

tBOX110-APL-TV

Embedded System

User's Manual



USER'S MANUAL

www.axiomtek.com

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Safety Precautions

Before getting started, please read the following important safety precautions.

1. The tBOX110-APL-TV does not come equipped with an operating system. An operating system must be loaded first before installing any software into the computer.
2. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
3. Disconnect the power cord from the tBOX110-APL-TV before making any installation. Be sure both the system and the external devices are turned OFF. Sudden surge of power could ruin sensitive components. Make sure the tBOX110-APL-TV is properly grounded.
4. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
5. Turn OFF the system power before cleaning. Clean the system using a cloth only. Do not spray any liquid cleaner directly onto the screen.
6. Do not leave this equipment in an uncontrolled environment where the storage temperature is below -45°C or above 85°C. It may damage the equipment.
7. Do not open the system's back cover. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:
 - Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on your body.
 - When handling boards and components, wear a grounding wrist strap, available from most electronic component stores.
8. This product is intended to be supplied by a Listed Power Adapter or DC power source. Output meets SELV limits, rated 12-24Vdc, minimum 2.79-1.38A, Tma = 25 degree C, and the altitude of operation = 5000m.

If you need further assistance while purchasing the power source, please contact the manufacturer for further information.

CAUTION

Risk of explosion may occur if the battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

WARNING

- Do not touch the hot surface of the system unit when it is turned on.
- Restricted access area: The equipment should only be installed in a Restricted Access Area.

Classification

1. Degree of protection against electric shock: not classified
2. Degree of protection against the ingress of water: IP20
3. Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.
4. Mode of operation: Continuous
5. Type of protection against electric shock: Class I equipment

General Cleaning Tips

You may need the following precautions before you begin to clean the computer. When you clean any single part or component for the computer, please read and understand the details below fully.

When you need to clean the device, please wipe it with a piece of dry cloth.

1. Be cautious of the tiny removable components when you use a vacuum cleaner to remove the dirt on the floor.
2. Turn the system off before you start to clean up the computer or any components.
3. Never drop the components inside the computer or get circuit board damp or wet.
4. Be cautious of all kinds of cleaning solvents or chemicals when you use it for the sake of cleaning. Some individuals may be allergic to the ingredients.
5. Try not to put any food, drink or cigarette around the computer.

Cleaning Tools

Although many companies have created products to help improve the process of cleaning your computer and peripherals users can also use household items to clean their computers and peripherals. Below is a listing of items you may need or want to use while cleaning your computer or computer peripherals.

Keep in mind that some components in your computer may require a designated product for cleaning. Please read the instructions that come with a cleaning product to avoid misuse.

- Cloth: A piece of cloth is the best tool to use when rubbing up a component. Although paper towels or tissues can be used on most hardware as well, we still recommend that you rub it with a piece of cloth.
- Water or rubbing alcohol: You may moisten a piece of cloth a bit with some water or rubbing alcohol and rub it on the computer. Unknown solvents may be harmful to the plastics parts.
- Vacuum cleaner: Vacuuming the dust, dirt, hair, cigarette particles, and other particles out of a computer can be one of the best methods of cleaning a computer. Over time these items can restrict the airflow in a computer and cause the circuitry to corrode.
- Cotton swabs: Cotton swabs moistened with rubbing alcohol or water are excellent tools for wiping hard-to-reach areas in your keyboard, mouse, and other locations.
- Foam swabs: Whenever possible it is better to use lint-free swabs such as foam swabs.



Note: *We strongly recommended that you should shut down the system before you start to clean any single component.*

Please follow the steps below:

1. Close all application programs;
2. Close operating software;
3. Turn off power;
4. Remove all devices;
5. Pull out the power cable.

Scrap Computer Recycling

Please inform the nearest Axiomtek distributor as soon as possible for suitable solutions in case computers require maintenance or repair; or for recycling in case computers are out of order or no longer in use.

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SECTION 1

INTRODUCTION

This chapter contains general information and detailed specifications of the tBOX110-APL-TV. Section 1 includes the following sections:

- General Description
- System Specification
- Dimensions
- I/O Outlets

1.1 General Description

The tBOX110-APL-TV fanless embedded system is an ideal solution for transportation gateways, passenger public address mini servers, passenger information systems, and diagnostic-related onboard computer applications in vehicles and harsh environments. Designed for use in strict environments, the tBOX110-APL-TV adopts an extra low power consumption Intel E3940 (1.6GHz/4-cores) processor, while also supporting an industrial operating temperature range from -40°C to +70°C. The tBOX110-APL-TV offers a wide selection of I/O functions, including 2 x USB, 2 x HDMI, 2 x LAN, 2 x COM port, 2 x CANBUS and 1 x DIO. Its compact size makes it suitable for DIN-rail or wall mount, allowing for easy installation into control cabinets. Supporting Windows®10, the tBOX110-APL-TV provides a friendly environment for programmers to develop application software at a lower cost.

The tBOX110-APL-TV is a robust gateway featuring an industrial-grade hardware design. It incorporates an advanced cooling system and supports mSATA and 2.5" SATA SSD (or HDD), making it an ideal solution for the following markets:

- Utility industries (hydro resources; energy; chemical plants; mining, etc.)
- Public transportation industries (traffic/highway control; train/bus control, etc.)

- **Features**

- Fanless design
- Wide temperature operation range of -40°C ~ +70°C
- Supports 2 x 10/100/1000 Base-T Ethernet
- 2 x CANBUS + 2 x COM ports supporting RS-232/422/485 (4 wires) with shield grounding
- 2 x USB 3.0
- 2 x HDMI 1.4
- 2 x Full size PCIe Mini Card slots:
 - a) 1 x (USB/mSATA/ PCIe) with external SIM slot
 - b) 1 x (USB/ PCIe) with external SIM slot
- Supports one 2.5" SATA drive and one mSATA (1 x half size Mini Card slot)
- Wide range 9–36 VDC power input with terminal block (typical 12/24 VDC for vehicle application)
- 8-bits programmable TTL level digital input/output port
- DIN-rail or wall-mount mounting available
- CE, FCC, LVD, ISO7637-2 certified
- Supports TPM 2.0

- **Embedded O.S. Supported**

- The tBOX110-APL-TV supports Windows® 10 and Linux Ubuntu 20.04

1.2 System Specifications

1.2.1 CPU

- Onboard Intel Atom® Apollo Lake-I x5-E3940 processor (1.6 GHz/4-cores).

1.2.2 BIOS

- AMI (American Megatrends Inc.) UEFI (Unified Extensible Firmware Interface) BIOS.

1.2.3 System Memory

- One DDR3L 204-pin SO-DIMM (1.35V) slot.
- Supports 1600 MHz max up to 8GB.

1.2.4 Display

- Supports HDMI standards up to 1920x1200@60Hz.

1.2.5 Ethernet Ports

- Intel Ethernet Controller i210-IT installed.
- 2 x RJ-45 connectors support 10/100/1000 Base-T Ethernet with 1.5KVDC magnetic isolated protection.

1.2.6 Remote SW

- 1 x SW for remote control.



1.2.7 Storage

- 1 x mSATA (occupied 1 x Full size PCIe Mini Card slot).
- 1 x SATA.

1.2.8 Wireless

- 2 x Full size PCIe Mini Card slots.
- 2 x External access SIM slots (Standard size).
- 4 x Antenna holes.

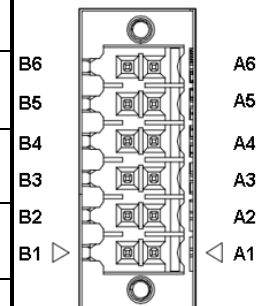
1.2.9 USB

- 2 x USB3.0.

1.2.10 COM/CAN

- 2-port terminal block supports 2 CANBUS + 2 COM
- COM mode supports RS-232/422/485 (which can be selected by BIOS)
- Supports High Speed Mode 115.2 Kbps, up to 1.5 Mbps
- Pin define is listed as follows:

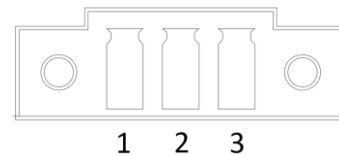
PIN	RS232	RS422	RS485	PIN	RS232	RS422	RS485	CAN
B6	RX	TX+	D+	A6	RX	TX+	D+	--
B5	CTS	TX-	D-	A5	CTS	TX-	D-	--
B4	TX	RX+	--	A4	TX	RX+	--	L
B3	RTS	RX-	--	A3	RTS	RX-	--	H
B2	ISO GND	ISO GND	ISO GND	A2	ISO GND	ISO GND	ISO GND	ISO GND
B1	Chassis GND	Chassis GND	Chassis GND	A1	Chassis GND	Chassis GND	Chassis GND	Chassis GND



1.2.11 Power

- Wide-range 9 - 36VDC (typical 12/24VDC) power input with terminal block.
- Power Rate: 9-36Vdc, 3.74-0.91A
- OVP and RVP protection.
- Supports Axiomtek Smart Ignition.

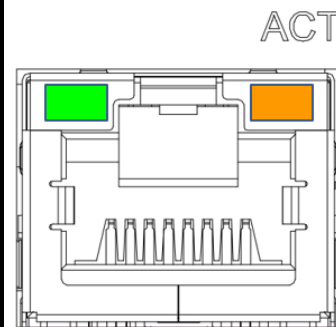
Pin	Signal
1	DC+
2	DC-
3	IGN



1.2.12 RJ45 LAN Connector (LAN1-2)

- The RJ-45 LAN Connector can support 10/100/1000Mbps

Pin	Description	10/100Base-T	1000Base-T
1	Transmits Data+ or Bidirectional	TX+	BI_DA+
2	Transmits Data- or Bidirectional	TX-	BI_DA-
3	Receives Data+ or Bidirectional	RX+	BI_DB+
4	Not Connected or Bidirectional	N.C.	BI_DC+
5	Not Connected or Bidirectional	N.C.	BI_DC-
6	Receive Data- or Bidirectional	RX-	BI_DB-
7	Not Connected or Bidirectional	N.C.	BI_DD+
8	Not Connected or Bidirectional	N.C.	BI_DD-
ACT	Activity Link LED (Yellow)	OFF : No Link Blinking: Data activity detected	



1.2.13 Power & Reset Button

- Auto power on.
- Power button setting for software must be set up first.
- One reset button.

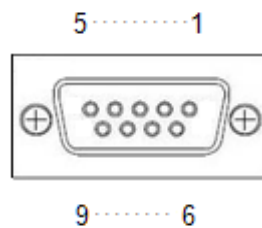


Note: Power button setting instructions for Windows software is offered in APPENDIX B for reference.

1.2.14 DIO

- One DB9 female connector supports 8 bits TTL level programmable digital input/output.
- The voltage for TTL is 5V.
- The programming is as follows:
 - I/O sink current is 8~10mA (output drive current ± 50 mA).
 - Input/Output is programmable.

Pin	Signal
1	DIO0
2	DIO1
3	DIO2
4	DIO3
5	DIO4
6	DIO5
7	DIO6
8	DIO7
9	GND



1.2.15 Watchdog Timer (WDT)

- 1~255 seconds or minutes; up to 255 levels.

1.2.16 Restore BIOS Optimal Defaults (SW1)

- Press the tact switch (SW 1) to restore optimal BIOS defaults.



1.2.17 System LED

- The table below summarizes the functional descriptions of the LED indicators and their corresponding colors.

LED Name	Description	Color
ACT	Indicates storage status. The LED flashes when storage is being accessed.	Orange
PWR	Indicates power status. When the DC input is acceptable, the LED will light on.	Green

1.2.18 Operation Temperature

- -40°C ~ +70°C

1.2.19 Storage Temperature

- -40°C ~ +85°C

1.2.20 Humidity

- 0% ~ 95%

1.2.21 Weight

- 0.967 kg

1.2.22 Dimensions

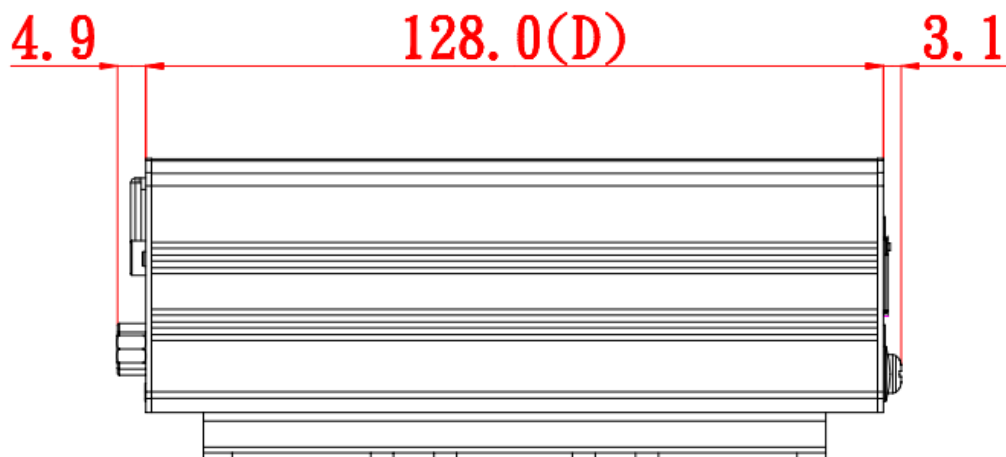
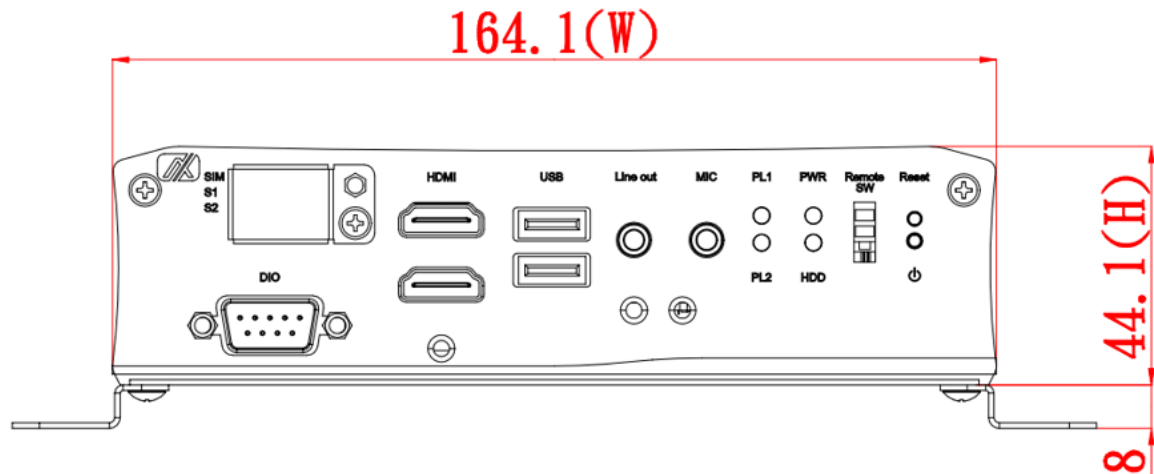
- 164.1 mm (6.46") (W) x 128.0 mm (5.04") (D) x 44.1 mm (1.73")(H)

1.2.23 System I/O Outlets

- 2 x terminal block 2x6 pin male connector: 2 x COM + 2 x CAN
- 2 x HDMI connectors
- 2 x 10/100/1000 Base-T RJ-45 with 1.5KV magnetic isolated protection.
- 2 x USB 3.0 ports
- 1 x DC power input with terminal block.
- 1 x 9-pin D-Sub female connector for DIO.
- 4 x antenna holes.

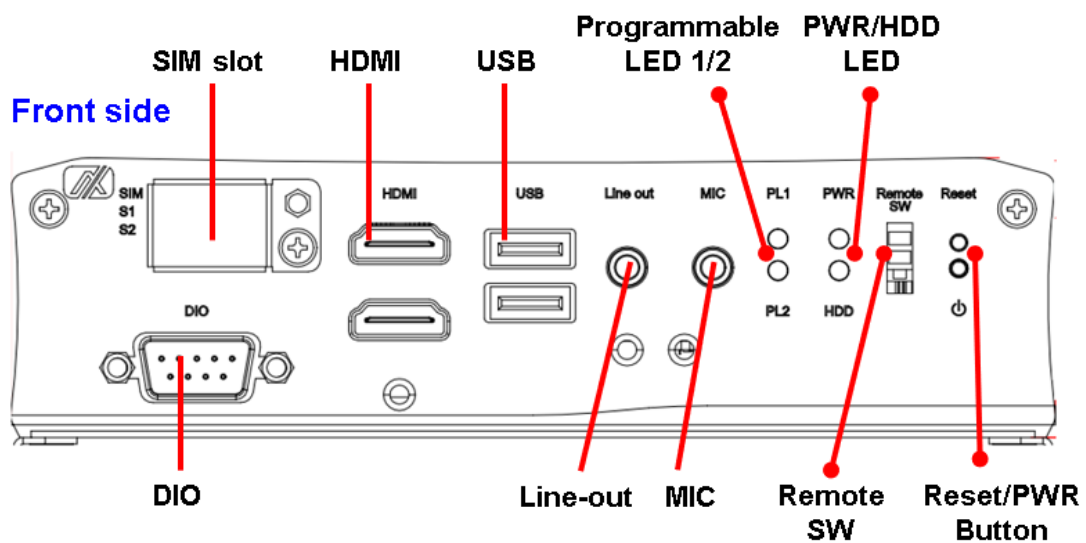
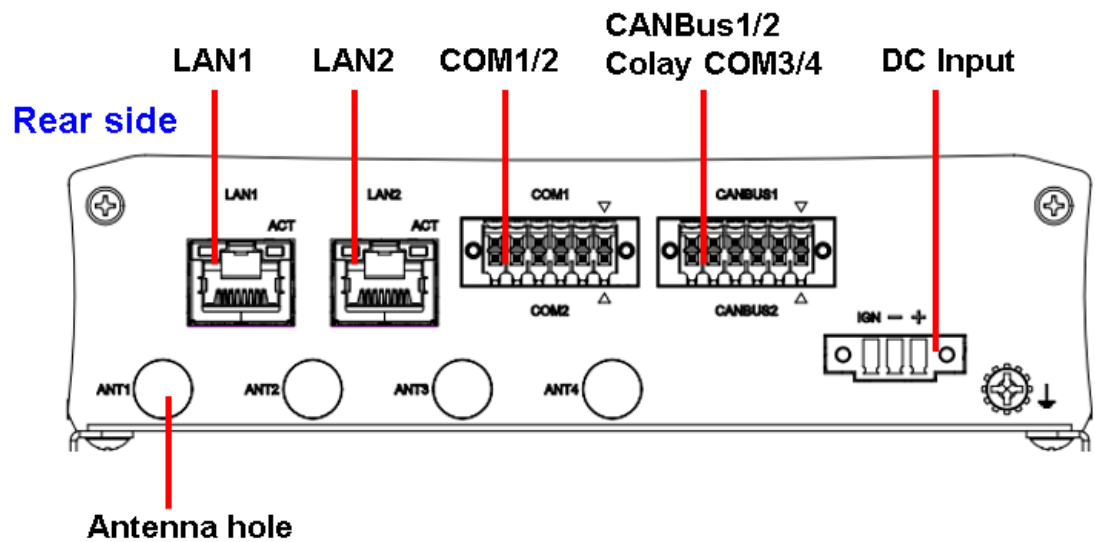
1.3 Dimensions

The following diagrams show you the dimensions and outlines of the tBOX110-APL-TV.



1.4 I/O Outlets

The following figures show you the I/O outlets on the front view and top view of the tBOX110-APL-TV.



SECTION 2

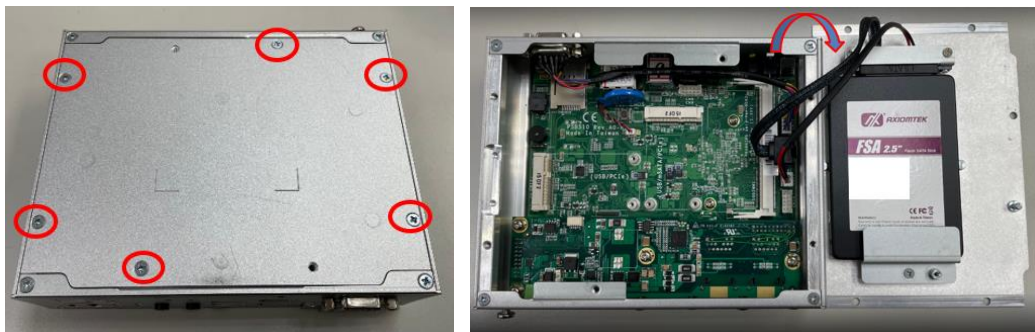
HARDWARE INSTALLATION

The tBOX110-APL-TV is convenient for your various hardware configurations, such as memory modules and mSATA drives. Section 2 will show you how to install the hardware.

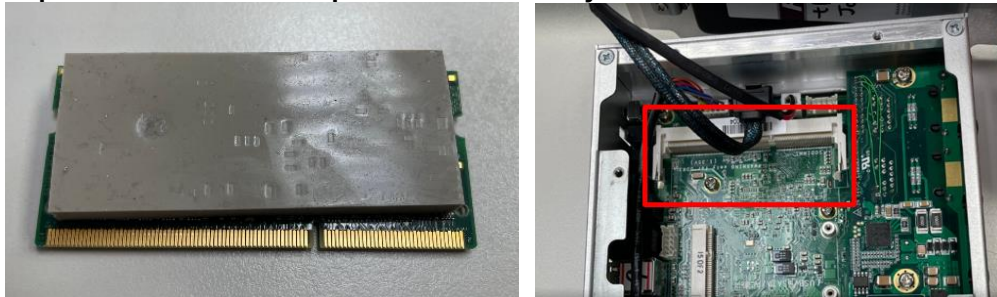
2.1 Installing the Memory Module

Step 1 Turn off the system.

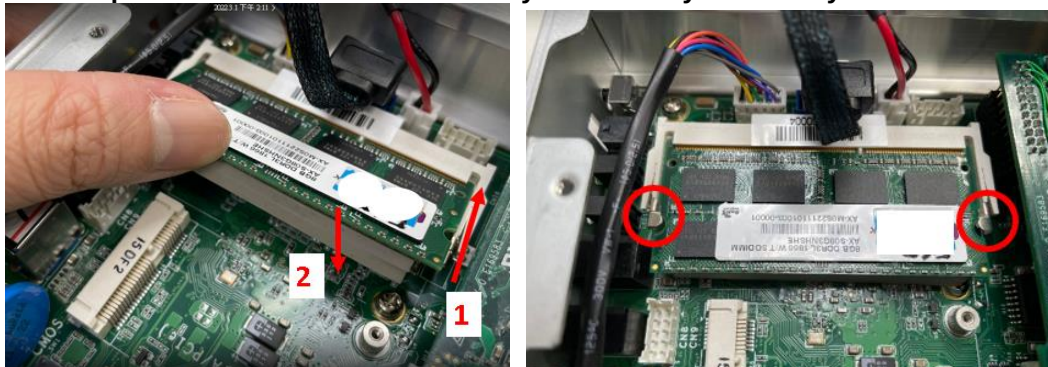
Step 2 Loosen all the screws from the cover and flip the cover to the right.



Step 3 Put the thermal pad on the memory module.



Step 4 Insert the memory into the slot and push the memory down to lock it in place. Ensure that the memory is securely locked by the socket.

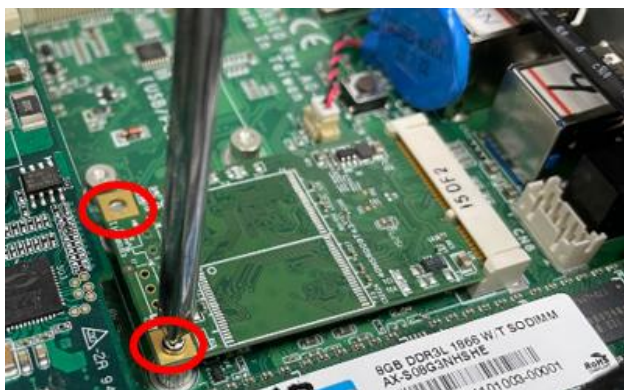


2.2 Installing the mSATA

Step 1 Insert the mSATA into the slot.



Step 2 Fasten the screws tightly.



2.3 Installing the Wireless Module

Step 1 Loosen the screw and remove the cover



Step 2 Insert the SIM Card into the socket and push it to lock. Then, put the cover back and tighten the screw.

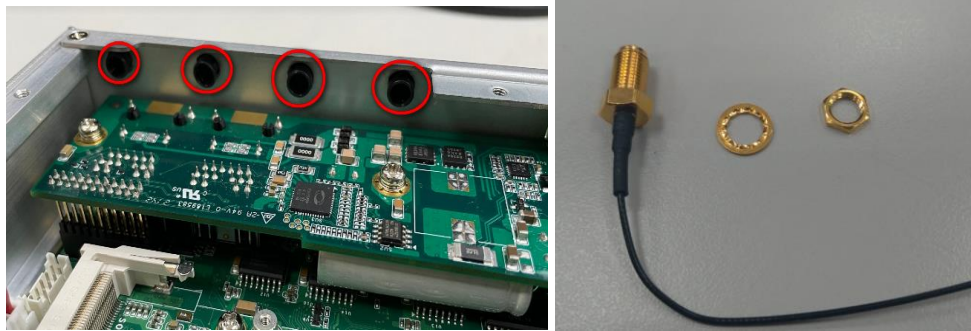


Step 3 Install the wireless module into the slot and fasten the screws.



SIM slot	Wireless module insert slot
S1	CN13
S2	CN9

Step 4 Remove the antenna plug from one antenna hole on the system chassis and prepare the antenna cable.



Step 5 Make the antenna cable's gold connector through the antenna hole on the system chassis and screw it tight with the antenna nut and gasket.

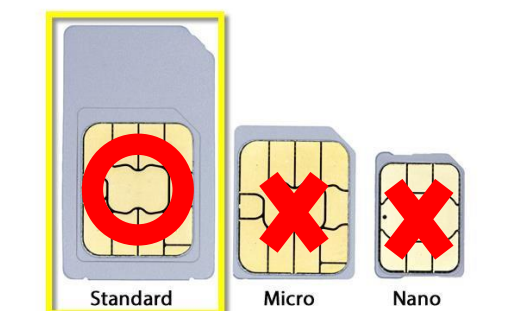


Step 6 Screw the RF antenna to the gold connector.

Step 7 Connect the other end of the cable to the connector on the wireless module.

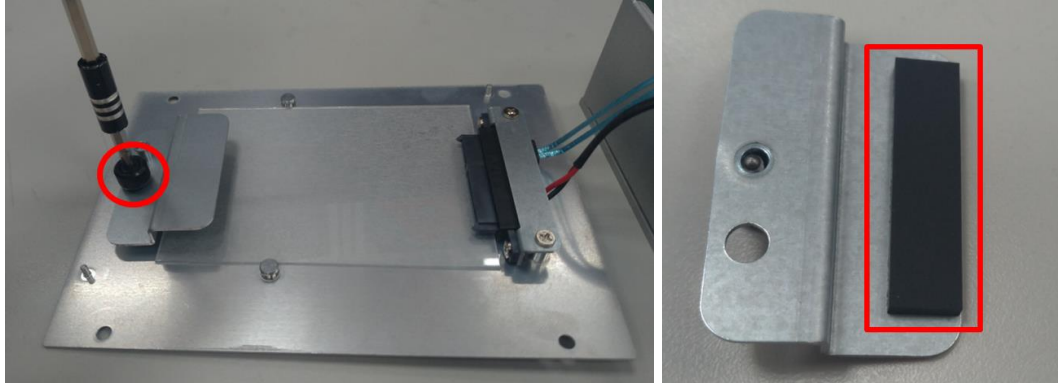


Note: Use only standard-size SIM cards, as illustrated below:

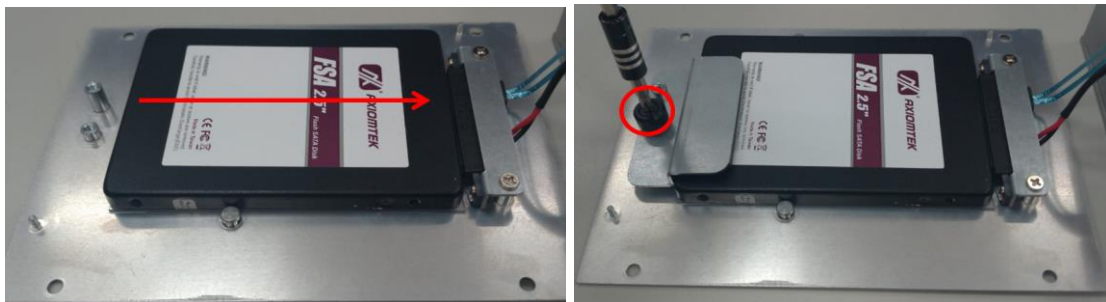


2.4 Installing the Hard Disk

Step 1 Loosen the bracket screw and take off the bracket, then apply the HDD pad to the bracket.



Step 2 Insert the hard disk and screw the bracket to the system chassis.



2.5 Installing the DIN-rail Mount and Wall Mount Kits

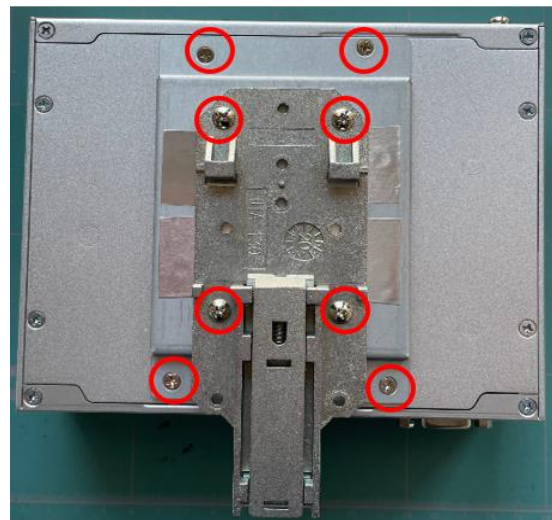
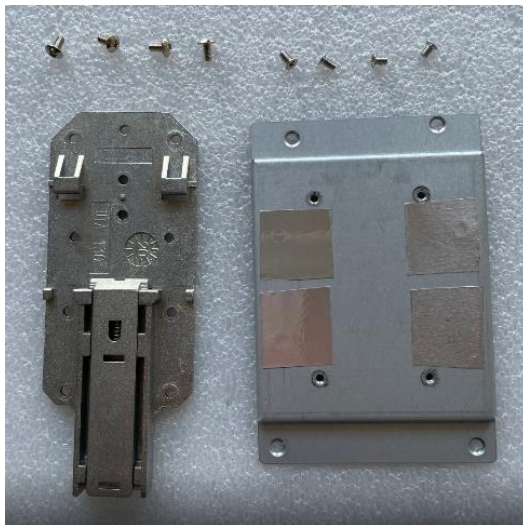
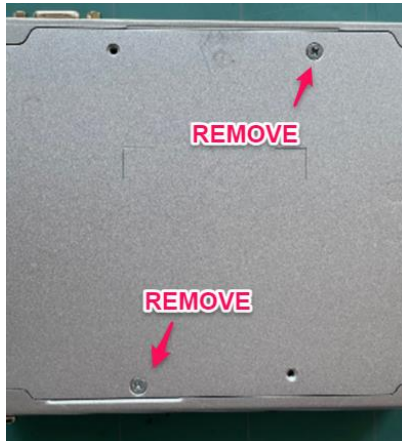
The tBOX110-APL-TV provides DIN-rail and Wall Mount kits that customers can install as below:

Method 1: DIN-rail Mount

Step 0 Removed two M3 x 6mm screws.

Step 1 Prepare the DIN-rail mount assembling components (screws and bracket).

Step 2 Assemble the bracket to the system unit and fasten all screws tightly.



Note: 1. 75211630600E 4pcs

*Dish head cross mechanical tooth flat tail nickel-plated M3*6L screw (120 degrees) RC*

2. 75411630600E 4pcs

*Umbrella head cross type mechanical tooth flat tail nickel plated M3*6L screw*

Method 2: Wall Mount

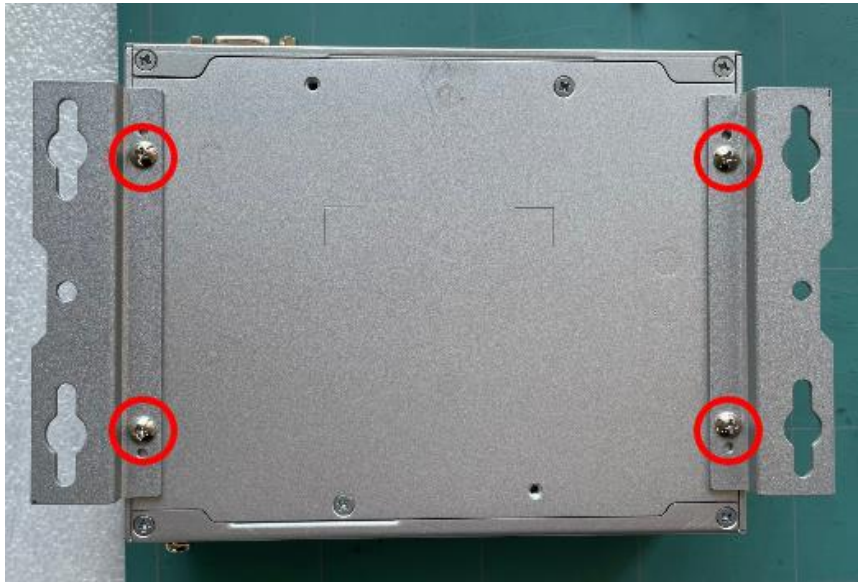
Step 1 Prepare the wall mount assembling components (screws and bracket).



Note: 75411630600E 4pcs

*Umbrella head cross type mechanical tooth flat tail nickel plated M3*6L screw*

Step 2 Align the positioning notches on the wall mount bracket with the edges of the system unit. Ensure the screw hole chamfers face upward, and then securely fasten the bracket firmly to the system unit.



2.6 Installing the Cable Fixing Plate

For HDMI:

- Step 1** Turn off the system and unplug the power cord.
- Step 2** To fasten the HDMI cable fixing plate (Figure 1) to the system, align the hole on the plate with the hole on the system chassis, insert the screw, and tighten it to secure the plate, as shown in Figure 2 below.
- Step 3** Insert the HDMI cable into the system's HDMI port. Then Insert a cable tie through the loop of the cable fixing plate to bind the HDMI cable to the plate, as shown in Figure 3 below.



(Figure 1)



(Figure 2)



(Figure 3)

For Audio Jack:

- Step 1** Turn off the system and unplug the power cord.
- Step 2** To fasten the audio cable fixing plate (Figure 4) to the system, align the hole on the plate with the hole on the system chassis, insert the screw, and tighten it to secure the plate, as shown in Figure 5 below.
- Step 3** Insert the audio cable into the system's audio port. Then, insert a cable tie through the loop of the cable fixing plate to secure the audio cable to the plate, as shown in Figure 6 below.



(Figure 4)



(Figure 5)



(Figure 6)

SECTION 3

AMI UEFI BIOS UTILITY

The AMI UEFI BIOS provides users with a built-in Setup program to modify basic system configuration. All configured parameters are stored in a flash backup to save the Setup information whenever the power is turned off.

3.1 Entering Setup

To enter the setup screens, follow the steps below:

Turn on the computer and press the <Del> key immediately.

After you press the <Del> key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Advanced and Chipset menus.

3.2 The Main Menu

Once you enter the AMI BIOS Aptio Setup Utility, the Main Menu appears on the screen. In the Main Menu, there are several Setup functions and a couple of Exit options for your selection. Use Select Screen Keys (or Move Keys) to select the Setup Page you intend to configure and then press <Enter> to accept or to enter its sub-menu.



System Date

The date format is <day> <month> <date> <year>.

System Time

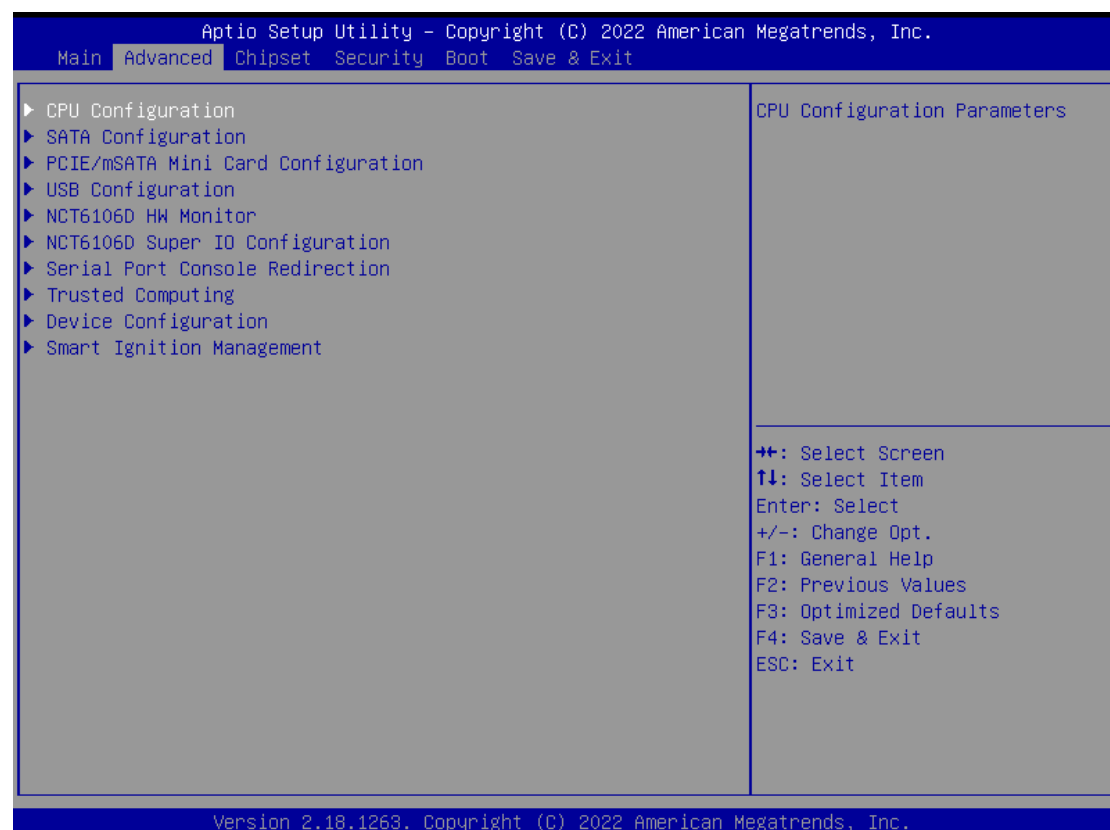
This item shows current time of your system with the format <hour> <minute> <second>. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

3.3 Advanced Features

This Advanced menu allows users to configure and optimize the system, or set up system features according to their preferences. You can select any of the items in the left frame of the screen to access the sub-menus:

- ▶ CPU Configuration
- ▶ SATA Configuration
- ▶ USB Configuration
- ▶ Hardware Monitor
- ▶ NCT6106D Super IO Configuration
- ▶ Serial Port Console Redirection
- ▶ Trusted Computing
- ▶ Device Configuration
- ▶ Smart Ignition Management

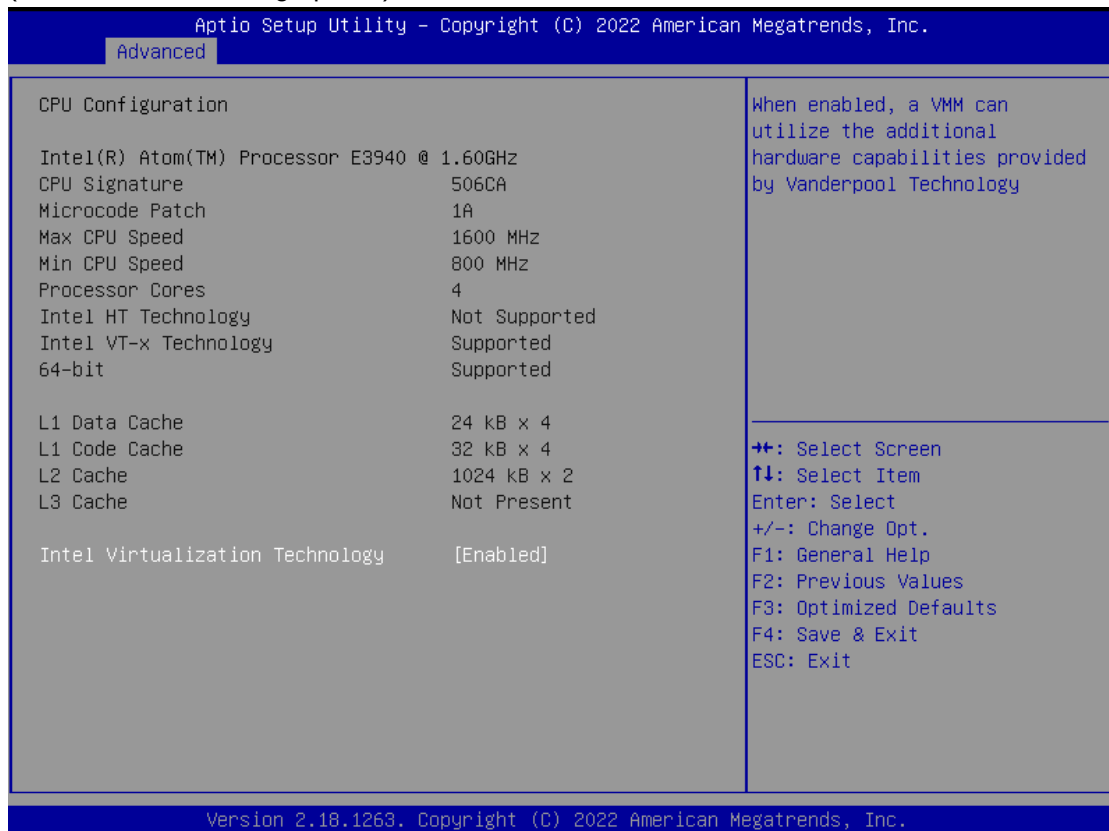
For items marked with “▶”, please press <Enter> for more options.



• CPU Configuration

Scroll to this item and press <Enter> to view the CPU Configuration information.

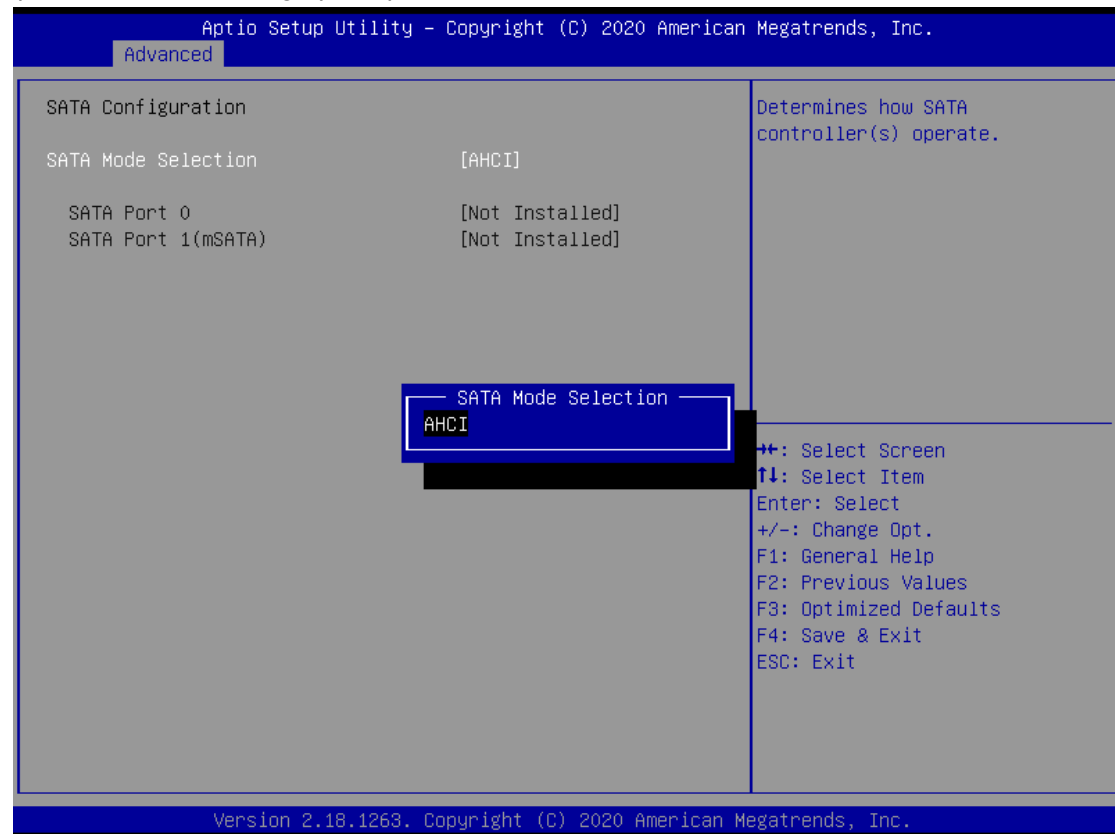
(Please refer to below graphics.)



- **SATA Configuration**

Scroll to this item and press <Enter> to view the SATA Configuration information.

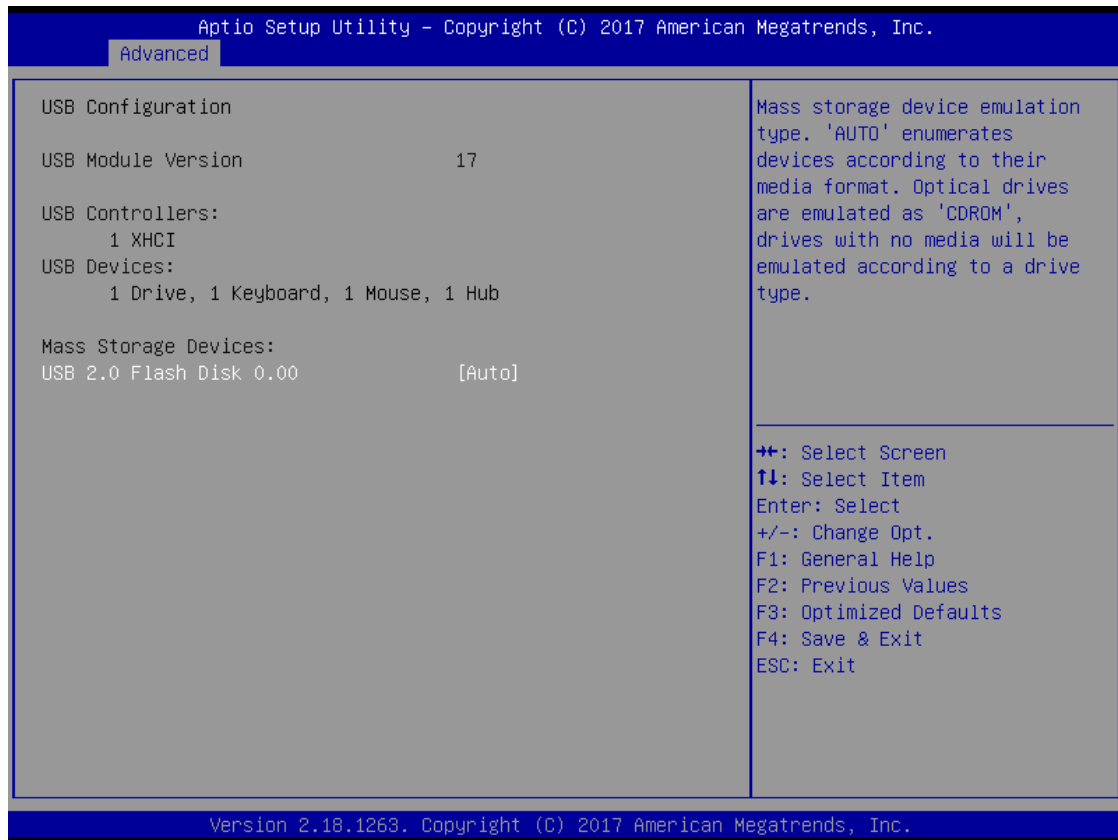
(Please refer to below graphics.)



• USB Configuration

Scroll to this item and press <Enter> to view the USB Configuration information.

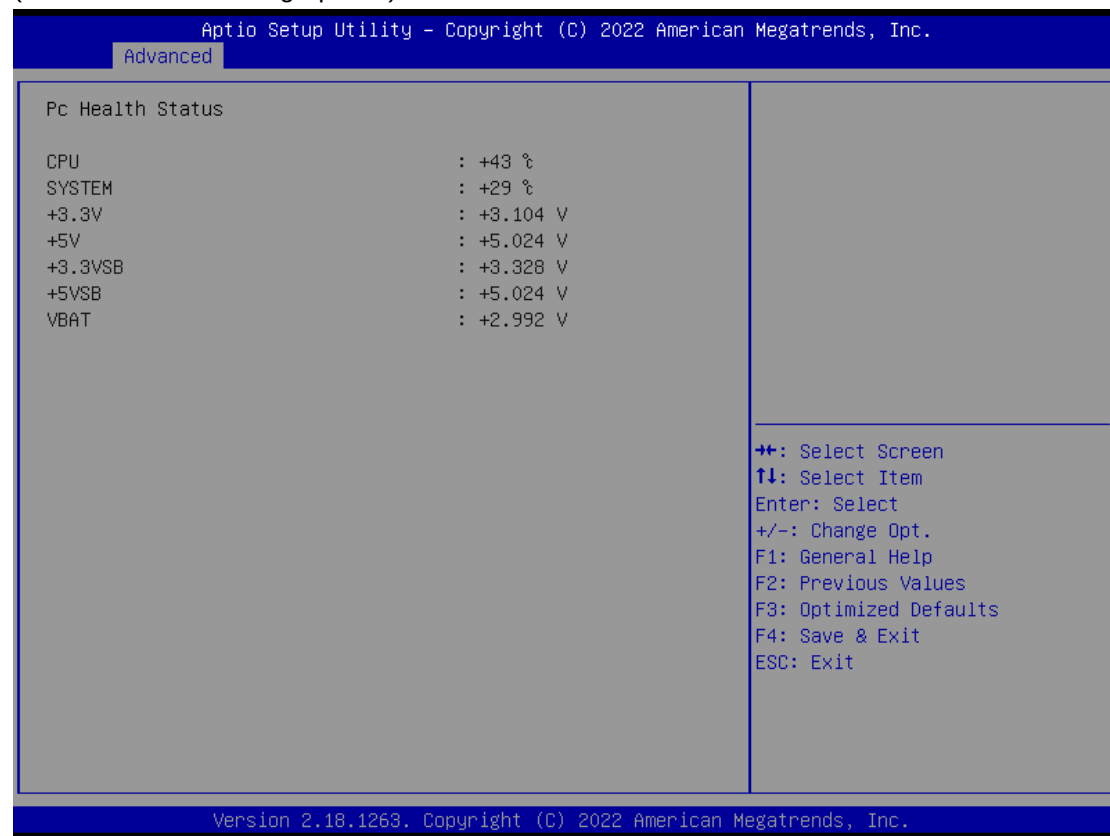
(Please refer to below graphics.)



- **H/W Monitor**

Scroll to this item and press <Enter> to view the hardware status items under monitoring.

(Please refer to below graphics.)



• NCT6106D Super IO Configuration

The default setting for all serial ports is RS232.

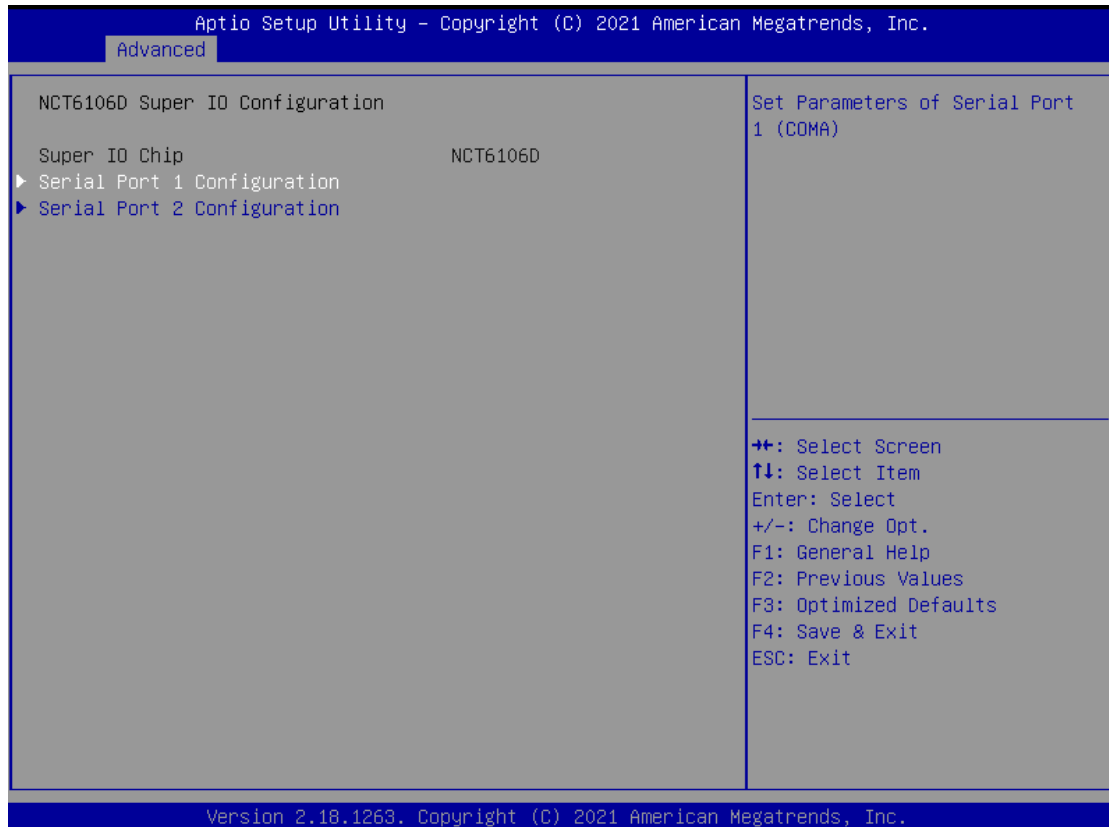
You can change the setting by selecting the value you want in each COM port type.

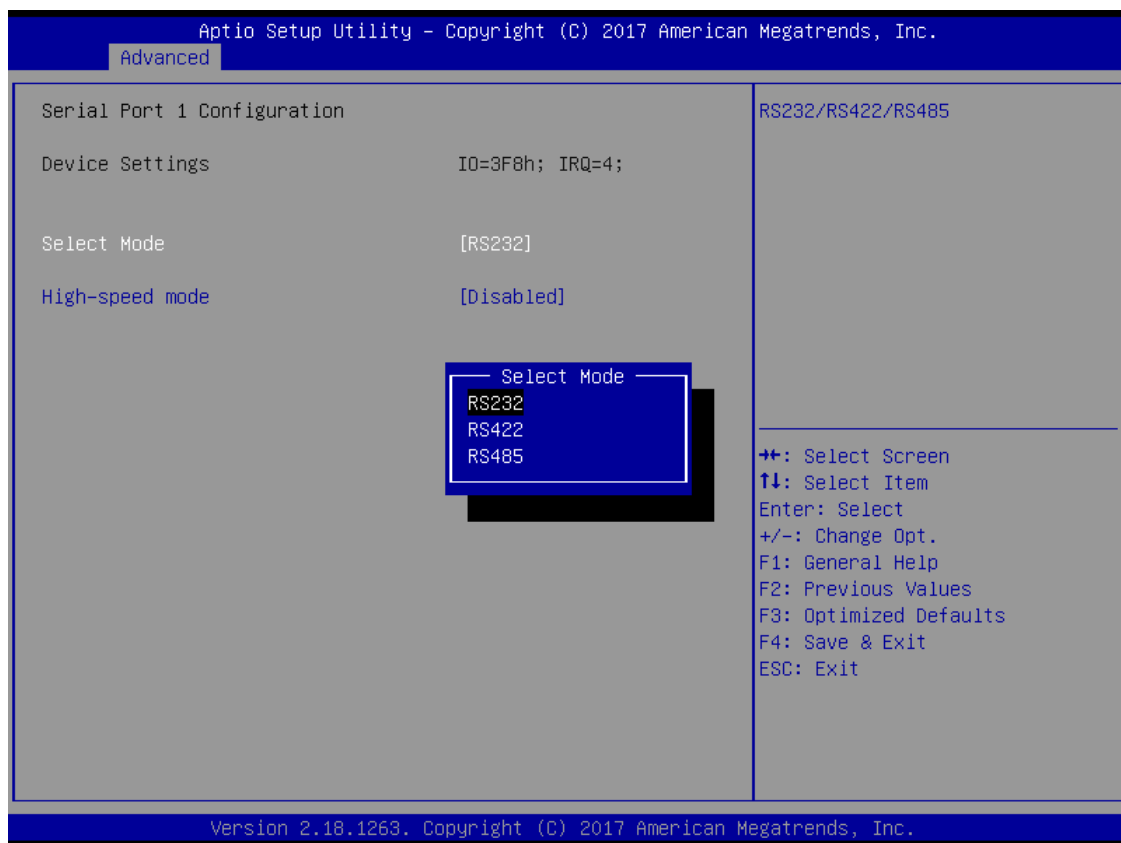
The system supports RS422 and RS485 modes as well as high-speed mode.

You can enable High-speed mode, which can be selected in the BIOS menu.

COM port speed supports up to 1.5 Mbps.

(Please refer to below graphics.)

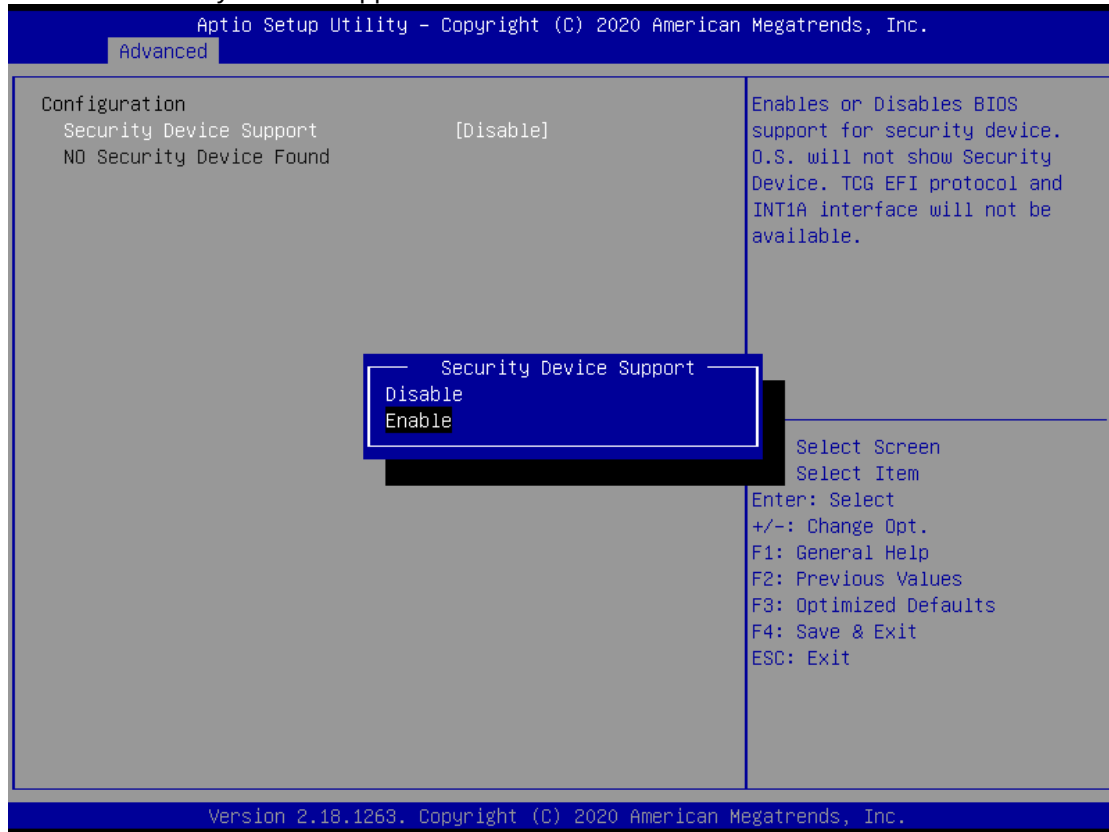




- **Trust Computing**

This sub-menu will allow you to enable/disable Trusted Platform Module (TPM) support and to configure the TPM State. Select Trusted Computing and press Enter to access the sub-menu.

Select the Security Device Support item to enable the TPM device.





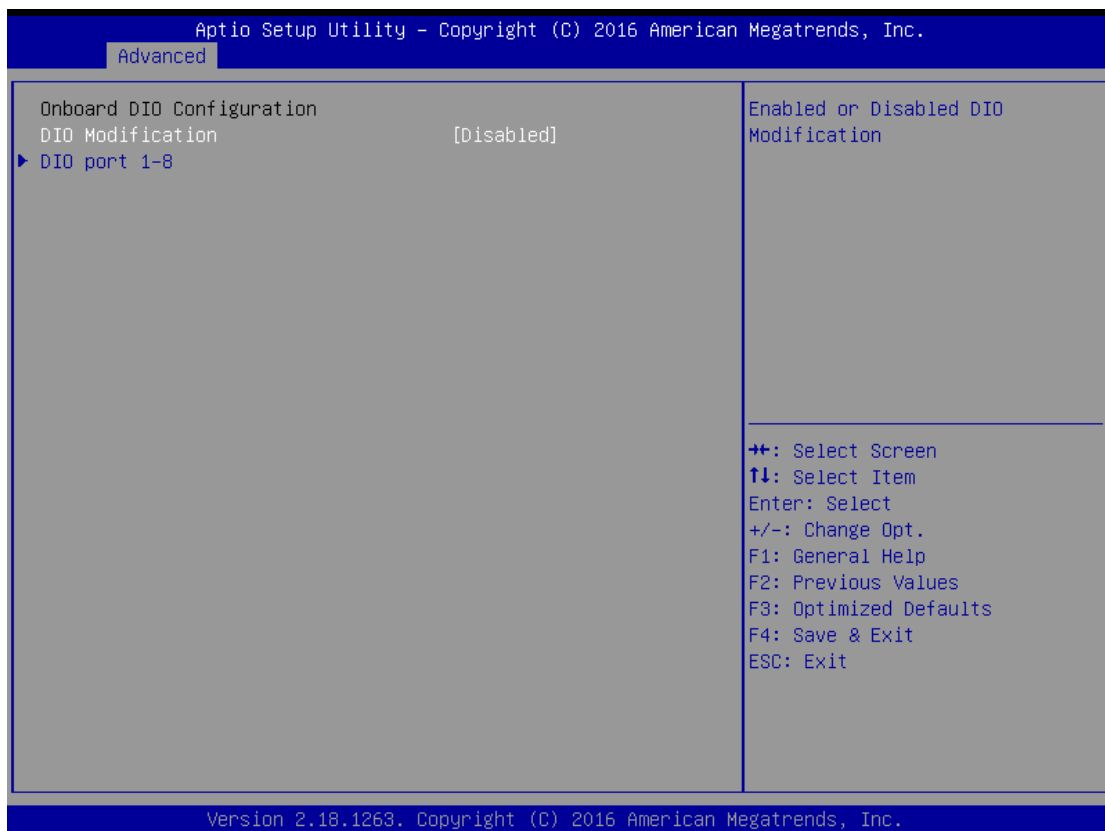
- **DIO Configuration**

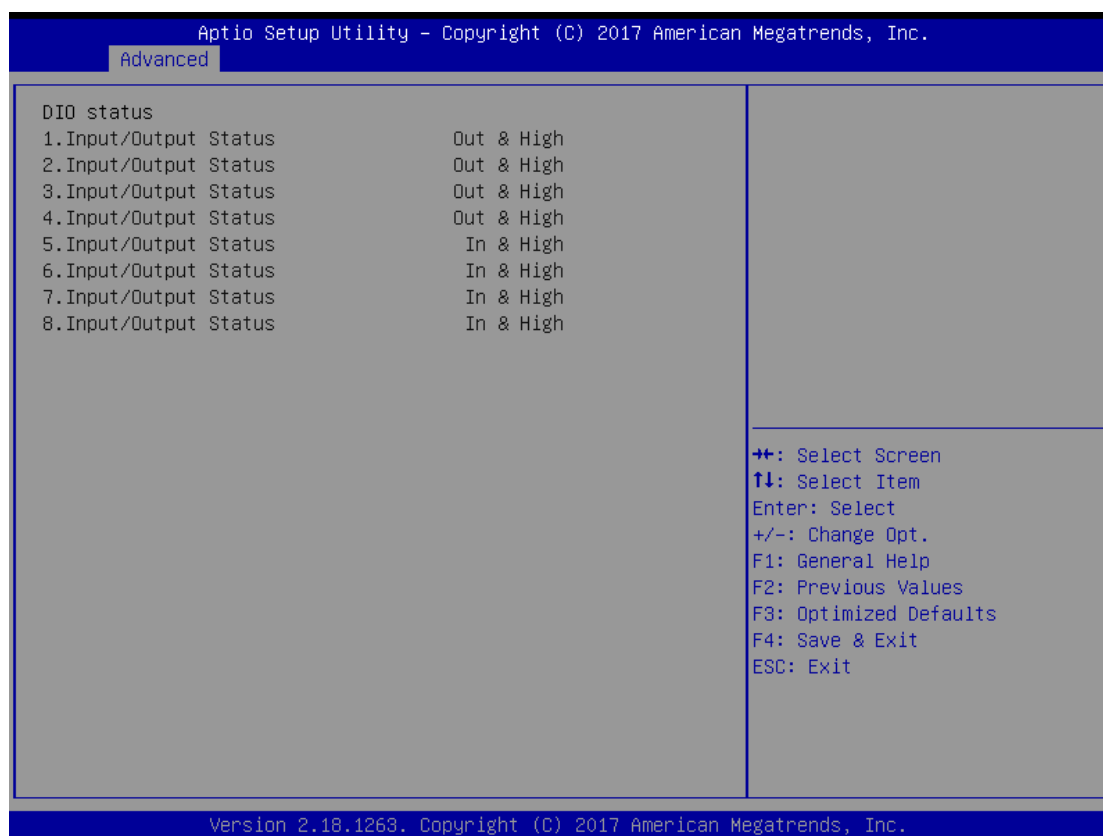
The DIO Modification default setting is “disable”.

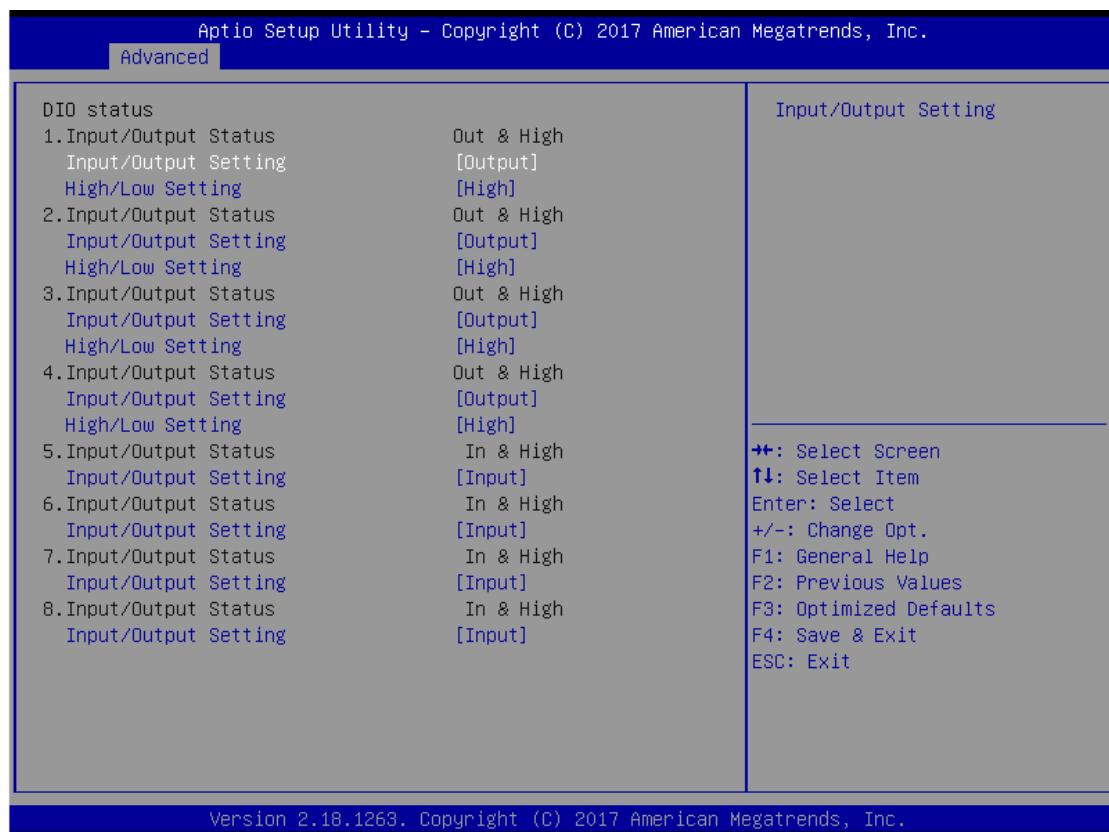
If the setting is changed to “enable”, you can load manufacture default and program DIO setting.

(Please refer to below graphics.)









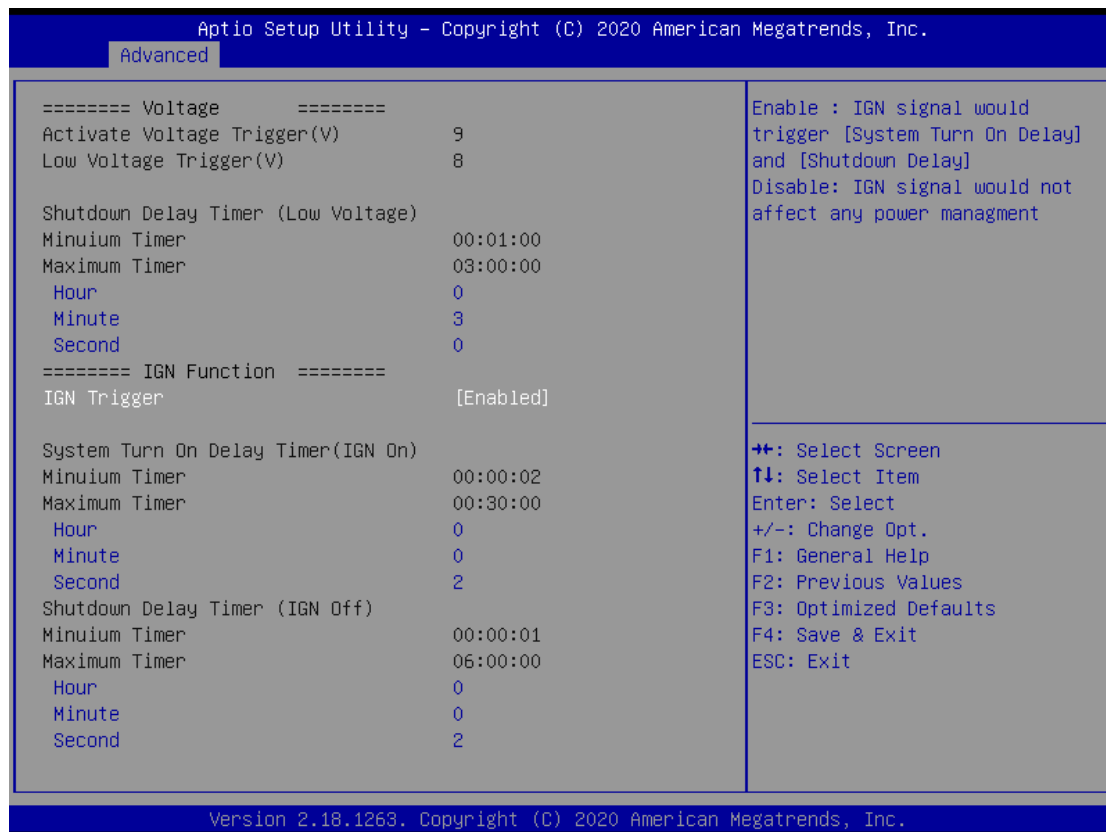
• Smart Ignition Management

Press Enter to access the sub-menu. Calculated based on the 24-hour military-time clock.



BIOS menu item	Description
Ignition Management	Enabled Switch to In-Vehicle mode. In this mode, the IGN trigger will be enabled. The IGN trigger configuration is located in the Advanced Settings item. *Note: The IGN signal will only be triggered when DC-in IGN is connected to DC+, ignition power, or an ignition control signal. Disabled Switch to AT/Railway mode. *Note: The system will reset after the Ignition Management setting has been changed and saved.
Auto Power On	Enabled The system will turn on automatically under following conditions: - The system power is manually disconnected and reconnected.. - Power interruption: Auto power on after power loss. Disabled System will not turn on automatically when power is connected or when power resumes from a power failure.

Advance Setting	Set system on/off timing and voltage threshold levels
Save Settings	Save the current settings.
Restore Factory Settings	Restores factory defaults to remove any incorrect or corrupted settings that may have prevented the system from powering on/off properly.



BIOS menu item	Description
Activate Voltage Trigger	The system only turns on when the voltage delivered by the power source is higher than the value you set here.
Low Voltage Trigger	The system will begin countdown stage once voltage drops below the value you set here. If the power source voltage does not come back above the value of [Activate Voltage Trigger] within the time you set for [Shutdown Delay Time (Low Voltage)], the system will shut down and remain off.
Shutdown Delay Timer (Low Voltage)	The counter will be activated once power source voltage drops below the value defined in [Low Voltage Trigger]. The system will be forced to turn off once timer completes countdown.
IGN Trigger	Enable [System Turn On Delay] and [Shutdown Delay] will be triggered by IGN.

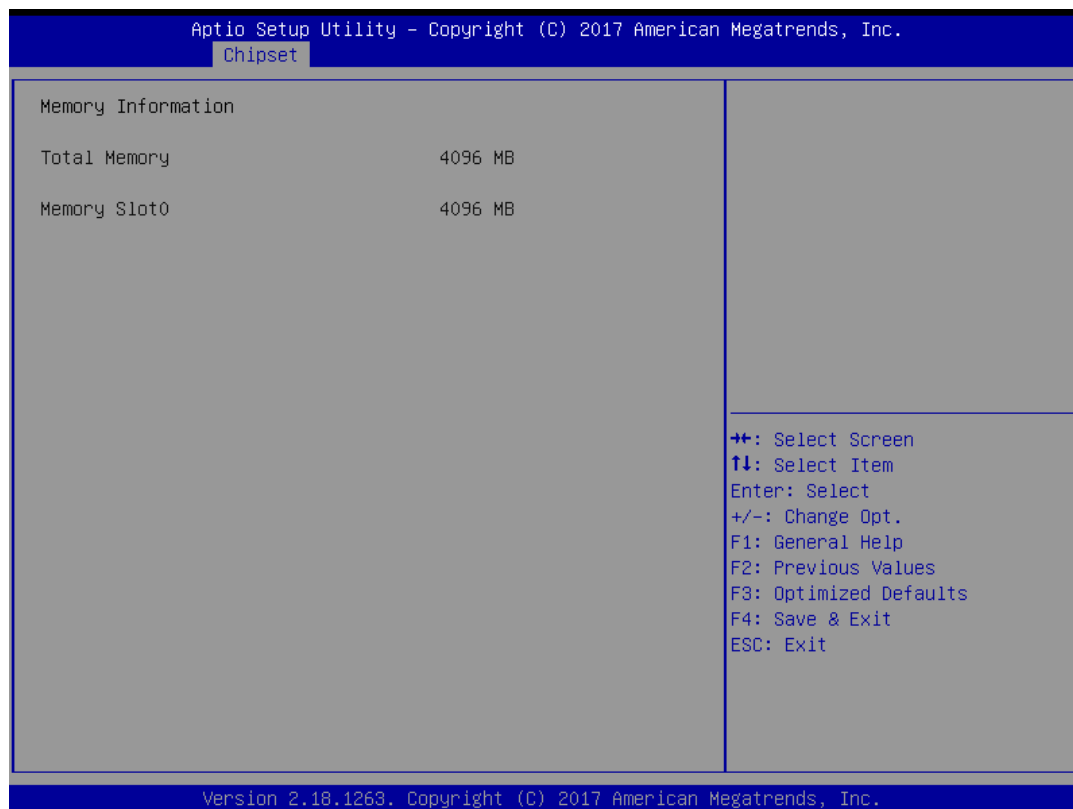
	Disable IGN signal will not affect any power management.
System Turn On Delay Timer (IGN On)	When receiving the IGN signal, the system will be turned on after setup time is counted down. The counter will be reset if IGN is off and on during the system countdown time.
Shutdown Delay Timer (IGN Off)	When IGN goes off during the system is normally operating, the system will be shut down after the shutdown timer has been counted complete which has been set by the user. Additionally, if power source voltage is lower than the setup value it will cause the system to turn off as well.



Note: Please refer to APPENDIX B for setting the motion in OS application

3.4 Chipset Feature

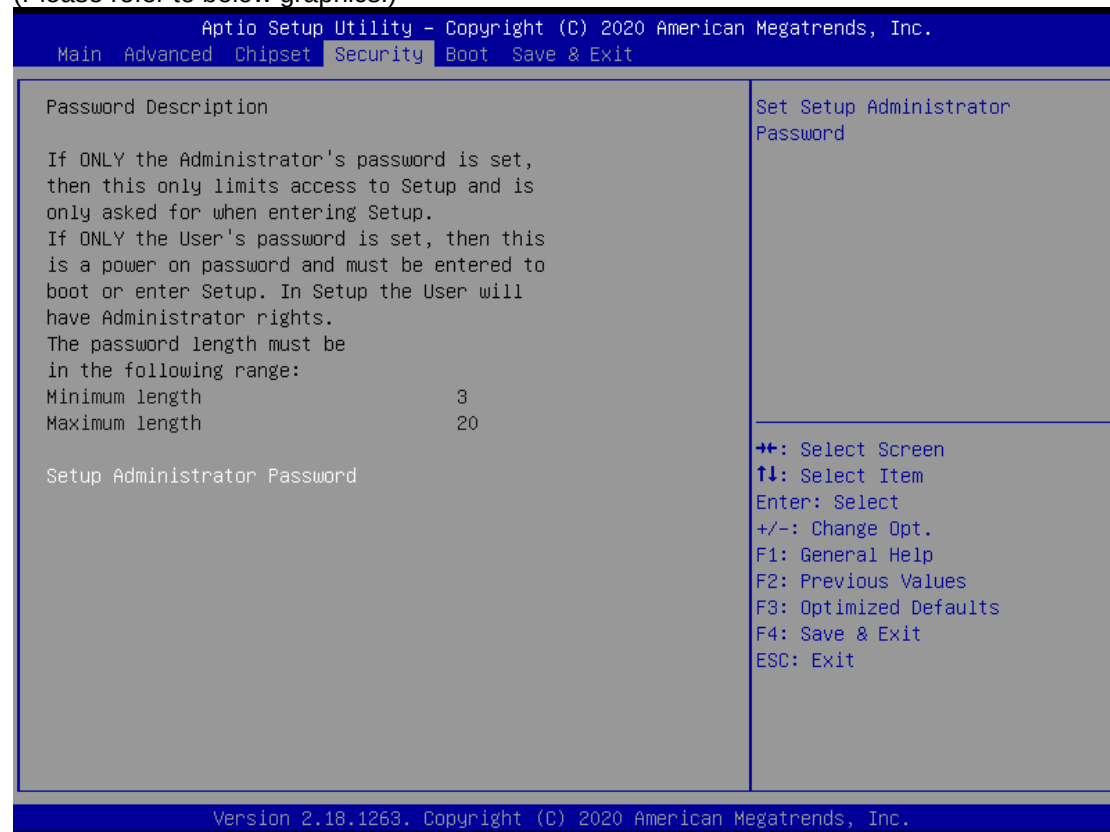
This section contains fully optimized chipset features in the system.

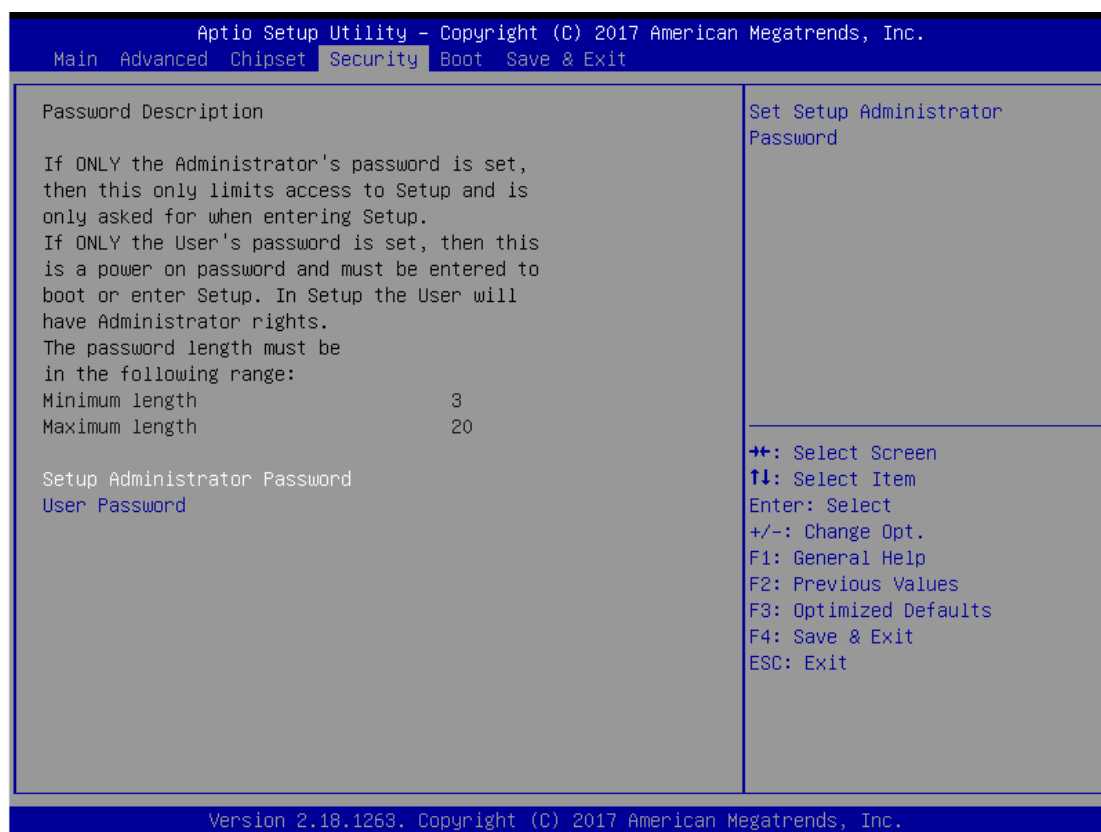


3.5 Security

The Security menu allows users to enhance system security by setting an administrator password and a user password. No password has been set in the default setting.

(Please refer to below graphics.)





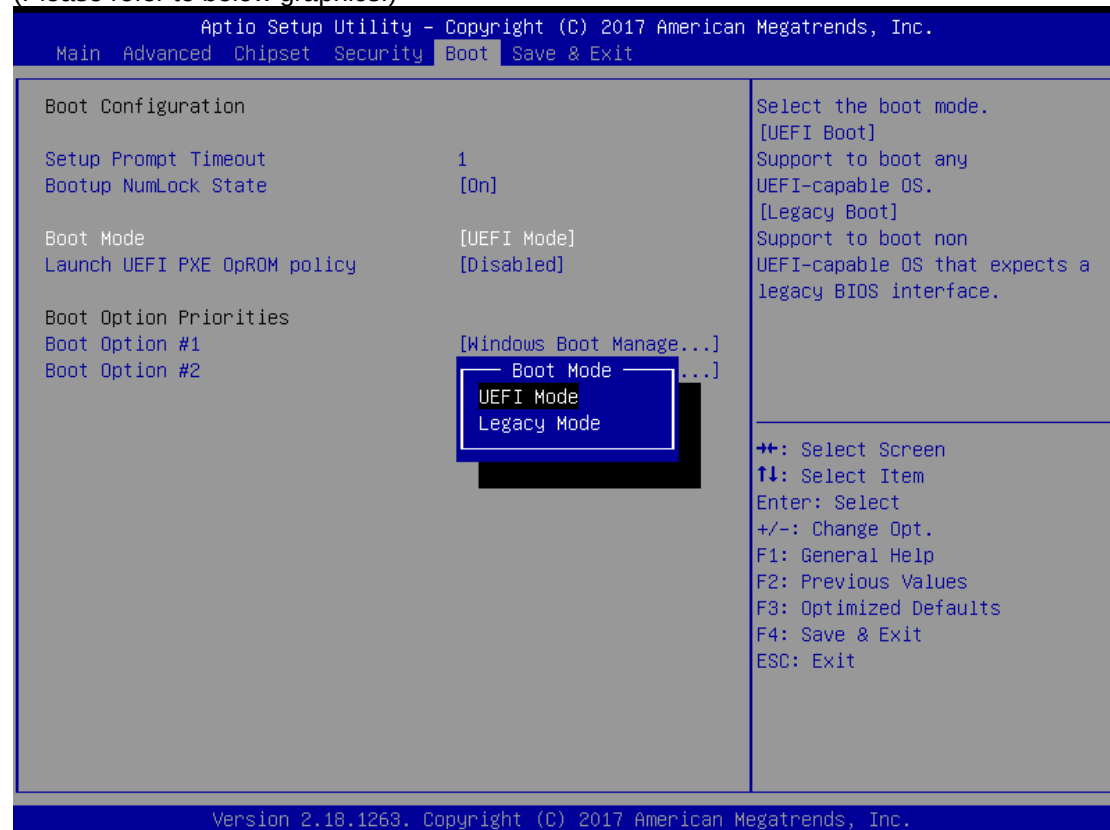
Note: The BIOS default has no password. The user must remember the password after creating one. If the user forgets the password RMA is the only solution.

3.6 Boot Type

The Boot menu allows users to change boot options of the system, providing UEFI, Legacy, and Compatible modes to select from.

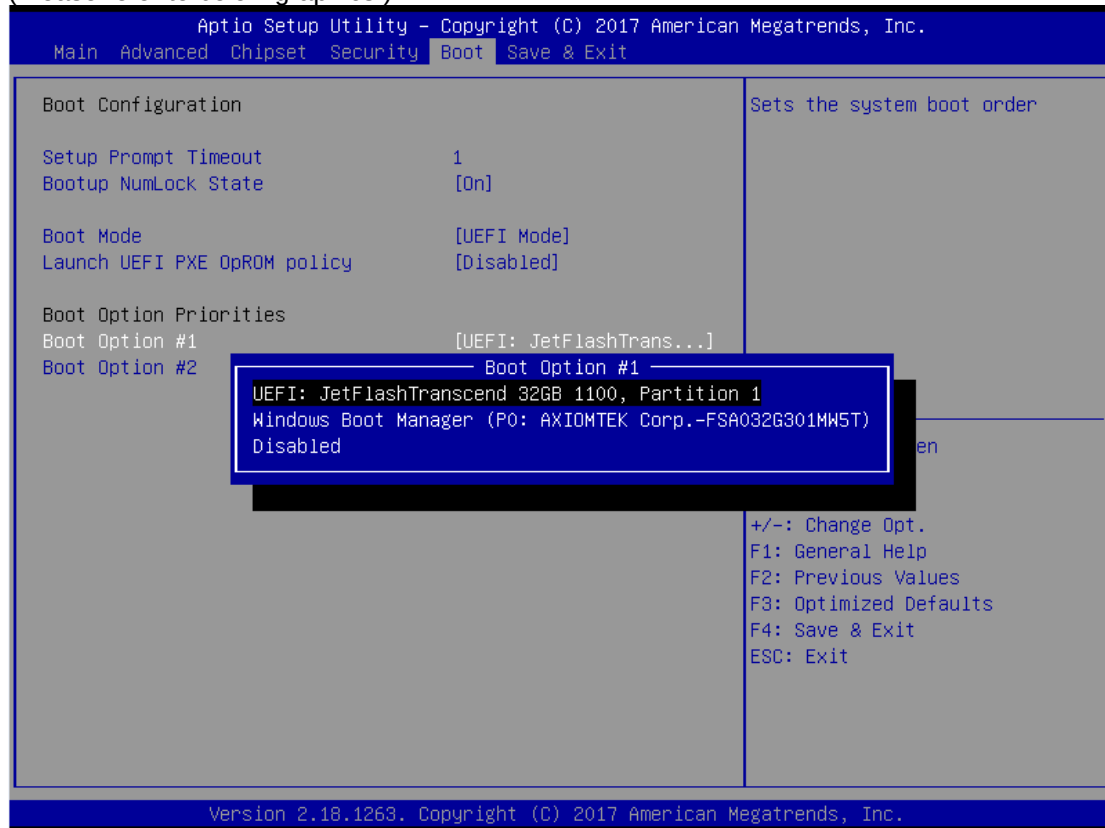
The default setting boot mode is [UEFI Mode].

(Please refer to below graphics.)



The Boot Option Priorities can be set by selecting Boot Option #1, #2...

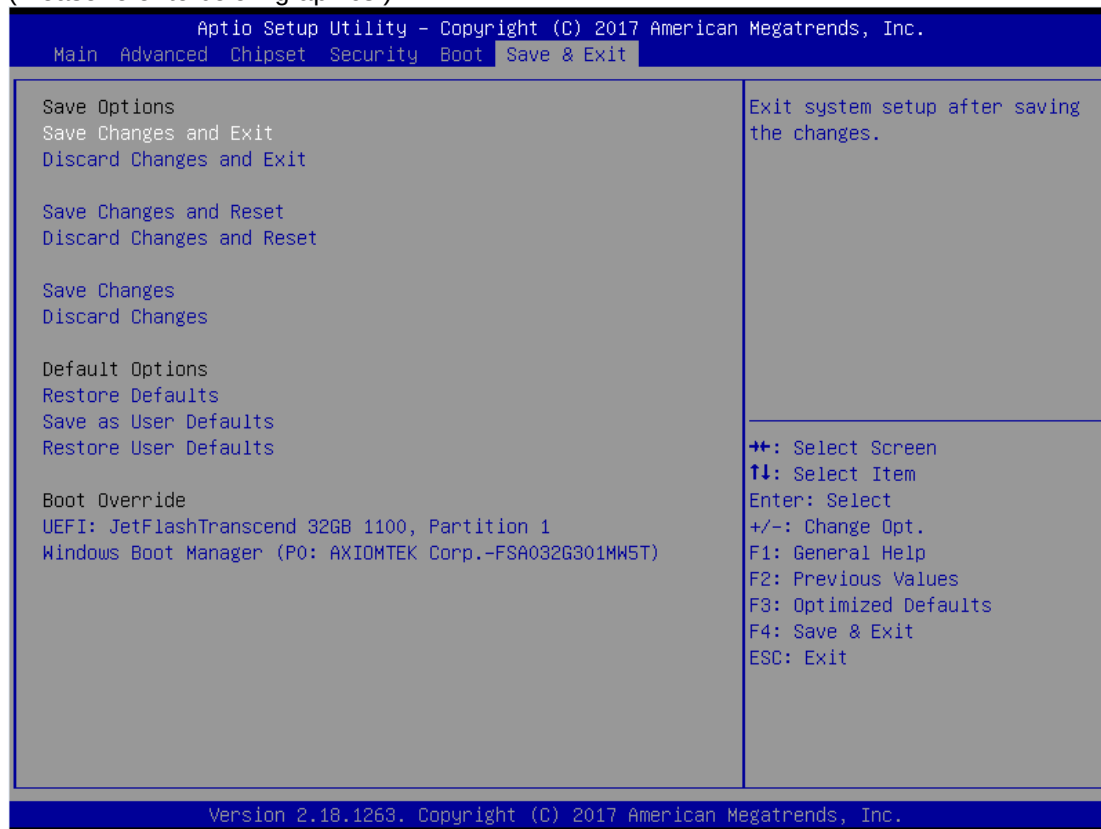
(Please refer to below graphics.)



3.7 Save & Exit

The Save & Exit menu allows users to determine whether to accept their modifications to the system configuration, or to keep default settings for optimal fail-safe performance.

(Please refer to below graphics.)



BIOS menu item	Description
Save Changes and Exit	When users have completed the system configuration changes, select this option to leave Setup and return to Main Menu. Select Save Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to save changes and exit.
Discard Changes and Exit	Select this option to quit Setup without making any permanent changes to the system configuration and return to Main Menu. Select Discard Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to discard changes and exit.
Save Changes and Reset	After completing the system configuration changes, select this option to leave Setup and reboot the computer so the new system configurations will take effect. Select Save Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to save changes and reset.
Discard Changes and Reset	Select this option to quit Setup without making any permanent changes to the system configuration and reboot the computer. Select Discard Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to discard changes and reset.

Save Changes	After completing the system configuration changes, select this option to save changes. Select Save Changes from the Save & Exit menu and press <Enter>. Select Yes to save changes.
Discard Changes	Select this option to quit Setup without making any permanent changes to the system configuration. Select Discard Changes from the Save & Exit menu and press <Enter>. Select Yes to discard changes.
Restore Defaults	It automatically sets all Setup options to a complete set of default settings when users select this option. Select Restore Defaults from the Save & Exit menu and press <Enter>.
Save as User Defaults	Select this option to save system configuration changes done so far as User Defaults. Select Save as User Defaults from the Save & Exit menu and press <Enter>.
Restore User Defaults	It automatically sets all Setup options to a complete set of User Defaults when users select this option. Select Restore User Defaults from the Save & Exit menu and press <Enter>.
Boot Override	Select a drive to immediately boot that device regardless of the current boot order.

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APPENDIX A WATCHDOG TIMER

About Watchdog Timer

After the system stops working for a while, it will be auto-reset by the watchdog timer. The integrated watchdog timer can be set up in the system reset mode by program.

How to Use Watchdog Timer

The following example enables configuration using a debug tool.

Enable WDT

↓

Enable configuration:

O 2E 87 ; Un-lock super I/O

O 2E 87

↓

Select logic device:

O 2E 07 ; Select logic register

O 2F 07 ; Switch to WDT device

↓

Set timer value:

O 2E F6 ; Select logic register

O 2F 05 ; Timer value 0~255 (Sec/Min) (Ex: 5)

↓

Clear WDT status (optional):

O 2E F5 ;

O 2F 40

↓

Set base timer:

O 2E F5

O 2F M ; M = 28h (Minute)

M = 20h (Second)

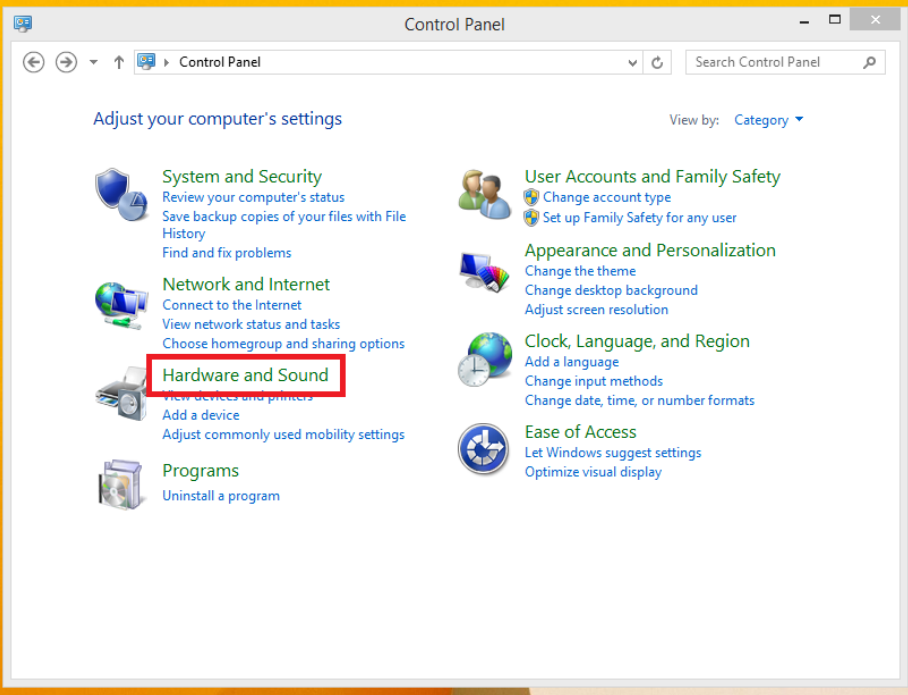
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APPENDIX B

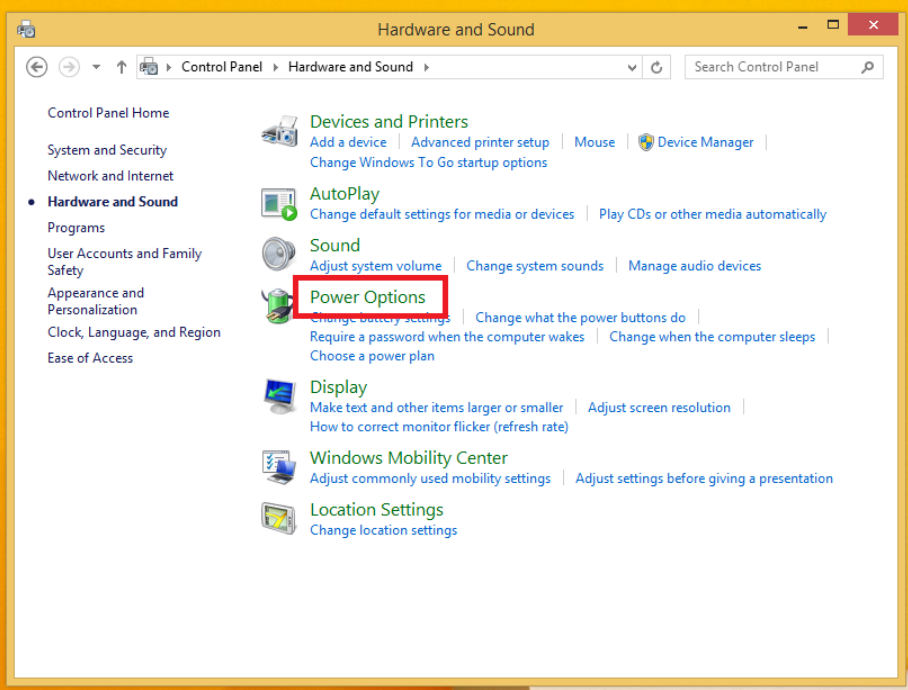
POWER BUTTON SETTING FOR WINDOWS SOFTWARE

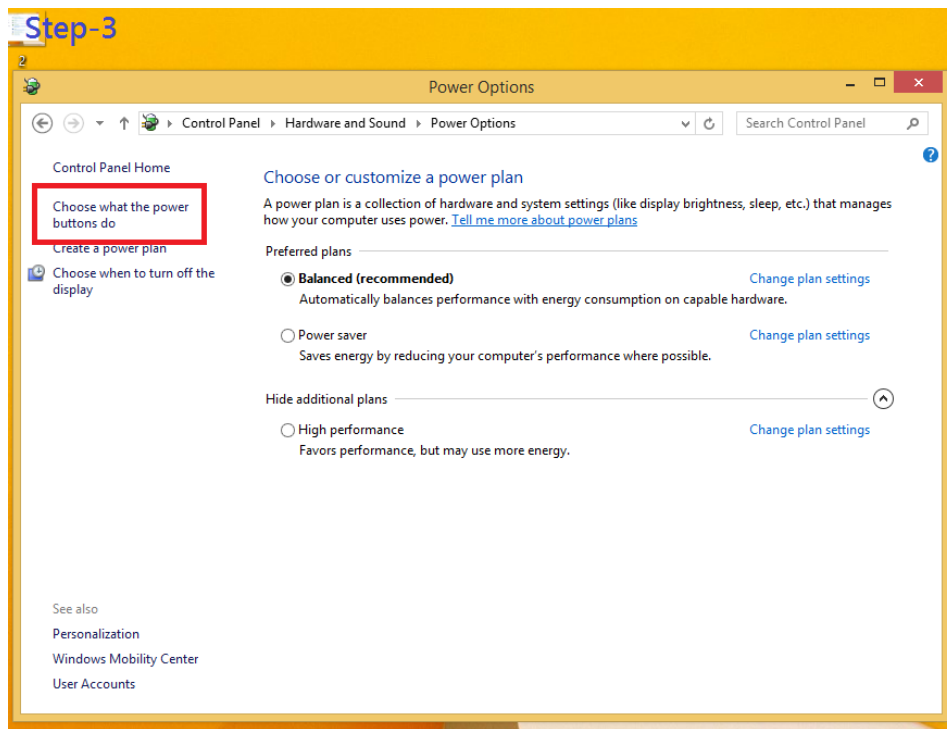
Please enter the power button setting through the PC console, and then follow below steps to complete the setting.

Step-1

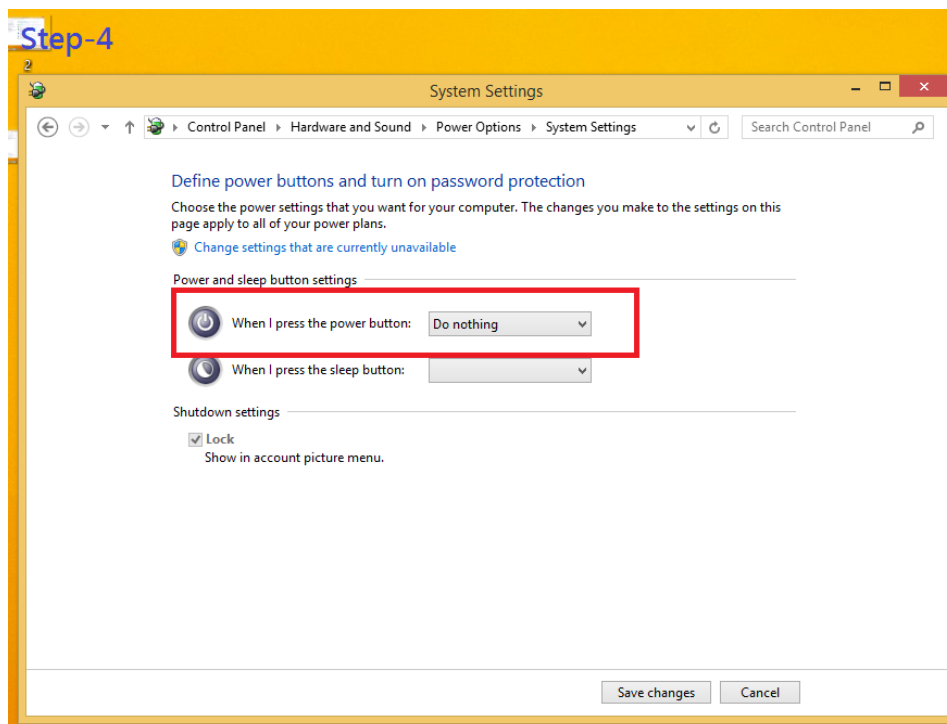


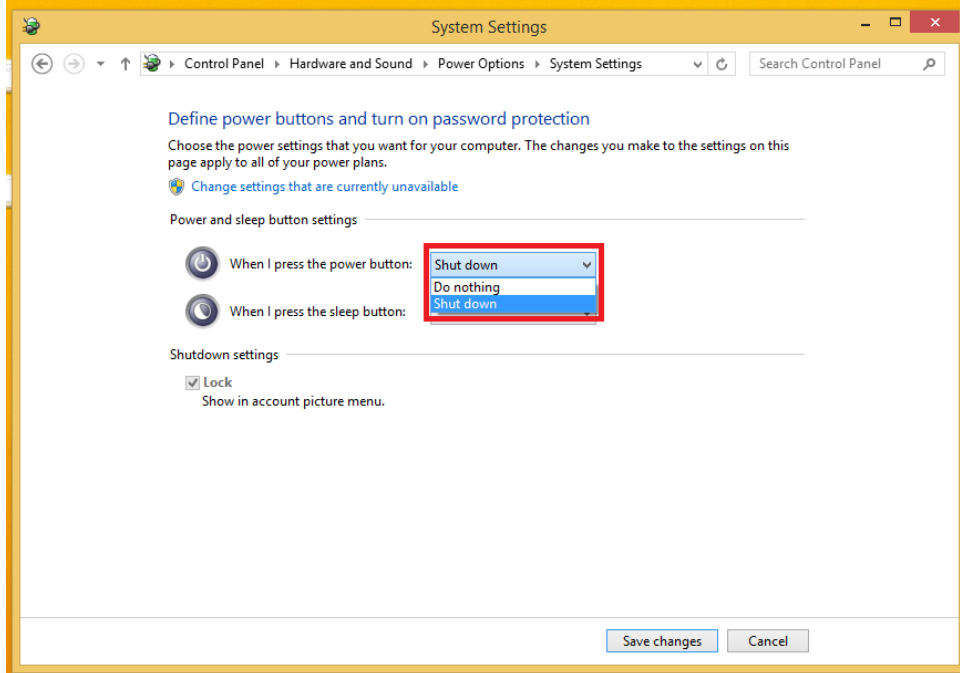
Step-2





Please check if the action of pressing power button is “Shut down” to let ACC work normally and prevent unexpected hard shut down.



Step-5**Step-6**