



CIPTLK-I-1
CIPTLK-I-2

USER'S MANUAL

Revision 1.0 (MNL-2847)

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Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the CIPTLK-I-1/-2 motherboard. Installation and maintenance should be performed by certified service technicians only.

Notes

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

- Supermicro product manuals: <https://www.supermicro.com/support/manuals>
- Product drivers and utilities: <https://www.supermicro.com/wdl>
- Product safety info: https://www.supermicro.com/about/policies/safety_information.cfm
- A secure data deletion tool designed to fully erase all data from storage devices can be found on our website:
https://www.supermicro.com/about/policies/disclaimer.cfm?url=/wdl/utility/Lot9_Secure_Data_Deletion_Utility
- Frequently Asked Questions: <https://www.supermicro.com/FAQ/index.php>
- If you still have questions after referring to our FAQs, contact our support team. Region-specific Technical Support email addresses can be found at: "[Contacting Supermicro](#)" on page 10
- If you have any feedback on Supermicro product manuals, contact our writing team at: Techwriterteam@supermicro.com

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

Conventions Used in the Manual

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



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



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



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

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

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

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Chapter 1:

Introduction

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

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1.1 Quick Reference

For details on the CIPTLK-I-1/CIPTLK-I-2 motherboard layout, features, and other quick reference information, refer to the content below.

Motherboard Layout

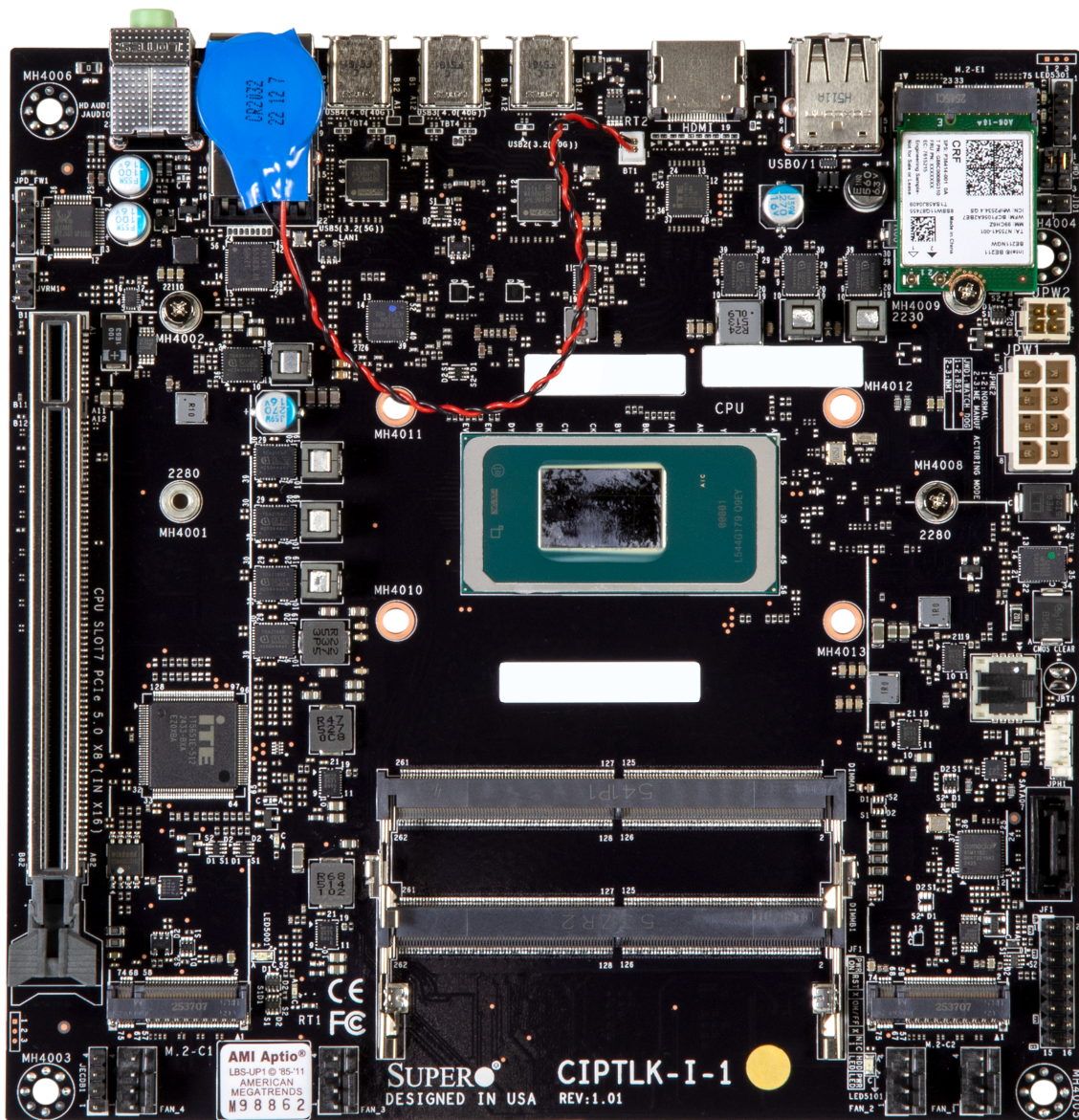


Figure 1-1. CIPTLK-I-1 Motherboard Image

| Differences between CIPTLK-I-1 and CIPTLK-I-2 | | |
|---|-------------------------------------|-----------------------------------|
| | CIPTLK-I-1 | CIPTLK-I-2 |
| Processor | Intel® Core™ Ultra 5 Processor 336H | Intel Core Ultra 7 Processor 366H |

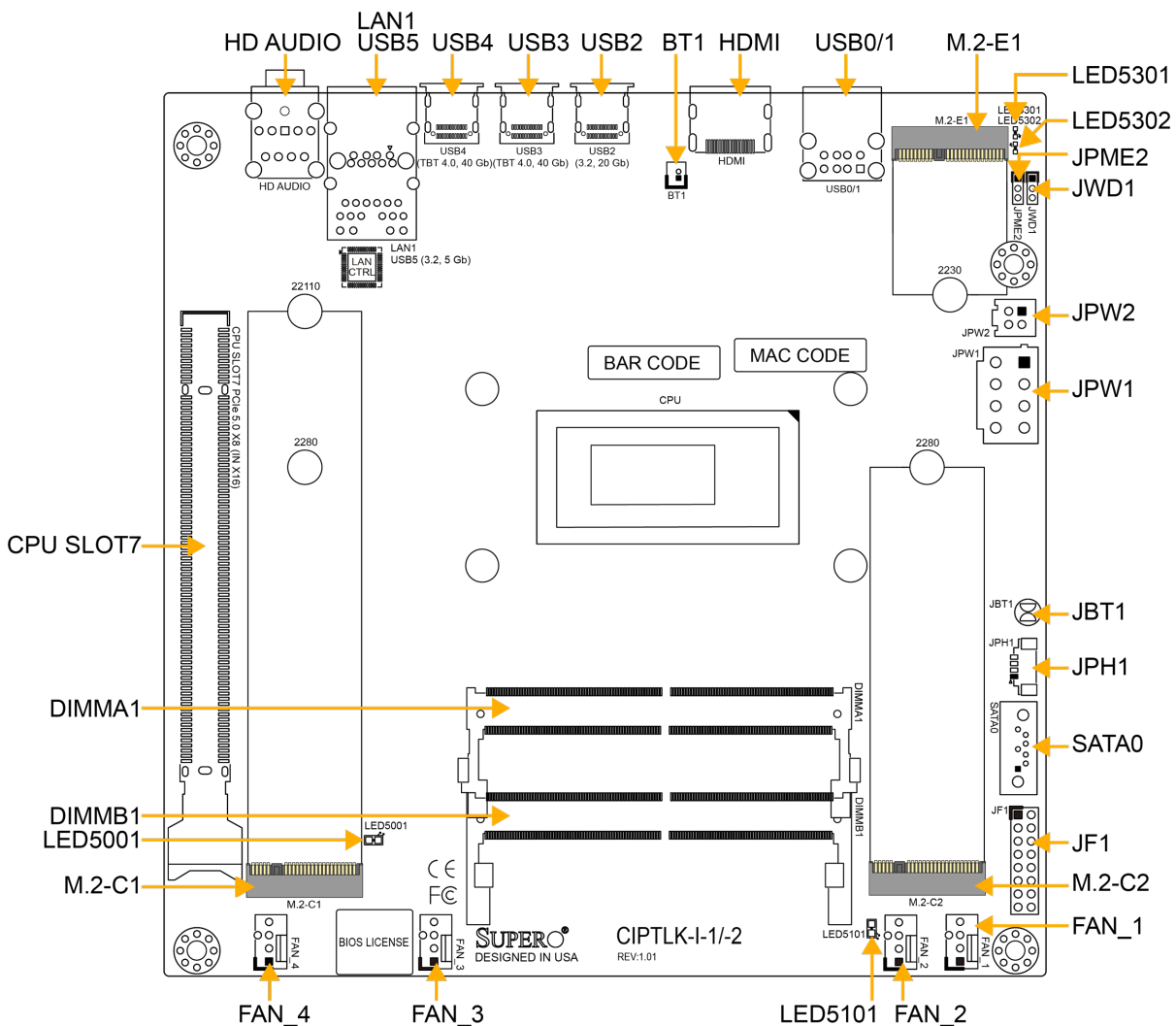


Figure 1-2. CIPTLK-I-1/CIPTLK-I-2 Motherboard Layout

| Differences between CIPTLK-I-1 and CIPTLK-I-2 | | |
|---|-----------------------------------|-----------------------------------|
| | CIPTLK-I-1 | CIPTLK-I-2 |
| Processor | Intel Core Ultra 5 Processor 336H | Intel Core Ultra 7 Processor 366H |

Notes:

- For detailed information on jumpers, connectors, and LED indicators, see "[Component Installation](#)" on page 24.
- "■" indicates the location of pin 1.
- "MH" indicates the location of a mounting hole.
- Components not documented are for internal testing purposes only.
- Use only the correct type of onboard CMOS battery as specified by the manufacturer. To avoid possible explosion, do not install the onboard battery upside down.

Quick Reference Table

| Jumper | Description | Default |
|--------|--------------------------|--------------------------|
| JBT1 | Clear CMOS (Onboard) | Short Pads to Clear CMOS |
| JPME2 | Intel Manufacturing Mode | Pins 1–2 (Normal) |
| JWD1 | Watchdog Function Enable | Pins 1–2 (Reset) |

| LED | Description | Status |
|-----------------|---|--|
| LED5301 | WLAN Power-On Self-Test (POST) Status | Green On: WLAN POST Off: WLAN POST Completion |
| LED5302 | Bluetooth Device Power-On Self-Test (POST) Status | Green On: Bluetooth Device POST Off: Bluetooth Device POST Completion |
| LED5001/LED5101 | M.2 LEDs for M.2-C1/M.2-C2 | Blinking Green: Device Working |

| Connector | Description |
|-----------|--|
| BT1 | Onboard Battery Connector |
| CPU SLOT7 | PCIe 5.0 x8 (in x16) |
| FAN_1 | CPU Fan Header |
| FAN_2–4 | System Fan Headers |
| HD AUDIO | High Definition Audio Ports |
| HDMI | High Definition Multimedia Interface 2.1 (supporting data rates of up to 12 Gbps and resolution of up to 8 K at 60 Hz) |
| JF1 | Front Control Panel Header |
| JPH1 | 4-pin SATA Power Connector |
| JPW1 | 8-pin +12 V DC Power Connector (required for ATX or 12 V DC power source) |
| JPW2 | 4-pin ATX Power Signal Connector (required for ATX power source) |
| SATA0 | SATA 3.0 Port (6 Gbps) |
| LAN1 | RJ45 2.5 GbE LAN Port |
| M.2-C1 | PCIe 5.0 x4 M.2 M-key Slot (from CPU, with support of 2280/22110 form factors and RAID 0/1) |

| Connector | Description |
|-----------|--|
| M.2-C2 | PCIe 4.0 x4 M.2 M-key Slot (from CPU, with support of 2280 form factor and RAID 0/1) |
| M.2-E1 | CNVi WiFi 7 and Bluetooth 6 (Pre-installed) |
| USB0/1 | Rear USB 2.0 Ports (Type-A) |
| USB2 | Rear USB 3.2 Gen 2x2 Port (20 Gb, Type-C) |
| USB3 | Rear Thunderbolt™ 4 (TBT 4) Port (40 Gb, Type-C) |
| USB4 | Rear Thunderbolt™ 4 (TBT 4) Port (40 Gb, Type-C) |
| USB5 | Rear USB 3.2 Gen 1x1 Port (5 Gb, Type-A) |

Motherboard Features

| Motherboard Features |
|---|
| <p>Processor</p> <ul style="list-style-type: none"> The CIPTLK-I-1 motherboard supports a single Intel Core Ultra 5 Processor 336H with 12 cores and a thermal design power (TDP) of 25 W. The CIPTLK-I-2 motherboard supports a single Intel Core Ultra 7 Processor 366H with 16 cores and a thermal design power (TDP) of 25 W. <p>Note: The processor TDP is subject to chassis and heatsink cooling restrictions. For proper thermal management, check the chassis and heatsink specifications for proper TDP sizing.</p> |
| <p>Memory</p> <ul style="list-style-type: none"> Supports up to 128 GB of non-ECC DDR5 SODIMM/Clocked SODIMM (CSODIMM) memory with speeds of up to 7200 MT/s in two memory slots (1DPC). |
| <p>DIMM Size</p> <ul style="list-style-type: none"> 8 GB, 16 GB, 24 GB, 32 GB, 48 GB, and 64 GB |
| <p>Expansion Slots</p> <ul style="list-style-type: none"> One PCIe 5.0 x8 Slot (in x16) One PCIe 5.0 x4 M.2 M-Key Slot (from CPU, with support of 2280 and 22110 form factors and RAID 0/1) One PCIe 4.0 x4 M.2 M-Key Slot (from CPU, with support of 2280 form factor and RAID 0/1) |
| <p>Network Controller</p> <ul style="list-style-type: none"> Intel Ethernet i226-LM (LAN1, 2.5 GbE LAN, with support of Intel vPro) |

| Motherboard Features |
|---|
| I/O Devices |
| <ul style="list-style-type: none"> • One SATA 3.0 port at 6 Gb/s (SATA0) • One HDMI 2.1 connection on the rear I/O (supporting data rates of up to 12 Gbps and resolution of up to 8K at 60 Hz) |
| Peripheral Devices |
| <ul style="list-style-type: none"> • Two USB 2.0 ports on the rear I/O (Type-A, USB0 and USB1) • One USB 3.2 Gen 2x2 port on the rear I/O (20 Gb, Type-C, USB2) • Two Thunderbolt 4 ports on the rear I/O (40 Gb, Type-C, USB3 and USB4, supporting DP 2.1 Alt mode) • One USB 3.2 Gen 1x1 port on the rear I/O (5 Gb, Type-A, USB5) |
| BIOS |
| <ul style="list-style-type: none"> • 256 Mb AMI BIOS® SPI Flash BIOS • ACPI 6.5 or later, Plug and Play (PnP) SPI dual/quad speed support, SMBIOS 3.8 or later |
| Power Management |
| <ul style="list-style-type: none"> • ACPI power management • Power button override mechanism • Power-on mode for AC power recovery • Wake-on-LAN • Power supply monitoring |
| System Health Monitoring |
| <ul style="list-style-type: none"> • Onboard voltage monitoring for +12V, +3.3V, +5V, +3.3V standby, VBAT, Vcore, and VDD2 (VDIMM) • Monitoring of CPU temperature, peripheral temperature, and system temperature • Five CPU switch phase voltage regulators • CPU thermal trip support • Platform Environment Control Interface (PECI)/TSI |
| Fan Control |
| <ul style="list-style-type: none"> • Single cooling zone • Multi-speed fan control via Embedded Controller • Four 4-pin fan headers |

| Motherboard Features | |
|---|--|
| System Management | |
| <ul style="list-style-type: none"> • SuperServer Automation Assistant (SAA) • SuperDoctor® 5 • Onboard Trusted Platform Module (TPM) support | |
| LED Indicators | |
| <ul style="list-style-type: none"> • WLAN and Bluetooth POST LEDs • M.2 LEDs • LAN LEDs (on LAN port) | |
| Dimensions | |
| Mini-ITX, 6.7" x 6.7" (170.2 mm x 170.2 mm) (L x W) | |

Motherboard Block Diagram

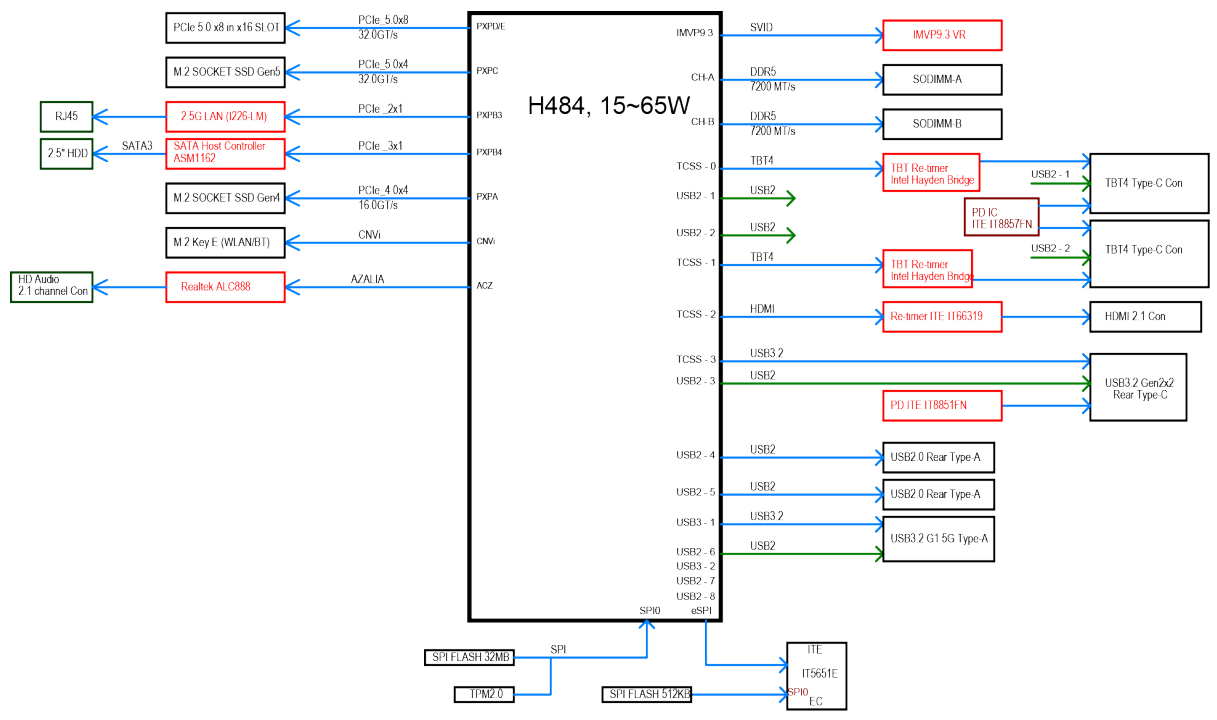


Figure 1-3. CIPTLK-I-1/CIPTLK-I-2 Motherboard Block Diagram

1.2 Platform Overview

Built upon the functionality and capability of the Intel Core Ultra 9/7/5 Series 3 processor, the CIPTLK-I-1/CIPTLK-I-2 motherboard provides system performance, power efficiency, and feature sets to address the needs of next-generation computer users.

With the support of the new Intel microarchitecture 18A process technology, the CIPTLK-I-1/CIPTLK-I-2 motherboard dramatically increases system performance for a multitude of client product applications and supports the following features:

- DDR5 262-pin memory support
- Intel Matrix Storage Technology and Intel Rapid Storage Technology
- Intel I/O Virtualization (VT-d) Support
- Intel Trusted Execution Technology Support
- PCIe 5.0 Interface (up to 32 GT/s)
- SATA Controller (up to 6 Gb/sec)
- Advanced Host Controller Interface (AHCI)

1.3 Special Features

Recovery from AC Power Loss

The Basic I/O System (BIOS) provides a setting that determines how the system will respond when AC power is lost and then restored to the system. You can choose for the system to remain powered off (in which case you must press the power switch to turn it back on), or for it to automatically return to the power-on state. See Advanced Setup Configurations under "[UEFI BIOS](#)" on [page 56](#) for this setting. The default setting is **Last State**.

1.4 System Health Monitoring

Onboard Voltage Monitors

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

Fan Status Monitor with Firmware Control

PC health monitoring in the BIOS can check the RPM status of the cooling fans. The onboard CPU and chassis fans are controlled by Thermal Management via Embedded Controller (EC).

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, be sure to provide adequate airflow to your system.

System Resource Alert

This feature is available when used with SuperDoctor 5 in the Windows OS or in the Linux environment. 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, processor 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 appropriate Windows operating systems. For detailed information regarding OS support, refer to the Supermicro website.

Slow Blinking LED for Suspend-State Indicator

When the CPU goes into a suspend state, the chassis power LED will start to blink to indicate that the CPU is in suspend mode. When the user presses any key, the CPU will "wake up," and the LED will automatically stop blinking and remain on.

1.6 Embedded Controller

The Embedded Controller supports one high-speed, 16550 compatible serial communication port (UART). Each UART includes a 16-byte send/receive FIFO, a programmable baud rate generator, complete modem control capability and a processor interrupt system. The UART supports speeds with a baud rate of 115.2 Kbps, 57.6 Kbps, 38.4 Kbps, 19.2 Kbps, and 9.6 Kbps.

The Embedded Controller provides functions that comply with Advanced Configuration and Power Interface (ACPI), which includes support of legacy and ACPI power management through an SMI or SCI function pin. It also features auto power management to reduce power consumption.

Chapter 2:

Component Installation

This chapter provides instructions on installing and replacing main system components for the CIPTLK-I-1/-2 motherboard. To prevent compatibility issues, only use components that match the specifications and/or part numbers given.

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

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2.1 Static-Sensitive Devices

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

Precautions

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

Unpacking

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

2.2 Motherboard Installation

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

Tools Needed

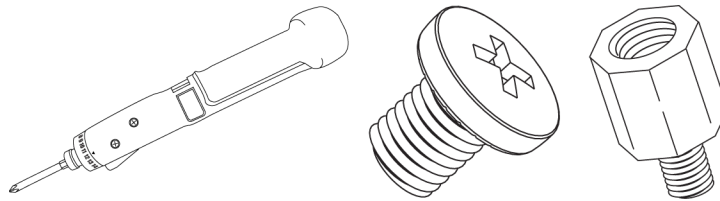


Figure 2-1. Torque Driver (1), Phillips Screws (4), Standoffs (4, only if needed)

Notes:

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

Installing the Motherboard

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

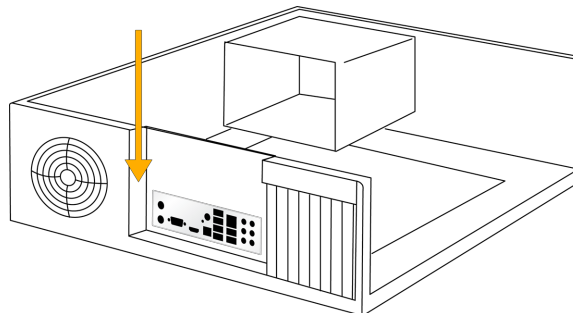


Figure 2-2. Installing the I/O Shield

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

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

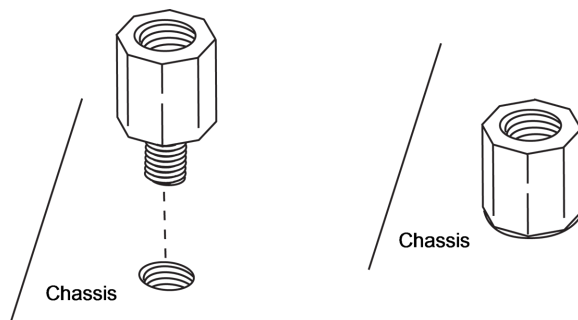


Figure 2-3. Locating the Mounting Holes

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

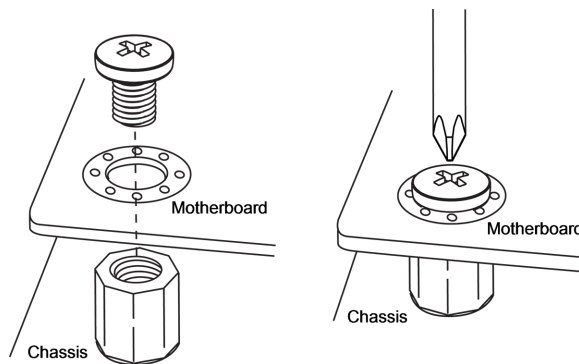


Figure 2-4. Aligning the Mounting Holes

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

2.3 Memory Support and Installation

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

Note: Check the Supermicro website for recommended memory modules.

Memory Support

The CIPTLK-I-1/CIPTLK-I-2 motherboard supports up to 128 GB of non-ECC DDR5 SODIMM/Clocked SODIMM (CSODIMM) memory with speeds of up to 7200 MT/s in two memory slots (1DPC).

DDR5 Memory Support

| Memory Support | | |
|----------------|-----------|----------------|
| Speed | 5600 MT/s | 6400/7200 MT/s |
| DIMM Type | SODIMM | CSODIMM |

Notes:

- For DDR5 SODIMM memory, the supported maximum speed is 5600 MT/s.
- For memory speeds of 6400 MT/s or greater, Intel recommends using CSODIMM memory.

Memory Population Table

| DDR5 Memory Population Table | | |
|------------------------------|--------|--------|
| DDR5 | DIMMA1 | DIMMB1 |
| 1 DIMM | V | |
| | | V |
| 2 DIMMs | V | V |

General Guidelines for Optimizing Memory Performance

- Install the desired number of DIMMs into the memory slots, starting with DIMMA1 and then DIMMB1.
- It is recommended to use DDR5 memory of the same type, size, and speed.

- Mixed DIMM speeds can be installed. However, all DIMMs will run at the speed of the slowest DIMM.
- This motherboard supports installation of one DIMM. However, to achieve the best memory performance, a balanced memory population is recommended.

SODIMM Installation

Important: To avoid causing any damage to the memory module or the DIMM socket, do not use excessive force when pressing the release tabs on the ends of the DIMM socket. Handle memory modules with care. To avoid ESD-related damage to your memory modules or components, carefully follow all the instructions given in "[Static-Sensitive Devices](#)" on [page 26](#).

1. Position the key of the SODIMM so it aligns with the receptive point on the slot.

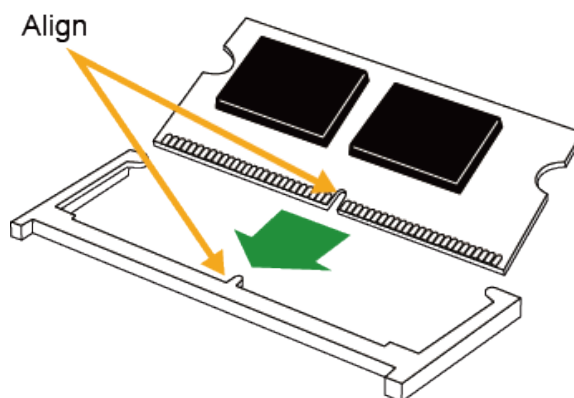


Figure 2-5. Inserting the SODIMM

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

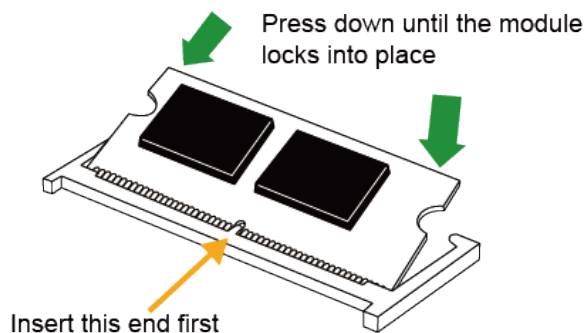


Figure 2-6. Inserting at a 45 degree angle

3. The side clips will automatically secure the SODIMM, locking it into place.

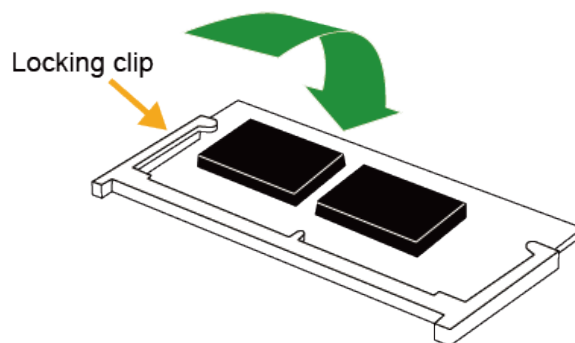


Figure 2-7. Securing the SODIMM

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12](#).

SODIMM Removal

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

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12](#).

2.4 Battery Removal and Installation

Battery Removal

To remove the battery, follow the steps below:

1. Power off your system and unplug your power cable.
2. Place the system on a workbench.
3. Remove the battery cable at the BT1 connector on the board.
4. Remove the battery.

Proper Battery Disposal

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

Battery Installation

To install the battery, follow the steps below:

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

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

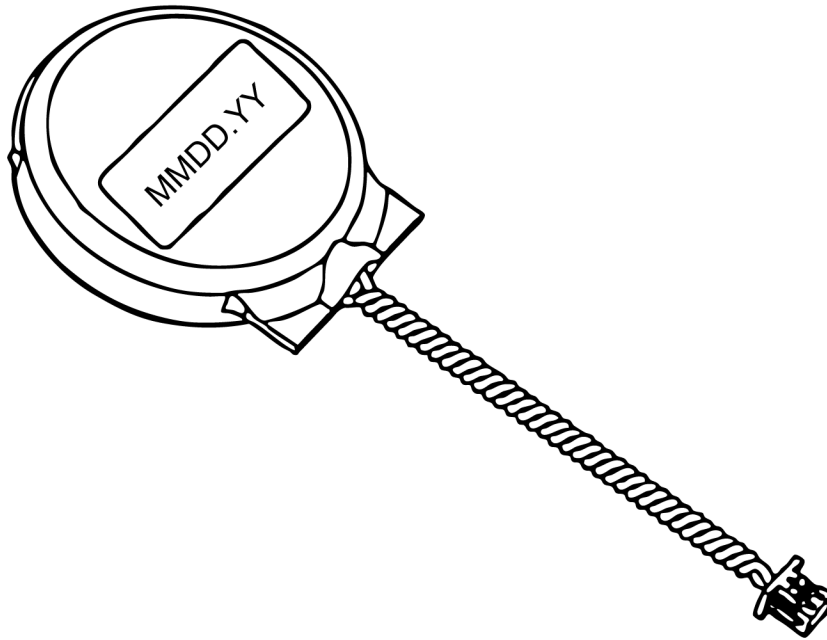


Figure 2-8. Installing a Battery

2.5 M.2 Device Installation

This motherboard has one PCIe 5.0 x4 M.2 M-key slot (M.2-C1) that supports the M.2 2280/22110 modules and one PCIe 4.0 x4 M.2 M-key slot (M.2-C2) that supports the 2280 modules.

Notes:

- The installation described in this section is for reference only. The actual installation steps may vary depending on the supported M.2 form factors and the standoff pre-installed location.
- Images displayed are for illustration purposes only. Your components might look different from those shown in this manual.

Installing a Standard M.2 Device

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

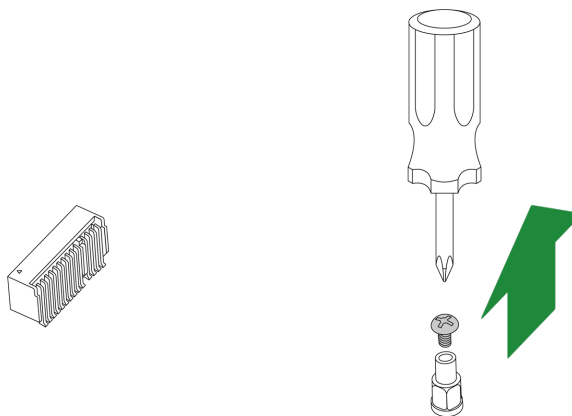


Figure 2-9. Removing the Screw on the Pre-Installed Standoff

2. If the soon-to-be used mounting hole doesn't have a standoff, move the pre-installed one to that mounting hole.

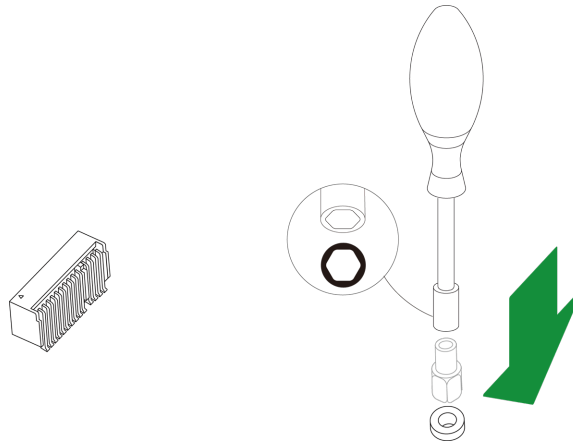


Figure 2-10. Changing the Standoff Position as Needed

3. Carefully insert the M.2 device into the M.2 slot at a 30-degree angle and lower the semi-circle notched end onto the standoff.

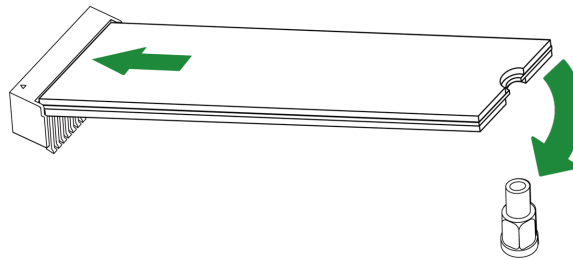


Figure 2-11. Inserting the M.2 Device and Pressing it Down

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

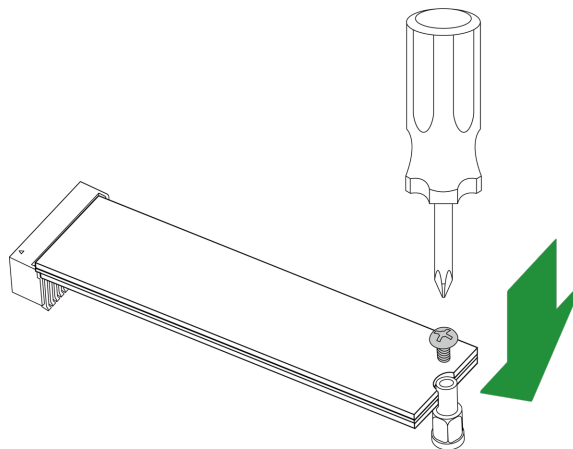


Figure 2-12. Securing the M.2 Device

2.6 Rear I/O Ports

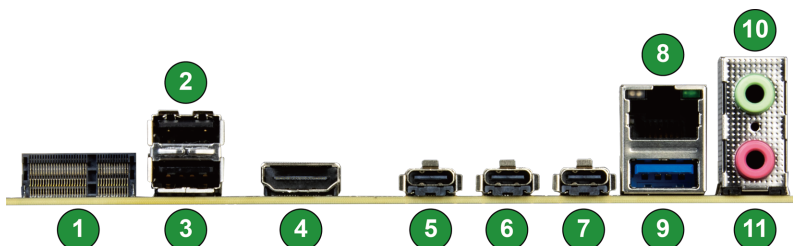


Figure 2-13. Rear I/O Ports

| Rear I/O Ports | | | | | |
|----------------|---|-----|--|-----|---|
| No. | Descriptions | No. | Descriptions | No. | Descriptions |
| 1 | CNVi WiFi 7 and Bluetooth 6 (Pre-installed) | 5 | USB2: USB 3.2 Gen 2x2 Port (20 Gb, Type-C) | 9 | USB5: USB 3.2 Gen 1x1 Port (5 Gb, Type-A) |
| 2 | USB0: USB 2.0 Port (Type-A) | 6 | USB3: Thunderbolt 4 (TBT 4) Port (40 Gb, Type-C) | 10 | Speaker Out |
| 3 | USB1: USB 2.0 Port (Type-A) | 7 | USB4: Thunderbolt 4 (TBT 4) Port (40 Gb, Type-C) | 11 | Mic In |
| 4 | High Definition Multimedia Interface 2.1 | 8 | LAN1: RJ45 2.5 GbE LAN Port | | |

USB Ports

There are two USB 2.0 Type-A ports (USB0 and USB1), one USB 3.2 Gen 2x2 Type-C port (USB2), two Thunderbolt 4 Type-C ports (USB3 and USB4), and one USB 3.2 Gen 1x1 Type-A port (USB5) on the rear I/O of the CIPTLK-I-1/CIPTLK-I-2 motherboard.

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12.](#)

HDMI Port

One High-Definition Multimedia Interface (HDMI) 2.1 port is located on the rear I/O of the CIPTLK-I-1/CIPTLK-I-2 motherboard. This port is used to display both high definition video and digital sound through an HDMI display, using a single HDMI cable (not included).

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12.](#)

LAN Port

One 2.5 GbE LAN port is located on the rear I/O of the CIPTLK-I-1/CIPTLK-I-2 motherboard to provide network connection. The LAN port accepts RJ45 cable.

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12](#).

High Definition Audio (HD Audio) Ports

The green jack on the rear I/O is the Speaker Out connector, and the pink jack is the Mic In connector.

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12](#).

| HD Audio | |
|------------------------|-------------------|
| Pin Definitions | |
| Color | Definition |
| Green | Speaker Out |
| Pink | Mic In |

2.7 Front Control Panel

JF1 on the CIPTLK-I-1/CIPTLK-I-2 motherboard contains header pins for various buttons and indicators that are normally located on a control panel at the front of the chassis. These connectors are designed specifically for use with Supermicro chassis. See the figure below for the descriptions of the front control panel buttons and LED indicators.

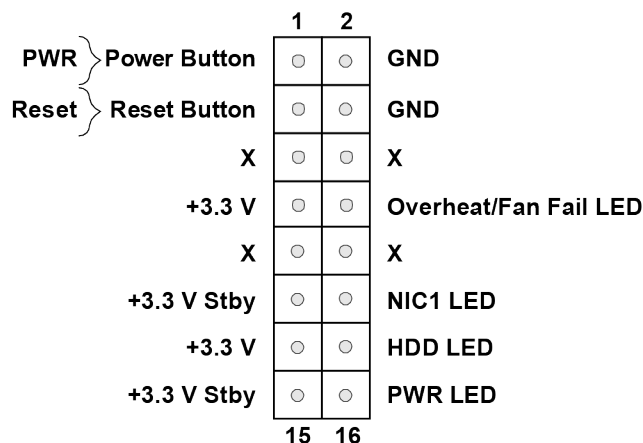


Figure 2-14. Front Control Panel Pin Definitions

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under "Quick Reference" on page 12.

Power Button

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

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under "Quick Reference" on page 12.

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

Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1 on the CIPTLK-I-1/CIPTLK-I-2 motherboard. Attach it to a hardware reset switch on the computer case to reset the system.

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12.](#)

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

Overheat (OH)/Fan Fail LED

Connect an LED cable to pins 7 and 8 of the front control panel to use the Overheat /Fan Fail LED connections. The LED on pin 8 provides warnings of overheat or fan failure.

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12.](#)

| OH/Fan Fail LED Pin Definitions (JF1) | | OH/Fan Fail LED State (JF1) | |
|--|--------------------|--------------------------------|----------------|
| Pin# | Definition | State | Definition |
| 7 | +3.3 V | Off | Normal |
| 8 | OH/Fan Fail LED | On | Overheat |
| | | Flashing | Fan/Power Fail |

NIC1 (LAN) LED

The Network Interface Controller (NIC) LED connection for LAN Port (LAN1) is located on pins 11 and 12 of JF1 on the CIPTLK-I-1/CIPTLK-I-2 motherboard. Attach the NIC LED cable here to display network activity.

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12.](#)

| NIC1 (LAN1) LED | |
|------------------------------|-------------------|
| Pin Definitions (JF1) | |
| Pin# | Definition |
| 11 | +3.3 V Stby |
| 12 | NIC1 LED |

HDD LED

The HDD LED connection is located on pins 13 and 14 of JF1 on the CIPTLK-I-1/CIPTLK-I-2 motherboard. Attach the HDD LED cable here to show storage drive activity status.

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12.](#)

| HDD LED | |
|------------------------------|-------------------|
| Pin Definitions (JF1) | |
| Pin# | Definition |
| 13 | +3.3 V |
| 14 | HDD LED |

Power LED

The Power LED connection is located on pins 15 and 16 of JF1 on the CIPTLK-I-1/CIPTLK-I-2 motherboard.

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12.](#)

| Power LED | |
|------------------------------|-------------------|
| Pin Definitions (JF1) | |
| Pin# | Definition |
| 15 | +3.3 V |
| 16 | PWR LED |

2.8 Connections, Jumpers, and LEDs

Refer to the following sections for information about connections, jumpers, and LEDs for the CIPTLK-I-1/-2 motherboard.

Power Supply and Power Connections

For information about the power supply and power connections of the CIPTLK-I-1/-2 motherboard, refer to the following content.

Power Supply

The CIPTLK-I-1/CIPTLK-I-2 motherboard supports both +12 V DC and ATX power input.

When using ATX power, it is strongly recommended that you use a high quality power supply that meets ATX power supply Specification 2.02 or above.

Power Connections

One 8-pin +12 V power connector is located at JPW1 and one 4-pin ATX power connector is located at JPW2 on the CIPTLK-I-1/CIPTLK-I-2 motherboard.

When using +12 V DC power, connect the 4-pin power connector to pins 1–4 of JPW1.

When using an ATX power supply, both JPW1 and JPW2 power connectors must be connected to the power supply. A 24-to-4-pin power cable (PN: CBL-PWEX-1066) is required between JPW2 and the 24-pin power connector of an ATX power supply.

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12.](#)

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

| 4-pin ATX Power Signal Pin Definitions: Four Total | |
|---|------------|
| Pin# | Definition |
| 1 | PWROK |
| 2 | GND |
| 3 | +5 V |
| 4 | PS_ON |

Headers and Connections

For information about the headers on the CIPTLK-I-1/CIPTLK-I-2 motherboard, refer to the following content.

Fan Headers

There are four 4-pin fan headers (FAN_1–FAN_4) on the CIPTLK-I-1/CIPTLK-I-2 motherboard. Although pins 1-3 of the system fan headers are backwards compatible with the traditional 3-pin fans, the 4-pin fans are recommended to take advantage of the fan speed control. This allows fan speeds to be automatically adjusted based on the motherboard temperature.

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12](#).

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

M.2 Slots

Two M.2 slots are located on the CIPTLK-I-1/CIPTLK-I-2 motherboard. The M.2 M-Key slot located at M.2-C1 supports PCIe 5.0 x4 devices in the 2280 and 22110 form factors. The M.2 M-Key slot located at M.2-C2 supports PCIe 4.0 x4 devices in the 2280 form factor.

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12](#).

SATA 3.0 Port

One Serial ATA (SATA) 3.0 port (SATA0) is supported on the CIPTLK-I-1/CIPTLK-I-2 motherboard.

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12](#).

SATA Power Connector

JPH1 is a 4-pin power connector that provides power to the SATA storage device connected to the CIPTLK-I-1/CIPTLK-I-2 motherboard.

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12](#).

Jumper Settings

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

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

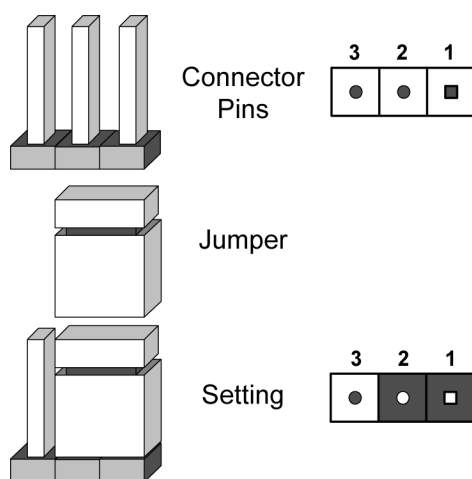


Figure 2-15. Jumping Connector Pins

CMOS Clear

JBT1 on the CIPTLK-I-1/CIPTLK-I-2 motherboard is used to clear CMOS, which will also clear any passwords. Instead of pins, this jumper consists of contact pads to prevent accidentally clearing the contents of CMOS.

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12](#).



1. Power down the system.
2. Unplug the power cord(s).
3. Remove the cover of the chassis to access the motherboard.

4. Remove the onboard battery from the motherboard.
5. Short the CMOS pads, JBT1, with a metal object such as a small screwdriver for at least four seconds.

Note: Clearing CMOS will also clear all passwords.

6. Remove the screwdriver or shorting device.
7. Reinsert the battery.
8. Replace the cover.
9. Reconnect the power cord(s).
10. Power on the system.

ME Manufacturing Mode

Close pins 2–3 of jumper JPME2 to bypass SPI flash security and force the system to operate in the manufacturing mode, which will allow the user to flash the system firmware from a host server for system setting modifications. Refer to the table below for jumper settings. The default setting is Normal.

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12](#).

| ME Manufacturing Mode | |
|------------------------------|--------------------|
| Jumper Settings | |
| Jumper Setting | Definition |
| Pins 1–2 | Normal (Default) |
| Pins 2–3 | Manufacturing Mode |

Watchdog Timer

Watchdog (JWD1) is a system monitor that can reboot the system when a software application hangs. Close pins 1–2 to reset the system if an application hangs. Close pins 2–3 to generate a non-maskable interrupt (NMI) signal for the application that hangs. The watchdog must also be enabled in the BIOS.

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12](#).

| Watchdog Timer Jumper Settings | |
|-----------------------------------|-----------------|
| Jumper Setting | Definition |
| Pins 1–2 | Reset (Default) |
| Pins 2–3 | NMI |
| Open | Disabled |

LED Indicators

For information about the LED indicators on the CIPTLK-I-1/-2 motherboard, refer to the following content.

LAN LEDs

The LAN port on the rear I/O of the CIPTLK-I-1/CIPTLK-I-2 motherboard features two LEDs. The LED on the right indicates activity, and the LED on the left indicates the speed of the connection.

| LAN1 Speed LED (Left) LED State | |
|------------------------------------|-------------|
| LED Color | Definition |
| Green | 2.5 Gbps |
| Amber | 1 Gbps |
| Amber | 10/100 Mbps |

| LAN1 Activity LED (Right) LED State | | |
|--|----------|------------|
| LED Color | Status | Definition |
| Green | Flashing | Active |

M.2 LEDs

M.2 LEDs are located at LED5001 LED (for M.2-C1) and LED5101 LED (for M.2-C2) on the CIPTLK-I-1/CIPTLK-I-2 motherboard. When an M.2 LED is blinking, the corresponding M.2 device is functioning normally.

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12](#).

| M.2 LED State | |
|----------------|-----------------|
| LED Color | Definition |
| Solid Green | Device Detected |
| Blinking Green | Device Working |

Power-On Self-Test (POST) LEDs

A WLAN POST LED (LED5301) and a Bluetooth POST LED (LED5302) are built-in to indicate the WLAN and Bluetooth devices POST status.

| WLAN LED Indicator | | Bluetooth LED Indicator | |
|---------------------------|---------------------|--------------------------------|--------------------------|
| LED Color | Definition | LED Color | Definition |
| Green | WLAN POST Working | Green | Bluetooth POST Working |
| Off | WLAN POST Completed | Off | Bluetooth POST Completed |

For a detailed diagram of the CIPTLK-I-1/CIPTLK-I-2 motherboard, see the layout under ["Quick Reference" on page 12](#).

Chapter 3:

Troubleshooting

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

| | |
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3.1 Troubleshooting Procedures

Use the following procedures to troubleshoot your system. If you have followed all of the procedures below and still need assistance, refer to the ["Technical Support Procedures" on page 51](#) or ["Returning Merchandise for Service" on page 54](#) section(s) in this chapter. Always disconnect the AC power cord before adding, changing or installing any non hot-swap hardware components. If the below steps do not fix the setup configuration problem, contact your vendor for repairs.

Before Power On

1. Make sure that there are no short circuits between the motherboard and chassis.
2. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse.
3. Remove all add-on cards.

No Power

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

No Video

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

System Boot Failure

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

1. Check the screen for an error message.
2. Clear the CMOS settings by unplugging the power cord and contacting both pads on the CMOS clear jumper. Restart the system. Refer to ["CMOS Clear" on page 43](#).
3. Remove all components from the motherboard and turn on the system with only one DIMM installed. If the system boots, turn off the system and repopulate the components back into the system to retest. Add one component at a time to isolate which one may have caused the system boot issue.

Memory Errors

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

1. Make sure that the memory modules are compatible with the system and are properly installed. See ["Component Installation" on page 24](#) for installation instructions. (For memory compatibility, refer to the "Tested Memory List" link on the motherboard's product page to see a list of supported memory.)
2. Check if different speeds of DIMMs have been installed. It is strongly recommended that you use the same RAM type and speed for all DIMMs in the system.
3. Make sure that you are using the correct type of DIMMs recommended by the manufacturer.
4. Check for bad DIMMs or slots by swapping a single module among all memory slots and check the results.

Losing the System's Setup Configuration

1. Make sure that you are using a high-quality power supply. A poor-quality power supply may cause the system to lose the CMOS setup information. Refer to ["Introduction" on page 11](#) for details on recommended power supplies.
2. The battery on your motherboard may be old. Check to verify that it still supplies approximately 3 VDC. If it does not, replace it with a new one.

If the System Becomes Unstable

- A. If the system becomes unstable during or after OS installation, check the following:
 1. Processor/BIOS support: Make sure that your processor is supported and that you have the latest BIOS installed in your system.

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

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

3. Storage Drive support: Make sure that all storage drives work properly. Replace the failed storage drives with good ones.
 4. System cooling: Check the system cooling to make sure that all processor/system fans, etc., work properly. Check the hardware monitoring settings in the IPMI to make sure that the processor and system temperatures are within the normal range. Also, check the front panel Overheat LED and make sure that it is not on.
 5. Adequate power supply: Make sure that the power supply provides adequate power to the system. Make sure that all power connectors are connected. Refer to our website for more information on the minimum power requirements.
 6. Proper software support: Make sure that the correct drivers are used.
- 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 a USB flash or media device.
 2. Cable connection: Check to make sure that all cables are connected and working properly.
 3. Use the minimum configuration for troubleshooting: Remove all unnecessary components (starting with add-on cards first), and use the minimum configuration (but with the processor and a memory module installed) to identify the trouble areas. Refer to the steps listed above in this section for proper troubleshooting procedures.
 4. Identify bad components by isolating them: If necessary, remove a component in question from the chassis, and test it in isolation to make sure that it works properly. Replace a bad component with a good one.
 5. Check and change one component at a time instead of changing several items at the same time. This will help isolate and identify the problem.
 6. To find out if a component is good, swap this component with a new one to see if the system will work properly. If so, then the old component is bad. You can also install the component in question in another system. If the new system works, the component is good and the old system has problems.

3.2 Technical Support Procedures

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

1. Refer to "Troubleshooting Procedures" on page 48 or see the FAQs on our website (<https://www.supermicro.com/FAQ/index.php>) before contacting Technical Support.
2. BIOS upgrades can be downloaded from our website (https://www.supermicro.com/support/resources/bios_ipmi.php).
3. If you still cannot resolve the problem, include the following information when contacting Supermicro for technical support:
 - Motherboard model and PCB revision number
 - BIOS release date/version (This can be seen on the initial display when your system first boots up.)
 - System configuration
4. An example of a Technical Support form is on our website at <https://webpr3.supermicro.com/SupportPortal>.
5. Distributors: For immediate assistance, have your account number ready when placing a call to our Technical Support department. For Supermicro contact information, refer to "Contacting Supermicro" on page 10.

3.3 Motherboard Battery

For information on removing, disposing of, and replacing the motherboard battery of your system, refer to ["Battery Removal and Installation"](#) on page 32.

3.4 Where to Get Replacement Components

If you need replacement parts for your CIPTLK-I-1/-2 motherboard, to ensure the highest level of professional service and technical support, purchase exclusively from our Supermicro Authorized Distributors/System Integrators/Resellers. A list can be found on the Supermicro website:

<https://www.supermicro.com>

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

3.5 Returning Merchandise for Service

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

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

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

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

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

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

3.6 Feedback

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

Chapter 4:

UEFI BIOS

The following content contains information on BIOS configuration with the CIPTLK-I-1/-2 motherboard.

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4.1 Introduction

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

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

Updating BIOS

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

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

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

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

Unzip the BIOS file onto a USB device formatted with the FAT/FAT32 file system. When the UEFI shell prompt appears, type `fs#` to change the device directory path. Go to the directory that contains the BIOS package you extracted earlier. Enter `flash.nsh BIOSname#.###` at the prompt to start the BIOS update process. Reboot the system when you see the message that BIOS update has completed.

Starting the Setup Utility

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

The Main BIOS screen has two main frames. The left frame displays all the options that can be configured. “Grayed-out” options cannot be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When a BIOS submenu

or item is selected in the left frame, it is highlighted in white. Often a text message will accompany it. (Note that BIOS has default text messages built in. We retain the option to include, omit, or change any of these text messages.) Settings printed in **Bold** are the default values.

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

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

4.2 Main Setup

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

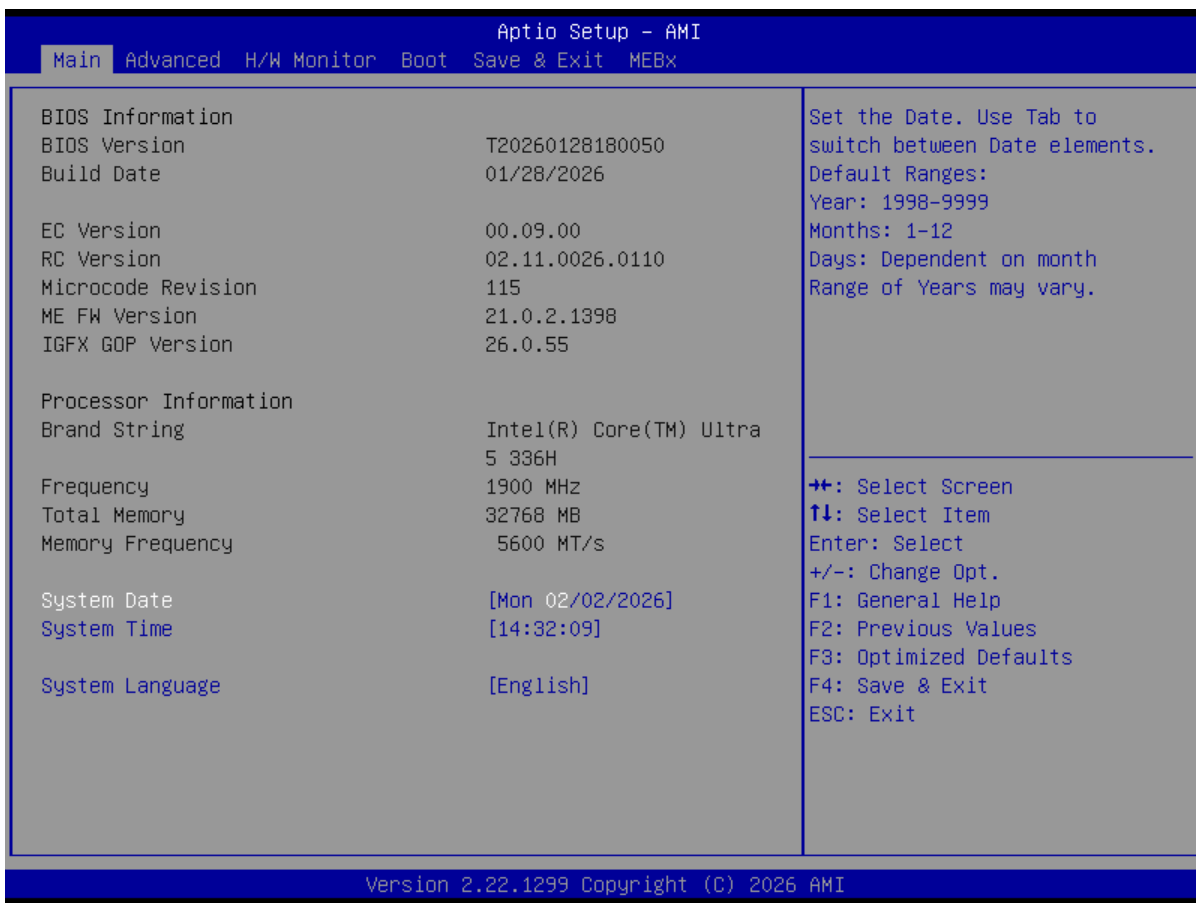


Figure 4-1. Main Screen

BIOS Version

The following BIOS information is displayed.

- BIOS Version
- Build Date
- EC Version
- RC Version
- Microcode Revision

- ME FW Version
- IGFX GOP Version

Processor Version

The following processor information is displayed.

- Brand String
- Frequency
- Total Memory
- Memory Frequency

System Date/System Time

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

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

System Language

Use this feature to set the system language. The option is **English**.

4.3 Advanced Setup Configurations

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

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

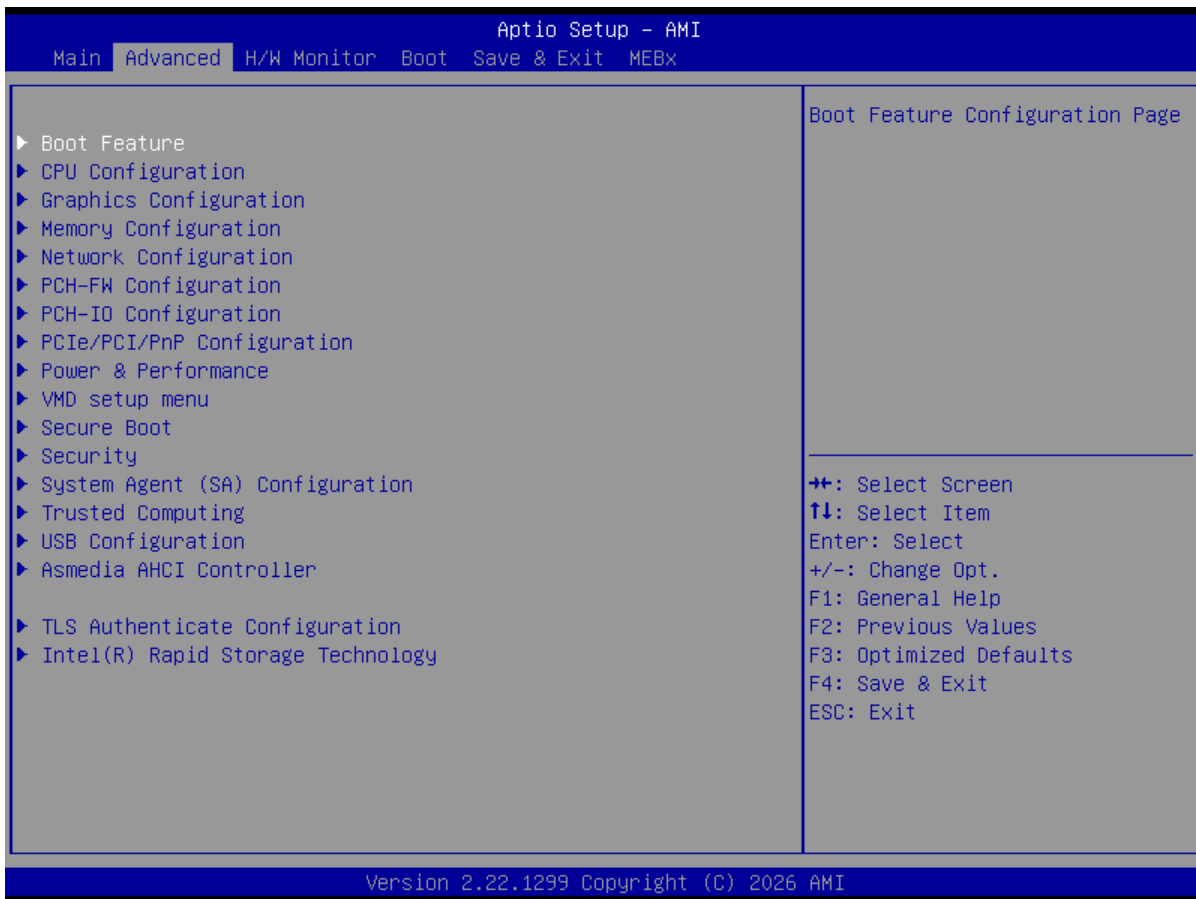


Figure 4-2. Advanced Setup Configuration Screen

Boot Feature Menu

► Boot Feature

Fast Boot

This feature enables the system to boot with a minimal set of required devices to launch. This has no effect on BBS boot options. The options are **Disabled** and Enabled.

Quiet Boot

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

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

Bootup NumLock State

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

Wait For "F1" If Error

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

Re-try Boot

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

Quickly Boot Menu by F11 Support

Select Enabled to quickly invoke the boot menu by pressing the <F11> key at system bootup. The options are Disabled and **Enabled**.

Power Configuration**Watch Dog Function**

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

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

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

Restore on AC Power Loss

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

Power Button Function

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

power button. The options are **Instant Off** and 10 Seconds Override.

DeepSx Power Policies

Use this feature to configure the Advanced Configuration and Power Interface (ACPI) settings for the system. When enabled, both S4 and S5 modes will be enabled. S4 is Hibernation mode (Suspend to Disk) so that all data stored in the main memory can be saved in a non-volatile memory area such as in a hard drive and then power down the system. S5 mode will power off the whole system except the power supply unit (PSU) and keep the power button alive so that you can wake up the system by using a USB keyboard or mouse. The options are **Disabled** and **Enabled**.

Delay Time Before PCI Enumeration

Use this feature to set the amount of time the system waits before enumerating PCI devices during the boot process. The valid range is 0–30 with a step of 1 second. The default setting is **0** for off, meaning the system will skip the delay time and immediately begin enumerating PCI devices.

CPU Configuration Menu

► CPU Configuration

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

The following processor information is displayed.

- Brand String
- Frequency
- ID
- Stepping
- Number of Processors
- Number of Efficient-core(s)
- Number of Low Power Efficient-core(s)

Advanced Option

Select **Enabled** to view the advanced options. The options are **Disabled** and **Enabled**.

The following information is displayed when "Advanced Option" is set to **Enabled**.

- Microcode Revision
- GT Info
- IGFX GOP Version
- L0 Data Cache
- L1 Instruction Cache
- L3 Cache
- VMX
- SMX/TXT

Intel (VMX) Virtualization Technology

Select Enabled to enable the Intel Vanderpool Technology for Virtualization platform support, which allows multiple operating systems to run simultaneously on the same computer to maximize system resources for performance enhancement. The options are Disabled and **Enabled**. Changes take effect after you save settings and reboot the system.

Active Processor Cores

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

Note: The number of cores depend on the processor used in the system.

BIST

Select Enabled to activate the Built-In Self Test (BIST) on reset. The options are **Disabled** and Enabled.

MachineCheck

Select Enabled to activate Machine Check. The options are Disabled and **Enabled**.

Monitor MWAIT

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

Reset AUX Content

When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology. The feature is not configurable.

Graphics Configuration Menu

► Graphics Configuration

This submenu allows you to configure the graphics configuration settings.

Graphics Configuration

Skip Scanning of External Gfx Card

If this feature is enabled, the system will not scan for an external graphics card on PEG and PCIe slots. The options are **Disabled** and Enabled.

Primary Display

Use this feature to select the primary video display. The options are **Auto** and IGPU.

Internal Graphics

Select Auto to keep an internal graphics device installed on an expansion slot supported by the CPU to be automatically enabled. The options are **Auto**, Disabled, and Enabled.

DVMT Pre-Allocated

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

Configure GT for use

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

PAVP Enable

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

Memory Configuration Menu

► Memory Configuration

This submenu is used to configure the Integrated Memory Controller (IMC) settings.

- Memory RC Version
- Memory Frequency
- Memory Timings (tCL-tRCD-tRP-tRAS)
- DIMMA1
- DIMMA2

- DIMMB1
- DIMMB2

Maximum Memory Frequency

Use this feature to set the maximum memory frequency for onboard memory modules. The options are **Auto**, 1067, 1333, 1600, 1867, 2133, 2400, 2667, 2933, 3200, 3467, 3600, 3733, 4000, 4200, 4267, 4400, 4600, 4800, 5000, 5200, 5400, 5600, 6400, 6800, and 7200.

Max TOLUD

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

Memory Scrambler

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

Force Single Rank

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

Memory Remap

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

MRC Fast Boot

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

Total Memory Encryption

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

Network Configuration Menu

► Network Configuration

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

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

The following LAN port information will be displayed:

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

Link auto-negotiation Timeout

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

MAC:(MAC address)-IPv4 Network Configuration Menu

▶ MAC:(MAC address)-IPv4 Network Configuration

Configured

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

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

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

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

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

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

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

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

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

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

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

Save Changes and Exit

Press <Enter> to save changes and exit.

MAC:(MAC address)-IPv6 Network Configuration Menu

▶ MAC:(MAC address)-IPv6 Network Configuration

▶ Enter Configuration Menu

The following information is displayed.

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

Interface ID

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

DAD Transmit Count

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

Policy

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

▶ Advanced Configuration

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

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

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

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

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

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

Save Changes and Exit

Press <Enter> to save changes and exit.

PCH-FW Configuration Menu

► PCH-FW Configuration

The following information is displayed:

- ME Firmware Version
- ME Firmware Mode
- ME Firmware SKU

ME FW Image Re-Flash

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

AMT Configuration

USB Provisioning of AMT

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

MAC Pass Through

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

Activate Remote Assistance Process

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

Unconfigure ME

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

ASF Configuration

PET Progress

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

WatchDog

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

OS Timer / BIOS Timer

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

ASF Sensors Table

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

PCH-IO Configuration Menu

► PCH-IO Configuration

HD Audio

This feature controls the detection of HD Audio devices. The options are Disabled and **Enabled**.

Wake on LAN Enable

This feature enables integrated LAN to wake the system. The options are Disabled and **Enabled**.

DMI ASPM

This feature configures Active State Power Management (ASPM) for DMI Link. The options are Disabled, L1, and **Auto**.

► M.2-C2 / I226 / SATA0 / M.2-C1 / CPU SLOT7 PCIe 5.0 X8 (IN X16)

ASPM

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

L1 Substates

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

PCIe Speed

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

P2P Support

This feature controls P2P support registers according to setup option. The options are **Disabled** and Enabled.

PCIe/PCI/PnP Configuration Menu

► PCIe/PCI/PnP Configuration

Above 4G Decoding

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

Re-Size BAR Support

Use this feature to enable the Resizable BAR support. Resizable BAR is a PCIe interface technology that allows the CPU to access the entire frame buffer. With this technology, your system will be able to handle multiple CPU to GPU transfers simultaneously rather than queuing, which can improve the frame rate performance. The options are **Disabled** and Enabled.

SR-IOV Support

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

BME DMA Mitigation

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

NVMe Firmware Source

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

Consistent Device Name Support

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

PCIe/PCI/PnP Configuration

CPU SLOT7 PCIe 5.0 x8 (IN X16) OPROM / M.2-C1 OPROM / M.2-C2 OPROM / SATA0 OPROM

Use this feature to select which firmware type to be loaded for the add-on card in this slot. The options are Disabled and **EFI**.

Onboard LAN1 Support

Use this feature to enable or disable LAN1. The options are Disabled and **Enabled**.

Power and Performance Menu

CPU - Power Management Control Menu

▶ CPU - Power Management Control

Intel® SpeedStep™

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

C-States

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

If the C-States feature is set to enabled, the following features will become available for configuration:

C-State Auto Demotion

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

C-State Un-Demotion

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

Package C-State Demotion

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

Package C-State Un-Demotion

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

C-State Pre-Wake

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

Package C-State Limit

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

VMD Setup Menu

► VMD Setup

VMD Configuration

To create RAID volumes, you have to enable VMD controller and map the root port of the target storage device to VMD.

Notes:

- After you've enabled VMD in the BIOS on a PCIe slot, this PCIe slot will be dedicated for VMD use only, and it will no longer support any PCIe device. To re-activate this slot for PCIe use, disable VMD in the BIOS.
- After you've changed the VMD configurations, you must save the changes and reboot for the changes to take effect. After rebooting, the Intel(R) Rapid Storage Technology feature will appear under the Advanced menu.

Enable VMD Controller

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

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

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

Map RP BDF 0/6/0 Under VMD / Map RP BDP 0/28/0 Under VMD

Use this feature to map or unmap this Root Port to VMD. The options are **Disabled** and Enabled. RP BDF 0/6/0 refers to M.2-C1, and RP BDP 0/28/0 refers to M.2-C2.

Note: This feature is only available when the M.2 storage device(s) are detected by the BIOS, and "Enable VMD Global Mapping" above is set to Disabled.

RAID0/1 (Available when Enable VMD Controller is set to "Enabled")

Use this feature to enable the support of RAID0/1. The options are Disabled and **Enabled**.

Secure Boot Menu

► Secure Boot

The following information is displayed:

- System Mode
- Secure Boot

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

Secure Boot

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

Secure Boot Mode

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

► Enter Audit Mode

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

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

► Enter Deployed Mode / Exit Deployed Mode

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

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

► Key Management

The following information is displayed:

- Vendor Keys

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

Provision Factory Defaults

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

▶ Restore Factory Keys

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

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

▶ Reset To Setup Mode

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

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

▶ Enroll Efi Image

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

▶ Export Secure Boot Variables

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

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

Secure Boot variable / Size / Keys / Key Source

▶ Platform Key (PK)

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

▶ Key Exchange Keys (KEK)

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

append the Key Exchange Keys.

► Authorized Signatures (db)

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

► Forbidden Signatures (dbx)

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

► Authorized TimeStamps (dbt)

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

► OsRecovery Signatures (dbr)

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

Security

Hard Drive Security Frozen

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

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

Select Enabled to allow SID authentication to be performed in TCG storage devices. The options are **Disabled** and Enabled. (SID is the abbreviation for Storage ID Authority.)

The following information is displayed:

- Administrator Password
- User Password
- Password Description

Password Check

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

Administrator Password

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

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

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

Lockdown Mode (Available when the DCMS key is activated)

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

Supermicro Security Erase Configuration Menu

► Supermicro Security Erase Configuration

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

- HDD Name: This feature displays the model name of the storage device that is detected by the BIOS.
- HDD Serial Number: This feature displays the serial number of the storage device that is detected by the BIOS.
- Security Mode: This feature displays the security mode of the storage device that is detected by the BIOS.
- Estimated Time: This feature displays the estimate time needed to perform the selected Security Erase features.

- **HDD User Pwd Status:** This feature indicates if a password has been set as a storage device user password, which enables configuring Supermicro Security Erase settings on this storage device.
- **TCG Device Type:** This feature displays the TCG device type detected by the system.
- **Admin Pwd Status:** This feature indicates if a password has been set as a storage device administrator password, which enables configuring Supermicro Security Erase settings on this storage device.

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

Security Function

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

Notes:

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

Password

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

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

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

System Agent (SA) Configuration Menu

► System Agent (SA) Configuration

Vt-d

This feature displays if Vt-d is enabled or disabled.

DMA Control Guarantee

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

Trusted Computing Menu

► Trusted Computing

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

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

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

Security Device Support

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

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

- Active PCR banks
- Available PCR banks

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

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

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

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

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

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

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

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

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

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

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

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

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

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

TPM 2.0 InterfaceType (Available when "Security Device Support" is set to Enabled)

This feature displays the interface type of the detected TPM 2.0 module.

PH Randomization

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

Intel Trusted Execution Technology

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

USB Configuration

USB Configuration

USB Module Version

USB Controllers

USB Devices

XHCI Hand-off

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

USB Mass Storage Driver Support

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

Asmedia AHCI Controller Menu

► Asmedia AHCI Controller

The following information is displayed.

- SATA Port 0: This feature displays the information of the storage device that is connected to the SATA port.

TLS Authenticate Configuration Menu

► TLS Authenticate Configuration

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

► Server CA Configuration

Use this feature to configure the server Certificate Authority (CA).

▶ Enroll Certification

Use this feature to enroll the certificates in the system.

▶ Enroll Certification Using File

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

▶ Commit Changes and Exit

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

▶ Discard Changes and Exit

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

▶ Delete Certification

Use this feature to delete the certificates that have been enrolled in the system.

▶ Client Certification Configuration

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

Intel(R) Rapid Storage Technology Menu

▶ Intel(R) Rapid Storage Technology

Note: This submenu is available only when Advanced > VMD Setup Menu > "Enabled VMD controller" feature is set to Enabled and the changes have taken effect after you save settings and reboot the system.

Intel(R) RST xx.xx.xxxx RST VMD Driver

▶ Create RAID Volume

This submenu will only appear when VMD controller is enabled, the root port of the storage device for RAID array has been mapped under VMD, and the RAID support is enabled. The mapped storage devices will appear in the Non-RAID Physical Disks list. For information on VMD configurations, refer to the "[VMD Setup Menu](#)" on page 73.

Name

Enter a unique name for the RAID volume. The name must not contain space at the beginning or backslash and must be under 16 characters. The default is Volume1.

RAID Level

Select the desired RAID level for the RAID volume. The options are RAID0 (Stripe) and RAID1 (Mirror).

Select Disks

To select a desired RAID disk, select X from the drop-down list. Repeat this step to select all the desired disks for the RAID volume.

Strip Size

Select the desired RAID strip size for your RAID volume. The options vary according the RAID level you select.

Capacity (MB)

Enter the capacity in megabytes(MB) of the RAID volume to be created.

► Create Volume

After finishing the configuration of the Create RAID Volume feature, select Create Volume and you will return to the previous screen displaying the information about the created RAID volume.

RAID Volumes

This feature displays the RAID volumes you have created. You can click the created RAID volume to view more information.

RAID VOLUME INFO**Volume Actions****► Delete**

This feature allows you to delete a RAID volume. When asked to confirm deletion of the RAID volume, select Yes to delete the RAID volume.

Note: When deleting a RAID volume, all data on the disks will be deleted as well.

For a created RAID Volume, the following information will be displayed:

- Name
- RAID Level

- Strip Size
- Size
- Status
- Bootable

▶ PCIe 0.0 / PCIe 1.0 (RAID Member Disks)

RAID VOLUME INFO

Volume Actions

▶ Reset to non-RAID

This feature allows you to reset a RAID member disks to non-RAID disk. When asked to remove the RAID structure on the disk, select Yes to reset the disk.

Note: When resetting a disk, all data on the disk will be deleted as well.

The following information will be displayed:

- Port
- Model Number
- Serial Number
- Size
- Status
- Controller Type
- Controller Interface

Non-RAID Physical Disks

This feature lists the disks which have not been added to a RAID volume. Select a non-RAID physical disk and you can view the following disk information.

- Port
- Model Number
- Serial Number
- Size
- Status

- Controller Type
- Controller Interface

4.4 H/W Monitor

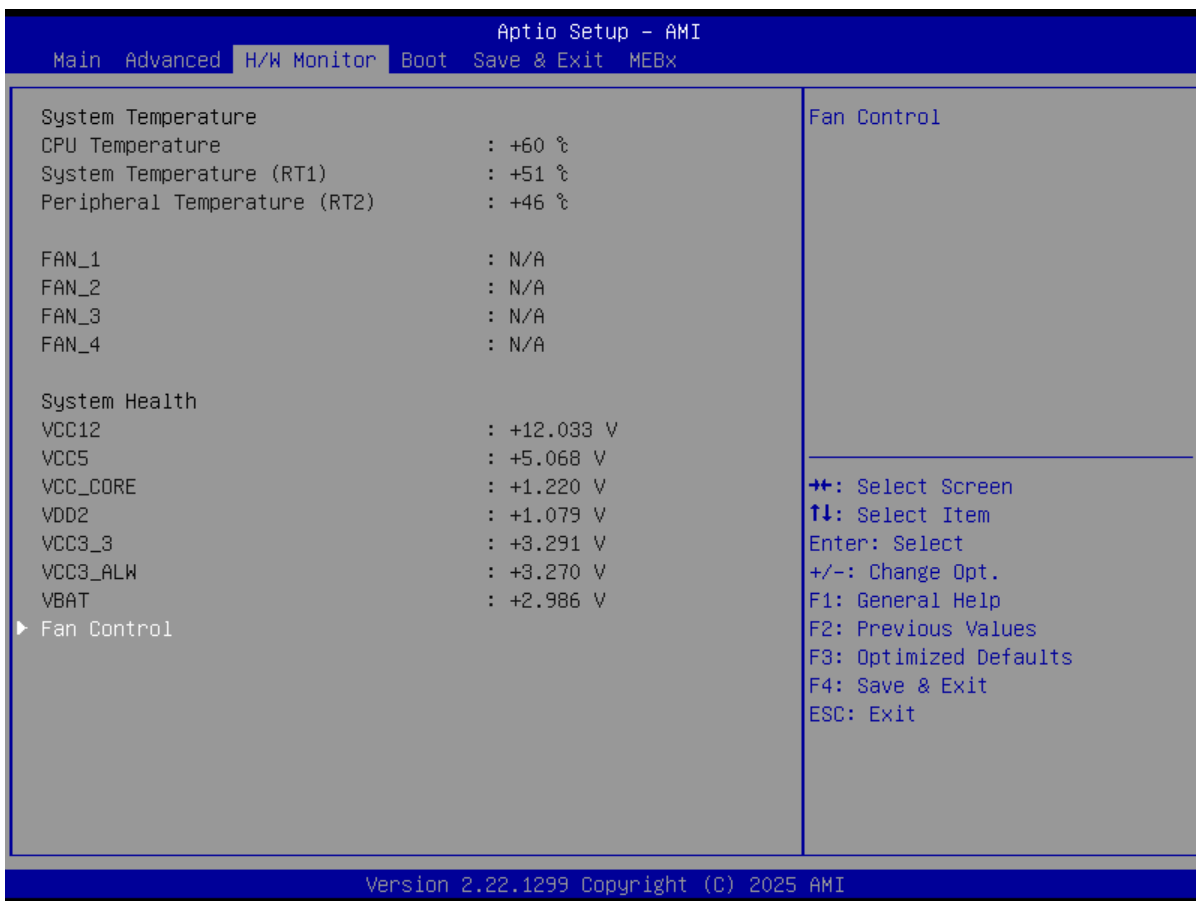


Figure 4-3. H/W Monitor Screen

System Temperature

The following information is displayed:

- CPU Temperature: The CPU temperature detected by PECI.
- System Temperature: The system internal temperature.
- Peripheral Temperature: The detected peripheral device temperature.
- FAN #: The detected RPM of the fan.

System Health

The voltages for the following items is displayed:

- VCC12
- VCC5

- VCC_CORE
- VDD2
- VCC3_3
- VCC3_ALW
- VBAT

► Fan Control

Fan Speed Control Mode

This feature allows you to decide how the system controls the speeds of the onboard fans. The CPU temperature and the fan speed are correlative. When the CPU on-die temperature increases, the fan speed will also increase for effective system cooling. Select "Full Speed" to allow the onboard fans to run at full speed (of 100% Pulse Width Modulation Duty Cycle) for maximum cooling. This setting is recommended for special system configuration or debugging. Select "Silent" to optimize for minimal fan noise and Customize to enter user-specific settings. The options are **Silent**, Performance, and Full Speed.

Thermal Zone 1 Control

Temperature 1/2

This feature displays the temperature.

PWM1/2

This feature displays the PWM value.

4.5 Boot

Use this menu to configure Boot settings.

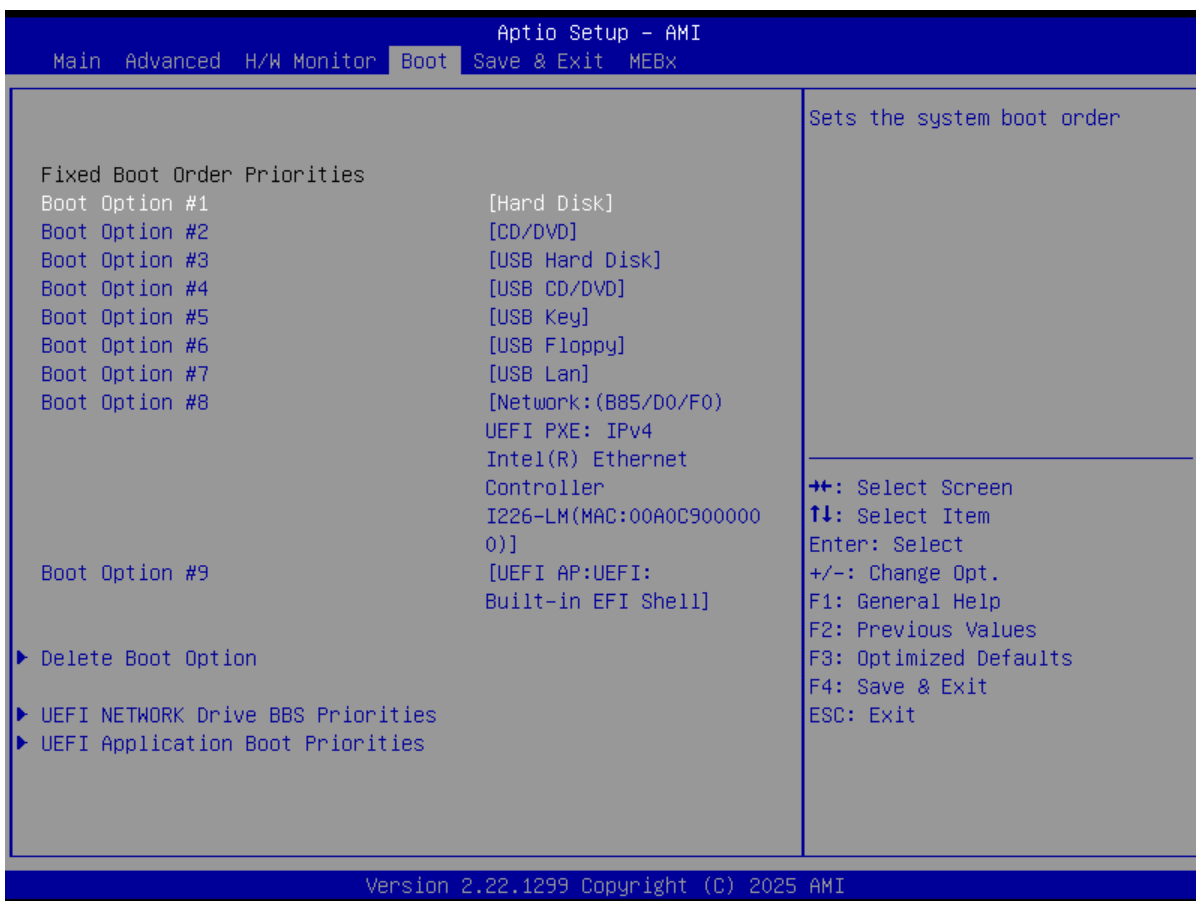


Figure 4-4. Boot Screen

FIXED BOOT ORDER Priorities

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

- Boot Option #1 – Boot Option #9

► Add New Boot Option

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

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

Add boot option

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

Path for boot option

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

Boot option File Path

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

Create

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

▶ Delete Boot Option

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

Delete Boot Option

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

▶ UEFI NETWORK Drive BBS Priorities

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

▶ UEFI Application Boot Priorities

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

▶ UEFI USB Key Drive BBS Priorities

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

▶ UEFI Hard Disk Drive BBS Priorities

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

4.6 Save & Exit

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

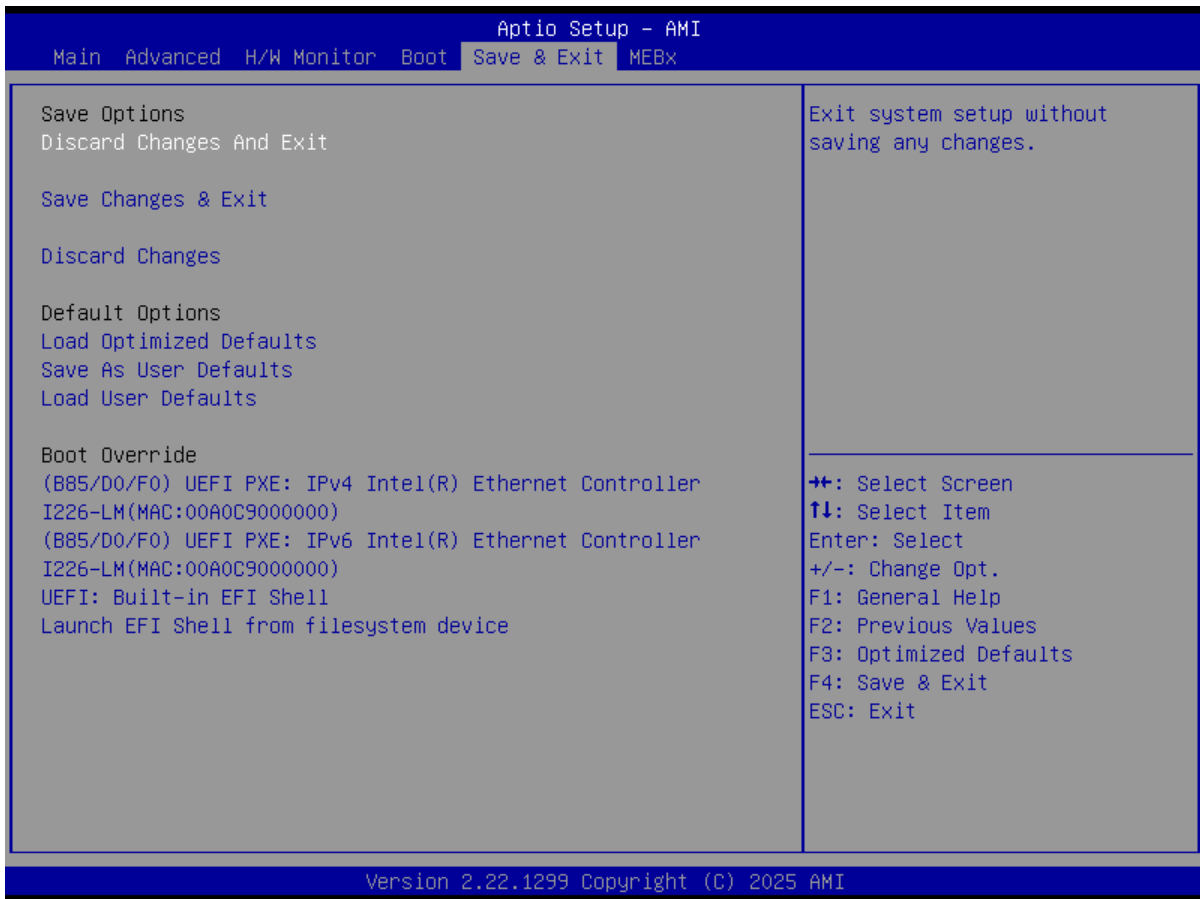


Figure 4-5. Save & Exit Screen

Save Options

Discard Changes and Exit

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

Save Changes and Reset

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

Save Changes

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

Discard Changes

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

Default Options**Restore Optimized Defaults**

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

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

Save as User Defaults

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

Restore User Defaults

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

Boot Override

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

Launch EFI Shell from filesystem device

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

4.7 MEBx

Use this menu to create a password for MEBx.



Figure 4-6. MEBx Screen

Intel(R) ME Password

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

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

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

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

Press Enter and follow the prompt to change the password.

► Intel(R) AMT Configuration

Redirection features

► Redirection features

SOL

Use this feature to enable the SOL firmware interface. The options are Disabled and **Enabled**.

Storage Redirection

Use this feature to enable the firmware remote storage redirection. The options are Disabled and **Enabled**.

KVM Feature Selection

Use this feature to enable the firmware KVM feature. The options are Disabled and **Enabled**.

User Consent

► User Consent

User Opt-in

Use this feature to configure when user consent is required. The options are None, **KVM**, and ALL.

Opt-in Configurable from Remote IT

Use this feature to enable or disable the remote change capability of the User Opt-in feature. The options are Disabled and **Enabled**.

Password Policy

Password Policy

Use this feature to set the password policy. The options are **Default Password Only**, During Setup And Configuration, and Anytime.

Network Setup

► Network Setup

Intel(R) ME Network Name Settings

► Intel(R) ME Network Name Settings Menu

FQDN

Use this feature to specify the fully qualified domain name.

Shared/Dedicated FQDN

Use this feature to select dedicated or shared for the fully qualified domain name. The options are Dedicated and **Shared**.

TCP/IP Settings

► TCP/IP Settings

► Wired LAN IPv4 Configuration

DHCP Mode

Use this feature to enable or disable IPv4 DHCP mode. The options are Disable and **Enabled**.

The following features are available when "DHCP Mode" is set to Disabled.

IPV4 Address

Use this feature to enter an IP address for the wired LAN.

Subnet Mask Address

Use this feature to set the subnet mask for the wired LAN.

Default Gateway Address

Use this feature to set the gateway address for the wired LAN.

Preferred DNS Address

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

Alternate DNS Address

Use this feature to set the alternative Domain Name System (DNS) server address for the wired LAN.

Network Access State

Network Access State

Use this feature to change the state of the network state of ME. The options are Network Active, **Network Inactive**, and Full Unprovision.

Remote Setup And Configuration

► Remote Setup And Configuration Menu

Provisioning Server address

Use this feature to enter the provisioning server address. It's either a host name, IPv4, or IPv6.

Provisioning server port number

Use this feature to enter the provisioning server port number. The port numbers can range from 0 to 65535. The default is **9971**.

Remote Configuration **

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

PKI DNS Suffix

Use this feature to enter the PKI DNS suffix.

Activate Remote Configuration

Use this feature to activate remote configuration.

Manage Certificates

- ▶ **Manage Certificates Menu**
 - ▶ **Go Daddy Class 2 CA**
 - ▶ **Go Daddy Root CA-G2**
 - ▶ **Comodo AAA CA**
 - ▶ **Starfield Class 2 CA**
 - ▶ **Starfield Root CA-G2**
 - ▶ **VeriSign Class 3 Primary CA-G5**
 - ▶ **Baltimore CyberTrust Root**
 - ▶ **USERTrust RSA CA**
 - ▶ **Verizon Global Root**
 - ▶ **Entrust.net CA (2048)**
 - ▶ **Entrust Root CA**
 - ▶ **Entrust Root CA-G2**
 - ▶ **VeriSign Universal Root CA**
 - ▶ **Affirm Trust Premium**
 - ▶ **DigiCert Global Root CA / G2 / G3**
 - ▶ **DigiCert Trusted Root G4**
 - ▶ **GlobalSign Root CA - R3**
 - ▶ **GlobalSign ECC Root CA - R5**
 - ▶ **GlobalSign Root CA - R6**

Active

Use this feature to set the certificate to active. The options are NO and **YES**.

Default

This feature displays if this certificate is the default.

Hash type

This feature displays the hash type of the certificate.

Hash data

This feature displays the hash data of the certificate.

Power Control**▶ Power Control Menu**

Note that the following configurations are effective only after ME provisioning has started.

ME ON in Host Sleep States

Use this feature to select the host sleep states. The options are Desktop: ON in S0 and **Desktop: ON in S0, ME Wake in S3, S4-5**.

Idle Timeout

Use this feature to enter the timeout value. The value can range from 1 to 65535. The default is **65535**.

Appendix A:

BIOS Codes

For information about BIOS codes for the CIPTLK-I-1/-2 motherboard, refer to the following content.

Additional BIOS POST Codes

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

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

Appendix B:

Software

After the CIPTLK-I-1/-2 motherboard has been installed, you can install the Operating System (OS), configure RAID settings, and install the drivers.

Microsoft Windows OS Installation

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

Installing the OS

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

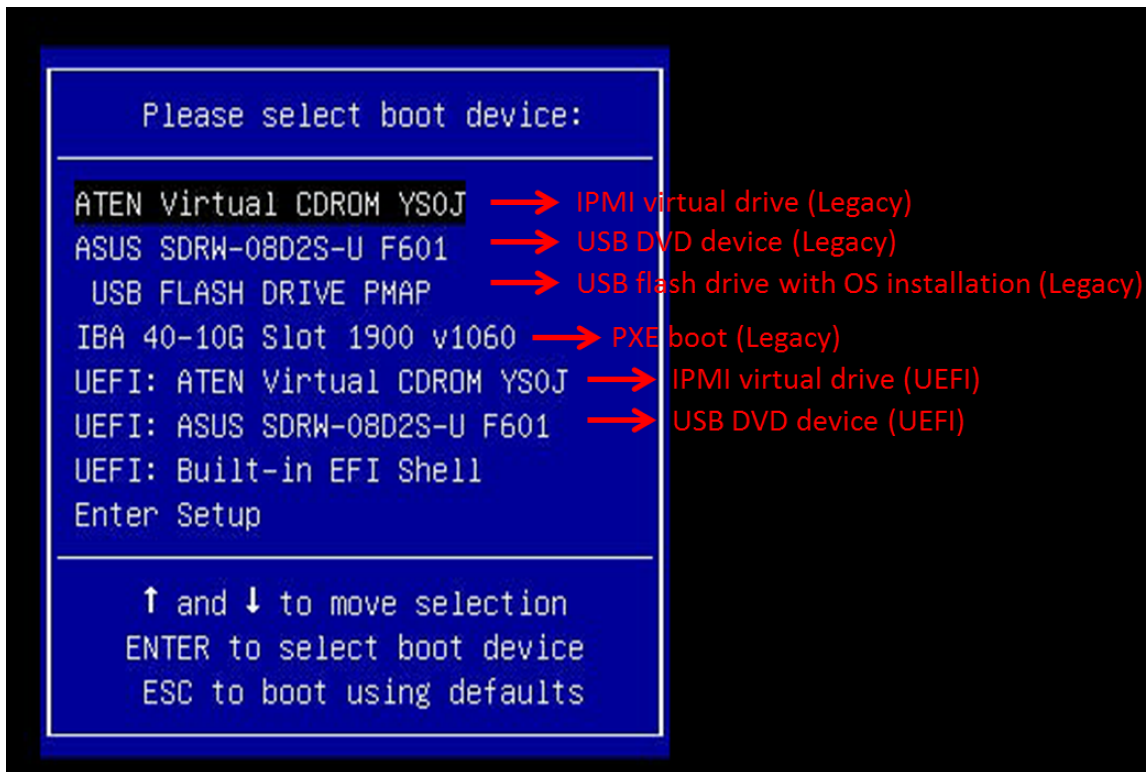


Figure B-1. Selecting the Boot Device

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

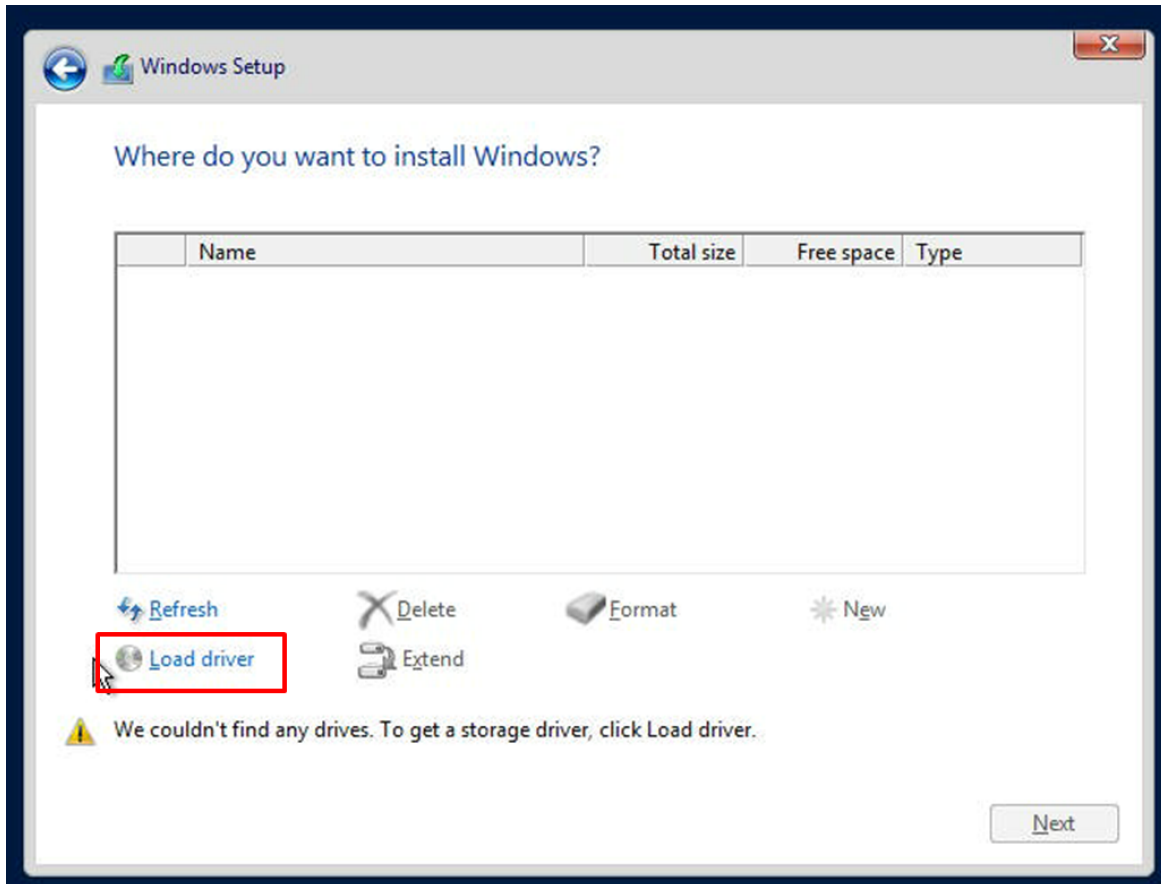


Figure B-2. Loading the Driver Link

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

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

Driver Installation

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

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

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

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

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

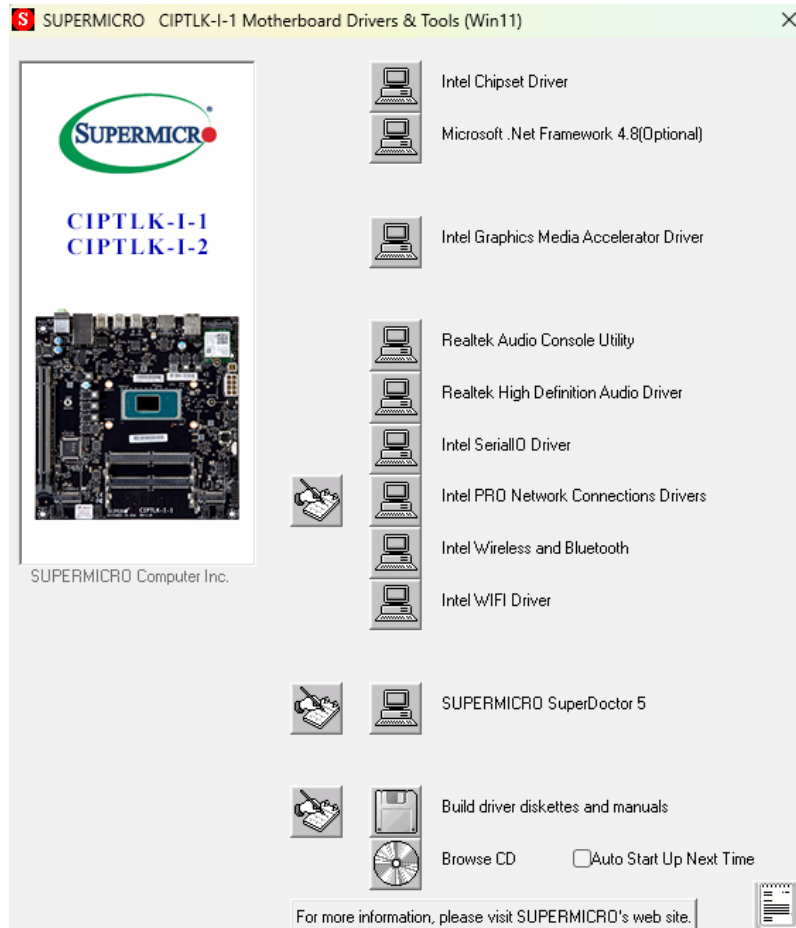


Figure B-3. Driver & Tools Installation Screen

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 and SMTP services to optimize the efficiency of your operation.

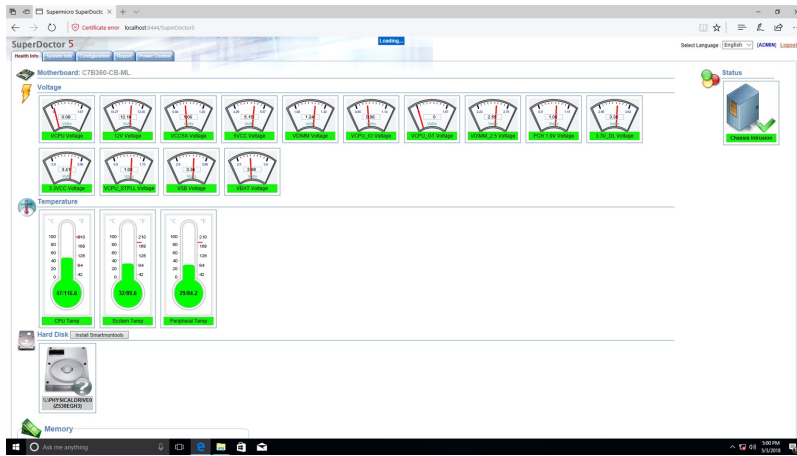


Figure B-4. SuperDoctor 5 Interface Display Screen (Health Information)

Appendix C:

Standardized Warning Statements

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

Read this section in its entirety before installing or configuring components in the Supermicro CIPTLK-I-1/-2 motherboard.

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

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

Battery Handling



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Connection to Earth



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

تحذير! يجب توصيل الأجهزة بمقبس كهربائي أرضي.

警告！设备应连接到接地电源插座。

警告！應將設備連接至接地電源插座。

Advarsel! Dette udstyr skal sluttes til en jordforbundet stikkontakt.

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

Varoitus! Laitteet on kytkettävä maadoitettuun pistorasiaan.

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

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

אזהרה! יש לחבר את הציוד לשקע חשמל עם הארקה.

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

警告！機器は、接地主電源コンセントに接続するものとします。

경고! 장비는 접지된 전원 콘센트에 연결해야 합니다.

Advarsel! Utstyret skal kobles til en jordet stikkontakt.

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

Varning! Utrustningen ska vara ansluten till ett jordat eluttag.

Product Disposal



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

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

警告！本产品的废弃处理应根据所有国家的法律和规章进行。

警告！本產品的廢棄處理應根據所有國家的法律和規章進行。

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

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

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

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

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

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

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

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

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

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

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

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

Appendix D:

UEFI BIOS Recovery

The following content contains information on BIOS configuration with the CIPTLK-I-1/-2 motherboard.

Important: Do not upgrade the BIOS unless your system has a BIOS-related issue. Flashing the wrong BIOS can cause irreparable damage to the system. In no event shall Supermicro be liable for direct, indirect, special, incidental, or consequential damages arising from a BIOS update. If you need to update the BIOS, do not shut down or reset the system while the BIOS is updating to avoid possible boot failure.

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Overview

The Unified Extensible Firmware Interface (UEFI) provides a software-based interface between the operating system and the platform firmware in the pre-boot environment. The UEFI specification supports an architecture-independent mechanism that will allow the UEFI OS loader stored in an external storage device to boot the system. The UEFI offers clean, hands-off management to a computer during system boot.

Recovering the UEFI BIOS Image

A UEFI BIOS flash chip consists of a recovery BIOS block and a main BIOS block (a main BIOS image). The recovery block contains critical BIOS codes, including memory detection and recovery codes for the user to flash a healthy BIOS image if the original main BIOS image is corrupted. When the system power is turned on, the recovery block codes execute first. Once this process is complete, the main BIOS code will continue with system initialization and the remaining Power-On Self-Test (POST) routines.

Notes:

- Follow the BIOS recovery instructions for BIOS recovery when the main BIOS block crashes.
- If the recovery block processes fail, you will need to follow the procedures to make a Returned Merchandise Authorization (RMA) request. Refer to the instructions under ["Returning Merchandise for Service" on page 54](#).

Recovering the Main BIOS Block with a USB Device

This feature allows the user to recover the main BIOS image using a USB device without additional utilities used. A USB flash or media drive can be used for this purpose. However, a USB hard disk drive cannot be used for BIOS recovery at this time.

Note: The USB flash drive doesn't have to be bootable; however, it has to be formatted to FAT16/FAT32 file system.

To perform UEFI BIOS recovery using a USB device, follow the instructions below.

Use a different machine to download the BIOS package for your motherboard or your system from the product page available on our website at www.supermicro.com.

1. Extract the BIOS package to a USB device. Copy the BIOS ROM file [BIOSname#.###] that is included in the BIOS package into the Root "\" directory of the USB device.
2. Rename the BIOS ROM file [BIOSname#.###] in the root directory to SUPER.ROM for BIOS recovery use.

Note: Before recovering the main BIOS image, confirm that the SUPER.ROM file you have is the same version or a close version meant for your motherboard.

3. Insert the USB device that contains the SUPER.ROM file into the system before you power on the system or when the following screen appears.



Figure D-1. Startup Screen

4. After locating the SUPER.ROM file, the system will enter the BIOS Recovery menu. Select the item "Proceed with flash update" and press the <Enter> key.

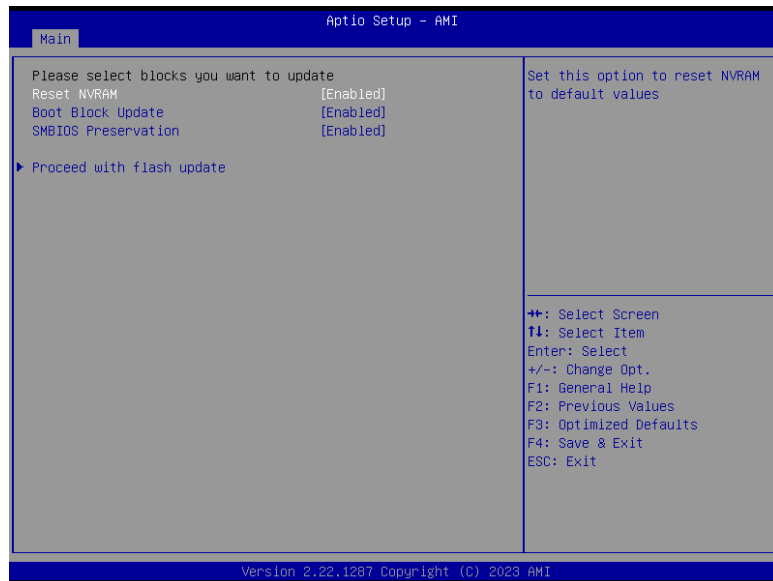


Figure D-2. BIOS Recovery Menu

5. You will see the BIOS recovery progress as shown in the screen below. Wait for the BIOS flashing process to complete.

Note: Do not interrupt the BIOS flashing process until it is complete.

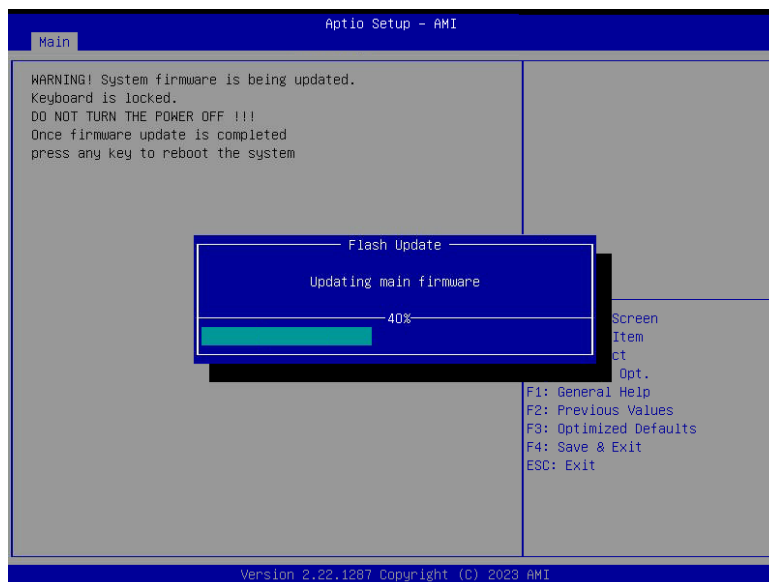


Figure D-3. BIOS Recovery In Progress Screen

6. After the BIOS recovery process is complete, press any key to reboot the system.

Note: After BIOS recovery, it is recommended that you update your BIOS. Refer to the descriptions under "[Updating BIOS](#)" on [page 57](#) for more information.