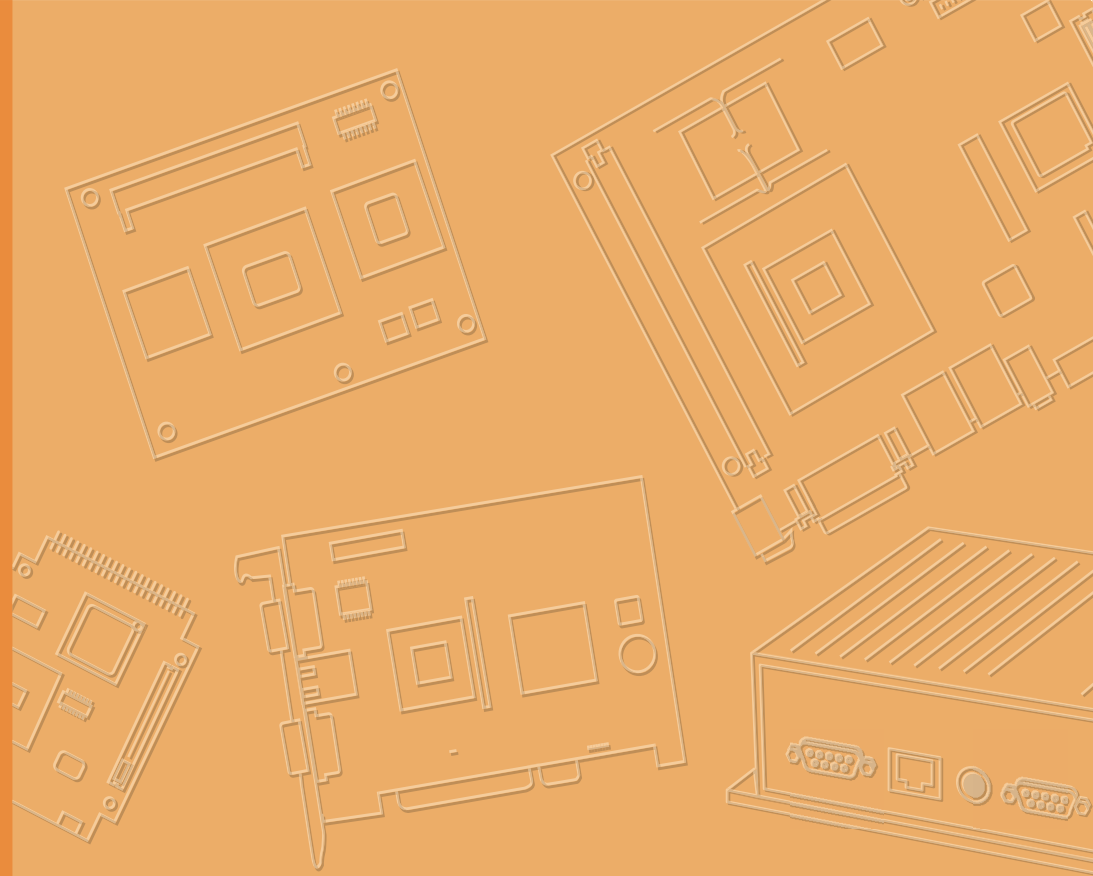




User Manual



USC-250

**Ubiquitous Service Computer
with 15" TFT LCD and Intel[®]
Core[™] i5 6300U/i3 6100U/
Celeron[®] 3955U Processor**

ADVANTECH

Enabling an Intelligent Planet

Copyright

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Product Warranty (2 years)

Advantech warrants the original purchaser that all of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products that have been repaired or altered by persons other than repair personnel authorized by Advantech, or products that have been subject to misuse, abuse, accident, or improper installation. Under the terms of this warranty, Advantech assumes no liability as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced free of charge during the warranty period. For out-of-warranty repairs, customers will be billed the cost of replacement materials, service time, and freight. Please consult your dealer for more details.

If you suspect your product is defective, follow the steps outlined below.

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages that are displayed when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any relevant information to hand.
3. If your product is diagnosed as defective, obtain a return merchandise authorization (RMA) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a completed Repair and Replacement Order Card, and a proof of purchase date (such as a photocopy of your sales receipt) into a shippable container. Products returned without a proof of purchase date are not eligible for warranty service.
5. Write the RMA number clearly on the outside and ship the package prepaid to your dealer.

Warnings, Cautions, and Notes

Warning! Warnings indicate conditions that, if not observed, can cause personal injury!



Caution! Cautions are included to help prevent hardware damage or data losses. For example,



“New batteries are at risk of exploding if incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.”

Note! Notes provide additional optional information.



Document Feedback

To assist us in improving this manual, we welcome any comments and constructive criticisms. Please send all feedback in writing to “support@advantech.com”.

Technical Support and Assistance

1. Visit the Advantech website at <http://support.advantech.com> to obtain the latest product information.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before calling:
 - Product name and serial number
 - Description of your peripheral attachments
 - Description of your software (operating system, version, application software, etc.)
 - Comprehensive description of the problem
 - The exact wording of any error messages

Packing List

Before setting up the system, check that the items listed below are included with the product and in good condition.

- 1 x USC-250 series computer
- 1 x Warranty card
- 1 x Power adaptor
- 1 x USC-250 user manual
- 2 x COM cables
- 1 x Package of screws

If any of the above items are missing or damaged, contact your distributor or sales representative immediately.

Safety Instructions

1. Read these safety instructions carefully.
2. Retain this user manual for future reference.
3. Disconnect this equipment from all AC outlets before cleaning. Use only a damp cloth for cleaning. Do not use liquid or spray detergents.
4. For pluggable equipment, the power outlet socket must be located near the equipment and easily accessible.
5. Protect this equipment from humidity.
6. Place this equipment on a reliable surface during installation. Dropping or letting the device fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. Do not cover the openings.
8. Ensure the voltage is correct before connecting the equipment to a power outlet.
9. Position the power cord away from high-traffic areas. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If unused for a long time, disconnect the equipment from the power source to avoid damage from transient overvoltage.
12. Never pour liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations occurs, have the equipment checked by service personnel:
 - The power cord or plug is damaged.
 - Liquid has penetrated the equipment.
 - The equipment has been exposed to moisture.
 - The equipment is malfunctioning, or does not operate according to the user manual.
 - The equipment has been dropped and damaged.
 - The equipment has obvious signs of breakage.
15. Do not store this equipment in an environment with a temperature of below -20 °C (-4 °F) or above 60 °C (140 °F) as this may cause damage. The equipment should be stored in a controlled environment.
16. Batteries are at risk of exploding if incorrectly installed. Replace only with the same or equivalent type as recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

In accordance with the IEC 704-1:1982 specifications, the sound pressure level at the operator position does not exceed 70 dB (A).

DISCLAIMER: These instructions are provided according to the IEC 704-1 specifications. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Safety Precautions - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

- To avoid electrical shock, always disconnect the power from the PC chassis before manual handling. Do not touch any components on the CPU card or other cards while the device is powered on.
- Disconnect the power before making any configuration changes. The sudden rush of power after connecting a jumper or installing a card may damage sensitive electronic components.

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Chapter 1

General Information

This chapter provides basic information regarding USC-250.

- Introduction
- Device Layout
- Specifications
- Dimensions

1.1 Introduction

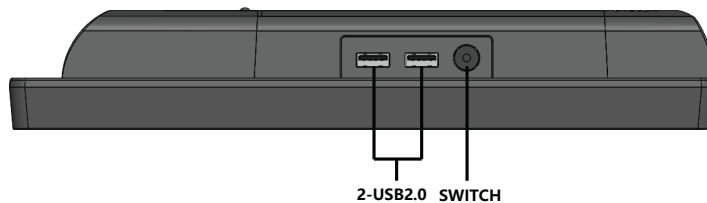
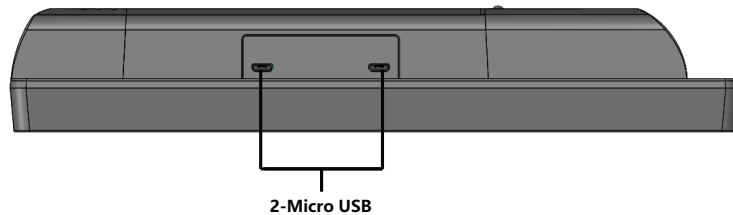
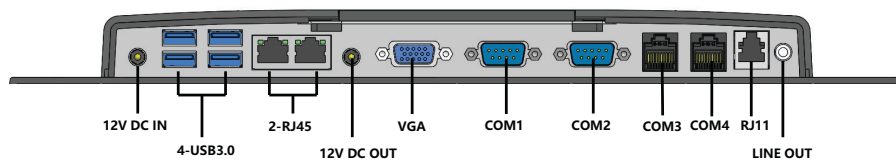
Advantech's USC-250 ubiquitous service computer is the latest addition to its Avalo product family. Powered by a 6th generation Intel® Core™ i5 6300U/i3 6100U/Celeron® 3955U processor that delivers high-performance computing, the USC-250 features a 15" TFT LCD panel and ultra-slim form factor for easy installation in limited-space environments. Furthermore, the provision of improved cable routing and management ensures convenient maintenance and usability for a wide range of service applications.

1.2 Device Layout

Front view



Rear view



1.3 Specifications

1.3.1 General

- **Processor:** 6th generation Intel® Core™ i5 6300U/i3 6100U/Celeron® 3955U
- **Memory:** Single-channel DDR4 SODIMM 2133 MHz (16 GB max.)
- **Display:** 15" TFT LCD (1024 x 768), 300 cd/m²
- **Touch Panel:** Flat glass panel with projected capacitive (PCAP) touch control and IP65-rated ingress protection
- **Serial Ports:**
 - 2 x COM RS232 ports on I/O board via RJ-48 connector, no power
 - 2 x COM RS232 ports on I/O board via DB9 connector, supports 5V/12V upon request
- **USB Ports:**
 - External: 4 x USB 3.0, 2 x USB 2.0, 2 x micro-USB (on the right side)
 - Internal: 2 x USB 2.0
- **Storage:** 2 x M.2 SSD 2242
- **Audio:** 2 x 2W speakers, 1 x Line-Out
- **Cash Drawer:** 1 x controls 2 x CR via optional Y cable (24V default, 12V upon request)
- **Display Output:** 1 x VGA
- **Bus Expansion:** 1 x M.2 2230 slot (for Wi-Fi and Bluetooth)

1.3.2 Ethernet

- **Interface:** 10/100/1000 Mbps
- **Controller:** LAN1: Intel® 1219LM, LAN2: Intel® i211

1.3.3 Power Requirements

- **Power Input Voltage:** 12 V_{DC}, 7A
- **Power Output Voltage:** 12 V_{DC}, 2.5 A

1.3.4 Miscellaneous

- **Power Switch** (Orange: standby/Green: power on)

1.3.5 Environment

- **Operating Temperature:** 0 ~ 40 °C (32 ~ 104°F)
- **Storage Temperature:** -40 ~ 60 °C (-40 ~ 140 °F)
- **Relative Humidity:** 90% @ 40 °C (non-condensing)

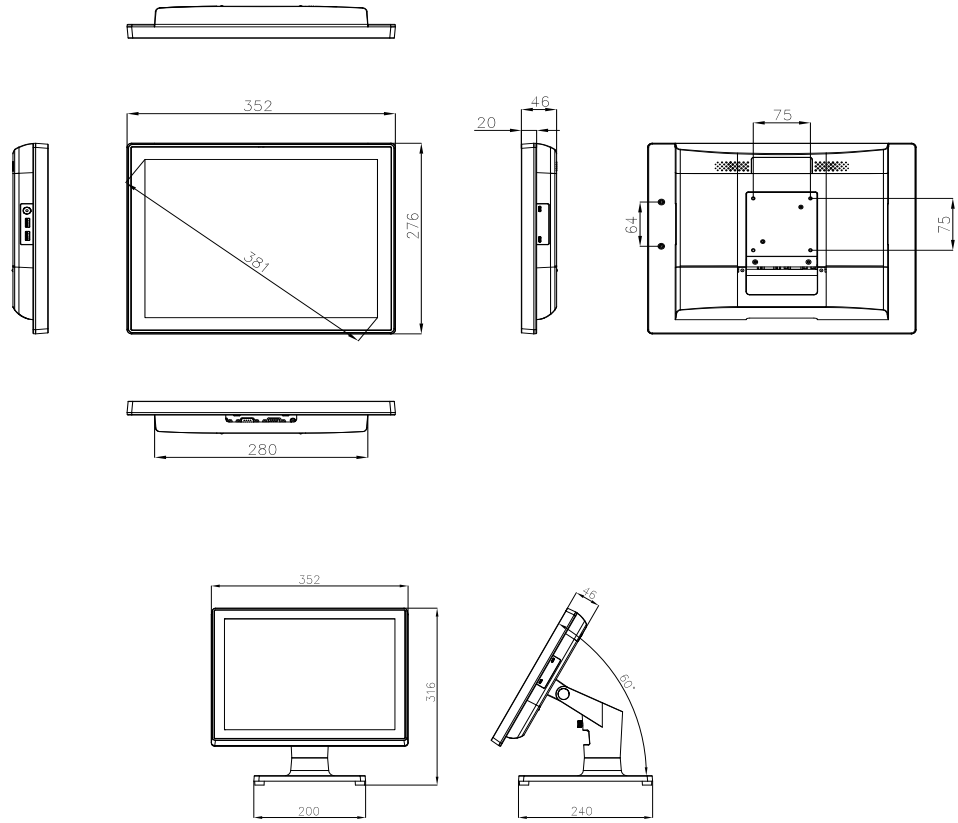
1.3.6 Physical Characteristics

- **Dimensions (W x H x D):** 352 x 316 x 240 mm (13.85 x 12.44 x 9.44 in)
- **Weight:** 5.2 kg (11.46 lb)

1.4 Dimensions

Dimensions

Unit: mm



Chapter 2

System Setup

This chapter details the system setup process for USC-250.

- Initial Setup
- Jumper Settings
- RAM/Storage Installation
- Peripheral Installation
- Dual Display Touch Settings

2.1 Initial Setup

2.1.1 Connecting the Power Cord

This product only supports DC power (12 V_{DC}, 84 W). Be sure to hold the plug end when plugging or unplugging the power cord.

2.1.2 Connecting the Mouse and Keyboard

Connect the mouse and keyboard via the USB ports located in the I/O section at the rear of the computer.

2.1.3 Activating the Power Source

Verify that the power cord is connected to the power input port of the device and the plug end is connected to the power supply outlet. Then press the Power button of the device to initiate boot up.

2.2 Jumper Settings

The table below lists the function of each of the board jumpers. Instructions for setting jumpers and connecting external devices to the motherboard are provided in subsequent sections of this chapter.

Table 2.1: Jumper Settings

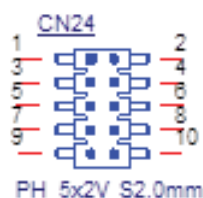
Label	Function
JP4	TPM compatibility
JP6	Clear CMOS
JCASH1	Cash drawer power select
CN24	COM 1 and COM 2 /+5 V/+12 V select

JP4: Pin 1-2: TPM 1.2, Pin 2-3: TPM 2.0 (default)

JP6: (This jumper allows users to clear the real-time clock (RTC) CMOS RAM.)
Pin 1-2: Normal (default), Pin 2-3: Clear CMOS

JP_CASHV1: Pin 1-2: 12 V, Pin 2-3: 24 V

CN24: (This jumper allows users to set the COM port power mode) Default: RI

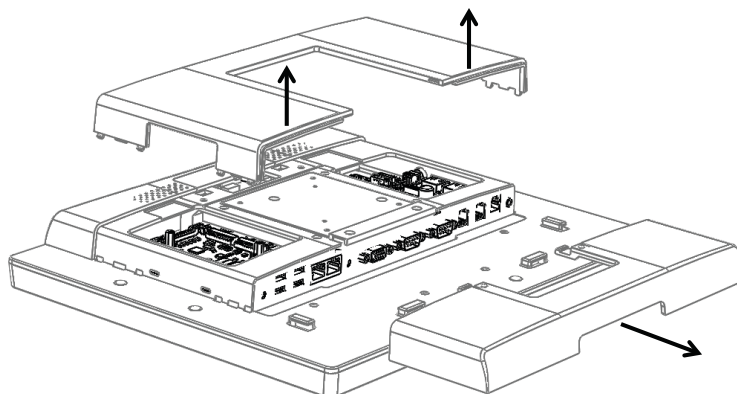


RI-SEL	Default (RI)	5V	12V
COM1	1-3	3-5	7-9
COM2	2-4	4-6	8-10

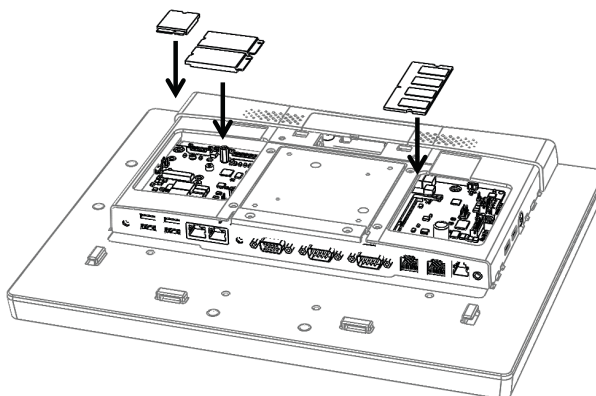
Note: PCB silkscreen “▽” mark Pin 1.

2.3 RAM/Storage Installation

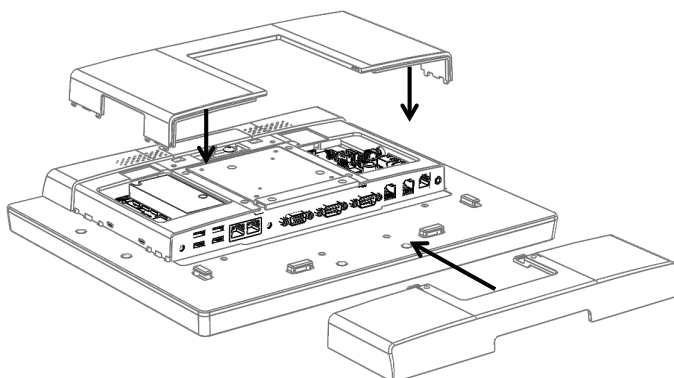
1. Remove the rear cover and cable cover.



2. Install the RAM and M.2 2242 storage.



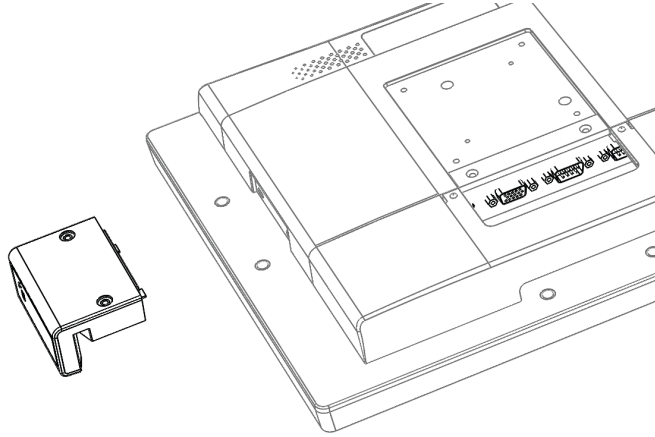
3. Replace the cable cover and rear cover.



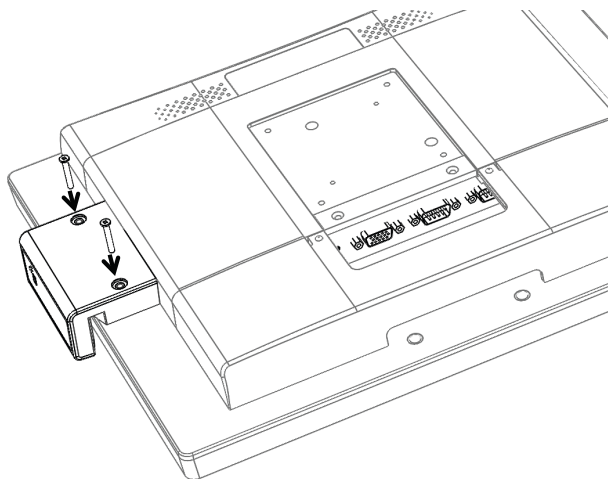
2.4 Peripheral Installation

2.4.1 MSR/iButton/RFID Module Installation

1. At the rear of the device on the left side is the peripheral socket. Insert the desired peripheral module into the socket.

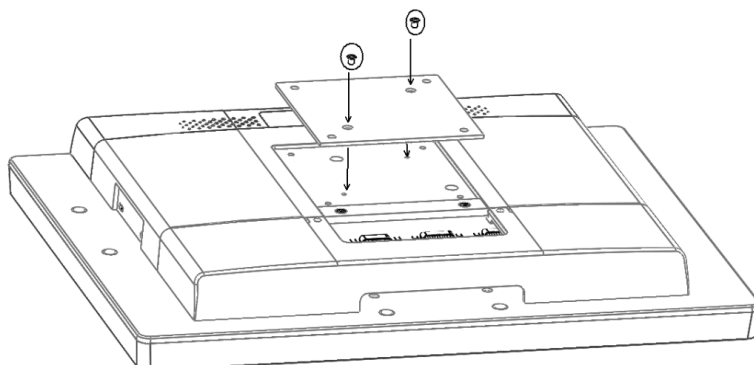


2. Secure the module in place using two screws.



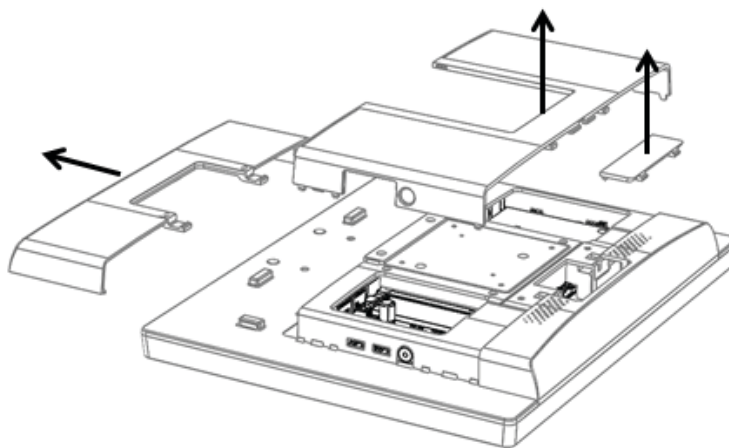
2.4.2 VESA Mount Installation

1. Install the VESA bracket onto the device and secure in place using two screws.

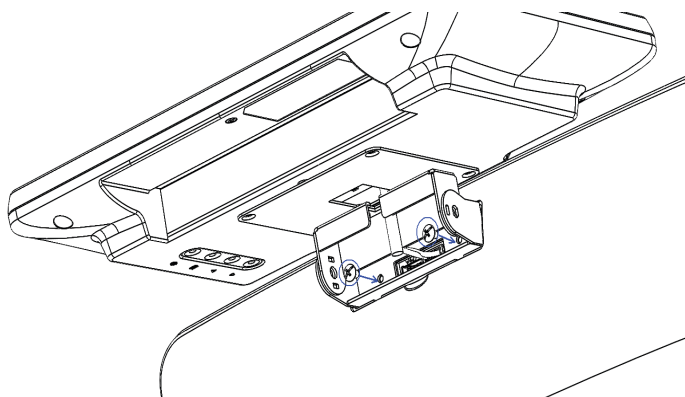


2.4.3 Rear-Mounted Screen Installation

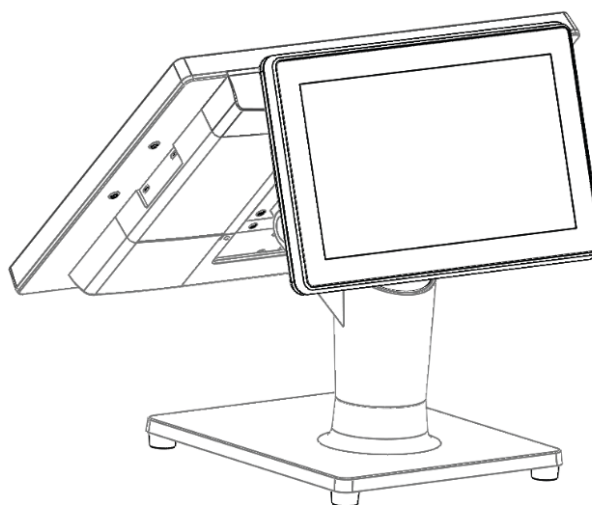
1. Remove the rear cover and cable cover.



2. Install the screen module at the rear of the USC-250 device and secure in place using two screws.

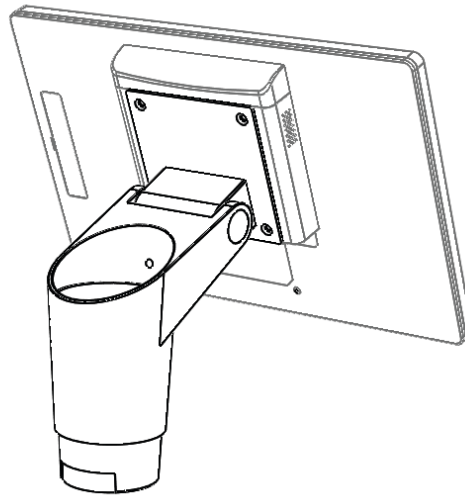


3. Adjust the angle of the rear-mounted display screen.

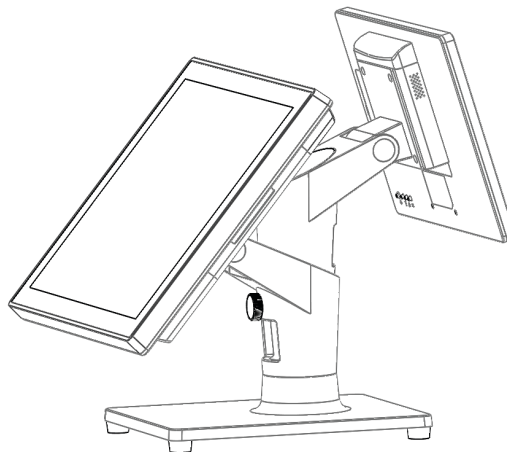


2.4.4 Avalo Secondary Display Installation

1. Assemble the tube stand and secondary display.

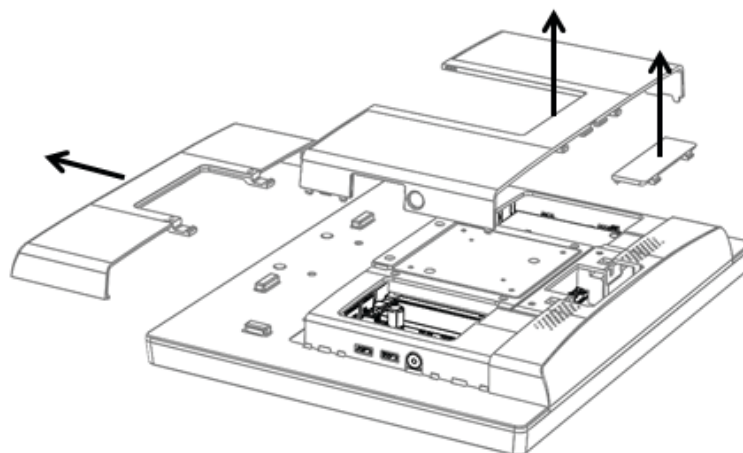


2. Attach the USC-250 device to the tube stand and secure in place using screws.

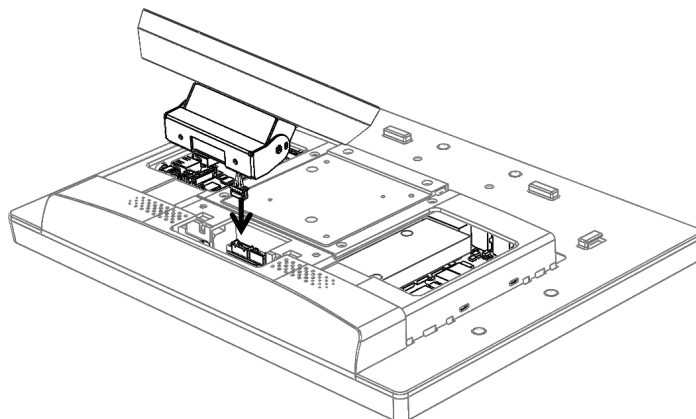


2.4.5 Vacuum Florescent Display (VFD) Installation

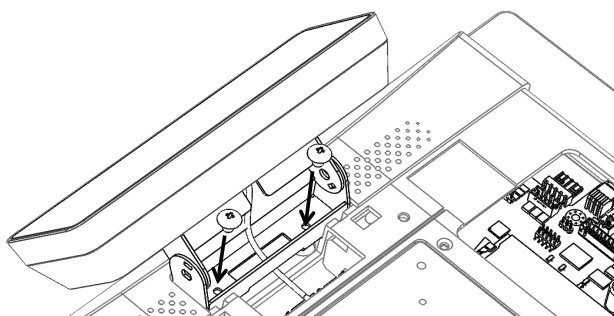
1. Remove the rear cover and cable cover.



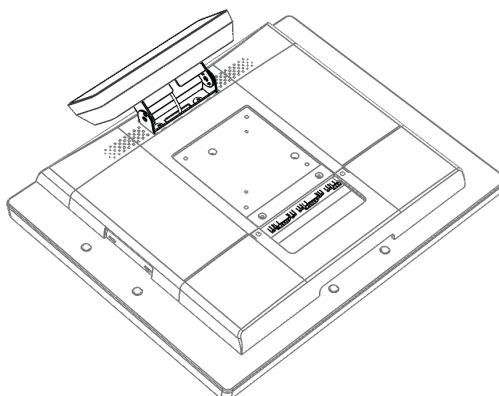
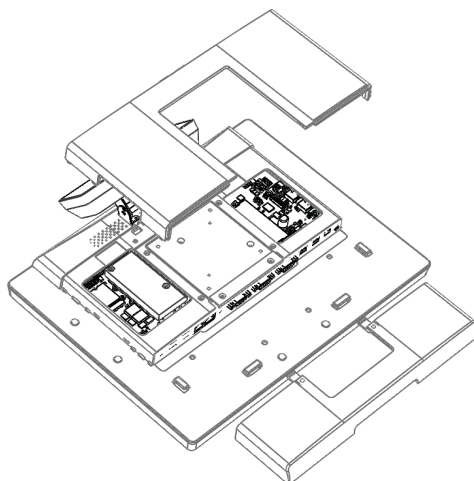
2. Connect the cables to the VFD module and the I/O port on the USC-250 device.



3. Install the VFD module and secure in place using screws.

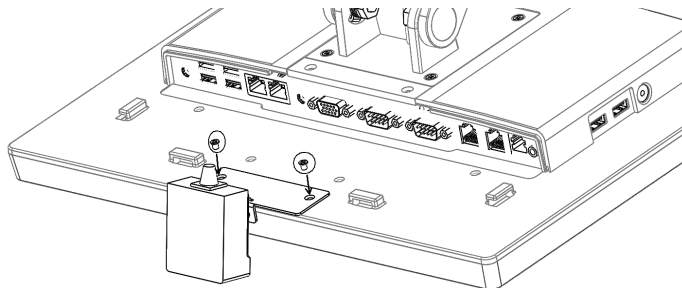


4. Replace the cable cover and rear cover.

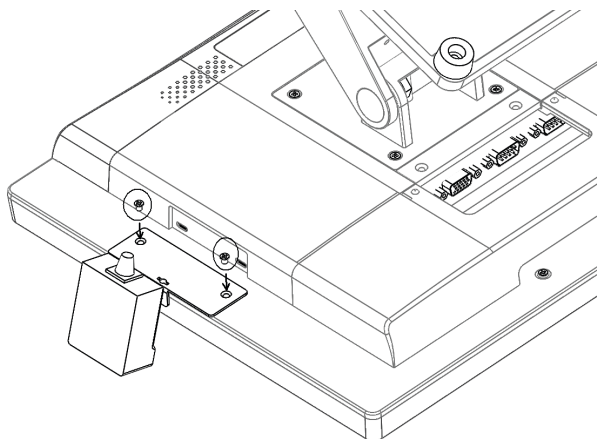


2.4.6 Barcode Scanner Installation

1. A barcode scanner module can be installed at the bottom or the right side of the USC-250 device. To install at the bottom of the device, simply attach the barcode scanner module to the device (as shown below) and secure in place using screws.



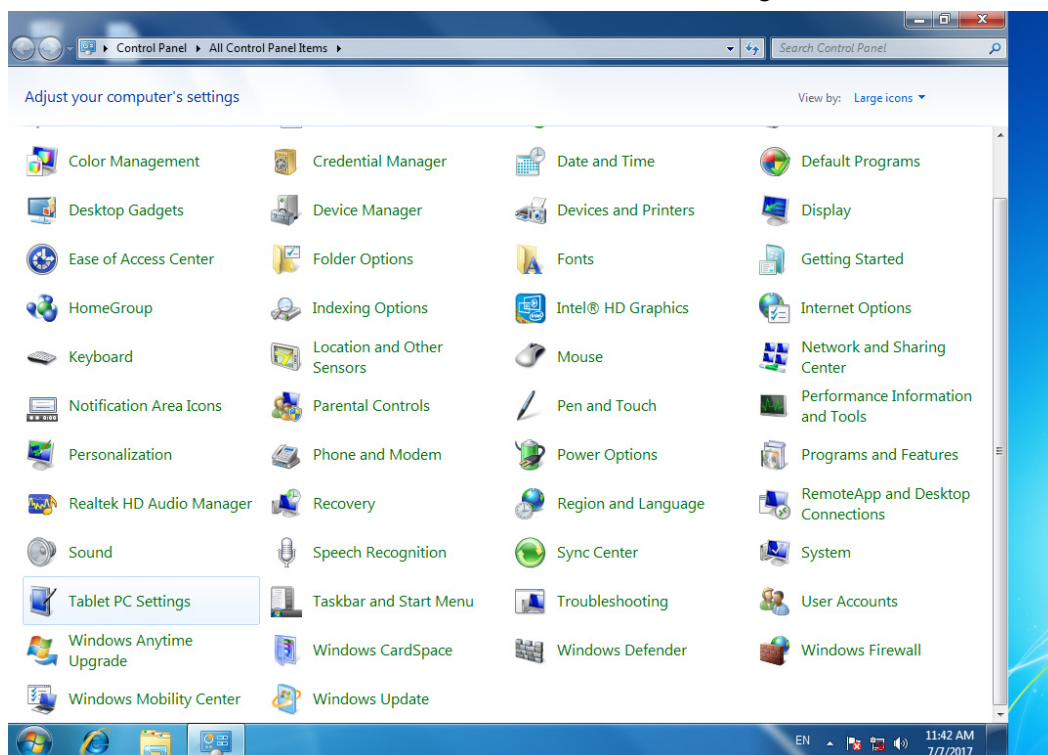
2. To install on the right of the device, simply attach the barcode scanner module to the device (as shown below) and secure in place using screws.



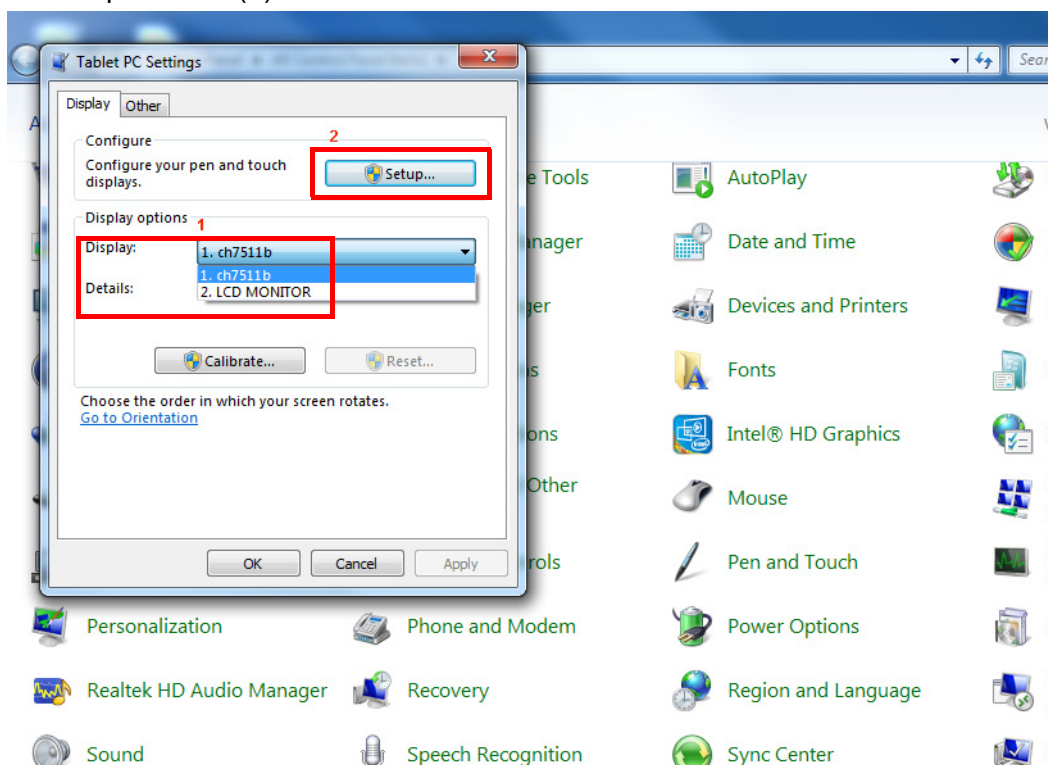
2.5 Dual Display Touch Settings

To configure the touch control function, follow the instructions provided below.

1. Access the Control Panel, and click on “Tablet PC Settings”.



2. From the drop-down menu (1), select the device to configure. Double click the <Setup> button (2).

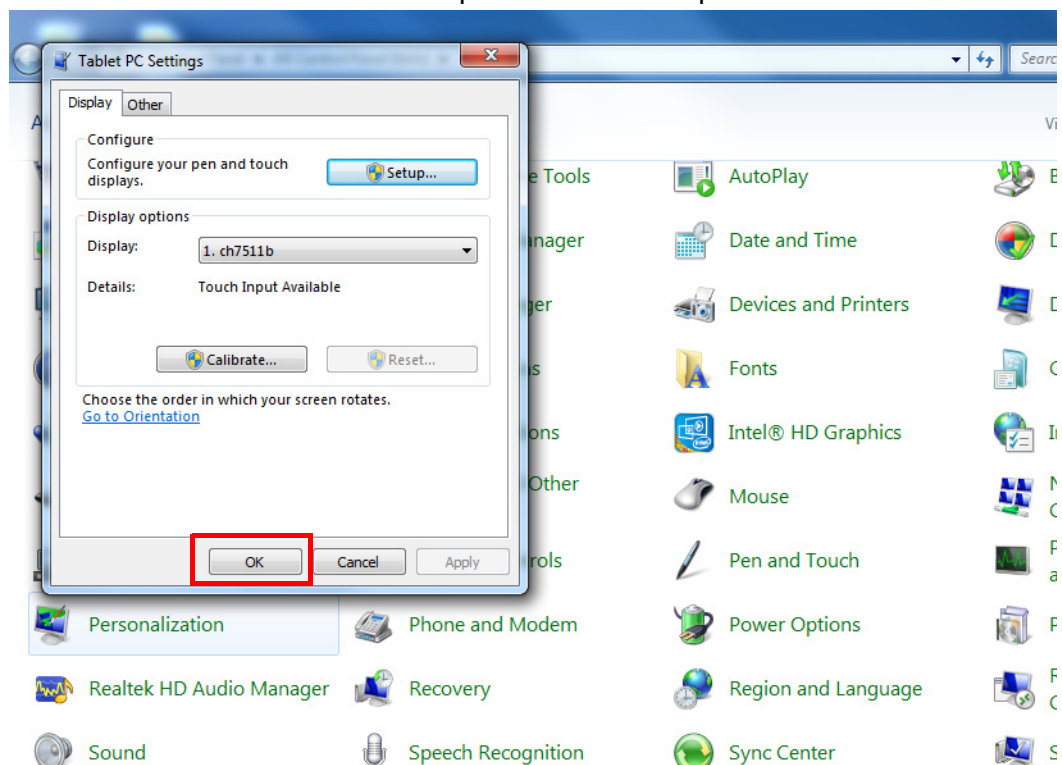


3. The message shown below will be displayed on the USC-250 screen. Touch the screen to confirm the touch function.
4. If a secondary display is integrated with the USC-250 device and it supports touch control, repeat Steps 2 and 3 to configure the touch function of the secondary display. If the secondary display does not support touch control, press <Enter> on the keyboard to configure the input function.

Touch this screen to identify it as the touchscreen.

If this is not the Tablet PC screen, press Enter to move to the next screen. To close the tool, press Esc.

5. Then click <Ok> to finish the setup and exit the setup menu.



Chapter 3

BIOS Setup

In most cases, the USC-250 device will have been setup and configured by the dealer or systems integrator prior to delivery. However, some of the BIOS settings may need adjustment to set the system configuration data, such as the current date and time, or type of hard drive installed. The setup program is stored in read-only memory (ROM) and can be accessed when activating or resetting the computer, or by pressing <Delete> upon boot up.

3.1 Introduction

With the AMI BIOS Setup Utility, users can modify BIOS settings to control the computer functions. The BIOS Setup Utility features a number of menus with configurable items for adjusting the settings. The basic navigation of the BIOS menu screens is described in this chapter.

3.2 BIOS Setup

The BIOS configuration settings are saved in Flash memory on the motherboard. When the power is turned off, the battery on the board supplies the necessary power to preserve the Flash memory. To access the BIOS CMOS Setup Utility, after system bootup, press the or <Esc> button during the BIOS POST (power-on Self test).

Control Keys	
< ← > < → >	Select screen
< ↑ > < ↓ >	Select item
<Enter>	Select
<+/->	Change options
<F1>	General help
<F2>	Previous values
<F3>	Optimized defaults
<F4>	Save and exit
<Esc>	Exit

3.2.1 Main Menu

Press or <Esc> to enter the AMI BIOS CMOS Setup Utility. The Main Menu will appear onscreen as shown below. Use the arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.



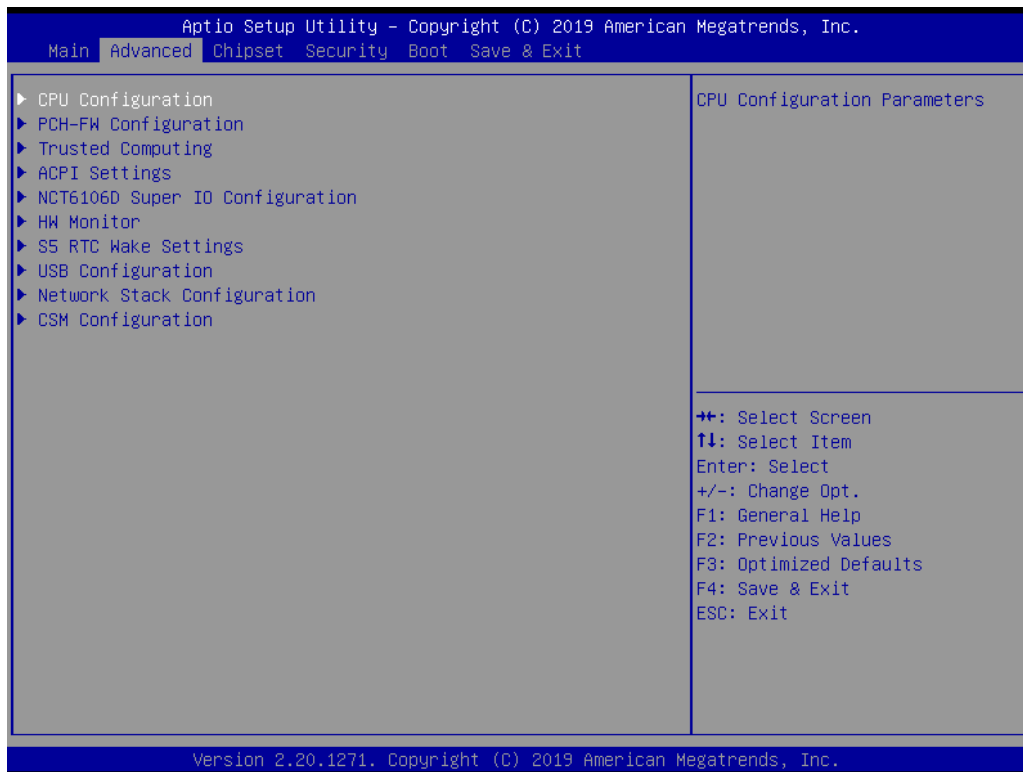
The Main BIOS setup screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured, whereas options in blue can be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

■ System Time/System Date

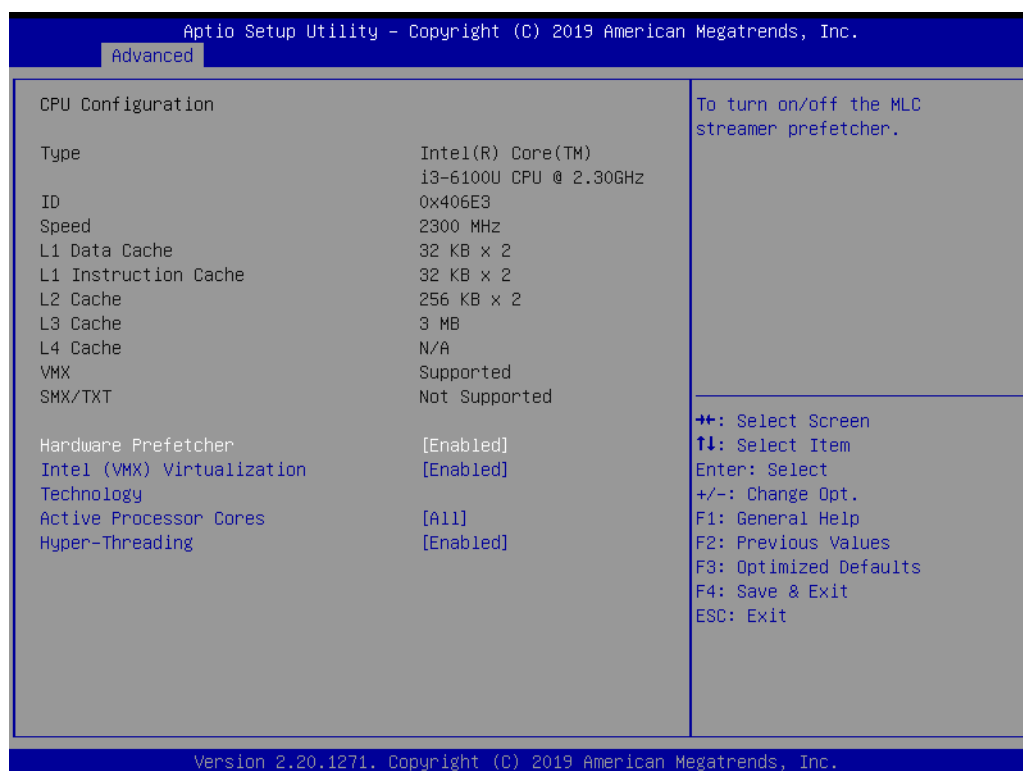
Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values via the keyboard. Press the <Tab> or <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time must be entered in HH:MM:SS format.

3.2.2 Advanced BIOS Features

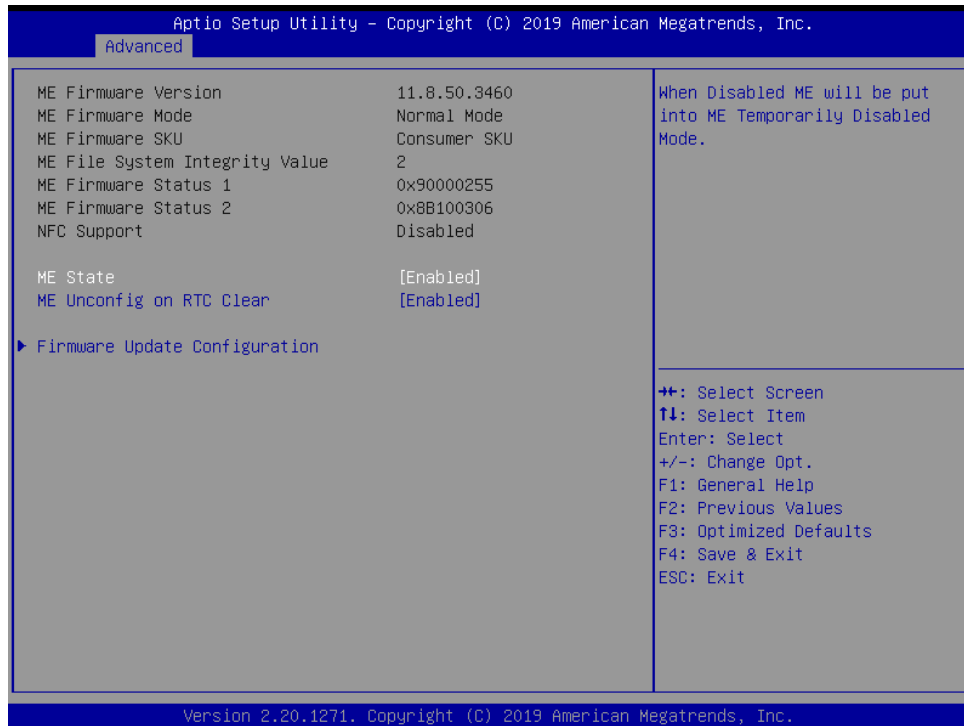
Select the Advanced tab from the BIOS setup menu to enter the Advanced BIOS setup screen. Users can select any of the items in the left frame of the screen, such as CPU Configuration, to access the sub-menu for that item. Display an Advanced BIOS setup option by highlighting it using the <Arrow> keys. All Advanced BIOS setup options are described in this section. The Advanced BIOS setup screen is shown below. The sub menus are described in the following sections.



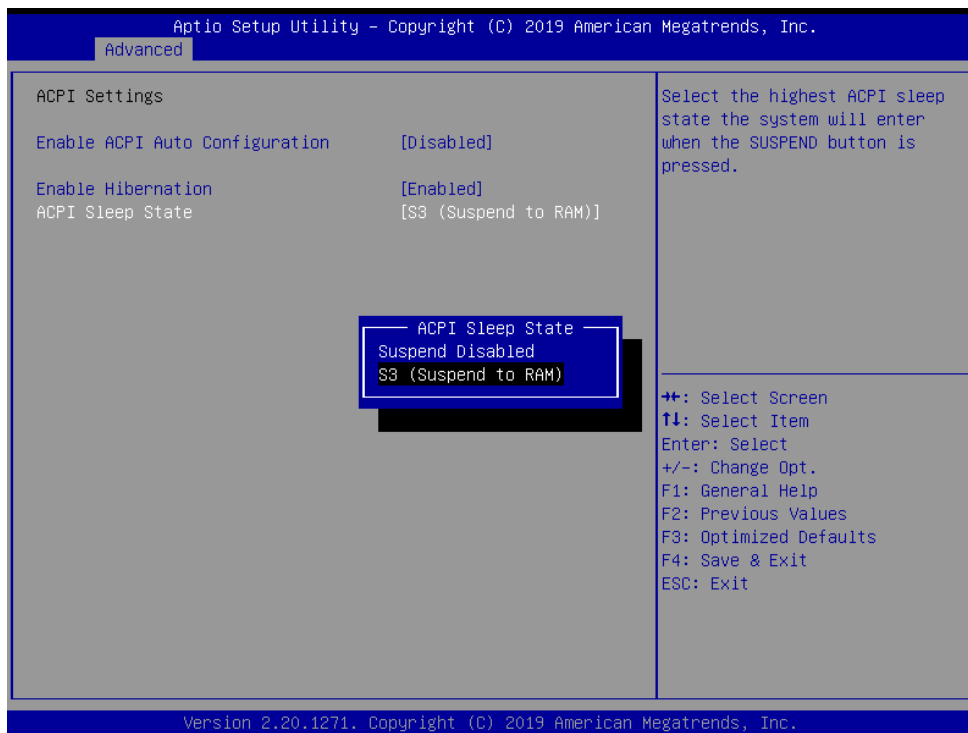
3.2.2.1 CPU Configuration



3.2.2.2 PCH-FW Configuration



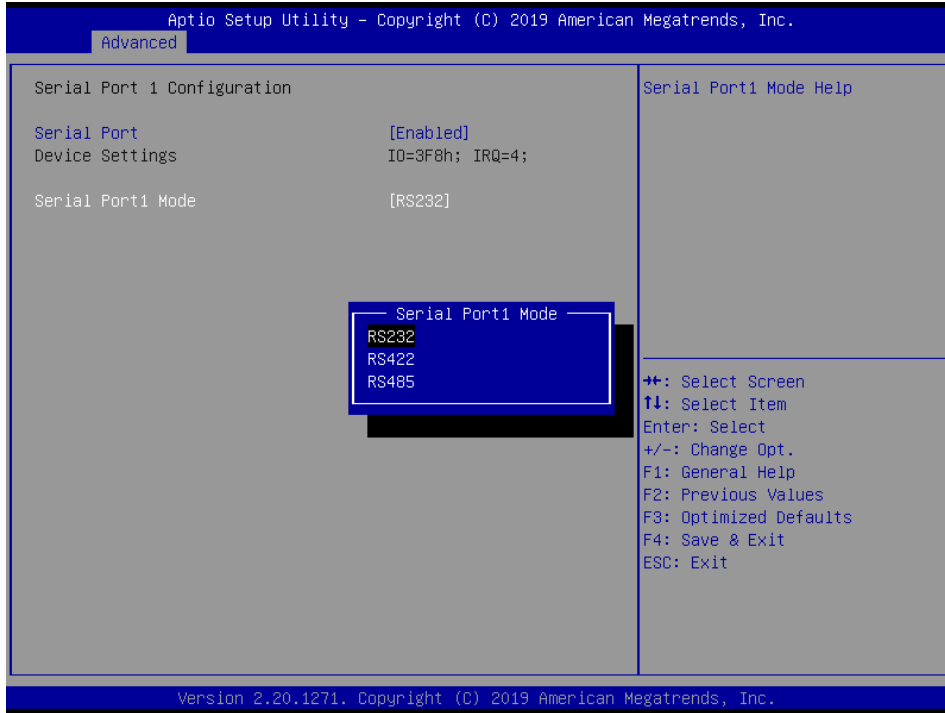
3.2.2.3 ACPI Settings



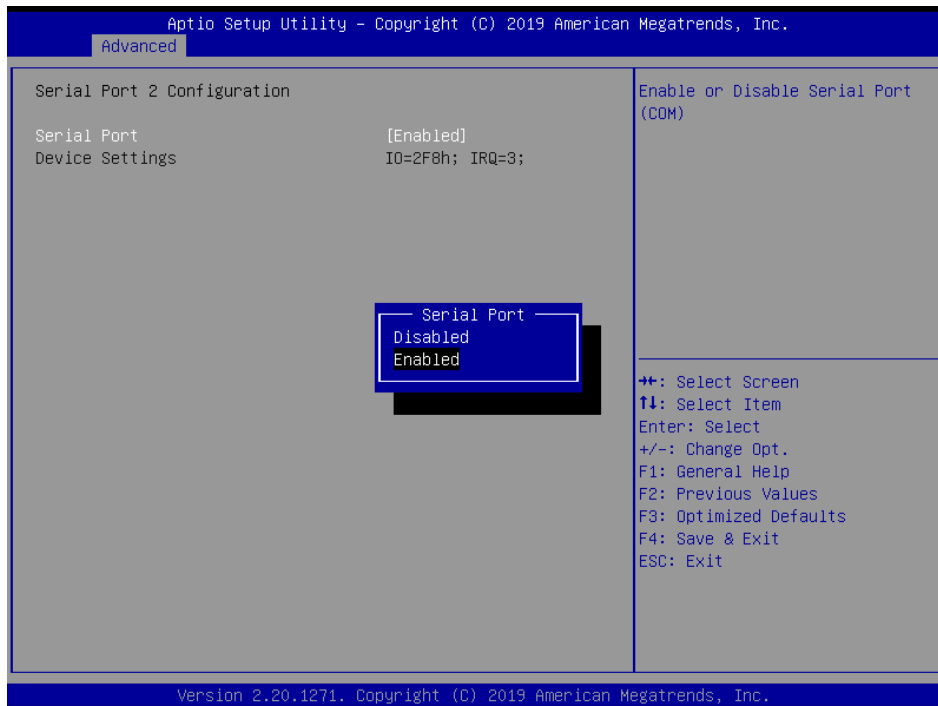
- **Enable ACPI Auto Configuration [Disabled]**
This item allows users to enable or disable BIOS ACPI auto configuration.
- **Enable Hibernation [Enabled]**
This item allows users to enable or disable hibernation. This option may be not available with some OS.
- **ACPI Sleep State [S3(Suspend to RAM)]**
This item allows users to set the ACPI sleep state.

3.2.2.4 NCT6106D Super IO Configuration

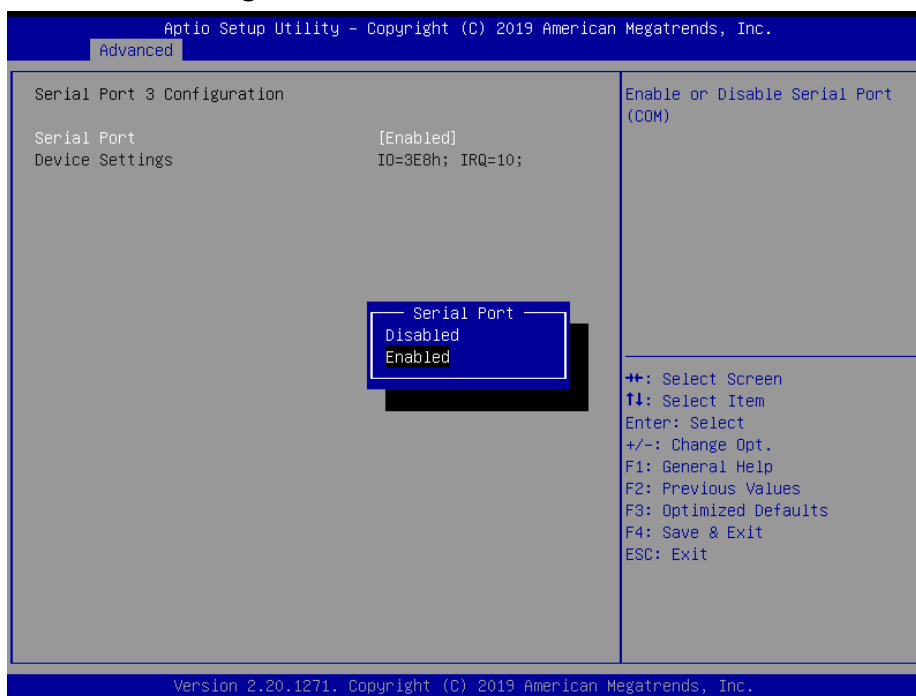
Serial Port 1 Configuration



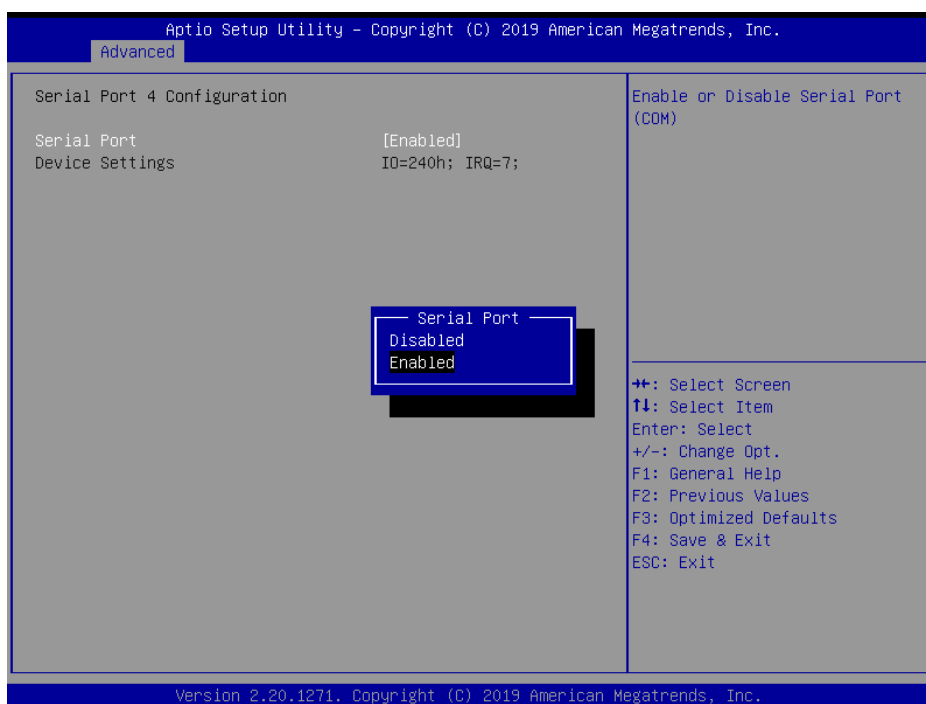
Serial Port 2 Configuration



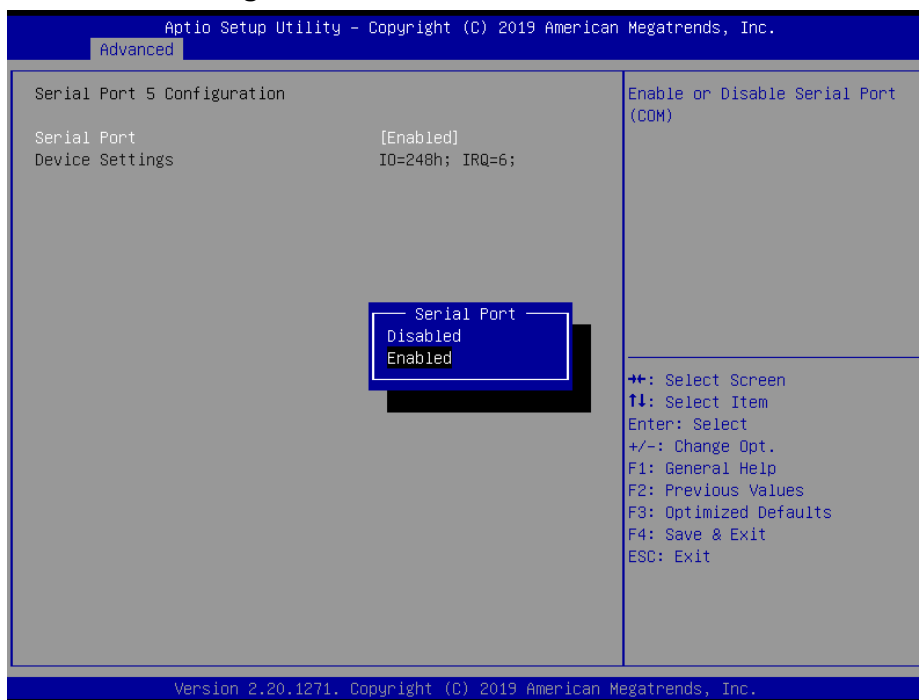
Serial Port 3 Configuration



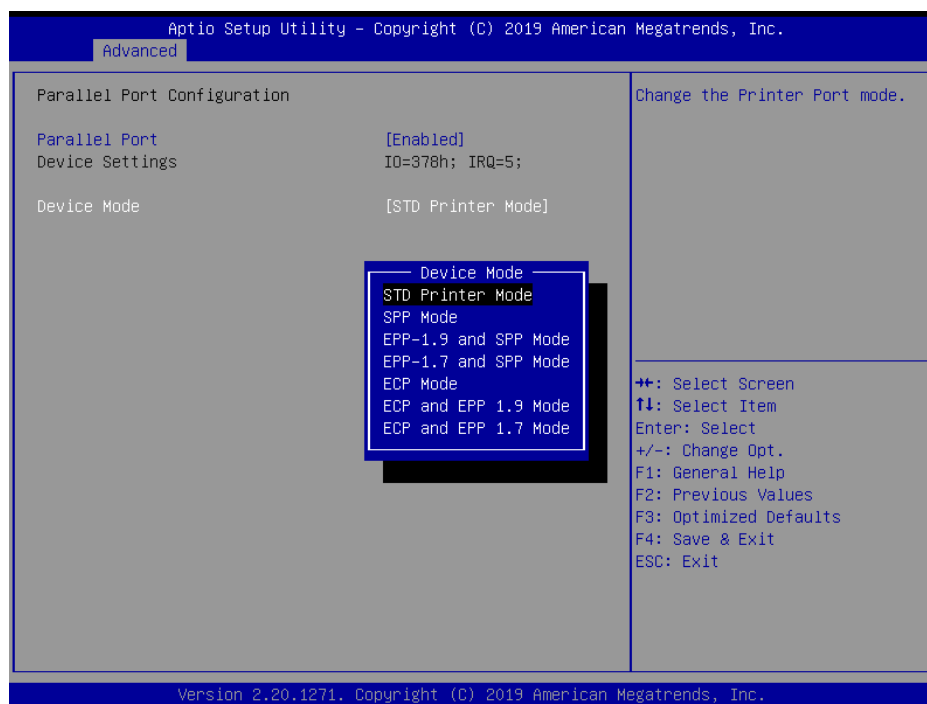
Serial Port 4 Configuration



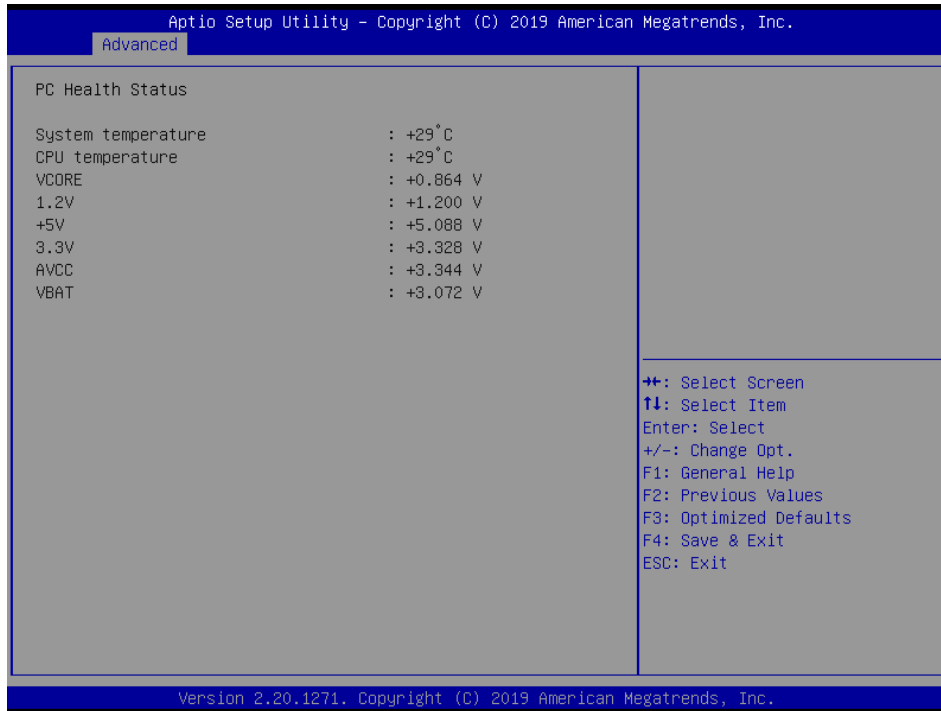
Serial Port 5 Configuration



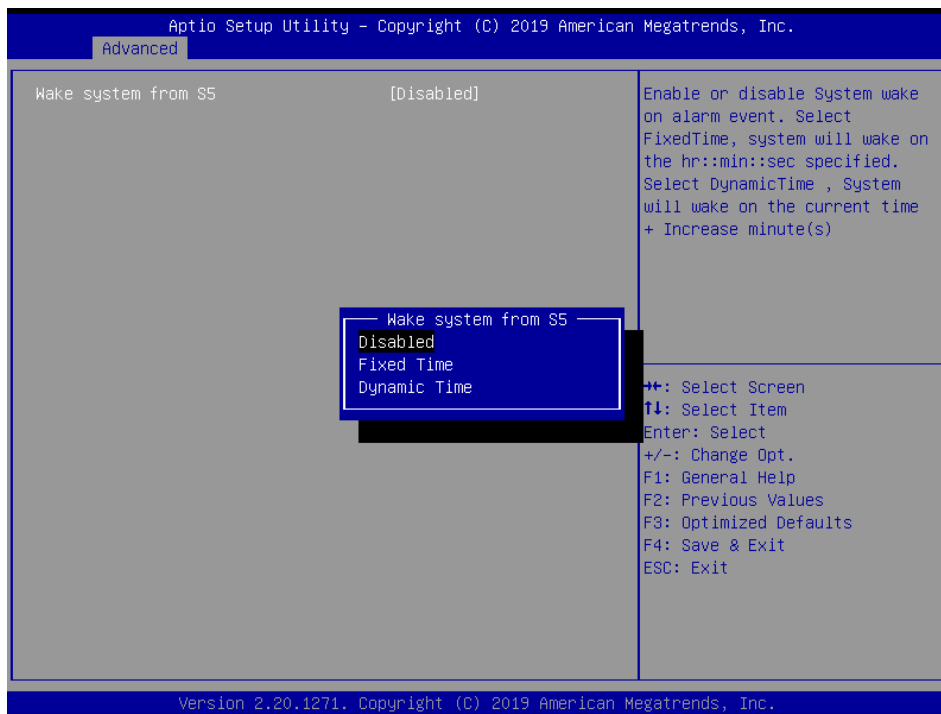
Parallel Port Configuration



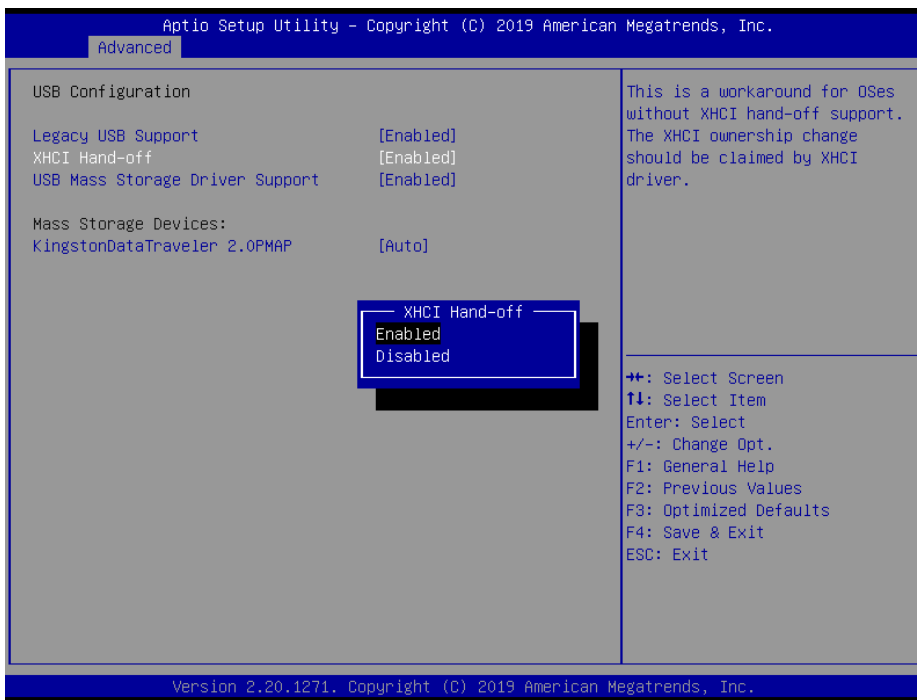
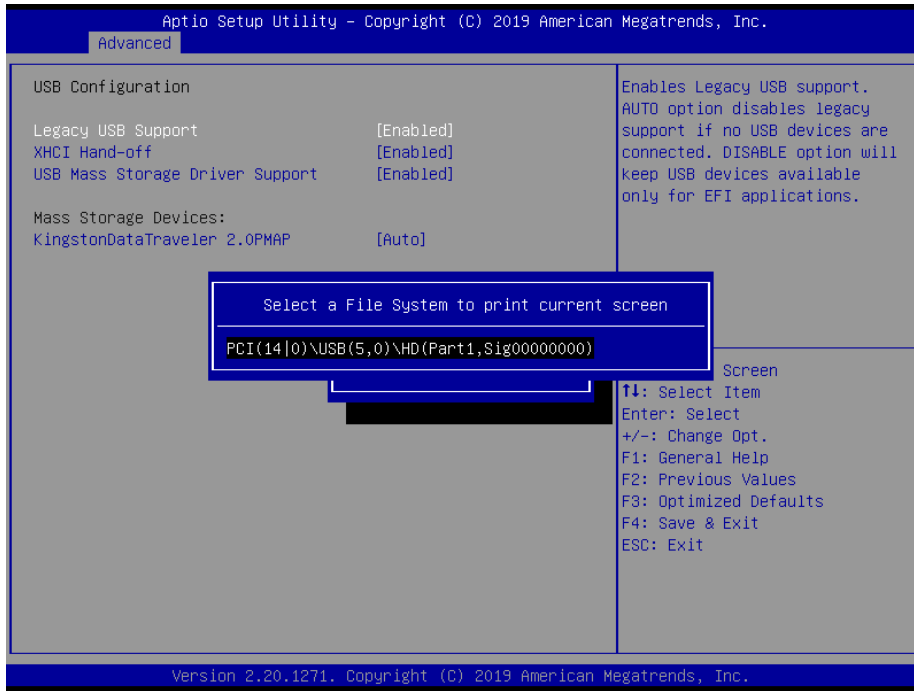
3.2.2.5 Hardware Monitor

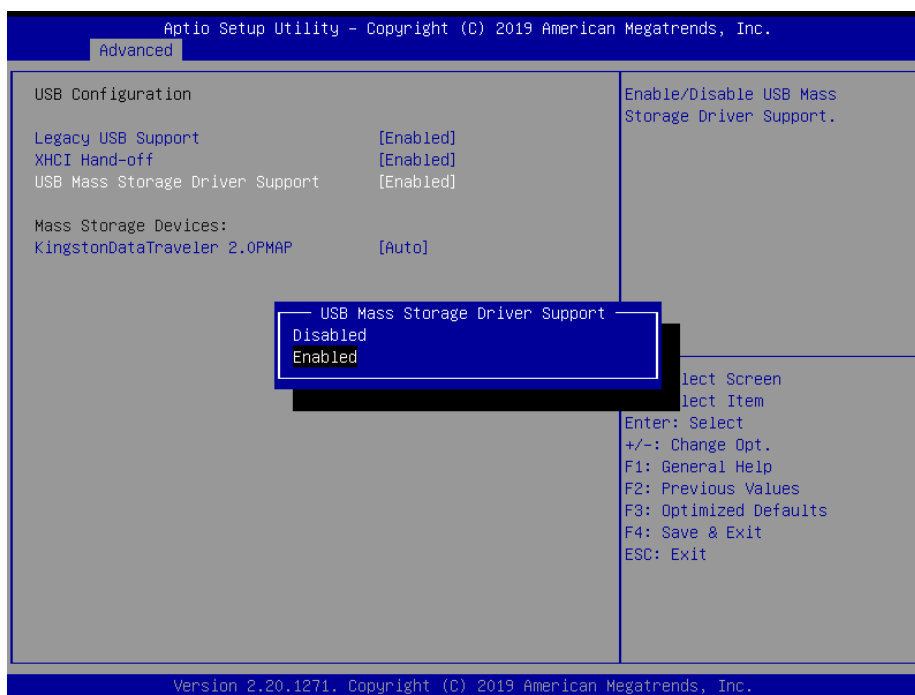


3.2.2.6 S5 RTC Wake Settings



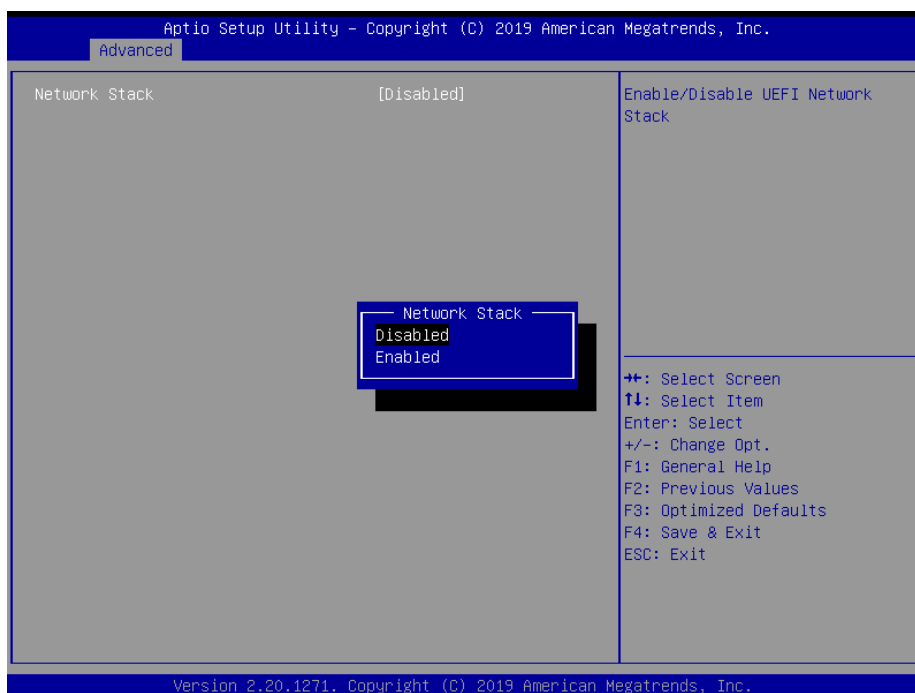
3.2.2.7 USB Configuration



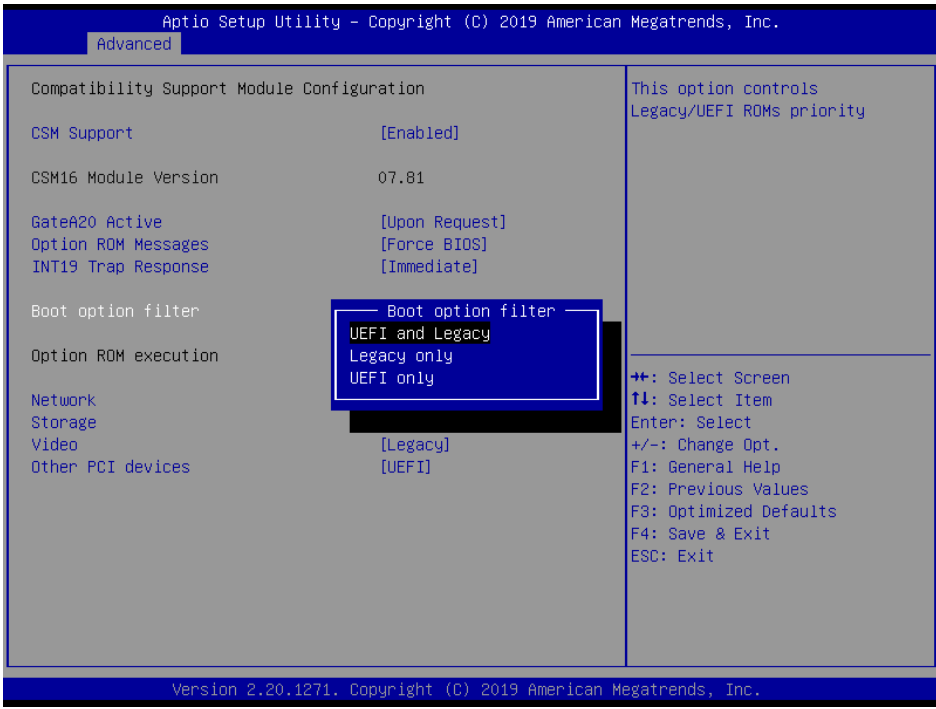
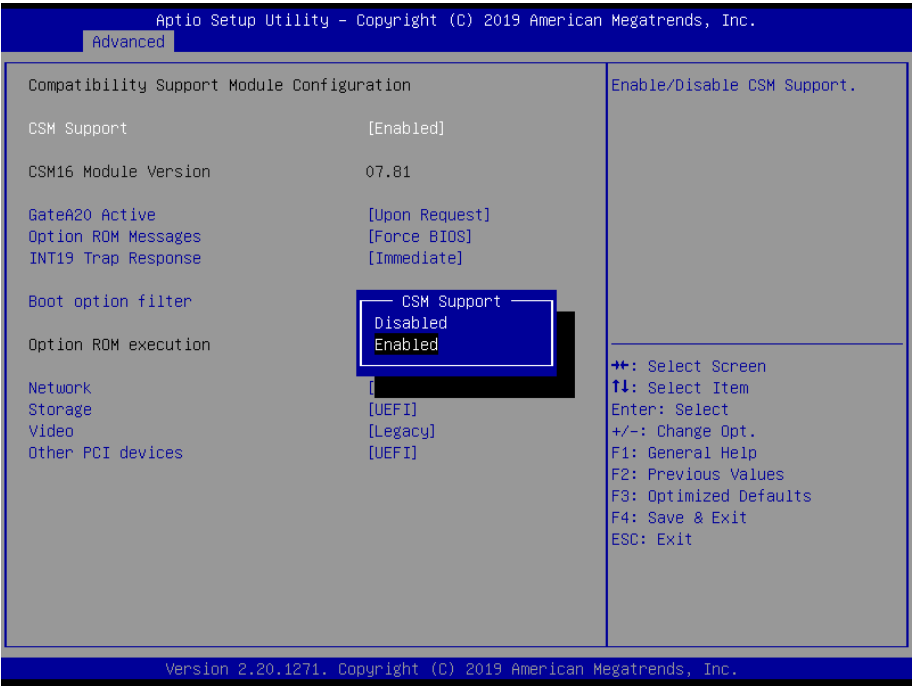


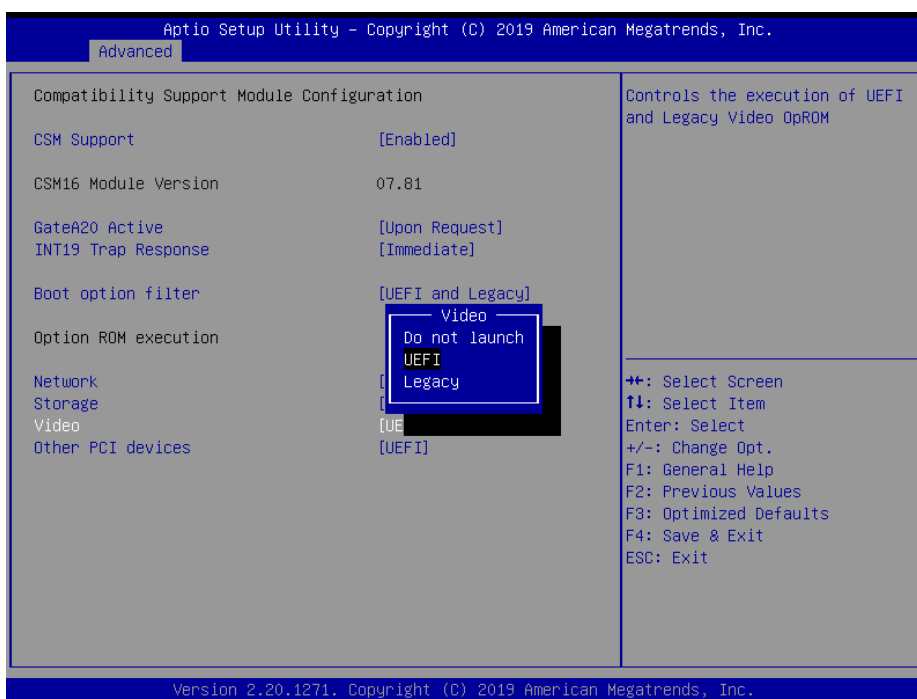
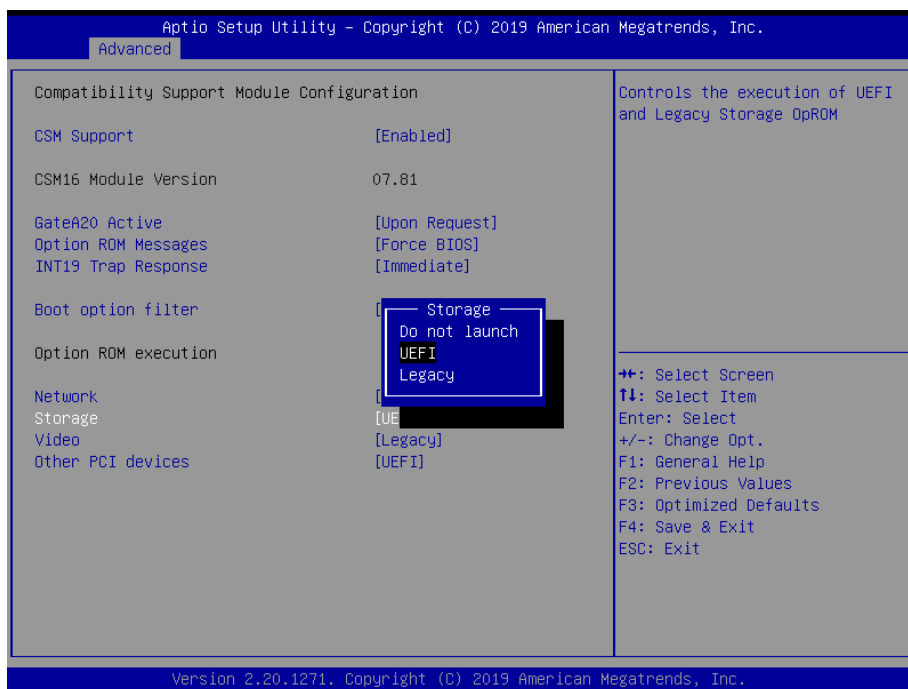
- **Legacy USB Support [Enabled]**
This item allows users to enable or disable legacy USB support. The Auto option disables legacy support if no USB devices are connected.
- **XHCI Hand-Off [Enabled]**
- **USB Mass Storage Driver Support [Enabled]**
- **Mass Storage Devices [Auto]**
This item shows USB mass storage device information.

3.2.2.8 Network Stack Configuration



3.2.2.9 CSM Configuration



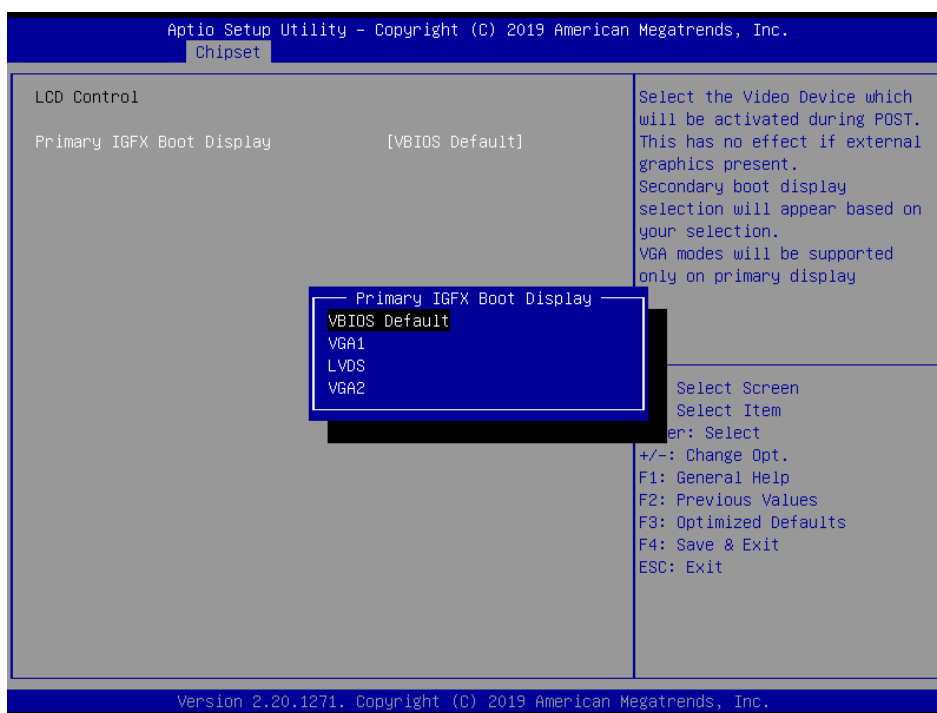
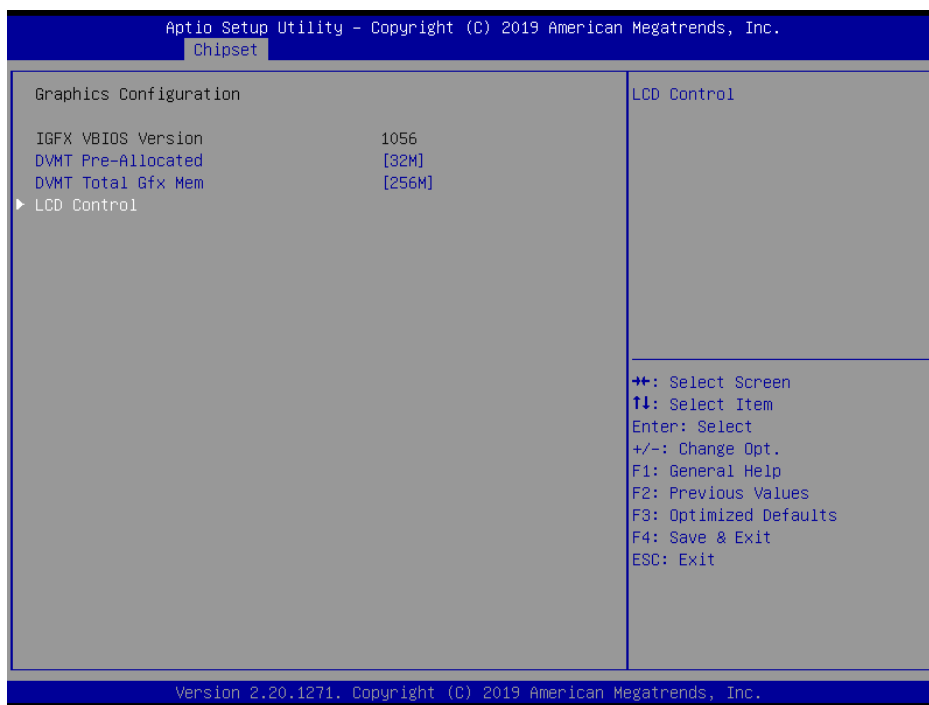


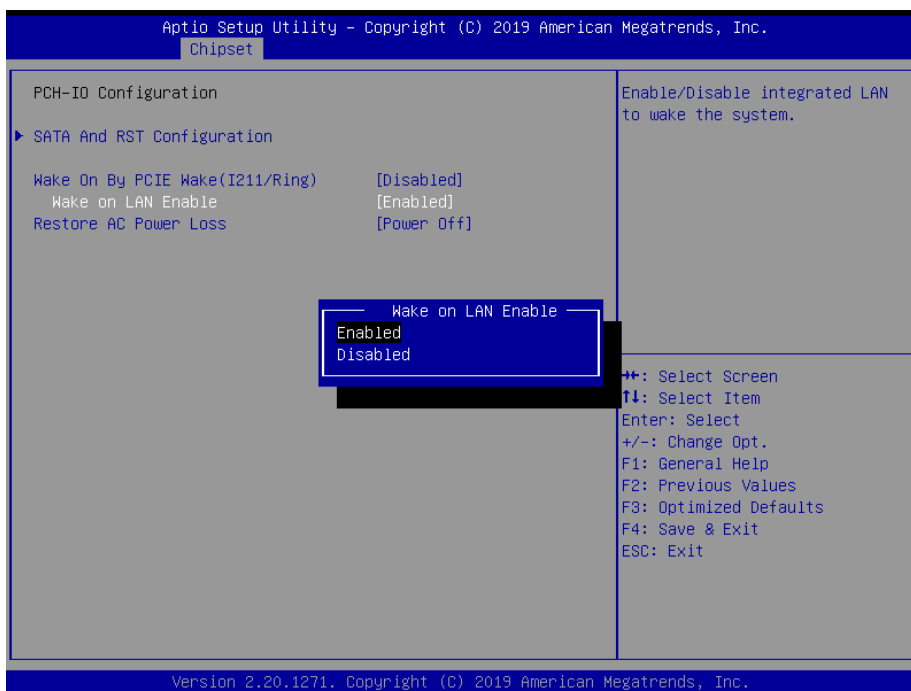
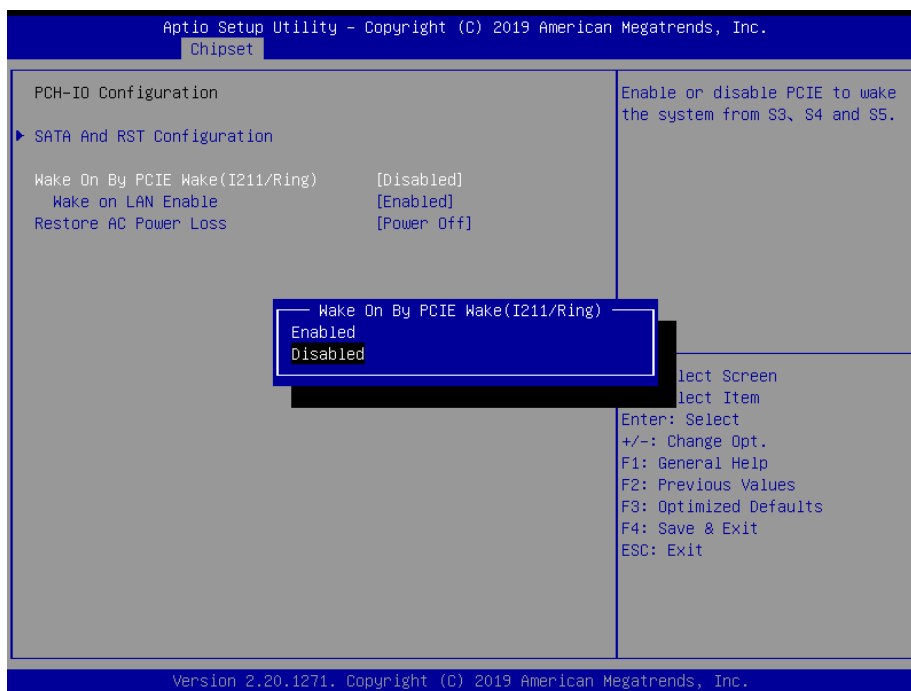
Note: If the Windows OS is set to UEFI mode, the storage and video settings must be configured as “UEFI”.

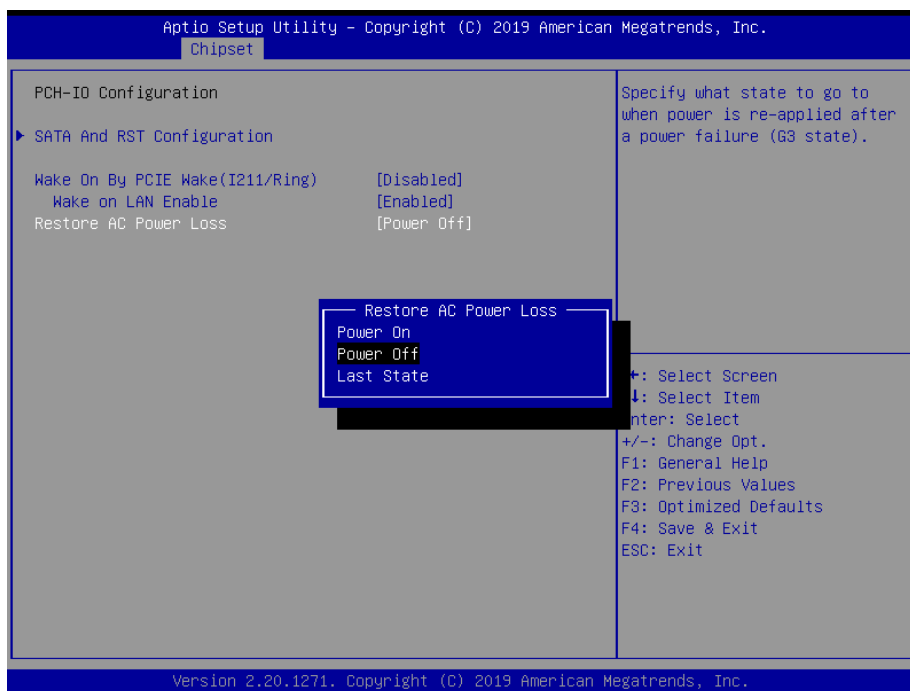
3.2.3 Chipset Configuration

Select the Chipset tab of the BIOS main menu to enter the Chipset setup screen. Users can select any item in the left frame of the screen. The Chipset screens are shown below. The sub-menus are shown in the following pages.









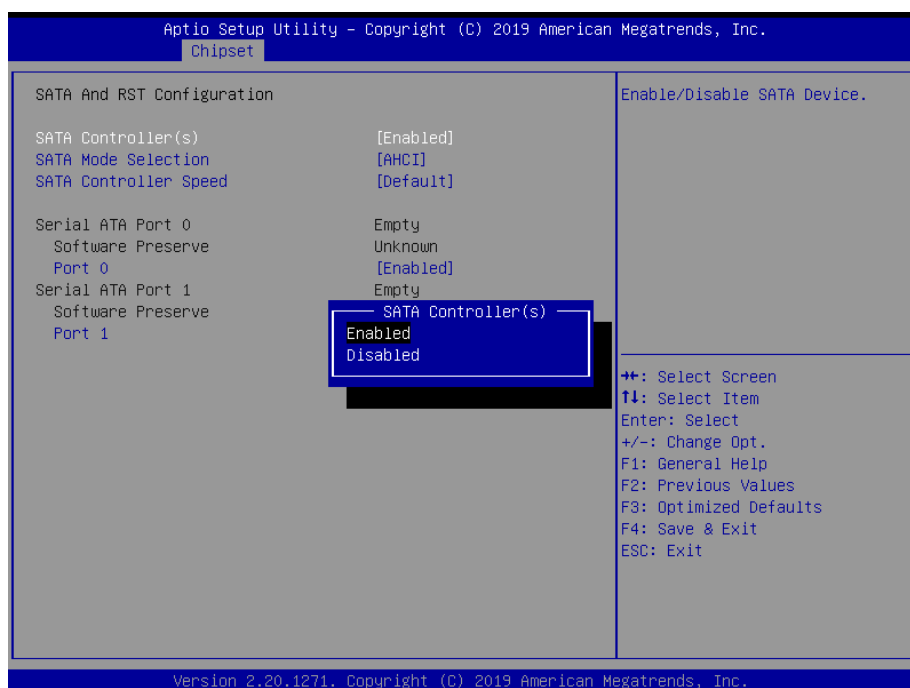
- **Restore AC Power Loss [Power Off]**

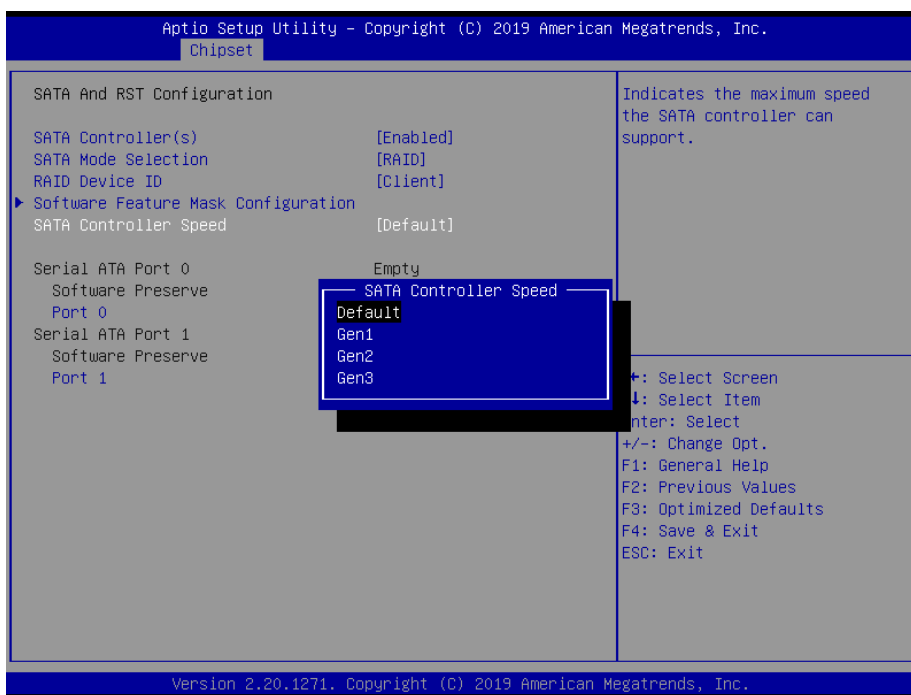
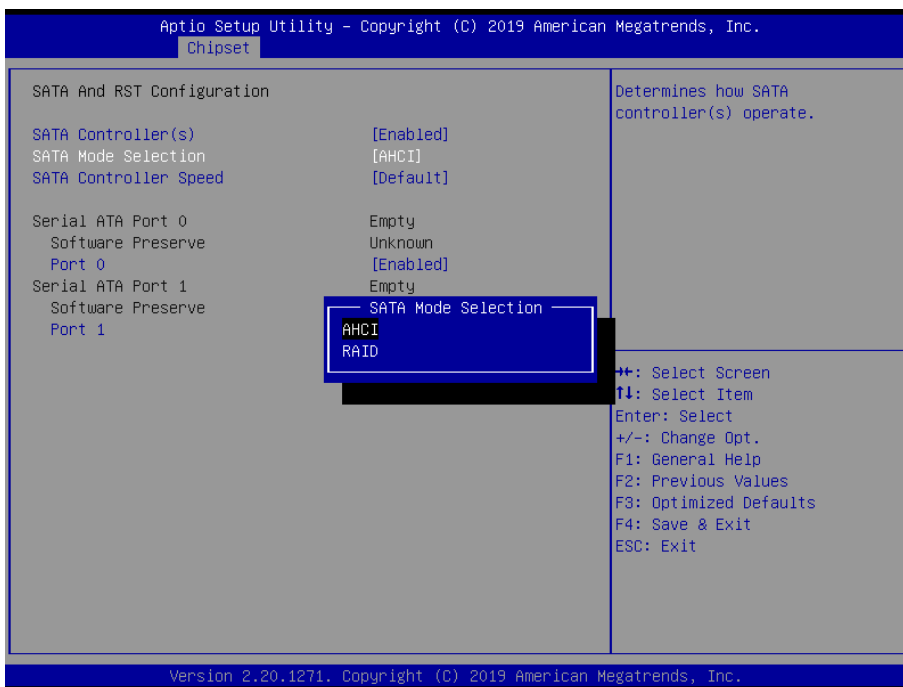
This item allows users to specify what state to go to when power is re-applied after a power failure (G3 state).

- **Wake On LAN [Enable]**

This item allows users to enable or disable Wake on LAN function.

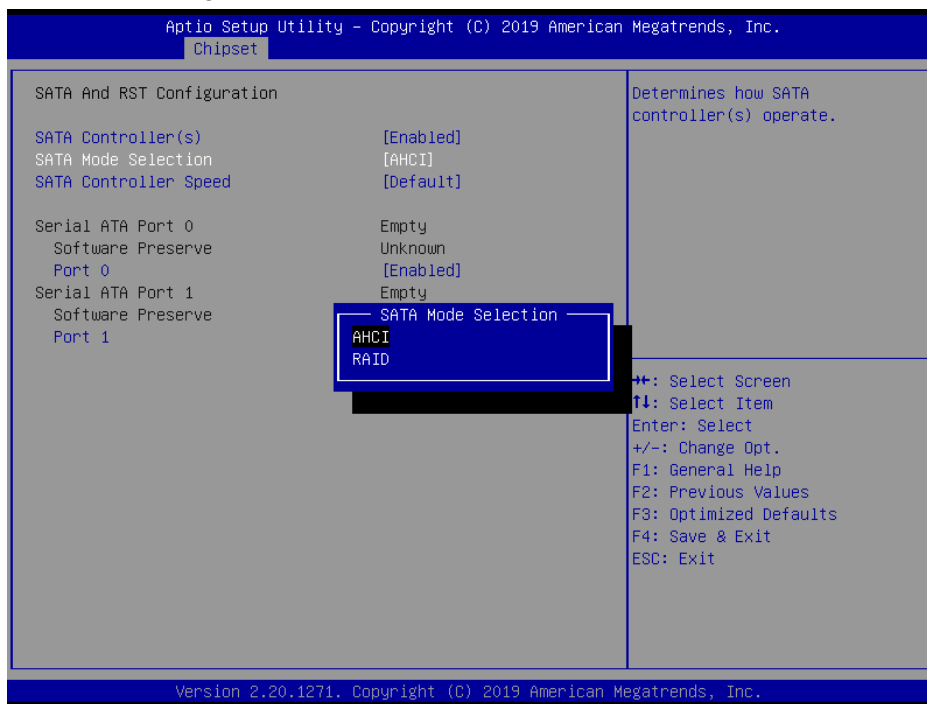
3.2.3.1 SATA Configuration



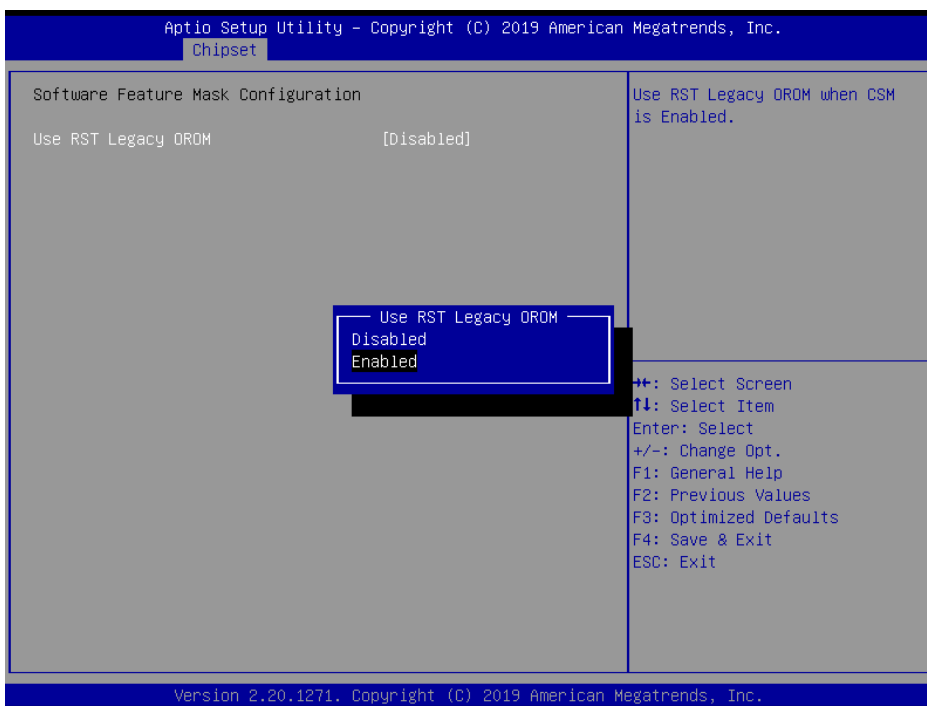


3.2.3.2 RAID Setup Configuration

For SATA mode configuration, selection “RAID”.



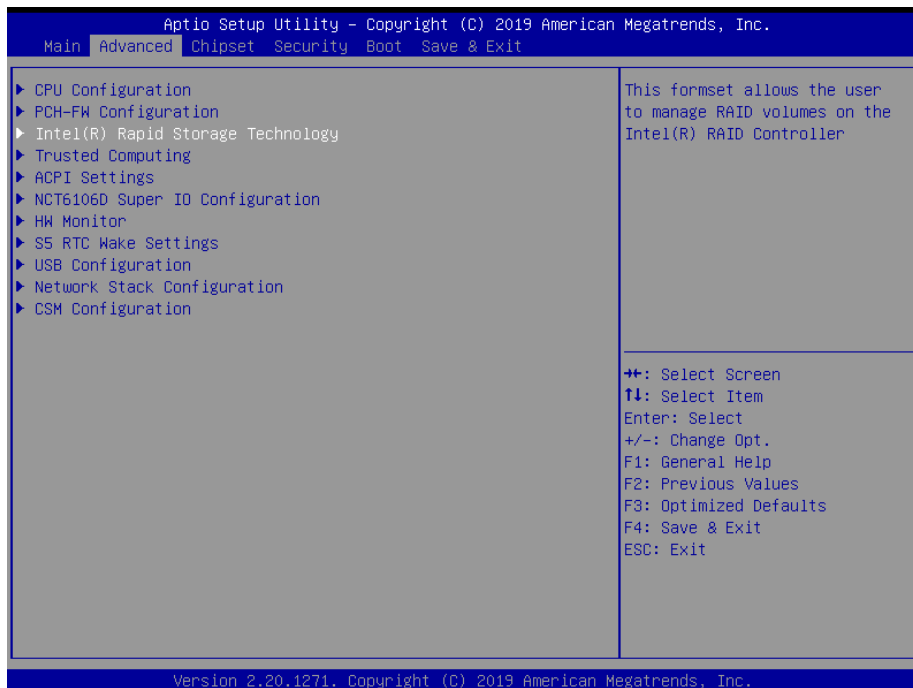
Note: If Windows is set to legacy mode, configure RST Legacy OROM to “enabled”. Save and exit the BIOS. Reboot the system. Then press <Ctrl + I> to access RAID setup.

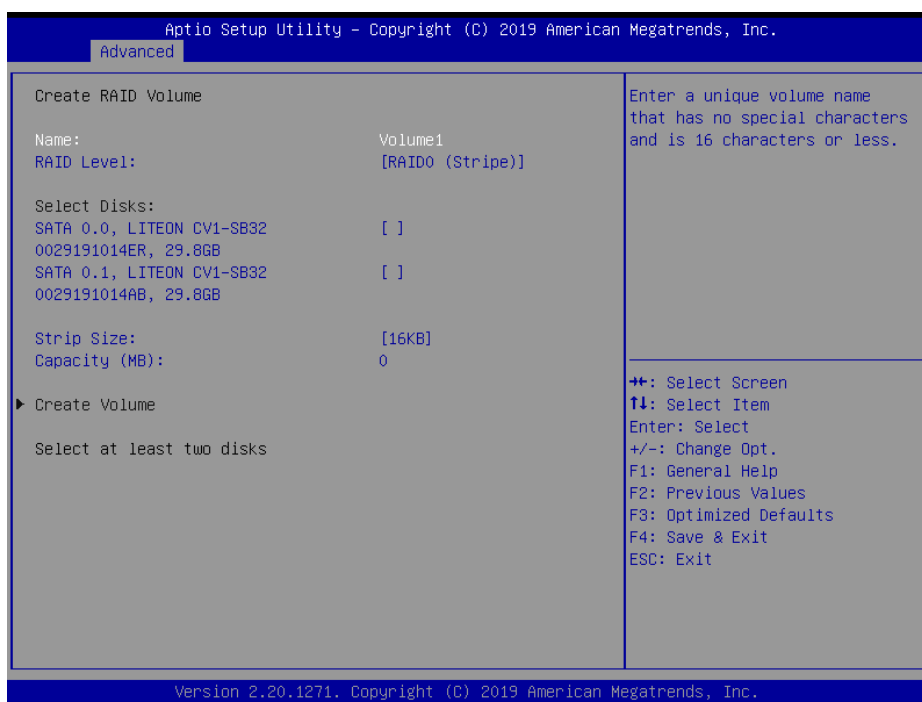
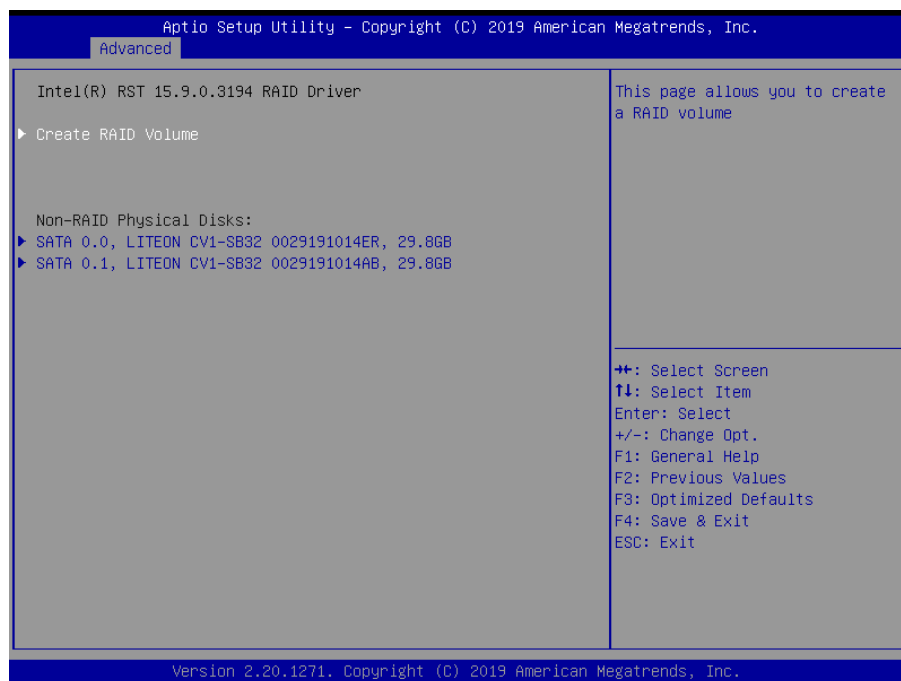


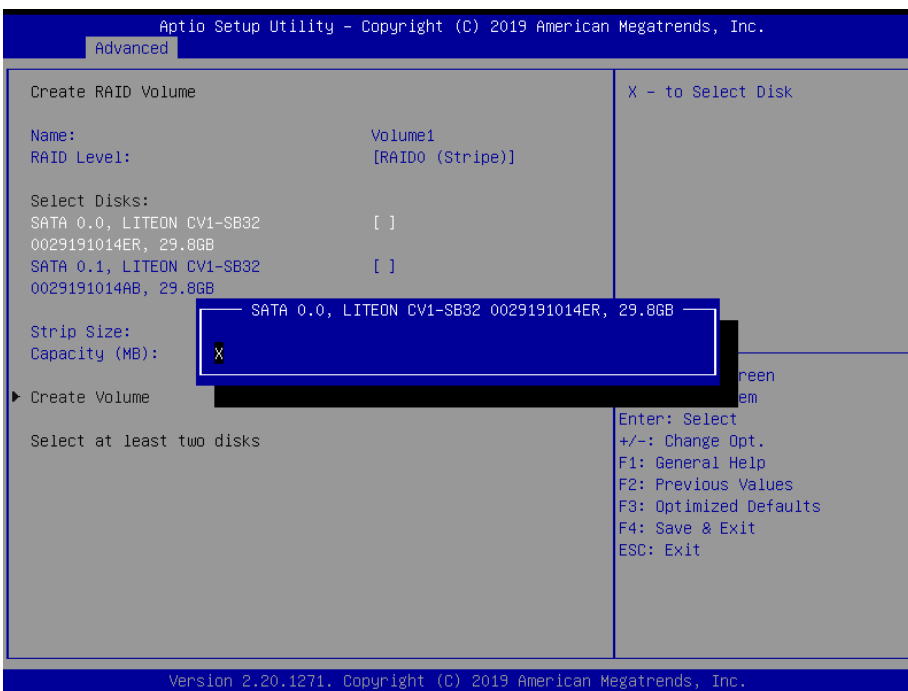
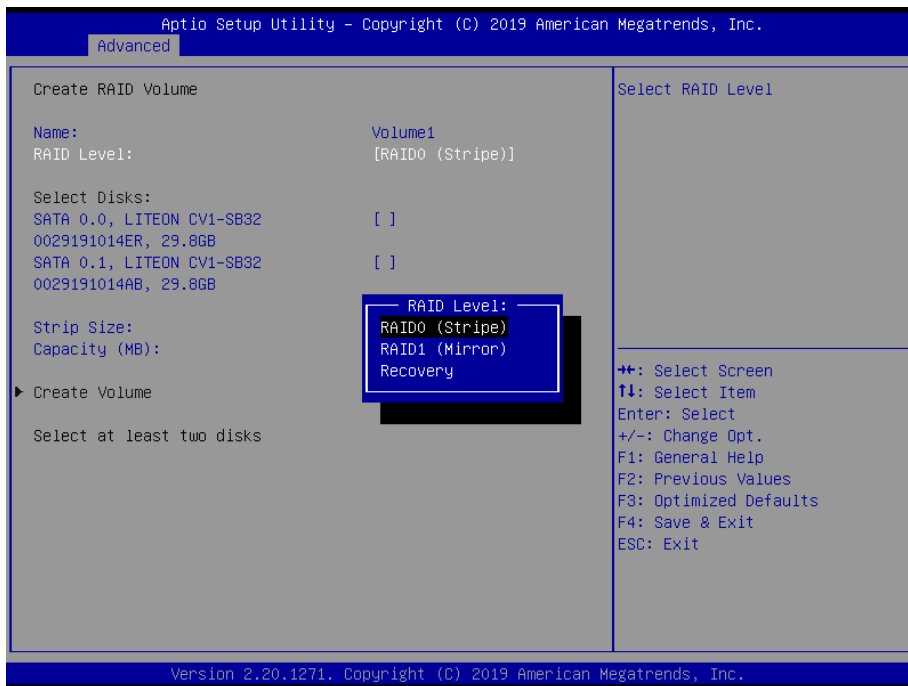
Note: If Windows is set to UEFI mode, configure the Boot Option Filter to “UEFI only”, and ensure the storage and video settings are configured as “UEFI”. Save and exit the BIOS.

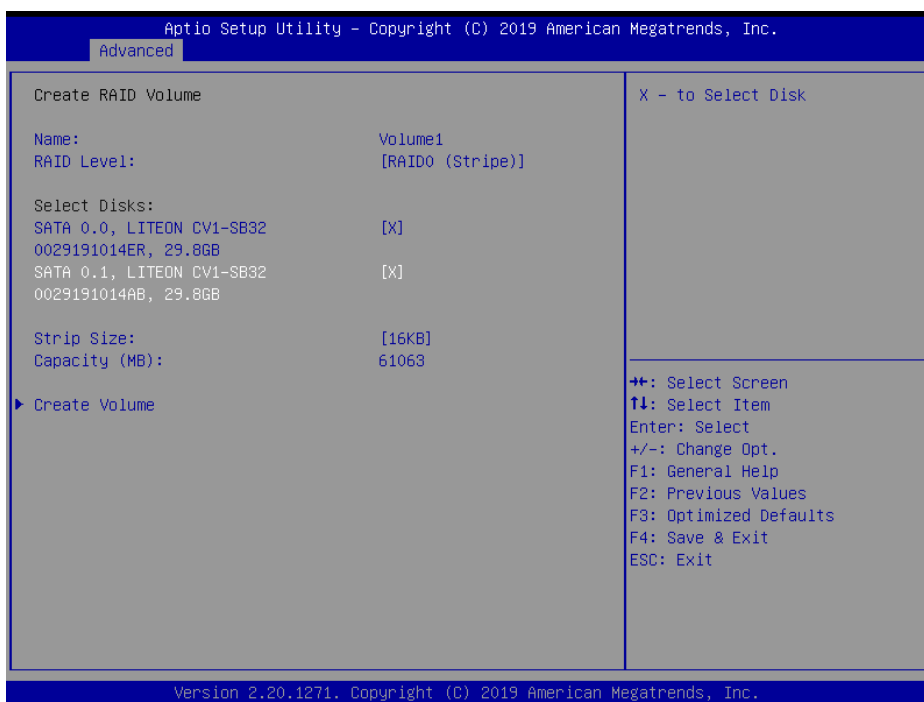


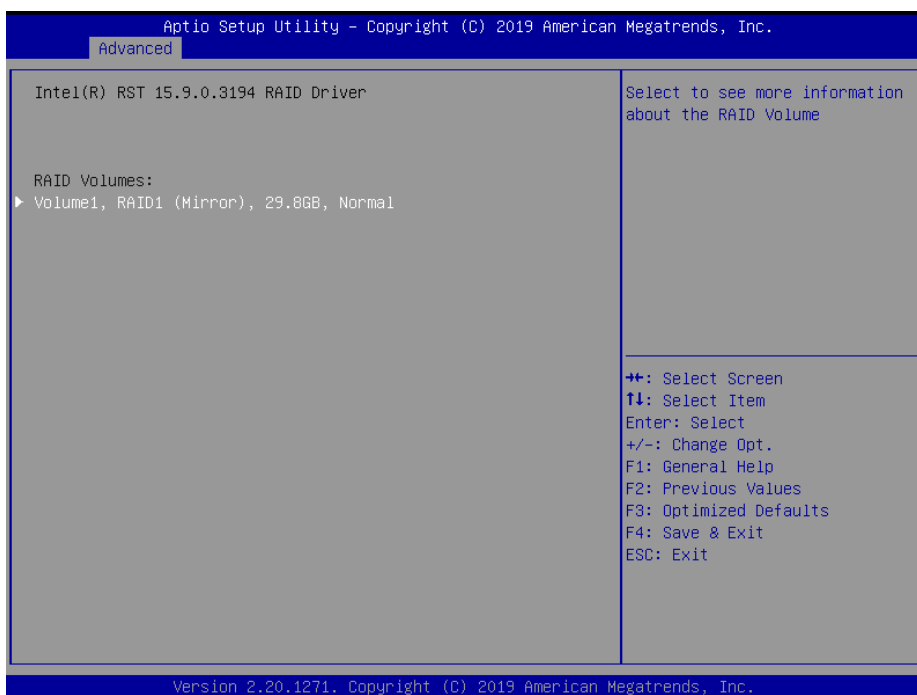
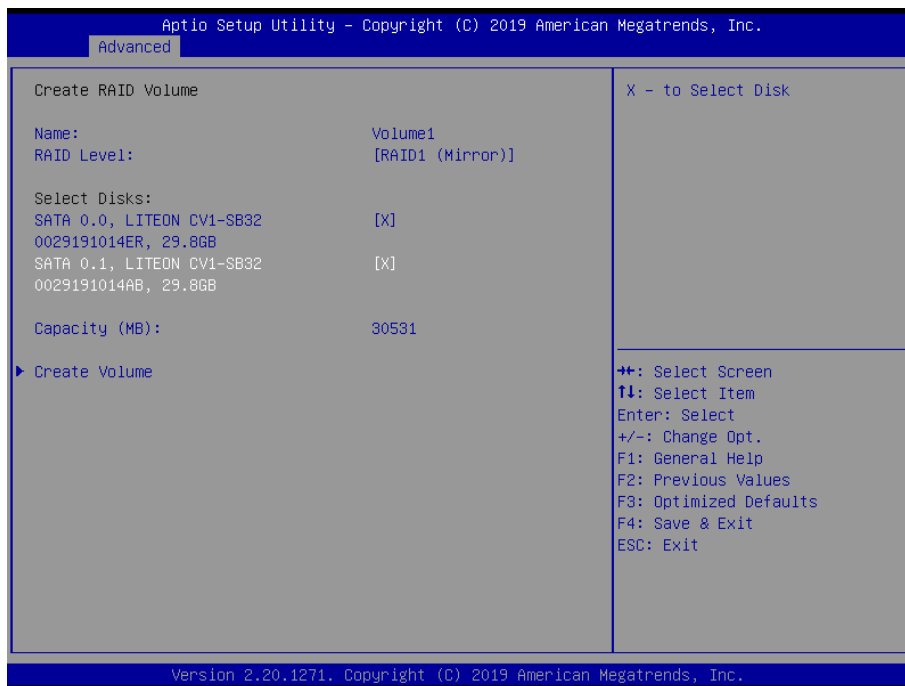
Reboot the system and access the BIOS Setup Utility. Then navigate to the Advanced tab and select the “Intel Rapid Storage Technology” item and configure the settings as “enabled”.











3.2.4 Security Configuration



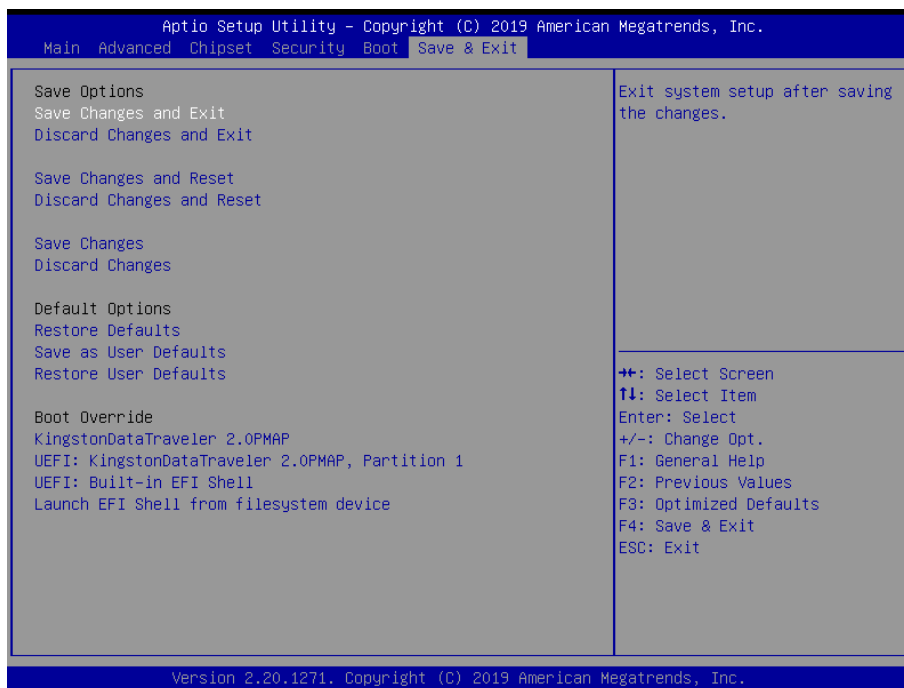
- **Administrator Password**
This item allows users to set the administrator password. Click on the item and type in the password and then press <Enter> to set the administrator password.
- **User Password**
This item allows users to set the user password. Click on the item and type in the password and then press <Enter> to set the user password.

3.2.5 Boot Configuration



- **Setup Prompt Timeout**
This item allows users to configure the number of seconds that the system waits for a setup activation key. Use the <+> and <-> keys to adjust the number of seconds to wait for setup activation key.65535 (0xFFFF) means indefinite waiting.
- **Bootup NumLock State [On]**
This item allows users to configure the keyboard NumLock state.
- **Boot Option #1/#2/#3**
This item allows users to configure the device boot order.

3.2.6 Save & Exit Configuration



- **Save Changes and Reset**
This item allows users to save all configuration changes, exit the BIOS Setup Utility, and reboot the computer for all changes to take effect.
- **Discard Changes and Reset**
This item allows users to exit the BIOS Setup Utility and reboot the computer without saving any changes to the system configuration.
- **Restore Default**
This item allows users to restore/load default values for all configuration options. The BIOS automatically configures all setup items to optimal settings for maximum system performance, but they may not work best for all applications. Do not use default settings if the computer is experiencing configuration problems.
- **Boot Override**
This item allows users to enable or disable the boot priority override function.

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