an Acer Group Company

Altos BrainSphere™ T15 F6 User Manual

Revision 1.0

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FCC Statement: This equipment has been tested and found to comply with the limits for a Class A or Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in industrial environment for Class A device or in residential environment for Class B device. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

Manual Revision 1.0

Release Date: April 15, 2024

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Conventions

The following conventions are used in this user's guide:

	NOTE! Gives bits and pieces of additional information related to the current topic.
	CAUTION! Gives precautionary measures to avoid possible hardware or software problems.
	WARNING! Alerts you to any damage that might. result from doing or not doing specific actions.

Warnings and Cautions

Before installing, be sure that you understand the following warnings and cautions.

WARNING!

To reduce the risk of electric shock or damage to the equipment:

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) electrical outlet that is always easily accessible.
- Unplug all the power cords from the power supplies to disconnect power to the equipment.
- Shock Hazard! Disconnect all power supply cords before servicing.
- Do not route the power cord where it can be walked on or pinched by items placed against it. Pay particular attention to the plug, electrical outlet, and the point where the cord extends from the server.

WARNING!

To reduce the risk of personal injury from hot surfaces, allow the drivesand the internal system components to cool before touching them.

CAUTION!

- Do not operate the system for long periods with the access panel open or removed. Operat- ing the system in this manner results in improper airflow and improper cooling that can lead to thermal damage.
- Danger of explosion if battery is incorrectly replaced.
- Replace only with the same or equivalent type recommended by the manufacturer.
- Dispose of used batteries according to the manufacturer's instructions.

Electrostatic Discharge (ESD)

CAUTION!

ESD CAN DAMAGE DRIVES, BOARDS, AND OTHER PARTS. WE RECOMMEND THAT YOU PERFORM ALL PROCEDURES AT AN ESD WORKSTATION. IF ONE IS NOT AVAILABLE, PROVIDE SOME ESD PROTECTION BY WEARING AN ANTI-STATIC WRIST STRAP AT- TACHED TO CHASSIS GROUND -- ANY UNPAINTED METAL SURFACE -- ON YOUR SERVERWHEN HANDLING PARTS.

Always handle boards carefully. They can be extremely sensitive to ESD. Hold boards only by their edges without any component and pin touching. After removing a board from its protective wrapper or from the system, place the board component side up on a grounded, static free sur- face. Use a conductive foam pad if available but not the board wrapper. Do not slide board over any surface.

System power on/off: To remove power from system, you must remove the system from rack. Make sure the system is removed from the rack before opening the chassis, adding, or removing any non-hot plug components.

Hazardous conditions, devices and cables: Hazardous electrical conditions may be present on power, telephone, and communication cables. Turn off the system and disconnect the cables attached to the system before servicing it. Otherwise, personal injury or equipment damage can result.

Electrostatic discharge (ESD) and ESD protection: ESD can damage drives, boards, and other parts. We recommend that you perform all procedures in this chapter only at an ESD workstation. If one is not available, provide some ESD protection by wearing an antistatic wrist strap attached to chassis ground (any unpainted metal surface on the server) when handling parts.

ESD and handling boards: Always handle boards carefully. They can be extremely sensitive to electrostatic discharge (ESD). Hold boards only by their edges. After removing a board from its protective wrapper or from the system, place the board component side up on a grounded, static free surface. Use a conductive foam pad if available but not the board wrapper. Do not slide board over any surface.

Installing or removing jumpers: A jumper is a small plastic encased conductor that slips over two jumper pins. Some jumpers have a small tab on top that can be gripped with fingertips or with a pair of fine needles nosed pliers. If the jumpers do not have such a tab, take care when using needle nosed pliers to remove or install a jumper; grip the narrow sides of the jumper with the pliers, never the wide sides. Gripping the wide sides can dam-age the contacts inside the jumper, causing intermittent problems with the function con-trolled by that jumper. Take care to grip with, but not squeeze, the pliers or other tool used to remove a jumper, or the pins on the board may bend or break.

CAUTION!

Risk of explosion if battery is replaced incorrectly or with an incorrect type. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used bat- teries according to the manufacturer's instructions.

Regulatory Notices

WEEE Symbol Statement

The symbol shown below is on the product or on its packaging, which indicates that this product must be disposed of with other waste. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

For more information about where you can drop off your waste equipment for recycling, please contact your local government office, your household waste disposal service or where you purchased the product for details of environmentally safe recycling.

- When your electrical or electronic equipment is no longer useful to you, "take it back" to your local or regional waste collection administration for recycling.

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. More- over, we at Altos are continuing our efforts to develop products that do not use internationally banned toxic chemicals.

California Proposition 65 Warning

WARNING!

This product can expose you to chemicals including Lead, which is known to the State of California to cause cancer, and Bisphenol A (BPA), which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Battery WARNING!

This product can expose you to chemicals including Lead, which is known to the State of California to cause cancer, and Bisphenol A (BPA), which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Electrical appliance specifications and operating temperature:

Rating (AC Input)	100-240Vac, 7A-3A, 50-60Hz 100-240Vac, 6A-3A, 50-60Hz
Operating Temperature	10°C to 35°C
Non-operating temperature	-40°C to 60°C
Operating humidity	8%-80% (non-condensing)
Non-operating humidity	20%-95% (non-condensing)

伺服器相關警告與注意事項

警告

為了避免電擊危險或損壞設備請注意:

不要切斷電源線的接地端子，接地端子是一個很重要的安全防護。
將電源線接到有接地功能的插座，此插座需位於使用者容易使用的範圍。
電源線的配線要避免被踩到，被絆到或被過度彎折，重壓。

警告

本設備關機後內部仍存在電源，須拔掉電源線才能完全切掉設備內部的電源。
更換零件前請確定電源已經完全切斷。
電源線,電話線，網路線可能帶電，維修前除了移除電源線外也請移除所有連接線，避免電擊傷害或是設備損壞。

維修非支援熱插拔的零件時須將伺服器從機櫃取下才能維修。

警告

避免人員燙傷，觸摸磁碟機或是內部零件前請確保該零件已經冷卻。

警告

伺服器中有高速風扇，維修時請遠離風扇避免受傷。

警告

本設備不能用在有兒童出現的區域。

警告

如果更換錯誤電池會產生爆炸，請以相同或同型號電池更換使用。
廢電池請回收。

警告:如果更換錯誤電池會產生爆炸，請以相同或同型電池更換

注意

伺服器開機時不要長時間移除蓋子，長時間移除蓋子會造成散熱功能失效造成損壞。

注意

靜電會損害電子產品，建議您在符合靜電防護的工作環境操作伺服器，如果無法確定環境的靜電防護。請穿上靜電手環並且將手環接到有接地的金屬表面如機櫃或機殼。拿取電路板時僅觸碰板子的邊緣，不要觸碰連接器。板子從防靜電包裝取出後只能放置在無靜電的桌面，零件面朝上。如果可以,請使用防靜電泡棉.避免使用靜電袋.避免電路板與任何表面摩擦產生靜電。

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 Polybrominated 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.

報驗義務人:
安圖斯科技股份有限公司
新北市汐止區新台五路89號6樓

System setup

System notes

Thank you for purchasing your Altos Server. This user guide is intended as a reference for experienced Server technicians and helps detail many of the features available in Altos server. For more detailed information about any particular component or software solution, you may consult the technical specifications or the user manual for that application.

Note: Before opening or removing any components please contact your local certified Altos service representative

Warning: Any parts or components damaged during replacement by a non-certified technician are not covered by the warranty. For details, please consult the warranty guide from your system.

Notice：

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Chapter 1 Hardware Installation

1-1 Installation Precautions

The motherboard/system contain numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Prior to installation, carefully read the user 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.

1-2 Product Specifications

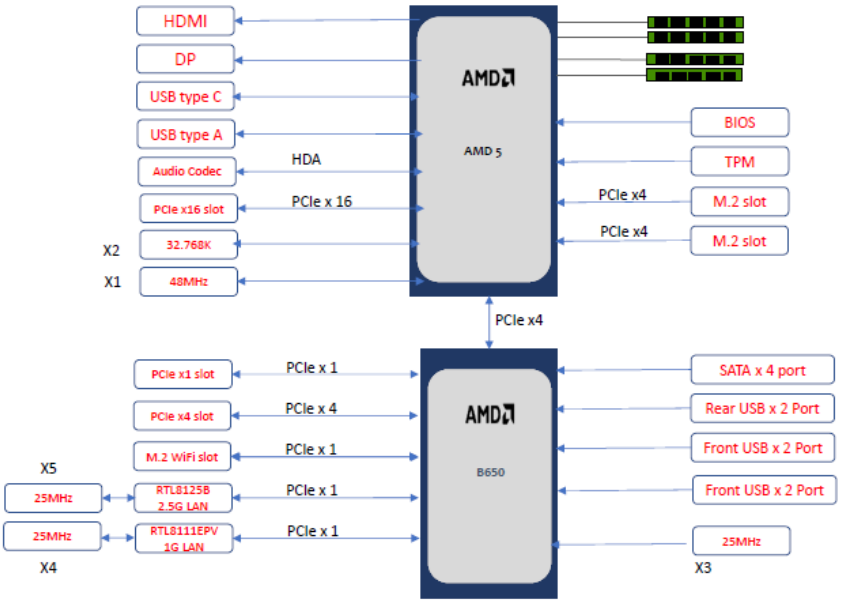
NOTE:
We reserve the right to make any changes to the product specifications and product-related information without prior notice.

System Dimension	◆ Mini-Tower ◆ 386 (D) x 175 (W) x 360 (H) mm (15.2 x 6.89 x 14.17 inches)
CPU	◆ AMD EPYC™ 4004 Processor (AM5)
Chipset	◆ AMD® B650E
Memory	◆ 4 x DDR5 DIMM sockets supporting up to 128 GB (32 GB single DIMM capacity) of system memory. ◆ Dual channel memory architecture ◆ Supported ECC Un-buffered DIMM 1Rx8/2Rx8 memory modules. ◆ Supported non-ECC Un-buffered DIMM 1Rx8/2Rx8/1Rx16 memory modules. ◆ Memory speed: Up to 5200MHz for 1DPC ; up to 3600MHz for 2DPC
LAN	◆ 2 x LAN ports ◆ - Realtek® 2.5GbE LAN (RTL8125) ◆ - Realtek® GbE DASH LAN (RTL8111EP)
Video	◆ 1 x DP port: supporting maximum resolution of 4096x2160 @60Hz; Support for DP 1.2 version. ◆ 1 x HDMI port: supporting maximum resolution of 4096x2160 @60Hz; Support for HDMI 2.1 version, HDCP 2.3, HDR
Audio	◆ Realtek® ALC897 audio codec ◆ High-Definition audio; 2/4/5.1/7.1-channel ◆ 3 ports Audio Jack (Line in/Line out/Mic)
Storage	◆ 4 x 3.5" fixed drive bays
RAID	◆ RAID 0, 1, 10
Peripheral Drives	◆ ODD drive in option

Expansion Slot	◆ 1 x PCIe x16 (Gen5 x16) slot; integrated in CPU ◆ 1 x PCIe x16 (Gen4 x4) slot; integrated in chipset ◆ 1 x PCIe x1 (Gen4 x1) slot; integrated in chipset ◆ 2 x M.2 slot for storage: - M-key - PCIe Gen5 x4 from CPU; PCIe Gen4x4 from chipset - Supports NGFF-2242/2280 card ◆ 1 x M.2 slot for Wi-Fi: - E-key - Supports NGFF-2230 card
Internal I/O	◆ 1 x 24-pin ATX main power connector ◆ 1 x 8-pin ATX 12V power connector ◆ 4 x SATA III 6Gb/s ports ◆ 1 x CPU fan header ◆ 3 x System fan headers ◆ 1 x Serial header (COM) ◆ 1 x Front panel header ◆ 1 x Front Audio header ◆ 1 x Front USB3.2 Gen1 header ◆ 1 x M.2 slot (PCIe gen5 x4, M-key, support NGFF-2280) ◆ 1 x M.2 slot (PCIe gen4 x4, M key, support NGFF-2280) ◆ 1 x M.2 slot (for Wi-Fi/BT module; E-key; support NGFF-2230)
Front I/O	◆ 2 x USB3.2 Gen1 ports ◆ 1 x Line out port ◆ 1 x Mic in port ◆ 1 x Power Button ◆ 1 x Hard drives status LED
Rear I/O	◆ 1 x Display port ◆ 1 x HDMI port ◆ 2 x Antenna ports ◆ 3 x USB 3.2 Gen2 type A ◆ 1 x USB 3.2 Gen2 type C ◆ 2 x 2.5 GbE RJ45 LAN ports ◆ 3 x Audio Jacks (Line in / Line out / Mic in)
TPM	◆ On board with SPI interface

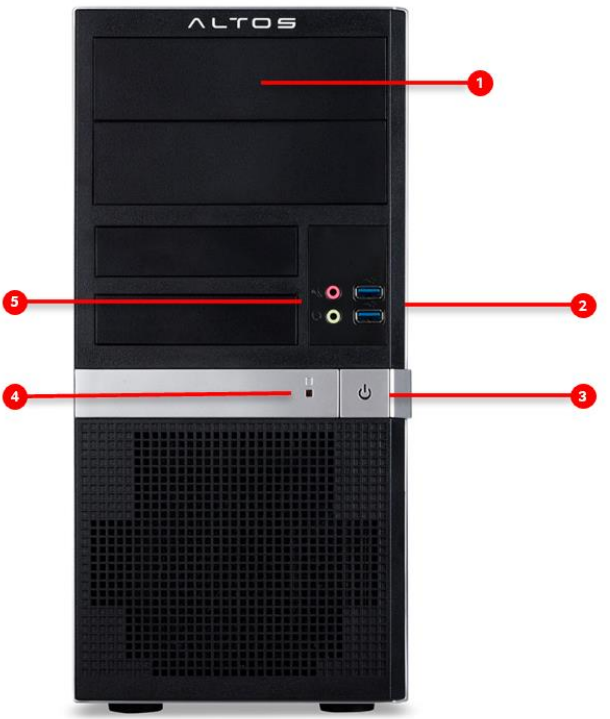
Power Supply	◆ 1 x 500W PSU ◆ 80 PLUS Bronze ◆ AC Input: - 90-264V; 115V/7A, 230V/3A; 47-63Hz ◆ DC Output: - Max. 500W +12V/ 33.81A +5V/ 9.779A +3.3V/ 9.779A +5Vsb/ 2.02A
System Management	Realtek® DASH Remote Management ◆ Power state settings (on, off, restart, hibernate, or sleep) ◆ View hardware, firmware or BIOS versions ◆ Retrieve system health status ◆ USB device redirection ◆ Boot device selection ◆ View event logs ◆ Apply updates and security patches ◆ Text Console Redirection ◆ Software KVM
Operating Properties	◆ Operating temperature: 10°C to 35°C ◆ Operating humidity: 8-80% (non-condensing) ◆ Non-operating temperature: -40°C to 60°C ◆ Non-operating humidity: 20%-95% (non-condensing)

1-3 System Block Diagram



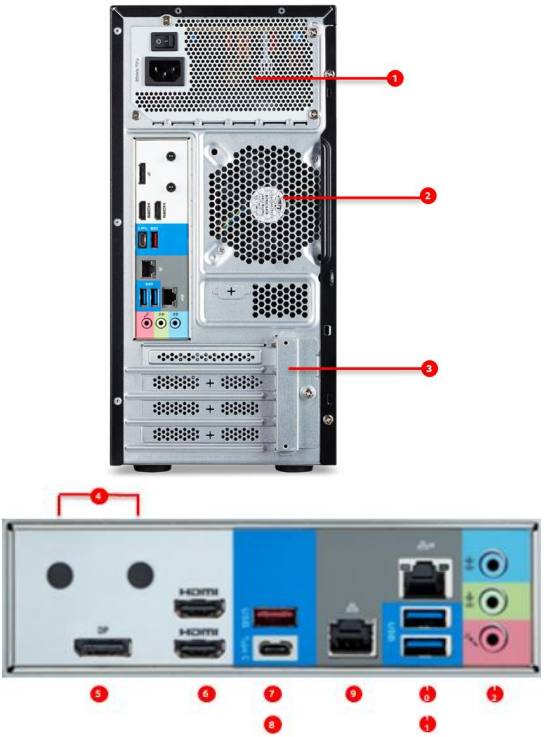
Chapter 2 System Appearance

2-1 Front View



No.	Description	No.	Description
1.	5.25" external Bay	4.	HDD Activity LED
2.	2 USB3.2 Gen1 Type-A Ports	5.	Mic in (red)/Line out (green)
3.	Power Button /LED		

2-2 Rear View

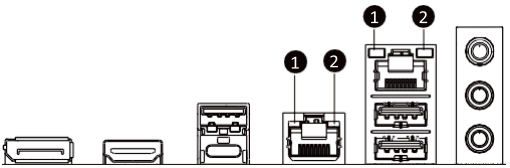


No.	Description	No.	Description
1.	Power Supply Module Cord Socket	7.	USB 3.2 GEN 2 Type-A Port
2.	80x80x25 mm System Fan	8.	USB 3.2 GEN 2 Type-C Port (5V/1.5A)
3.	PCIe Expansion Slots	9.	2.5GBE LAN Port
4.	Wi-Fi Antenna	10.	GBE LAN Port
5	DP Port	11.	2 USB 3.2 GEN1 Type-A Ports
6.	2 HDMI 2.0 Ports	12.	Audio Ports

HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

The HDMI port is HDCP 2.3 compliant and supports Dolby TrueHD and DTS HD Master Audio formats. It also supports up to 192KHz/24bit 7.1-channel LPCM audio output. You can use this port to connect your HDMI-supported monitor. The maximum supported resolution is 4096x2160@60Hz, but the actual resolutions supported are dependent on the monitor being used.

2-3 Rear Panel System LAN LEDs



No.	Name	Color	Status	Description
1.	1GbE Speed LED	Yellow	On	1 Gbps data rate
		Green	On	100 Mbps data rate
		N/A	Off	10 Mbps data rate
2.	1GbE Link / Activity LED	Green	On	Link between system and network or no access
			Blink	Data transmission or reception is occurring.
		N/A	Off	No data transmission or reception is occurring.

Chapter 3 System Hardware Installation

Pre-installation Instructions

Computer components and electronic circuit boards can be damaged by electrostatic discharge. Working on computers that are still connected to a power supply can be extremely dangerous. Follow the simple guidelines below to avoid damage to your computer or injury to yourself.

- Always disconnect the computer from the power outlet whenever you are working inside the computer case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal system of the computer case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress the circuit board.
- Leave all components inside the static-proof packaging until you are ready to use the component for the installation.

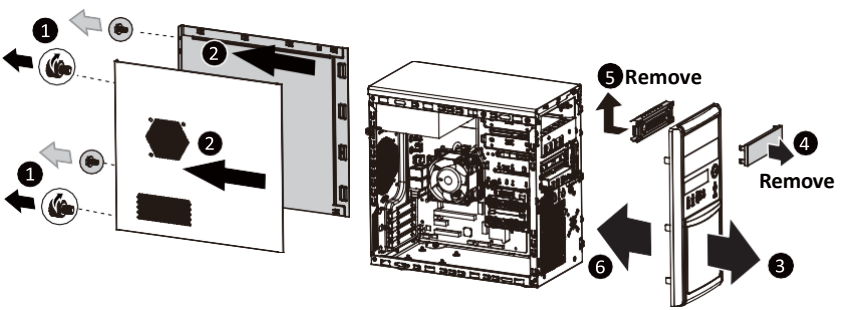
3-1 Removing and Installing the Chassis Cover

Before you remove or install the chassis cover

- Make sure the system is not turned on or connected to AC power.

Follow these instructions to remove/install the chassis side cover and front bezel:

1. Remove the screw securing the chassis side cover.
2. Slide the cover towards the rear of the system and then remove the cover in the direction indicated by the arrow.
3. Remove the front bezel.
4. Remove the dummy cover.
5. Remove the EMI shielding.
6. Reinstall the front bezel.
7. Follow steps 1-2 in reverse order to re-install the chassis side cover.



3-2 Installing the CPU

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

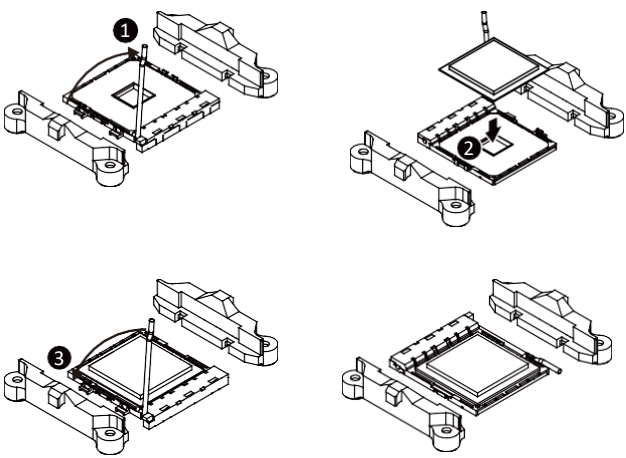
- Make sure that the motherboard supports the CPU.
- Always turn off the computer and unplug the power cord from the power outlet before installing the CPU to prevent hardware damage.
- Unplug all cables from the power outlets.
- Disconnect all telecommunication cables from their ports.
- Place the system 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. Lift up the CPU socket locking lever.
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 secure the CPU socket lever.



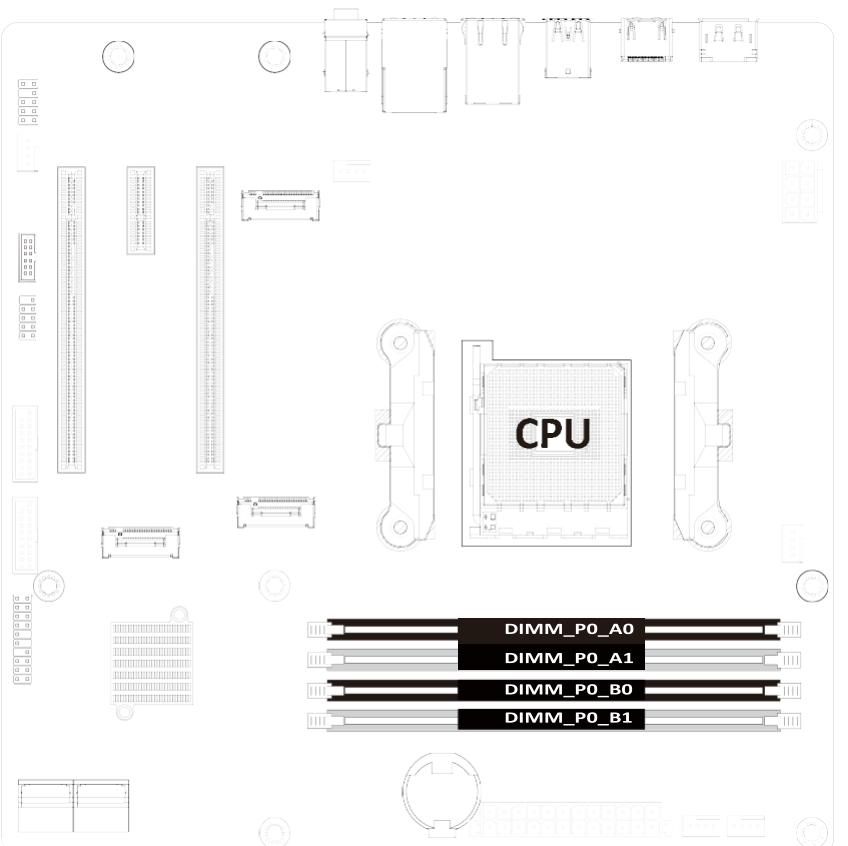
3-3 Installing the Memory

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

- Make sure that the motherboard supports the memory. It is recommended that memory of the same capacity, brand, speed, and chips be used.
- 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.

3-3-1 Dual Channel Memory Configuration

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



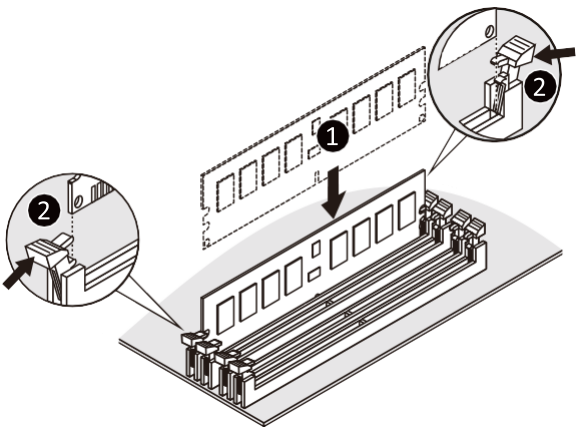
3-3-2 Installing the Memory

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 DDR5 DIMMs on this motherboard.

Follow these instructions to install the Memory:

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.



Memory Type	DDR5
Voltage (V)	1.2V
Connector	UDIMM
Speed (MT/s)	5200 | 36--
Channels	1,2
DIMM Per Channel	1,2
DIMM Capacity (GB)	8,16,32

Note:

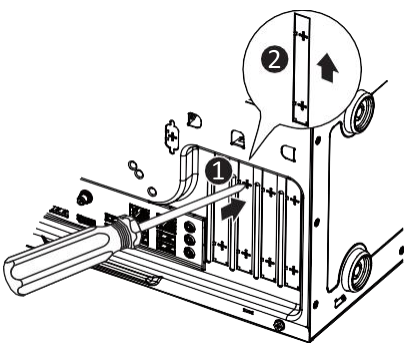
- DIMM must be populated in sequential alphabetic order, starting with DIMM2 (DDR5_A2).
- When only one DIMM is used, it must be populated in memory slot DIMM2 (DDR5_B2).

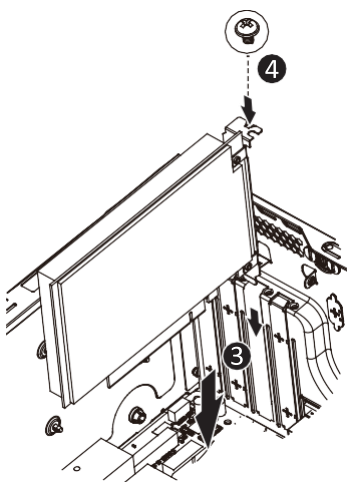
3-4 Installing the PCI Expansion Card

- Voltages can be present within the server whenever an AC power source is connected. This voltage is present even when the main power switch is in the off position. Ensure that the system is powered-down and all power sources have been disconnected from the server prior to installing a PCIe card.
- Failure to observe these warnings could result in personal injury or damage to equipment.

Follow these instructions to install the PCI Expansion card:

1. Use a screw driver to push the slot cover.
2. Remove the slot cover from the PCIe bracket.
3. Align the PCIe card onto the slot and push in the direction of the arrow until the PCIe card sits in the PCIe card connector.
4. Secure the PCIe card with the screw.
5. Reverse the previous steps to remove the PCIe card.





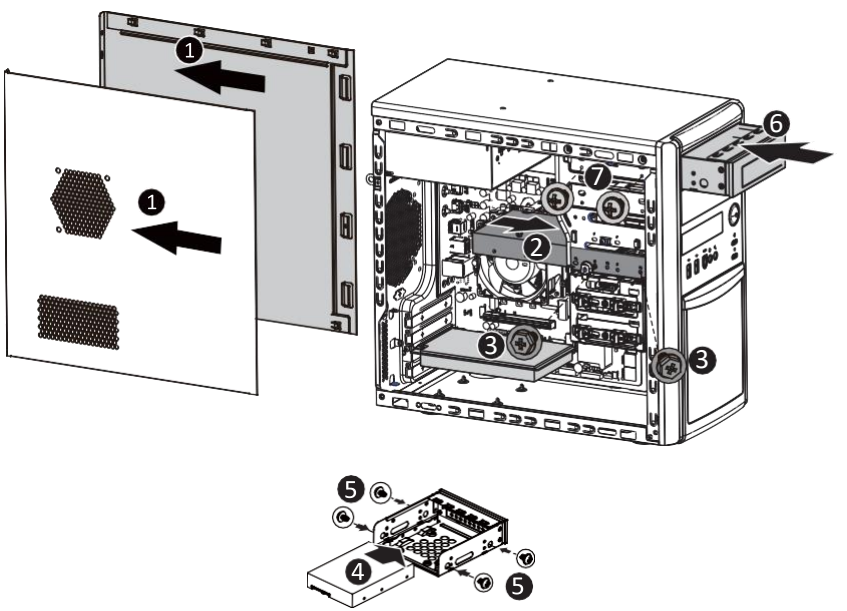
3-5 Installing the Hard Disk Drive

Read the following guidelines before you begin to install the hard disk drive:

- Take note of the drive tray orientation before sliding it out.
- The tray will not fit back into the bay if inserted incorrectly.
- Make sure that the hard disk drive is connected to the hard disk drive connector on the backplane.

Follow these instructions to install 3.5" hard disk drives:

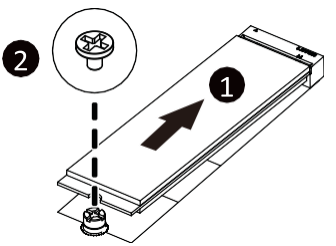
1. Remove both side covers.
2. Slide the first hard disk drive into the slot.
3. Mount it with two screws on each side.
4. Slide the second hard disk drive into the dedicated HDD tray.
5. Screw the hard disk drive with four screws.
6. Insert the HDD tray into the slot.
7. Mount it with two screws on each side.
8. Reinstall both side covers.



3-6 Installing and Removing the M.2 SSD Module

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

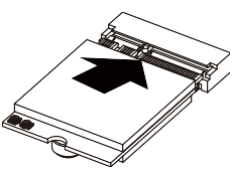
Step1. Insert the M.2 SSD module into the slot.
Step2. Secure it with the screw, tightening as necessary to fasten the M.2 SSD module in place.



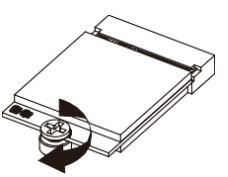
3-7 Installing and Removing the M.2 WiFi Module

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

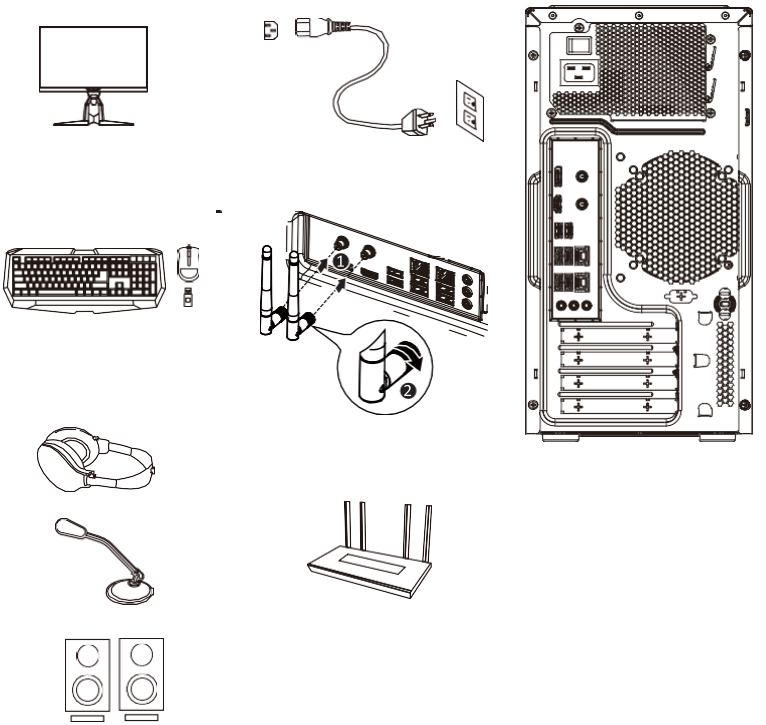
Step1. Carefully Insert the M.2 WiFi module into the slot.



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

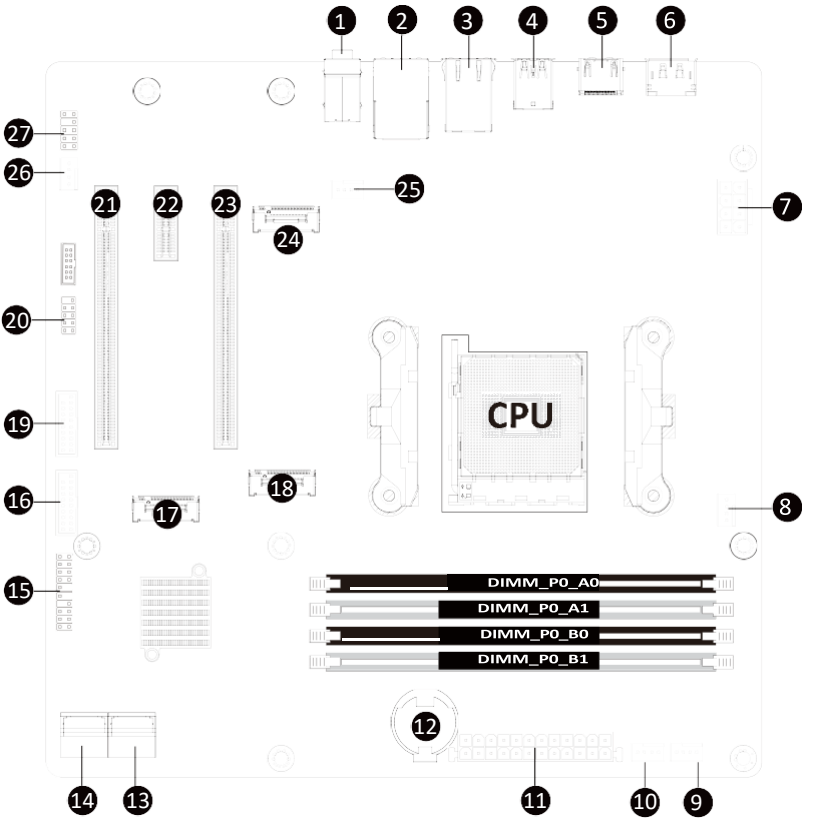


3-8 Peripheral Devices Connection



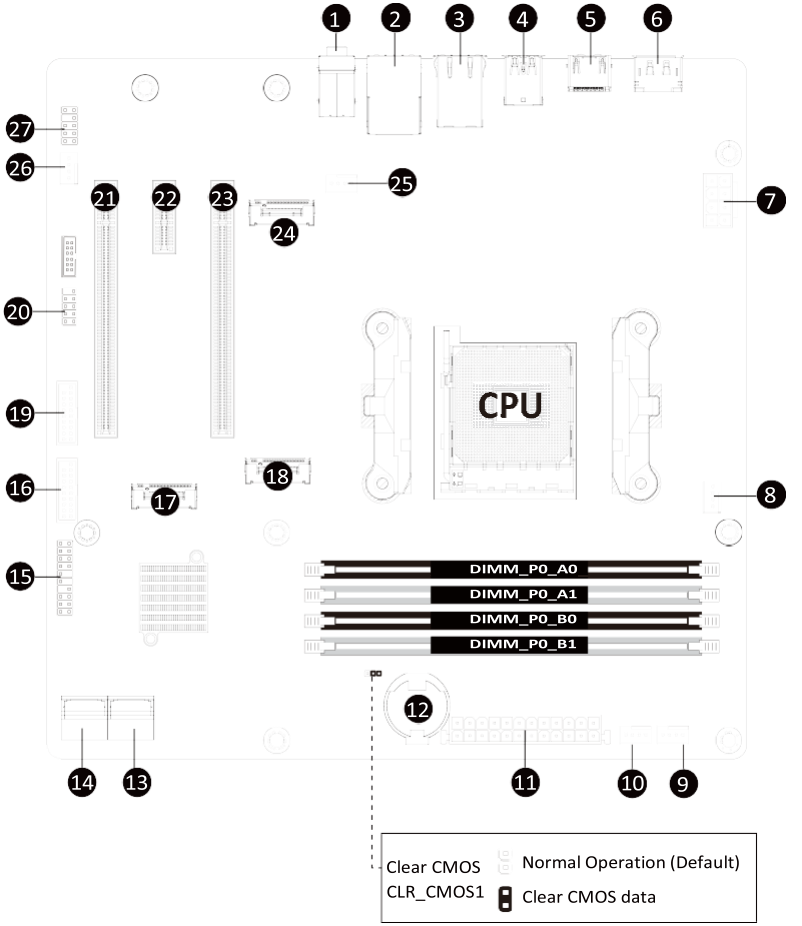
Chapter 4 Motherboard Components

4-1 Motherboard Components



Item	Description
1	Audio Connectors
2	GbE LAN Port #1 (Top)/USB 3.2 Ports (Bottom)
3	GbE LAN Port #2
4	USB 3.2 Port Type A(Top)/USB 3.2 Type C Port (Bottom)
5	HDMI 2.0 Port
6	Display Port
7	2x4 Pin 12V Power Connector
8	CPU Fan Connector
9	System Fan Connector #4
10	System Fan Connector #2
11	2x12 Pin Main Power Connector
12	Battery Socket
13	SATA III 6Gb/s Connector #0/#1
14	SATA III 6Gb/s Connector #2/#3
15	Front Panel Header
16	Front Panel USB 3.2 Connector#2
17	M.2 Slot (PCIe Gen3 x2, Support NGFF-2280)
18	M.2 Slot (PCIe Gen4 x4, Support NGFF-2280)
19	Front Panel USB 3.2 Connector #1
20	COM1
21	PCIe x4 Slot (Gen3 x4)
22	PCIe x1 Slot (Gen3 x1)
23	PCIe x16 Slot (Gen5 x16)
24	M.2 Slot (WiFi/BT module, Support NGFF-2230)
25	System Fan Connector #1
26	System Fan Connector #3
27	Front Audio IO #1

4-2 Jumper Setting



Chapter 5 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 4 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 onboard controller.

- **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.)

5-1 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.

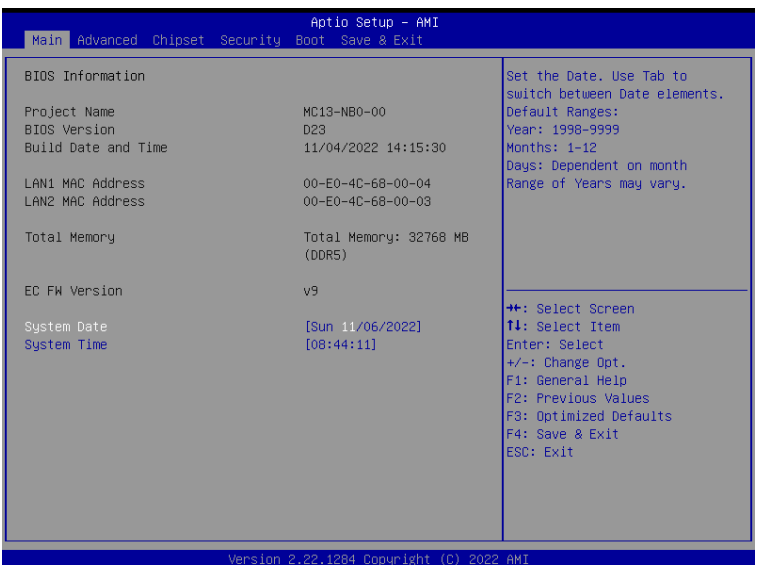
Main Menu Help

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 ofthe 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.

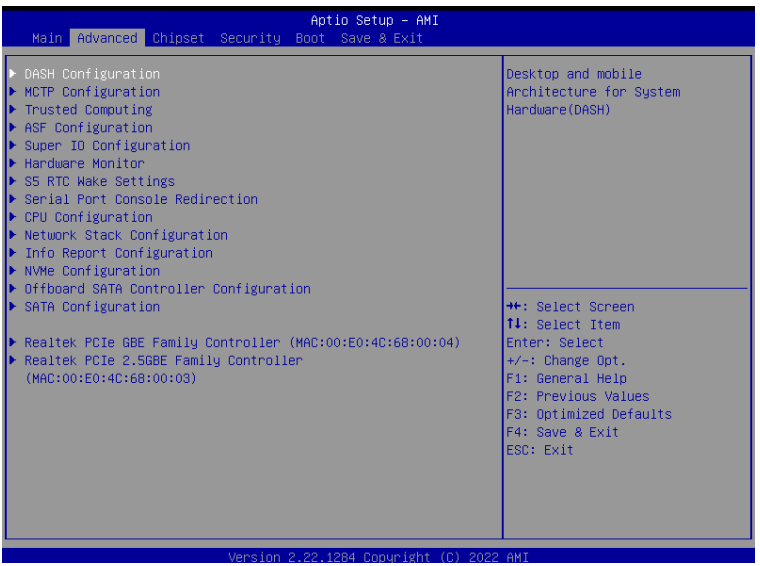


Parameter	Description
BIOS Information	
Project Name	Displays the project name information.
BIOS Version	Displays version number of the BIOS setup utility.
Build Date and Time	Displays the date and time when the BIOS setup utility was created.
LAN# MAC Address(Note1)	Displays LAN MAC address information.
Total Memory(Note2)	Displays the total memory size of the installed memory.
System Date	Sets the date following the weekday-month-day-year format.
System Time	Sets the system time following the hour-minute-second format.

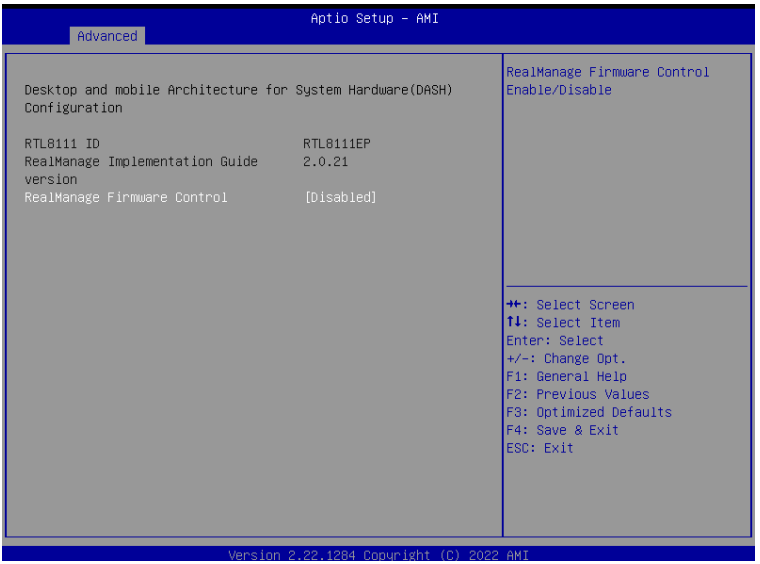
(Note1) The number of LAN ports listed will depend on the motherboard / system model.
(Note2) This section will display capacity and frequency information of the memory that the customer has installed.

5-2 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.



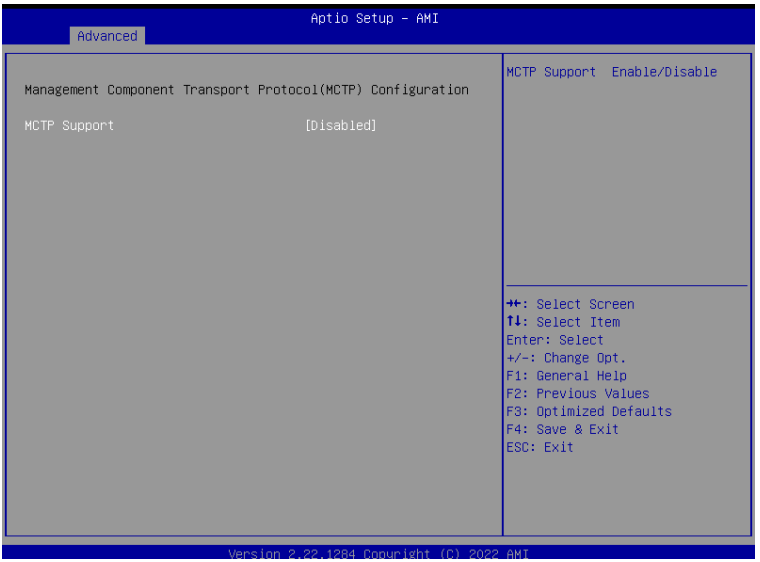
5-2-1 DASH Configuration



Parameter	Description
Desktop and mobile Architecture for System Hardware (DASH) Configuration	
RTL8111 ID	Displays the vendor ID information.
RealManage Implementation Guide version	Displays the utility version.
RealMange Firmware Control(Note)	Enable/Disable RealMange Firmware Control. Options available: Enabled, Disabled. Default setting is **Disabled**.
DASH Support	Enable/Disable DASH Support. Options available: Enabled, Disabled. Default setting is **Disabled**.

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

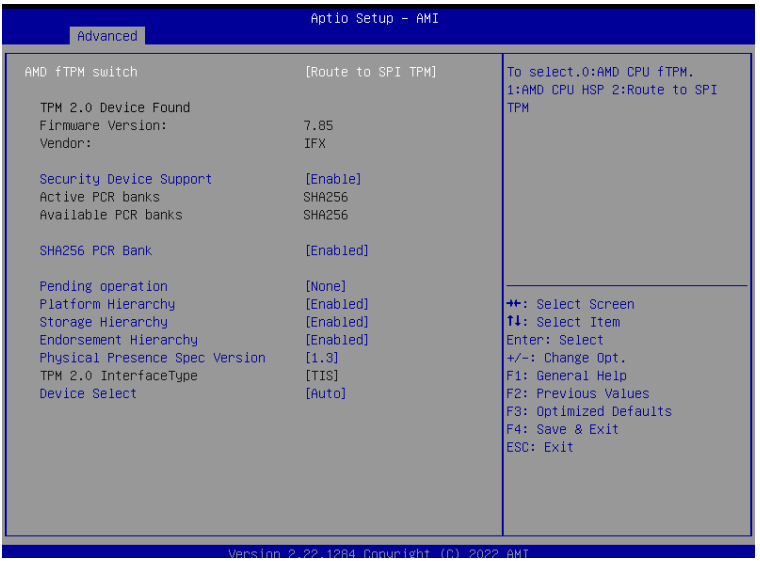
5-2-2 MCTP Configuration



Parameter	Description
Management Component Transport Protocol (MCTP) Configuration	
MCTP Support(Note)	Enable/Disable MCTP Support. Options available: Enabled, Disabled. Default setting is **Disabled**.
PLDM for SMBIOS	Enable/Disable PLDM Support for SMBios. Options available: Enabled, Disabled. Default setting is **Enabled**.
PLDM for BIOS Control and Configuration	Enable/Disable PLDM Support for BIOS Control. Options available: Enabled, Disabled. Default setting is **Enabled**.
PLDM for Platform Monitoring	Enable/Disable PLDM for Platform Monitoring. Options available: Enabled, Disabled. Default setting is **Enabled**.

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

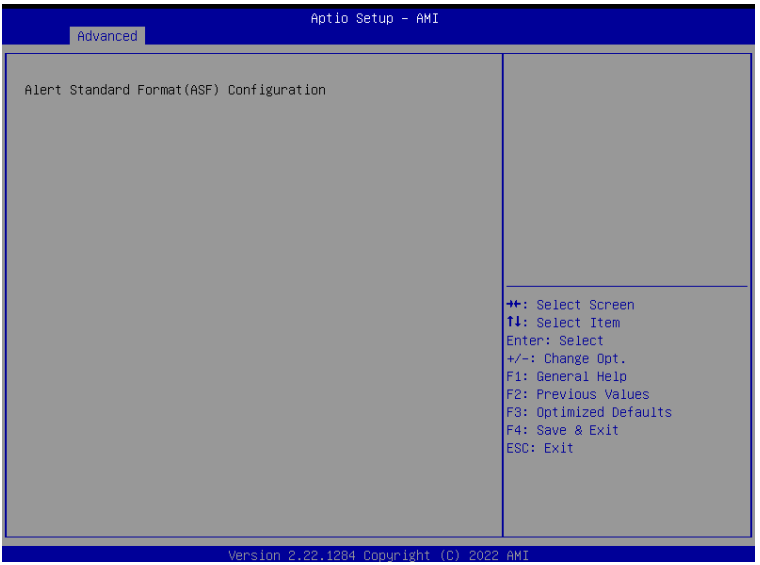
5-2-3 Trusted Computing



Parameter	Description
AMD fTPM switch	Options available: AMD CPU ftPM, Route to SPI TPM. Default setting is **Route to SPI TPM**.
TPM 2.0 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: Enable, Disable. Default setting is **Enable**.
Active PCR banks	Displays active Platform Configuration Register (PCR) banks.
Available PCR banks	Displays available PCR banks.
SHA-1 PCR Bank	Enable/Disable SHA-1 PCR bank. Options available: Enabled, Disabled. Default setting is **Enabled**.
SHA256 PCR Bank	Enable/Disable SHA256 PCR bank. Options available: Enabled, Disabled. Default setting is **Enabled**.

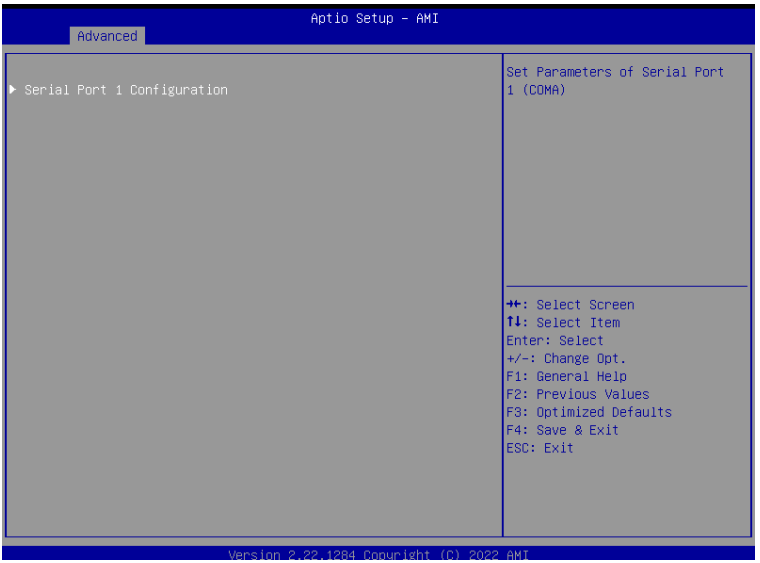
Parameter	Description
Pending operation	Schedule an operation for the security device. NOTE: Your computer will reboot during restart in order to change the state of a security device. Options available: None, TPM Clear. Default setting is **None**.
Platform Hierarchy	Enable/Disable platform hierarchy. Options available: Enabled, Disabled. Default setting is **Enabled**.
Storage Hierarchy	Enable/Disable storage hierarchy. Options available: Enabled, Disabled. Default setting is **Enabled**.
Endorsement Hierarchy	Enable/Disable endorsement hierarchy. Options available: Enabled, Disabled. Default setting is **Enabled**.
TPM2.0 UEFI Spec Version	Selects the TCG2 spec version support. Options available: TCG_1_2, TCG_2. Default setting is **TCG2**.
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	Selects the TPM device. Default setting is **TPM 2.0**.

5-2-4 ASF Configuration



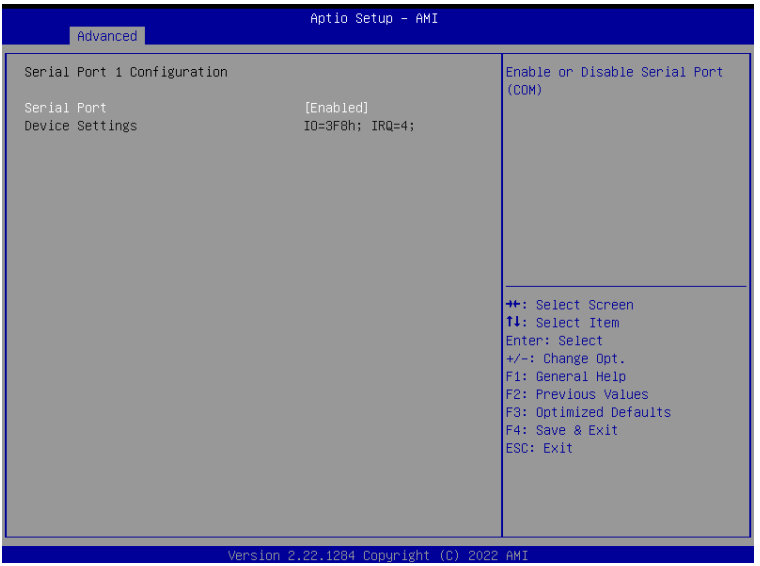
Parameter	Description
Alert Standard Format (ASF) Configuration	
ASF BIOS Mode	Options available: OFF, On, Alert Only. Default setting is **On**.
ASF WatchDog Timer	Enable/Disable WatchDog Timer. Options available: Enabled, Disabled. Default setting is **Disabled**.

5-2-5 Super IO Configuration



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

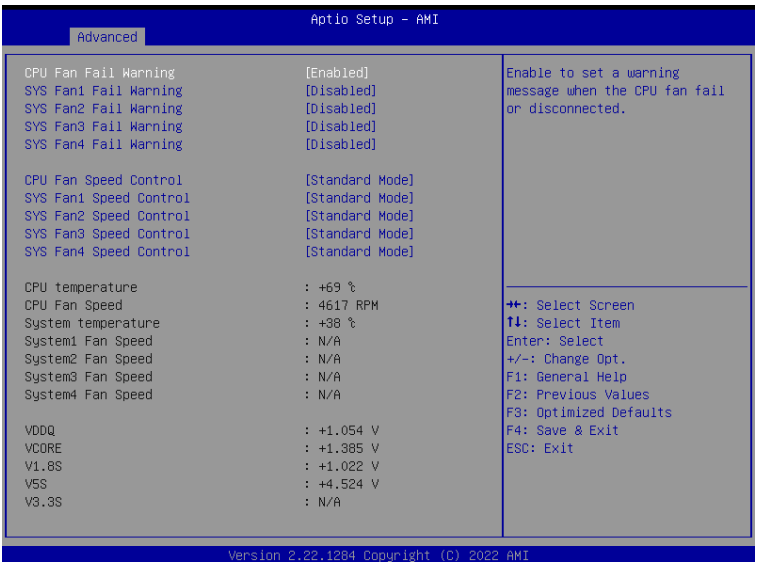
5-2-5-1 Serial Port 1 Configuration



Parameter	Description
Serial Port 1 Configuration	
Serial Port(Note1)	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: Enabled, Disabled. Default setting is **Enabled**.
Devices Settings(Note2)	Displays the Serial Port 1 device settings.
Change Settings(Note2)	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**.

(Note1) Advanced items prompt when this item is defined.
(Note2) This item appears when **Serial Port** is set to **Enabled**.

5-2-6 Hardware Monitor

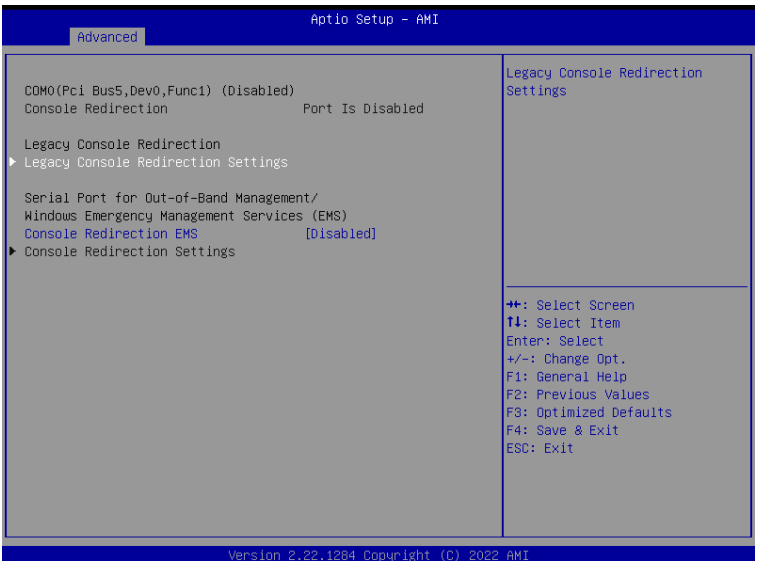


Parameter	Description
CPU FAN Fail Warning	Options available: Enabled, Disabled. Default setting is **Enabled**.
SYS FAN1/2/3 Fail Warning	Options available: Enabled, Disabled. Default setting is **Disabled**.
CPU FAN Speed Control	Options available: Full Speed, Standard Mode. Default setting is **Standard Mode**.
SYS FAN1/2/3 Speed Control	Options available: Full Speed, Standard Mode. Default setting is **Standard Mode**.

5-2-7 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**.

5-2-8 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: 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 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.

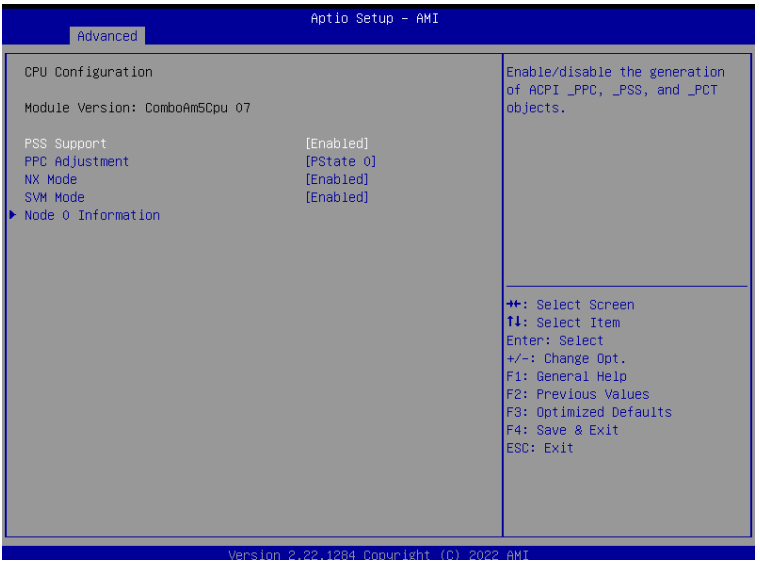
Parameter	Description
COM Console Redirection Settings (continued)	◆ Parity – A parity bit can be sent with the data bits to detect some transmission errors. – Even: parity bit is 0 if the num of 1's in the data bits is even. – Odd: parity bit is 0 if num of 1's in the data bits is odd. – Mark: parity 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: 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, 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. ◆ 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. ◆ Terminal Type EMS – Selects a terminal type to be used for console redirection. – Options available: VT100, VT100+, ANSI, VT-UTF8. Default setting is **VT-UTF8**. ◆ 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**.

5-2-9 CPU Configuration



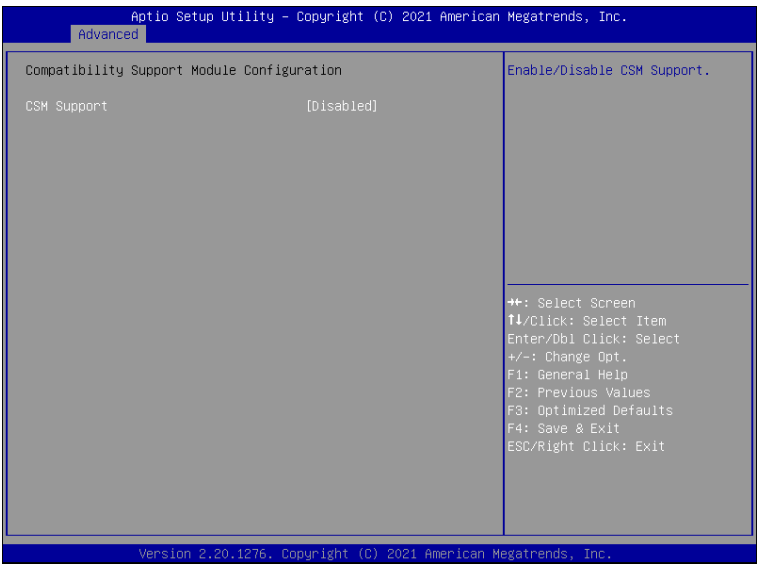
Parameter	Description
CPU Configuration	
Module Version	Displays the module version information.
AGESA Version	Displays the AGESA version information.
PSS Support	Enable/Disable the generation of ACPI_PPC, _PSS, and _PCT objects. Options available: Enabled, Disabled. Default setting is **Enabled**.
PPC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

5-2-10 Network Stack Configuration

Parameter	Description
Network Stack	Enable/Disable the UEFI network stack. Options available: Enabled, Disabled. Default setting is **Disabled**.
Ipv4 PXE Support(Note)	Enable/Disable the Ipv4 PXE feature. Options available: Enabled, Disabled. Default setting is **Enabled**.
Ipv4 HTTP Support(Note)	Enable/Disable the Ipv4 HTTP feature. Options available: Enabled, Disabled. Default setting is **Disabled**.
Ipv6 PXE Support(Note)	Enable/Disable the Ipv6 PXE feature. Options available: Enabled, Disabled. Default setting is **Enabled**.
Ipv6 HTTP Support(Note)	Enable/Disable the Ipv6 HTTP feature. Options available: Enabled, Disabled. 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**.

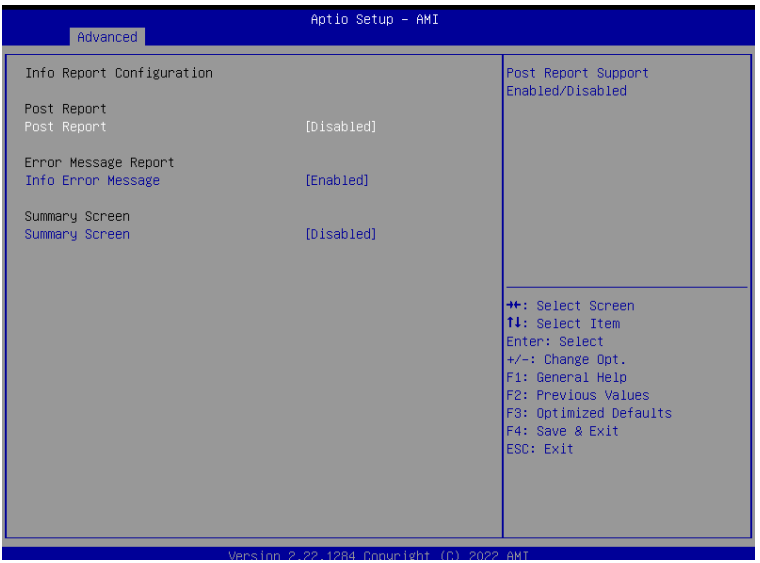
5-2-11 CSM Configuration



Parameter	Description
Compatibility Support Module Configuration	
CSM Support(Note)	Enable/Disable CSM support. Options available: Enabled, Disabled. Default setting is **Disabled**.
CSM16 Module Version	Displays the module version information.
GateA20 Active	Options available: Upon Request, Always. Default setting is **Upon Request**.
Option ROM Messages	Sets display mode for Option ROM. Options available: Force BIOS, Keep Current. Default setting is **Force BIOS**.
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	Controls Legacy/UEFI ROMs priority. Options available: UEFI and Legacy, Legacy only, UEFI only. Default setting is **Disabled**.
Option ROM execution	Controls the execution of UEFI and Legacy Network OpROM. Options available: UEFI, Legacy.

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

5-2-12 Info Report Configuration



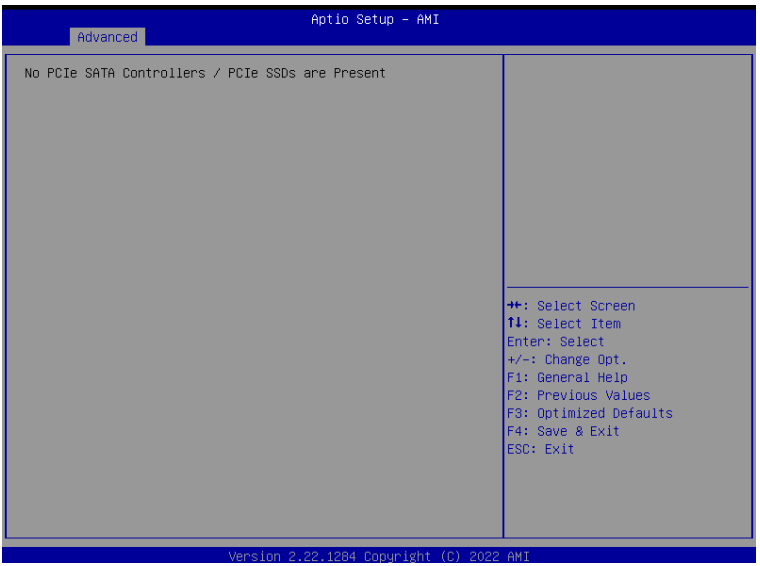
Parameter	Description
Info Report Configuration	
Post Report(Note)	Enable/Disable Post Report support. Options available: Enabled, Disabled. Default setting is **Disabled**.
Delay Time	Sets the POST Report wait time. Options available: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Until Press ESC. Default setting is **5**.
Error Message Report	
Info Error Message	Enable/Disable Info Error Message support. Options available: Enabled, Disabled. Default setting is **Enabled**.
Summary Screen(Note)	Enable/Disable Summary Screen support. Options available: Enabled, Disabled. Default setting is **Disabled**.
Delay Time	Sets the POST Report wait time. Options available: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Until Press ESC. Default setting is **5**.

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

5-2-13 NVMe Configuration

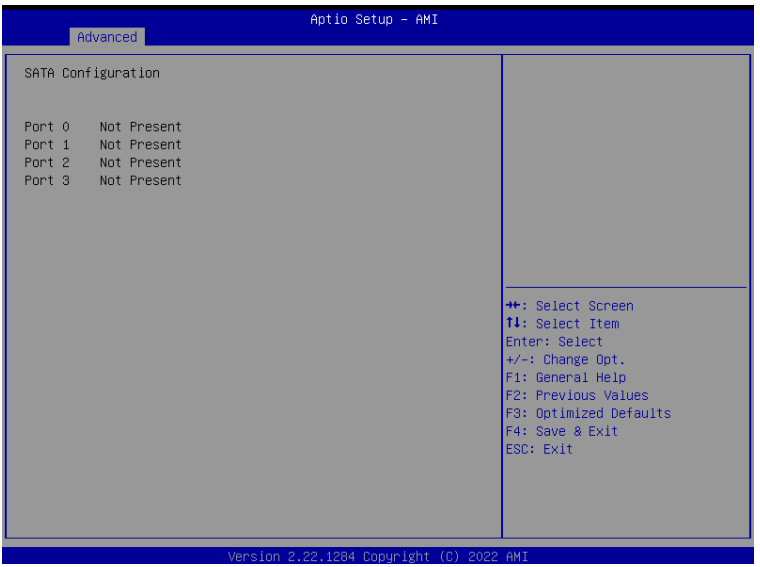
Parameter	Description
NVMe Configuration	Displays the NVMe devices connected to the system.

5-2-14 Offboard SATA Controller Configuration



Parameter	Description
Offboard SATA Controller Configuration	Displays the information on your PCIe SATA controllers/ PCIe SSD if installed.

5-2-15 SATA Configuration



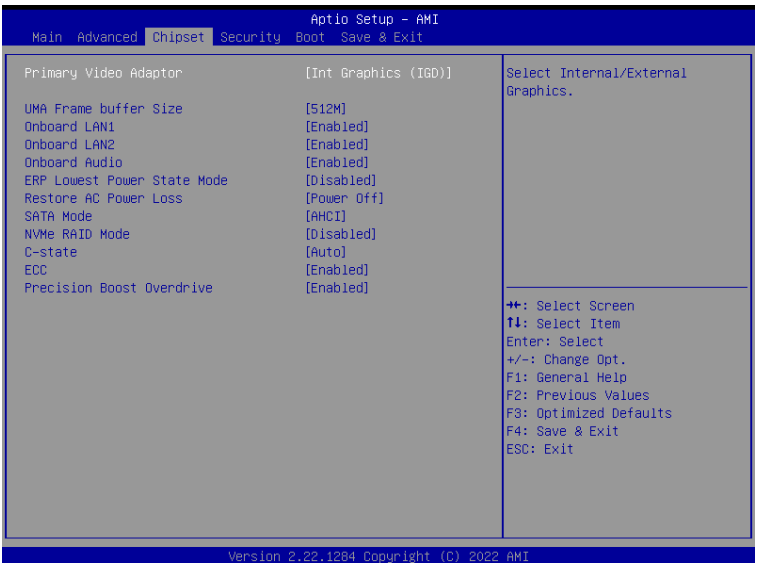
Parameter	Description
SATA Configuration	Displays the installed HDD devices information. System will automatically detect HDD type.

5-2-16 Realtek PCIe GBE Family Controller

Parameter	Description
Realtek PCIe GBE Family Controller	Press [Enter] to view the Network Interface Controller information.

5-3 Chipset Setup Menu

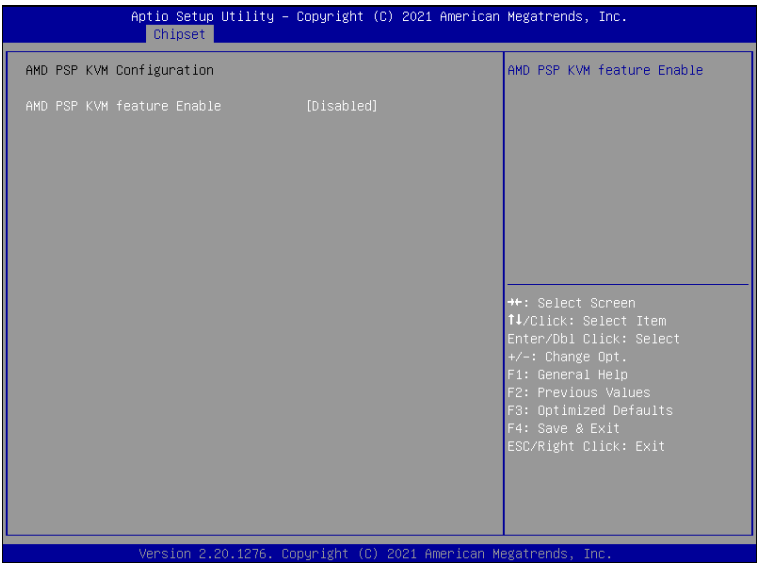
Chipset Setup menu displays submenu options for configuring the function of the onboard controller.



Parameter	Description
Integrated Graphics Controller	Enable/Disable Integrated Graphics controller. Options available: Disabled, Forces, Auto. Default setting is **Forces**.
UMA Frame buffer Size	Options available: Auto, 64M, 128M, 256M, 512M. Default setting is **Auto**.
Primary Video Adaptor	Options available: Int Graphics (IFD), Ext Graphics (PEG). Default setting is **Ext Graphics (PEG)**.
Onboard LAN1/2	Enable/Disable Onboard LAN. Options available: Disabled, Enabled. Default setting is **Enabled**.
Onboard Audio	Enable/Disable Onboard audio. Options available: Disabled, Enabled. Default setting is **Enabled**.
Restore AC Power Loss	Selects AC power state when power is re-applied after a power failure. Options available: Power Off, Power On, Last State. Default setting is **Power Off**.
Case Open	Enable/Disable case open function. Options available: Disabled, Enabled, Clear. Default setting is **Disabled**.
SATA Mode	Selects the SATA type. Options available: AHCI, RAID. Default setting is **AHCI**.

Parameter	Description
NVMe RAID Mode	Options available: AHCI, RAID. Default setting is **AHCI**.
CPU Performance	Changes CPU performance mode. Options available: Standard Mode, Performance Mode. Default setting is **Standard Mode**.
AMD PSP KVM Configuration	Press [Enter] to configure advanced items.

5-3-1 AMD PSP KVM Configuration

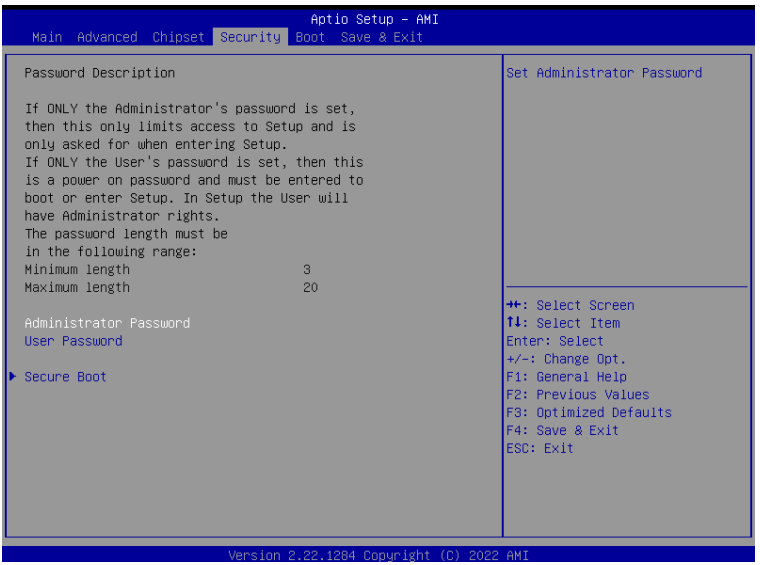


Parameter	Description
AMD PSP KVM Configuration	
AMD PSP KVM feature Enable(Note)	Enable/Disable AMD PSP KVM feature. Options available: Disabled, Enabled, Clear. Default setting is **Disabled**.
Resolution select for AMD PSP KVM feature	Options available: 1280 x 1024, 1024 x 768. Default setting is **1024 x 768**.
IPv4 IP Assignment	Options available: Dynamic, Static. Default setting is **Dynamic**.

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

5-4 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.

5-4-1 Secure Boot

The Secure Boot submenu is applicable when your device is installed the Windows® 8 (or above) operating system.

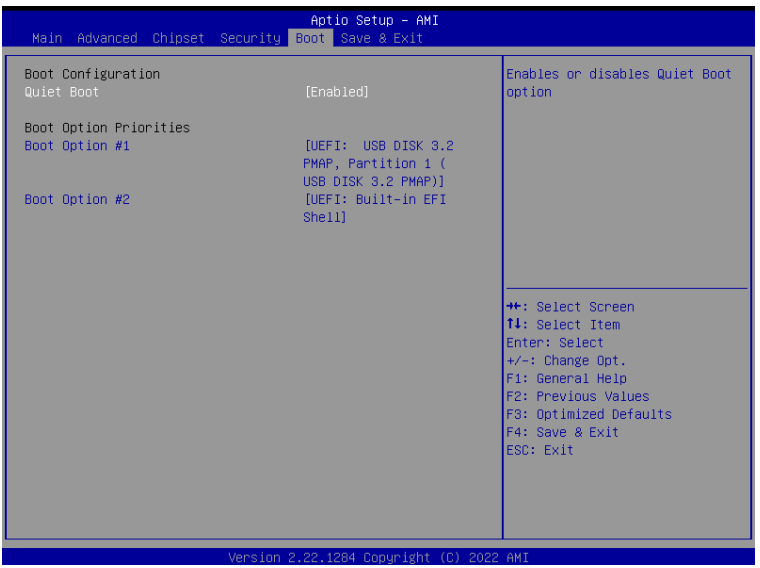
Parameter	Description
System Mode	Displays if the system is in User mode or Setup mode.
Secure Boot	Enable/ Disable the Secure Boot function. Options available: Enabled, Disabled. Default setting is **Enabled**.
Secure Boot Mode(Note)	Secure Boot requires all the applications that are running during 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 mode 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). ◆ 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. ◆ 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.

5-5 Boot Menu

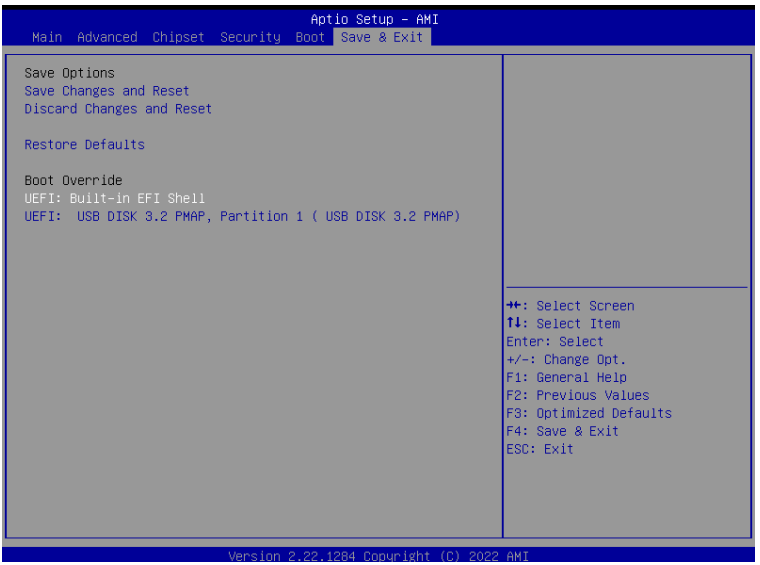
The Boot menu allows you to set the drive priority during system boot-up. BIOS setup will display an error message if the legacy drive(s) specified is not bootable.



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**.
Full Screen LOGO Show	Enable/Disable showing the logo during POST. Options available: Enabled, Disabled. Default setting is **Enabled**.
BOOT Option Priorities	
Boot Option #1 / #2	Press [Enter] to configure the boot priority.

5-6 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	Saves changes made and closes the BIOS setup. Options available: Yes, No.
Discard Changes and Reset	Discards changes made and exits the BIOS setup. Options available: Yes, No.
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.
Boot Override	Press [Enter] to configure the device as the boot-up drive.

5-7 BIOS POST Beep code (AMI standard)

5-7-1 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	DXEIPL was not found
3	DXE Core Firmware Volume was not found
4	Recovery failed
4	S3 Resume failed
7	Reset PPI is not available

5-7-2 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

Setting up the system
Pre-installation requirements

Selecting a site

Before unpacking and installing the system, select a suitable site for the system for maximum efficiency. Consider the following factors when choosing a site for the system:

- Near a grounded power outlet.
- Clean and dust-free
- Stable surface free from vibration.
- Well-ventilated and away from sources of heat.
- Secluded from electromagnetic fields produced by electrical devices such as air conditioners, radio and TV transmitters, etc.

Checking the package contents

Check the following items from the package:

- System unit
- Accessory box

If any of the above items is damaged or missing, contact your dealer immediately.

Save the boxes and packing materials for future use.

Turning on the system

After making sure that you have properly set up the system, applied power and connected all the necessary peripherals, you can now power on the system. Follow the procedure below.

Press the power button ⏻ ◦

The system starts up and displays a welcome message on the monitor. After that, a series of power-on self-test (POST) messages appears. The POST messages indicate if the system is running well or not.

Note: If the system does not turn on or boot after pressing the power button, go to the next section for the possible causes of the boot failure

Aside from the POST messages, you can determine if the system is in good condition by checking if the following occurred.

- The power status indicator on the front panel lights up blue.
- The Num Lock, Caps Lock and Scroll Lock indicators on the keyboard light up.

Power-on problems

If the system fails to boot after you have applied power, check the following factors that might have caused the boot failure.

- The external power cord may be loosely connected.
- Check the power cord connection from the power outlet to the power cord socket on the rear panel. Make sure that the cord is properly connected to the power outlet and to the power cord socket.
  No power comes from the grounded power outlet. Have an electrician check your power outlet.
- Loose or improperly connected internal power cables.

  Check the internal cable connections. If you are not confident to perform this step, ask a qualified technician to assist you.

Warning! Make sure all power cords are

disconnected from the electrical outlet before performing this task.

Note: If you have gone through the preceding actions and the system still fails to boot, ask your dealer or a qualified technician for assistance.

Turning off the system

There are two ways to turn off the Server—via software or via hardware. The software procedure below applies to a system running on a Windows OS. For other shutdown procedures, refer to the related user documentation.

To turn off the system via software:

1. Press **<Ctrl>** + **<Alt>** + **<Delete>** on the attached keyboard or click **Start** on the Windows taskbar.
2. Select **Shut Down**.
3. Select Shut Down from the drop-down menu, then click **OK**.

To turn off the system via hardware

If you cannot shut down the Server via software, press the power button for at least four seconds. Quickly pressing the button may put the Server in a Suspend mode only.

Initial system startup problems

Problems that occur at initial system startup are usually caused by an incorrect installation or configuration. Hardware failure is a less possible cause. If the problem you are experiencing is with a specific application.

Initial troubleshooting checklist

- AC power is available at the wall outlet?
- Is the power supply module properly installed?
- Is the system power cord properly plugged into the power supply module socket? and connected to a NEMA 5-15R outlet for 100-120 V or a NEMA 6-15R outlet for 200-240 V?
- Are all peripheral cables correctly connected and secured?
- Did you press the system power button to turn the Server on (power on indicator should be lit green)?
- Are all device drivers properly installed?
- Are hard disk drive(s) properly formatted and configured?
- Are the BIOS configuration settings in the BIOS Setup Utility correct?
- Is the operating system properly loaded?
  Refer to the operating system documentation.
- Are all hardware components compliant with the tested components
- lists?
- Are all internal cables correctly connected and secured?
- Is the processor properly seated in its mainboard socket?
- Are all standoffs in the proper location and not touching any components, causing a potential short?
- Are all add-in expansion cards fully seated in their mainboard slots?
- Are all system jumpers correctly set?
- Are all switch settings on add-in boards and peripheral devices correct?

To check these settings, refer to the manufacturer's documentation that comes with them. If applicable, ensure that there are no conflicts (e.g., two add-in boards sharing the same interrupt).

Hardware diagnostic testing

This section provides a detailed approach to identifying a hardware problem and its cause.

Checking the boot-up status

Caution: Before disconnecting any peripheral cables from the Server, turn off the system and any peripheral devices. Failure to do so can cause permanent damage to the system and/or the peripheral device.

1. Turn off the system and all external peripheral devices.
2. Disconnect all peripheral devices from the system, except for the keyboard and the display monitor.
3. Make sure the system power cord is plugged into a properly grounded AC outlet and in the power supply module cord socket.
4. Make sure the display monitor and keyboard are correctly connected to the system.
5. Turn on the display monitor.
6. Set the display brightness and contrast controls to at least two thirds of their maximum range.
   Refer the documentation that came with your display monitor.
7. If the operating system normally loads from the hard drive, make sure there is no diskette in floppy drive and no disc in the optical drive.
8. If the power indicator is lit, attempt to boot from a disc.
9. Turn on the system.

Verifying the condition of the storage devices

As POST determines the system configuration, it tests for the presence of each mass storage device installed in the system. As each device is checked, its activity indicator should turn blue briefly. Check the activity indicators for the hard drive(s), and any other 5.25" device you may have installed.

If any of these indicators fail to light up, refer to related problems listed in the Specific problems and corrective actions section.

Specific problems and corrective actions

Listed below are specific problems that may arise during the use of your Server and their possible solutions

Confirming loading of the operating system

Once the system boots up, the operating system prompt appears on the screen. The prompt varies according to the operating system. If the operating system prompt does not appear.

Specific problems and corrective actions

Listed below are specific problems that may arise during the use of your Server and their possible solutions

Specific problems and corrective actions

Listed below are specific problems that may arise during the use of your Server and their possible solutions.

Power indicator does not light.

Do the following:

- Make sure the power supply module is properly installed.
- Make sure the power cord is connected correctly.
- Make sure that the wall outlet has power. Test it by plugging in another device.
- Make sure the power indicator on the front panel is lit up.
- Remove all add-in cards and see if the system boots.
  If reboot is successful, install the cards back in one at a time with a reboot between each addition to determine if one of them is causing the problem.
- Make sure that you have properly installed system compliant memory modules, and that they are populated according to the system guidelines.
- Make sure that you have installed system compliant processors, and that they are populated according to the system guidelines.

Optical drive activity indicator does not light

Do the following:

- Make sure the SATA and power cables are properly connected.
- Check that relevant switches and jumpers on the drive are set correctly.
- Check that the drive is properly configured.

Optical drive tray cannot be ejected
Insert the tip of a paperclip into the small hole on the optical drive. Slowly pull the tray out from the drive until the tray is fully extended.

Optical drive cannot read a disc

Do the following:

- Make sure you are using the correct type of disc.
- Make sure the disc is properly seated in the drive.
- Make sure the disc is unscratched.
- Make sure the drive's cables are properly connected.

Newly installed memory modules are not detected.

Do the following:

- Make sure the memory modules specifications comply with the system requirements.
- Make sure the memory modules have been populated according to the system guidelines.
- Make sure the memory modules are properly installed on their mainboard slots.

Network activity indicators do not light.

Do the following:

- Make sure the correct network drivers are loaded on the system.
- Network might be idle.

Peripheral device connected to a USB port does not work.

Do the following:

- Reduce the number of external devices connected to a USB hub.
- Refer to the documentation that came with the device

There is problem with the software program.

Do the following:

- Verify that the software is properly configured for the system.
- Refer to the software installation and operation documentation for instructions on setting up and using the software. Try a different version of the software to see if the problem is with the copy you are using. If the other version runs correctly on the system, contact your vendor about the defective software.

No characters appear on the display monitor.

Do the following:

- Is the keyboard functioning? Test it by turning the Num Lock function on and off to check if the Num Lock indicator lights up.
- Is the display monitor plugged in and turned on? If you are using a switch box, is it switched to the correct system?
- Are the brightness and contrast controls on the video monitor properly adjusted?
- Is the display monitor signal cable properly connected?
- Does this display monitor work correctly if plugged into a different system?
- Remove all add-in cards and see if the system boots.
  If reboot is successful, install the cards back in one at a time with a reboot between each addition to determine if one of them is causing the problem.
- Make sure that you have properly installed system-compliant memory modules, and that they are populated according to the system guidelines.
- Make sure that you have installed system compliant processors, and that they are populated according to the system guidelines.

If you are using an add-in video controller card, do the following:

1. Verify that the display monitor works using the onboard video

controller.

2. Verify that the add-in video controller card is fully seated in its slot.
3. Reboot the system for the changes to take effect.
4. If there are still no characters on the screen after you reboot the system, reboot it again.
   Take note of the beep codes emitted during POST. This information may be required if you seek technical assistance.
   If POST does not emit any beep code and characters still do not appear, the display monitor or the video controller may be defective. Contact your local Altos representative or authorized dealer for technical assistance.

Note: If POST does not emit any beep code and characters still do not appear, the display monitor or the video controller may be defective. Contact your local Altos representative or authorized dealer for technical assistance.

Notices
Information for your safety and comfort

Safety instructions

Read these instructions carefully. Keep this document for future reference. Follow all warnings and instructions marked on the product.

Turning the product off before cleaning

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

CAUTION for plug as disconnecting device

Observe the following guidelines when connecting and disconnecting power to the power supply unit:

- Install the power supply unit before connecting the power cord to the AC power outlet.
- Unplug the power cord before removing the power supply unit from the computer.
- If the system has multiple sources of power, disconnect power from the system by unplugging all power cords from the power supplies.

CAUTION for accessibility

Be sure that the power outlet you plug the power cord into is easily accessible and located as close to the equipment operator as possible. When you need to disconnect power to the equipment, be sure to unplug the power cord from the electrical outlet.

Warnings

- Do not use this product near water.
- Do not place this product on an unstable cart, stand or table. If the product falls, it could be seriously damaged.
- Slots and openings are provided for ventilation to ensure reliable operation of the product and to protect it from overheating. These

openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug or other similar surface. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.

- Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind onto or into the product.
- To avoid damage of internal components and to prevent battery leakage, do not place the product on a vibrating surface.
- Never use it under sporting, exercising, or any vibrating environment which will probably cause unexpected short current or damage rotor devices, HDD, Optical drive, and even exposure risk from lithium battery pack.
- This product is not suitable for use with visual display workplace devices according to §2 of the German Ordinance for Work with Visual Display Units.

Using electrical power

- This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- Do not allow anything to rest on the power cord. Do not locate this product where people will walk on the cord.
- If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed the fuse rating.
- Do not overload a power outlet, strip or receptacle by plugging in too many devices. The overall system load must not exceed 80% of the branch circuit rating. If power strips are used, the load should not exceed 80% of the power strip's input rating.
- This product's power supply is equipped with a three-wire grounded plug. The plug only fits in a grounded power outlet. Make sure the power outlet is properly grounded before inserting the power supply plug. Do not insert the plug into a non-grounded power outlet. Contact your electrician for details.

Warning！ The grounding pin is a safety feature. Using a power outlet that is not properly grounded may result in electric shock and/or injury.

Note: The grounding pin also provides good protection from unexpected noise produced by other nearby electrical devices that may interfere with the performance of this product.

- Use the product only with the supplied power supply cord set. If you need to replace the power cord set, make sure that the new power cord meets the following requirements: detachable type, UL listed/CSA certified, VDE approved or its equivalent, 4.6 meters (15 feet) maximum length.

Product servicing

Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.

Unplug this product from the wall outlet and refer servicing to qualified service personnel when:

- the power cord or plug is damaged, cut or frayed.
- liquid was spilled into the product.
- the product was exposed to rain or water.
- the product has been dropped or the case has been damaged.
- the product exhibits a distinct change in performance, indicating a need for service.
- the product does not operate normally after following the operating instructions.

Notes：Adjust only those controls that are covered by the operating instructions, since improper adjustment of other controls may result in damage and will often require extensive work by a qualified

technician to restore the product to normal condition.

This Server should be located in a restricted access location or an area with similar instruction.

Caution: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Disposal instructions

Do not throw this electronic device into the trash when discarding. To minimize pollution and ensure utmost protection of the global environment, please recycle.

Declaration of Conformity for EU countries

Hereby, Altos, declares that this system is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

List of applicable countries

This device must be used in strict accordance with the regulations and constraints in the country of use. For further information, please contact local office in the country of use. Please see http://ec.europa.eu/enterprise/rtte/implem.htm or the latest country list.

Note: The following sections are applicable only to Class A systems

FCC notice Class A

This device has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the device and receiver.
- Connect the device into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help

Notice: Shielded cables
All connections to other computing devices must be made using shielded cables to maintain compliance with FCC regulations. In compliance with FCC regulations, use shielded cables to connect to other computing devices.

Notice: Peripheral devices
Only peripherals (input/output devices, terminals, printers, etc.) certified to

comply with the Class A limits may be attached to this equipment. Operation with non- certified peripherals is likely to result in interference to radio and TV reception.

Caution
Changes or modifications not expressly approved by the manufacture could void the user's authority, which is granted by the Federal Communications Commission, to operate this computer.

Operation conditions
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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