H14SHM

USER'S MANUAL

Revision 1.0b MNL-2764

The information in this User's Manual has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, and makes no commitment to update or to keep current the information in this manual, or to notify any person or organization of the updates. Note: For the most up-to-date version of this manual, see our website at https://www.supermicro.com.

Super Micro Computer, Inc. ("Supermicro") reserves the right to make changes to the product described in this manual at any time and without notice. This product, including software and documentation, is the property of Supermicro and/or its licensors, and is supplied only under a license. Any use or reproduction of this product is not allowed, except as expressly permitted by the terms of said license.

IN NO EVENT WILL Super Micro Computer, Inc. BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, SPECULATIVE OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OR INABILITY TO USE THIS PRODUCT OR DOCUMENTATION, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN PARTICULAR, SUPER MICRO COMPUTER, INC. SHALL NOT HAVE LIABILITY FOR ANY HARDWARE, SOFTWARE, OR DATA STORED OR USED WITH THE PRODUCT, INCLUDING THE COSTS OF REPAIRING, REPLACING, INTEGRATING, INSTALLING OR RECOVERING SUCH HARDWARE, SOFTWARE, OR DATA.

Any disputes arising between manufacturer and customer shall be governed by the laws of Santa Clara County in the State of California, USA. The State of California, County of Santa Clara shall be the exclusive venue for the resolution of any such disputes. Supermicro's total liability for all claims will not exceed the price paid for the hardware product.

FCC Statement: This equipment has been tested and found to comply with the limits for a Class A or Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in industrial environment for Class A device or in residential environment for Class B device. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

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

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

AVERTISSEMENT : Ce produit peut vous exposer à des agents chimiques, y compris le plomb, identifié par l'État de Californie comme pouvant causer le cancer, des malformations congénitales ou d'autres troubles de la reproduction. Pour de plus amples informations, prière de consulter https://www.P65Warnings.ca.gov.

The products sold by Supermicro are not intended for and will not be used in life support systems, medical equipment, nuclear facilities or systems, aircraft, aircraft devices, aircraft/emergency communication devices or other critical systems whose failure to perform be reasonably expected to result in significant injury or loss of life or catastrophic property damage. Accordingly, Supermicro disclaims any and all liability, and should buyer use or sell such products for use in such ultra-hazardous applications, it does so entirely at its own risk. Furthermore, buyer agrees to fully indemnify, defend and hold Supermicro harmless for and against any and all claims, demands, actions, litigation, and proceedings of any kind arising out of or related to such ultra-hazardous use or sale.

Manual Revision 1.0b

Release Date: August 11, 2025

Unless you request and receive written permission from Super Micro Computer, Inc., you may not copy any part of this document. Information in this document is subject to change without notice. Other products and companies referred to herein are trademarks or registered trademarks of their respective companies or mark holders.

Copyright © 2025 by Super Micro Computer, Inc.
All rights reserved.
Published in the United States of America

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 H14SHM 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.

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.

Contents

Contacting Supermicro ***9***

Chapter 1: Introduction ***10***

1.1 Quick Reference 11

Motherboard Layout 11

Quick Reference 13

System Block Diagram 15

1.2 Motherboard Features 16

1.3 Platform Overview 18

1.4 System Health Monitoring 19

Onboard Voltage Monitors 19

Fan Status Monitor with Firmware Control 19

Environmental Temperature Control 19

1.5 ACPI Features 20

Chapter 2: Component Installation ***21***

2.1 Static-Sensitive Devices 23

Precautions 23

Unpacking 23

2.2 Motherboard Installation 24

Tools Needed 24

Installing the Motherboard 25

2.3 Processor and Heatsink Installation 27

Preparing the Processor Socket 27

Installing the Processor into the Frame 29

Installing the Heatsink 32

Uninstalling the Heatsink and Processor 33

2.4 Memory Support and Installation 35

Memory Support 35

DIMM Population 35

General Guidelines for Optimizing Memory Performance 36

DIMM Installation 37

DIMM Removal 39

2.5 Battery Removal and Installation 41
Battery Removal 41
Proper Battery Disposal 41
Battery Installation 41
2.6 Connections, Jumpers, and LEDs 43
Power Supply and Power Connections 43
Power Connectors 43
Management Connector 44
Headers and Connections 44
Chassis Intrusion 44
Front Control Panel Connector 45
Power Button 45
Unit Identifier (UID) Button 45
UID LED 45
Information LED 46
LAN1/LAN2 (NIC1/NIC2) LED 46
Storage Drive Activity LED 46
Front Panel Power LED 47
Front Panel I2C 47
Power Fail LED Indicators 47
Front Panel Connector for DisplayPort and USB 2.0 47
External BMC I²C Header 48
External BMC I²C Header for Backplane 48
NVMe I²C Hot-Swap Header 49
Leakage Detection Sensor Connectors 49
M.2 Boot Tray Connector 49
MCIO PCIe 5.0 x8 Connectors 50
Modular Extensible I/O PCIe Connectors 50
NC-SI Connection 50
Advanced I/O Module (AIOM) for I/O Support 50
Jumper Settings 50
CMOS Clear 51
LED Indicators 52
Onboard Power LED 52

Chapter 3: Troubleshooting ***53***
3.1 Troubleshooting Procedures 54
Before Power On 54
No Power 54
No Video 54
System Boot Failure 54
Memory Errors 55
Losing the System's Setup Configuration 55
If the System Becomes Unstable 55
3.2 Technical Support Procedures 57
3.3 Motherboard Battery 58
3.4 Where to Get Replacement Components 59
3.5 Returning Merchandise for Service 60
3.6 Feedback 61
Chapter 4: UEFI BIOS ***62***
4.1 Introduction 63
Updating BIOS 63
Starting the Setup Utility 63
4.2 Main Setup 65
4.3 Advanced Setup Configurations 67
Boot Feature Menu 68
CPU Configuration Menu 69
NB Configuration 71
ACPI Settings Menu 74
Super IO Configuration Menu 75
Serial Port 1 Configuration Menu 75
Serial Port 2 Configuration Menu 75
Serial Port Console Redirection Menu 76
PCIe/PCI/PnP Configuration Menu 79
USB Configuration 81
Network Configuration Menu 82
SATA Configuration Menu 84
HTTP Boot Configuration Menu 84
Supermicro KMS Server Configuration Menu 85

Super-Guardians Configuration Menu 87
TLS Authenticate Configuration Menu 89
RAM Disk Configuration 90
4.4 BMC 91
System Event Log Menu 91
BMC Network Configuration Menu 92
4.5 Event Logs 95
4.6 Security 97
4.7 Boot 99
4.8 Save & Exit 101
Appendix A: BIOS Codes ***103***
BIOS Error POST (Beep) Codes 103
Additional BIOS POST Codes 103
Appendix B: Software ***104***
Microsoft Windows OS Installation 104
Installing the OS 104
Driver Installation 106
BMC 107
BMC ADMIN User Password 108
Appendix C: Standardized Warning Statements ***109***
Battery Handling 109
Product Disposal 111

Contacting Supermicro

Headquarters

Address:	Super Micro Computer, Inc. 980 Rock Ave. San Jose, CA 95131 U.S.A.
Tel:	+1 (408) 503-8000
Fax:	+1 (408) 503-8008
Email:	Marketing@supermicro.com (General Information) Sales-USA@supermicro.com (Sales Inquiries) Government_Sales-USA@supermicro.com (Gov. Sales Inquiries) Support@supermicro.com (Technical Support) RMA@Supermicro.com (RMA Support) Webmaster@supermicro.com (Webmaster)
Website:	https://www.supermicro.com

Europe

Address:	Super Micro Computer B.V. Het Sterrenbeeld 28, 5215 ML 's-Hertogenbosch, The Netherlands
Tel:	+31 (0) 73-6400390
Fax:	+31 (0) 73-6416525
Email:	Sales_Europe@supermicro.com (Sales Inquiries) Support_Europe@supermicro.com (Technical Support) RMA_Europe@supermicro.com (RMA Support)
Website:	https://www.supermicro.nl

Asia-Pacific

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

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.

1.1 Quick Reference **11**
Motherboard Layout 11
Quick Reference 13
System Block Diagram 15
1.2 Motherboard Features **16**
1.3 Platform Overview **18**
1.4 System Health Monitoring **19**
Onboard Voltage Monitors 19
Fan Status Monitor with Firmware Control 19
Environmental Temperature Control 19
1.5 ACPI Features **20**

1.1 Quick Reference

For details on the H14SHM motherboard layout, features, and other quick reference information, refer to the content below.

Motherboard Layout

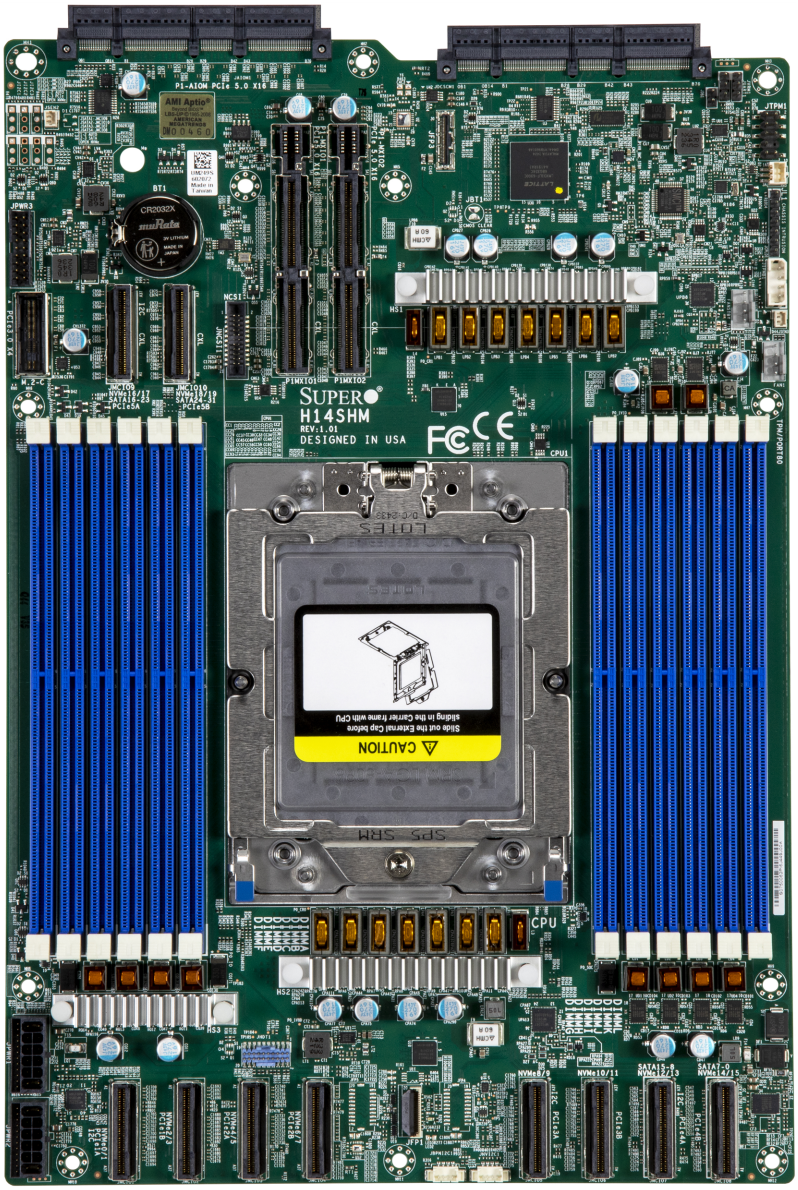


Figure 1-1. Motherboard Image

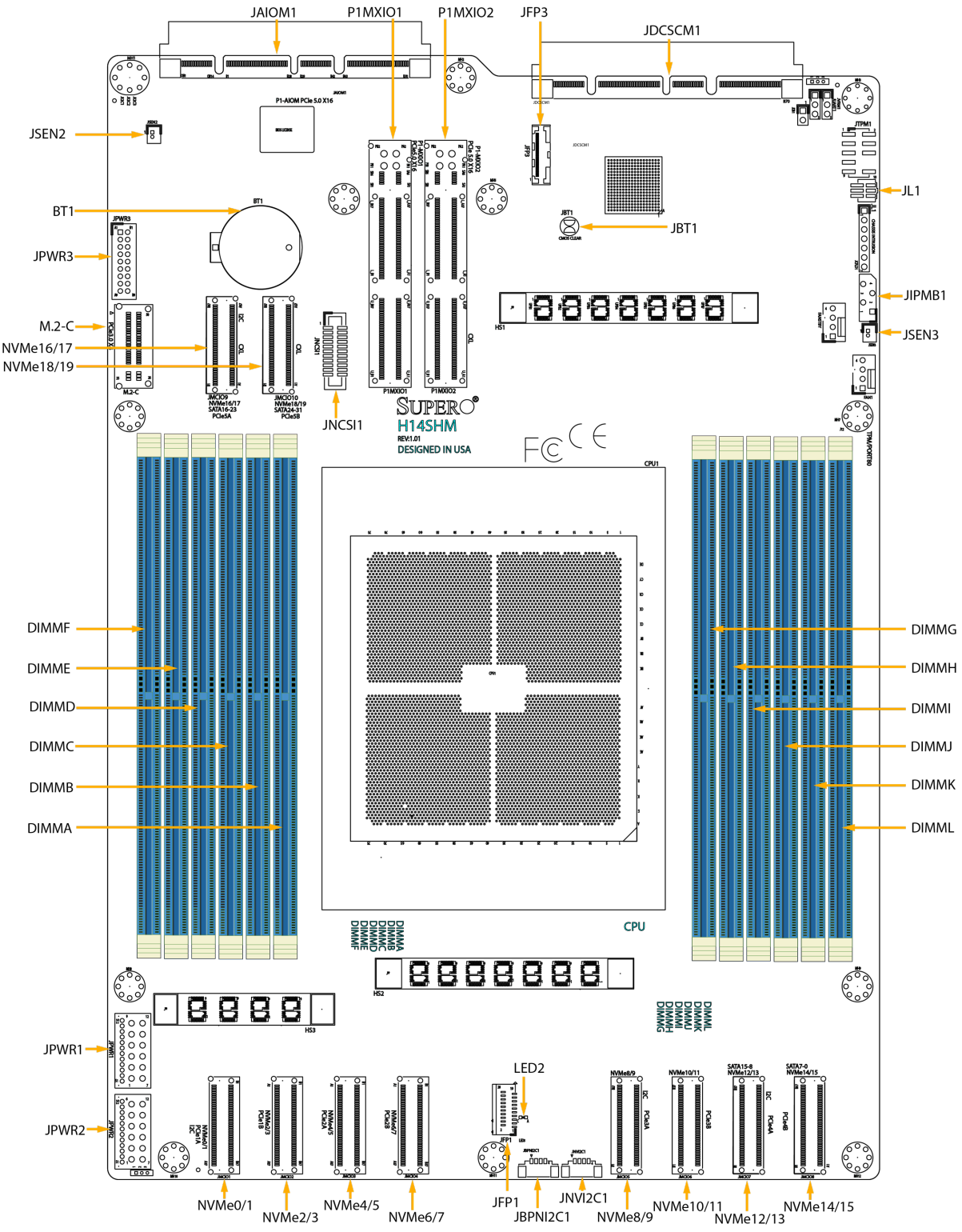


Figure 1-2. Motherboard Layout

Notes:

- For detailed information on jumpers, connectors, and LED indicators, see "Component Installation" on page 21.
- "■" indicates the location of pin 1.
- 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

Jumper	Description	Default Setting
JBT1	CMOS Clear	Open (Normal)

LED	Description	Status
LED2	Power	Indicates normal power

Connector	Description
BT1	Onboard battery
DIMMA-L	Twelve memory module slots
JAIOM1	Supermicro Advanced Input/Output Module (AIOM) PCIe 5.0 x16 connector
JBPNI2C1	BMC external I²C header for backplane
JDCSCM1	DC-SCM connector; connect to the server management and security module.
JFP1	Front Control Panel Connector
JFP3	Front Panel Connector for DisplayPort and USB2.0
JIPMB1	External BMC I²C header
JL1	Chassis intrusion header
JNVI2C1	I²C header for NVMe backplane hot-swap support
JNCSI1	NC-SI connector
JPWR1,2	12 V 24-pin motherboard power connector with sideband control signals
JPWR3	18-pin management connector with 12 V standby power
JSEN2, 3	2-pin leak detection sensors for Liquid Cooling Module

Connector	Description
M.2-C	M.2 PCIe 3.0 interface for M.2 carrier (NVMe only)
NVMe0/1 PCIe1A	NVMe ports 0/1, PCIe port 1A
NVMe2/3 PCIe1B	NVMe ports 2/3, PCIe port 1B
NVMe4/5 PCIe2A	NVMe ports 4/5, PCIe port 2A
NVMe6/7 PCIe2B	NVMe ports 6/7, PCIe port 2B
NVMe8/9 PCIe3A	NVMe ports 8/9, PCIe port 3A
NVMe10/11 PCIe3B	NVMe ports 10/11, PCIe port 3B
NVMe12/13 PCIe4A SATA15-8	NVMe ports 12/13, PCIe port 4A, SATA ports 15-8
NVMe14/15 PCIe4B SATA7-0	NVMe ports 14/15, PCIe port 4B, SATA ports 7-0
NVMe16/17 PCIe5A SATA16-23	NVMe ports 16/17, PCIe port 5A, SATA ports 16-23
NVMe18/19 PCIe5B SATA24-31	NVMe ports 18/19, PCIe port 5B, SATA ports 24-31
P1MXIO1,2	Modular-Extensible I/O connector, PCIe 5.0 x16

System Block Diagram

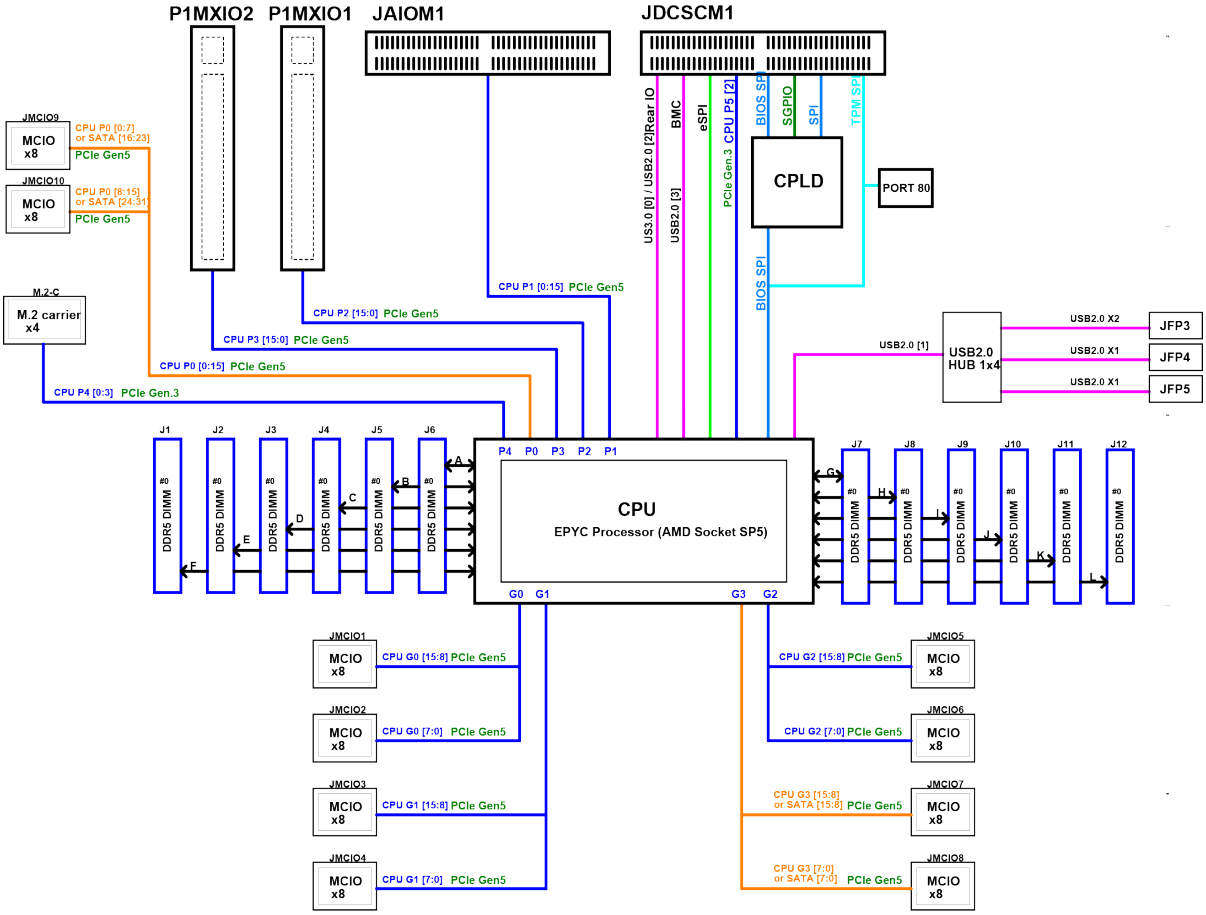


Figure 1-3. System Block Diagram

1.2 Motherboard Features

Motherboard Features
CPU
• AMD EPYC™ 9005/9004 Series processor in Socket SP5
Memory
• 12 DIMM slots with 1DPC supporting up to 3 TB registered ECC DDR5/3DS RDIMM at 6400 MT/s (AMD EPYC™ 9005 Series processor) or 3 TB of ECC DDR5/3DS RDIMM at 4800 MT/s (AMD EPYC™ 9004 Series processor), both in Socket SP5 **Note:** Memory speed support depends on the processor used in the system.
DIMM Size
• Up to 256 GB
Expansion Slots
• Two expansion slots (PCIe 5.0 x16) • One AIOM slot (PCIe 5.0 x16) with NC-SI support • Ten MCIO (PCIe 5.0 x8) vertical connectors • One M.2-C connector (PCIe 3.0 x4) to support 2 M.2 (PCIe 3.0 x2) in the 2280/22110 form factor via M.2 carrier board
Network
• AIOM with NC-SI connectors
I/O Devices
• One VGA port by DC-SCM • One USB 3.0 port by DC-SCM • One SMC debug port/USB 2.0 port by DC-SCM • One TPM header by DC-SCM
BIOS
• 512 Mb AMI BIOS® SPI Flash BIOS by DC-SCM • ACPI 6.5, SMBIOS 3.7 or later, Plug-and-Play (PnP), RTC (Real Time Clock) wakeup, Riser Card Auto-Detection support

Motherboard Features
Power Management
• ACPI power management (S5) • Wake-on-LAN • Power-on mode for AC power recovery
System Health Monitoring
• Onboard voltage monitoring for +3.3 V, +5 V, +12 V, +3.3 V Standby, +5 V Standby, +12 V Standby and Vcore • Onboard temperature monitoring for CPU temperature, system temperature, peripheral temperature, memory temperature, GPU temperature, and NVMe temperature • CPU thermal trip support
Fan Control
• Fan speed control
System Management
• Trusted Platform Module (TPM) support by DC-SCM • Chassis intrusion header and detection • SDO/SAA/SSM/SCC/TAS
LED Indicators
• Power status indicator on the motherboard • Connector for HDD Activity LED, LAN1 Activity LED, LAN2 Activity LED, Power Failed LED, Power Status LED, System Information LED
Dimensions
8.27" x 12.03" (210.1 mm x 305.6 mm)

1.3 Platform Overview

Built upon the functionality and capability of the AMD EPYC™ 9005/9004 Series in Socket Socket SP5, the H14SHM 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™ 9005/9004 Series:

- ACPI Power Management Logic Support Rev. 6.5
- Adaptive Thermal Management/Monitoring
- PCIe 5.0 with a transfer rate up to 32 GT/s and SATA 3.0 with a transfer rate of up to 6.0 GB/s
- System Management Bus (SMBus) Specification Version 3.1.1

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 2022.

Chapter 2:

Component Installation

This chapter provides instructions on installing and replacing main system components for the H14SHM 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.

2.1 Static-Sensitive Devices **23**

Precautions 23

Unpacking 23

2.2 Motherboard Installation **24**

Tools Needed 24

Installing the Motherboard 25

2.3 Processor and Heatsink Installation **27**

Preparing the Processor Socket 27

Installing the Processor into the Frame 29

Installing the Heatsink 32

Uninstalling the Heatsink and Processor 33

2.4 Memory Support and Installation **35**

Memory Support 35

DIMM Population 35

General Guidelines for Optimizing Memory Performance 36

DIMM Installation 37

DIMM Removal 39

2.5 Battery Removal and Installation **41**

Battery Removal 41

Proper Battery Disposal 41

Battery Installation 41

2.6 Connections, Jumpers, and LEDs **43**

Power Supply and Power Connections 43

Headers and Connections 44

Jumper Settings 50
LED Indicators 52

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.

Tools Needed

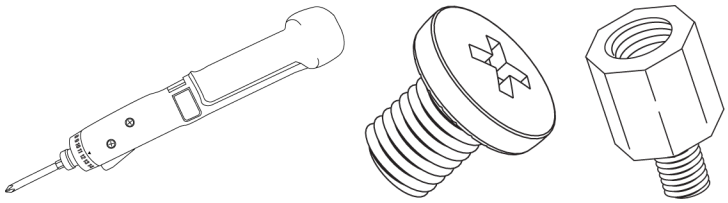


Figure 2-1. Torque Driver, Phillips Screws, Standoffs (if needed)

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.

For a detailed diagram of the H14SHM 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.

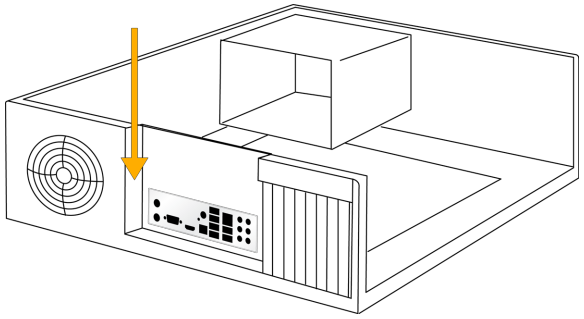


Figure 2-2. Installing the I/O Shield

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.

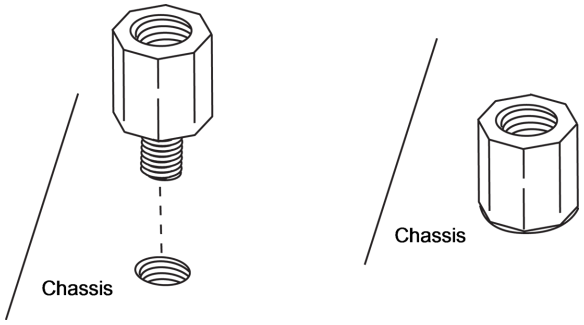


Figure 2-3. Locating the Mounting Holes

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

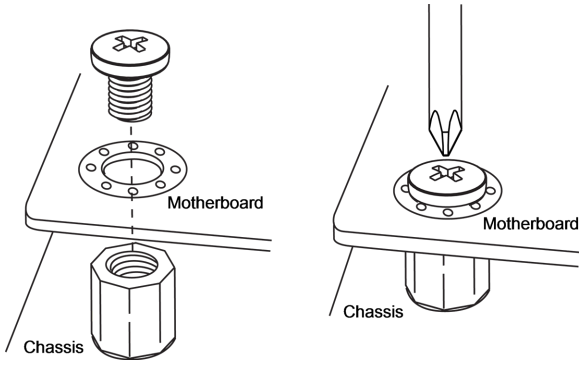


Figure 2-4. Aligning the Mounting Holes

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.

Preparing the Processor Socket

1. Remove the screw holding down the force frame. The spring-loaded force frame will raise up. Allow it to lift up to its stopped position.

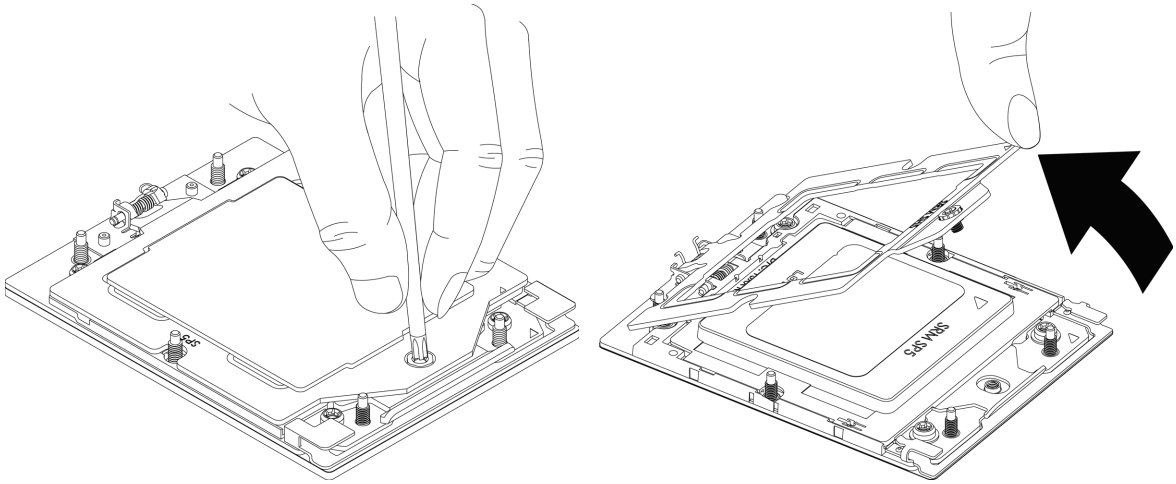


Figure 2-5. Removing Screw from the Force Frame

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

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

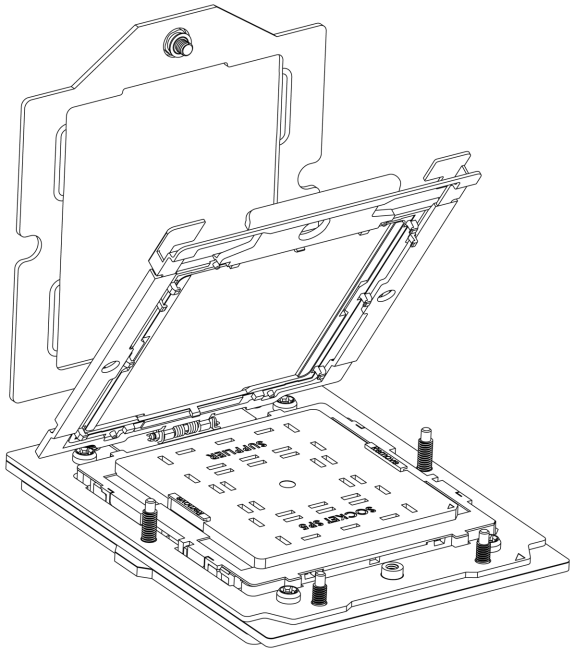


Figure 2-6. Lifting the Frame

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

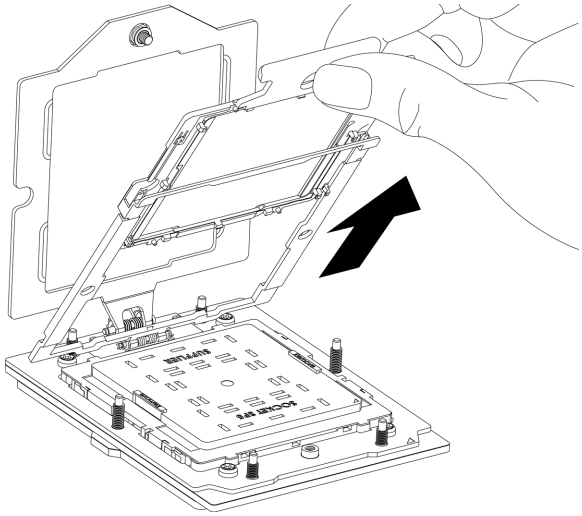


Figure 2-7. Removing the Cap

Installing the Processor into the Frame

1. The processor package is shipped from the factory with the carrier frame pre-assembled. Grip the handle of the carrier frame/processor assembly from its shipping tray, and while gripping the handle, align the flanges of the carrier frame onto the rails of the rail frame so its pins will be at the bottom when the rail frame is lowered later.
2. Slide the carrier frame/processor assembly downwards to the bottom of the rail frame. Ensure the flanges are secure on the rails as you lower it downwards.

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

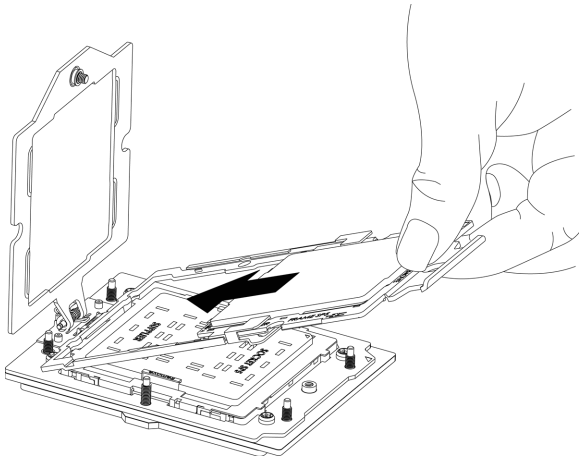


Figure 2-8. Installing into the Rail Frame

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

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

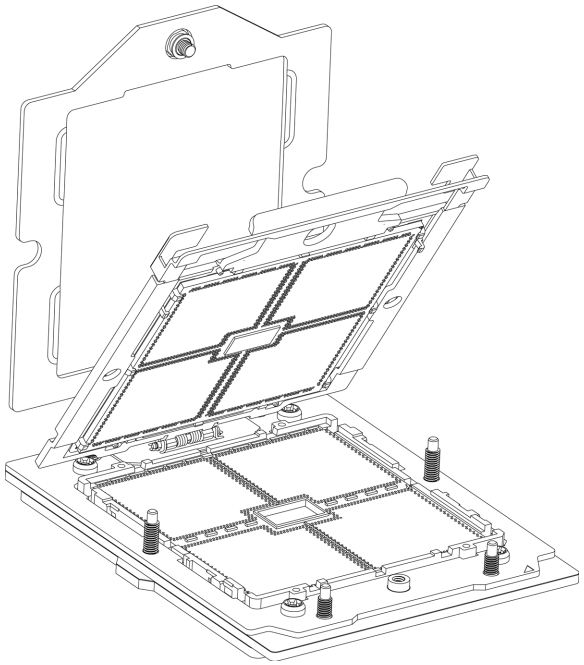


Figure 2-9. Removing the Cover Cap

4. Gently lower the rail frame down onto the socket until the latches on the rail frame engage with the socket housing and it rests in place. Do not force it into place! Note that the force frame is spring loaded and must be held in place before it is secured.

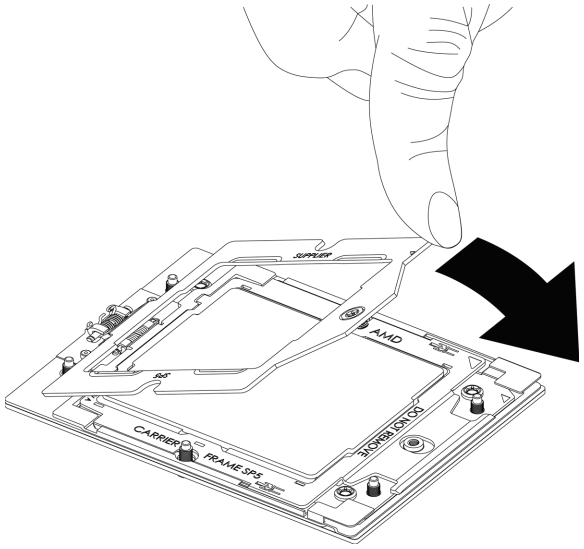


Figure 2-10. Securing the Force Frame

5. Use a T20 bit torque driver, set at 12.5–15.0 kgf-cm (10.8–13.0 lbf-in) to prevent damage to the processor. Replace and tighten the screws in the same order they were removed. When finished, the force frame will be secure over both the rail frame and processor package.

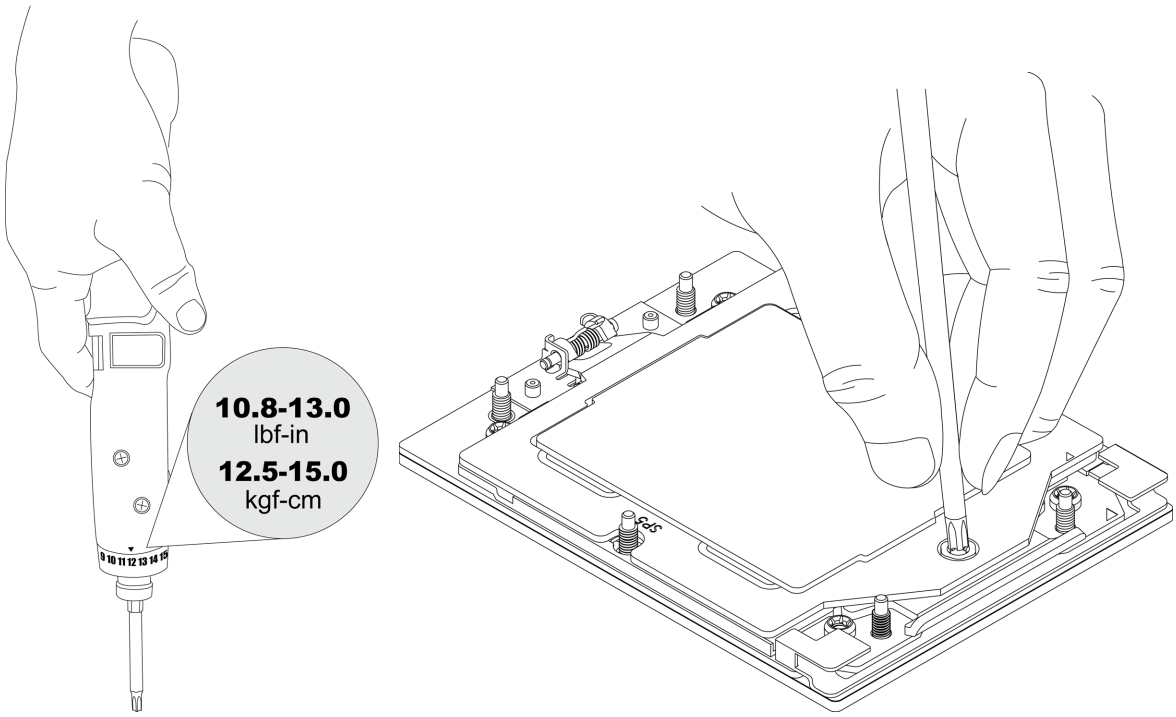


Figure 2-11. Replacing Screws with Torque Driver

Installing the Heatsink

After the force frame is secured and the processor is in place, install the heatsink onto the processor.

1. Place the heatsink so that it rests on the processor aligning the six screws on the socket frame.

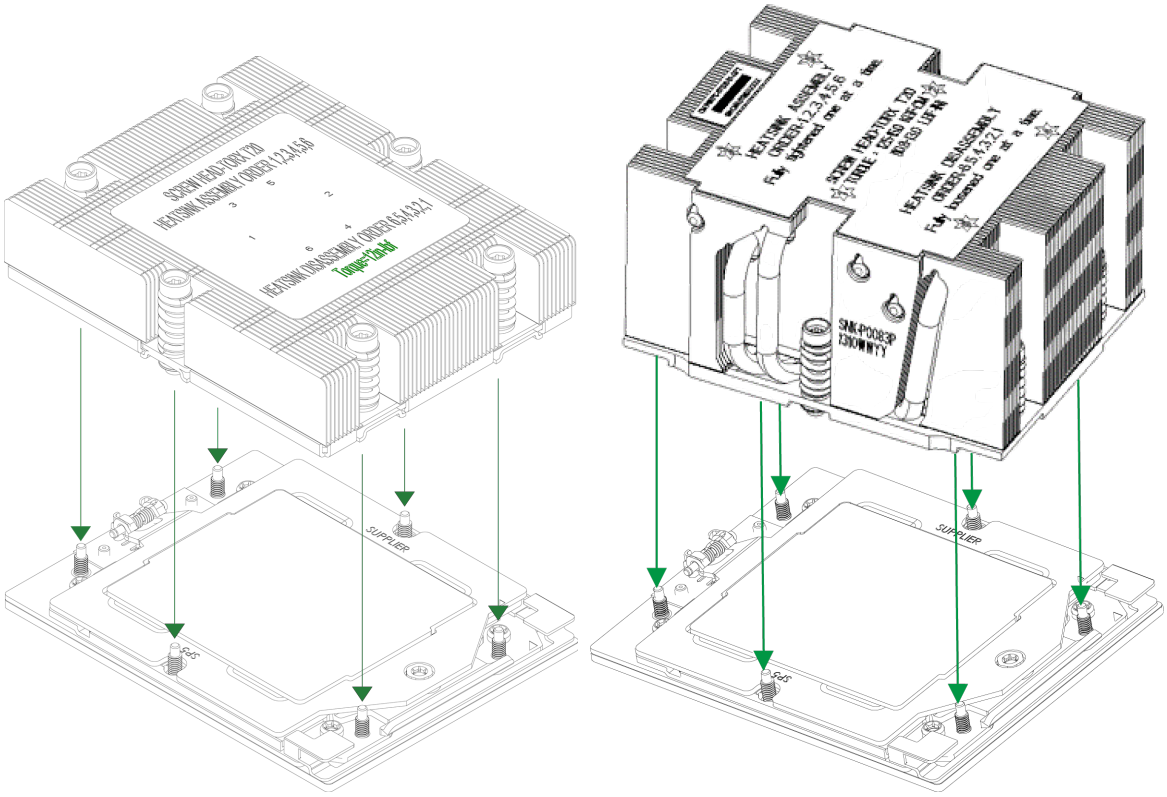


Figure 2-12. Placing the Heatsink (1U left, 2U right)

2. Using a T20 torque driver, tighten the screws using the diagonal tightening pattern and torque specifications printed on the heatsink. Tighten the two center screws completely before tightening the four corner screws.

The heatsink is now secured.

Uninstalling the Heatsink and Processor

1. Remove the screws holding the heatsink and gently work it loose.
2. Clean the thermal grease left by the heatsink on the processor assembly to limit the risk of contaminating the land pads or contacts in the socket housing.
3. Unscrew the plate and lift the force frame to the vertical position.
4. Lift the rail frame using the lift tabs near the front end of the rail frame. Note that the rail frame is spring loaded, so be careful lifting it up into a vertical position.
5. Grip the handle of the carrier frame and pull upwards to extract it from the rail frame. Return the processor assembly to its original shipping container.
6. Grip the handle on the external cap and return it to the rail frame, sliding it downwards until it rests in the frame.

7. Gripping the rail frame, rotate it downwards until it rests above and locks over the socket housing in its horizontal position.
8. Push and rotate down the force frame until it is over the external cap and rail frame in a horizontal position.
9. While holding down the force frame, secure it back to the socket frame by securing screw #1 in place.

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 H14SHM supports up to 3 TB registered ECC DDR5/3DS RDIMM at 6400 MT/s (AMD EPYC™ 9005 Series processor) or 3 TB of ECC DDR5/3DS RDIMM at 4800 MT/s (AMD EPYC™ 9004 Series processor).

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)			

Populating RDIMM/RDIMM 3DS DDR5 Memory Modules with AMD EPYC 9004 Series Processors			
Type	DIMM Population	Maximum Frequency (MT/s)	
	DIMM1	5600 MT/s Grade DIMM	4800 MT/s Grade DIMM
RDIMM	1R (1 rank)	4800	4800
	2R (2 ranks)		
3DS RDIMM	2S2R (4 ranks)		
	2S4R (8 ranks)		

DIMM Population

This table shows the recommended slots to populate.

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

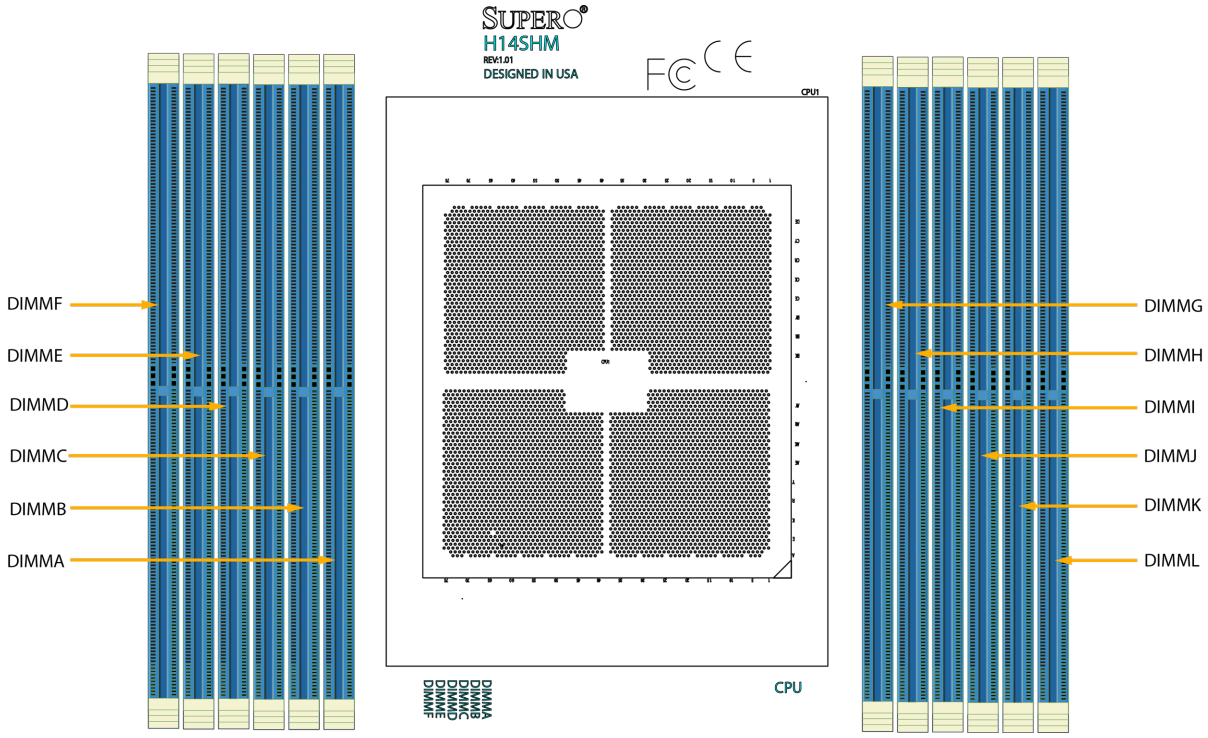


Figure 2-13. DIMM Labels

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.

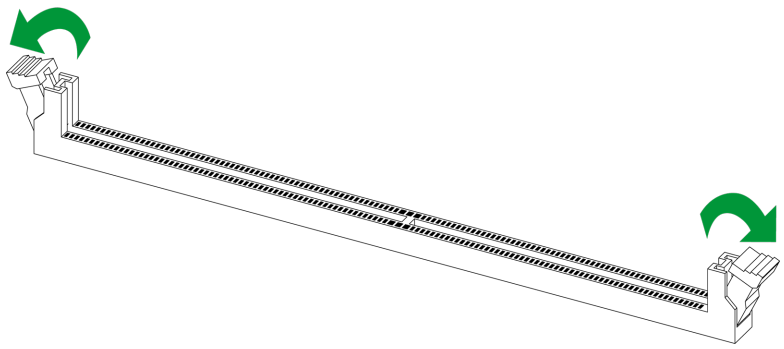


Figure 2-14. Unlocking the DIMM Slot

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

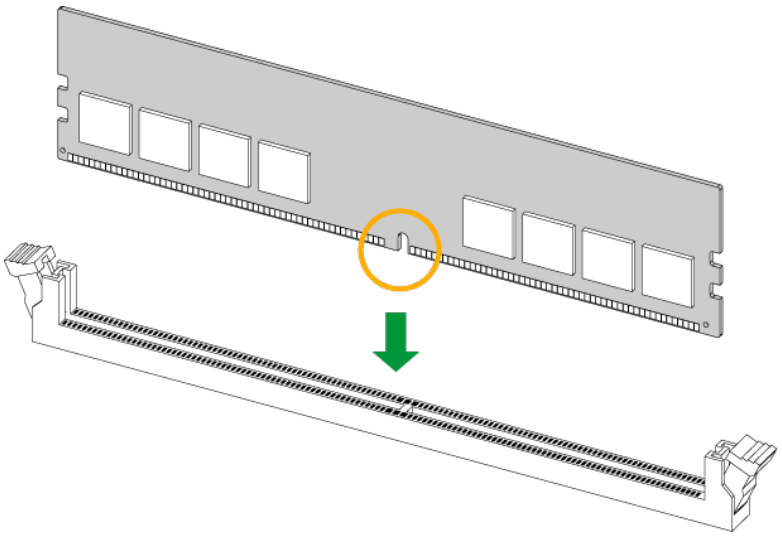


Figure 2-15. Aligning the DIMM Slot with the Receptive Point

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

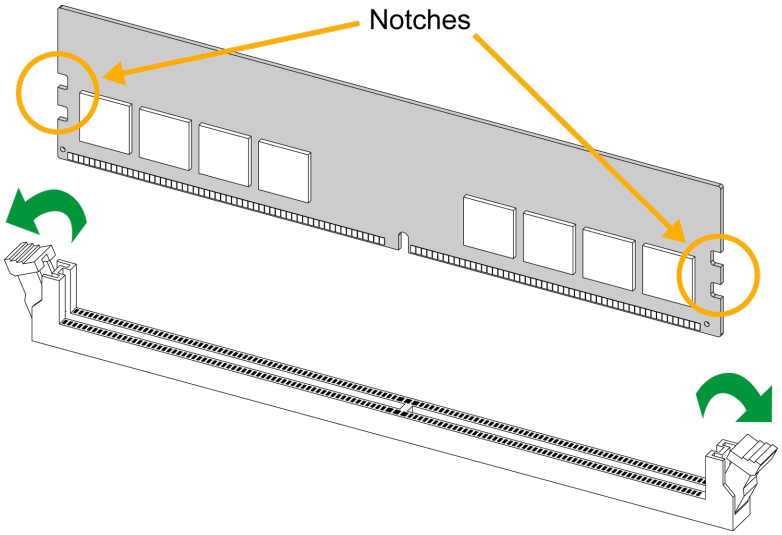


Figure 2-16. Aligning the Notches

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.

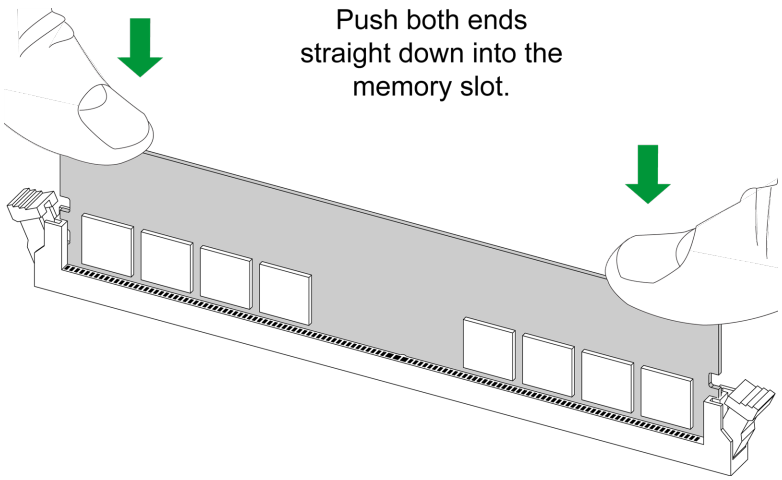


Figure 2-17. Securing the DIMM

For a detailed diagram of the H14SHM 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.

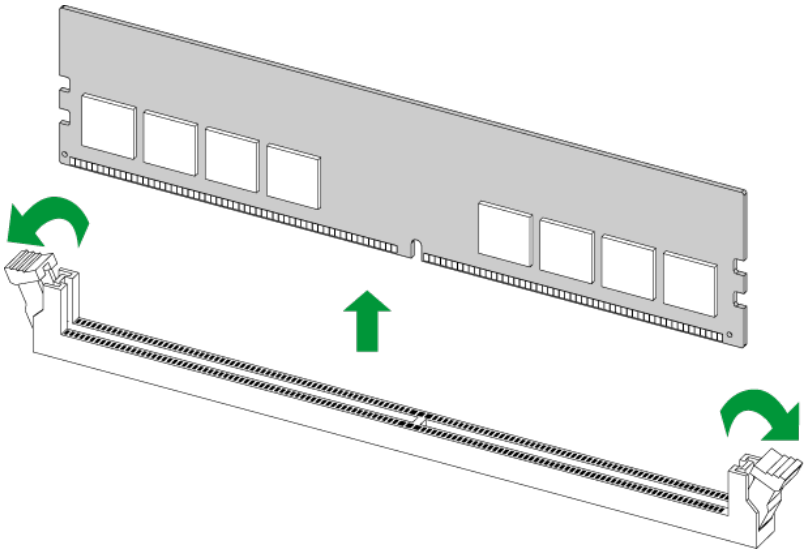


Figure 2-18. Unlocking the DIMM Slot

For a detailed diagram of the H14SHM 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.

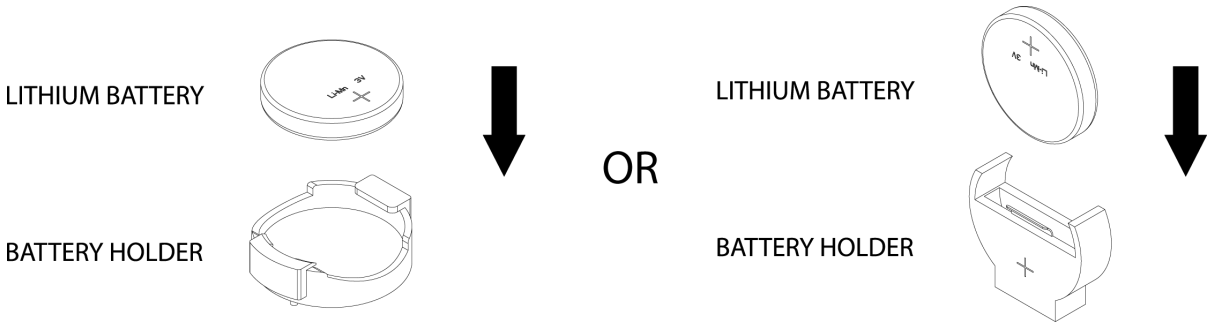


Figure 2-19. Installing a Battery

2.6 Connections, Jumpers, and LEDs

Refer to the following sections for information about connections, jumpers, and LEDs for the H14SHM motherboard.

Power Supply and Power Connections

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.

For information about the power connections of the H14SHM motherboard, refer to the following content.

Power Connectors

There are two 24-pin 12V power connectors (JPWR1, JPWR2) and one 18-pin management connector with 12 V standby power (JPWR3). JPWR1 and JPWR2 are 12-pin power and 12-pin Sideband PICPWR connectors.

24-pin Power Connector

Pin Definitions

Pin#	Definition	Pin#	Definition
S1	SB1_A	1	GND
S2	SB2_A	2	GND
S3	SB3_A	3	GND
S4	SB4_A	4	GND
S5	SB5_A	5	GND
S6	SB6_A	6	GND
S7	SB1_B	7	12 V
S8	SB2_B	8	12 V
S9	SB3_B	9	12 V
S10	SB4_B	10	12 V
S11	SCL_B	11	12 V
S12	SDA_B	12	12 V

Management Connector

The motherboard can manage other boards through CPLD on PDB using the management connector. The management connector JPWR3 includes 12V standby power support.

18-pin Management Connector

Pin Definitions

Pin#	Definition	Pin	Definition
A1	12 V standby	B1	12 V standby
A2	ISENSE	B2	VENSE
A3	12 V standby	B3	12 V standby
A4	GND	B4	GND
A5	SLOAD	B5	SCLOCK
A6	SDATAOUT	B6	GND
A7	GND	B7	SDATAIN
A8	PMBUS_SCL	B8	GND
A9	PMBUS_SDA	B9	FLEXIO

Headers and Connections

For information about the headers on the H14SHM motherboard, refer to the following content.

Chassis Intrusion

A 3-pin Chassis Intrusion header is located at JL1 on the H14SHM motherboard. Attach the appropriate cable from the chassis to inform you when the chassis is opened.

For a detailed diagram of the H14SHM motherboard, see the layout under "Quick Reference" on page 11.

Chassis Intrusion

Pin Definitions

Pin#	Definition
1	CABLE_PRESENT
2	GND
3	INTRUSION

Front Control Panel Connector

JFP1 contains header pins for various buttons and indicators that are normally located on a control panel at the front of the chassis. These connectors are designed specifically for use with the Supermicro chassis. See the table below for the descriptions of the front control panel buttons and LED indicators.

For a detailed diagram of the H14SHM motherboard, see the layout under "Quick Reference" on page 11.

Front Control Panel Connector JFP1 Pin Definitions: 20 total			
Pin#	**Definition**	**Pin**	**Definition**
20	GND	19	PWR_FAIL_LED_N
18	no connection	17	no connection
16	no connection	15	PWR_FAIL_LED_P
14	GND	13	I2C_SCL
12	I2C_SDA	11	GND
10	+3.3 V	9	PWR_LED_N
8	no connection	7	DRV_LED-N
6	LAN1_LED_N	5	LAN2_LED_N
4	INFO_LED_N	3	UID_LED_N
2	UID_BTN_N	1	PWR_BTN_N

Power Button

The power button connection is located on pin 1 of the front control panel header located at JFP1. Momentarily contacting pin 1 will power on/off the system.

Unit Identifier (UID) Button

The Unit Identifier (UID) button connection is located on pin 2 of the front control panel header JFP1. When you push UID button, UID LED illuminates. Push the button again to turn off UID LED. The UID LED provides easy identification of a system unit that may need service.

UID LED

The unit identifier LED connection is located on pin 3 of JFP1 on the H14SHM motherboard.

For a detailed diagram of the H14SHM motherboard, see the layout under "Quick Reference" on page 11.

Information LED

The Information LED for Fail indicator for overheat, fan fail, power fail, and UID is located on pins 3 and 4 of JFP1. It provides warnings of overheating, power failure, or fan failure for the system. Refer to the table below for more information.

Information LED (OH/Fan Fail/PWR Fail/UID) LED States	
Status	**Description**
Red, solid on	Overheating has occurred.
Red, blinking (1 Hz)	Fan failure: check for an inoperative fan.
Red, blinking slow (0.25 Hz)	Power failure: check for a non-operational power supply.
Red, blinking fast (10 Hz)	CPLD recovery mode error(s).
Blue, solid on	Unit identifier (UID) has been activated locally. Use this function to locate a unit in the system that might need service.
Blue, blinking (1 Hz)	UID has been activated remotely. Use this function to identify a unit that might need service.
Blue, blinking fast (10 Hz)	BIOS/BMC: 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 JFP1 on the H14SHM motherboard, and LAN Port 2 is on pin 5.

For a detailed diagram of the H14SHM 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 JFP1 on the H14SHM motherboard. When this LED is blinking green, it indicates storage drive activity.

For a detailed diagram of the H14SHM motherboard, see the layout under "Quick Reference" on page 11.

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

Front Panel Power LED

The front panel power LED connector is located at pin 9 on JFP1 on the motherboard.

For a detailed diagram of the H14SHM motherboard, see the layout under "Quick Reference" on page 11.

System Status LED Indicator	
Status	**Event**
Green: Solid on	System power on
Green, 1 Hz slow blinking	BMC/BIOS checking
Green, 4 Hz fast blinking	BIOS recovery/update in progress

Front Panel I²C

A front panel I²C for temperature sensor connection is located on pins 12 and 13 of JFP1 to provide power to the system when it is in standby mode.

Power Fail LED Indicators

Power Failure LED Indicators are located on pins 15 and 19 of JFP1 on the H14SHM motherboard.

For a detailed diagram of the H14SHM motherboard, see the layout under "Quick Reference" on page 11.

FP Power LED Pin Definitions (JFP1)	
Pin#	**Definition**
15	PWR Failure LED-Positive
19	PWR Failure LED-Negative

Front Panel Connector for DisplayPort and USB 2.0

The connector for the front panel DisplayPort and USB 2.0 is JFP3 on the H14SHM using a specific front panel board and cable.

JFP3 Front Control Panel Connector Pin Definitions: 30 total					
Pin#	**Definition**	**Pin#**	**Definition**	**Pin#**	**Definition**
30	+5 V	20	USB2_D+	10	GND
29	+5 V	19	GND	9	DP_TX1P
28	+5 V	18	no connection	8	DP_TX1N
27	+5 V	17	no connection	7	GND
26	+5 V	16	GND	6	3.3 V
25	+5 V	15	no connection	5	DP_HPD
24	USB1_D-	14	no connection	4	GND
23	USB1_D+	13	GND	3	DP_TX2P
22	GND	12	DP_TX0P	2	DP_TX2N
21	USB2_D-	11	DP_TX0N	1	GND

External BMC I²C Header

A System Management Bus header for the BMC is located at JIPMB1 on the H14SHM motherboard. Connect the appropriate cable here to use the IPMB I²C connection on your system.

For a detailed diagram of the H14SHM motherboard, see the layout under "Quick Reference" on page 11.

External BMC I²C Header for Backplane

A System Management Bus 4-pin header for the BMC is located at JBPNI^{2}C1 on the H14SHM motherboard. Connect the appropriate cable here to connect the BMC to the backplane.

For a detailed diagram of the H14SHM motherboard, see the layout under "Quick Reference" on page 11.

External I²C Header Pin Definitions: Four Total	
Pin#	**Definition**
1	Data
2	GND
3	Clock
4	+3.3 V

NVMe I²C Hot-Swap Header

Connector JNVI2C1 is a management header for the Supermicro NVMe backplane hot-swap support. Connect the I²C cable to this connector.

For a detailed diagram of the H14SHM motherboard, see the layout under "Quick Reference" on page 11.

NVMe I²C Hot-Swap Header Pin Definitions: Four Total	
Pin#	**Definition**
1	Data
2	GND
3	Clock
4	P3V3

Leakage Detection Sensor Connectors

The leakage detection sensor connectors are JSEN2 and JSEN3. Connect the leakage detection sensor cable of the liquid cooling module here to support the sensor information on your system.

For a detailed diagram of the H14SHM motherboard, see the layout under "Quick Reference" on page 11.

Leakage Detection Sensor Connector Pin Definitions	
Pin#	**Definition**
1	SENSOR_IN
2	GND

M.2 Boot Tray Connector

Use the M.2-C connector located on the H14SHM motherboard to connect an M.2 boot tray for AOM-DCM2-BOOT use.

For a detailed diagram of the H14SHM motherboard, see the layout under "Quick Reference" on page 11.

MCIO PCIe 5.0 x8 Connectors

Mini Cool Edge IO (MCIO) PCIe 5.0 x8 connectors are located at NVMe0/1, NVMe2/3, NVMe4/5, NVMe6/7, NVMe8/9, NVMe10/11, NVMe12/13, NVMe14/15, NVMe16/17, and NVMe18/19 on the motherboard.

For a detailed diagram of the H14SHM motherboard, see the layout under "Quick Reference" on page 11.

Modular Extensible I/O PCIe Connectors

Modular Extensible PCIe 5.0 x16 slots are P1MXIO1 and P1MXIO2.

For a detailed diagram of the H14SHM motherboard, see the layout under "Quick Reference" on page 11.

NC-SI Connection

The Network Controller Sideband Interface (NC-SI) connection is located at JNCSI1 on the H14SHM 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 H14SHM motherboard, see the layout under "Quick Reference" on page 11.

Advanced I/O Module (AIOM) for I/O Support

A Supermicro proprietary Advanced I/O Module (AIOM) connector used for an add-on module is located at JAIOM1 (P1-AIOM PCIe 5.0 x16) on the H14SHM motherboard. This AIOM connector provides input/output connections on the I/O face of your system.

For a detailed diagram of the H14SHM 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.

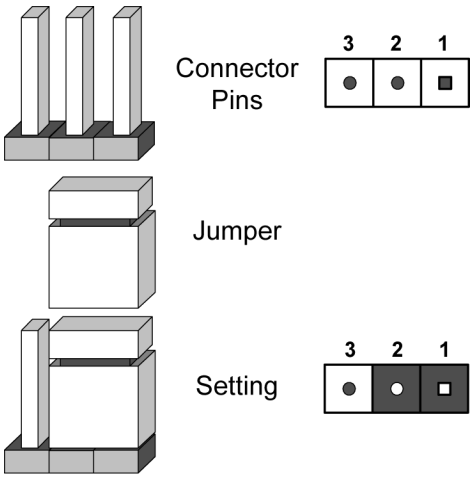


Figure 2-20. Jumping Connector Pins

CMOS Clear

JBT1 on the H14SHM 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 H14SHM motherboard, see the layout under "Quick Reference" on page 11.

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.

LED Indicators

For information about the LED indicators on the H14SHM motherboard, refer to the following content.

Onboard Power LED

The onboard power is indicated by LED2 on the motherboard.

For a detailed diagram of the H14SHM motherboard, see the layout under "Quick Reference" on page 11.

Onboard Power LED Indicator	
LED Color	**Definition**
Off	System power off
Green, blinking	BMC initializing
Green, solid	System power on

Chapter 3:

Troubleshooting

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

3.1 Troubleshooting Procedures **54**
Before Power On 54
No Power 54
No Video 54
System Boot Failure 54
Memory Errors 55
Losing the System's Setup Configuration 55
If the System Becomes Unstable 55
3.2 Technical Support Procedures **57**
3.3 Motherboard Battery **58**
3.4 Where to Get Replacement Components **59**
3.5 Returning Merchandise for Service **60**
3.6 Feedback **61**

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 57 or "Returning Merchandise for Service" on page 60 section(s) in this chapter. Always disconnect the AC power cord before adding, changing or installing any non hot-swap 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" on page 51.
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 21 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 54 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 41.

3.4 Where to Get Replacement Components

If you need replacement parts for your H14SHM 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 alternation, 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 H14SHM motherboard.

4.1 Introduction **63**
4.2 Main Setup **65**
4.3 Advanced Setup Configurations **67**
4.4 BMC **91**
4.5 Event Logs **95**
4.6 Security **97**
4.7 Boot **99**
4.8 Save & Exit **101**

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.

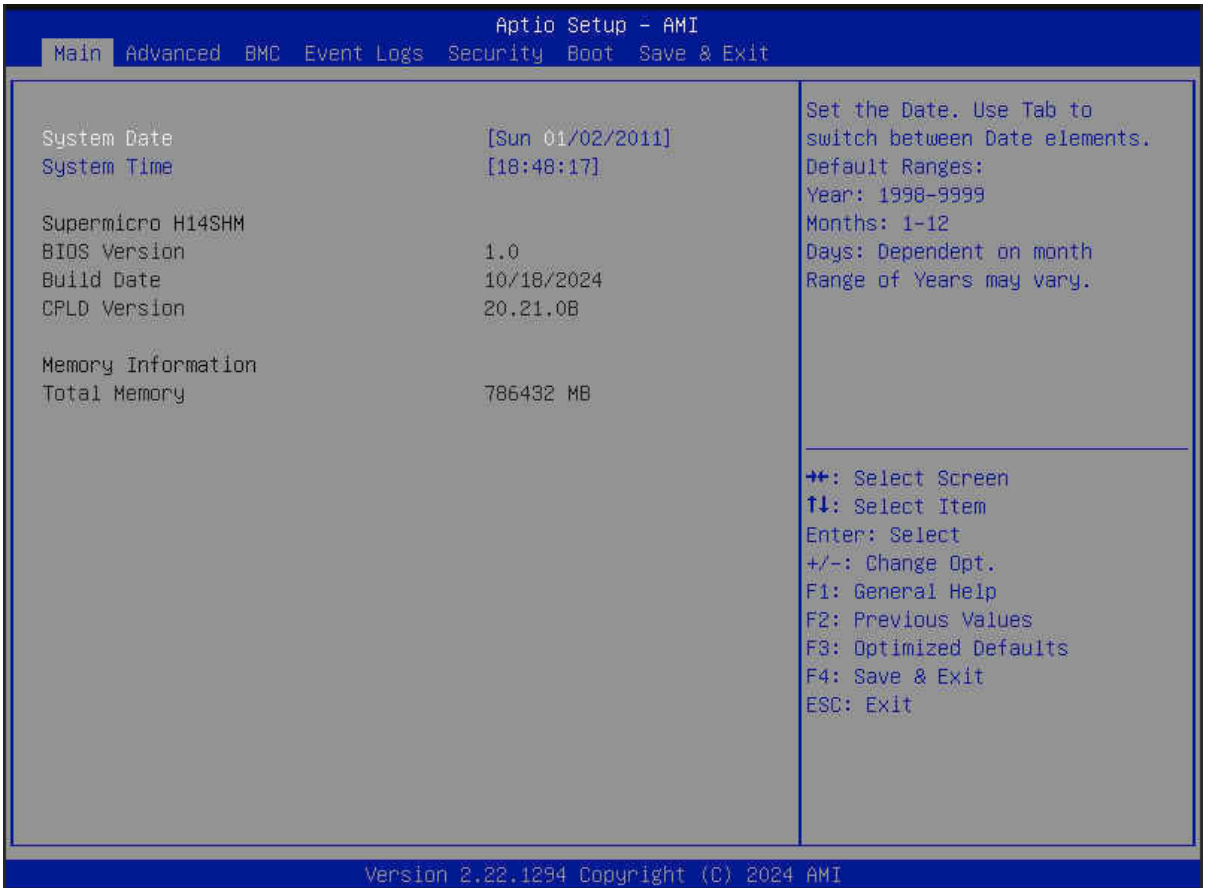


Figure 4-1. BIOS Main Tab Screen

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 H14SHM

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.

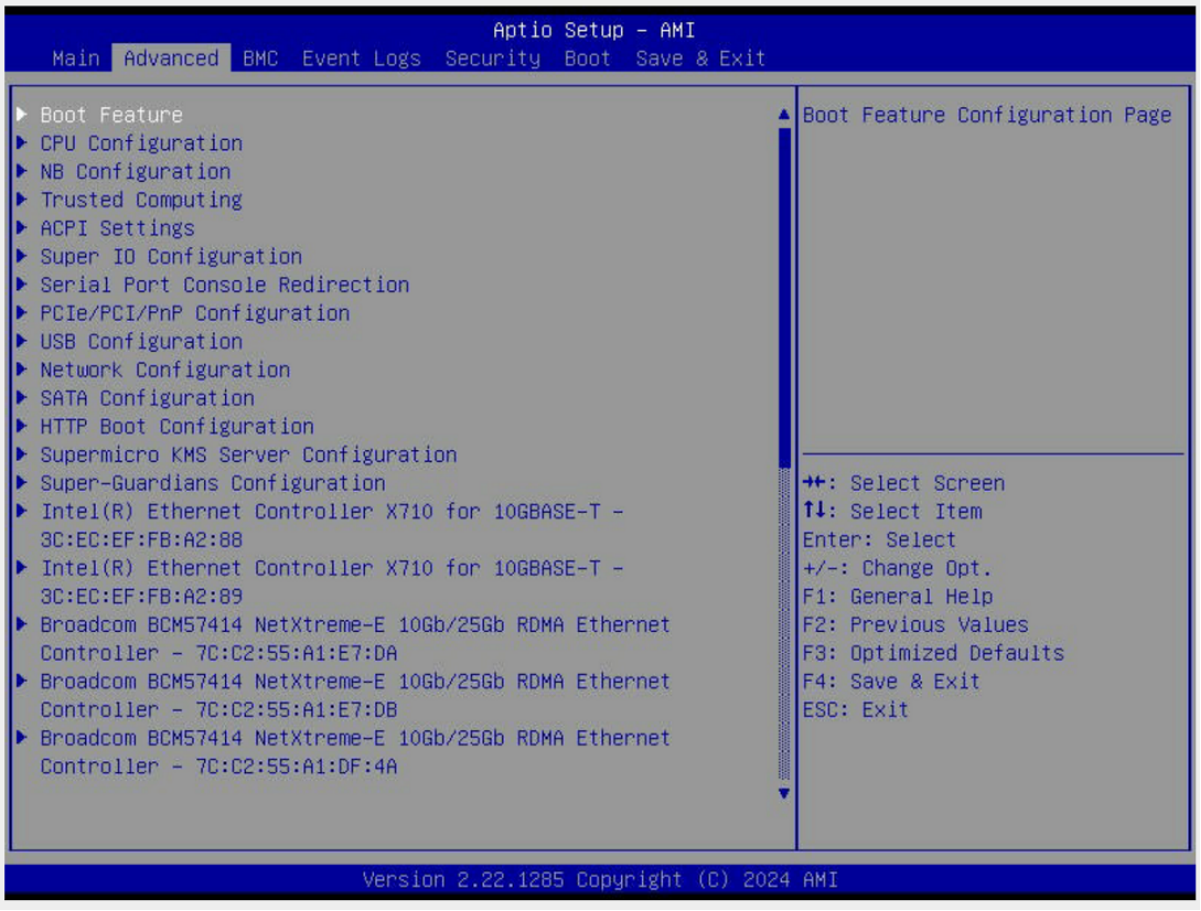


Figure 4-2. Advanced Tab Screen

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

Boot Feature 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 <Numlock> key. The options are **On** and Off.

Wait For "F1" If Error

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

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** and Enabled.

Power Configuration

Watch Dog Function

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

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

Use this feature to configure the Watch Dog Time_out 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

CPU Configuration

Workload Profile

This function allows configuring the BIOS settings to match the selected workload. The options are **Disabled**, HPC, I/O, Virtualization, Telco NFVI, Telco NFVI-FP, and Telco FlexRAN.

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

Disable CPB. 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 options are Disabled, Enabled, and **Auto**.

SMEE

Control secure memory encryption enable. 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 to 0) can be used for analysis purposes 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

The MONItor, MWAIT, MONITORX, and MWAITX opcodes become invalied when enabledt. The options are Enabled, Disabled, and **Auto**.

L1 Stream HW Prefetcher

Option to enable or disable L1 Stream HW Prefetcher. The options are Disabled, Enabled, and **Auto**.

L2 Stream HW Prefetcher

Option to enable or disable L2 Stream HW 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, 8 CCDs, 10 CCDs, 12 CCDs, and 14 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), and SEVEN (7+0), TWO (1+1), FOUR (2+2), SIX (3+3), EIGHT (4+4), TEN (5+5), TWELVE (6+6), FOURTEEN (7+7).

SVM Mode

Enable or disable cpu virtualization. The options are Disabled, and **Enabled**.

►CPU1 Information

Changing the designed PCIe port bifurcation.

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

CPU1 PCIe Package Group G2 The options are **Auto**, x4x4x4x4, x4x4x8, x8x4x4, x8x8, and x16

CPU1 PCIe Package Group P3 The options are **Auto**, x4x4x4x4, x4x4x8, x8x4x4, x8x8, and x16

CPU1 PCIe Package Group G3 The options are **Auto**, x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16, and SATA

CPU1 PCIe Package Group P1 The options are **Auto**, x4x4x4x4, x4x4x8, x8x4x4, x8x8, and x16

CPU1 PCIe Package Group G1 The options are **Auto**, x4x4x4x4, x4x4x8, x8x4x4, x8x8, and x16

CPU1 PCIe Package Group P0 The options are **Auto**, x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16, and SATA

CPU1 PCIe Package Group G0 The options are **Auto**, x4x4x4x4, x4x4x8, x8x4x4, x8x8, and x16

NB Configuration

North Bridge Configuration

IOMMU

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

DMAr

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

DMA Protection

Use this setting to enable DMA remap support in the IVRS IVinfo 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 control the activation of advanced data link features. 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

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 to control the inclusion of synchronization headers in data transmissions. The options are **Auto**, Enabled, and Disabled.

►xGMI Configuration

xGMI Link Width Control

This setting controls the number of lanes used for the xGMI interface. When the setting is set to **Manual**, the "xGMI Force Link Width Control" and "xGMI Max Link Width Control" items becomes available. The options are Manual and **Auto**.

xGMI Link Max Speed

This setting controls the maximum speed of the xGMI link. 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.

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

Setting this to Enabled means each CCX in the system will be declared as a separate NUMA domain. Disabled means Memory addressing NUMA nodes per socket will be declared. The**Auto** setting equals Disabled.

Super IO Configuration Menu

►Super IO Configuration

The following information is displayed.

- Super IO Chip

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

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

Note: It can be "Serial Port 2 Configuration" or "SOL Configuration" based on your system support.

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

►Serial Port Console Redirection

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.

SOL/COM2

Note: This feature is available when your system supports serial port of SOL and/or COM2. The "SOL/COM2" here indicates a shared serial port, and SOL is used as the default.

Console Redirection

Select Enabled to use the SOL/COM2 port for Console Redirection. The options are Disabled and **Enabled**.

►Console Redirection Settings

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

Terminal Type

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

Bits Per Second

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

Data Bits

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

Parity

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

Stop Bits

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

Flow Control

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

VT-UTF8 Combo Key Support

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

Recorder Mode

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

Resolution 100x31

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

Putty KeyPad

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

Legacy Console Redirection

►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 ofr legacy os.. The options are **Always Enable** and BootLoader.

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

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

Console Redirection EMS

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

►Console Redirection Settings

Note: This submenu is available when "Console Redirection EMS" 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 EMS

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**

PCIe/PCI/PnP Configuration Menu

Above 4G Decoding

This setting enables 64-bit PCI device access to memory beyond 4 GB for improved memory utilization and performance. The options are Disabled and **Enabled**.

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 **Enabled** and Disabled.

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.

PCI Devices Option ROM Setting

Onboard Video Option ROM

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

M.2-C1 OPROM

This setting enables or disables the Option ROM for the M.2-C1 slot. The options are Disabled and **EFI**.

AOC-AG-i4 LAN1 OPROM

This setting enables or disables the onboard LAN OPROM option. The options are Disabled and **EFI**.

USB Configuration

USB Configuration

USB Module Version

USB Controllers: 3 XHCIs

USB Devices: 1 Keyboard, 1 Mouse, 1 Hub

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.

Legacy USB Support

Select Enabled to support onboard legacy USB devices. Select Auto to disable legacy support if there are no legacy USB devices present. Select Disable to have all USB devices available for EFI applications only. The options are **Enabled**, Disabled and Auto.

Network Configuration Menu

Network Stack

This setting enables the UEFI nework stack. The options are Disabled and **Enabled**.

IPv4 PXE Support

This setting enables IPv4 PXE boot support. The options are Disabled and **Enabled**.

IPv4 HTTP Support

This setting enables IPv4 HTTP boot support. The options are Disabled and **Enabled**.

IPv6 PXE Support

This setting enables IPv6 PXE boot support. The options are Disabled and **Enabled**.

IPv6 HTTP Support

This setting enables IPv6 HTTP boot support. The options are Disabled and **Enabled**.

PXE Boot Wait Time

This sets the wait time, in seconds, to press the ESC key to abort the PXE boot. Use either =/- or numeric keys to set the value. The default value is **0**.

Media Detect Count

This sets the number of times the presence of media will be checked. Use either +/- or numeric keys to set the value. The default value is **1**.

►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

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

The options are **Automatic** and Manual.

Save Changes and Exit

The options are **Yes** and No.

►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.

SATA Configuration Menu

SATA Configuration

SATA Enable

Disable or enable the OnChip SATA controller. The options are Disabled, Enabled, or **Auto**.

SATA Information

Provides SATA devices information.

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.

HTTP Boot Checks Hostname

Enable this feature for HTTPS boot to check the hostname of the TLS certificates to see if it matches the host name provided by the remote server. The options are **Enabled** and Disabled (WARNING: Security Risk!).

Warning! Disabling "HTTP 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.

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 "HTTP Boot Policy" is set to Apply to each LAN or Boot Priority #1 instantly)

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

Select IPv4 or IPv6 (Unavailable when "Instance of Priority x:" is set to 0)

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

Boot Description (Unavailable when "Instance of Priority x:" is set to 0

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 (Unavailable when "Instance of Priority x:" is set to 0)

Enter a Boot 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.

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.

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

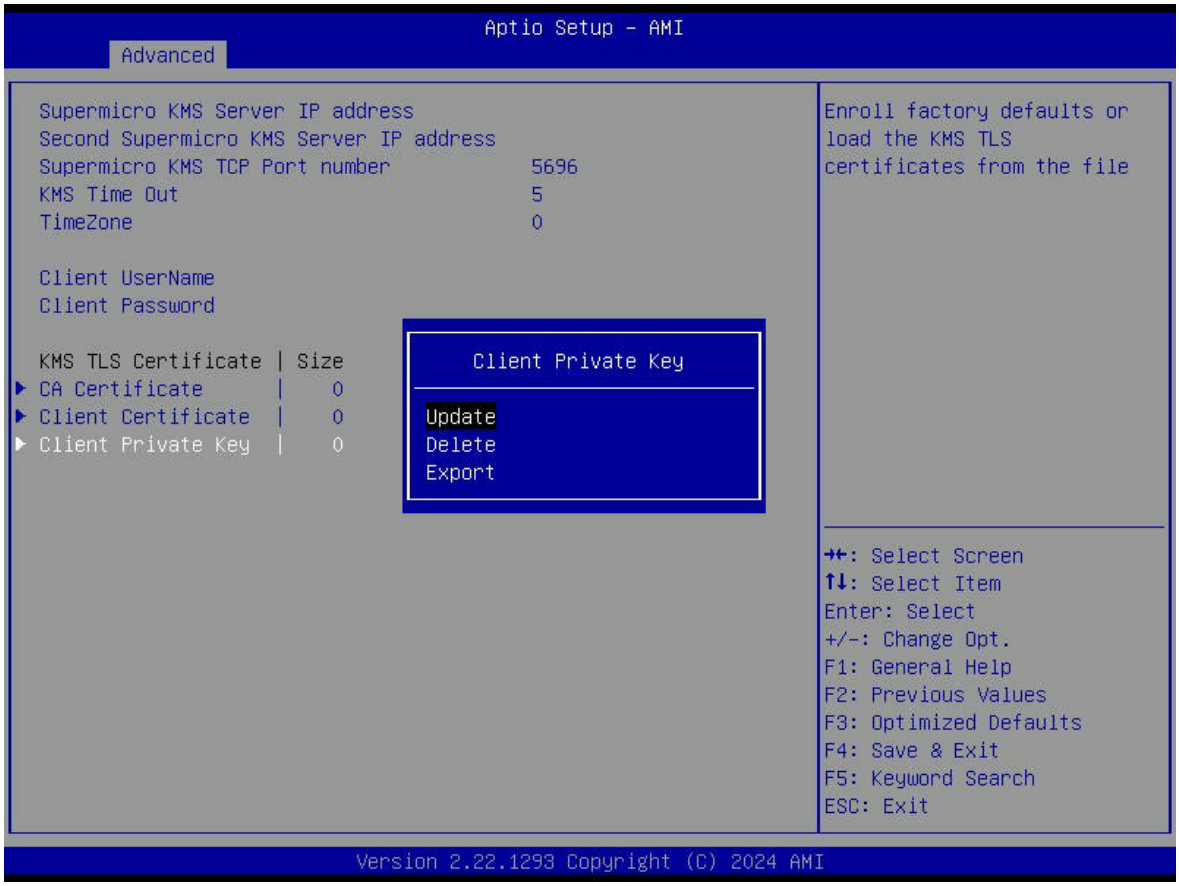
This setting provides options for managing the Certificate Authority (CA) certificate.The options are **Update**, Delete, and Export.

►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)

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

Notes:

- Be sure to connect a USB flash drive with the Authentication-Key (filename: TPMAuth.bin) to your system before the system reboot.
- 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.

Save Authentication-Key (Available when "TPM Security Policy" is set to Enabled)

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

Note: Be sure to connect a USB flash drive to your system before the system reboot.

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.

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.

RAM Disk Configuration

Disk Memory Type

This setting specifies the type of memory to use from the available memory pool in the system to create a disk. the options are **Boot Service Data** and Reserved.

Create raw

Size (Hex):

Set the size of the RAM disk. The valid size should be multiples of the RAM disk block size.

Create & Exit or **Discard & Exit**.

Create from file

Created RAM disk list:

This displays a list of the created RAM disks.

Remove selected RAM disk(s)

4.4 BMC

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

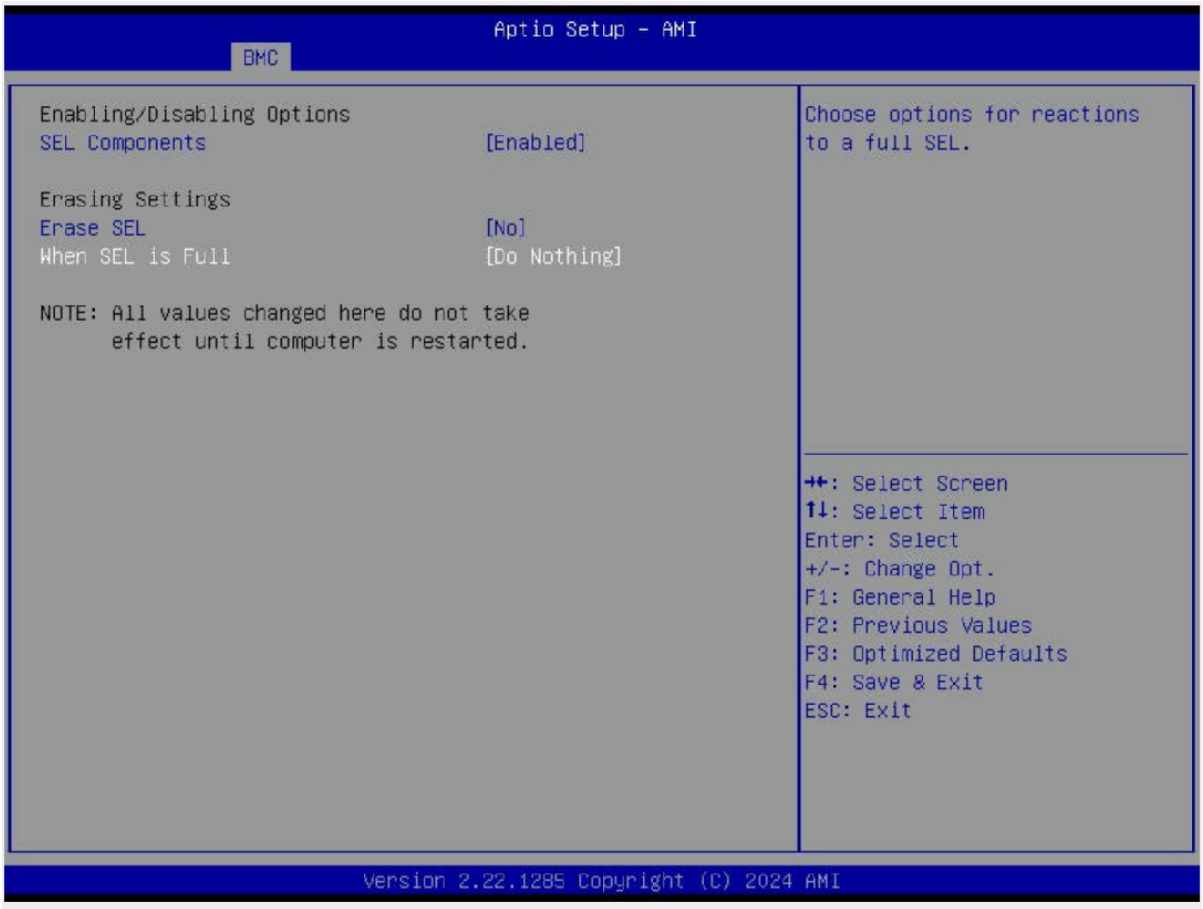


Figure 4-3. BMC Tab Screen

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.

System Event Log Menu

►System Event Log

Note: All values changed in this submenu do not take effect until computer is restarted.

SEL Components

This setting enables event logging for error or progress codes during boot. The options are Disabled or **Enabled**.

Erasing Settings

Erase SEL (Available when "SEL Components" is set to Enabled)

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

When SEL is Full (Available when "SEL Components" is set to Enabled)

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

BMC Network Configuration Menu

►BMC Network Configuration

Update BMC LAN Configuration

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

****

Configure IPv4 Support

****

BMC LAN Selection

This feature displays the type of the BMC LAN.

BMC Network Link Status:

This feature displays the status of the BMC network link for this system.

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

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

Station IP Address

This feature displays the Station IP address in decimal and in dotted quad form (i.e., 172.29.176.131). It is available for configuration when "Configuration Address Source" above is set to Static.

Subnet Mask

This feature displays the sub- network that this computer belongs to. It is available for configuration when "Configuration Address Source" above is set to Static.

Station MAC Address

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

Gateway IP Address

This feature displays the Gateway IP address for this computer. This should be in decimal and in dotted quad form (i.e., 172.29.0.1). It is available for configuration when "Configuration Address Source" above is set to Static.

****

Configure IPv6 Support

****

IPv6 Address Status

This feature displays the status of the IPv6 address.

IPv6 Support (Available when "Update BMC LAN Configuration" is set to Yes)

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

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

Use this feature to select the source of the IPv6 connection. If Static Configuration is selected, note the IP address of IPv6 connection and enter it to the system manually in the field. If the other two options are selected, the BIOS will search for a DHCP server in the network that is attached to and request the next available IP address for this computer. The options are Static Configuration, **DHCPv6 Stateless**, and DHCPv6 Stateful.

IPv6 Address ("Static," "DHCPv6 Stateless," or "DHCPv6 Stateful," depending on the option you selected for "Configuration Address Source" above)

This feature displays the station IPv6 address. It is available for configuration when "Configuration Address Source" above is set to Static Configuration.

Prefix Length

This feature displays the prefix length. It is available for configuration when "Configuration Address Source" above is set to Static Configuration.

Gateway IP

This feature displays the IPv6 gateway IP address. It is available for configuration when "Configuration Address Source" above is set to Static Configuration.

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

Use this feature to set the DNS server IP. The default setting allows this system to obtain the DNS server IP automatically. The options are **Auto obtain DNS server IP** and Manually obtain DNS server IP.

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

This feature displays the preferred DNS server IP. It can be configured via Redfish.

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

This feature displays the alternative DNS server IP. It can be configured via Redfish.

****

Configure VLAN Support

****

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

Use this feature to enable the virtual LAN (VLAN) support. The options are Enabled and **Disabled**.

VLAN ID (Available when "VLAN Support" is set to Enabled)

Use this feature to create a new VLAN ID. The valid range is 1–4094. The default setting is **1**.

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.

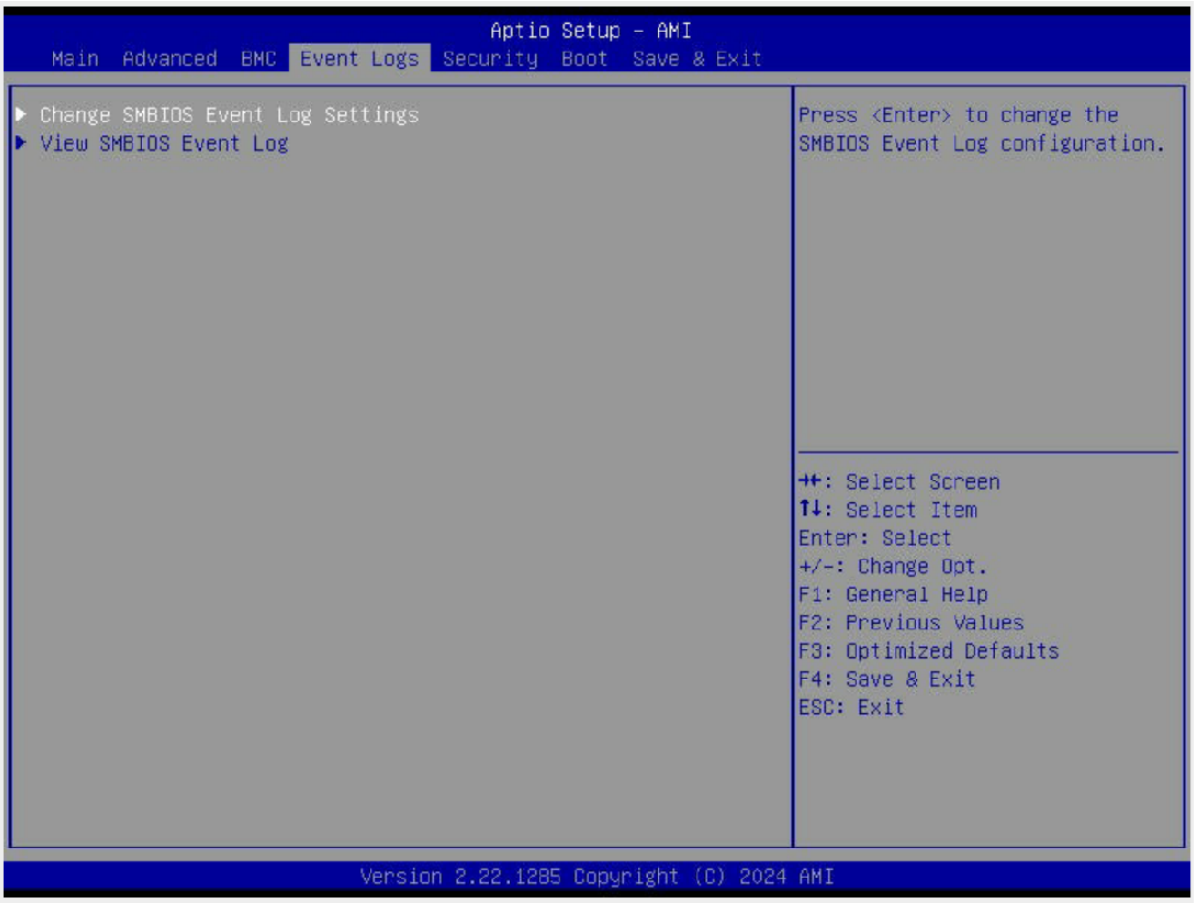


Figure 4-4. Event Logs Tab Screen

►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 event in the system event log. Select this feature and press <Enter> to view the status of an event in the log. The following information is displayed: DATE / TIME / ERROR CODE / SEVERITY.

4.6 Security

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

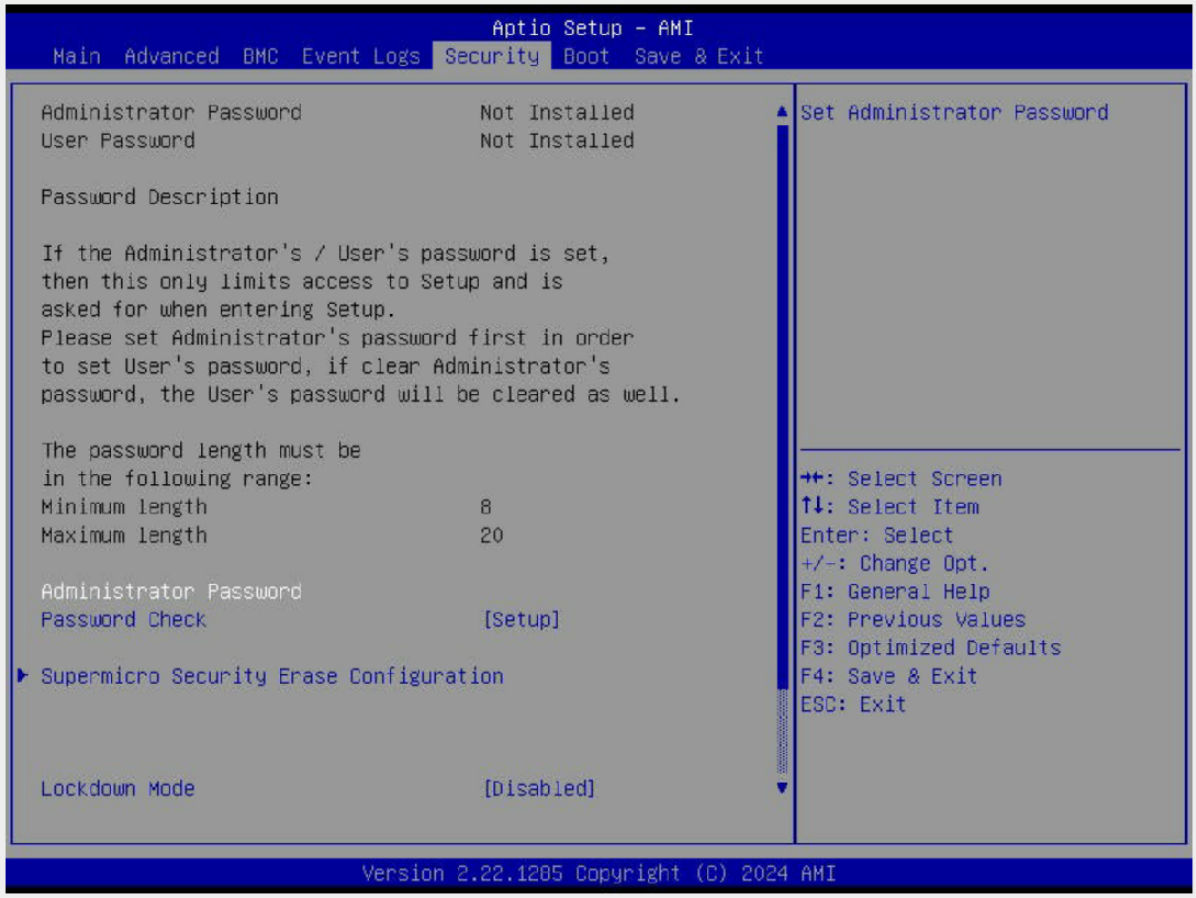


Figure 4-5. Security Tab Screen

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.

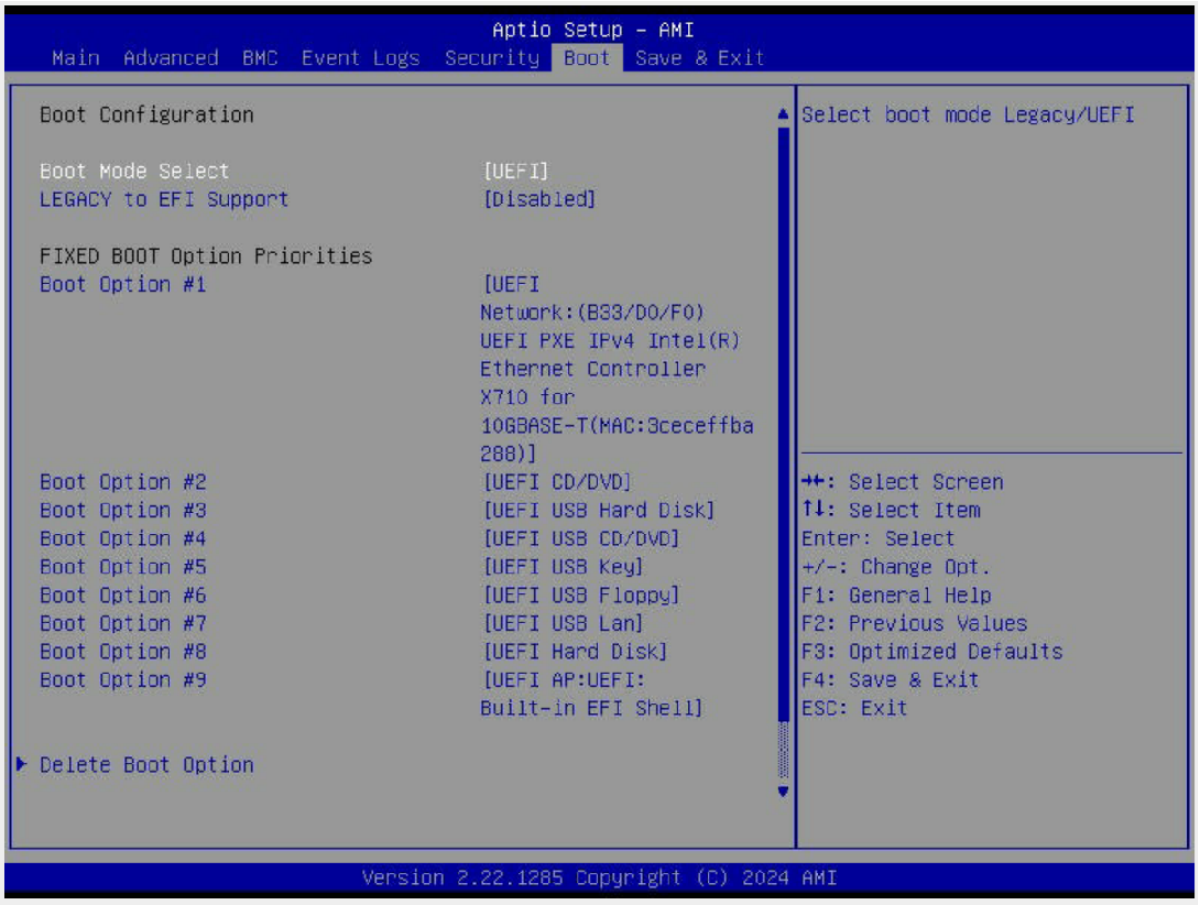


Figure 4-6. Boot Tab

Boot Configuration

Boot Mode Select

Use this feature to select boot mode. The options are Legacy, **UEFI**, and Dual.

Legacy to EFI Support

Use this feature to enable system to boot to EFI OS after boot failed from legacy boot order. The options are **Disabled** and Enabled.

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 remove an EFI boot option from the boot order

Delete Boot Option

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

4.8 Save & Exit

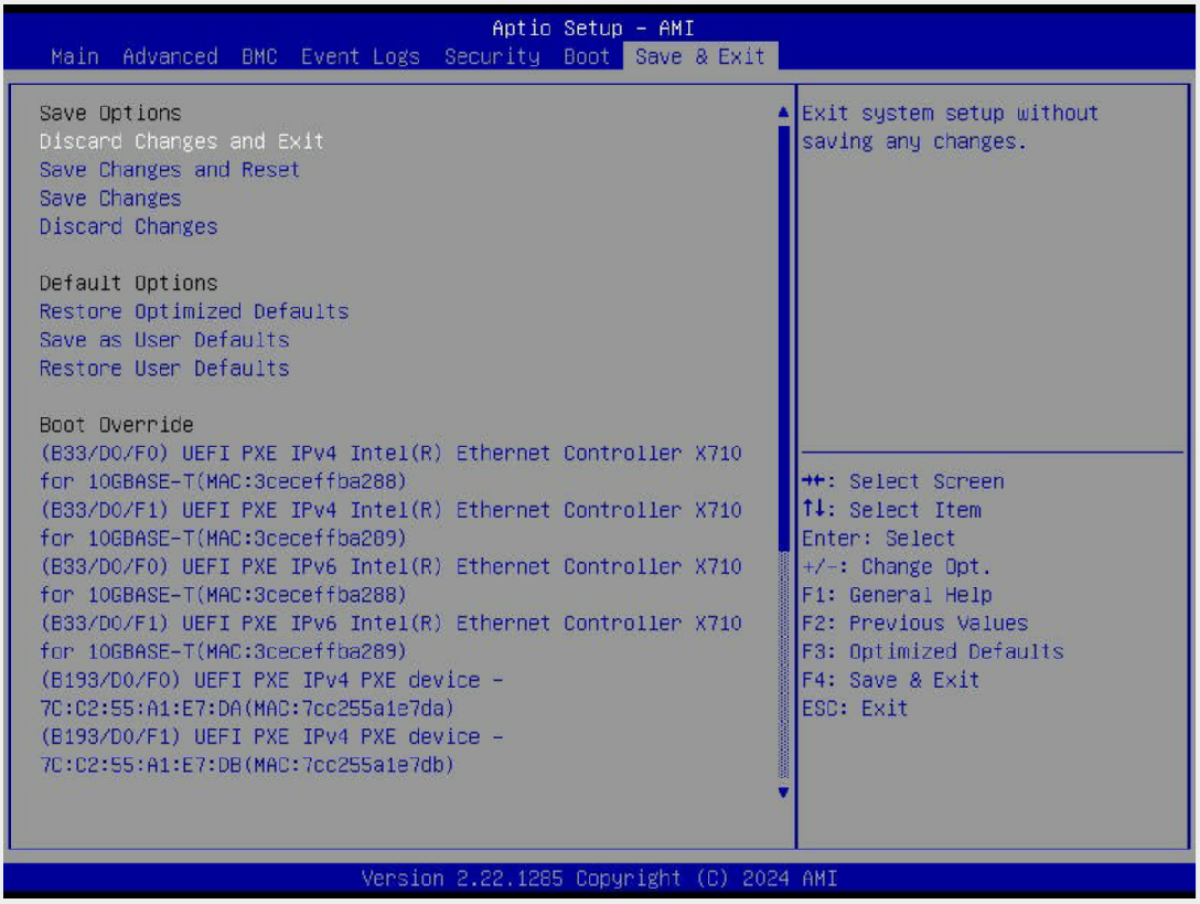


Figure 4-7. Save & Exit Tab

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: After pressing <Enter>, reboot the system for the changes to take effect, which ensures that this 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 H14SHM 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 H14SHM 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.

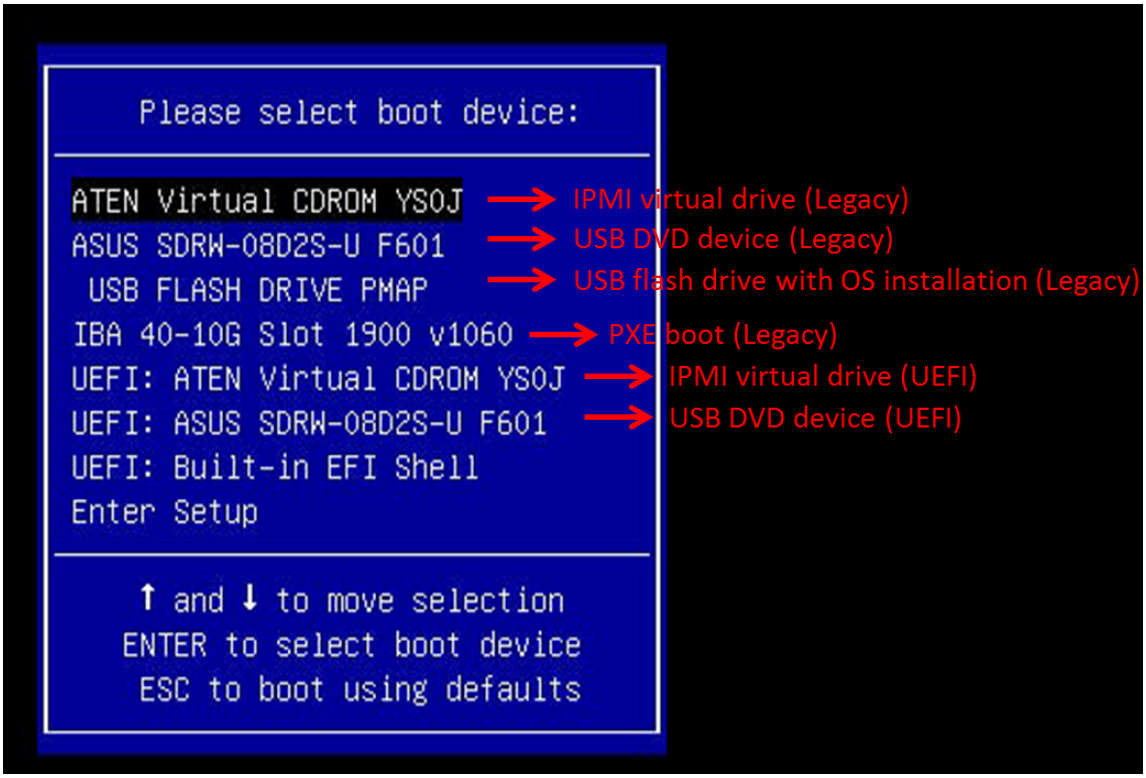


Figure B-1. Selecting the Boot Device

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.

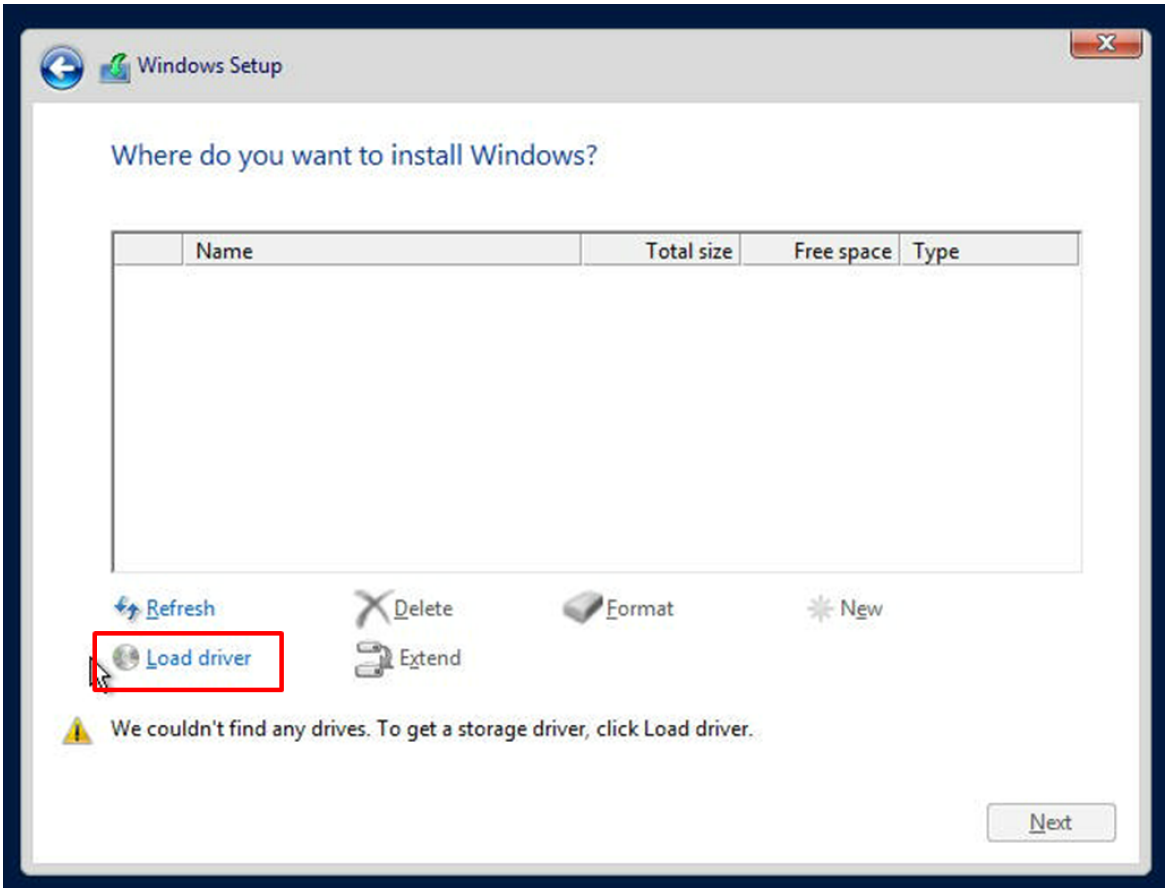


Figure B-2. Loading the Driver Link

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.

Driver Installation

The Supermicro website contains drivers and utilities for your system at the following page:

https://www.supermicro.com/wdl.

Some of these drivers and utilities must be installed, such as the chipset driver. After accessing the website, go into the CDR_Images (in the parent directory of the above link) and locate the ISO file for your motherboard. Download this file to a USB flash or media drive. You may also use a utility to extract the ISO file if preferred.

Another option is to go to the Supermicro website at https://www.supermicro.com. Find the product page for your motherboard and download the latest drivers and utilities. Insert the flash drive or disk, and the screenshot shown below should appear.

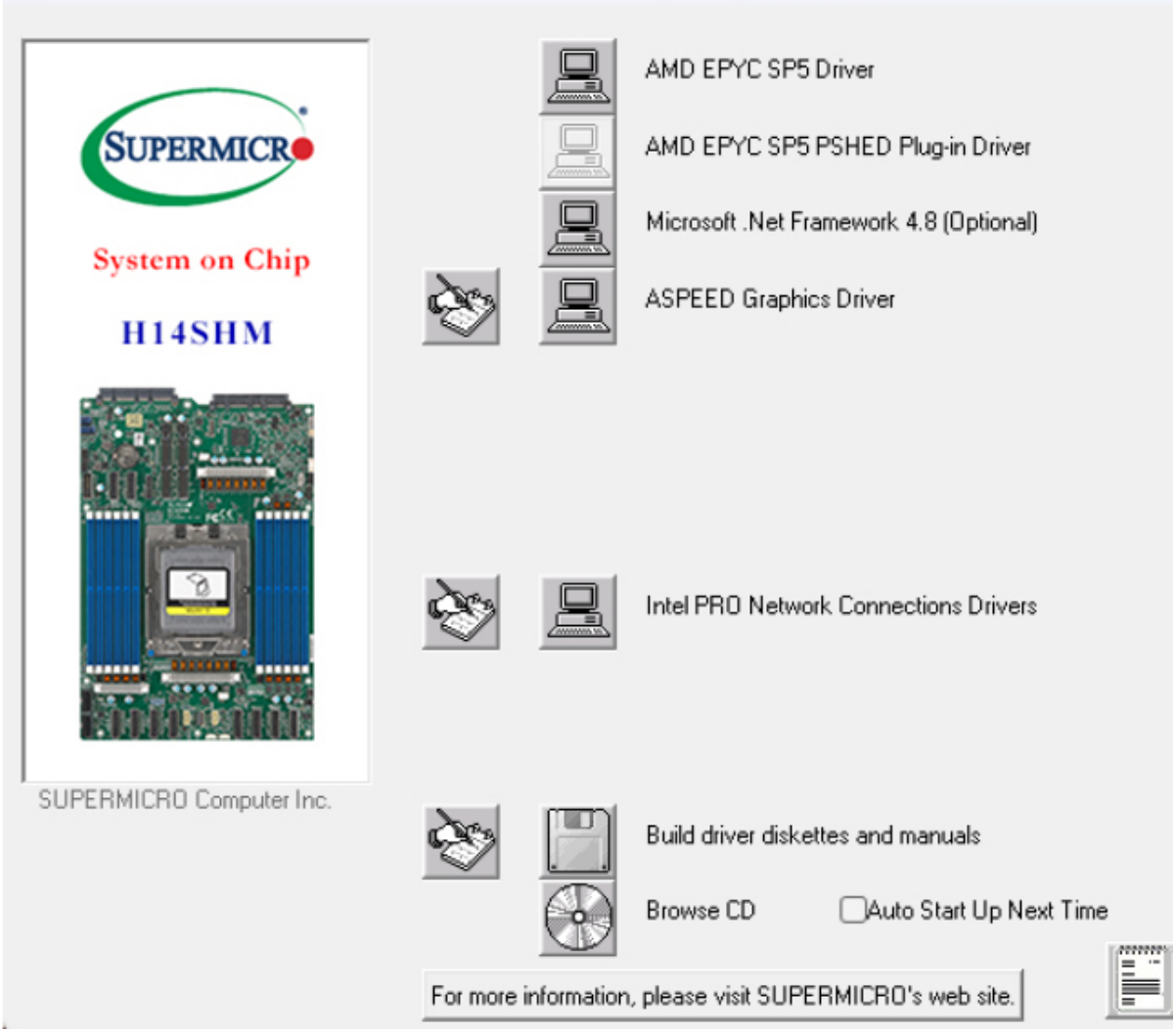


Figure B-3. Driver Download Screenshot

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

BMC

The H14SHM 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-4. 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 H14SHM 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

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

警告!

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

警告!

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

警告!

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

WARNUNG!

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

¡ADVERTENCIA!

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

ATTENTION!

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

אזהרה!

קיימת סכנת פיצוץ אם הסוללה תוחלף בסוג שגוי. יש להחליף

את הסוללה בסוג התואם מחברת יצרן מומלצת.

סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

!تحذير

.هناك خطر الانفجار إذا تم استبدال البطارية بنوع غير صحيح

اسحبذال البطارية

فقط بنفس النمع أو ما يعادلها مما أوصث به الشرمة المصنعة

جخلص من البطاريات المسحعملة وفقا لحعليمات الشرمة الصانعة

경고!

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

WAARSCHUWING!

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

Product Disposal

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

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。

警告!

本产品的废弃处理应根据所有国家的法律和规章进行。

警告!

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung!

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

¡Advertencia!

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

Attention!

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

אזהרה!

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

!تحذير

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

경고!

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

Waarschuwing!

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