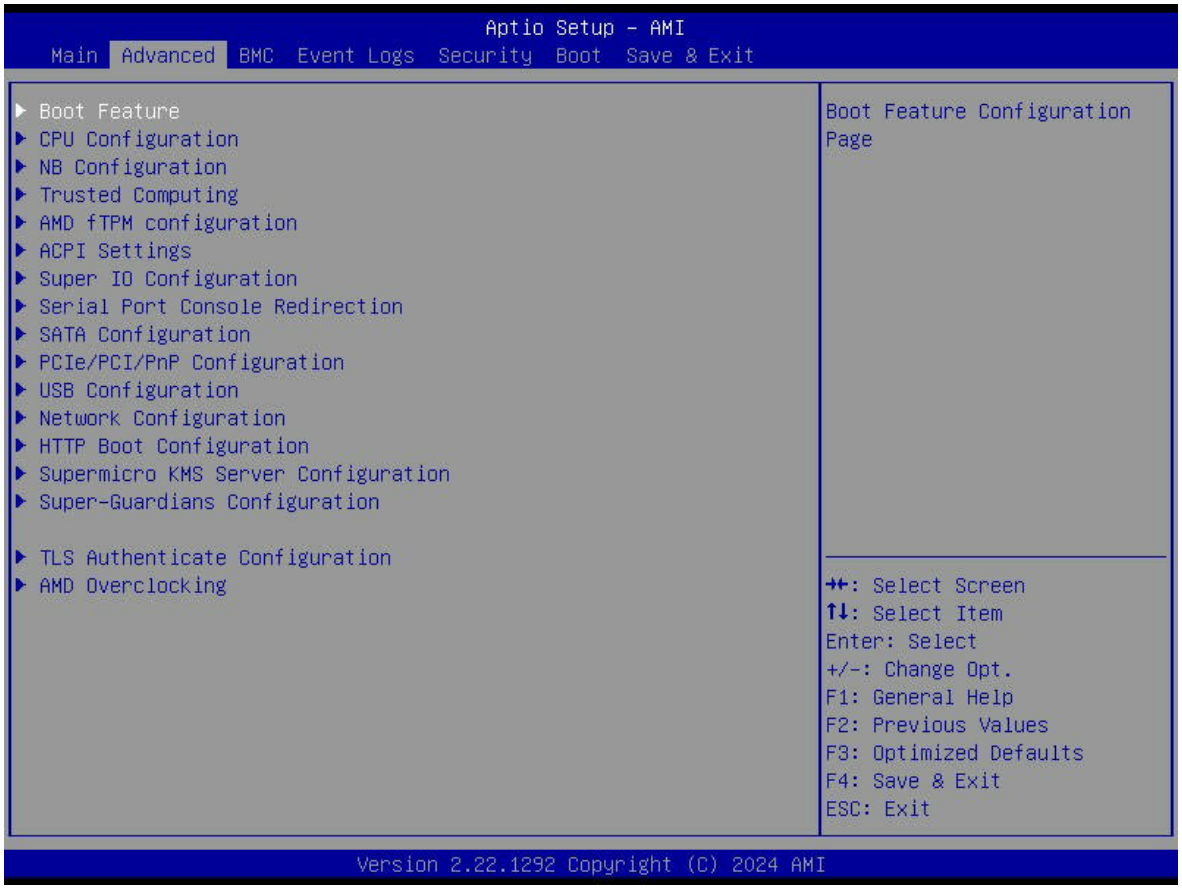
Memory Information

Total Memory

This item 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.



Warning: Take caution when changing the Advanced settings. An incorrect value, a very high DRAM frequency, or an incorrect DRAM timing setting may make the system unstable. When this occurs, revert to the default to the manufacture default settings.

▶Boot Feature

Boot Configuration

Quiet Boot

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

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

Option ROM Messages

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

Bootup NumLock State

Use this feature to select the keyboard <Numlock> state. The options are **On** and Off.

Wait For "F1" If Error

Use this feature 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 item 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 item 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 bootup. The options are **Immediate** and Postponed.

Re-try Boot

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

Power Configuration

Watch Dog Function

Use this feature to enable or **disable** to turn on 5-minute watch dog timer.

Restore on AC Power Loss

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

Power Button Function

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

▶CPU Configuration

CPU Configuration

SMT Control

Use this setting to specify Symmetric Multithreading. Options include Disabled, Enabled, and **Auto**.

Core Performance Boost

This setting is used to configure for Core Performance Boost. Options include Disabled and **Auto**.

Global C-state Control

This setting is used to configure for Global C-state Control. Options include Disabled, Enabled and **Auto**.

SEV-ES ASID Space Limit Control

This setting customize SEV-VS ASID space limit. The options are **Auto** and Manual.

PPIN Opt-in

The Protected Processor Identification Number (PPIN) is a unique serial number for each processor. The options include Disabled, Enabled, and **Auto**.

SNP Memory (RMP Table) Coverage

Select Enabled to set the entire system memory covered. The options include Disabled, Enabled, Custom, and **Auto**.

SMEE

This feature sets the option to enable or disable Secure Memory Encryption. The options are Disabled, Enabled, and **Auto**.

Enhanced REP MOVSB/STOSB (ERSM)

The options include Disabled, Enabled, and **Auto**.

AVX512

The options include Disabled, Enabled, and **Auto**.

MONITOR and MWAIT Disable

Select Enabled to set the opcodes become invalid. The options include Enabled, Disabled, and **Auto**.

L1 Stream HW Prefetcher / L2 Stream HW Prefetcher

This setting is used to enable or disable the L1/L2 Stream Hardware Prefetcher. The options are Disabled, Enabled, and **Auto**.

SMM Lock

Use this feature to enable/disable the SMM Lock. This setting Disalbes or **Enables** SMM Lock.

▶CPU1 Information

CPU Configuration

These sections are for informational purposes. They will display some details about the detected CPUs on the motherboard, such as:

- CPU Version
- Processor Family
- Processor Model
- Processor Stepping
- Microcode Patch Level

▶NB Configuration

North Bridge Configuration

Above 4GB MMIO Limit

Select above 4GB MMIO Limit to 38~43 bits limit. This option works only when 'Above 4G decoding' is enabled. Options include 40bit (1TB), 41bit (2TB), 42 bit (4TB), and **43bit (8TB)**.

IOMMU

Use this setting to enable/disable IOMMU. Options include Disabled, Enabled, and **Auto**.

DMAr Support

Enable DMAr system protection during POST. Options include Disabled, Enabled, and **Auto**.

DMA Protection

Use this setting to enable/disable DMA remap support in IVRS IVinfo Field. Options inclue **Auto**, Enabled, and Disabled.

DTRM Virtual Device Support

Use this setting to enable/disable DRTM ACPI virtual device. Options include Disabled, Enabled, and **Auto**.

DRTM Memory Resetvation

Reserve 128MB memory below Bottom IO for DRTM. It is required to be enabled for Secured-Core Server function. Options include Disabled, Enabled, and **Auto**.

ACS Enable

AER must be enabled for ACS enabled to work. Options include Enabled, Disabled, and **Auto**.

TDP Control

Use this setting to configure the cTDP Control. Options include Manual and **Auto**.

Package Power Limit Control

Use this setting for Package Power Limit Control. Options include Manual and **Auto**.

Determinism Control

Use this setting to configure the Determinism Slider. Options include Manual and **Auto**.

APBDIS

Use this setting to set APBDIS. Options include 0, 1, and **Auto**.

Power Profile Selection

Options include **High Performance Mode**, Efficiency Mode, and Maximum IO Performance Mode.

DF Cstates

Use this setting to enable/disable DF Cstates. Options include Disabled, Enabled, and **Auto**.

Data Link Feature Cap

Use this setting to set Data Link Feature Cap. Options include Enabled, Disabled, and **Auto**.

SEV-SNP Support

Use this setting for SEV-SNP Support. Options include **Disable** and Enable.

CXL SPM

Sets CXL memory as Special Purpose Memory. Options include **Auto**, Enabled, and Disabled.

Sync Header Bypass

Use this setting to enable/disable Sync Header Bypass. Options include **Auto**, Enabled, and Disabled.

▶Memory Information

Memory Information

Memory Target Speed

Use this setting to specify the memory target speed in MT/s. The valid input is 3200, 3600, 4000, 4400, 4800, 5200, 5600.

Memory Interleaving

Use this setting to allow for disabling memory interleaving. Note that NUMA nodes will be honored regardless of this setting. The options are disabled and **Auto**.

Chipselect Interleaving

The options are Disabled and **Auto**.

BankSwapMode

The options are **Auto**, Disabled, and Swap CPU.

Power Down Enable

Use this setting to enable or disable DDR power down mode. The options are Disabled, Enabled, and **Auto**.

TSME

The options are **Auto**, Enabled, and Disabled.

Enhanced PPR

Use this setting to enable a full memory test which will increase the boot time. The options are **Disabled** and Enabled.

▶CPU Memory Information

CPU Memory Information

These sections are for informational purposes. They will display some details about the detected memory according to each CPU on the motherboard, such as:

- Detected Size (per slot, in MB)
- Current Speed (MT/s)

▶Trusted Computing

Security Device Support

If this feature and the TPM jumper on the motherboard are both set to Enabled, onboard security devices will be enabled for TPM (Trusted Platform Module) support to enhance data integrity and network security. Please reboot the system for a change on this setting to take effect. The options are Disabled and **Enabled**.

SHA256 PCR Bank

Use this setting to **enable** or disable SHA256 PCR Bank.

Pending Operation

Schedule an Operation for the Security Device. **Note:** Your Computer will reboot during restart in order to change State of Security Device. The default is **None**.

Platform Hierarchy

Use this setting to **enable** or disable Platform Hierarchy.

Storage Hierarchy

Use this setting to **enable** or disable Storage Hierarchy.

Endorsement Hierarchy

Use this setting to **enable** or disable Endorsement Hierarchy.

▶AMD fTPM Configuration

AMD fTPM Switch

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

Erase fTPM NV For Factory Reset

When New CPU is installed, select "Enabled" to reset fTPM, if you have BitLocker or encryption-enabled system, the system will not boot without a recovery key. Select "Disabled" to keep previous fTPM record and continue system boot, fTPM will NOT be enabled with new CPU unless fTPM is reset (reinitialized), you could swap back to the old CPU to recover TPM related keys and data. The options include Disabled and **Enabled**.

▶ACPI Settings

ACPI Settings

PCI AER Support

Enbles Advanced Error reporting capability. The options are Enabled and **Disabled**.

PSP error injection support

Use this setting to enable EINJ support. The options are **False** and True.

▶Super IO Configuration

Super IO Configuration

The following Super IO information will display:

- Super IO Chip AST2600

▶Serial Port 1 Configuration

Serial Port 1 Configuration

Serial Port 1

Select Enabled to enable the selected onboard serial port. The options are Disabled and **Enabled**.

Change Settings

This feature specifies the base I/O port address and the Interrupt Request address of a serial port specified by the user. Select Auto to allow the BIOS to automatically assign the base I/O and IRQ address. The options are **Auto**, (IO=3F8h; IRQ=4;), (IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;), (IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;), (IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;), and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;).

▶Serial Port 2 Configuration

Serial Port 2 Configuration

Serial Port 2

Select Enabled to enable the selected onboard serial port. The options are Disabled and **Enabled**.

Change Settings

This feature specifies the base I/O port address and the Interrupt Request address of a serial port specified by the user. Select Auto to allow the BIOS to automatically assign the base I/O and IRQ address. The options are **Auto**, (IO=2F8h; IRQ=3;), (IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;), (IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;), (IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;), and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;).

▶Serial Port Console Redirection

COM1

Console Redirection

Select Enabled to enable console redirection support for a serial port specified by the user. The options are **Disabled** and Enabled.

SOL

Console Redirection

Select Enabled to enable console redirection support for a serial port specified by the user. The options are Disabled and **Enabled**.

▶Console Redirection Settings

Terminal Type

This feature allows the user to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII Character set. Select VT100+ 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, **VT100+**, 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, 384000, 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**.

Parity

Options include **None**, Even, Odd, Mark, and Space.

Stop Bits

The setting indicates the end of a serial data packet. (A start bit indicates the beginning.) The standard setting is one stop bit. Communication with slow devices may require more than one stop bit. Options include **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

Use this setting to enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals. The options include 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 include Disabled and **Enabled**.

Putty KeyPad

This feature selects the settings for Function Keys and KeyPad used for Putty, which is a terminal emulator designed for the Windows OS. The options include **VT100**, LINUX, XTERMR6, SC0, ESCN, and VT400.

▶Legacy Console Redirection Settings

Legacy Serial Redirection Port

Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages. The options include **COM1** and SOL.

Resolution

On Legacy OS, the Number of Rows and Columns supported redirection. The options include 80x24 and **80x25**.

Redirection After BIOS POST

When Bootloader is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When Always Enable is selected, then Legacy Console Redirection is enabled for legacy OS. Default setting for this options is set to **Always Enable**.

Console Redirection EMS

Use this setting to enable or **disable** Console Redirection.

▶SATA Configuration

SATA Configuration

▶PCIe/PCI/PnP Configuration

This menu provides PCIe/PCI/PnP configuration settings and information.

PCI Bus Driver Version: A5.01.30

PCI Devices Common Settings:

Above 4G Decoding

This setting Disables or **Enables** 64-bit capable devices to be decoded in above 4G address space (only if the system supports 64-bit PCI decoding).

Re-Size BAR Support

If system has resizable BAR capable PCIe devices, use the options **Enable** or Disable resizable BAR support.

SR-IOV Support

If the system has SR-IOV capable PCIe devices, this setting will Enable or **Disable** the Single Root IO Virtualization Support for the system.

BME DMA Mitigation

Re-enable Bus Master Attribute disabled during PCI enumeration for PCI Bridges after SMM Locked. The options are **Disabled** and Enabled.

Relaxed Ordering

Select Enable to enable Relaxed Ordering support, which will allow certain transactions to violate the strict-ordering rules of PCI bus for a transaction to be completed prior to other transactions that have already been enqueued. The options are Disabled and **Enabled**.

No Snoop

Select Enable to support no-snoop mode for each CB device. The options are Disabled and **Enabled**.

NVMe Firmware Source

Use this setting to select between the AMI Native firmware support or the device vendor-defined firmware support. The options are **Vendor Defined Firmware** and AMI Native Support.

NVMe RAID Mode

Use this setting to enable or **disable** NVMe RAID Mode. Please set the 'PCIe/GFX Lanes Configuration' item according to the RAID configuration.

SATA Enable

Use this setting to disable or **enable** OnChip SATA controller.

PCIe SATA Mode

Use this setting to select OnChip SATA Type. The options include **AHCI Mode** and RAID Mode.

Onboard Video Option ROM

Use this feature to select which onboard video firmware type to be loaded. Use Legacy for Legacy boot. The options include Disabled and **EFI**.

JMD1 OPROM/JMD2 OPROM

The options include Disabled and **EFI**.

▶USB Configuration

USB Configuration

USB Module Version: 35

USB Controllers: 3 XHCIs

USB Devices: 2 keyboards, 2 Mice, 5 Hubs

XHCI Hand-Off

This is a workaround solution for operating systems that do not support XHCI (Extensible Host Controller Interface) 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 in turn, will provide complete legacy USB keyboard support for the operating systems that do not support legacy USB devices. The options are Disabled and **Enabled**.

▶Network Configuration

Network Stack

This setting allows you to Disable or **Enable** the UEFI Network Stack.

IPv4 PXE Support

This setting allows you to Disable or **Enable** IPv4 PXE boot support. If disabled, IPv4 PXE boot support will not be available.

IPv4 HTTP Support

This setting allows you to **Disable** or Enable IPv4 HTTP boot support. If disabled, IPv4 HTTP boot support will not be available.

IPv6 PXE Support

This setting allows you to Disable or **Enable** IPv6 PXE boot support. If disabled, IPv6 PXE boot support will not be available.

IPv6 HTTP Support

This setting allows you to **Disable** or Enable IPv6 HTTP boot support. If disabled, IPv6 HTTP boot support will not be available.

PXE Boot Wait Time

This setting allows you to set in a number field the wait time to press the ESC key to abort the PXE boot. The default value is **0**.

Media Detect Count

This setting allows you set in a number field the number of times presence of media will be checked. The default value is **1**.

▶HTTP Boot Configuration

HTTP Boot Configuration

HTTP Boot Policy

Sets the HTTP boot policy to Apply to all LANs, **Apply to each LAN**, or Boot Priority #1 instantly.

HTTPS Boot Checks Hostname

Selects whether HTTPS Boot checks the hostname of TLS certificates matches the hostname provided by the remote server. The options include **Enabled** and Disabled (WARNING: Security Risk!!).

Priority of HTTP Boot

Instance of Priority 1: 1

Select IPv4 or IPv6

Choose to set the targeted LAN port to boot from **IPv4** or IPv6.

Boot Description

This setting must be filled out, otherwise the boot option for the URI cannot be created.

Boot URI

This option is an input field used to enter a web or network address to point to the HTTP boot files. This supports the HTTP or HTTPS protocols only.

▶Supermicro KMS Server Configuration

Supermicro KMS Server IP address

Enter IP4 address in dotted-decimal notation.

Second Supermicro KMS Server IP address

Enter IP4 address in dotted-decimal notation.

Supermicro KMS TCP Port number

Enter Supermicro KMS TCP port number. The default value is **5696**.

KMS Time Out

KMS Server connecting time-out, unit is second, in the range of 5~30 seconds. The default value is **5**.

TimeZone

Enter the correct timezone. The default value is **0**.

Client UserName

Use this setting to enter the client identity. Choose a username 0-63 characters long.

Client Password

Use this setting to enter the client password. Choose a password 0-31 characters long.

KMS TLS Certifiicate / Size

▶CA Certificate

The options include Update, Delete, and Export.

▶Client Certificate

The options include Update, Delete, and Export.

▶Client Private Key

The options include Update, Delete, and Export.

▶Super-Guardians Configuration

Super-Guardians Protection Policy

Select Storage to protect the storage devices. The options include **Storage**, System, and System and Storage.

KMS Security Policy

The options include **Disabled** and Enabled.

KMS Server Retry Count

Test connection to Key Manage Server range is 0~10. 0 means retrying infinitely. Others mean retry-count. Default is retrying **5** times.

TPM Security Policy

Use this setting to **disable** TPM Security Policy. It is a default mode without any action.

Load Authentication-Key

BIOS will load the Authentication-Key from USB storages at next-boot. The options include **Disabled** and Enabled.

USB Security Policy

Use this setting to **disable** USB Security Policy. It is a default mode without any action.

▶TLS Authenticate Configuration

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

▶Server CA Configuration

▶Enroll Certification

▶Enroll Certification Using File

Use this feature to enroll certification from a file.

Certification GUID
Use this feature to enroll to input the certification GUID.

▶Commit Changes and Exit

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

▶Discard Changes and Exit

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

▶Delete Certification

Use this feature to delete certification. The options include **Disabled** and Enabled.

▶AMD Overclocking (Available for CPU supporting overclocking)

Note: Overclocking feature is available only when your CPU supports overclocking.

Overclocking Feature

This feature enables the CPU overclocking. The options are Enabled and **Disabled**.

If the feature of Overclocking is set to Enabled, the following feature will become available for configuration:

▶Accept

Press <Enter> to set the overclocking features.

AMD Overclocking

▶Manual CPU Overclocking

CPU Frequency

Use this feature to set the CPU core frequency. The default value is **0**.

VDDCR_CPU0 Voltage

Use this feature to set the VDDCR_CPU0 Voltage (mV). The default value is **0**.

VDDCR_CPU1 Voltage

Use this feature to set the VDDCR_CPU1 Voltage (mV). The default value is **0**.

▶CPU Core Count Control

The following information regarding AOD Core Bit Map is displayed:

CCD 00/01/02/03 Bit Map Down Core Control

Use this feature to modify the core bit. "1" means the core is enabled. "0" means the core is software down.

Bit Map Down Core Discard Changes

Use this feature to discard changes

Bit Map Down Core Apply Changes

Use this feature to apply changes and reboot.

SMT Control

Use this feature to disable the symmetric multithreading. A power cycle is needed after setting this feature to Auto. Options include **Auto** and Disable.

Prochot VRM Throtting

The options are **Auto**, Enable, and Disable. Please note that disabling Prochot will disable the VRM ability to throttle the CPU when the voltage regulator is approaching its thermal limits.

Peak Current Control

Use this feature to enable/disable the Peak Current Control (PCC). The options are **Auto,** Enable, and Disable.

▶DDR and Infinity Fabric Frequency/Timings

▶DDR Options

▶DDR Timing Configuration

Active memory Timing Settings

This feature is used for the active memory timing settings. The options include **Auto** and Enabled.

▶DDR Bus Configuration

Processor CA Drive Strengths

Use this feature to set the drive strength for all CA0–13 IOs. The options include **Auto**, 120.0 Ohm, 60.0 Ohm, 40.0 Ohm, 30.0 Ohm.

Processor DQ Drive Strengths

Use this feature to set the drive strength for all DQ and DMI IOs. The options include **Auto**, High Impedance, 240 Ohm, 120 Ohm, 80 Ohm, 60 Ohm, 48 Ohm, 40 Ohm, 34.3 Ohm.

Processors ODT Impedance

Use this feature to set the ODT impedance for all DBYTE IOs. The options include **Auto**, High Impedance, 480 Ohm, 240 Ohm, 160 Ohm, 120 Ohm, 96 Ohm, 80 Ohm, 68.6 Ohm, 60 Ohm, 53.3 Ohm, 48 Ohm, 43.6 Ohm, 40 Ohm, 36.9 Ohm, 34.3 Ohm, 32 Ohm, 30 Ohm, 28.2 Ohm, 26.7 Ohm, 25.3 Ohm.

Dram DQ Drive Strengths

Use this feature to set the Dram Pull-up and Pull-down output driver impedance for all DQ and DMI IOs. The options include **Auto**, 48 Ohm, 40 Ohm, and 34 Ohm.

Dram ODT Impedance RTT_NOM_WR

Use this feature to set the DRAM On-die termination impedance for RTT_NOM_WR. The options include **Auto**, RTT_OFF, RZQ (240), RZQ/2 (120), RZQ/3 (80), RZQ/4 (60), RZQ/5 (48), RZQ/6 (40), and RZQ/7 (34).

Dram ODT Impedance RTT_NOM_RD

Use this feature to set the DRAM On-die termination impedance for RTT_NOM_RD. The options include **Auto**, RTT_OFF, RZQ (240), RZQ/2 (120), RZQ/3 (80), RZQ/4 (60), RZQ/5 (48), RZQ/6 (40), and RZQ/7 (34).

Dram ODT Impedance RTT_WR

Use this feature to set the DRAM On-die termination impedance for RTT_WR. The options include **Auto**, RTT_OFF, RZQ (240), RZQ/2 (120), RZQ/3 (80), RZQ/4 (60), RZQ/5 (48), RZQ/6 (40), and RZQ/7 (34).

Dram ODT Impedance RTT_PARK

Use this feature to set the DRAM On-die termination impedance for RTT_PARK. The options include **Auto**, RTT_OFF, RZQ (240), RZQ/2 (120), RZQ/3 (80), RZQ/4 (60), RZQ/5 (48), RZQ/6 (40), and RZQ/7 (34).

Dram ODT Impedance DQS_RTT_PARK

Use this feature to set the DRAM On-die termination impedance for RTT_PARK. The options include **Auto**, RTT_OFF, RZQ (240), RZQ/2 (120), RZQ/3 (80), RZQ/4 (60), RZQ/5 (48), RZQ/6 (40), and RZQ/7 (34).

▶DDR Controller Configuration

▶DDR Power Options

Power Sown Enable

Use this feature to set the DDR power down mode. The options are Disabled, Enabled, **Auto**.

▶Additional Memory Tweaks

RX DFE Taps

Use this feature to set the number of RX DFE taps. The options are **Auto**, 1 Tap, 2, Tap, 3 Tap, and 4 Tap.

TX DFE Taps

Use this feature to set the number of TX DFE taps. The options are **Auto**, 1 Tap, 2, Tap, 3 Tap, and 4 Tap.

▶Infinity Fabric Grequency and Dividers

Infinity Fabric Frequency and Dividers

Use this feature to set the Infinity Fabric frequency (FCLK). The options are **Auto**, 100 MHz, 200 MHz, 333 MHz, 400 MHz, 500 MHz, 533 MHz, 667 MHz, 800 MHz, 933 MHz, 1050 MHz, 1066 MHz, 1067 MHz, 1100 MHz, 1120 MHz, 1143 MHz, 1200 MHz, 1250 MHz, 1257 MHz, 1280 MHz, 1300 MHz, 1320 MHz, 1333 MHz, 1367 MHz, 1371 MHz, 1400 MHz, 1433 MHz, 1440 MHz, 1467 MHz, 1485 MHz, 1500 MHz, 1533 MHz, 1560 MHz, 1567 MHz, 1600 MHz, 1633 MHz, 1650 MHz, 1667 MHz, 1680 MHz, 1700 MHz, 1733 MHz, 1750 MHz, 1760 MHz, 1767 MHz, 1800 MHz, 1833 MHz, 1867 MHz, 1900 MHz, 1920 MHz, 1933 MHz, 1960 MHz, 1967 MHz, 2000 MHz, 2033 MHz, 2067 MHz, 2100 MHz, 2133 MHz, 2167 MHz, 2200 MHz, 2233 MHz, 2267 MHz, 2300 MHz, 2333 MHz, 2367 MHz, 2400 MHz, 2433 MHz, 2467 MHz, 2500 MHz, 2550 MHz, 2600 MHz, 2650 MHz, 2700 MHz, 2750 MHz, 2800 MHz, 2850 MHz, 2900 MHz, 2950 MHz, and 3000 MHz.

UCLK DIC1 MODE

Use this feature to set the UCLK DIV mode. The options are **Auto**, UCLK=MEMCLK, and UCLK=MEMCLK/2.

▶Precision Boost Overdrive

Precision Boost Overdrive

Use this feature to set the Precision Boost Overdrive (PBO). The options are **Auto**, Disable, Enable, and Advanced.

▶VDDG Voltage Control

VDDG Voltage Control

Use this feature to set the VDDG, which represents voltage for the data portion of the Infinity Fabric. The options are **Auto**, Global VDDG Voltage Control, and Per-CCD VDDG Voltage Control.

▶VDDP Voltage Control

VDDP Voltage Control

Use this feature to set the VDDP voltage. The options are **Auto** and Manual. Set this feature to Auto to have the system default VDDP. The option of Manual allows you to set voltage for the DDR bus signaling.

▶SoC/Uncore OC Mode

SoC/Uncore OC Mode

Use this feature to force CPU SoC/Uncore components (e.g., Infinity Fabric, memory, integrated graphics) to run at the maximum specified frequency at all times. The options are **Auto** and Enabled.

▶SoC Voltage

SoC Voltage

Use this feature to set the SoC/uncore voltage (VDD_SOC) in mV to support memory and Infinity Fabric overclocking. The default valus is 0.

▶LN2 Mode

LN2 Mode

Set this feature to provide additional stability at extreme cold operating temperatures. The options are **Auto**, Disabled, and Enabled.

▶VDD Misc

VDD Misc Control

Use this feature to set the VDD Misc voltage. The options are **Auto** and Manual. Set this feature to Auto to have the system default VDD Misc. The option of Manual allows you to set voltage for the GMI PHY.

▶LCLK Frequency Control

LCLK Frequency Control

Use this feature to set the LCLK frequency. The options are **Auto** and Manual. Set this feature to Auto to have the system default settings. The option of Manual allows you to configure the LCLK frequency.

▶Onboard Voltage Control

▶VDDIO Voltage Control

VDDIO Ctrl

Use this feature to set the VDDIO voltage. The options are **Auto**, Manual, and Separate. Set this feature to Auto to have the system default VDD Misc. The option of Manual allows you to set DIMM VDD/VDDQ, which will be synchronized to APU VDDIOO. Set this feature to Separate to have the independent control of APU VDDIOO and DIMM VDD/VDDQ.

When "VDDIO Ctrl" is set to Manual, the feature below will be available for configuration.

Enable Platform PMIC Control

The options are **Auto**, Enable, and Disable. If this feature is set to Enable, the DDR PMIC voltages are not adjusted by the processor firmware, and could be by EC or other platform based mechanism.

▶VPP Voltage Control

VPP Ctrl

Use this feature to set the VPP voltage. The options are Auto and Manual. Set this feature to Auto to have the system default settings. The option of Manual allows you to set the memory VPP voltage.

▶Gaming Mode

Gaming Mode

Set this feature to Disabled to use the CCD control under AOD. The options are Disabled and Enabled. If this feature is set to Enabled, the CCD control will not work any more.

▶NPS Mode

NUMA node per socket (Unavailable when "Gaming Mode" is set to Enabled)

Use this feature to set the number of NUMA nodes per socket. The options are **Auto**, NPS1, NPS2, and NPS4.

▶Decline

Press <Enter> for not using overclocking features.

▶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.

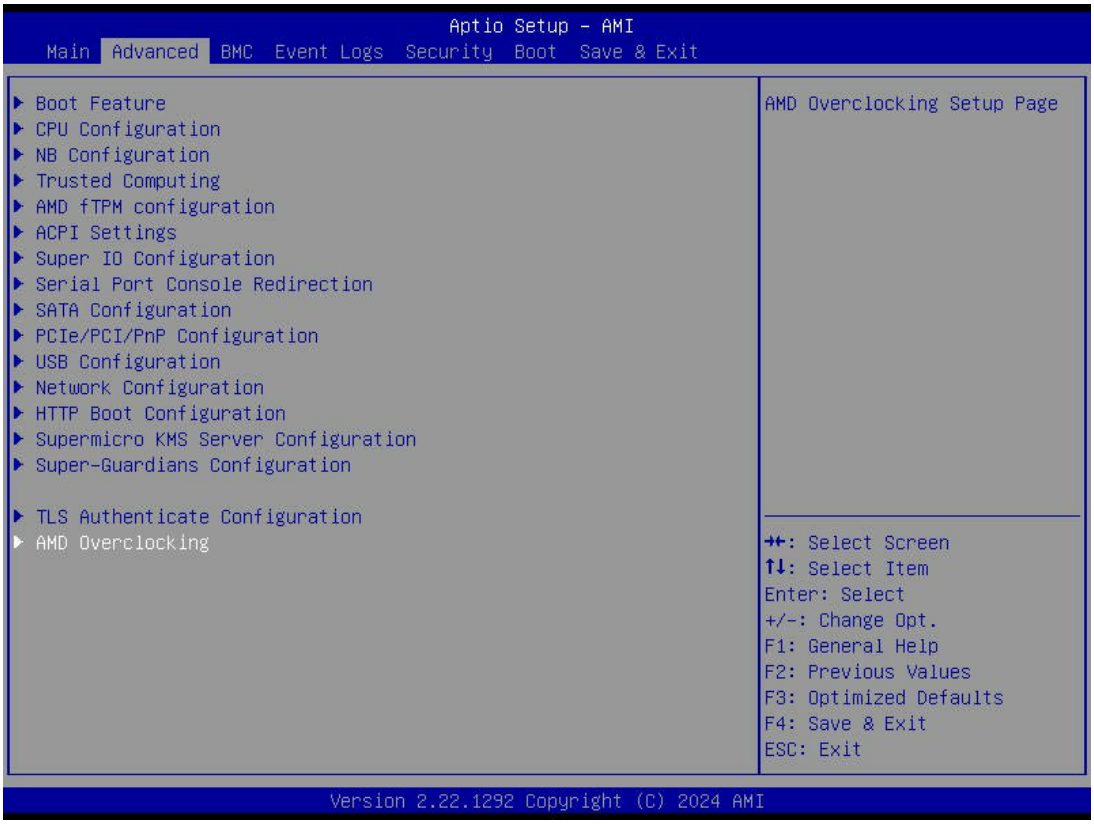
Note: This section is provided for reference only, for the driver health status will differ depending on the drivers installed in your system. It's also based on your system configuration and the environment that your system is operating in.

CPU/Expo DDR Overclocking

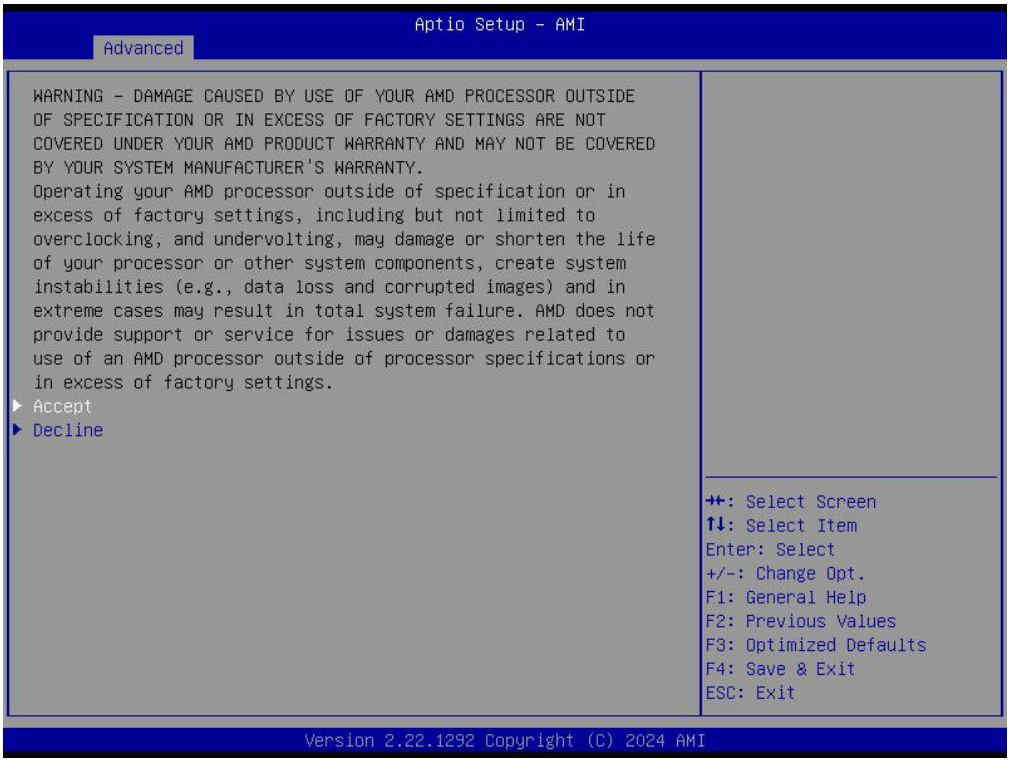
The overclocking fearure is disabled by default. For a quick and easy CPU overclocking process, you can take the following steps as a reference.

Quick Steps for CPU Overclocking

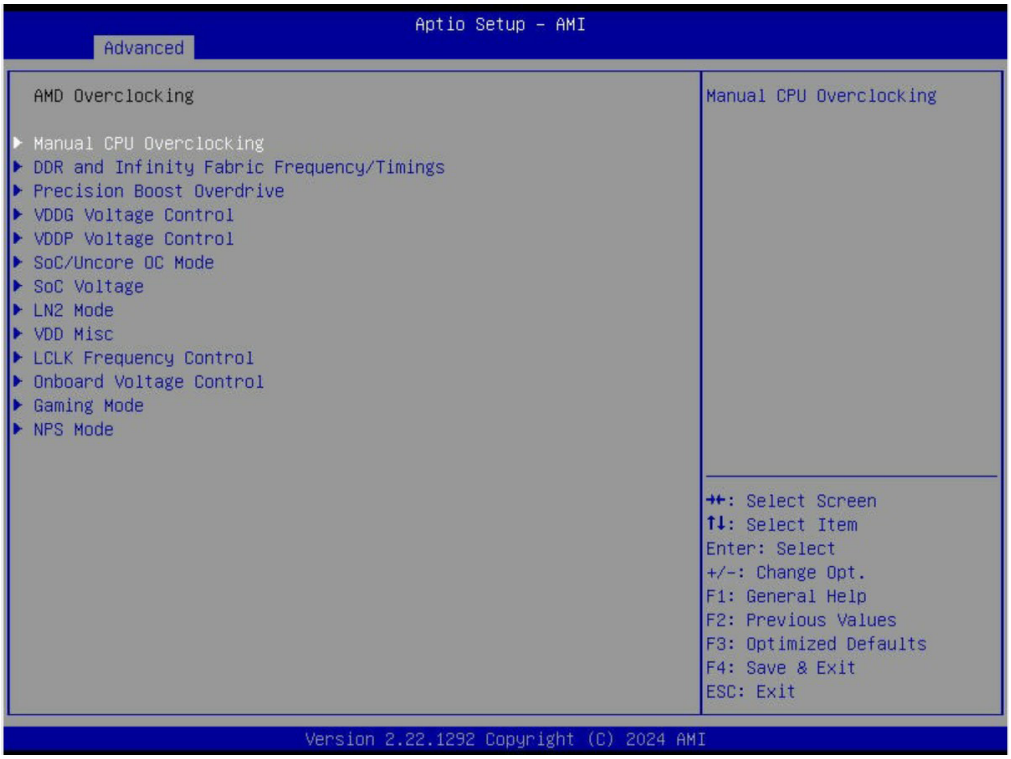
1. Enter the BIOS Advanced Setup Configurations, select **AMD Overclocking**.



2. Select **Accept**.

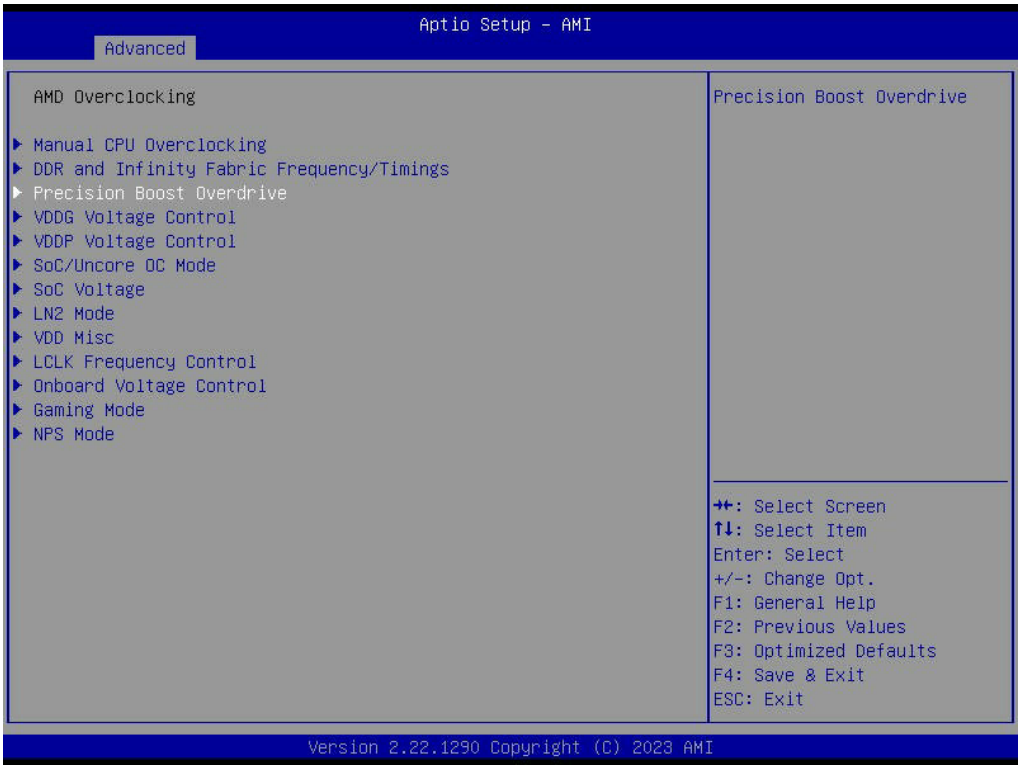


3. Select **Manual CPU Overclocking**.

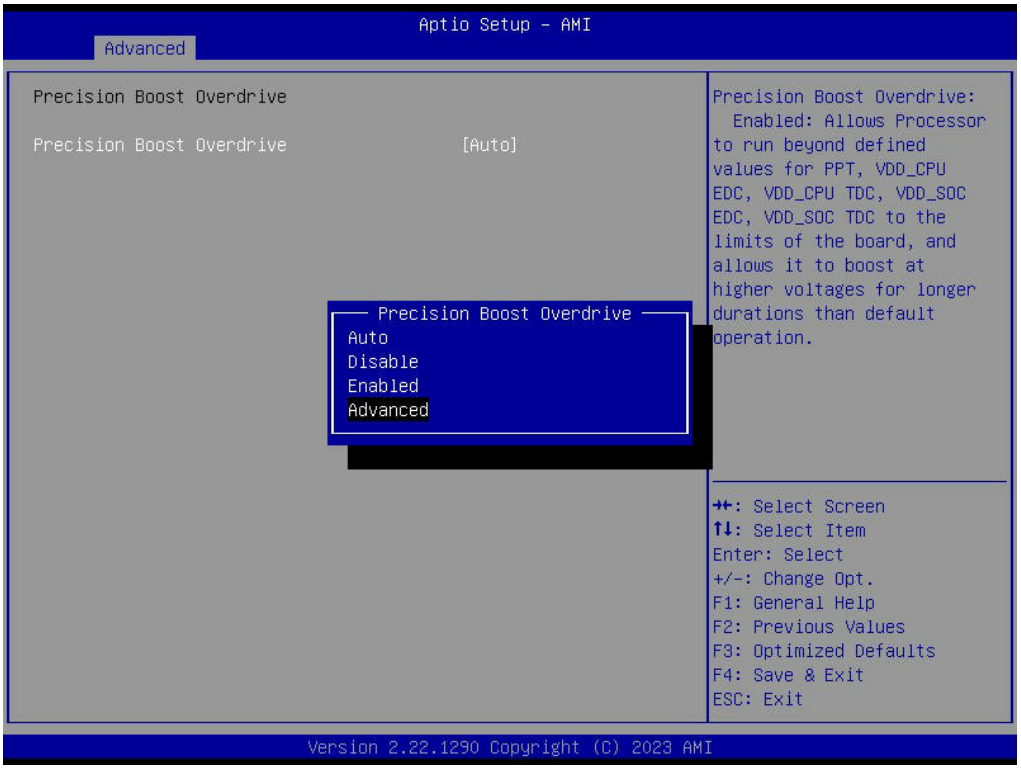


4. Set Peak Current Control to **Disable**.

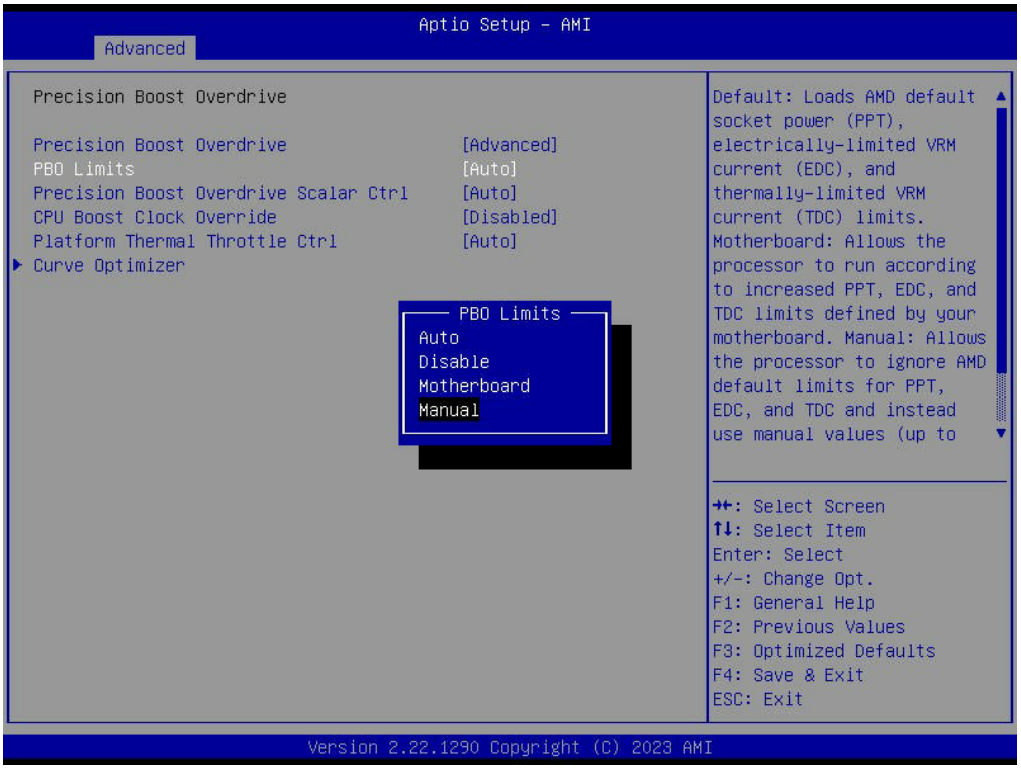
5. Select **Precision Boost Overdrive**.



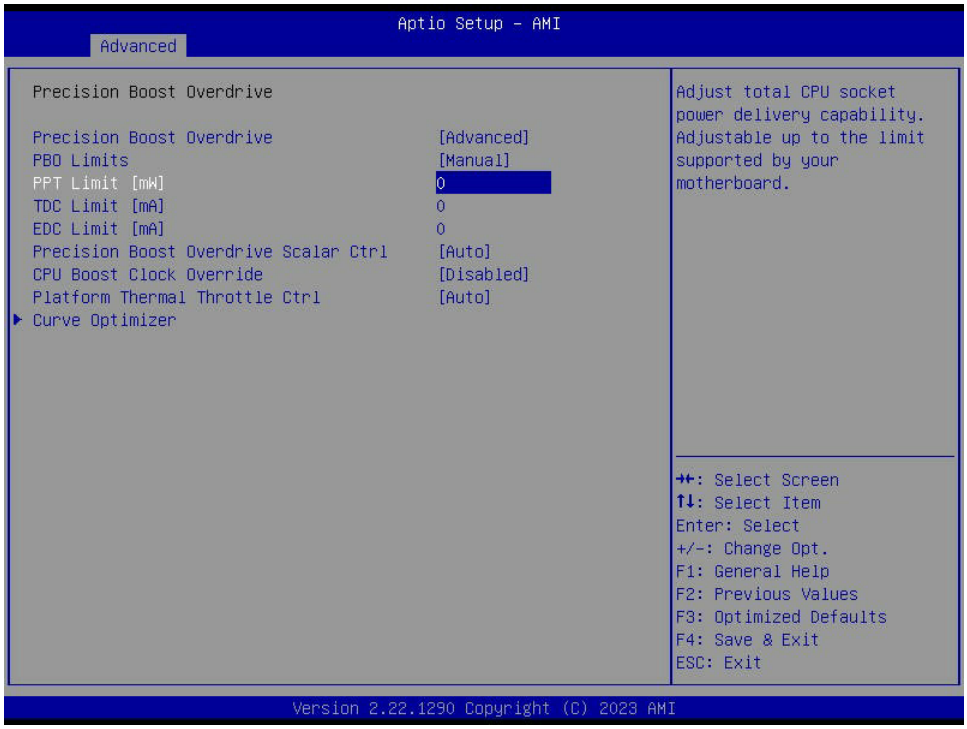
6. Select **Advanced**.



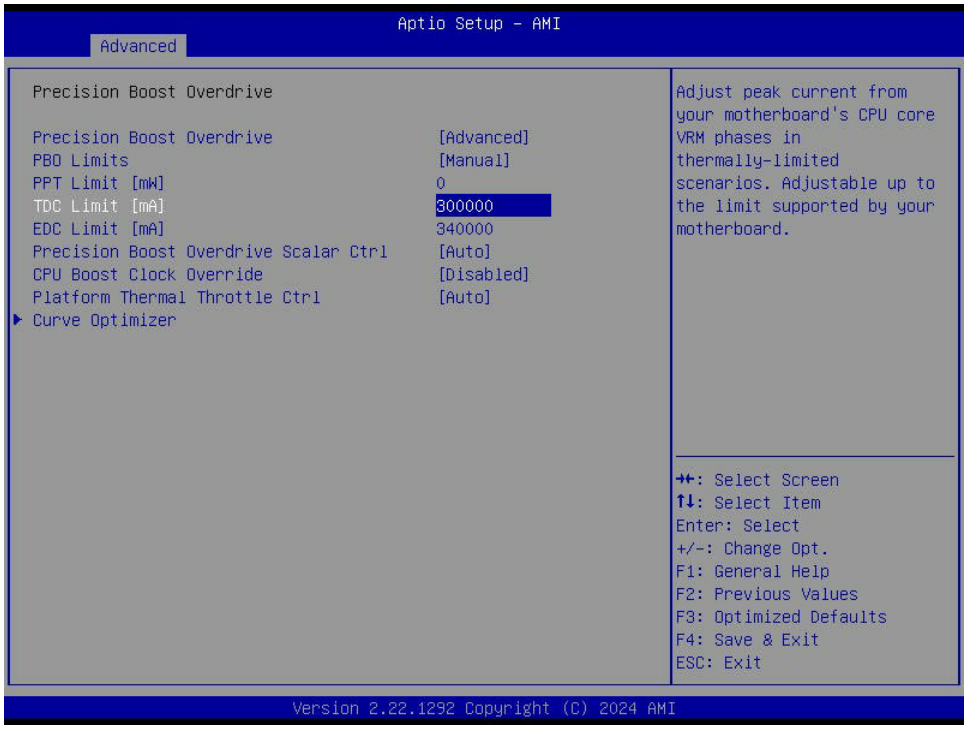
7. Select **PBO Limits**, and then **Manual**.



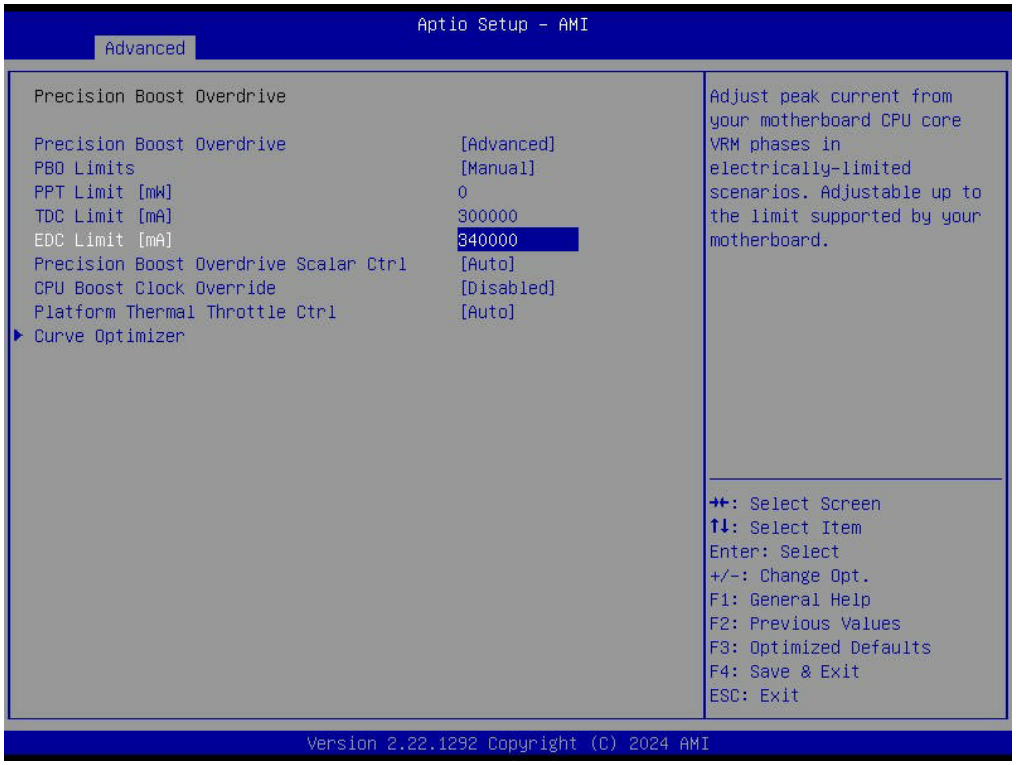
8. Select **PPT Limit [mW]**, the value is adjustable up to the limit supported by your motherboard.



9. Select **TDC Limit [mA]**, the value is **300000**.



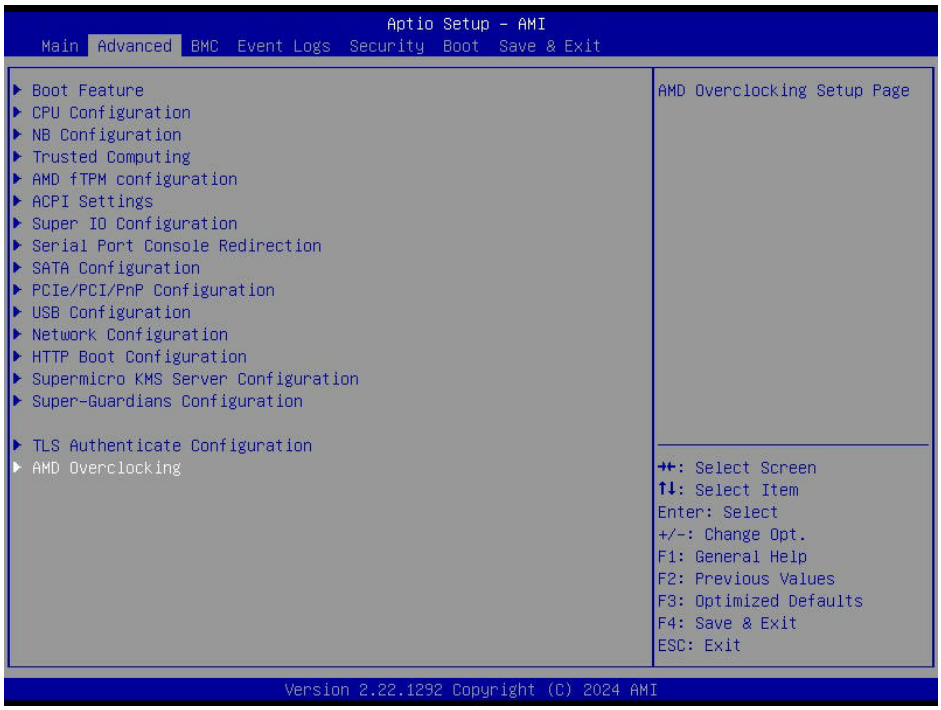
10. Select **EDC Limit [mA]**, the value is **340000**.



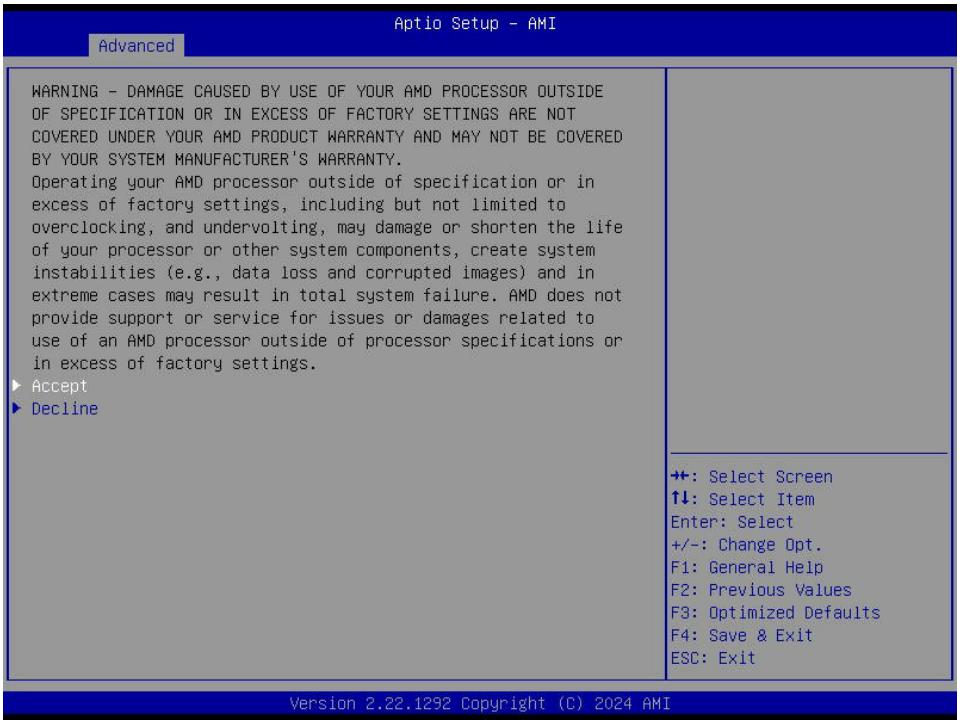
Warning: Please be aware that overclocking performance is not guaranteed by AMD and Supermicro, and it carries inherent risks, including potential hardware damage. Neither company provides warranties or support for systems overclocked beyond factory specifications. Exercise caution and understand the consequences before proceeding. If you have questions, please contact us for more information.

Quick Steps for Expo DDR Overclocking

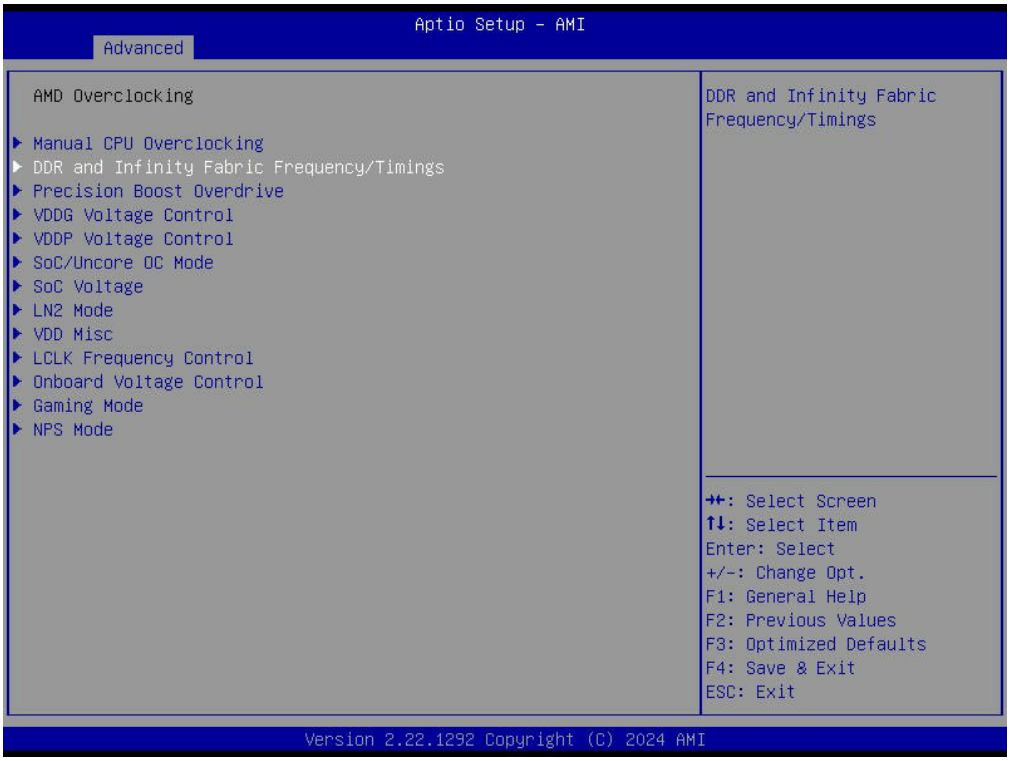
1. Enter the BIOS Advanced Setup Configurations, select **AMD Overclocking**.



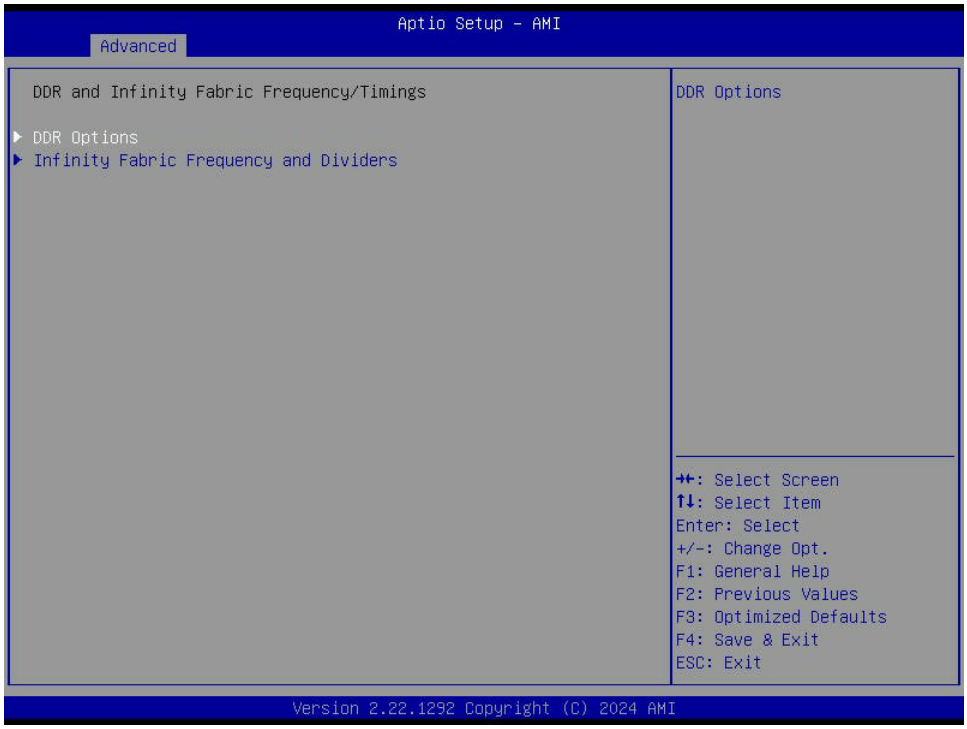
2. Select **Accept**.



3. Select **DDR and Infinity Fabric Frequency/Timings**.

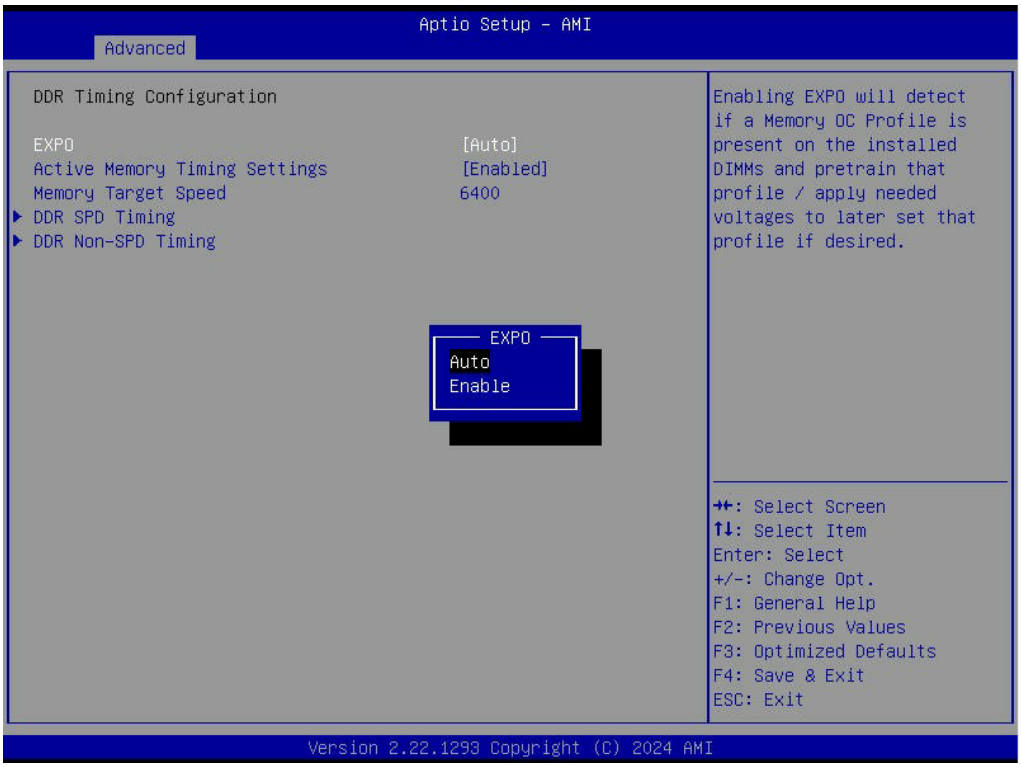


4. Select **DDR Options**.

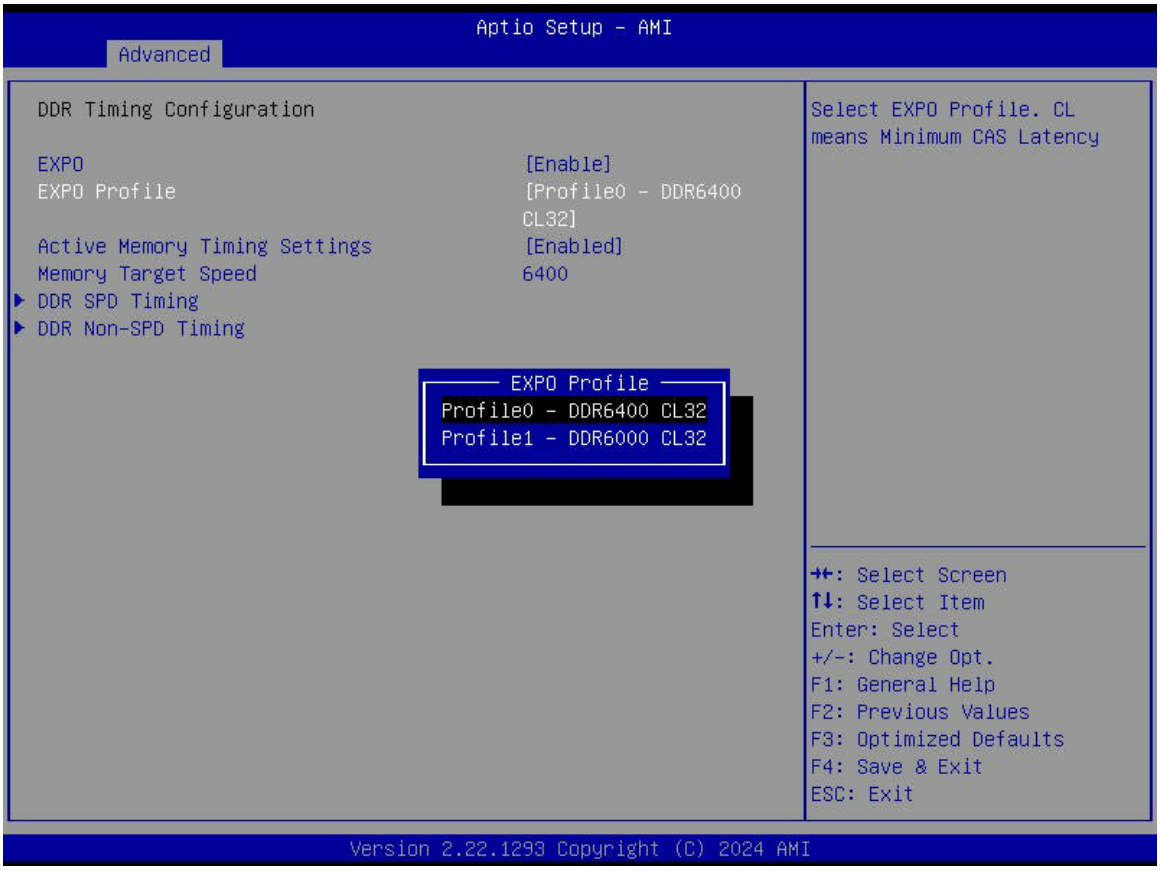


5. Select **DDR Timing Configuration**

6. Select **EXPO**



7. **Enable** EXPO, and select **Profiles with Memory speed setting**.



4.4 BMC

Use this feature to configure BMC settings.

BMC Firmware Revision

This item indicates the IPMI firmware revision used in your system.

BMC Status

This item indicates the status of the IPMI firmware installed in your system.

▶System Event Log

Enabling/Disabling Options

SEL Components

Select Enabled for all system event logging at bootup. The options are Disabled and **Enabled**.

Erasing Settings

Erase SEL

Select Yes, On next reset to erase all system event logs upon next system reboot. 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 the user to decide 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 to enable BMC Network Configuration. The options include **No** and Yes. If set to Yes, the following option becomes available.

Configure IPv4 Support

This section displays static configuration features for IPV4 support.

BMC LAN Selection

This item displays the IPMI LAN setting. The default setting is **Failover**.

BMC Network Link Status

This item displays the IPMI Network Link status. The default setting is **Dedicated LAN**.

Configuration Address Source

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

Station IP Address

This item displays the Station IP address for this computer. This should be in decimal and in dotted quad form.

Subnet Mask

This item 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

This item displays the Station MAC address for this computer. Mac addresses are 6 two-digit hexadecimal numbers.

Gateway IP Address

This item displays the Gateway IP address for this computer. This should be in decimal and in dotted quad form (i.e., 172.31.0.1).

Configure IPv6 Support

This section displays configuration features for IPv6 support.

IPv6 Address Status: Disabled

IPv6 Support

Use this feature to enable or disable LAN1 IPv6 support. The default setting is **Enabled**.

Configuration Address Source

This feature allows the user to select the source of the IP address for this computer. If Static is selected, you will need to know the IP address of this computer and enter it to the system manually in the field. If DHCP is selected, the BIOS will search for a DHCP (Dynamic Host Configuration Protocol) server in the network that is attached to and request the next available IP address for this computer. The default setting is **DHCPv6 Stateless**.

Configure VLAN Support

Lan Channel: 1

VLAN Support

Use this feature to enable VLAN support to specify the 802.1q VLAN ID. The options are Enabled and **Disabled**.

4.5 Event Logs

This tab allows the user to configure the following event logs settings for the system.

▶Change SMBIOS Event Log Settings

This feature allows the user to configure SMBIOS Event settings.

Enabling/Disabling Options

SMBIOS Event Log

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

Erasing Settings

Erase Event Log

Select Yes to erase all error events in the SMBIOS (System Management BIOS) log before an event logging is initialized at bootup. The options are **No**, Yes, Next reset, and Yes, Every reset.

When Log is Full

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

SMBIOS Event Log Standard Settings

Log System Boot Event

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

MECI (Multiple Event Count Increment)

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

METW (Multiple Event Count Time Window)

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

Note: All values changed here do not take effect until computer is restarted.

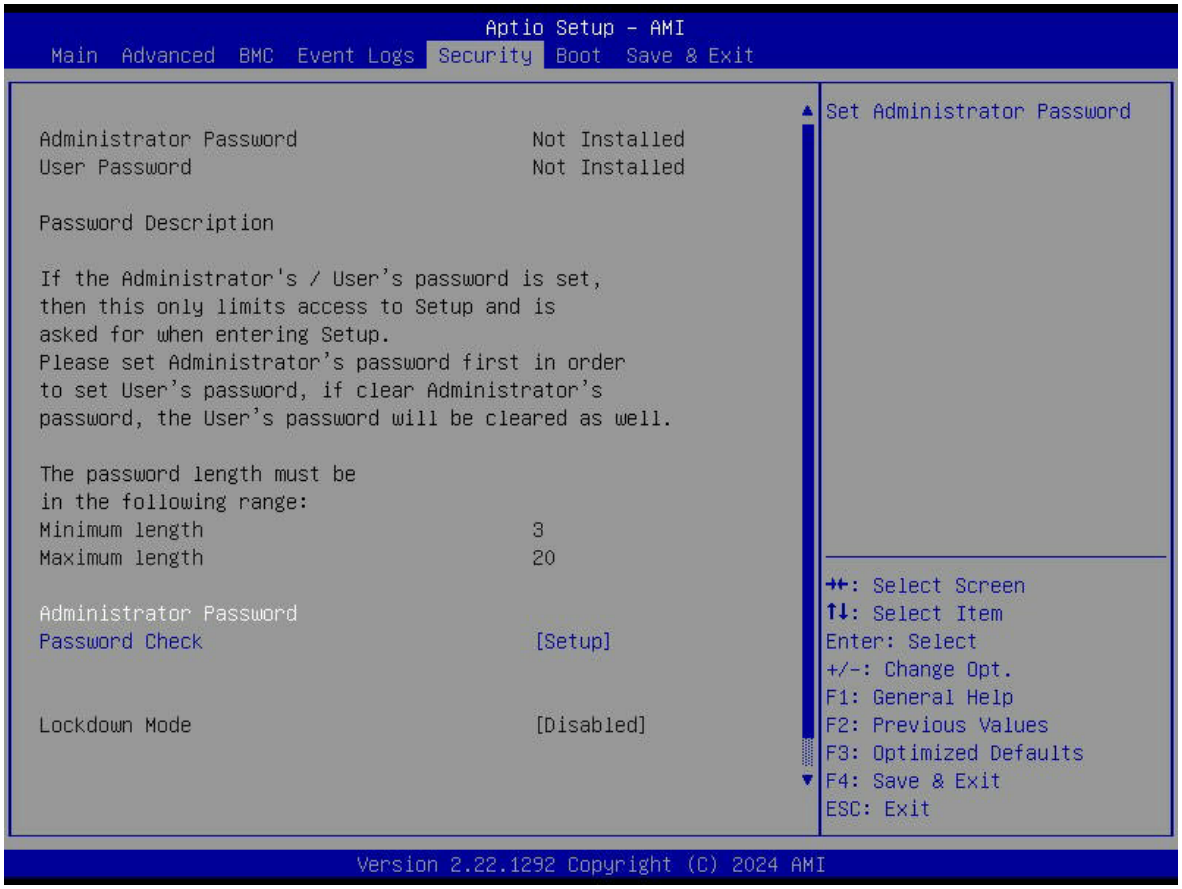
▶View SMBIOS Event Log

This feature allows you to view the event in the system event log. Select this feature and press <Enter> to view the status of an event in the log. The following information is displayed:

Date/Time/Error Code/Severity

4.6 Security

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



Administrator Password

This feature indicates if an administrator password has been installed. It also allows you to set the administrator password which is required to enter the BIOS Setup utility. The length of the password should be from three characters to 20 characters long.

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.

Secure Boot

This option allows you specify when the Platform Key (PK) is enrolled. When enabled, the System Mode is user deployed, and the CSM function is disabled. Options include **Disabled** and Enabled.

Secure Boot Mode

Use this item to select the secure boot mode. The options are Standard and **Custom**.

▶Key Management

This submenu allows the user to configure the following Key Management settings.

Vendor Keys

Provision Factory Defaults

Install factory default Secure Boot keys after the platform reset and while the System is in Setup mode. The default setting is **Disabled**.

▶Restore Factory Keys

Select and press Yes to restore factory default secure boot keys and key variables. Also, it will reset the system to the User mode. Select Yes to install all default secure keys set by the manufacturer. The options are Yes and No.

▶Enroll Efi Image

This feature is to enroll SHA256 hash of the binary into the Authorized Signature Database (DB) and to allow the image to run in the secure boot mode.

Secure Boot Variable/Size/Key Numbers/Key Source

▶Platform Key (PK)

This feature allows the user to enter and configure a set of values to be used as platform firmware keys for the system. The sizes, keys numbers, and key sources of the platform keys will be indicated as well. Select Update to update the platform key. Select Yes to load a factory default PK or No to load from a file on an external media.

▶Key Exchange Keys (KEK)

This feature allows the user to enter and configure a set of values to be used as Key-Exchange-Keys for the system. The sizes, keys numbers, and key sources of the Key-Exchange-Keys will be indicated as well. Select Update to update your "Key Exchange Keys". Select Append to append your "Key Exchange Keys".

▶Authorized Signatures (db)

This feature allows the user to enter and configure a set of values to be used as Authorized Signatures for the system. These values also indicate the sizes, keys numbers, and the sources of the authorized signatures. Select Update to update your "Authorized Signatures". Select Append to append your "Authorized Signatures". The settings are Update and Append.

▶Forbidden Signatures (dbx)

This feature allows the user to enter and configure a set of values to be used as Forbidden Signatures for the system. These values also indicate sizes, keys numbers, and key sources of the forbidden signatures. Select Update to update your "Forbidden. Signatures". Select Append to append your "Forbidden Signatures". The settings are Update and Append.

▶Authorized TimeStamps (dbt)

This feature allows the user to set and save the timestamps for the authorized signatures which will indicate the time when these signatures are entered into the system. Select Update to update your "Authorized TimeStamps". Select Append to append your "Authorized TimeStamps". The settings are Update and Append.

▶OsRecovery Signature (dbr)

This item uploads and installs an OSRecovery Signature. Use this feature to export NVRAM content of secure boot variables to files in a root folder on a file system device. The settings are Update and Append.

The file formats accepted are:

1) Public Key Certificate

a. EFI Signature List

b. EFI CERT X509 (DER Encoded)

c. EFI CERT RSA2048 (bin)

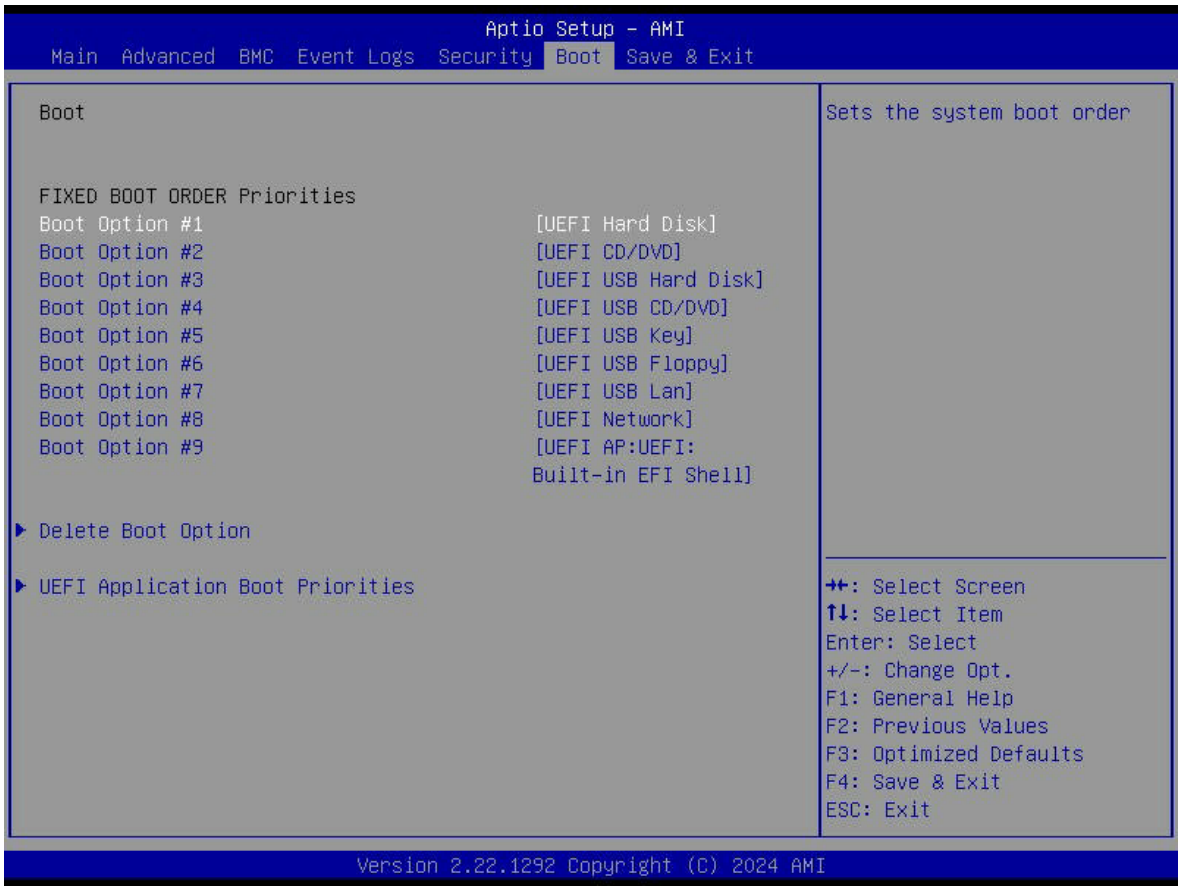
d. EFI SERT SHA256 (bin)

2) Authenticated UEFI Variable

3) EFI PE/COFF Image (SHA256)

4.7 Boot

Use this tab to configure Boot Settings:



FIXED BOOT ORDER Priorities Section

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

The features below are displayed for configuration.

- Boot Option #1 – Boot Option #9

▶Delete Boot Option

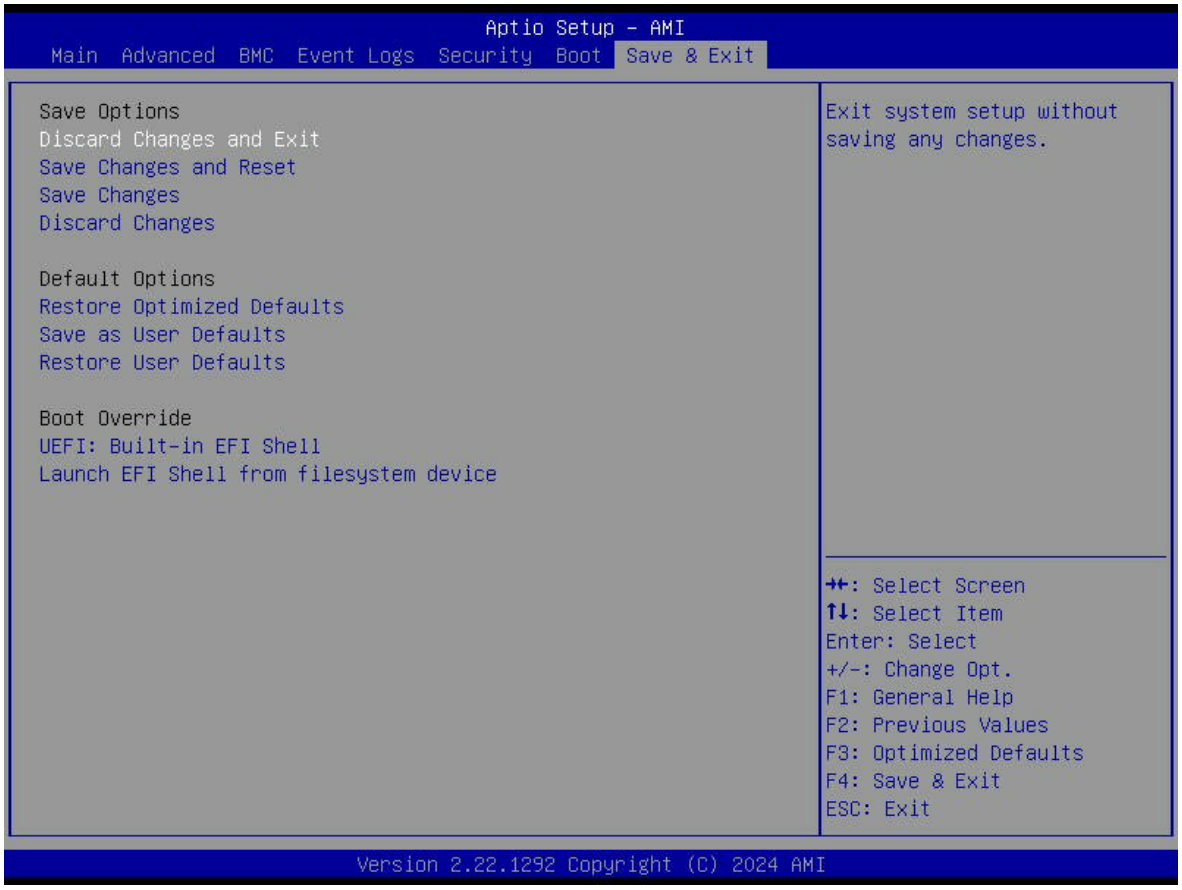
Use this feature to remove a pre-defined boot device from which the system will boot during startup. The default is **Select one to Delete**.

▶UEFI Application Boot Priorities

This feature allows users to specify the Boot Device Priority sequence from available UEFI Application.

4.8 Save & Exit

Select the Save & Exit tab to enter the Save & Exit BIOS Setup screen.



Save Options

Discard Changes and Exit

Select this option to quit the BIOS Setup without making any permanent changes to the system configuration, and reboot the computer. Select Discard Changes and Exit from the Exit menu and press <Enter>.

Save Changes and Reset

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

Save Changes

After completing the system configuration changes, select this option to save the changes you have made. This will not reset (reboot) the system.

Discard Changes

Select this option and press <Enter> to discard all the changes and return to the AMI BIOS utility Program.

Default Options

Restore Optimized Defaults

To set this feature, select Restore Defaults from the Save & Exit menu and press <Enter>. These are factory settings designed for maximum system stability, but not for maximum performance.

Note: Please reboot the system for the changes to take effect to ensure that your system has the optimized default settings.

Save as User Defaults

To set this feature, select Save as User Defaults from the Exit menu and press <Enter>. This enables the user to save any changes to the BIOS setup for future use.

Restore User Defaults

To set this feature, select Restore User Defaults from the Exit menu and press <Enter>. Use this feature to retrieve user-defined settings that were saved previously.

Boot Override Section

Listed in this section are other boot options for the system (i.e., UEFI: Built-in EFI Shell). Select an option and press <Enter>. Your system will boot to the selected boot option.

UEFI: Built-in EFI Shell

Launch EFI Shell from filesystem device

Appendix A

Software

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

A.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 Microsoft Windows installation ISO file. That can be a USB flash or media drive.
2. 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.

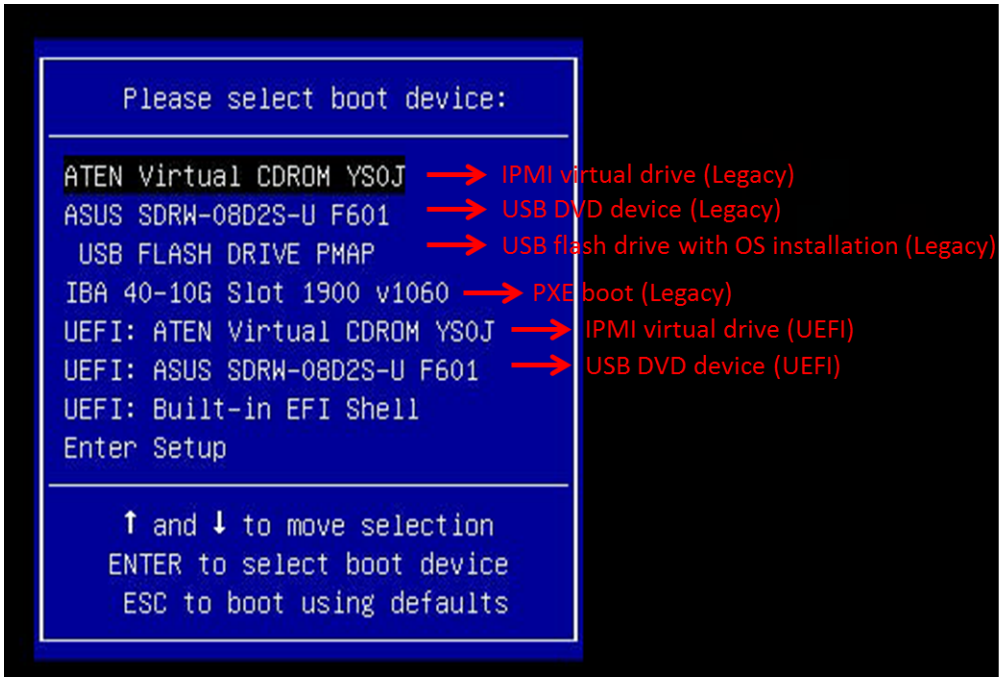


Figure A-1. Select Boot Device

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.

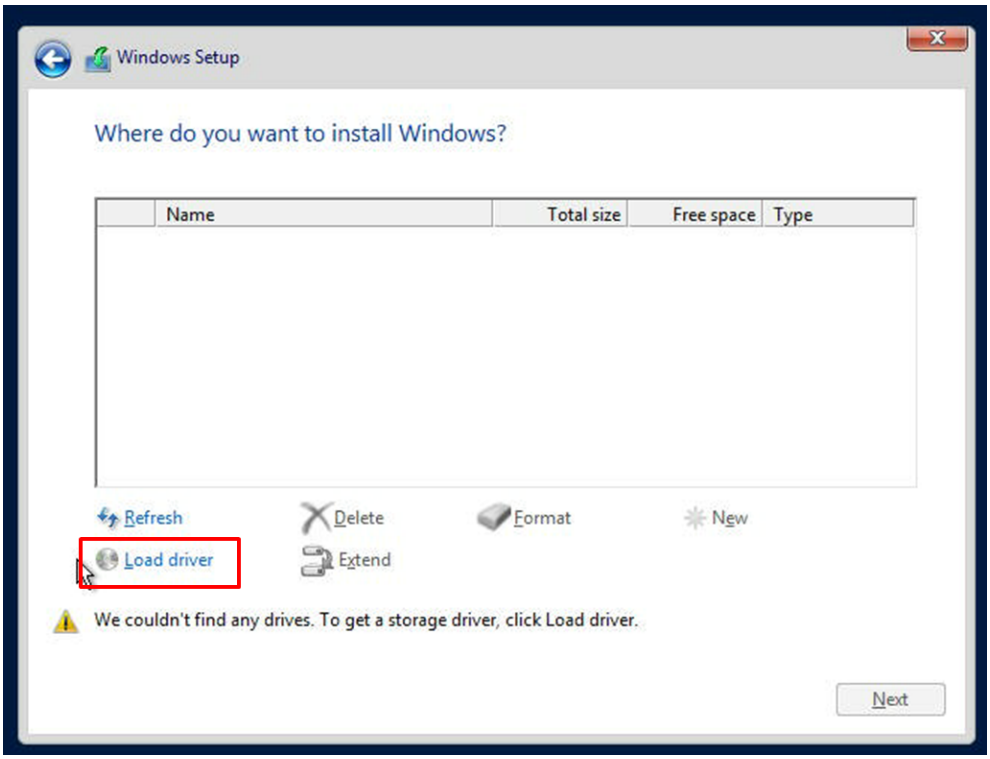


Figure A-2. Load Driver Link

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. (See **Note** below.)
- 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.

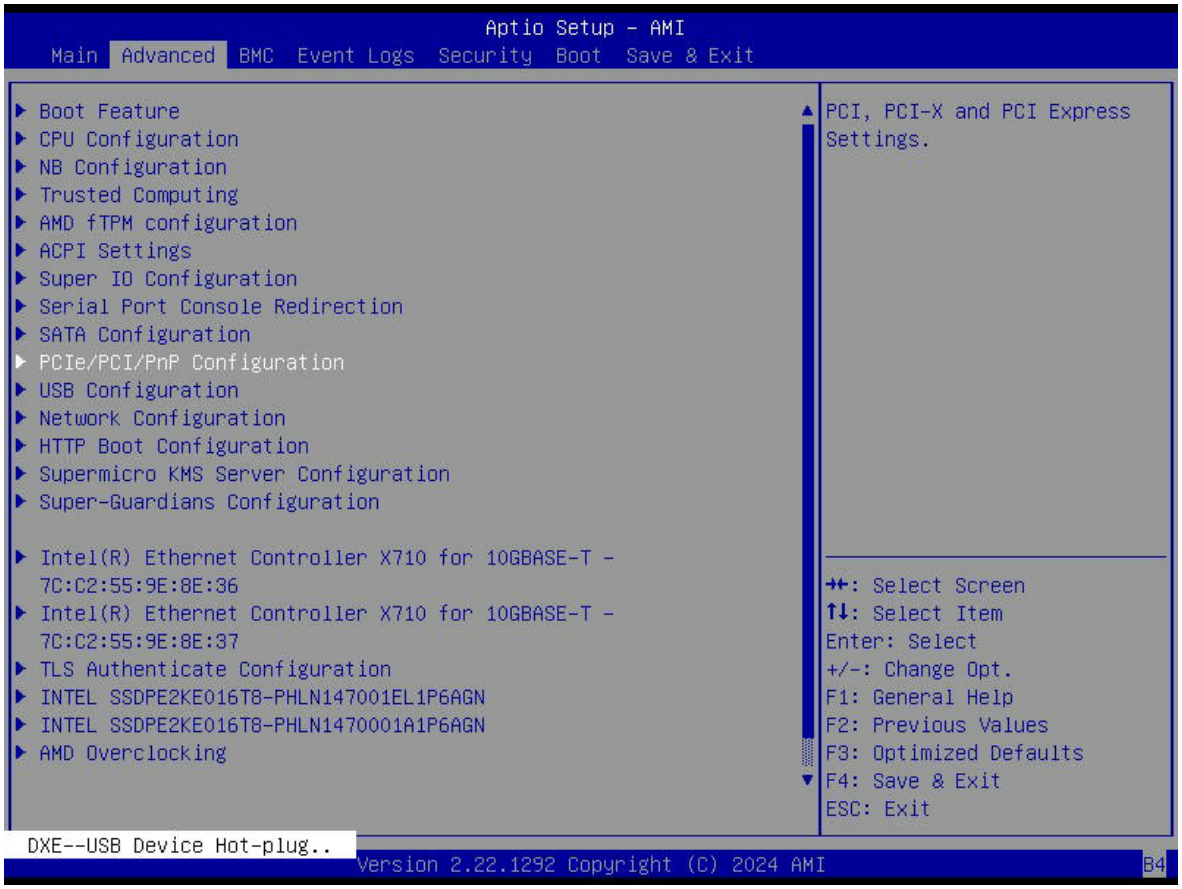
Note: Before installing the RAID driver, following the below items in BIOS setup:

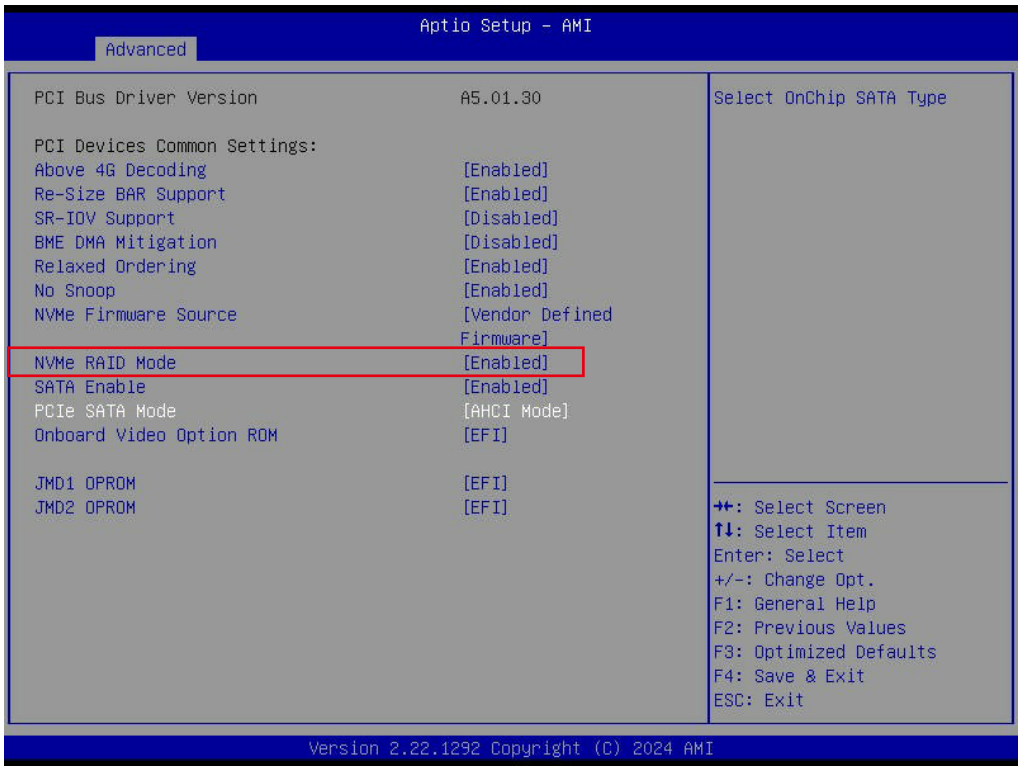
1. **Advanced** > **PCIe/PCI/PnP Configuration** > NVMe RAID Mode: **Enabled**
2. **Advanced** > **PCIe/PCI/PnP Configuration** > PCIe SATA Mode: **RAID Mode**

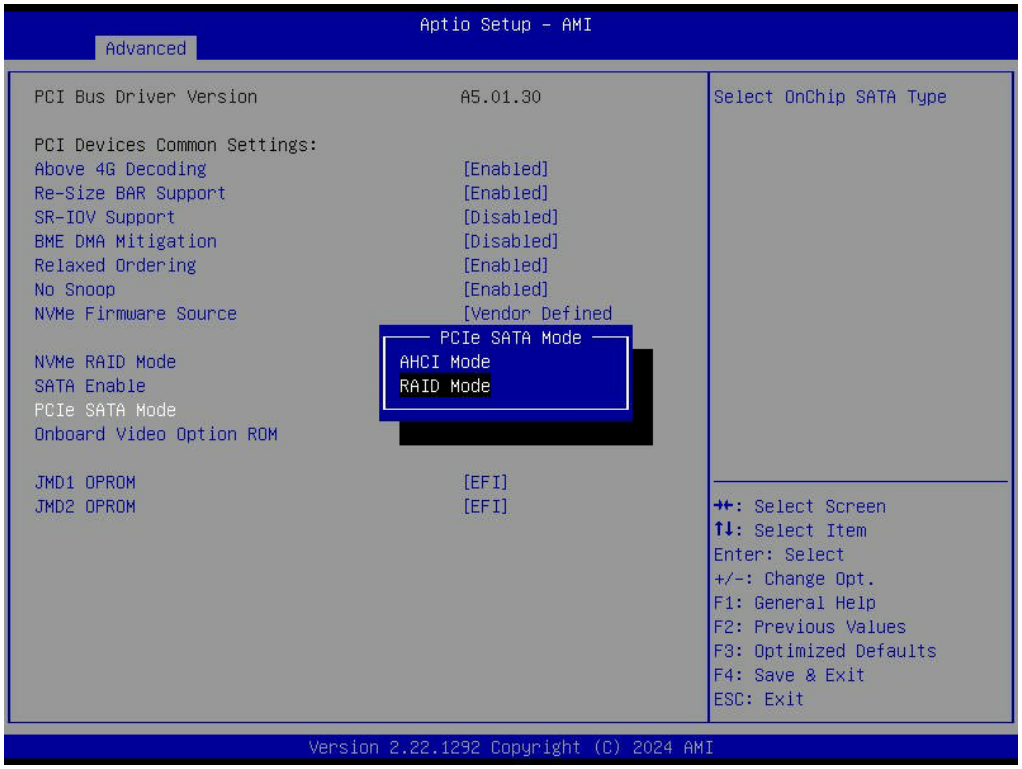
Installing Windows Operating System with Onboard M.2 RAID

Prerequisites

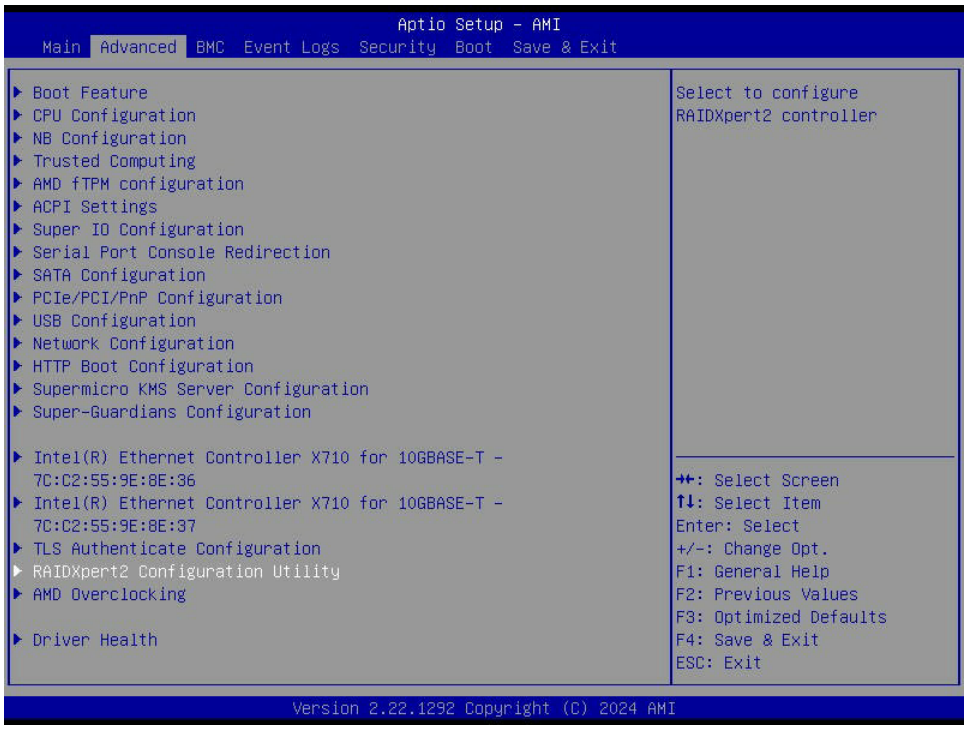
1. Go to https://rufus.ie/, download and use the RUFUS utility to create a USB bootable drive with the Windows 10 or 11 ISO image supporting UEFI.
2. Download and unzip the AMD RAID driver in a USB thumb drive from https://www.supermicro.com/wdl/driver/AMD/NVMe_RAID/Raid_PKG_S0i3_win_9.3.2_00158.zip
3. Install at least two NVMe drives in the sytem.
4. After the M.2 NVMe drives are installed, press the <**Del**> key to enter the BIOS menu, go to Advanced and then **PCIe/PCI/PnP Configuration**. Use the arrow keys to **enable** the NVMe RAID Mode and set the PCIe SATA Mode item to **Raid Mode**, and press the <**F4**> key to save and exit the BIOS.

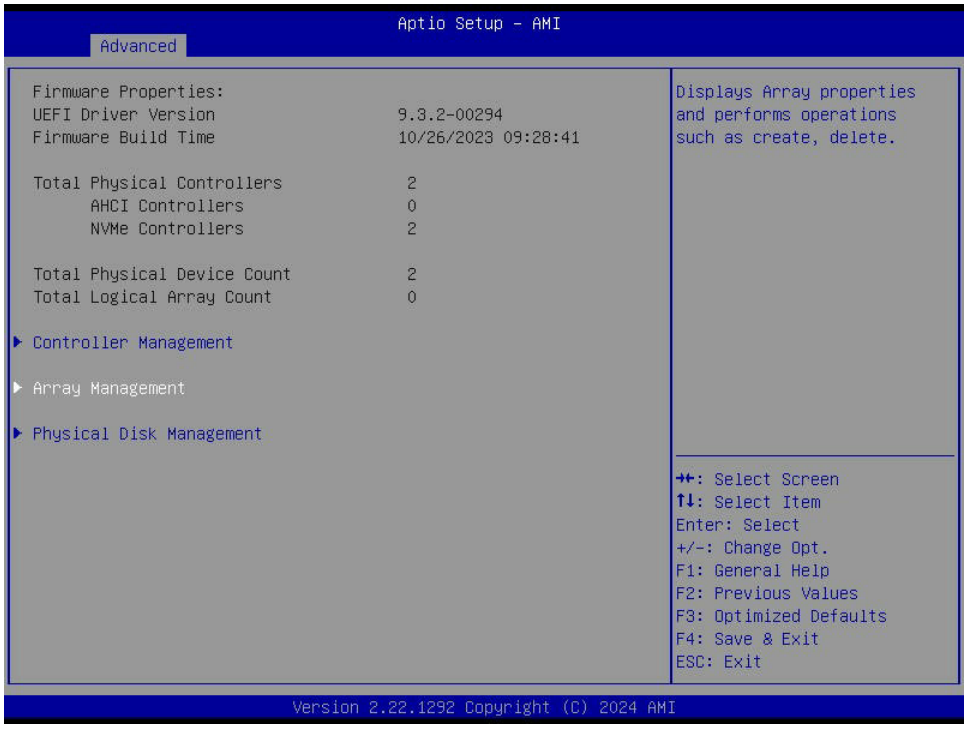


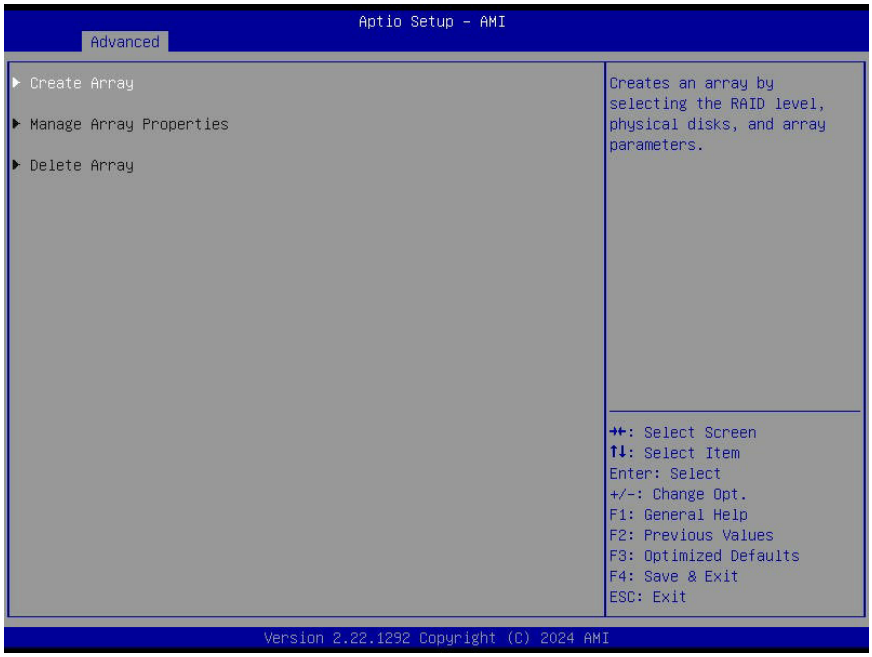

Aptio Setup – AMI
Advanced
PCI Bus Driver Version A5.01.30
PCI Devices Common Settings:
Above 4G Decoding [Enabled]
Re-Size BAR Support [Enabled]
SR-IOV Support [Disabled]
BME DMA Mitigation [Disabled]
Relaxed Ordering [Enabled]
No Snoop [Enabled]
NVMe Firmware Source [Vendor Defined Firmware]
NVMe RAID Mode [Enabled]
SATA Enable [Enabled]
PCIe SATA Mode [AHCI Mode]
Onboard Video Option ROM [EFI]
JMD1 OPROM [EFI]
JMD2 OPROM [EFI]
Select OnChip SATA Type
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.22.1292 Copyright (C) 2024 AMI


Aptio Setup – AMI
Advanced
PCI Bus Driver Version A5.01.30
PCI Devices Common Settings:
Above 4G Decoding [Enabled]
Re-Size BAR Support [Enabled]
SR-IOV Support [Disabled]
BME DMA Mitigation [Disabled]
Relaxed Ordering [Enabled]
No Snoop [Enabled]
NVMe Firmware Source [Vendor Defined
PCIe SATA Mode
AHCI Mode
RAID Mode
NVMe RAID Mode
SATA Enable
PCIe SATA Mode
Onboard Video Option ROM
JMD1 OPROM [EFI]
JMD2 OPROM [EFI]
Select OnChip SATA Type
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.22.1292 Copyright (C) 2024 AMI

5. Press the <**Del**> key to enter the BIOS menu, go to Advanced, **RaidXpert2 Configuration Utility**, **Array Management**, and then **Create Array**.

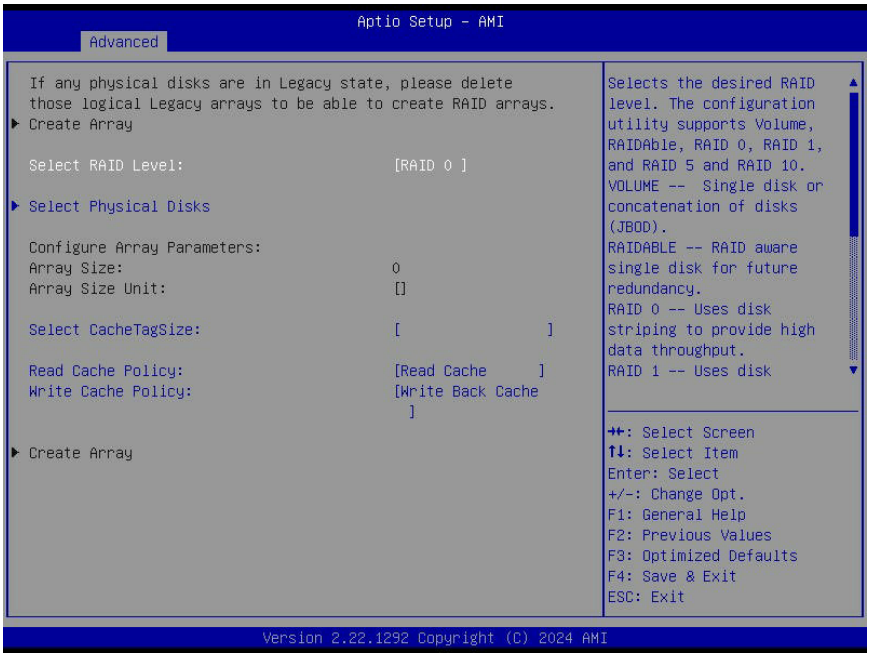






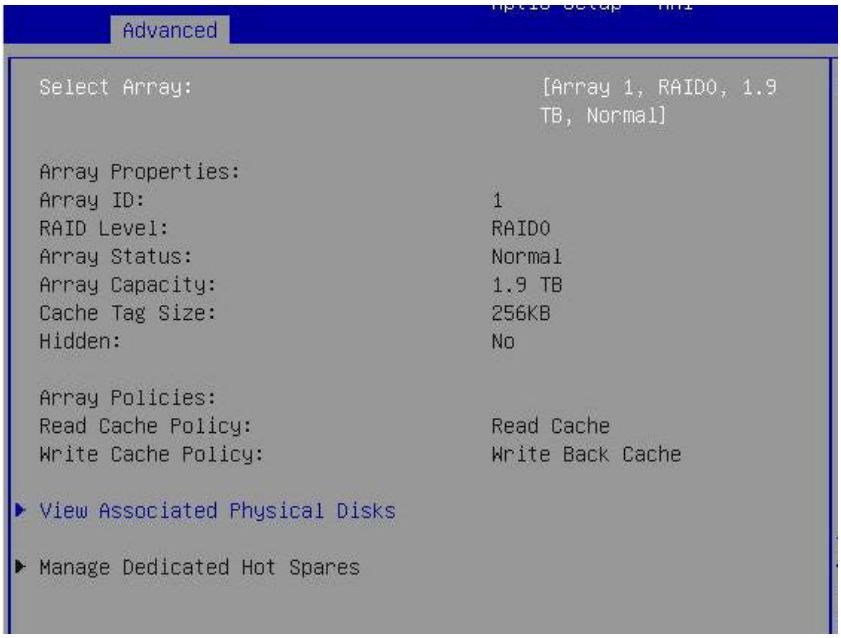
6. Change these items:

- Select RAID Level
- Select Physical Disks
- Select CacheTagSize
- Read Cache Policy
- Write Cache Policy

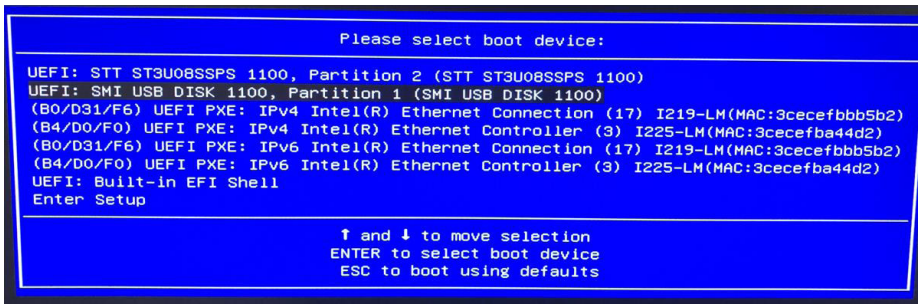


7. Use the arrow keys to select Create Array, and then select Save and Exit to save the changes and exit BIOS.

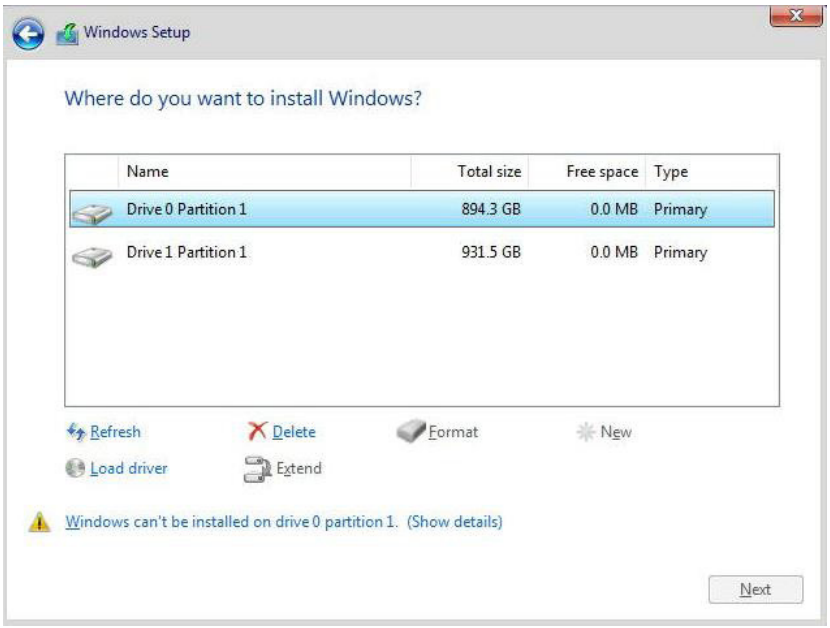
8. To check if the RAID drives are properly set up, press the <**Del**> key to enter the BIOS menu, go to **Advanced**, **RAIDXpert2 Configuration Utility**, **Array Management**, and then **Manage Array Properties**.



9. Plug in the thumb drive, turn on the system, press the <**F11**> key to enter the boot menu during system bootup, and select **SMI USB DISK**.

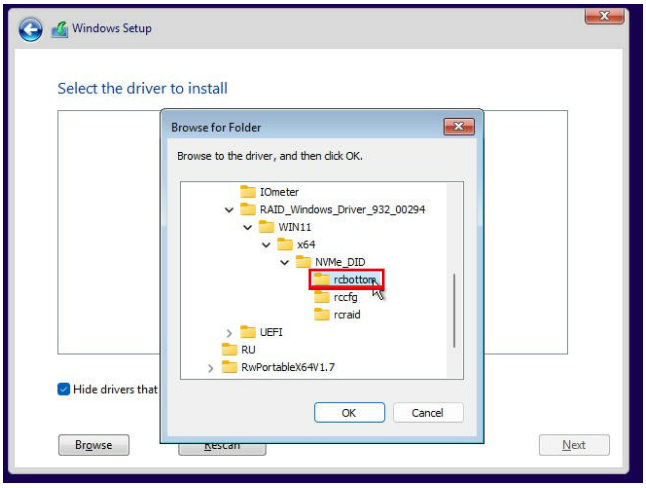


10. Follow the onscreen instructions, select **Custom: Install Windows only (advanced)**, select **Load Driver** and then click Next.

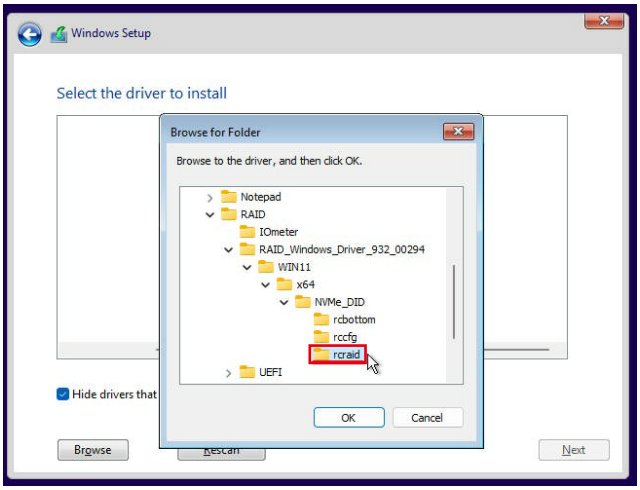


11. Click the Browse button, follow the below sequence to install the drivers. Select the rcbottom/rcraid/rccfg folder, and then click OK.

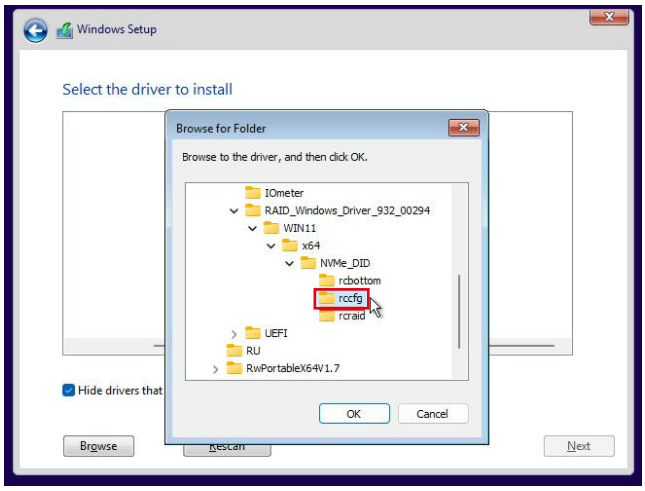
- **rcbottom**



- **rcraid**

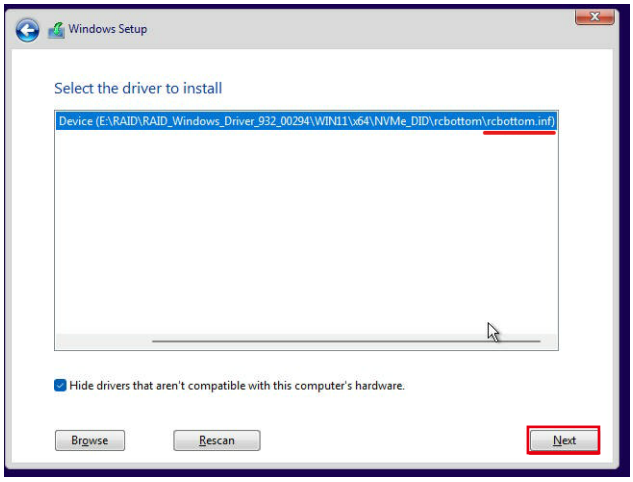


- **rcccfg**

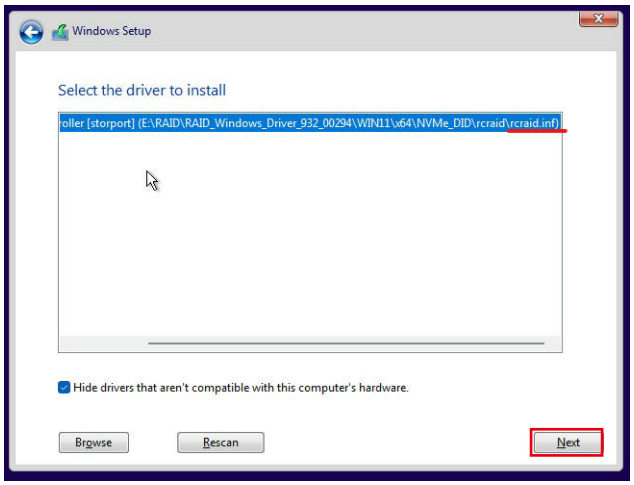


12. Select the driver and then click the Next button.

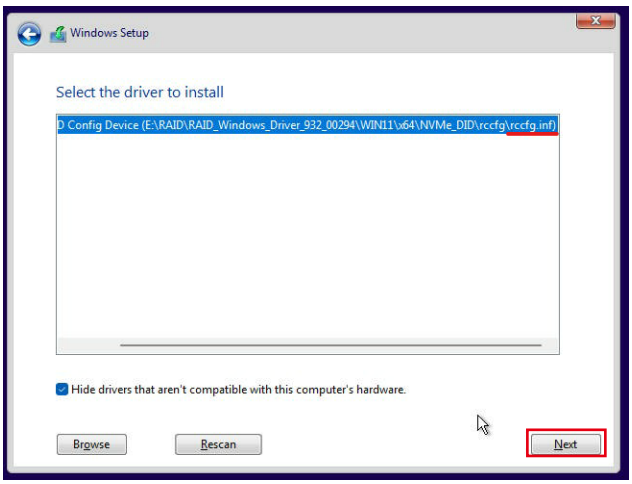
- **rcbottom**



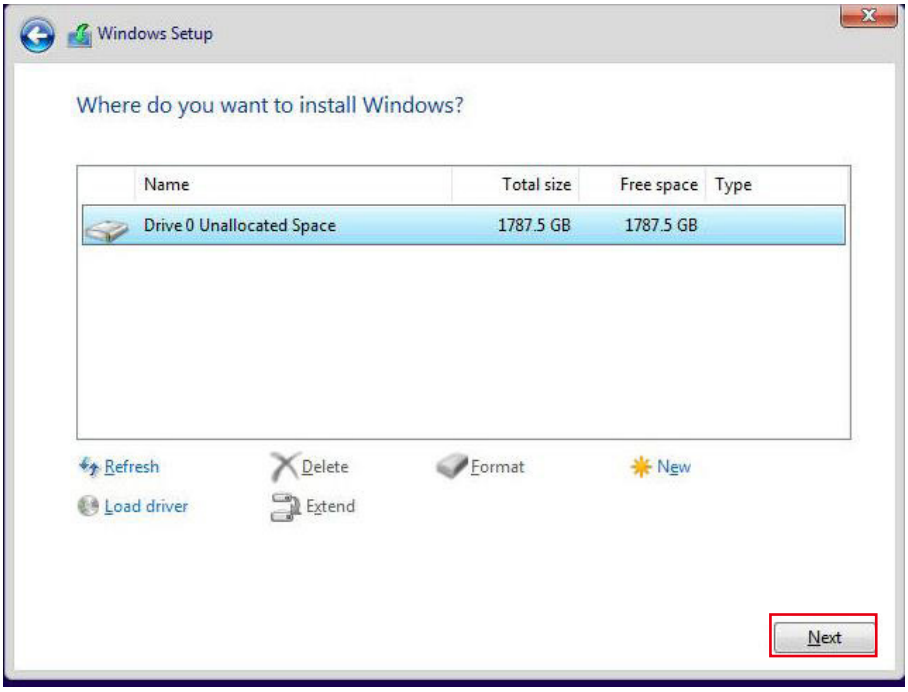
- **rcraid**



- **rcconfigure**



13. After the driver is installed, the RAID drive appears available in the list. Click the Next button and follow the onscreen instructions to complete the Windows installation.



14. After the Windows is installed, the Windows Boot Manager item should be one of the boot device options in the boot menu.

A.2 Driver Installation

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

After accessing the website, go into the CDR_Images (in the parent directory of the above link) and locate the ISO file for your motherboard. Download this file to a USB flash or media drive. (You may also use a utility to extract the ISO file if preferred.)

Another option is to go to the Supermicro website at http://www.supermicro.com/products/. Find the product page for your motherboard, and "Download the Latest Drivers and Utilities". Insert the flash drive or disk and the screenshot shown below should appear.

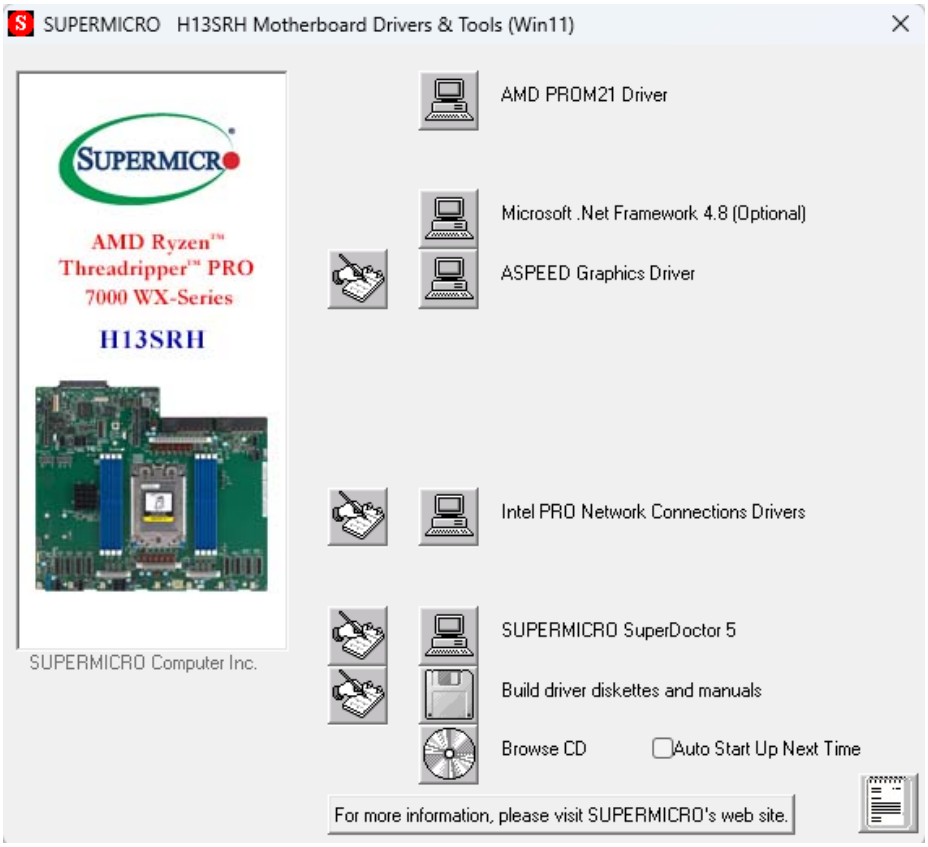


Figure A-3. Driver & Tool Installation Screen

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 the bottom) one at a time. **After installing each item, you must re-boot the system before moving on to the next item on the list.** The bottom icon with a CD on it allows you to view the entire contents.

A.3 SuperDoctor® 5

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

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

SuperDoctor® Manual and Resources

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

A.4 IPMI

The H13SRH supports the Intelligent Platform Management Interface (IPMI). IPMI is used to provide remote access, monitoring and management. There are several BIOS settings that are related to IPMI.

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

For general documentation and information on IPMI, please visit our website at: http://www.supermicro.com/products/nfo/IPMI.cfm.

A.5 Logging into the BMC (Baseboard Management Controller)

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

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

For more information regarding BMC passwords, please visit our website at https://www.supermicro.com/bmcpassword.

Appendix B

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.

B.1 Battery Handling

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

電池の取り扱い

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

警告

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

警告

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

Warnung

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

Attention

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

ADVERTENCIA

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

אזהרה!

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

هناك خطر من انفجار في حالة اسحبذال البطارية بطريقة غير صحيحة فعليل
اسحبذال البطارية
فقط بنفس النع أو ما يعادلها مما أوصث به الشرمة المصنعة
جخلص من البطاريات المسحعملة وفقا لحعليمات الشرمة الصانعة

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.

B.2 Product Disposal

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

製品の廃棄

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

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

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

¡Advertencia!

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

Attention

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

סילוק המוצר

אזהרה!

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

تركيب المعدات الكهربائية يجب أن يمتثل للقاويه المحلية والبطية المتعلقة بالكهرباء

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.