



an Acer Group Company

Altos BrainSphere™

T110 F6

使用手冊

Revision 1.2

系統設定

系統注意事項

感謝您購買 Altos 工作站。本使用手冊專供專業的工作站技術人員參考用，並詳細說明 Altos 工作站所擁有的眾多功能。如需任何特定元件或軟體解決方案的詳細資訊，請參閱該應用程式的技術規格或使用手冊。



注意：在打開或取出任何元件之前，請先聯絡當地經過認證的 Altos 客服人員。



警告！ 未經認證的技術人員在更換元件期間造成的任何零件或元件毀損，將不在保固涵蓋範圍內。如需詳細資訊，請參閱系統內的保固手冊。



注意：

額定電氣規格：

- 500W 電源供應器(FSP500-50AAC): 100-240Vac, 7A-3A, 50-60Hz
- 450W 電源供應器(FSP450-50EGN): 100-240Vac, 6A-3A, 50-60Hz

Operating Environment

Operating Temperature: 10° to 40° C (50° to 95° F)

Non-operating Temperature: -40° to 60° C (-40° to 140° F)

Operating Relative Humidity: 8% to 90% (non-condensing)

Non-operating Relative Humidity: 5% to 95% (non-condensing)

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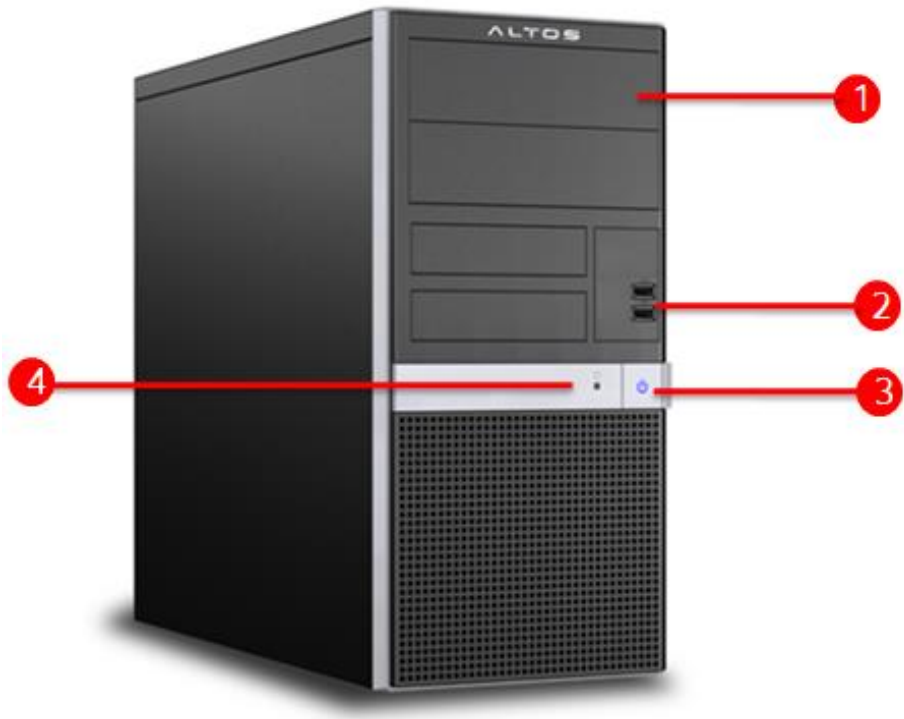
System Specification

Specification				
CPU	Processor type	Single Intel® Xeon® E-2300 Processor (LGA1200), up to 8 Core / 95W TDP		
	Number of processors	1		
On-board Devices	Chipset	Intel® C252 Chipset		
	SATA	6 SATA3 (6 Gb/s) ports		
	SATA RAID	Intel onboard software RAID 0, 1, 5, 10 (via BIOS) (Windows Only) ¹		
	IPMI	ASPEED AST2500		
	Graphics	VGA Port (through BMC)		
	Network controller	Dual RJ45 1 Gb/s Ethernet LAN Port (Intel® i210AT, share IPMI port)		
		Single RJ45 10/100/1000 management LAN		
Memory	Memory slot	4 DIMM slots (Dual channel)		
	Memory type	Up to 128GB ECC DDR4 3200 MHz UDIMM		
Expansion slots	PCIe	• 1 PCI-E 4.0 x16 slot	• 1 PCI-E 4.0 x4 slot	
	M.2	• 1 M.2 2280 PCI-E 4.0 slot		
I/O ports	Front I/O Ports	• 2 USB3.2 Gen1 Type-A Ports		
	Rear I/O Ports	• 1 VGA Port	• 1 COM Port	
		• 2 USB 3.2 Gen2x1 Type-A Ports	• 4 USB 2.0 Type-A Ports	
		• 2 RJ45 Ports	• 1 IPMI MLAN	
		• 1 ID switch		
Commercial features		• RAID support (via BIOS)	• Kensington lock slot	
		• IPMI		
		• TPM 2.0 Module (Optional)		
Drive Bays	Media bay	• 2x 5.25" slot : For ODD		
	Storage bay	• 4 x 3.5"/2.5" slots : For hard disks		
Power supply		• 500W Multiple output 24 pins, 80PLUS® Brown PSU		
		• 450W Multiple output 24 pins, 80PLUS® Gold PSU(optional)		
Dimensions (D x W x H)		• 386 (D) x 175 (W) x 360 (H) mm (15.2 x 6.89 x 14.17 inches)		
OS Support		• Microsoft® Windows Server® 2022		
		• Red Hat Linux 7.3/6.9		
		• SUSE Linux Enterprise Server 12.2/11.2		
		• Ubuntu 18.04.2/16.04.6		
		•		

System View



Front view



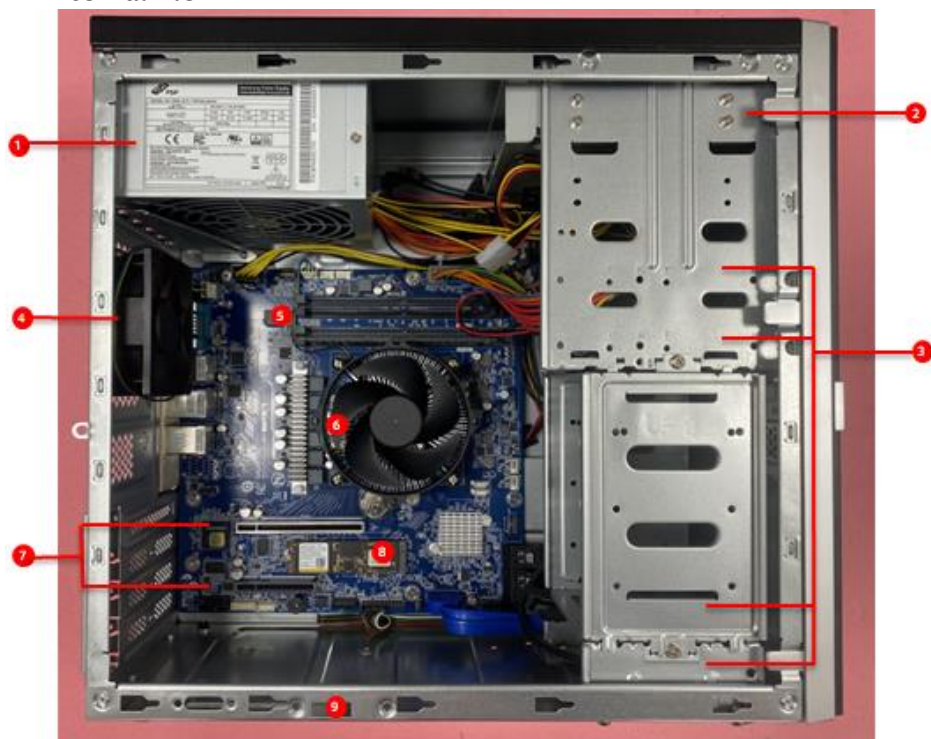
1	5.25-inch external accessible bay
2	2 USB3.2 Gen1 Type-A Ports
3	Power Button/Power LED
4	HDD Activity LED

Rear I/O view



1	ID switch
2	COM Port
3	VGA Port
4	RJ45 1 Gb/s Ethernet LAN Ports
5	RJ45 10/100/1000 management LAN Port
6	USB 2.0 Type-A Ports
7	USB 3.2 Gen2x1 Type-A Ports

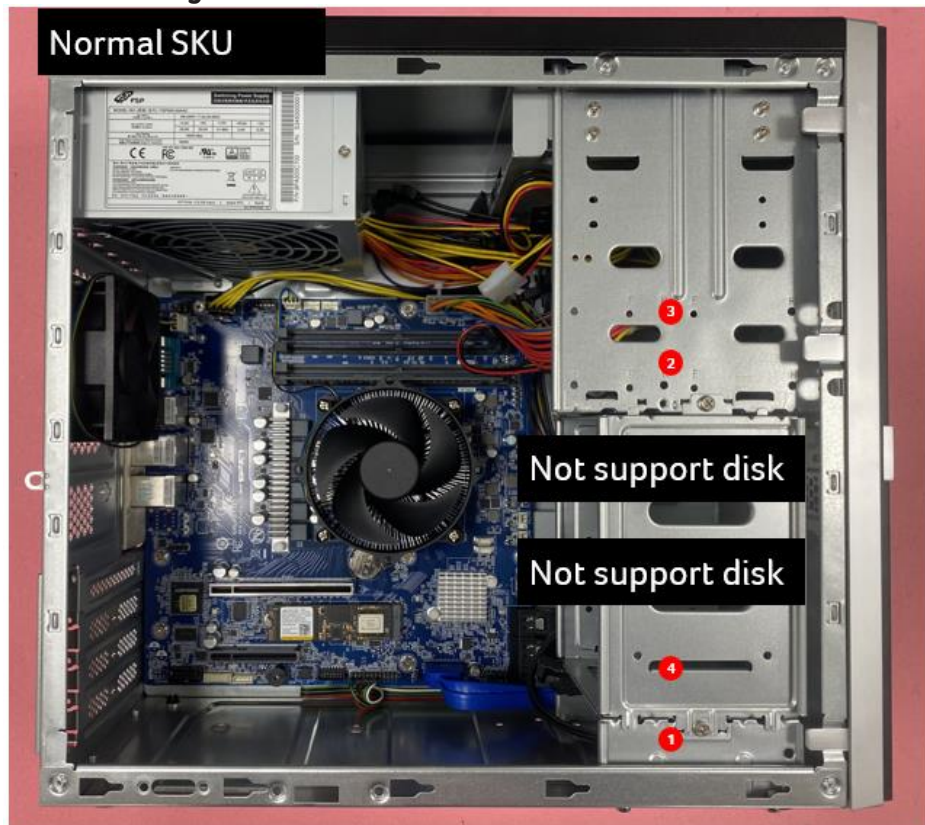
Internal View



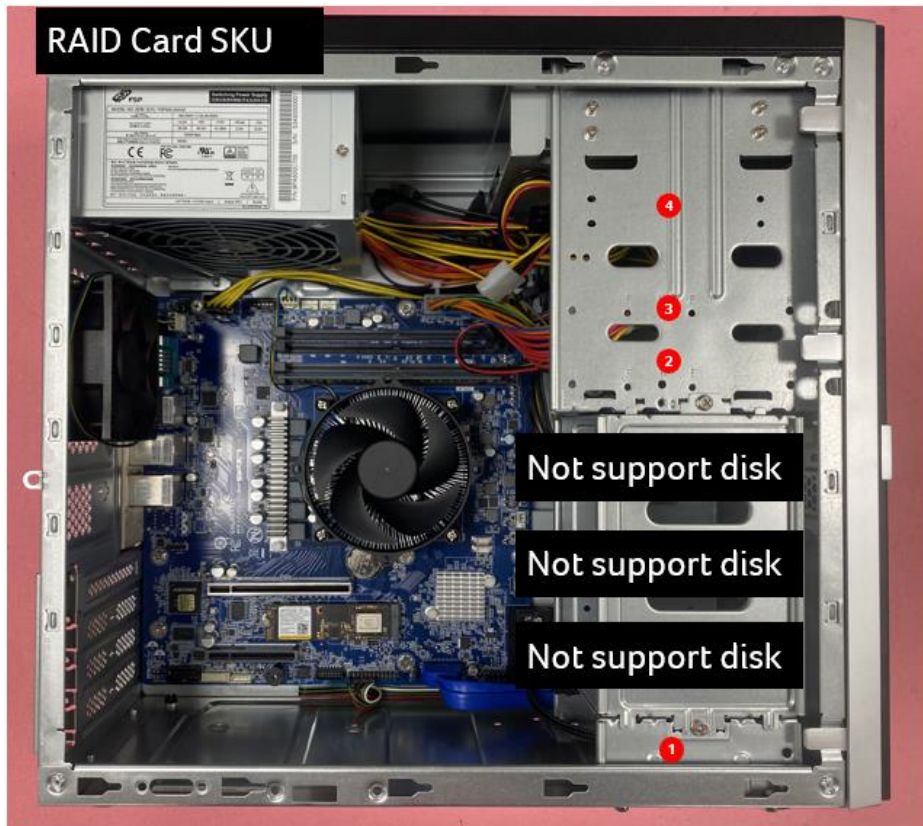
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- | | |
|---|---|
| 1 | 500W or 450W 80PLUS® PSU |
| 2 | 1 5.25-inch external accessible bay |
| 3 | 4 3.5-inch internal accessible bays (Optional 2.5-inch) |
| 4 | 80x80x25 mm System Fan |
| 5 | 4 DIMM DDR4 ECC UDIMM slots |
| 6 | Intel® Xeon® E-2400 Processor & Cooler |
| 7 | 1 PCIe 4.0 x16 slot, 1 PCIe 4.0 x8 slots(x4 wires) |
| 8 | 1 M.2 (2280) M-key slots, PCIe 4.0 x4 |
| 9 | Chassis intrusion |
-

HDD Sorting

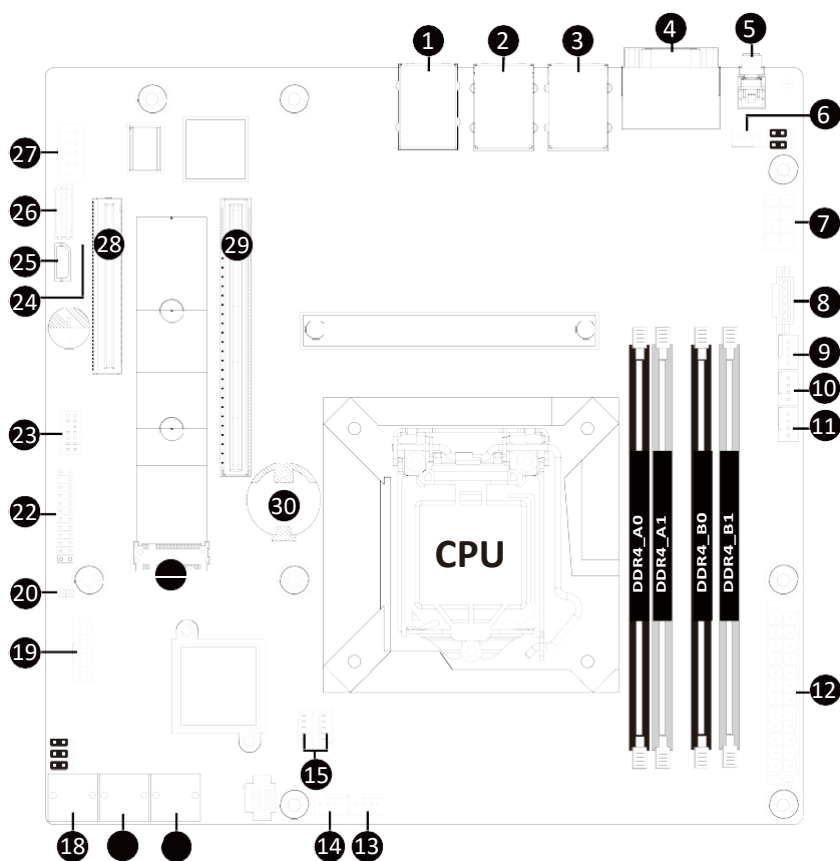
Normal SKU



RAID Card SKU

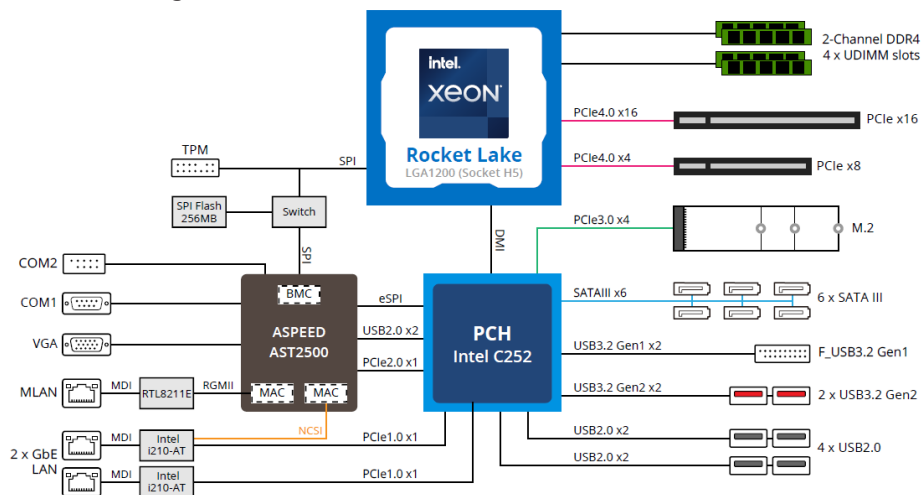


Motherboard



Item	Code	Description
1	USB3_MLAN	Server Management LAN Port (Top)/USB 3.2 Ports (Bottom)
2	USB2_LAN1	GbE LAN Port #1 (Top)/USB 2.0 Ports (Bottom)
3	USB2_LAN2	GbE LAN Port #2 (Top)/USB 2.0 Ports (Bottom)
4	COM1_VGA_1	Serial Port (Top)/VGA Port (Bottom)
5	SW_ID	ID Button with LED
6	SYS_FAN1	System Fan Connector #1
7	ATX_12V	2x4 Pin 12V Power Connector
8	PMBUS	PMBus Connector
9	CPU_FAN	CPU Fan Connector
10	SYS_FAN2	System Fan Connector #2
11	SYS_FAN3	System Fan Connector #3
12	ATX	2x12 Pin Main Power Connector
13	SYS_FAN5	System Fan Connector #5
14	SYS_FAN4	System Fan Connector #4
15	SATA_SGP2/SATA_SGP1	SATA SGPIO Connectors
16	SATA3_0_1	SATA III 6Gb/s Connectors
17	SATA3_2_3	SATA III 6Gb/s Connectors
18	SATA3_4_5	SATA III 6Gb/s Connectors
19	F_U32	Front Panel USB 3.2 Connector
20	CASE_OPEN	Case Open Intrusion Alert Header
21	M2P_SB	M.2 Slot (PCIe Gen3 x4, Support NGFF-2280)
22	TPM	TPM Connector
23	FP_1	Front Panel Header
24	LED_BMC1	BMC Firmware Readiness LED
25	IPMB	IPMB Connector
26	BP_1	HDD Back Plane Board Connector
27	COM2	Serial Port Cable Connector
28	PCIEx8_1	PCIe x8 Slot (Gen3 x4)
29	PCIEx16	PCIe x16 Slot (Gen3 x16)
30	BAT1	Battery Socket

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.

1-2 Motherboard Specifications



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

 Form Factor	♦ microATX ♦ 244W x 244D (mm)
 CPU	♦ Intel® Xeon® E-2300 series processors ♦ 11th Gen. Intel Pentium® processors ♦ CPU TDP up to 95W ♦ 1 x LGA 1200; Socket H5
 Chipset	♦ Intel® C252 Express Chipset
 Memory	♦ 4 x DIMM slots ♦ Dual channel memory architecture ♦ Supports 1.2V DDR4 memory ♦ ECC UDIMM modules supported ♦ Total capacity up to 128GB ♦ Supported speeds: 3200/2666 MHz
 LAN	♦ 2 x GbE LAN ports (Intel® I210-AT) ♦ 1 x 10/100/1000 management LAN
 Onboard Graphics	♦ Integrated in Aspeed® AST2500 ♦ 2D Video Graphic Adapter with PCIe bus interface ♦ 1920x1200@60Hz 32bpp, DDR4 SDRAM
 Audio	♦ In option
 Storage Interface	♦ 6 x SATA 6Gb/s ports
 RAID	♦ Intel® SATA RAID 0/1/10/5
 Expansion Slots	♦ 1 x PCIe x16 (Gen4 x16 bus) slot from CPU* ♦ 1 x PCIe x8 (Gen4 x4 bus) slot from CPU** * NOTE: Gen3 x16 supported if installed Intel Pentium® Processor ** NOTE: Function not available if installed Intel Pentium® Processor ♦ 1 x M.2 slot: - M-key - PCIe Gen3 x4 per slot - Supports NGFF-2280/2242 cards

	Internal I/O Connectors	♦ 1 x 24-pin ATX main power connector ♦ 1 x 8-pin ATX 12V power connector ♦ 6 x SATA III 6Gb/s ports ♦ 1 x M.2 slot ♦ 1 x CPU fan header ♦ 5 x System fan headers ♦ 1 x USB 3.2 Gen1 header ♦ 1 x COM2 header ♦ 1 x back panel connector ♦ 1 x TPM header ♦ 1 x Front panel header ♦ 1 x JTAG BMC header ♦ 1 x Case Open header ♦ 1 x BIOS recovery jumper ♦ 1 x ME recovery jumper ♦ 1 x ME update jumper ♦ 1 x Clear CMOS jumper ♦ 1 x S3 mask jumper ♦ 1 x IPMB connector ♦ 1 x PMBus connector ♦ 1 x Buzzer
	Rear I/O Connectors	♦ 1 x COM ♦ 1 x VGA ♦ 2 x RJ45 ♦ 1 x MLAN ♦ 2 x USB 3.2 Gen2 ♦ 4 x USB 2.0 ♦ 1 x ID switch
	TPM	♦ 1 x TPM Header with SPI Interface ♦ Optional TPM2.0 kit
	Board Management	♦ Aspeed® AST2500 Management Controller
	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.

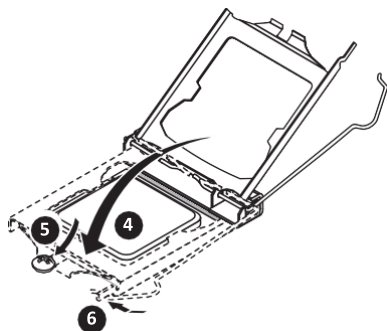
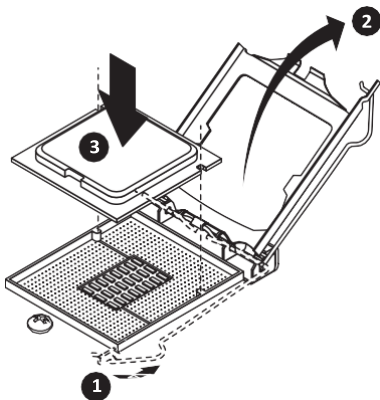


WARNING!

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 to unclip it.
2. Completely lift the CPU socket lever and the metal load plate will be lifted as well.
3. Hold the CPU with your thumb and index fingers. Align the CPU pin one (triangle marking) with the pin one corner of the CPU socket (or you may align the CPU notches with the socket alignment keys). Gently insert the CPU into position.
4. Once the CPU is properly inserted, carefully replace the load plate.
5. When replacing the load plate, make sure the front end of the load plate is under the shoulder screw. Then, remove the CPU cover.
6. **Note:** Save and replace the CPU cover if the processor is removed from its socket.
Secure the CPU socket lever.



1-4 Installing and Removing Memory

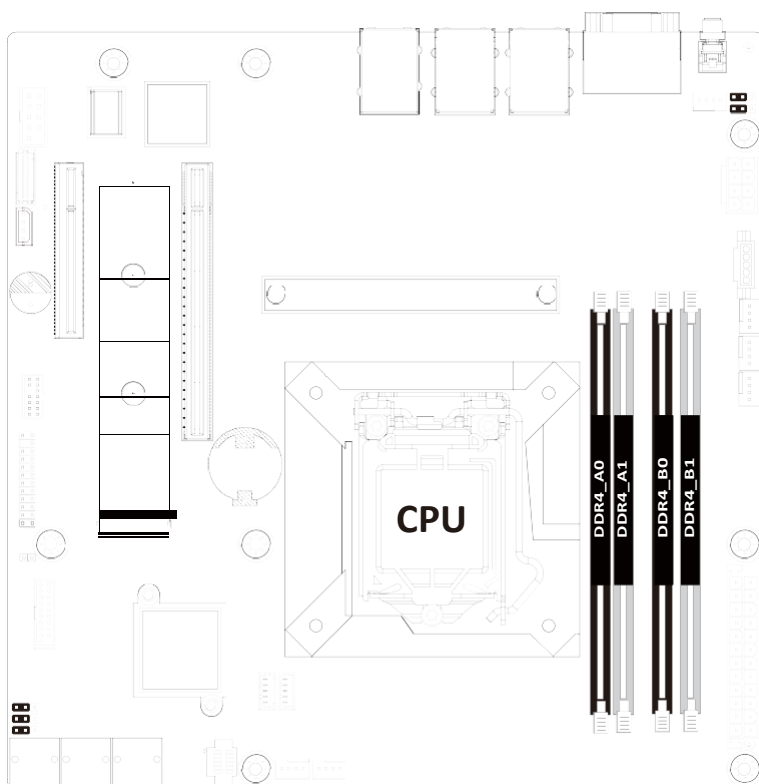


Read the following guidelines before you begin to install the memory:

- 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 DDR4 memory slots and supports 2-Channel Technology. After the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory.



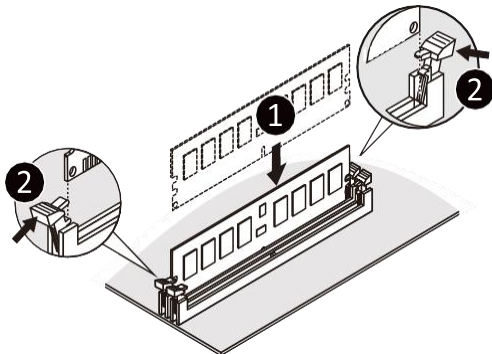
1-4-2 Installing and Removing a Memory Module



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.
Be sure to install DDR4 ECC UDIMMs on this motherboard.

Follow these instructions to install a UDIMM module:

1. Insert the UDIMM memory module vertically into the UDIMM slot and push it down.
2. Close the plastic clip at both edges of the UDIMM slots to lock the UDIMM module. Note: For dual-channel operation, UDIMMs must be installed in matched pairs.
3. Reverse the installation steps when you want to remove the UDIMM module.



Note: DIMM must be populated in sequential alphabetic order, starting with bank A0.

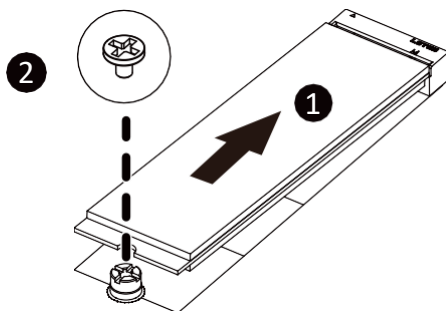
Type	DIMM Slots per Channel	DIMMs populated per channel	Supported Voltage	POR Speed (MT/s)	Ranks per DIMM (1R=one rank)	Mem DIMM Device	Maximum Memory Capacity
DDR4 ECC UDIMM	2	2	1.2V	2666/ 2933/ 3200	1R1R	1Rx8	64GB
	2	2		2666/ 2933	2R2R	2Rx8	128GB
	2	1		2666/ 2933/ 3200	1R0R	1Rx8	32GB
	2	1		2666/ 2933/ 3200	2R0R	2Rx8	64GB

1-5 Installing the M.2 SSD Module

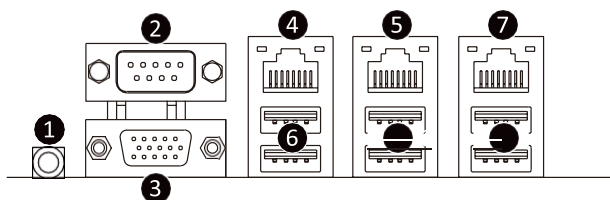
Follow the steps below to install a M.2 SSD module on your motherboard.

Step1. Insert the M.2 SSD module into the slot.

Step2. Secure it with the screw, tightening as necessary to fasten the M.2 SSD module in place.



1-6 Back Panel Connectors



1 ID button with LED

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

2 Serial Port

Connects to serial-based mouse or data processing devices.

3 VGA Port

Connect to a monitor device.

4 GbE LAN Port #2

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.

5 GbE LAN Port #1

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.

6 USB 2.0 Ports

The USB port supports the USB 2.0 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive etc.

7 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.

8 USB 3.2 Ports

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

LAN and ID Button LEDs

Speed LED

Link/Activity LED



LAN Port

10/100/1000 LAN LED:

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

ID button/LED:

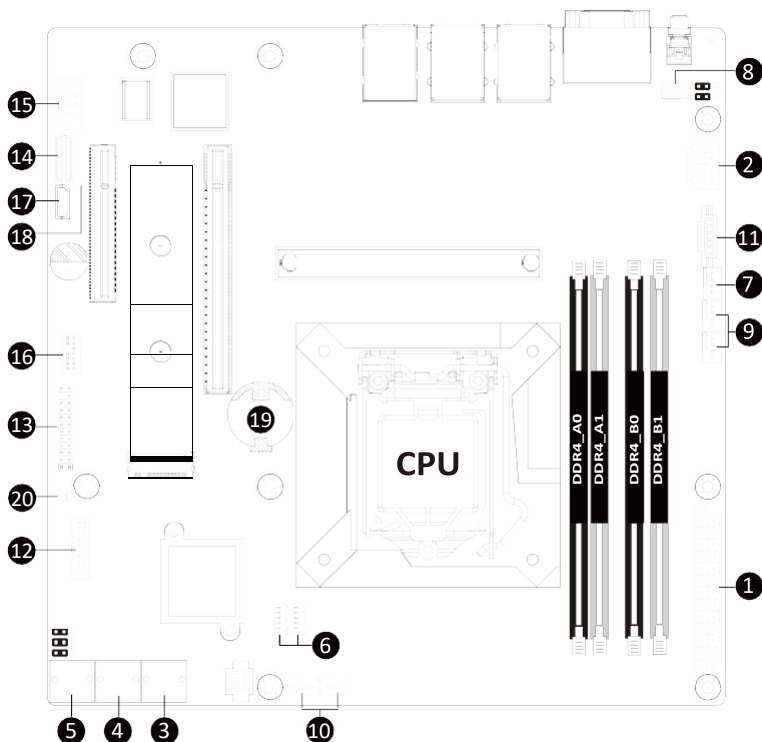
State	Description
Blue On	System identification is active
Off	System identification is disabled



- 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) ATX	11) PMBUS
2) ATX_12V	12) F_U32
3) SATA3_0_1	13) FP_1
4) SATA3_2_3	14) BP_1
5) SATA3_4_5	15) COM2
6) SATA_SGP2/SATA_SGP1	16) TPM
7) CPU_FAN	17) IPMB
8) SYS_FAN1	18) LED_BMC1
9) SYS_FAN2/3	19) BAT1
10) SYS_FAN4/5	20) CASE_OPEN



Read the following guidelines before connecting external devices:

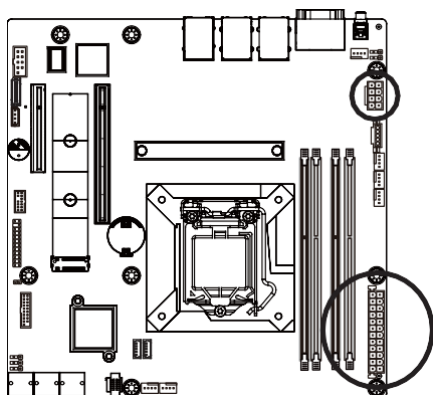
- First make sure your devices are compliant with the connectors you wish to connect.
- Before installing the devices, be sure to turn off the devices and your computer. Unplug the power cord from the power outlet to prevent damage to the devices.
- After installing the device and before turning on the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

1/2) ATX/ATX_12V (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



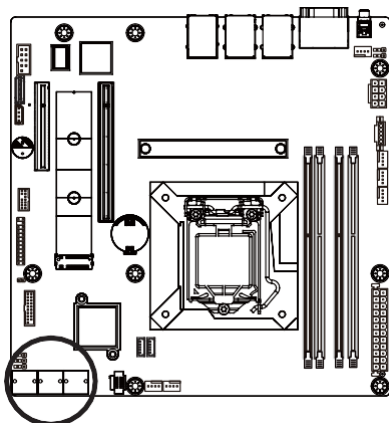
ATX

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	-5V
9	5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	3.3V	24	GND



3/4/5) SATA3_0_1/SATA3_2_3/SATA3_4_5 (SATA III 6Gb/s Connectors)

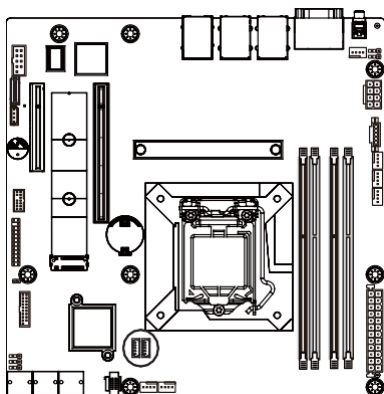
The SATA connectors conform to SATA III 6Gb/s standard and are compatible with SATA 3Gb/s standard. Each SATA connector supports a single SATA device.



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

6) SATA_SGP1/SATA_SGP2 (SATA SGPIO Connector)

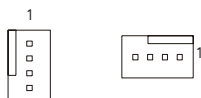
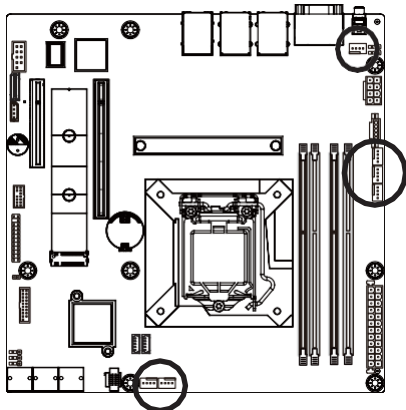
Serial General Purpose Input/Output (SGPIO) is a communication method used between a host bus adapter (HBA) and a main board.



Pin No.	Definition
1	Data
2	GND
3	NC
4	Load
5	Clock

7/8/9/10) CPU_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 two 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.



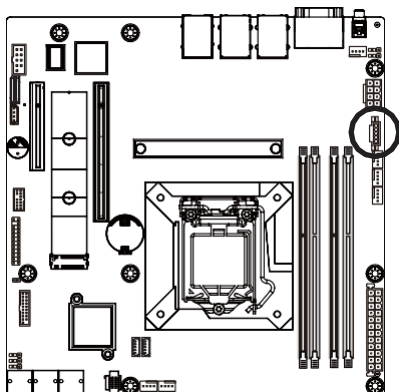
Pin No.	Definition
1	GND
2	+12V
3	Sense
4	Speed Control



- 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.

11) PMBus Connector

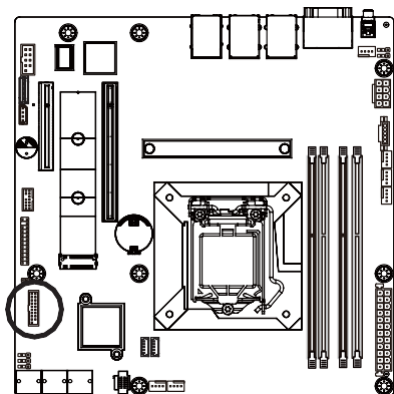
The Power Management Bus (PMBus) is a variant of the System Management Bus (SMBus) which is targeted at digital management of power supplies.



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

12) F_U32 (Front Panel USB 3.2 Connector)

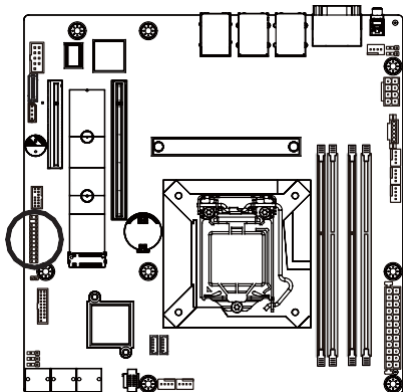
The header conform to USB 3.2 specification. Each USB header can provide two USB ports via an optional USB bracket. For purchasing the optional USB bracket, please contact the local dealer.



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

13) 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.

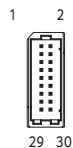
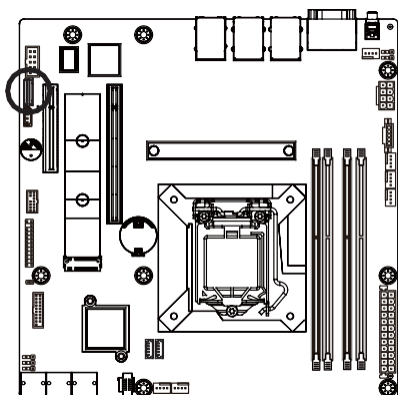


Pin No.	Definition	Pin No.	Definition
1	Power LED+	2	5V Standby
3	No Pin	4	ID LED+
5	Power LED-	6	ID LED-
7	HDD LED+	8	System Status LED (Green)
9	HDD LED-	10	System Status LED (Yellow)
11	Power Button	12	LAN1 Active LED+
13	GND	14	LAN1 Link LED-
15	Reset Button	16	SMBus Data
17	GND	18	SMBus Clock
19	ID Button	20	Case Open
21	GND	22	LAN2 Active LED+
23	NMI Switch	24	LAN2 Link LED-



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.

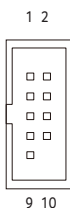
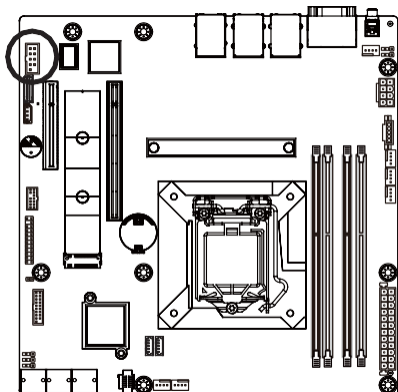
14) BP_1 (HDD Backplane Board Connector)



Pin No.	Definition	Pin No.	Definition
1	Reserved	2	BP_SGDIN
3	GND	4	BP_SGDOUT
5	BP_SGLD	6	GND
7	BP_SGCLK	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	Reserved	22	GND
23	Reserved	24	GND
25	Reserved	26	GND
27	Reserved	28	GND
29	P3V3_AUX	30	P3V3_AUX

15) COM2 (Serial Port Cable Connector)

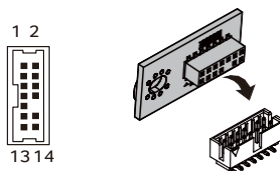
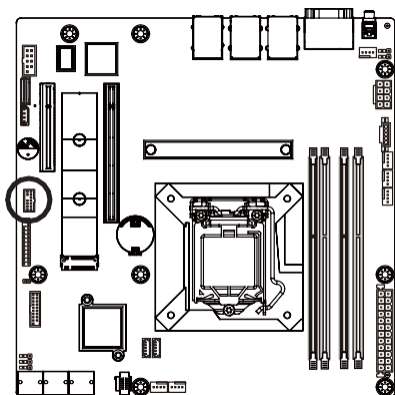
The COM header can provide one serial port via an optional COM port cable. For purchasing the optional COM port cable, please contact the local dealer.



Pin No.	Definition
1	NDCDB_N
2	NSINB
3	NSOUTB
4	NDTRN
5	GND
6	NDSRB_N
7	NRTSB_N
8	NCTSB_N
9	NRIB_N
10	Key

16) TPM (Trusted Platform Module Connector)

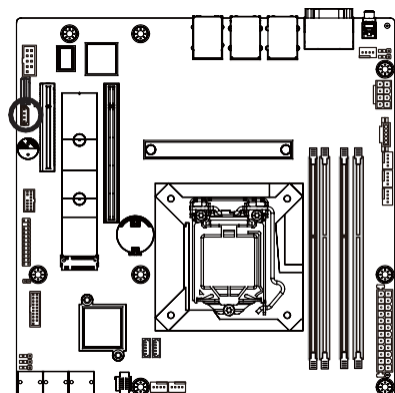
Trusted Platform Module (TPM) is an international standard for a secure cryptoprocessor, a dedicated microcontroller designed to secure hardware through integrated cryptographic keys.



Pin No.	Definition	Pin No.	Definition
1	SPI_TPM_CLK	8	NC
2	P_3V3_AUX	9	NC
3	RST_PLTRST	10	Key
4	VCC3	11	NC
5	SPI_TPM_MISO	12	GND
6	IRQ_TPM_SPI	13	SPI_CS_TPM
7	SPI_TPM_MOSI	14	GND

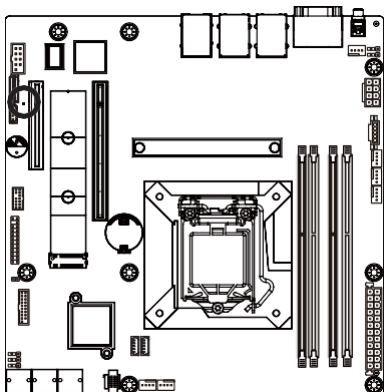
17) IPMB (Intelligent Platform Management Bus) Connector

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	Data
3	GND
4	VCC

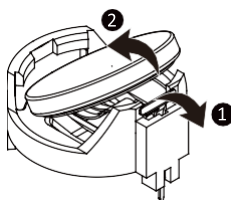
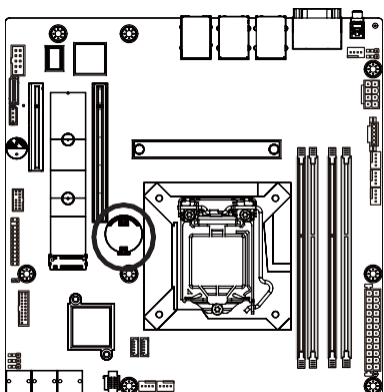
18) LED_BMC1 (BMC Firmware Readiness LED)



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

19) BAT1 (Battery Socket)

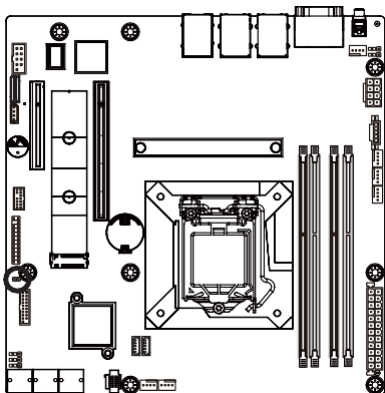
The battery provides power to keep the values (such as BIOS configurations, date, and time information) in the CMOS when the computer is turned off. Replace the battery when the battery voltage drops to a low level, or the CMOS values may not be accurate or may be lost.



- 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.

20) CASE_OPEN (Case Open Intrusion Alert Header)

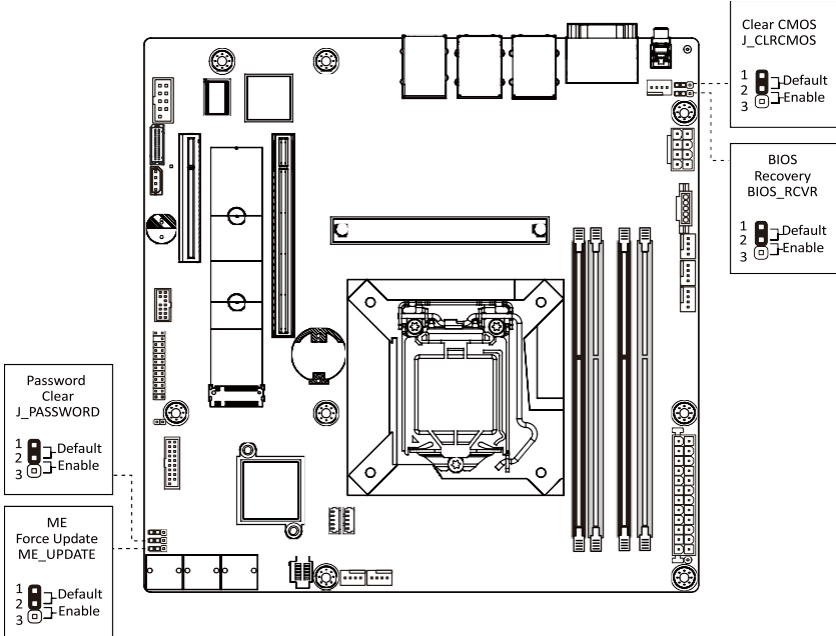
This motherboard provides a chassis detection feature that detects if the chassis cover has been removed. This function requires a chassis with chassis intrusion detection design.



□ □ Open: Normal Operation (Default) □ □

Closed: Active Chassis Intrusion Alert

1-8 Jumper Settings



Jumper Name	Jumper Setting
ME Force Update	1-2: Normal operation (Default) 2-3: Enable ME Force Update
Password Clear	1-2: Normal operation (Default) 2-3: Clear administrator and user passwords
Clear CMOS	1-2: Normal operation (Default) 2-3: Clear CMOS data
BIOS Recovery	1-2: Normal operation (Default) 2-3: Enable BIOS Recovery

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 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
<□><i>	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 Platform Controller Hub.

■ **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

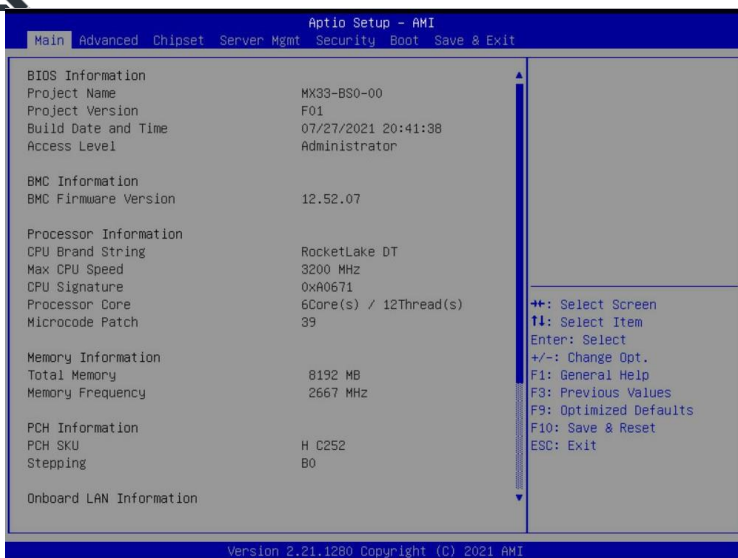
The on-screen description of a highlighted setup option is displayed on the bottom line of the Main Menu.

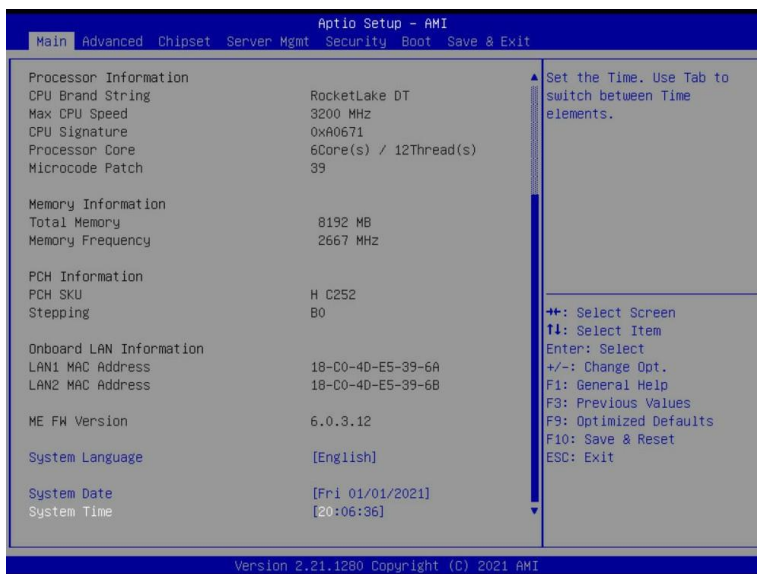
Submenu Help

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.





Parameter	Description
Access Level	Display 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/ Max CPU Speed / CPU Signature / Processor Core / Microcode Patch	Displays the technical information 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.
PCH Information	
PCH SKU	Displays the technical information for the installed PlatformController Hub (PCH).

(Note1) Functions available on selected models..

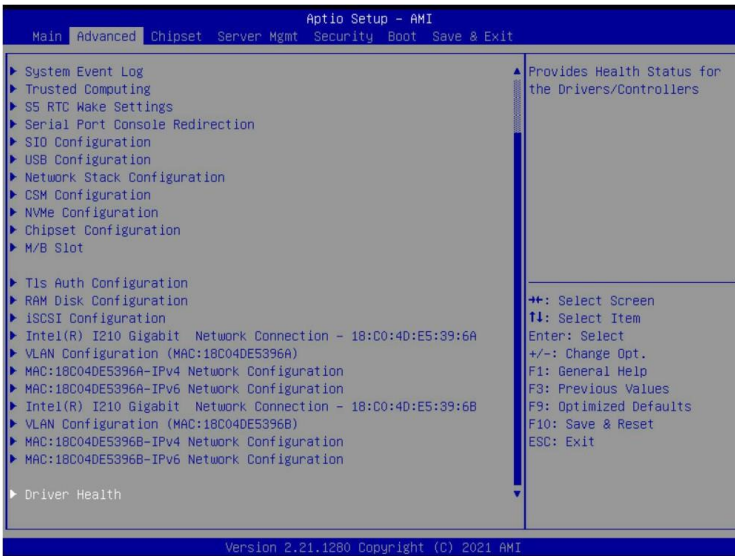
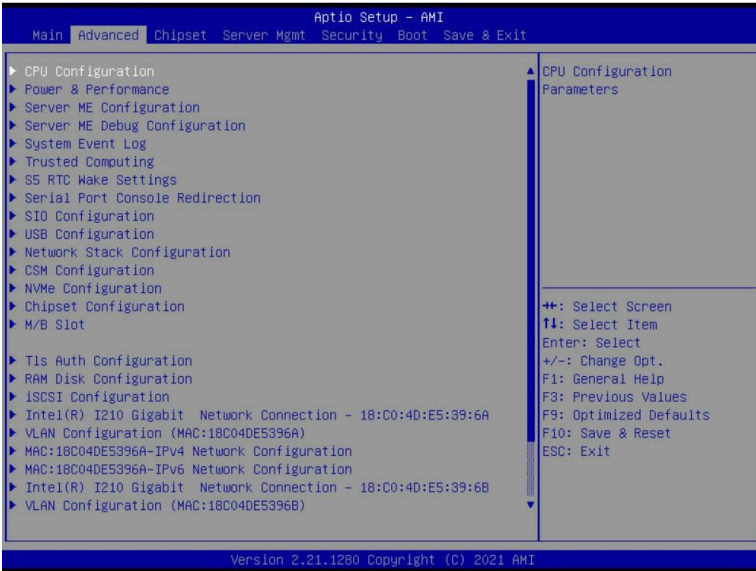
(Note2) This section will display capacity and frequency information of the memory that the customer has installed.

Parameter	Description
ME Firmware Information	
ME FW Version	Displays the ME firmware version information.
Onboard LAN Information	
LAN1 MAC Address ^(Note)	Displays LAN MAC address information.
LAN2 MAC Address ^(Note)	Displays LAN MAC address information.
System Date	Sets the date following the weekday-month-day-year format.
System Time	Sets the system time following the hour-minute-second format.

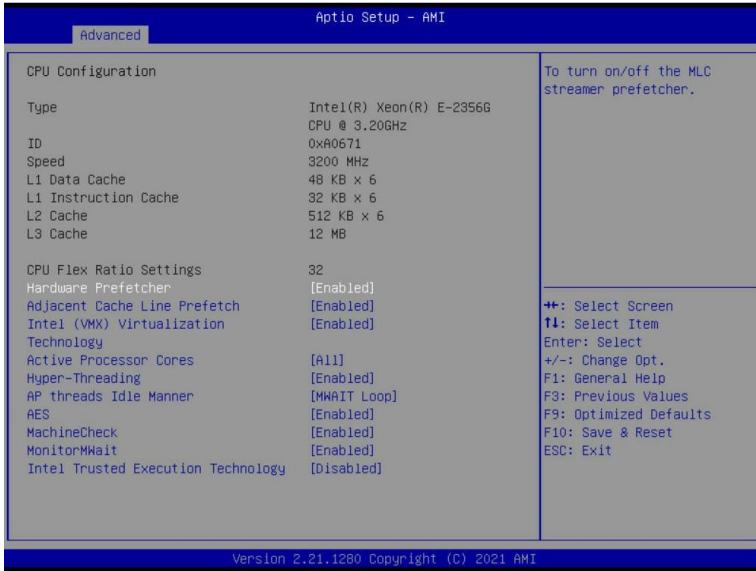
(Note) The number of LAN ports listed will depend on the motherboard / system model.

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 CPU Configuration



Parameter	Description
CPU Configuration	
Type/ID/Speed/L1 Data Cache/ L1 Instruction Cache/L2 Cache/L3 Cache/CPU Flex Ratio Settings	Displays the technical information for the installed processor(s).
Hardware Prefetcher	Enable/Disable this item to turn on/off the MLC streamer prefetcher.Options available: Disabled, Enabled. Default setting is Enabled .
Adjacent Cache Line Prefetch	When enabled, cache lines are fetched in pairs. When disabled, onlythe required cache line is fetched. Options available: Disabled, Enabled. Default setting is Enabled .
Intel (VMX) Virtualization Technology	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology. Options available: Disabled, Enabled. Default setting is Enabled .
Active Processor Cores	The Number of Cores to enable in each processor package.Options available: All, 1, 2, 3, 4, 5. Default setting is All .
Hyper-Threading	Enable/Disable the Hyper-Threading Technology. Options available: Disabled, Enabled. Default setting is Enabled .
AP threads Idle Manner	Options available: HALT Loop, MWAIT Loop, RUN Loop. Default setting is MWAIT Loop .

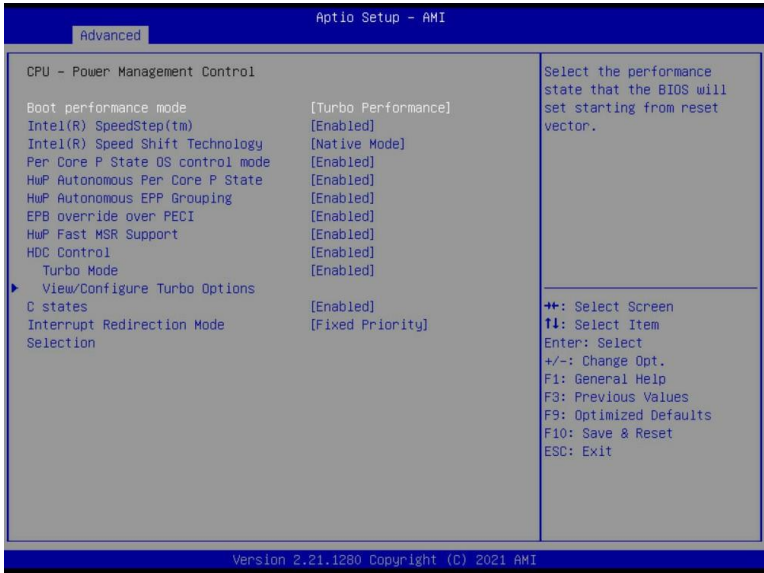
Parameter	Description
AES	Options available: Disabled, Enabled. Default setting is Enabled .
MachineCheck	Options available: Disabled, Enabled. Default setting is Enabled .
MonitorMWait	Options available: Disabled, Enabled. Default setting is Enabled .
Intel Trusted Execution Technology	Enables utilization of additional hardware capabilities provided by Intel(R) Trusted Execution Technology. Changes requires a full powercycle to take effect. Options available: Disabled, Enabled. Default setting is Disabled .

2-2-2 Power & Performance



Parameter	Description
Power & Performance	
CPU-Power Management Control	Press [Enter] to configure advanced items.

2-2-2-1 CPU-Power Management Control



Parameter	Description
CPU-Power ManagementControl	
Boot performance mode	Selects the performance state that the BIOS will set starting from reset vector. Options available: Max Battery, Max Non-Turbo performance, Turbo Performance. Default setting is Turbo Performance.
Intel(R) SpeedStep(tm)	Allows more than two frequency ranges to be supported. Options available: Disabled, Enabled. Default setting is Enabled.
Intel(R) Speed Shift Technology	Enable/Disable Intel(R) Speed Shift Technology support. Options available: Disabled, Native Mode, Out of Band Mode. Default setting is Native Mode.
Per Core P State OS control mode	Enable/Disable Per Core P state OS control mode. Options available: Disabled, Enabled. Default setting is Enabled.
HwP Autonomous Per Core PState	Enable/Disable Autonomous Per Core P State control. Options available: Disabled, Enabled. Default setting is Enabled.
HwP Autonomous EPP Grouping	Enable/Disable EPP Grouping. Options available: Disabled, Enabled. Default setting is Enabled.
EPB override over PECI	Enable/Disable EPB override over PECI. Options available: Disabled, Enabled. Default setting is Enabled.

Parameter	Description
HwP Fast MSR Support	Enable/Disable HwP Fast MSR Support for IA32_HWP_REQUESTMSR. Options available: Disabled, Enabled. Default setting is Enabled .
HDC Control	When Enabled, it can be enabled by OS if OS native support is available. Options available: Disabled, Enabled. Default setting is Enabled .
Turbo Mode	Enable/Disable processor Turbo mode (requires EMTM enabled).Options available: Disabled, Enabled. Default setting is Enabled .
View/Configure Turbo Options	Press [Enter] to view/configure Turbo Options. ◆ Turbo Ratio Limit Options – Press [Enter] to view/configure Turbo Ratio Limit Options. ◆ Power Limit 1 Override – Enable/Disable Power Limit 1 override. If this option is disabled, BIOS will program the default values for Power Limit 1 and Power Limit 1 Time Window. – Options available: Disabled, Enabled. Default setting is Disabled. ◆ Power Limit 2 Override – Enable/Disable Power Limit 2 override. If this option is disabled, BIOS will program the default values for Power Limit 2. – Options available: Disabled, Enabled. Default setting is Enabled. ◆ Power Limit 2 – Configures PL2 power limit in Watts. ◆ Energy Efficient Turbo – Enable/Disable Energy Efficient Turbo feature. This feature will opportunistically lower the turbo frequency to increase efficiency. Recommended only to disable in overclocking situations where turbo frequency must remain constant. Otherwise, leave enabled. – Options available: Disabled, Enabled. Default setting is Enabled. ◆ Turbo Configuration – To change the PL2 and Tau to mitigate the thermal throttling event storm. – Options available: Max Transient Turbo, 1.2x TDP. Default setting is Max Transient Turbo.
C States	Enable/Disable CPU Power Management. Options available: Disabled, Enabled. Default setting is Enabled .
Interrupt Redirection Mode Selection	Selects the Interrupt Redirection Mode for Logical Interrupts. Options available: Fixed Priority, Round robin, Hash Vector, No Change. Default setting is Fixed Priority .

2-2-3 Server ME Configuration

Aptio Setup - AMI

Advanced

General ME Configuration	
Oper. Firmware Version	17:6.0.3.12
Backup Firmware Version	N/A
Recovery Firmware Version	17:6.0.3.12
ME Firmware Status #1	0x00000355
ME Firmware Status #2	0x8950C007
Current State	Operational
Error Code	No Error
Recovery Cause	N/A
Altitude	8000
MDTP Bus Owner	0
Server ME firmware features list	
SiEn	
NodeManager	
PECIPProxy	
ICC	
MeStorageServices	
BootGuard	
PmBusProxy	
HSIO	
PCHDebug	
PowerThermalUtility	
PCHThermalSensorInit	
DeepSx	
DirectMeUpdate	

The altitude of the platform location above the sea level, expressed in meters. The hex number is decoded as 2's complement signed integer. Provide the 8000h value if the altitude is unknown.

++: Select Screen
T: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save & Reset
ESC: Exit

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Aptio Setup - AMI

Advanced

Server ME firmware features list	
SiEn	
NodeManager	
PECIPProxy	
ICC	
MeStorageServices	
BootGuard	
PmBusProxy	
HSIO	
PCHDebug	
PowerThermalUtility	
PCHThermalSensorInit	
DeepSx	
DirectMeUpdate	
TelemetryHub	
Power Supply Units Status	
PSU #1	N/A
PSU #2	N/A
PSU #3	N/A
PSU #4	N/A
Power Supply Units Configuration	
PSU #1	58
PSU #2	59
PSU #3	0
PSU #4	0

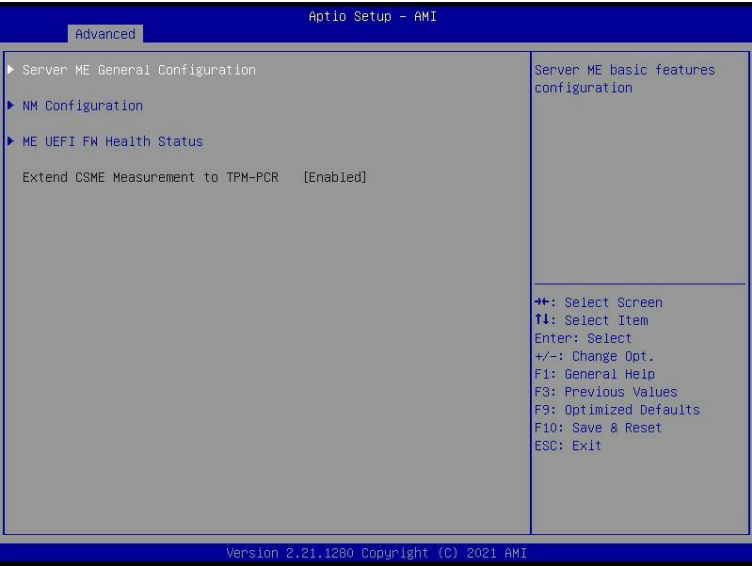
PMBus address (7-bit) that will be used to retrieve the status of PSU #4, use zero to disable query

++: Select Screen
T: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save & Reset
ESC: Exit

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Parameter	Description
General ME Configuration	
Oper./Backup/RecoveryFirmware Version	Displays the ME firmware version information.
ME Firmware Status 1/2	Displays the ME firmware status 1/2 information.
Current State/Error Code/Recovery Cause	Displays the ME firmware information of Current State/Error Code/Recovery Cause.
Altitude	The altitude of the platform location above the sea level, expressed in meters. The hex number is decoded as 2's complement signed integer. Provide the 8000h value if the altitude is unknown.
MCTP Bus Owner	MCTP bus owner location on PCIe: [15:8] bus, [7:3] device, [2:0]function. If all zeros sending bus owner is disabled.
Server ME firmware features list	Displays the ME firmware features list.
Power Supply units Status	Displays the power supply units status information.
Power Supply Units Configuration	PMBus address (7-bit) that will be used to retrieve the status of PSU#,use zero to disable query.

2-2-4 Server ME Debug Configuration



Parameter

Description

Server ME General Configuration

- Press [Enter] to configure advanced items.
- ◆ ME Initialization Complete Timeout
 - This option defines how long BIOS waits for ME to initialize.
 - ◆ Enable HSIO Messaging
 - Options available: Disabled, Enabled. Default setting is **Disabled**.
 - ◆ DRAM Init Done Enable
 - Options available: Disabled, Enabled. Default setting is **Enabled**.
 - ◆ DRAM Initialization Status
 - Options available: Auto-true status, 0-Success, 1-No memory in Channels, 2-Memory Init Error. Default setting is **Auto-true status**.
 - ◆ DRAM Init Done Enable
 - Options available: Disabled, Enabled. Default setting is **Enabled**.
 - ◆ Host Reset Warning
 - Options available: Disabled, Enabled. Default setting is **Disabled**.
 - ◆ Pre-DramInitDone ME Reset
 - Options available: Disabled, Enabled. Default setting is **Disabled**.

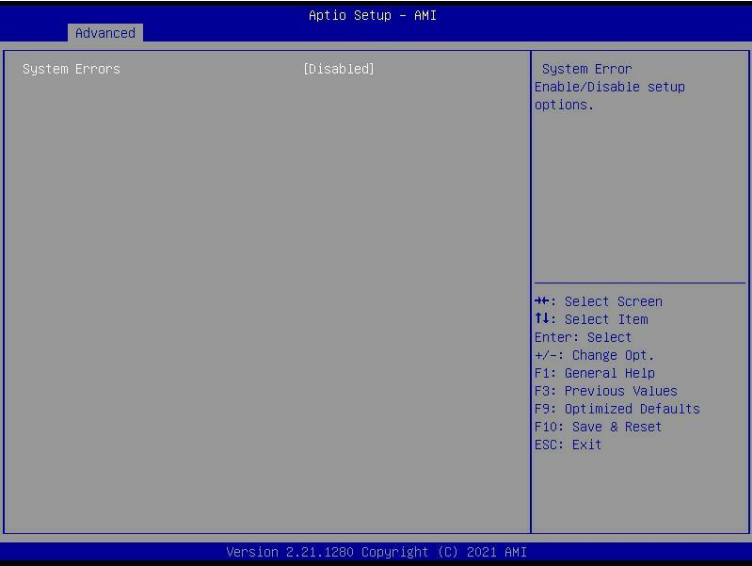
Parameter	Description
Server ME General Configuration (Continued)	♦ Override ICC Clock Settings – ICC Clock Spread Spectrum. » Options available: Disabled, Enabled. Default setting is Enabled. ♦ HMRFPO via HECI-3 – Options available: Disabled, Enabled. Default setting is Disabled. ♦ HMRFPO_LOCK Message – Options available: Disabled, Enabled. Default setting is Enabled. ♦ HMRFPO_ENABLE Message^(Note) – Options available: Disabled, Enabled. Default setting is Disabled. ♦ Region selector – Options available: Intel ME region, Region 13. Default setting is Intel ME region. ♦ END_OF_POST Message – Options available: Disabled, Enabled. Default setting is Enabled. ♦ REGION_SELECT Message^(Note) – Options available: Disabled, Enabled. Default setting is Disabled. ♦ WATCHDOG_CONTROL Message – Options available: Disabled, Enabled. Default setting is Enabled. ♦ Disable WATCHDOG in SPS – Options available: Disabled, Enabled. Default setting is Disabled. ♦ ARB SVN Commit Message – Options available: Disabled, Enabled. Default setting is Disabled. ♦ CF9 global reset promotion – Options available: Disabled, Enabled. Default setting is Disabled. ♦ Global Reset Lock – Options available: Disabled, Enabled. Default setting is Enabled. ♦ HECI-1/2/3/4 Enable – Options available: Disabled, Enabled, Auto. Default setting is Auto. ♦ IDer Enable – Options available: Disabled, Enabled, Auto. Default setting is Auto.

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

Parameter	Description
Server ME General Configuration (Continued)	♦ HECI-1/2/3/4 Hide in ME – Options available: Off, Hide, Disabled. Default setting is Off. ♦ DOI3 Setting for HECI Disable – Options available: Disabled, Enabled. Default setting is Disabled. ♦ Break RTC Configuration – Options available: Disabled, Enabled. Default setting is Disabled. ♦ Core Bios Done Message – Options available: Disabled, Enabled. Default setting is Enabled. ♦ Delayed Authentication Mode (DAM) Override^(Note) – Options available: Disabled, Enabled. Default setting is Disabled. ♦ Delayed Authentication Mode (DAM) – Options available: Disabled, Enabled. Default setting is Disabled. ♦ MCTP Broadcast Cycle – Options available: Disabled, Enabled. Default setting is Enabled.
NM Configuration	Press [Enter] to configure advanced items. ♦ Power Measurement Override – Options available: Disabled, Enabled. Default setting is Disabled. ♦ Power Measurement^(Note) – Options available: Disabled, Enabled. Default setting is Disabled. ♦ Hardware Change Override – Options available: Disabled, Enabled. Default setting is Disabled. ♦ Hardware Change^(Note) – Options available: No, Yes. Default setting is No. ♦ PTU Load Override – Options available: Disabled, Enabled. Default setting is Disabled.
ME UEFI FW Health Status	Press [Enter] to view the information of ME firmware status.

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

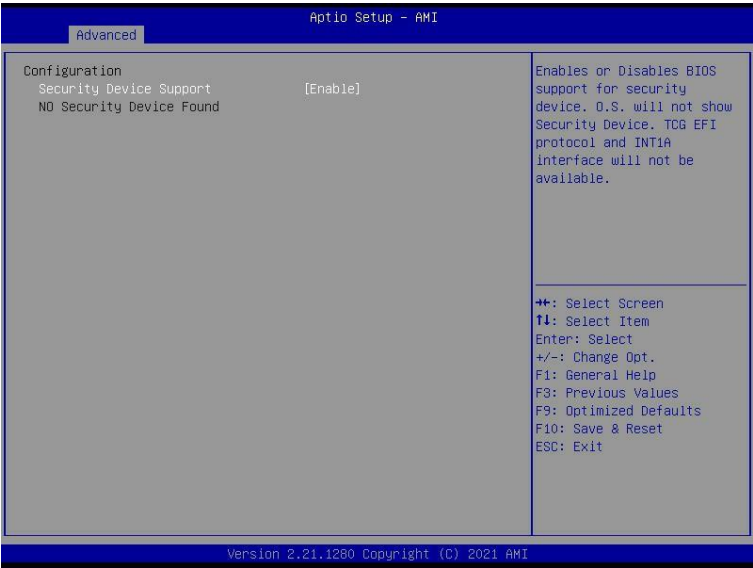
2-2-5 System Event Log



Parameter	Description
System Errors ^(Note)	Options available: Disabled, Enabled. Default setting is Disabled .
Whea Driver Support	Enable/Disable Whea Driver Support. Options available: Disabled, Enabled. Default setting is Disabled .
Memory Error Enabling	Press [Enter] to configure advanced items. ◆ Memory corrected Error enabling – Options available: Disabled, Enabled. Default setting is Disabled. ◆ Memory uncorrected Error enabling – Options available: Disabled, Enabled. Default setting is Disabled.
PCH Error Enable	Options available: No, Yes. Default setting is No .

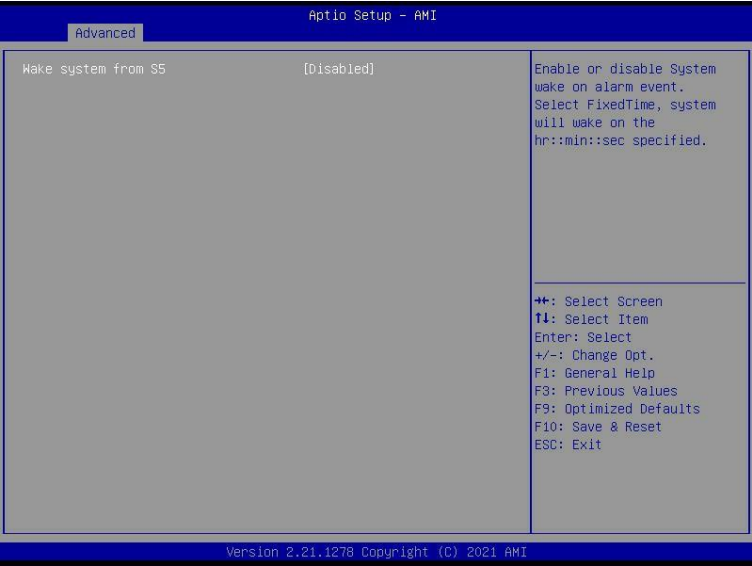
(Note) Advanced items prompt when this item is defined.

2-2-6 Trusted Computing



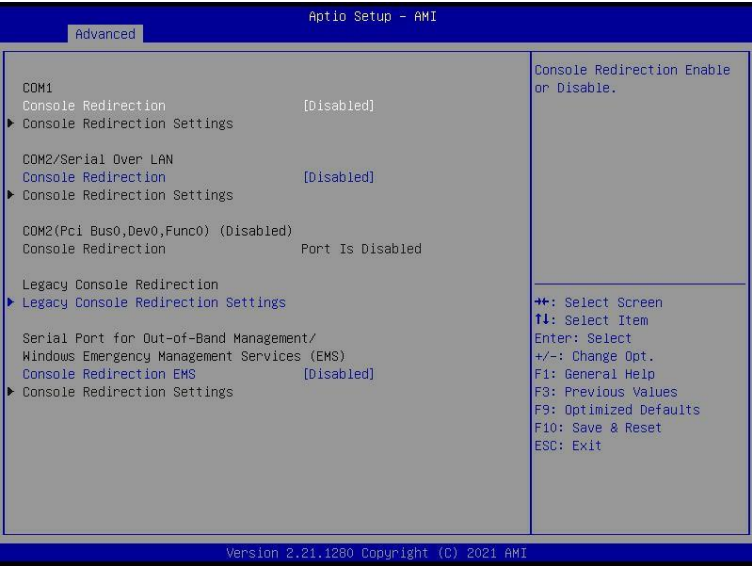
Parameter	Description
Configuration	
Security Device Support	Enable/Disable BIOS support for security device. OS will not show security device. TCG EFI protocol and INT1A interface will not be available. Options available: Enable, Disable. Default setting is Enable .

2-2-7 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 .

2-2-8 Serial Port Console Redirection



Parameter	Description
COM Console Redirection ^(Note)	Console redirection enables the users to manage the system from a remote location. Options available: Enabled, Disabled. 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, VT100+, ANSI, VT-UTF8. Default settings is VT100+. - 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 stopbit. – 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 usestwo 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: Enabled, Disabled. Default setting is Enabled. ◆ Recorder Mode – When this mode enabled, only texts will be send. This is to capture Terminal data. – Options available: Enabled, Disabled. Default setting is Disabled. ◆ Resolution 100x31 – Enable/Disable extended terminal resolution. – Options available: Enabled, Disabled. Default setting is Enabled. ◆ Putty KeyPad – Selects FunctionKey and KeyPad on Putty. – Options available: VT100, LINUX, XTERMR6, SCO, 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: Enabled, Disabled. 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, VT100+, ANSI, VT-UTF8. Default settings is VT100+. ◆ Bits per second EMS – Selects the transfer rate for console redirection. – Options available: 9600, 19200, 57600, 115200. Default setting is 115200.

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

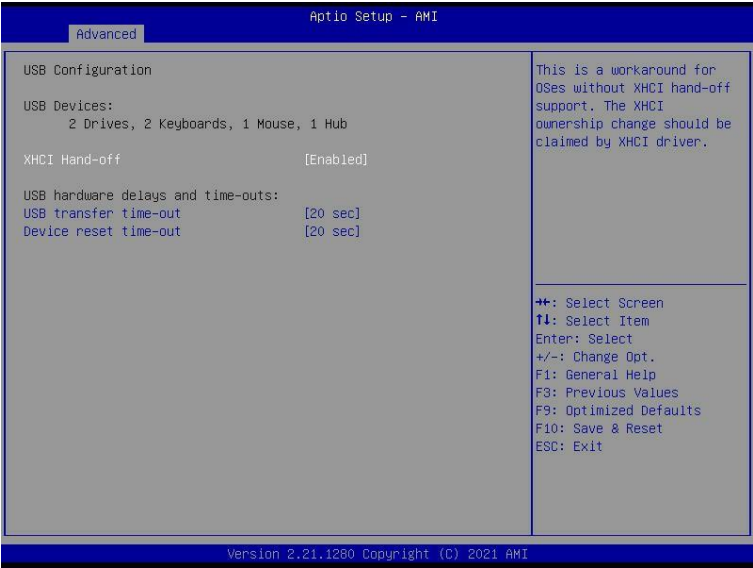
Parameter	Description
Serial Port for Out-of-Band EMS Console Redirection Settings(continued)	♦ Flow Control EMS – Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty,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

2-2-9 SIO Configuration



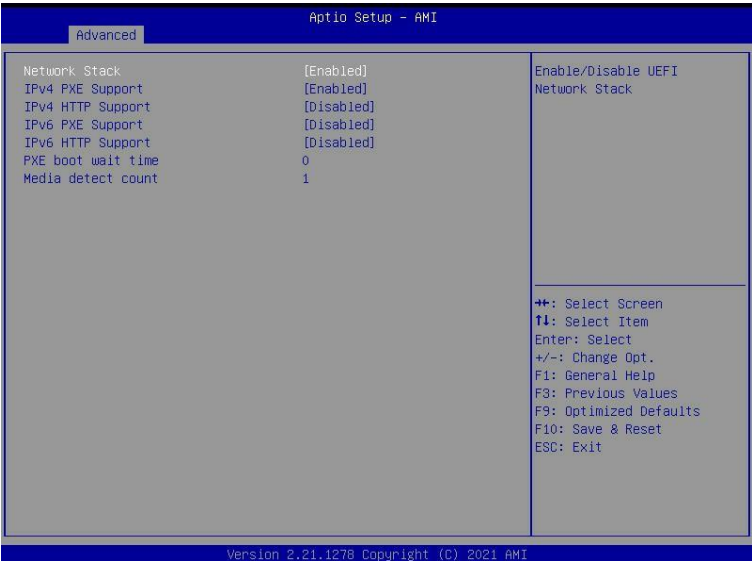
Parameter	Description
AMI SIO Driver Version	Displays the AMI SIO driver version information.
Super IO Chip Logical Device(s) Configuration	Press [Enter] to configure advanced items.
[*Active*] Serial Port 1/2	◆ Use This Device – When set to Enabled allows you to configure the serial port settings. When set to Disabled, displays no configuration for the serial port. – Options available: Enabled, Disabled. Default setting is Enabled. ◆ Current: – Displays the serial port base I/O address and IRQ. ◆ Possible: – Configures the serial port base I/O address and IRQ.
	Use Automatic Settings IO=3F8h; IRQ=4; DMA; IO=3F8h; IRQ=4; DMA; IO=2F8h; IRQ=4; DMA; IO=3E8h; IRQ=4; DMA; IO=2E8h; IRQ=4; DMA; Default setting is Use Automatic Settings .

2-2-10 USB Configuration



Parameter	Description
USB Configuration	
USB Devices:	Displays the USB devices connected to the system.
XHCI Hand-off	Enable/Disable the XHCI (USB 3.0) Hand-off support. Options available: Disabled, Enabled. Default setting is Enabled .
USB hardware delays and time-outs	
USB transfer time-out	Select 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	Select 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 .

2-2-11 Network Stack Configuration



Parameter	Description
Network Stack	Enable/Disable the UEFI network stack. Options available: Enabled, Disabled. Default setting is Enabled .
Ipv4 PXE Support	Enable/Disable the Ipv4 PXE feature. Options available: Enabled, Disabled. Default setting is Enabled .
Ipv4 HTTP Support	Enable/Disable the Ipv4 HTTP feature. Options available: Enabled, Disabled. Default setting is Disabled .
Ipv6 PXE Support	Enable/Disable the Ipv6 PXE feature. Options available: Enabled, Disabled. Default setting is Enabled .
Ipv6 HTTP Support	Enable/Disable the Ipv6 HTTP feature. Options available: Enabled, Disabled. Default setting is Disabled .
PXE boot wait time	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	Number of times the presence of media will be checked. Press the <+> / <-> keys to increase or decrease the desired values.

2-2-12 CSM Configuration



Parameter	Description
Compatibility Support Module Configuration	
CSM Support ^(Note)	Options available: Enabled, Disabled. Default setting is Disabled .
Boot option filter	Options available: UEFI and Legacy, Legacy only, UEFI only. Default setting is UEFI only .
Option ROM execution - Network/Storage/Video/ Other PCI devices	Options available: Do not launch, UEFI, Legacy. Default setting is UEFI .

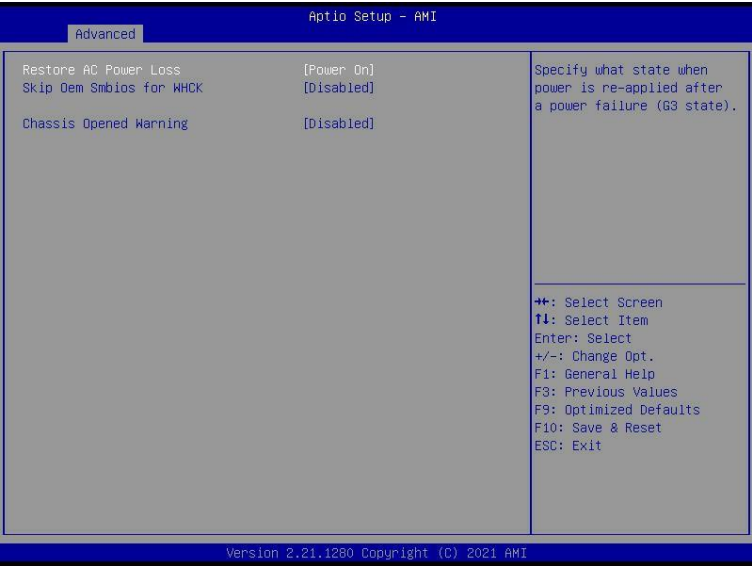
(Note) Advanced items prompt when this item is defined.

2-2-13 NVMe Configuration



Parameter	Description
NVMe Configuration	Displays the NVMe devices connected to the system.

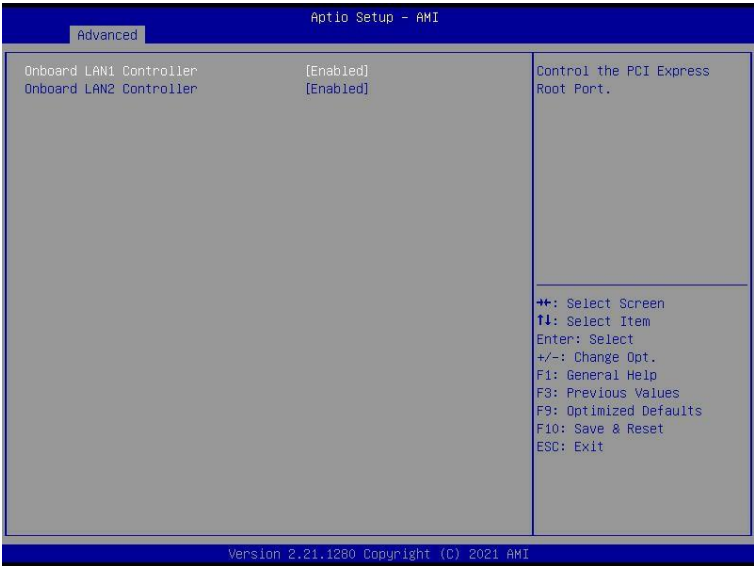
2-2-14 Chipset Configuration



Parameter	Description
Restore on AC Power Loss ^(Note)	Defines the power state to resume to after a system shutdown that is due to an interruption in AC power. When set to Last State, the system will return to the active power state prior to shutdown. When set to Power Off, the system remains off after power shutdown. Options available: Last State, Power Off, Power On, Unspecified. The default setting depends on the BMC setting.
Skip Oem smbios for WHK	Options available: Enabled, Disabled. Default setting is Disabled .
Chassis Opened Warning	Enable/Disable the chassis intrusion alert function. Options available: Enabled, Disabled, Clear. Default setting is Disabled .

(Note) When the power policy is controlled by BMC, please wait for 15-20 seconds for BMC to save the last power state.

2-2-15 M/B Slot



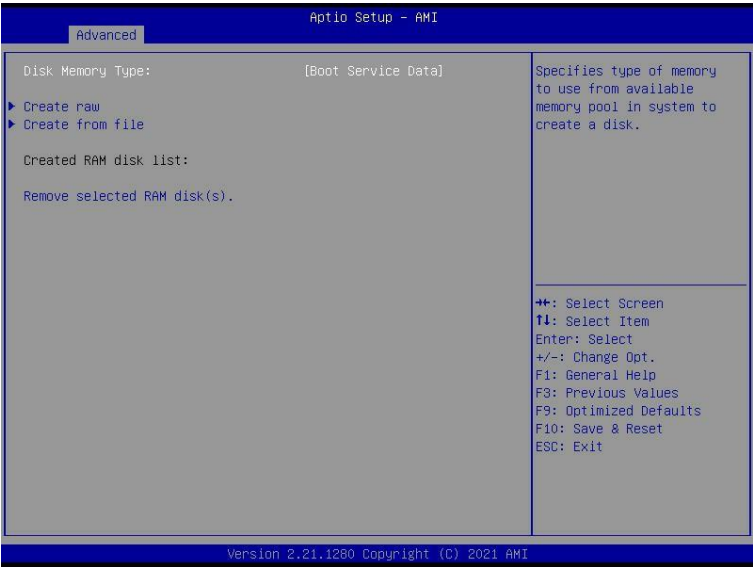
Parameter	Description
Onboard LAN 1/2 Controller	Options available: Enabled, Disabled. Default setting is Disabled .

2-2-16Tls Auth Configuration



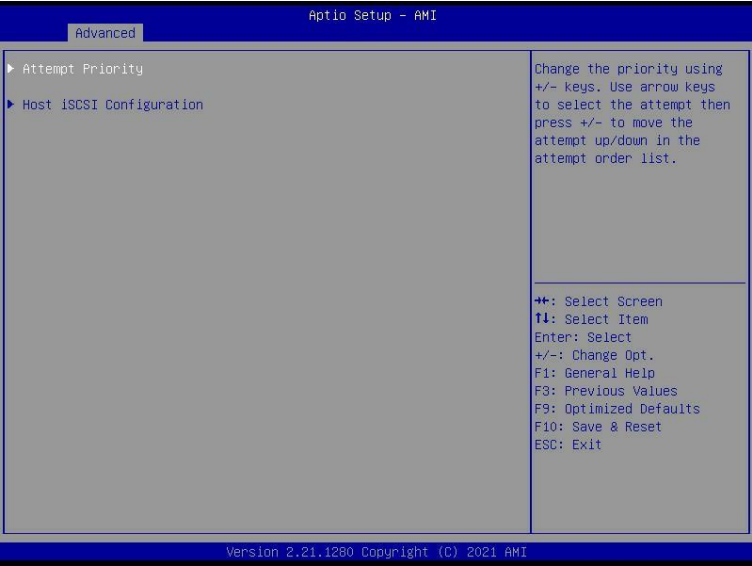
Parameter	Description
Server CA Configuration	Press [Enter] for configuration of advanced items. ◆ Enroll Cert – Press [Enter] to enroll a certificate • Enroll Cert Using File • Cert GUID - Input digit character in 1111111-2222-3333-4444-1234567890ab format. – Commit Changes and Exit – Discard Changes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

2-2-17 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 BootService Data.
Create raw	◆ Size (Hex) – The valid RAM disk size should be multiples of the RAM disk blocksize. Default setting is 1. ◆ Create & Exit ◆ Discard & Exit
Create from file	To create a RAM disk from a file.
Create RAM Disk List	
Remove selected RAM disk(s)	To delete the RAM disk(s).

2-2-18 iSCSI Configuration



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

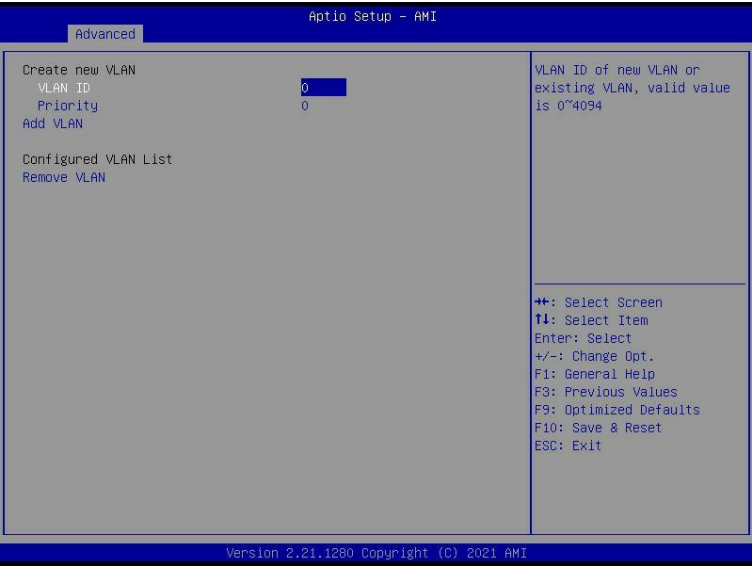
2-2-19Intel(R) I210 Gigabit Network Connection

Aptio Setup - AMI		
Advanced		
NIC Configuration		Click to configure the network device port.
Blink LEDs	0	
UEFI Driver	Intel(R) PRO/1000 6.5.01 PCI-E	
Adapter PBA	130916-002	
Device Name	Intel(R) I210 Gigabit Network Connection	
Chip Type	Intel i210	
PCI Device ID	1539	
PCI Address	03:00:00	
Link Status	[Disconnected]	⬆⬆: Select Screen ⬆⬆: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Reset ESC: Exit
MAC Address	18:00:4D:E5:39:6A	
Virtual MAC Address	18:00:4D:E5:39:6A	
Version 2.21.1280 Copyright (C) 2021 AMI		

Aptio Setup - AMI		
Advanced		
Link Speed	[Auto Negotiated]	Specifies the port speed used for the selected boot protocol.
Wake On LAN	[Enabled]	
		⬆⬆: Select Screen ⬆⬆: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Reset ESC: Exit
Version 2.21.1280 Copyright (C) 2021 AMI		

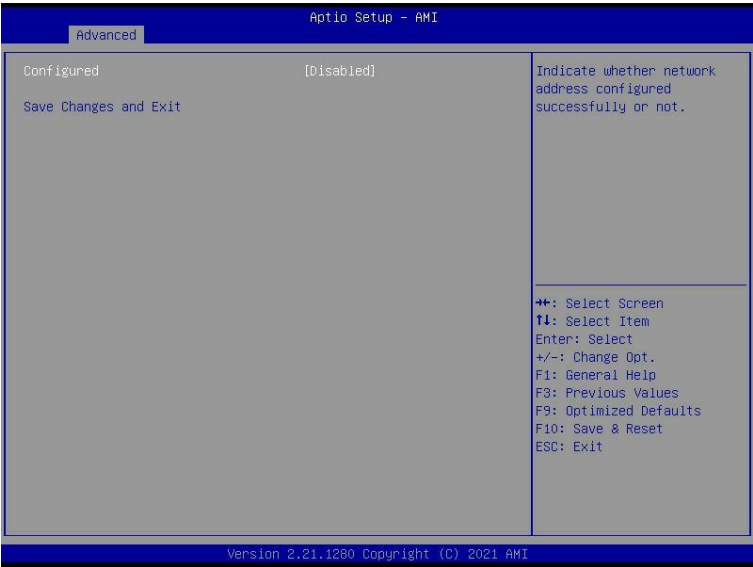
Parameter	Description
NIC Configuration	Press [Enter] to configure advanced items. ◆ Link Speed – Allows for automatic link speed adjustment. – Options available: Auto Negotiated, 10 Mbps Half, 10 Mbps Full, 100 Mbps Half, 100 Mbps Full. Default setting is Auto Negotiated. ◆ Wake On LAN – Enables power 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 Disabled.
Blink LEDs	Identifies the physical network port by blinking the associated LED. Press the numeric keys to adjust desired values (up to 15 seconds).
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	Displays the technical specifications for the Network Interface Controller.
MAC Address	Displays the technical specifications for the Network Interface Controller.
Virtual MAC Address	Displays the technical specifications for the Network Interface Controller.

2-2-20VLAN 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.

2-2-21IPv4 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 Disabled .
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.

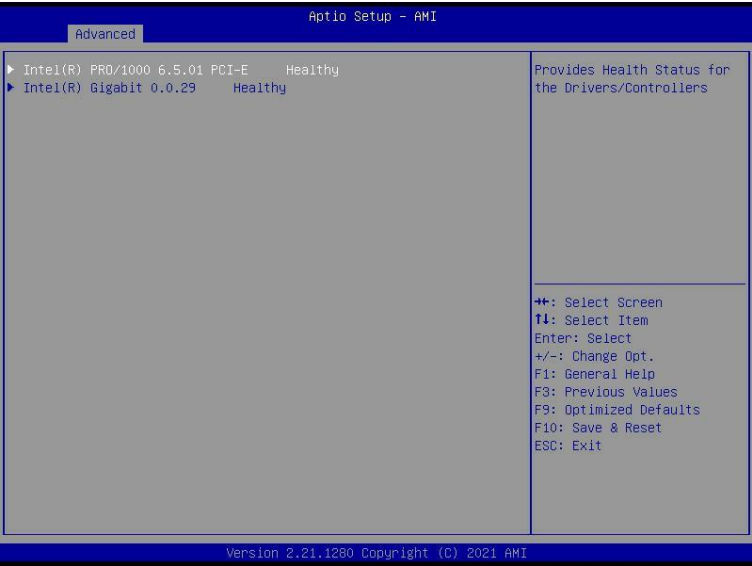
(Note) This item appears when **Configured** is set to **Enabled**.

2-2-22MAC 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.

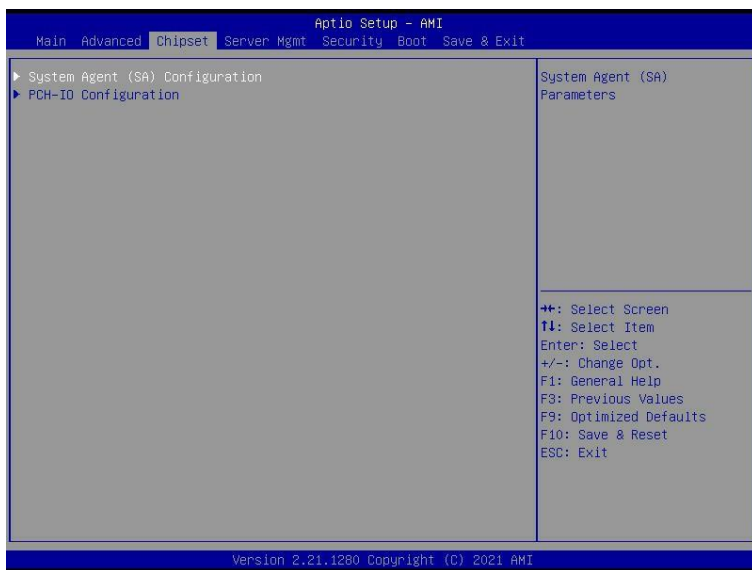
2-2-23Driver Health



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

2-3 Chipset Menu

Chipset Setup menu displays submenu options for configuring the function of Platform Controller Hub(PCH). Select a submenu item, then press <Enter> to access the related submenu screen.



2-3-1 System Agent (SA) Configuration



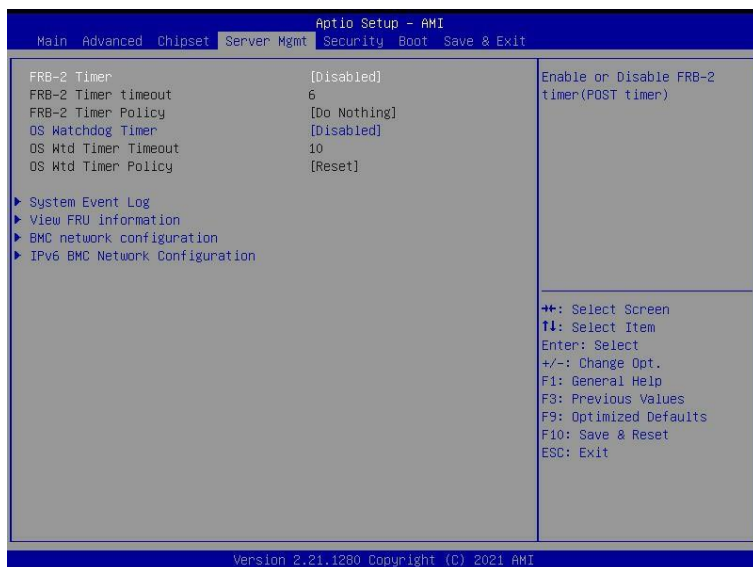
Parameter	Description
Memory Configuration	Press [Enter] to configure advanced items. ◆ Memory – Press [Enter] to view/configure memory overclocking menu. ◆ Memory Configuration ◆ Memory Frequency – Displays the frequency information of installed memory. ◆ Channel and slot information of memory DIMMs. ◆ Max TOLUD – Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller – Default setting is Dynamic.
CRID Support	Enable/Disable SA CRID and TCSS CRID control for Intel SIPP. Options available: Enabled, Disabled. Default setting is Disabled.
Above 4GB MMIO BIOS assignment	Enable/Disable the Above 4G Memory Mapped IO BIOS Assignment. Options available: Enabled, Disabled. Default setting is Enabled

2-3-2 PCH-IO Configuration



Parameter	Description
PCH-IO Configuration	
SATAAnd RST Configuration	Press [Enter] to configure advanced items. ◆ SATA Controller – Enable/Disable SATA controller. – Options available: Enabled, Disabled. Default setting is Enabled. ◆ SATA Mode Selection – Configures on chip SATA type. – Options available: AHCI, Intel RST Premium with Intel Optane System Acceleration. Default setting is AHCI. ◆ SATA Port # – The category identifies SATA hard drives that are installed in the computer. System will automatically detect HDD type.
	Press [Enter] to configure advanced items. ◆ BIOS Lock – Enable/Disable the PCH BIOS Lock Enable feature. – Options available: Disabled, Enabled. Default setting is Enabled.

2-4 Server Management Menu

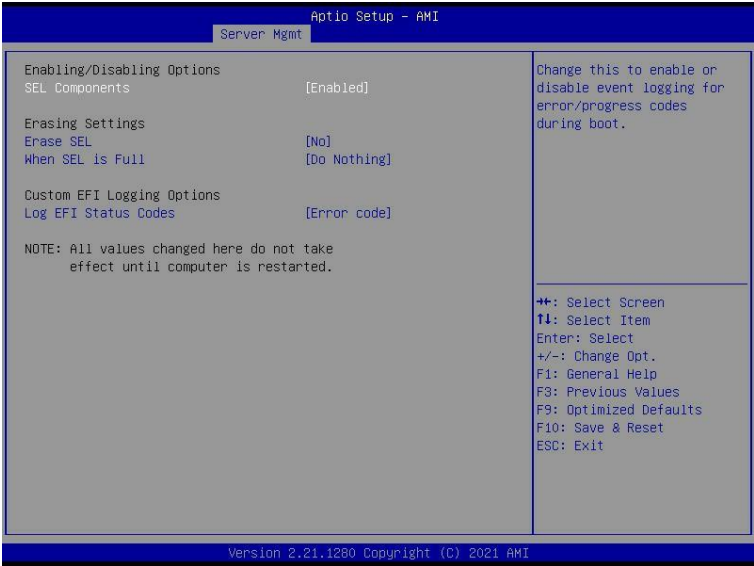


Parameter	Description
FRB-2 Timer	Enable/Disable FRB-2 timer (POST timer). Options available: Enabled, Disabled. Default setting is Disabled .
FRB-2 Timer timeout ^(Note1)	Configures the FRB2 Timer timeout. Options available: 3 minutes, 4 minutes, 5 minutes, 6 minutes. Default setting is 6 minutes .
FRB-2 Timer Policy ^(Note1)	Configures the FRB2 Timer policy. Options available: Do Nothing, Reset, Power Down, Power Cycle. 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, Power Cycle. 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
System Event Log	Press [Enter] to configure advanced items.
View FRU Information	Press [Enter] to view the FRU information.
BMC network Configuration	Press [Enter] to configure advanced items.
IPv6 BMC Network Configuration	Press [Enter] to configure advanced items.

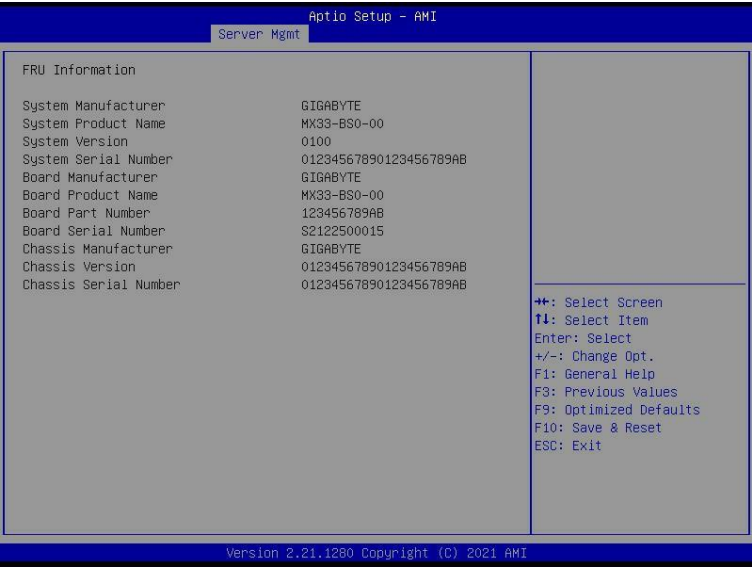
2-4-1 System Event Log



Parameter	Description
Enabling / Disabling Options	
SEL Components	Change this item to enable or disable all features of System EventLogging during boot. Options available: Enabled, Disabled. 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 .

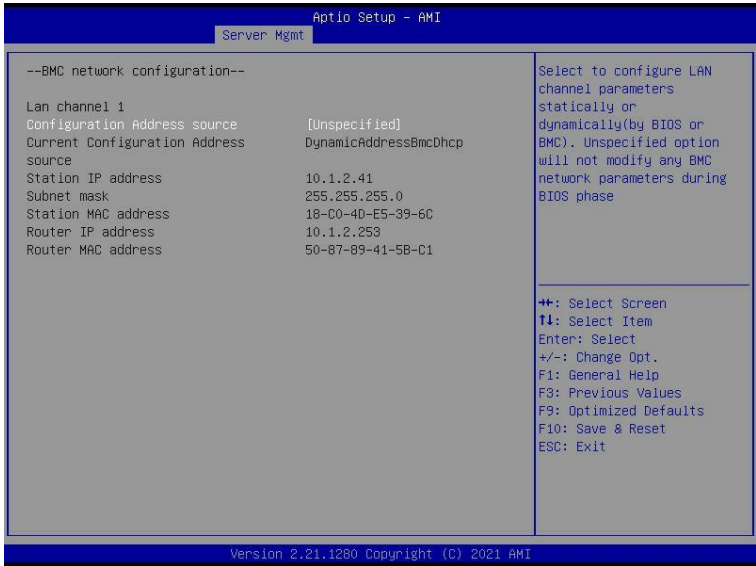
2-4-2 View FRU Information

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.



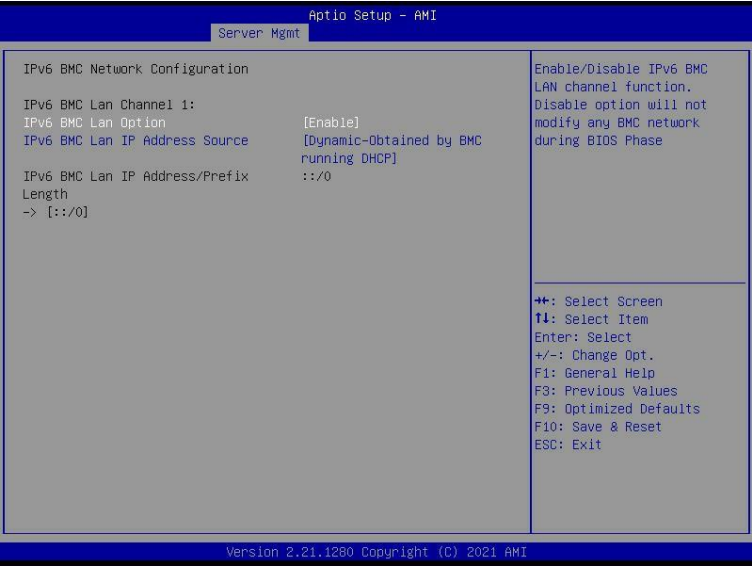
(Note) The model name will vary depends on the product you purchased

2-4-3 BMC Network Configuration



Parameter	Description
BMC network configuration	
Lan Channel 1	
Configuration Address source	Selects to configure LAN channel parameters statically or dynamically (by BIOS or BMC). Options available: Unspecified, Static, DynamicBmcDhcp, DynamicBmcNonDhcp. Default setting is Unspecified .
Current Configuration Address Source	Display the current configuration information.
Station IP address	Displays IP Address information.
Subnet mask	Displays Subnet Mask information.
Station MAC address	Displays the MAC Address information.
Router IP address	Displays the Router IP Address information.
Router MAC address	Displays the Router MAC Address information.

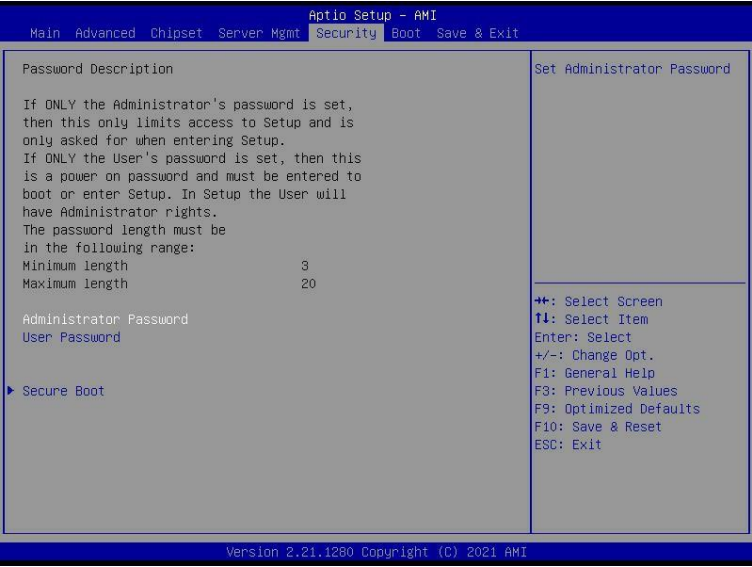
2-4-4 IPv6 BMC Network Configuration



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 AddressSource	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 Dynamic-Obtained by BMC runningDHCP .
IPv6 BMC Lan IP Address/ Prefix Length	Check if the IPv6 BMC LAN IP address matches those displayed on thescreen.

2-5 Security Menu

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



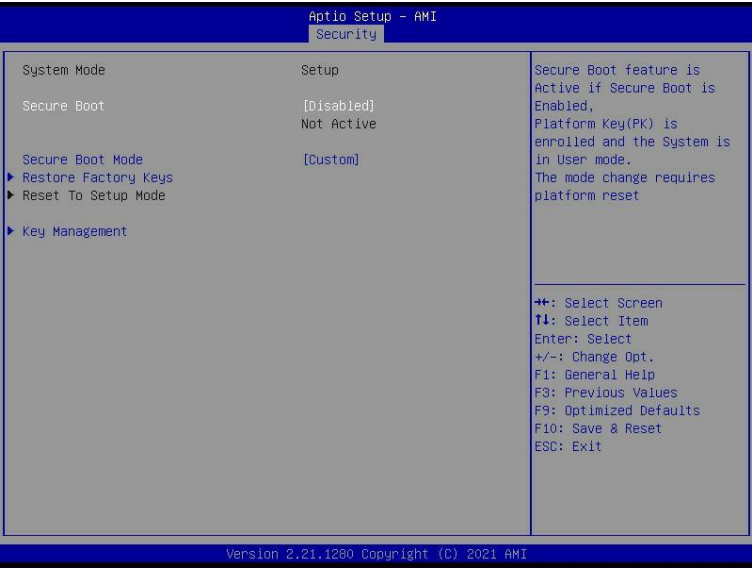
There are two types of passwords that you can set:

- **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.

2-5-1 Secure Boot

The Secure Boot submenu is applicable when your device is installed the Windows® 8 (or above) 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 from 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	Reset the system to Setup Mode.

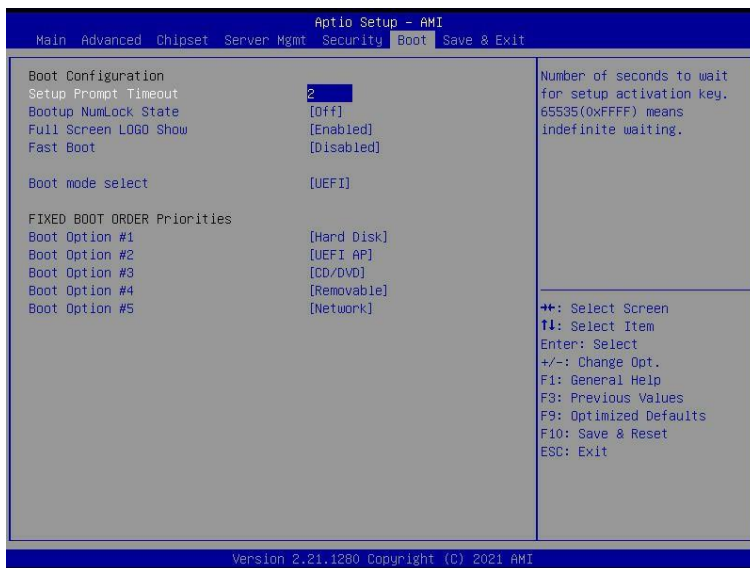
(Note) Advanced items prompt when this item is set to **Custom**.

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. ◆ Reset To Setup Mode – Reset the system to Setup Mode. – Options available: Yes, No. ◆ Export Secure Boot variables – Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device. ◆ Enroll Efi Image – Press [Enter] to enroll SHA256 hash of the binary into Authorized Signature Database (db). ◆ Device Guard Ready ◆ Remove 'UEFI CA' from DB – Press [Enter] to remove Microsoft UEFI CA from Secure Boot DB. ◆ Restore DB defaults – Restore DB variable to factory defaults. ◆ 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.

Parameter	Description
Key Management (continued)	◆ 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.

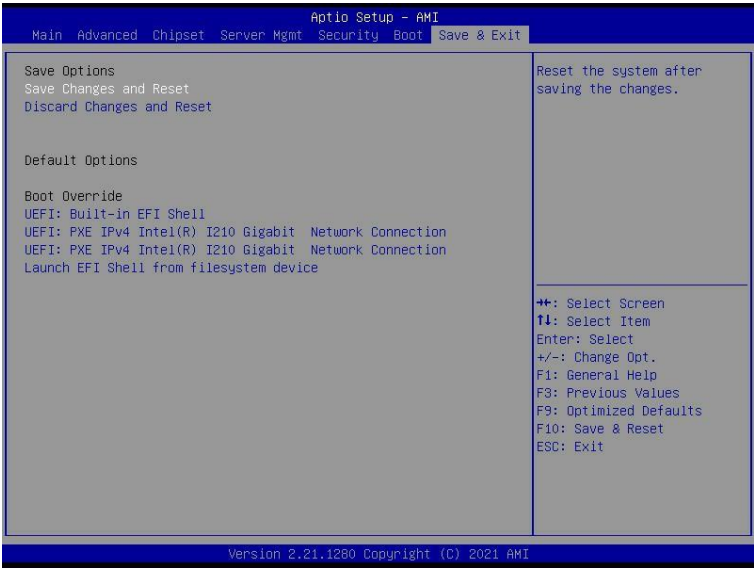


Parameter	Description
Boot Configuration	
Setup Prompt Timeout	Number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting. Press the numeric keys to input the desired values.
Bootup NumLock State	Enable/Disable the Bootup NumLock function. Options available: On, Off. Default setting is Off .
Full Screen LOGO Show	Enable/Disable showing the logo during POST. Options available: Enabled, Disabled. Default setting is Enabled .
Fast Boot	Enable/Disable Fast Boot to shorten the OS boot process. Options available: Enabled, Disabled. Default setting is Disabled .
Boot mode select	Selects the boot mode. Options available: LEGACY, UEFI. Default setting is UEFI .

Parameter	Description
FIXED BOOT ORDER Priorities	
Boot Option #1 / #2 / #3 / #4 / #5	Press [Enter] to configure the boot 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 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.
Default Options	
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 POST Beep code (AMI standard)

2-8-1 PEI Beep Codes

# of Beeps	Description
1	Memory not Installed.
1	Memory was installed twice (InstallPeiMemory routine in PEI Core called twice)
2	Recovery started
3	DXE IPL was not found
3	DXE Core Firmware Volume was not found
4	Recovery failed
4	S3 Resume failed
7	Reset PPI is not available

2-8-2 DXE Beep Codes

# of Beeps	Description
1	Invalid password
4	Some of the Architectural Protocols are not available
5	No Console Output Devices are found
5	No Console Input Devices are found
6	Flash update is failed
7	Reset protocol is not available
8	Platform PCI resource requirements cannot be met

設定系統

安裝前需求

選擇擺置地點

在拆開和安裝系統之前，請先選擇一個適當的擺置地點，如此可讓系統發揮最大效益。選擇地點時，請考慮下列因素：

- 靠近接地電源插座。
- 乾淨且無塵。
- 堅固且不會震動的表面。
- 通風良好且遠離熱源。
- 遠離電子裝置（例如空調機、收音機和電視傳輸器等）所產生的電磁場。

檢查包裝盒內容

請先檢查下列包裝盒中的產品項目：

- 系統
- 配件盒

上述的任何一項物品若有損壞或缺失，應盡速與經銷商聯絡。

請妥善保存所有產品包裝盒與其他包材，以利未來運送時使用。

打開系統電源

確認系統安裝正確，使用合適電源，並且已連接所有必需週邊設備後，即可打開電腦電源。請依照以下步驟進行。

按下電源按鈕 。

系統開始啟動並顯示歡迎訊息。然後，會出現連續的開機自我測試 (POST) 訊息。POST 訊息說明了系統是否運作正常。



附註： 若在按下電源鈕之後，系統仍未啟動，請參閱下一節中啟動失敗之可能原因說明。

除了開機自我測試 (POST) 的訊息外，您還可根據下列情況判斷系統是否處於良好狀態：

- 前面板上的電源指示燈是否亮起。
- 鍵盤上的 Num Lock、Caps Lock 和 Scroll Lock 指示燈是否亮起。

開機問題

在提供電源後，若系統仍無法啟動，請檢查下列可能原因：

- 已連接的外接電源線可能鬆掉了。
- 詳細檢查從電源插座到後面板上電源插孔的電線連接情形。請確認每一條電線都已連接電源。
- 接地電源插座沒有電源。請電機人員檢查電源總開關。
- 內部電纜連接鬆脫或連接錯誤。

檢查內部電纜連接。如果不確定是否可執行這項檢查步驟，請求合格的技術人員協助檢查。

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警告！ 在進行這項檢查工作前，請確認所有電源線均已拔掉。



附註： 若您已進行上述的檢查項目，而系統仍無法啟動，請聯絡經銷商或合格的技術人員，以取得更多的協助。

關閉系統

有兩種關閉工作站的方式，透過軟體或硬體。下列的軟體關閉步驟適用於執行 Windows 作業系統的系統。如需其他作業系統的關閉步驟，請參閱相關的使用者說明文件。

透過軟體關閉系統

1. 同時按下鍵盤上的 <Ctrl> + <Alt> + 鍵或按一下 Windows 工作列上的「開始」。
2. 選擇「關機」。
3. 從下拉視窗中選擇「關機」，然後按一下「確定」。

透過硬體關閉系統

如果無法使用軟體關閉工作站，請按住電源按鈕不放至少四秒鐘。如果少於四秒鐘，只能讓工作站進入暫停模式。

系統故障排除

重新啟動系統

在進行進階的故障排除之前，請先嘗試使用下列方法重新啟動系統。

執行	目的	動作
暖開機	清除系統記憶體，並重新載入作業系統。	按下 <Ctrl> + <Alt> +
冷開機	清除系統記憶體，重新啟動 POST，並重新載入作業系統。本操作將中斷所有週邊設備的電源。	先按下系統電源鍵關閉電源，接著再 次按下該鍵重新打開電源。

初始系統啟動故障

初始系統啟動故障常由錯誤安裝或配置所引起。由硬體而導致此故障的可能性較小。如果您遇到的故障和特定應用程式相關，請參閱「軟體程式故障」。

使用下列檢查列表排除故障原因。

- 牆壁上的電源插座是否可使用？
- 電源供應器模組的安裝方式是否正確？
- 系統電源線是否正確插入電源供應器模組的插座？並和 100-120 V 的 NEMA 5-15R 插座或 200-240 V 的 NEMA 6-15R 插座連接？
- 所有的週邊設備纜線是否連接正確並固定？
- 您是否曾按下系統電源鍵開啟工作站（電源指示燈應該亮起綠色）？
- 所有裝置的驅動程式是否安裝正確？
- 硬碟的格式化與組態設定是否正確？
- BIOS 設定公用程式中的 BIOS 組態設定是否正確？
- 作業系統是否正確載入？請參閱作業系統的說明文件。
- 所有的硬體元件是否符合被檢測的元件清單？
- 所有內部纜線是否連接正確並固定？
- 處理器是否完全固定安裝在主機板插槽上？
- 所有處於正確位置，且未接觸任何元件的支架，是否可能引起潛在短路？
- 所有外接擴充卡是否完全固定安裝在主機板插槽上？
- 所有的系統跳線設定是否正確？
- 外接板和週邊裝置上的所有開關設定是否正確？

硬體診斷測試

本章節將提供一種詳細方法，用來確認硬體故障並找出原因。

檢查開機狀態



小心！要將週邊設備纜線從工作站上拔掉前，先關閉系統與所有外接週邊裝置的電源。若未如此，將對系統和 / 或週邊裝置造成永久性損壞。

1. 關閉系統與所有週邊裝置的電源。
2. 除了鍵盤與顯示器外，請拔掉與系統連接的各個裝置纜線。
3. 確認系統電源線二端各插入正確接地的 AC 電源插座，以及電源供應器模組的插孔中。
4. 確認顯示器與鍵盤已正確連接至系統。
5. 打開顯示器。
6. 設定顯示器的亮度與對比度，設定值至少為最大範圍的三分之二。請參閱顯示器隨附的說明文件。
7. 如果要正常從硬碟載入作業系統，請先確認軟碟機中沒有磁片和光碟。
8. 如果電源指示燈亮起，請嘗試從軟碟機啟動。
9. 打開系統電源。

如果控制面板上的電源指示燈不亮，請參閱「電源指示燈不亮」。

檢查儲存裝置的狀態

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由於 POST 會確認系統組態⁸⁷，它會測試系統安裝的每個大容量儲存裝置的狀態。當檢查每個裝置時，它的活動指示燈會暫時亮綠燈。檢查硬碟其他已安裝裝置的活動指示燈。

如果這些指示燈都不亮，請參閱「特定故障和相應解決方法」。

確認作業系統的載入

一旦系統啟動，螢幕會出現作業系統的提示。不同作業系統會有不同提示。如果沒出現作業系統提示，請參閱「監視器上沒有出現字元」。

特定故障和相應解決方法

下列為使用工作站過程中，出現的特定故障以及相應的解決方法。

電源指示燈不亮

依下列步驟檢查：

- 確認電源供應器模組安裝正確。
- 確認電源線連接正確。
- 確認牆壁插座有電。您可插入其他裝置確認檢查。
- 確認前面板的電源指示燈亮綠燈。
- 拆下所有外接擴充卡，看看系統是否可啟動。
如果成功重新啟動，再重新裝回擴充卡，每重裝一塊卡就重新啟動系統，檢查是否有那塊卡造成故障。
- 確認安裝的記憶體模組是否為系統相同，並且安裝方式正確無誤。
- 確認安裝的處理器是否為系統相同，並且安裝方式正確無誤。

無法偵測到新安裝的記憶體模組

依下列步驟檢查：

- 確認記憶體模組的規格與系統相容。
- 確認記憶體模組已照指南方式正確安裝。
- 確認記憶體模組已正確安裝於主機板插槽上。

網路連線指示燈不亮

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依下列步驟檢查：

- 檢查所有接線和網路設備，確認其狀態正常。
- 重新安裝網路驅動程式。
- 嘗試換接交換機上的其他連接埠或集線器。

網路活動指示燈不亮

依下列步驟檢查：

- 確認系統載入正確的網路驅動程式。
- 網路可能處於閒置狀態。

連接到 USB 連接埠的週邊裝置無法工作

依下列步驟檢查：

- 減少連接到 USB 集線器的外接裝置數量。
- 請參閱裝置隨附的說明文件。

軟體程式故障

依下列步驟檢查：

- 檢查系統軟體組態設定是否正確。
請參閱該軟體的安裝與操作說明文件，了解軟體設定和使用說明。
- 嘗試使用另一版本的軟體，確認是否問題出現在使用的軟體拷貝。如果軟體的其他版本可以正常執行，請聯絡該軟體廠商討論軟體瑕疵事宜。

監視器上沒有出現字元

依下列步驟檢查：

- 鍵盤運作是否正常？檢查方法為：打開和關閉 Num Lock 功能，檢查相應的指示燈是否亮起。
- 監視器是否插電並也打開電源？如果您使用切換器，是否切換到正確的系統了？
- 監視器上的亮度與對比度的設定值是否合適？
- 監視器的訊號線連接是否正確？
- 如果將監視器換接到另一不同系統，監視器運作是否正常？
- 拆下所有外接擴充卡，看看系統是否可啟動。
如果成功重新啟動，再重新裝回擴充卡，每重裝一塊卡就重新啟動系統，檢查是否有那塊卡造成故障。
- 確認安裝的記憶體模組是否為系統相同，並且安裝方式正確無誤。
- 確認安裝的處理器是否為系統相同，並且安裝方式正確無誤。

如果您正在使用外接的視訊控制卡，請執行下列步驟：

1. 檢查監視器是否能使用內建視訊控制卡運作。
2. 檢查外接的視訊控制卡是否完全固定安裝在插槽上。
3. 重新啟動系統，讓變更生效。
4. 如果重新啟動系統後，監視器仍然沒出現任何字元，請再次重新啟動系統。



注意：POST 過程發出的嗶聲 (Beep) 代碼。

如果您需要客服技術支援，需要提供此代碼資訊。

如果 POST 過程沒有任何嗶聲 (Beep) 代碼，

監視器也沒有任何字元，那麼監視器或視訊控制卡可能有問題。

請聯絡您當地的客服或授權經銷商，尋求協助。

注意事項

安全與舒適性的相關資訊

重要安全指示

請仔細閱讀本安全指示，並妥善保管本文件以便日後查詢使用。請務必遵守標示在本產品上的所有警告與指示訊息。

在清潔前請先關閉本產品的電源

請先將本產品從牆上插座拔除後，再進行清理工作。請勿使用液狀或噴霧清潔劑，使用微濕的布擦拭清潔本產品。

接上中斷連線裝置的注意事項

在將電源連接至電源供應器或從電源供應器移除時，請遵守以下指南：

- 在連接電源線到 AC 電源插座之前，請先安裝電源供應器。
- 從電腦移除電源供應器之前，請先拔下電源線。
- 如果系統有多個電力來源，請從電源供應器拔下所有的電源線，以中斷系統電源。

協助工具注意事項

請確認您要接上電源插頭的插座，其位置是盡可能靠近設備操作人員，並且容易使用。當您需要切斷設備的電源時，請確認將電源線從插座上拔下。

警告

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- 勿靠近水邊使用本產品。
- 勿將本產品放置在不穩固的平台、支架或桌面上使用。本產品可能因掉落而導致嚴重受損。
- 本產品的插槽和通風孔均做為通風之用，以確保本產品操作的可靠性，並預防過熱，絕不可堵塞或蓋住這些通風孔。請勿將本產品放置在床上、沙發、地毯等類似地點上，因為這樣可能會堵塞通風孔。除非有適當的通風，否則絕對不要將本產品放在靠近電暖爐或暖氣機的地方，或是採用嵌入式的安裝方式。
- 請勿將任何物體從通風槽中插入產品中，因為可能會觸電或造成短路，並導致火災或產生電擊。切勿潑灑任何液體到產品上。
- 請勿將本產品置於易震動的平面上，以避免內部零件的損壞並防止電池液的漏出。

- 在運動、行動或任何震動環境中請勿使用，因為其可能引起突如其來的短電流或是損壞轉輪裝置、硬碟，甚至是鋰電池漏液的危險。

電力使用

- 本產品僅可使用電源線標籤所規定的電壓。若不確定可供使用的電壓種類，請洽詢經銷商或當地的電力公司。
- 請勿在電源線上面放置任何重物。電源線的走線或配置要特別小心，避免放在會被物品或腳絆到的地方。
- 使用延長線時，請注意其電流負荷量。插在同一延長線的電器設備使用電量不可超過延長線的電流負荷量。同時，同一插座的耗電量也不可超過保險絲的負荷量。
- 請勿將電源插座、延長線或插頭與太多裝置連接，以免負荷量過重。整體的系統負載量不得超過分支電路功率的 80%。如果使用的是延長線，則其負載量不應超過延長線輸入功率的 80%。
- 產品隨附的 AC 電源轉換器配備有三線式接地插頭。此插頭僅適合用於與接地插座連接。請在插入 AC 電源轉接器插頭前，確認該插座已接地。請勿將插頭插入一個非接地式的插座。如需詳細資訊，請與電氣技師洽詢。



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警告！插頭的接地腳是一個安全防護功能。
在使用電源插座時如果接地不完全，
可能會發生電擊並 / 或造成身體傷害。



.....

注意：接地腳同時提供了良好的保護，避免
鄰近電子裝置對產品性能產生干擾及製造噪音。

BIOS Setup

僅使用本產品專用電源線組合（隨配件盒附贈的）。此電源線組合屬可分離式：
UL 安全規定 / CSA 認證、SPT-2 類、最小功率設定 7 A 125 V、VDE 認可或同等認可。最大的長度為 4.6 公尺（15 呎）。

產品維護

請勿自行維修本產品，因為打開或移除機殼時，會讓您曝露在危險的電壓或其他風險之中。
應由專業合格的維修人員進行維修工作。

當發生下列情形時，請拔掉本產品的電源插頭，並由專業人員進行維修：

- 當電源線或插頭損壞、切開或磨損時。
- 曾有液體潑灑在產品上。

- 產品曾遭雨淋或浸在水中。
- 產品曾經掉落，或機殼已經損壞。
- 產品的效能出現極大的改變，則表示產品需要維修。
- 在遵守操作指示之後產品還是不能正常運作。



備註：請遵照操作指示來進行調整控制，不當的控制調整會損壞產品，使專業合格的維修人員花費更長的時間，才能讓產品恢復正常情形。
本工作站應安置在有限制門禁管理處或同樣妥善位置。



警告：如果電池未正確更換，將有爆炸的危險。
只能更換相同品牌或者製造廠商推薦相同類型的電池。使用過的電池要按照製造廠商的指示加以處理。

廢物處理指示

請勿在丟棄本電子設備時將其當作一般垃圾處理。為確保能將污染降至最低，且對全球環境保護作出最大貢獻，請重複回收再利用。



Restriction of Hazardous Substances (RoHS) Directive Statement

Altos products have not intended to add and safe from hazardous substances (Cd, Pb, Hg, Cr+6, PBDE and PBB). The parts and components have been carefully selected to meet RoHS requirement. Moreover, we at Altos are continuing our efforts to develop products that do not use internationally banned toxic chemicals.

限制使用有害物質 (RoHS) 指令聲明

Altos 產品未故意添加和使用有害物質 (Cd、Pb、Hg、Cr+6、PBDE 和 PBB)。所有部件和元件均經過嚴格挑選，符合 RoHS 要求。此外，我們 Altos 一直致力於開發不使用國際上禁止的有毒化學品的產品。

設備名稱： 伺服器 Equipment name		型號（型式）：BrainSphere T15 F6; Altos T15 F6 Type designation (Type)				
單元 Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛 Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr ⁺⁶)	多溴聯苯 Polybrominate d biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
金屬機構件	—	○	○	○	○	○
塑料機構件	○	○	○	○	○	○
電路板組件	—	○	○	○	○	○
電源供應器	—	○	○	○	○	○
電源線/其他線材	—	○	○	○	○	○
風扇	—	○	○	○	○	○
散熱模組(金屬部分)	—	○	○	○	○	○
儲存設備	—	○	○	○	○	○
備考1. “○” 係指該項限用物質之百分比含量未超出百分比含量基準值。 Note 1 : “○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.						
備考2. “—” 係指該項限用物質為排除項目。 Note 2 : The “—” indicates that the restricted substance corresponds to the exemption.						

規範和安全注意事項

雷射產品相容聲明

CLASS 1 LASER PRODUCT

CAUTION: INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.

適用於歐盟國家的符合聲明

特此，宣告此電腦系列符合 Directive 1999/5/EC 條款的基本要求和相關規定。

可應用的國家清單

本裝置的使用必須嚴格遵守所在國家內的法規及限制。如需詳細資訊，請聯絡裝置使用國家當地的辦公處。請參閱 <http://ec.europa.eu/enterprise/rtte/implem.htm>，以取得最新的國家清單。

警告:為避免電磁干擾，本產品不應安裝或使用於住宅環境。



注意：下列章節只適用於 A 級系統。

FCC A 級注意事項

本產品經測試並判定符合 A 級數位設備限制，且遵照 FCC 條例第 15 節。該限制是為提供合理保護，避免住宅安裝時引起有害干擾而設計的使用條件。本產品會產生、使用並發射無線電頻率能量，若您未按指示來安裝與使用，可能會對無線電通訊造成有害干擾。

然而，我們無法保證一些特定安裝方式不會發生干擾。如本產品對收音機或電視接收造成有害干擾（可經由打開或關閉本產品而確認），則使用者可嘗試利用下列方式進行調整：

- 移動接收天線的角度或位置
- 拉開裝置與接收器間的距離
- 不要共用裝置與接收器的電源插座
- 如需協助，請洽詢經銷商或專業收音機 / 電視技術人員

注意：遮蔽型電線

本產品與其它電腦裝置間的連接，必須使用遮蔽型電線以符合 FCC 規定。為符合 FCC 規範，請使用屏蔽纜線連接其他運算裝置。建議使用雙連結纜線進行 DVI 輸出。

注意：週邊裝置

僅通過認證且符合 A 級限制週邊裝置（輸入 / 輸出裝置、終端機、印表機等）方能與本產品搭售。若與其他未經認證週邊裝置共同使用時，可能會干擾收音機與電視接收。

警告

~~未經製造廠商許可的變更或修改可能導致使用者喪失操作本電腦的權利，此授權係由聯邦通訊委員會（Federal Communications Commission）所賦予。~~

使用條件

本產品符合 FCC 條例第 15 節限制。操作時，請遵循下列 2 項條件：（1）本產品不得產生傷害性干擾，且（2）本產品必須接受任何接收到的干擾訊號，包括可能導致非預期操作的干擾。

HEVC

