User Manual

FP750 Motherboard

Maxtang

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FP750

User Manual

(Version V0.5)

Version:		
NO.	Description	Issue Date:
V0.5	Initial Version	2023/04/19

Contents

Chapter 1 Product Introduction

1.1 Brief Introduction

The MTN-FP750 compact mini pc is a 4x4 small form factor pc based on AMD Ryzen ™ 6000/7000 series processor, built with innovative technology and optimized high performance.

1.2 Parameters

AMD Ryzen Mobile Processors Processor:

- Ryzen 5 6600H --- 6 Cores/12 Threads, Base Freq. 3.3 GHz, Max Freq. 4.5GHz, TDP: 45W

- Ryzen 7 7735HS --- 8 Cores/16 Threads, Base Freq. 3.2 GHz, Max Freq. 4.75GHz, TDP: 45W

Memory: 2x SO-DIMM DDR5-4800MHz Slots, support dual-channel, maximum capacity 64GB

GPU: Integrated Graphics based on CPU, Dual 4K displays via 2x HDMI2.0

Storage: 1x SATA3.0 interface, 1 x M.2 Key M 2280 slot for NVMe SSD

USB: 3x USB3.2 Gen 2 interfaces, 1x USB2.0 interface

Type C: 1xUSB-C Full-functioned interface (supports USB3.0 Gen 2 upstream/Display Port 1.4 Alt Mode)

Expansion: 1x M.2_Key E Slot type 2230 for Wi-Fi and Bluetooth

Ethernet: Onboard RTL8125BG Network Controller, 1x RJ45 interface. Data Rate Per Port: 2.5Gbps

Audio: High-Definition Realtek Audio Codec,1xCTIA Audio Jack, supports Line-out+Mic-in.

Other I/O: 1x Power button (PWON), 1x FP_PWON Power button optional for remote control wired switch.

Power: 19V/20V DC-in. (Note: please use 90W and above for the adopter power consumption)

Board Dimension: 120mm x 120 mm

Chassis Dimension: 128mm x 130mm x 52mm

Working Temperature: 0℃~50℃

1.3 Connector Diagram

USB_C   USB3.2   USB3.2   AUDIO

PWON   CLR_CMOS

CPU

CPU FAN

PWR

1*USB2.0+1*USB3.2   LAN   HDMI2.0   HDMI2.0

FP_PWON

SATA

2*SO-DIMM

SYSFAN

M.2 WIFI

1.4 I/O Interface

Audio

2x USB3.2

USB-C

Power Button

1 xUSB3.2

1 xUSB2.0

LAN(2.5GbE)

2xHDMI

DC-in

Wi-Fi

Bluetooth
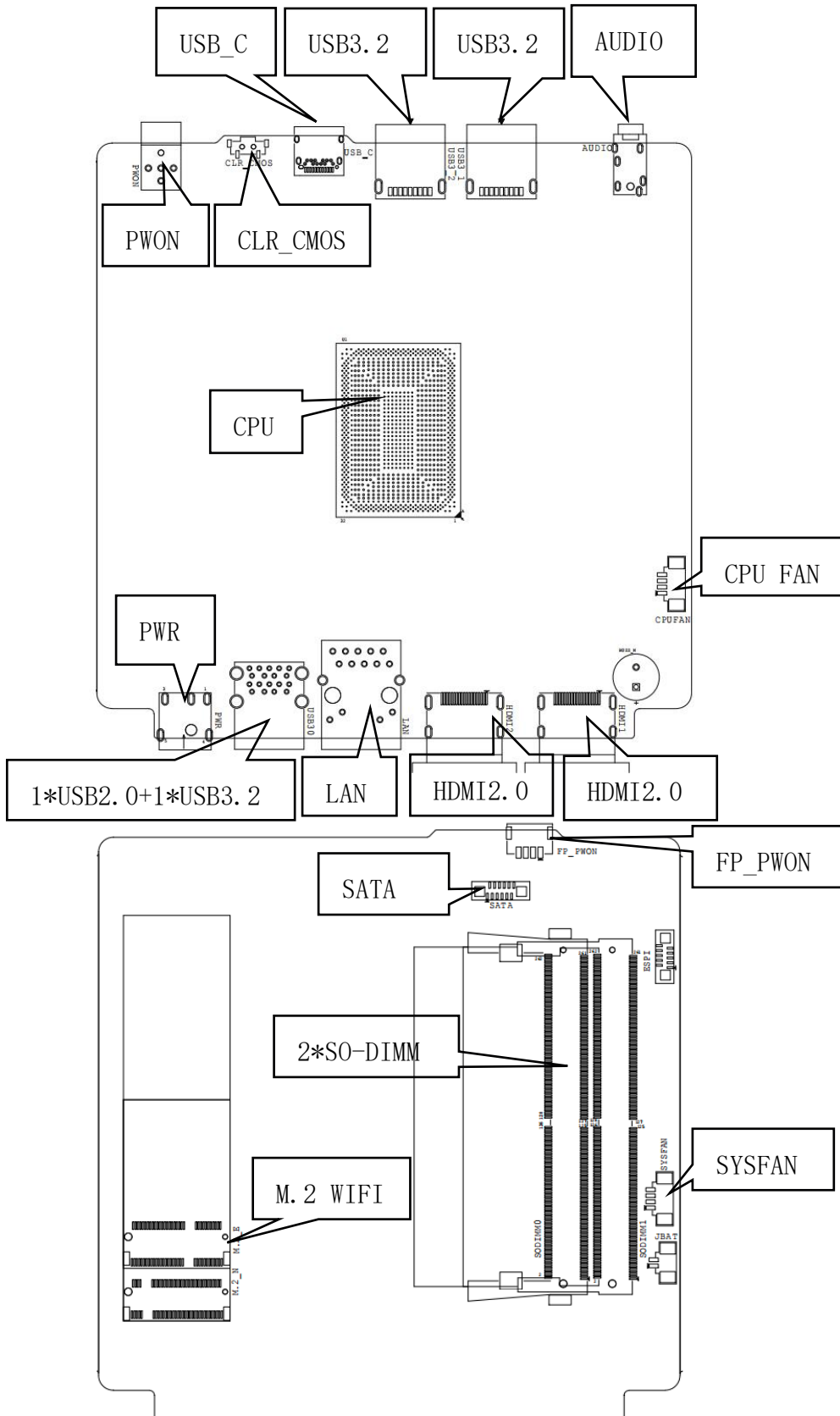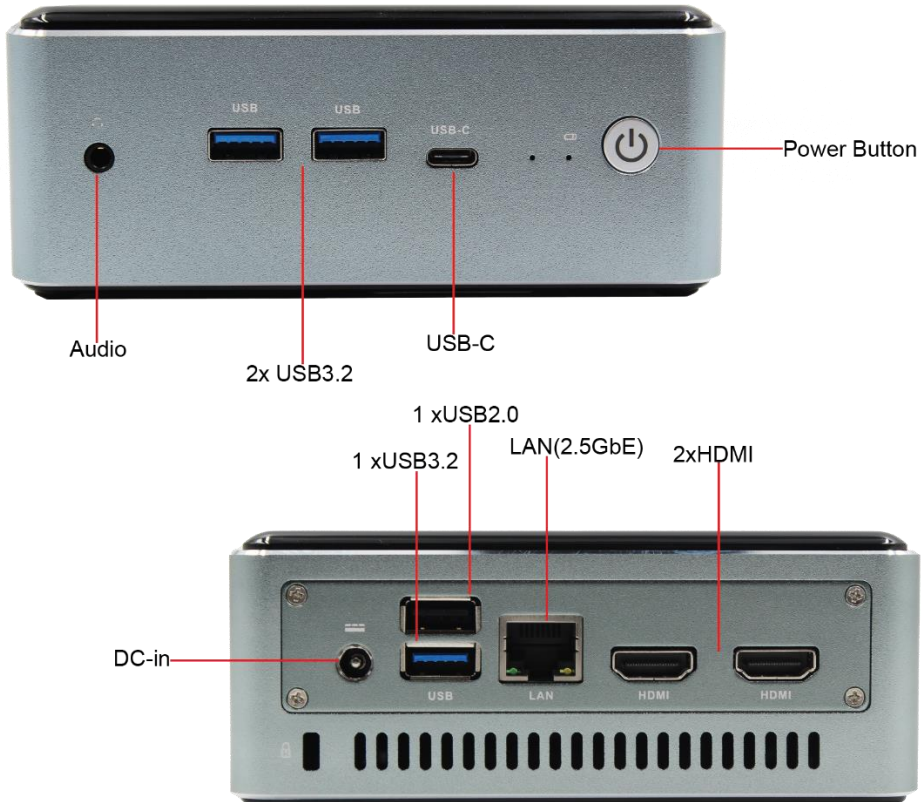
Chapter 2 Hardware

2.1 Installations

Please refer to the following steps for installations:
1. Read the user manual carefully to make sure all the adjustments on the FP750 are correct.
2. Installing the Memory:
   - Press the ejector tab of the memory slot outwards with your fingertips.
   - Hold the memory module and align the key to the module with that on the memory slot.
   - Gently push the module into the slot until the ejector levers return completely to the closed position, holding the module in place when the module touches the bottom of the slot. To remove the module, press the ejector levers outwards to unseat the module.
3. Installing the expansion cards:
   - Locate the expansion slots and remove the screw, insert the cards into the slot at a 45-degree angle then attach the screw to the expansion cards, gently press down on it then install the screw back.
4. Connect all signal wires, cables, panel control wiring, and power supplies.
5. Start the computer and complete the setup of the BIOS program.

The board's components are integrated circuits and can easily be damaged by Electrostatic Discharge or ESD; therefore, please follow the instructions:
   - Hold the board's edge when handing, and do not touch onboard pins, components, or plug sockets.
   - When touching integrated circuit components (such as CPU, RAM, etc.), please wear an anti-static wrist strap/glove to avoid electrostatic discharge damage to the board or other sensitive components.
   - Before installing the integrated circuits/sensitive components, place the sensitive components in anti-static bags to keep them safe from ESD.
   - Please make sure the power switch is OFF before plugging the power plug.

2.2 Jumper Setting

Please configure the jumpers according to your requirements before installing the hardware.

How to identify the first header of jumpers and pins: Observe the mark beside the jumper or pins and find the header marked by "1" or bold line or triangular symbol. Or observe the rear panel and the header with a square solder pad is the first header.

2.3 Memory Slots

The board provides 2x SO-DIMM DDR5-4800 slots for memory up to 64GB and supports dual channels.

Notes: Make sure to hold the memory module and align the key to the module with that on the memory slot. While choosing a memory module, please make sure the module matches the board's specifications.

2.4 Display Interfaces

The board features 2xHDMI2.0 standard interfaces, and supports dual 4K displays.

2.5 Storage Interfaces (Screen Printing: SATA, M.2_N)

The board provides 1 x M.2 Key M slot, supports 2280 NVMe SSD, 1x FPC SATA3.0 interface for 2.5-inch hard disk.

SATA (Screen Printing: SATA)

Pin	Signal
1	GND
2	SATA_TX_DN
3	SATA_TX_DP
4	GND
5	SATA_RX_DP
6	SATA_RX_DN
7	GND
8	5V
9	5V
10	5V
11	GND
12	GND

2.6 Expansion Slots (Screen Printing: M.2_E)

Screen Printing M.2_E: 1x M.2_Key E type 2230 for Wi-Fi Module and Bluetooth.

2.7 LAN interface

The board features 1xRJ45 LAN interfaces with a high-speed RTL8125BG network controller, and the data rate per port: 2.5Gbps; supports network wake-up (Magic packet wake-up) and UEFI PXE network boot.

LED Status Indicators:

LI_LED Status (Green)	Function	ACT_LED Status (Orange)	Function
Always on	Network Connected	Flashing	Data transmission

2.8 Audio Interface

The board features a Realtek ALC897 High-Definition Audio Codec, 1xCTIA Audio Jack, supports Line-out

+ Mic-in.

2.9 CPU Fan (Screen printing: CPUFAN)

The board features a CPU cooling fan socket and a system fan socket for better heat dissipation.

FAN Socket Definitions (Screen Printing: CPUFAN, SYSFAN)

Pin	Signal
1	GND

2	+5V
3	TAC
4	CTL

2.10 USB Interfaces

The board provides 3x USB3.2 Gen 2 interfaces, and 1x USB2.0 interface.

2.11 Type-C Interface

The board features a Type-C(USB-C) Full-functioned interface, the interface also supports USB3.2 Gen 1 upstream/Display Port 1.4 Alt Mode functions.

2.12 Power Button (Screen printing: PWON)

The board features a power button with a power light indicator above (Blue LED); an optional FP_PWON remote control switch (Screen printing: FP_PWON).

Optional Function FP_PWON Remote Control Wired Switch (Screen Printing: FP_PWON)

Pin	Signal
1	Power Switch Signal, Low Level for Power On/Off
2	GND
3	Negative Terminal of the Power Indicator Light
4	Positive Terminal of the Power Indicator Light

2.13 CMOS Clearance/Retention (Screen printing: CLR_CMOS)

CMOS is powered by onboard button batteries. Clearing CMOS will permanently remove the previous system settings and restore the board system to original settings (factory settings).

Step 1: Turn off the PC and disconnect the power.

Step 2: Press CLR_CMOS for 10 seconds then disconnect.

Step 3: Restart the device, press the <DEL> button to enter the BIOS, load the optimal default value.

Step 4: Save, and exit the settings.

CMOS (Screen Printing: CLR_CMOS)

⚠ Please do not clear COMS when the PC is connected to power in case board damages.

Chapter 3 BIOS Setup

3.1 Entering the BIOS

1. Turn on the computer and press <Delete> entering the BIOS
2. After the computer is turned on, keep pressing F11, select enter Setup
3. BIOS Hotkeys:
   > F9: Restore to Factory setting.
   > F10: Save and Exit.
   > ESC: Exit

3.2 Main Setup (BIOS info, Date, Time)

When you enter the BIOS Setup utility the first things you will encounter is the Main Setup screen. Shown below is the Main BIOS Setup screen. You can always return to the Main setup by selecting the Main tab.
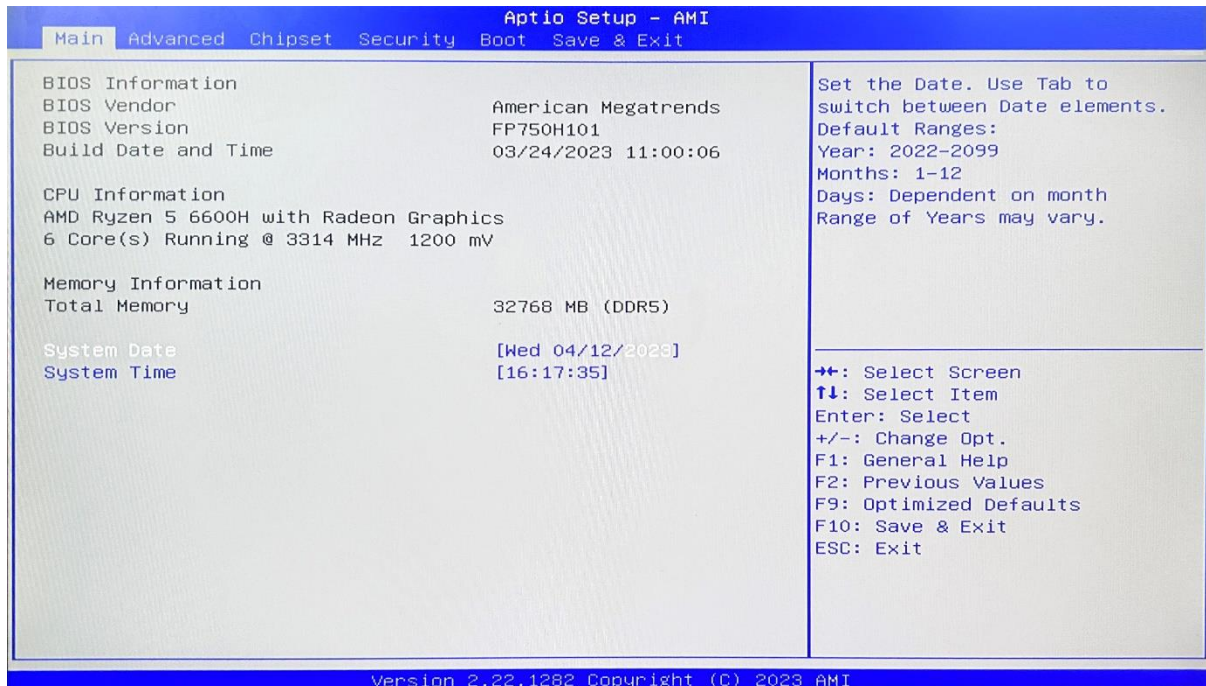
System Date: Set the date. MM/DD/YY format.
System Time: Set the time. HH:MM: SS format.

3.3 Advanced Settings
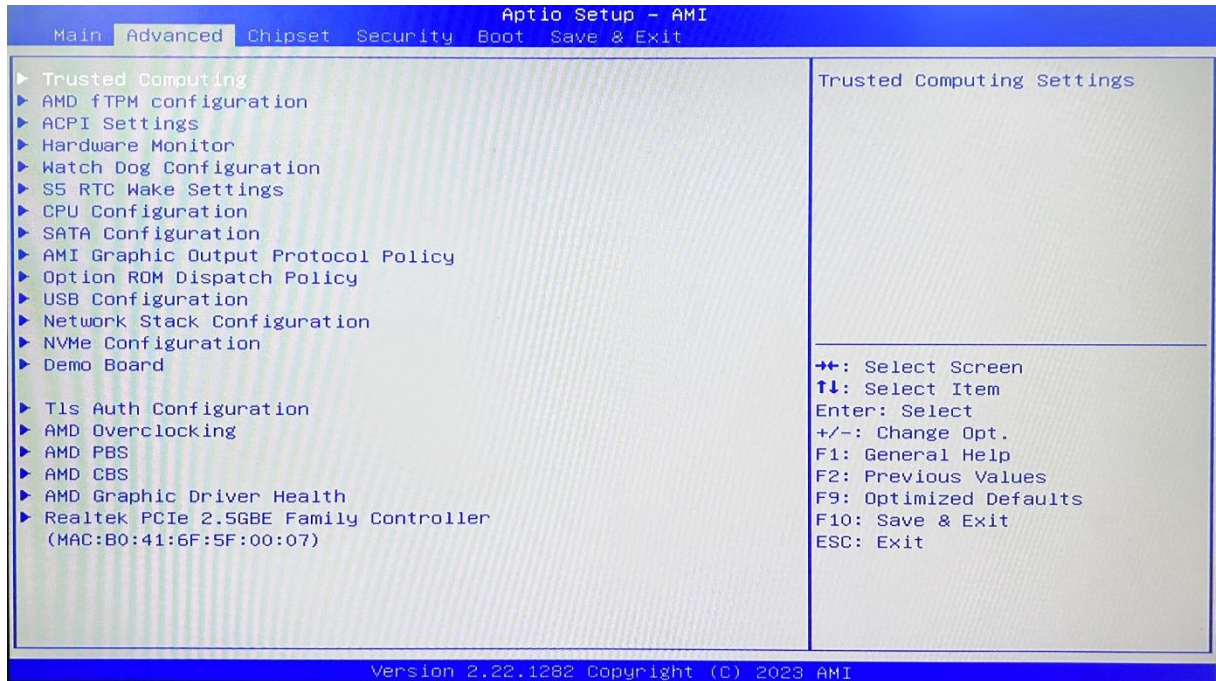
Select any of the items in the left frame of the screen. The advanced sections allow you to configure, improve and set up system features according to the preference of the CPU Configuration. All Advanced BIOS Setup options are described as follows:

1. Trusted computing
2. AMD fTPM configuration
3. ACPI Settings
4. Hardware Monitor
5. Watch Dog Configuration
6. S5 RTC Wake Settings
7. CPU Configuration
8. SATA Configuration
9. AMI Graphic Output Protocol Policy
10. Option ROM Dispatch Policy
11. USB Configuration
12. Network Stack Configuration
13. NVME Configuration
14. Demo Board
15. T1s Auth Configuration
16. AMD Overclocking
17. AMD PBS
18. AMD CBS
19. AMD Graphic Driver Health
20. Realtek PCIe 2.5GBE Family controller: Realtek PCIe 2.5GBE

3.3.1 AMD fTPM Configuration
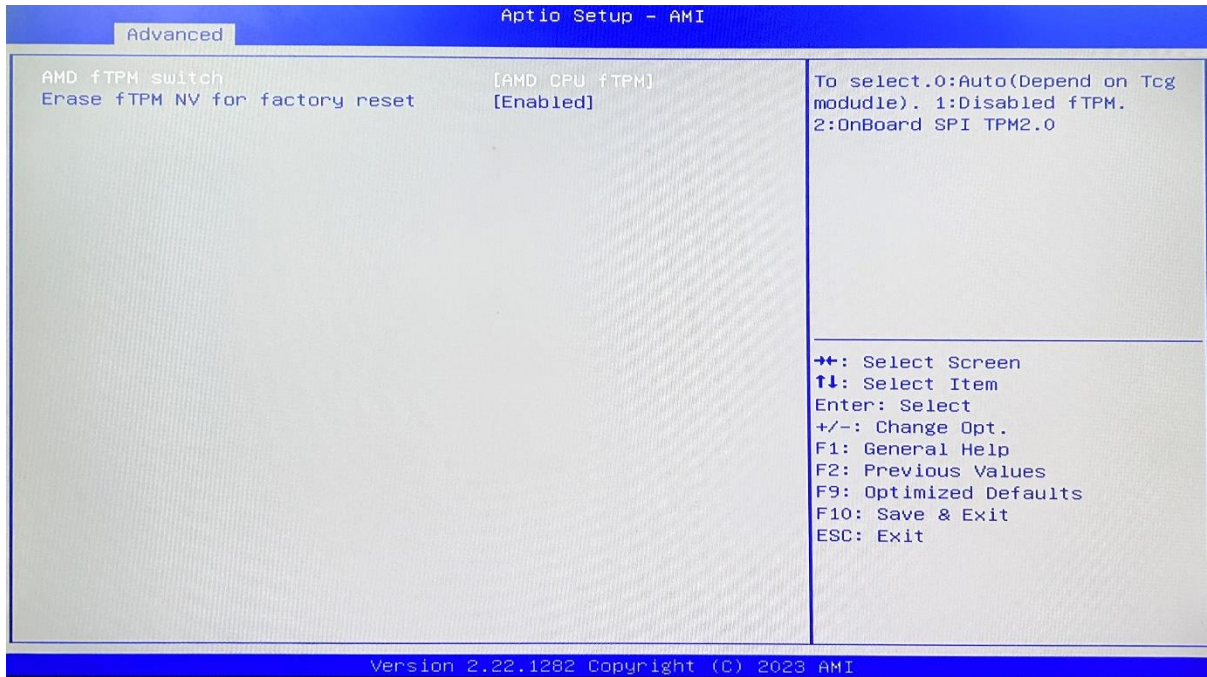
AMD fTPM Switch:

The TPM (Trusted Plat-form Module) is a secure key generator and key cache management component that enables protected storage of encryption keys and authentication credentials for enhanced security.

This option allows you to choose from internal CPU TPM or external TPM. Select AMD CPU fTPM for CPU internal TPM, and select Route to LPC TPM for external TPM2.0.

3.3.2 ACPI Settings
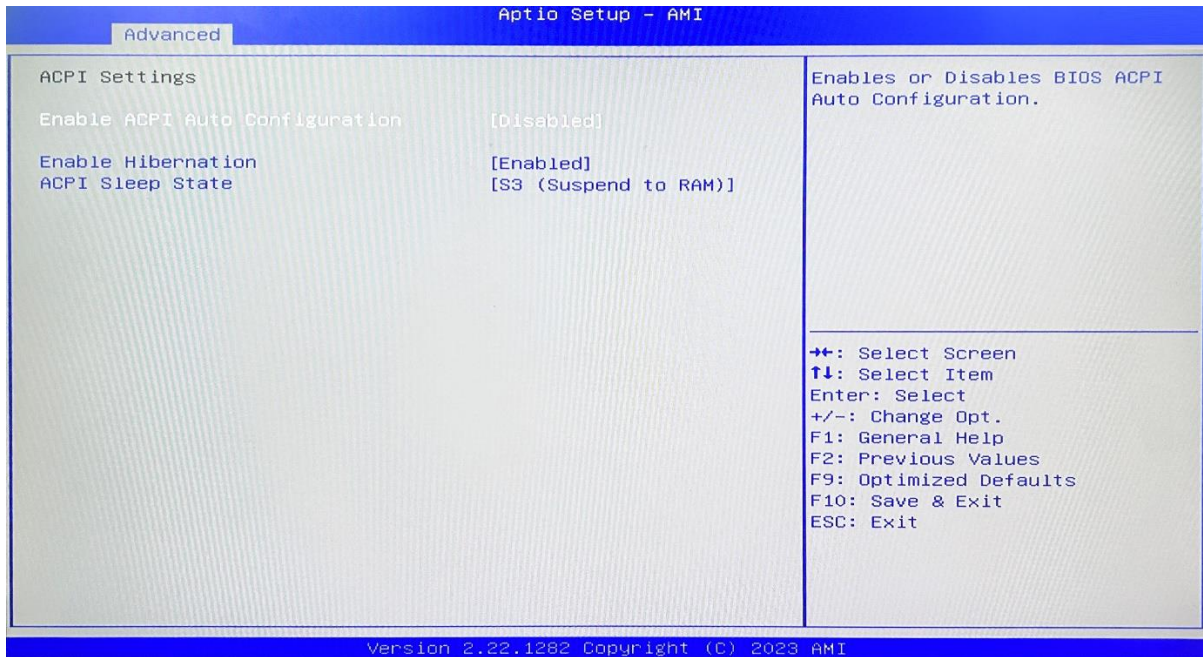
1. **Enable ACPI Auto Configuration**: Disabled by Default
2. **Enable Hibernation**
3. **ACPI Sleep State**

3.3.3 Hardware Monitor
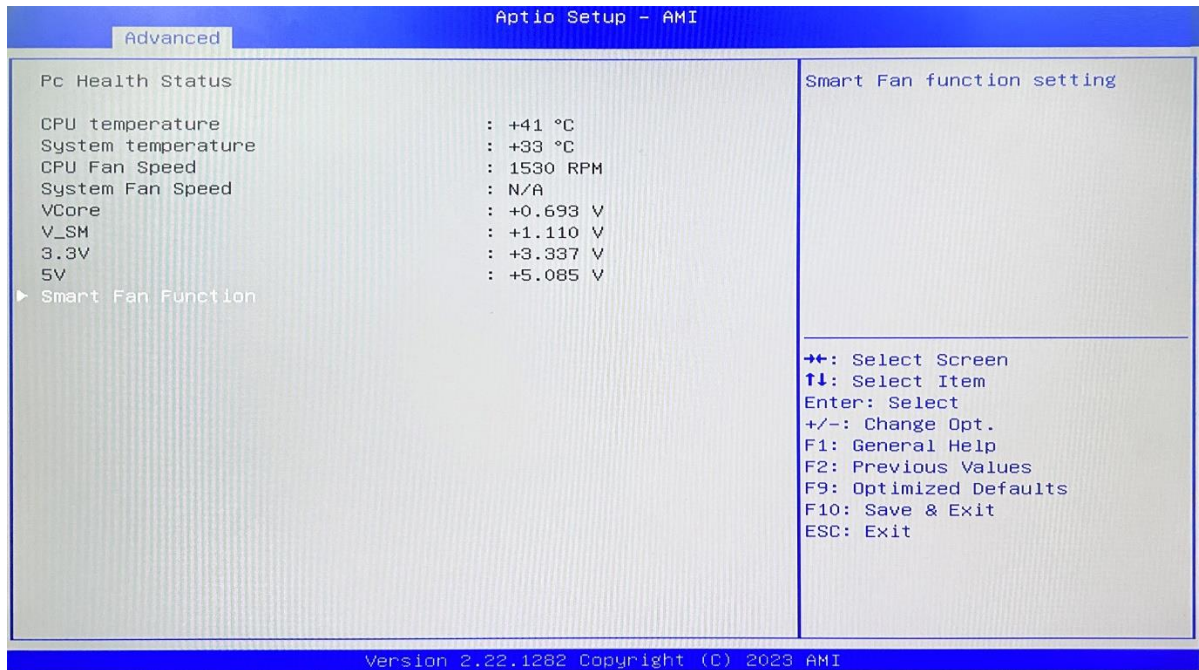
PC Health Status

The PC health status displays CPU temperature, system temperature, fan speed, and other relevant voltage values. The above parameters have a certain range, and the system cannot run beyond these ranges.

1. CPU Temperature
2. System Temperature
3. CPU Fan Speed
4. System Fan Speed
5. VCore: Core Voltage
6. V_SM
7. 3.3V
8. 5V
9. Smart Fan Function: The Smart Fan Function allows you to set three different modes for the CPU fan speed and system fan speed, according to your needs.
   1) Automatic Mode
   2) Full on Mode
   3) Manual Mode

3.3.4 Watchdog Configuration
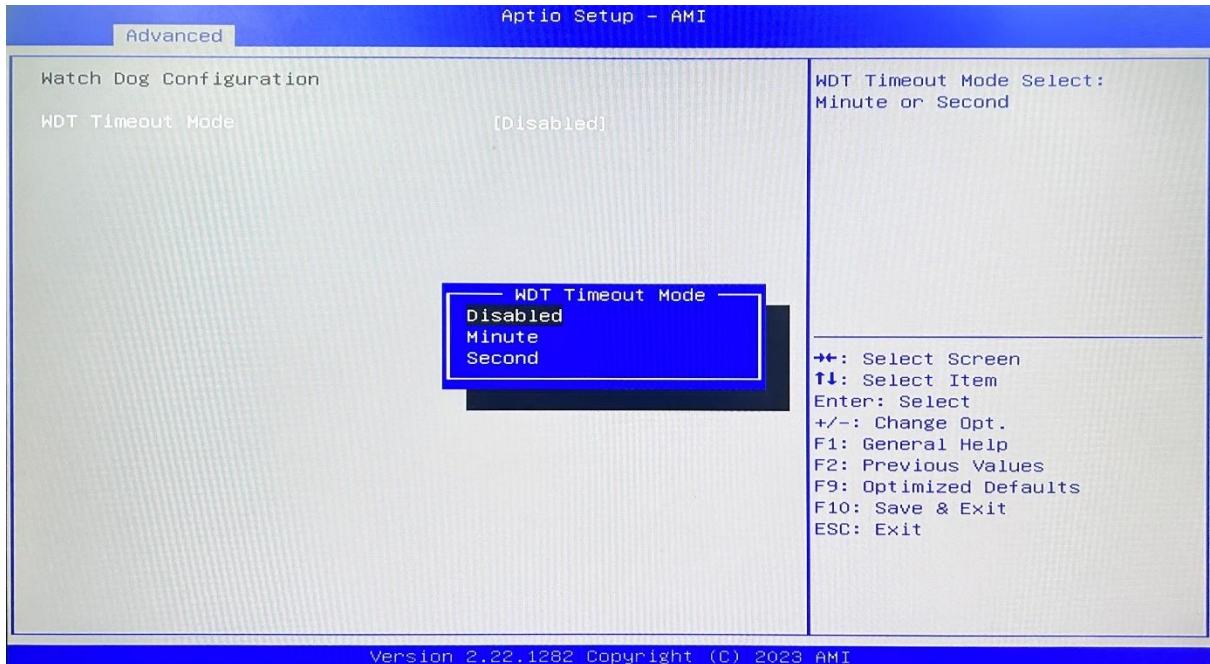
Watchdog Configuration

WDT Timeout Mode select: Minute or Second

3.3.5 S5 RTC Wake Settings
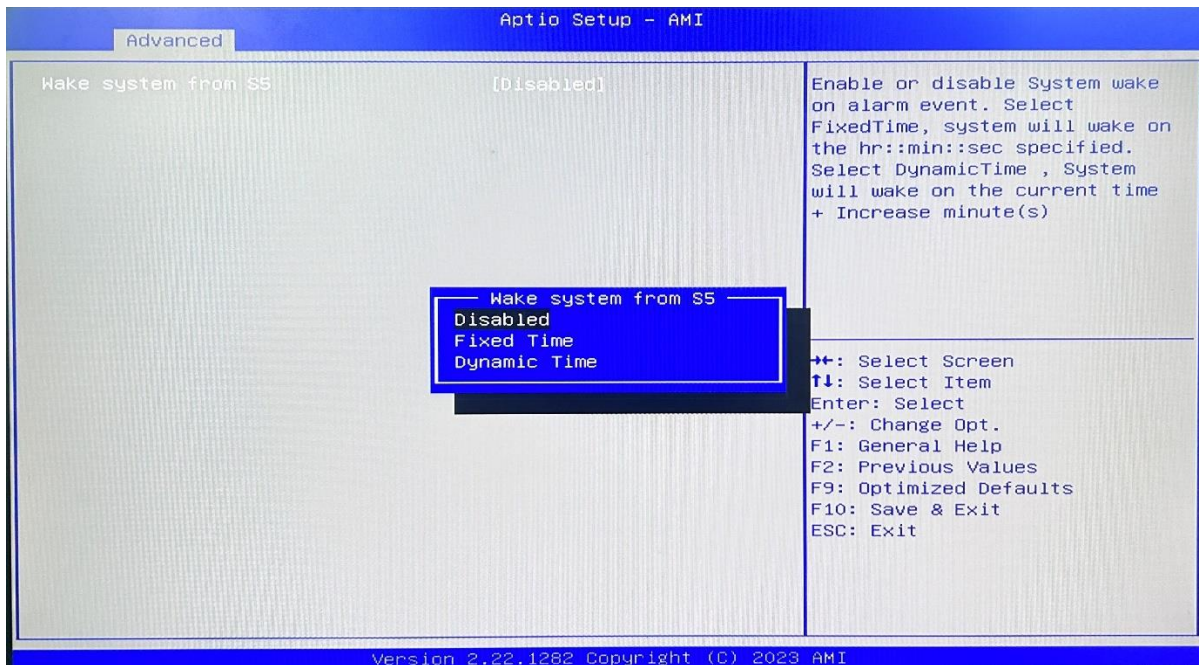
Wake system From S5: timing boot settings, disabled by default.

Fixed Time: Select Fixed Time and the system will wake on the Hr: Min: Sec specified.

Dynamic Time: Select Dynamic Time and the system will wake on a dynamic time.

3.3.6 SATA Configuration

The capacity and model of the hard disk will be displayed under the option after the SATA protocol hard disk has been installed.

3.3.7 USB Configuration

```
                              Aptio Setup - AMI
   Advanced

USB Configuration                                    Enables Legacy USB support.
                                                     AUTO option disables legacy
USB Module Version            28                     support if no USB devices are
                                                     connected. DISABLE option will
USB Controllers:                                     keep USB devices available
     5 XHCIs                                          only for EFI applications.
USB Devices:
     1 Keyboard, 1 Mouse

Legacy USB Support            [Enabled]
XHCI Hand-off                 [Enabled]
USB Mass Storage Driver Support  [Enabled]

USB hardware delays and time-outs:                   →←: Select Screen
USB transfer time-out         [20 sec]               ↑↓: Select Item
Device reset time-out         [20 sec]               Enter: Select
Device power-up delay         [Auto]                 +/-: Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F9: Optimized Defaults
                                                     F10: Save & Exit
                                                     ESC: Exit

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```
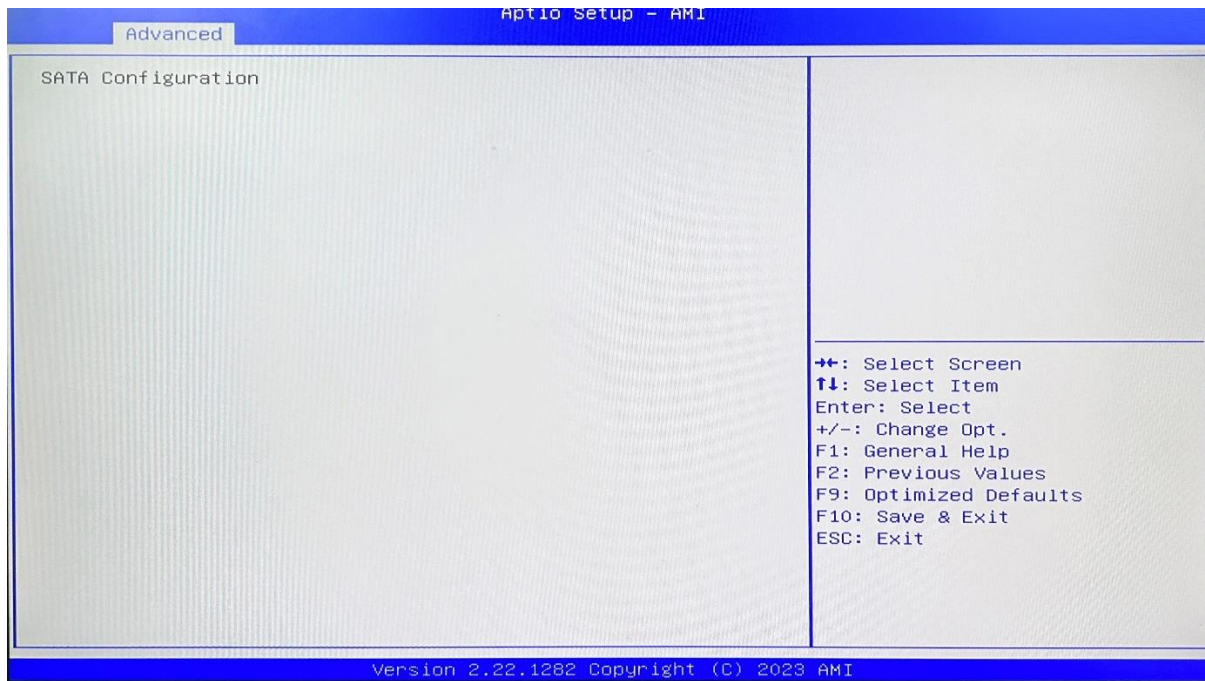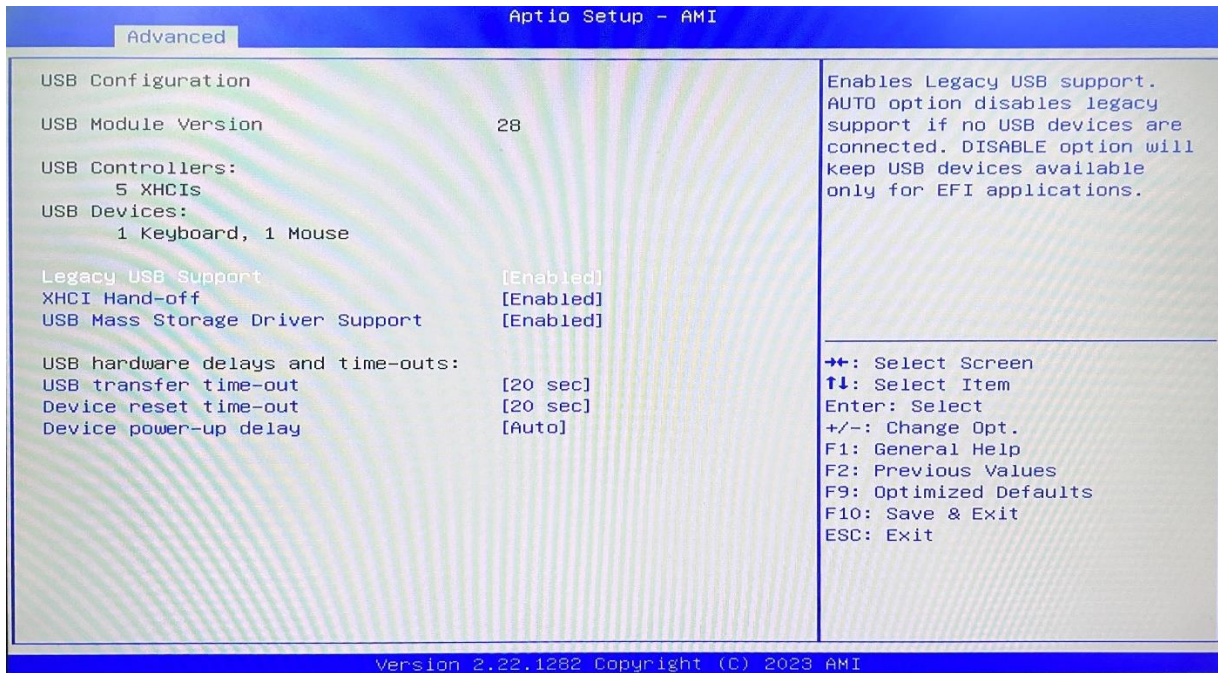
1. **Legacy USB Support**

   Enable Legacy USB support. Disables legacy support if no USB devices are connected. Select enable will keep USB devices available under UEFI's support.

2. **XHCI Hand-off**

   Whether to enable the USB XCHI transfer protocol. A workaround for OS without XHCI hand-off support. The XHCI ownership change should be claimed by the USB XCHI driver.

3. **USB Mass Storage Driver Support**

   Enable(default) or disable USB Mass Storage Driver Support.

4. **USB transfer time-out**

   Time-out value for control, bulk, and interrupt transfers, default time:20 second.
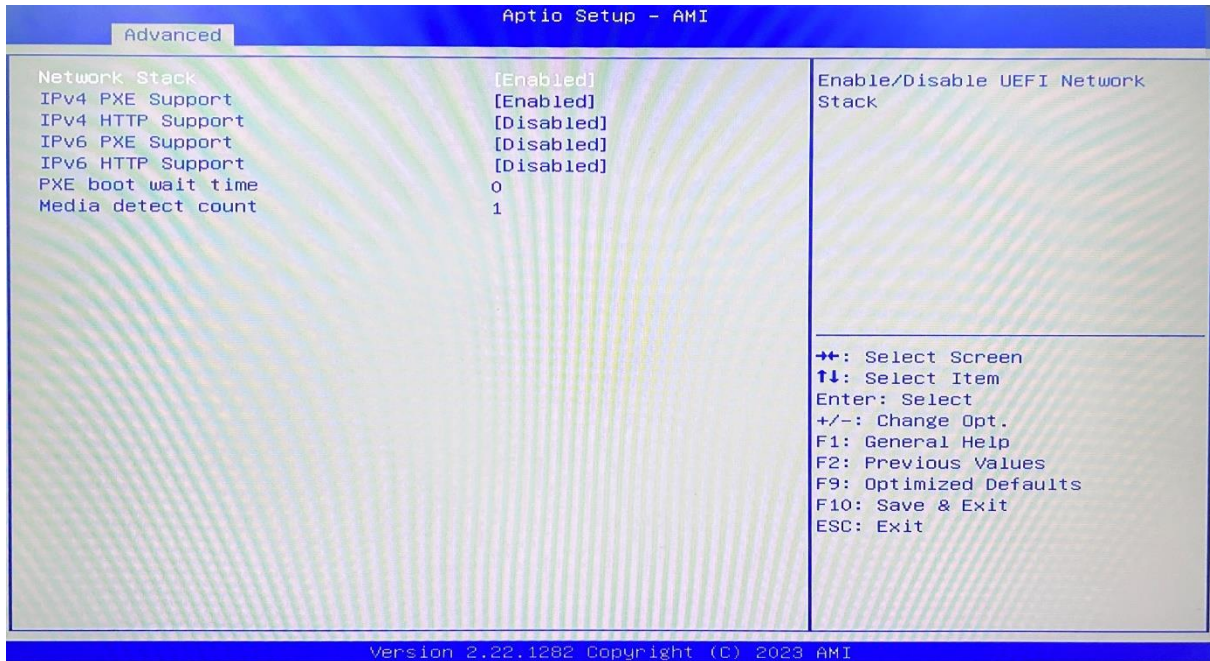
5. **Device reset time-out**

   USB mass storage device start unit command time-out, default time:20 second.

6. **Device Power-up Delay**

   Maximum time the device will take before it properly reports itself to the host controller.

3.3.8 Network Stack Configuration

Network Stack

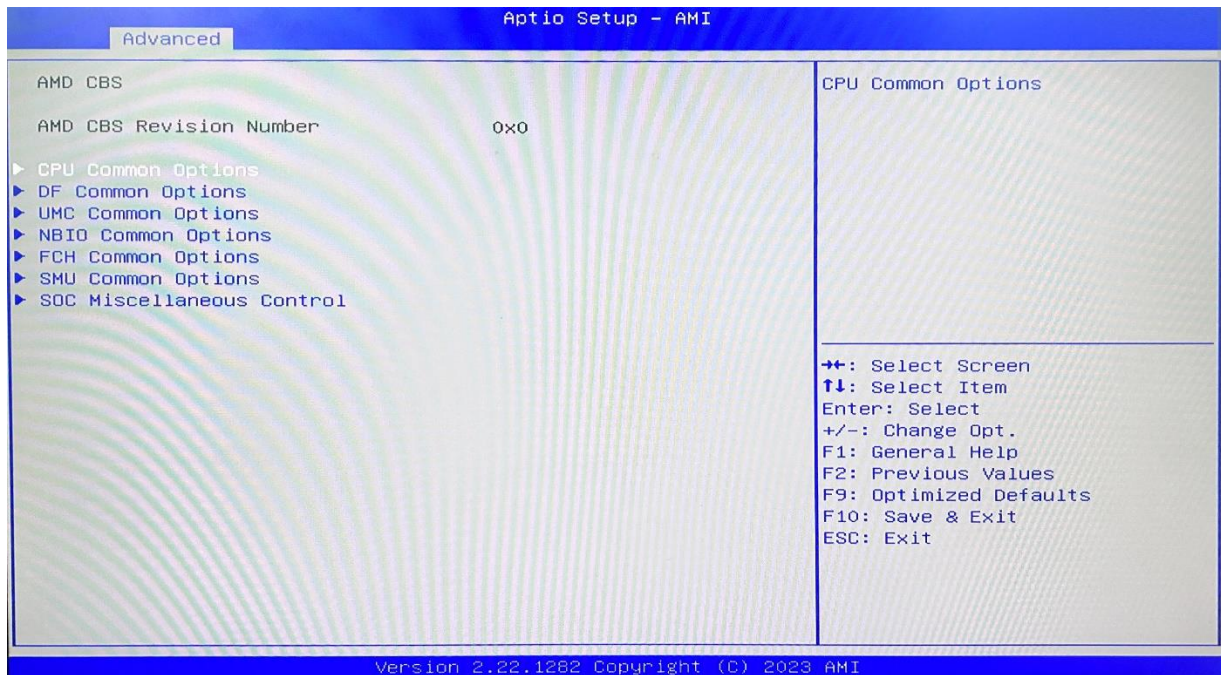　PXE Network boot setting, disabled by default.

3.3.9 NVME Configuration
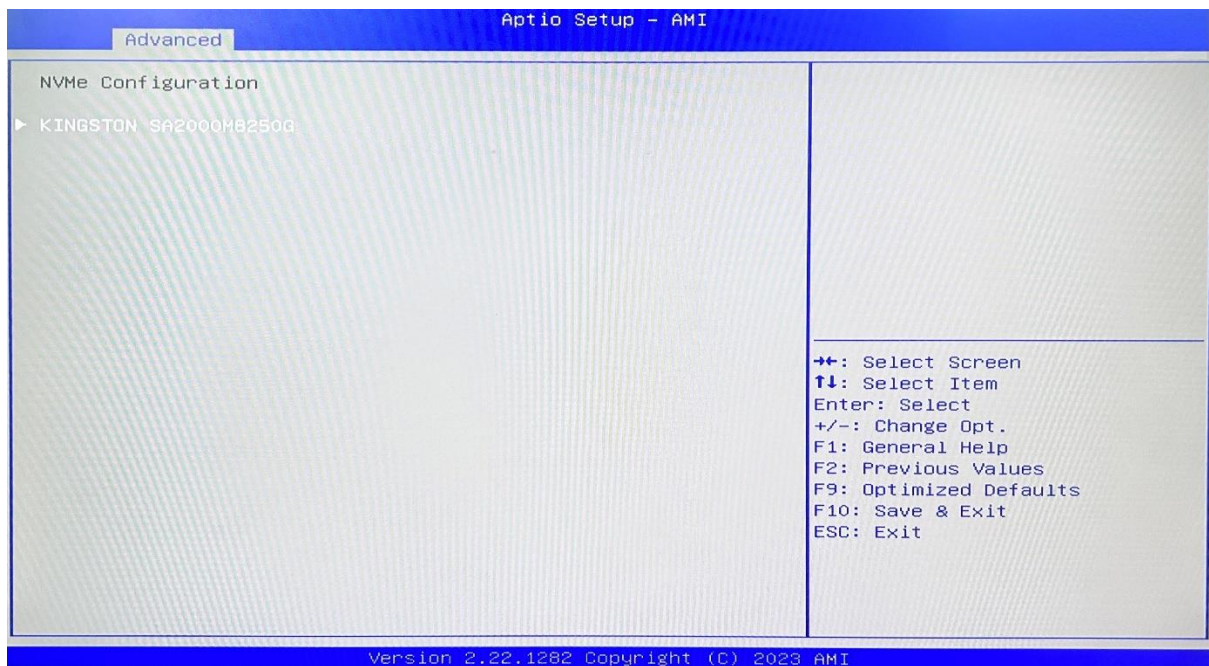
The capacity and model of the SSD will be displayed under the option after the NVMe protocol SSD has been installed.

3.3.10 AMD CBS

AMD CBS: Custom BIOS Settings
1. CPU Common Options
2. DF Common Options
3. UMC Common Options
4. NBIO Common Options
5. FCH Common Options
6. SMU Common Options
7. SOC Miscellaneous Control

3.3.10.1 SMU Common Options
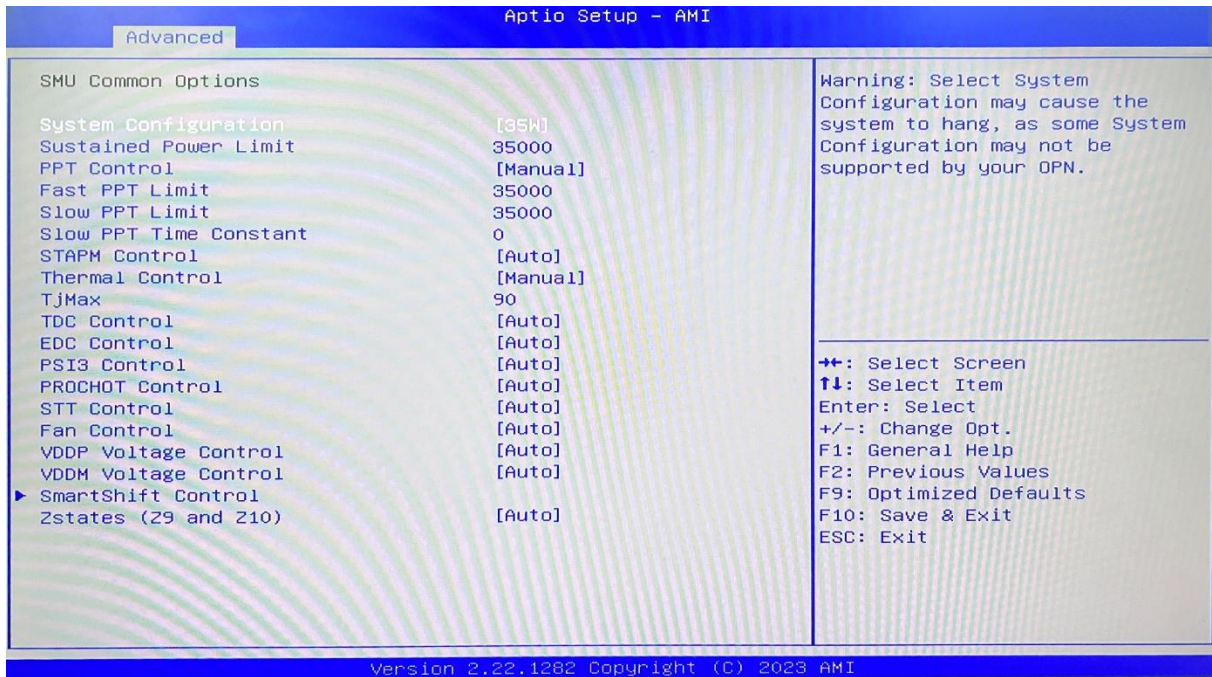
1. System configuration
2. Sustained Power Limit
3. PPT Control
4. Fast PPT Limit
5. Slow PPT Limit
6. Slow PPT Time Constant
7. STAPM Control
8. Thermal Control
9. Tjmax
10. TDC Control
11. EDC Control
12. PSI3 Control
13. PROCHOT Control
14. STT Control
15. Fan Control
16. VDDP Voltage Control
17. VDDM Voltage Control
18. SmartShift Control

3.3.10.2 FCH Common Options
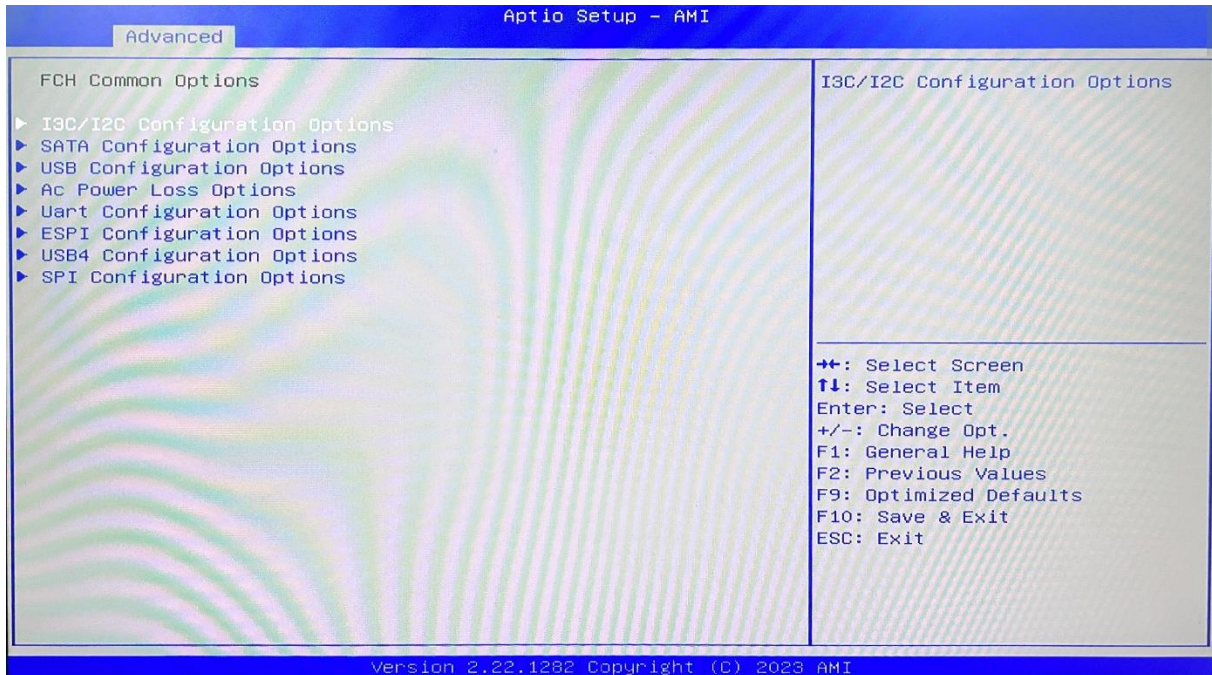
SATA Configuration Option

　　Option to check whether the SATA hard drive is recognized

AC Power Loss Options

　　"AC Power Loss Options" is a setting that determines the behavior of a computer when power is lost and then restored. There are two options available in this setting:

1. "Always off" (the default setting) means that the computer will remain off when power is restored, and you will need to manually press the power button to turn it on again.
2. "Always on" means that the computer will automatically turn on when power is restored. However, it is recommended that you wait for at least 15 seconds after a power loss before turning the computer back on.

3.4 Chipset
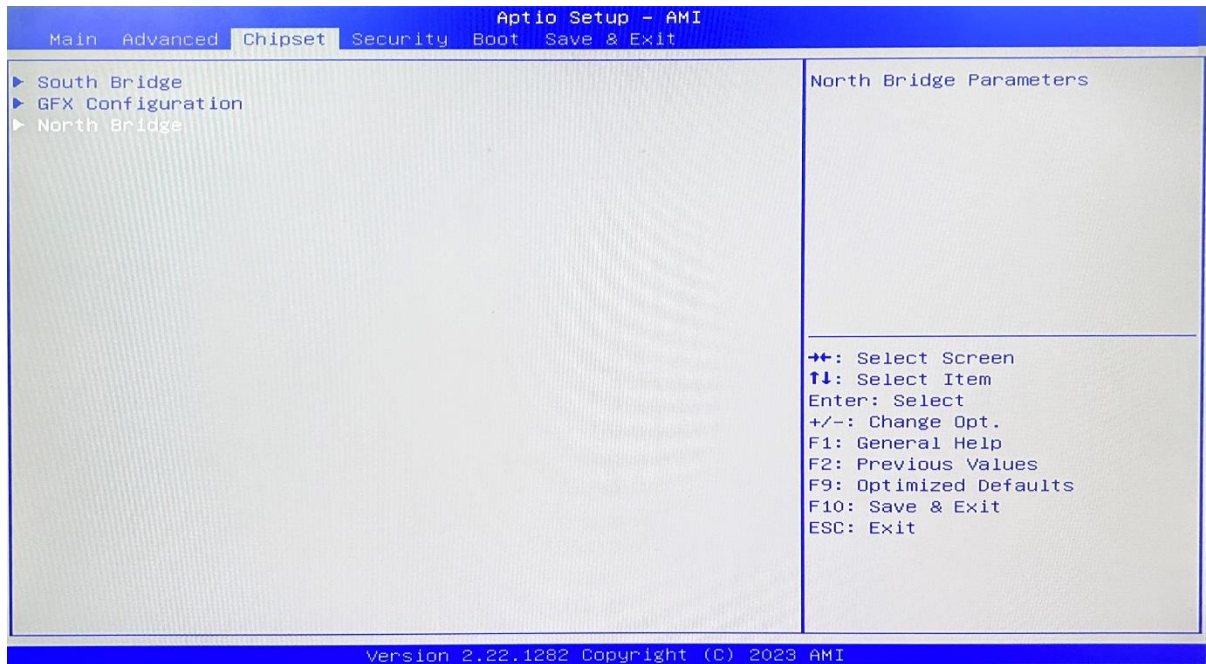
South Bridge

Allows users to configure the South Bridge settings.

CFX configuration

Allows users to view details of the display items.

North Bridge

Allows users to configure the North Bridge settings.

3.5 Security

Administrator Password: Set the Administrator Password.

User Password: Set User Password.

Secure Boot: Secure boot

3.6 BOOT
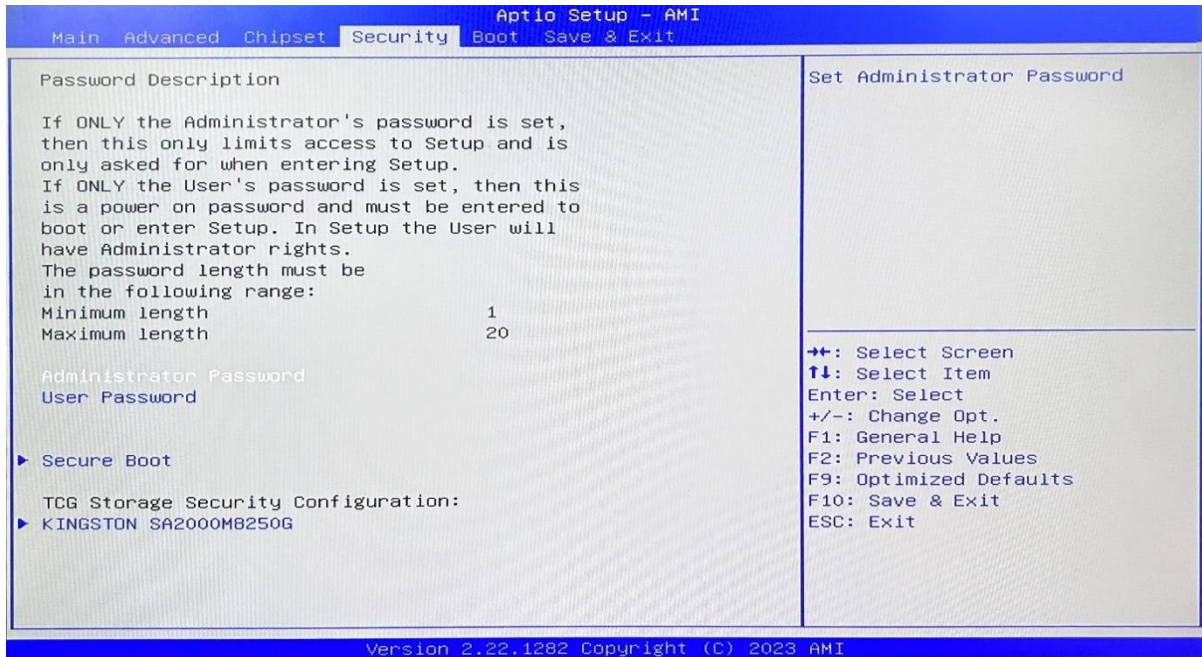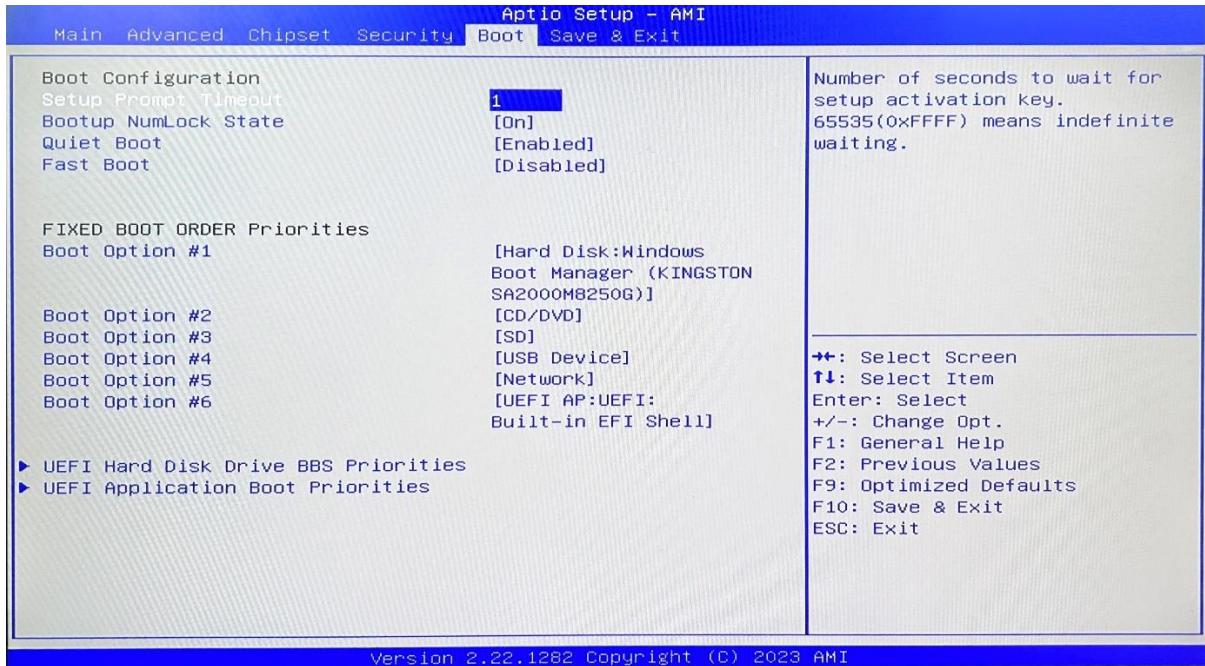

Setup Prompt Timeout:

Number of seconds that the firmware will wait before initiating the original default boot selection. A value of 0 indicates that the default boot selection is to be initiated immediately on boot. A value of 65535(0xFFFF) indicates that firmware will wait for user input before booting. This means the default boot selection is not automatically started by the firmware.

Bootup NumLock State:

Select the keyboard NumLock state. The Bootup NumLock State allows activation of the Keypad number lock function after the system is powered on to the DOS system. When the default is set to ON, the NumLock is on when the system starts. When it is set to OFF, the keypad is in the cursor control state when starting.

Quiet Boot:

Full Logo Display: Enabled/Disabled Displays customized boot logo.

Fast Boot:

Disabled by Default

Boot Option #1~#6:
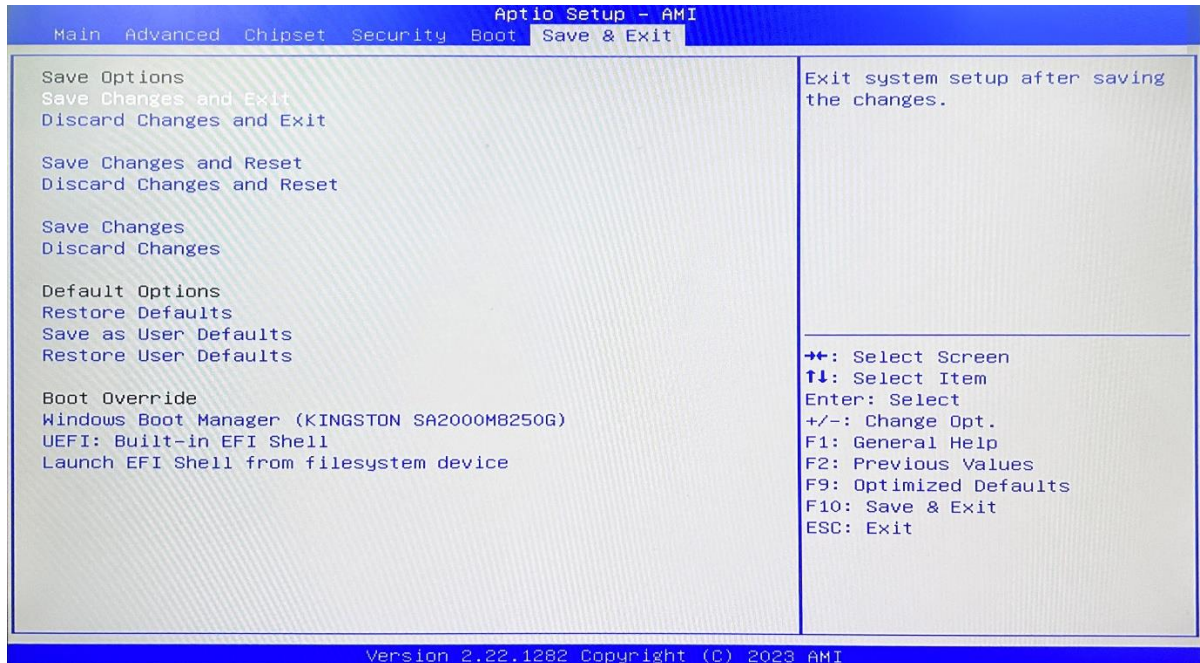
Set the system boot order from Number 1 to Number 6.

UEFI Hard Disk Drive BBS Priorities:

 UEFI Hard Disk Drive BBS Priorities.

UEFI Application boot Priorities:

UEFI application boot priority.

3.7 Save & Exit

```
                          Aptio Setup – AMI
   Main  Advanced  Chipset  Security  Boot  Save & Exit

  Save Options                                  Exit system setup after saving
  Save Changes and Exit                         the changes.
  Discard Changes and Exit

  Save Changes and Reset
  Discard Changes and Reset

  Save Changes
  Discard Changes

  Default Options
  Restore Defaults
  Save as User Defaults                         ──────────────────────────
  Restore User Defaults                         →←: Select Screen
                                                ↑↓: Select Item
  Boot Override                                 Enter: Select
  Windows Boot Manager (KINGSTON SA2000M8250G)  +/-: Change Opt.
  UEFI: Built-in EFI Shell                      F1: General Help
  Launch EFI Shell from filesystem device       F2: Previous Values
                                                F9: Optimized Defaults
                                                F10: Save & Exit
                                                ESC: Exit

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```

Save Changes and Exit:

Exit the system setup after saving the changes and continue to start the computer.

Discard Changes and Exit:

Exit the system setup without saving any changes and continue to start the computer.

Save Changes and Reset:

Reset the system after saving the changes.

Discard changes and Reset:

Reset the system without saving any changes.

Save Changes:

Save changes done so far to any of the options.

Discard Changes:

Discard changes done so far to any of the options.

Restore Defaults:

Restore/load default values for all the options.

Save as User Defaults:

Save the changes done so far as the user defaults.

Restore User Defaults:

Restore the user defaults to all the options.

Boot Override:

Boot device selection can override your boot priority. Select the specified boot device such as SATA, USB Flash Disk, EFI Shell, PXE, etc., and boot directly. Or press F11 boot by selecting the specified boot device.