

H14SSF

USER'S MANUAL

Revision 1.0 (MNL-2891)

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Manual Revision 1.0

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Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the H14SSF motherboard. Installation and maintenance should be performed by certified service technicians only.

Notes

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

- Supermicro product manuals: https://www.supermicro.com/support/manuals
- Product drivers and utilities: https://www.supermicro.com/wdl
- Product safety info: https://www.supermicro.com/about/policies/safety_information.cfm
- A secure data deletion tool designed to fully erase all data from storage devices can be found on our website: https://www.supermicro.com/about/policies/disclaimer.cfm?url=/wdl/utility/Lot9_Secure_Data_Deletion_Utility
- Frequently Asked Questions: https://www.supermicro.com/FAQ/index.php
- If you still have questions after referring to our FAQs, contact our support team. Region-specific Technical Support email addresses can be found at: "Contacting Supermicro" on page 9
- If you have any feedback on Supermicro product manuals, contact our writing team at: Techwriterteam@supermicro.com

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

Conventions Used in the Manual

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



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



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



Warning! Indicates hazardous moving parts may be encountered while handling a fan or components near a fan.

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

Note: Additional information given to differentiate various models or to provide information for proper motherboard setup.

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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.

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1.1 Quick Reference

For details on the H14SSF motherboard layout, features, and other quick reference information, refer to the content below.

Motherboard Layout

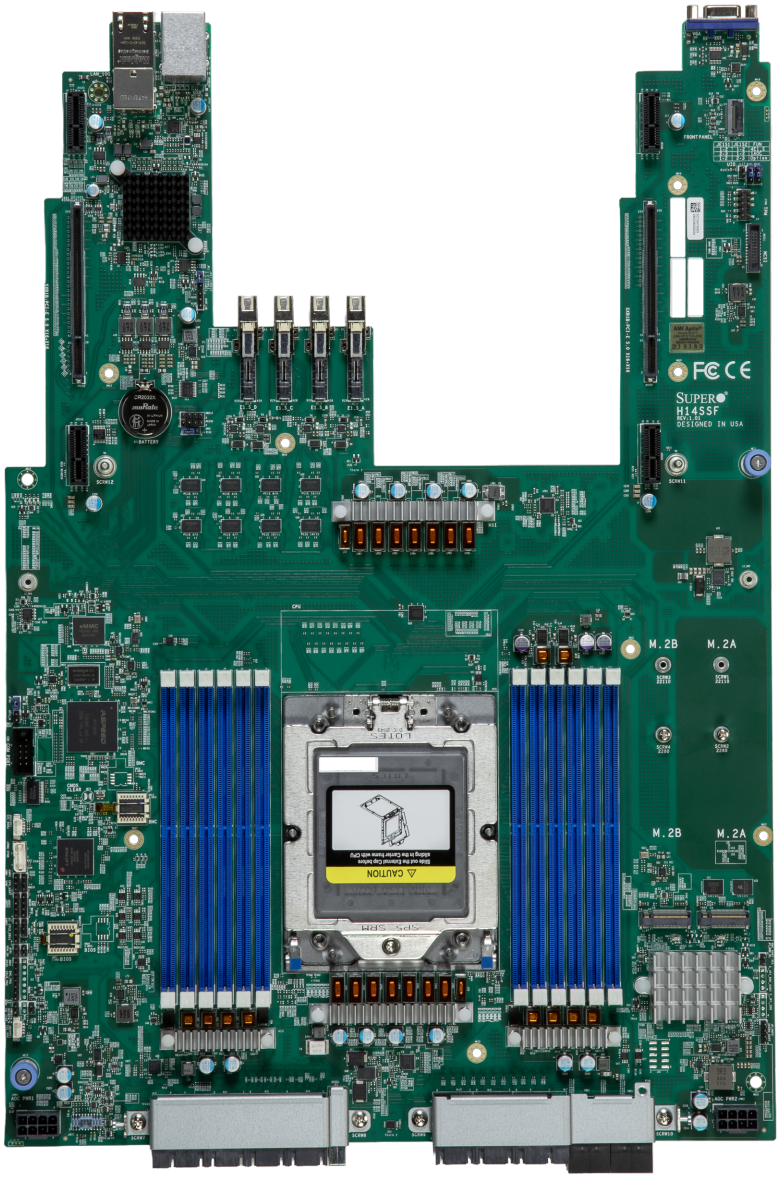


Figure 1-1. H14SSF Motherboard Photo

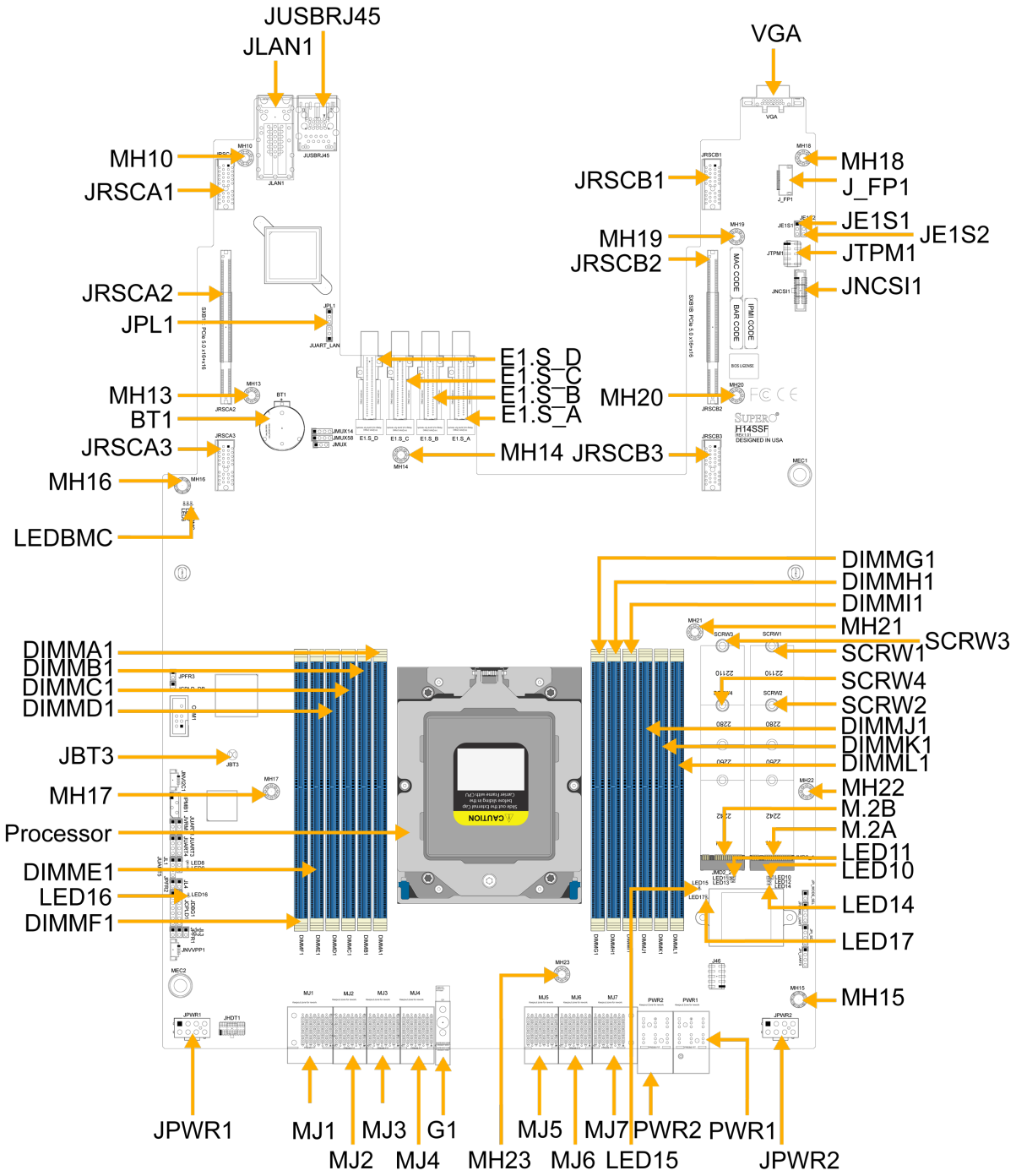


Figure 1-2. H14SSF Motherboard Layout

Notes:

- For detailed information on jumpers, connectors, and LED indicators, see "Component Installation" on page 22.
- "■" indicates the location of pin 1.
- "MH" indicates the location of a mounting hole.
- Components not documented are for internal testing purposes only.
- Use only the correct type of onboard CMOS battery as specified by the manufacturer. To avoid possible explosion, do not install the onboard battery upside down.

Quick Reference Table

Jumper	Description	Default Setting
JBT3	CMOS Clear	Open (Normal)
JE1S1, JE1S2	PCIe P3 Mux to Select Between E1.S and AOC	E1.S Mux for CPU PCIe P3, selection between four E1.S slots and one AOC
JPL1	LAN 1/2 Enable/Disable	Pins 1–2 (Enable)

LED	Description	Status
LED10	M.2A Status LED	Blinking Green: M.2 is active
LED11	M.2B Status LED	Blinking Green: M.2 is active
LED14	Onboard RAID Controller Overheat LED	Solid Red: Overheated
LED15	Onboard RAID Controller Failure LED	Solid Red: Error
LED16	System Power Status LED	Off: The system is powered off Blinking Green: BMC Initializing Solid Green: System is powered on
LED17	Onboard RAID Controller Heartbeat LED	Green Blinking
LEDBMC	BMC Heartbeat LED	Green Blinking: BMC Normal Green Blinking Fast: BMC Initializing

Connector	Description
BT1	Onboard Battery

Connector	Description
JE1_1, JE1_2, JE1_3, JE1_4	E1.S NVMe drive slots for E1.S_A, E1.S_B, E1.S_C and E1.S_D
G1	Guide Pin Between the Motherboard and Midplane
J_FP1	Front Control Panel Header
JLAN1	Two RJ45 10G LAN Ports
JNCSI1	NC-SI Connection
JPWR1, JPWR2	8-pin +12 V Power Connectors for AOC
JRSCA1, JRSCA2, JRSCA3	Slot A for Supermicro Riser Cards
JRSCB1, JRSCB2, JRSCB3	Slot B for Supermicro Riser Cards
JTPM1	Trusted Platform Module/Port 80 Connector
JUSBRJ45	USB 3.2 Gen 1 and Dedicated IPMI LAN Port
M.2A (JM2_1), M.2 B (JM2_2)	M.2 PCIe 3.0 NVMe Slots for OS Boot with RAID 0/1
MJ1–MJ7	ExaMAX Connector for four PCIe 5.0 x16 High Speed Signal
PWR1, PWR2	Motherboard Main Power Supply Connectors
VGA	VGA Port

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

Motherboard Features

Motherboard Features
CPU
• Single AMD EPYC™ 9005 Series processor processors in Socket SP5 with a Thermal Design Power (TDP) of up to 500 W
Memory
• Up to 3 TB registered ECC DDR5 memory with speeds of up to 6400 MT/s in 12 memory slots **Note:** Memory speed support depends on the processor used in the system.
DIMM Size
• Up to 256 GB

Motherboard Features
Chipset
• System on Chip (SoC)
Expansion Slots
• Two M.2 PCIe 3.0 NVMe Slots for OS Boot with RAID 0/1 • Two PCIe 5.0 x16+x16 slots
Input/Output
• Two USB 3.2 Gen 1 ports • One VGA port
Baseboard Management Controller (BMC)
• Onboard AST2600 • Support for Open BMC • Support for RoT
Network
• ASPEED AST2600 BMC chip with ATEN IPMI FW, RoT 2.0 support • One IPMI RJ45 LAN Port • Two 10G RJ45 LAN Ports (Total bandwidth 16 Gbps, WoL not available)
Graphics
• ASPEED AST2600 BMC chip with one VGA port
BIOS
• 512 Mb AMI BIOS® SPI Flash BIOS • ACPI 6.5, SMBIOS 3.7 or later, Plug-and-Play (PnP), Real Time Clock (RTC) wakeup, Riser Card Auto-Detection support
Power Management
• ACPI power management (S5) • Power-on mode for AC power recovery
System Health Monitoring
• Onboard voltage monitoring for +3.3 V, +5 V, +12 V, +3.3 VStby, +5 VStby, Vcore, CPU temperature, system temperature, peripheral temperature, memory temperature, and NVMe temperature • CPU thermal trip support

Motherboard Features
Fan Control
• One 4-pin fan header • Fan speed control
System Management
• ACPI power management (S5) • Wake-On-LAN • Power-on mode for AC power recovery • Remove AC cycle support
LED Indicators
• BMC heartbeat LED • Power/suspend-state Indicator • UID/remote UID
Dimensions
13" x 18.9" (330.2 mm x 480 mm) (W x L)

Motherboard Block Diagram

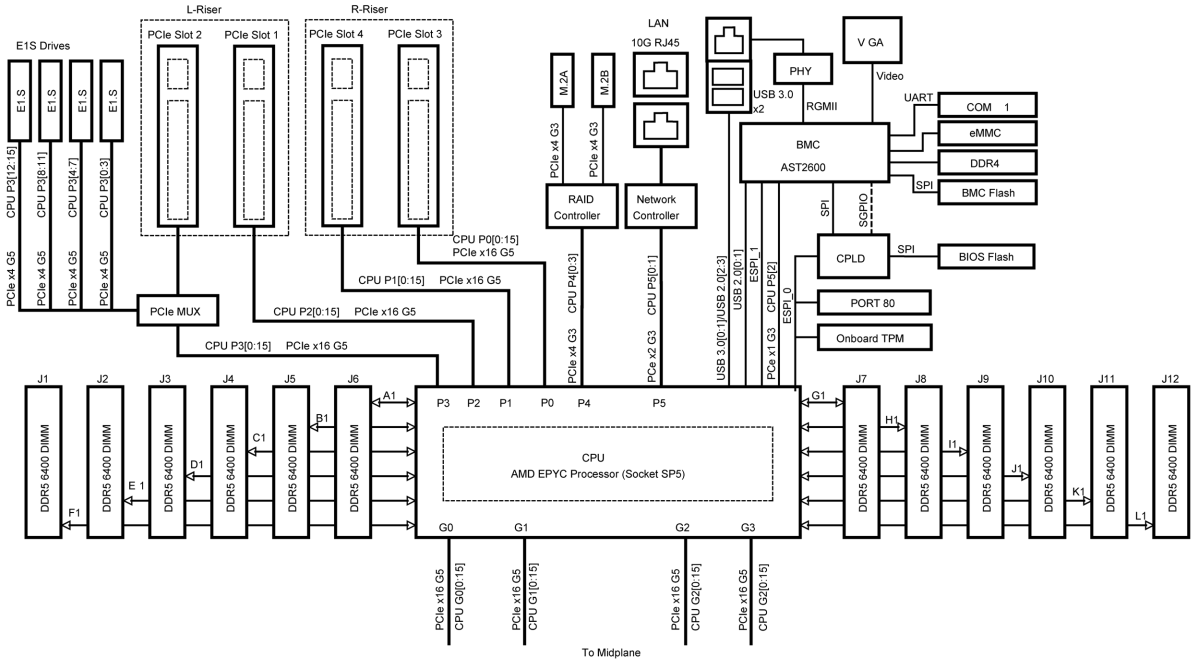


Figure 1-3. Motherboard Block Diagram

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

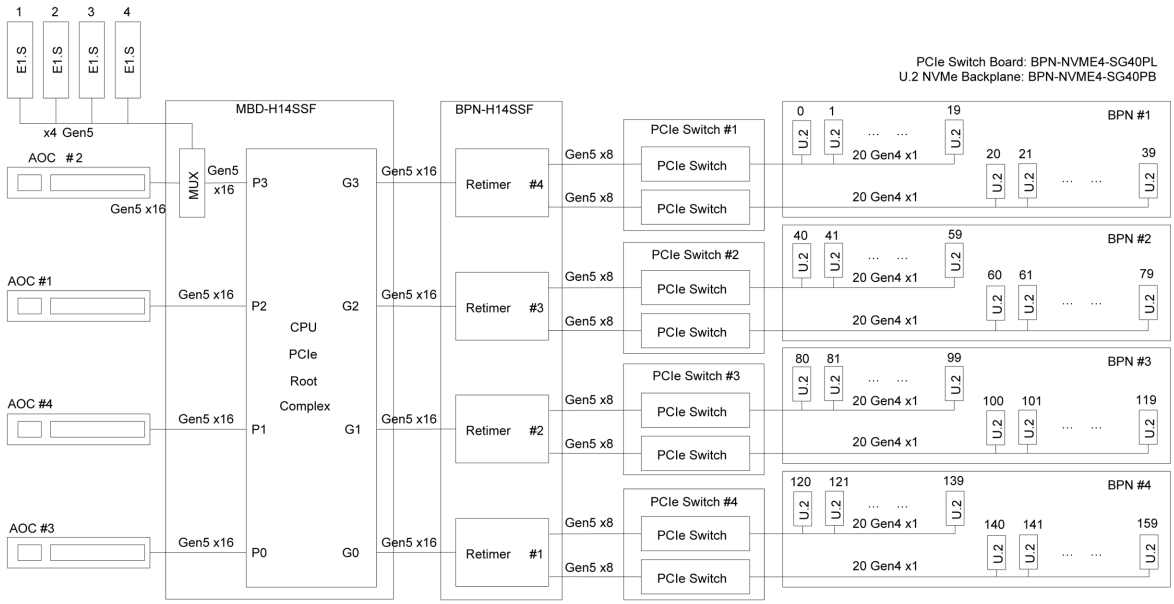


Figure 1-4. PCIe Hierarchy for 160 Bay U.2 Peta-Scale Storage System Use Case

Note: The enumeration order of PCIe G-Port: G0 -> G2 -> G1 -> G3

1.2 Platform Overview

Built upon the functionality and capability of the AMD EPYC™ 9005 Series processor in Socket Socket SP5, the H14SSF motherboard offers maximum I/O expandability, energy efficiency, and data reliability in a 3 nm process architecture, and is optimized for embedded storage solutions, networking applications, or cloud-computing platforms.

With the support of new micro-architecture 3 nm process technology, it increases system performance for a multitude of server applications.

The following features are supported by the AMD EPYC™ 9005 Series processor:

- ACPI Power Management Logic Support Rev. 6.5
- Adaptive Thermal Management/Monitoring
- PCIe 5.0 with a transfer rate up to 32 GT/s
- System Management Bus (SMBus) Specification Version 3.1.1

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 Advanced Setup Configurations under "UEFI BIOS" on page 56 for this setting. The default setting is **Last State**.

1.4 System Health Monitoring

Onboard Voltage Monitors

An onboard voltage monitor will continuously scan the voltages of the onboard chipset, memory, processor, and battery. Once a voltage becomes unstable, a warning is given or an error message is sent to the screen. You can adjust the voltage thresholds to define the sensitivity of the voltage monitor. Real time voltage levels are displayed in IPMI.

Fan Status Monitor with Firmware Control

The system health monitor embedded in the BMC chip can check the RPM status of the cooling fans. The processor and chassis fans are controlled via IPMI.

Environmental Temperature Control

System Health sensors in the BMC monitor the temperatures and voltage settings of onboard processors and the system in real time via the IPMI interface. Whenever the temperature of the processor or the system exceeds a user-defined threshold, system/processor cooling fans will be turned on to prevent the processor or the system from overheating.

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

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, hard disk drives, and printers.

In addition to enabling operating system-directed power management, ACPI also provides a generic system event mechanism for Plug and Play, 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 Windows Server 2025.

Chapter 2:

Component Installation

This chapter provides instructions on installing and replacing main system components for the H14SSF motherboard. To prevent compatibility issues, only use components that match the specifications and/or part numbers given.

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

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2.1 Static-Sensitive Devices

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

Precautions

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

Unpacking

To avoid static damage, the motherboard is shipped in antistatic packaging. 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.

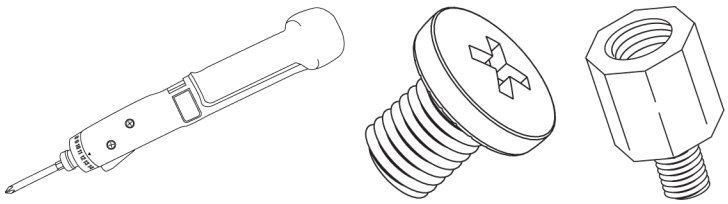


Figure 2-1. Torque Driver (1), Philips Screws (12), and Standoffs (12, if needed)

Notes:

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

Thumbscrew Mounting Holes

There are two types of mounting holes that serve two different functions on the H14SSF motherboard.

1. Mounting holes for built-in thumbscrews
    - These mounting holes are used for built-in thumbscrews that will help securely attach the motherboard to the chassis.

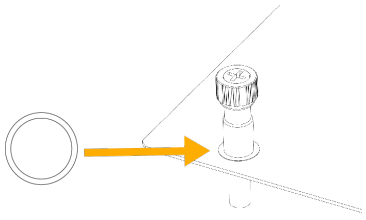


Figure 2-2. Mounting Hole for Thumbscrews

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

Installing the Motherboard

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

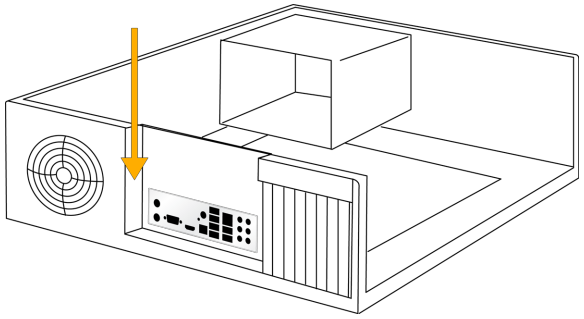


Figure 2-3. Installing the I/O Shield

Note: Images displayed are for illustration purposes only. The components installed in your system may or may not look exactly the same as the graphics shown in the manual.

2. Locate the mounting holes on the motherboard. See Motherboard Installation for the location.

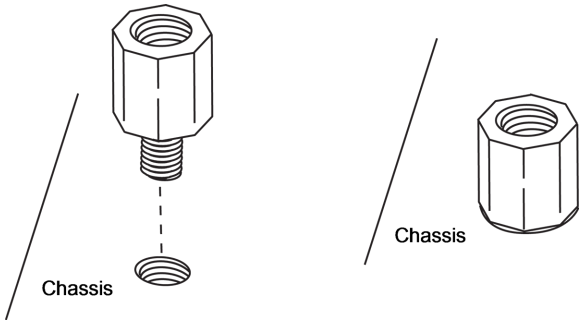


Figure 2-4. Locating the Mounting Holes

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

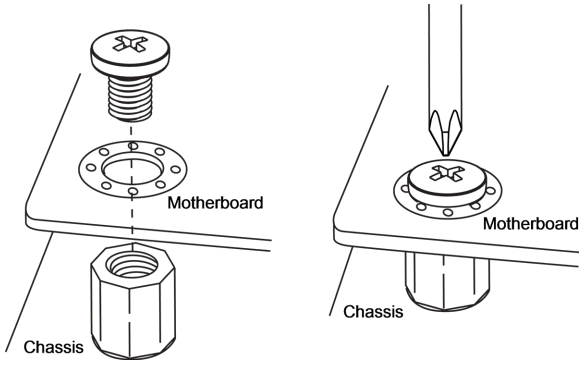


Figure 2-5. Aligning the Mounting Holes

4. Install standoffs in the chassis as needed.
5. Install the motherboard into the chassis carefully to avoid damaging other motherboard components.
6. Insert pan head #6 screws into the mounting holes on the motherboard and the matching mounting holes on the chassis.
7. Make sure that the motherboard is securely placed in the chassis.

2.3 Processor and Heatsink Installation

This section provides procedures to install the processor(s) and heatsink(s).

Notes:

- Take industry standard precautions to avoid ESD damage. For details, see "Static-Sensitive Devices" on page 23.
- Before starting, make sure that the plastic socket cap is in place and none of the socket pins are bent. If any damage is noted, contact your retailer.
- Do not connect the system power cord before the processor and heatsink installation is complete.
- When handling the processor, avoid touching or placing direct pressure on the LGA lands (gold contacts). Improper installation or socket misalignment can cause serious damage to the processor or processor socket.
- Install the processor in the socket and the motherboard into the chassis before installing the heatsink.
- When buying a processor separately, use only a Supermicro certified heatsink.
- Refer to the Supermicro website for the most recent processor support.
- When installing the heatsink, ensure a torque driver set to the correct force is used for each screw.
- Thermal grease is pre-applied on a new heatsink. No additional thermal grease is needed.

2.4 Memory Support and Installation

Important: To prevent any damage, exercise extreme care when installing or removing memory modules.

Note: Check the Supermicro website for recommended memory modules.

Memory Support

The H14SSF motherboard supports up to 3 TB of registered ECC DDR5 memory with speeds of up to 6400 MT/s in 12 DIMM slots.

Populating RDIMM/RDIMM 3DS DDR5 Memory Modules with AMD EPYC™ 9005 Series Processors				
Type	DIMM Population	Maximum Frequency (MT/s)		
	DIMM1	6400 MT/s Grade DIMM	5600 MT/s Grade DIMM	4800 MT/s Grade DIMM
RDIMM	1R (1 rank)	6400	5600	4800
	2R (2 ranks)			
3DS RDIMM	2S2R (4 ranks)			
	2S4R (8 ranks)			

DIMM Population Guide												
Slots Used	Channel											
	F1	E1	D1	C1	B1	A1	G1	H1	I1	J1	K1	L1
1 DIMM						V						
2 DIMMs						V	V					
4 DIMMs				V		V	V		V			
6 DIMMs				V	V	V	V	V	V			
8 DIMMs		V		V	V	V	V	V	V		V	
10 DIMMs		V	V	V	V	V	V	V	V	V	V	
12 DIMMs	V	V	V	V	V	V	V	V	V	V	V	V

General Guidelines for Optimizing Memory Performance

- It is recommended to use DDR5 memory of the same type, size, and speed.
- Mixed DIMM speeds can be installed. However, all DIMMs will run at the speed of the slowest DIMM.
- The motherboard will support an odd number amount of memory modules. However, to achieve the best memory performance, a balanced memory population is recommended.

DIMM Installation

Important: To avoid causing any damage to the memory module or the DIMM socket, do not use excessive force when pressing the release tabs on the ends of the DIMM socket. Handle memory modules with care. To avoid ESD-related damage to your memory modules or components, carefully follow all the instructions given in "Static-Sensitive Devices" on page 23.

1. Insert the desired number of DIMMs into the memory slots based on the recommended DIMM population table earlier in this section.
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.

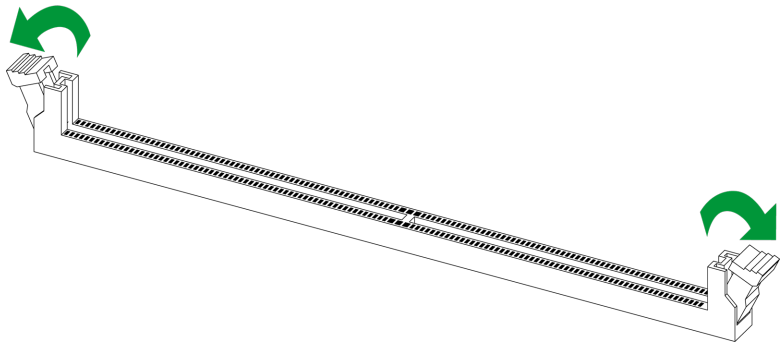


Figure 2-6. Unlocking the DIMM Slot

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

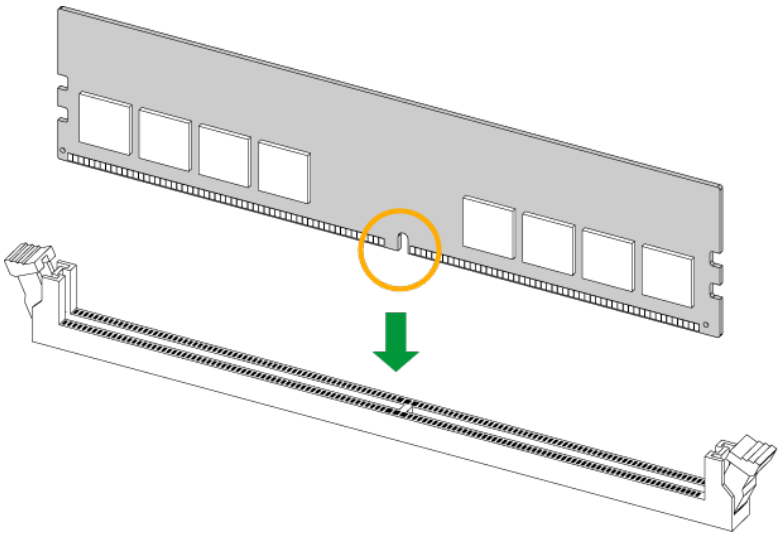


Figure 2-7. Aligning the DIMM Slot with the Receptive Point

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

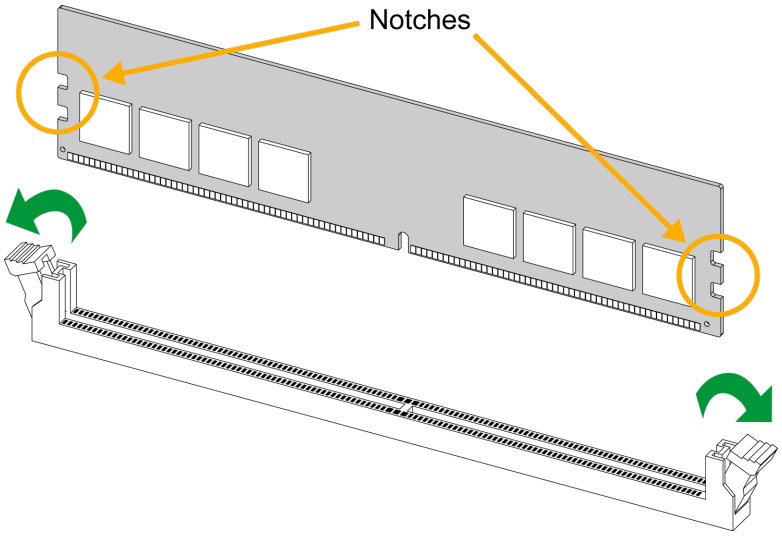


Figure 2-8. Aligning the Notches

5. Press both ends of the module straight down into the slot until the module snaps into place.
6. Press the release tabs to the lock positions to secure the DIMM into the slot.

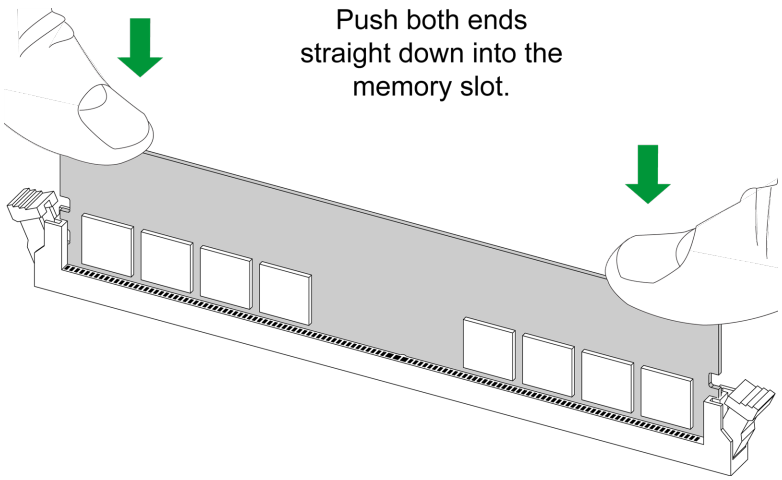


Figure 2-9. Securing the DIMM

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

DIMM Removal

Important: To avoid causing any damage to the memory module or the DIMM socket, do not use excessive force when pressing the release tabs on the ends of the DIMM socket. Handle memory modules with care. To avoid ESD-related damage to your memory modules or components, carefully follow all the instructions given in "Static-Sensitive Devices" on page 23.

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

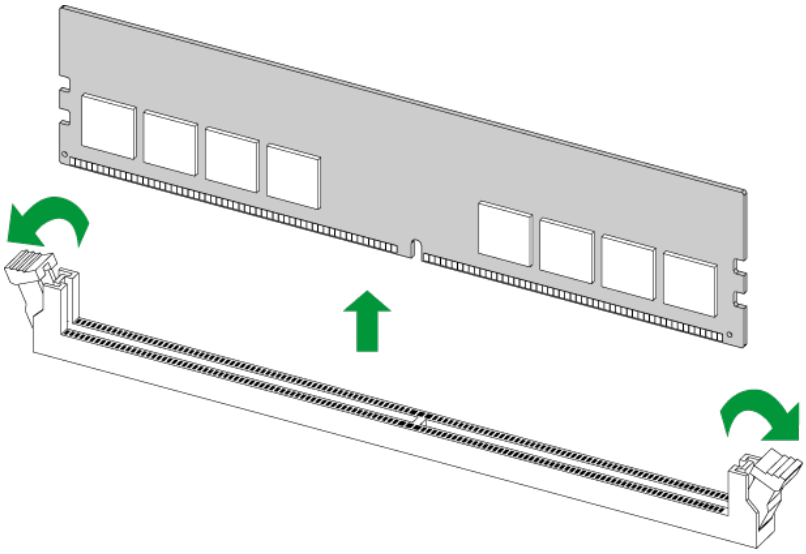


Figure 2-10. Unlocking the DIMM Slot

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

2.5 Battery Removal and Installation

Battery Removal

To remove the onboard battery, follow the steps below:

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

Proper Battery Disposal

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

Battery Installation

To install an onboard battery, follow steps 1 and 2 above and continue below:

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

1. Identify the battery's polarity. The positive (+) side should be facing up.
2. Insert the battery into the battery holder and push it down until you hear a click to ensure that the battery is securely locked.

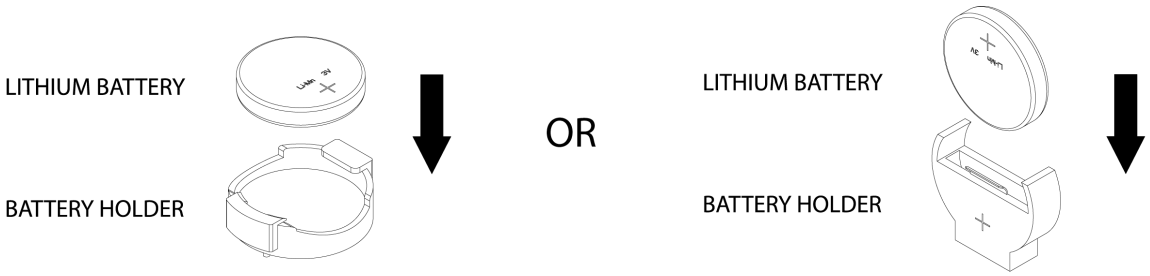


Figure 2-11. Installing a Battery

2.6 Connections, Jumpers, and LEDs

Refer to the following sections for information about connections, jumpers, and LEDs for the H14SSF motherboard.

Power Supply and Power Connections

For information about the power supply and power connections of the H14SSF motherboard, refer to the following content.

Power Supply

PWR1 and PWR2 are used to supply the motherboard with power.

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 where noisy power transmission is present.

Power Connections

JPWR1 and JPWR2 are the two 8-pin +12 V power connectors to provide AOC power.

8-pin Power Connector Pin Definitions: Eight Total	
Pin#	**Definition**
1–4	GND
5–8	+12 V (12 V Power)

Headers and Connections

For information about the headers on the H14SSF motherboard, refer to the following content.

Chassis Intrusion

The H14SSF motherboard does not support the chassis intrusion function, as it is designed and optimized for a 4U dual-layer storage system, where the motherboard is in the lower tray without a lid.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

G1

G1 provides a guide pin to the midplane.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

M.2 M-Key PCIe 3.0 Slots for NVMe

The M.2 M-key slots located at M.2A (JM2_1) and M.2B (JM2_2) on the H14SSF motherboard support PCIe 3.0 NVMe for OS boot with RAID 0/1.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

Midplane Connectors

There are seven ExaMax connectors (MJ1–MJ7) on the motherboard to connect to the midplane, provides 64 lanes (four PCIe 5.0 x16).

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

NC-SI Connection

The Network Controller Sideband Interface (NC-SI) connection is located on the H14SSF motherboard. This connection is used to connect a Network Interface Card (NIC) to the motherboard to allow the onboard Baseboard Management Controller (BMC) to communicate with a network.

Note: For detailed instructions on how to configure Network Interface Card (NIC) settings, refer to the Network Interface Card Configuration User's Guide posted on the web page under the link: https://www.supermicro.com/support/manuals.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

TPM/Port 80 Header

The JTPM1 header on the H14SSF motherboard is used to connect a Trusted Platform Module (TPM)/Port 80, which is available from Supermicro (optional). A TPM/Port 80 connector is a security device that supports encryption and authentication in storage drives. It allows the motherboard to deny access if the TPM associated with the storage drive is not installed in the system. Information on the TPM is available at the following page:

https://www.supermicro.com/manuals/other/AOM-TPM-9670V_9670H__X12_H12.pdf

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

Trusted Platform Module Header Pin Definitions: 10 Total			
Pin#	**Definition**	**Pin#**	**Definition**
1	+3.3 V	2	SPI_CS#
3	RESET#	4	SPI_MISO
5	SPI_CLK	6	GND
7	SPI_MOSI	8	No Connection
9	+1.8 V Standby	10	SPI_IRQ#

Front Control Panel

There is a front control panel header located on this motherboard. The front control panel header, located at J_FP1, contains header pins for various buttons and LED indicators with I²C support for front access. This head is designed specifically for use with the Supermicro chassis.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

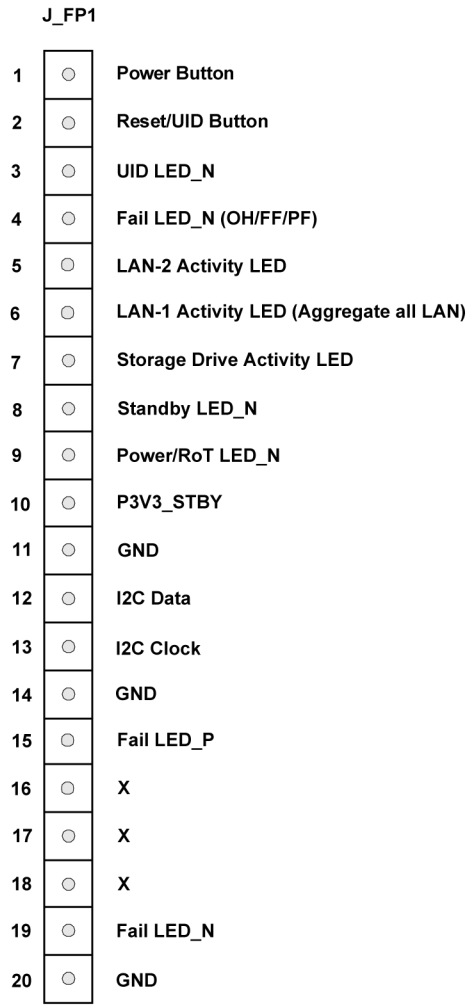


Figure 2-12. Front Control Panel Pin Definitions

Power On and BMC/BIOS Status LED Button

The Power On and BMC/BIOS Status LED button is located on pin 1 of the front control panel header located at J_FP1 on the H14SSF motherboard. Momentarily contacting pin 1 of J_FP1 will power on/off the system or display BMC/BIOS status.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

Power Button BMC/BIOS Status LED Indicator	
Status	**Event**
Green: Solid on	System power on
BMC/BIOS blinking green at 4 Hz	BMC/BIOS checking

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

UID LED

The unit identifier LED connection is located on pin 3 of J_FP1 on the H14SSF motherboard.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

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

The Fail LED (Information LED for OH/Fan Fail/PWR Fail) connection, located on pin 4 of J_FP1, provides warnings of overheating, power failure, or fan failure for the system.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

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

LAN1/LAN2 (NIC1/NIC2) LED

The Network Interface Controller (NIC) LED connection for LAN Port 1 is located on pin 6 of J_FP1 on the H14SSF motherboard, and LAN Port 2 is on pin 5.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

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

Storage Drive Activity LED

The storage drive activity LED connection is located on pin 7 of J_FP1 on the H14SSF motherboard. When this LED is blinking green, it indicates storage drive activity.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

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

Standby Power LED

The LED indicator for standby power is located on pin 8 of J_FP1 on the H14SSF motherboard. If this LED is on, standby power is on.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

Root of Trust (RoT) Power LED

The Power LED for the Root of Trust (RoT) connection is located on pin 9 of J_FP1 on the H14SSF motherboard. If this LED is on, power for the RoT chip is on.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

Standby Power

A Standby Power (I²C) connection is located on pins 10–14 of J_FP1 on the H14SSF motherboard to provide power to the system when it is in standby mode.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

+3.3 V Standby Power Pin Definitions: Five Total	
Pin#	**Definition**
10	+3.3 V Standby
11	Ground
12	I²C Data
13	I²C Clock
14	Ground

Power Fail LED Indicators

Power Failure LED Indicators are located on pins 15 and 19 of J_FP1 on the H14SSF motherboard.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

FP Power LED Pin Definitions (J_FP1)	
Pin#	**Definition**
15	PWR Failure LED-Positive
19	PWR Failure LED-Negative

I/O Panel

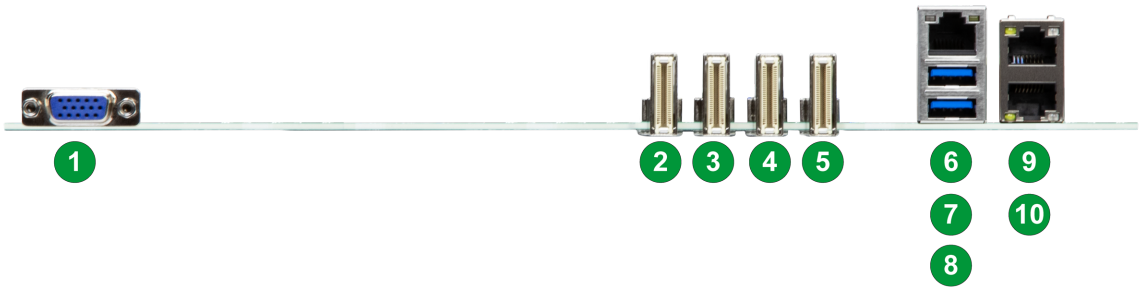


Figure 2-13. I/O Ports

I/O Ports			
#	Description	#	Description
1	VGA Port	6	IPMI LAN from JUSBRJ45
2	E1.S_A	7	USB from JUSBRJ45
3	E1.S_B	8	USB from JUSBRJ45
4	E1.S_C	9	LAN Port from JLAN1
5	E1.S_D	10	LAN Port from JLAN1

E1.S Slots

The H14SSF motherboard provides four vertical E1.S NVMe slots through JE1_1, JE1_2, JE1_3 and JE1_4. Each slot has four PCIe 5.0 lanes, and provides a maximum interface speed of 128 GT/s.

The four E1.S slots share the PCIe ports with riser card A slot #2, which is configurable by the JE1S1 and JE1S2 jumpers. The default configuration is to select E1.S. Refer the jumper settings chapter for the details.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

LAN Ports

The H14SSF motherboard has two 10G Ethernet RJ45 LAN ports located at JLAN1 and JUSBRJ45, and a dedicated IPMI LAN port located at JUSBRJ45 on the I/O panel.

For a detailed diagram of the H14SSF motherboard, see the layout under Quick Reference.

USB Ports

There are two USB 3.2 Gen 1 ports located at JUSBRJ45 on the I/O panel of the H14SSF motherboard.

For a detailed diagram of the H14SSF motherboard, see the layout under Quick Reference.

(USB 3.2 Gen 1) Port Pin Definitions: 18 Total			
Pin#	**Definitions**	**Pin#**	**Definitions**
1	VBUS	10	VBUS
2	D-	11	D-
3	D+	12	D+
4	GND	13	GND
5	STDA_SSRX-	14	STDA_SSRX-
6	STDA_SSRX+	15	STDA_SSRX+
7	GND	16	GND
8	STDA_SSTX-	17	STDA_SSTX-
9	STDA_SSTX+	18	STDA_SSTX+

VGA Port

A video (VGA) port is located on the I/O ports of the motherboard. The VGA port provides analog interface support between the computer and the video displays.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

Jumper Settings

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

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

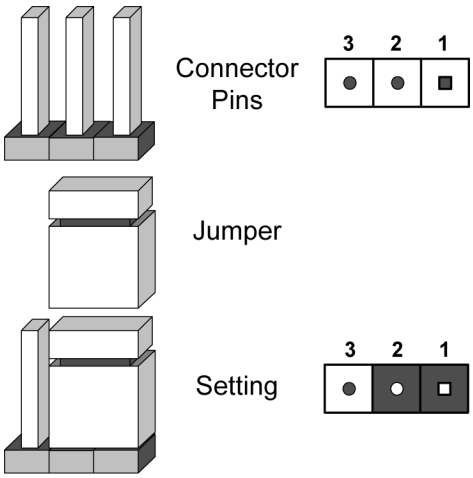


Figure 2-14. Jumping Connector Pins

CMOS Clear

JBT3 on the H14SSF motherboard is used to clear CMOS, which will also clear any passwords. Instead of pins, this jumper consists of contact pads to prevent accidentally clearing the contents of CMOS.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.



JBT3 contact pads

1. First power down the system and unplug the power cord(s).
2. Remove the cover of the chassis to access the motherboard.
3. Remove the onboard battery from the motherboard.
4. Short the CMOS pads, JBT1, with a metal object such as a small screwdriver for at least four seconds.

   Note: Clearing CMOS will also clear all passwords.

5. Remove the screwdriver (or shorting device).
6. Replace the cover, reconnect the power cord(s), and power on the system.

PCIe P3 Mux to Select Between E1.S and AOC

The four E1.S slots share the PCIe ports with riser card A, which is configurable by the JE1S1 and JE1S2 jumpers located on the H14SSF motherboard. The default configuration is to select E1.S.

PCIe P3 Mux to Select Between E1.S and AOC Jumper Settings		
JE1S1	**JE1S2**	**Definition**
Pins 1–2	Pins 1–2	x4 E1.S*4 (Default)
Pins 2–3	Pins 1–2	x16 AOC*1

LAN Enable/Disable

Use JPL1 to enable or disable LAN on the H14SSF motherboard. The default setting is Enabled.

LAN Enable/Disable Jumper Settings	
Jumper Setting	**Definition**
Pins 1–2	Enabled (Default)
Pins 2–3	Disabled

LED Indicators

For information about the LED indicators on the H14SSF motherboard, refer to the following content.

BMC Heartbeat LED

A BMC Heartbeat LED is located at LEDBMC on the H14SSF motherboard. When this LED is blinking, the BMC is functioning normally.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

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

M.2A Status LED

An M.2A status LED indicator is located at LED10 on the H14SSF motherboard.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

M.2A Status LED Indicator	
LED Color	**Definition**
Blinking Green	M.2_A is active

M.2B Status LED

An M.2B status LED is located at LED11 on the H14SSF motherboard.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

M.2B Status LED Indicator	
LED Color	**Definition**
Blinking Green	M.2 B is active.

Onboard RAID Controller Overheat LED

An onboard RAID controller overheat LED is located at LED14 on the H14SSF motherboard.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

Onboard RAID Controller Overheat LED Indicator	
LED Color	**Definition**
Solid Red	The RAID controller is overheated.

Onboard RAID Controller Failure LED

An onboard RAID controller Failure LED is located at LED15 on the H14SSF motherboard.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

Onboard RAID Controller Failure LED Indicator	
LED Color	**Definition**
Solid Red	The RAID controller has initial error.

System Power Status LED

An onboard system power status LED is located at LED16 on the H14SSF motherboard

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

System Power Status LED Indicator	
LED Color	**Definition**
Off	The system is powered off.
Blinking Green	BMC Initializing.
Solid Green	The system is powered on.

Onboard RAID Controller Heartbeat LED

An onboard RAID controller heartbeat LED is located at LED17 on the H14SSF motherboard.

For a detailed diagram of the H14SSF motherboard, see the layout under "Quick Reference" on page 11.

Onboard RAID Controller Heartbeat LED Indicator	
LED Color	**Definition**
Blinking Green	The RAID controller works normally.

Chapter 3:

Troubleshooting

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

3.1 Troubleshooting Procedures **48**
Before Power On 48
No Power 48
No Video 48
System Boot Failure 48
Memory Errors 49
Losing the System's Setup Configuration 49
If the System Becomes Unstable 49
3.2 Technical Support Procedures **51**
3.3 Motherboard Battery **52**
3.4 Where to Get Replacement Components **53**
3.5 Returning Merchandise for Service **54**
3.6 Feedback **55**

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" on page 51 or "Returning Merchandise for Service" on page 54 section(s) in this chapter. Always disconnect the AC power cord before adding, changing or installing any non hot-swappable hardware components. If the below steps do not fix the setup configuration problem, contact your vendor for repairs.

Before Power On

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

No Power

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

No Video

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

System Boot Failure

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

1. Check the screen for an error message.
2. Clear the CMOS settings by unplugging the power cord and contacting both pads on the CMOS clear jumper. Restart the system. Refer to CMOS Clear.
3. Remove all components from the motherboard and turn on the system with only one DIMM installed. If the system boots, turn off the system and repopulate the components back into the system to retest. Add one component at a time to isolate which one may have caused the system boot issue.

Memory Errors

When suspecting faulty memory is causing the system issue, check the following:

1. Make sure that the memory modules are compatible with the system and are properly installed. See "Component Installation" on page 22 for installation instructions. (For memory compatibility, refer to the "Tested Memory List" link on the motherboard's product page to see a list of supported memory.)
2. Check if different speeds of DIMMs have been installed. It is strongly recommended that you use the same RAM type and speed for all DIMMs in the system.
3. Make sure that you are using the correct type of DIMMs recommended by the manufacturer.
4. Check for bad DIMMs or slots by swapping a single module among all memory slots and check the results.

Losing the System's Setup Configuration

1. Make sure that you are using a high-quality power supply. A poor-quality power supply may cause the system to lose the CMOS setup information. Refer to "Introduction" on page 10 for details on recommended power supplies.
2. The battery on your motherboard may be old. Check to verify that it still supplies approximately 3 VDC. If it does not, replace it with a new one.

If the System Becomes Unstable

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

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

2. Memory support: Make sure that the memory modules are supported. Refer to the product page on our website at https://www.supermicro.com. Test the modules using memtest86 or a similar utility.

   Note: Click on the "Tested Memory List" link on the motherboard's product page to see a list of supported memory.

3. Storage Drive support: Make sure that all storage drives work properly. Replace the failed storage drives with good ones.
4. System cooling: Check the system cooling to make sure that all heatsink fans and processor/system fans, etc., work properly. Check the hardware monitoring settings in the IPMI to make sure that the processor and system temperatures are within the normal range. Also, check the front panel Overheat LED and make sure that it is not on.
5. Adequate power supply: Make sure that the power supply provides adequate power to the system. Make sure that all power connectors are connected. Refer to our website for more information on the minimum power requirements.
6. Proper software support: Make sure that the correct drivers are used.

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

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

3.2 Technical Support Procedures

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

1. Refer to "Troubleshooting Procedures" on page 48 or see the FAQs on our website (https://www.supermicro.com/FAQ/index.php) before contacting Technical Support.
2. BIOS upgrades can be downloaded from our website (https://www.supermicro.com/support/resources/bios_ipmi.php).
3. If you still cannot resolve the problem, include the following information when contacting Supermicro for technical support:
   - Motherboard model and PCB revision number
   - BIOS release date/version (This can be seen on the initial display when your system first boots up.)
   - System configuration
4. An example of a Technical Support form is on our website at https://webpr3.supermicro.com/SupportPortal.
5. Distributors: For immediate assistance, have your account number ready when placing a call to our Technical Support department. For Supermicro contact information, refer to "Contacting Supermicro" on page 9.

3.3 Motherboard Battery

For information on removing, disposing of, and replacing the motherboard battery of your system, refer to "Battery Removal and Installation" on page 33.

3.4 Where to Get Replacement Components

If you need replacement parts for your H14SSF motherboard, to ensure the highest level of professional service and technical support, purchase exclusively from our Supermicro Authorized Distributors/System Integrators/Resellers. A list can be found on the Supermicro website:

https://www.supermicro.com

Under the "Buy" menu, click the "Where to Buy" link.

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, RMA authorizations can be requested online at the following page:

https://www.supermicro.com/RmaForm

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

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

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

3.6 Feedback

Supermicro values your feedback as we strive to improve our customer experience in all facets of our business. Email us at Techwriterteam@supermicro.com to provide feedback on our manuals.

Chapter 4:

UEFI BIOS

The following content contains information on BIOS configuration with the H14SSF motherboard.

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4.8 Save & Exit **94**

4.1 Introduction

This chapter describes the AMIBIOS™ Setup utility for the motherboard. The BIOS is stored on a chip and can be easily upgraded using the UEFI script (flash.nsh), the BMC WebUI, or the SuperServer Automation Assistant (SAA) utility.

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

Updating BIOS

It is recommended that you do not upgrade your BIOS if you are not experiencing any problems with your system. Updated BIOS files are located on our website at the following page:

https://www.supermicro.com/support/resources/bios_ipmi.php

Check our BIOS warning message and the information on how to update your BIOS on our website. Select your motherboard model and download the BIOS file to your computer. Also, check the current BIOS revision to make sure that it is newer than your BIOS before downloading.

Important: Do not shut down or reset the system while updating the BIOS to prevent possible system boot failure! Read the motherboard README file carefully before you perform the BIOS update.

To update the BIOS under the UEFI Shell, unzip the BIOS file onto a bootable USB device and then boot into the built-in UEFI Shell. For motherboards with BMC support, type "flash.nsh <BIOS filename><BMC Username><BMC Password>" to start the BIOS update. The flash.nsh script will invoke the SAA (EFI) tool automatically to perform the BIOS update, beginning with uploading the BIOS image to BMC. After uploading the BIOS image, the system will reboot to continue the process. The BMC will take over and continue the BIOS update in the background. The process will take 3–5 minutes. Refer to the README file for more information.

Starting the Setup Utility

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

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

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

The BIOS Setup utility uses a key-based navigation system called hot keys. Most of these hot keys (<F1>, <F2>, <F3>, <F4>, <F5>, <F6>, <Enter>, <ESC>, the arrow keys, etc.) can be used at any time during the setup navigation process.

4.2 Main Setup

The Main setup screen appears when the AMI BIOS Setup utility is first entered. To return to the Main setup screen, select the Main tab at the top of the screen. The Main BIOS setup screen is shown below.

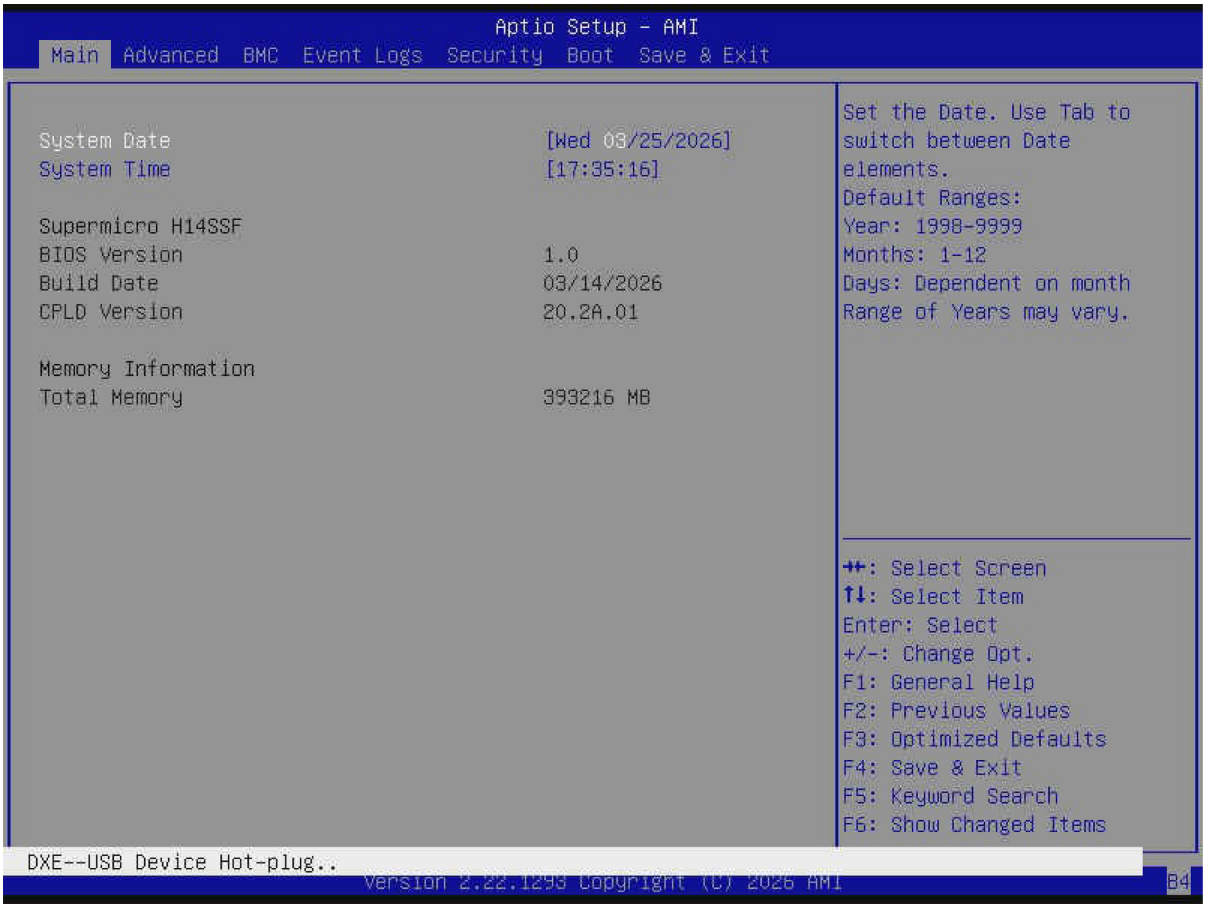


Figure 4-1. UEFI BIOS Main Tab Screen

System Date/System Time

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

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

Supermicro H14SSF

BIOS Version

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

Build Date

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

CPLD Version

This feature displays the version of the Complex-Programmable Logical Device (CPLD) used in the system.

Memory Information

Total Memory

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

4.3 Advanced Setup Configurations

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

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

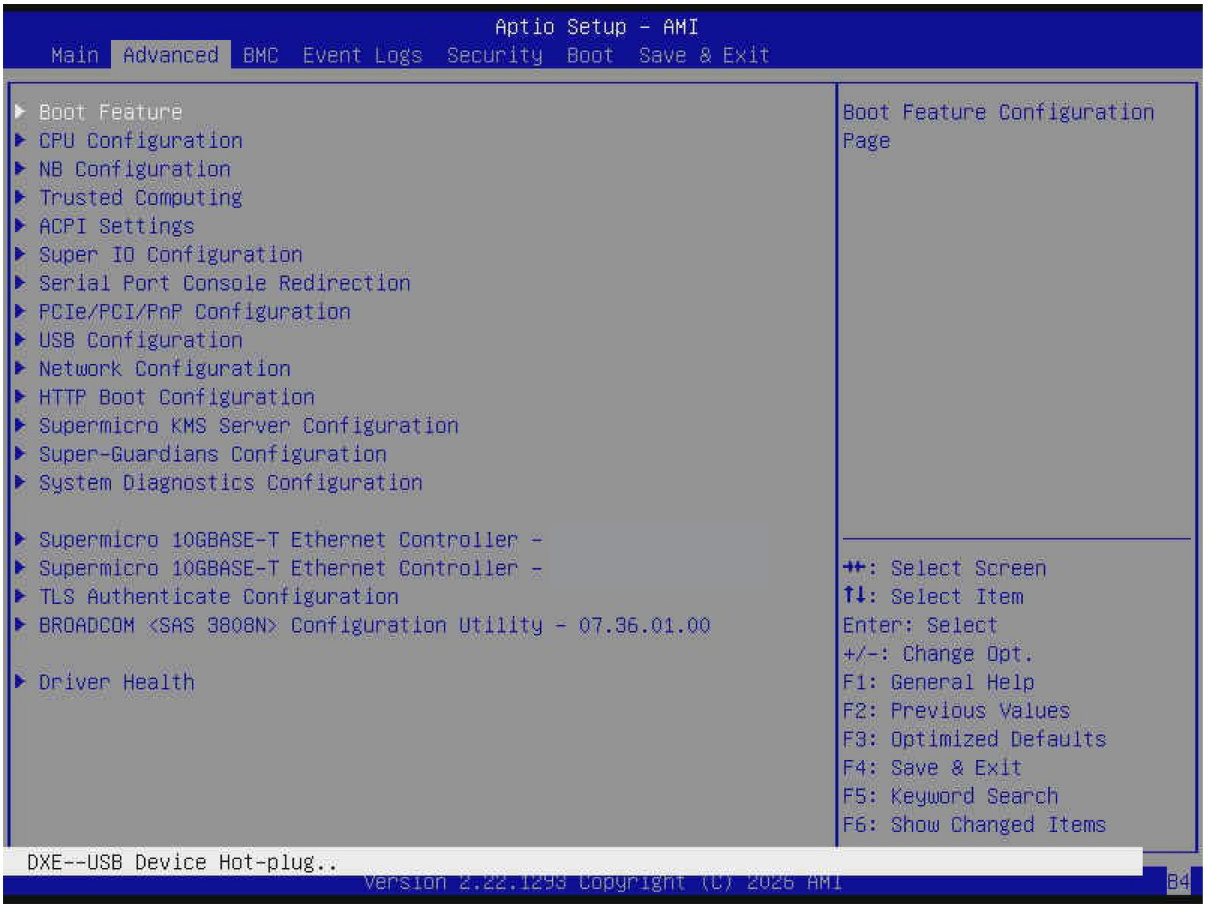


Figure 4-2. Advanced BIOS Screen

Boot Feature Menu

►Boot Feature

Quiet Boot

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

are Disabled and **Enabled**.

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

Option ROM Messages

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

Bootup NumLock State

Use this feature to set the power on state for the <Num Lock> key. The options are **On** and Off.

Wait For "F1" If Error

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

INT19 Trap Response

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

Re-try Boot

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

Runtime Variable Lock

Enable this feature to manage access to non-volatile memory (NVRAM) variables and use specific runtime services with write protection. The options are **Disabled** and Enabled.

Power Configuration

Watch Dog Function

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

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

Use this feature to configure the Watchdog timeout setting. The options are **Reset** and NMI.

Restore on AC Power Loss

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

Power Button Function

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

CPU Configuration Menu

Workload Profile

This function allows configuring the BIOS settings to match the selected workload. The options are **Disabled**, HPC, I/O, Virtualization, and Low Latency.

SMT Control

This setting is used to disable symmetric multithreading. To re-enable SMT, a power cycle is needed after selecting the Enable option. Select Auto based on BIOS PCD default setting. The options are Disabled, Enabled, and **Auto**.

Core Performance Boost

Use this setting to configure Core Performance Boost. The options are Disabled and **Auto**.

Global C-state Control

Controls IO based C-state generation and DF C-states. The options are Disabled, Enabled, and **Auto**.

ACPI CST C2 Latency

Use this setting to enter in microseconds the decimal value. Larger C2 latency values will reduce the number of C2 transitions and reduce C2 residency. Fewer transitions can help when the performance is sensitive to the latency of C2 entry and exit. The default value is **100.**

PPIN Opt-in

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

SMEE

This setting controls Secure Memory Encryption (SME) for the system. The options are Disabled, Enabled, and **Auto**.

Fast Short REP MOVSB (FSRM)

The default is 1, but it can be set to zero for analysis purposes as long as the OS supports it. The options are **Auto**, Enabled, and Disabled.

Enhanced REP MOVSB/STOSB (ERSM)

This setting optimizes CPU string operations. Disabling ERSM (setting it to 0) can be useful for performance analysis if supported by the operating system. The options are Disabled, Enabled, and **Auto**.

AVX512

Enable or disable AVX512. The options are **Auto**, Enabled, and Disabled.

Monitor and MWAIT Disable

This setting controls the availability of the MONITOR, MWAIT, MONITORX, and MWAITX opcodes, which are used for power management and synchronization. The options are Enabled, Disabled, and **Auto**.

L1 Stream HW Prefetcher

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

L2 Stream HW Prefetcher

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

CCD Control

Sets the number of active CCDs. A power cycle is required once this option has been used to remove any CCDs. The options are **Auto**, 2 CCDs, 4 CCDs, 6 CCDs.

Core Control

Sets the number of cores to be used. Once this option has been used to remove any cores, a power cycle is required for future selections to take effect. The options are **Auto**, ONE (1+0), TWO (2+0), THREE (3+0), FOUR (4+0), FIVE (5 +0), SIX (6+0), SEVEN (7+0), .

SVM Mode

This setting enables or disables CPU Virtualization. The options are Disabled and **Enabled**.

►CPU1 Information

Changing the designed PCIe port bifurcation.

CPU information listed,

CPU1 PCIe Package Group P2 The options are **Auto**, x4x4x4x4, x4x4x8, x8x4x4, x8x8, and x16

CPU1 PCIe Package Group G2

CPU1 PCIe Package Group P3

CPU1 PCIe Package Group G3

CPU1 PCIe Package Group P1

CPU1 PCIe Package Group G1

CPU1 PCIe Package Group P0

CPU1 PCIe Package Group G0

NB Configuration

North Bridge Configuration

IOMMU

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

DMAr Support

Use this setting to enable DMAr system protection during Power-On Self-Test (POST). The options are Disabled, Enabled, and **Auto**.

DMA Protection

Use this setting to enable DMA remap support in the IVRS IV info field. The options are **Auto**, Enabled, and Disabled.

DRTM Virtual Device Support

This enables or disables the DRTM ACPI Virtual device. The options are Disabled, Enabled, and **Auto**.

DRTM Memory Reservation

This setting reserves 128 MB of memory below for DRTM security functions. It is required to for secured-core servers. The options are Disabled, Enabled, and **Auto**.

ACS Enable

This setting enables Access Control Service (ACS) functionality, which requires AER to be active. The options are Enabled, Disabled, and **Auto**.

TDP Control

Use this setting to set the processor's power consumption (TDP). The options are Manual and **Auto**.

Package Power Limit Control

Use Auto to apply the default power limit (PPT) or Manual to set a custom PPT. The options are Manual and **Auto**.

Determinism Control

Use this setting to configure the level of performance determinism. The options are Manual and **Auto**.

APBDIS

Use this setting to control the APBDIS feature. A value of 0 indicates "not APBDIS" (mission mode). The options are 0, 1, and **Auto**.

Power Profile Selection

Use this setting to select a power profile to optimize performance or efficiency. The options are High Performance Mode, Efficiency Mode, Maximum IO Performance Mode, Balanced Memory Performance Mode, Balanced Core Performance Mode, Balanced Core Memory Performance Mode, and **Auto**.

DF Cstates

This setting controls the power-saving states of the data fabric. The options are Disabled, Enabled, and **Auto**.

Data Link Feature Cap

This setting controls the activation of advanced data link features for PCIe devices, which can improve link performance and reliability. The options are Enabled, Disabled, and **Auto**.

SEV-SNP Support

This setting controls the activation of Secure Encrypted Virtualization - Secure Nested Paging (SEV-SNP) security features. The options are Disabled, Enabled, and **Auto**.

Periodic Training Mode

This setting controls the method for managing power-saving states. The options are Disabled and **Legacy**.

EQ Bypass To Highest Rate

This setting determines whether the system can bypass equalization steps at lower data rates and directly attempt equalization at the highest supported rate during the link setup process. The options are Disable, Enable, and **Auto**.

CXL Memory Attribute

This setting determines the memory type for CXL devices. The options are **Auto**, Enabled, and Disabled.

Sync Header Bypass

This setting controls the inclusion of synchronization headers in data transmissions. The options are **Auto**, Enabled, and Disabled.

SDCI

Enable or disable the smart data cache injection. The options are Disabled, Enabled, and **Auto**.

►Memory Configuration

Memory Target Speed

Use this setting to specify the memory target speed in MT/s. The options are **Auto**, DDR3600, DDR4000, DDR4400, DDR4800, DDR5200, DDR5600, DDR6000, and DDR6400..

Memory Interleaving

This setting controls fabric level memory interleaving. Note that the channel, die, and socket have requirements on memory populations and it will be ignored if the memory doesn't support the selected option. The options are Disabled, Enabled, and **Auto**.

Chipselect Interleaving

This setting allows memory blocks to be interleaved across the DRAM chip selects for node 0, which can enhance memory performance. The options are Disabled and **Auto**.

BankSwapMode

This setting determines the operation of memory banks in relation to CPU usage. 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**.

DRAM Scrub Time

This setting specifies the frequency of memory scrubbing, which helps maintain data integrity by refreshing memory contents. The options are Disabled, 1 hour, 4 hours, 6 hours, 8 hours, 12 hours, 16 hours, **24 hours**, and 48 hours.

TSME

This setting controls the Transparent Secure Memory Encryption feature. The options are **Auto**, Enabled, and Disabled.

Enhanced PPR

Use this setting to enable a full memory test during system setup. While this thorough testing can enhance system stability, it will also increase the overall boot time. The options are **Disabled** and Enabled.

►CPU1 Memory Information

View memory information for CPU1.

Trusted Computing Menu

Configuration

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 Trusted Platform Module (TPM) 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**.

When "Security Device Support" is set to Enabled and a TPM 2.0 device is detected by the BIOS, the following information is displayed:

- Active PCR banks
- Available PCR banks

Note: The following features are available when a TPM 2.0 device is detected by the BIOS.

ACPI Settings Menu

►ACPI Settings

High Precision Event Timer

The High Precision Even Timber (HPET) is a hardware timer that provides high-resolution time stamps and periodic interrupts, used by the operating system for various timing-related tasks. The options are Disabled and **Enabled**.

PCI AER Support

This setting controls the Advanced Error Reporting (AER) capability for PCIe devices in the system. The options are Enabled and **Disabled**.

NUMA Nodes per Socket

A NUMA architecture divides hardware resources, including processors, memory, and I/O buses, into groups, called NUMA nodes. This setting specifies the number of desired NUMA nodes per sockets. Selecting Zero will attempt to interleave the two sockets together. **Auto** is equivalent to NPS1.

ACPI SRAT L3 Cache As NUMA Domain

This setting determines how the system's Non-Uniform Memory Access (NUMA) domains are defined in relation to the L3 cache. The options are Disabled, Enabled, and **Auto**.

Super IO Configuration Menu

►Super IO Configuration

Note: This submenu is available when your system supports this feature.

The following information is displayed.

- Super IO Chip

Select for Serial Port 1 or Serial Port 2.

Serial Port 1 Configuration Menu

Serial Port 1 Configuration

Serial Port 1

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

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

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

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

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

Serial Port 2 Configuration

Serial Port 2/SOL ("Serial Port 2" or "SOL" based on your system support)

Select Enabled to enable serial port 2 (or SOL). The options are Disabled and **Enabled**.

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

This feature displays the base I/O port address and the Interrupt Request address of serial port 2 (or SOL).

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

Use this feature to specify the base I/O port address and the Interrupt Request address of serial port 2 (or SOL). Select Auto for the BIOS to automatically assign the base I/O and IRQ address to serial port 2 (or SOL).

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 2 Attribute (Available for Serial Port 2 only)

Select SOL to use serial port 2 as a Serial Over LAN (SOL) port for console redirection. The options are **SOL** and COM.

Serial Port Console Redirection Menu

COM1 (Available when your system supports the serial port of COM1)

Console Redirection

Select Enabled to enable COM port 1 for Console Redirection, which allows a client machine to be connected to a host machine at a remote site for networking. The options are **Disabled** and Enabled.

Note: This feature will be set to Enabled if there is no BMC support.

►Console Redirection Settings

Note: This submenu is available when "Console Redirection" for COM1 or SOL/COM2 is set to Enabled.

Out-of-Band Mgmt Port

The feature selects a serial port in a client server to be used by the Microsoft Windows Emergency Management Services (EMS) to communicate with a remote host server. The options are **COM1** and SOL/COM2. Please note that the option of SOL/COM2 indicates a shared serial port. SOL is available with BMC support.

Terminal Type

Use this feature 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 EMS

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

Flow Control EMS

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

The following information is displayed.

- **Data Bits EMS**
- **Parity EMS**
- **Stop Bits EMS**

►Legacy Console Redirection Settings

Legacy Serial Redirection Port

Select a COM port to display redirection of legacy OS and legacy OPROM messages. The options are **COM1** and SOL/COM2.

Resolution

On legacy OS, the number of rows and columns supported redirection. The options are 80x24 and **80x25**.

Redirection After BIOS Post

When bootloader is selected, then legacy console redirection is disabled before booting to legacy OS. When always is select, then legacy console redirection is enabled for legacy OS. The options are **Always Enable** and BootLoader.

Console Redirection EMS

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

PCIe/PCI/PnP Configuration Menu

PCI Devices Common Settings

Re-Size BAR Support

This setting enables or disables the Re-Size Base Address Register feature for compatible PCIe devices, which allows the system to allocate more memory to the device. The options are **Disabled** and Enabled.

SR-IOV Support

This setting enables or disables Single Root I/O Virtualization support for the system's PCIe devices. The options are **Disabled** and Enabled.

BME DMA Mitigation

This setting enables or disables Bus Mastering Error (BME) Direct Memory Access (DMA) mitigation for protection during the pre-boot process. The options are **Disabled** and Enabled.

ASPM Support

Configure the Active State Power Management (ASPM) level for PCIe links to optimize power consumption and performance. The options are **Disabled**, Auto, and Force L1.

PCIe ARI Support

This setting enables alternative routing-ID interpretation. The options are Disabled, Enabled, and **Auto**.

PCIe ARI Enumeration

This setting controls the forwarding of Alternate Routing-ID Interpretation (ARI) information for each downstream port, which is essential for device identification in PCIe systems. The options are Disabled, Enabled, and **Auto**.

Relaxed Ordering

This setting determines whether PCI Express devices are permitted to bypass strict transaction ordering, which can lead to potential performance improvements. The options are Disabled and **Enabled**.

Clock Spread Spectrum

This setting allows the BIOS to monitor and reduce the level of Electromagnetic Interference (EMI) generated by system components. The options are **Disabled** and Enabled.

No Snoop

This setting configures the No Snoop option for PCI Express devices, determining whether memory accesses bypass the cache. The options are Disabled and **Enabled**.

VGA Priority

This setting allows you to choose the primary video output source for the system. The options are **Onboard** and External.

PCIe Ten Bit Tag Support

This setting enables the use of ten-bit tags for PCIe devices, which can improve data handling and management. The options are Disabled, Enabled, and **Auto**.

NVMe Firmware Source

This setting determines the source of firmware for NVMe devices, allowing you to select between native support or vendor-specific firmware. The options are **Vendor Defined Firmware** and AMI Native Support.

Onboard Video Option ROM

This setting selects the type of firmware to be loaded for onboard video. The options are Disabled and **EFI**.

PCI Devices Option ROM Setting

This setting controls Option ROMs on PCI/PCIe cards for device initialization. Available options depend on installed hardware.

Onboard LAN 1 OPROM

Select which firmware function to be loaded for onboard LAN1. The options are Disabled and **EFI**.

Onboard NVMe1 Option ROM

This setting selects the type of firmware to be loaded for onboard NVMe1. The options are Disabled and **EFI**.

Onboard NVMe2 Option ROM

This setting selects the type of firmware to be loaded for onboard NVMe2. The options are Disabled and **EFI**.

Onboard NVMe3 Option ROM

This setting selects the type of firmware to be loaded for onboard NVMe3. The options are Disabled and **EFI**.

Onboard NVMe4 Option ROM

This setting selects the type of firmware to be loaded for onboard NVMe4. The options are Disabled and **EFI**.

USB Configuration

USB Configuration

USB Module Version

USB Controllers: 2 XHCIs

USB Devices: 1 Keyboard, 1 Mouse, 3 Hubs

XHCI Hand-off

This setting provides a workaround for operating systems that do not support XHCI hand-off. The XHCI ownership change must be claimed by the XHCI driver.The options are **Enabled** and Disabled.

Network Configuration Menu

Network Stack

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

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

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

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

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

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

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

Media Detect Count (Available when "Network Stack" is set to Enabled)

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

►IPv4 Network Configuration

Configured

This setting indicates whether the network address configured successfully. The options are Disabled and **Enabled**.

Enable DHCP

The options are **Disabled** and Enabled.

Local IP Address

Enter and IP address.

Local NetMask

Enter the Netmask address.

Local Gateway

Enter the Gateway IP address.

Local DNS Servers

Enter the DNS servers IP addresses.

Save Changes and Exit

The options are **Yes** and no.

►IPv6 Network Configuration

Set IPv6 Network parameters.

►Enter Configuration Menu

Interface Name

Interface Type

MAC address

Host addresses

Route Table

Gateway addresses

DNS adresses

Interface ID

DAD Transmit Count

The number of consecutive Neighbor Solicitation messages sent while performing Duplicate Address Detection on a tentative address. A value of zero indicates that Duplicate Address Detection is not performed. The default value is **1**.

►Advanced Configuration

Note: This submenu is available when "Policy" is set to Manual.

New IPv6 address

Use this to set a new manual IP address. It can only be configured under manual policy.

New Gateway addresses

Use this to set new gateway addresses. Gateway IP addresses can only be configured under manual policy.

New DNS addresses

Use this to set new DNS addresses. DNS addresses can only be configured under manual policy.

Commit Changes and Exit

Discard Changes and Exit

Policy

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

Save Changes and Exit

The options are **Yes** and No.

►Advanced Configuration

Note: This submenu is available when "Policy" is set to Manual.

New IPv6 address

Use this to set a new manual IP address. It can only be configured under manual policy.

New Gateway addresses

Use this to set new gateway addresses. Gateway IP addresses can only be configured under manual policy.

New DNS addresses

Use this to set new DNS addresses. DNS addresses can only be configured under manual policy.

Commit Changes and Exit

Discard Changes and Exit

Save Changes and Exit

The options are **Yes** and No.

HTTP Boot Configuration Menu

HTTP Boot Configuration

HTTP Boot Policy

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

HTTPS Boot Checks Hostname

Important: Disabling "HTTPS Boot Checks Hostname" is a violation of RFC 6125 and may expose you to Man-in-the-Middle Attacks. Supermicro is not responsible for any and all security risks incurred by you disabling this feature.

This setting determines whether HTTPS Boot verifies that the hostname in the server's TLS certificate matches the hostname of the remote server. The options are **Enabled** and Disabled (WARNING: Security Risk!!).

Priority of HTTP Boot

Instance of Priority 1: (Available when your motherboard supports this feature)

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

Select IPv4 or IPv6

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

Boot Description

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

Boot URI

Enter a Boot Uniform Research Identifier (URI) with 128 characters or shorter. This Boot URI determines how IPv4 Boot Option and IPv6 Boot Option will be created. This feature is only supported on Dual or EFI Boot Mode.

Instance of Priority 2: (Available when your motherboard supports this feature)

This feature sets the rank target port. The default setting is **0**.

Supermicro KMS Server Configuration Menu

►Supermicro KMS Server Configuration

Note: Be sure to configure all the features in the submenu of Supermicro KMS Server Configuration and the feature of "KMS Security Policy" in the submenu of Super-Guardians Configuration so that your system can communicate with the KMS server.

TPM-KMS Support

This feature combines the capabilities of a hardware-based security module (TPM) with the Key Management Service (KMS) to enhance security by managing cryptographic keys and ensuring secure access to sensitive data. The options are **Disabled** and Enabled.

Supermicro KMS Server IP address

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

Second Supermicro KMS Server IP address

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

Supermicro KMS TCP Port number

Use this feature to set the TCP port number used in Supermicro KMS Server. The valid range is 100–9999. The default setting is **5696**. Do not change the default setting unless a different TCP port number has been specified and used in the Supermicro KMS Server.

KMS Time Out

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

TimeZone

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

Client UserName

Press <Enter> to set the client identity (UserName). The username can be between 0 and 63 characters in length.

Client Password

Press <Enter> to set the client identity (Password). The password can be between 0 and 31 characters in length.

►CA Certificate

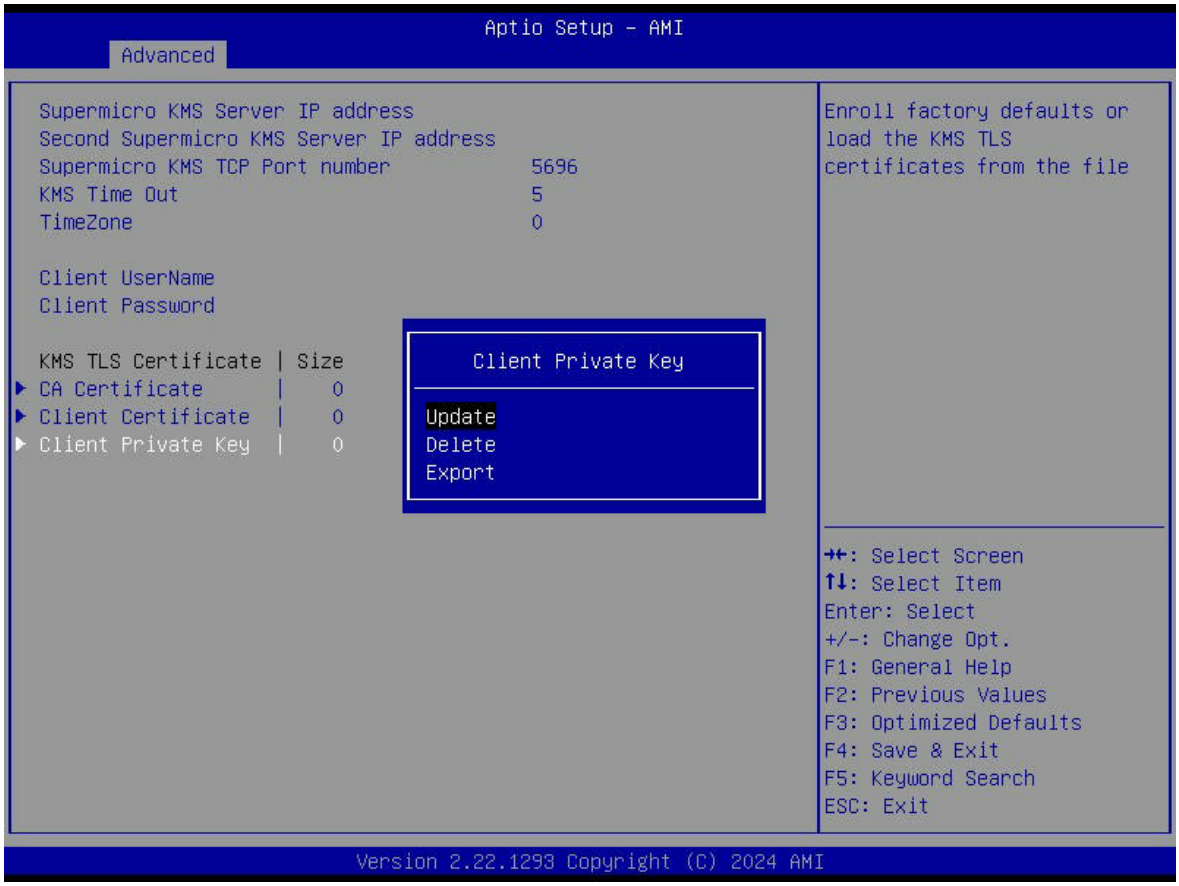
This setting provides options for managing the Certificate Authority (CA) certificate. The options are **Update**, Delete, and Export.

►Client Certificate

This setting provides options for managing the client certificate. The options are **Update**, Delete, and Export.

►Client Private Key

Use the three features to enroll factory defaults or load the KMS Transport Layer Security (TLS) certificates, which are generated by the KMS Server, from the file stored in the USB flash drive as shown below.



Private Key Password (Available when "Client Private Key" above has been set)

Use this feature to change the password for the client private key.

Super-Guardians Configuration Menu

►Super-Guardians Configuration

Super-Guardians Protection Policy

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

KMS Security Policy (Available when "TPM Security Policy" and "USB Security Policy" are set to Disabled)

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

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

Notes:

- Be sure that the KMS server is ready before configuring this feature.
- Use the professional KMS server solutions (e.g., Thales Server) or the Supermicro PyKMIP Software Package to establish the KMS server.

KMS Server Retry Count (Available when "TPM Security Policy" and "USB Security Policy" are set to Disabled)

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

TPM Security Policy (Available when "KMS Security Policy" and "USB Security Policy" are set to Disabled)

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

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

Note: Be sure to install a TPM 2.0 device to your system before configuring this feature.

Load Authentication- Key (Available when "KMS Security Policy," "TPM Security Policy," and "USB Security Policy" are set to Disabled)

Set this feature to Enabled. Changes take effect after you save settings and reboot the system. While booting, the BIOS will automatically load the Authentication- Key (filename: TPMAuth.bin) from the USB flash drive. Afterwards, the default setting will be set to Disabled by the BIOS. The options are **Disabled** and Enabled.

Notes:

- Be sure to connect a USB flash drive with the Authentication-Key (filename: TPMAuth.bin) to your system before the system reboots.
- Be sure to save the Authentication-Key (filename: TPMAuth.bin) to the USB flash drive and have a backup. Please load the Authentication-Key (filename: TPMAuth.bin) after installing a TPM device. Otherwise, the TPM function can not work properly.

USB Security Policy (Available when "KMS Security Policy" and "TPM Security Policy" are set to Disabled)

Use this feature to enable the USB Security Policy. The options are **Disabled** and Enabled. Set this feature to Enabled. Changes take effect after you save settings and reboot the system. Connect a USB flash drive to your system before the system reboot. While booting, the BIOS will automatically create the USB Authentication-Key (filename: USBAuth.bin) and save it to the USB flash drive.

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

Note: Be sure to connect a USB flash drive to your system before configuring this feature. Save the USB Authentication-Key (filename: USBAuth.bin) to the USB flash drive and keep a backup.

System Diagnostics Configuration

Launch System Diagnostics

Use this feature to run hardware tests that check the health of system components and help identify any issues. The options are **Disabled** and Launch Once.

Supermicro Network Adapter Menu

►Firmware Image Menu

This menu displays detailed version information for system firmware components.

Family Firmware Version

Boot Code

MBA

EFI

NCSI

RDMA FW

►Device Configuration Menu

Multi-Function Mode

This setting configures NIC Hardware Mode. Switching from multi-function to single function will result in the clearing of Virtual Function values in the extended partitions. Advanced NPar option is a feature preview only. The options are **SF** and NPAR 1.0.

SR-IOV Support

This setting enables or disables Single Root I/O Virtualization support for the system's PCIe devices. The options are **Disabled** and Enabled.

Number of MSI-X Vectors per VF

This feature sets how many MSI-X interrupt vectors are assigned to each Virtual Function (VF) to improve device performance in virtualized environments.

Maximum Number of MSI-X Vectors

Use this option to configure maximum number of PF MSI-X Vectors (0–512 per controller). The default value is **512**.

Energy Efficient Ethernet

This feature enables the network interface to reduce power consumption during periods of low data activity by entering a low-power idle mode, as defined by the IEEE 802.3az standard. The options are **Disabled** and Enabled.

Operational Link Speed

Use this setting to configure teh default link speed for the selected port. The options are **AutoNeg**, 25Gbps, 50Gbps, 100Gbps, 50Gbps PAM4, 100Gbps PAM4, 100Gbps PAM4-112, 200Gbps PAM4, 200Gbps PAM4-112, and 400Gbps PAM4-112.

Support RDMA

Use this setting to configure RDMA Support for this port. The options are Disabled and **Enabled**.

DCB Protocol

Use this setting to enable or disable DCB Protocol. The options are **Disabled**, Enabled (IEEE only), CEE (only), and Both (IEEE preferred with fallback to CEE).

LLDP nearest bridge

Use the setting to configure LLDP nearest bridge state. The options are **Disabled** and Enabled.

Default EVB Mode

Use the setting to configure Default Edge Virtual Bridging mode. The options are **VEB**, VEPA, and None.

Enable PME Capability

Use the setting to configure PME Capability support. The options are **Disabled** and Enabled.

Flow Offload

This feature enables or disables the network adapter to accelerate packet processing by offloading specific traffic flows from the CPU to specialized hardware, improving network performance and reducing CPU usage. The options are **Disabled** and Enabled.

Adapter Error Recovery

This setting enables or disabled the network adapter or device to automatically detect, isolate, and recover from hardware or firmware errors without manual intervention, helping to maintain normal operation and avoid system crashes or reboots. The options are **Disabled** and Enabled.

►MBA Configuration Menu

Option ROM

This feature controls whether legacy boot protocols in the device's option ROM are enabled or disabled. The options are Disabled and **Enabled**.

Legacy Boot Protocol

This feature allows the system to boot using traditional BIOS methods (non-UEFI) instead of UEFI, supporting older operating systems and devices. The options are **PXE** and NONE.

Boot Strap Type

This feature selects the method to initiate the system boot process. The options are **Auto Detect**, BBS, Int 18h, and Int 19h.

Pre-boot Wake On LAN

This feature allows the system to power on remotely via a network signal (Wake-on-LAN) before the operating system loads. The options are Disabled and **Enabled**.

VLAN Mode

This feature allows configuration of Virtual LAN (VLAN) tagging and support for network adapters during system boot. The options are **Disabled** and Enabled.

VLAN ID (1-4094)

This feature specifies the VLAN number (1–4094) used to tag and separate network traffic.

Boot Retry Count

This feature sets how many times the system will attempt to boot from the selected device before stopping or reporting an errors. The options are **No Retry**, 1 Retry, 2 Retries, 3 Retries, 4 Retries, 5 Retries, 6 Retries, and Indefinite Retries.

Blink LEDs

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

The following information is displayed.

- UEFI Driver
- Adapter PBA
- Device Name
- Chip Type
- PCI Device ID

- PCI Address
- Link Status
- MAC Address
- Virtual MAC Address

Link Status

This option displays link status.

Physical Link Speed

Chip Type

PCI Device ID

Bus: Device: Function

Permanent MAC Address

This feature displays the permanent MAC address used by the device.

Virtual NUMA

Enable this feature to optimize the memory-access performance for VMware virtual machines. The options are **Disabled** and Enabled.

Note: This feature is NOT available when "Workload Profile" is set to Telco NFVI, Telco NFVI-FP, or Telco FlexRAN.

Restore Defaults

This feature resets adapter to the original factory default values.

TLS Authenticate Configuration Menu

►Server CA Configuration

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

►Enroll Certification

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

Certification GUID

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

►Commit Changes and Exit

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

►Discard Changes and Exit

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

►Delete Certification

This feature is used to remove the selected TLS certificates that are no longer needed or valid.

►Client Certification Configuration

Use this feature to manage the TLS certificates used to authenticate remote clients connecting to your system. Add, view, or delete client certificates as needed.

BROADCOM <SAS 3808N> Configuration Utility

►BROADCOM <SAS 3808N> Configuration Utility

To configure RAID controller settings, refer to Chapter 5 in the AOC-SMG4-2M2-P and AOM-M3808NI-4HM-P manuals (https://www.supermicro.com/manuals/other/AOC-SMG4-2M2.pdf, https://www.supermicro.com/manuals/other/AOM-M3808NI-4HM.pdf).

Driver Health Menu

►Driver Health

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

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

4.4 BMC

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



Figure 4-3. BMC Tab Screen

BMC Firmware Revision

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

BMC STATUS

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

4.5 Event Logs

Use this menu to configure Event Logs settings.

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

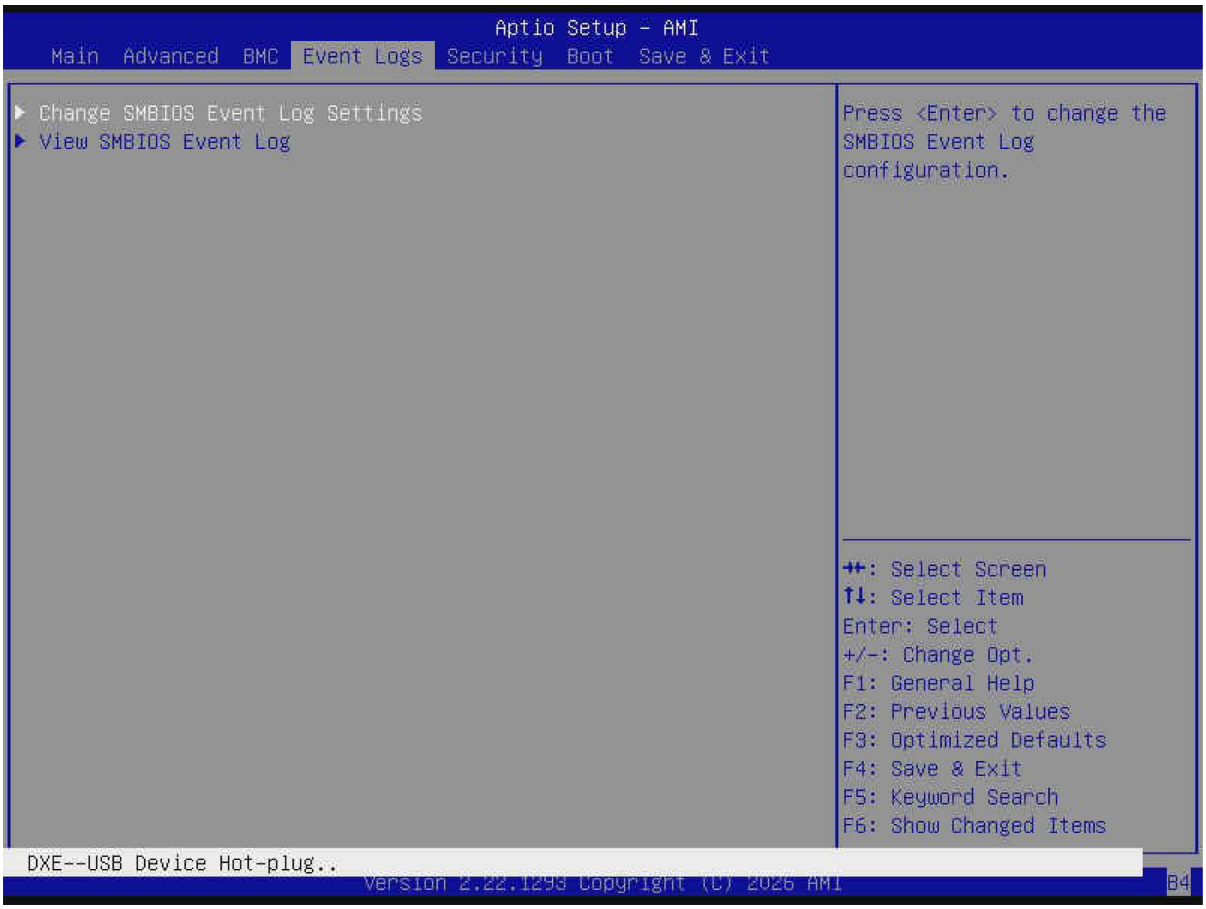


Figure 4-4. Event Logs Tab Screen

►Change SMBIOS Event Log Settings

Note: Reboot the system for the changes in this section to take effect.

Enabling/Disabling Options

SMBIOS Event Log

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

Erasing Settings

Erase Event Log (Available when "SMBIOS Event Log" is set to Enabled)

Select No to keep the event log without erasing it upon next system bootup. Select (Yes, Next reset) to erase the event log upon next system reboot. The options are **No**, (Yes, Next reset), and (Yes, Every reset).

When Log is Full (Available when "SMBIOS Event Log" is set to Enabled)

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

SMBIOS Event Log Standard Settings

Log System Boot Event (Available when "SMBIOS Event Log" is set to Enabled)

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

MECI (Available when "SMBIOS Event Log" is set to Enabled)

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

METW (Available when "SMBIOS Event Log" is set to Enabled)

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

►View SMBIOS Event Log

Use this feature to view the events 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 menu allows you to configure the following security settings for the system.

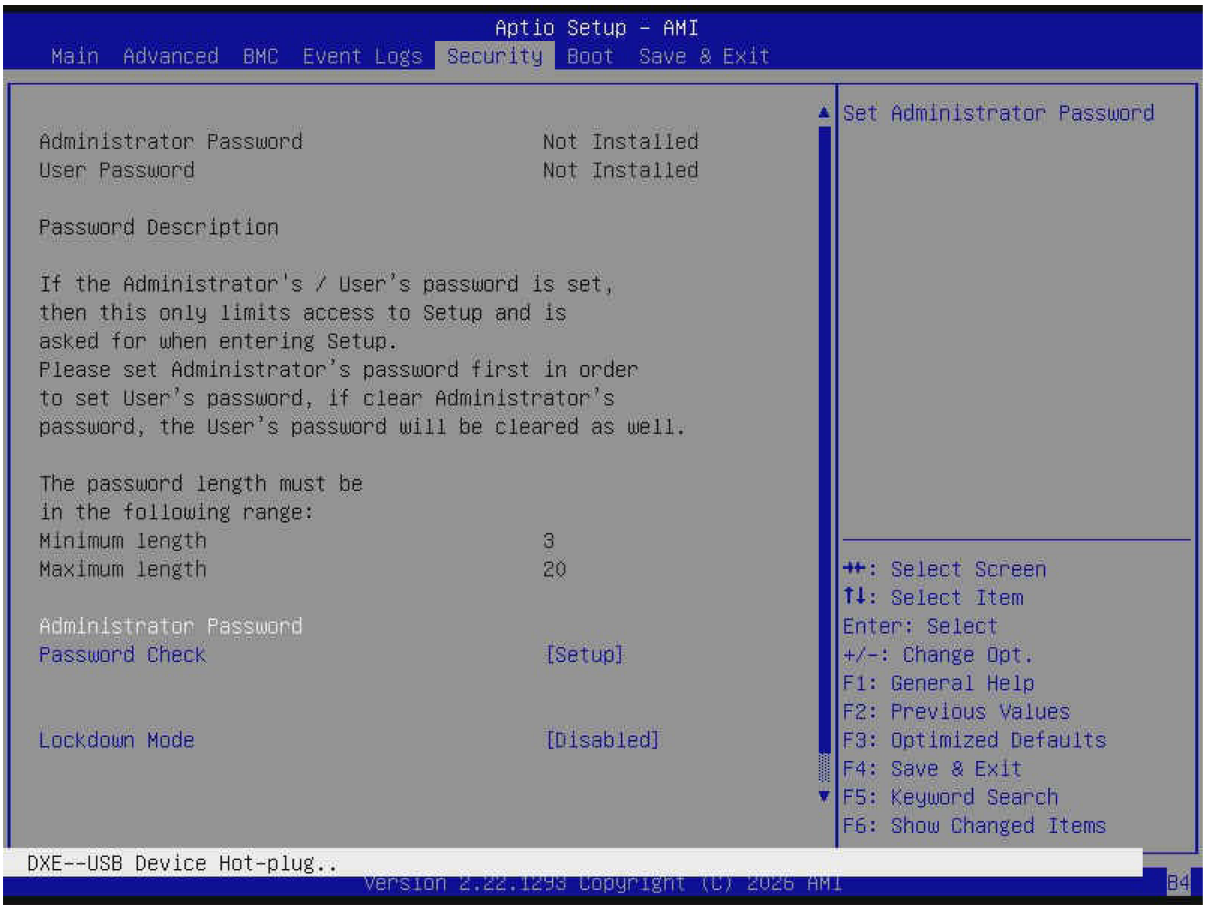


Figure 4-5. Security Tab Screen

Disable Block Sid and Freeze Lock (Available when your storage devices support TCG)

Select Enabled to allow SID authentication to be performed in TCG storage devices. The options are **Disabled** and Enabled.

The following information is displayed:

- Administrator Password
- User Password
- Password Description

Administrator Password

This feature indicates if an administrator password has been installed. Use this feature to set the administrator password, which is required to enter the BIOS Setup utility. The length of the password can be between three and 20 characters long.

User Password (Available when "Administrator Password" has been set)

This feature indicates if a user password has been installed. Use this feature to set the user password which is required to enter the BIOS Setup utility. The length of the password can be between three and 20 characters long.

Password Check

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

Hard Drive Security Frozen

Select Enabled to freeze the Lock Security feature for HDD to protect key data in hard drives from being altered. The options are **Disabled** and Enabled.

Lockdown Mode (Available when the DCMS key is activated)

Select Enabled to support the Lockdown Mode, which prevents the existing data or keys stored in the system from being altered or changed in an effort to preserve system integrity and security. The options are **Disabled** and Enabled.

4.7 Boot

Use this menu to configure Boot settings.

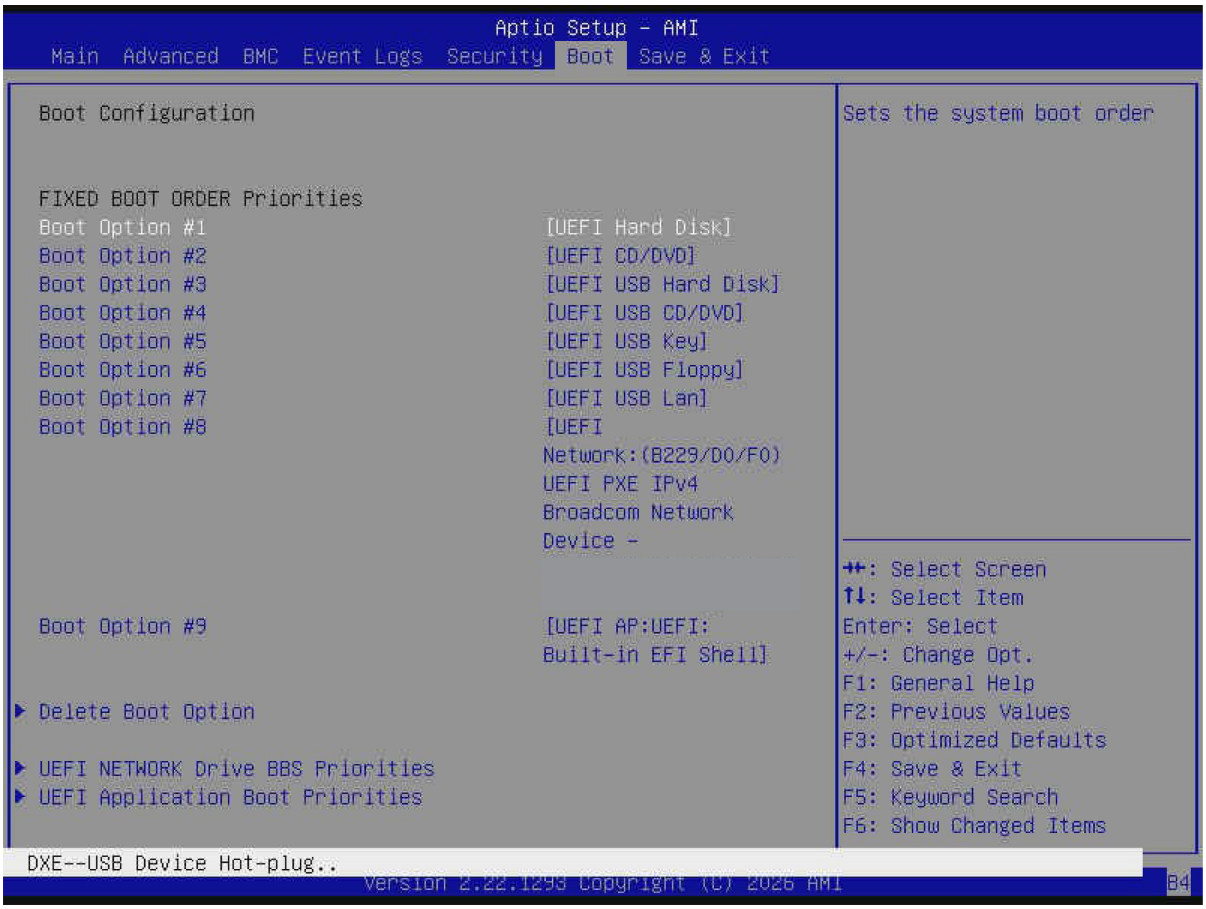


Figure 4-6. Boot Tab Screen

FIXED BOOT ORDER Priorities

Use this feature to prioritize the order of a bootable device from which the system will boot. Press <Enter> on each item sequentially to select the device.

- Boot Option #1 – Boot Option #9

►Add New Boot Option

Use this feature to add a new boot option to the boot priority features for system boot.

Note: This submenu is available when any storage device is detected by the BIOS.

Add boot option

Use this feature to specify the name for the new boot option.

Path for boot option

Use this feature to enter the path for the new boot option in the format fsx:\path\filename.efi.

Boot option File Path

Use this feature to specify the file path for the new boot option.

Create

After setting the name and the file path for the boot option, press <Enter> to create the new boot option in the boot priority list.

►Delete Boot Option

Use this feature to select a boot device to delete from the boot priority list.

Delete Boot Option

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

►UEFI NETWORK Drive BBS Priorities

Use this feature to set the system boot order of detected devices.

►UEFI Application Boot Priorities

Use this feature to set the system boot order of detected devices.

►UEFI USB Key Drive BBS Priorities

Use this feature to set the system boot order of detected devices.

►UEFI Hard Disk Drive BBS Priorities

Use this feature to set the system boot order of detected devices.

4.8 Save & Exit

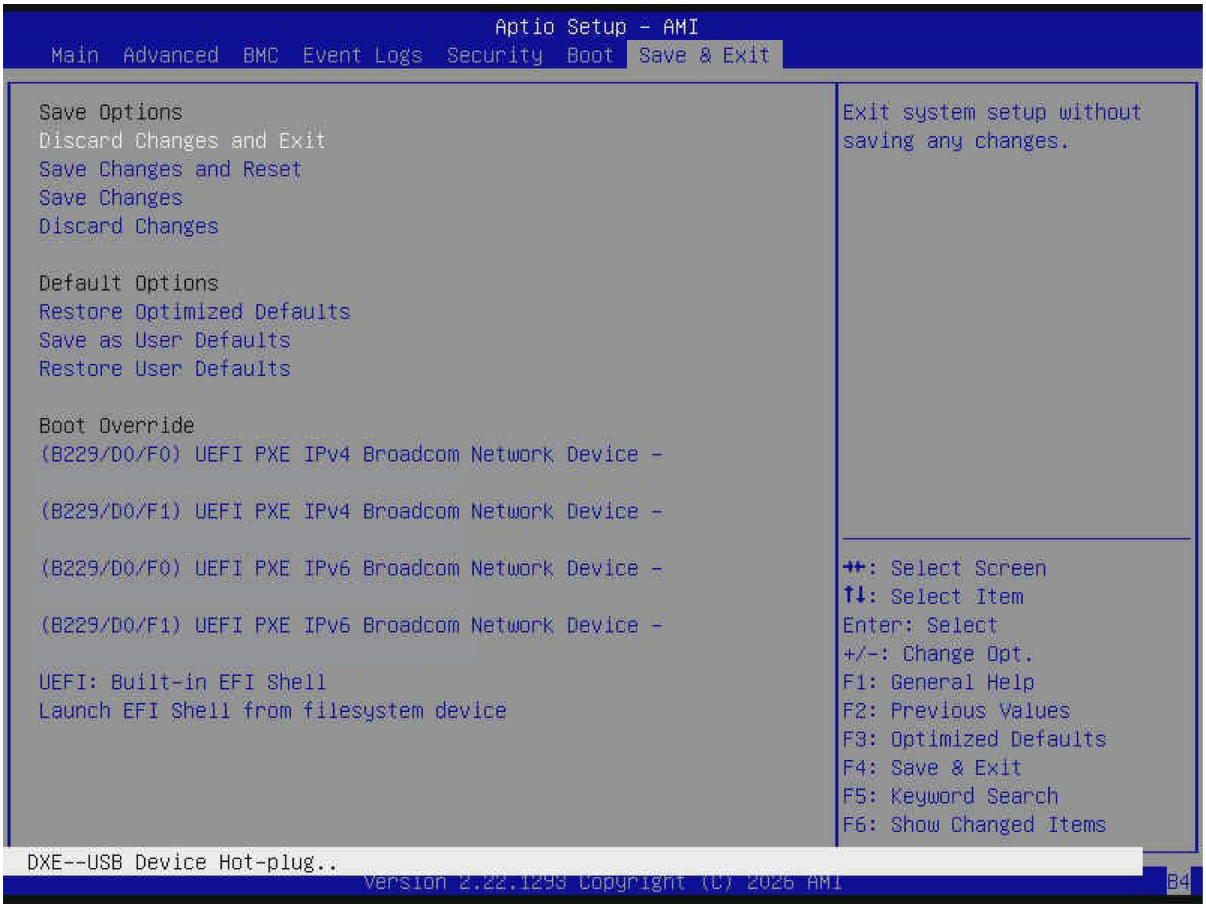


Figure 4-7. Save & Exit Tab

Save Options

Discard Changes and Exit

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

Save Changes and Reset

On completing the system configuration changes, use this feature to exit the BIOS Setup utility and reboot the computer for the new system configuration parameters to take effect.

Save Changes

On completing the system configuration changes, use this feature to save all changes made. This will not reset (reboot) the system.

Discard Changes

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

Default Options

Restore Optimized Defaults

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

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

Save as User Defaults

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

Restore User Defaults

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

Boot Override

Note: Use this section to override the Boot priorities sequence in the Boot menu, and immediately boot the system with a device specified here instead of the one specified in the boot list. This is a one-time boot override.

Appendix A:

BIOS Codes

For information about BIOS codes for the H14SSF motherboard, refer to the following content.

BIOS Error POST (Beep) Codes

During the Power-On Self-Test (POST) routines, which are performed each time the system is powered on, errors may occur.

Non-fatal errors are those which, in most cases, allow the system to continue the boot up process. The error messages normally appear on the screen.

Fatal errors are those which will not allow the system to continue the boot up process. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

These fatal errors are usually communicated through a series of audible beeps that can be heard on an external buzzer connected to JD1. The table shown below lists some common errors and their corresponding beep codes encountered by users.

BIOS Beep (POST) Codes		
Beep Code	**Error Message**	**Description**
1 beep	Refresh	Circuits have been reset (Ready to power up)
5 short, 1 long	Memory error	No memory detected in system
5 short, 2 long	Display memory read/write error	Video adapter missing or with faulty memory
1 long continuous	System OH	System overheat condition

Additional BIOS POST Codes

The AMI BIOS supplies additional checkpoint codes, which are documented online at https://www.supermicro.com/support/manuals ("AMI BIOS POST Codes User's Guide").

For information on AMI updates, refer to https://www.ami.com/products.

Appendix B:

Software

After the H14SSF motherboard has been installed, you can install the Operating System (OS), configure RAID settings, and install the drivers.

Microsoft Windows OS Installation

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

Installing the OS

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

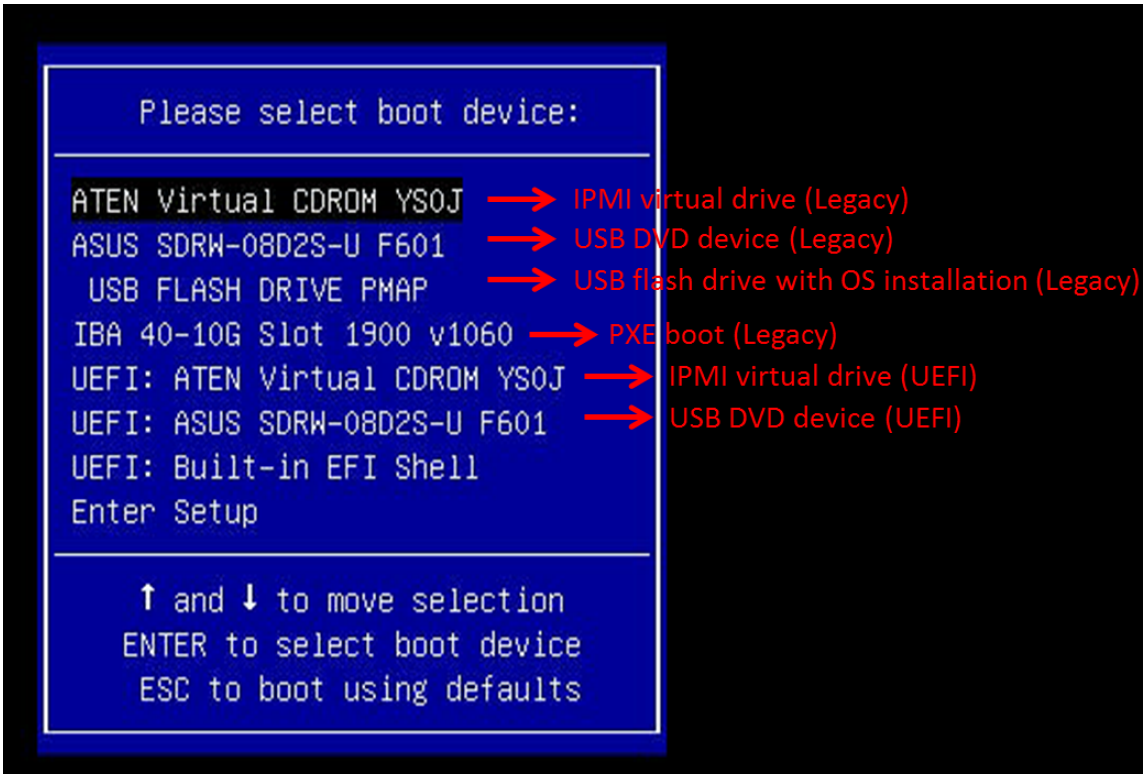


Figure B-1. Selecting the Boot Device

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

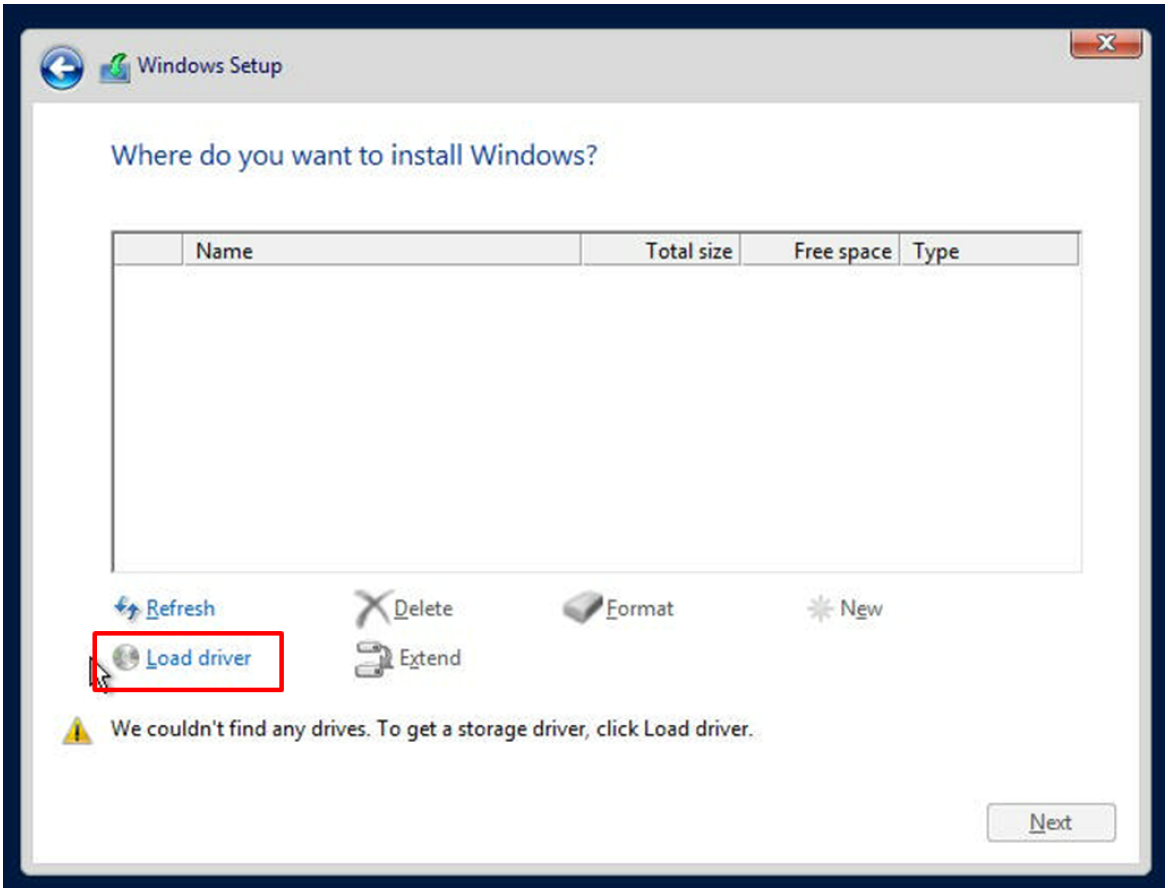


Figure B-2. Loading the Driver Link

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

5. Once all devices are specified, continue with the installation.
6. After the Windows OS installation has completed, the system will automatically reboot multiple times for system updates.

BMC

The H14SSF motherboard provides remote access, monitoring, and management through the baseboard management controller (BMC) and other management controllers distributed among different system modules. There are several BIOS settings that are related to BMC. For general documentation and information on BMC, visit our website at the following page:

https://www.supermicro.com/en/solutions/management-software/bmc-resources

BMC ADMIN User Password

For security, each system is assigned a unique default BMC password for the ADMIN user. The password can be found on a sticker on the motherboard and a sticker on the chassis, for Supermicro chassis. The sticker also displays the BMC MAC address. If necessary, the password can be reset using the Supermicro IPMICFG tool.



Figure B-3. BMC Password Label

Appendix C:

Standardized Warning Statements

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

Read this section in its entirety before installing or configuring components in the Supermicro H14SSF motherboard.

These warnings may also be found on our website at the following page:

https://www.supermicro.com/about/policies/safety_information.cfm

Battery Handling



Warning! 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.

تحذير! يوجد خطر حدوث انفجار إذا تم استبدال البطارية بنوع غير صحيح. استبدل البطارية بنفس النوع أو نوع مكافئ موصى به من قبل الشركة المصنعة فقط. يجب التخلص من البطاريات المستخدمة وفقًا لإرشادات الجهة المصنعة.

警告！如果更换的电池类型不正确，有爆炸危险。更换电池时，请使用制造商推荐的相同或同等型号的电池。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，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。

Advarsel! Der er risiko for eksplosion, hvis batteriet skiftes med et batteri af den forkerte type. Batteriet må kun skiftes med et batteri af samme eller tilsvarende type, der anbefales af producenten. Opbrugte batterier skal bortskaffes i henhold til vejledningerne fra producenten.

Waarschuwing! Er bestaat een explosiegevaar als de batterij wordt vervangen door een onjuist type. Vervang de batterij alleen door hetzelfde type of een soortgelijk type aanbevolen door de fabrikant. Verwijder gebruikte batterijen overeenkomstig de instructies van de fabrikant.

Varoitus! Väärän tyyppisen akun käyttö voi aiheuttaa räjähdysvaaran. Vaihda akku vain valmistajan suosittelemaan samaan tai vastaavaan tyyppiseen akkuun. Hävitä käytetyt paristot valmistajan ohjeiden mukaisesti.

Attention! Il y a un risque d'explosion si la batterie est remplacée par une d'un type incorrect. Remplacez la batterie uniquement par une d'un type identique ou équivalent recommandé par le fabricant. Éliminez les batteries usagées conformément aux instructions du fabricant.

Warnung! Es besteht Explosionsgefahr, wenn die Batterie durch einen falschen Typ ersetzt wird. Ersetzen Sie die Batterie ausschließlich durch denselben oder einen vom Hersteller empfohlenen gleichwertigen Typ. Entsorgen Sie gebrauchte Batterien gemäß den Anweisungen des Herstellers.

אזהרה! קיימת סכנת פיצוץ אם הסוללה תוחלף בסוללה מסוג שגוי. החלף את הסוללה רק בסוללה מאותו סוג או בסוללה מקבילה המומלצת על ידי היצרן. השלך סוללות משומשות בהתאם להוראות היצרן.

चेतावनी! यदि बैटरी को गलत प्रकार से बदला जाता है तो विस्फोट का जोखिम है। बैटरी को केवल निर्माता द्वारा अनुशंसित समान या समकक्ष प्रकार से ही बदलें। इस्तेमाल की गई बैटरियों का निपटान निर्माता के निर्देशों के अनुसार करें।

警告！ 電池を間違ったタイプに交換すると爆発する危険があります。交換する電池はメーカーが推奨するタイプ、または同等のものを使用してください。使用済み電池は、メーカーの指示に従って廃棄してください。

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.

Advarsel! Det er fare for eksplosjon hvis batteriet byttes ut med et av feil type. Batterier skal kun byttes ut med et av lik eller tilsvarende type, som anbefalt av produsenten. Kast brukte batterier i henhold til produsentens instruksjoner.

¡Advertencia! Existe riesgo de explosión si se sustituye la batería por una de tipo incorrecto. Reemplace la batería únicamente con el mismo tipo o uno equivalente recomendado por el fabricante. Deseche las baterías usadas de acuerdo con las instrucciones del fabricante.

Varning! Det finns risk för explosion om batteriet byts ut mot en felaktig typ. Byt endast ut batteriet mot ett batteri av samma eller likvärdig typ som rekommenderas av tillverkaren. Kassera förbrukade batterier i enlighet med tillverkarens anvisningar.

Connection to Earth



Warning! Equipment shall be connected to an Earth mains socket-outlet.

تحذير! يجب توصيل الأجهزة بمقبس كهربائي أرضي.

警告！ 设备应连接到接地电源插座。

警告！ 應將設備連接至接地電源插座。

Advarsel! Dette udstyr skal sluttes til en jordforbundet stikkontakt.

Waarschuwing! De apparatuur moet worden aangesloten op een geaard netstopcontact.

Varoitus! Laitteet on kytkettävä maadoitettuun pistorasiaan.

Attention! L'équipement doit être connecté à une prise de courant avec mise à la terre.

Warnung! Das Gerät muss an eine geerdete Netzsteckdose angeschlossen werden.

אזהרה! יש לחבר את הציוד לשקע חשמל עם הארקה.

चेतावनी! उपकरण को एक अर्थ मेन्स सॉकेट-आउटलेट से जोड़ा जाना चाहिए।

警告！ 機器は、接地主電源コンセントに接続するものとします。

경고! 장비는 접지된 전원 콘센트에 연결해야 합니다.

Advarsel! Utstyret skal kobles til en jordet stikkontakt.

¡Advertencia! El equipo deberá conectarse a una toma de corriente con conexión a tierra.

Varning! Utrustningen ska vara ansluten till ett jordat eluttag.

Product Disposal



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

تحذير! يجب التخلص النهائي من هذا المنتج وفقًا لجميع القوانين واللوائح الوطنية.

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。

Advarsel! Dette produkt skal bortskaffes i henhold til alle nationale love og regler.

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

Varoitus! Tämän tuotteen lopullinen hävittäminen on suoritettava kaikkien kansallisten lakien ja määräysten mukaisesti.

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.

Warnung! Die endgültige Entsorgung dieses Produkts muss gemäß allen nationalen Gesetzen und Vorschriften erfolgen.

אזהרה! סילוק סופי של מוצר זה חייב להתבצע בהתאם לכל החוקים והתקנות הלאומיים.

चेतावनी! इस उत्पाद का अंतिम निपटान सभी राष्ट्रीय कानूनों और नियमों के अनुसार किया जाना चाहिए।

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

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

Advarsel! Når produktet til slutt skal kasseres, må det håndteres i henhold til alle nasjonale lover og forskrifter.

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

Varning! Slutgiltigt bortskaffande av denna produkt ska ske i enlighet med alla nationella lagar och förordningar.