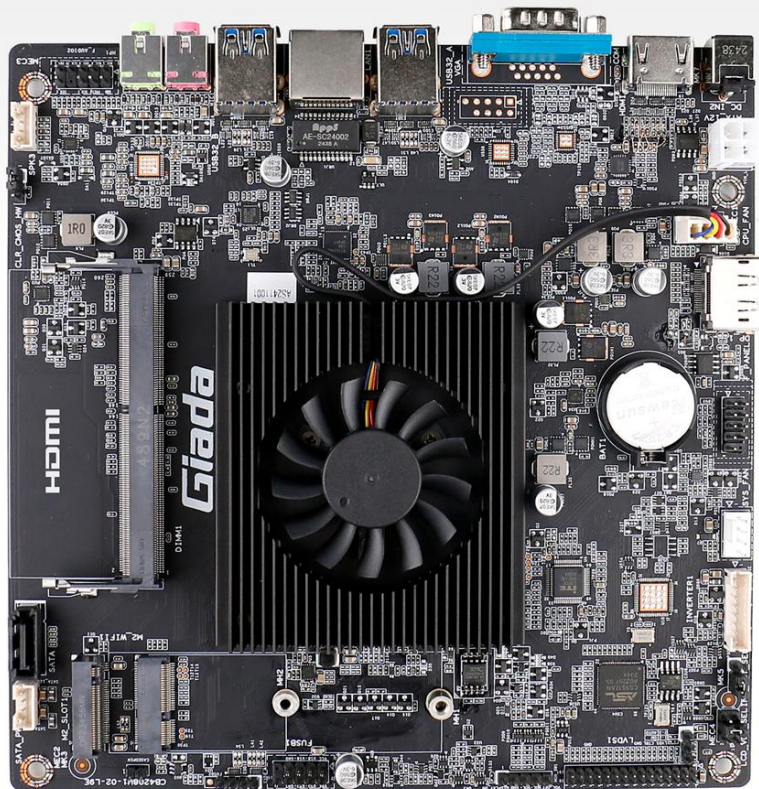


CB4-208-U1 User Manual



Statement

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The information provided in this manual is accurate and reliable. The company does not take any legal responsibility for the consequences of infringement use of this manual.

Safety Notice

- Read the user manual carefully before setting up the Giada product.
- Disconnect the power cord before installing the internal components
- Most electronic components are sensitive to static electrical charge, please wear a wrist-grounding strap when installing the internal components.
- Don't disconnect the power cord when the system is running to avoid damage to the sensitive components by instantaneous surge voltage.

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1. Product Introduction

1.1 Brief Introduction

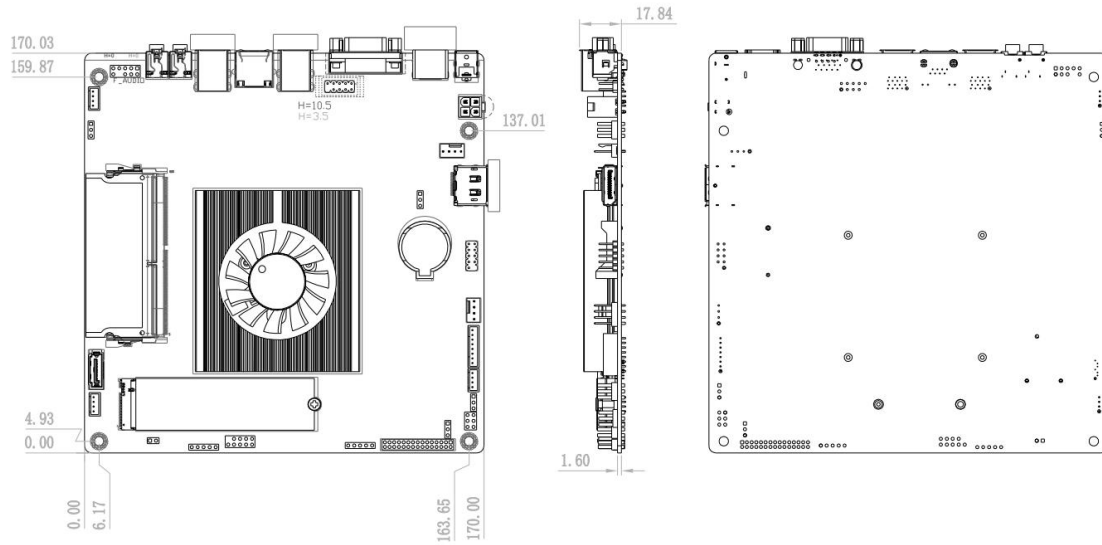
Giada CB4-208-U1 is built on Intel® Alder Lake-N and Twin Lake-N platforms, delivering an ideal balance of performance and power efficiency for embedded applications. Supporting Intel N97, N100 and N150, the motherboard provides responsive computing performance for digital signage, self-service kiosks, industrial control systems, and smart retail applications. With support for up to 16 GB of DDR4 memory, the CB4-208-U1 ensures smooth multitasking and reliable operation in demanding edge computing environments.

1.2 Motherboard Picture



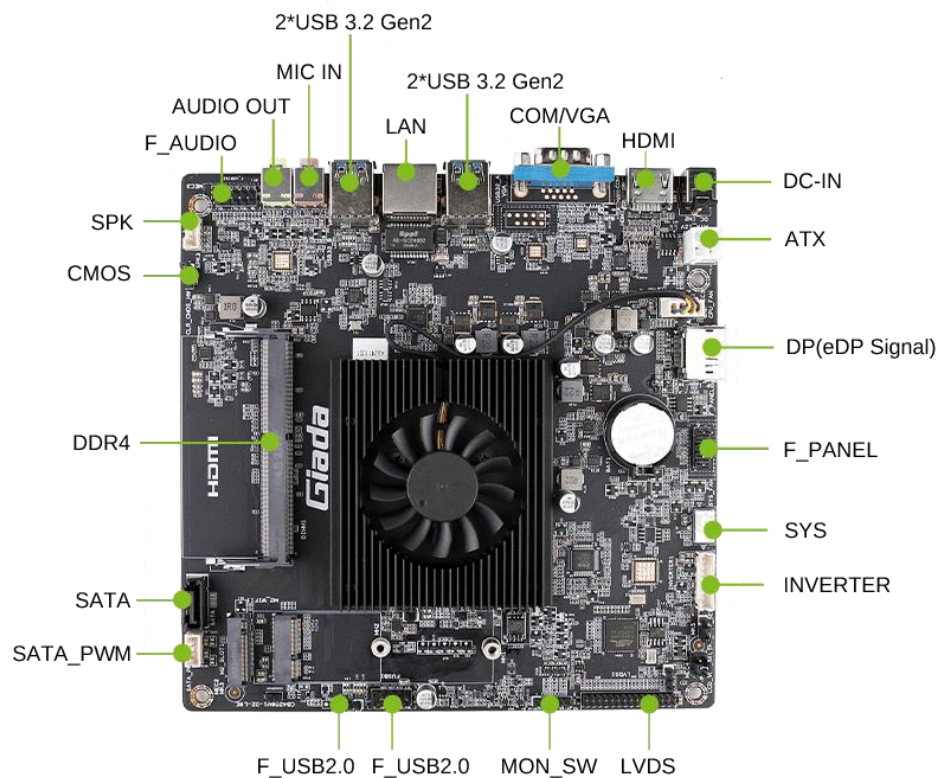
2. Hardware Usage Instruction

2.1 Dimension Chart



2.2 Interface Definition

2.2.1 Board Jumper, Header And Interface Diagram



2.2.2 Board Jumper And Header Definition

ATX PWR_IN (4PIN 12V Power Socket)

No.	Definition	Attribute	PIN Definition
1	GND	PWR input GND	
2	GND	PWR input GND	
3	12V	PWR input VCC	
4	12V	PWR input VCC	

F_AUDIO (10PIN)

No.	Definition	Attribute	PIN Definition
1	MIC2_L	MIC2 Input	
2	GND	Simulated land	
3	MIC2_R	MIC2 Input	
4	VCC_3V	3.3V	
5	LINE2_R	LINE2 Output R	
6	MIC2_JD	MIC2 Detection	
7	FRONT_IO	FRONT Detection loop	
8	NA	Mistaken Prevention PIN	
9	LINE2_L	LINE2 Output L	
10	LINE2_JD	LINE2 Detection	

Speaker (4PIN)

No.	Definition	Attribute	PIN Definition
1	Out_R-	Out L-	
2	Out_R+	Out R+	
3	Out_L+	Out L+	
4	Out_L-	Out L-	

F_PANEL (10PIN)

No.	Definition	Attribute	PIN Definition								
1	HDD LED+	HDD LED+	<p style="text-align: center;">FRONT PANEL SILKSCREEN</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td>1, 3</td> <td>HD LED</td> </tr> <tr> <td>2, 4</td> <td>PWR LED</td> </tr> <tr> <td>5, 7</td> <td>RESET</td> </tr> <tr> <td>6, 8</td> <td>PWR BTN</td> </tr> </tbody> </table>	1, 3	HD LED	2, 4	PWR LED	5, 7	RESET	6, 8	PWR BTN
1, 3	HD LED										
2, 4	PWR LED										
5, 7	RESET										
6, 8	PWR BTN										
2	PWR LED+	PWR LED+									
3	HDD LED-	HDD LED-									
4	PWR LED-	PWR LED-									
5	GNG	F_PANEL									
6	PWR_SW	On/off button									
7	RESET_N	Reset button									
8	GNG	F_PANEL									
9	NC	NC PIN									
10	NA	Mistaken Prevention PIN									

SATA_PWM (4PIN 5V/12V)

No.	Definition	Attribute	PIN Definition
1	12V VCC	12VPWR	
2	GND	GND	
3	GND	GND	
4	5V VCC	5VVCC	

LVDS (2*15PIN)

No.	Definition	No.	Definition	PIN Definition
1	VCC	16	LVDS_TX_CLKA+	
2	VCC	17	LVDS_TX_A3-	
3	VCC	18	LVDS_TX_A3+	
4	GND	19	LVDS_TX_B0-	
5	LVDS_Detect	20	LVDS_TX_B0+	
6	GND	21	LVDS_TX_B1-	
7	LVDS_TX_A0-	22	LVDS_TX_B1+	
8	LVDS_TX_A0+	23	LVDS_TX_B2-	
9	LVDS_TX_A1-	24	LVDS_TX_B2+	
10	LVDS_TX_A1+	25	GND	
11	LVDS_TX_A2-	26	GND	
12	LVDS_TX_A2+	27	LVDS_TX_CLKB-	
13	GND	28	LVDS_TX_CLKB+	
14	GND	29	LVDS_TX_B3-	
15	LVDS_TX_CLKA-	30	LVDS_TX_B3+	

INVERTER (8PIN 5/12V Powering)

No.	Definition	Attribute	PIN Definition
1	BKLT_ON	Backlight switch	<p>INVERTER</p> <p>Silk Screen</p> <ul style="list-style-type: none"> BL_ON BL_PWM BL_VCC BL_VCC GND GND BLK_UP BLK_DN <p>D18 HD/1*8P/2.0</p>
2	BKLT_PWM	Backlight bandwidth	
3	BKLT_VCC	Backlight voltage	
4	BKLT_VCC	Backlight voltage	
5	GND	GND	
6	GND	GND	
7	KEY_BRI_UP	Brightness +	
8	KEY_BRI_DN	Brightness -	

LCD_VDD_SEL (6PIN 3.3V/5V/12V)

No.	Definition	Attribute	PIN Definition
1-2	3.3V	Screen operating voltage	<p>LCD_VDD_SEL</p> <p>SMT/2*3P/2.0MM</p>
3-4	5V	Screen operating voltage	
5-6	12V	Screen operating voltage	

INV_VOT_SEL1 (3PIN 5V/12V)

No.	Definition	Attribute	PIN Definition
1-2	5V	Backlight voltage	<p>INV_VOT_SEL1</p> <p>HD/3*1P/2.54MM</p>
2-3	12V	Backlight voltage	

F_USB2.0 (2*5PIN+4PIN)

No.	Definition	Attribute	PIN Definition
1	5V	5V PWR	
2	5V	5VPWR	
3	USB_D-	D-	
4	USB_D-	D-	
5	USB_D+	D+	
6	USB_D+	D+	
7	GND	GND	
8	GND	GND	
9	NA	Mistaken Prevention PIN	
10	GND	GND	

No.	Definition	Attribute	PIN Definition
1	5V	5V PWR	
2	USB_D-	D-	
3	USB_D+	D+	
4	GND	GND	

CPU/SYS FAN (4PIN 12V)

No.	Definition	Attribute	PIN Definition
1	GND	GND	
2	12V	Fan power supply	
3	FAN_TAC	Speed detection	
4	FAN_CTL	Speed detection	

BKL-CON (4PIN)

No.	Definition	Attribute	PIN Definition
1	DISP_OFF	Screen off	<p>Silk Screen</p> <p>DISPLAY_ON BLK_UP GND BLK_DN</p> <p>_1*4PIN/2.0P/DIP</p>
2	BKLT+	Brightness +	
3	GND	GNA	
4	BKLT-	Brightness -	

CLR_COMS (3PIN)

No.	Definition	Attribute	PIN Definition
1	GND	GND	<p>CLR_CMOS_HW</p> <p>54MM</p>
2	GND	GNA	
3	CLR	NC	

MOM_SW (5PIN)

No.	Definition	Attribute	PIN Definition
1	DISP_OFF	Screen Off	<p>MON_SW1</p> <p>HD/1*5PIN/2.54MM</p>
2	GND	GNA	
3	VOL+	VOL+	
4	VOL-	VOL+	
5	VOL_OFF	Mute	

BL_PWM (3PIN)

No.	Definition	Attribute	PIN Definition
1	Negative	Negative dimming	<p>BL_PWM</p> <p>BKLT_Negative 1</p> <p>BKLT_PWM 2</p> <p>BKLT_Positive 3</p> <p>HD/3*1P/2.54MM</p> <p>C555 </p> <p>100PF/4/50V</p> <p>NC</p>
2	BKLT_PWM	Brightness	
3	Positive	Positive Dimming	

3. Accessories Installation Steps

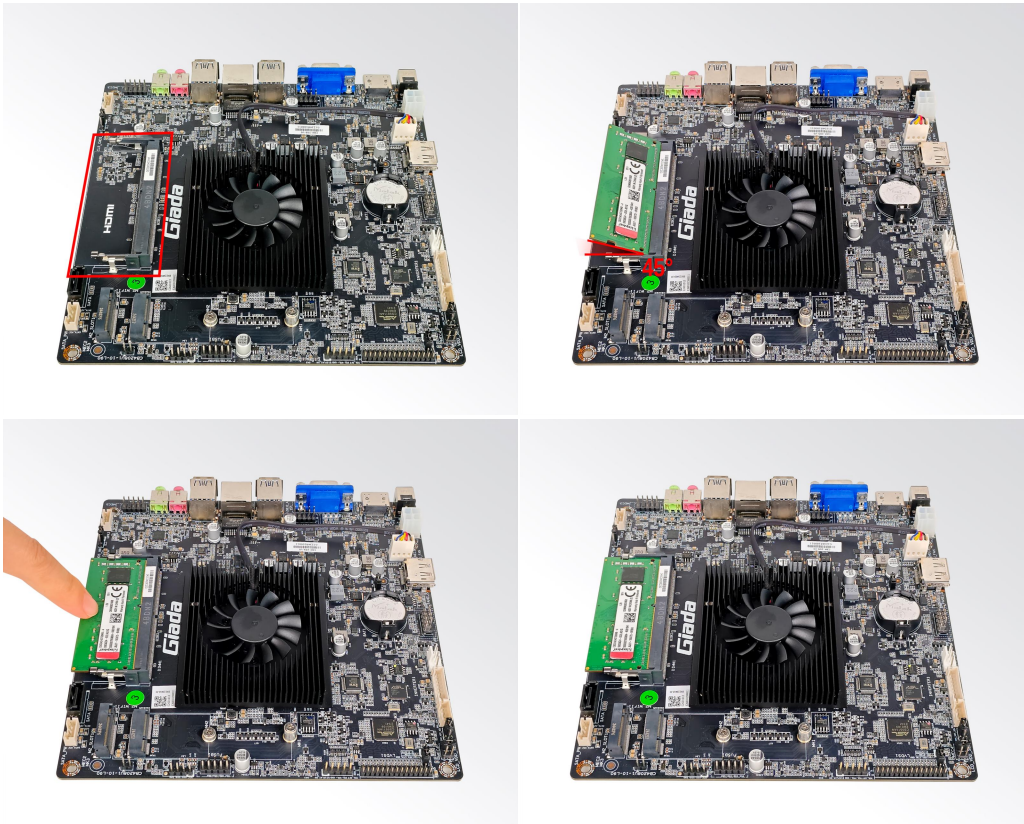
▲ For safety reasons, please ensure that the board is disconnected with power before installation.



3.1 Memory Installation

▲ This product only supports DDR4 SO-DIMM memory modules.

1. Locate the SO-DIMM slot on the board.
2. Gently insert the module into the slot in a 45-degree angle.
3. Carefully push down the memory module until it snaps into the locking mechanism.



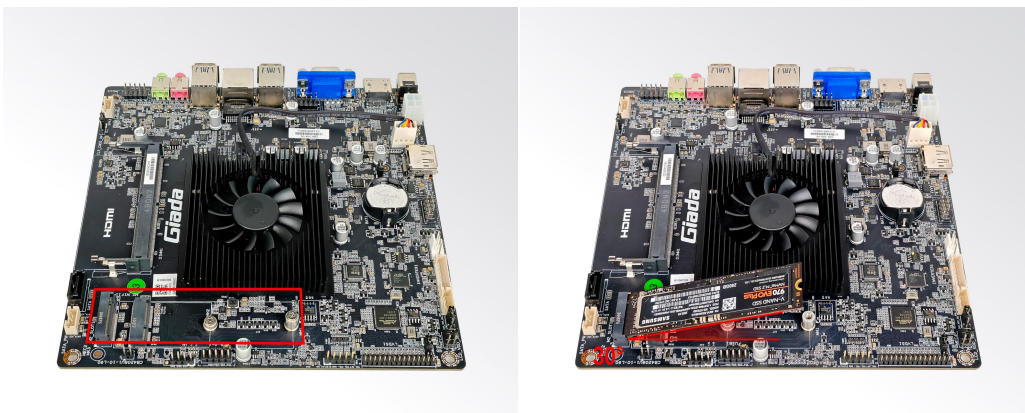
3.2 WIFI (M.2) Installation

1. Tighten the WIFI module and WIFI module bracket with screws.
2. Plug the WIFI module into the M.2 slot.
3. Secure the module to the carrier by tightening up the screw.
4. Connect the black cable to **Main** and grey cable to **AUX**. Install the antenna.



3.3 SSD (M.2) Installation

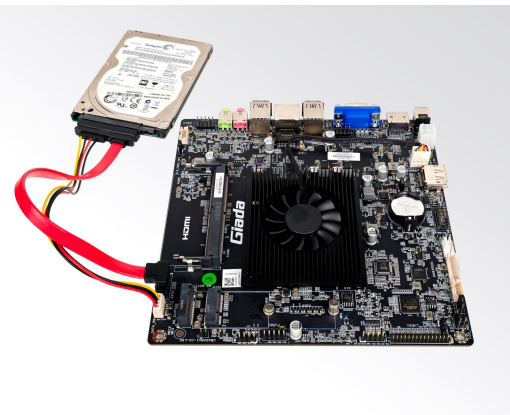
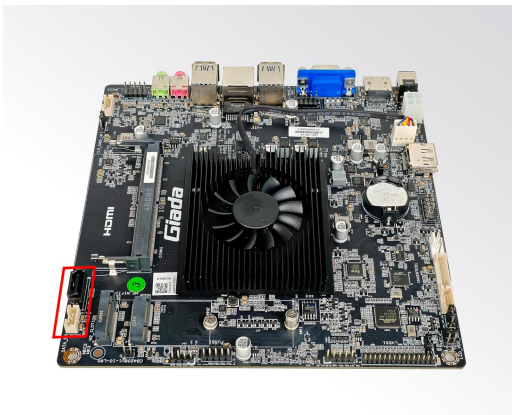
1. Plug the M-Key M.2 (2280) SSD (PCIe protocol) into the appropriate slot.
2. Secure the module to the carrier by tightening up the screw.





3.4 SATA Hard Disk Installation

1. Connect SATA Disk with cable to the connector on board.



4. Bios Setup

Notice:

The descriptions relating to BIOS setup in this Manual is for reference only since the BIOS version of the product might be upgraded. Giada provides no guarantee that all the contents in this Manual are consistent with the information you acquired.

BIOS is a basic I/O control program saved in the Flash Memory. Bridging the motherboard and the operation system, BIOS is used for managing the setup of the related parameters between them.

When the computer is activated, the system is first controlled by the BIOS program. Firstly, a self-detection called POST is performed to check all hard devices and confirm the parameters of the synchronous hardware.

Once all detections are completed, BIOS will hand over the controlling to the operation system (OS). As BIOS serves as the only channel that connects the hardware and software, whether your computer can run stably and work in optimized state will hinge on how to properly set the parameters in BIOS. Therefore, the correct setup of BIOS plays a key role in stably running the system and optimizing its performance.

The CMOS Setup will save the set parameters in the built-in CMOS SRAM on the motherboard. When the power is shut off, the lithium battery on the motherboard will provide continuously power to CMOS SRAM.

The BIOS setup program will allow you to configure the following items:

1. HD drive and peripheral devices
2. Video display type and display items
3. Password protection
4. Power management characteristics

A. State of BIOS Setup

When the computer is started up, BIOS will run the self-detection (Post) program. This program includes series of diagnosis fixed in BIOS. When this program is executed, the following information will appear if any error is found:

Press [F1] to Run General help

Press [F2] to Load previous values and continue

To enter BIOS, you can press DEL; to load the default values and enter the system, you can press DEL to enter the BIOS interface if error occurs. If the indicative information disappears before operating, you can shut down the computer and turn it on again, or you can press the RESET key on the product case. To restart your computer, you can also press < Ctrl > + < Alt > + < Delete > simultaneously.

B. Function Keys definitions

Hot Key	Description
↑	(Up key) Move to the previous item
↓	(Down key) Move to the next item
←	(Left key) Move to the left item
→	(Right key) Move to the right item
ESC	Exit the current interface
Page Up	Change the setup state, or add the values
Page Down	Change the setup state, or deduct the values
F1	Display the information of the current function Keys definitions.
F9	Load the optimized values
F10	Save the settings and exit the CMOS SETUP

C. Auxiliary information Main interface

When the system enters the main interface of Setup, the major selected contents will be displayed at the lower part of the interface with the change of the options.

When you set the value for each column, you can view the preset value of the column and the values that can be set if you press F2, for example, the BIOS default values or CMOS Setup values.

To exit the interface for auxiliary information, press [ESC].

1) Main menu

When the system enters the CMOS Setup menu, you can see the main menu on the upper part of the screen, as shown in Figure1.

In this main menu, you can use the left and right direction keys to select the setup items. Once the item is selected, the lower part of the computer screen will show the details of setting.

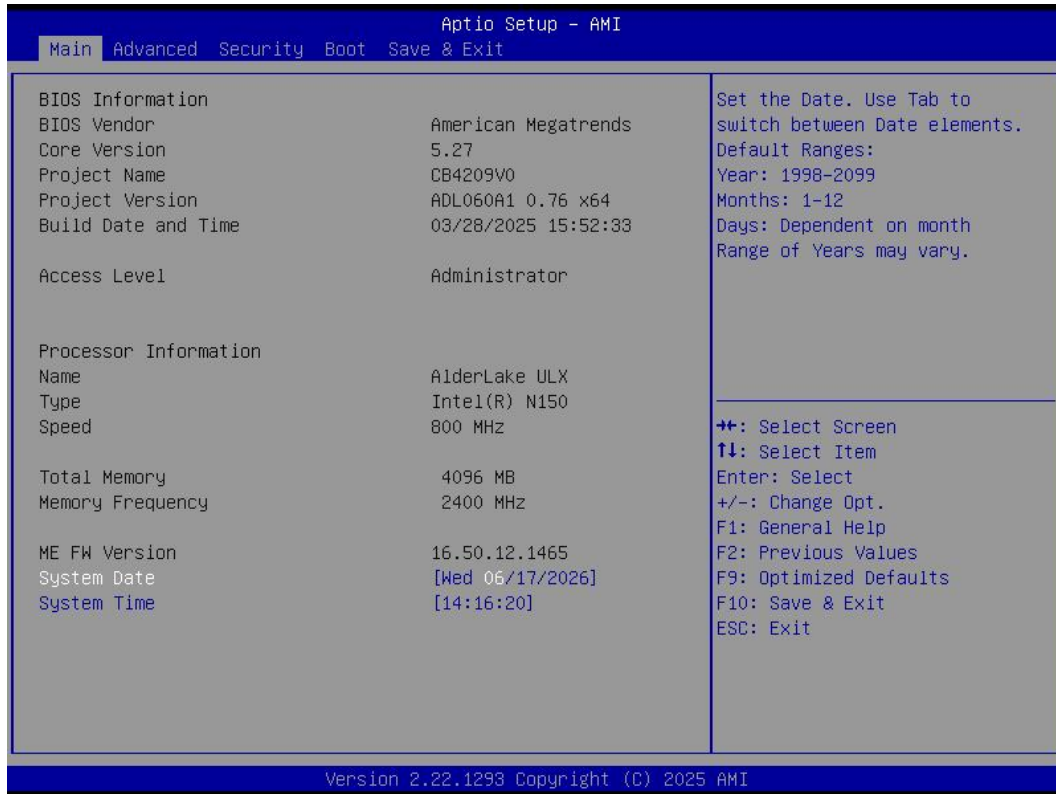


Fig 1

2) Main (standard CMOS setup)

This item is used for setting the date and time.

3) Advanced (advanced BIOS setup)

This item is used for setting the advanced functions provided by BIOS, such as specifications of PCIe facilities, CPU, HDD, etc.

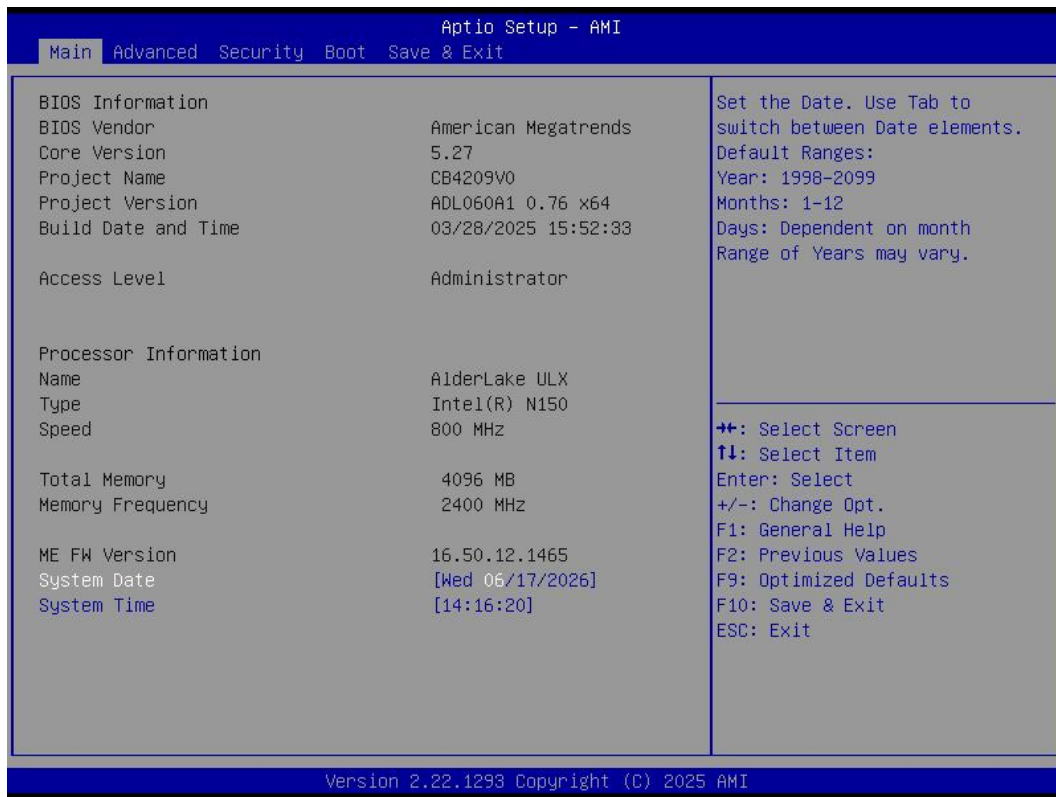
4) Security (set the administrator/user password)

5) Boot (startup configuration characteristics)

6) Save & Exit (option of exit)

This item includes load optimal defaults / load failsafe defaults value / discard changes / discard changes and exit.

4.1 Main (Standard CMOS setting)



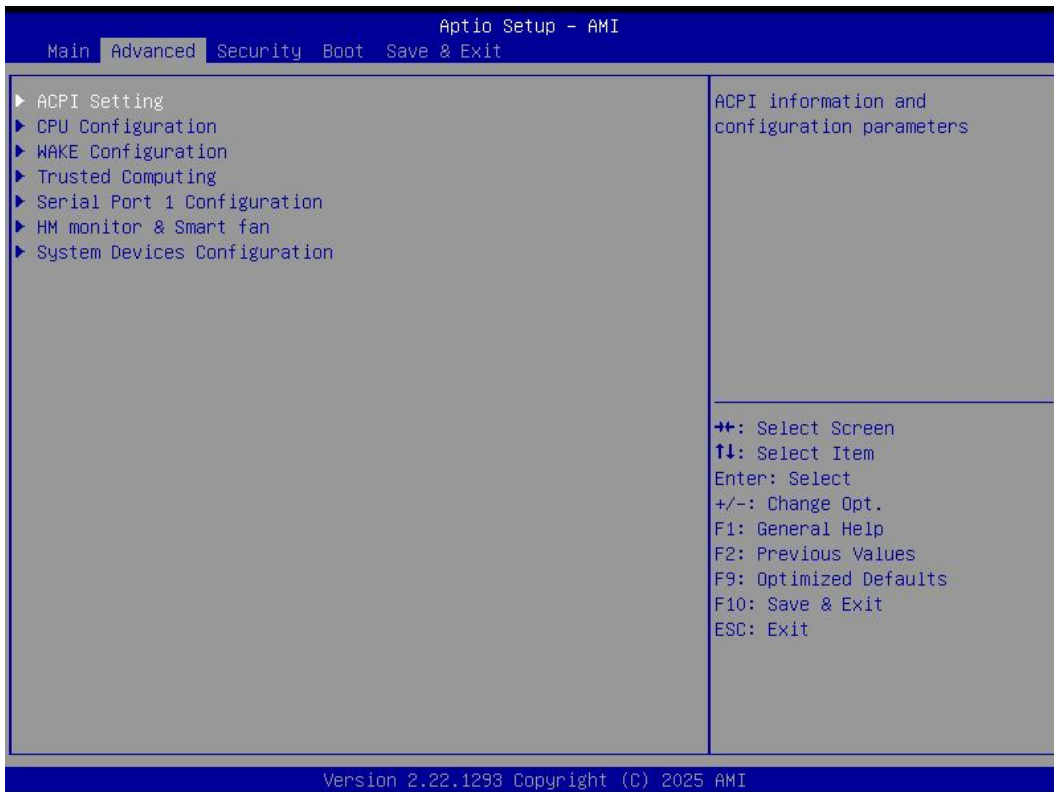
1) System time (hh:mm:ss)

Use this item to set the time for the computer, with the format as “HH / MM / SS”.

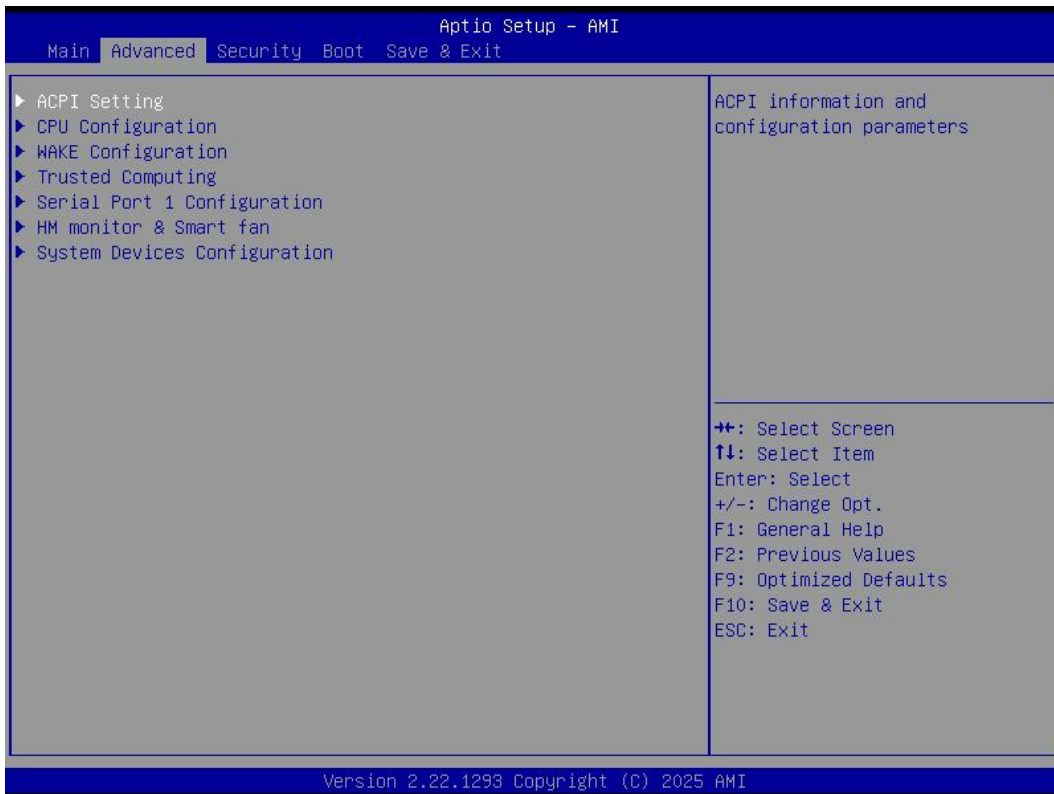
2) System date (mm:dd:yy)

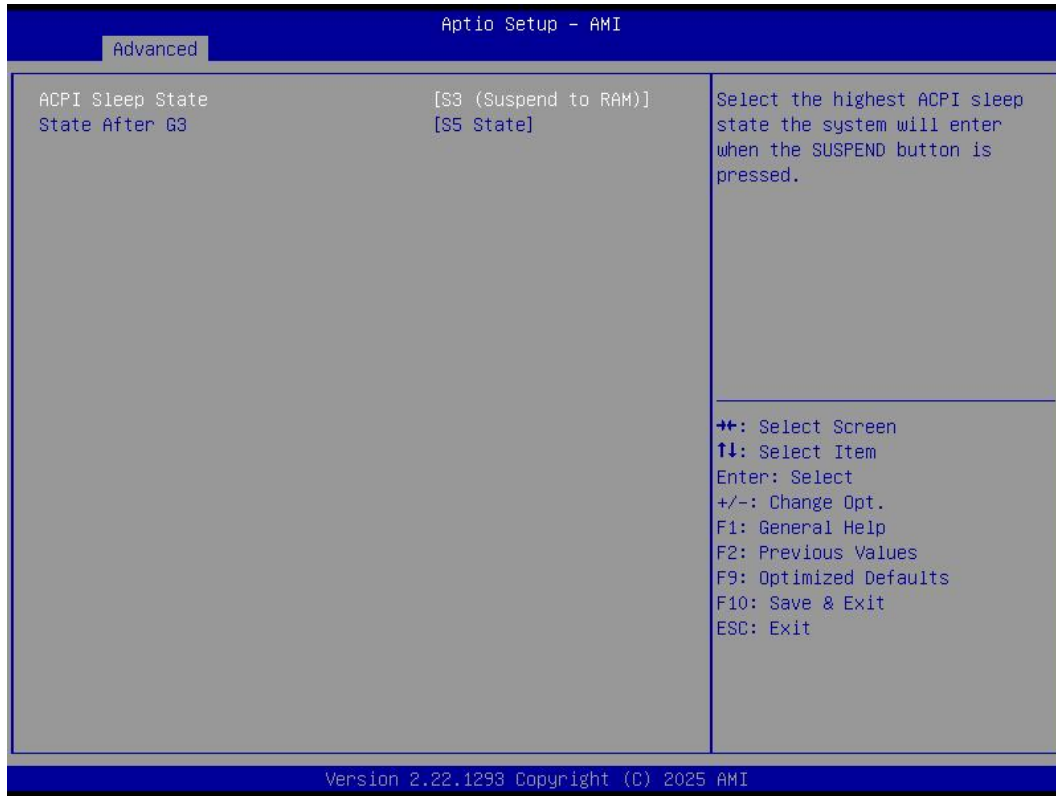
Use this item to set the date for the computer, with the format as “week, MM / DD / YY”.

4.2 Advanced (Advanced BIOS setup)



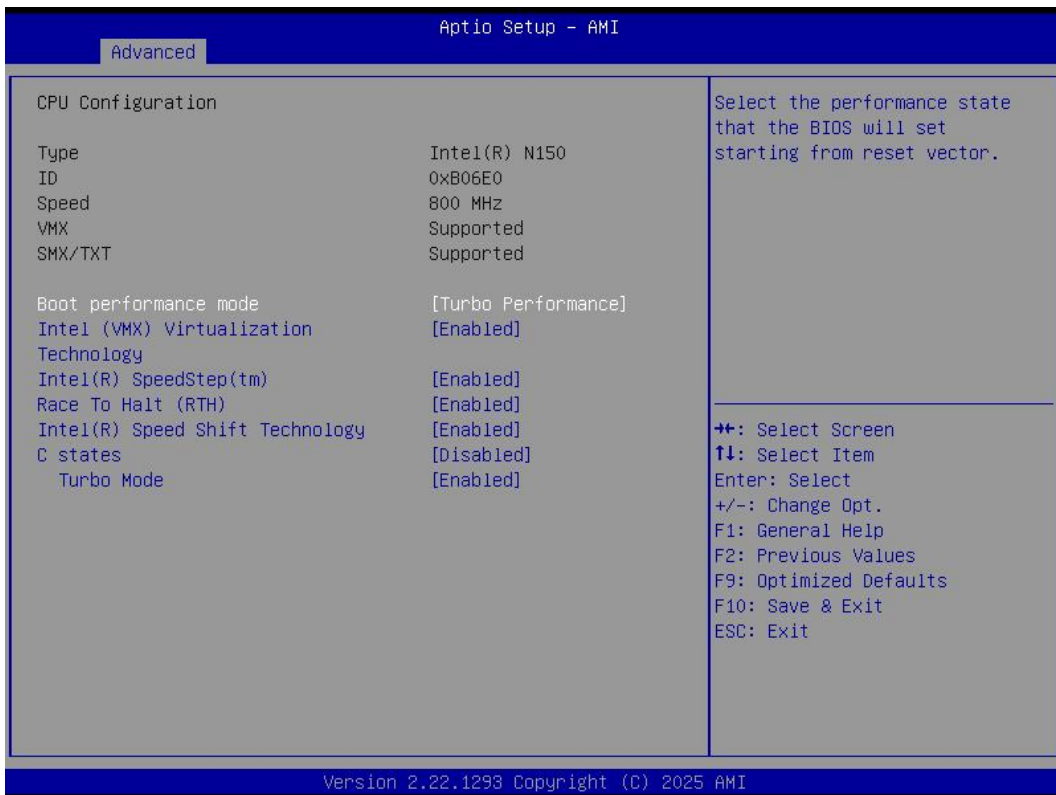
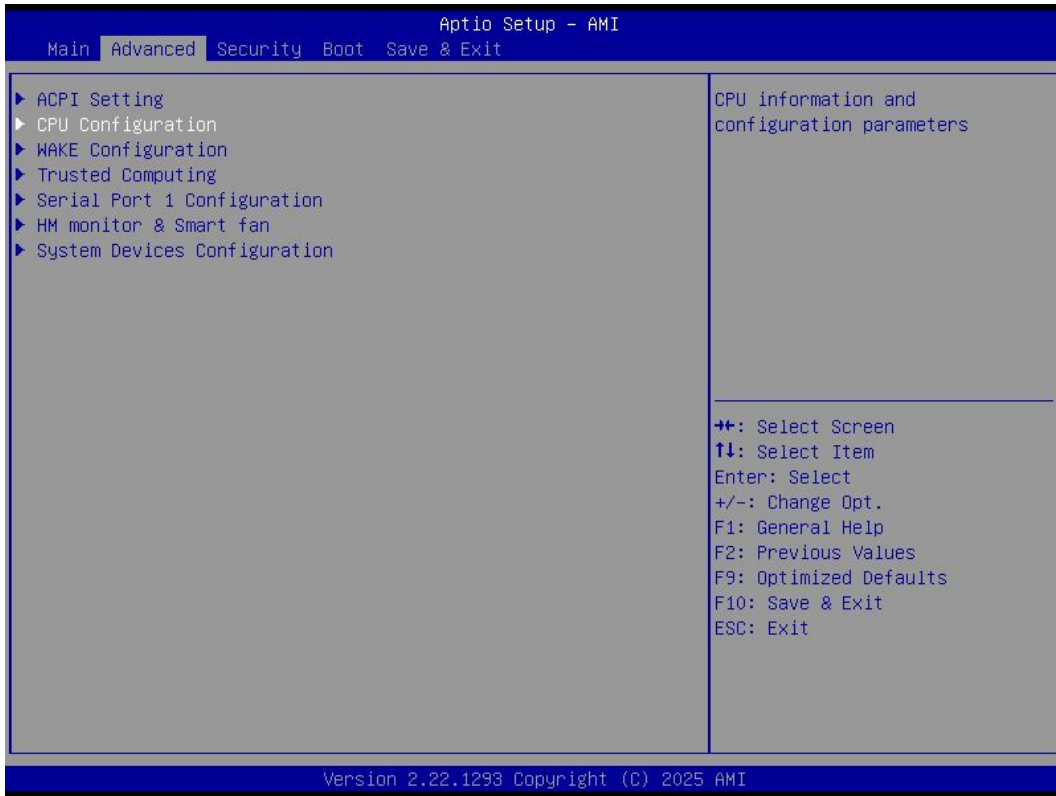
4.2.1 ACPI Setting





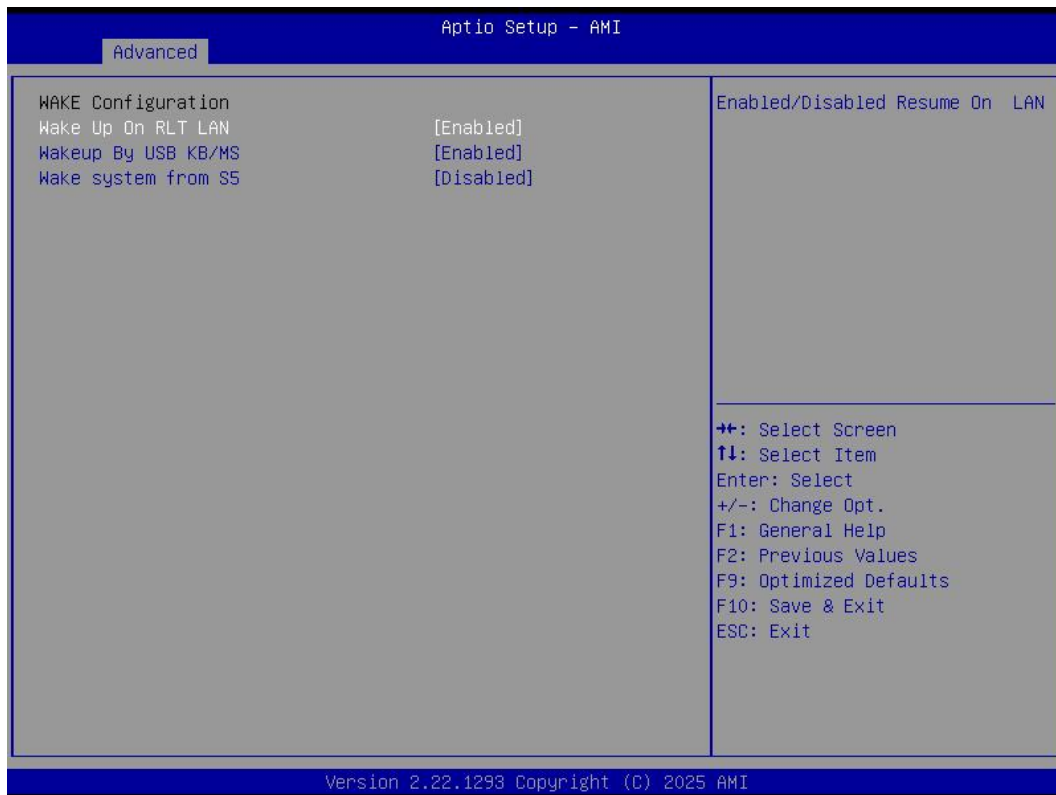
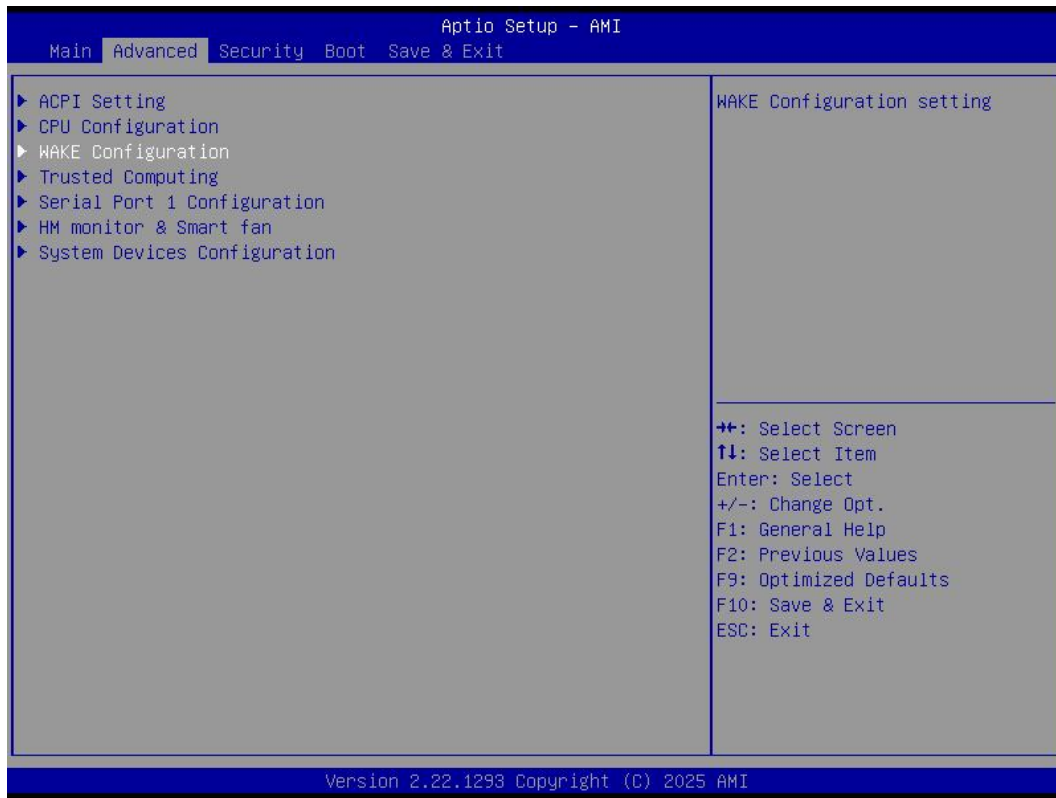
OEM Configuration menu	Description
ACPI Sleep State	Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
State After G3	<ul style="list-style-type: none"> ● State After G3 means after restore power supply. ● S5 State (Default): If set it as S5 State, it means the system will remain shutdown state ● S0 State: If set it as S0 State, it means the system will be power on automatically. <p>Last State: If set it as Last State, it means the system will keep State of last setup.</p>

4.2.2 CPU Configuration



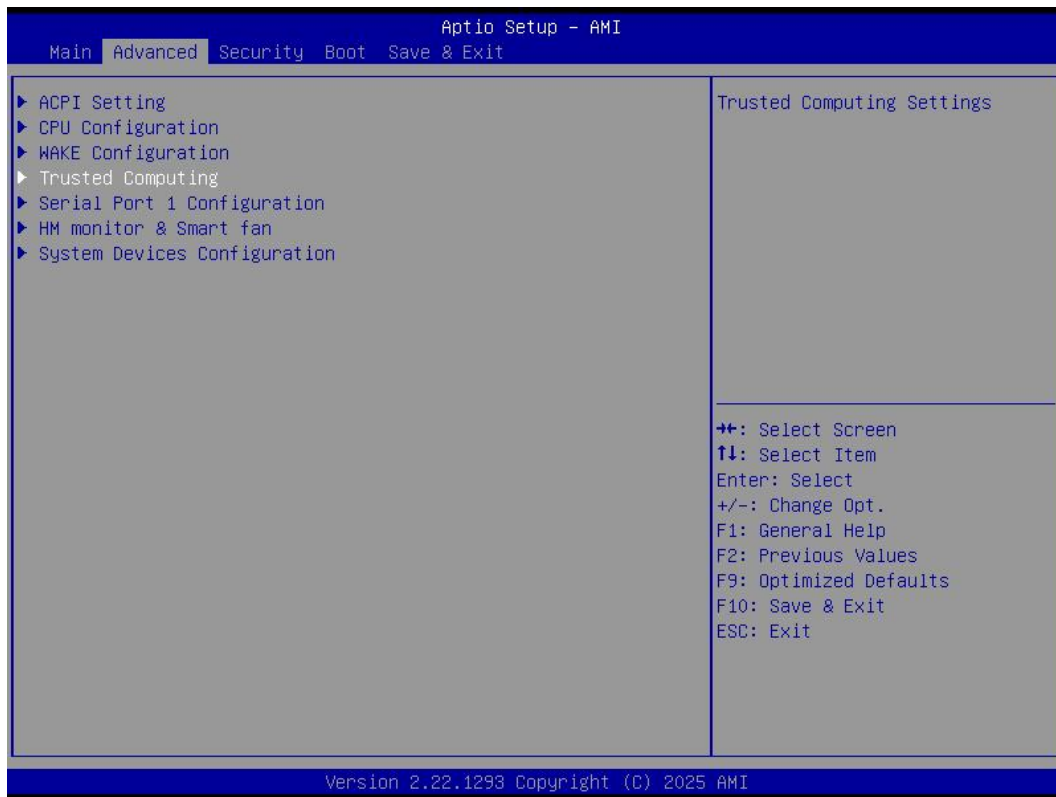
The menu	Description
CPU Configuration	
Boot performance mode	<ul style="list-style-type: none"> ● Max Non-Turbo Performance: the best performance. ● Max Battery. ● Turbo performance.
Intel (VMX) Virtualization Technology	Intel Virtualization Technology is enabled by default. User can enable and disable the Intel Virtualization Technology function.
Intel (R) SpeedStep (tm)	Intel (R) SpeedStep Technology dynamically increases the processor's frequency as needed by taking advantage of thermal and power headroom to give you a burst of speed when you need it, or increased energy efficiency. The option is enabled by default. You can disable the function if it's necessary.
Race To Halt (RTH)	The Race To Halt (RTH) function is enable by default. It can adjust the CPU base frequency work in C-state. Optional: C-state.
Intel (R) Speed Shift Technology	Intel speed shift function is enabled by default. Intel® Speed Shift Technology uses hardware-controlled P-states to deliver dramatically quicker responsiveness with single-threaded, transient (short duration) workloads, such as web browsing, by allowing the processor to more quickly select its best operating frequency and voltage for optimal performance and power efficiency.
C states	The C-State function is Enabled by default.
Turbo Mode	<ul style="list-style-type: none"> ● Disabled. ● Enabled.

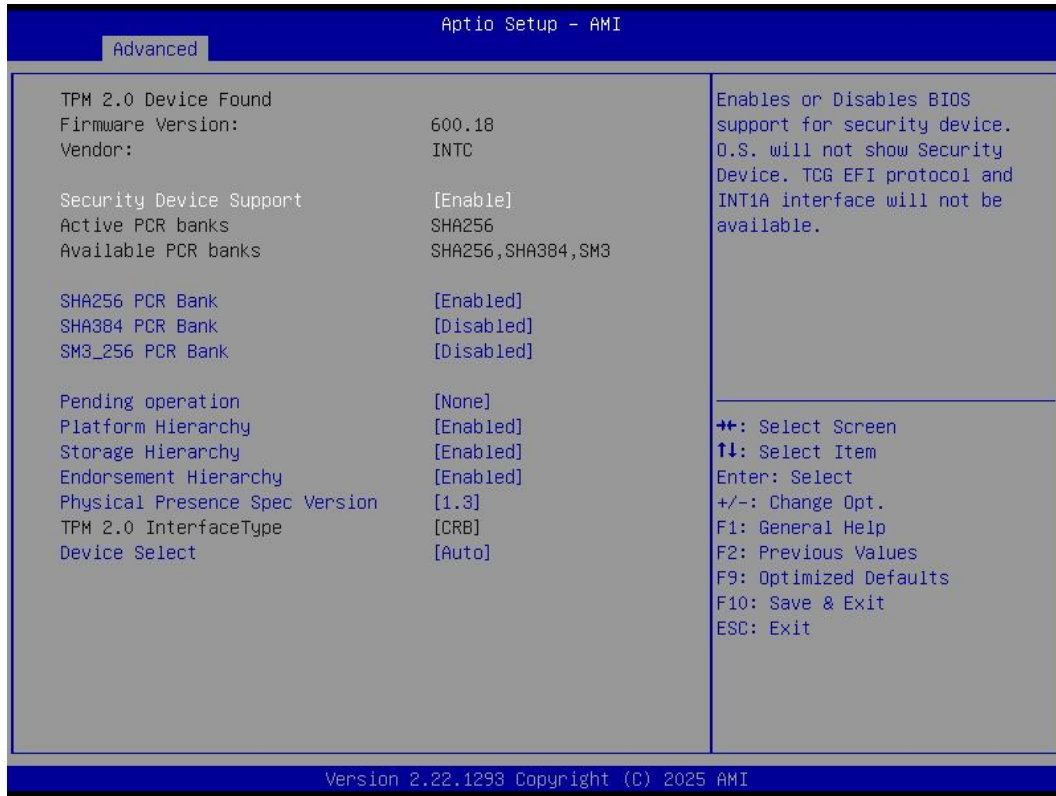
4.2.3 Wake Configuration



Wake Configuration menu	Description
Wake Up On RLT LAN	The user can set up automatic startup by Wake On LAN <ul style="list-style-type: none"> ● Enabled. ● Disabled. The RTC function is enabled by default.
Wakeup by USB KB/MS	The user can set up automatic startup by USB KB/MS <ul style="list-style-type: none"> ● Enabled. ● Disabled. The RTC function is disabled by default.
Wake System from S5	The user can set up automatic startup by fixed-time <ul style="list-style-type: none"> ● Disabled: The WOL is disabled by default. ● Enabled.

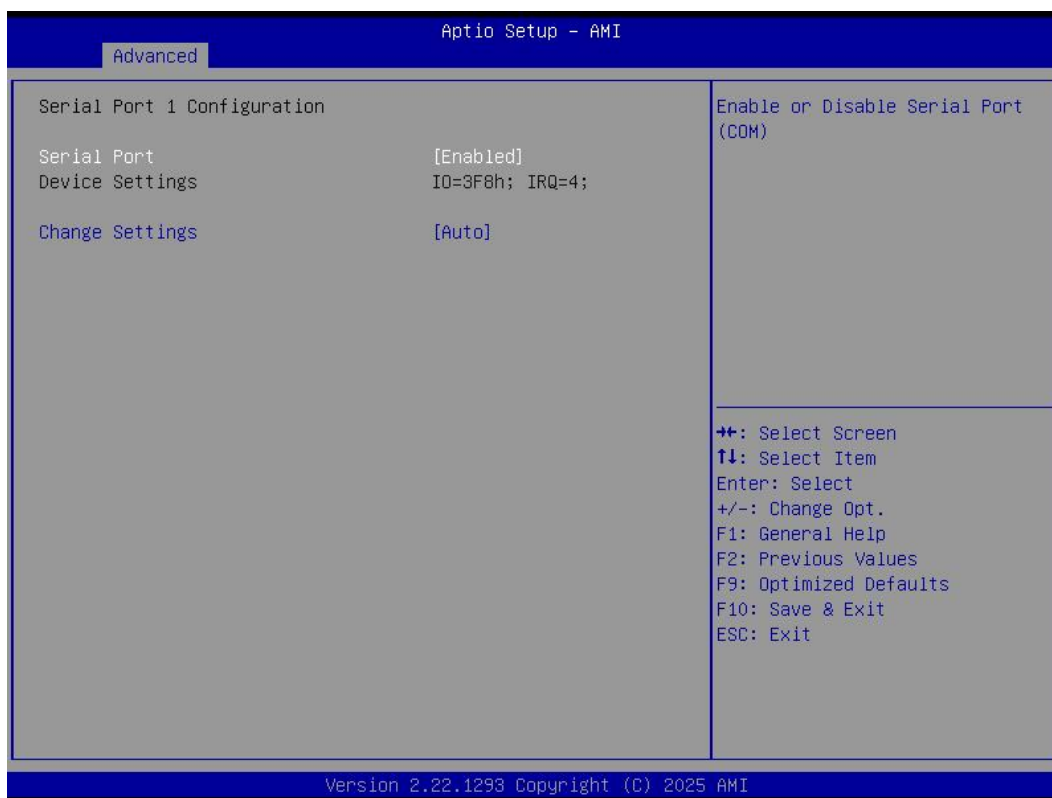
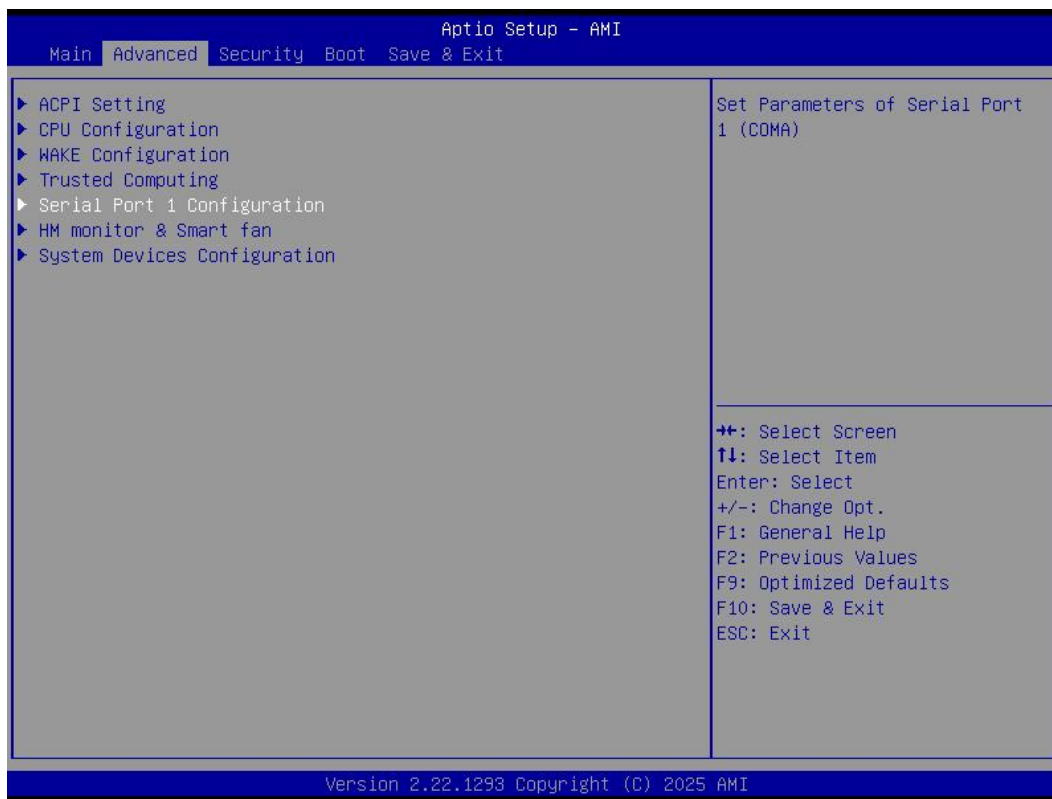
4.2.4 Trusted Computing





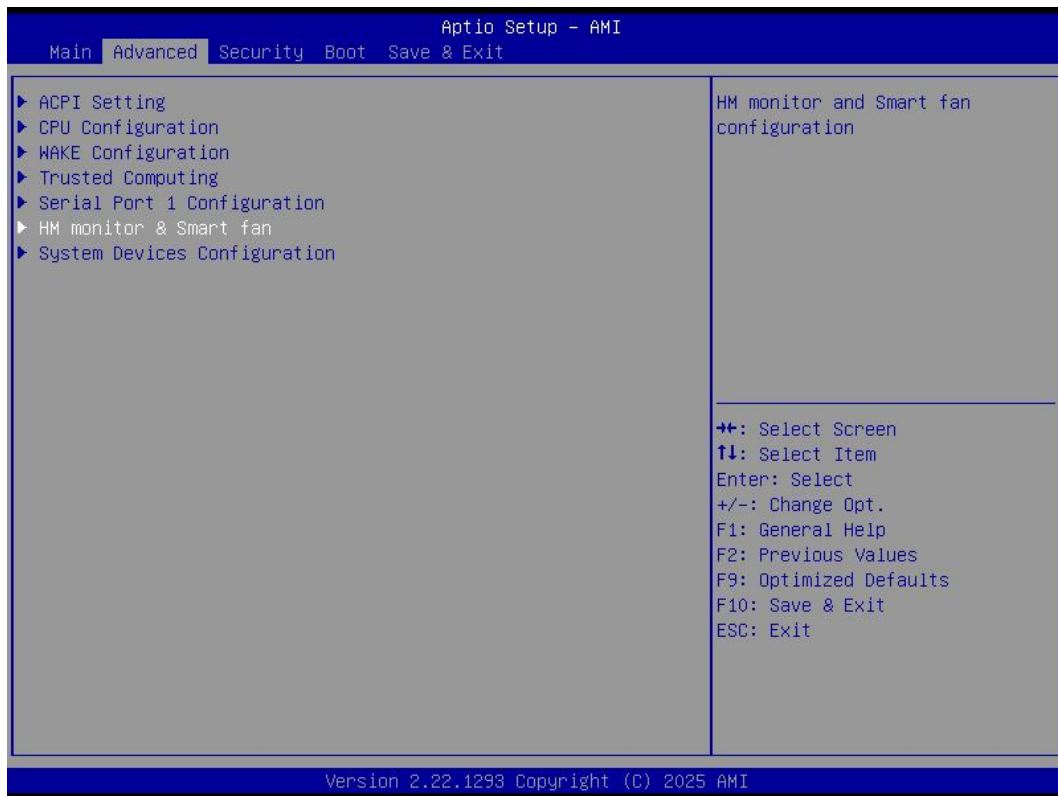
TPM20 Device Found	Description
Firmware Version	<ul style="list-style-type: none"> ● TPM FW version is 700.19
Vendor	<ul style="list-style-type: none"> ● The vendor is INTC
Security Device Support	<ul style="list-style-type: none"> ● Disabled ● Enabled. This item is enabled by default.
SHA256 PCR Bank	<ul style="list-style-type: none"> ● Disabled. This item is disabled by default ● Enabled.
SHA348 PCR Bank	<ul style="list-style-type: none"> ● Disabled. This item is enabled by default. ● Enabled.
SM3_256 PCR Bank	<ul style="list-style-type: none"> ● Disabled This item is Disabled by default. ● Enabled.
Pending operation	<ul style="list-style-type: none"> ● It includes None and TPM Clear function.
Platform Hierarchy	<ul style="list-style-type: none"> ● Disable or Enable the Platform Hierarchy.
Storage Hierarchy	<ul style="list-style-type: none"> ● Disable or Enable the Storage Hierarchy.
Endorsement Hierarchy	<ul style="list-style-type: none"> ● Disable or Enable the Endorsement Hierarchy.
Physical Presence Spec Version	<ul style="list-style-type: none"> ● You can choose 1.2 or 1.3. The version is 1.3 by default.
TPM 20 Interface Type	<ul style="list-style-type: none"> ● TPM2.0 Interface Type is TIS by default.
Device Select	<ul style="list-style-type: none"> ● You can select TPM1.2 or TPM2.0 or Auto. Auto is set up by default.

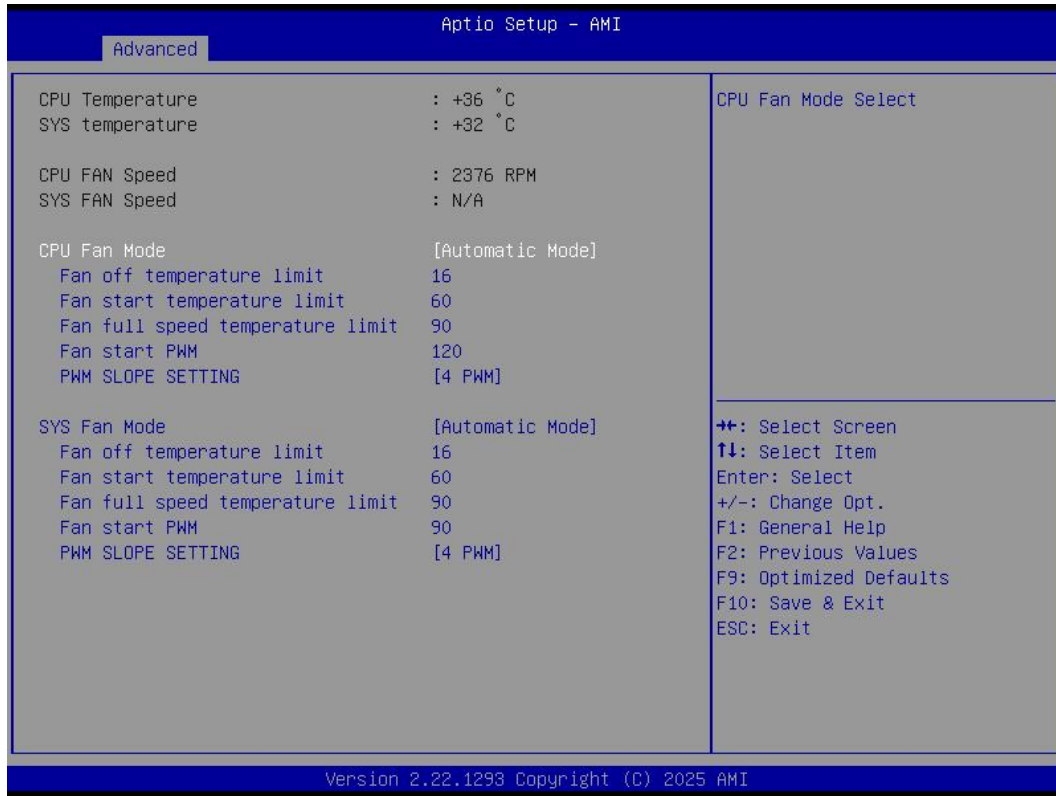
4.2.5 Serial Port 1 Configuration



Serial Port	Description
Serial Port 1 Configuration	
Device Settings	Set parameters of serial port.IO=3F8H;IRQ=4
Change Settings	Select an optimal settings for super IO device. 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;

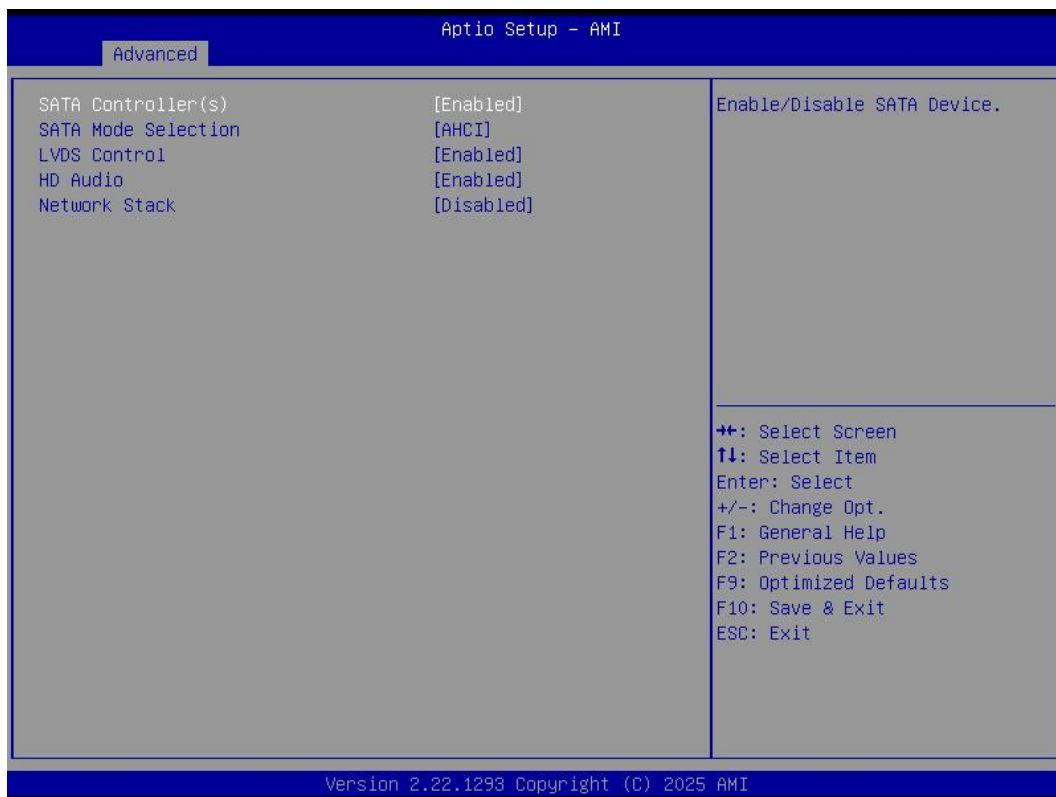
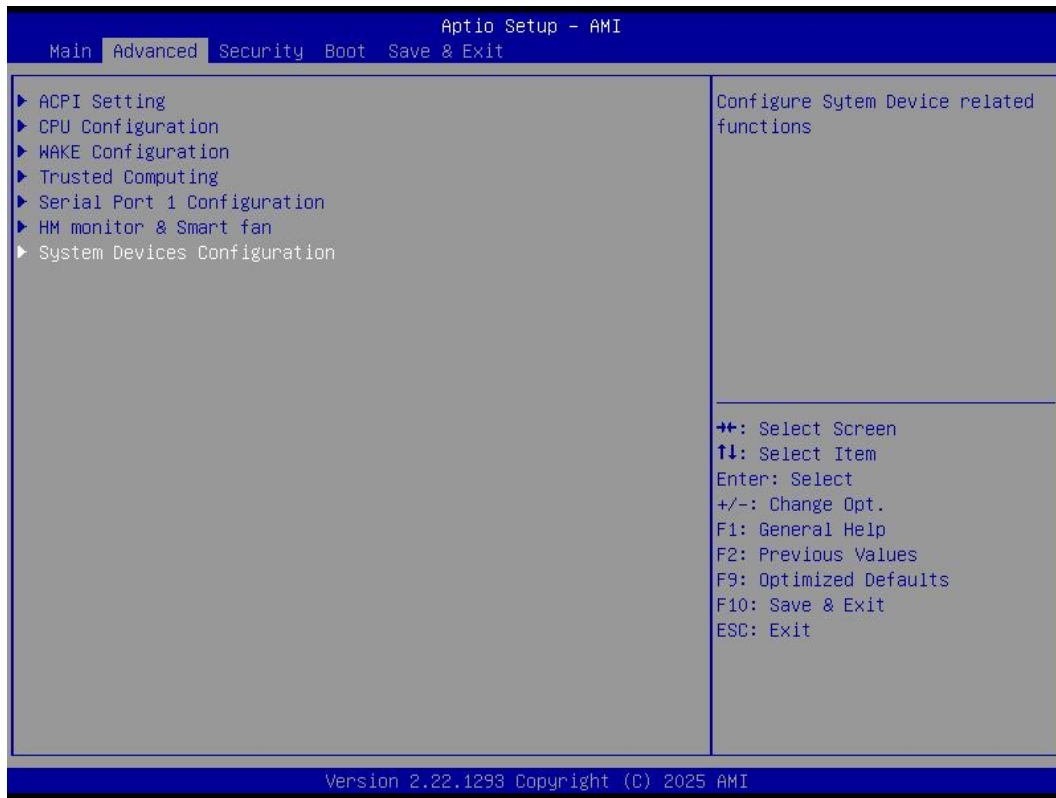
4.2.6 HW Monitor & Smart Fan





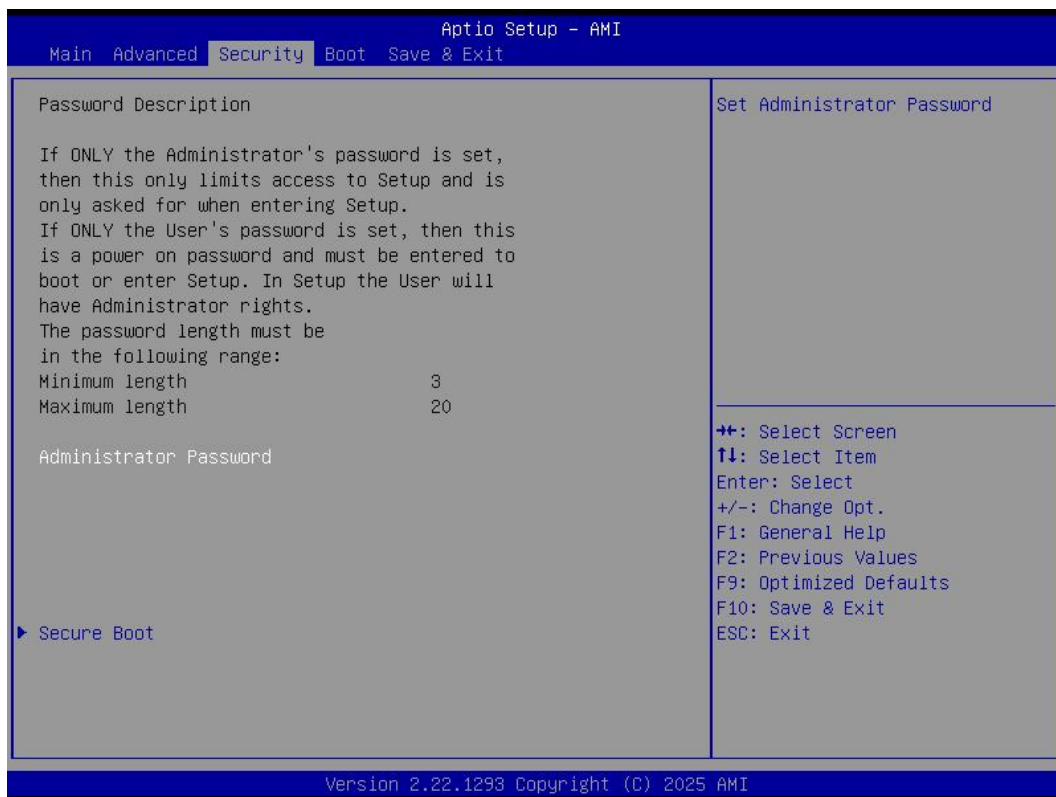
Fan 1 Setting	Description
The Fan1 is used for system.	
CPU Fan Mode	<p>It includes "Automatic mode" and "software mode".</p> <ul style="list-style-type: none"> ● Automatic mode. Automatic mode is enabled by default. ● Software mode.
Fan off temperature limit	<ul style="list-style-type: none"> ● FAN will stop work If temperature is lower than the Fan off temperature limit value.
Fan start temperature limit	<ul style="list-style-type: none"> ● If the temperature is higher than fan off temperature limit, FAN will start work.
Fan Full Speed Temp limit	<ul style="list-style-type: none"> ● If the temperature is higher than the FAN Full Speed temp limit value, the FAN will work at full speed.
Fan start PWM	<ul style="list-style-type: none"> ● If the temperature is higher than the FAN start PWM value, the FAN will start work.
PWM slope setting	<ul style="list-style-type: none"> ● NA

4.2.7 System Devices Configuration



Menu	Description
SATA Controller(s)	<p>The SATA controller is enabled by default.</p> <ul style="list-style-type: none"> ● Enabled ● Disabled.
SATA Mode Selection	<ul style="list-style-type: none"> ● Determines how SATA controller(s) operate.
LVDS Control	<p>The LVDS control is disabled by default.</p> <ul style="list-style-type: none"> ● Enabled ● Disabled.
HD Audio	<ul style="list-style-type: none"> ● Control Detection of the HD-Audio device. ● HDA will be unconditionally disabled when disabled. ● HDA will be unconditionally Enabled when Enabled.
Network Stack	<p>The Network Stack is disabled by default.</p> <ul style="list-style-type: none"> ● Enabled ● Disabled.

4.3 Security (set the administrator/user password)



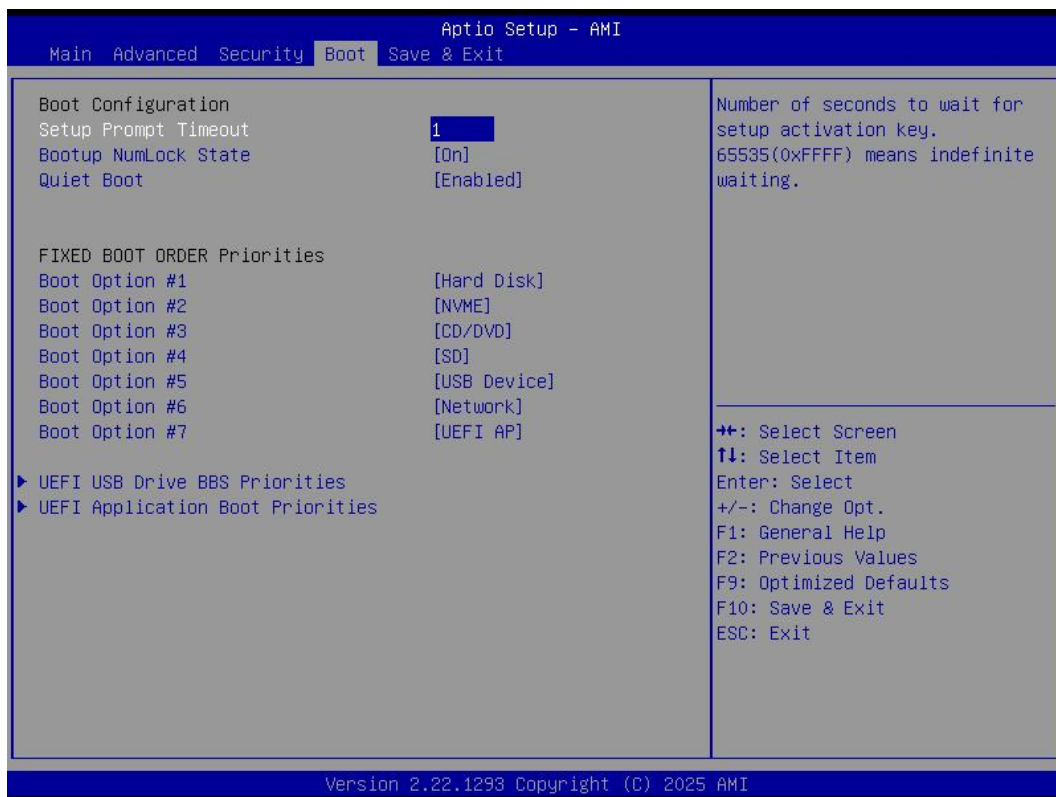
If this function is selected, the following information will appear:
Enter New Password hhhhhh

Then enter a password which is no more than eight characters and press <Enter>. BIOS will require to enter the password again.

Once you enter it again, BIOS will save the set password. Once the password item is enabled, you will be required to enter the password every time before the system entering to the setup program of BIOS. The user can set this item through the Security Option in advanced BIOS properties. If the Security Option is set as System, the password will be required to be entered before both the system guides and entering to the setup program of BIOS. If it is set as Setup, the password will be required to be entered only before the system entering to the setup program of BIOS.

To delete the password, press <Enter> in the popped-up window that requires to enter the password. Then information for confirmation will appear on the screen to allow you decide whether the password will be disabled. Once the password is disabled, you can enter the setup program directly without password when the system is restarted.

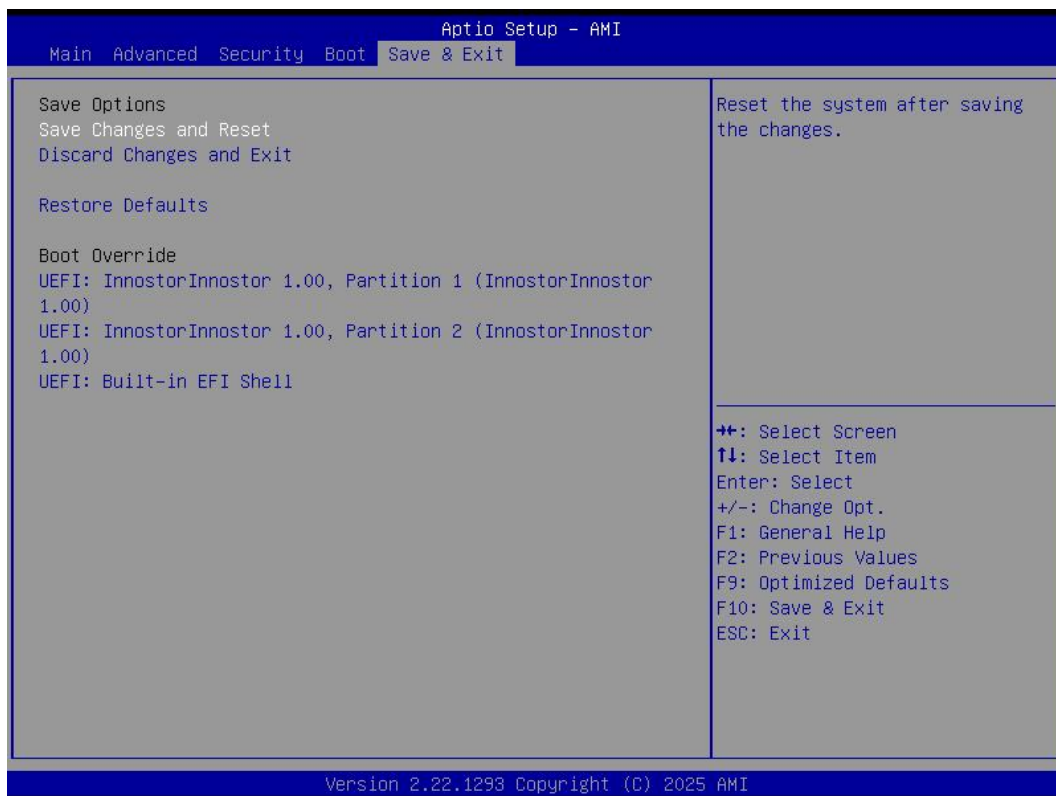
4.4 Boot Menu



Boot Item	Description
Boot Configuration	
Setup Prompt Timeout	This item is use to set the wait time of entering the operation system. During the BIOS post, if user doesn't press the keyboard, it won't respond unless you

Boot Item	Description
	reboot the BIOS. The Setup Prompt Timeout is 3s by default. You can set the time as you want.
Bootup NumLock State	Options are OFF and ON. In other words, this item can be used to set the state of Num Lock after entering the system. It can be set according to user's needs and doesn't affect the performance of the computer.
Quiet Boot	If this item is set as Enabled, the system can be started within five seconds and some detection items will be ignored. The options are [Disabled] and [Enabled].
FIXED BOOT ORDER Priorities	
Boot Option #1	The first boot device. If BIOS doesn't detect the first boot device, it will check the second boot device.
Boot Option #2	The second boot device.
Boot Option #3	The third boot device.

4.5 Save & Exit



Save Exit Item	Description
Save Options	
Save Changes and Exit	Save all changes and exit
Discard Changes and Exit	Give up the settings and exit.
Boot Override	Whole Boot devices



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