



X14SPN-H/-E/-L

USER'S MANUAL

Revision 1.0 (MNL-2872)

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 1.0

Release Date: April 30, 2026

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 © 2026 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 X14SPN-H/-E/-L 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 10
- If you have any feedback on Supermicro product manuals, contact our writing team at: Techwriterteam@supermicro.com

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

Conventions Used in the Manual

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



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



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



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

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

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

Contents

Contacting Supermicro	10
Chapter 1: Introduction	11
1.1 Quick Reference	12
Checklist	12
Motherboard Layout	13
Quick Reference Table	17
Motherboard Features	18
Series Specification Chart	22
Motherboard Block Diagram	23
Platform Overview	23
1.2 Special Features	25
Recovery from AC Power Loss	25
1.3 System Health Monitoring	26
Onboard Voltage Monitors	26
Fan Status Monitor with Firmware Control	26
Environmental Temperature Control	26
1.4 ACPI Features	27
1.5 Super I/O	28
Chapter 2: Component Installation	29
2.1 Static-Sensitive Devices	30
Precautions	30
Unpacking	30
Motherboard Installation	30
Tools Needed	31
Installing the Motherboard	31
2.2 Memory Support and Installation	33
Memory Support	33
General Guidelines for Optimizing Memory Performance	33
SO-DIMM Installation	33
SO-DIMM Removal	34
2.3 Battery Removal and Installation	35

Battery Removal	35
Proper Battery Disposal	35
Battery Installation	35
2.4 Connections, Jumpers, and LEDs	36
Power Supply and Power Connections	36
Power Supply	36
Power Connector	36
Headers and Connections	36
COM Header	36
Embedded DisplayPort	37
Fan Header	38
Front Panel Audio Header	39
General Purpose I/O Header	39
M.2 Slots	40
MIPI Connector	46
Nano SIM Slot	47
System Management Bus Header	47
Universal Serial Bus (USB) Header	47
Front Control Panel	48
Power Button	48
Reset Button	49
HDD LED	49
Power LED	49
Input/Output Ports	50
HDMI Ports	50
LAN Ports	50
USB 3.2 Ports	51
Switches	51
TPM 2.0 Enable/Disable and Force Power On	51
ME Manufacturing Mode/USB or PCIe Interface/CMOS Clear/SIM Detect	52
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	55
Memory Errors	55
Losing the System's Setup Configuration	55
If the System Becomes Unstable	55
3.2 Technical Support Procedures	58
3.3 Motherboard Battery	59
3.4 Where to Get Replacement Components	60
3.5 Returning Merchandise for Service	61
3.6 Feedback	62
Chapter 4: UEFI BIOS	63
4.1 Introduction	64
Updating BIOS	64
Starting the Setup Utility	64
4.2 Main Setup	66
4.3 Advanced Setup Configurations	68
ACPI Settings Menu	68
Boot Feature Menu	69
CPU Configuration Menu	70
Config Base Power Configurations Menu	73
Chipset Configuration Menu	74
GPIO Expander Header	79
HTTP Boot Configuration Menu	79
NCT5525D Super IO Configuration Menu	80
Serial Port 1 Configuration Menu	80
Serial Port 2 Configuration Menu	81
Network Configuration Menu	81
MAC:(MAC address)-IPv4 Network Configuration Menu	82
MAC:(MAC address)-IPv6 Network Configuration Menu	83
MAC:(MAC address)-IPv4 Network Configuration Menu	84
MAC:(MAC address)-IPv6 Network Configuration Menu	85
MAC:(MAC address)-IPv4 Network Configuration Menu	86

MAC:(MAC address)-IPv6 Network Configuration Menu	86
PCH-FW Configuration Menu	88
AMT Configuration	88
ASF Configuration	88
One Click Recovery (OCR) Configuration	89
PCIe/PCI/PnP Configuration Menu	89
VMD Setup Menu	91
Serial Port Console Redirection Menu	91
Trusted Computing Menu	96
USB Configuration Menu	98
Intel Ethernet Controller I226-IT - (MAC address) Menu	98
Intel Ethernet Controller I226-IT - (MAC address) Menu	99
Intel Ethernet Connection I219-LM - (MAC address) Menu	99
TLS Authenticate Configuration Menu	99
Driver Health Menu	100
COM Port Mode Configuration Menu	100
4.4 Event Logs	101
4.5 Thermal & Fan	103
4.6 Security	105
Supermicro Security Erase Configuration Menu	106
Secure Boot Menu	107
TCG Storage Security Configuration Menu	110
4.7 Boot	112
4.8 Save & Exit	114
4.9 MEBx	116
Appendix A: BIOS Codes	117
Additional BIOS POST Codes	117
Appendix B: Software	118
Microsoft Windows OS Installation	118
Installing the OS	118
Driver Installation	120
Appendix C: Standardized Warning Statements	122
Battery Handling	122
Connection to Earth	124

Product Disposal 125

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](mailto: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	12
Checklist	12
Motherboard Layout	13
Quick Reference Table	17
Motherboard Features	18
Series Specification Chart	22
Motherboard Block Diagram	23
Platform Overview	23
1.2 Special Features	25
Recovery from AC Power Loss	25
1.3 System Health Monitoring	26
Onboard Voltage Monitors	26
Fan Status Monitor with Firmware Control	26
Environmental Temperature Control	26
1.4 ACPI Features	27
1.5 Super I/O	28

1.1 Quick Reference

For details on the X14SPN-H/-E/-L motherboard layout, features, and other quick reference information, refer to the content below.

Checklist

In addition to the X14SPN-H/-E/-L motherboard, several important parts that are included in your shipment are listed below. If anything listed is damaged or missing, contact your retailer.

Main Parts Lists (Retail Single Package)		
Description	Part Number	Quantity
Audio Cable (line-out, mic-in)	CBL-OTHR-0986-20	1
COM Cable	CBL-CDAT-0665	1
DC IN Power Cable	CBL-PWEX-1029	1
USB Cable	CBL-CUSB-0983	1
Quick Reference Guide	MNL-2872-QRG	1

Main Parts Lists (Bulk Package)		
Description	Part Number	Quantity
DC IN Power Cable	CBL-PWEX-1029	1

Optional Parts Lists		
Description	Part Number	Quantity
DC IN Power Cable (DC Jack)	CBL-PWEX-1110-15	1
Power Adapter	MCP-250-10128-0N	1

Motherboard Layout

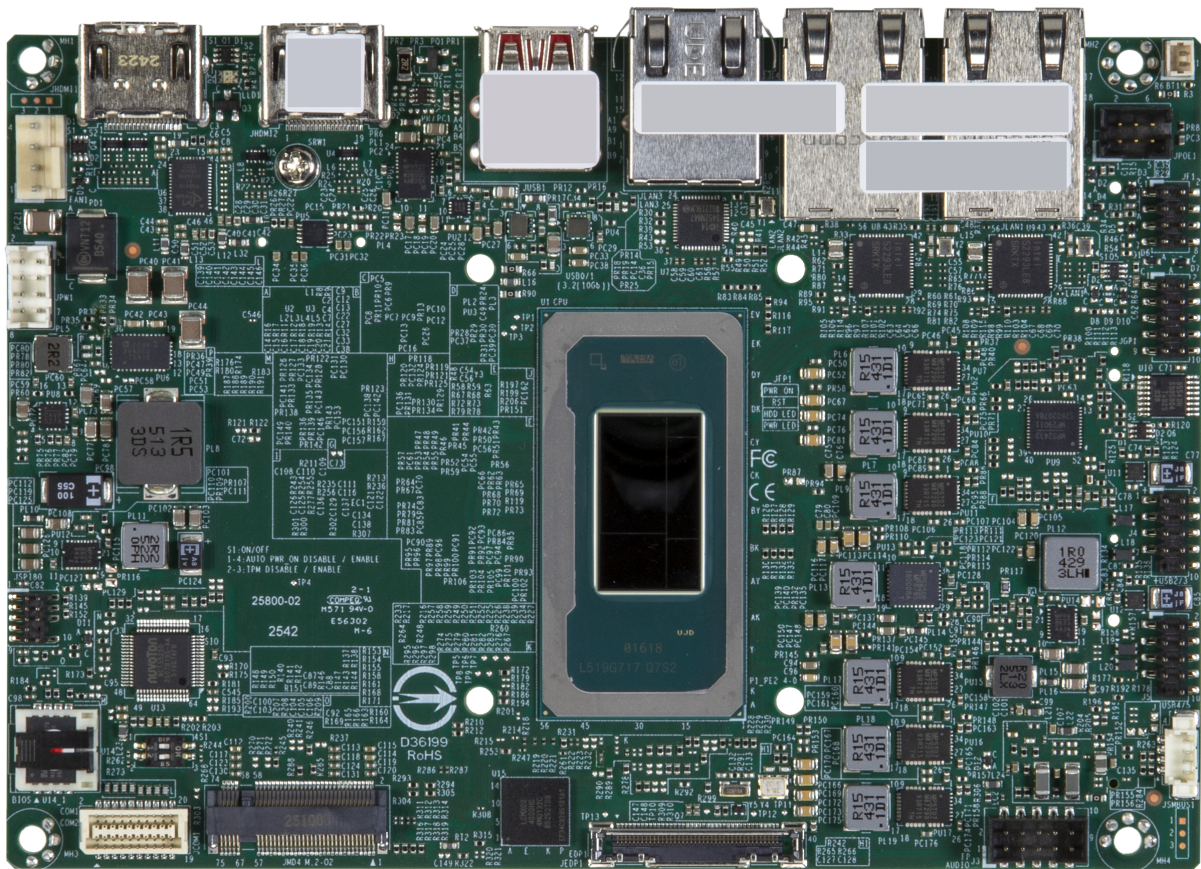


Figure 1-1. X14SPN Motherboard Top Photo

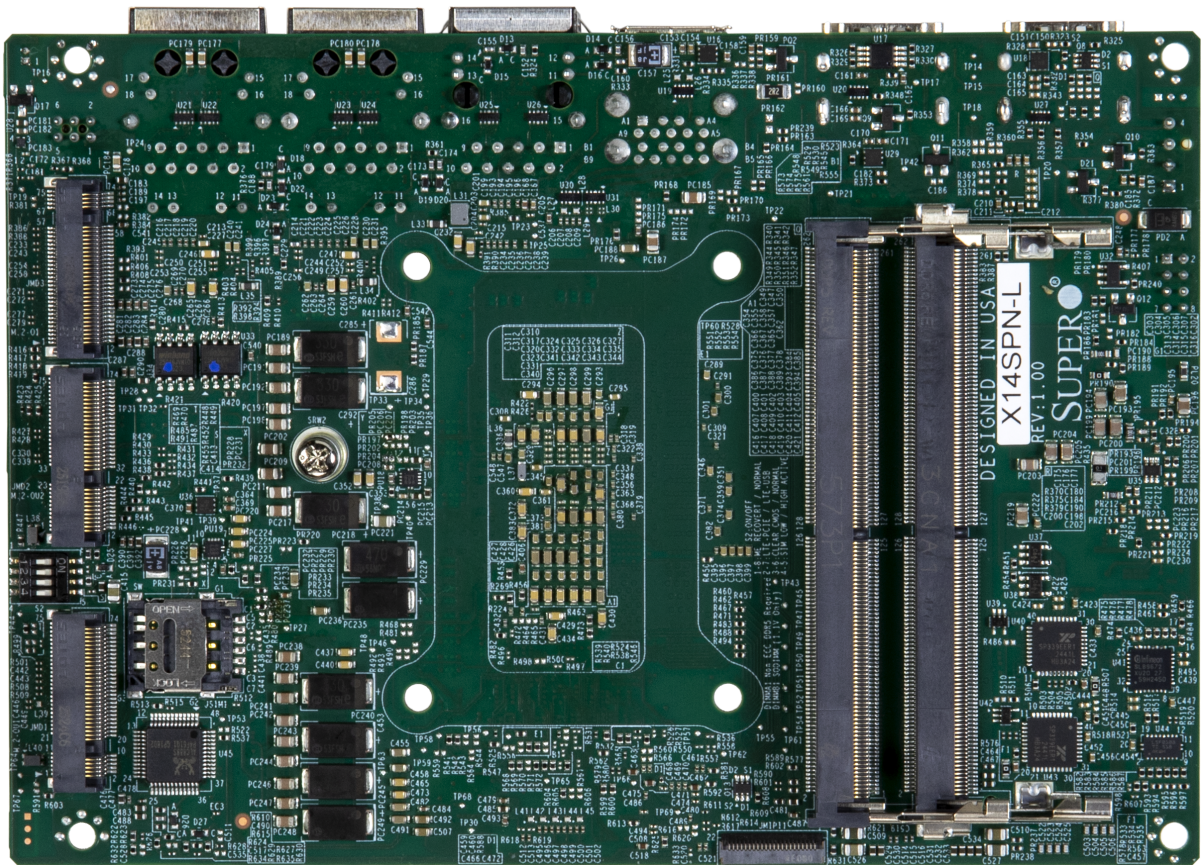


Figure 1-2. X14SPN Motherboard Bottom Photo

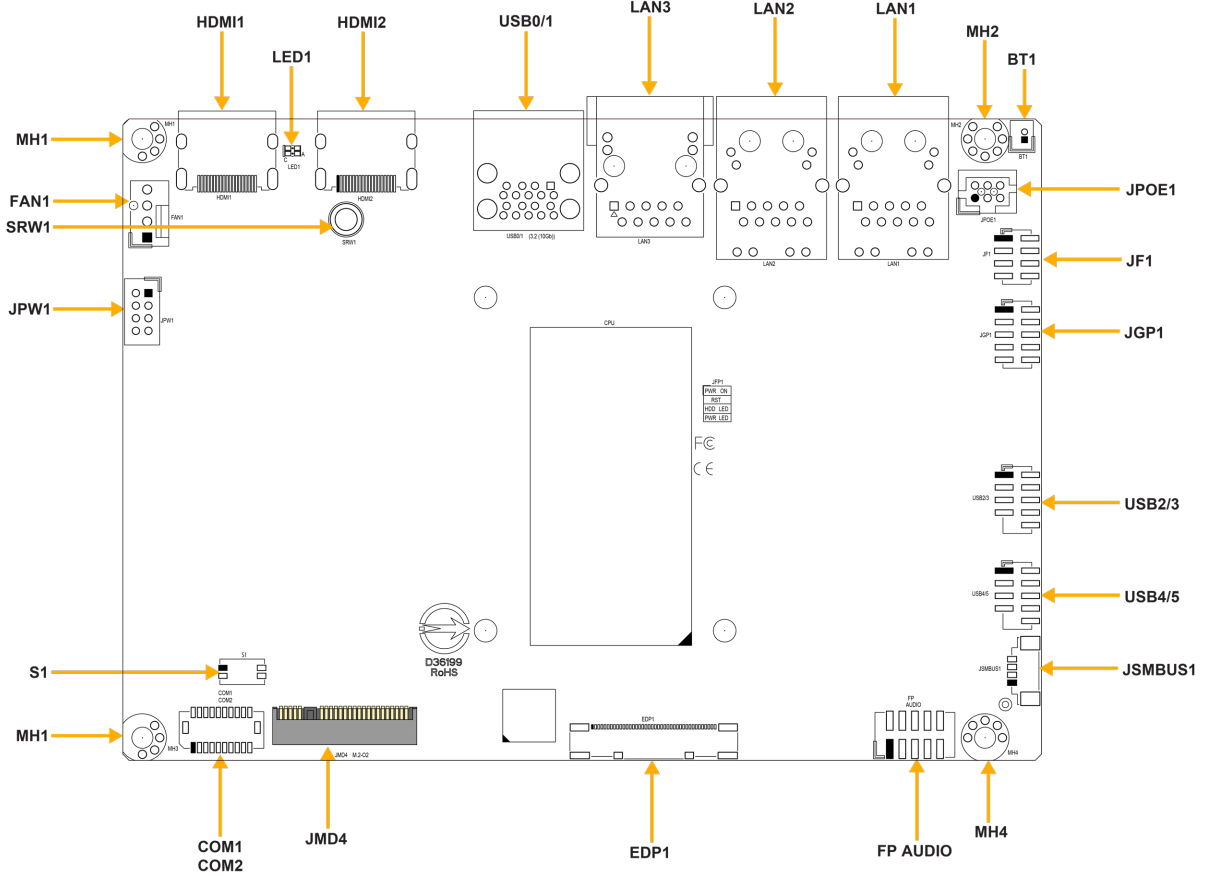


Figure 1-3. X14SPN Motherboard Top Layout

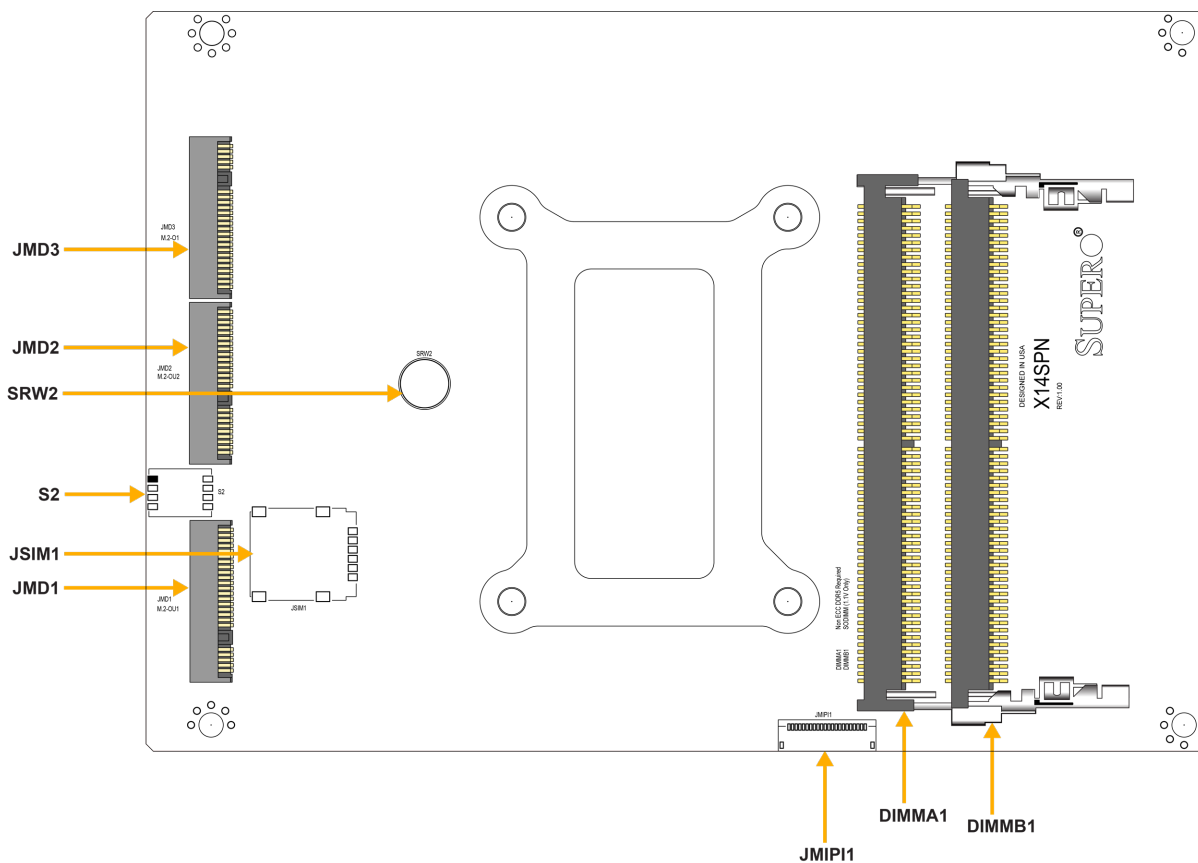


Figure 1-4. X14SPN Motherboard Bottom Layout

Notes:

- For detailed information on switches, connectors, and LED indicators, see ["Component Installation"](#) on page 29.
- "■" indicates the location of pin 1.
- "MH" indicates the location of a mounting hole.
- Components not documented are for internal testing purposes only.
- Use only the correct type of onboard CMOS battery as specified by the manufacturer. To avoid possible explosion, do not install the onboard battery upside down.

Quick Reference Table

Switches		
Jumper	Description	Default Settings
S1	Switch 1: Force Power On	OFF Position (Function Enabled)
	Switch 2: TPM 2.0 Enable/Disable	OFF Position (Function Enabled)
S2	Switch 1: ME Manufacturing Mode	OFF Position (Normal Mode)
	Switch 2: USB or PCIe Interface Option	OFF Position (USB)
	Switch 3: CMOS Clear	OFF Position (Normal Mode)
	Switch 4: SIM Detect	OFF Position (High Active)

Connectors	
Connector	Description
BT1	Battery Cable Connector
COM1/COM2	COM Header for Two RS232/422/485
EDP1	Embedded DisplayPort
FAN1	4-pin Fan Header
FP AUDIO	Front Panel Audio Header (Line-out, Mic-in)
JF1	Front Control Panel Header
JGP1	8-bit General Purpose I/O Header
HDMI1, HDMI2	HDMI 2.1 Port, HDMI 1.4 Port
JMD1	M.2 B-Key 2242/2280/3052 PCIe 4.0 x1/USB 3.2/USB 2.0 with Nano SIM Slot
JMD2	M.2 E-Key 2230 PCIe 4.0 x1/USB 2.0 Slot
JMD3	M.2 M-Key 2242/2280 PCIe 5.0 x4 Slot
JMD4	M.2 M-Key 2280 PCIe 4.0 x2 Slot
JMIP1	Mobile Industry Processor Interface
JPOE1	Power over Ethernet Header
JPW1	8-pin +12–36 V Main Power-in Connector
JSIM1	Nano SIM Card Slot
JSMBUS1	System Management Bus Header
LAN1–LAN2	2.5G RJ45 LAN Ports
LAN3	1G RJ45 LAN Port
USB0/1	USB 3.2 (10 Gb/s) Type-A Port
USB2/3, USB4/5	USB 2.0 Headers

LED Indicators		
LED	Description	Status
LED1	Onboard Power LED	Green: System On Red: Standby Power Mode Off: System Off

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

Motherboard Features

Motherboard Features
Processor
<ul style="list-style-type: none"> • X14SPN-H supports the Intel® Core™ Ultra X7 Processor 368H • X14SPN-E supports the Intel® Core™ Ultra 5 Processor 336H • X14SPN-L supports the Intel® Core™ Ultra 5 Processor 335
Memory
<ul style="list-style-type: none"> • Supports up to 128 GB of Non-ECC DDR5 CSO/SO-DIMM memory with speeds of up to 7200 MT/s in two slots
DIMM Size
<ul style="list-style-type: none"> • Up to 64 GB at +1.1 V
Expansion Slots
<ul style="list-style-type: none"> • One M.2 B-Key 2242/2280/3052 PCIe Gen 4 x1/USB 3.2/USB 2.0 with Nano SIM slot • One M.2 E-Key 2230 PCIe Gen 4 x1/USB 2.0 slot • One M.2 M-Key 2280 PCIe 4 x2 slot • One M.2 M-Key 2242/2280 PCIe 5 x4 slot

Motherboard Features
I/O Devices
<ul style="list-style-type: none"> • HDMI: Two HDMI 2.1 ports (One is HDMI 2.1 and the other is HDMI 1.4) • eDP: One eDP 1.4 connector supports up to 4K at 144 Hz panel • MIPI: One MIPI D-PHY x4 lanes connector for camera module • COM: One COM header that supports two RS232/422/485 ports • Audio: One HD audio header with Line-out/Mic-in • SMBus: One SMBus/I²C header • GPIO: One 8-bits general purpose I/O header
Network
<ul style="list-style-type: none"> • Dual Intel i226 for dual 2.5G RJ45 LAN ports (support POE by optional module) • One Intel i219LM for one 1G RJ45 LAN port
Graphics
<ul style="list-style-type: none"> • Intel Xe3 Graphics: Up to 192 EUs, GFX SRIOV, Open GL 4.6, DirectX 12, Vulkan 1.2, Mesa 3D • Hardware Accelerated Video Decode: HEVC, VP9, SCC, AV1, AVC, MJPEG • Hardware Accelerated Video Encode: HEVC, VP9, SCC, AV1, AVC, MJPEG
Peripheral Devices
<ul style="list-style-type: none"> • Two USB 3.2 (10 Gb/s) Type-A ports on the I/O panel • Two onboard USB 2.0 headers (provide four USB 2.0 connections)
BIOS
<ul style="list-style-type: none"> • 256 MB AMI SPI BIOS • ACPI 6.5, SMBIOS 3.5 or later, UEFI 2.7, PCI FW 3.0, Real Time Clock (RTC) wakeup, Watchdog

Motherboard Features
Power Management
<ul style="list-style-type: none"> • ACPI Power Management (S3, S4, S5) • Power Button Override Mechanism • Wake-on-LAN through the UEFI BIOS option • Power-on Mode for AC Power Recovery • Management Engine • Force Power On by switch • RTC Battery (typical voltage: +3.0 V, normal discharge capacity: 220 mAh) • Supply Input Voltage: DC 12–36 V
System Health Monitoring
<ul style="list-style-type: none"> • Onboard voltage monitoring for VCC, VDD2, VCC3_3, VCC1_8, VBAT • Temperature of CPU, System, and Peripheral • Speed of Fan • CPU Thermal Trip support
Fan Control
<ul style="list-style-type: none"> • One 4-pin fan header • Low noise fan speed control
System Management
<ul style="list-style-type: none"> • Trusted Platform Module (TPM) 2.0 • SuperServer Automation Assistant (SAA) • Supermicro Server Manager (SSM) • Super Diagnostics Offline (SDO) • SuperDoctor 5 (SD5) • Watchdog • Intel vPro
LED Indicators
<ul style="list-style-type: none"> • Power/Suspend-state Indicator LED
Dimensions
<ul style="list-style-type: none"> • 4" x 5.75" (102 mm x 146 mm) (W x L)

Motherboard Features**Environment**

- Operating Temperature Range: 0°C to 60°C (32°F to 140°F), by the motherboard active cooler
- Operating Temperature Range: 0°C to 85°C (32°F to 185°F), assembled in the system
- Non-Operating Temperature Range: -40°C to 85°C (-40°F to 185°F)
- Operating Relative Humidity Range: 8% to 90% (non-condensing)
- Non-Operating Relative Humidity Range: 10% to 95% (non-condensing)

Series Specification Chart

		X14SPN-H	X14SPN-E	X14SPN-L
CPU		Ultra 7 368H	Ultra 5 336H	Ultra 5 335
Cores	P-core	4	4	4
	E-Core	8	4	0
	LP E-core	4	4	4
Base Frequency	P-core	2	1.9	2.2
	E-core	1.6	1.5	N/A
Max Frequency	P-core	4.7	4.3	4.3
	E-core	3.6	3.4	N/A
	LP E-core	3.6	3.2	3.4
Graphics	Unit	192	64	64
	Max Frequency	2.5	2.3	2.4
NPU	Tile	3	3	3
	Max Frequency	4.1	3.9	3.9
CPU TDP		25 W		
Functions		Two HDMI: One HDMI 2.1, One HDMI 1.4 One eDP Two 2.5 GbE LAN Ports with POE (optional module) One 1 GbE LAN Port Two USB 3.2 Type-A Ports Four USB 2.0 Headers One MIPI D-PHY x4 Lane Port Two COM Headers for RS232/422/485 One 8-bit GPIO One SMBus Header One Audio Header with Line-out/Mic-in One TPM 2.0 Four M.2 Slots (B-Key with SIM/E-Key/two M-Key)		
vPro		Yes	Yes	Yes
Operating Temperature Range		0 to 60°C: Motherboard active cooler 0 to 85°C: Assembled in system		

Motherboard Block Diagram

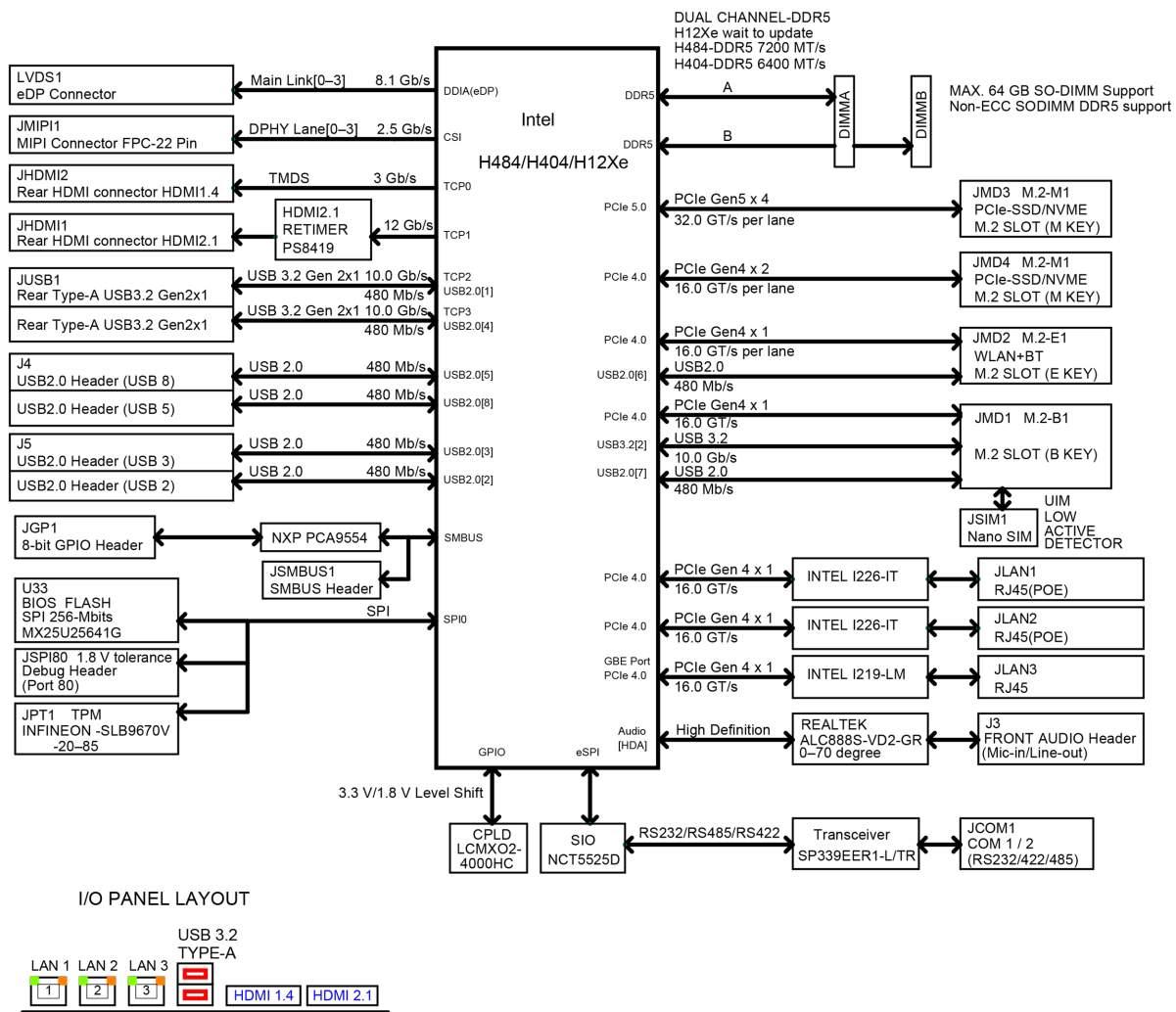


Figure 1-5. X14SPN-H/-E/-L Motherboard Block Diagram

Platform Overview

Built upon the capability of the Intel Core Ultra 368H/336H/335 series processor, the X14SPN-H/-E/-L motherboard provides system performance, power efficiency, and feature sets to address the needs of next-generation computer users.

The X14SPN-H/-E/-L motherboard dramatically increases system performance for a multitude of server applications and supports the following features:

- 128 GB of Non-ECC DDR5 CSO/SO-DIMM memory with speeds of up to 7200 MT/s in two DIMM slots
- Intel SSE4.1, SSE4.2, AVX2

- Intel Deep Learning Boost (DL Boost)
- AI Software Frameworks, OpenVINO™, WindowsML, DirectML, ONNX RT, WebNN, WebGPU
- Intel Smart Sound Technology, Intel High Definition Audio
- Intel Speed Shift Technology
- Intel Turbo Boost Technology 3.0
- Intel Volume Management Device (VMD)
- Intel Virtualization Technology (VT-x), Intel Virtualization Technology for Directed I/O (VT-d)
- VT-x with Extended Page Tables (EPT)
- Intel Active Management Technology (AMT)
- Intel AES New Instructions, Intel Boot Guard, Mode-base Execute Control, Intel Control-Flow, Intel Total Memory Encryption

1.2 Special Features

Recovery from AC Power Loss

The Basic I/O System (BIOS) provides a setting that determines how the system will respond when AC power is lost and then restored to the system. You can choose for the system to remain powered off (in which case you must press the power switch to turn it back on), or for it to automatically return to the power-on state. See Advanced Setup Configurations under "[UEFI BIOS](#)" on [page 63](#) for this setting. The default setting is **Last State**.

1.3 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.

Fan Status Monitor with Firmware Control

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

Environmental Temperature Control

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

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

1.4 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 appropriate Windows operating systems. For detailed information regarding OS support, refer to the Supermicro website.

1.5 Super I/O

The Super I/O provides four high-speed, 16550 compatible universal asynchronous receiver transmitter (UART) serial communication ports. Each UART includes a 128 byte send/receive FIFO, a programmable baud rate generator, complete modem control capability, and a processor interrupt system. UARTs provide legacy speed with a baud rate of up to 115.2 Kbps as well as an advanced speed with baud rates of 250 K, 500 K, or 1 Mb/s, which support higher speed modems. The Super I/O provides functions that comply with ACPI, which includes support of legacy and ACPI power management through a SMI or SCI function pin. It also features auto power management to reduce power consumption. The IRQs, DMAs and I/O space resources of the Super I/O can be flexibly adjusted to meet ISA PnP requirements, which support ACPI and Advanced Power Management (APM).

Chapter 2:

Component Installation

This chapter provides instructions on installing and replacing main system components for the X14SPN-H/-E/-L 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	30
Precautions	30
Unpacking	30
Motherboard Installation	30
Tools Needed	31
Installing the Motherboard	31
2.2 Memory Support and Installation	33
Memory Support	33
General Guidelines for Optimizing Memory Performance	33
SO-DIMM Installation	33
SO-DIMM Removal	34
2.3 Battery Removal and Installation	35
Battery Removal	35
Proper Battery Disposal	35
Battery Installation	35
2.4 Connections, Jumpers, and LEDs	36
Power Supply and Power Connections	36
Headers and Connections	36
Front Control Panel	48
Input/Output Ports	50
Switches	51
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.

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

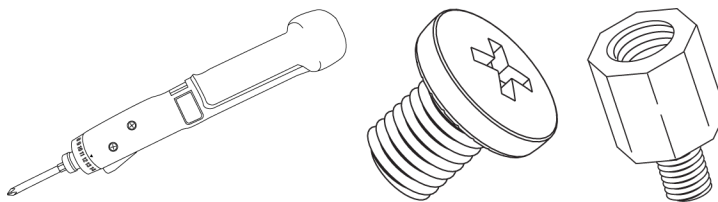


Figure 2-1. Torque Driver (1), Phillips Screws (4), Standoffs (4, only if needed)

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.

Installing the Motherboard

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

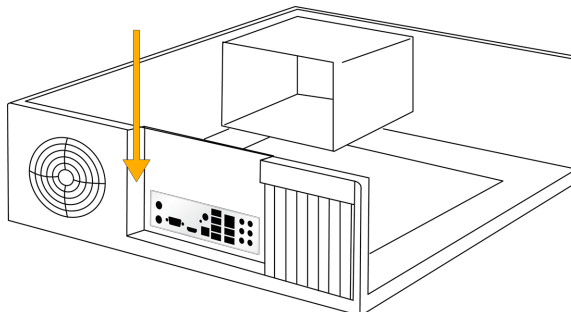


Figure 2-2. Installing the I/O Shield

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.

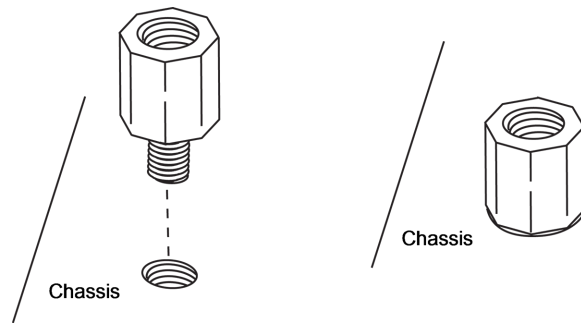


Figure 2-3. Locating the Mounting Holes

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

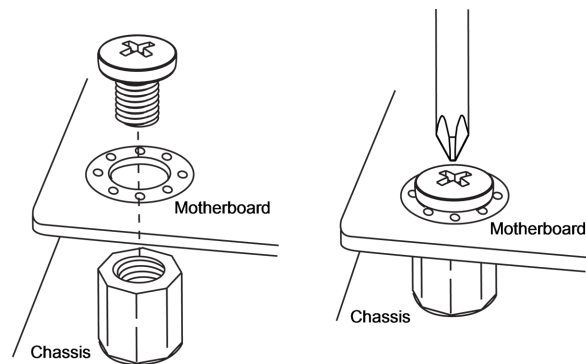


Figure 2-4. Aligning the Mounting Holes

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.

2.2 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 X14SPN-H/-E/-L motherboard supports up to 128 GB of Non-ECC DDR5 CSO/SO-DIMM memory with speeds of up to 7200 MT/s in two memory slots.

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.

SO-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 30](#).

1. Position the SO-DIMM module's bottom key so it aligns with the receptive point on the slot.

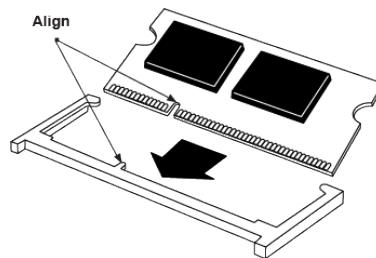


Figure 2-5. Insert the SO-DIMM

2. Insert the SO-DIMM module vertically at about a 45 degree angle. Press down until the module locks into place.

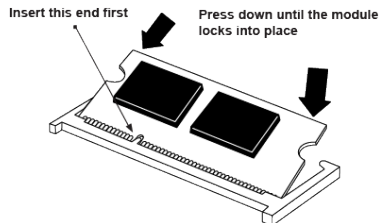


Figure 2-6. Insert at a 45 degree angle

3. The side clips will automatically secure the SO-DIMM module, locking it into place.

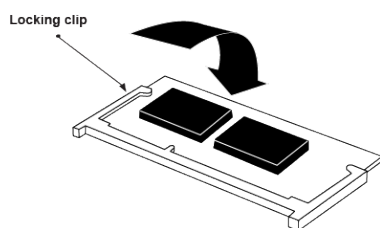


Figure 2-7. Secure the SO-DIMM

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under ["Quick Reference"](#) on page 12.

SO-DIMM Removal

Push the side clips at the end of the slot to release the SO-DIMM module. Pull the SO-DIMM module up to remove it from the slot.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under ["Quick Reference"](#) on page 12.

2.3 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. Remove the battery cable at the BT1 connector on the board.
3. 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. Connect the battery cable into the battery connector (BT1) and push it down until you hear a click to ensure that the cable is securely locked.
2. Use the foam tape on the back side of the battery to secure it to a flat surface on the bottom of the motherboard or a proper location in the system. Do not place the battery on the heatsink.



Figure 2-8. Installing a Battery

2.4 Connections, Jumpers, and LEDs

Refer to the following sections for information about connections, jumpers, and LEDs for the X14SPN-H/-E/-L motherboard.

Power Supply and Power Connections

For information about the power supply and power connections of the X14SPN-H/-E/-L motherboard, refer to the following content.

Power Supply

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

Power Connector

The X14SPN-H/-E/-L motherboard supports an 8-pin +12–36 V power-in connector at JPW1.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under ["Quick Reference"](#) on page 12.

8-pin Power Connector	
Pin Definitions: Eight Total	
Pin#	Definition
1–4	+12–36 V
5–8	GND

Headers and Connections

For information about the headers on the X14SPN-H/-E/-L motherboard, refer to the following content.

COM Header

There is one COM header COM1/COM2 on the X14SPN-H/-E/-L motherboard. Use a cable with the COM header to access the COM port. COM ports provide serial communication support.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under ["Quick Reference"](#) on page 12.

COM Header			
Pin Definitions: Nineteen Total			
Pin#	RS232	RS422/485 Full Duplex	RS485 Half Duplex
1	SP_DCD1	TX-1	Data-1
2	SP_DSR1		
3	SP_RXD1	TX+1	Data+1
4	SP_RTS1		
5	SP_TXD1	RX+1	
6	SP_CTS1		
7	SP_DTR1	RX-1	
8	SP_RI1		
9	GND		
10	No Connection		
11	SP_DCD2	TX-2	Data-2
12	SP_DSR2		
13	SP_RXD2	TX+2	Data+2
14	SP_RTS2		
15	SP_TXD2	RX+2	
16	SP_CTS2		
17	SP_DTR2	RX-2	
18	SP_RI2		
19	GND		
20	No Connection		

Embedded DisplayPort

The embedded DisplayPort header EDP1 header is used to connect an LCD panel. eDP is a companion standard to the DisplayPort interface designed for embedded display applications, including notebooks, tablets, and all-in-one desktop PCs.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under "[Quick Reference](#)" on page 12.

eDP Header			
Pin Definitions: 40 Total			
Pin#	Definition	Pin#	Definition
1	N/A	21	+3.3 V
2	GND	22	N/A
3	Lane3_N	23	GND
4	Lane3_P	24	GND
5	GND	25	GND
6	Lane2_N	26	GND
7	Lane2_P	27	HPD
8	GND	28	GND
9	Lane1_N	29	GND
10	Lane1_P	30	GND
11	GND	31	GND
12	Lane0_N	32	BLK_EN
13	Lane0_P	33	BLK_CTL
14	GND	34	N/A
15	Aux_P	35	N/A
16	Aux_N	36	+12 V
17	GND	37	+12 V
18	+3.3 V	38	+12 V
19	+3.3 V	39	+12 V
20	+3.3 V	40	N/A

Fan Header

There is one 4-pin fan header located at FAN1 on the X14SPN-H/-E/-L motherboard. All the 4-pin fan headers are backwards compatible with the traditional 3-pin fans.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under "[Quick Reference](#)" on page 12.

4-pin Fan Header	
Pin Definitions: Four Total	
Pin#	Definition
1	GND (Black)
2	+12 V (Red)
3	Tachometer
4	PWM Control

Front Panel Audio Header

A 10-pin audio header located at AUDIO FP allows you to use the onboard sound for audio playback. Connect an audio cable to the header to use this feature.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under "[Quick Reference](#)" on page 12.

Front Panel Audio Header			
Pin Definitions: 10 Total			
Pin#	Definition	Pin#	Definition
1	MIC_Left	2	AUDIO_GND
3	MIC_Right	4	AUDIO_Detect
5	LINE2_Right	6	MIC2_JD
7	Front AUDIO_JD	8	NC
9	LINE2_Left	10	LINE2_JD

General Purpose I/O Header

JGP1 is a general purpose I/O expander on a pin header via the SMBus. Each pin can be configured to be an input pin or output pin in 2 mm pitch.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under "[Quick Reference](#)" on page 12.

General Purpose Header			
Pin Definitions: 10 Total			
Pin#	Definition	Pin#	Definition
1	P3V3SB	2	GND
3	GP_P3V3_GP0	4	GP_P3V3_GP4

General Purpose Header			
Pin Definitions: 10 Total			
Pin#	Definition	Pin#	Definition
5	GP_P3V3_GP1	6	GP_P3V3_GP5
7	GP_P3V3_GP2	8	GP_P3V3_GP6
9	GP_P3V3_GP3	10	GP_P3V3_GP7

M.2 Slots

The M.2 B-Key slot at JMD1 on the motherboard supports PCIe 4.0 x1/USB 3.2/USB 2.0 devices in a 2242/2280/3052 form factor. The M.2 E-Key slot at M.2 supports PCIe 4.0 x1/USB 2.0 devices in a 2230 form factor. The JMD3 slot supports M.2 M-Key PCIe 5.0 x4 devices in a 2242/2280 form factor, and the JMD4 slot supports M.2 M-Key PCIe 4.0 x2 devices in the 2280 form factor.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under "[Quick Reference](#)" on page 12.

M.2 B-Key (JMD1)			
Pin Definitions: 75 Total			
Pin#	Definition	Pin#	Definition
1	No Connection	2	+3.3 VSB
3	GND	4	+3.3 VSB
5	GND	6	FULL_CARD_POWER_OFF# (PU to P1V8SB only)
7	USB_D+	8	W_DISABLE1#(PU to +3.3 VSB only)
9	USB_D-	10	LED_N
11	GND	12	KEY B
13	KEY B	14	KEY B
15	KEY B	16	KEY B
17	KEY B	18	KEY B
19	KEY B	20	PCIE_DIS
21	No Connection	22	VBUS_SENSE
23	WAKE_ON_WWAN#(PU to +1.8 VSB)	24	No Connection
25	No Connection	26	W_DISABLE2#(PU to +1.8 VSB only)
27	GND	28	No Connection

M.2 B-Key (JMD1)			
Pin Definitions: 75 Total			
Pin#	Definition	Pin#	Definition
29	USB3.0-Rx-	30	UIM-RESET
31	USB3.0-Rx+	32	UIM-CLK
33	GND	34	UIM-DATA
35	USB3.0-Tx-	36	UIM-PWR
37	USB3.0-Tx+	38	No Connection
39	GND	40	No Connection
41	PERn0	42	No Connection
43	PERp0	44	Alert# (PU to +1.8 VSB only)
45	GND	46	No Connection
47	PETn0	48	No Connection
49	PETp0	50	PERST#
51	GND	52	CLKRED#
53	REFCLKn	54	PEWAKE#
55	REFCLKp	56	No Connection
57	GND	58	No Connection
59	No Connection	60	No Connection
61	No Connection	62	No Connection
63	No Connection	64	No Connection
65	No Connection	66	SIM_DETECT
67	RESET#	68	No Connection
69	No Connection	70	+3.3 VSB
71	GND	72	+3.3 VSB
73	GND	74	+3.3 VSB
75	No Connection		

M.2 E-Key (JMD2)			
Pin Definitions: 75 Total			
Pin#	Definition	Pin#	Definition
1	GND	2	+3.3 VSB
3	USB_D+	4	+3.3 VSB
5	USB_D-	6	No Connection
7	GND	8	BT_I2C_SCLK
9	No Connection	10	RF_RESET_N
11	No Connection	12	BT_I2S_SDO
13	GND	14	MODEM_CLKREQ
15	No Connection	16	No Connection
17	No Connection	18	GND
19	GND	20	UART_BT_WAKE_N
21	No Connection	22	BRI_RSP
23	No Connection	24	KEY E
25	KEY E	26	KEY E
27	KEY E	28	KEY E
29	KEY E	30	KEY E
31	KEY E	32	RGI_DT
33	GND	34	RGI_RSP
35	PETp0	36	No Connection
37	PETn0	38	CLINK_RST_N
39	GND	40	CLINK_DATA
41	PERp0	42	CLINK_CLK
43	PERn0	44	No Connection
45	GND	46	No Connection
47	REFCLKp0	48	No Connection
49	REFCLKn0	50	SUSCLK
51	GND	52	PERST0#
53	CLKREQ0#	54	BT_DISABLE2#
55	PEWAKE0#	56	WIFI_DISABLE2#

M.2 E-Key (JMD2)			
Pin Definitions: 75 Total			
Pin#	Definition	Pin#	Definition
57	GND	58	No Connection
59	No Connection	60	No Connection
61	No Connection	62	No Connection
63	GND	64	No Connection
65	No Connection	66	No Connection
67	No Connection	68	No Connection
69	GND	70	No Connection
71	No Connection	72	+3.3 VSB
73	No Connection	74	+3.3 VSB
75	GND		

M.2 M-Key (JMD3)			
Pin Definitions: 75 Total			
Pin#	Definition	Pin#	Definition
1	GND	2	+3.3 V
3	GND	3	+3.3 V
5	PERn3	6	No Connection
7	PERp3	8	No Connection
9	GND	10	LED_N
11	PETn3	12	+3.3 V
13	PETp3	14	+3.3 V
15	GND	16	+3.3 V
17	PERn2	18	+3.3 V
19	PERp2	20	No Connection
21	GND	22	No Connection
23	PETn2	24	No Connection
25	PETp2	26	No Connection
27	GND	28	No Connection

M.2 M-Key (JMD3)			
Pin Definitions: 75 Total			
Pin#	Definition	Pin#	Definition
29	PERn1	30	No Connection
31	PERp1	32	No Connection
33	GND	34	No Connection
35	PETn1	36	No Connection
37	PETp1	38	No Connection
39	GND	40	No Connection
41	PERn0	42	No Connection
43	PERp0	44	No Connection
45	GND	46	No Connection
47	PETn0	48	No Connection
49	PETp0	50	PERST#
51	GND	52	CLKREQ#
53	REFCLKn	54	No Connection
55	REFCLKp	56	No Connection
57	GND	58	No Connection
59	KEY M	60	KEY M
61	KEY M	62	KEY M
63	KEY M	64	KEY M
65	KEY M	66	KEY M
67	No Connection	68	SUSCLK
69	PEDET	70	+3.3 V
71	GND	72	+3.3 V
73	GND	74	+3.3 V
75	GND		

M.2 M-Key (JMD4)			
Pin Definitions: 75 Total			
Pin#	Definition	Pin#	Definition
1	GND	2	+3.3 V
3	GND	3	+3.3 V
5	No Connection	6	No Connection
7	No Connection	8	No Connection
9	GND	10	LED_N
11	No Connection	12	+3.3 V
13	No Connection	14	+3.3 V
15	GND	16	+3.3 V
17	No Connection	18	+3.3 V
19	No Connection	20	No Connection
21	GND	22	No Connection
23	No Connection	24	No Connection
25	No Connection	26	No Connection
27	GND	28	No Connection
29	PERn1	30	No Connection
31	PERp1	32	No Connection
33	GND	34	No Connection
35	PETn1	36	No Connection
37	PETp1	38	No Connection
39	GND	40	No Connection
41	PERn0	42	No Connection
43	PERp0	44	No Connection
45	GND	46	No Connection
47	PETn0	48	No Connection
49	PETp0	50	PERST#
51	GND	52	CLKREQ#
53	REFCLKn	54	No Connection
55	REFCLKp	56	No Connection

M.2 M-Key (JMD4)			
Pin Definitions: 75 Total			
Pin#	Definition	Pin#	Definition
57	GND	58	No Connection
59	KEY M	60	KEY M
61	KEY M	62	KEY M
63	KEY M	64	KEY M
65	KEY M	66	KEY M
67	No Connection	68	SUSCLK
69	PEDET	70	+3.3 V
71	GND	72	+3.3 V
73	GND	74	+3.3 V
75	GND		

MIPI Connector

A MIPI connector is located at JMIP11 on the X14SPN-H/-E/-L motherboard to support the D-PHY four Lanes MIPI camera.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under "[Quick Reference](#)" on page 12.

MIPI Connector			
Pin Definitions: 22 Total			
Pin#	Definition	Pin#	Definition
1	+3.3 V	2	MIPI_SDA
3	MIPI_SCL	4	GND
5	LED Enable	6	Power Enable
7	GND	8	Data 3_P
9	Data 3_N	10	GND
11	Data 2_P	12	Data 2_N
13	GND	14	CLK_P
15	CLK_N	16	GND
17	Data 1_P	18	Data 1_N

MIPI Connector			
Pin Definitions: 22 Total			
Pin#	Definition	Pin#	Definition
19	GND	20	Data 0_P
21	Data 0_N	22	GND

Nano SIM Slot

The X14SPN-H/-E/-L motherboard has one Nano SIM card slot at JSIM1.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under ["Quick Reference"](#) on page 12.

System Management Bus Header

JSMBUS1 is the System Management Bus Header for additional slave devices or sensors.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under ["Quick Reference"](#) on page 12.

SMBus Header	
Pin Definitions: Four Total	
Pin#	Definition
1	SMB_CLK
2	SMB_DATA
3	GND
4	No Connection

Universal Serial Bus (USB) Header

There are two USB 2.0 headers located at USB2/3 and USB4/5 on the X14SPN-H/-E/-L motherboard.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under ["Quick Reference"](#) on page 12.

(USB 2.0) Header			
USB2/3, USB4/5			
Pin Definitions: 10 Total			
Pin#	Definition	Pin#	Definition
1	+5 V	2	+5 V

(USB 2.0) Header USB2/3, USB4/5			
Pin Definitions: 10 Total			
Pin#	Definition	Pin#	Definition
3	USBCON_N2/USBCON_N4	4	USBCON_N3/USBCON_N5
5	USBCON_P2/USBCON_P4	6	USBCON_P3/USBCON_P5
7	GND	8	GND
9	Key	10	No Connection

Front Control Panel

JF1 on the X14SPN-H/-E/-L motherboard 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 figure below for the descriptions of the front control panel buttons and LED indicators.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under "[Quick Reference](#)" on page 12.

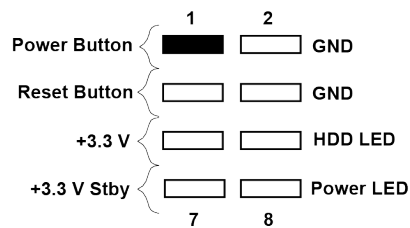


Figure 2-9. Front Control Panel Pin Definitions

Power Button

The Power Button connection is located on pins 1 and 2 of JF1 on the X14SPN-H/-E/-L motherboard. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (with a setting in the BIOS). To turn off the power when the system is in suspend mode, press the button for four seconds or longer.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under "[Quick Reference](#)" on page 12.

Power Button	
Pin Definitions (JF1)	
Pin#	Definition
1	Power Button
2	GND

Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1 on the X14SPN-H/-E/-L motherboard. Attach it to a hardware reset switch on the computer case to reset the system.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under "[Quick Reference](#)" on page 12.

Reset Button	
Pin Definitions (JF1)	
Pin#	Definition
3	Reset
4	GND

HDD LED

The HDD LED connection is located on pins 5 and 6 of JF1 on the X14SPN-H/-E/-L motherboard. Attach a cable to pins 5 and 6 to show storage drive activity status.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under "[Quick Reference](#)" on page 12.

HDD LED	
Pin Definitions (JF1)	
Pin#	Definition
5	+3.3 V
6	HDD Activity

Power LED

The Power LED connection is located on pins 7 and 8 of JF1 on the X14SPN-H/-E/-L motherboard.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under "[Quick Reference](#)" on page 12.

Power LED	
Pin Definitions (JF1)	
Pin#	Definition
7	+3.3 V Stby
8	PWR LED

Input/Output Ports

For information about input/output ports on the X14SPN-H/-E/-L motherboard, refer to the following content.

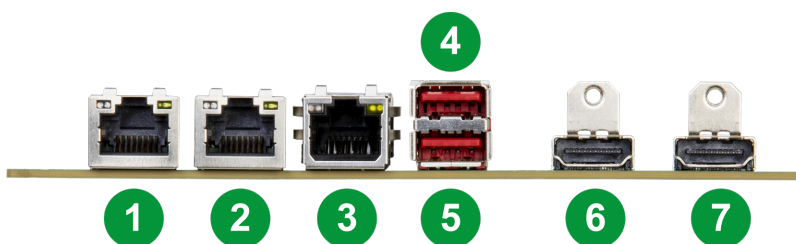


Figure 2-10. X14SPN-H/-E/-L I/O Ports

X14SPN-H/-E/-L I/O Ports			
#	Definition	#	Definition
1	LAN1	5	USB 3.2 (10 Gb/s)
2	LAN2	6	HDMI 1.4 Port
3	LAN3	7	HDMI 2.1 Port
4	USB 3.2 (10 Gb/s)		

HDMI Ports

Two High Definition Multimedia Interface (HDMI) ports are located on the I/O panel. These ports are used to display both high definition video and digital sound through an HDMI-capable display. HDMI 2.1 allows faster frame rates and is backward compatible with previous HDMI versions. These ports provide Intel HD graphics digital output.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under "[Quick Reference](#)" on page 12.

LAN Ports

Two 2.5G (LAN1, LAN2) LAN ports and one 1G (LAN3) LAN port are located on the I/O panel. These ports accept RJ45 cables.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under ["Quick Reference" on page 12.](#)

USB 3.2 Ports

The X14SPN-H/-E/-L motherboard has two USB 3.2 ports at USB0/1 on the I/O panel.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under ["Quick Reference" on page 12.](#)

(USB 3.2 Gen 2) Port			
Pin Definitions: 18 Total			
Pin#	Definitions	Pin#	Definitions
A1	VBUS	B10	VBUS
A2	D-	B11	D-
A3	D+	B12	D+
A4	GND	B13	GND
A5	STDA_SSRX-	B14	STDA_SSRX-
A6	STDA_SSRX+	B15	STDA_SSRX+
A7	GND	B16	GND
A8	STDA_SSTX-	B17	STDA_SSTX-
A9	STDA_SSTX+	B18	STDA_SSTX+

Switches

There are two switches on the motherboard. S1 is for the Force Power On and TPM 2.0 Enabled and Disable functions. S2 is for the Manufacturing Mode, USB or PCIe Interface Option, CMOS Clear, and SIM Detect functions.

TPM 2.0 Enable/Disable and Force Power On

Use the S1 jumper to enable or disable the onboard TPM 2.0 or the Power Force On feature.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under ["Quick Reference" on page 12.](#)

S1 Switch		
Jumper Settings		
Jumper Setting	Description	Default Setting
Switch 1	Force Power On	OFF Position (Function Enabled)

S1 Switch		
Jumper Settings		
Jumper Setting	Description	Default Setting
Switch 2	TPM 2.0 Enable/Disable	OFF Position (Function Enabled)

ME Manufacturing Mode/USB or PCIe Interface/CMOS Clear/SIM Detect

Use the S2 jumper to enable or disable the ME Manufacturing Mode, select the USB or PCIe interface for a WWAN module, clear the CMOS, and choose high/low active for SIM card detect.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under "[Quick Reference](#)" on page 12.

S2 Switch		
Jumper Settings		
Jumper Setting	Description	Default Setting
Switch 1	ME Manufacturing	OFF Position (Normal Mode)
Switch 2	USB or PCIe Interface Option	OFF Position (USB)
Switch 3	CMOS Clear	OFF Position (Normal Mode)
Switch 4	SIM Detect	OFF Position (High Active)

LED Indicators

For information about the LED indicators on the X14SPN-H/-E/-L motherboard, refer to the following content.

Onboard Power LED

The Onboard Power LED is located at LED1 on the X14SPN-H/-E/-L motherboard. When this LED is on, the system is on. Be sure to turn off the system and unplug the power cord before removing or installing components.

For a detailed diagram of the X14SPN-H/-E/-L motherboard, see the layout under "[Quick Reference](#)" on page 12.

Onboard Power LED Indicator	
LED Color	Definition
Green	System On
Red	Standby Power Mode
Off	System Off (power cable not connected)

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	55
Memory Errors	55
Losing the System's Setup Configuration	55
If the System Becomes Unstable	55
3.2 Technical Support Procedures	58
3.3 Motherboard Battery	59
3.4 Where to Get Replacement Components	60
3.5 Returning Merchandise for Service	61
3.6 Feedback	62

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 58](#) or ["Returning Merchandise for Service" on page 61](#) section(s) in this chapter. Always disconnect the AC power cord before adding, changing or installing any non hot-swappable hardware components. If the below steps do not fix the setup configuration problem, contact your vendor for repairs.

Before Power On

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

No Power

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

No Video

1. Check if the Onboard Power LED at LED1 is green. If the LED is off, check the "No Power" section of this chapter. If the LED is red, check the "System Boot Failure" section of this chapter.
2. If the power is on, but you do not have video, remove all add-on cards and cables.
3. Remove all memory modules and turn on the system (if the alarm is on, check the specs of memory modules, reset the memory, or try a different one).

System Boot Failure

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

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

Memory Errors

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

1. Make sure that the memory modules are compatible with the system and are properly installed. See ["Component Installation" on page 29](#) 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 11](#) 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](#) 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 10.

3.3 Motherboard Battery

For information on removing, disposing of, and replacing the motherboard battery of your system, refer to [Motherboard Battery Removal and Installation](#).

3.4 Where to Get Replacement Components

If you need replacement parts for your X14SPN-H/-E/-L motherboard, to ensure the highest level of professional service and technical support, purchase exclusively from our Supermicro Authorized Distributors/System Integrators/Resellers. A list can be found on the Supermicro website:

<https://www.supermicro.com>

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

3.5 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning the motherboard to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and the shipping package is mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

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

<https://www.supermicro.com/RmaForm>

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

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

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

3.6 Feedback

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

Chapter 4:

UEFI BIOS

The following content contains information on BIOS configuration with the X14SPN-H/-E/-L motherboard.

4.1 Introduction	64
4.2 Main Setup	66
4.3 Advanced Setup Configurations	68
4.4 Event Logs	101
4.5 Thermal & Fan	103
4.6 Security	105
4.7 Boot	112
4.8 Save & Exit	114
4.9 MEBx	116

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.

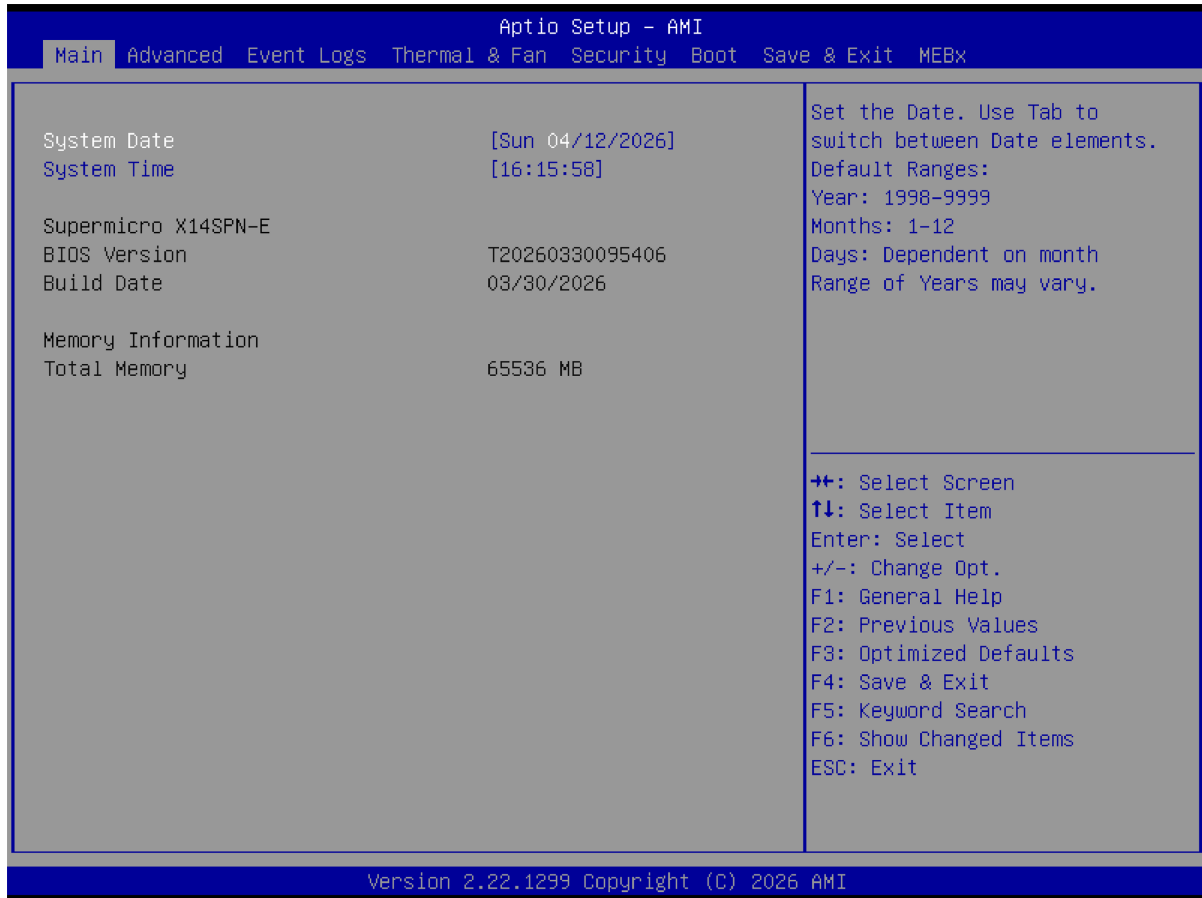


Figure 4-1. X14SPN-E Main

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 X14SPN-E

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.

Memory Information

Total Memory

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

4.3 Advanced Setup Configurations

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

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

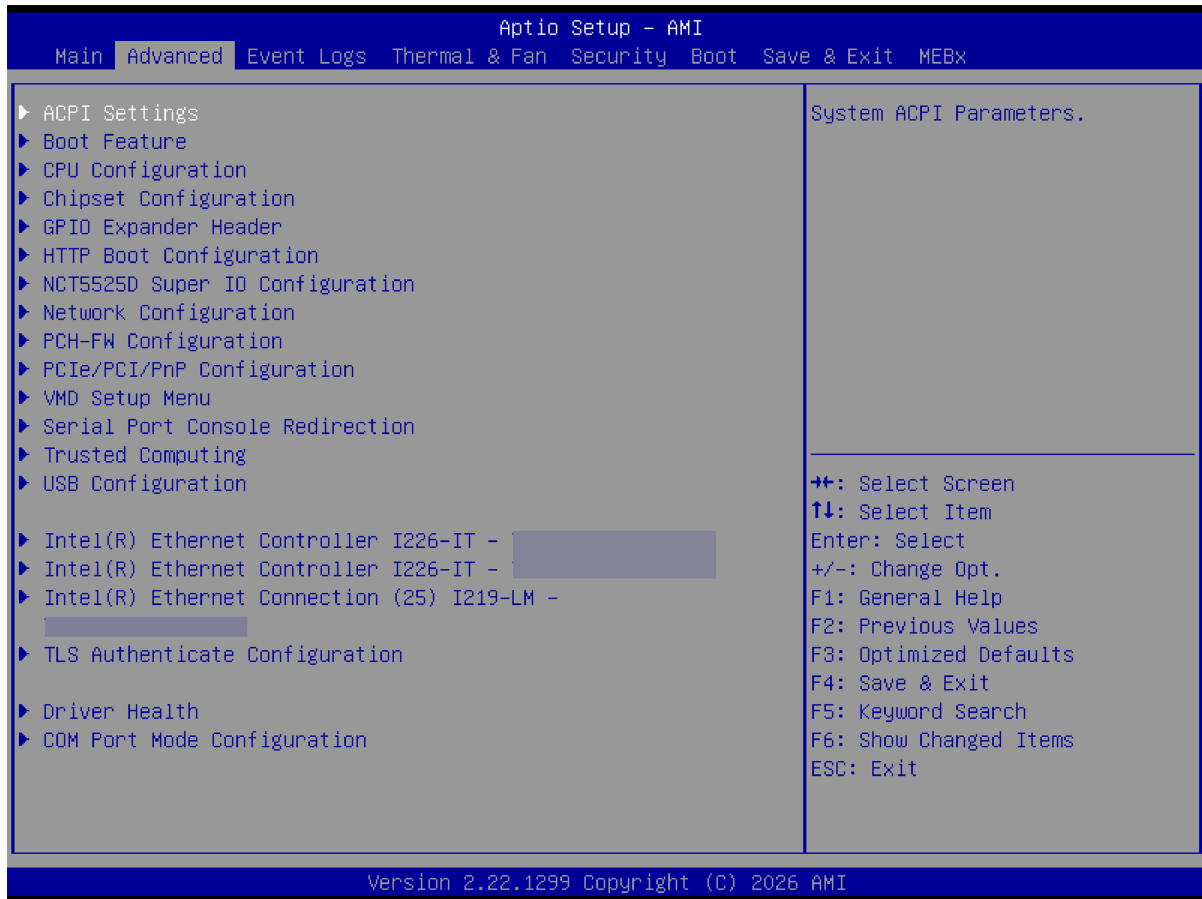


Figure 4-2. X14SPN-E Advanced

ACPI Settings Menu

► ACPI Settings

ACPI Sleep State

Use this feature to select the ACPI Sleep State that the system will enter into when the suspend button is activated. The options are Suspend Disabled and **Suspend to RAM**.

WHEA Support

Select Enabled to support the Windows Hardware Error Architecture (WHEA) platform and provide a common infrastructure for the system to handle hardware errors within the Windows OS environment to reduce system crashes and to enhance system recovery and health monitoring. The options are Disabled and **Enabled**.

Native PCIe Enable

Enable this feature to grant control of PCI Express Native hot plug, PCI Express Power Management Events, and PCI Express Capability Structure Control. The options are Disabled and **Enabled**.

Native ASPM

Select Enabled for the operating system to control the ASPM, or Disabled for the BIOS to control the ASPM. The options are **Auto**, Enabled, and Disabled.

Boot Feature Menu

► Boot Feature

Fast Boot

Enable this feature to reduce the time the computer takes to boot up. The computer will boot with a minimal set of required devices. This feature does not have an effect on BBS boot options in the Boot menu. The options are **Disabled** and Enabled.

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.

Bootup NumLock State

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

Wait For "F1" If Error

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

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

Restore on AC Power Loss

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

Important: Setting the wrong values for the features included in the following sections may cause the system to malfunction.

The following processor information is displayed:

- CPU Signature
- Microcode Patch
- Max CPU Speed
- Min CPU Speed
- CPU Speed
- Number of Performance-core(s)
- Number of Efficient-core(s)

- VMX
- SMX/TXT
- 64-bit
- EIST Technology
- CPU C3 state
- CPU C6 state
- CPU C7 state
- CPU C8 state
- CPU C9 state
- CPU C10 state
- L0 Dat Cache
- Performance L1 Instruction Cache
- Performance L2 Cache
- Performance L3 Cache
- Efficient L1 Data Cache
- Efficient L1 Instruction Cache
- Efficient L2 Cache
- Efficient L3 Cache

Intel (VMX) Virtualization Technology

Use this feature to enable the Vanderpool Technology. This technology allows the system to run several operating systems simultaneously. The options are Disabled and **Enabled**.

Active Performance-cores

This feature determines how many processor cores will be activated for each processor package. When all is selected, all performance cores in the processor will be activated. The options shown here depend on how many performance cores the CPU supports. The options are **All**, 3, 2, and 1.

Active Efficient-cores

This feature determines how many efficient cores will be activated for each processor package. When all is selected, all cores in the processor will be activated. The options are **All**, 3, 2, 1, and 0.

AES

Select Enabled for Intel CPU Advanced Encryption Standard (AES) instructions support to enhance data integrity. The options are Disabled and **Enabled**.

Boot Performance Mode

This feature allows you to select the performance that the BIOS will set before the operating system handoff. The options are **Max Non-Turbo Performance** and Turbo Performance.

Intel® SpeedStep™

Intel SpeedStep Technology allows the system to automatically adjust processor voltage and core frequency to reduce power consumption and heat dissipation. The options are Disabled and **Enabled**.

Intel® Speed Shift Technology

Use this feature to enable or disable Intel Speed Shift Technology support. When this feature is enabled, the Collaborative Processor Performance Control (CPPC) version 2 interface will be available to control CPU P-States. The options are Disabled and **Enabled**.

Turbo Mode

Select Enable for processor cores to run faster than the frequency specified by the manufacturer. The options are Disabled and Enabled.

C-States

Use this feature to enable the C-State of the CPU. The options are Disabled and Enabled.

C-State Auto Demotion

Use this feature to prevent unnecessary excursions into the C-states to improve latency. The options are Disabled and **C1**.

C-State Un-Demotion

This feature allows you to enable or disable the un-demotion of C-State. The options are Disabled and **C1**.

Package C-State Demotion

Use this feature to enable or disable the Package C-State demotion. The options are Disabled and **Enabled**.

Package C-State Un-Demotion

Use this feature to enable or disable the Package C-State un-demotion. The options are Disabled and **Enabled**.

C-State Pre-Wake

This feature allows you to enable or disable the C-State Pre-Wake. The options are Disabled and **Enabled**.

Package C-State Limit

Use this feature to set the Package C-State limit. The options are C0/C1, C6, C10, Cpu Default, and **Auto**.

Monitor MWAIT

Select Enabled to support MONITOR and MWAIT, which are two instructions in Streaming SIMD Extension 3 (SSE3) to improve synchronization between multiple threads for CPU performance enhancement. The options are Disabled and **Enabled**.

Config Base Power Configurations Menu

Enable Configurable Base Power

Applies Configurable Processor Base Power (cTDP) initialization settings based on non-cTDP or cTDP. Default is 1: applies to cTDP; if 0 then applies non-cTDP and BIOS will bypass cTDP initialization flow. The options are **Applies to non-cTDP** and Applies to cTDP.

Configurable Base Power Boot Mode

Use this feature to select a cTDP Boot Mode. Deactivate will set MSR to nominal and MMIO to zero. The options are **Nominal Base Power**, Min Assured Power, and Max Assured Power.

Configurable Base Power (cTDP) Levels

Power Limit 1

Power Limit 2

Config TDP Setting

Config Base Power (cRDP) Nominal

Minimum Assured Power

Maximum Assured Power

Power Limit 1

This feature configures Package Power Limit 1 in milliwatts. The CPU will exceed this limit for as long as the value set in "Power Limit 1 Time Window." For 12.50 W, enter 12500. BIOS will round to the nearest 1/8W. Enter 0 for no custom override. This value must be between Min Power Limit and Processor Base Power (TDP) Limit. The default setting is **0**.

Power Limit 2

This feature configures Package Power Limit 2 in milliwatts. The CPU will throttle to remain below this limit. For 12.50 W, enter 12500. BIOS will round to the nearest 1/8 W. Enter 0 for no custom override. This value must be between Min Power Limit and Processor Base Power (TDP) Limit. The default setting is **0**.

Power Limit 1 Time Window

Power Limit 1 Time Window value in seconds. This value defines how long Power Limit 1 may be exceeded. The CPU throttles to remain under Power Limit 1 when the duration of Power Limit 1 Time Window is exceeded. Set this value to 0 to use the default value (28 seconds). The options are numbers between 0 and 128. The default setting is **0**.

Chipset Configuration Menu

► Chipset Configuration

Important: Setting the wrong values in this section may cause the system to malfunction.

► System Agent (SA) Configuration

VT-d: Supported

► Memory Configuration

Memory RC Version

Memory Frequency

Memory Timings (tCL–tRCD–tRP–tRAS)

DIMMA1

DIMMB1

Maximum Memory Frequency

Use this feature to set the maximum memory frequency for onboard memory modules. The options are **Auto**, 3200, 4800, 6000, 6400, and 7200.

Max TOLUD

This feature sets the maximum TOLUD value, which specifies the "Top of Low Usable DRAM" memory space to be used by internal graphics devices, GTT Stolen Memory, and TSEG, respectively, if these devices are enabled. The options are **Dynamic**, 1 GB, 1.25 GB, 1.5 GB, 1.75 GB, and 2 GB.

Memory Scrambler

Use this feature to enable or disable memory scrambler support. The options are Disabled and **Enabled**.

Force Single Rank

Select enabled to use only Rank 0 in each DIMM. The options are **Disabled** and Enabled.

Memory Remap

Use this feature to enable or disable memory remap above 4 GB. The options are **Enabled** and Disabled.

MRC Fast Boot

Use this feature to enable or disable fast path through the memory reference code. The options are Disabled and **Enabled**.

Total Memory Encryption

Use this feature to enable or disable Total Memory Encryption (TME). When enabled, Intel TME enhances memory data security. The options are **Disabled** and Enabled.

► Graphics Configuration

Graphics Configuration

IGFX GOP Version

DVMT Pre-Allocated

Dynamic Video Memory Technology (DVMT) allows dynamic allocation of system memory to be used for video devices to ensure best use of available system memory based on the DVMT 5.0 platform. The options are 0M, 32M, **64M**, 96M, 128M, 4M, 8M, 12M, 16M, 20M, 24M, 28M, 32M/F7, 36M, 40M, 44M, 48M, 52M, 56M, and 60M.

Configure GT for use

Use this feature to enable or disable GT configuration. The options are Disabled and **Enabled**.

PAVP Enable

Use this feature to enable or disable PAVP support. The options are Disabled and **Enabled**.

► DMI Configuration

DMI Configuration

DMI ASPM

Use this feature to set the Active State Power Management (ASPM) state on the System Agent (SA) side of the DMI Link. The options are Disabled, **Auto**, ASPM L0s, and ASPM L1.

▶ MIPI Configuration

InnoDisk EV8M00M1 Camera

Use this feature to enable or disable the Innodisk EV8M00M1 camera. The options are **Disabled** and **Enabled**.

▶ Link Options

InnoDisk EV8M00M1 Camera

Custom HID

Camera module name

LaneUsed

Use this feature to select the lane used for this camera. The options are x1, **x2**, x3, and x4.

VT-d

X2APIC Enable

Use this feature to enable or disable the Advanced Programmable Interrupt Controller (X2APIC) operating mode. The options are Disabled and **Enabled**.

DMA Control Guarantee

Use this feature to enable or disable DMA Control Guarantee bit. The options are **Enabled** and Disabled.

▶ PCH-IO Configuration Menu

PCH-IO Configuration

PCH SKU

Stepping

▶ PCI Express Configuration

PCI Express Configuration

▶ M.2-M1 JMD4

M.2-M1 JMD4 PCIe Speed

Use this feature to set the PCI Express port speed. The options are **Auto**, Gen1, Gen2, Gen3, and Gen4.

M.2-M1 JMD4 Peer Memory Write Enable

Use this feature to enable or disable Peer Memory Write. The options are **Disabled** and Enabled.

► M.2-B1 JMD1**M.2-B1 JMD1 PCIe Speed**

Use this feature to set the PCI Express port speed. The options are **Auto**, Gen1, Gen2, Gen3, and Gen4.

M.2-B1 JMD1 Peer Memory Write Enable

Use this feature to enable or disable Peer Memory Write. The options are **Disabled** and Enabled.

► I219-LM JLAN3**I219-LM JLAN3 ASPM**

Use this feature to activate the Active State Power Management (ASPM) level for a PCIe device. Select Auto for the system BIOS to automatically set the ASPM level based on the system configuration. Select Disabled to disable ASPM support. The options are Disabled, L1, and **Auto**.

I219-LM JLAN3 Substates

Use this feature to set the PCI Express L1 Substate. The options are Disabled, L1.1 and **L1.1 & L1.2**.

I219-LM JLAN3 PCIe Speed

Use this feature to set the PCI Express port speed. The options are **Auto**, Gen1, Gen2, Gen3, and Gen4.

I219-LM JLAN3 Peer Memory Write Enable

Use this feature to enable or disable Peer Memory Write. The options are **Disabled** and Enabled.

► M.2-E1 JMD2**M.2-E1 JMD2 PCIe Speed**

Use this feature to set the PCI Express port speed. The options are **Auto**, Gen1, Gen2, Gen3, and Gen4.

M.2-E1 JMD2 Peer Memory Write Enable

Use this feature to enable or disable Peer Memory Write. The options are **Disabled** and **Enabled**.

► I226-IT JLAN1

I226-IT JLAN1 ASPM

Use this feature to activate the Active State Power Management (ASPM) level for a PCIe device. Select Auto for the system BIOS to automatically set the ASPM level based on the system configuration. Select Disabled to disable ASPM support. The options are Disabled, L1, and **Auto**.

I226-IT JLAN1 L1 Substates

Use this feature to set the PCI Express L1 Substate. The options are Disabled, L1.1 and **L1.1 & L1.2**.

I226-IT JLAN1 PCIe Speed

Use this feature to set the PCI Express port speed. The options are **Auto**, Gen1, Gen2, Gen3, and Gen4.

I226-IT JLAN1 Peer Memory Write Enable

Use this feature to enable or disable Peer Memory Write. The options are **Disabled** and **Enabled**.

► I226-IT JLAN2

I226-IT JLAN2 ASPM

Use this feature to activate the Active State Power Management (ASPM) level for a PCIe device. Select Auto for the system BIOS to automatically set the ASPM level based on the system configuration. Select Disabled to disable ASPM support. The options are Disabled, L1, and **Auto**.

I226-IT JLAN2 L1 Substates

Use this feature to set the PCI Express L1 Substate. The options are Disabled, L1.1 and **L1.1 & L1.2**.

I226-IT JLAN2 PCIe Speed

Use this feature to set the PCI Express port speed. The options are **Auto**, Gen1, Gen2, Gen3, and Gen4.

I226-IT JLAN2 Peer Memory Write Enable

Use this feature to enable or disable Peer Memory Write. The options are **Disabled** and **Enabled**.

► M.2-M1 JMD3

M.2-M1 JMD3 PCIe Speed

Use this feature to set the PCI Express port speed. The options are **Auto**, Gen1, Gen2, Gen3, Gen4, and Gen5.

M.2-M1 JMD3 Peer Memory Write Enable

Use this feature to enable or disable Peer Memory Write. The options are **Disabled** and **Enabled**.

GPIO Expander Header

GPIO Expander Header

GPIO Expander Header Control

Use this feature to enable or disable GPIO Expander Header Control. The options are **Enabled** and **Disabled**.

Pin 1 / Pin 2 / Pin 3 / Pin 4 / Pin 5 / Pin 6 / Pin 7 / Pin 8 (Available when GPIO Expander Header Control is set to "Enabled")

Use these features to select the setting for each of eight GPIO Expander Header pins. The options are **Output Low**, **Output High**, and **Input**.

HTTP Boot Configuration Menu

► HTTP Boot Configuration

HTTP Boot Policy

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

HTTPS Boot Checks Hostname

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

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!!).

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. 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.

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

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

Instance of Priority 3: (Available when your motherboard supports this feature)

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

NCT5525D Super IO Configuration Menu

► NCT 5525D Super IO Configuration

The following information is displayed.

- Super IO Chip

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

Serial Port 1 Configuration Menu

► Serial Port 1 Configuration

Serial Port 1

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

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

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

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

Use this feature to specify the base I/O port address and the Interrupt Request address of serial port 1. Select Auto for the BIOS to automatically assign the base I/O and IRQ address to serial

port 1. The options are **Auto**, (IO=3F8h; IRQ=4;), (IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12;), (IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12;), (IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;), and (IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;).

Serial Port 2 Configuration Menu

► Serial Port 2 Configuration

Serial Port 2

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

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

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

Change Settings (Available when "Serial Port 2" 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. Select Auto for the BIOS to automatically assign the base I/O and IRQ address to serial port 2.

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;).

Network Configuration Menu

► Network Configuration

Network Stack

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

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

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

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

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

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

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

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

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

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

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

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

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

MAC:(MAC address)-IPv4 Network Configuration Menu**▶ MAC:(MAC address)-IPv4 Network Configuration****Configured**

Enable this feature to configure network addresses for DHCP, local IP address, local netmask, local gateway, and local DNS server. The options are **Disabled** and Enabled.

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

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

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

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

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

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

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

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

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

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

Save Changes and Exit

Press <Enter> to save changes and exit.

MAC:(MAC address)-IPv6 Network Configuration Menu

▶ **MAC:(MAC address)-IPv6 Network Configuration**

▶ **Enter Configuration Menu**

The following information is displayed.

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

Interface ID

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

DAD Transmit Count

Use this feature to set the number of consecutive neighbor solicitation messages that have been sent while performing duplicate address detection on a tentative address. The default setting is **1**.

Policy

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

▶ **Advanced Configuration**

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

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

New Gateway addresses: Use this feature to set the gateway address for the local machine.

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

Commit Changes and Exit: Press <Enter> to save changes and exit.

Discard Changes and Exit: Press <Enter> to discard changes and exit.

Save Changes and Exit

Press <Enter> to save changes and exit.

MAC:(MAC address)-IPv4 Network Configuration Menu

► MAC:(MAC address)-IPv4 Network Configuration

Configured

Enable this feature to configure network addresses for DHCP, local IP address, local netmask, local gateway, and local DNS server. The options are **Disabled** and **Enabled**.

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

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

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

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

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

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

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

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

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

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

Save Changes and Exit

Press <Enter> to save changes and exit.

MAC:(MAC address)-IPv6 Network Configuration Menu

▶ MAC:(MAC address)-IPv6 Network Configuration

▶ Enter Configuration Menu

The following information is displayed.

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

Interface ID

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

DAD Transmit Count

Use this feature to set the number of consecutive neighbor solicitation messages that have been sent while performing duplicate address detection on a tentative address. The default setting is **1**.

Policy

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

▶ Advanced Configuration

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

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

New Gateway addresses: Use this feature to set the gateway address for the local machine.

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

Commit Changes and Exit: Press <Enter> to save changes and exit.

Discard Changes and Exit: Press <Enter> to discard changes and exit.

Save Changes and Exit

Press <Enter> to save changes and exit.

MAC:(MAC address)-IPv4 Network Configuration Menu

▶ MAC:(MAC address)-IPv4 Network Configuration

Configured

Enable this feature to configure network addresses for DHCP, local IP address, local netmask, local gateway, and local DNS server. The options are **Disabled** and Enabled.

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

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

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

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

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

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

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

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

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

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

Save Changes and Exit

Press <Enter> to save changes and exit.

MAC:(MAC address)-IPv6 Network Configuration Menu

▶ MAC:(MAC address)-IPv6 Network Configuration

▶ Enter Configuration Menu

The following information is displayed.

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

Interface ID

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

DAD Transmit Count

Use this feature to set the number of consecutive neighbor solicitation messages that have been sent while performing duplicate address detection on a tentative address. The default setting is **1**.

Policy

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

► Advanced Configuration

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

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

New Gateway addresses: Use this feature to set the gateway address for the local machine.

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

Commit Changes and Exit: Press <Enter> to save changes and exit.

Discard Changes and Exit: Press <Enter> to discard changes and exit.

Save Changes and Exit

Press <Enter> to save changes and exit.

PCH-FW Configuration Menu

► PCH-FW Configuration

ME Firmware Version

ME Firmware Mode

ME Firmware SKU

ME FW Image Re-Flash

Use this feature to update the Management Engine firmware. The options are **Disabled** and Enabled.

AMT Configuration

USB Provisioning of AMT

Use this feature to enable or disable USB provisioning. The options are **Disabled** and Enabled.

MAC Pass Through

Use this feature to enable or disable the MAC Pass Through function. The options are **Disabled** and Enabled.

Activate Remote Assistance Process

Use this feature to activate Remote Assistance. Enabling this feature will also trigger the Client Initiated Remote Access (CIRA) boot. The options are **Disabled** and Enabled.

Unconfigure ME

Use this feature to unconfigure ME with resetting the MEBx password to default on next boot. The options are **Disabled** and Enabled.

ASF Configuration

PET Progress

Use this feature to enable or disable PET Events Progress to receive PET Events alerts. The options are Disabled and **Enabled**.

WatchDog

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

OS Timer / BIOS Timer

These options appear if WatchDog (above) is enabled. This is a timed delay in seconds, before a system power down or reset after a BIOS or operating system failure is detected. Enter the value in seconds. The default setting is **0**.

ASF Sensors Table

Enable this feature for the ASF Sensor Table to be added into the ASF ACPI table. The options are **Disabled** and **Enabled**.

One Click Recovery (OCR) Configuration

OCR Https Boot

Use this feature to enable or disable One Click Recovery Https Boot. One Click Recovery is a recovery process that lets you restore your computer to its last known good state with a single command. The options are **Disabled** and **Enabled**.

OCR PBA Boot

Use this feature to enable or disable One Click Recovery PBA Boot. The options are **Disabled** and **Enabled**.

OCR Windows Recovery Boot

Use this feature to enable or disable One Click Recovery Windows Boot. The options are **Disabled** and **Enabled**.

OCR Disable Secure Boot

Use this feature to allow CSME to request Secure Boot to be disabled for One Click Recovery. The options are **Disabled** and **Enabled**.

PCIe/PCI/PnP Configuration Menu

► PCIe/PCI/PnP Configuration

The following information is displayed.

- PCI Bus Driver Version

Above 4G Decoding

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

Re-Size BAR Support

Use this feature to enable the Resizable BAR support. Resizable BAR is a PCIe interface technology that allows the CPU to access the entire frame buffer. With this technology, your system will be able to handle multiple CPU to GPU transfers simultaneously rather than

queuing, which can improve the frame rate performance. The options are **Disabled** and **Enabled**.

SR-IOV Support (Unavailable when "Workload Profile" is set to Virtualization)

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

BME DMA Mitigation

Enable this feature to help block DMA attacks. The options are **Disabled** and **Enabled**.

NVMe Firmware Source

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

Consistent Device Name Support

This feature controls the device naming for network devices and slots. The options are **Disabled** and **Enabled**.

PCIe/PCI/PnP Configuration

M.2-M1 JMD4 OPROM

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

M.2-B1 JMD1 OPROM

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

M.2-E1 JMD2 OPROM

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

M.2-M1 JMD3 OPROM

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

Onboard LAN1 Option ROM

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

VMD Setup Menu

► VMD Setup

VMD Configuration

Enable VMD Controller

Use this feature to enable or disable the VMD controller. The options are **Disabled** and **Enabled**.

Enable VMD Global Mapping (Available when Enable VMD Controller is set to "Enabled")

Use this feature to enable or disable VMD global mapping. The options are **Disabled** and **Enabled**.

Map RP BDF 0/6/0 Under VMD (Available when Enable VMD Controller is set to "Enabled")

Use this feature to map or unmap this root port to VMD. The options are **Disabled** and **Enabled**.

RAID0 (Available when Enable VMD Controller is set to "Enabled")

Data is striped evenly across two or more drives, providing fast performance and full capacity, but no redundancy or parity. The options are **Disabled** and **Enabled**.

RAID1 (Available when Enable VMD Controller is set to "Enabled")

Data is duplicated identically across two or more drives, providing high redundancy, but only half of the total capacity. The options are **Disabled** and **Enabled**.

RAID5 (Available when Enable VMD Controller is set to "Enabled")

Data is striped across three or more drives with parity information distributed among them that allows reconstruction if one drive fails. It offers a good balance of capacity, performance, and redundancy. The options are **Disabled** and **Enabled**.

Serial Port Console Redirection Menu

► Serial Port Console Redirection

COM1/2 Console Redirection

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

Note: This submenu is available when "COM1/2 Console Redirection" is set to **Enabled**.

► COM1/2 Console Redirection Settings

Use this feature to specify how the host computer will exchange data with the client computer, which is the remote computer.

COM1/2 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.

COM1/2 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).

COM1/2 Data Bits

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

COM1/2 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 1s in data bits is even. Select Odd if the parity bit is set to 0 and the number of 1s 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.

COM1/2 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.

COM1/2 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.

COM1/2 VT-UTF8 Combo Key Support

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

COM1/2 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.

COM1/2 Resolution 100x31

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

COM1/2 Putty KeyPad

Use this feature to select the function key and keypad settings on Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, LINUX, XTERMR6, SCO, ESCN, and VT400.

COM1/2 Redirection After BIOS POST

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

AMT SOL Console Redirection

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

Note: This submenu is available when "AMT SOL Console Redirection" is set to Enabled.

▶ AMT SOL Console Redirection Settings

AMT SOL 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.

AMT SOL Bits Per Second

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).

AMT SOL Data Bits

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

AMT SOL 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.

AMT SOL 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.

AMT SOL 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**, Hardware RTS/CTS, and Software Xon/Xoff.

AMT SOL VT-UTF8 Combo Key Support

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

AMT SOL 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.

AMT SOL Resolution 100x31

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

AMT SOL 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.

AMT SOL Redirection After BIOS POST

Use this feature to enable or disable legacy Console Redirection after BIOS POST. When set to Bootloader, legacy Console Redirection is disabled before booting the OS. When set to Always Enable, legacy Console Redirection remains enabled when booting the OS. The options are **Always Enable** and Bootloader.

Serial Power for Out-Of-Band Management Emergency Services (EMS)

Console Redirection

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

Note: The features below are available when "Console Redirection" is set to Enabled.

► Console Redirection Settings

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

Out-of-Band Mgmt Port

Use this feature to select 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. Note that the option of SOL/COM2 indicates a shared serial port. SOL is available with BMC support.

Terminal Type

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

Bits Per Second

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).

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**

Trusted Computing Menu

► Trusted Computing

When the TPM 2.0 (either onboard or external) is detected by your system, the following information is displayed.

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

Note: This submenu is available when the TPM 2.0 (either onboard or external) is detected by the BIOS.

Security Device Support

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

When "Security Device Support" is set to Enabled and the TPM 2.0 (either onboard or external) is detected by the BIOS, the following information is displayed.

- Active PCR banks
- Available PCR banks

Note: The following features are available when the TPM 2.0 (either onboard or external) is detected by the BIOS.

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

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

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

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

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

Use this feature to schedule a TPM-related operation to be performed by the security TPM (either onboard or external) at the next system boot to enhance system data integrity. The options are **None** and TPM Clear.

Note: If this feature is used, your system will reboot to carry out a pending TPM operation.

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

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

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

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

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

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

PH Randomization

Select Enabled for Platform Hierarchy (PH) Randomization support, which is used only during the platform developmental stage. This feature cannot be enabled in the production platforms. The options are **Disabled** and Enabled.

Intel Trusted Execution Technology

Intel Trusted Execution Technology (TXT) helps protect against software-based attacks and ensures protection, confidentiality, and integrity of data stored or created on the system. Use this feature to enable or disable TXT Support. The options are **Disabled** and Enabled.

USB Configuration Menu

► USB Configuration

USB Module Version

USB Controllers

USB Devices

XHCI Hand-off

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

USB Mass Storage Driver Support

Select Enabled for USB mass storage device support. The options are Disabled and **Enabled**.

Intel Ethernet Controller I226-IT - (MAC address) Menu

► Intel Ethernet Controller I226-IT - (MAC address)

The following LAN port information will be displayed:

- UEFI Driver
- PCI Device ID
- PCI Address
- MAC Address
- Link Status

Link auto-negotiation Timeout

This features controls how long the UEFI PXE driver should wait for link. The default is **8**.

Intel Ethernet Controller I226-IT - (MAC address) Menu

► Intel Ethernet Controller I226-IT - (MAC address)

The following LAN port information will be displayed:

- UEFI Driver
- PCI Device ID
- PCI Address
- MAC Address
- Link Status

Link auto-negotiation Timeout

This features controls how long the UEFI PXE driver should wait for link. The default is **8**.

Intel Ethernet Connection I219-LM - (MAC address) Menu

► Intel Ethernet Connection I219-LM - (MAC address)

Link auto-negotiation Timeout

This features controls how long the UEFI PXE driver should wait for link. The default is **8**.

PORT CONFIGURATION INFORMATION

- UEFI Driver:
- Adapter PBA:
- PCI Device ID:
- PCI Address:
- MAC Address:

TLS Authenticate Configuration Menu

► TLS Authenticate Configuration

Use this submenu to configure Transport Layer Security (TLS) settings.

► Server CA Configuration

Use this feature to configure the client certificate that is to be used by the server.

► Enroll Certification

Use this feature to enroll the certificate in the system.

▶ Enroll Certification Using File

Use this feature to enroll the security certificate in the system by using a file.

▶ 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

Use this feature to delete the certificate if a certificate has been enrolled in the system.

▶ Client Certification Configuration

Driver Health Menu

▶ Driver Health

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

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

COM Port Mode Configuration Menu

COM1 Mode Selection

Use this feature to select the COM1 mode. The settings are **RS-232**, RS-485/422 Full Duplex, and RS-485 Half Duplex.

COM2 Mode Selection

Use this feature to select the COM2 mode. The settings are **RS-232**, RS-485/422 Full Duplex, and RS-485 Half Duplex.

4.4 Event Logs

Use this menu to configure Event Logs settings.

Note: After making any changes in this section, be sure to reboot the system for the changes to take effect.

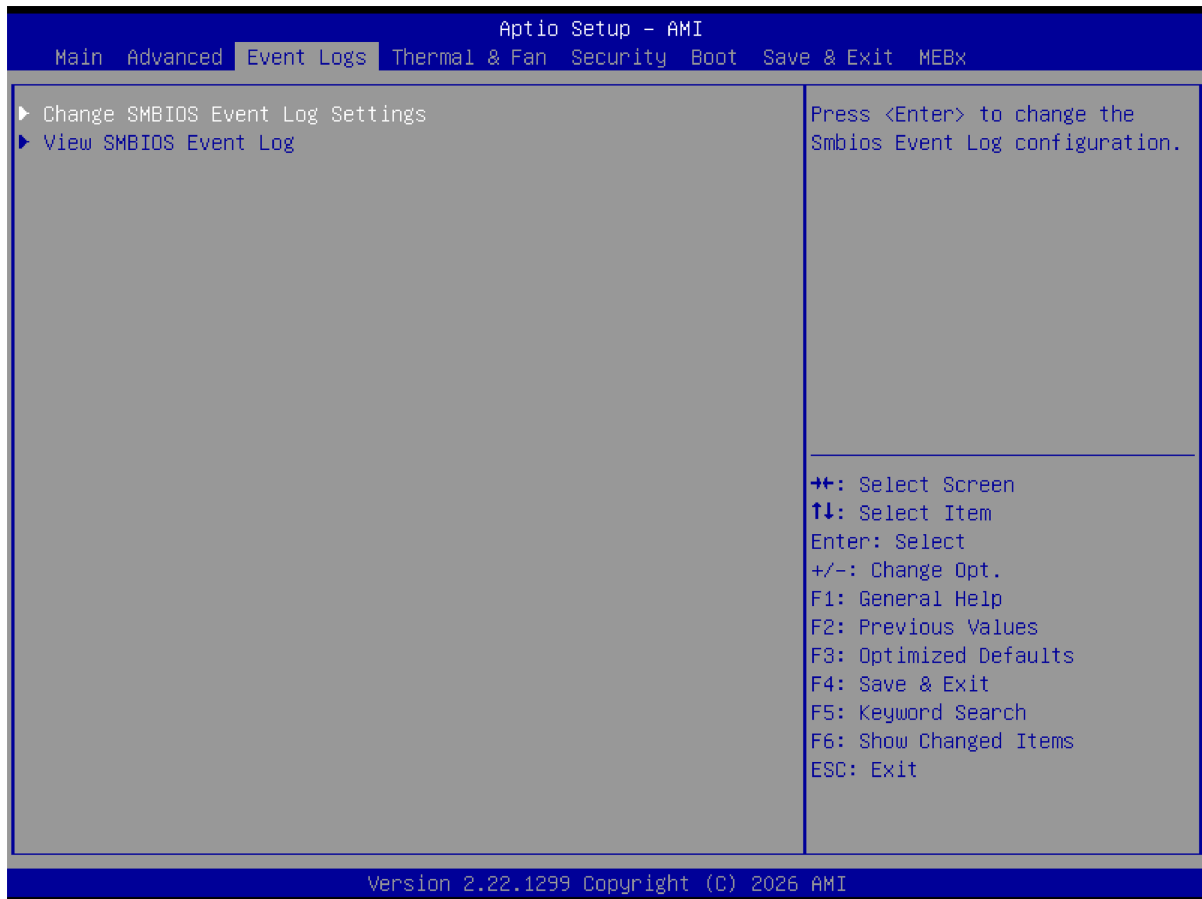


Figure 4-3. X14SPN-E Event Logs

► Change SMBIOS Event Log Settings

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

Enabling/Disabling Options

SMBIOS Event Log

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

Erasing Settings

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

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

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

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

SMBIOS Event Log Standard Settings

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

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

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

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

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

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

► View SMBIOS Event Log

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

4.5 Thermal & Fan

Use this menu to configure Thermal and Fan settings.

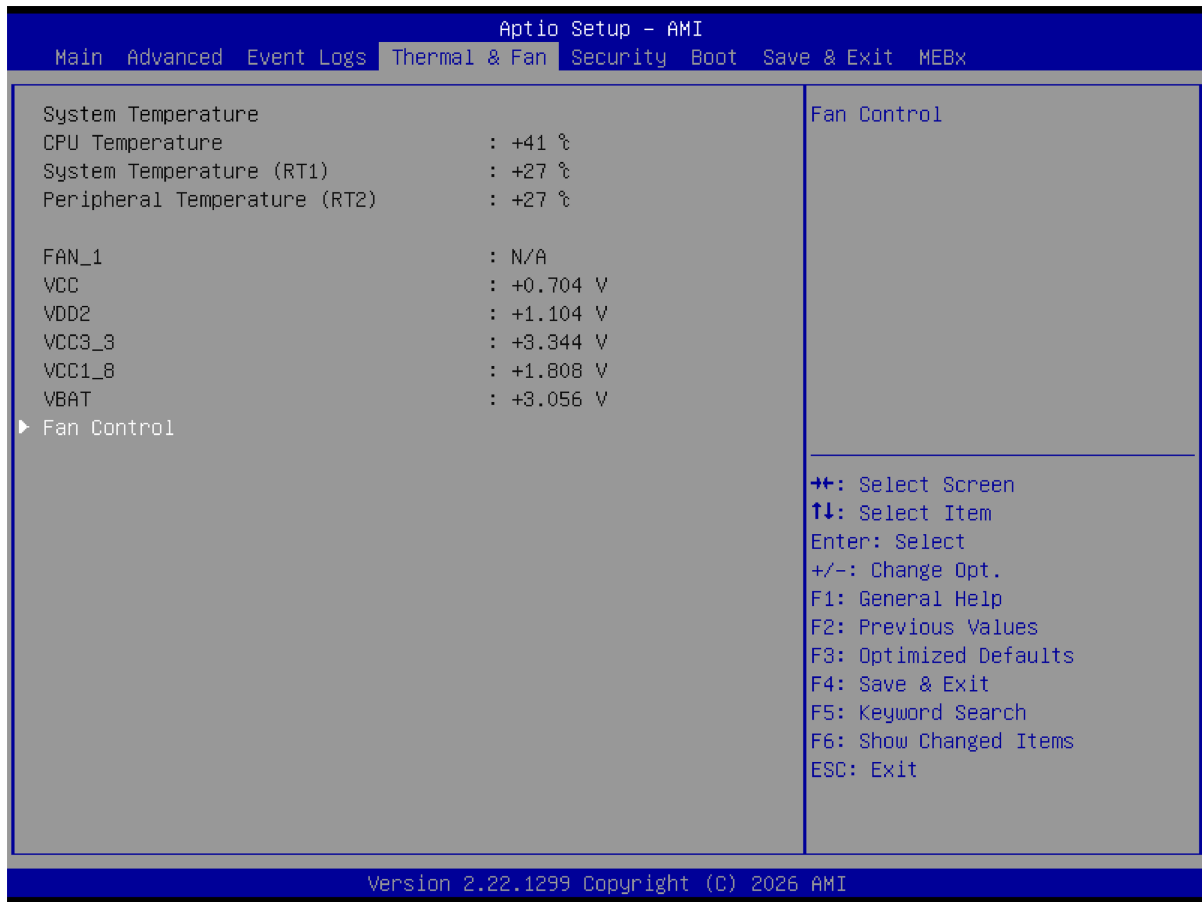


Figure 4-4. X14SPN-E Thermal & Fan

System Temperature

CPU Temperature

System Temperature (RT1)

Peripheral Temperature (RT2)

FAN_1

VCC

VDD2

VCC3_3

VCC1_8

VBAT

▶ Fan Control

Fan Control Setting

Fan Speed Control Mode

Use this feature to select the fan speed control mode. The options are Quiet, **Standard**, and Full Speed.

4.6 Security

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

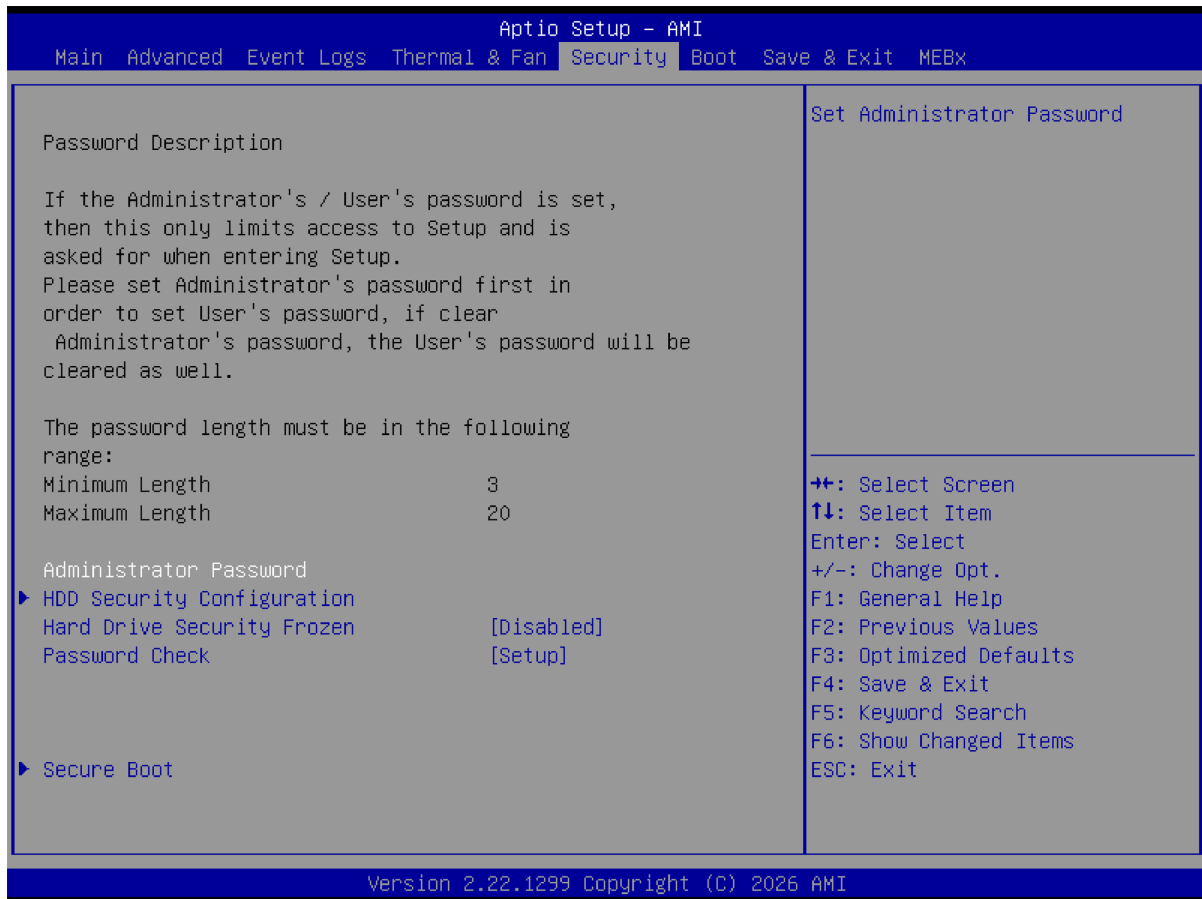


Figure 4-5. X14SPN-E Security

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. (SID is the abbreviation for Storage ID Authority.)

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.

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.

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.

Supermicro Security Erase Configuration Menu

► Supermicro Security Erase Configuration

Use this submenu to configure the Supermicro-proprietary Security Erase settings. When this submenu is selected, the following information is displayed. Note that the order of the following information may differ based on the storage devices being detected.

- HDD Name: This feature displays the model name of the storage device that is detected by the BIOS.
- HDD Serial Number: This feature displays the serial number of the storage device that is detected by the BIOS.
- Security Mode: This feature displays the security mode of the storage device that is detected by the BIOS.
- Estimated Time: This feature displays the estimate time needed to perform the selected Security Erase features.
- HDD User Pwd Status: This feature indicates if a password has been set as a storage device user password, which enables configuring Supermicro Security Erase settings on this storage device.
- TCG Device Type: This feature displays the TCG device type detected by the system.
- Admin Pwd Status: This feature indicates if a password has been set as a storage device administrator password, which enables configuring Supermicro Security Erase settings on this storage device.

Note: This submenu is available when any storage device is detected by the BIOS. For more information about this feature, refer to our website.

Security Function

Select Set Password to set a storage device user password to enable configuring the security settings on the storage device. Select Security Erase - Password to enter a storage device user password to enable erasing the password and the contents previously stored in the storage device. Select Security Erase - Without Password to use the manufacturer default password "1111111111" as the storage device user password and enable erasing the contents of the storage device by using this default password. The options are **Disabled**, Set Password, Change Password, Clear Password, Security Erase - Password, Security Erase - PSID, and Security Erase - Without Password.

Notes:

- The option of Security Erase - PSID is based on the storage device support. PSID is the abbreviation for Physical Security Identification.
- The options of Change Password and Clear Password are available when "Password" below has been set.
- The option of Set Password is NOT available when "Password" below has been set.

Password

Use this feature to set the storage device user password, which enables configuring the Supermicro Security Erase settings by using this user password.

New Password (Available when "Password" above has been set)

Use this feature to set the new user password for the storage device, which enables configuring the Supermicro Security Erase settings by using this new user password.

Secure Boot Menu

► Secure Boot

The following information is displayed:

- System Mode
- Secure Boot

Note: For detailed instructions on configuring Security Boot settings, refer to the Security Boot Configuration User's Guide at <https://www.supermicro.com/support/manuals>.

Secure Boot

Select Enabled to configure Secure Boot settings. The options are **Disabled** and Enabled.

Secure Boot Mode

Use this feature to select the desired secure boot mode for the system. The options are Standard and **Custom**.

▶ Enter Audit Mode

Select Ok to enter the Audit Mode workflow. It will result in erasing the Platform Key (PK) variables and resetting the system to the Setup/Audit Mode.

Note: This submenu is available when "Secure Boot Mode" is set to Custom.

▶ Enter Deployed Mode / Exit Deployed Mode

Select Ok to reset system to the User Mode or to the Deployed Mode.

Note: This submenu is available when "Secure Boot Mode" is set to Custom.

▶ Key Management

The following information is displayed:

- Vendor Keys

Note: This submenu is available when "Secure Boot Mode" is set to Custom.

Provision Factory Defaults

Select Enabled to install the default secure boot keys when the system is in the Setup Mode. Changes take effect after you save settings and reboot the system. The options are **Disabled** and Enabled.

▶ Restore Factory Keys

Select Yes to restore manufacturer default keys to ensure system security. The options are **Yes** and No. Selecting Yes will reset the system to the User Mode.

Note: This submenu is available when any secure keys have been installed.

▶ **Reset To Setup Mode**

This feature resets the system to the Setup Mode. The options are **Yes** and No.

Note: This submenu is available when any secure keys have been installed.

▶ **Enroll Efi Image**

This feature allows the Efi image to run in the secure boot mode and enroll the SHA256 Hash certificate of a PE image into the Authorized Signature Database (DB).

▶ **Export Secure Boot Variables**

This feature exports the NVRAM contents of secure boot variables to a storage device. The options are **Yes** and No.

Note: This submenu is available when any secure keys have been installed.

Secure Boot variable / Size / Keys / Key Source

▶ **Platform Key (PK)**

Use this feature to enter and configure a set of values to be used as platform firmware keys for the system. These values also indicate the sizes, key numbers, and the sources of the authorized signatures. Select Update to update the platform key.

▶ **Key Exchange Keys (KEK)**

Use this feature to enter and configure a set of values to be used as Key Exchange Keys for the system. These values also indicate the sizes, key numbers, and the sources of the authorized signatures. Select Update to update the Key Exchange Keys. Select Append to append the Key Exchange Keys.

▶ **Authorized Signatures (db)**

Use this feature to enter and configure a set of values to be used as Authorized Signatures for the system. These values also indicate the sizes, key numbers, and sources of the authorized signatures. Select Update to update the Authorized Signatures. Select Append to append the new Authorized Signatures.

► **Forbidden Signatures (dbx)**

Use this feature to enter and configure a set of values to be used as Forbidden Signatures for the system. These values also indicate sizes, key numbers, and key sources of the forbidden signatures. Select Update to update the Forbidden Signatures. Select Append to append the Forbidden Signature.

► **Authorized TimeStamps (dbt)**

Use this feature to set and save the timestamps for the Authorized Signatures, which will indicate the time when these signatures are entered into the system. These values also indicate sizes, keys, and key sources of the authorized timestamps. Select Update to update the Authorized TimeStamps. Select Append to append the Authorized TimeStamps.

► **OsRecovery Signatures (dbr)**

Use this feature to set and save the Authorized Signatures used for OS recovery. Select Update to update the OsRecovery Signatures. These values also indicate sizes, keys, and key sources of the OsRecovery Signatures. Select Append to append the OsRecovery Signatures.

TCG Storage Security Configuration Menu

► **(Storage device model name)**

Select this device. Press <Enter> and the following information is displayed:

- TCG Storage Security Password Description:
- PASSWORD CONFIGURATION:
- Security Subsystem Class:
- Security Supported:
- Security Enabled:
- Security Locked:
- Security Frozen:
- User Pwd Status:
- Admin Pwd Status:

Note: This submenu is available when the storage device is compliant with TCG specifications.

Set Admin Password

Use this feature to set the administrator password for this storage device.

Set User Password (Available when "Set Admin Password" has been set)

Use this feature to set the user password for this storage device.

Device Reset

Use this feature to reset the password configuration for this storage device.

4.7 Boot

Use this menu to configure Boot settings.

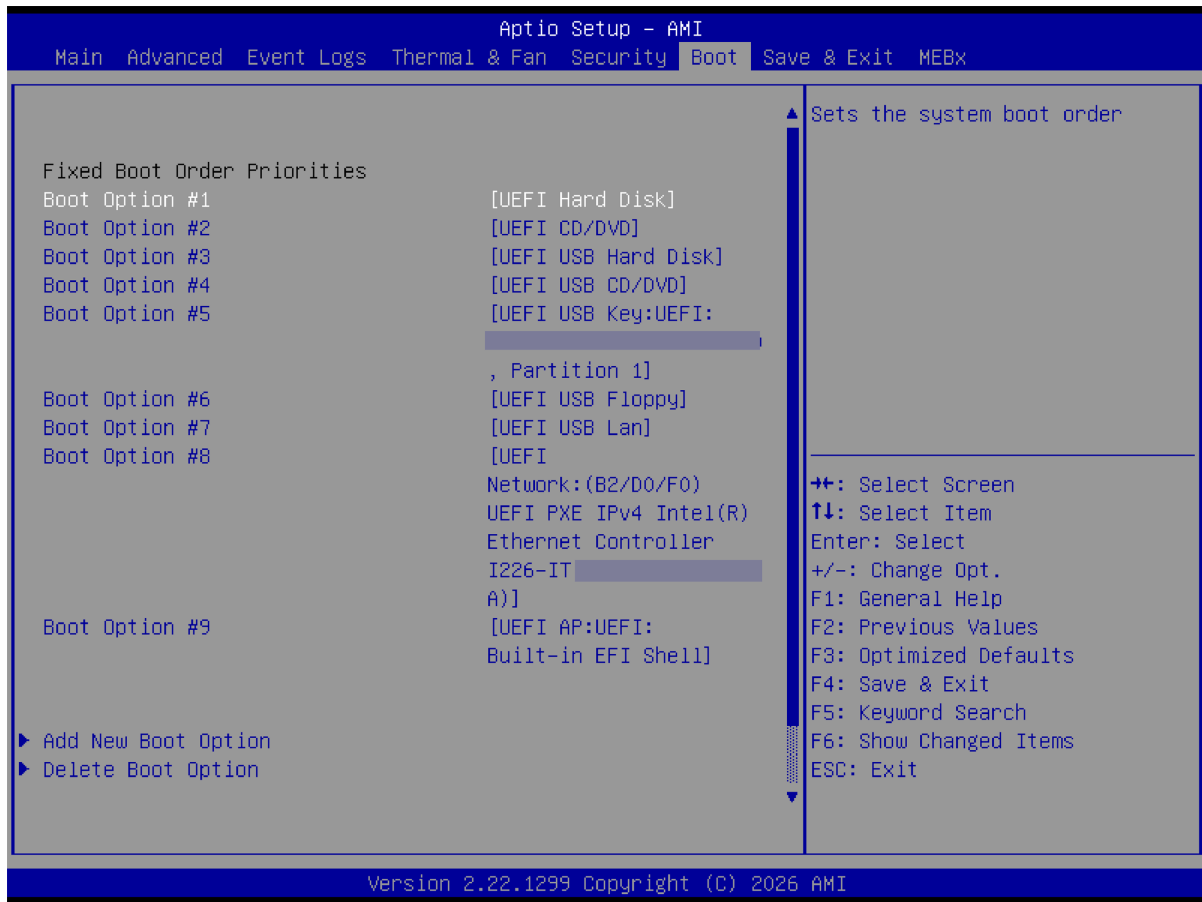


Figure 4-6. X14SPN-E Boot

FIXED BOOT ORDER Priorities

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

- Boot Option #1 – Boot Option #9

► Add New Boot Option

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

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

Add boot option

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

Path for boot option

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

Boot option File Path

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

Create

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

▶ Delete Boot Option

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

Delete Boot Option

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

▶ UEFI Hard Disk Drive BBS Priorities

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

▶ UEFI NETWORK Drive BBS Priorities

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

▶ UEFI Application Boot Priorities

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

4.8 Save & Exit

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

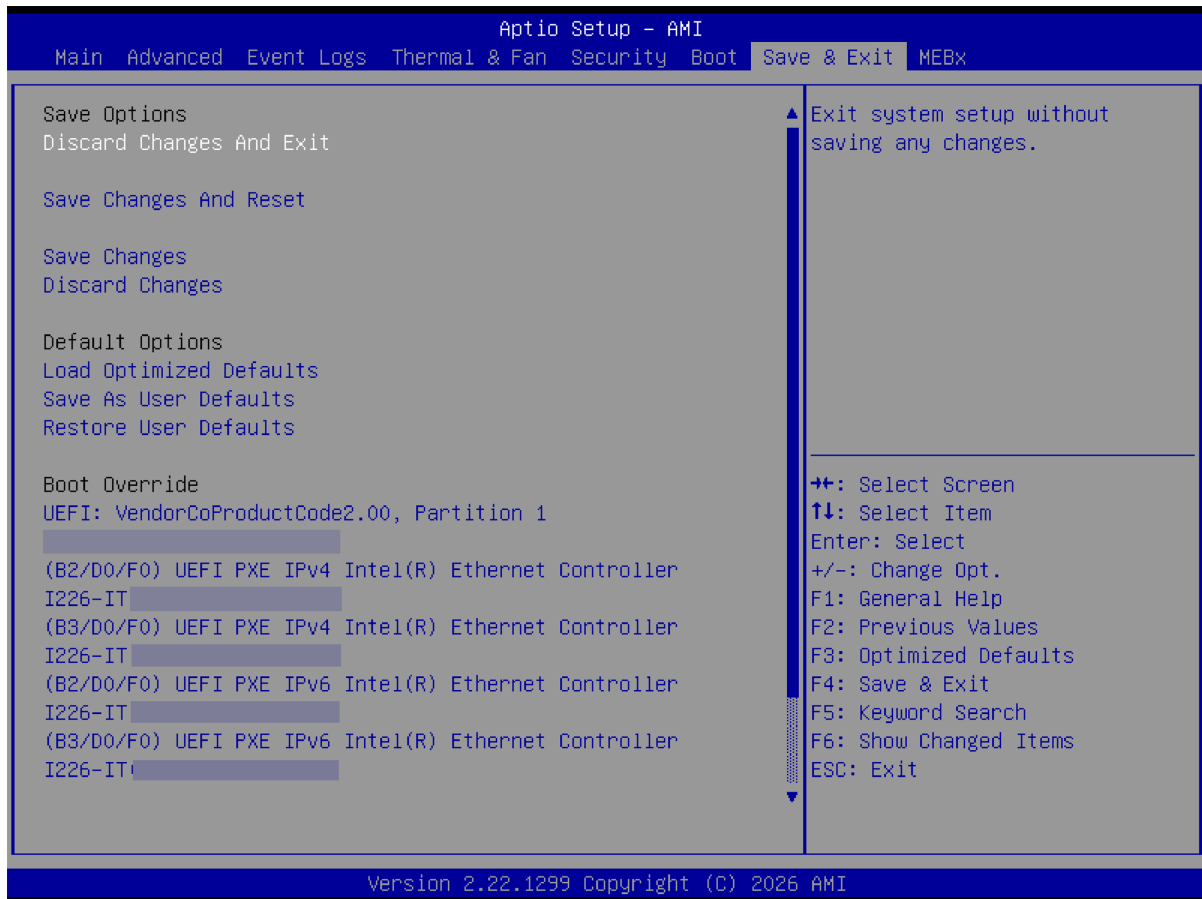


Figure 4-7. X14SPN-E Save & Exit

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 system.

Save Changes and Reset

On completing the system configuration changes, use this feature to exit the BIOS Setup utility and reboot the system 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**Load Optimized Defaults**

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

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

Save as User Defaults

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

Restore User Defaults

Select this feature and press <Enter> to restore 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.

UEFI: Built-in EFI Shell

Use this feature to launch the EFI shell application (Shell.efi) from one of the available filesystem devices. A filesystem is a virtual, logical, or physical system for organizing, managing, and accessing the files and directories on devices such as SSDs, HDDs, or other storage devices.

4.9 MEBx

Use this menu to create a password for MEBx.



Figure 4-8. X14SPN-E MEBx

Intel(R) ME Password

Use this feature to create a password for the Intel Management Engine BIOS Extension.

Intel(R) AMT (Available after entering a password for Intel(R) ME Password)

Use this feature to enable or disable Active Management Technology (AMT). The options are Disabled, Partially Disabled, and **Enabled**.

Change ME Password (Available after entering a password for Intel(R) ME Password)

Press Enter and follow the prompt to change the password.

Appendix A:

BIOS Codes

For information about BIOS codes for the X14SPN-H/-E/-L motherboard, refer to the following content.

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 X14SPN-H/-E/-L 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.
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.

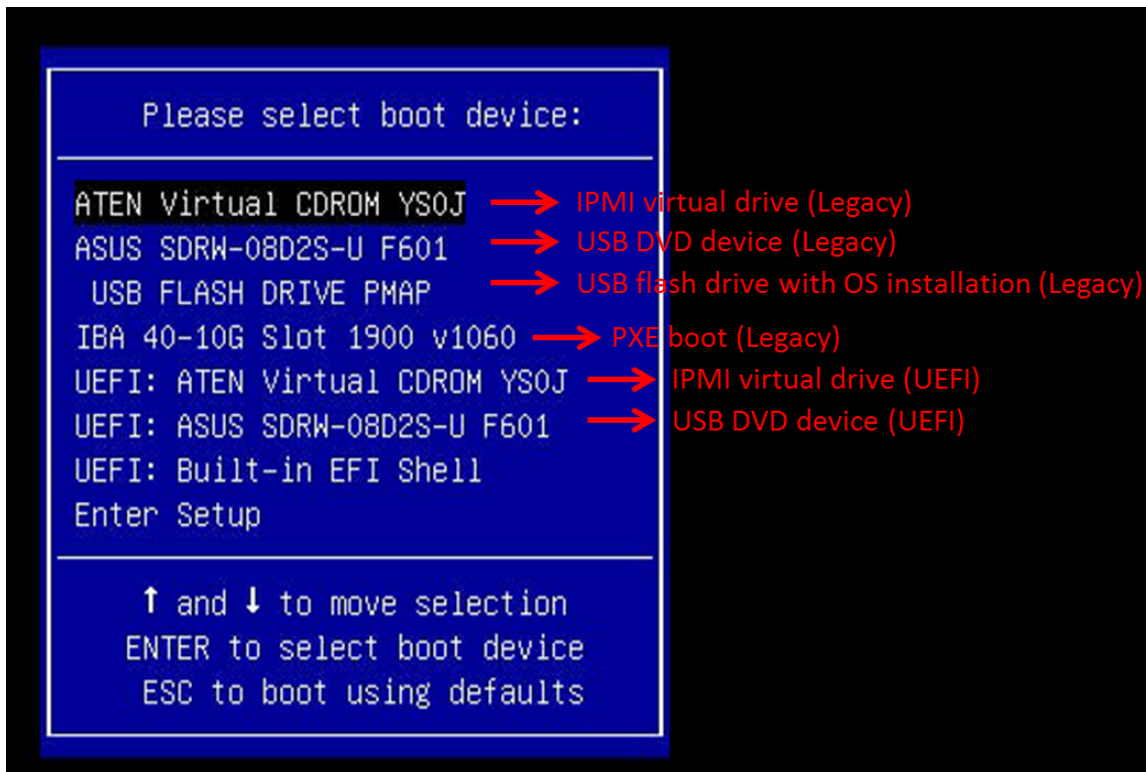


Figure B-1. Selecting the Boot Device

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.

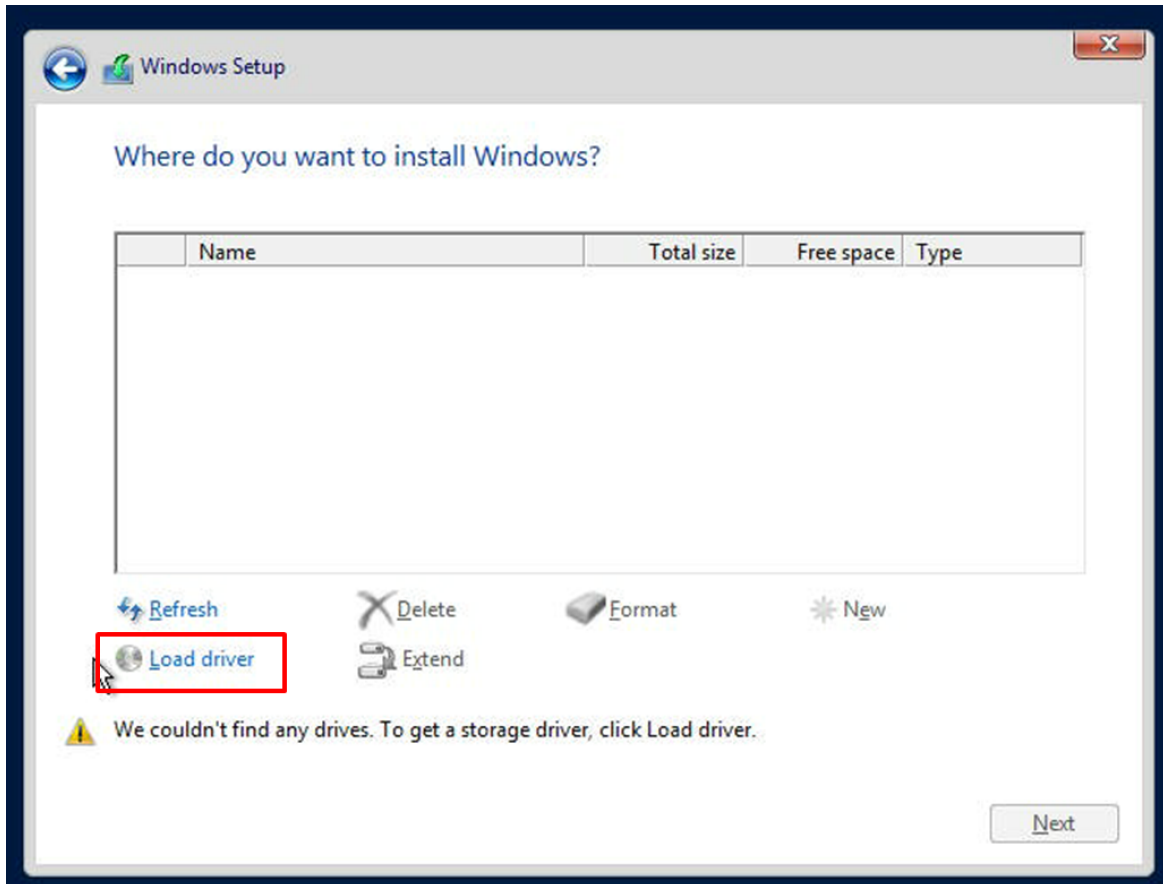


Figure B-2. Loading the Driver Link

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.

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.

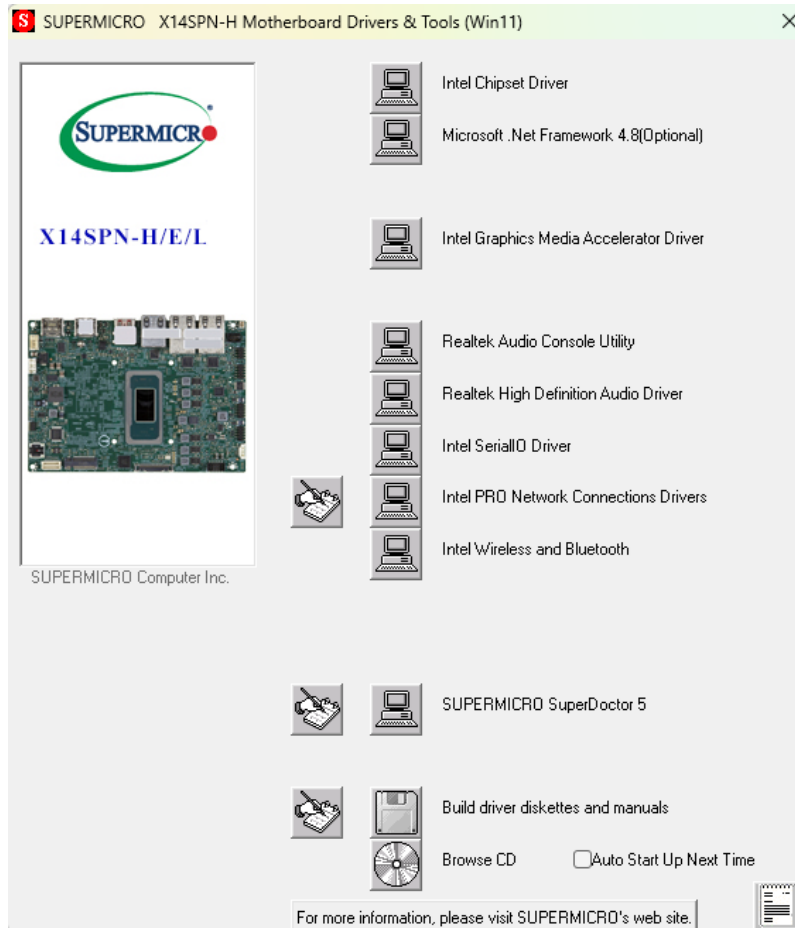


Figure B-3. Driver & Tools Installation Screenshot

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 X14SPN-H/-E/-L motherboard.

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

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

Battery Handling



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

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

警告! 如果更换的电池类型不正确, 有爆炸危险。更换电池时, 请使用制造商推荐的相同或同等型号的电池。请按制造商的说明处理废旧电池。

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

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

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

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

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

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

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

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

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

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

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

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

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

Connection to Earth



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

تحذير! يجب توصيل الأجهزة بمقبس كهربائي أرضي.

警告！设备应连接到接地电源插座。

警告！應將設備連接至接地電源插座。

Advarsel! Dette udstyr skal sluttes til en jordforbundet stikkontakt.

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

Varoitus! Laitteet on kytkettävä maadoitettuun pistorasiaan.

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

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

אזהרה! יש לחבר את הציוד לשקע חשמל עם הארקה.

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

警告！機器は、接地主電源コンセントに接続するものとします。

경고! 장비는 접지된 전원 콘센트에 연결해야 합니다.

Advarsel! Utstyret skal kobles til en jordet stikkontakt.

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

Varning! Utrustningen ska vara ansluten till ett jordat eluttag.

Product Disposal



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

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

警告! 本产品的废弃处理应根据所有国家的法律和规章进行。

警告! 本產品的廢棄處理應根據所有國家的法律和規章進行。

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

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

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

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

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

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

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

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

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

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

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

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