H13SSL-N
H13SSL-NT

USER'S MANUAL

Revision 1.1

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Manual Revision 1.1

Release Date: August 11, 2025

Preface

About This Manual

This manual is written for system integrators, IT technicians and knowledgeable end users. It provides information for the installation and use of the H13SSL-N/NT motherboard.

About This Motherboard

Built upon the functionality and capability of the AMD EPYC™ 9004/ 9005 (Motherboard revision 2.00 or above is required) series processor, the H13SSL-N/NT motherboard provides superior graphics capability and system performance while consuming little power. Please note that this motherboard is intended to be installed and serviced by professional technicians only. For processor/memory updates, please refer to our website at http://www.supermicro.com/products/.

Conventions Used in the Manual

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

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

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

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Table of Contents

Chapter 1

Introduction

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

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

Important Links

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

- Supermicro product manuals: http://www.supermicro.com/support/manuals/
- Product drivers and utilities: https://www.supermicro.com/wdl
- Product safety info: http://www.supermicro.com/about/policies/safety_information.cfm
- A secure data deletion tool designed to fully erase all data from storage devices can be found at our website: https://www.supermicro.com/about/policies/disclaimer.cfm?url=/wdl/utility/Log9_Secure_Data_Deletion_Utility/
- If you have any questions, please contact our support team at: support@supermicro.com

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

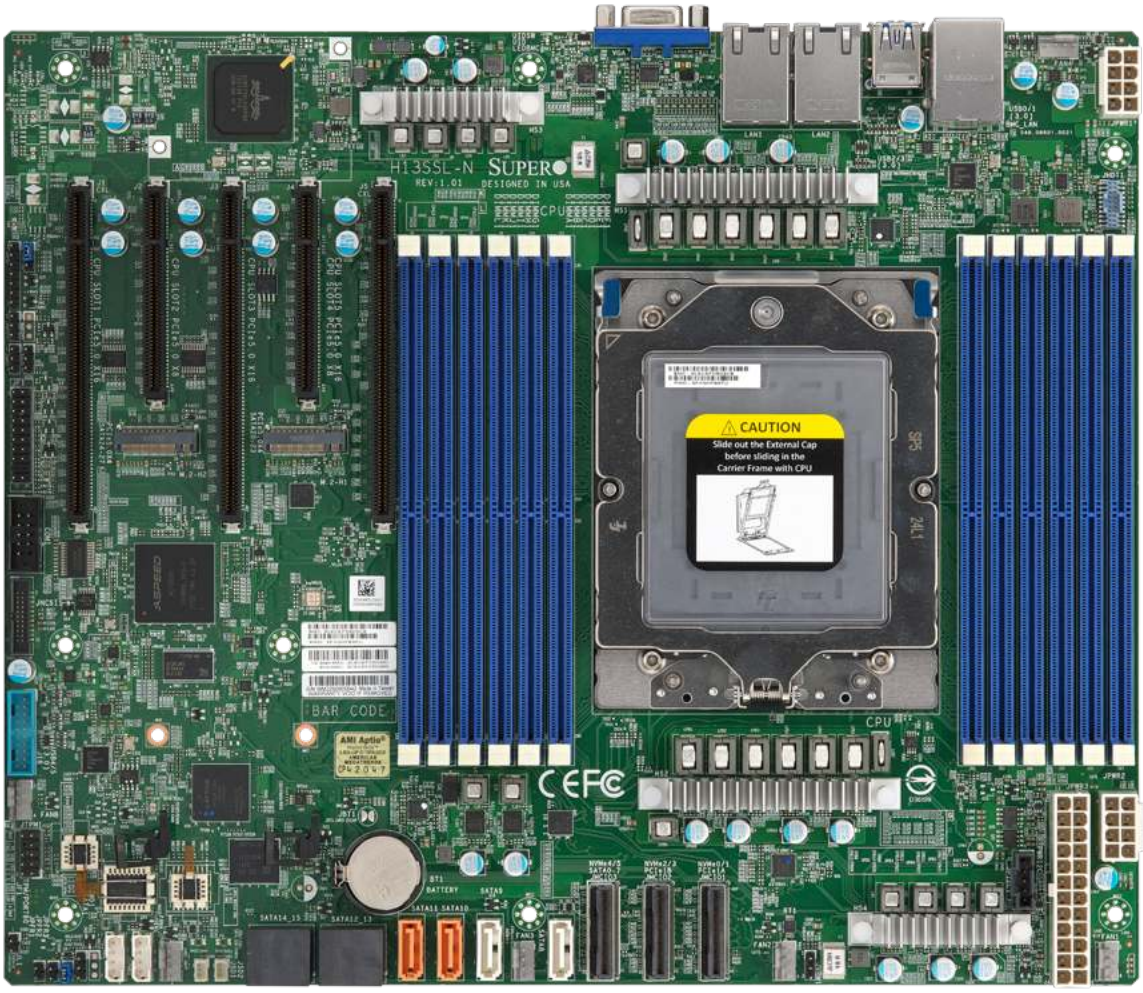


Figure 1-1. H13SSL-N Motherboard Image

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

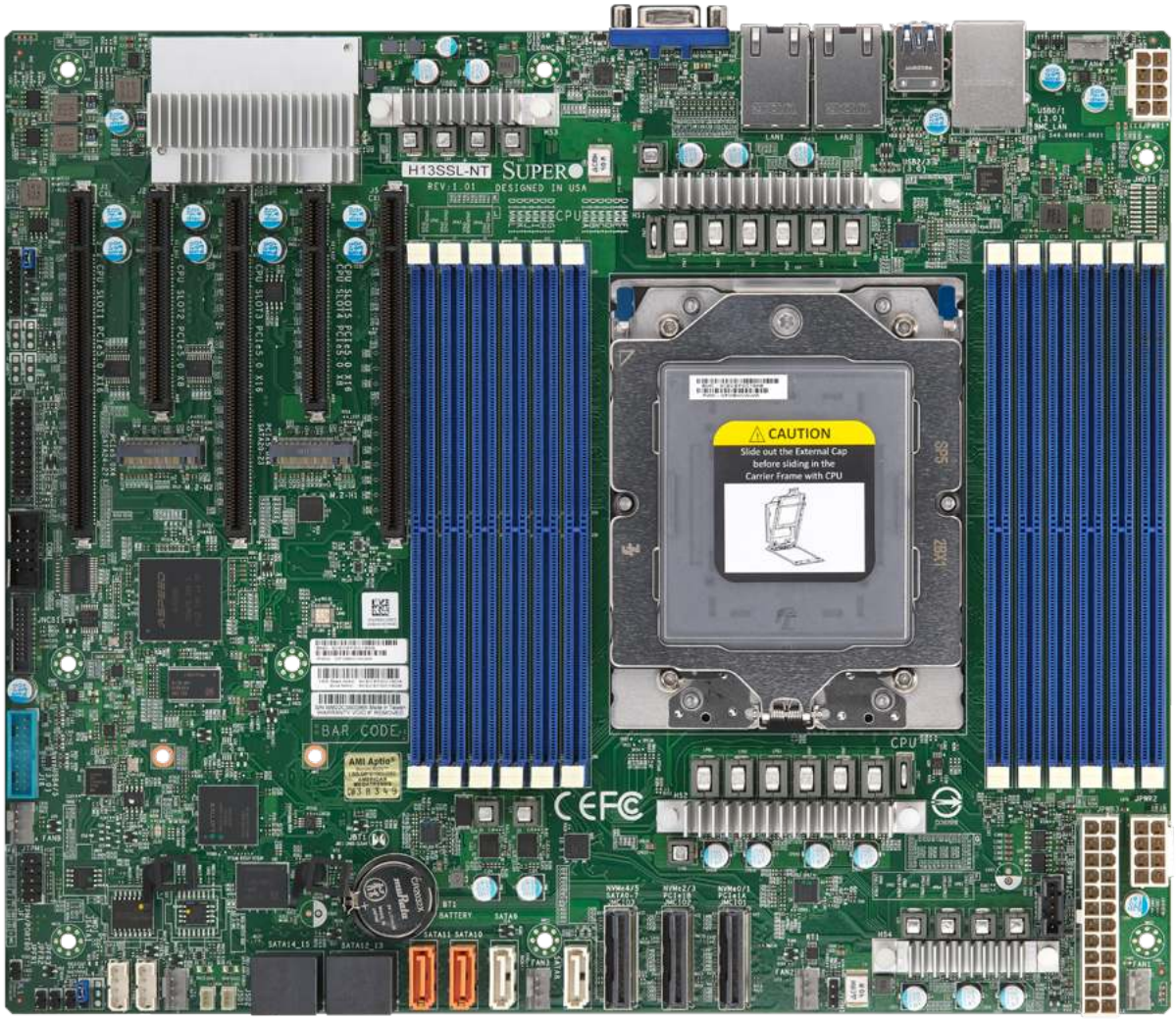


Figure 1-2. H13SSL-NT Motherboard Image

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

1.1 Quick Reference

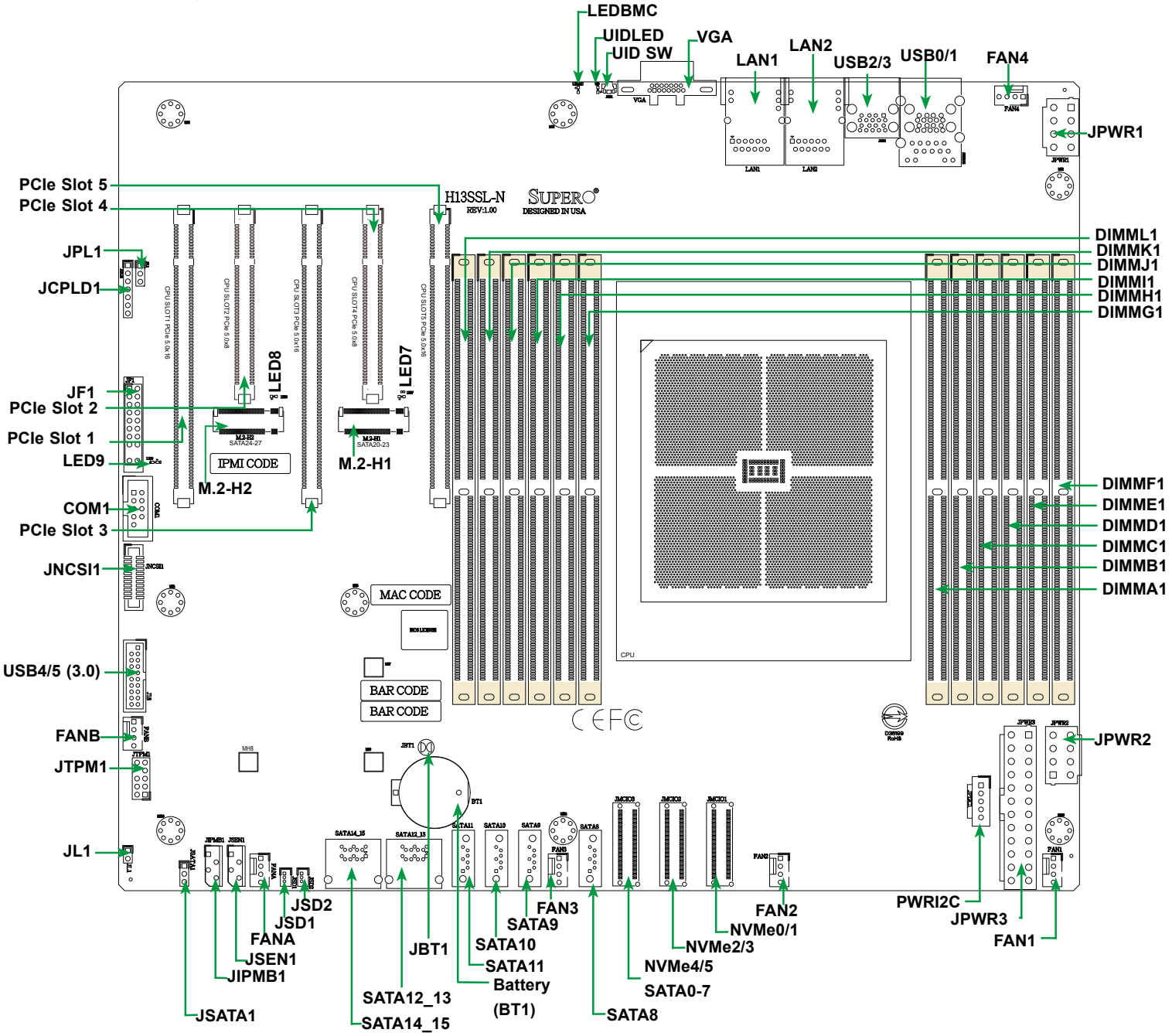


Figure 1-3. H13SSL-N/NT Layout

Notes:

- See Chapter 2 for detailed information on jumpers, I/O ports, and JF1 front panel connections.
- Jumpers/LED indicators not indicated are used for testing only.
- Use only the correct type of onboard CMOS battery as specified by the manufacturer. Do not install the onboard battery upside down to avoid possible explosion.

Quick Reference Table

Jumper	Description	Default Setting
UID SW	Unit ID switch (push-button toggle switch ON/OFF)	Off
JBT1	CMOS Clear	Open (Normal)
JSATA1	Hybrid MCIO Select	Pins 1-2 (Auto)
JPL1	LAN Enable/Disable	Pins 1-2 (Enabled)

LED	Description	Status
UID_LED	UID LED	Solid blue: UID switched to ON, unit identified
LEDBMC	BMC Heartbeat LED	Green: Blinking (BMC normal) Green: Fast blinking (BMC initializing)
LED9	Power LED	Green: Blinking (BIOS initializing) Green: Solid on (Power on)

Connector	Description
Battery (BT1)	Onboard Battery
COM1	Rear panel COM port #1
FAN1, 2, 3, 4, A, B	4-pin System/CPU Cooling Fan Headers
JF1	Front Control Panel
JSD1, JSD2	SATA DOM Power Connector
JTPM1	Trusted Platform Module/Port 80 Connector
SATA0-7	SATA 0~7 via JMCIO3
SATA8-11	Onboard SATA Ports
SATA12-13; 14-15	Onboard SATA ports 12-13; 14-15
JL1	Chassis Intrusion Header
USB 0/1 (3.0)	Back Panel USB 3.0 Ports (USB0/1)
USB 2/3 (3.0)	Back Panel USB 3.0 Ports (USB2/3)
USB 4/5 (3.0)	Internal USB 3.0 header (USB4/5)
JIPMB1	4-pin BMC External I2C Header (for an IPMI Card)
JPWR1, JPWR2	12V 8-pin CPU Core Power Supply Connector
JPWR 3	24-pin ATX Power Supply Connector
M.2-H1/M.2-H2	M.2 Slots
LAN1, LAN2	Back Panel LAN1, LAN2 Connectors
VGA	Back Panel VGA Port
NVMe 0/1; 2/3; 4/5	NVMe Slots 0-5

Note: Table continues on the next page.

Connector	Description
PWRI2C	Power Supply SMBus I²C header
PCIe 1, 3, 5	CPU Slot PCIe 5.0 x16
PCIe 2, 4	CPU Slot PCIe 5.0 x8

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

Motherboard Features

CPU

- AMD EPYC™ 9004/9005 (Motherboard revision 2.00 or above is required) series processors in Socket SP5

Memory

12 DIMM slots with 1DPC, supporting up to:

- 3 TB of ECC DDR5/3DS RDIMM at 4800 MT/s (EPYCTM 9004 series processors)
- 4.5 TB of ECC DDR5/3DS RDIMM at 6000 MT/s (EPYCTM 9005 series processors, with motherboard Rev 2.00 required)
- 4.5 TB of ECC DDR5/3DS RDIMM at 6400 MT/s (EPYCTM 9005 series processors, with motherboard Rev 2.01 or later required)

* 4.5 TB (384 GB memory DIMM support upon ecosystem readiness). For detail, please refer to Section 2.4.

DIMM Size

- Up to 384 GB (Motherboard revision 2.00 or above is required)

Chipset

- System on Chip (SoC)

Expansion Slots

- Three PCIe 5.0 x16 connectors
- Two PCIe 5.0 x8 connectors
- Two M.2 connectors (PCIe 5.0 x4)

Network

- H13SSL-N: two RJ45, Broadcom BCM5720L 1GbE LAN ports
- H13SSL-NT: two RJ45, Broadcom BCM57416 10GbE LAN ports

Graphics

- ASPEED AST2600 BMC chip

I/O Devices

- SATA: eight SATA3 internal ports
- LAN: one RJ45 Dedicated IPMI LAN port
- USB: six USB 3.0 ports (four by rear and two by header)
- Video: one VGA port

BIOS

- ACPI 6.4, SMBIOS 3.5, Plug-and-Play (PnP), RTC (Real Time Clock) wakeup

Power Management

- ACPI power management (S5)
- Wake-On-LAN
- Power-on mode for AC power recovery

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

System Health Monitoring

- Onboard voltage monitoring for +3.3V, +5V, +12V, +3.3V Standby, +5V Standby, CPU temperature, system temperature, memory temperature, and peripheral temperature
- CPU Thermal Trip Support

Fan Control

- Six 4-pin fan header
- Fan speed control

System Management

- IPMIView/SMCIPMITOOL/IPMICFG
- SuperDoctor® 5
- SDO/SPM/SSM/SUM-OOB/InBand
- Trusted Platform Module (TPM) support

LED Indicators

- Power / Suspend-state Indicator
- UID / Remote UID

Dimensions

- 10.1" (L) x 12" (W), (256.54 x 304.8 mm)

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

Chipset Block Diagram

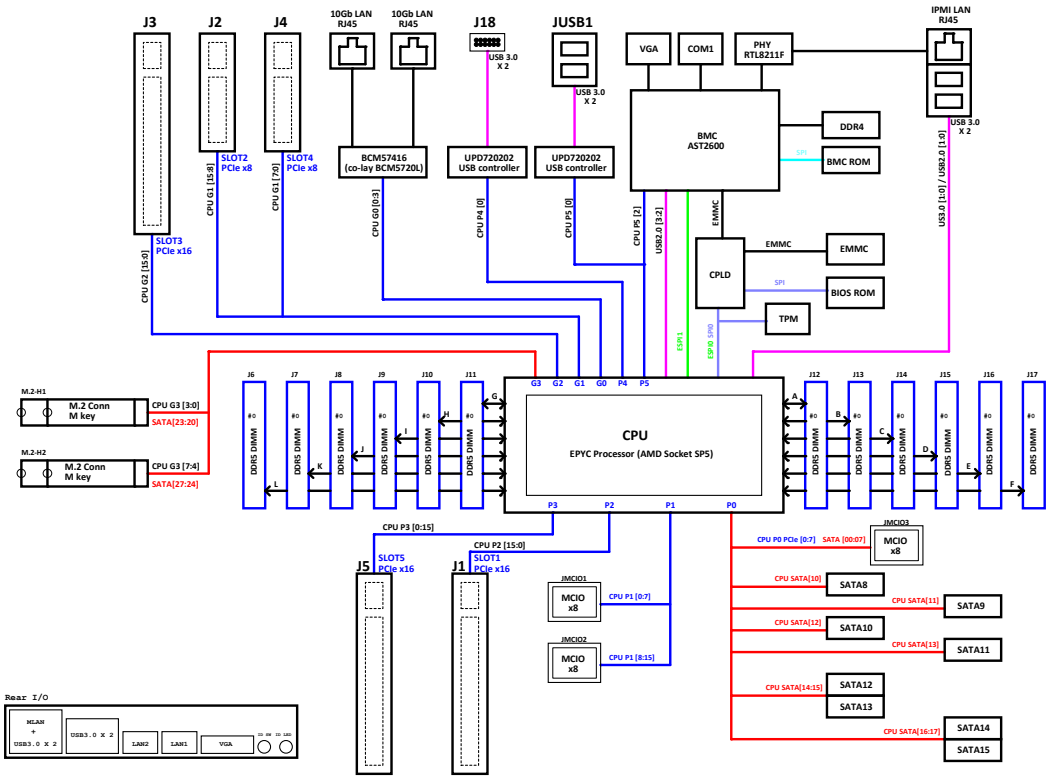


Figure 1-4. System Block Diagram

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

1.2 Processor and Chipset Overview

Built upon the functionality and capability of the AMD EPYC™ 9004/9005 (Motherboard revision 2.00 or above is required) series processors in SP5 sockets. The H13SSL-N/NT motherboard offers maximum I/O expendability, energy efficiency, and data reliability in a 5nm process architecture, and is optimized for embedded storage solutions, networking applications, or cloud-computing platforms.

With support of the new microarchitecture 5nm process technology, the H13SSL-N/NT drastically increases system performance for a multitude of server applications.

The AMD EPYC™ 9004/9005 (Motherboard revision 2.00 or above is required) series processors support the following features:

- ACPI Power Management Logic Support Rev. 6.4
- Adaptive Thermal Management/Monitoring
- PCIe 5.0 w/transfer rate of up to 32.0 GT/s and SATA 3.0 w/ transfer rate of up to 6.0 GB/s
- System Management Bus (SMBus) Specification Version 3.5

1.3 Special Features

This section describes the health monitoring features of the H13SSL-N/NT motherboard. The motherboard has an onboard System Hardware Monitor chip that supports system health monitoring.

Recovery from AC Power Loss

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

1.4 System Health Monitoring

This section describes the health monitoring features of the H13SSL-N/NT motherboard. The motherboard has an onboard Baseboard Management Controller (BMC) chip that supports system health monitoring. Once a voltage becomes unstable, a warning is given or an error message is sent to the screen. The user can adjust the voltage thresholds to define the sensitivity of the voltage monitor.

Onboard Voltage Monitors

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

Fan Status Monitor with Firmware Control

PC health monitoring in the BMC can check the RPM status of the cooling fans. The onboard CPU and chassis fans are controlled by Thermal Management.

Environmental Temperature Control

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

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

System Resource Alert

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

1.5 ACPI Features

ACPI stands for Advanced Configuration and Power Interface. The ACPI specification defines a flexible and abstract hardware interface that provides a standard way to integrate power management features throughout a computer system including its hardware, operating system and application software. This enables the system to automatically turn on and off peripherals such as network cards, 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 and an operating system-independent interface for configuration control. ACPI leverages the Plug and Play BIOS data structures while providing a processor architecture-independent implementation that is compatible with Windows Server 2019 operating systems.

1.6 Power Supply

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

1.7 Super I/O

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

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

Chapter 2

Installation

2.1 Static-Sensitive Devices

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

Precautions

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

Unpacking

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

2.2 Motherboard Installation

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

Philips Screwdriver (1)

Philips Screws (6)

Standoffs (6) Only if Needed

Tools Needed

Location of Mounting Holes

Notes:

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

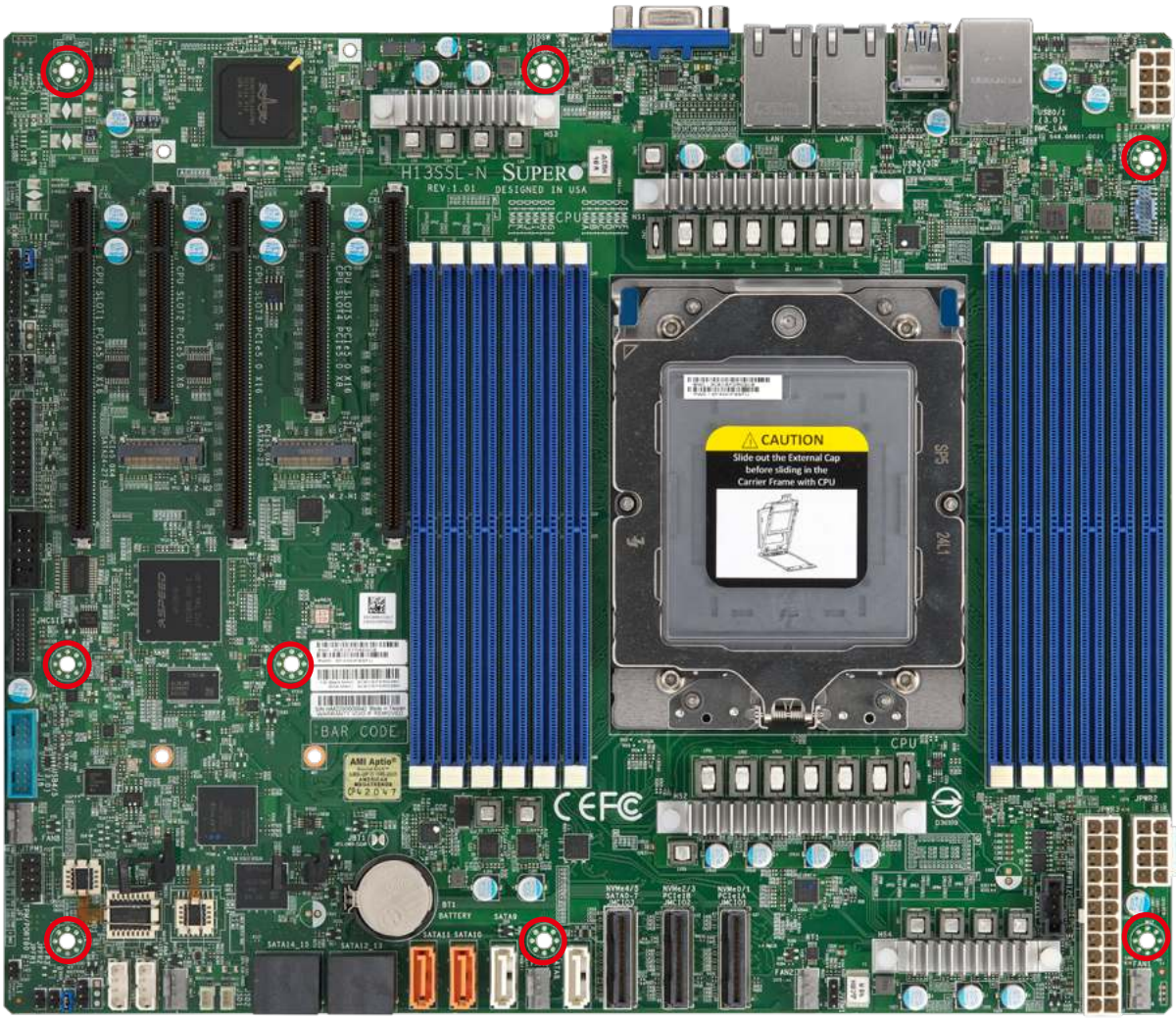
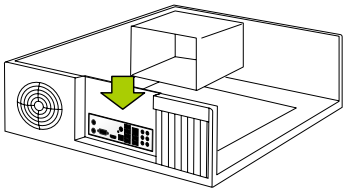


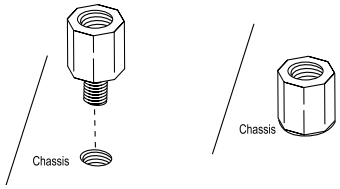
Figure 2-1. Motherboard Mounting Holes

Installing the Motherboard

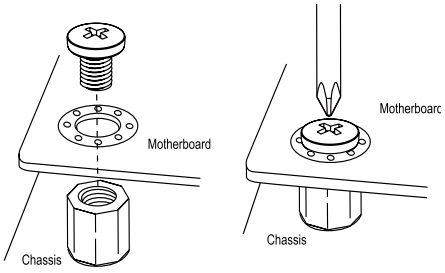
1. Install the I/O shield into the back of the chassis.



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



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



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

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

2.3 Processor and Heatsink Installation

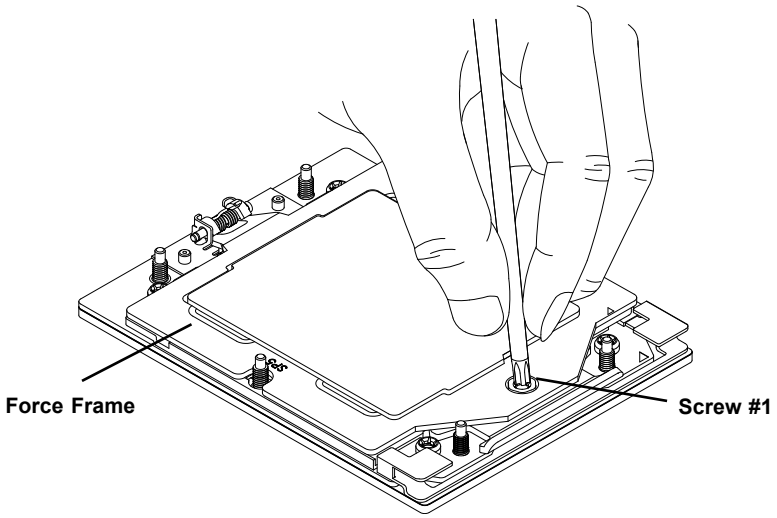
Important: When handling the processor package, avoid placing direct pressure on the label area of the fan.

Important:

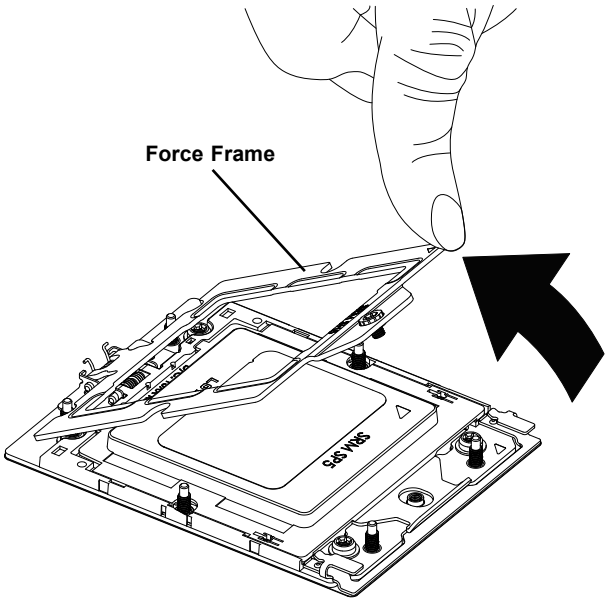
- For the Processor/Heatsink installation you need to use a T20 screwdriver when opening/closing the CPU socket.
- Always connect the power cord last, and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU socket before you install the CPU heatsink.
- If you buy a CPU separately, make sure that you use an AMD-certified multi-directional heatsink only.
- Make sure to install the motherboard into the chassis before you install the CPU heatsink.
- When receiving a motherboard without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.
- Refer to the Supermicro website for updates on CPU support.

Installing the Processor and Heatsink

1. Unscrew the screw #1 holding down the force frame.

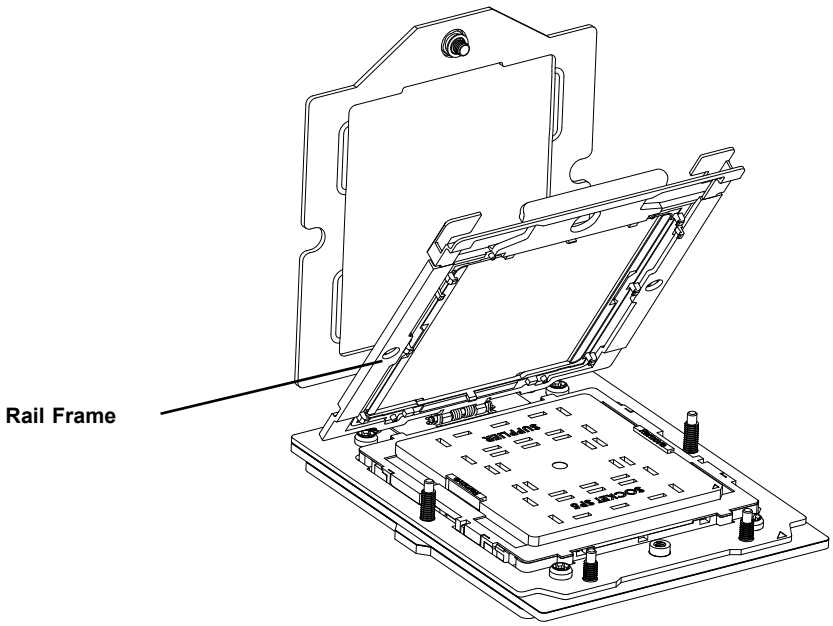


2. The spring-loaded force frame will raise up after the screw securing it (#1) is removed. Gently allow it to lift up to its stopping position.

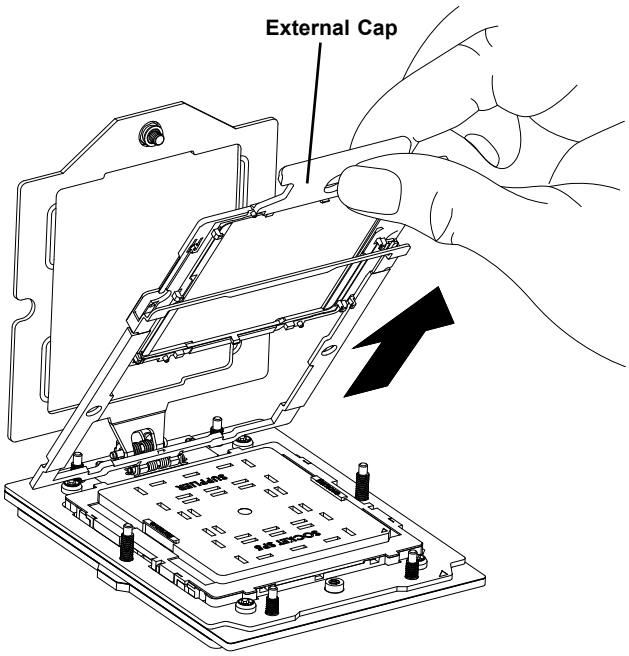


3. Lift the rail frame up by gripping the lift tabs near the front end of the rail frame. While keeping a secure grip of the rail frame, lift it to a position so you can do the next step of removing the external cap.

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

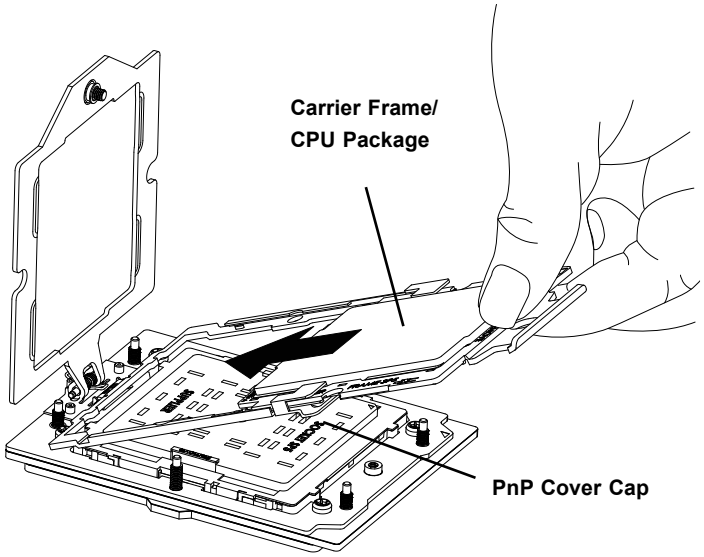


4. Remove the external cap from the rail frame by pulling it upwards through the rail guides on the rail frame.



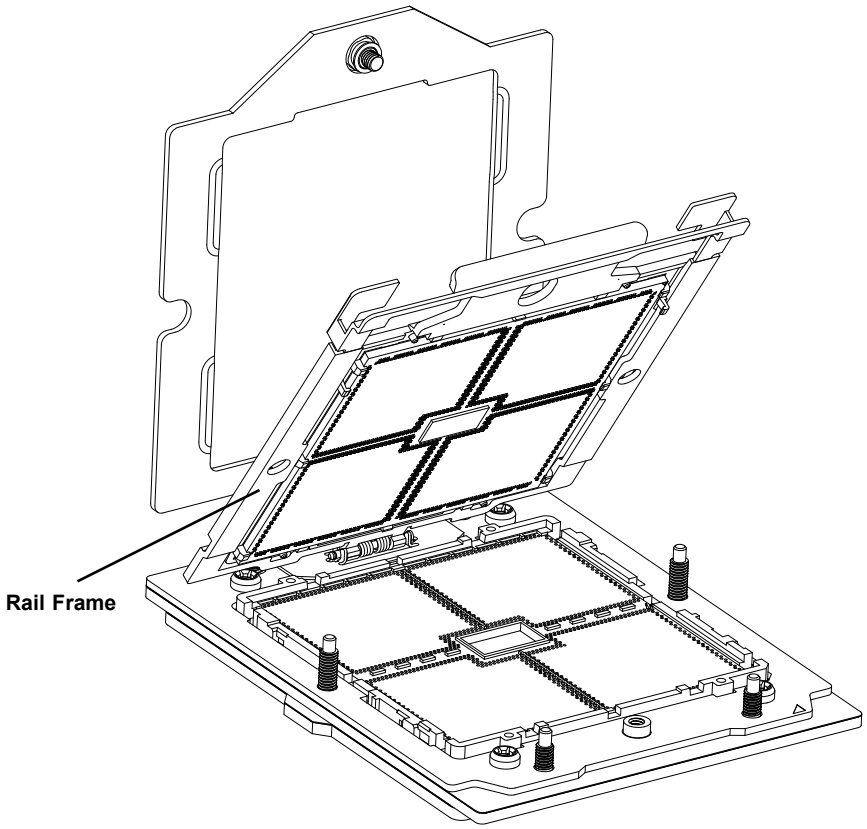
5. The CPU package is shipped from the factory with the carrier frame pre-assembled. Grip the handle of the carrier frame/CPU package assembly from its shipping tray, and while gripping the handle, align the flanges of the carrier frame onto the rails of the rail frame so its pins will be at the bottom when the rail frame is lowered later.

6. Slide the carrier frame/CPU package downwards to the bottom of the rail frame. Ensure the flanges are secure on the rails as you lower it downwards.



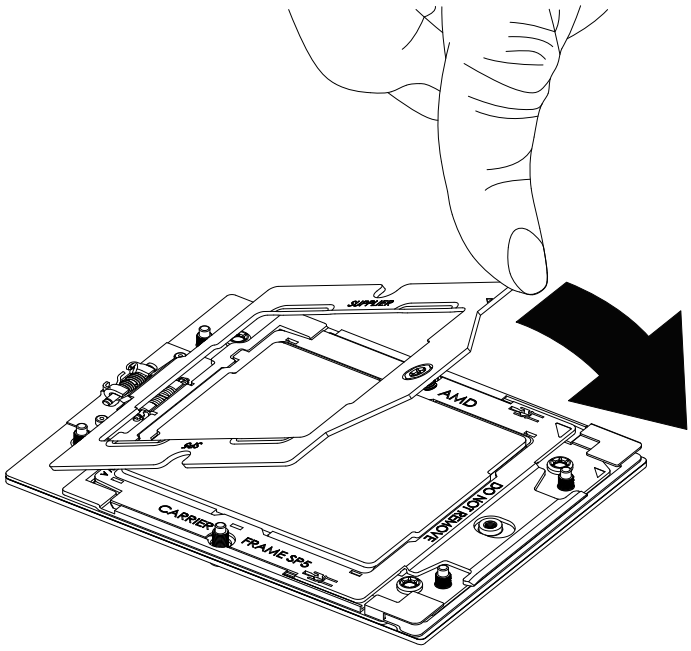
Note: You can only install the CPU inside the socket in one direction with the handle at the top. Make sure that it is properly inserted into the CPU socket before closing the rail frame plate. If it doesn't close properly, do not force it as it may damage your CPU. Instead, open the rail frame plate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

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

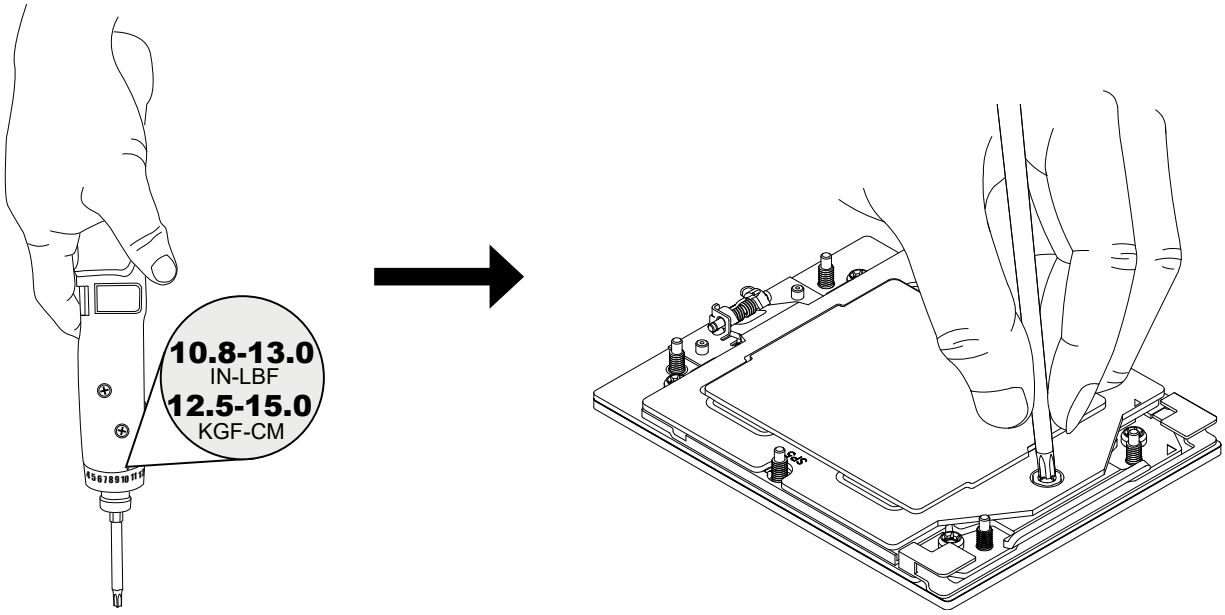


Important: The exposed socket contacts are extremely vulnerable and can be damaged easily. Do not touch or drop objects onto the contacts and be careful removing the PnP cover cap and when placing the rail frame over the socket.

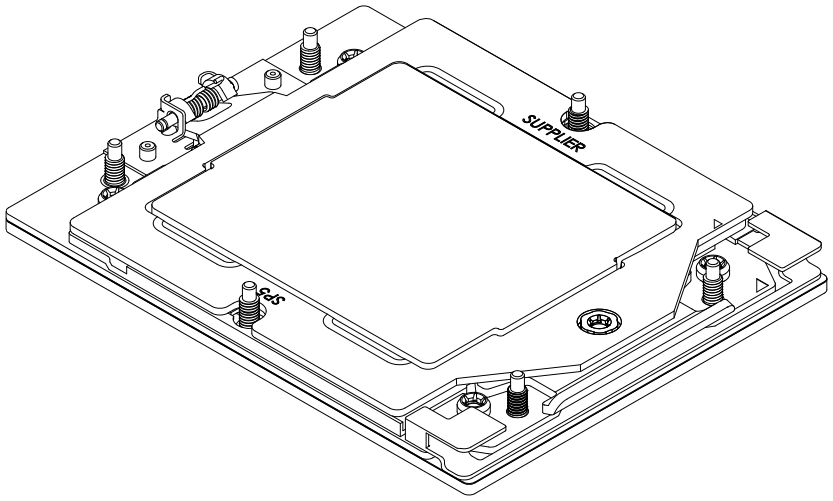
8. Gently lower the rail frame down onto the socket until the latches on the rail frame engage with the socket housing and it rests in place. DO NOT force it into place!



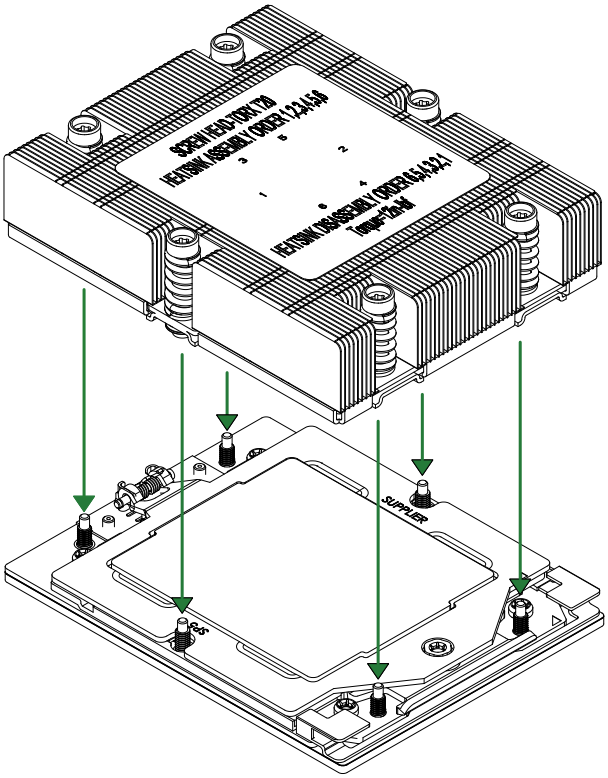
9. The force frame is spring loaded and has to be held in place before it is secured. **Important: Use a torque screwdriver, set it at 12.5~15.0 kgf-cm (10.85~13.01 lbf-in) with a Torx T20 screw head bit, to prevent damage to the CPU.**



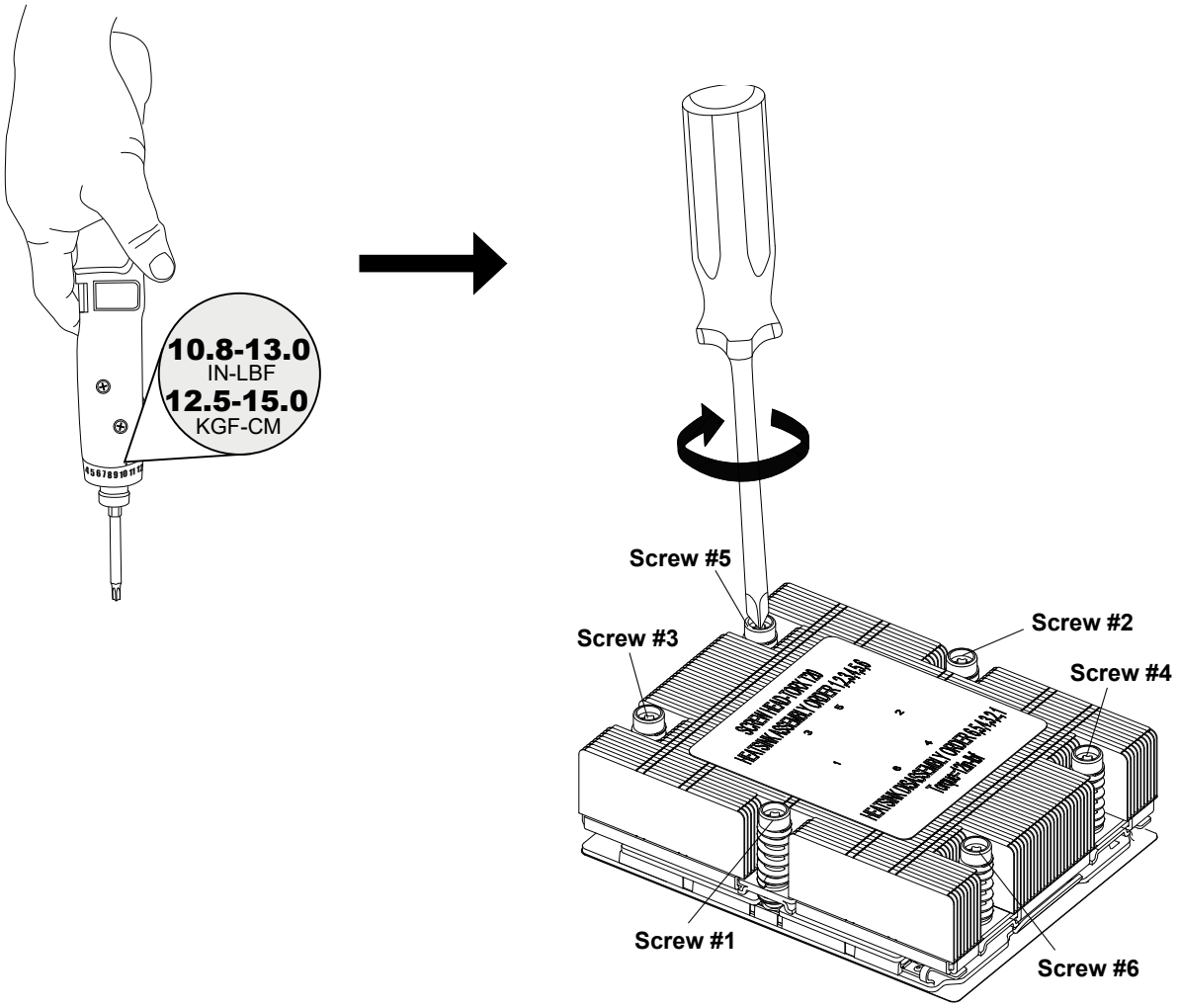
10. Replace and tighten the screws in the same order you removed them. When finished, the force frame will be secure over both the rail frame and CPU package.



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



12. Using a diagonal pattern, tighten the six screws down on the heatsink in a clockwise fashion until secure. Use a T30 bit torque driver with a torque of 12.5-15.0 kgf-cm (10.8-13.0 in-lbf) to prevent damage to the processor. The heatsink will now be secured and you have finished installing the processor and heatsink onto the motherboard. Repeat this procedure for any remaining CPU sockets on the motherboard.



Un-installing the Processor and Heatsink

1. Remove the heatsink attached to the top of the CPU package by reversing the installation procedure.
2. Clean the thermal grease left by the heatsink on the CPU package lid to limit the risk of it contaminating the CPU package land pads or contacts in the socket housing.
3. Unscrewing the plate and lift the force frame to the vertical position.
4. Lift the rail frame using the lift tabs near the front end of the rail frame. Note that the rail frame is spring loaded, so be careful lifting it up into a vertical position.
5. Grip the handle of the carrier frame and pull upwards to extract it from the rail frame. Return the carrier frame/CPU package to its original shipping container.
6. Grip the handle on the external cap and return it to the rail frame sliding it downwards till it rests in the frame.
7. Gripping the rail frame, rotate it downwards till it rests above and locks over the socket housing in its horizontal position.
8. Push and rotate down the force frame till it is over the external cap and rail frame into a horizontal position.
9. While holding down the force frame, secure it back to the socket frame by securing screw #1 in place.

2.4 Memory Support and Installation

Note: Check the Supermicro website for recommended memory modules.

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

Memory Support

The H13SSL-N/NT supports up to 4.5 TB of ECC DDR5 6400 MT/s speed (Motherboard revision 2.01 or above is required), RDIMM/3DS memory in 12 slots. Refer to the table below for additional memory information.

Note: Check the Supermicro website for possible updates to memory support. Please refer to Supermicro FAQ #41217 to identify the revision of your motherboard:

https://www.supermicro.com/support/faqs/faq.cfm?faq=41217

DIMM Population Guide

Type	Channel													
	F1	E1	D1	C1	B1	A1		G1	H1	I1	J1	K1	L1	Nodes per Socket (NPS) Supported
1 DIMM						V								NPS1
2 DIMM						V		V						NPS2, NPS1
4 DIMM				V		V		V		V				NPS4, NPS2, NPS1
6 DIMM				V	V	V		V	V	V				NPS2, NPS1
8 DIMM		V		V	V	V		V	V	V		V		NPS4, NPS2, NPS1
10 DIMM		V	V	V	V	V		V	V	V	V	V		NPS2, NPS1
12 DIMM	V	V	V	V	V	V		V	V	V	V	V	V	NPS4, NPS2, NPS1

CPU

Note: Fully populate the motherboard with validated memory modules to achieve the best memory performance. The NPS setting should be based on the application. Selecting "Auto" in the BIOS will default to NPS1.

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

Populating RDIMM/RDIMM 3DS DDR5 Memory Modules with AMD EPYC™ 9005 Series Processor (Motherboard revision 2.00 or later is required)					
Type	**DIMM Population**	**Maximum Frequency (MT/s)**			
	DIMM1	**6400 MT/s Grade DIMM**		**5600 MT/s Grade DIMM**	**4800 MT/s Grade DIMM**
		MB Rev 2.01 or later	MB Rev 2.00		
RDIMM	1R	6400	6000	5600	4800
	2R	6400	6000	5600	4800
3DS RDIMM	2S2R (4 ranks)	6400	6000	5600	4800
	2S4R (8 ranks)	6400	6000	5600	4800

Note: 6400 MT/s memory speed requires motherboard revision 2.01 or later, and performance may vary depending on the memory DIMM model. Please use Supermicro validated memory. Contact Supermicro representative for more details.

DIMM Module Population Sequence

There is no specific order or sequence required when installing memory modules. However do keep the following in mind:

- Always use DDR5 RDIMM modules of the same type, size and speed.
- The motherboard will support odd-numbered modules (1 or 3 modules installed). However, to achieve the best memory performance, fully populate the motherboard with validated memory modules.

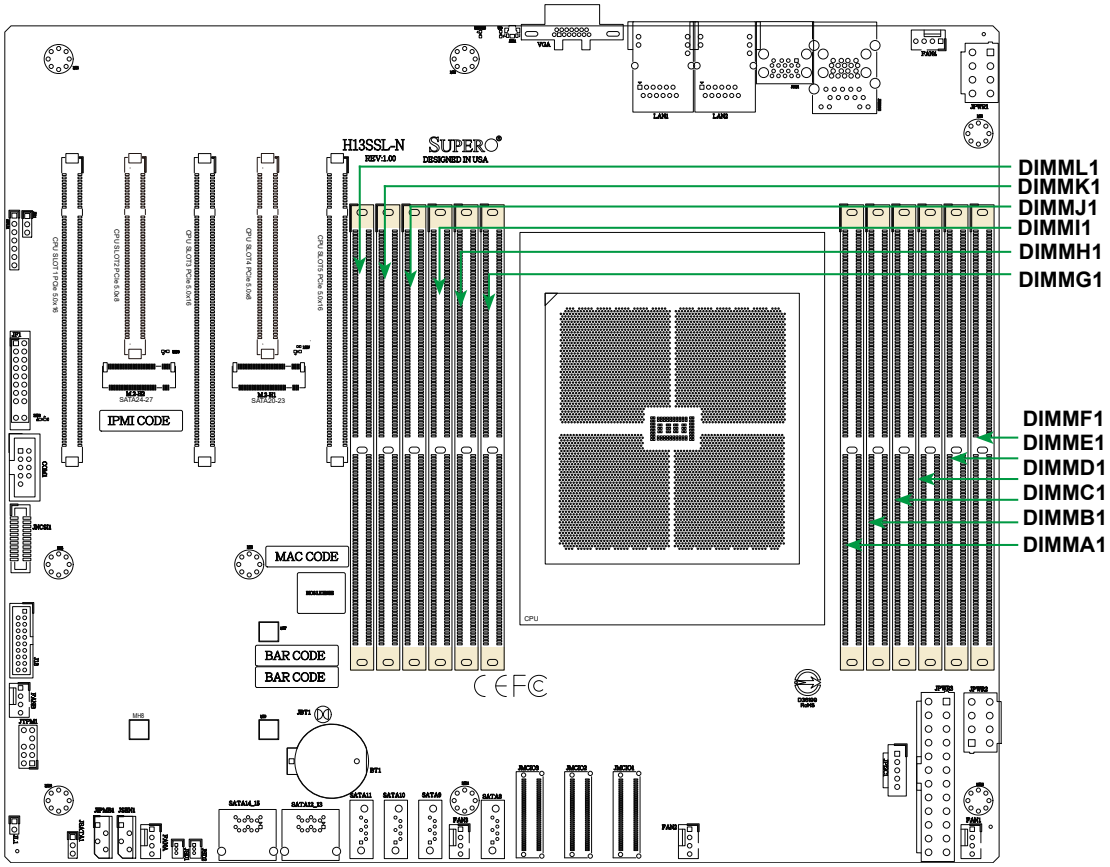
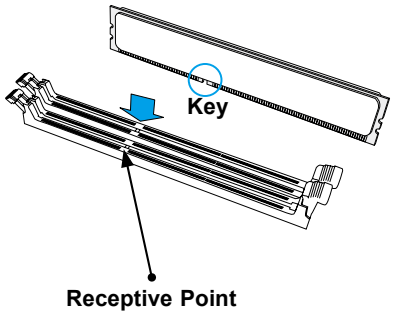
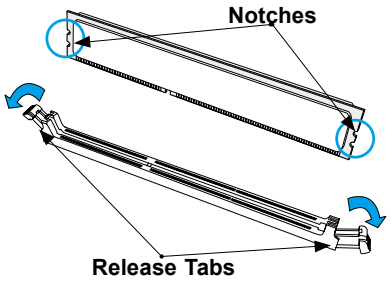


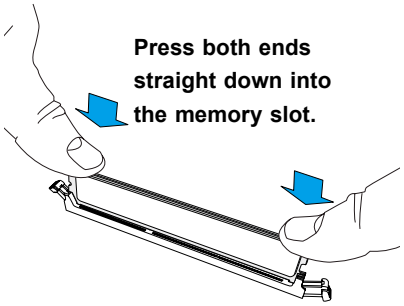
Figure 2-2. DIMM Numbering

DIMM Installation

1. Insert the desired number of DIMMs into the memory slots, see Section 2.4 for details installing memory.
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.
3. Align the key of the DIMM module with the receptive point on the memory slot.
4. Align the notches on both ends of the module against the receptive points on the ends of the slot.
5. Press both ends of the module straight down into the slot until the module snaps into place.
6. Press the release tabs to the lock positions to secure the DIMM module into the slot.





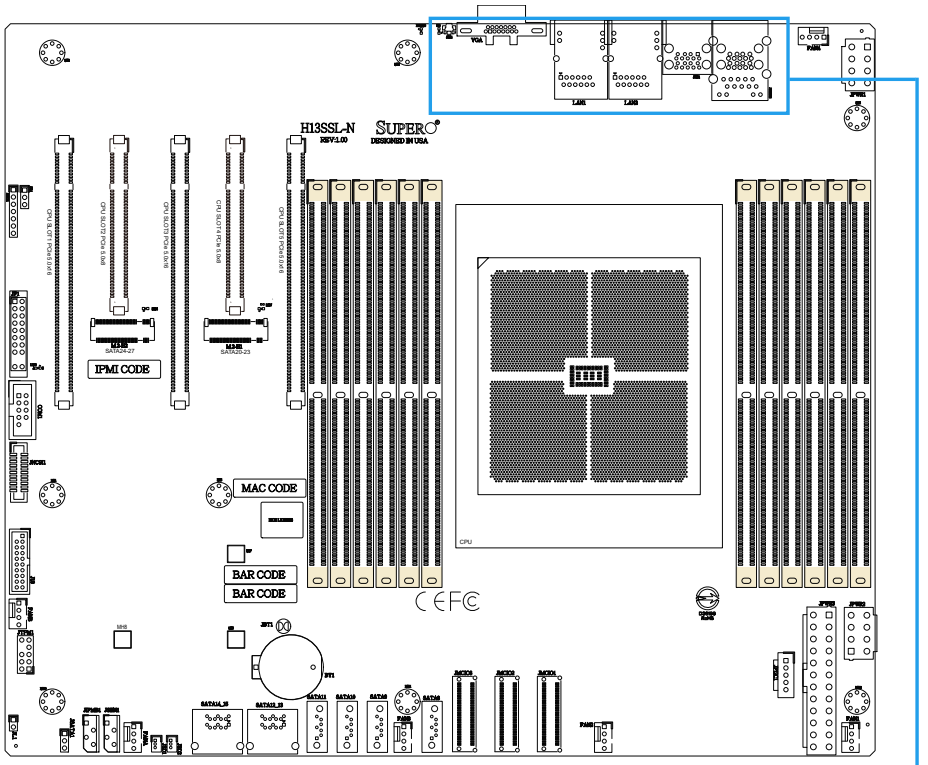


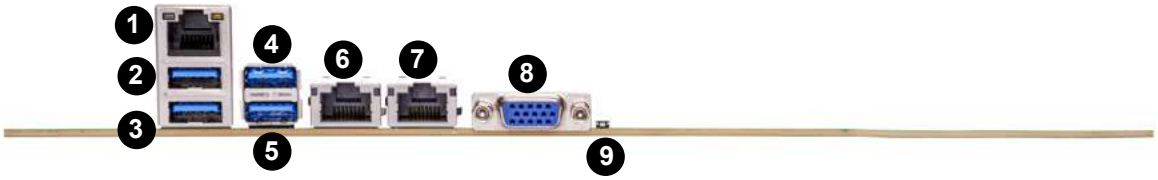
DIMM Removal

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

2.5 Rear I/O Ports

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





Rear I/O Ports			
#	Description	#	Description
1	IPMI LAN Port	6	LAN Port #2
2	USB 0 (3.0)	7	LAN Port #1
3	USB 1 (3.0)	8	VGA Port
4	USB 2 (3.0)	9	UID Switch & UID LED
5	USB 3 (3.0)		

1. IPMI LAN Port

One IPMI LAN port is located on the I/O back panel. This port accepts an RJ45 type cable.

2~5. Universal Serial Bus (USB) Ports

There are four USB 3.0 ports (USB0/1 and USB2/3) on the I/O back panel. These support the type A connector.

6~7. Gigabit LAN Ports

The H13SSL-NT has two Broadcom BCM57416 10GbE LAN ports and the H13SSL-N has two Broadcom BCM5720L 1GbE LAN ports located on the I/O back panel. These ports accept RJ45 type cables.

8. VGA Port

There is one VGA port on the rear I/O panel.

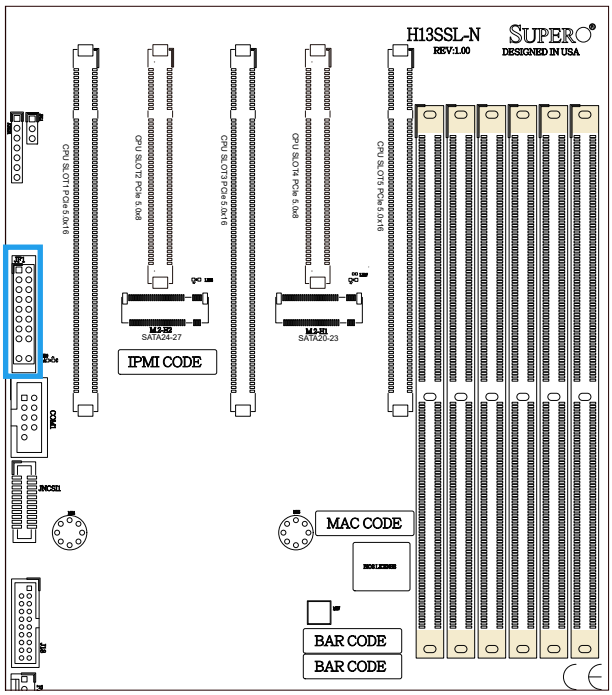
9. UID Switch and LED Indicator

A Unit Identifier (UID) switch and UID LED are located on the I/O backpanel. The rear UID LED is located next to the UID switch. When you press the UID switch, both rear and front UID LED indicators will turn on. Press the UID switch again to turn off the LED indicators. The UID Indicator provides easy identification of a system that may be in need of service.

Note: UID can also be triggered via IPMI on the serverboard. For more information on IPMI, please refer to the IPMI User's Guide posted on our website at http://www.supermicro.com

2.6 Front Control Panel

JF1 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 Supermicro chassis. See the figure below for the location of JF1.



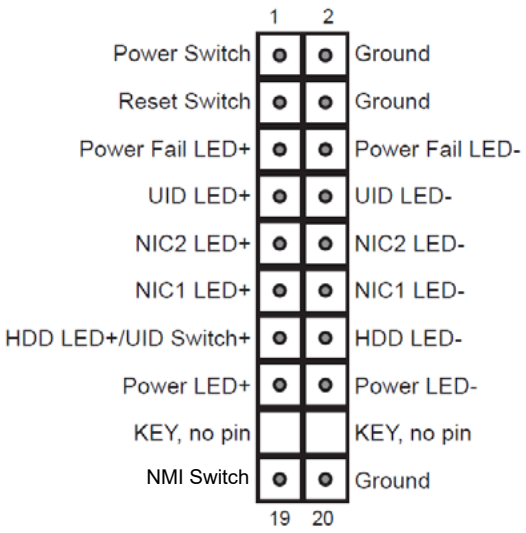


Figure 2-3. JF1 Pin Definitions

2.7 Connectors

Power Switch

The Power Switch connection is located on pins 1 and 2 of JF1. Attach it to a hardware power switch on the computer case to power on/off the system. To force the system to be powered off, press the button for at least four seconds. Refer to the table below for pin definitions.

Power Switch Pin Definitions (JF1)	
Pin#	**Definition**
1	Power Switch
2	Grounds

Reset Switch

The Reset Switch connection is located on pins 3 and 4 of JF1. Attach it to a hardware reset switch on the computer case to reset the system. Refer to the table below for pin definitions.

Reset Switch Pin Definitions (JF1)	
Pin#	**Definition**
3	Reset Switch
4	Ground

Power Fail LED

The Power Fail LED connection is located on pins 5 and 6 of JF1.

Power Fail LED Pin Definitions (JF1)	
Pin#	**Definition**
5	Power Fail LED+
6	Power Fail LED-

Power Fail LED	
LED State	**Status**
Solid on	Overhear
Fast Blinking	Fan Fail
Slow Blinking	Power Fail

Unit Identifier Switch /UID LED Indicator

A Unit Identifier (UID) switch is located on the I/O backplane, and two UID LED indicators are located on the serverboard. The rear UID LED is located next to the UID switch. The front UID LED is located on pins 7 and 8 on the front control panel (JF1). When you press the UID switch, both rear and front UID LED indicators will be turned on. Press the UID switch again to turn off the LED indicators. The UID Indicators provide easy identification of a system unit that may be in need of service.

Note: UID can also be triggered via IPMI on the serverboard. For more information on IPMI, please refer to the IPMI User's Guide posted on our website at http://www.supermicro.com.

UID LED
Pin Definitions (JF1)

Pin#	Definition
7	UID LED+
8	UID LED-

NIC1/NIC2 (LAN1/LAN2)

The NIC (Network Interface Controller) LED connection for LAN port 1 is located on pins 11 and 12 of JF1, and the LED connection for LAN Port 2 is on pins 9 and 10. Attach the NIC LED cables here to display network activity.

LAN1/LAN2 LED
Pin Definitions (JF1)

Pin#	Definition
9	NIC2 LED+
10	NIC2 LED-
11	NIC1 LED+
12	NIC1 LED-

HDD LED/UID Switch

The HDD LED/UID Switch connection is located on pins 13 and 14 of JF1. Attach a cable to pin 14 to show hard drive activity status. Attach a cable to pin 13 to use UID switch. Refer to the table below for pin definitions.

HDD LED
Pin Definitions (JF1)

Pin#	Definition
13	HDD LED+/UID Switch+
14	HDD LED-

Power LED

The Power LED connection is located on pins 15 and 16 of JF1. Attach a cable to pin 15 and pin 16 to show system power status. Refer to the table below for pin definitions.

Power LED
Pin Definitions (JF1)

Pin#	Definition
15	Power LED+
16	Power LED-

NMI Switch

The non-maskable interrupt switch header is located on pins 19 and 20 of JF1. Attach it to a hardware NMI switch on the computer case to trigger the NMI. Refer to the table below for pin definitions.

NMI Switch
Pin Definitions (JF1)

Pin#	Definition
19	NMI Switch
20	Ground

2.8 Connectors

Main Power Supply Connector (JPWR3)

The primary power supply connector (JPWR3) is an ATX power connector that the power supply plugs directly into.

ATX Power 24-pin Connector Pin Definitions

Pin#	Definition	Pin#	Definition
13	+3.3V	1	+3.3V
14	-12V	2	+3.3V
15	Ground	3	Ground
16	PS_ON	4	+5V
17	Ground	5	Ground
18	Ground	6	+5V
19	Ground	7	Ground
20	Res (NC)	8	PWR_OK
21	+5V	9	5VSB
22	+5V	10	+12V
23	+5V	11	+12V
24	Ground	12	+3.3V

12V 8-pin Auxilliary Power Connector (JPWR1, JPWR2)

JPWR1 and JPWR2 are 8-pin ATX power connectors that provide auxiliary power to the processor. Refer to the table below for pin definitions.

12V 8-pin Power Connector Pin Definitions

Pin#	Definition
1 through 4	Ground
5 through 8	+12V

Onboard Fan Headers (FAN1-FAN4, FanA, FANB)

There are six fan headers on the motherboard. These are 4-pin fan headers; pins 1-3 are backward compatible with traditional 3-pin fans. The onboard fan speeds are controlled by Thermal Management (via Hardware Monitoring) in the BMC. When using Thermal Management setting, please use all 4-pin fans.

Fan Header Pin Definitions

Pin#	Definition
1	Ground (Black)
2	+12V (Red)
3	Tachometer (Yellow)
4	PWM COntrol (Blue)

NVMe Ports (NVMe0~1, NVMe2~3)

The H13SSL-N/NT has four NVMe ports (two ports per one MCIO connector). These ports provide high-speed, low-latency PCIe 5.0 x4 connections directly from the CPU to NVMe Solid State (SSD) drives. This greatly increases SSD data-throughput performance and significantly reduces PCIe latency by simplifying driver/software requirements resulting from direct PCIe interface from the CPU to the NVMe SSD drives.

SATA/NVMe Hybrid Ports (SATA0~7/NVMe4~5)

The SATA/NVMe hybrid ports can support up to eight SATA 3.0 or two NVMe storage devices (PCIe 5.0 x4).

TPM Header/Port 80 Connector (TPM Port)

The JTPM1 header is used to connect a Trusted Platform Module (TPM), which is available from a third-party vendor. A TPM is a security device that supports encryption and authentication in hard drives. It enables the motherboard to deny access if the TPM associated with the hard drive is not installed in the system.

Please go to the following link for more information on TPM: http://www.supermicro.com/manuals/other/TPM.pdf.

Trusted Platform Module Header
Pin Definitions

Pin#	Definition	Pin#	Definition
1	+3.3 V	2	SPI_CS#
3	RESET#	4	SPI_MISO
5	SPI_CLK	6	GND
7	SPI_MOSI	8	KEY, no pin
9	+1.8V Stdby	10	SPI_IRQ#

PCIe M.2 Connector (M.2-H1, M.2-H2)

The PCIe M.2 connectors are for devices such as memory cards, wireless adapters, etc. These devices must conform to the PCIe M.2 specifications (formerly known as NGFF). These particular PCIe M.2 supports M-Key (PCIe x4) storage cards. M.2-H1 and M.2-H2 can support a speed of PCIe x4 per port.

USB Ports (USB0~USB5)

There are a total of six USB ports supported on the motherboard. Four are located on the back panel. There are also two ports located on one header, USB4/5 (3.0).

Front Panel USB 3.0 Pin Definitions

Pin#	Definition	Pin#	Definition
20	KEY, no pin	1	VBUS +5 V
19	VBUS +5 V	2	P1_SSRX-
18	P2_SSRX-	3	P1_SSRX+
17	P2_SSRX+	4	GND
16	GND	5	P1_SSTX-
15	P2_SSTX-	6	P1_SSTX+
14	P2_SSTX+	7	GND
13	GND	8	P1_D-
12	P2_D-	9	P1_D+
11	P2_D+	10	GND

Expansion Slots

The motherboard features several expansion slots. The table below describes each slot's type and speed.

Expansion Slots

Name	Description
J1	CPU Slot1 PCIe 5.0 x16
J2	CPU Slot2 PCIe 5.0 x8
J3	CPU Slot3 PCIe 5.0 x16
J4	CPU Slot4 PCIe 5.0 x8
J5	CPU Slot5 PCIe 5.0 x16

Onboard Battery (BT1)

The onboard back up battery is located at BT1. The onboard battery provides backup power to the on chip CMOS, which stores the BIOS' setup information. It also provides power to the Real Time Clock (RTC) to keep it running.

Chassis Intrusion (JL1)

A Chassis Intrusion header is located at JL1 on the motherboard. Attach the appropriate cable from the chassis to the header to inform you when the chassis has been opened.

Chassis Intrusion Pin Definitions	
Pin#	**Definition**
1	Intrusion Input
2	Ground

IPMB System Management Bus Header (JIPMB1)

A System Management Bus header for IPMI 2.0 is located at JIPMB1. Connect the appropriate cable here to use the IPMB I^2C connection on your system.

IPMB Header Pin Definitions	
Pin#	**Definition**
1	Data
2	Ground
3	Clock
4	No Connection

Disk-On-Module Power Connectors (JSD1 & JSD2)

The Disk-On-Module (DOM) power connectors at JSD1 and JSD2 provide 5V power to solid-state DOM storage devices connected to one of the SATA ports. See the table below for pin definitions.

DOM Power Pin Definitions	
Pin#	**Definition**
1	5V
2	Ground
3	Ground

SATA (SATA8~15)

The H13SSL-N/NT has eight available SATA 6.0 ports (SATA8, 9, 10, 11 and SATA12/13, 14/15).

SATA Connectors Pin Definitions

Pin#	Signal
1	Ground
2	SATA_TXP
3	SATA_TXN
4	Ground
5	SATA_RXN
6	SATA_RXP
7	Ground

Power SMB Header (PWRI^{2}C)

Power System Management Bus (I^{2}C) header monitors power supply, fan and system temperatures. See the table below for pin definitions.

Power SMB Header Pin Definitions

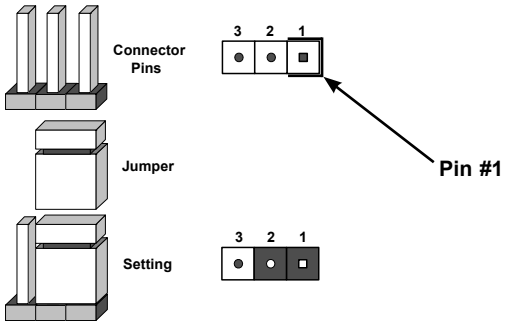
Pin#	Definition
1	Clock
2	Data
3	PWR Fail
4	Ground
5	+3.3V

2.9 Jumper Settings

How Jumpers Work

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

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



CMOS Clear (JBT1)

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

To Clear CMOS

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

Note: Clearing CMOS will also clear all passwords.

Do not use the PW_ON connector to clear CMOS.

JSATA1

The 3-pin jumper at JSATA1 provides the option to switch the hybrid port (JMCIO3) between SATA/NVMe. Refer to the table below for pin definitions.

JSATA1 Pin Definitions	
Pin#	**Definition**
1-2	Auto (Depends on system configuration)
2-3	SATA
Open	NVMe

LAN Enable/Disable (JPL1)

Jumper JPL1 will enable or disable LAN1/LAN2. See below for jumper settings. The default setting is enabled.

GLAN Enable Jumper Settings	
Pin#	**Definition**
1-2	Enabled (default)
2-3	Disabled

2.10 LED Indicators

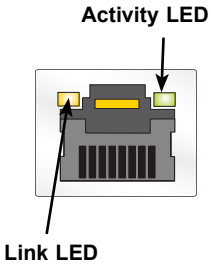
LAN Port LEDs

The motherboard's Ethernet ports have two LED indicators. The Activity LED is green and indicates connection and activity. The Link LED may be green, orange, or off to indicate the speed of the connection. Refer to the tables below for more information.

H13SSL-NT

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

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



H13SSL-N

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

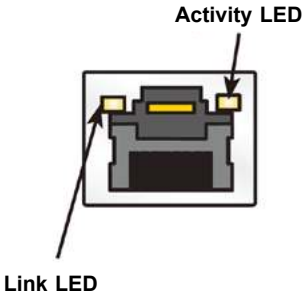
Activity LED		
Color	**State**	**Definition**
None	No Connection	
None	Solid On	Link
Green	Flashing	Active

BMC LAN Port LEDs

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

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

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



UID LED Indicator (LED1)

The rear LED1 is located next to the UID switch. The front UID LED is located on the front panel. When you press the UID switch, both rear LED1 and front UID LED indicators will turn on. Press the UID switch again to turn off the LED indicators. Use this UID Indicator to 'mark' the system, so the system can be easily identified whether on the front or back (e.g., a system rack with multiple units installed).

UID LED LED Indicator		
Color	**State**	**Definition**
Blue	Solid On	Unit Identified
Blue	Blinking	Remote Unit Identified
None	Off	UID Off

BMC Heartbeat LED (LEDBMC)

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

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

Onboard Power OK LED (LED9)

LED9 is an onboard power OK LED. When this LED9 is lit, it means the system is turned on, and all the system power rails are ready. When the system is turned off, or any one of the system power rails fail, this LED will turn off. Turn off the system, and unplug the power cable before removing or installing any component(s).

Onboard Power LED Indicator	
LED Color	**Definition**
Off	System Off (power cable not connected)
Green	System On, Power OK
Green	Blinking, BIOS initializing

Chapter 3

Troubleshooting

3.1 Troubleshooting Procedures

Use the following procedures to troubleshoot your system. If you have followed all of the procedures below and still need assistance, refer to the 'Technical Support Procedures' and/or 'Returning Merchandise for Service' section(s) in this chapter. Always disconnect the AC power cord before adding, changing or installing any non hot-swap hardware components.

Before Power On

1. Check that the power LED on the motherboard is on.
2. Make sure that the power connector is connected to your power supply.
3. Make sure that no short circuits exist between the motherboard and chassis.
4. Disconnect all cables from the motherboard, including those for the keyboard and mouse.
5. Remove all add-on cards.
6. Install a CPU, a heatsink*, and connect the power LED to the motherboard. Check all jumper settings as well. (Make sure that the heatsink is fully seated.)
7. Use the correct type of onboard CMOS battery (CR2032) as recommended by the manufacturer. To avoid possible explosion, do not install the CMOS battery upside down.

No Power

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

No Video

1. Check that the VGA cable is connected properly, and the monitor is on.
2. Check if you follow the guidelines to install the memory module (*see DIMM Module Population in chapter 2*).
3. Reseat the memory DIMM module.

Note: If you are a system integrator, VAR or OEM, a POST diagnostics card is recommended.

System Boot Failure

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

1. Clear the CMOS settings by unplugging the power cord and contacting both pads on the CMOS Clear Jumper (JBT1). Refer to chapter 2.
2. Remove all components from the motherboard, especially the DIMM modules.
3. Turn on the system with only one DIMM module installed. If the system boots, check for bad DIMM modules or slots by following the Memory Errors Troubleshooting procedure in this Chapter.

Memory Errors

1. Make sure that the DIMM modules are properly and fully installed.
2. Confirm that you are using the correct memory. Also, it is recommended that you use the same memory type and speed for all DIMMs in the system. See Section 2.4 for memory details.
3. Check for bad DIMM modules or slots by swapping modules between slots and noting the results.

What to do if the System is Losing the Setup Configuration

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

When the System Becomes Unstable

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

1. CPU/BIOS support: Make sure that your CPU is supported and that you have the latest BIOS installed in your system.
2. Memory support: Make sure that the memory modules are supported by testing the modules using memtest86 or a similar utility.

Note: Refer to the product page on our website at http://www.supermicro.com for memory and CPU support and updates.

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

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

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

3.2 Technical Support Procedures

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

1. Please review the 'Troubleshooting Procedures' and 'Frequently Asked Questions' (FAQs) sections in this chapter or see the FAQs on our website before contacting Technical Support.
2. BIOS upgrades can be downloaded from our website. **Note:** Not all BIOS can be flashed depending on the modifications to the boot block code.
3. If you still cannot resolve the problem, include the following information when contacting us for technical support:

- Motherboard model and PCB revision number
- BIOS release date/version (this can be seen on the initial display when your system first boots up)
- System configuration

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

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

3.3 Frequently Asked Questions

Question: What type of memory does my motherboard support?

Answer: The H13SSL-N/NT motherboard supports up to 3 TB of ECC DDR5 at 4800 MT/s with the EPYC™ 9004 processor installed, up to 4.5 TB of ECC DDR5 at 6000 MT/s with the EPYC™ 9005 processor installed on motherboard revision 2.00, and up to 4.5 TB of ECC DDR5 at 6400 MT/s with the EPYC™ 9005 processor installed on motherboard revision 2.01. See Section 2.4 for details on installing memory.

Question: How do I update my BIOS?

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

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

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

3.4 Returning Merchandise for Service

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

For faster service, RMA authorizations may be requested online (http://www.supermicro.com/support/rma/).

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

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

3.5 Battery Removal and Installation

Battery Removal

To remove the onboard battery, follow the steps below:

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

Proper Battery Disposal

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

Battery Installation

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

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

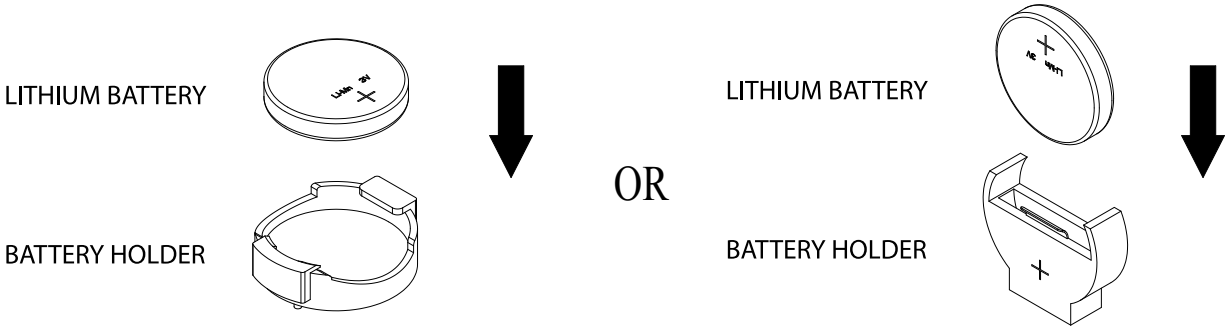


Figure 3-1. Battery Installation

Chapter 4

UEFI BIOS

4.1 Introduction

This chapter describes the AMIBIOS™ Setup utility for the H13SSL-N/NT motherboard. The BIOS is stored on a chip and can be easily upgraded using a flash program.

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

Starting the Setup Utility

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

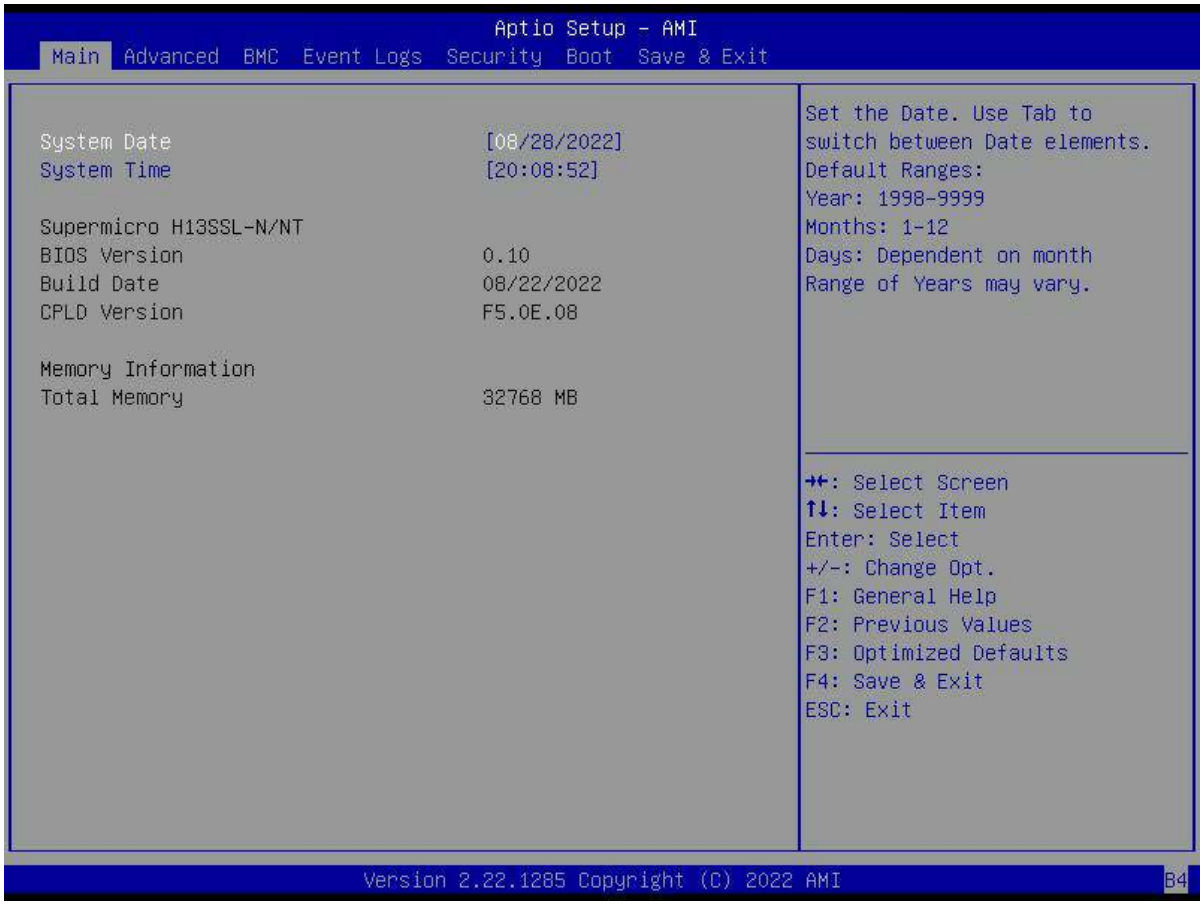
The Main BIOS screen has two main frames. The left frame displays all the options that can be configured. “Grayed-out” options cannot be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is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

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

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

4.2 Main Setup

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



System Date/System Time

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

Note: The time is in the 24-hour format. For example, 5:30 P.M. appears as 17:30:00. The date's default value is 01/01/2015 after RTC reset.

Supermicro H13SSL-N/NT

BIOS Version

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

Build Date

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

CPLD Version

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

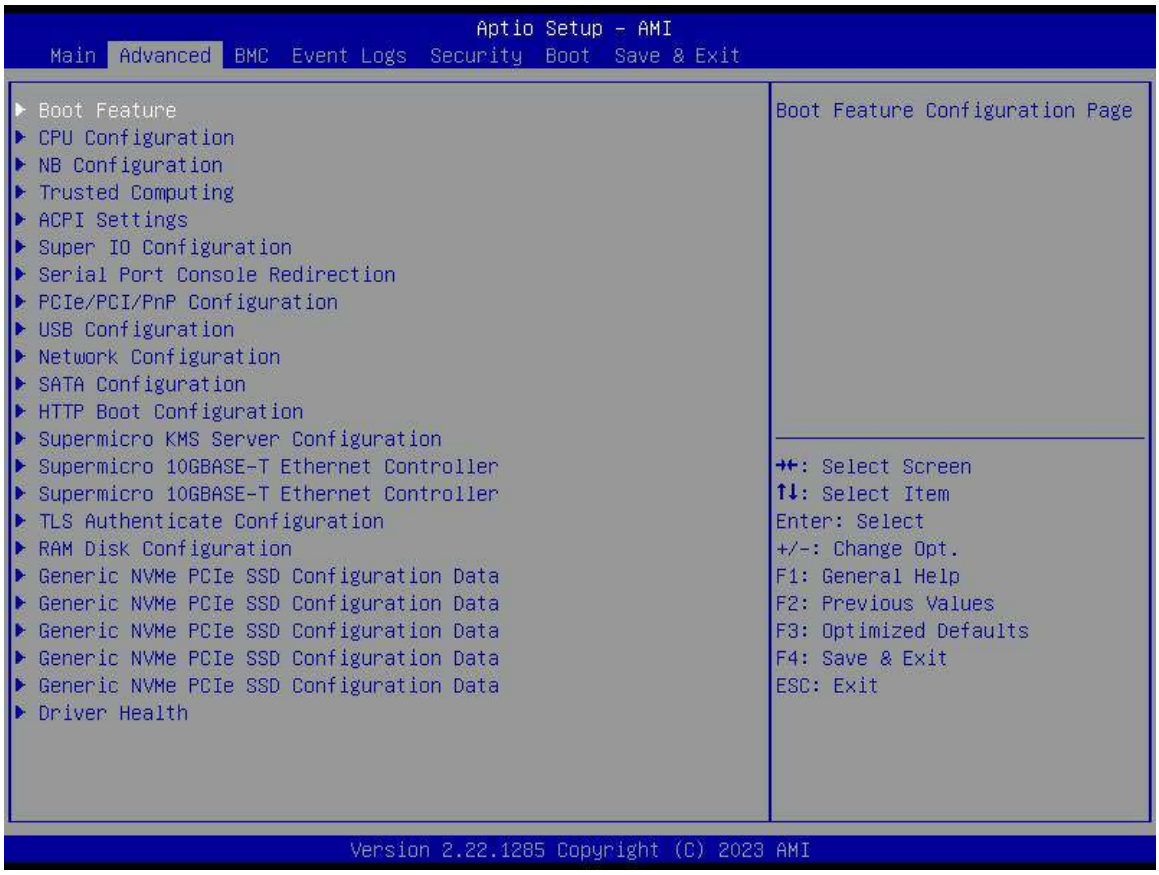
Memory Information

Total Memory

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

4.3 Advanced

Use the arrow keys to select a top item and press <Enter> to access the submenu items:



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

▶Boot Feature

Boot Configuration

Quiet Boot

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

Option ROM Messages

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

Bootup NumLock State

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

Wait For "F1" If Error

Use this feature to force the system to wait until the 'F1' key is pressed if an error occurs. The options are Disabled and **Enabled**.

INT19 (Interrupt 19) Trap Response

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

Re-try Boot

If this item is enabled, the BIOS will automatically reboot the system from a specified boot device after its initial boot failure. The options are **Disabled**, Legacy Boot and EFI Boot.

Power Configuration

Watch Dog Function

If enabled, the Watch Dog Timer will allow the system to reset or generate NMI based on jumper settings when it is expired for more than 5 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 Power Off, Power On and **Last State**.

Power Button Function

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

▶CPU Configuration

CPU Configuration

SMT Control

Use this setting to specify Simultaneous Multithreading. Options include Disabled and **Auto**.

Core Performance Boost

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

Global C-state Control

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

SEV-ES ASID Space Limit

This setting customize SEV-VS ASID space limit . The default value is **1**.

Local APIC Mode

Use this setting to adjust local APIC mode. Options include Compatibility, xAPIC, x2APIC and **Auto**.

PPIN Opt-in

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

SNP Memory (RMP Table) Coverage

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

SMEE

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

AVX512

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

Monitor and MWAIT Disable

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

L1 Stream HW Prefetcher / L2 Stream HW Prefetcher

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

CCD Control

Use this setting to disable CCDs in the CPU. Options include **Auto**, 2 CCDs, 4 CCDs, 6CCDs, 8 CCDs, and 10 CCDs.

Core Control

This sets the number of cores to be used by your system. Once this option has been used to remove any cores, a power cycle is required in order for the future selections to take effect. Options include **Auto**, ONE (1+0), TWO (2+0), THREE (3+0), FOUR (4+0), FIVE (5+0), SIX(6+0), and SEVEN (7+0). If unsure, leave this to Auto.

SVM Mode

This setting Disables or **Enables** CPU Virtualization.

▶CPU1 Information

CPU1 Information

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

- CPU Version
- Number of Cores Running
- Processor Family
- Processor Model
- Microcode Patch Level
- L1 Instruction Cache (Size/Method)
- L1 Data Cache (Size/Method)
- L2 Cache (Size/Method)
- L3 Cache per Socket (Size/Method)

CPU1 PCIe Package Group P2

This setting selects the PCIe port bifurcation configuration for the selescted slot. The options include **Auto**, x4x4x4x4, x4x4x8, x8x4x4, x8x8, and x16.

CPU1 PCIe Package Group G2

This setting selects the PCIe port bifurcation configuration for the selescted slot. The options include **Auto**, x4x4x4x4, x4x4x8, x8x4x4, x8x8, and x16.

CPU1 PCIe Package Group P3

This setting selects the PCIe port bifurcation configuration for the selescted slot. The options include **Auto**, x4x4x4x4, x4x4x8, x8x4x4, x8x8 and x16.

CPU1 PCIe Package Group G3

This setting selects the PCIe port bifurcation configuration for the selescted slot. The options include **Auto**, x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16 and SATA (M.2).

CPU1 PCIe Package Group P1

This setting selects the PCIe port bifurcation configuration for the selescted slot. The options include **Auto**, x4x4x4x4, x4x4x8, x8x4x4, x8x8 and x16.

CPU1 PCIe Package Group G1

This setting selects the PCIe port bifurcation configuration for the selescted slot. The options include **Auto**, x4x4x4x4, x4x4x8, x8x4x4, x8x8 and x16.

CPU1 PCIe Package Group P0

This setting selects the PCIe port bifurcation configuration for the selescted slot. The options include **Auto**, x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16 and SATA (MCIO3).

CPU1 PCIe Package Group G0

This setting selects the PCIe port bifurcation configuration for the selescted slot. The options include **Auto**, x4x4x4x4, x4x4x8, x8x4x4, x8x8 and x16.

▶NB Configuration

North Bridge Configuration

IOMMU

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

TDP Control

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

Package Power Limit Control

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

Determinism Control

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

APBDIS

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

Power Profile Selection

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

DF Cstats

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

Data Link Feature Cap

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

SEV-SNP Support

Use this setting for SEV-SNP Support. Options include **Disabled** and Enabled.

▶Memory Configuration

Memory Target Speed

Use this feature to set the memory target speed. Options include **Auto**, DDR3200, DDR3600, DDR4000, DDR4400, DDR4800, DDR5200, and DDR5600.

Memory Interleaving

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

Chipselect Interleaving

This setting controls interleave memory blocks across the DRAM chip for node 0. The options are Disabled and **Auto**.

BankSwapMode

This setting controls the Bank Swap Mode. The options are **Auto**, Disabled, and Swap CPU.

Power Down Enable

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

DRAM Scrub Time

This setting provides a value that is the number of hours to scrub memory. The options are Disabled, 1 hour, 4 hours, 6 hours, 8 hours, 12 hours, 16 hours, 24 hours, 48 hours , and **Auto**.

TSME

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

Enhanced PPR

This setting enables a full memory test. The testing will increase the boot time.

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

▶CPU1 Memory Information

CPU1 Memory Information

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

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

▶Trusted Computing

Configuration

Security Device Support

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

Disable Block Sid

Override to allow SID authentication in TCG Storage device. The options are Enabled and **Disabled**.

▶ACPI Settings

ACPI Settings

High Precision Event Timer

The High Precision Event Timer (HPET) can produce periodic interrupts and is used to synchronize multimedia streams, providing smooth playback and reducing the need to use other timestamp calculations. The options are Disabled and **Enabled**.

PCI AER Support

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

NUMA Nodes Per Socket

Use this feature to specify the number of desired NUMA nodes per socket. The options are NPS0, NPS1, NPS2, NPS4, and **Auto**.

ACPI SRAT L3 Cache As NUMA Domain

Use this setting to enabe/disable ACPI SRAT L3 Cache As NUMA Domain. The options are Disabled, Enabled, and **Auto**.

▶Super IO Configuration

Super IO Configuration

The following Super IO information will display:

- Super IO Chip AST2600

▶Serial Port 1 Configuration

Serial Port 1 Configuration

Serial Port

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

Change Settings

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

▶Serial Port 2 Configuration

Serial Port 2 Configuration

Serial Port

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

Change Settings

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

▶Serial Port Console Redirection

COM1

Console Redirection

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

SOL

Console Redirection

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

▶Console Redirection Settings

Terminal Type

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

Bits Per Second

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

Data Bits

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

Parity

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

Stop Bits

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

Flow Control

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

VT-UTF8 Combo Key Support

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

Recorder Mode

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

Resolution 100x31

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

Legacy OS Redirection Resolution

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

Putty KeyPad

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

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.

Legacy Serial Redirection Port

For this setting, select a COM port to display redirection of Legacy OS and Legacy OPROM messages. The default setting is **COM1**.

Console Redirection

The options are **Disabled** and Enabled.

▶PCIe/PCI/PnP Configuration

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

PCI Bus Driver Version: A5.01.28

PCI Devices Common Settings:

Above 4G Decoding

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

Re-Size BAR Support

If system has resizable BAR capable PCIe devices, this options **Disables** or Enables resizable BAR support.

SR-IOV Support

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

BME DMA Mitigation

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

ASPM Support

Use thes setting to set the ASPM level. The options are **Disabled**, Auto, and Force L0s.

PCIe ARI Support

Use this setting to Disable, Enable, or **Auto** control the Alternative Routing-ID Interpretation.

PCIe ARI Enumeration

Use this setting to Disable, Enable, or **Auto** control the ARI Forwarding Enable for each downstream port.

Relaxed Ordering

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

Clock Spread Spectrum

Use this setting to Disable or Enable CG1_PLL Spread Spectrum for your system. The options are **Disabled** and Enabled.

No Snoop

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

VGA Priority

Use this setting to select between onboard or external VGA support. The options are **Onboard** and External.

PCIe Ten Bit Tag Support

Use this setting to Disable, Enable, or **Auto** control the PCIe ten bit tags for supported devices.

NVMe Firmware Source

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

PCI Devices Option ROM Setting:

CPU SLOT1 PCIe5.0 x16 OPROM

Use this setting to enables or disables PCIe Slot OPROM option. The options are Disabled, Legacy, and **EFI**.

CPU SLOT2 PCIe5.0 x8 OPROM

Use this setting to enables or disables PCIe Slot OPROM option. The options are Disabled, Legacy, and **EFI**.

CPU SLOT3 PCIe5.0 x16 OPROM

Use this setting to enables or disables PCIe Slot OPROM option. The options are Disabled, Legacy, and **EFI**.

CPU SLOT4 PCIe5.0 x8 OPROM

Use this setting to enables or disables PCIe Slot OPROM option. The options are Disabled, Legacy, and **EFI**.

CPU SLOT5 PCIe5.0 x16 OPROM

Use this setting to enables or disables PCIe Slot OPROM option. The options are Disabled, Legacy, and **EFI**.

Onboard Video Option ROM

Use this setting to control the execution of UEFI and Legacy Video OpROM. The options are Disabled, **EFI**, and Legacy.

Onboard LAN 1 OPROM

Use this setting to enable or disable Onboard LAN OPROM option. The options are Disabled, Legacy, and **EFI**.

▶USB Configuration

USB Configuration

USB Module Version: 29

USB Controllers: 4 XHCIs

USB Devices: 2 keyboards, 2 mice, 2 hubs

Legacy USB Support

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

XHCI Hand-Off

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

Port 60/64 Emulation

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

▶Network Configuration

Network Configuration

Network Stack

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

IPv4 PXE Support

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

IPv4 HTTP Support

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

IPv6 PXE Support

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

IPv6 HTTP Support

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

PXE Boot Wait Time

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

Media Detect Count

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

▶MAC: 3CECEFDC18DA-IPv4 Network Configuration

Configured

This setting indicates whether network address configured successfully or not. The options include **Disabled** and Enabled.

Save Changes and Exit

This setting saves changes and exit.

▶MAC: 3CECEFDC18DA-IPv6 Network Configuration

▶Enter Configuration Menu

Interface ID

This 64 bit alternative interface ID for the device. The string is colon separated.

DAD Transmit Count

The default value is **1**.

Policy

The options are **automatic** and manual.

Save Changes and Exit

This setting saves changes and exit.

▶MAC: 3CECEFDC18DB-IPv4 Network Configuration

Configured

This setting indicates whether network address configured successfully or not. The options are **Disabled** and Enabled.

Save Changes and Exit

This setting saves changes and exit.

▶MAC: 3CECEFDC18DB-IPv6 Network Configuration

▶Enter Configuration Menu

Interface ID

This 64 bit alternative interface ID for the device. The string is colon separated.

DAD Transmit Count

The default value is **1**.

Policy

The options are **automatic** and manual.

Save Changes and Exit

This setting saves changes and exit.

▶SATA Configuration

SATA Configuration

SATA Devices Information.

SATA Enable

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

▶SATA Information

SATA Controller (S:00 B:C8 D:00 F:00)

Port 0~7 Not Present

SATA Controller (S:00 B:C8 D:00 F:01)

Port 0~7 Not Present

▶HTTP Boot Configuration

HTTP Boot Configuration

HTTP Boot Policy

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

HTTP Boot Checks Hostname

The setting selects whether HTTPs Boot checks the hostname of TLS certificates matches the hostname provided by the remote server. The options are **Enabled** and Disables (WARNING: Security Risk!!).

Priority of HTTP Boot

Instance of Priority 1: 1

Select IPv4 or IPv6

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

Boot Description

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

Boot URI

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

▶Supermicro KMS Server Configuration

Supermicro KMS Server IP address

Enter IP4 address in dotted-decimal notation.

Second Supermicro KMS Server IP address

Enter IP4 address in dotted-decimal notation.

Supermicro KMS TCP Port number

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

KMS Time Out

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

Supermicro KMS Server Retry Count

Test connection to key manage server. range is 0~10. 0 means retrying infinitely. Others mean retry-count. The default value is **2**.

TimeZone

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

TCG Nvme KMS Policy

The options include Normal Unlock, **Do Nothing**, Reset All Devices and Delete Key Id List.

Client UserName

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

Client Password

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

KMS TLS Certifiicate / Size

▶CA Certificate

The options include Update, Delete, and Export.

▶Client Certificate

The options include Update, Delete, and Export.

▶Client Private Key

The options include Update, Delete, and Export.

▶Supermicro 10GBASE-T Ethernet Controller- 3C:EC:EF:DC:18:DA

▶Firmware Image Menu

Bootcode

MBA

EFI

CCM

NCSI

RDMA FW

▶Device Configuration Menu

Multi-Function Mode

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

SR-IOV

The setting enabled or **disabled** Single Root IO Virtualization.

Number of MSI-X Vectors per VF

The setting configures number of MSI-X vectors per VF (0-64). The default value is **16**.

Maximum Number of PF MSI-X Vectors

The setting configures maximum number of PF MSI-X Vectors (0-512 per controller). The default value is **255**.

Energy Efficient Ethernet

The setting configures Energy Efficient Ethernet operation. The options are **Disabled** and Enabled.

Operational Link Speed

The setting configures the default link speed for the selected port. On dual port adapters, if one port is configured for 10G and user selects 25G on the other port, both ports will be set to 25G, or vice versa. The default is **AutoNeg**.

Support RDMA

The setting configures RDMA Support for this port. The options are Disables and **Enabled**.

DCB Protocol

The setting enables or disables DCB Protocol. The options are Disabled, **Enabled (IEEE only)**, CEE (only), Both (IEEE preferred with fallback to CEE).

LLDP nearest bridge

The setting configures LLDP nearest bridge state. The options are **Disabled** and Enabled.

Default EVB Mode

The setting configures Default Edge Virtual Bridging mode. The options are **VEB**, VEPA, and None.

Enable PME Capability

The setting configures PME Capability support. The options are Disabled and **Enabled**.

Flow Offload

This setting configures Flow Offload Mode. This figure is supported on Linux DPDK only. The options are **Disabled** and Enabled.

Live Firmware Upgrade

This setting enables upgrade of device firmware with minimal down time and minimal traffic interruption. Avoids host reboot, device power cycle and driver reload. This feature is supported on Linux OS only. The options are **Disabled** and Enabled.

Adapter Error Recovery

This setting enables recovery of firmware from fatal errors without manual intervention, host reboot and power cycle. The options are **Disabled** and Enabled.

▶MBA Configuration Menu

Option ROM

This setting controls the enablement of legacy Boot Protocols in the Option ROM. The options are Disabled and **Enabled**.

Legacy Boot Protocol

This setting selects non-UEFI Boot Protocol. The options are **PXE** and NONE.

Boot Strap Type

This setting controls the boot strap method used to boot to the operating system. The options are **Auto Detect**, BBS, Int 18h, and Int 19h.

Hide Setup Prompt

Use this setting to configure whether setup prompt is displayed during ROM initialization. The optionas are **Disabled** and Enabled.

Setup Key Stroke

Configure key strokes to invoke configuration menu. The optionas are **Ctrl-S** and Ctrl-B.

Banner Message Timeout

Use this setting to specify the number of seconds that the optionROM banner is displayed during POST. The default value is **7**.

Pre-boot Wake on LAN

Use this settiing to configure Pre-boot wake on LAN. The options include Disabled and **Enabled**.

VLAN Mode

Virtual LAN mode enables use of a VLAN tag to be used by PXE. The options include **Disabled** and Enabled.

Boot Retry Count

Use this setting to specify the number of retries to attempt in case of a boot failure.

The options are **No Retry**, 1 Retry, 2 Retries, 3 Retries, 4 Retries, 5 Retries, 6 Retries, and Indefiinite Retries.

Blink LEDs: 0

Link Status: Connected

Permanent MAC Address: 3C:EC:EF:DC:18:DA

Virtual MAC Address: 3C:EC:EF:DC:18:DA

Restore Defaults

Reset adapter to factory defaults.

▶Supermicro 10GBASE-T Ethernet Controller-3C:EC:EF:DC:18:DB

▶Firmware Image Menu

Bootcode

MBA

EFI

CCM

NCSI

RDMA FW

▶Device Configuration Menu

Multi-Function Mode

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

SR-IOV

The setting enabled or **disabled** Single Root IO Virtualization.

Number of MSI-X Vectors per VF

The setting configures number of MSI-X vectors per VF (0-64). The default value is **16**.

Maximum Number of PF MSI-X Vectors

The setting configures maximum number of PF MSI-X Vectors (0-512 per controller). The default value is **255**.

Energy Efficient Ethernet

The setting configures Energy Efficient Ethernet operation. The options are **Disabled** and Enabled.

Operational Link Speed

The setting configures the default link speed for the selected port. On dual port adapters, if one port is configured for 10G and user selects 25G on the other port, both ports will be set to 25G, or vice versa. The default is **AutoNeg**.

Support RDMA

The setting configures RDMA Support for this port. The options are Disables and **Enabled**.

DCB Protocol

The setting enables or disables DCB Protocol. The options are Disabled, **Enabled (IEEE only)**, CEE (only), Both (IEEE preferred with fallback to CEE).

LLDP nearest bridge

The setting configures LLDP nearest bridge state. The options are **Disabled** and Enabled.

Default EVB Mode

The setting configures Default Edge Virtual Bridging mode. The options are **VEB**, VEPA, and None.

Enable PME Capability

The setting configures PME Capability support. The options are Disabled and **Enabled**.

Flow Offload

This setting configures Flow Offload Mode. This figure is supported on Linux DPDK only. The options are **Disabled** and Enabled.

Live Firmware Upgrade

This setting enables upgrade of device firmware with minimal down time and minimal traffic interruption. Avoids host reboot, device power cycle and driver reload. This feature is supported on Linux OS only. The options are **Disabled** and Enabled.

Adapter Error Recovery

This setting enables recovery of firmware from fatal errors without manual intervention, host reboot and power cycle. The options are **Disabled** and Enabled.

▶MBA Configuration Menu

Option ROM

This setting controls the enablement of legacy Boot Protocols in the Option ROM. The options are Disabled and **Enabled**.

Legacy Boot Protocol

Select a non-UEFI Boot protocol. The options are **PXE** and None.

Boot Strap Type

This setting controls the boot strap method used to boot to the operating system. The options are **Auto Detect**, BBS, Int 18h and Int 19h.

Hide Setup Prompt

Use this setting to configure whether setup prompt is displayed during ROM initialization. The optionas are **Disabled** and Enabled.

Setup Key Stroke

Configure key strokes to invoke configuration menu. The optionas are **Ctrl-S** and Ctrl-B.

Banner Message Timeout

Use this setting to specify the number of seconds that the optionROM banner is displayed during POST. The default value is **7**.

Pre-boot Wake on LAN

Use this settiing to configure Pre-boot wake on LAN. The options include Disabled and **Enabled**.

VLAN Mode

Virtual LAN mode enables use of a VLAN tag to be used by PXE. The options include **Disabled** and Enabled.

Boot Retry Count

Use this setting to specify the number of retries to attempt in case of a boot failure.

The options are **No Retry**, 1 Retry, 2 Retries, 3 Retries, 4 Retries, 5 Retries, 6 Retries, and Indefiinite Retries.

Blink LEDs: 0

Link Status: Disconnected

Permanent MAC Address: 3C:EC:EF:DC:18:DB

Virtual MAC Address: 3C:EC:EF:DC:18:DB

Restore Defaults

Reset adapter to factory defaults.

▶TLS Authenticate Configuration

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

▶Server CA Configuration

▶Enroll Certification

▶Enroll Certification Using File

▶Commit Changes and Exit

▶Discard Changes and Exit

▶Delete Certification

▶RAM Disk Configuration

Disk Memory Type: Boot Service Deta

▶Create raw

Size (Hex): 1

▶Create from file

RAM Disk 0: 0x99882018, 0x99883017

The options are disabled and Enabled.

▶Generic NVMe PCIe SSD Configuration

▶View Physical Device Properties

Model Number/Firmware Revision/Capacity (GB)

▶Generic NVMe PCIe SSD Configuration

▶View Physical Device Properties

Model Number/Firmware Revision/Capacity (GB)

▶Generic NVMe PCIe SSD Configuration

▶View Physical Device Properties

Model Number/Firmware Revision/Capacity (GB)

▶Generic NVMe PCIe SSD Configuration

▶View Physical Device Properties

Model Number/Firmware Revision/Capacity (GB)

▶Generic NVMe PCIe SSD Configuration

▶View Physical Device Properties

Model Number/Firmware Revision/Capacity (GB)

▶Driver Health

▶Broadcom NXE Gigabit Ethernet Driver: Healthy

Controller 9BCF5718 Child 0: Healthy

Controller 9BCF5D98 Child 0: Healthy

▶Samsung Electronics NVMe Driver: Healthy

Samsung NVM Express COntroller: Healthy

Samsung NVM Express COntroller: Healthy

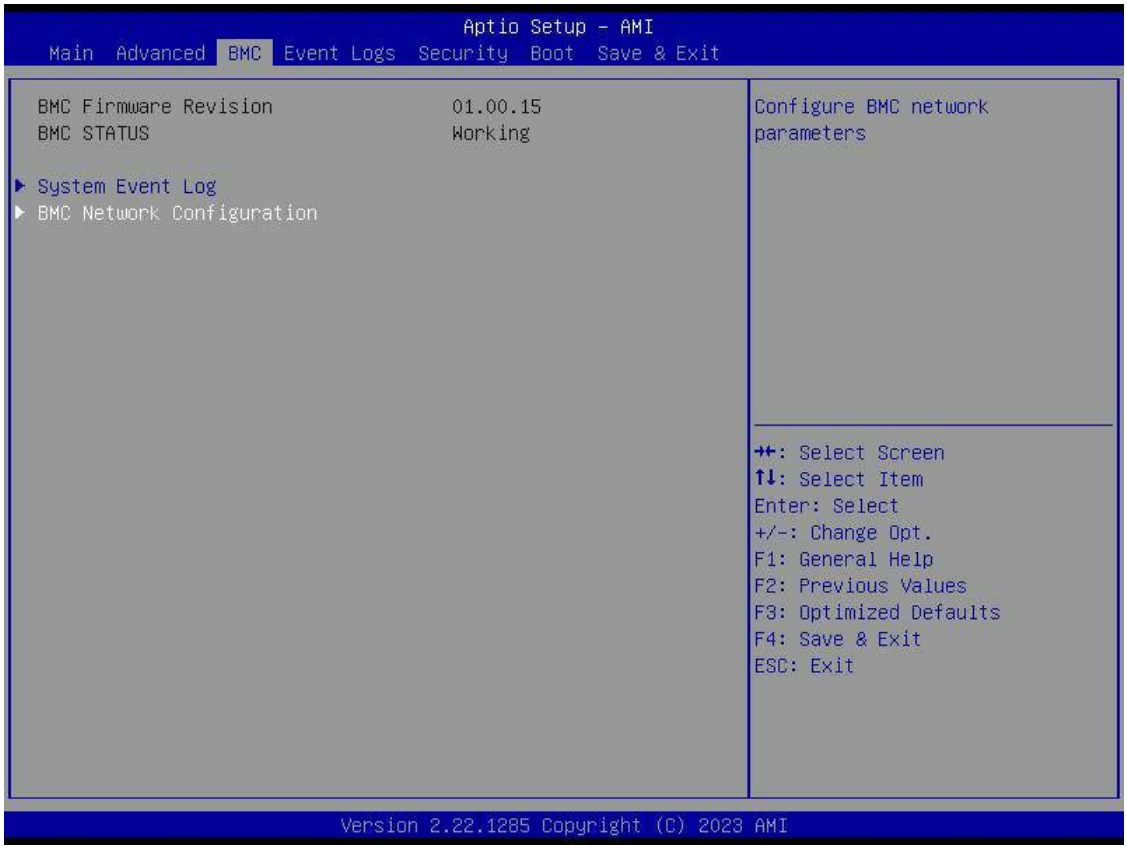
Samsung NVM Express COntroller: Healthy

Samsung NVM Express COntroller: Healthy

Samsung NVM Express COntroller: Healthy

4.4 BMC

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



Use this feature to configure Intelligent Platform Management Interface (IPMI) settings.

BMC Firmware Revision

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

BMC STATUS

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

▶System Event Log

Enabling/Disabling Options

SEL Components

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

Erasing Settings

Erase SEL

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

When SEL is Full

This feature allows the user to decide what the BIOS should do when the system event log is full. Select Erase Immediately to erase all events in the log when the system event log is full. The options are **Do Nothing**, Erase Immediately and Delete Oldest Record.

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

▶BMC Network Configuration

Update BMC LAN Configuration

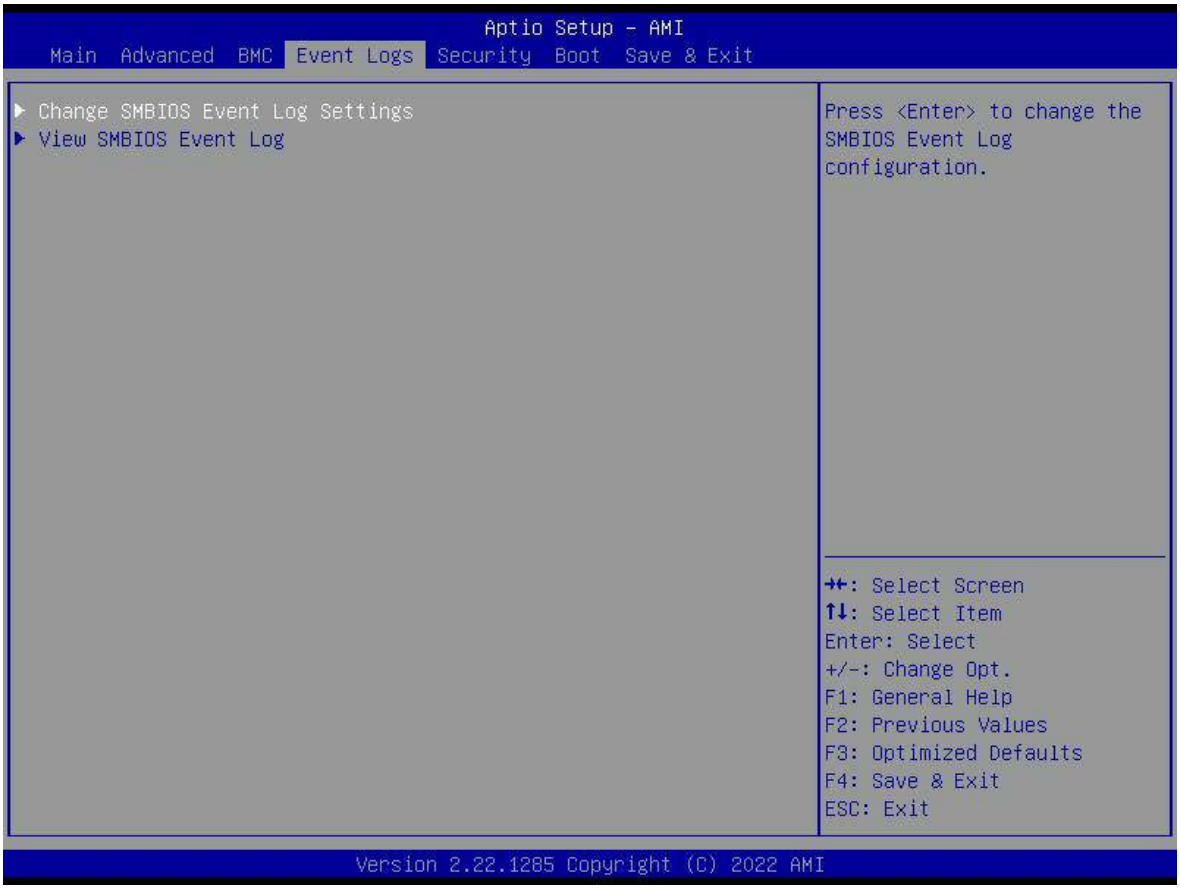
Select Yes to enable BMC Network Configuration. The options include **No** and Yes.

VLAN Support

This item displays features for virtuual LAN support. The options are Enabled, Disabled and **Unspecified**.

4.5 Event Logs

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



▶Change SMBIOS Event Log Settings

This feature allows the user to configure SMBIOS Event settings.

Enabling/Disabling Options

SMBIOS Event Log

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

Erasing Settings

Erase Event Log

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

When Log is Full

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

SMBIOS Event Log Standard Settings

Log System Boot Event

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

MECI (Multiple Event Count Increment)

Enter the increment value for the multiple event counter. Enter a number between 1 to 255. The default setting is **1**.

METW (Multiple Event Count Time Window)

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

Note: Please reboot the system for these changes to take effect.

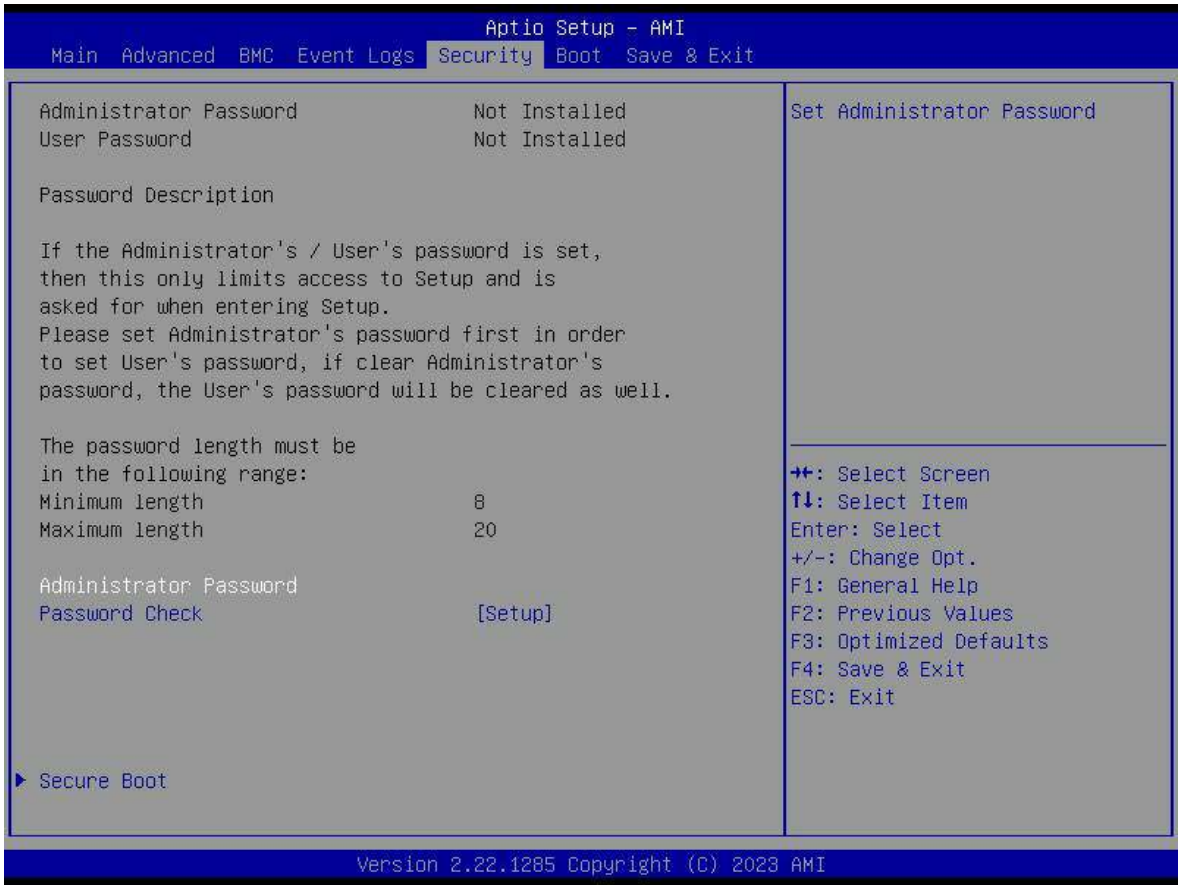
▶View SMBIOS Event Log

When Event Logging is on, this item allows the user to view the entries in the SMBIOS event log. The following categories are displayed:

Date/Time/Error Code/Severity

4.6 Security

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



Administrator Password

Press <Enter> to create a new, or change an existing Administrator password. Note that if the Administrator Password is erased, the User Password will be cleared as well.

Password Check

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

▶Secure Boot

This section contains options and menus for securing your boot mode and for key management.

Secure Boot

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

Secure Boot Mode

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

CSM Support

Select Enabled to support the EFI Compatibility Support Module (CSM), which provides compatibility support for traditional legacy BIOS for system boot. The options are Disabled and **Enabled**.

▶Enter Audit Mode

The options are Success and OK.

▶Enter Deployed Mode

Transition between deployment and user modes. The options are Failed and OK.

▶Key Management

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

Vendor Keys: Valid

Factory Key Provision

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

▶Restore Factory Keys

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

▶Enroll Efi Image

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

Secure Boot Variable/Size/Key Numbers/Key Source

▶Platform Key (PK)

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

▶Key Exchange Keys (KEK)

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

▶Authorized Signatures (db)

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

▶Forbidden Signatures (dbx)

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

▶Authorized TimeStamps (dbt)

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

▶OsRecovery Signature (dbr)

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

The file formats accepted are:

1) Public Key Certificate

a. EFI Signature List

b. EFI CERT X509 (DER Encoded)

c. EFI CERT RSA2048 (bin)

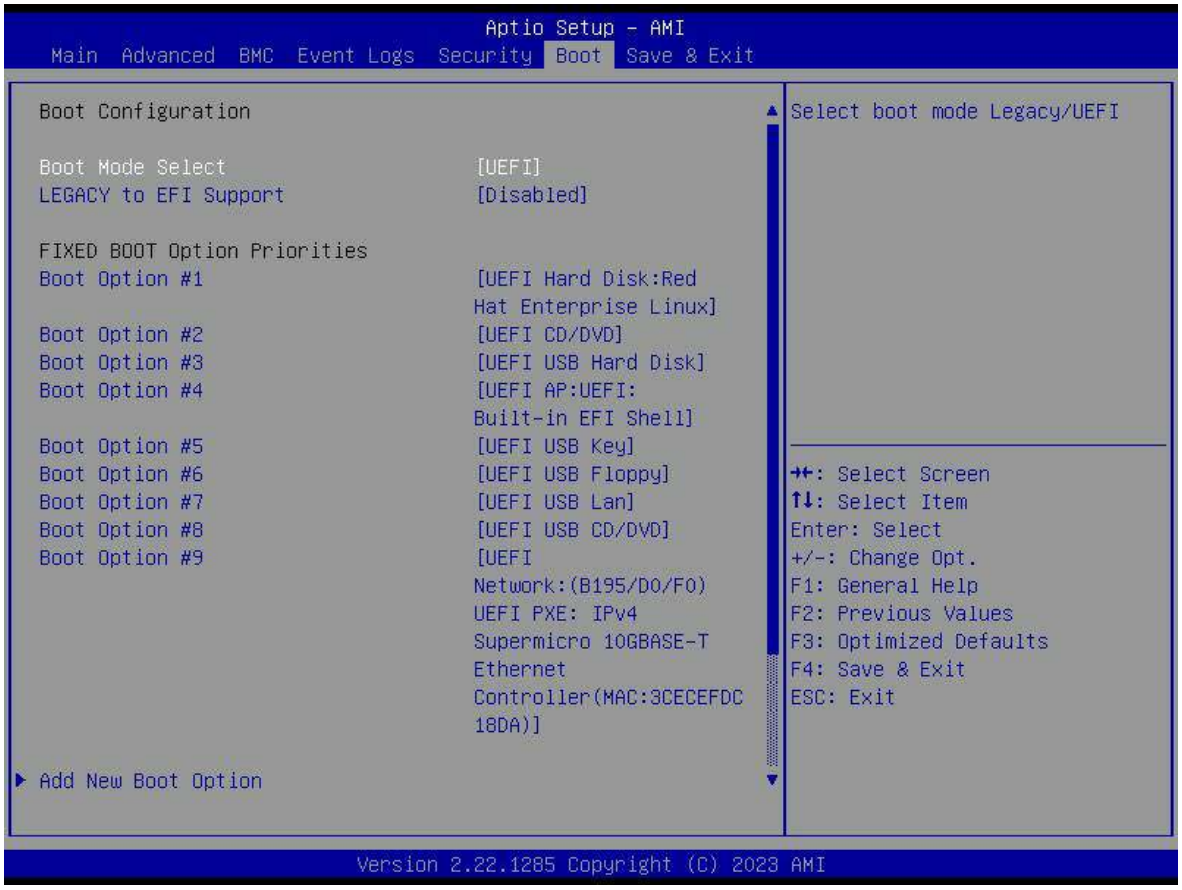
d. EFI SERT SHA256 (bin)

2) Authenticated UEFI Variable

3) EFI PE/COFF Image (SHA256)

4.7 Boot Settings

Use this tab to configure Boot Settings:



Boot Mode Select

Use this item to select the type of device that the system is going to boot from. The options are Legacy, **UEFI**, and DUAL. The default setting is **UEFI**.

Legacy to EFI Support

This option **Disables** or Enables the system to boot to an EFI OS after the boot failed from the legacy boot order.

FIXED BOOT ORDER Priorities Section

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

▶Add New Boot Option

Use this feature to add a new EFI boot option to the boot order.

▶Delete Boot Option

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

▶UEFI Hard Disk Drive BBS Priorities

This feature allows the user to specify the Boot Device Priority sequence from available UEFI Hard Disk Drives.

- Boot Option #1
- Boot Option #2

▶UEFI Network Drive BBS Priorities

This feature allows the user to specify the Boot Device Priority squuence from available UEFI Network Drives.

- Boot Option #1
- Boot Option #2
- Boot Option #3
- Boot Option #4

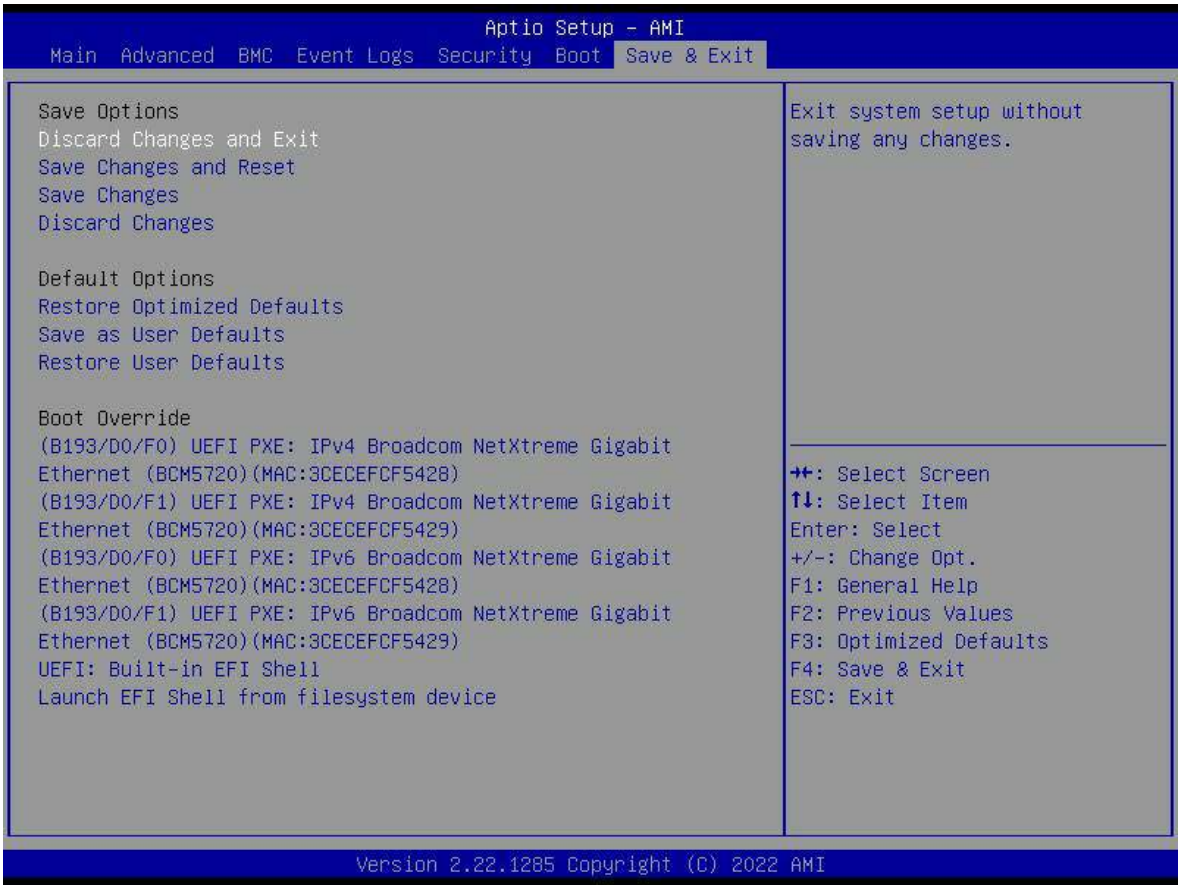
▶UEFI Application Boot Priorities

This feature allowas user to specify the Boot Device Priority sequence from available UEFI Application.

- Boot Option #1

4.8 Save & Exit

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



Save Options

Discard Changes and Exit

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

Save Changes and Reset

Select this option to reset the system after saving the changes.

Save Changes

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

Discard Changes

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

Default Options

Restore Optimized Defaults

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

Save as User Defaults

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

Restore User Defaults

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

Boot Override Section

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

Appendix A

Software

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

A.1 Microsoft Windows OS Installation

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

Installing the OS

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

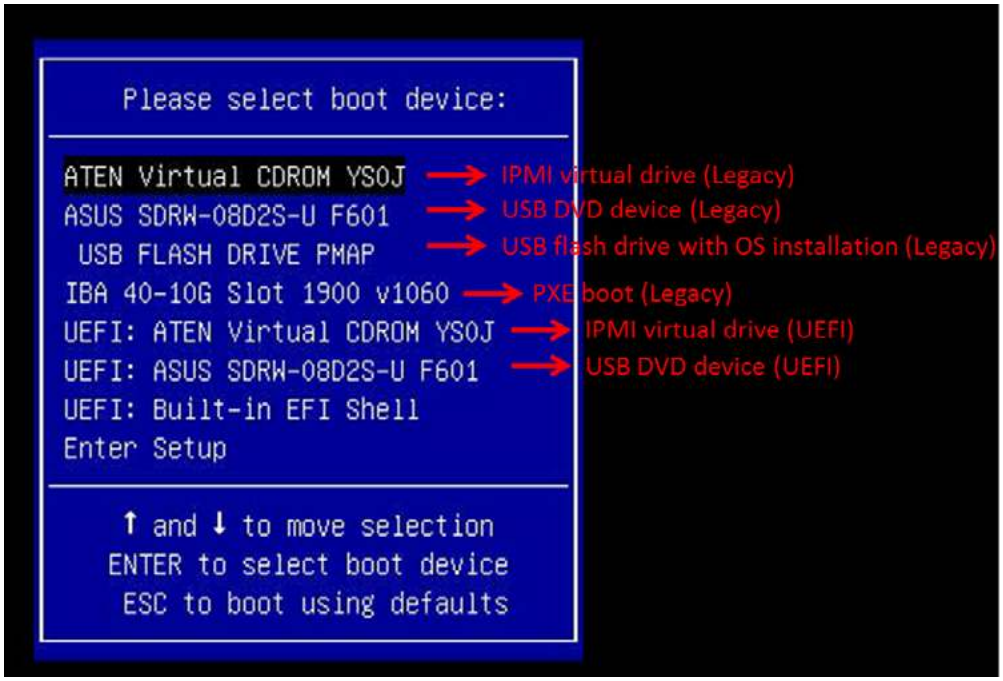


Figure A-1. Select Boot Device

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

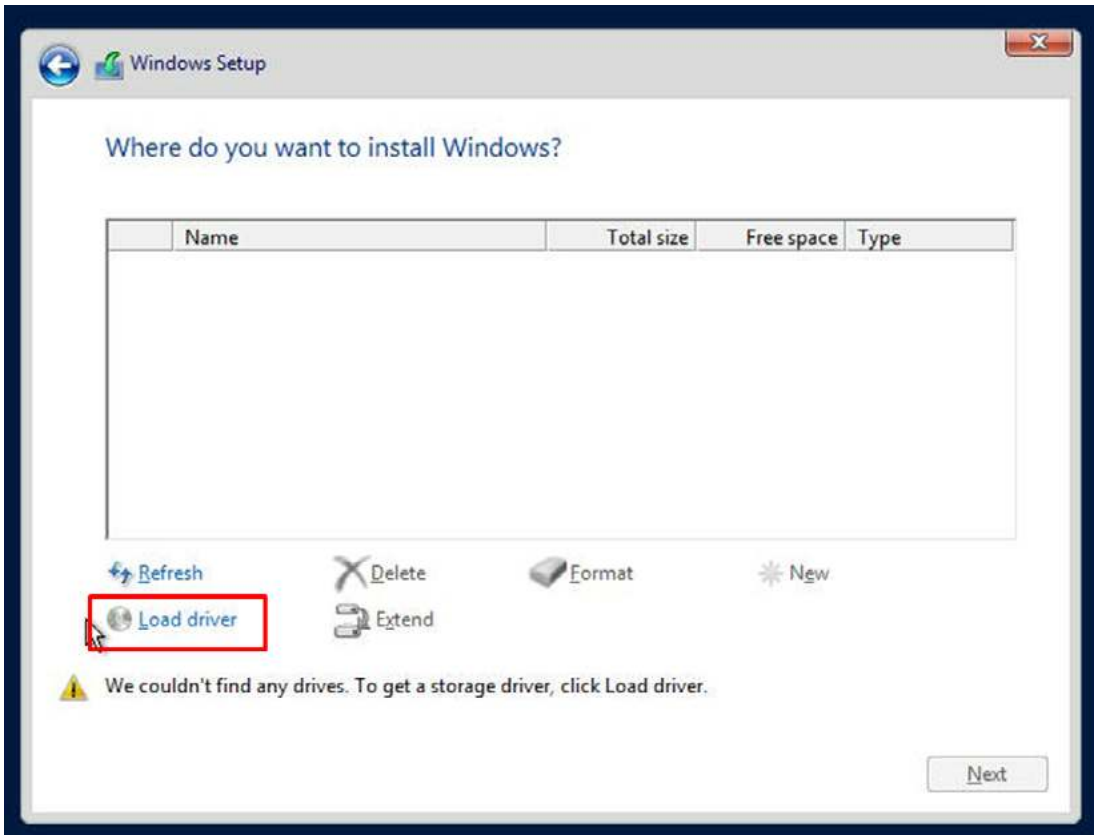


Figure A-2. Load Driver Link

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

- For RAID, choose the SATA/sSATA RAID driver indicated then choose the storage drive on which you want to install it.
- For non-RAID, choose the SATA/sSATA AHCI driver indicated then choose the storage drive on which you want to install it.

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

A.2 Driver Installation

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

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

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

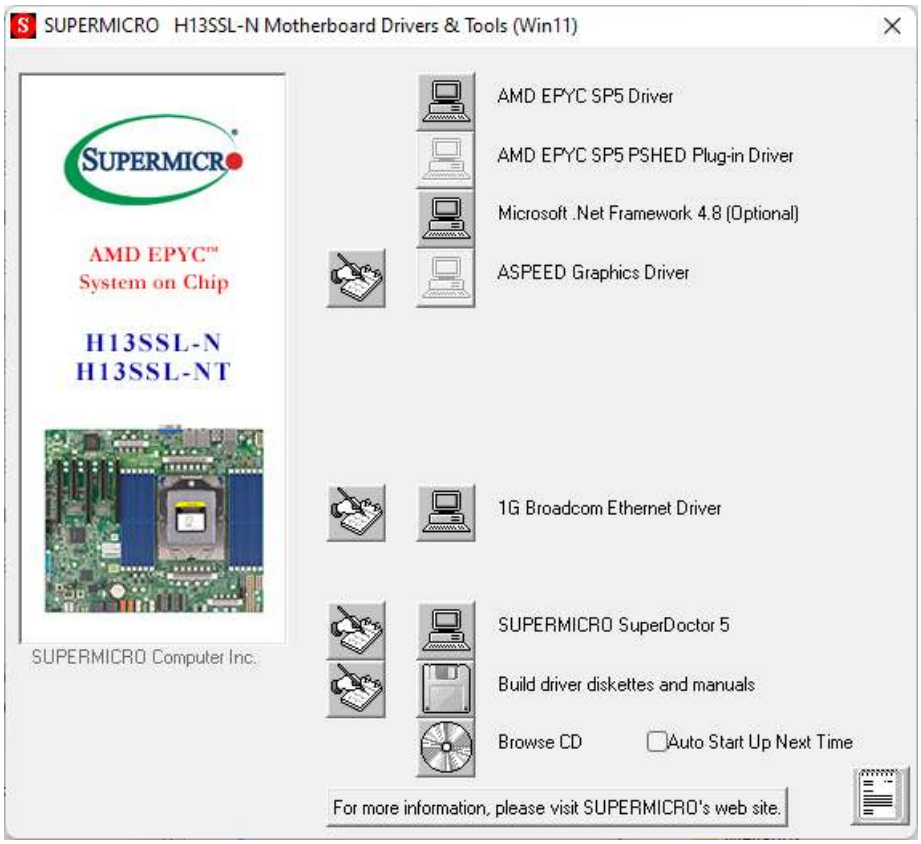


Figure A-3. Driver & Tool Installation Screen

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

A.3 SuperDoctor® 5

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

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

SuperDoctor® Manual and Resources

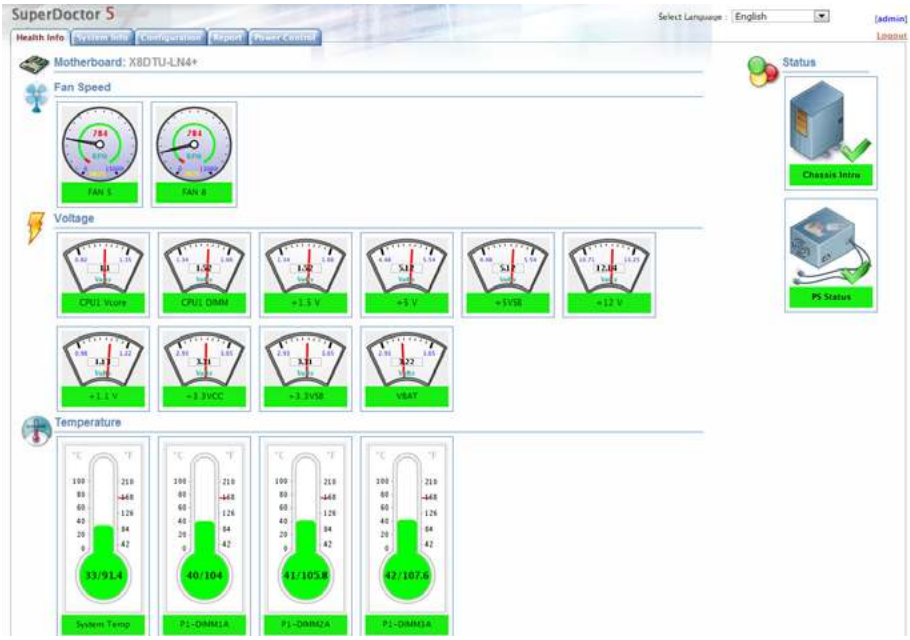


Figure A-4. SuperDoctor 5 Interface Display Screen (Health Information)

A.4 IPMI

The H13SSL-N/NT supports the Intelligent Platform Management Interface (IPMI). IPMI is used to provide remote access, monitoring and management. There are several BIOS settings that are related to IPMI.

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

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

Appendix B

Standardized Warning Statements

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

Read this section in its entirety before installing or configuring components.

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

B.1 Battery Handling

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

電池の取り扱い

電池交換が正しく行われなかった場合、破裂の危険性があります。交換する電池はメーカーが推奨する型、または同等のものを使用下さい。使用済電池は製造元の指示に従って処分して下さい。

警告

电池更换不当会有爆炸危险。请只使用同类电池或制造商推荐的功能相当的电池更换原有电池。请按制造商的说明处理废旧电池。

警告

電池更換不當會有爆炸危險。請使用製造商建議之相同或功能相當的電池更換原有電池。請按照製造商的說明指示處理廢棄舊電池。

Warnung

Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr. Ersetzen Sie die Batterie nur durch den gleichen oder vom Hersteller empfohlenen Batterietyp. Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.

Attention

Danger d'explosion si la pile n'est pas remplacée correctement. Ne la remplacer que par une pile de type semblable ou équivalent, recommandée par le fabricant. Jeter les piles usagées conformément aux instructions du fabricant.

¡Advertencia!

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

אזהרה !
קיימת סכנת פיצוץ של הסוללה במידה והוחלפה בדרך לא תקינה. יש להחליף את הסוללה בסוג התואם מחברת יצרן מומלצת.

סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

هناك خطر من انفجار في حالة استبدال البطارية بطريقة غير صحيحة فعليك
استبدال البطارية
فقط بنفس النوع أو ما يعادلها كما أوصت به الشركة المصنعة
تخلص من البطاريات المستعملة وفقا لتعليمات الشركة الصانعة

경고!

배터리가 올바르게 교체되지 않으면 폭발의 위험이 있습니다. 기존 배터리와 동일하거나 제조사에서 권장하는 동등한 종류의 배터리로만 교체해야 합니다. 제조사의 안내에 따라 사용된 배터리를 처리하여 주십시오.

Waarschuwing

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

B.2 Product Disposal

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

製品の廃棄

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

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

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

¡Advertencia!

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

Attention

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

סילוק המוצר

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

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

경고!

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

Waarschuwing

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