SR100-X3

MIL-STD Rugged Fanless Computer

User's Manual

Revision Date: March. 30. 2020

Safety Information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area.
- If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your local distributor.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter any technical problems with the product, contact your local distributor

Statement

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- All trademarks are the properties of the respective owners.
- All product specifications are subject to change without prior notice

Revision History

Revision	Date (yyyy/mm/dd)	Changes
V1.0	2020/05/30	First release

Packing list

Item	Description	Q'ty
1	SR100-X3 Embedded System	1
2	Driver CD	1
3	Terminal Block Power Connector (For DC Power Input)	1

If any of the above items is damaged or missing, please contact your local distributor.

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Chapter 1: Product Introduction

1.1 Specifications

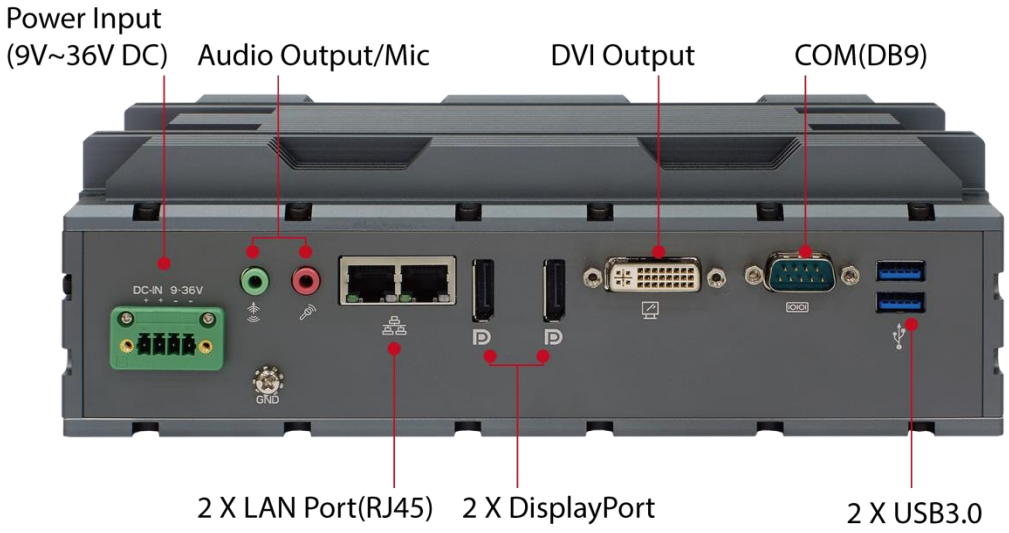
System	
CPU	Core i7-7820EQ, 8M Cache (45W)
Memory type	DDR4 Up to 32GB SO-DIMM
Chipset	QM175 PCH
Display	
Display Port	2, Max resolution up to 3840 x 2160
DVI-D	1, Max resolution up to 2048 x 1536
LVDS	Dual channel 24bit LVDS
Storage	
mSATA	512 GB
Ethernet	
Chipset	1 x Intel I210-IT & 1 x I 219-LM GbE
WOL	Yes
Rear I/O	
DisplayPort	2
DVI-D	1
Ethernet	2 x RJ45
COM Port	1 x RS232/422/485 with 5V/12V selectable
USB Port	2 x USB 3.0
Audio	1 x MIC, 1 x Line out
Power Requiremen	
Power Input	9V~36V DC-in
Applications, Operating System	
Applications	Energy/Smart Grid/Power Plant Management, Intelligent Automation and manufacturing applications
Operating System	Windows 10 64Bit ,Windows server 2012 r2, Windows server 2016 Ubuntu13.04, Ubuntu13.10, Ubuntu14.04, Fedora20

Physical	
Dimension	250 x 149 x 76 mm
Weight	3.6 Kg (7.94 lbs)
Chassis	Aluminum Alloy, Corrosion Resistant
Finish	Anodic aluminum oxide (Color Iron gray)
Cooling	Natural Passive Convection/Conduction. No Moving Parts.

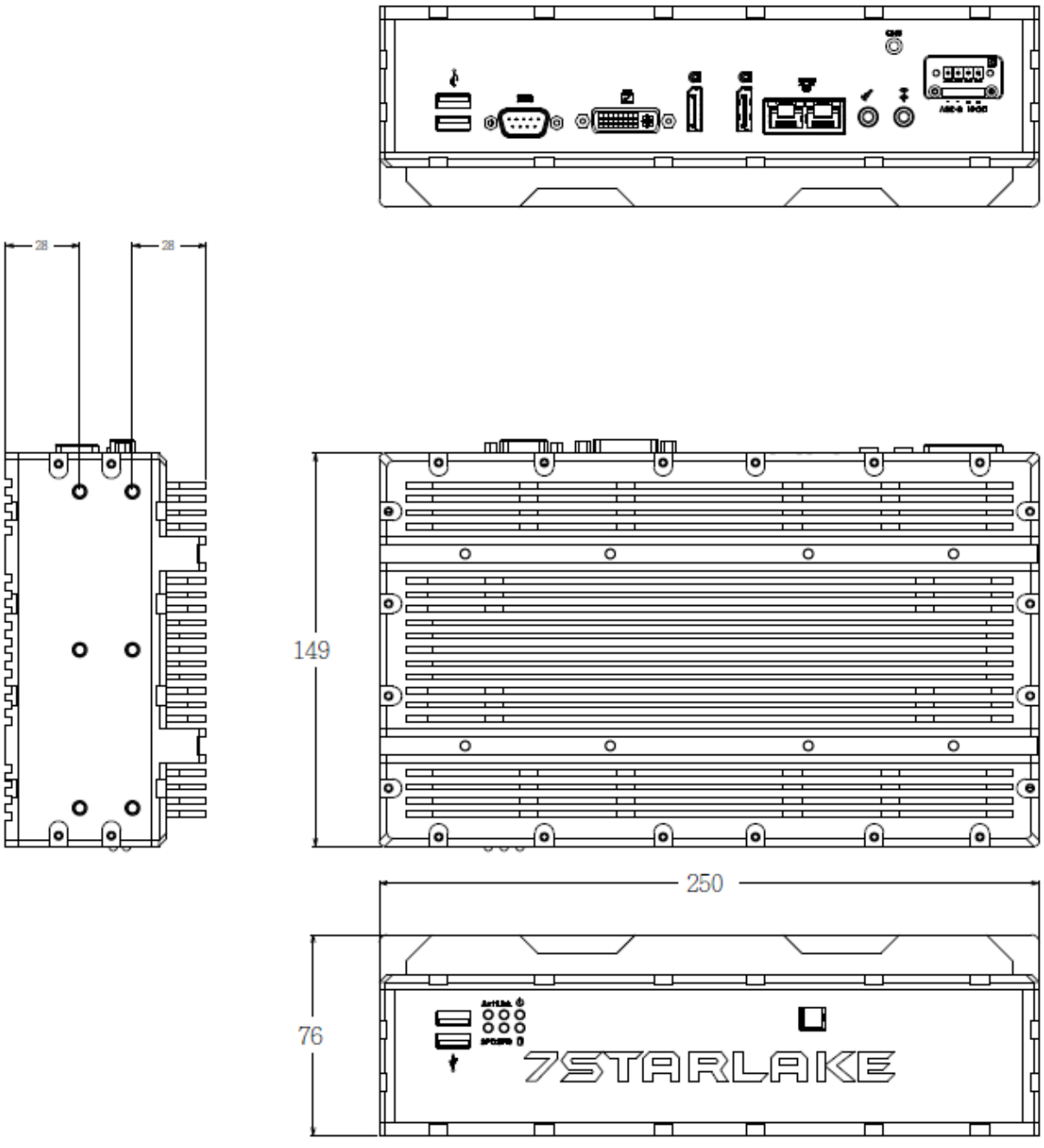
Environmental	
Compliance	MIL-STD-810G, CE and FCC, RoHS, WEEE
Reliability	No Moving Parts; Passive Cooling Designed & Manufactured using ISO 9001/2000 Certified Quality Program
Operating Temp.	-40~70°C
Storage Temp.	-40 to 85°C

1.2 Front Panel I/O Placement

1.3 Rear Panel I/O Placement



1.4 Mechanical Dimensions

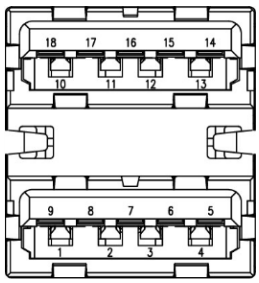


Chapter 2: Jumpers and Connectors Locations

2.1 Front Panel Connector Pin Definitions

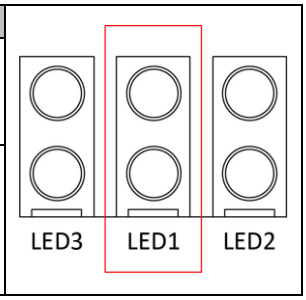
CN9: USB3.0 *2

LOWER USB		UPPER USB	
PIN	DEFINITION	PIN	DEFINITION
1	USB_VCC2	10	USB_VCC3
2	USBD0-	11	USBD1-
3	USBD0+	12	USBD1+
4	GND	13	GND
5	USB_SSRX3N_C	14	USB_SSRX4N_C
6	USB_SSRX3P_C	15	USB_SSRX4P_C
7	GND	16	GND
8	USB3TN3	17	USB3TN4
9	USB3TP3	18	USB3TP4



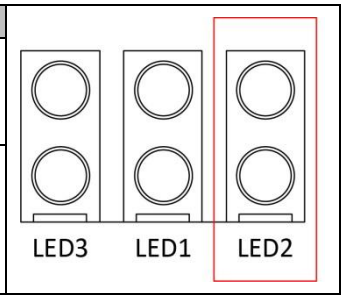
LED1: LAN1 LED STATUS

LED1	Light	Dark	Flash
RED	1000M	100M	NA
GREEN	LINK	UNLINK	ACTIVITY

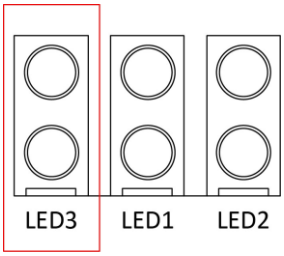


LED2: LAN2 LED STATUS

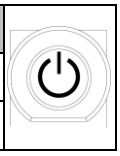
LED2	Light	Dark	Flash
RED	1000M	100M	NA
GREEN	Link	Un-link	Activity



LED3: POWER/HDD LED

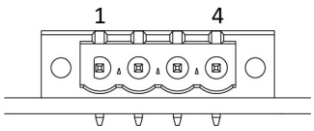
LED2	Light	Dark	Flash	
RED	NA	HDD un-access	HDD access	
GREEN	Power On	Power Off	NA	

SW1: POWER BUTTON

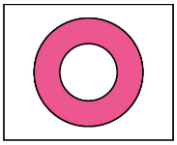
PIN	DEFINITION	
ON	NO LIGHT	
OFF	BLUE LIGHT	

2.2 Rear Panel Connector Pin Definitions

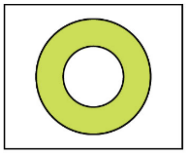
DC Adapter Power Input

PIN	DEFINITION	
1	+VIN	
2	+VIN	
3	GND	
4	GND	

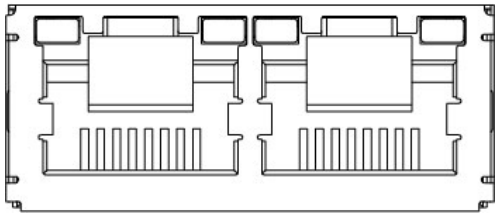
CN6: Audio Jacks Connector (MIC)

PIN	DEFINITION	
5	MIC_L	
4	GND	
3	NC	
2	MIC1_R	
1	GND	

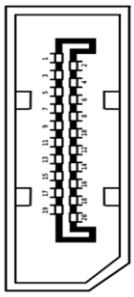
CN7: Audio Jacks Connector (Line-Out)

PIN	DEFINITION	
5	FRONT_L	
4	GND	
3	NC	
2	FRONT_R	
1	GND	

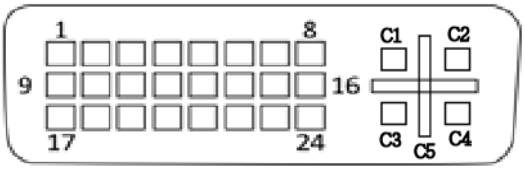
LAN1: Intel I219LM/LAN2: Intel I210IT

LAN1		LAN2		
PIN	DEFINITION	PIN	DEFINITION	
A1	I218_LAN1_MDI0_DP	B1	LAN2_MDIP0	
A2	I218_LAN1_MDI0_DN	B2	LAN2_MDIN0	
A3	I218_LAN1_MDI1_DP	B3	LAN2_MDIP1	
A4	I218_LAN1_MDI1_DN	B4	LAN2_MDIN1	
A7	I218_LAN1_MDI2_DP	B7	LAN2_MDIP2	
A8	I218_LAN1_MDI2_DN	B8	LAN2_MDIN2	
A9	I218_LAN1_MDI3_DP	B9	LAN2_MDIP3	
A10	I218_LAN1_MDI3_DN	B10	LAN2_MDIN3	

DISPLAY PORT:

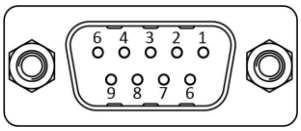
PIN	DEFINITION	PIN	DEFINITION	
1	DPC_LANEP0	2	GND	
3	DPC_LANEN0	4	DPC_LANEP1	
5	GND	6	DPC_LANEN1	
7	DPC_LANEP2	8	GND	
9	DPC_LANEN2	10	DPC_LANEP3	
11	GND	12	DPC_LANEN3	
13	DDIC_DDC_AUX_SEL	14	GND	
15	DPC_AUXP	16	GND	
17	DPC_AUXN	18	DPC_DET	
19	GND	20	DPC_PWR	

DVI: DVI-D

PIN	DEFINITION	PIN	DEFINITION	
1	TMDS Data2-	13	NC	
2	TMDS Data2+	14	+5V Power	
3	GND	15	GND	
4	NC	16	Hot Plug Detect	
5	NC	17	TMDS Data0-	
6	DDC Clock	18	TMDS Data0+	
7	DDC Data	19	GND	
8	Analog VSYNC	20	NC	
9	TMDS Data1-	21	NC	
10	TMDS Data1+	22	GND	
11	GND	23	TMDS Clock+	
12	NC	24	TMDS Clock-	
C1	NC	C2	NC	
C3	NC	C4	NC	
C5	DVI_GND	C6	DVI_GND	

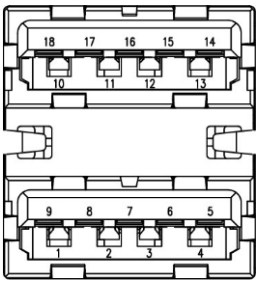
COM1: RS232/422/485 with 5V/12V selectable

PIN	DEFINITION	PIN	DEFINITION
1	DCD1#_OPTO	6	DSR1#_OPTO
2	RXD1_OPTO	7	RTS1#_OPTO
3	TDX1_OPTO	8	CTS1#_OPTO
4	DRT1#_OPTO	9	COM1P9SEL
5	GND	10	GND



CN8: USB3.0 *2

LOWER USB		UPPER USB	
PIN	DEFINITION	PIN	DEFINITION
1	USB_VCC0	10	USB_VCC1
2	USBD2-	11	USBD3-
3	USBD2+	12	USBD3+
4	GND	13	GND
5	USB_SSRX1N_C	14	USB_SSRX2N_C
6	USB_SSRX1P_C	15	USB_SSRX2P_C
7	GND	16	GND
8	USB3TN1	17	USB3TN2
9	USB3TP1	18	USB3TP2



Chapter 3: AMI BIOS UTILITY

This chapter provides users with detailed descriptions on how to set up a basic system configuration through the AMI BIOS setup utility.

3.1 Starting

To enter the setup screens, perform the following steps:

- Turn on the computer and press the <Del> key immediately.
- After the <Del> key is pressed, the main BIOS setup menu displays. Other setup screens can be accessed from the main BIOS setup menu, such as the Chipset and Power menus.

3.2 Navigation Keys

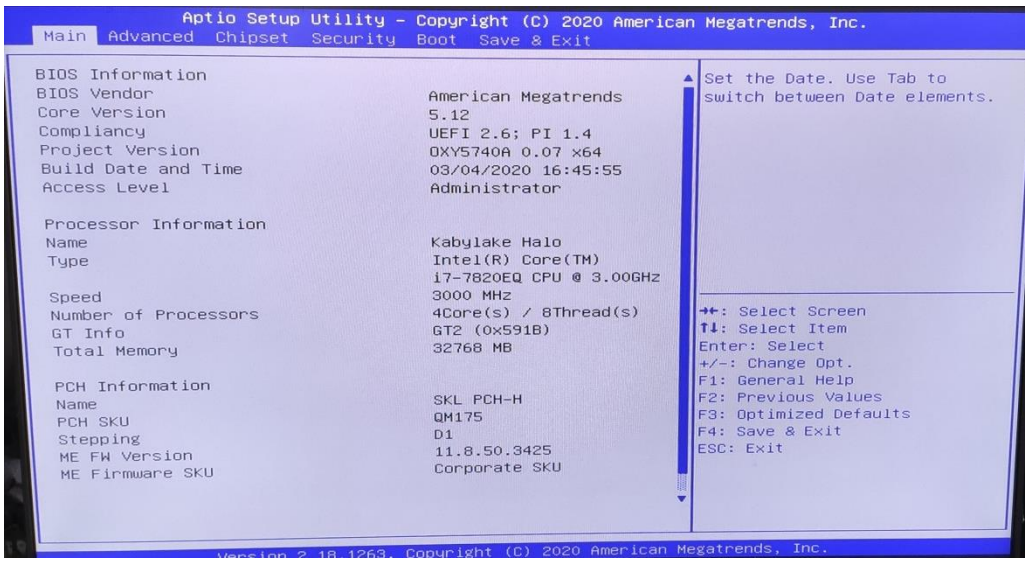
The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process.
Some of the hot keys are <F1>, <F10>, <Enter>, <ESC>, and <Arrow> keys.

Some of the navigation keys may differ from one screen to another.

Left/Right	The Left and Right <Arrow> keys moves the cursor to select a menu.
Up/Down	The Up and Down <Arrow> keys moves the cursor to select a setup screen or sub-screen.
+– Plus/Minus	The Plus and Minus <Arrow> keys changes the field value of a particular setup setting.
Tab	The <Tab> key selects the setup fields.
F1	The <F1> key displays the General Help screen.
F10	The <F10> key saves any changes made and exits the BIOS setup utility.
Esc	The <Esc> key discards any changes made and exits the BIOS setup utility.
Enter	The <Enter> key displays a sub-screen or changes a selected or highlighted option in each menu.

3.3 Main Menu

The Main menu is the screen that first displays when BIOS Setup is entered, unless an error has occurred.



System Date

Use this function to change the system date.

Select System Date using the Up and Down <Arrow> keys. Enter the new values through the keyboard. Press the Left and Right <Arrow> keys to move between fields.

The date setting must be entered in MM/DD/YY format.

System Time

Use this function to change the system time.

Select System Time using the Up and Down <Arrow> keys. Enter the new values through the keyboard. Press the Left and Right <Arrow> keys to move between fields.

The time setting is entered in HH:MM:SS format.

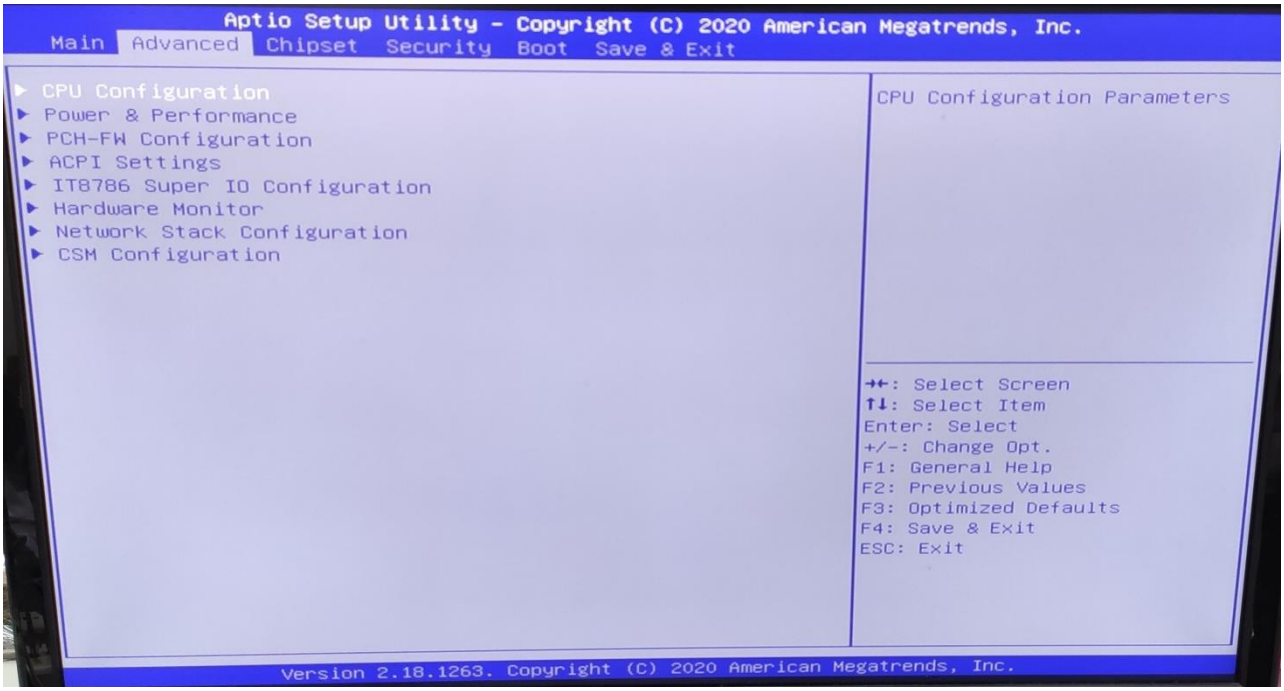
Note: The time is in 24-hour format. For example, 5:30 A.M. appears as 05:30:00, and 5:30 P.M. as 17:30:00.

Access Level

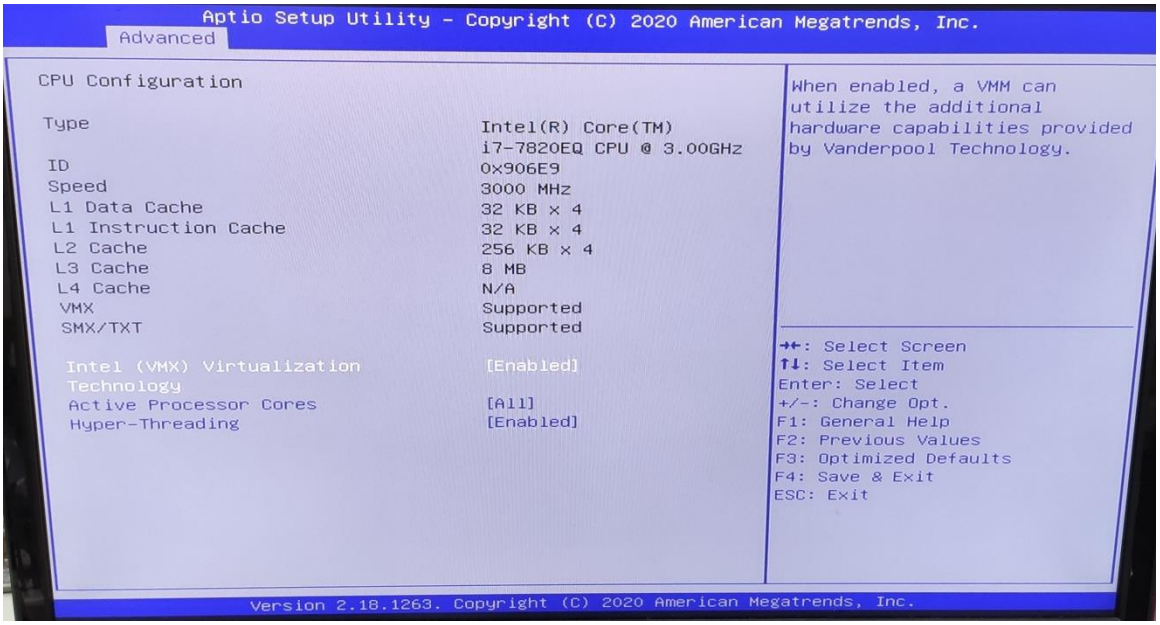
Display the access level of the current user in the BIOS.

3.4 Advanced Menu

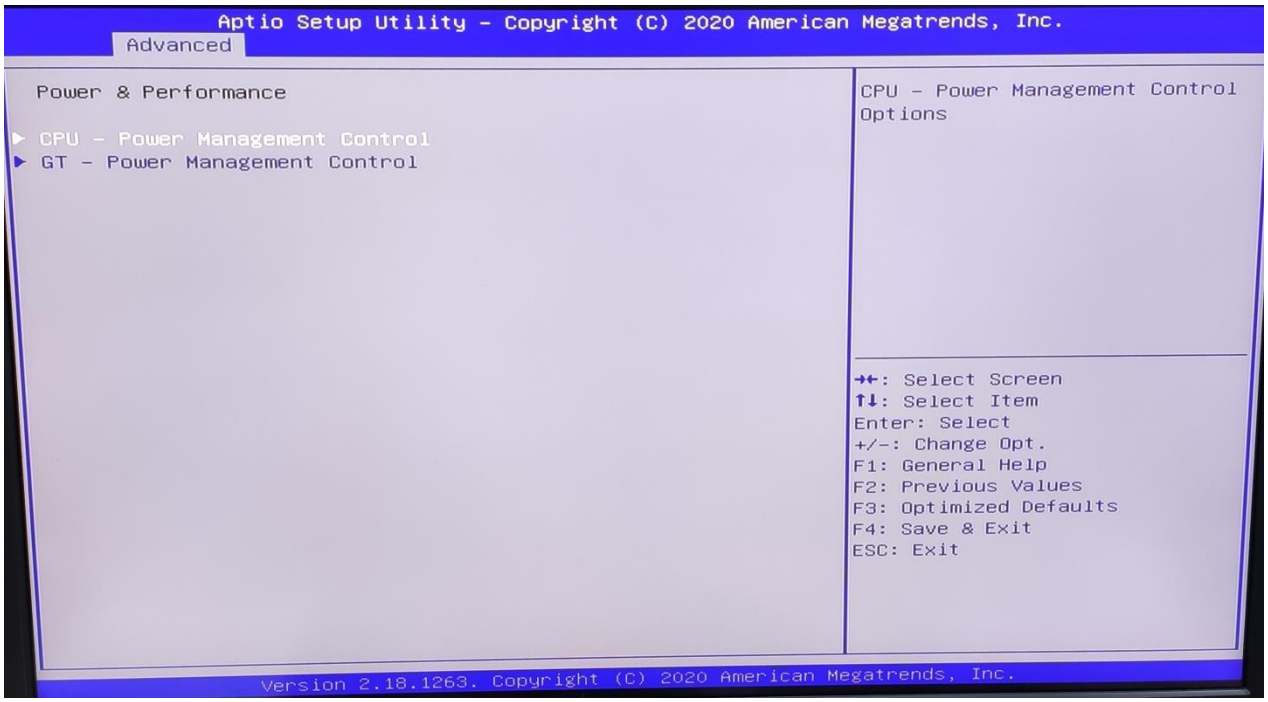
The Advanced Menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference. ***Setting incorrect field values may cause the system to malfunction.***



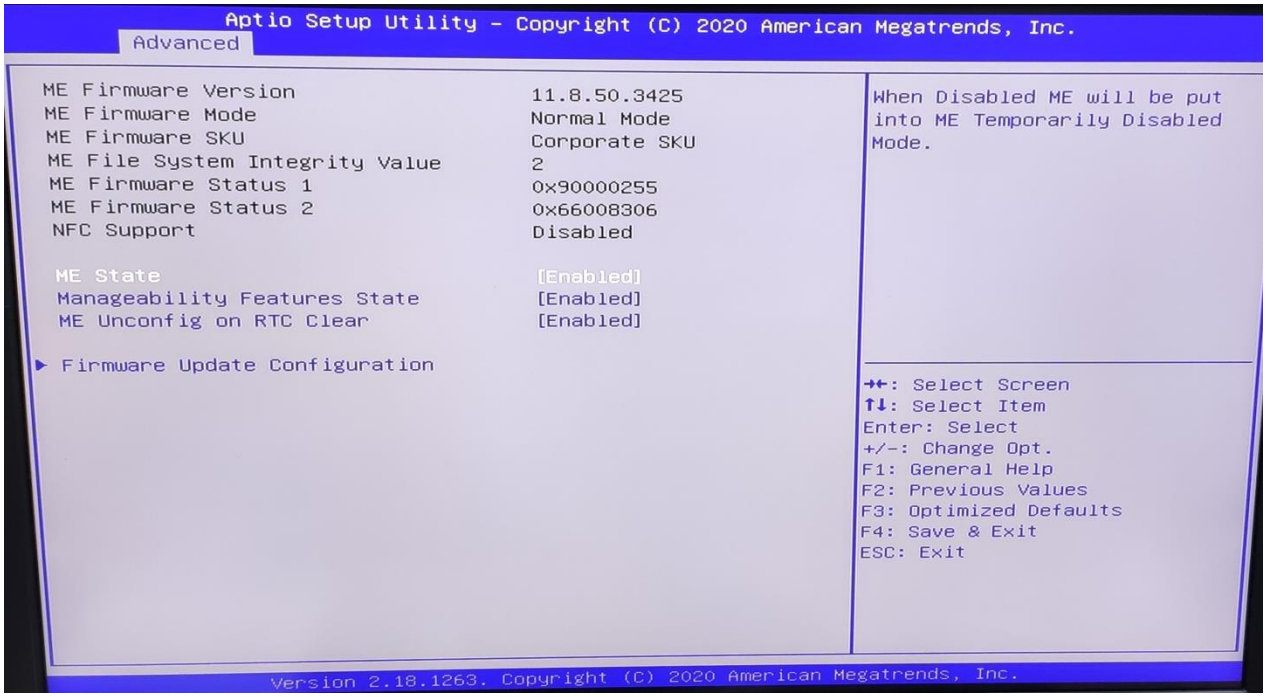
3.4.1 CPU Configuration



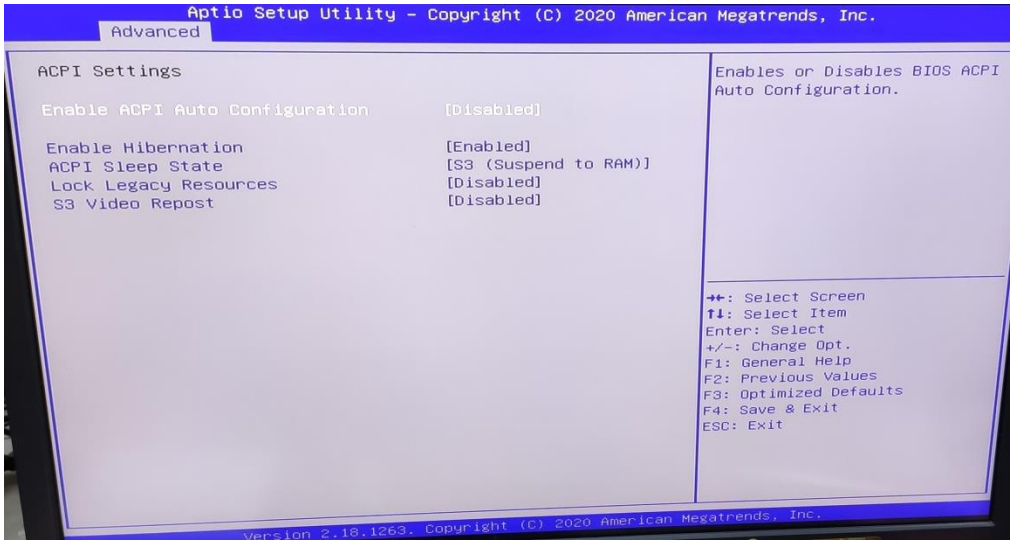
3.4.2 Power & Performance



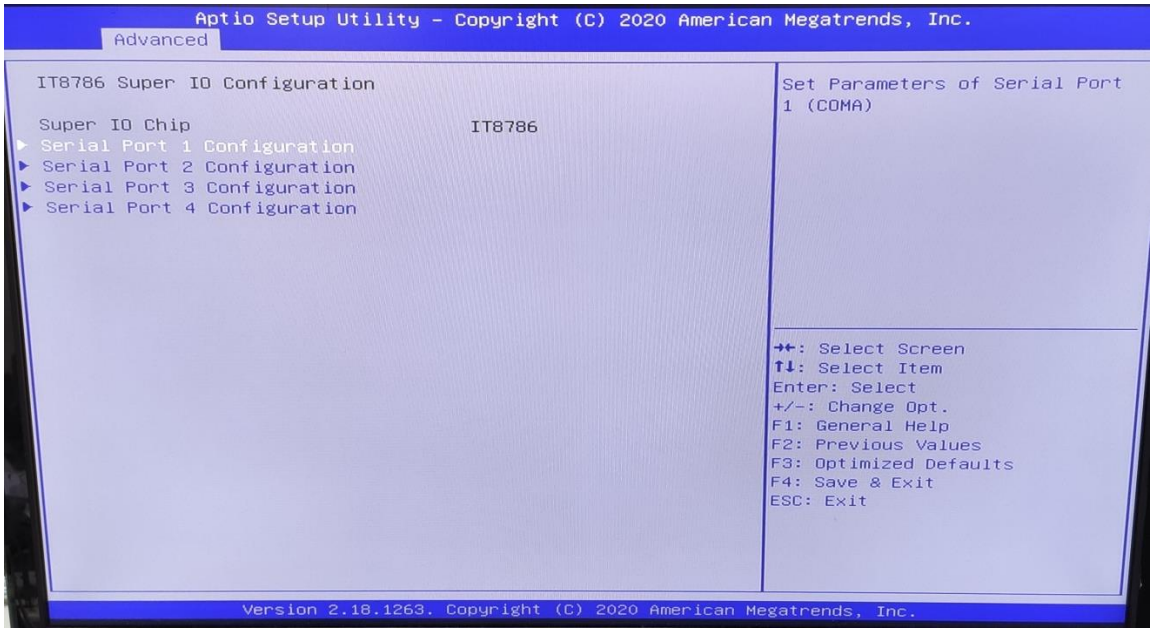
3.4.3 PCH-FW Configuration



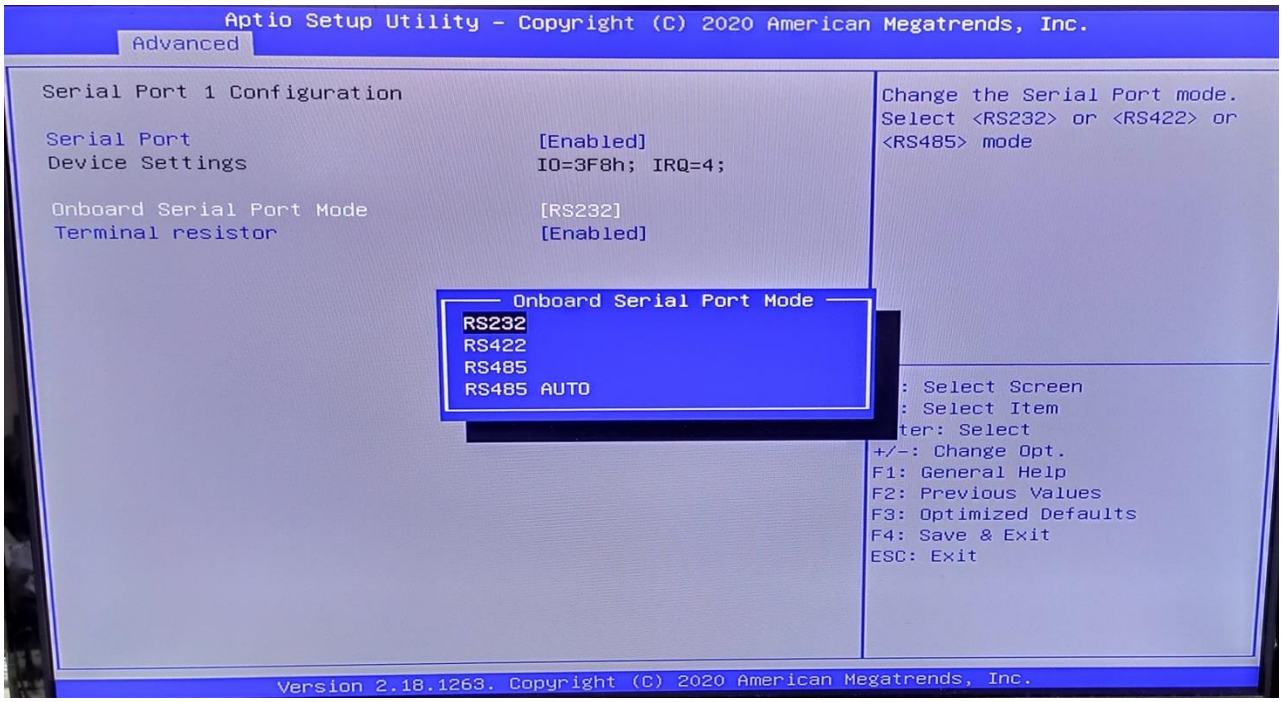
3.4.4 ACPI Setting

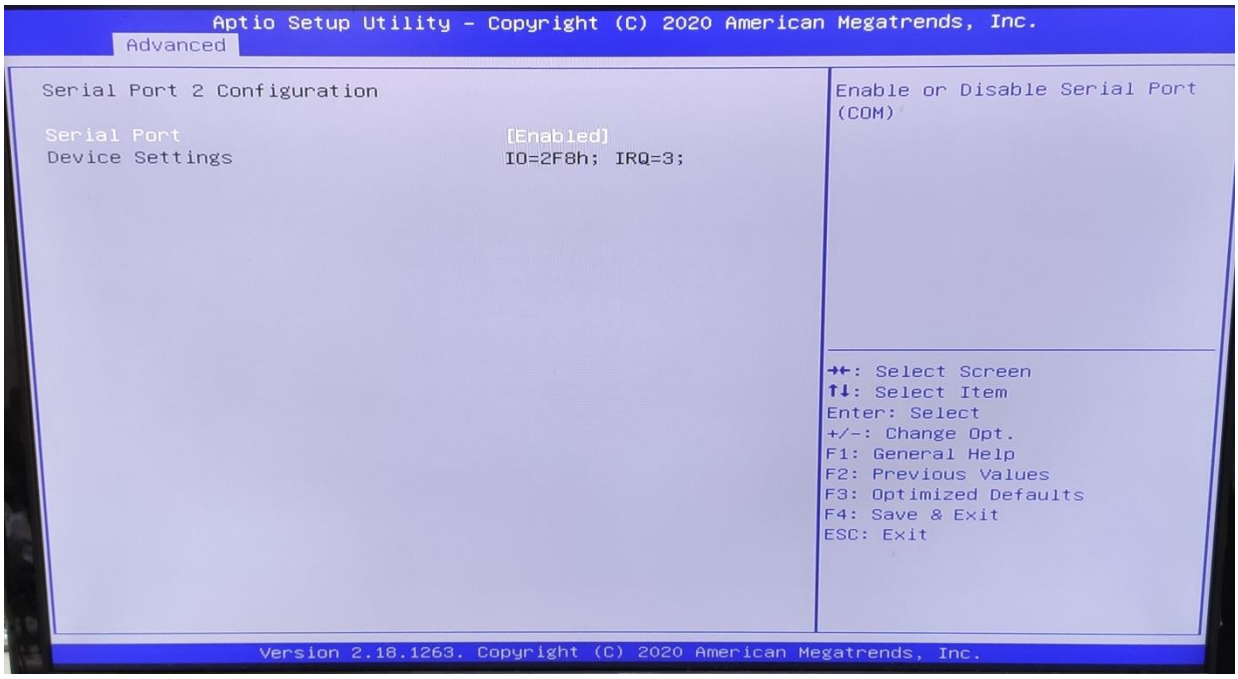


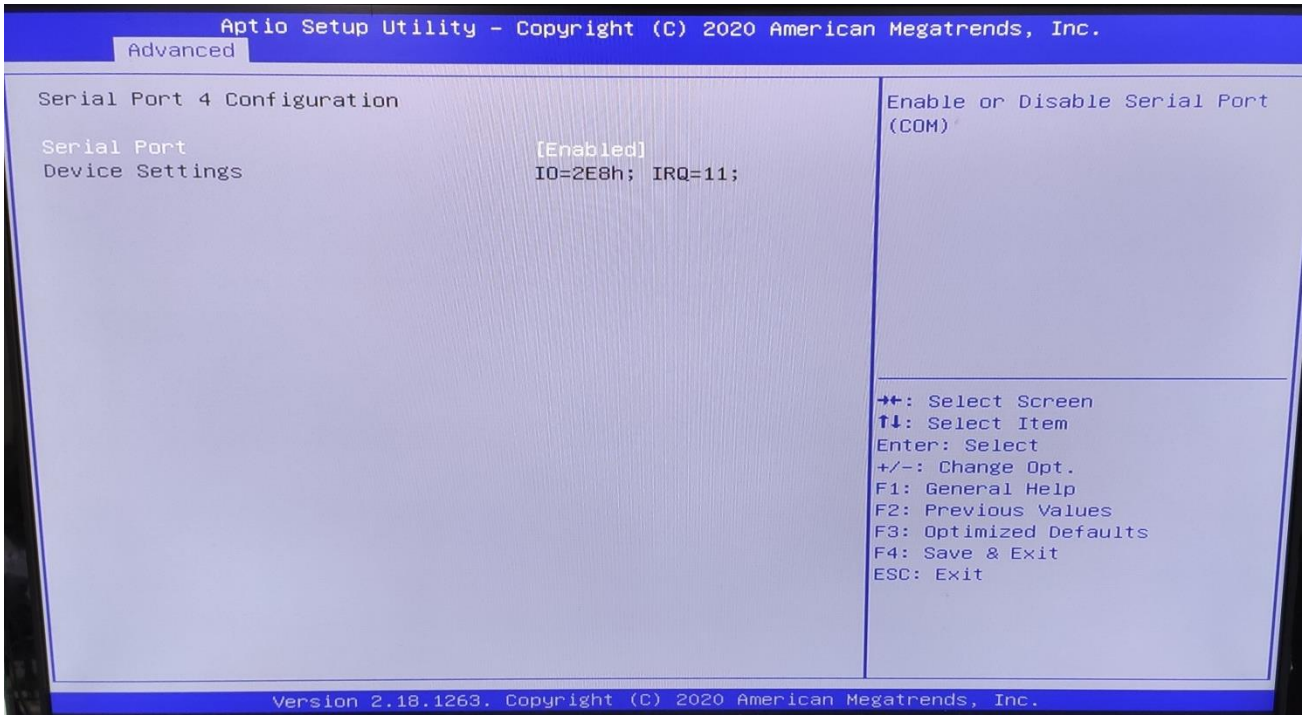
3.4.5 IT8786 Super IO Configuration



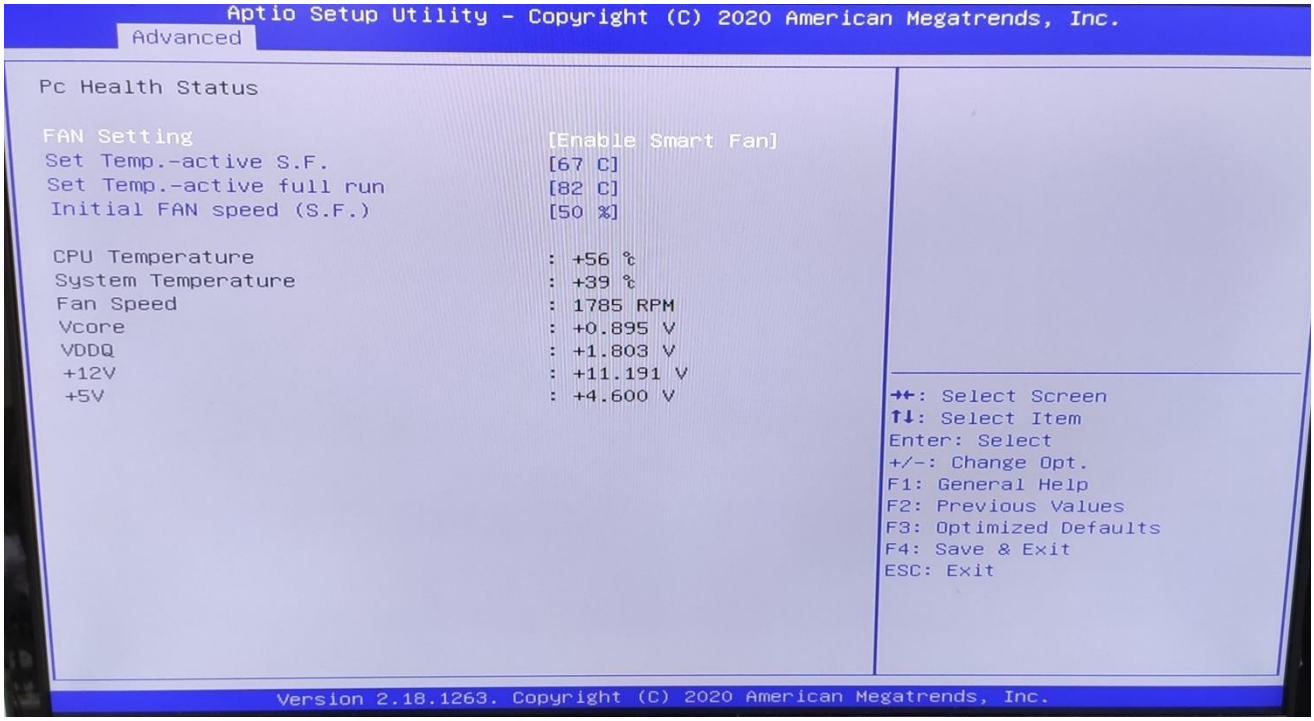
User can choose a mode (RS232/RS422/RS485) on each serial port.


Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
Advanced
Serial Port 1 Configuration
Serial Port [Enabled]
Device Settings IO=3F8h; IRQ=4;
Onboard Serial Port Mode [RS232]
Terminal resistor [Enabled]
Change the Serial Port mode.
Select <RS232> or <RS422> or <RS485> mode
Onboard Serial Port Mode
RS232
RS422
RS485
RS485 AUTO
: Select Screen
: Select Item
ter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.18.1263. Copyright (C) 2020 American Megatrends, Inc.

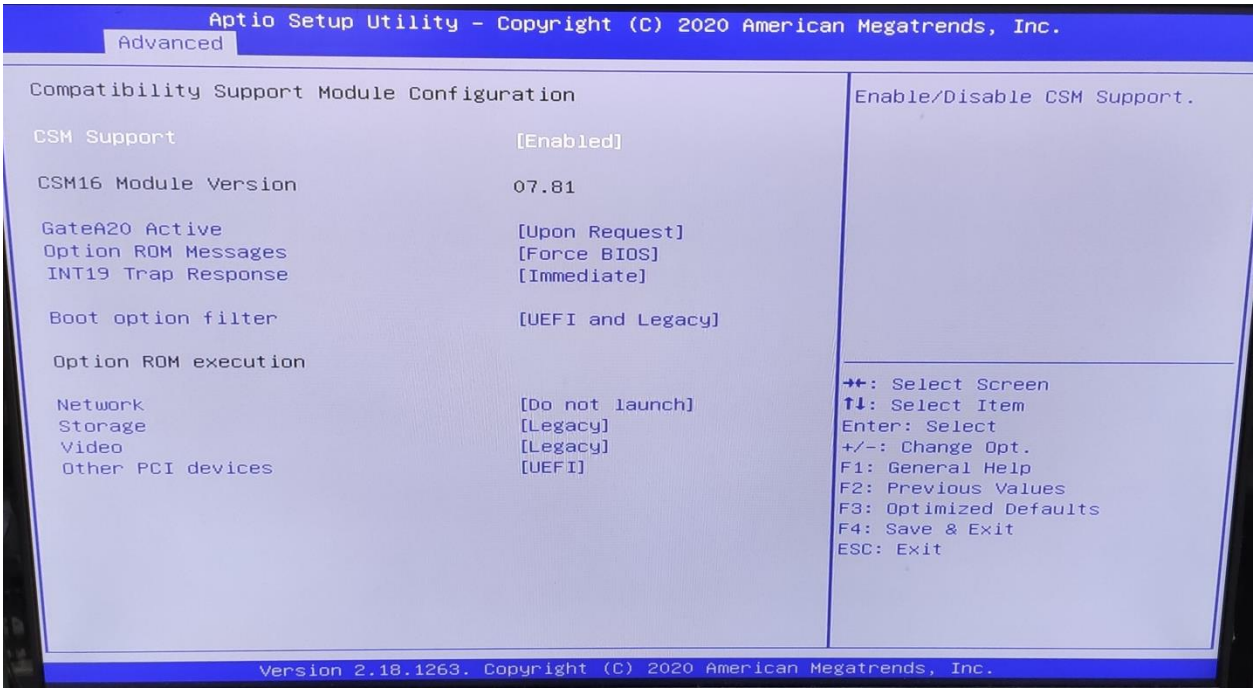

Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
Advanced
Serial Port 2 Configuration
Serial Port [Enabled]
Device Settings IO=2F8h; IRQ=3;
Enable or Disable Serial Port (COM)
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.18.1263. Copyright (C) 2020 American Megatrends, Inc.



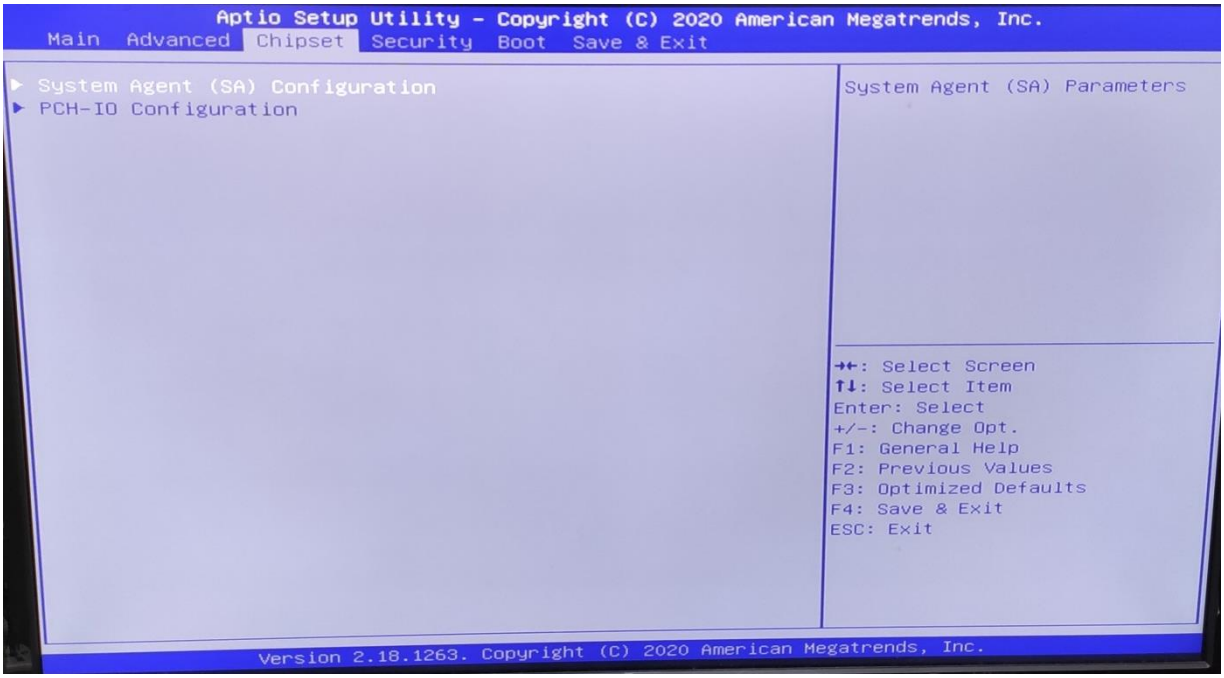
3.4.6 Hardware Monitor



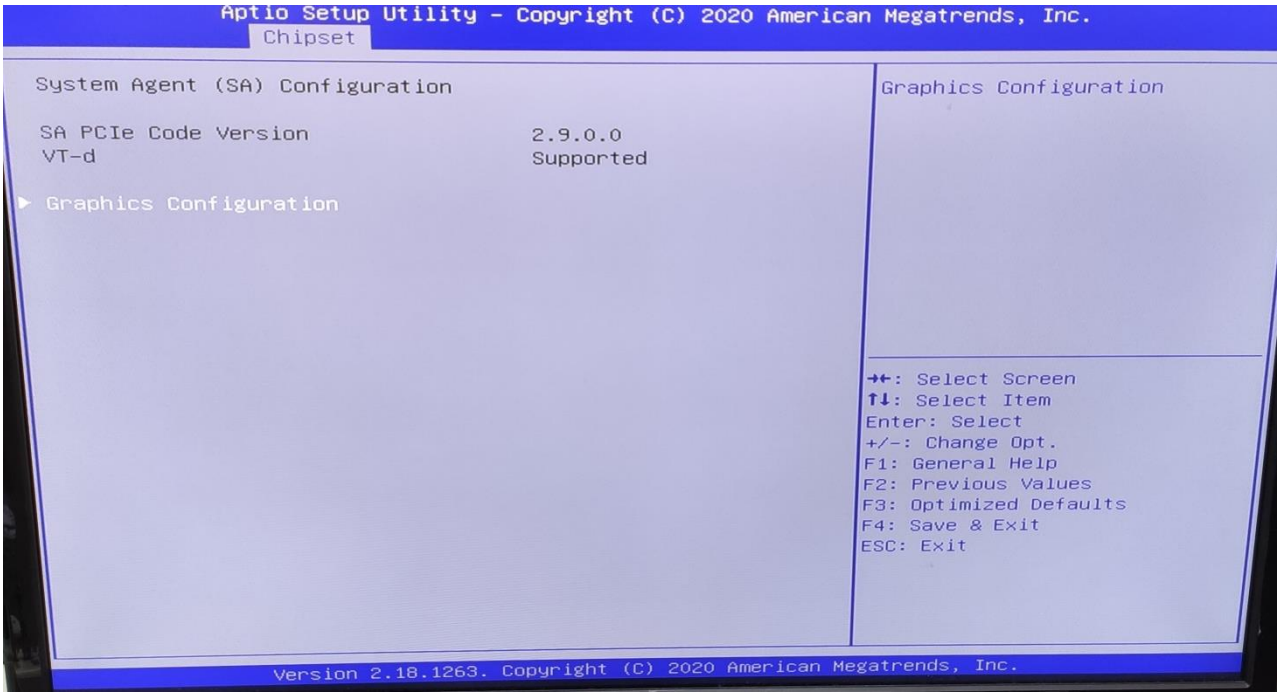
3.4.7 CSM Configuration



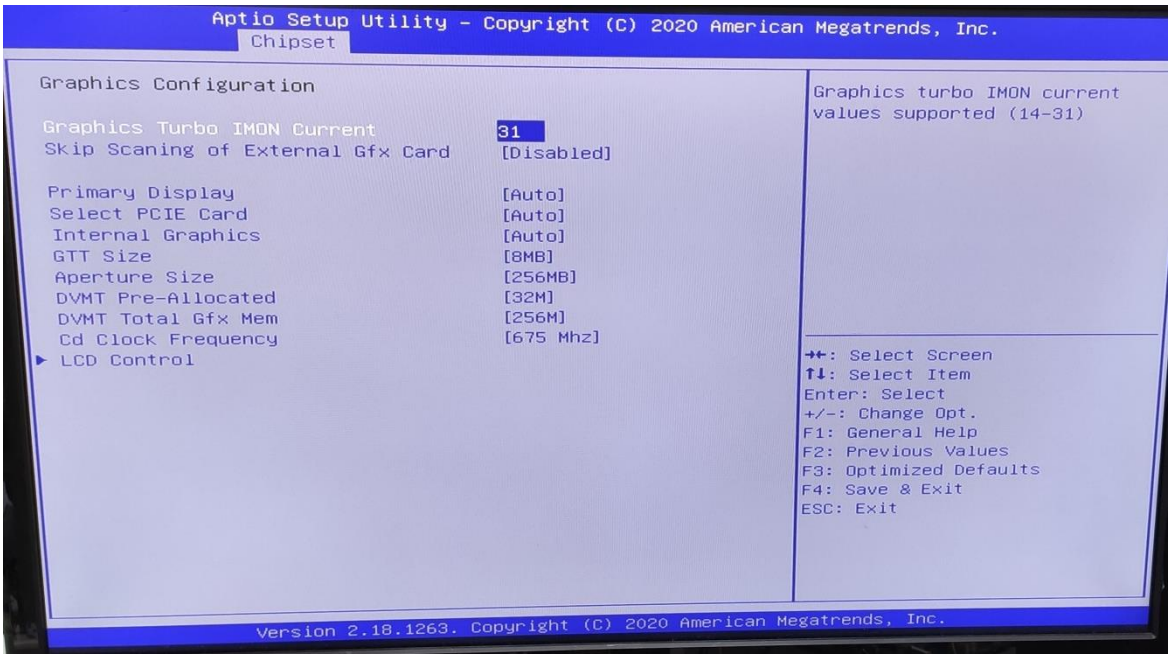
3.5 Chipset



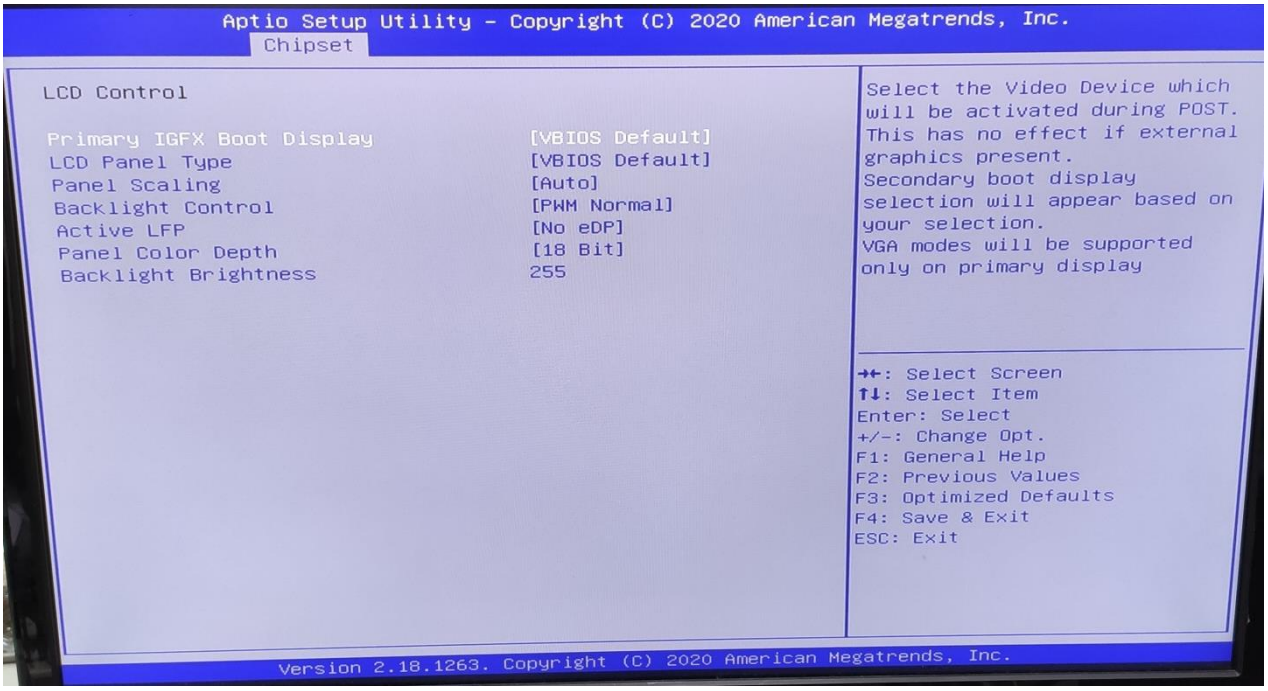
3.5.1 SA Configuration



3.5.1.1 Graphics Configuration



3.5.1.2 LCD Control



Primary IGFX Boot Display: Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display.

LCD Panel Type: Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.

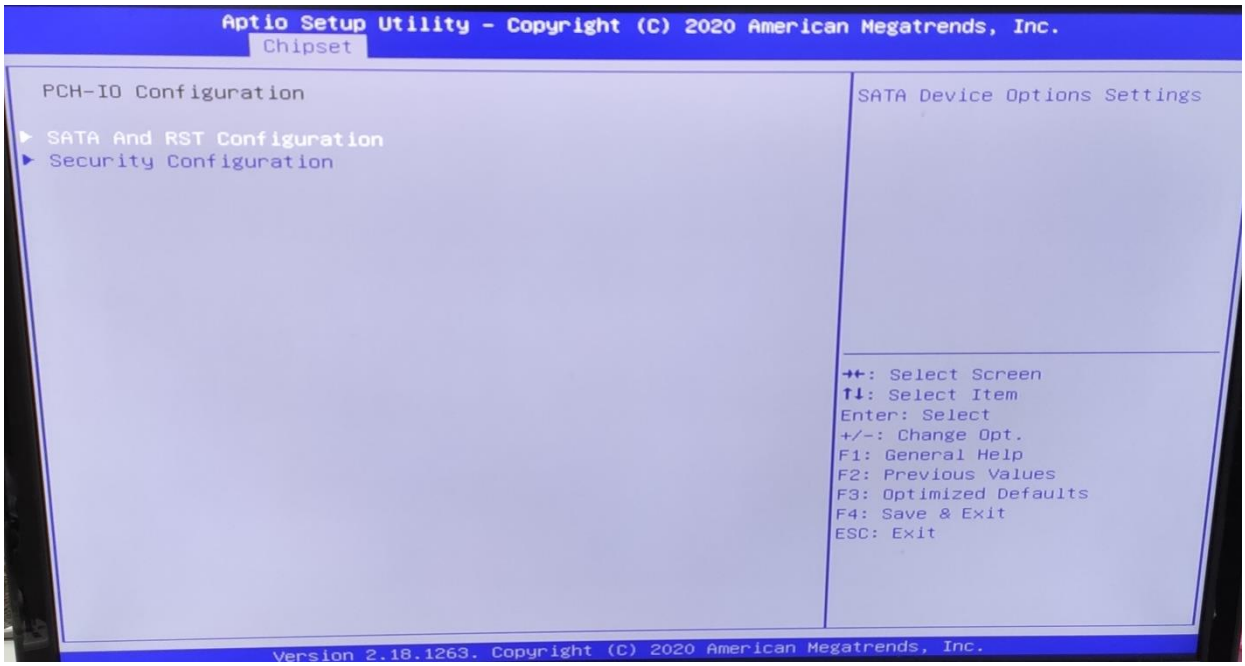
SDVO-LFP Panel Type: Select SDVO panel used by Internal Graphics Device by selecting the appropriate setup item.

Panel Scaling: Select the LCD panel scaling option used by the Internal Graphics Device.

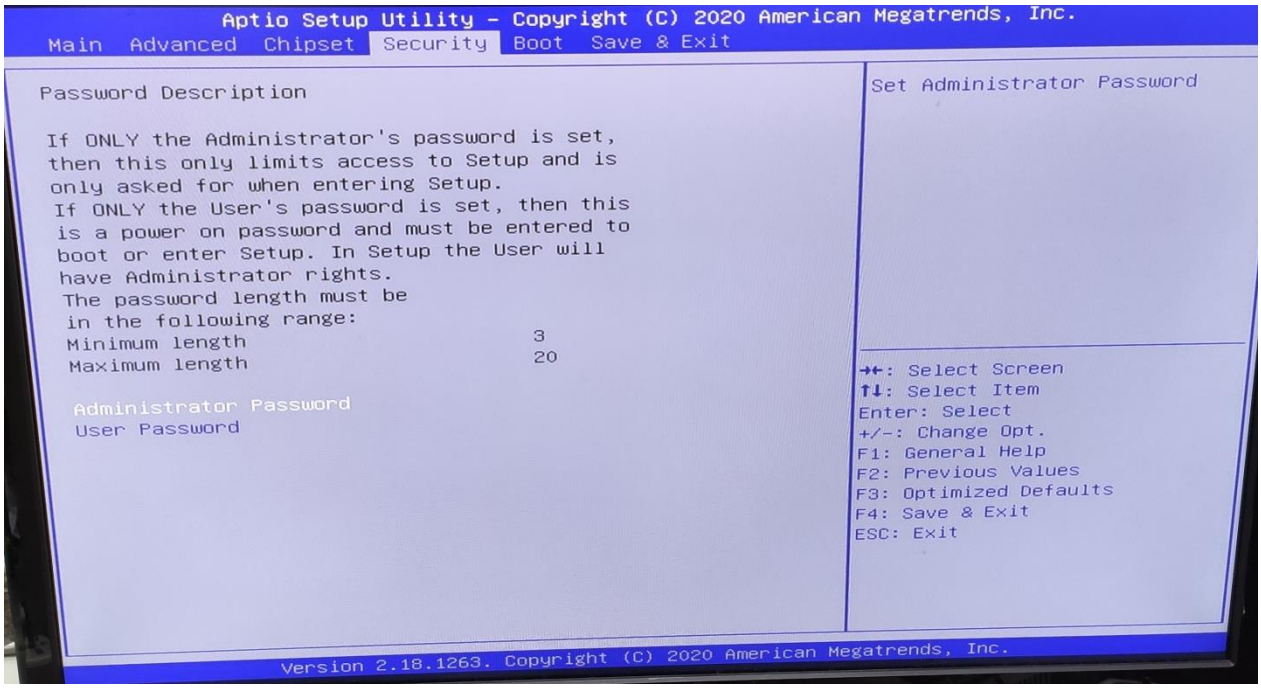
Backlight control: backlight control setting

Panel Color Depth: select the LFP panel color depth.

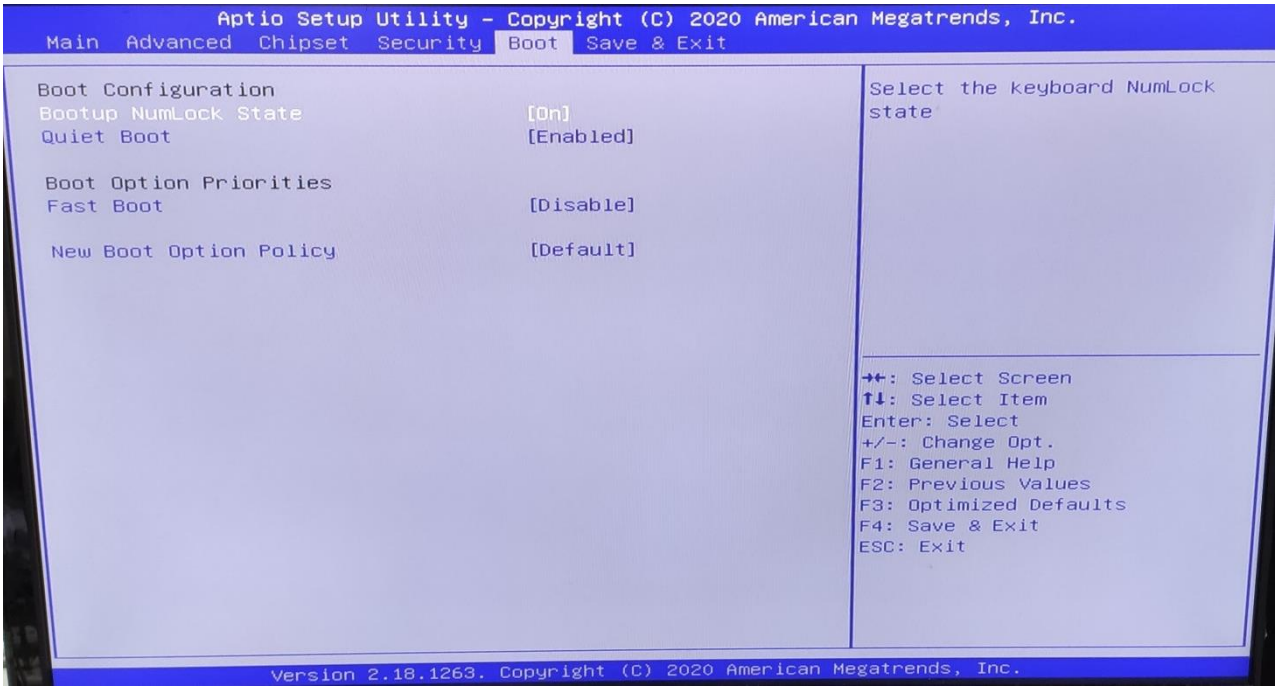
3.5.2 PCH-IO Configuration



3.6 Security



3.7 Boot



Bootup NumLock State: Select the keyboard NumLock state.

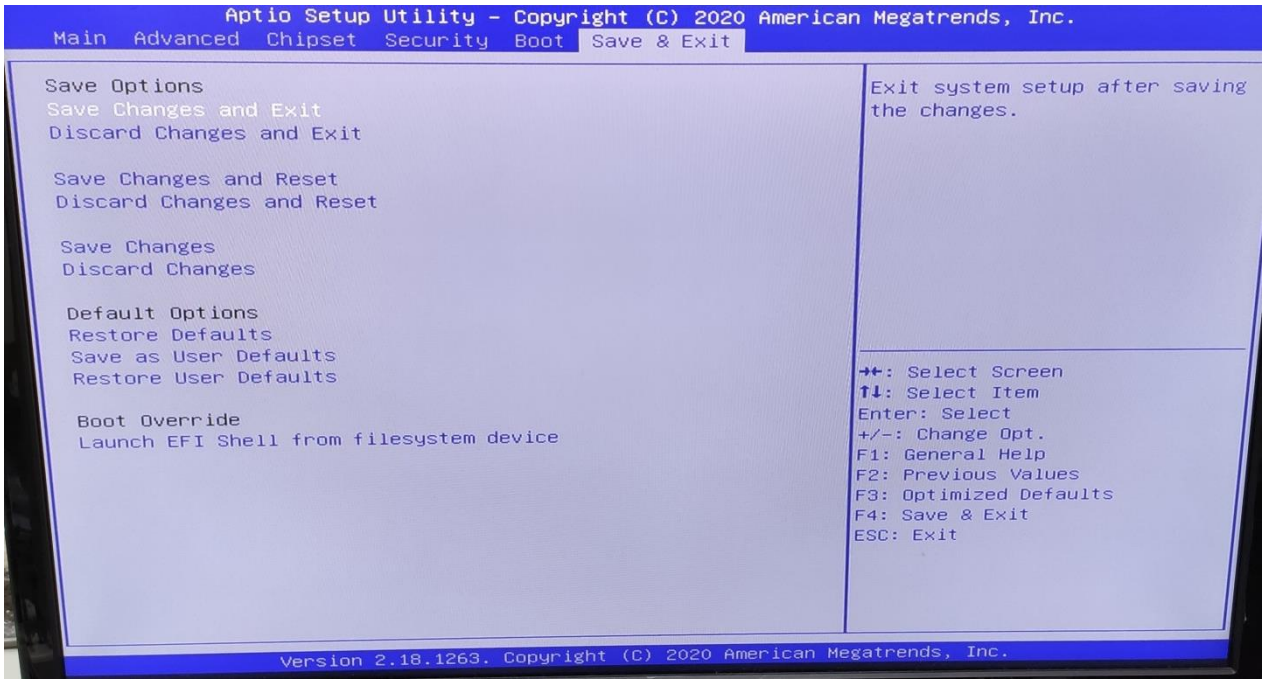
Quiet Boot: Enables or disables Quiet Boot option.

Fast Boot: Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.

Boot option priorities

Boot Option #1: Sets the system boot order.

3.8 Save & Exit



This screen provides functions for handling changes made to the BIOS settings and the exiting of the Setup program.

Save Changes and Exit

Exit system setup after saving the changes.

Discard Changes and Exit

Exit system setup without saving any changes.

Save Changes and Reset

Reset the system after saving the changes.

Discard Changes and Reset

Reset system setup without saving any changes.

Save Options

Save Changes: Save Changes done so far to any of the setup options.

Discard Changes: Discard Changes done so far to any of the setup options.