GIGABYTE™

MC13-LE3

Motherboard
- AMD EPYC™ 4005/4004 & Ryzen™ 9000/7000
- microATX UP 25Gb/s + 1Gb/s LAN

User Manual

Rev. 1.0

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Documentation Classifications

In order to assist in the use of this product, GIGABYTE provides the following types of documentation:

- User Manual: detailed information & steps about the installation, configuration and use this product (e.g. motherboard, server barebones), covering hardware and BIOS.
- User Guide: detailed information about the installation & use of an add-on hardware or software component (e.g. BMC firmware, rail-kit) compatible with this product.
- Quick Installation Guide: a short guide with visual diagrams that you can reference easily for installation purposes of this product (e.g. motherboard, server barebones).

Please see the support section of the online product page to check the current availability of these documents

For More Information

For related product specifications, the latest firmware and software, and other information, please visit our website at: http://www.gigabyte.com.

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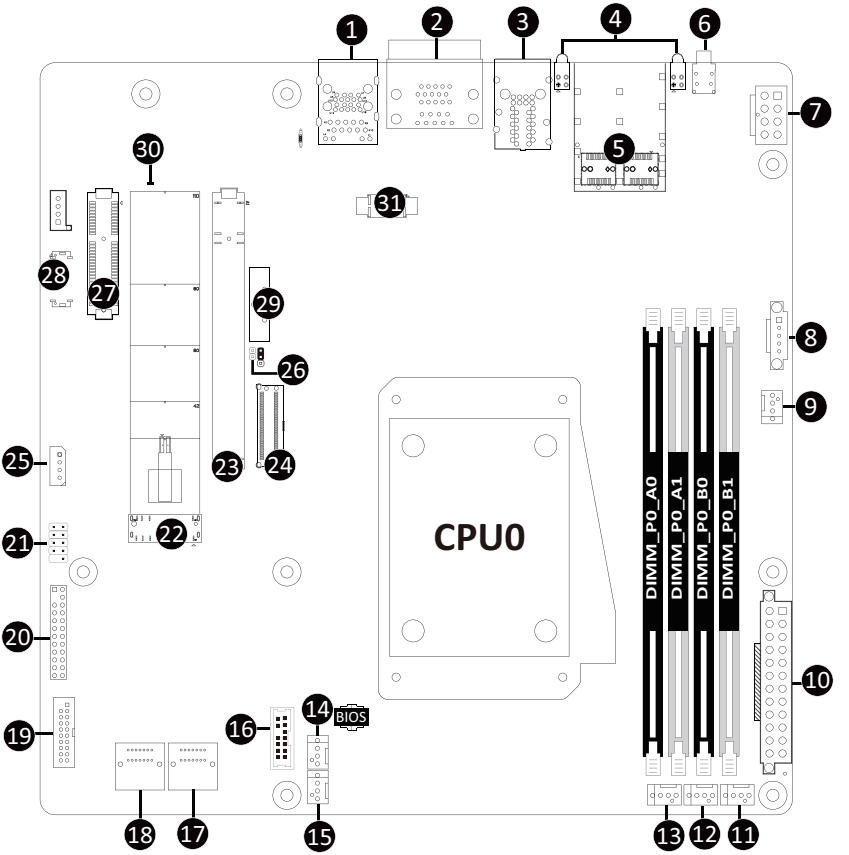
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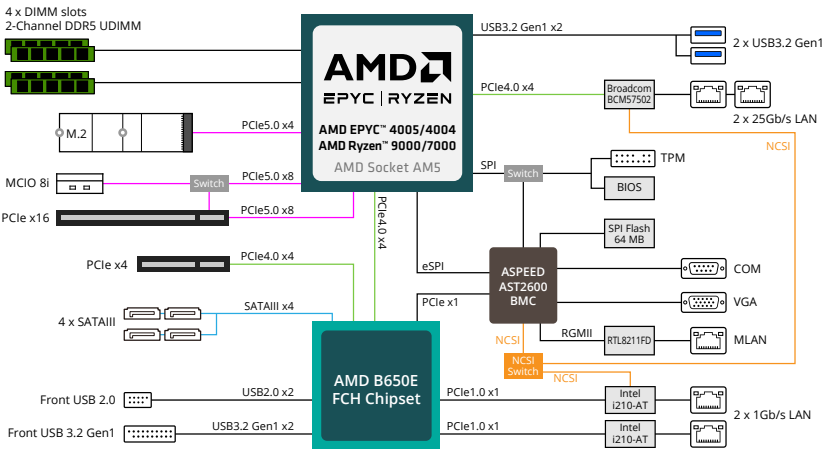
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MC13-LE3 Motherboard Layout



Item	Code	Description
1	USB3_MLAN	Top: Management LAN Port (1G) / Bottom: USB 3.2 Gen1 Ports
2	COM/VGA	Top: Serial Port / Bottom: VGA Port
3	LAN1_2	Data LAN Port x2 (1G)
4	LED1/LED2	LAN LED Indicator x2
5	SFP28_1/SFP28_2	SFP28 Data LAN Port x2 (25G)
6	ID	ID Button
7	P12V_AUX	2x4 Pin 12V Power Connector
8	PMBUS	PMBus Connector
9	CPU0_FAN	CPU0 Fan Connector
10	ATX	2x12 Pin Main Power Connector
11	SYS_FAN5	System Fan Connector #5
12	SYS_FAN4	System Fan Connector #4
13	SYS_FAN3	System Fan Connector #3
14	SYS_FAN1	System Fan Connector #1
15	SYS_FAN2	System Fan Connector #2
16	SPI_TPM	TPM_Connector
17	SATA_0_1	SATAIII 6Gb/s Connector #0/#1
18	SATA_2_3	SATAIII 6Gb/s Connector #2/#3
19	F_USB3	Front Panel USB 3.2 Gen1 Connector
20	FP_1	Front Panel Header
21	F_USB2	Front Panel USB 2.0 Header
22	M2_0	M.2 Slot (PCIe Gen5 x4, Support NGFF-2280)
23	PCIE_3	PCIe x16 Slot (Gen5 x16)
24	U2_P0_MCIO	MCIO Connector (PCIe Gen5)
25	IPMB	IPMB Connector
26	CASE_OPEN	Case Open Intrusion Alert Header
27	PCIE_1	PCIe x4 Slot (Gen4 x4)
28	BP_1	HDD Backplane Board Connector
29	BAT	Battery Socket
30	LED_BMC	BMC Firmware Readiness LED
31	CN_NCSI	NCSI Connector

Block Diagram



Chapter 1 Hardware Installation

1-1 Installation Precautions

The motherboard contains numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Prior to installation, carefully read the user's manual and follow these procedures:

- Prior to installation, do not remove or break motherboard S/N (Serial Number) sticker or warranty sticker provided by your dealer. These stickers are required for warranty validation.
- Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.
- When connecting hardware components to the internal connectors on the motherboard, make sure they are connected tightly and securely.
- When handling the motherboard, avoid touching any metal leads or connectors.
- It is best to wear an electrostatic discharge (ESD) wrist strap when handling electronic components such as a motherboard, CPU or memory. If you do not have an ESD wrist strap, keep your hands dry and first touch a metal object to eliminate static electricity.
- Prior to installing the motherboard, please have it on top of an antistatic pad or within an electrostatic shielding container.
- Before unplugging the power supply cable from the motherboard, make sure the power supply has been turned off.
- Before turning on the power, make sure the power supply voltage has been set according to the local voltage standard.
- Before using the product, please verify that all cables and power connectors of your hardware components are connected.
- To prevent damage to the motherboard, do not allow screws to come in contact with the motherboard circuit or its components.
- Make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
- Do not place the computer system on an uneven surface.
- Do not place the computer system in a high-temperature environment.
- Turning on the computer power during the installation process can lead to damage to system components as well as physical harm to the user.
- If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.
- To avoid any potential short circuit of the DIMM slots, please remove any stand-offs from the chassis that will be located underneath the DIMM slots, before installing the motherboard into the chassis.
- When installing water cooling kit for CPU or GPU, please keep proper airflow and ventilate the motherboard to prevent heat accumulation.

1-2 Product Specifications

NOTE:
We reserve the right to make any changes to the product specifications and product-related information without prior notice.

Form Factor (WxD, mm)	◆ microATX ◆ 244x 244D
CPU	◆ AMD EPYC™ 4005 Series Processors ◆ AMD EPYC™ 4004 Series Processors ◆ AMD Ryzen™ 9000 Series Processors ◆ AMD Ryzen™ 7000 Series Processors ◆ Single processor, TDP up to 170W [Note] Recommend to install 170W CPU with a liquid cooling kit. [Note] When installing liquid cooling kits for CPU or GPU, please keep proper airflow for ventilation to prevent heat accumulation.
Socket	◆ 1 x AM5
Chipset Description	◆ AMD B650E
Memory	◆ 4 x DIMM slots ◆ DDR5 memory supported ◆ Dual channel memory per processor **AMD EPYC™ 4005 /Ryzen™ 9000:** ◆ UDIMM: Up to 5600 MT/s (1DPC), 3600 MT/s (2DPC) **AMD EPYC™ 4004 / Ryzen™ 7000:** ◆ UDIMM: Up to 5200 MT/s (1DPC), 3600 MT/s (2DPC)
Integrated Network	◆ 2 x 25Gb/s LAN (1 x Broadcom® BCM57502) ◆ 2 x 1Gb/s LAN (2 x Intel® I210-AT) - Support NCSI function ◆ 1 x 10/100/1000 management LAN
Integrated Video Controller	◆ Integrated in ASPEED® AST2600 - 1 x VGA port
Storage Interface	**MCIO:** ◆ 1 x MCIO 8i for 2 x Gen5 NVMe, from CPU, **shared with Slot_3** **SATA 7-pin:** ◆ 4 x SATA, from FCH **M.2:** ◆ 1 x M.2 (2242/2280), PCIe Gen5 x4, from CPU

Support RAID Function	◆ RAID 0/1/10
PCIe Expansion Slots	◆ Slot_3: PCIe x16 (Gen5 x16), from CPU, **shared with MCIO** ◆ Slot_1: PCIe x4 (Gen4 x4), from FCH ◆ 1 x MCIO 8i (PCIe Gen5 x8) [1] [1] Please contact our sales representatives for qualified cables to ensure Gen5 signal quality.
Internal I/O Connectors	◆ 1 x 24-pin ATX main power connector ◆ 1 x 8-pin ATX 12V power connector ◆ 1 x CPU fan header ◆ 5 x System fan headers ◆ 1 x USB 2.0 port (Type-A) ◆ 1 x USB 3.2 Gen1 x2 header ◆ 1 x USB 2.0 x2 header ◆ 1 x M.2 slot ◆ 4 x SATA connectors ◆ 1 x Front panel header ◆ 1 x Backplane board header ◆ 1 x PMBUS connector ◆ 1 x IPMB connector ◆ 1 x TPM header
Rear I/O Connectors	◆ 2 x USB 3.2 Gen1 ports (Type-A) ◆ 1 x VGA port ◆ 1 x COM port ◆ 2 x SFP28 ports ◆ 2 x RJ45 ports ◆ 1 x MLAN port ◆ 1 x ID button with LED
Security Modules	◆ 1 x TPM header with SPI interface - **Optional** TPM2.0 kit: CTM010
OS Driver Supported	**EPYC 4005/4004 Series:** ◆ Ubuntu 22.04 ◆ Ubuntu 24.04 ◆ Windows Server 2022 ◆ Windows Server 2025 **Ryzen 9000/7000 Series:** ◆ Windows 10 21H2 ◆ Windows 11

Board Management	◆ ASPEED® AST2600 Baseboard Management Controller ◆ GIGABYTE Management Console web interface ◆ Dashboard ◆ HTML5 KVM ◆ Sensor Monitor (Voltage, RPM, Temperature, CPU Status …etc.) ◆ Sensor Reading History Data ◆ FRU Information ◆ SEL Log in Linear Storage / Circular Storage Policy ◆ Hardware Inventory ◆ Fan Profile ◆ System Firewall ◆ Power Consumption ◆ Power Control ◆ Advanced power capping ◆ LDAP / AD / RADIUS Support ◆ Backup & Restore Configuration ◆ Remote BIOS/BMC/CPLD Update ◆ Event Log Filter ◆ User Management ◆ Media Redirection Settings ◆ PAM Order Settings ◆ SSL Settings ◆ SMTP Settings
PSU Connector	◆ 1 x 24-pin ATX main power connector ◆ 1 x 8-pin ATX 12V power connector
Operating Properties	◆ Operating temperature: 10°C to 40°C ◆ Operating humidity: 8-80% (non-condensing) ◆ Non-operating temperature: -40°C to 60°C ◆ Non-operating humidity: 20%-95% (non-condensing)

1-3 Installing and Removing the CPU

Read the following guidelines before you begin to install the CPU:

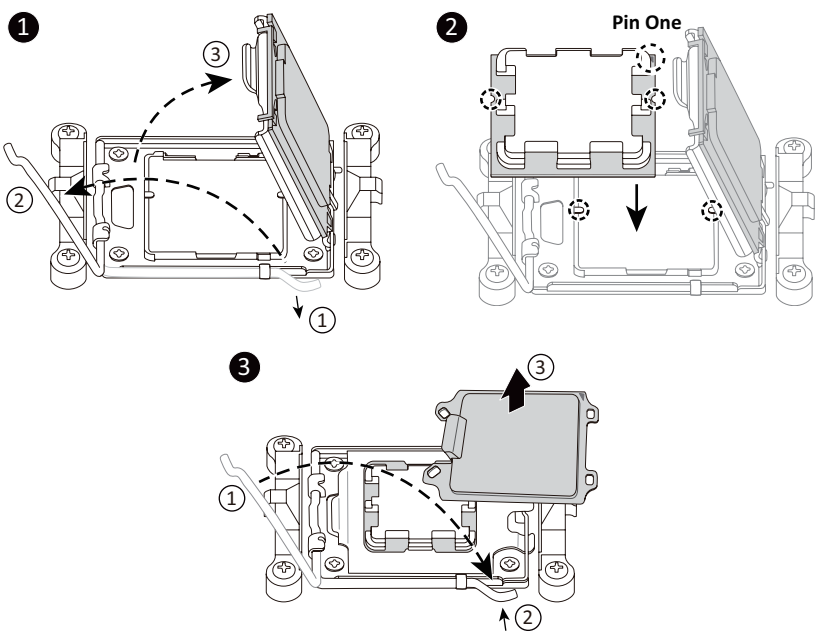
- Make sure that the motherboard supports the CPU.
- Always turn off the computer and unplug the power cord from the power outlet before installing the CPU to prevent hardware damage.
- Unplug all cables from the power outlets.
- Disconnect all telecommunication cables from their ports.
- Place the system unit on a flat and stable surface.
- Open the system according to the instructions.

WARNING!

Failure to properly turn off the server before you start installing components may cause serious damage. Do not attempt the procedures described in the following sections unless you are a qualified service technician.

Follow these instructions to Install the CPU:

1. Gently press the CPU socket lever handle down and away from the socket. Lift up the CPU socket locking lever and then open the CPU cover.
2. Align the CPU pin one (triangle marking) with the pin one corner of the CPU socket. Install the CPU onto the socket.
3. Ensure the CPU is positioned into its socket and then close the CPU cover. Secure the CPU socket lever under its retention tab. The plastic protective cover will pop off by itself and can be removed.
   Note: Always replace the plastic protective cover when the CPU is not installed to protect the CPU socket.



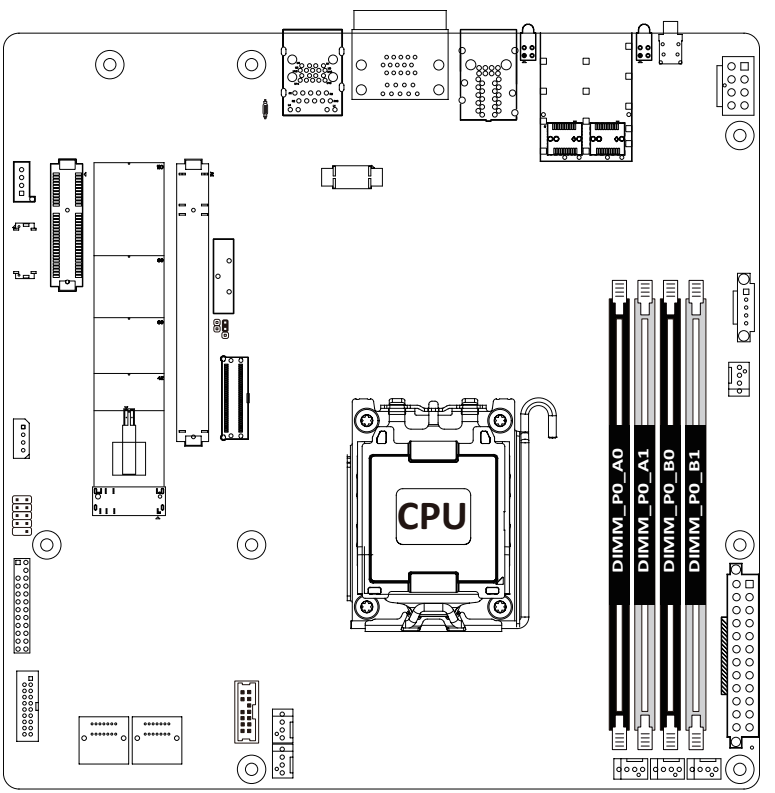
1-4 Installing and Removing Memory

Read the following guidelines before you begin to install the memory:

- Make sure that the motherboard supports the memory. It is recommended to use memory of the same capacity, brand, speed, and chips.
- Always turn off the computer and unplug the power cord from the power outlet before installing the memory to prevent hardware damage.
- Memory modules have a foolproof design. A memory module can be installed in only one direction. If you are unable to insert the memory, switch the direction.

1-4-1 2-Channel Memory Configuration

This motherboard provides 4 DDR5 memory sockets and supports 2-Channel Technology. After the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory.

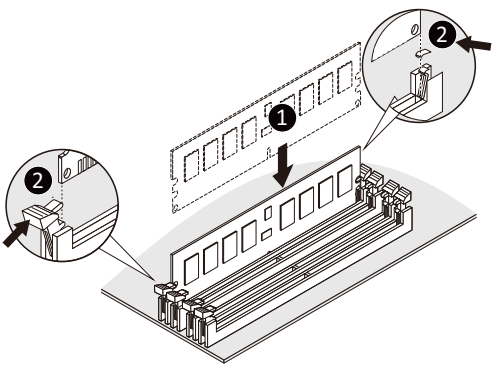


1-4-2 Installing and Removing a Memory Module

- Before installing a memory module, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the memory module.
- To avoid any potential short circuit of the DIMM slots, please remove any stand-offs from the chassis that will be located underneath the DIMM slots, before installing the motherboard into the chassis.
- Be sure to install DDR5 DIMMs on this motherboard.

Follow these instructions to install a DIMM module:

1. Insert the DIMM memory module vertically into the DIMM slot and push it down.
2. Close the plastic clip at both edges of the DIMM slots to lock the DIMM module.
3. Reverse the installation steps when you want to remove the DIMM module.



Note:

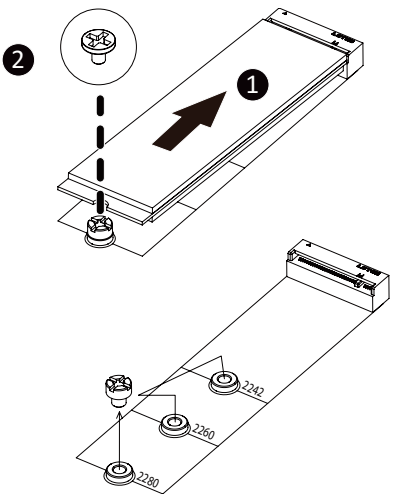
- When only one DIMM is used, it must be populated in memory slot A1.

Memory Type	DDR5
Voltage (V)	5V
Connector	UDIMM ECC/Non-ECC
Speed (MT/s)	5600 | 3600
Channels	1,2
DIMM Per Channel	1,2
DIMM Capacity (GB)	2,4,8,16,32

1-5 Installing the M.2 SSD Module

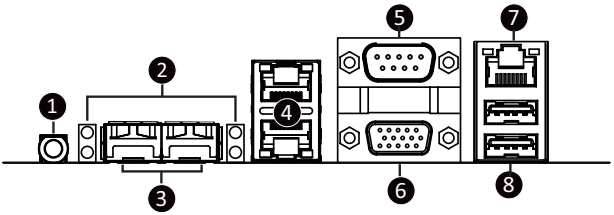
Follow the steps below to install a M.2 SSD module on your motherboard.

1. Insert the M.2 SSD module into the slot.
2. Secure it with the screw, tightening as necessary to fasten the M.2 SSD module in place.



1-6 Back Panel Connectors

MC13-LE3



❶ ID button

When the system identification is active, the ID LED on the front/ back panel glows blue.

❷ LAN LED for SFP28 Data LAN ports

SFP28 stands for Small Form-Factor Pluggable 28. See the section below for a description of the states of the LAN port LEDs.

❸ SFP28 Data LAN ports

Connects to SFP28 Data LAN ports. SFP28 is an improved version of SFP+, designed for 25G signal transmission.

❹ Data LAN Ports

The Gigabit Ethernet LAN port provides Internet connection at up to 1 Gbps data rate. See the section below for a description of the states of the LAN port LEDs.

❺ Serial Port

Connects to serial-based mouse or data processing devices.

❻ VGA Port

Connects to a monitor device.

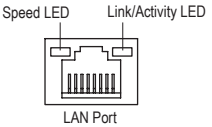
❼ Server Management LAN Port

The LAN port provides Internet connection with data transfer speeds of 10/100/1000Mbps. This port is the dedicated LAN port for Server Management..

❽ USB 3.2 Gen1 Ports

The USB port supports the USB 3.2 Gen1 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive etc.

LAN and ID Button LEDs

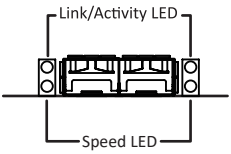


10/100/1000 LAN LED:

State	Description
Yellow On	1Gbps data rate
Green On	100Mbps data rate
Off	10Mbps data rate

ID button/LED:

State	Description
Blue On	System identification is active
Off	System identification is disabled

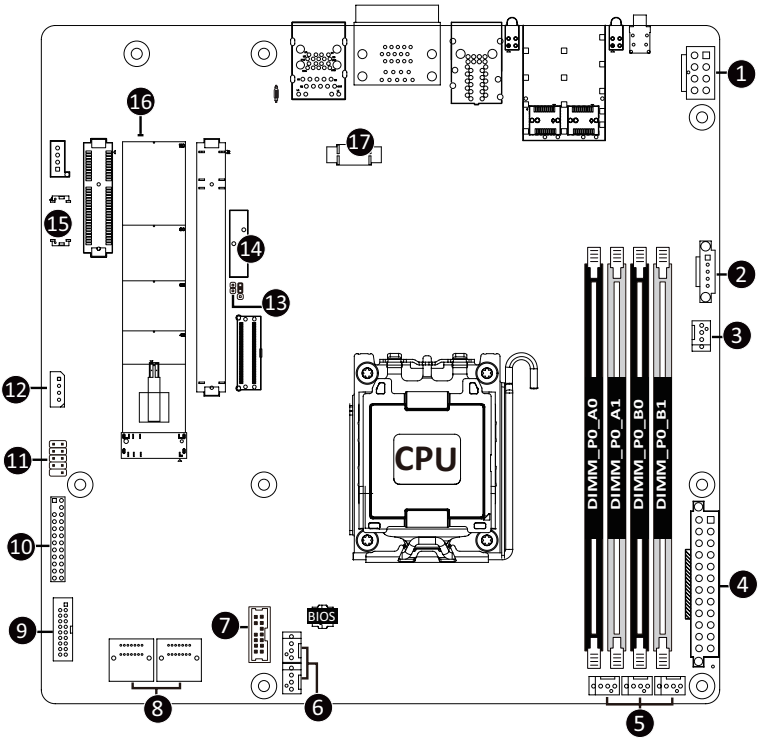


25GbE LAN LED:

State	Description
Yellow On	10Gbps, 5Gbps, 2.5Gbps, 1Gbps data rate
Green On	25Gbps data rate
Off	100Mbps data rate

- When removing the cable connected to a back panel connector, first remove the cable from your device and then remove it from the motherboard.
- When removing the cable, pull it straight out from the connector. Do not rock it side to side to prevent an electrical short inside the cable connector.

1-7 Internal Connectors



1)	P12V_AUX	11)	F_USB2
2)	PMBUS	12)	IPMB
3)	CPU0_FAN	13)	CASE_OPEN
4)	ATX	14)	BAT
5)	SYS_FAN5/4/3	15)	BP_1
6)	SYS_FAN2/1	16)	LED_BMC
7)	SPI_TPM	17)	CN_NCSI
8)	SATA_0/1/2/3		
9)	F_USB3		
10)	FP_1		

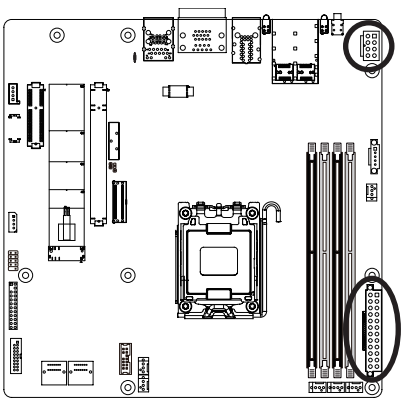
Read the following guidelines before connecting external devices:

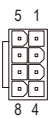
- First make sure your devices are compliant with the connectors you wish to connect.
- Before installing the devices, be sure to turn off the devices and your computer. Unplug the power cord from the power outlet to prevent damage to the devices.
- After installing the device and before turning on the computer, make sure the device cable has been securely attached to the connector on the motherboard.

1/4) ATX/P12V_AUX (2x12 Main Power Connector and 2x4 12V Power Connector)

With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, first make sure the power supply is turned off and all devices are properly installed. The power connector possesses a foolproof design. Connect the power supply cable to the power connector in the correct orientation. The 12V power connector mainly supplies power to the CPU. If the 12V power connector is not connected, the computer will not start.

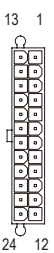
To meet expansion requirements, it is recommended that a power supply that can withstand high power consumption be used (500W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable or unbootable system.





ATX_12V

Pin No.	Definition
1	GND
2	GND
3	GND
4	GND
5	+12V
6	+12V
7	+12V
8	+12V

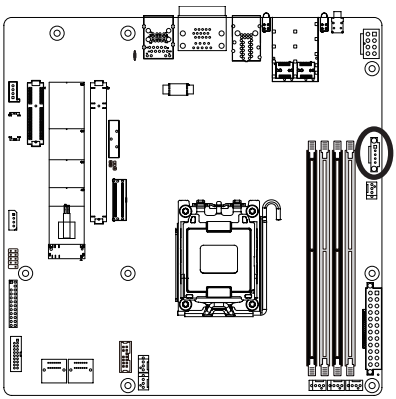


ATX

Pin No.	Definition	Pin No.	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power Good	20	NC
9	5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	3.3V	24	GND

2) PMBus Connector

The Power Management Bus (PMBus) is a variant of the System Management Bus (SMBus) which is targeted at digital management of power supplies.

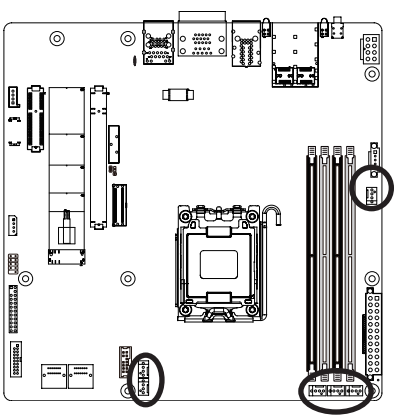


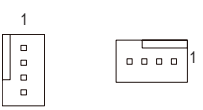


Pin No.	Definition
1	PMBus Clock
2	PMBus Data
3	PMBus Alert
4	GND
5	3.3V Sense

3/5/6) CPU0_FAN/SYS_FAN1/SYS_FAN2/SYS_FAN3/SYS_FAN4/SYS_FAN5 (Fan Headers)

The motherboard has one 4-pin CPU fan header (CPU_FAN), and five 4-pin (SYS_FAN) system fan headers. Most fan headers possess a foolproof insertion design. When connecting a fan cable, be sure to connect it in the correct orientation (the black connector wire is the ground wire). The motherboard supports CPU fan speed control, which requires the use of a CPU fan with fan speed control design. For optimum heat dissipation, it is recommended that a system fan be installed inside the chassis.



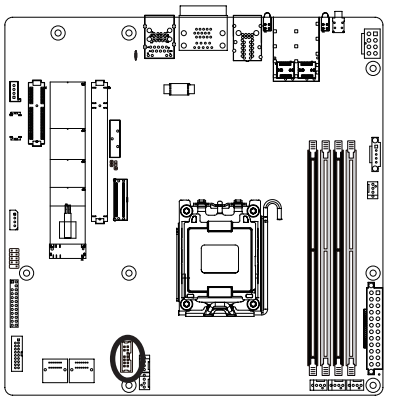


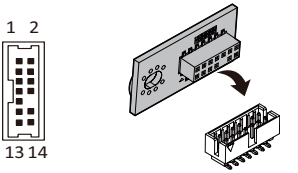
Pin No.	Definition
1	GND
2	+12V
3	Sense
4	Speed Control

- Be sure to connect fan cables to the fan headers to prevent your CPU and system from overheating. Overheating may result in damage to the CPU or the system may hang.
- These fan headers are not configuration jumper blocks. Do not place a jumper cap on the headers.

7) SPI_TPM (Trusted Platform Module Connector)

Trusted Platform Module (TPM) is an international standard for a secure cryptoprocessor, a dedicated microcontroller designed to secure hardware through integrated cryptographic keys.

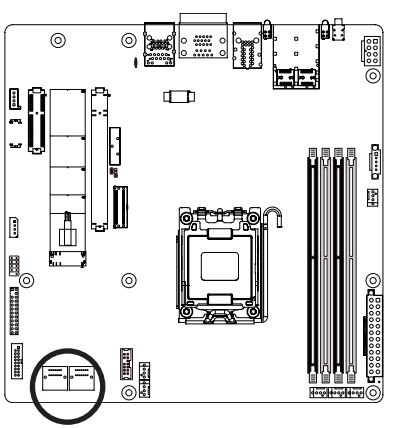




Pin No.	Definition	Pin No.	Definition
1	Clock	8	No Connect
2	P_3V3_AUX	9	No Connect
3	LPC_RST	10	No Pin
4	NC	11	No Connect
5	SPI_MISO	12	GND
6	IRQ_SPI	13	SPI_CS_N
7	SPI_MOSI	14	GND

8) SATA_0_1/SATA_2_3 (SATA III 6Gb/s Connectors)

The SATA connectors conform to SATA III 6Gb/s standard and are compatible with SATA 3Gb/s standard. Each SATA connector supports a single SATA device.

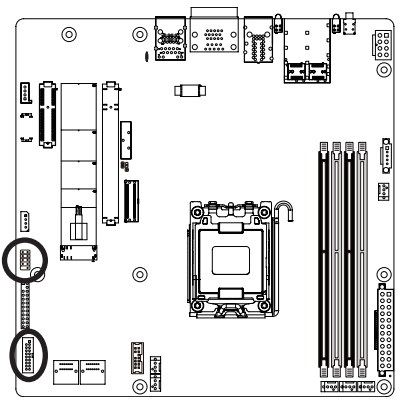




Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

9/11) F_USB3/F_USB2 (Front Panel USB 3.2/2.0 Connector)

The header conform to USB 3.2/2.0 specification. Each USB header can provide two USB ports via an optional USB bracket. For purchasing the optional USB bracket, please contact the local dealer.



USB 2.0 Header



Pin No.	Definition	Pin No.	Definition
1	Power (5V)	6	USB DY+
2	Power (5V)	7	GND
3	USB DX-	8	GND
4	USB DY-	9	No Pin
5	USB DX+	10	No Connect

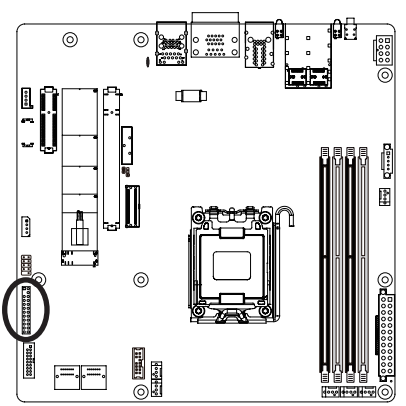
USB 3.1 Connector



Pin No.	Definition	Pin No.	Definition
1	Power	11	IntA_P2_D+
2	IntA_P1_SSRX-	12	IntA_P2_D-
3	IntA_P1_SSRX+	13	GND
4	GND	14	IntA_P2_SSTX+
5	IntA_P1_SSTX-	15	IntA_P2_SSTX-
6	IntA_P1_SSTX+	16	GND
7	GND	17	IntA_P2_SSRX+
8	IntA_P1_D-	18	IntA_P2_SSRX-
9	IntA_P1_D+	19	Power
10	NC	20	No Pin

10) FP_1 (Front Panel Header)

Connect the power switch, reset switch, speaker, chassis intrusion switch/sensor and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.



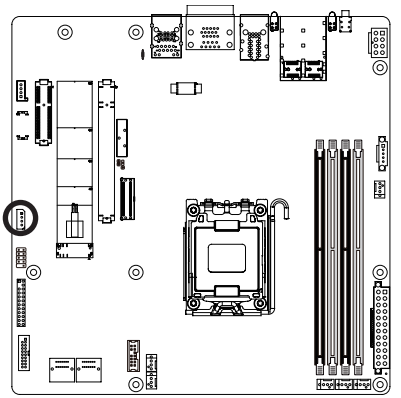


Pin No.	Definition	Pin No.	Definition
1	Power LED+	2	5V Standby
3	No Pin	4	ID LED+
5	Power LED-	6	ID LED-
7*	HDD LED+	8	System Status LED+
9*	HDD LED-	10	System Status LED-
11	Power Button	12	LAN1 Active LED+
13	GND	14	LAN1 Link LED-
15	Reset Button	16	SMBus Data
17	GND	18	SMBus Clock
19	ID Button	20	Case Open
21	GND	22	LAN2 Actve LED+
23	NMI Switch	24	LAN2 Link LED-
*Note: Pin 7 & Pin 9 are reserved for Gigabyte systems.			

The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

12) IPMB (Intelligent Platform Management Bus) Connector

The Intelligent Platform Management Bus Communications Protocol defines a byte-level transport for transferring Intelligent Platform Management Interface Specification (IPMI) messages between intelligent I2C devices.

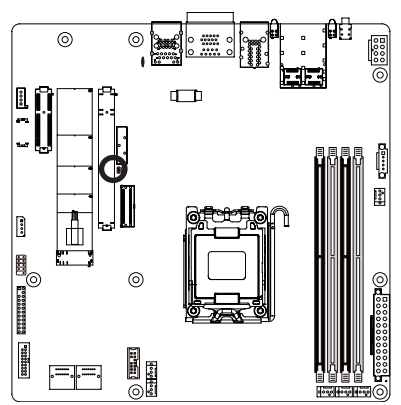




Pin No.	Definition
1	Clock
2	GND
3	Data
4	VCC

13) CASE_OPEN (Case Open Intrusion Alert Header)

This motherboard provides a chassis detection feature that detects if the chassis cover has been removed. This function requires a chassis with chassis intrusion detection design.

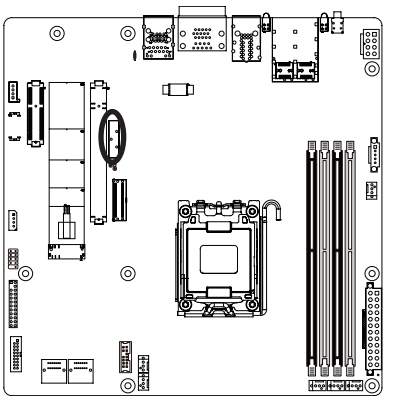


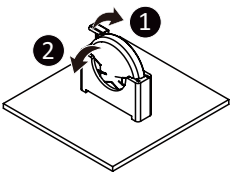
Open: Normal Operation (Default)

Closed: Active Chassis Intrusion Alert

14) BATTERY (Battery Socket)

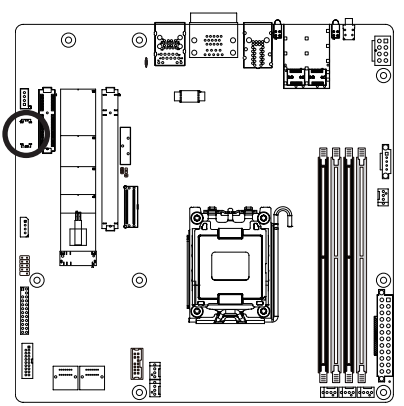
The battery provides power to keep the values (such as BIOS configurations, date, and time information) in the CMOS when the computer is turned off. Replace the battery when the battery voltage drops to a low level, or the CMOS values may not be accurate or may be lost.





- Always turn off your computer and unplug the power cord before replacing the battery.
- Replace the battery with an equivalent one. Danger of explosion if the battery is replaced with an incorrect model.
- Contact the place of purchase or local dealer if you are not able to replace the battery by yourself or uncertain about the battery model.
- Used batteries must be handled in accordance with local environmental regulations.

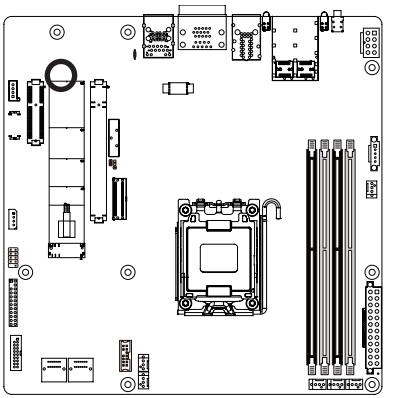
15) BP_1 (HDD Backplane Board Connector)





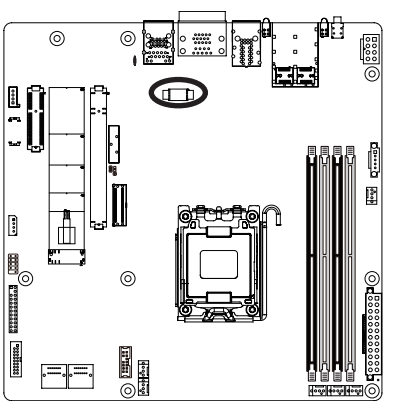
Pin No.	Definition	Pin No.	Definition
1	Reserved	2	BPMI DIN/OUT
3	GND	4	BPMI DOUT/IN
5	BPMI_LOAD	6	GND
7	BPMI_CLK	8	PLD_Program_EN
9	GLED_AMB_N	10	GLED_GRN_N
11	FAN_IRQ_N	12	Reserved
13	BP_SCL	14	GND
15	BP_SDA	16	BP_RST_N
17	SMB_U2_TMP_SCL	18	GND
19	SMB_U2_TMP_SDA	20	12C_DEV_RST
21	PH_HP_SCL0	22	GND
23	PH_HP_SDA0	24	GND
25	PH_HP_SCL1	26	GND
27	PH_HP_SDA1	28	GND
29	P3V3_AUX	30	P3V3_AUX

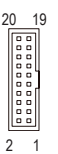
16) LED_BMC (BMC Firmware Readiness LED)



State	Description
On	BMC firmware is initial
Blink	BMC firmware is ready
Off	AC loss

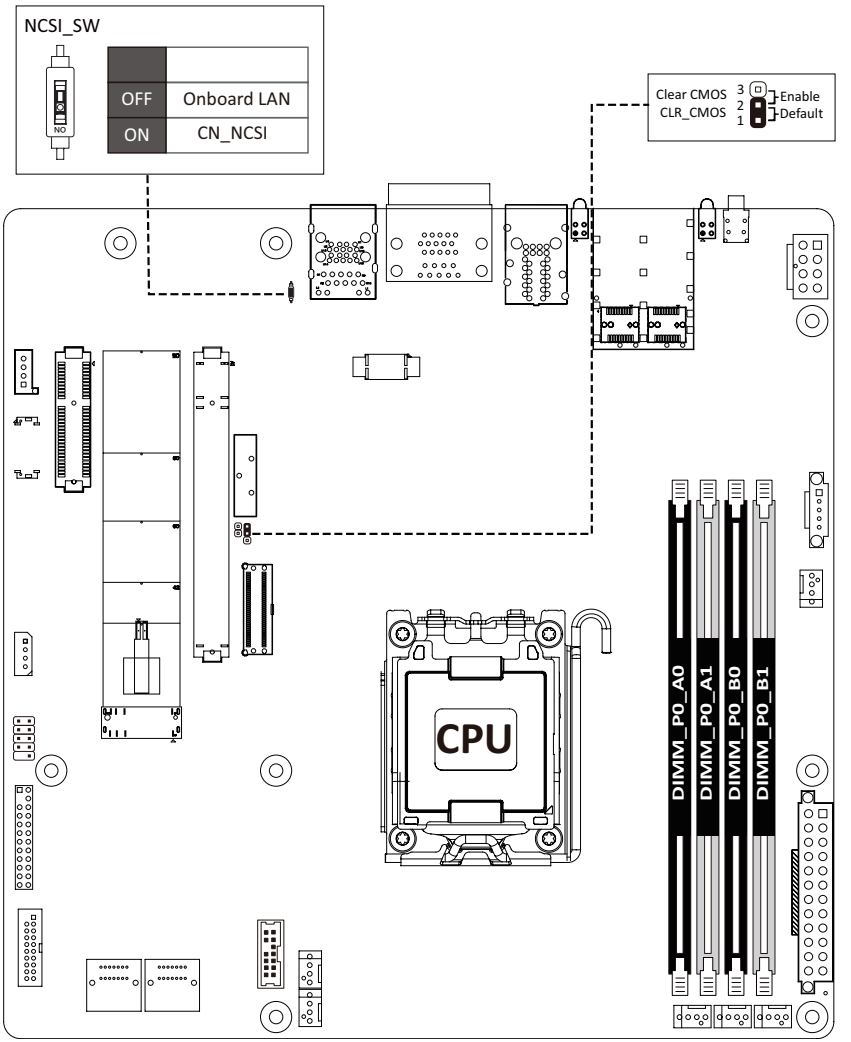
17) CN_NCSI (NCSI Connector)





Pin No.	Definition	Pin No.	Definition
1	NCSI_CLK	2	GND
3	NCSI_RX_D0	4	GND
5	NCSI_RX_D1	6	GND
7	NCSI_CRS_DV	8	GND
9	NCSI_RX_ER	10	GND
11	P3V3_AUX	12	GND
13	NCSI_TX_D1	14	GND
15	NCSI_TX_D0	16	GND
17	NCSI_TX_EN	18	GND
19	NCSI_PRESENT	20	P3V3_AUX

1-8 Jumper Settings



Chapter 2 BIOS Setup

BIOS (Basic Input and Output System) records hardware parameters of the system in the EFI on the motherboard. Its major functions include conducting the Power-On Self-Test (POST) during system startup, saving system parameters, loading the operating system etc. The BIOS includes a BIOS Setup program that allows the user to modify basic system configuration settings or to activate certain system features. When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS to keep the configuration values in the CMOS.

To access the BIOS Setup program, press the <DEL> key during the POST when the power is turned on.



- BIOS flashing is potentially risky, if you do not encounter any problems when using the current BIOS version, it is recommended that you don't flash the BIOS. To flash the BIOS, do it with caution. Inadequate BIOS flashing may result in system malfunction.
- It is recommended that you not alter the default settings (unless you need to) to prevent system instability or other unexpected results. Inadequately altering the settings may result in system's failure to boot. If this occurs, try to clear the CMOS values and reset the board to default values. (Refer to the **Exit** section in this chapter or introductions of the battery/clearing CMOS jumper in Chapter 1 for how to clear the CMOS values.)

BIOS Setup Program Function Keys

<←><→>	Move the selection bar to select the screen
<↑><↓>	Move the selection bar to select an item
<+>	Increase the numeric value or make changes
<->	Decrease the numeric value or make changes
<Enter>	Execute command or enter the submenu
<Esc>	Main Menu: Exit the BIOS Setup program Submenus: Exit current submenu
<F1>	Show descriptions of general help
<F3>	Restore the previous BIOS settings for the current submenus
<F9>	Load the Optimized BIOS default settings for the current submenus
<F10>	Save all the changes and exit the BIOS Setup program

- **Main**
  This setup page includes all the items of the standard compatible BIOS.
- **Advanced**
  This setup page includes all the items of AMI BIOS special enhanced features.
  (ex: Auto detect fan and temperature status, automatically configure hard disk parameters.)
- **Chipset**
  This setup page includes all the submenu options for configuring the functions of the North Bridge.
- **Server Management**
  Server additional features enabled/disabled setup menus.
- **Security**
  Change, set, or disable supervisor and user password. Configuration supervisor password allows you to restrict access to the system and BIOS Setup.
  A supervisor password allows you to make changes in BIOS Setup.
  A user password only allows you to view the BIOS settings but not to make changes.
- **Boot**
  This setup page provides items for configuration of the boot sequence.
- **Save & Exit**
  Save all the changes made in the BIOS Setup program to the CMOS and exit BIOS Setup. (Pressing <F10> can also carry out this task.)
  Abandon all changes and the previous settings remain in effect. Pressing <Y> to the confirmation message will exit BIOS Setup. (Pressing <Esc> can also carry out this task.)

2-1 The Main Menu

Once you enter the BIOS Setup program, the Main Menu (as shown below) appears on the screen. Use arrow keys to move among the items and press <Enter> to accept or enter other sub-menu.

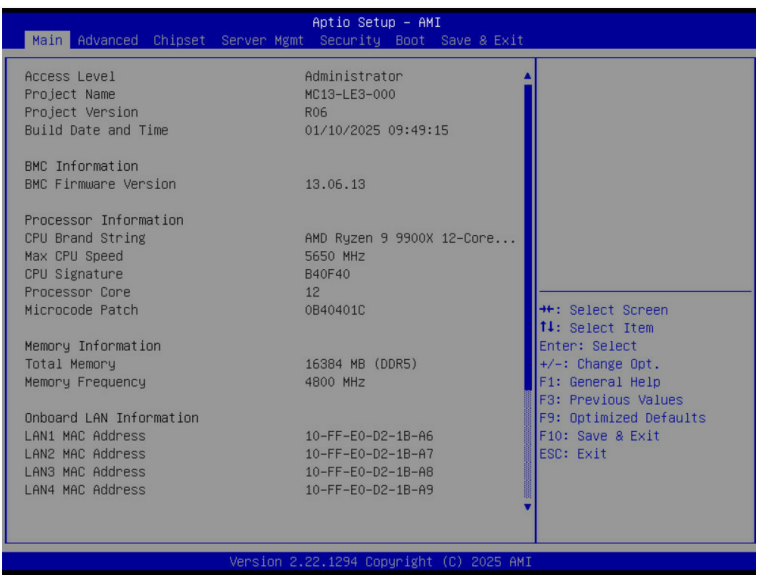
Main Menu Help

The on-screen description of a highlighted setup option is displayed on the bottom line of the Main Menu.

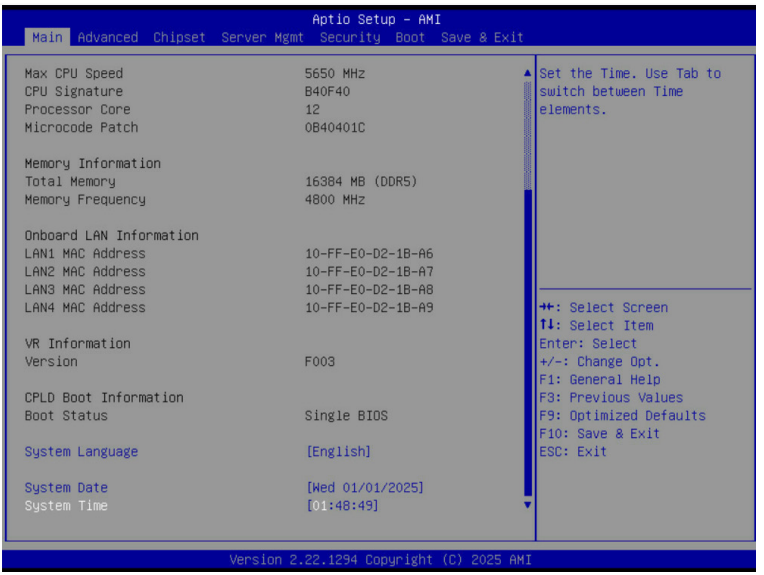
Submenu Help

While in a submenu, press <F1> to display a help screen (General Help) of function keys available for the menu. Press <Esc> to exit the help screen. Help for each item is in the Item Help block on the right side of the submenu.

- When the system is not stable as usual, select the **Restore Defaults** item to set your system to its defaults.
- The BIOS Setup menus described in this chapter are for reference only and may differ by BIOS version.



(Note) The model name will vary depends on the product you purchased



Parameter	Description
Access Level	Displays the privileges level information.
Project Name	Displays the project name information.
Project Version	Displays version number of the BIOS setup utility.
Build Date and Time	Displays the date and time when the BIOS setup utility was created.
BMC Information(Note1)	
BMC Firmware Version(Note1)	Displays BMC firmware version information.
Processor Information	
CPU Brand String/ CPU Speed / Max CPU Speed / CPU Signature / Processor Core / Microcode Patch	Displays the technical specifications for the installed processor(s).
Memory Information	
Total Memory(Note2)	Displays the total memory size of the installed memory.
Memory Frequency(Note2)	Displays the frequency information of the installed memory.
Onboard LAN Information	
LAN# MAC Address(Note3)	Displays LAN MAC address information.
CPLD Boot Information	
Boot Status	Displays CPLD boot information.

System Language	Default setting is English.
System Date	Sets the date following the weekday-month-day-year format.
System Time	Sets the system time following the hour-minute-second format.

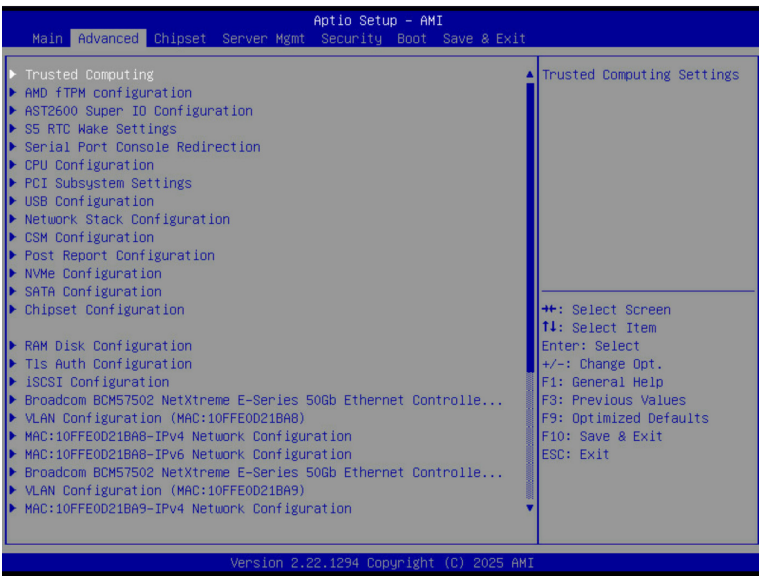
(Note1) Functions available on selected models.

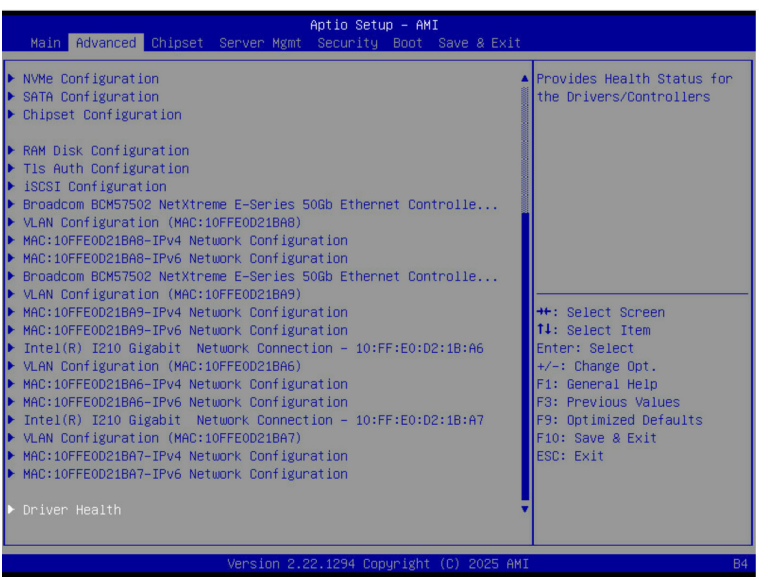
(Note2) This section will display capacity and frequency information of the memory that the customer has installed.

(Note3) The number of LAN ports listed will depend on the motherboard / system model.

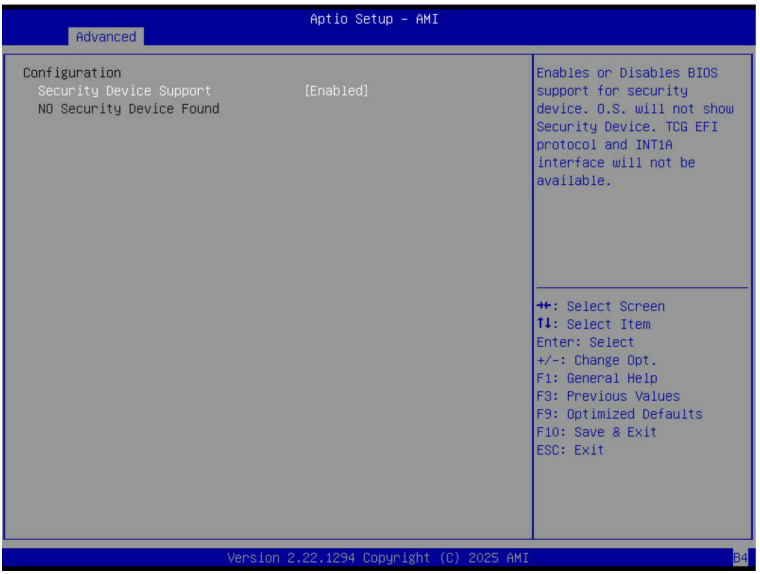
2-2 Advanced Menu

The Advanced Menu displays submenu options for configuring the function of various hardware components. Select a submenu item, then press <Enter> to access the related submenu screen.





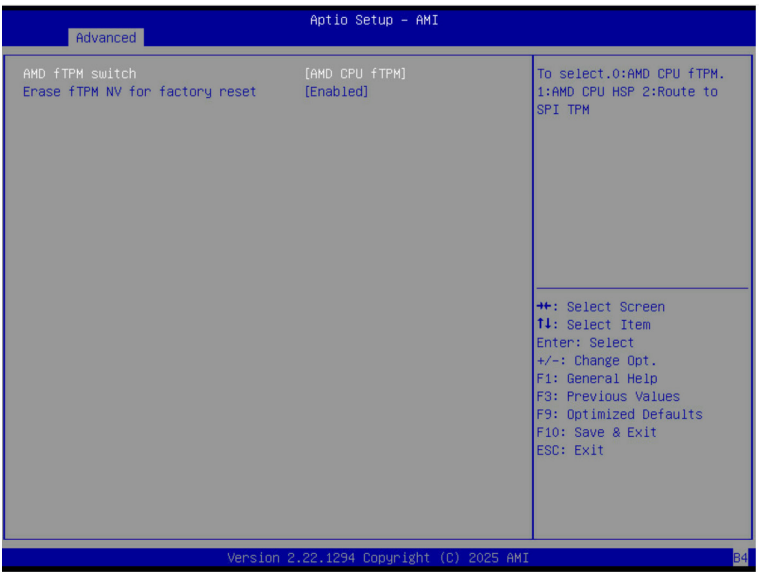
2-2-1 Trusted Computing



Parameter	Description
TPM20 Device Found	
Firmware Version	Displays the firmware version information.
Vendor	Displays the vendor information.
Security Device Support	Enable/Disable BIOS support for security device. OS will not show security device. TCG EFI protocol and INT1A interface will not be available. Options available: Disable, Enable. Default setting is **Enable**.
Active PCR banks	Displays active Platform Configuration Register (PCR) banks.
Available PCR banks	Displays available PCR banks.
SHA256 PCR Bank	Enable/Disable SHA256 PCR bank. Options available: Disabled, Enabled. Default setting is **Enabled**.
SHA-384 PCR Bank	Enable/Disable SHA-384 PCR bank. Options available: Disabled, Enabled. Default setting is **Disabled**.
Pending operation	Schedule an operation for the security device. NOTE: Your computer will reboot during restart in order to change the state of a security device. Options available: None, TPM Clear. Default setting is **None**.

Parameter	Description
Platform Hierarchy	Enable/Disable platform hierarchy. Options available: Disabled, Enabled. Default setting is **Enabled**.
Storage Hierarchy	Enable/Disable storage hierarchy. Options available: Disabled, Enabled. Default setting is **Enabled**.
Endorsement Hierarchy	Enable/Disable endorsement hierarchy. Options available: Disabled, Enabled. Default setting is **Enabled**.
Physical Presence Spec Version	Selects the physical presence spec version. Options available: 1.2, 1.3. Default setting is **1.3**.
TPM 20 InterfaceType	Displays the TPM 2.0 interface type.
Device Select	Options available: TPM 1.2, TPM 2.0, Auto. Default setting is **Auto**.

2-2-2 AMD fTPM Configuration



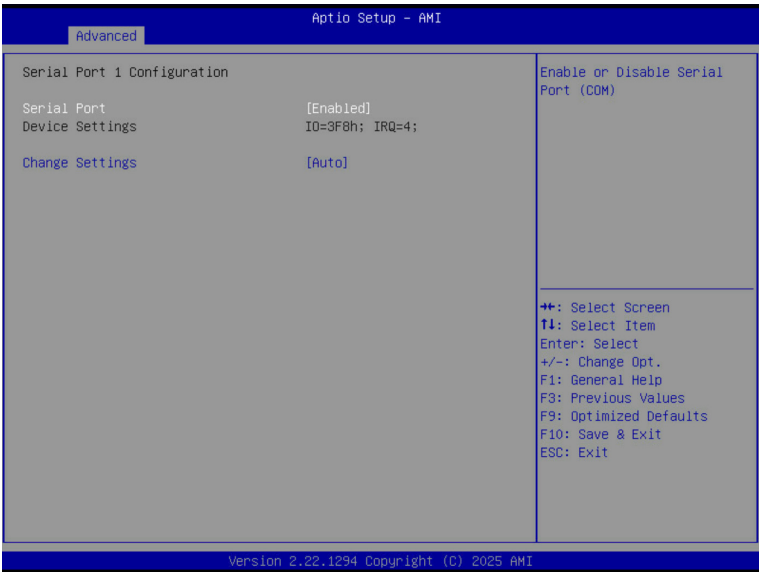
Parameter	Description
AMD fTPM switch	Options available: AMD CPU fTPM, AMD CPU HSP, Route to SPI TPM. Default setting is **AMD CPU fTPM**.
Erase fTPM NV for factory reset	Options available: Disabled, Enabled. Default setting is **Enabled**.

2-2-3 AST2600 Super IO Configuration



Parameter	Description
AST2600 Super IO Configuration	
Super IO Chip	Displays the super IO chip information
Serial Port 1 Configuration	Press [Enter] for configuration of advanced items.

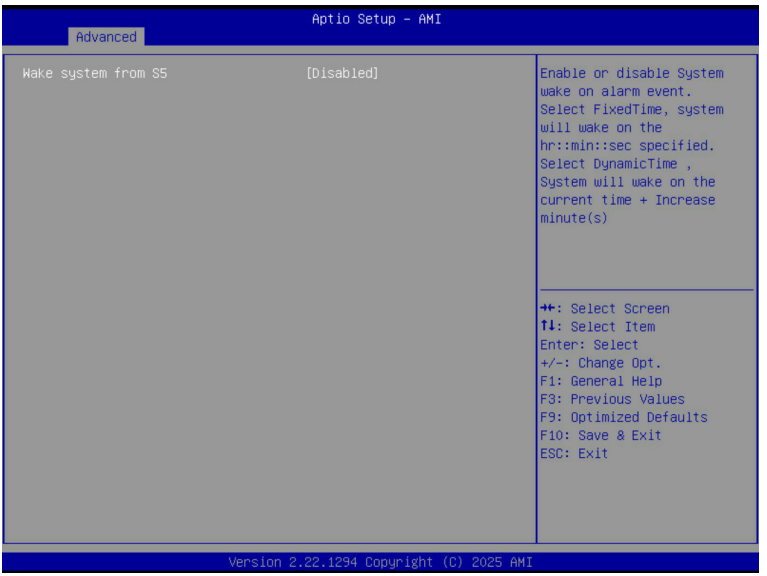
2-2-3-1 Serial Port 1 Configuration



Parameter	Description
Serial Port 1 Configuration	
Serial Port(Note)	Enable/Disable the Serial Port (COM). When set to Enabled allows you to configure the Serial port 1 settings. When set to Disabled, displays no configuration for the serial port. Options available: Disabled, Enabled. Default setting is **Enabled**.
Devices Settings	Displays the Serial Port 1 device settings.
Change Settings	Select an optimal settings for Super IO Device. Options available for Serial Port 1: Auto IO=3F8h; IRQ=4; IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; Default setting is **Auto**.

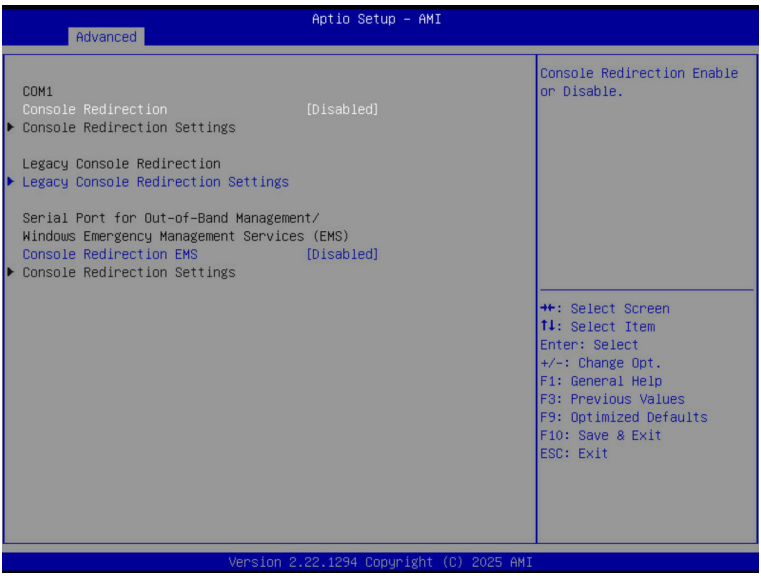
(Note) Advanced items prompt when this item is defined.

2-2-4 S5 RTC Wake Settings



Parameter	Description
Wake System from S5	Enable/Disable system wake on alarm event. Options available: Disabled, Fixed Time. When Fixed Time is selected, system will wake on the hr::min::sec specified. Default setting is **Disabled**.

2-2-5 Serial Port Console Redirection



Parameter	Description
COM Console Redirection[Note]	Select whether to enable console redirection for specified device. Console redirection enables the users to manage the system from a remote location. Options available: Disabled, Enabled. Default setting is **Disabled**.
COM Console Redirection Settings	Press [Enter] to configure advanced items. **Please note that this item is configurable when COM Console Redirection is set to Enabled.** ◆ Terminal Type – Selects a terminal type to be used for console redirection. – Options available: VT100, VT100Plus, VT-UTF8, ANSI. Default setting is **ANSI**. ◆ Bits per second – Selects the transfer rate for console redirection. – Options available: 9600, 19200, 38400, 57600, 115200. Default setting is **115200**. ◆ Data Bits – Selects the number of data bits used for console redirection. – Options available: 7, 8. Default setting is **8**.

(Note) Advanced items prompt when this item is defined.

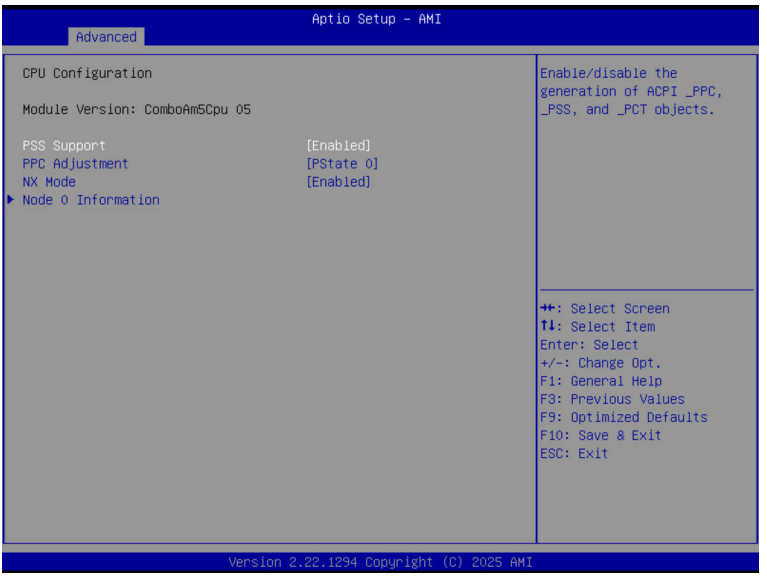
Parameter	Description
COM Console Redirection Settings (continued)	◆ Parity – A parity bit can be sent with the data bits to detect some transmission errors. – Even: parity bit is 0 if the num of 1's in the data bits is even. – Odd: parity bit is 0 if num of 1's in the data bits is odd. – Mark: parity bit is always 1. Space: Parity bit is always 0. – Mark and Space Parity do not allow for error detection. – Options available: None, Even, Odd, Mark, Space. Default setting is **None**. ◆ Stop Bits – Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit. – Options available: 1, 2. Default setting is **1**. ◆ Flow Control – Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals. – Options available: None, Hardware RTS/CTS. Default setting is **None**. ◆ VT-UTF8 Combo Key Support – Enable/Disable the VT-UTF8 Combo Key Support. – Options available: Disabled, Enabled. Default setting is **Enabled**. ◆ Recorder Mode – When this mode enabled, only texts will be send. This is to capture Terminal data. – Options available: Disabled, Enabled. Default setting is **Disabled**. ◆ Resolution 100x31 – Enable/Disable extended terminal resolution. – Options available: Disabled, Enabled. Default setting is **Disabled**. ◆ Putty KeyPad – Selects FunctionKey and KeyPad on Putty. – Options available: VT100, LINUX, XTERMR6, SC0, ESCN, VT400. Default setting is **VT100**.

Parameter	Description
Legacy Console Redirection	
Legacy Console Redirection Settings	Press [Enter] to configure advanced items. ◆ Redirection COM Port – Selects a COM port for Legacy serial redirection. – Default setting is **COM1**. ◆ Resolution – Selects the number of rows and columns used in Console Redirection for legacy OS support. – Options available: 80x24, 80x25. Default setting is **80x24**. ◆ Redirect After POST – When Bootloader is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When Always Enable is selected, then Legacy Console Redirection is enabled for legacy OS. – Options available: Always Enable, BootLoader. Default setting is **Always Enable**.
Serial Port for Out-of-Band Management / Windows Emergency Management Services (EMS) Console Redirection(Note)	EMS console redirection allows the user to configure Console Redirection Settings to support Out-of-Band Serial Port management. Options available: Disabled, Enabled. Default setting is **Disabled**.
Serial Port for Out-of-Band EMS Console Redirection Settings	Press [Enter] to configure advanced items. **Please note that this item is configurable when Serial Port for Out-of-Band Management EMS Console Redirection is set to Enabled.** ◆ Out-of-Band Mgmt Port – Microsoft Windows Emergency Management Service (EMS) allows for remote management of a Windows Server OS through a serial port. – Default setting is **COM1**. ◆ Terminal Type EMS – Selects a terminal type to be used for console redirection. – Options available: VT100, VT100Plus, VT-UTF8, ANSI. Default setting is **ANSI**. ◆ Bits per second EMS – Selects the transfer rate for console redirection. – Options available: 9600, 19200, 38400, 57600, 115200. Default setting is **115200**.

(Note) Advanced items prompt when this item is defined.

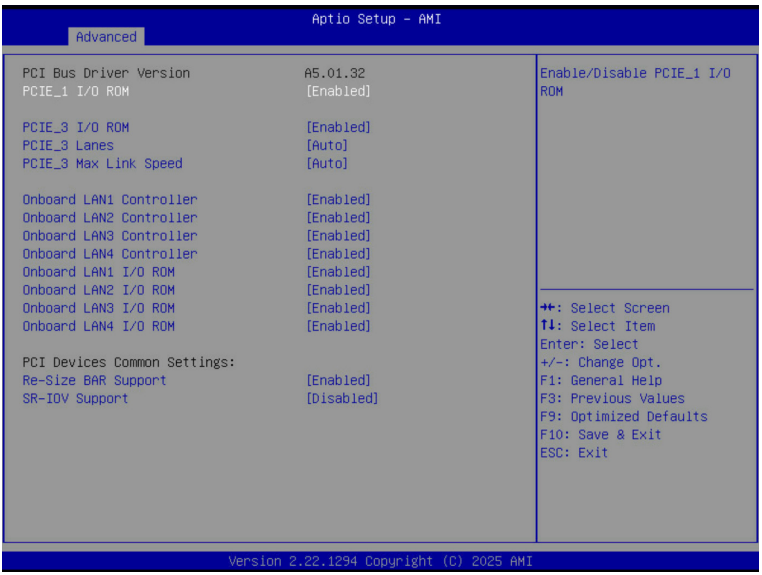
Parameter	Description
Serial Port for Out-of-Band EMS Console Redirection Settings(continued)	◆ Flow Control EMS – Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals. – Options available: None, Hardware RTS/CTS, Software Xon/Xoff. Default setting is **None**.

2-2-6 CPU Configuration



Parameter	Description
CPU Configuration	
Module Version	Displays the module version information.
PSS Support	Enable/Disable the generation of ACPI_PPC, _PSS, and _PCT objects. Options available: Disabled, Enabled. Default setting is **Enabled**.
PPC Adjustment	Options available: PState 0, PState 1, PState 2, PState 3. Default setting is **PState 0**.
NX Mode	Enable/Disable No-execute page protection Function. Options available: Disabled, Enabled. Default setting is **Enabled**.
SVM Mode	Enable/Disable the CPU Virtualization. Options available: Disabled, Enabled. Default setting is **Enabled**.
Node 0 Information	Press [Enter] to view the information related to Node 0.

2-2-7 PCI Subsystem Settings

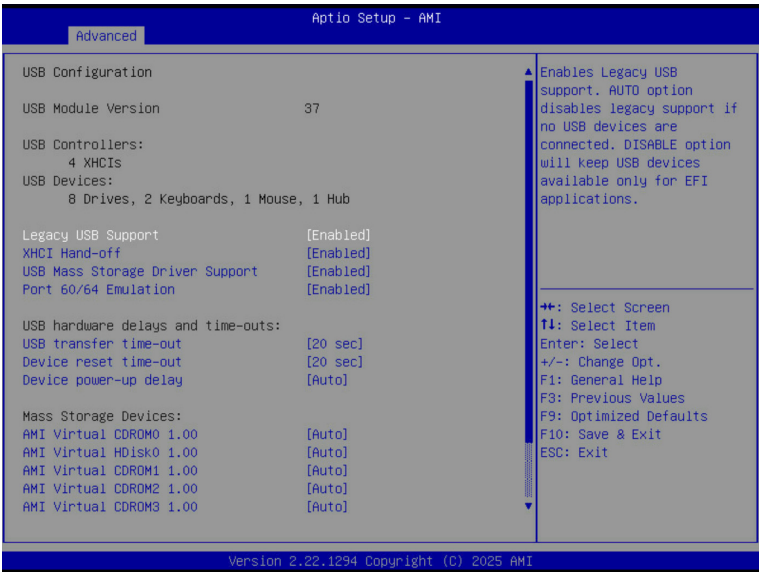


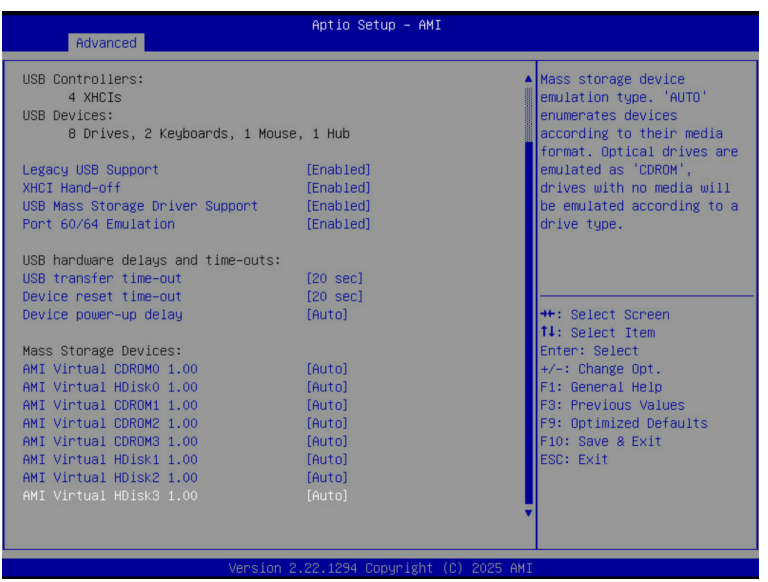
Parameter	Description
PCI BUS Driver Version	Displays PCI BUS driver version information.
PCIE_1 I/O ROM	When enabled, this setting will initialize the device expansion ROM for the related PCI-E slot. Options available: Disabled, Enabled. Default setting is **Enabled**.
LE0_M2 I/O ROM	Enable/Disable LE0_M2 device and initialize the device expansion ROM. Options available: Disabled, Enabled. Default setting is **Enabled**.
PCIE_3 I/O ROM	When enabled, this setting will initialize the device expansion ROM for the related PCI-E slot. Options available: Disabled, Enabled. Default setting is **Enabled**.
PCIE_3 Lanes	Change the PCIe lanes. Options available: Auto, x16, x8x8, x8x4x4, x4x4x8, x4x4x4x4. Default setting is **Auto**.
PCIE_3 Max Link Speed	Change the PCIe max link speed. Options available: Auto, Gen1, Gen2, Gen3, Gen4, Gen5. Default setting is **Auto**.
Onboard LAN# Controller(Note)	Enable/Disable the onboard LAN controller. Options available: Disabled, Enabled. Default setting is **Enabled**.
Onboard LAN# I/O ROM(Note)	Enable/Disable the onboard LAN devices, and initializes device expansion ROM. Options available: Disabled, Enabled. Default setting is **Enabled**.

(Note) This section is dependent on the available LAN controller.

Parameter	Description
Above 4G Decoding	Enable/Disable memory mapped I/O to 4GB or greater address space (Above 4G Decoding). Options available: Disabled, Enabled. Default setting is **Enabled**.
Re-Size BAR Support	Options available: Disabled, Enabled. Default setting is **Enabled**.
SR-IOV Support	If the system has SR-IOV capable PCIe devices, this item Enable/Disable Single Root IO Virtualization Support. Options available: Disabled, Enabled. Default setting is **Disabled**.

2-2-8 USB Configuration



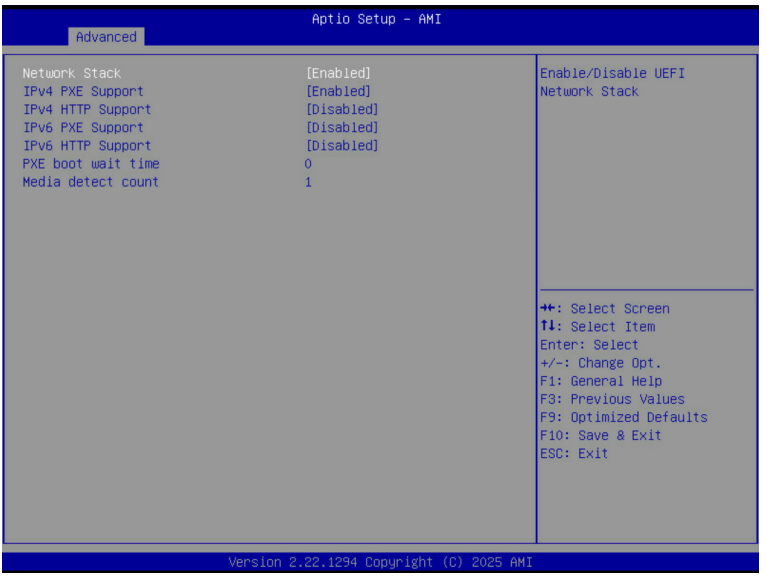


Parameter	Description
USB Configuration	
USB Module Version	Displays the USB module version information.
USB Controllers	Displays the supported USB controllers.
USB Devices:	Displays the USB devices connected to the system.
Legacy USB Support	Enable/Disable the Legacy USB support function. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications. Options available: Enabled, Disabled, Auto. Default setting is **Enabled**.
XHCI Hand-off	Enable/Disable the XHCI Hand-off support. Options available: Enabled, Disabled. Default setting is **Enabled**.
USB Mass Storage Driver Support(Note)	Enable/Disable the USB Mass Storage Driver Support. Options available: Disabled, Enabled. Default setting is **Enabled**.
USB Configuration	
USB Module Version	Displays the USB module version information.
USB Controllers	Displays the supported USB controllers.
USB Devices:	Displays the USB devices connected to the system.
Legacy USB Support	Enable/Disable the Legacy USB support function. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications. Options available: Enabled, Disabled, Auto. Default setting is **Enabled**.
XHCI Hand-off	Enable/Disable the XHCI Hand-off support. Options available: Enabled, Disabled. Default setting is **Enabled**.
USB Mass Storage Driver Support(Note)	Enable/Disable the USB Mass Storage Driver Support. Options available: Disabled, Enabled. Default setting is **Enabled**.

(Note) This item is present only if you attach USB devices.

Parameter	Description
Port 60/64 Emulation	Enables the I/O port 60h/64h emulation support. This should be enabled for the complete USB Keyboard Legacy support for non-USB aware OS. Options available: Disabled, Enabled. Default setting is **Enabled**.
USB hardware delays and time-outs	
USB transfer time-out	Selects the time-out value for USB Control/Bulk/Interrupt transfers. Options available: 1 sec, 5 sec, 10 sec, 20 sec. Default setting is **20 sec**.
Device reset time-out	Selects the time-out value during a USB mass storage device reset. Options available: 10 sec, 20 sec, 30 sec, 40 sec. Default setting is **20 sec**.
Device power-up delay	Maximum time the device will take before it properly reports itself to the Host Controller. "Auto" uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor. Options available: Auto, Manual. Default setting is **Auto**.
Mass Storage Devices	Displays the mass storage devices available on the system.

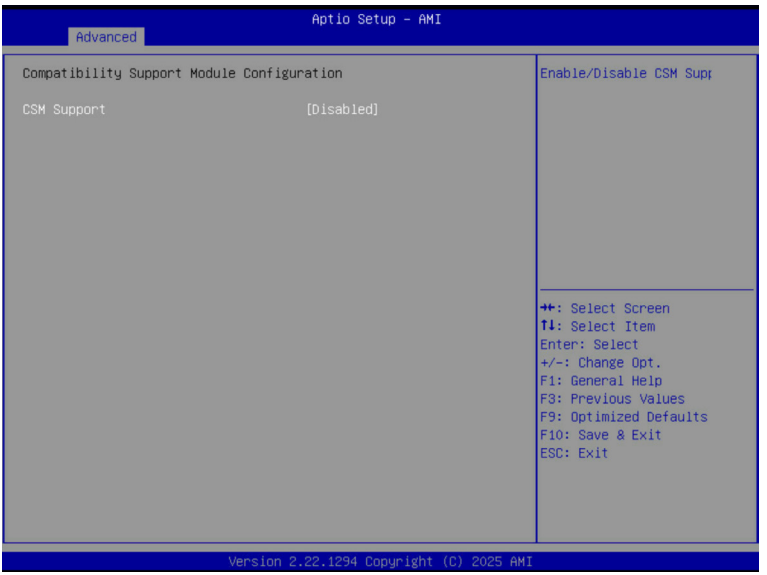
2-2-9 Network Stack Configuration



Parameter	Description
Network Stack	Enable/Disable the UEFI network stack. Options available: Disabled, Enabled. Default setting is **Enabled**.
Ipv4 PXE Support(Note)	Enable/Disable the Ipv4 PXE feature. Options available: Disabled, Enabled. Default setting is **Enabled**.
Ipv4 HTTP Support(Note)	Enable/Disable the Ipv4 HTTP feature. Options available: Disabled, Enabled. Default setting is **Disabled**.
Ipv6 PXE Support(Note)	Enable/Disable the Ipv6 PXE feature. Options available: Disabled, Enabled. Default setting is **Disabled**.
Ipv6 HTTP Support(Note)	Enable/Disable the Ipv6 HTTP feature. Options available: Disabled, Enabled. Default setting is **Disabled**.
PXE boot wait time(Note)	Wait time in seconds to press ESC key to abort the PXE boot. Press the <+> / <-> keys to increase or decrease the desired values.
Media detect count(Note)	Number of times the presence of media will be checked. Press the <+> / <-> keys to increase or decrease the desired values.

(Note) This item appears when **Network Stack** is set to **Enabled**.

2-2-10 CSM Configuration



Parameter	Description
Compatibility Support Module Configuration	
CSM Support(Note)	Enable/Disable CSM support. Options available: Disabled, Enabled. Default setting is **Disabled**.
CSM16 Module Version	Displays the CSM module version information.
GateA20 Active	Options available: Upon Request, Always. Default setting is **Upon Request**.
INT19 Trap Response	Options available: Immediate, Postponed. Default setting is **Immediate**.
HDD Connection Order	Options available: Adjust, Keep. Default setting is **Adjust**.
Boot option filter	Options available: UEFI and Legacy, Legacy only, UEFI only. Default setting is **UEFI and Legacy**.
Option ROM execution	
Network/Storage/Video/ Other PCI devices	Options available: UEFI, Legacy. Default setting is **UEFI**.

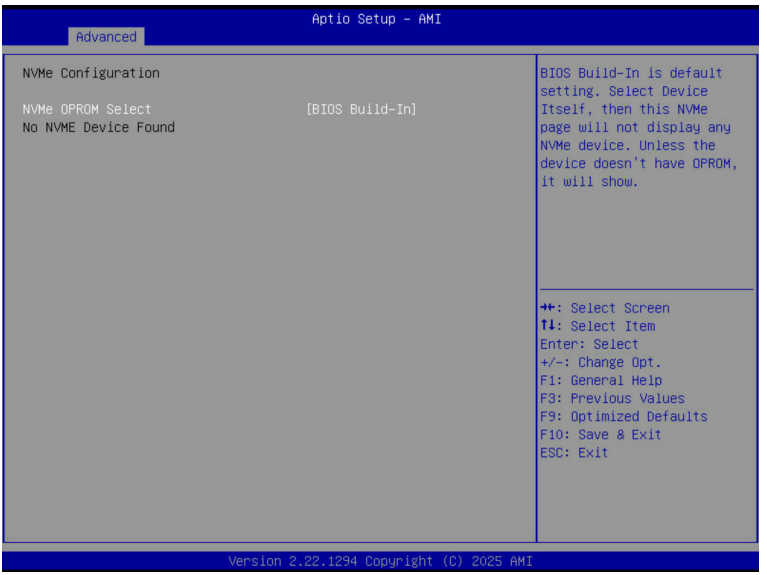
(Note) Advanced items prompt when this item is defined.

2-2-11 Post Report Configuration



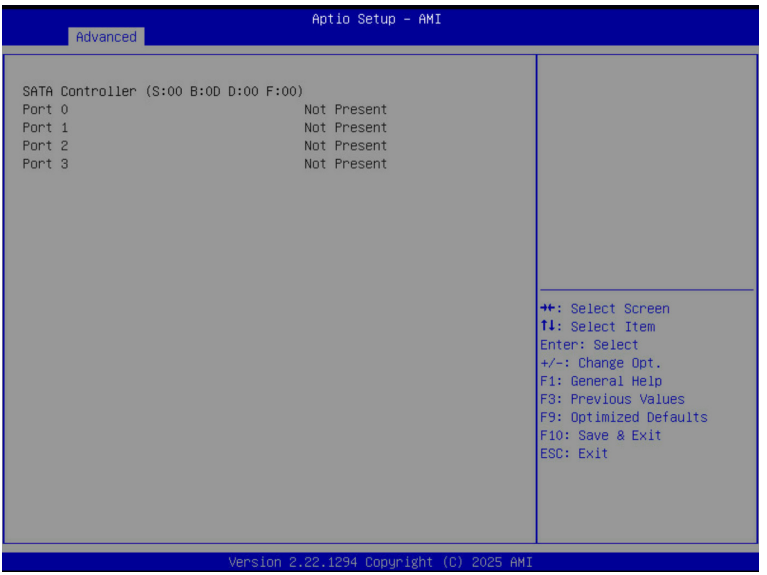
Parameter	Description
Post Report Configuration	
Error Message Report	
Post Error Message	Enable/Disable Post Error Message support. Options available: Disabled, Enabled. Default setting is **Enabled**.

2-2-12 NVMe Configuration



Parameter	Description
NVMe Configuration	Displays the NVMe devices connected to the system.
NVME OPROM Select	Options available: BIOS Build-In, NVMe Device. Default setting is **BIOS Build-In**.

2-2-13 SATA Configuration



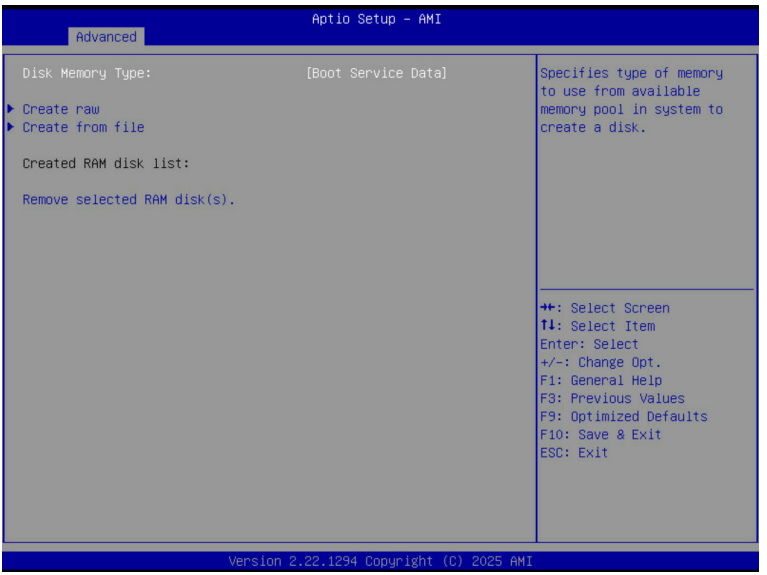
Parameter	Description
SATA Configuration	Displays the installed HDD devices information. System will automatically detect HDD type.

2-2-14 Chipset Configuration



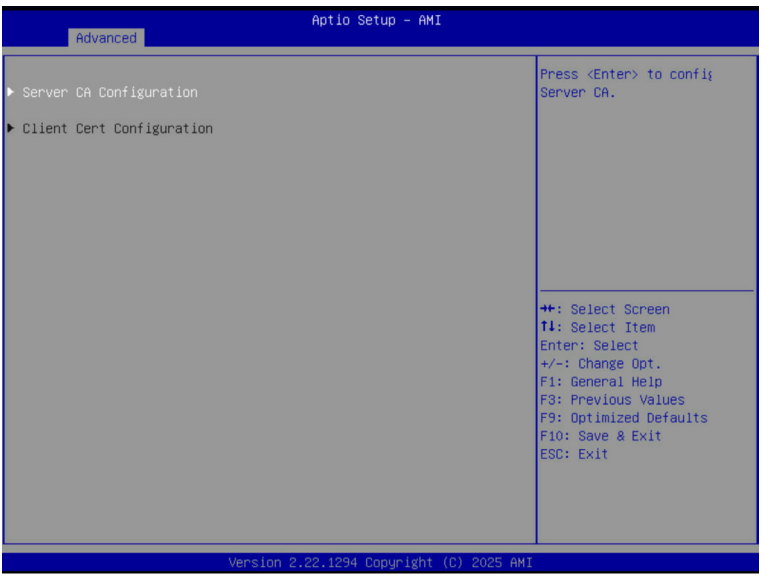
Parameter	Description
Restore AC Power Loss	This option provides user to set the mode of operation if an AC / power loss occurs. Options available: Power Off, Power On, Last State, Unspecified. Default setting is **Last State**.

2-2-15 RAM Disk Configuration



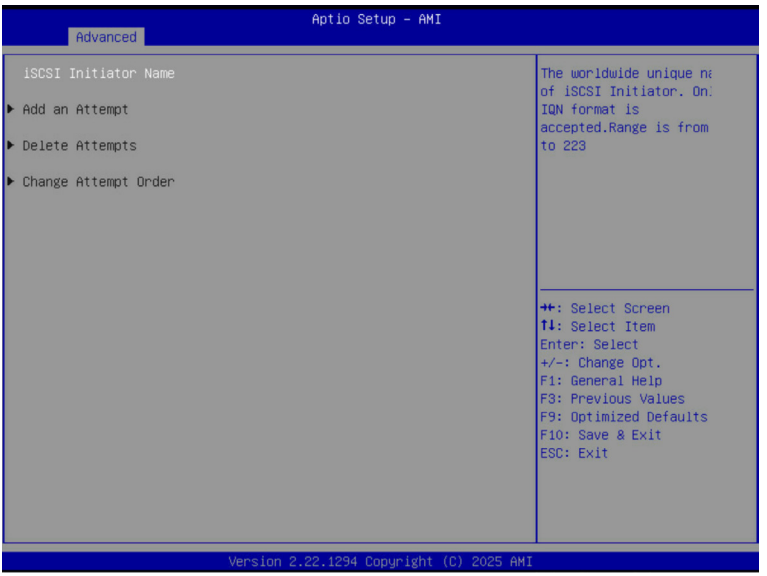
Parameter	Description
Disk Memory Type	Specifies the type of memory to use from available memory pool in system to create a disk. Options available: Boot Service Data, Reserved. Default setting is **Boot Service Data**.
Create Raw	Creates a raw RAM disk. ◆ Size (Hex) – Input a valid RAM disk size that should be multiple of the RAM disk block size. ◆ Create & Exit ◆ Discard & Exit
Create from file	Creates a RAM disk from a given file.
Created RAM disk list	
Remove selected RAM disk(s)	Selects the RAM disk(s) to remove.

2-2-16 Tls Auth Configuration



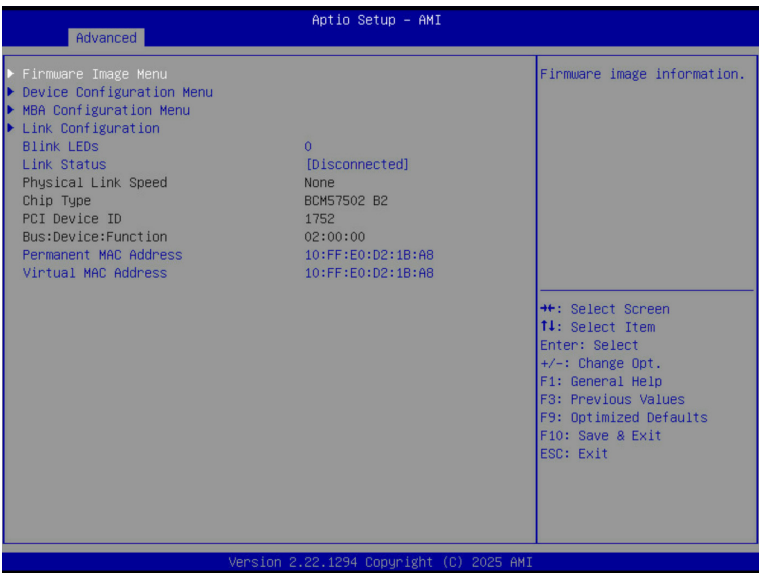
Parameter	Description
Server CA Configuration	Press [Enter] for configuration of advanced items. ◆ Enroll Cert – Press [Enter] to enroll a certificate • Enroll Cert Using File • Cert GUID Input digit character in 1111111-2222-3333-4444-1234567890ab format. – Commit Changes and Exit – Discard Changes and Exit ◆ Delete Cert
Client Cert Configuration	Press [Enter] for configuration of advanced items.

2-2-17 iSCSI Configuration



Parameter	Description
Attempt Priority	◆ Attempt Priority – Change the attempt priority. – Options available: Host Attempt, Redfish Attempt. Default setting is **Host Attempt**. ◆ Commit Change and Exit
Host iSCSI Configuration	◆ iSCSI Initiator Name – Press [Enter] and name iSCSI Initiator. Only IQN format is accepted. Range: from 4 to 223. ◆ Add an Attempt ◆ Delete Attempts ◆ Change Attempt Order

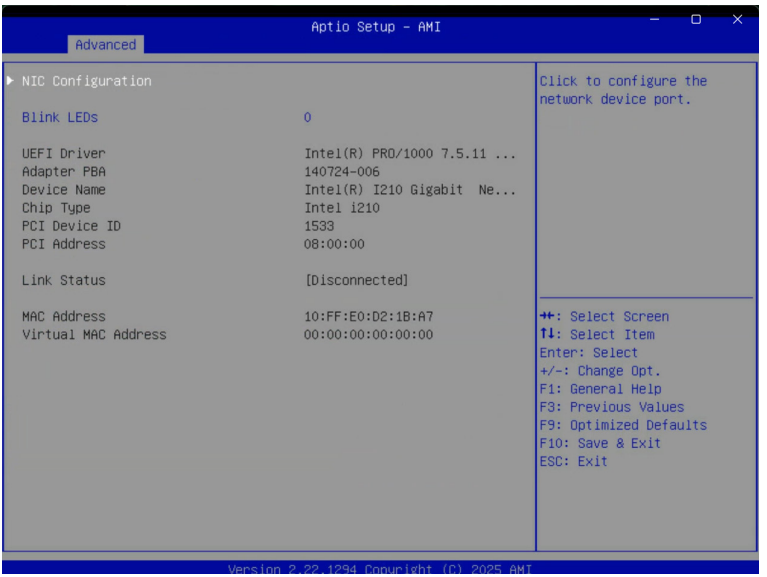
2-2-18 Broadcom® BCM57502 Ethernet Network Connection



Parameter	Description
Firmware Image Menu	Press [Enter] to view firmware image information.
Device Configuration Menu	Press [Enter] to configure advanced items. ◆ Multi-Function Mode – Configures the NIC Hardware Mode. – Options available: SF, NPAR 1.0. Default setting is **SF**. ◆ SR-IOV – Enable/Disable Single Root I/O Virtualization. – Options available: Disabled, Enabled. Default setting is **Disabled**. ◆ Number of MSI-X Vectors per VF – Configures the number of MSI-X Vectors per VF (0-128). – Default setting is **16**. ◆ Maximum Number of PF MSI-X Vectors – Configures the maximum number of PF MSI-X Vectors (0-512 per controller). – Default setting is **74**. ◆ Energy Efficient Ethernet – Enable/Disable Energy Efficient Ethernet operation. – Options available: Disabled, Enabled. Default setting is **Disabled**. ◆ Operational Link Speed – Configures the link speed setting to be used as the default link speed for the selected port. – Options available: AutoNeg. Default setting is **AutoNeg**.
MBA Configuration Menu (continued)	◆ Pre-boot Wake On LAN – Configures Pre-boot Wake on LAN (WOL). – Options available: Disabled, Enabled. Default setting is **Enabled**. ◆ VLAN Mode – Configures the virtual LAN (VLAN) mode. – Options available: Disabled, Enabled. Default setting is **Disabled**. ◆ VLAN ID – Configures the VLAN ID (1…4094). – This item is available only when VLAN Mode is Enabled. ◆ Boot Retry Count – Selects the number of boot retries. – Options available: No Retry, 1 Retry, 2 Retries, 3 Retries, 4 Retries, 5 Retries, 6 Retries, Indefinite Retries. Default setting is **No Retry**.
iSCSI Boot Configuration Menu	Press [Enter] to configure advanced items.
Blink LEDs	Identifies the physical network port by blinking the associated LED. Press the numeric keys to adjust desired values.
Link Status	Specifies the link status of the port.
Physical Link Speed	Displays the technical specifications for the Network Interface Controller.

Parameter	Description
Chip Type	Displays the technical specifications for the Network Interface Controller.
PCI Device ID	Displays the technical specifications for the Network Interface Controller.
Bus:Device:Function	Displays the technical specifications for the Network Interface Controller.
Permanent MAC Address	Displays the MAC address of the Ethernet controller.
Virtual MAC Address	Displays the virtual MAC address of the Ethernet controller.

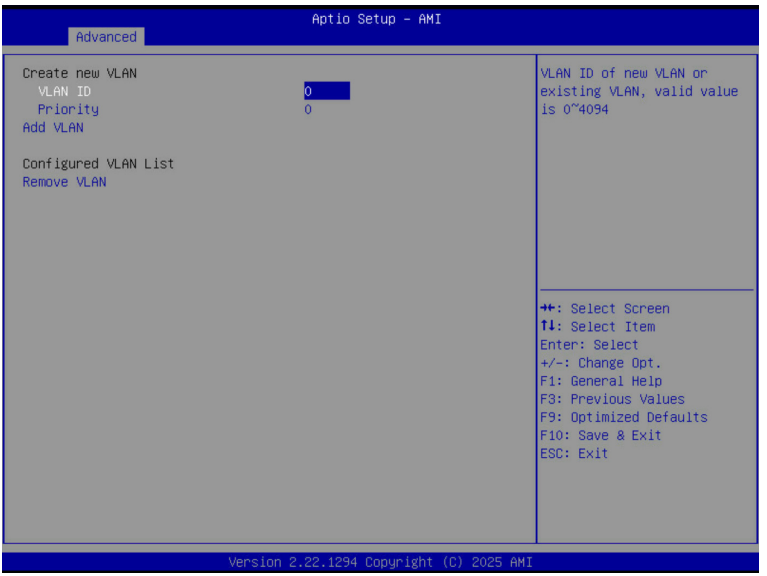
2-2-19 Intel® I210 Gigabit Network Connection





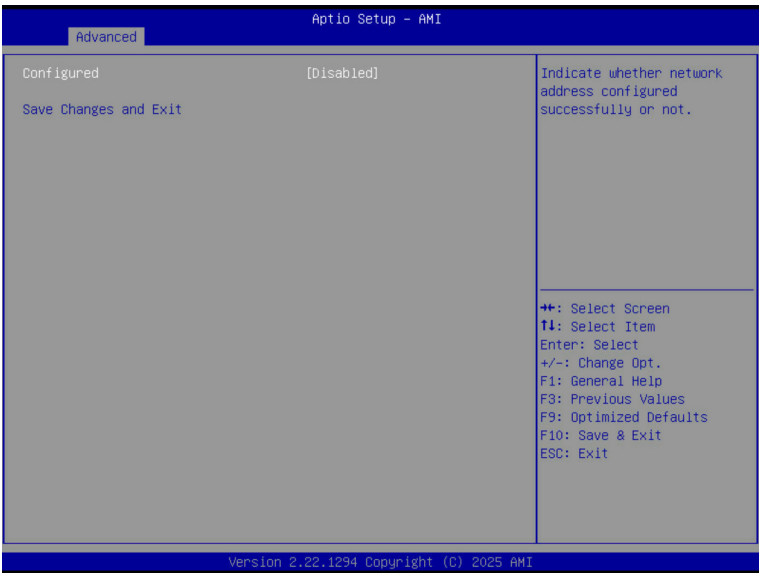
Parameter	Description
NIC Configuration	◆ Link Speed – Allows for automatic link speed adjustment. – Options available: Auto Negotiated, 10 Mbps Half, 10 Mbps Full, 100 Mbps Half, 100 Mbps Full. Default setting is **Auto Negotiated**. ◆ Wake On LAN – Enables power on of the system via LAN. Note that configuring Wake on LAN in the operating system does not change the value of this setting, but does override the behavior of Wake on LAN in OS controlled power states. – Options available: Disabled, Enabled. Default setting is **Enabled**.
Blink LEDs	Identifies the physical network port by blinking the associated LED. Press the numeric keys to adjust desired values.
UEFI Driver	Displays the technical specifications for the Network Interface Controller.
Adapter PBA	Displays the technical specifications for the Network Interface Controller.
Device Name	Displays the technical specifications for the Network Interface Controller.
Chip Type	Displays the technical specifications for the Network Interface Controller.
PCI Device ID	Displays the technical specifications for the Network Interface Controller.
PCI Address	Displays the technical specifications for the Network Interface Controller.
Link Status	Specifies the link status of the port.
MAC Address	Displays the MAC address of the Ethernet controller.
Virtual MAC Address	Displays the virtual MAC address of the Ethernet controller.

2-2-20 VLAN Configuration



Parameter	Description
Enter Configuration Menu	Press [Enter] to configure advanced items. ◆ Create new VLAN ◆ VLAN ID – Sets VLAN ID for a new VLAN or an existing VLAN. – Press the <+> / <-> keys to increase or decrease the desired values. – The valid range is from 0 to 4094. ◆ Priority – Sets 802.1Q Priority for a new VLAN or an existing VLAN. – Press the <+> / <-> keys to increase or decrease the desired values. – The valid range is from 0 to 7. ◆ Add VLAN – Press [Enter] to create a new VLAN or update an existing VLAN. ◆ Configured VLAN List ◆ Remove VLAN – Press [Enter] to remove an existing VLAN.

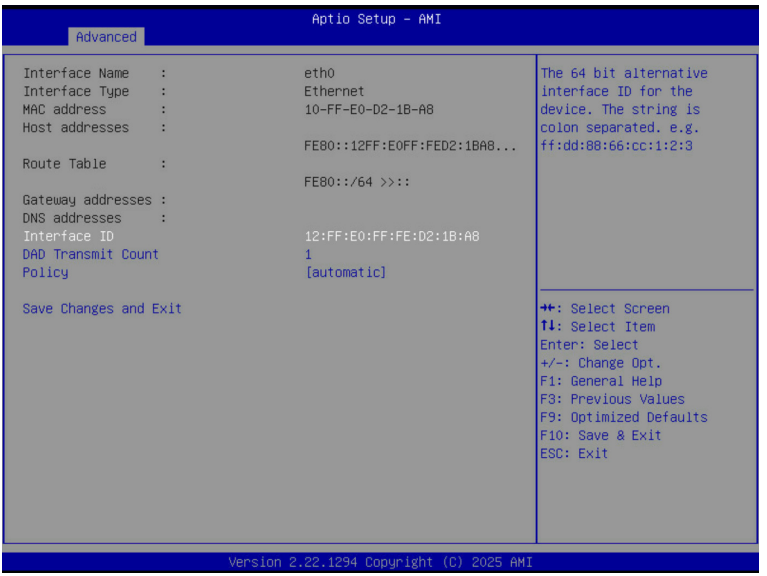
2-2-21 MAC IPv4 Network Configuration



Parameter	Description
Configured	Indicates whether network address is configured successfully or not. Options available: Enabled, Disabled. Default setting is **Disabled.**
Enable DHCP(Note)	Options available: Enabled, Disabled. Default setting is **Enabled.**
Local IP Address(Note)	Press [Enter] to configure local IP address.
Local NetMask(Note)	Press [Enter] to configure local NetMask.
Local Gateway(Note)	Press [Enter] to configure local Gateway
Local DNS Servers(Note)	Press [Enter] to configure local DNS servers
Save Changes and Exit	Press [Enter] to save all configurations.

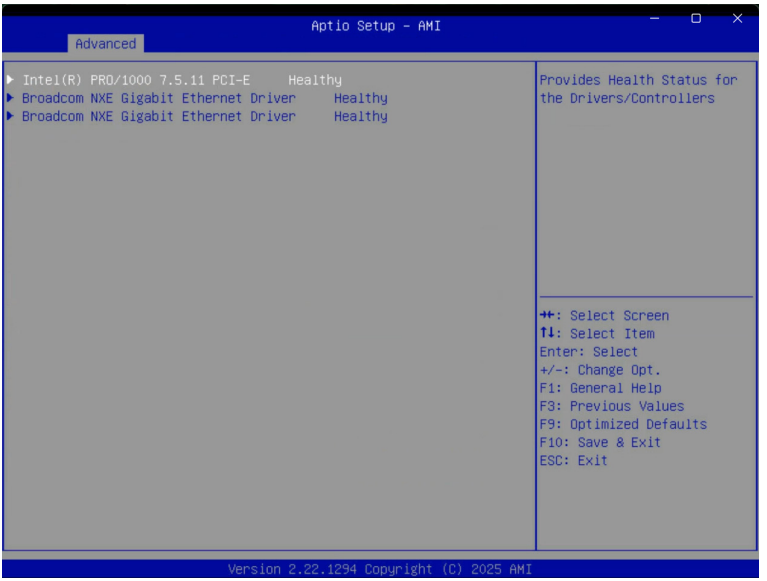
(Note) This item appears when **Configured** is set to **Enabled**.

2-2-22 MAC IPv6 Network Configuration



Parameter	Description
Enter Configuration Menu	Press [Enter] to configure advanced items. ◆ Displays the MAC Address information. ◆ Interface ID – The 64 bit alternative interface ID for the device. The string is colon separated. e.g. ff:dd:88:66:cc:1:2:3. ◆ DAD Transmit Count – The number of consecutive Neighbor solicitation messages sent while performing Duplicate Address Detection on a tentative address. A value of zero indicates that Duplicate Address Detection is not performed. ◆ Policy – Options available: automatic, manual. Default setting is **automatic**. ◆ Save Changes and Exit – Press [Enter] to save all configurations.

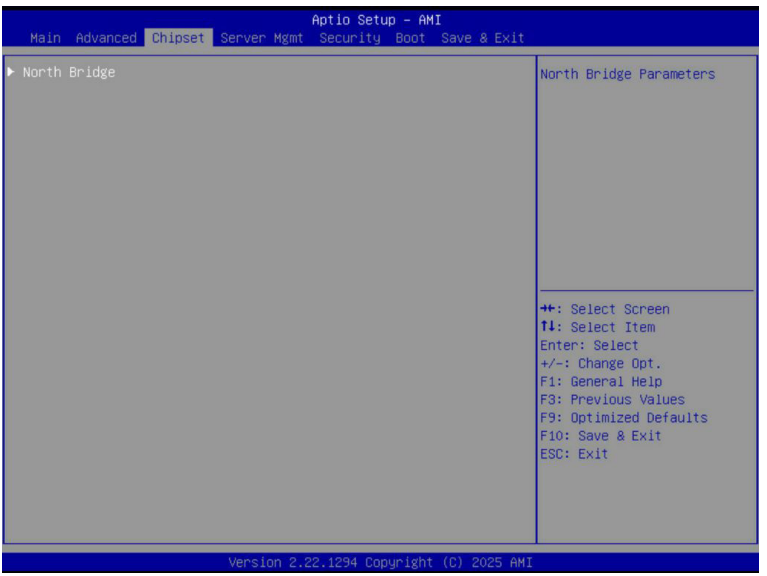
2-2-23 Driver Health



Parameter	Description
Driver Health	Displays driver health status of the devices/controllers if installed.

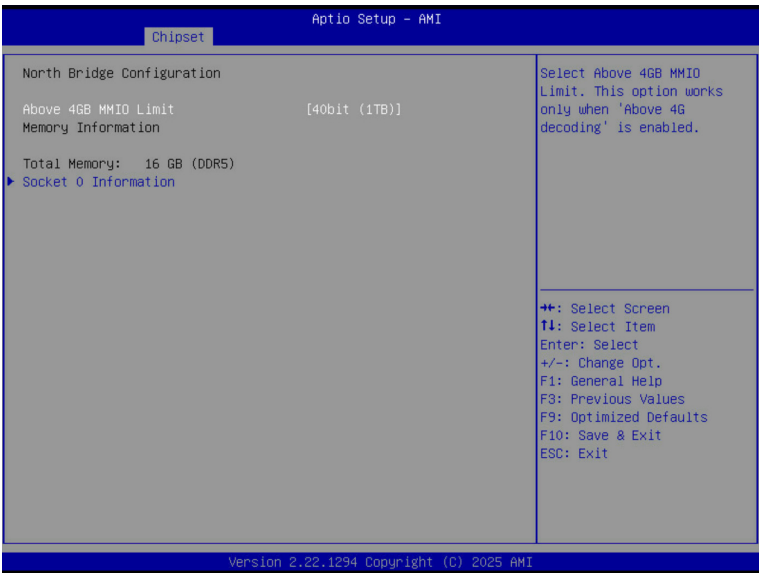
2-3 Chipset Setup Menu

Chipset Setup menu displays submenu options for configuring the function of the North Bridge. Select a submenu item, then press <Enter> to access the related submenu screen.



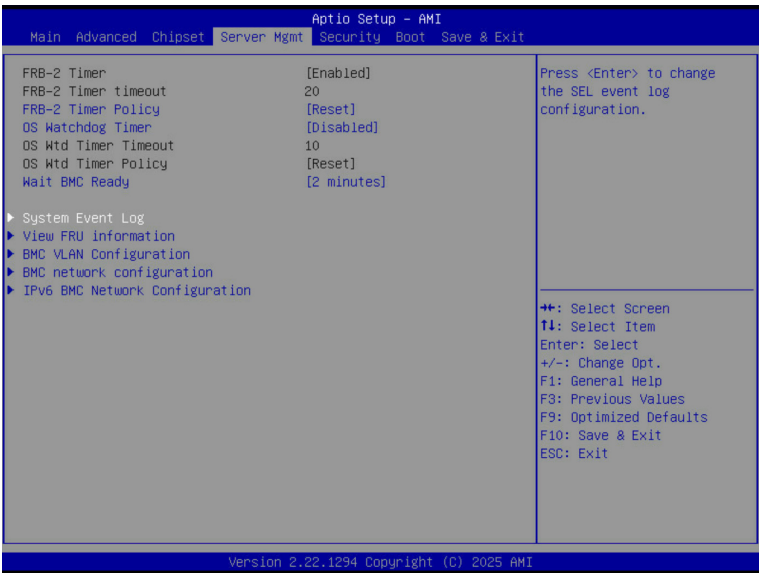
Parameter	Description
North Bridge	Press [Enter] for configuration of advanced items.

2-3-1 North Bridge



Parameter	Description
North Bridge Configuration	
Above 4GB MMIO Limit	Selects Above 4GB MMIO Limit to 38~43 bits limit. This option works only when "Above 4G decoding" is enabled. Options available: 40bit (1TB), 41bit (2TB), 42bit (4TB), 43bit (8TB). Default setting is **40bit (1TB)**.
Memory Information	
Total Memory	Displays the total memory information.
Socket 0 Information	Press [Enter] to view information related to socket 0.

2-4 Server Management Menu



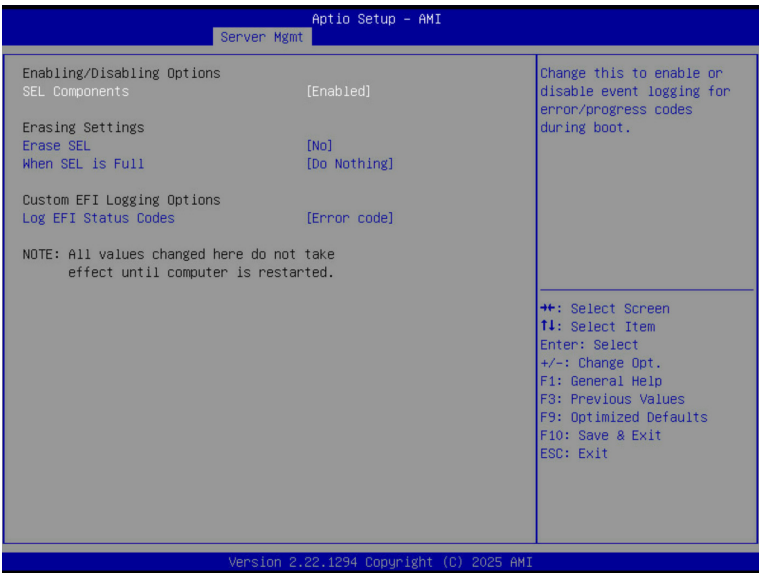
Parameter	Description
FRB-2 Timer	Enable/Disable FRB-2 timer (POST timer). Options available: Enabled, Disabled. Default setting is **Disabled**.
FRB-2 Timer (Note1) timeout	Configures the FRB2 Timer timeout. Options available: 3 minutes, 4 minutes, 5 minutes, 6 minutes. Default setting is **6 minutes**.
FRB-2 Timer Policy(Note1)	Configures the FRB2 Timer policy. Options available: Do Nothing, Reset, Power Down. Default setting is **Do Nothing**.
OS Watchdog Timer	Enable/Disable OS Watchdog Timer function. Options available: Enabled, Disabled. Default setting is **Disabled**.
OS Wtd Timer Timeout(Note2)	Configures OS Watchdog Timer. Options available: 5 minutes, 10 minutes, 15 minutes, 20 minutes. Default setting is **10 minutes**.
OS Wtd Timer Policy(Note2)	Configure OS Watchdog Timer Policy. Options available: Reset, Do Nothing, Power Down. Default setting is **Reset**.

(Note1) This item is configurable when **FRB-2 Timer** is set to **Enabled**.

(Note2) This item is configurable when **OS Watchdog Timer** is set to **Enabled**.

Parameter	Description
Wait BMC Ready	Post wait BMC ready and reboot system. Options available: Disabled, 2 minutes, 4 minutes, 6 minutes. Default setting is **2 minutes**.
System Event Log	Press [Enter] to configure advanced items.
View FRU Information	Press [Enter] to view the FRU information.
Bmc self test log	Press [Enter] to configure advanced items.
BMC VLAN Configuration	Press [Enter] to configure advanced items.
BMC network configuration	Press [Enter] to configure advanced items.
View System Event Log	Press [Enter] to view the system event log records.
BMC User Settings	Press [Enter] to add, delete and set privilege level for users.
IPv6 BMC Network Configuration	Press [Enter] to configure advanced items.
BMC Warm Reset	Press [Enter] to do warm reset BMC.

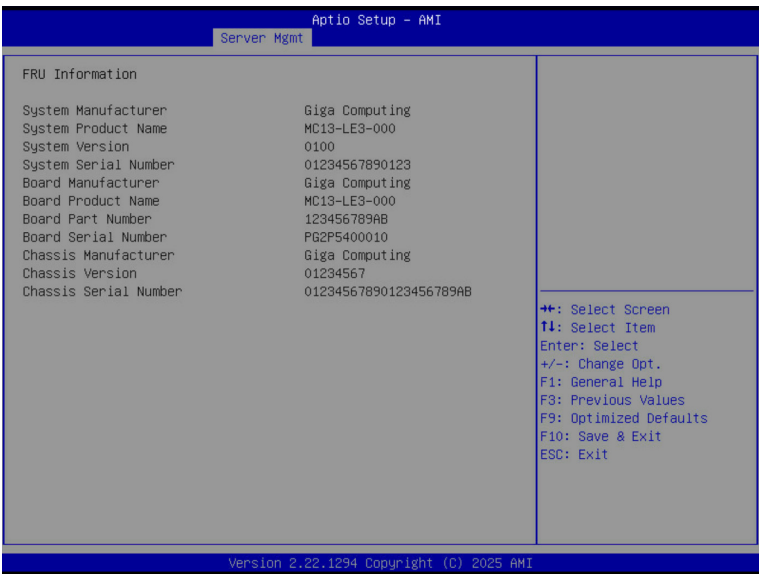
2-4-1 System Event Log



Parameter	Description
Enabling / Disabling Options	
SEL Components	Change this item to enable or disable all features of System Event Logging during boot. Options available: Disabled, Enabled. Default setting is **Enabled**.
Erasing Settings	
Erase SEL	Choose options for erasing SEL. Options available: No/Yes, On next reset/Yes, On every reset. Default setting is **No**.
When SEL is Full	Choose options for reactions to a full SEL. Options available: Do Nothing, Erase Immediately, Delete Oldest Record. Default setting is **Do Nothing**.
Custom EFI Logging Options	
Log EFI Status Codes	Enable/Disable the logging of EFI Status Codes (if not already converted to legacy). Options available: Disabled, Both, Error code, Progress code. Default setting is **Error code**.

2-4-2 View FRU Information

The FRU page is a simple display page for basic system ID information, as well as System product information. Items on this window are non-configurable.



(Note) The model name will vary depends on the product you purchased

2-4-3 BMC VLAN Configuration



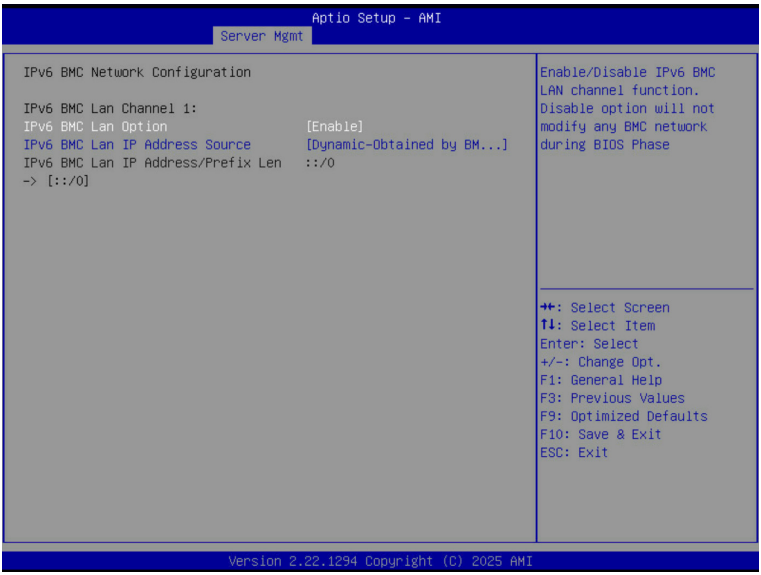
Parameter	Description
BMC VLAN Configuration	
BMC VLAN ID	Sets VLAN ID for a new VLAN or an existing VLAN. Press the <+> / <-> keys to increase or decrease the desired values. The valid range is from 0 to 4094.
BMC VLAN Priority	Sets 802.1Q Priority for a new VLAN or an existing VLAN. Press the <+> / <-> keys to increase or decrease the desired values. The valid range is from 0 to 7.

2-4-4 BMC Network Configuration



Parameter	Description
BMC network configuration	
Lan Channel 1	
Configuration Address source	Selects to configure LAN channel parameters statically or dynamically (DHCP). Do nothing option will not modify any BMC network parameters during BIOS phase. Options available: Unspecified, Static, DynamicBmcDhcp. Default setting is **DynamicBmcDhcp**.
Station IP address	Displays IP Address information.
Subnet mask	Displays Subnet Mask information. Please note that the IP address must be in three digitals, for example, 192.168.000.001.
Router IP address	Displays the Router IP Address information.
Station MAC address	Displays the MAC Address information.
Real-time get BMC network address	Press [Enter] will set LAN mode and Address source and then get IP, Subnet, Gateway and MAC address.

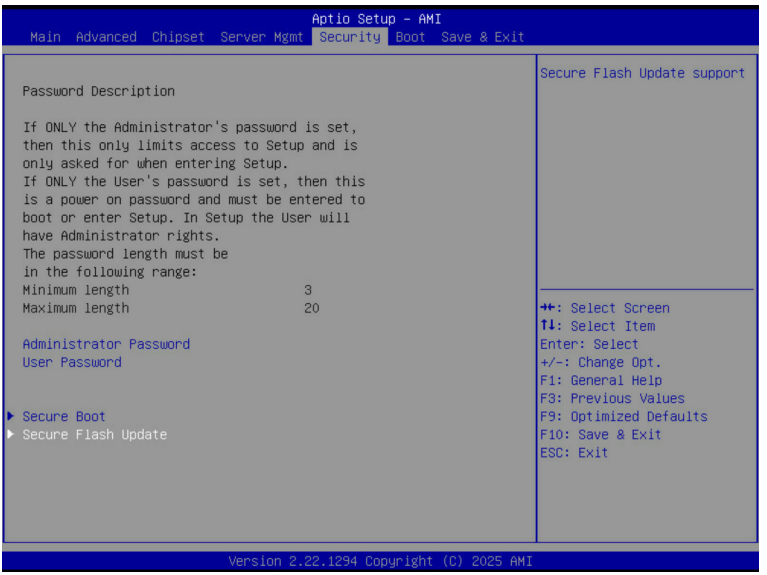
2-4-5 IPv6 BMC Network Configuration



Parameter	Description
IPv6 BMC network configuration	
IPv6 BMC Lan Channel 1	
IPv6 BMC Lan Option	Enable/Disable IPv6 BMC LAN channel function. When this item is disabled, the system will not modify any BMC network during BIOS phase. Options available: Unspecified, Disable, Enable. Default setting is **Enable**.
IPv6 BMC Lan IP Address Source	Selects to configure LAN channel parameters statically or dynamically (by BIOS or BMC). Options available: Unspecified, Static, Dynamic-Obtained by BMC running DHCP. Default setting is **Enable Dynamic-Obtained by BMC running DHCP**.
IPv6 BMC Lan IP Address/ Prefix Length	Check if the IPv6 BMC LAN IP address matches those displayed on the screen.

2-5 Security Menu

The Security menu allows you to safeguard and protect the system from unauthorized use by setting up access passwords.



There are two types of passwords that you can set:

- Administrator Password

  Entering this password will allow the user to access and change all settings in the Setup Utility.

- User Password

  Entering this password will restrict a user's access to the Setup menus. To enable or disable this field, a Administrator Password must first be set. A user can only access and modify the System Time, System Date, and Set User Password fields.

Parameter	Description
Administrator Password	Press [Enter] to configure the administrator password.
User Password	Press [Enter] to configure the user password.
Secure Boot	Press [Enter] to configure advanced items.
Secure Flash Update	Press [Enter] to configure advanced items.

2-5-1 Secure Boot

The Secure Boot feature is applicable if supported by your Operating System.
If your Operating System is not supporting Secure Boot, the system will hang when starting the Operating System.



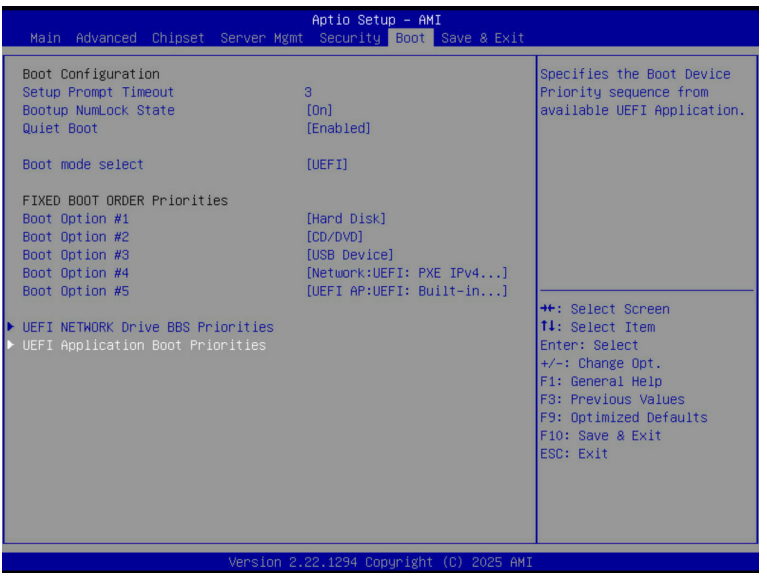
Parameter	Description
System Mode	Displays if the system is in User mode or Setup mode.
Secure Boot	Enable/ Disable the Secure Boot function. Options available: Enabled, Disabled. Default setting is **Disabled**.
Secure Boot Mode(Note)	Secure Boot requires all the applications that are running during the booting process to be pre-signed with valid digital certificates. This way, the system knows all files being loaded before Windows loads to the login screen have not been tampered with. When set to Standard, it will automatically load the Secure Boot keys form the BIOS databases. When set to Custom, you can customize the Secure Boot settings and manually load its keys from the BIOS database. Options available: Standard, Custom. Default setting is **Standard**.
Restore Factory Keys	Forces the system to user mode and installs factory default Secure Boot key database.
Reset to Setup Mode	Press [Enter] to reset the system to Setup mode.

(Note) Advanced items prompt when this item is set to **Custom**.

Parameter	Description
Key Management	Press [Enter] to configure advanced items. **Please note that this item is configurable when Secure Boot Mode is set to Custom.** ◆ Factory Key Provision – Allows to provision factory default Secure Boot keys when system is in Setup Mode. – Options available: Enabled, Disabled. Default setting is **Disabled**. ◆ Restore Factory Keys – Installs all factory default keys. It will force the system in User Mode. – Options available: Yes, No. ◆ Enroll Efi Image – Press [Enter] to enroll SHA256 hash of the binary into Authorized Signature Database (db). ◆ Secure Boot variable – Displays the current status of the variables used for secure boot. ◆ Platform Key (PK) – Displays the current status of the Platform Key (PK). – Press [Enter] to configure a new PK. – Options available: Update. ◆ Key Exchange Keys (KEK) – Displays the current status of the Key Exchange Key Database (KEK). – Press [Enter] to configure a new KEK or load additional KEK from storage devices. – Options available: Update, Append. ◆ Authorized Signatures (DB) – Displays the current status of the Authorized Signature Database. – Press [Enter] to configure a new DB or load additional DB from storage devices. – Options available: Update, Append. ◆ Forbidden Signatures (DBX) – Displays the current status of the Forbidden Signature Database. – Press [Enter] to configure a new dbx or load additional dbx from storage devices. – Options available: Update, Append. ◆ Authorized TimeStamps (DBT) – Displays the current status of the Authorized TimeStamps Database. – Press [Enter] to configure a new DBT or load additional DBT from storage devices. – Options available: Update, Append. ◆ OsRecovery Signatures – Displays the current status of the OsRecovery Signature Database. – Press [Enter] to configure a new OsRecovery Signature or load additional OsRecovery Signature from storage devices. – Options available: Update, Append.

2-6 Boot Menu

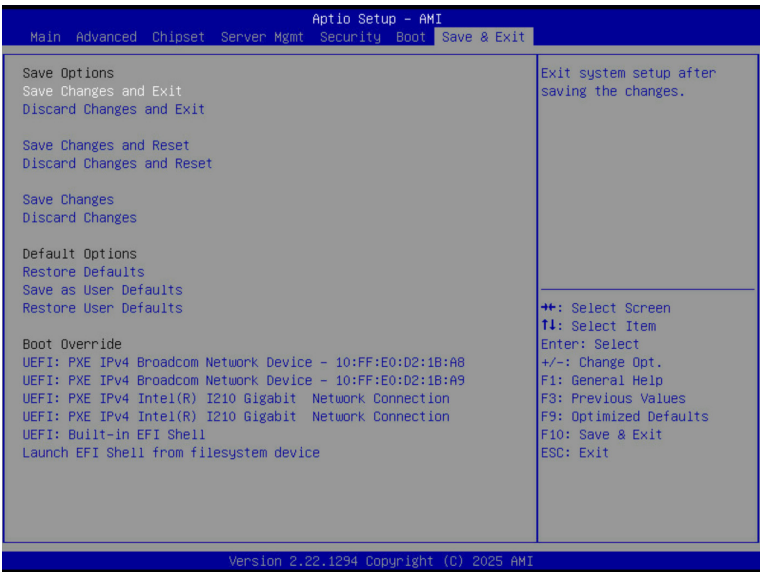
The Boot menu allows you to set the drive priority during system boot-up. BIOS setup will display an error message if the legacy drive(s) specified is not bootable.



Parameter	Description
Boot Configuration	
Setup Prompt Timeout	Number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting. Press the numeric keys to input the desired values.
Bootup NumLock State	Enable/Disable the Bootup NumLock function. Options available: On, Off. Default setting is **On**.
Quiet Boot	Enable/Disable showing the logo during POST. Options available: Enabled, Disabled. Default setting is **Enabled**.
Boot mode select	Selects the boot mode. Options available: LEGACY, UEFI. Default setting is **UEFI**.
FIXED BOOT ORDER Priorities	
Boot Option #1 / #2 / #3 / #4 / #5	Press [Enter] to configure the boot order priority. By default, the server searches for boot devices in the following sequence: 1. Hard drive. 2. CD-COM/DVD drive. 3. USB device. 4. Network. 5. UEFI.

2-7 Save & Exit Menu

The Save & Exit menu displays the various options to quit from the BIOS setup. Highlight any of the exit options then press <Enter>.



Parameter	Description
Save Options	
Save Changes and Exit	Saves changes made and closes the BIOS setup. Options available: Yes, No.
Discard Changes and Exit	Discards changes made and exits the BIOS setup. Options available: Yes, No.
Save Changes and Reset	Restarts the system after saving the changes made. Options available: Yes, No.
Discard Changes and Reset	Restarts the system without saving any changes. Options available: Yes, No.
Save Changes	Saves changes done so far to any of the setup options. Options available: Yes, No.
Discard Changes	Discards changes made and closes the BIOS setup. Options available: Yes, No.
Default Options	

Parameter	Description
Restore Defaults	Loads the default settings for all BIOS setup parameters. Setup Defaults are quite demanding in terms of resources consumption. If you are using low-speed memory chips or other kinds of low-performance components and you choose to load these settings, the system might not function properly. Options available: Yes, No.
Save as User Defaults	Saves the changes made as the user default settings. Options available: Yes, No.
Restore User Defaults	Loads the user default settings for all BIOS setup parameters. Options available: Yes, No.
Boot Override	Press [Enter] to configure the device as the boot-up drive.
Launch EFI Shell from filesystem device	Attempts to Launch EFI Shell application (Shell.efi) from one of the available file system devices.

2-8 BIOS Recovery

The system has an embedded recovery technique. In the event that the BIOS becomes corrupt the boot block can be used to restore the BIOS to a working state. To restore your BIOS, please follow the instructions listed below:

Recovery Instruction:

1. Copy the XXX.rom to USB diskette.
2. Setting BIOS Recovery jump to enabled status.
3. Boot into BIOS recovery.
4. Run Proceed with flash update.
5. BIOS updated.



