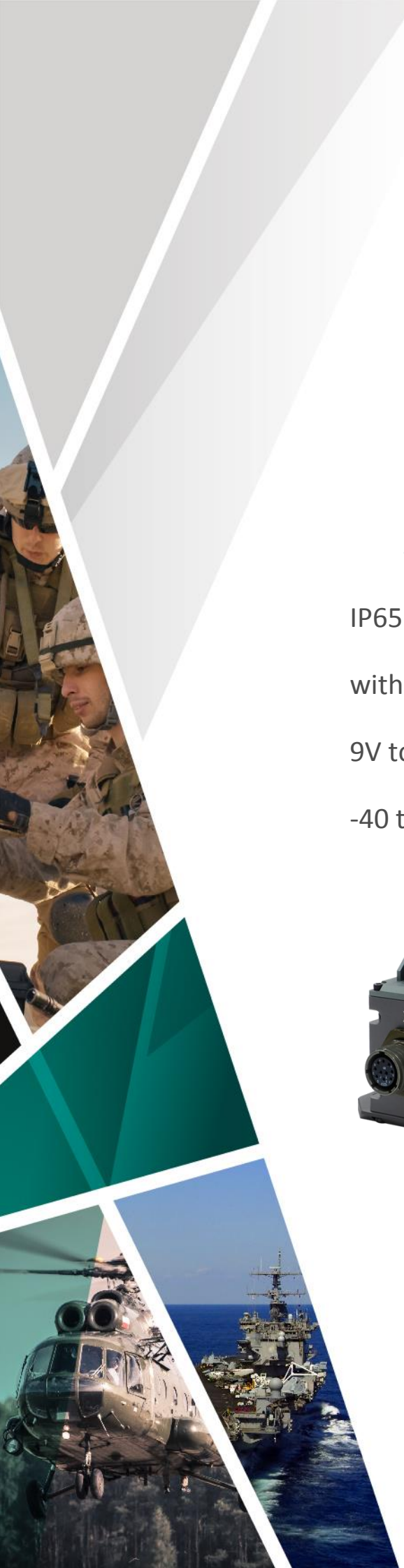


# AV700

IP65 MIL-STD-810G Rugged Computer

with Intel® Core i7-7820EQ,

9V to 36V DC-in, Extended Temp

-40 to 70°C

**User's Manual** .

Revision 1.2 Data : 18/08/2021

# 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**

- All rights reserved. No part of this publication may be reproduced in any form or by any means, without prior written permission from the publisher.
- 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 | 2019/05/23 | Initial release |
| V1.2 | 2020/6/10 | Upgrade Motherboard |
| V1.3 | 2021/08/18 | Modify rear IO X5 DVI-D pin define |

## Packing list

- ☐ **AV710 Rugged Fanless System**
- ☐ **CD (Driver + Quick Installation Guide)**

## Ordering information

| Model Number | Description |
|---|---|
| **AV710** | IP65 MIL-STD-810G Rugged Computer with Intel® Core i7-7820EQ, 9V to 36V DC-in, Extended Temp -40 to 70°C |

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

# Table Contents

Safety Information ..... 1
Revision History ..... 2
Packing list ..... 2
Ordering information ..... 2
Table Contents ..... 3
Chapter 1: Product Introduction ..... 4
1.1 Key Features ..... 4
1.2 Dimensions ..... 5
1.3 Panel Component ..... 6
Chapter 2: Connector pin definition ..... 7
Chapter 3: AMI BIOS UTILITY ..... 10
3.1 Starting ..... 10
3.2 Navigation Keys ..... 10
3.3 Main Menu ..... 11
3.4 Advanced Menu ..... 11
3.4.1 CPU Configuration ..... 12
3.4.2 Power & Performance ..... 13
3.4.3 PCH-FW Configuration ..... 14
3.4.4 ACPI Setting ..... 14
3.4.5 IT8786 Super IO Configuration ..... 15
3.4.6 Hardware Monitor ..... 17
3.4.7 CSM Configuration ..... 18
3.5 Chipset ..... 18
3.5.1 SA Configuration ..... 19
3.5.2 PCH-IO Configuration ..... 21
3.6 Security ..... 21
3.7 Boot ..... 22
3.8 Save & Exit ..... 23

## Chapter 1: Product Introduction

### 1.1 Key Features

#### System

| | |
|---|---|
| High Power Processor | Intel® Core™ i7-7820EQ Processor |
| Memory type | DDR4 Up to 32GB SO-DIMM |
| BIOS | AMI @BIOS |

#### Front I/O

| | |
|---|---|
| DC-In | 1 (Amphenol TV07RW-11-54P) |
| Power Button | 1 x Power Button with LED backlight |
| Ground Screw | 1 x M4 Screw |

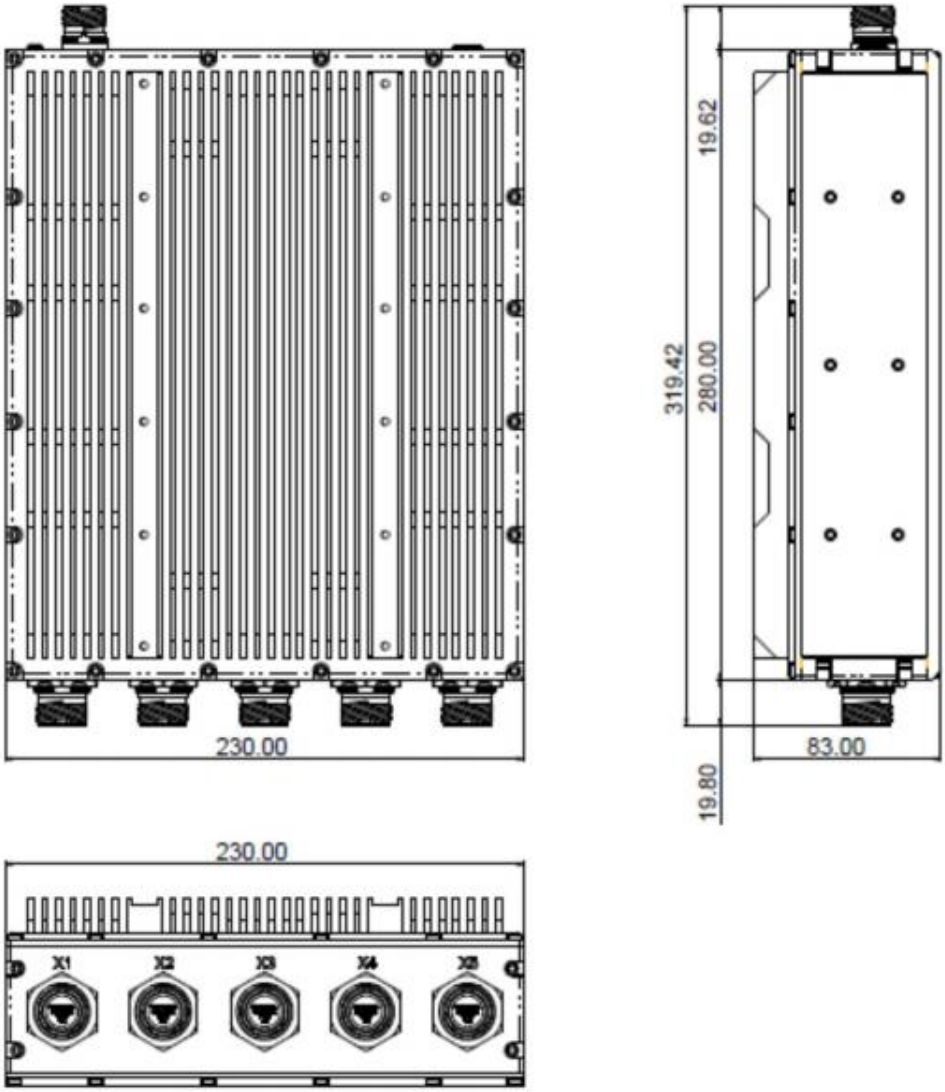
#### Rear I/O

| | |
|---|---|
| X1 | 1 x LAN (Amphenol TV07RW-13-98S) |
| X2 | 1 x LAN (Amphenol TV07RW-13-98S) |
| X3 | 2 x USB (Amphenol TV07RW-13-98S) |
| X4 | 2 x COM (Amphenol TV07RW-13-35S)(COM1 RS232/422/485 , COM2 Only RS232) |
| X5 | 1 x DVI-D (Amphenol TV07RW-13-98S) |

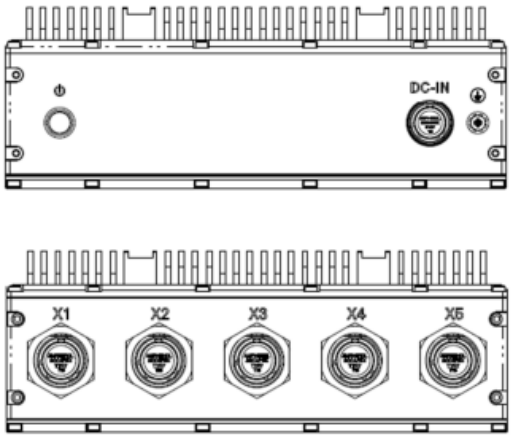
#### Mechanical &Environmental

| | |
|---|---|
| construction | Aluminum chassis with fanless design |
| Power requirements | 9V to 36V DC-IN |
| Dimension(W X H X D) | 230 X 83 X 280 mm(9.06" x 3.27" x 11.02") |
| Operating Temp. | -40 to 70°C (ambient with air flow) |
| Storage Temp. | -40 to 85°C |
| Relative Humidity | 5% to 95%, non-condensing. |

**1.2 Dimensions**



### 1.3 Panel Component




| | |
|---|---|
| DC-IN | DC-IN 9-36V |
| X1 | 1 x Gigabit Ethernet Port |
| X2 | 1 x Gigabit Ethernet Port |
| X3 | 2 x USB2.0 Ports |
| X4 | 2 x RS232 Ports |
| X5 | 1 x DVI-D Port |

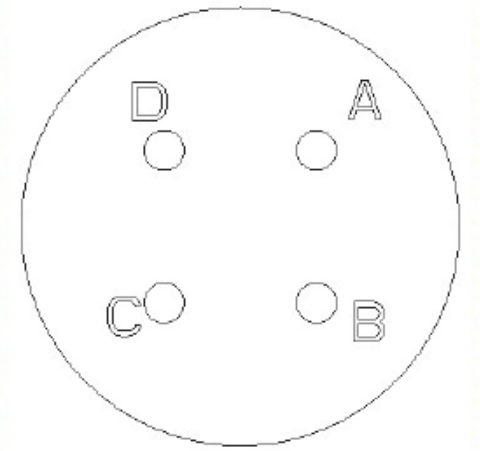
## Chapter 2: Connector pin definition

### 2.1 DC-IN

**DC-IN**

Connector: AMPHENOL TV07RW11-54P

| Pin | Signal |
|---|---|
| A | VCC |
| B | VCC |
| C | GND |
| D | GND |

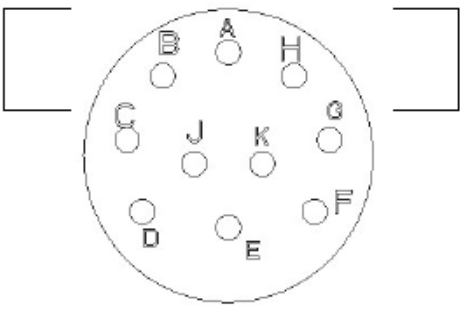



### 2.2 LAN(X1-X2)

**LAN (X1-X2)**

Connector: AMPHENOL TV07RW-13-98S

| Pin | Signal |
|---|---|
| A | P0 |
| B | N0 |
| C | P1 |
| D | P2 |
| E | N1 |
| F | N2 |
| G | P3 |
| H | N3 |

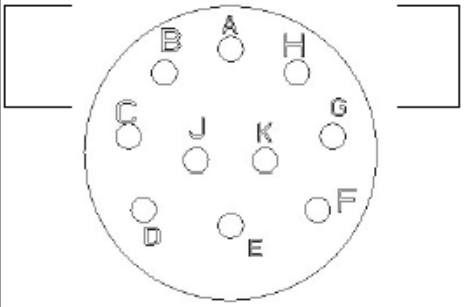


## 2.3 USB(X3)

**USB(X3)**

Connector: AMPHENOL TV06RW-13-98S

| Pin | Signal |
|---|---|
| A | VBUS |
| B | D- |
| C | D+ |
| D | GND |
| E | VBUS |
| F | D- |
| G | D+ |
| H | GND |



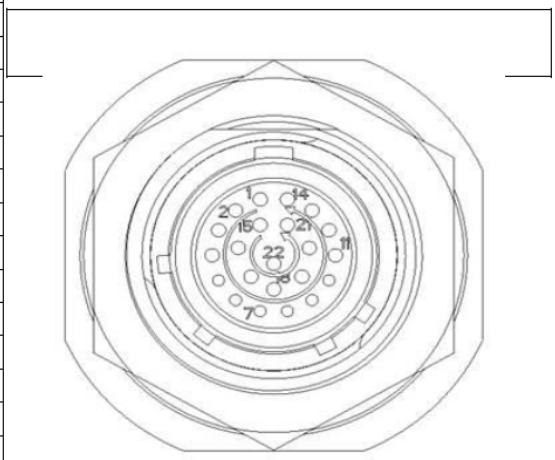

## 2.4 COM(X4)

**COM (X4)**

Connector: AMPHENOL TV07RW-13-35S

COM1 RS232/422/485 ; COM2 only RS232

| Pin | Signal | RS422 | RS485 |
|---|---|---|---|
| 1 | DCD | TX- | Data- |
| 2 | RXD | TX+ | Data+ |
| 3 | TXD | RX+ | |
| 4 | DTR | RX- | |
| 5 | GND | GND | GND |
| 6 | DSR | | |
| 7 | RTS | | |
| 8 | CTS | | |
| 9 | RI | | |
| 10 | DCD | | |
| 11 | RXD | | |
| 12 | TXD | | |
| 13 | DTR | | |
| 14 | GND | | |
| 15 | DSR | | |
| 16 | RTS | | |
| 17 | CTS | | |
| 18 | RI | | |

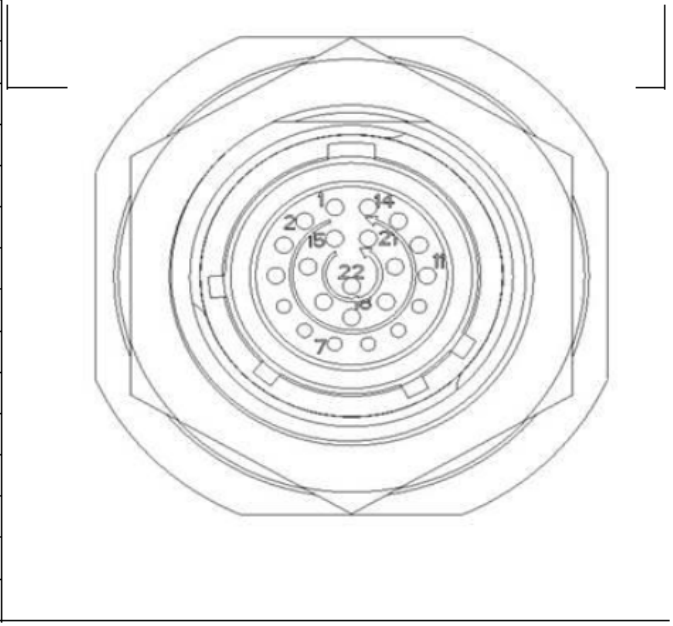


## 2.5 DVI-D(X5)

**DVI-D (X5)**

Connector: AMPHENOL TV07RW-13-35S

| Pin | Signal |
|---|---|
| 1 | TMDS DATA 2- |
| 2 | TMDS DATA 2+ |
| 3 | DDC_CLOCK (SCL) |
| 4 | DDC_DATA (SDL) |
| 5 | TMDS DATA 1- |
| 6 | TMDS DATA 1+ |
| 7 | TMDS DATA 0- |
| 8 | TMDS DATA 0+ |
| 9 | TMDS clock - |
| 10 | TMDS clock + |
| 15 | TMDS DATA2/4 shield |
| 17 | TMDS DATA1/3 shield |
| 18 | TMDS DATA1/5 shield |
| 19 | TMDS CLOCK shield |
| 20 | GND |
| 21 | Ground |
| 22 | 5VDC |



**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

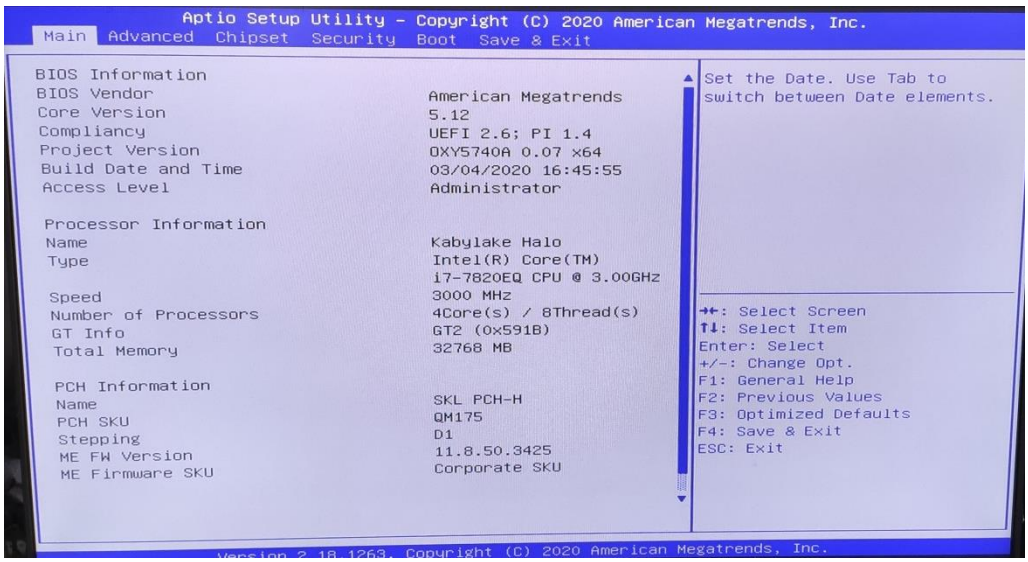
The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process.
Some of the hot keys are <F1>, <F10>, <Enter>, <ESC>, and <Arrow> keys.

**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.

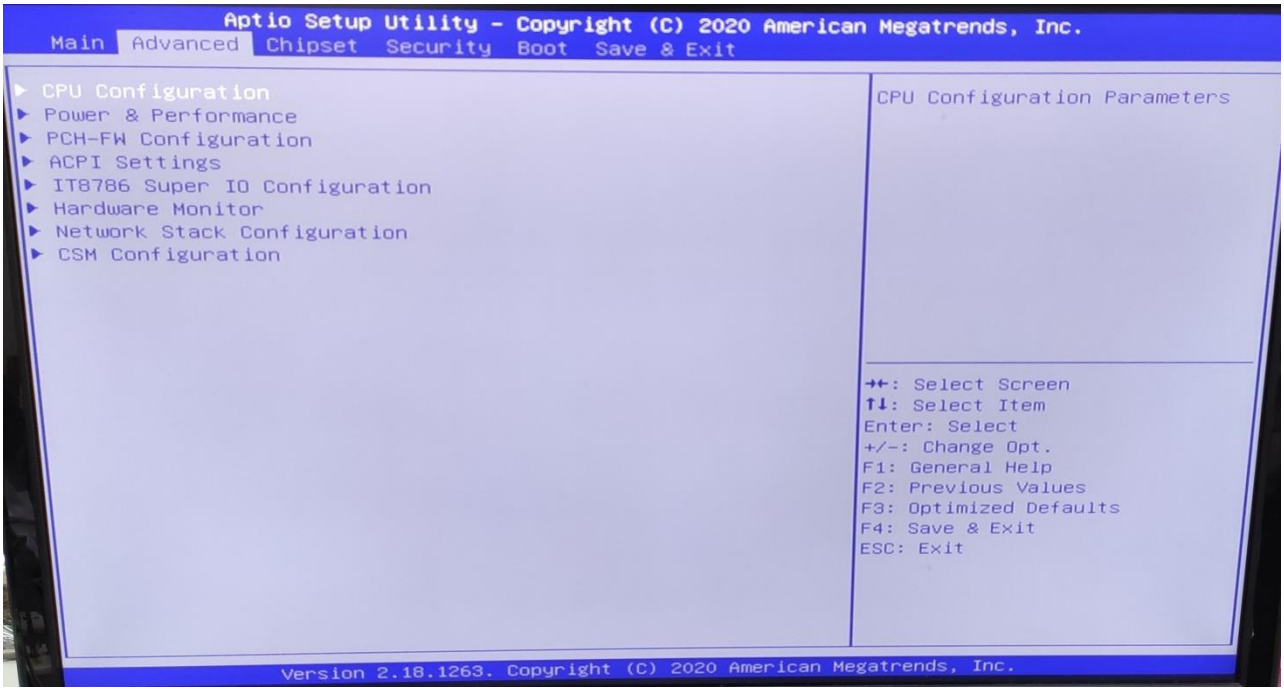
**Access Level**

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

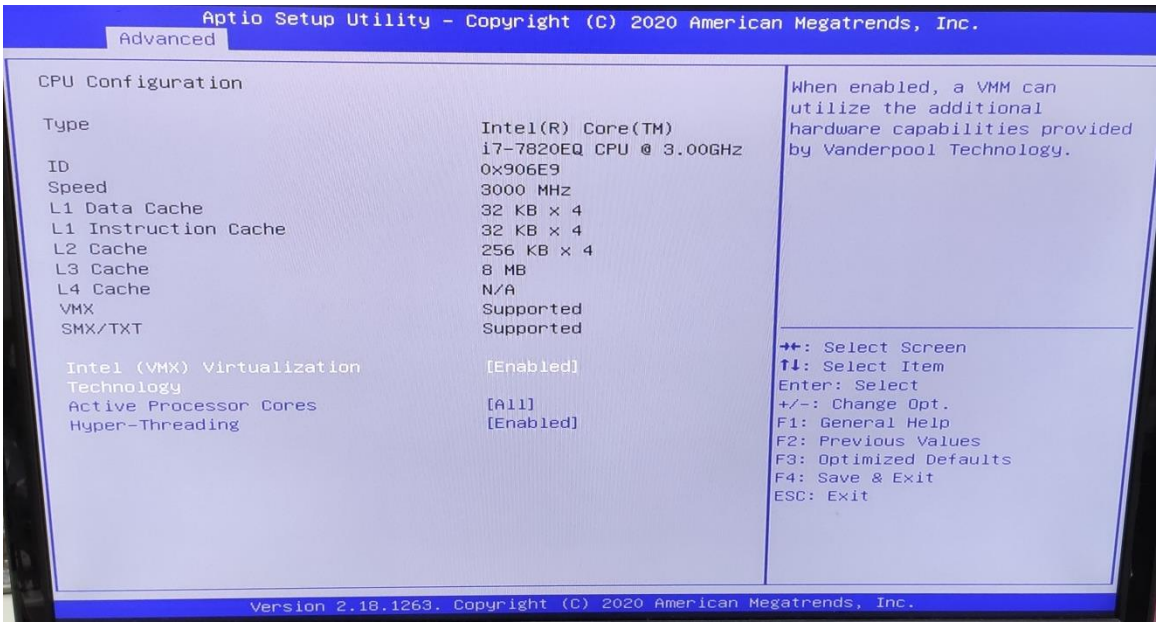
### 3.4 Advanced Menu

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

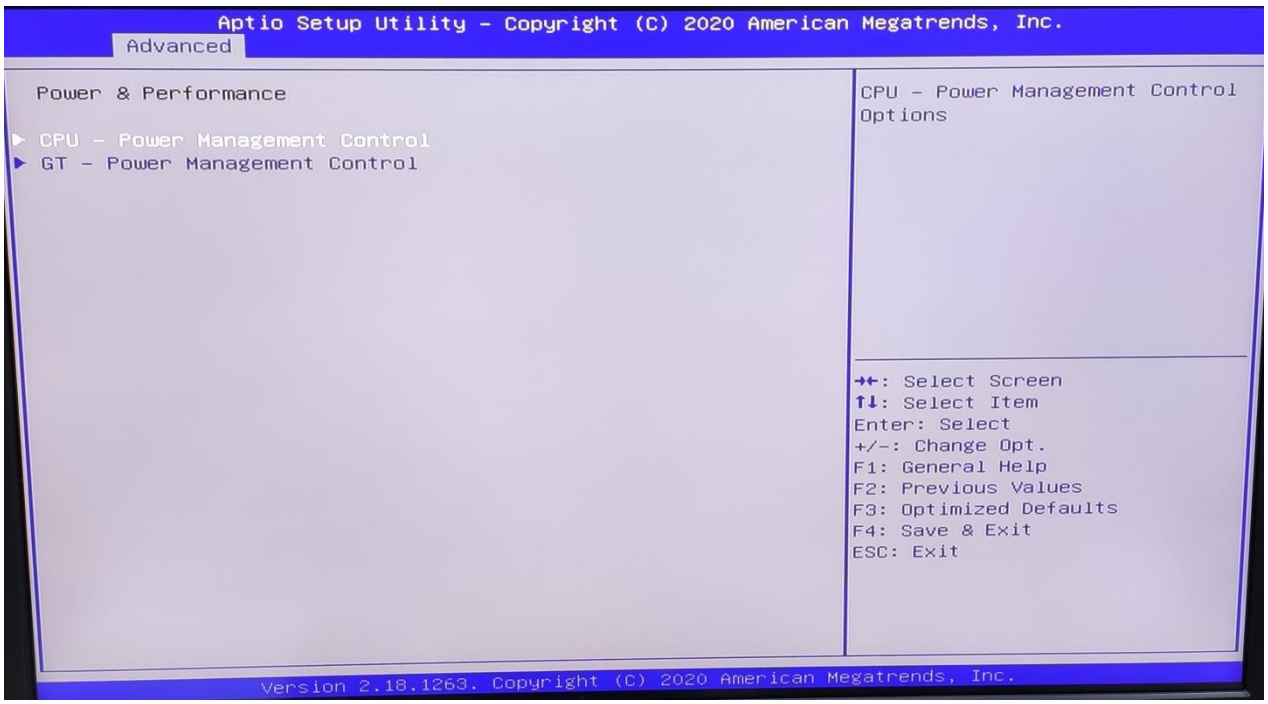
your system or let you set some features according to your preference. ***Setting incorrect field values may cause the system to malfunction.***



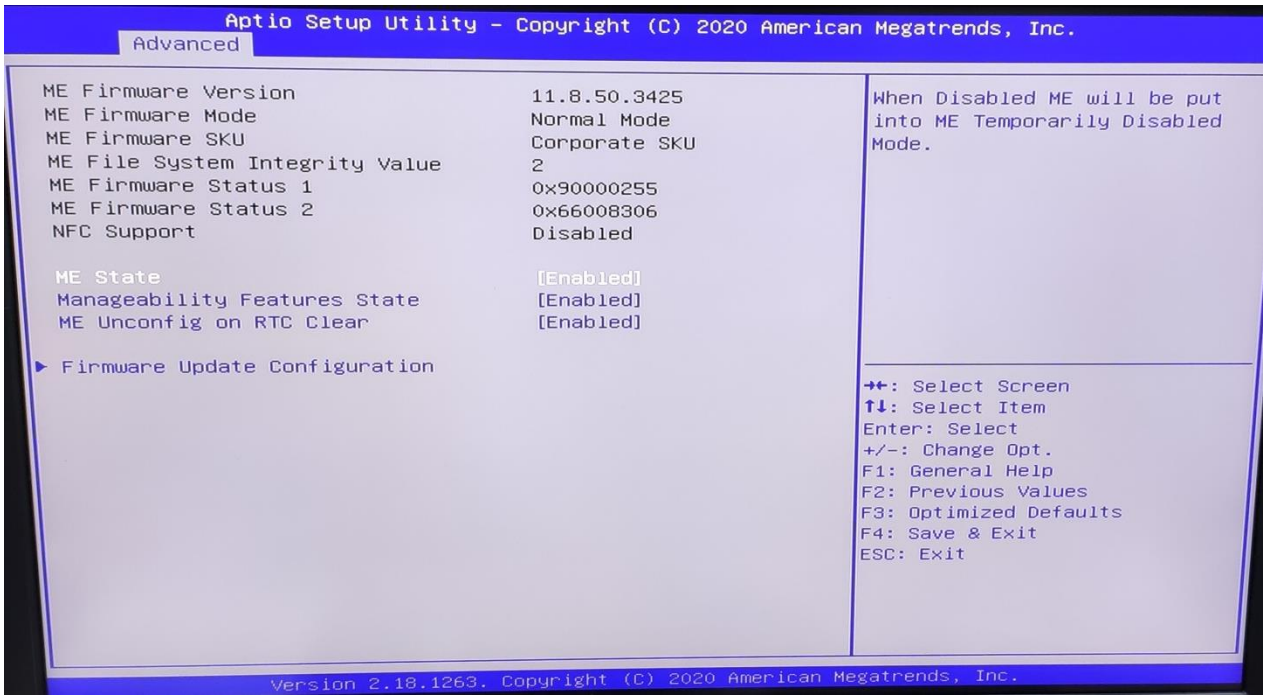

### 3.4.1 CPU Configuration



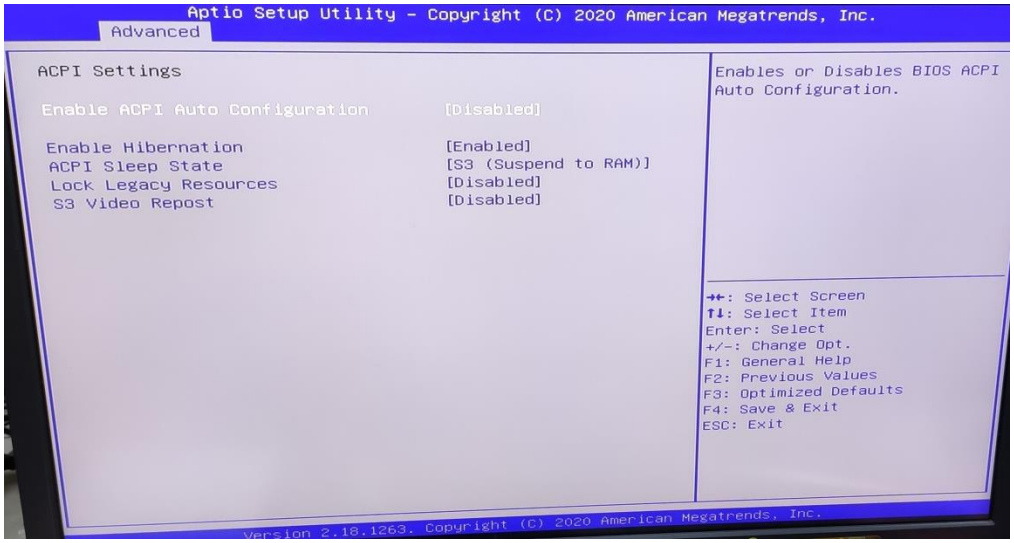
### 3.4.2 Power & Performance



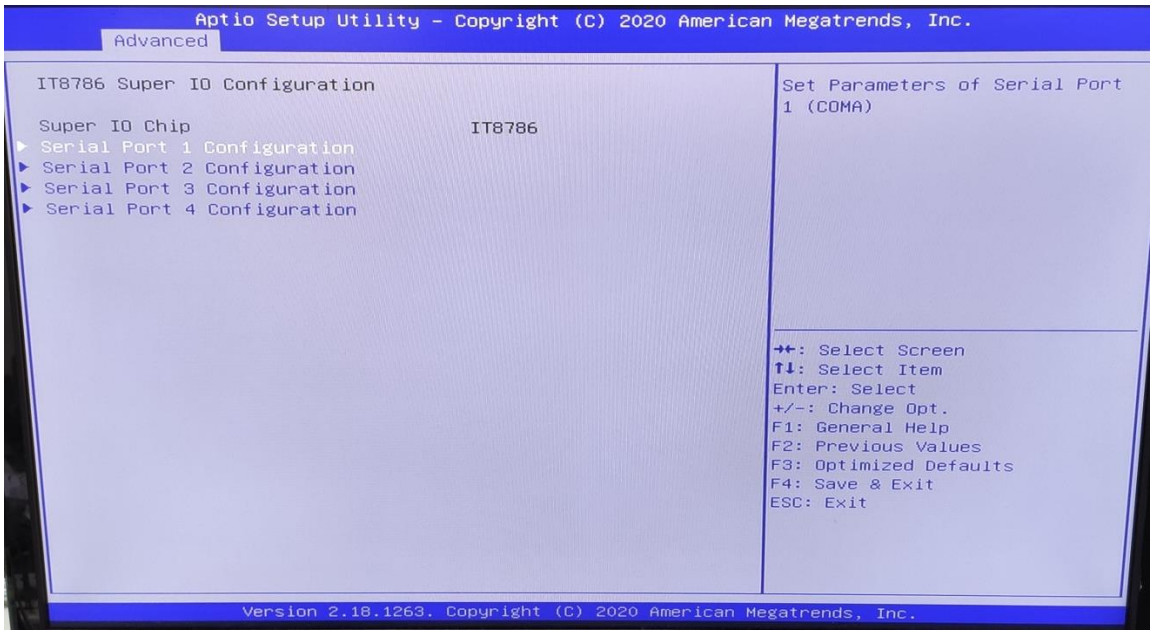
### 3.4.3 PCH-FW Configuration



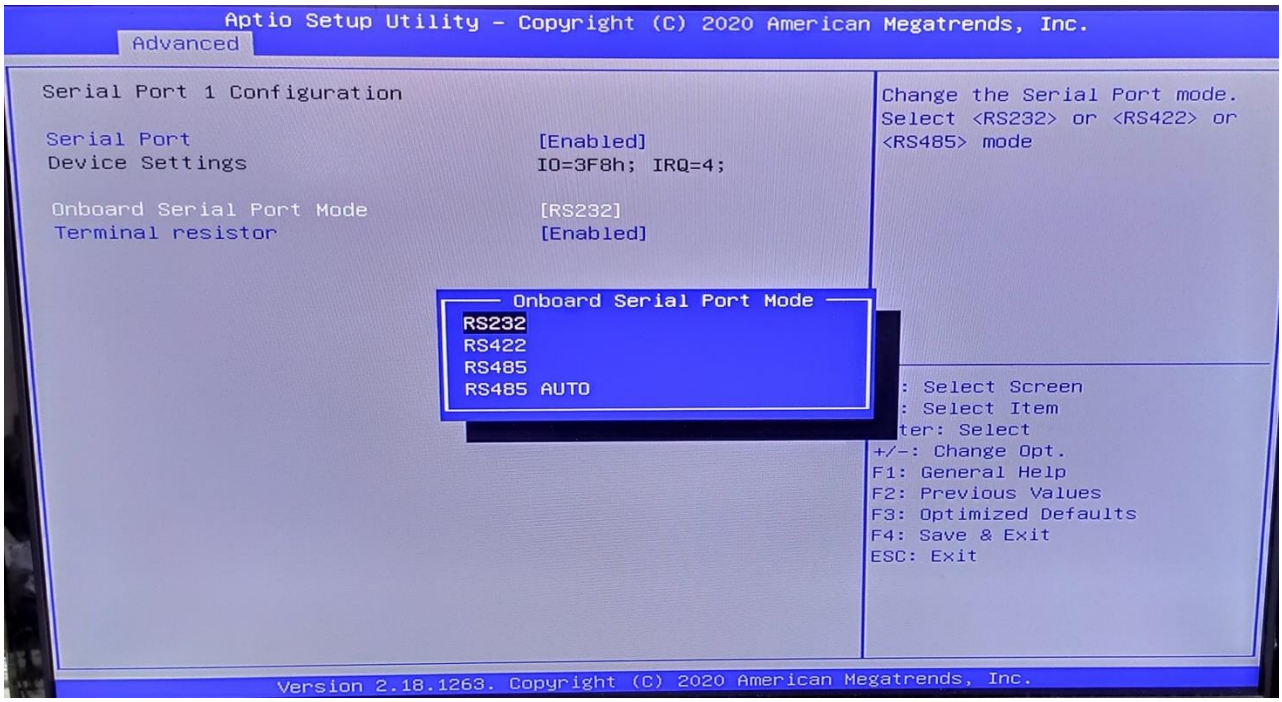

### 3.4.4 ACPI Setting

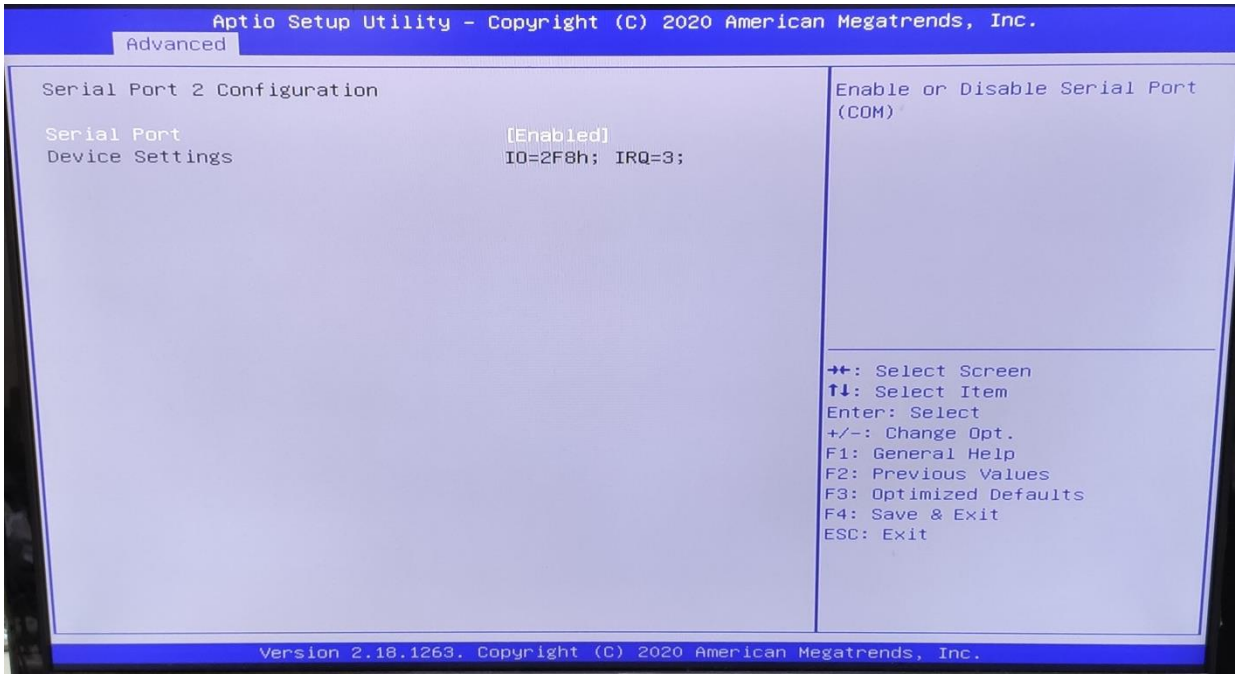


### 3.4.5 IT8786 Super IO Configuration

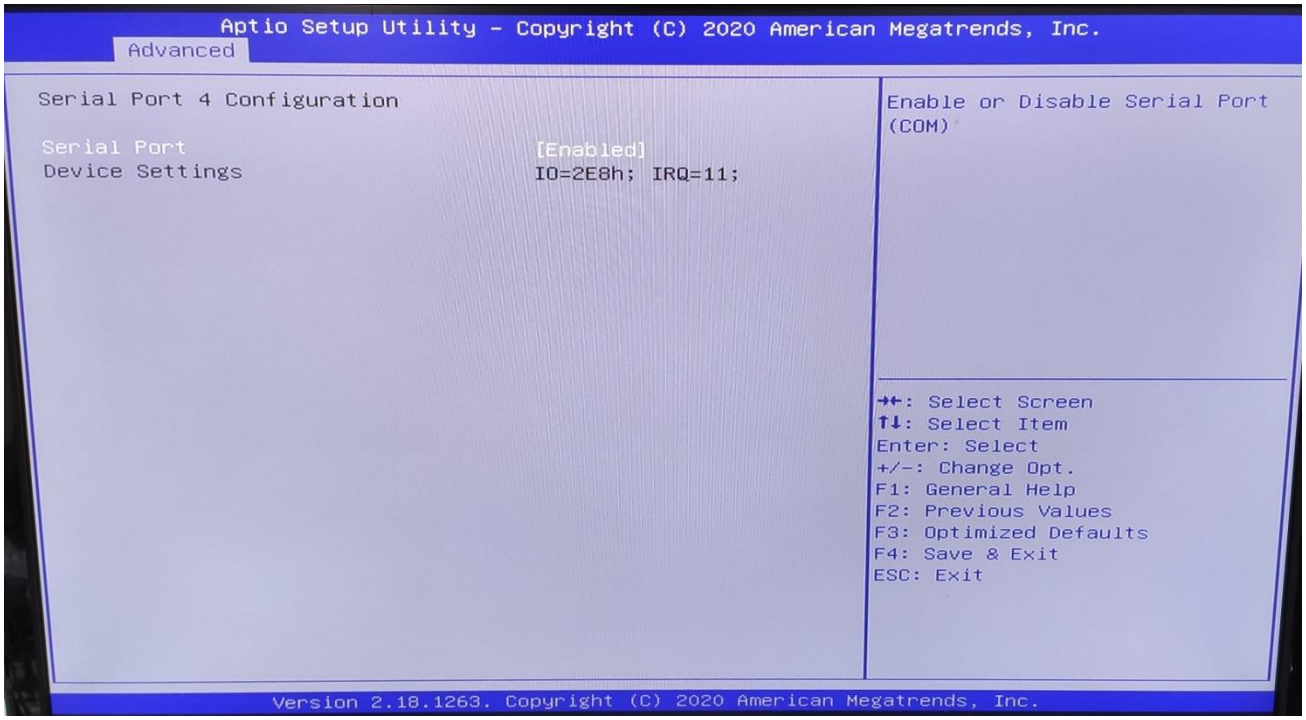



User can choose a mode (RS232/RS422/RS485) on each serial port.

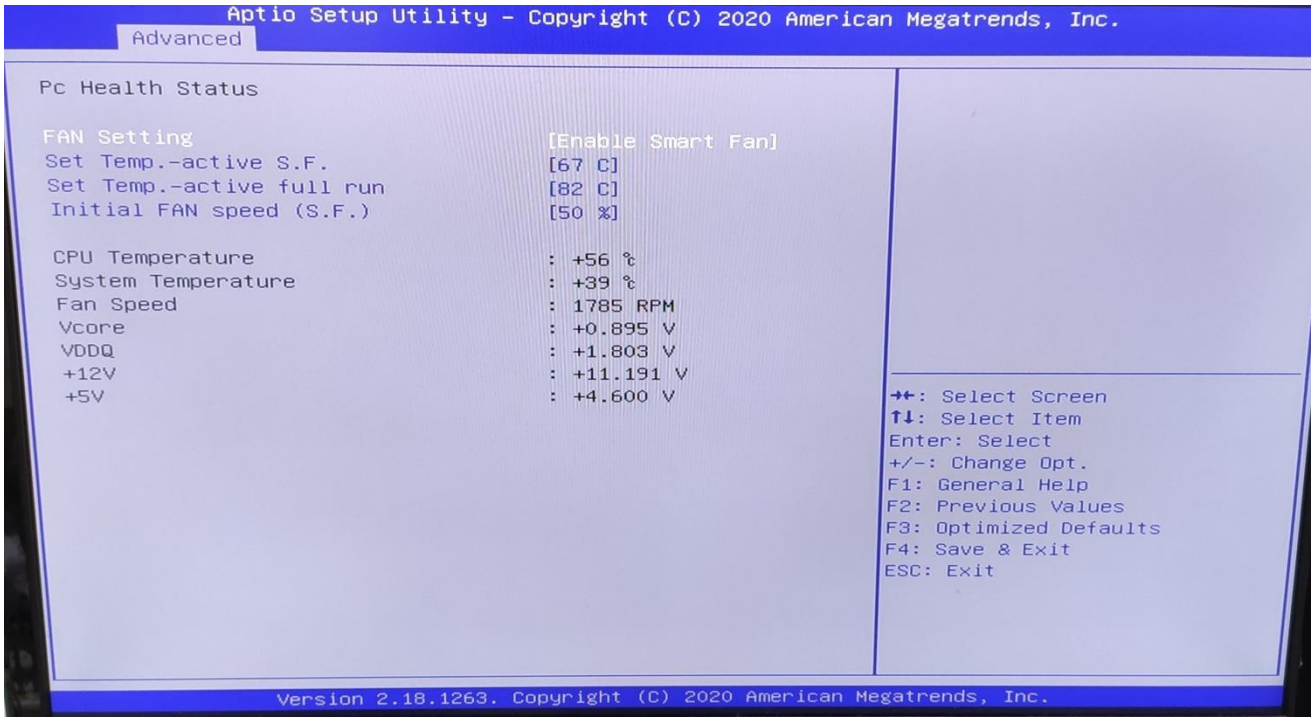



Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
Advanced
Serial Port 2 Configuration
Serial Port [Enabled]
Device Settings IO=2F8h; IRQ=3;
Enable or Disable Serial Port (COM)
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized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

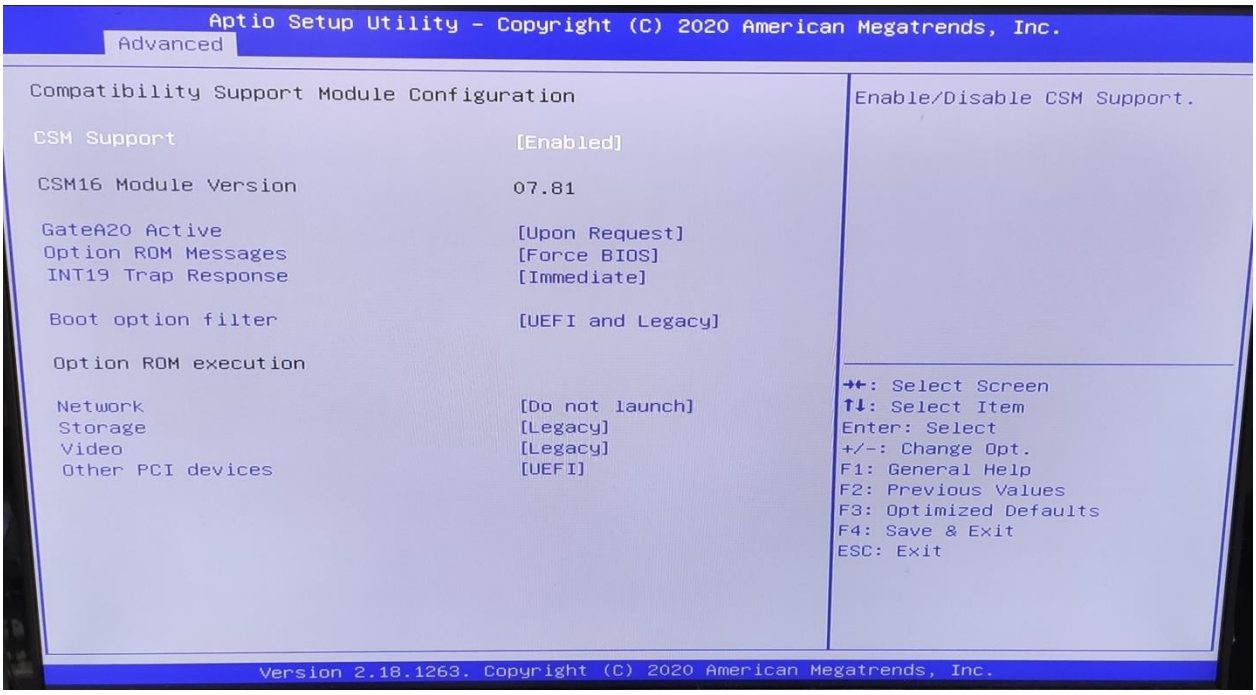
Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
Advanced
Serial Port 3 Configuration
Serial Port [Enabled]
Device Settings IO=3E8h; IRQ=11;
Enable or Disable Serial Port (COM)
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.18.1263. Copyright (C) 2020 American Megatrends, Inc.



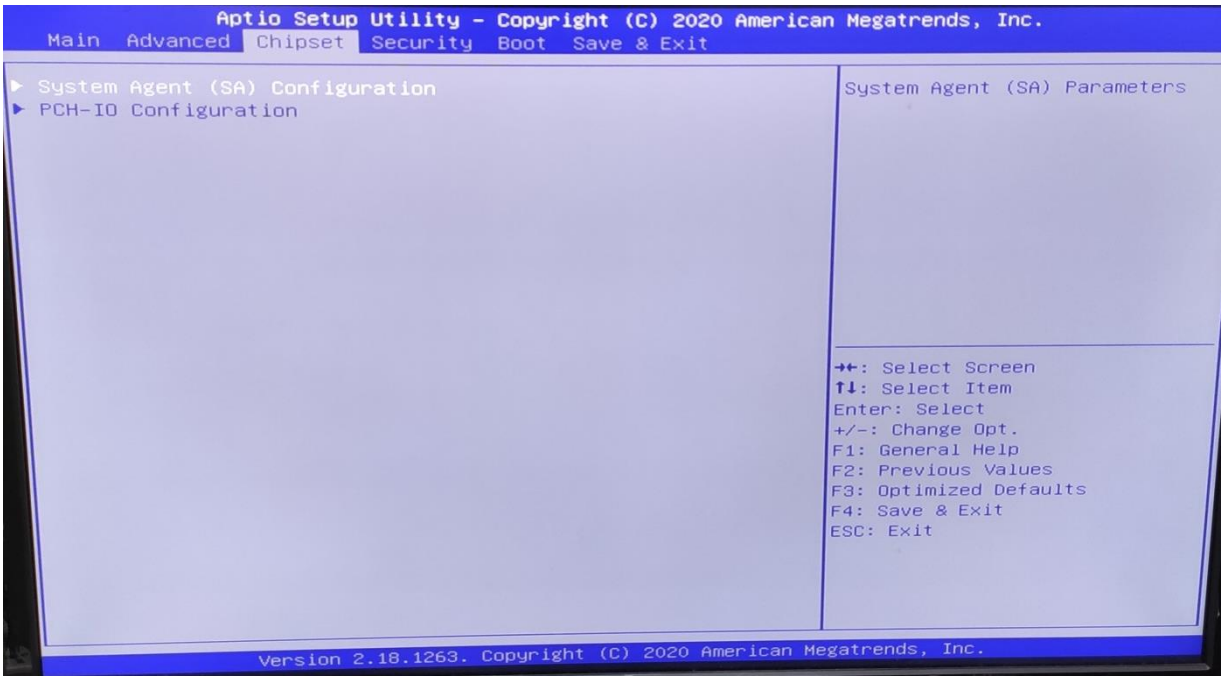

### 3.4.6 Hardware Monitor



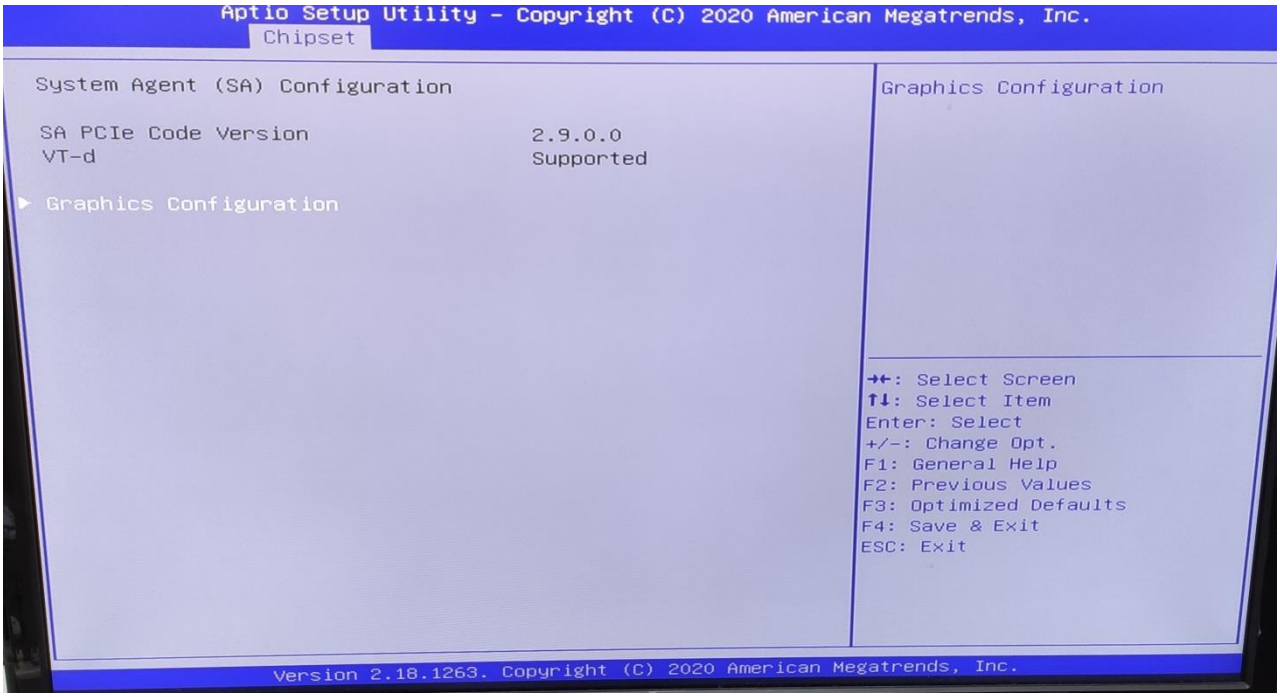
### 3.4.7 CSM Configuration



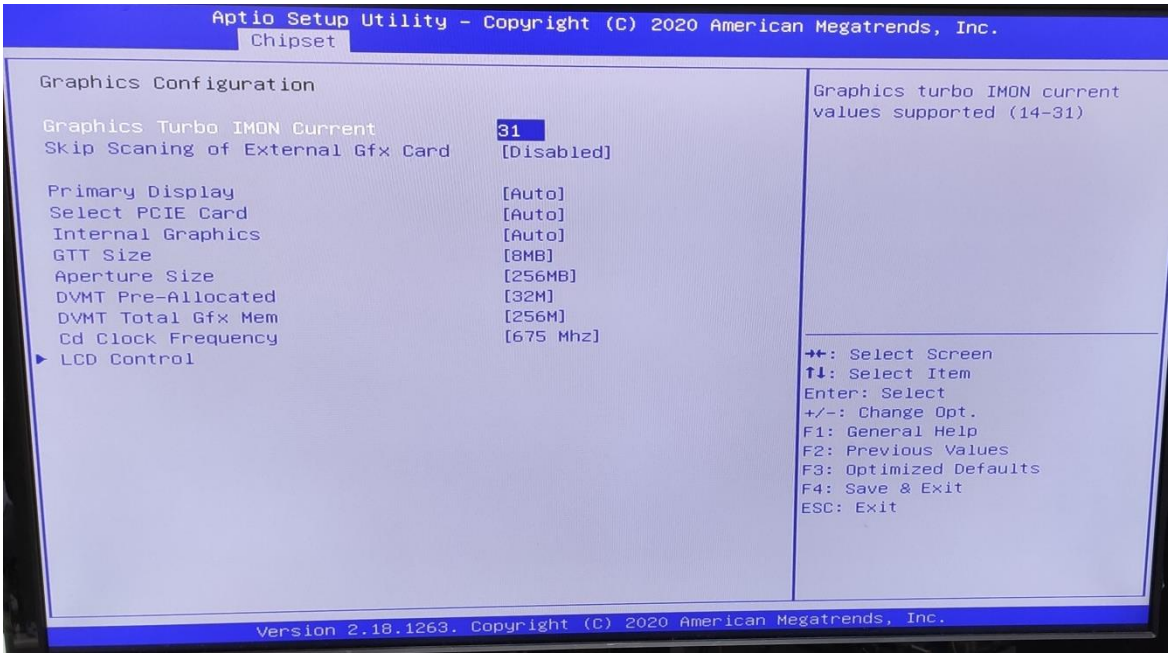

### 3.5 Chipset



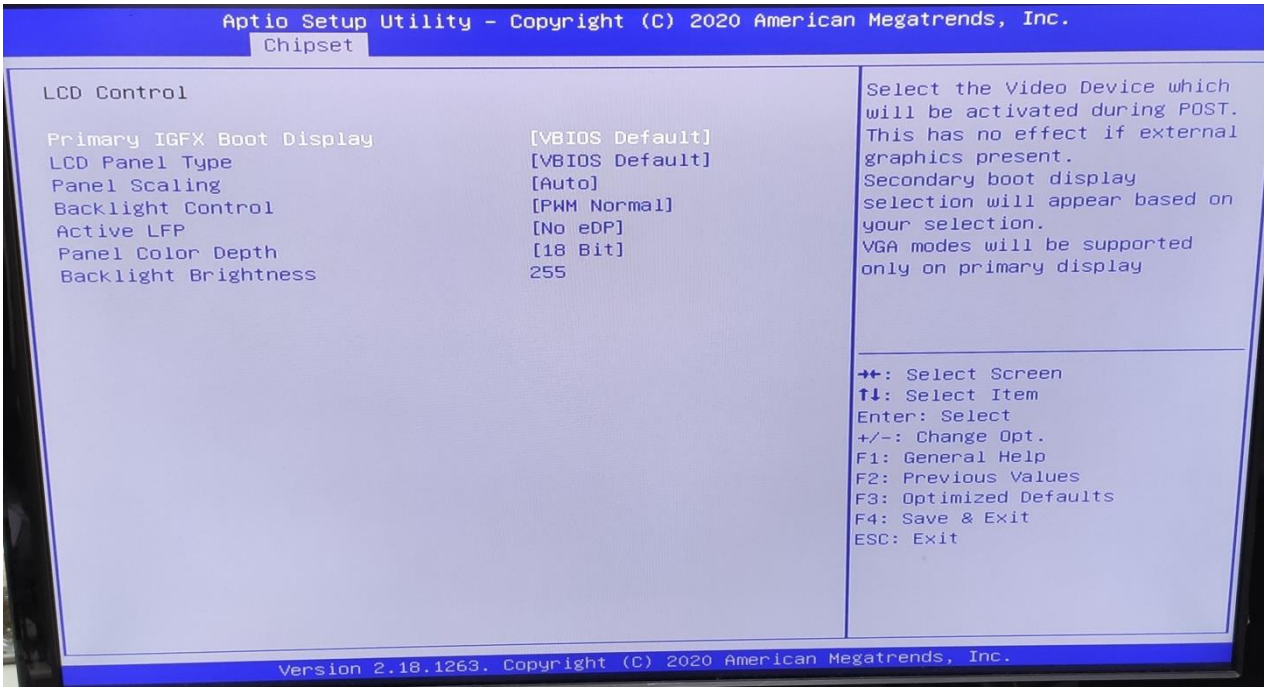
### 3.5.1 SA Configuration




#### 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.

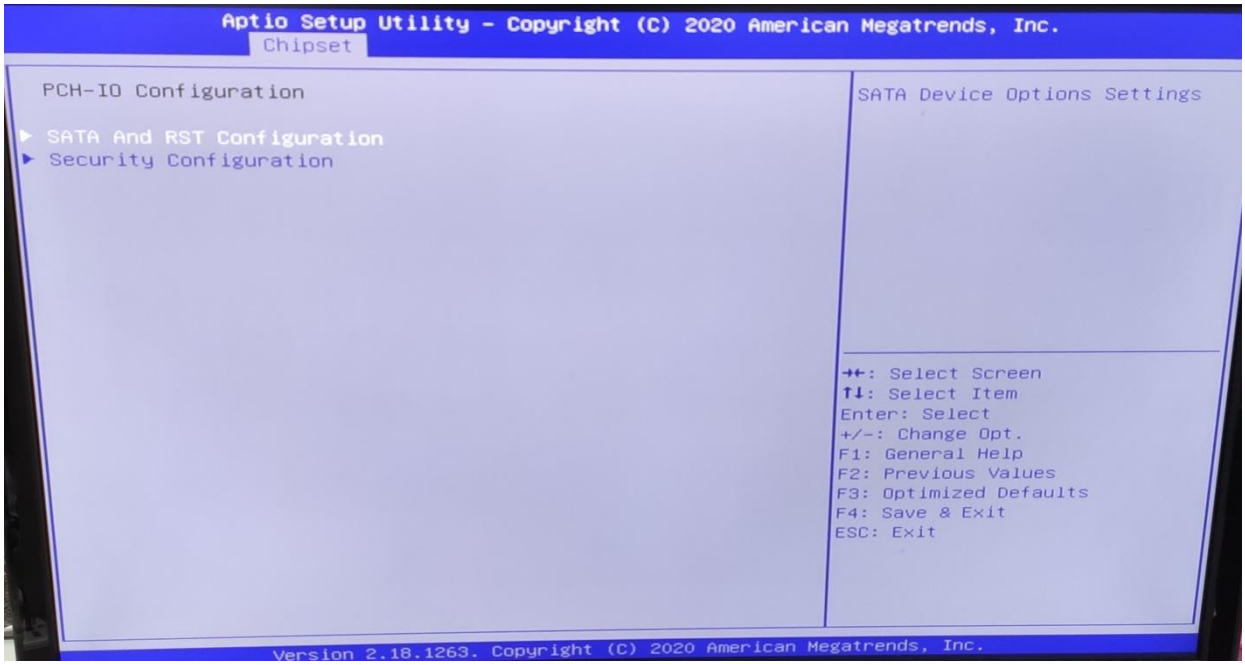
**SDVO-LFP Panel Type:** Select SDVO panel used by Internal Graphics Device by selecting the appropriate setup item.

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

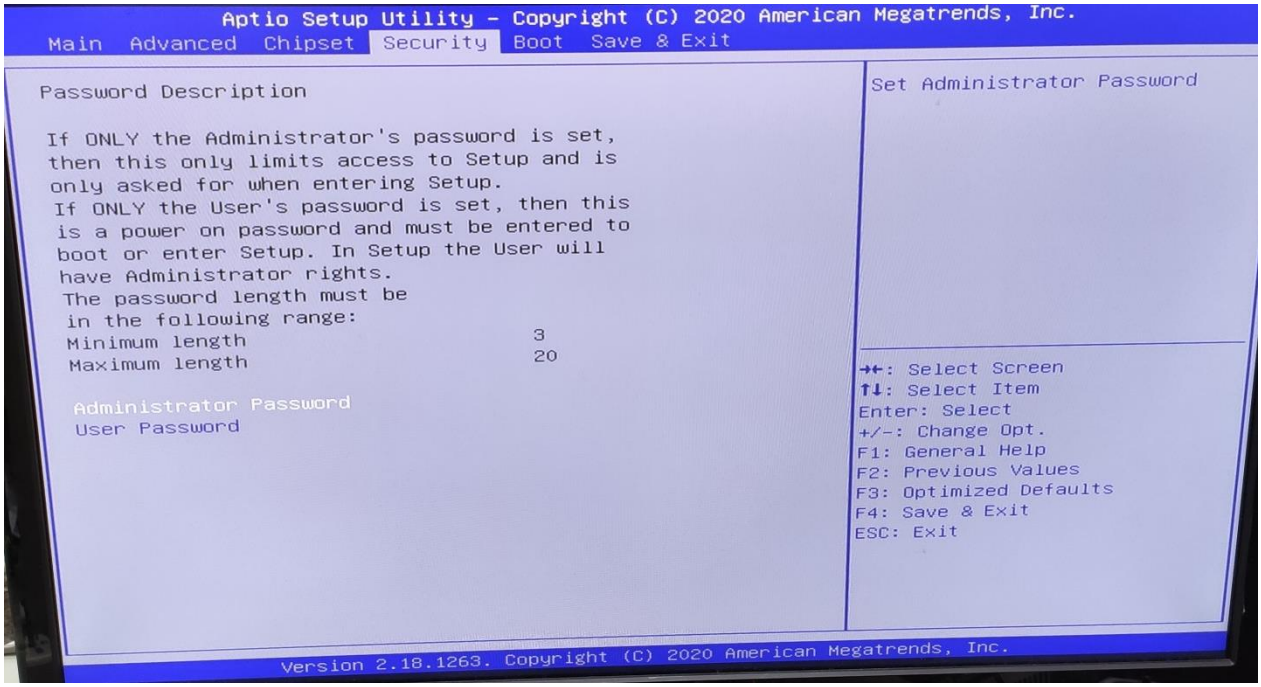
**Backlight control:** backlight control setting

**Panel Color Depth:** select the LFP panel color depth.

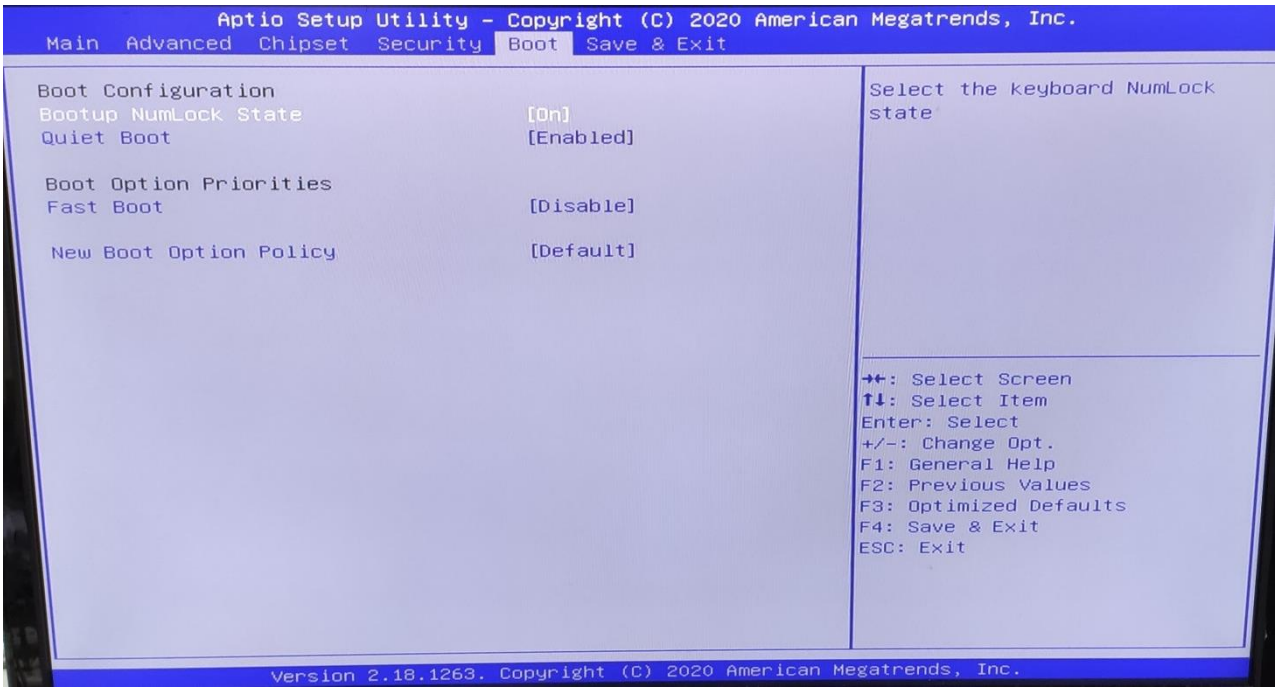
### 3.5.2 PCH-IO Configuration




### 3.6 Security



### 3.7 Boot




**Bootup NumLock State:** Select the keyboard NumLock state.

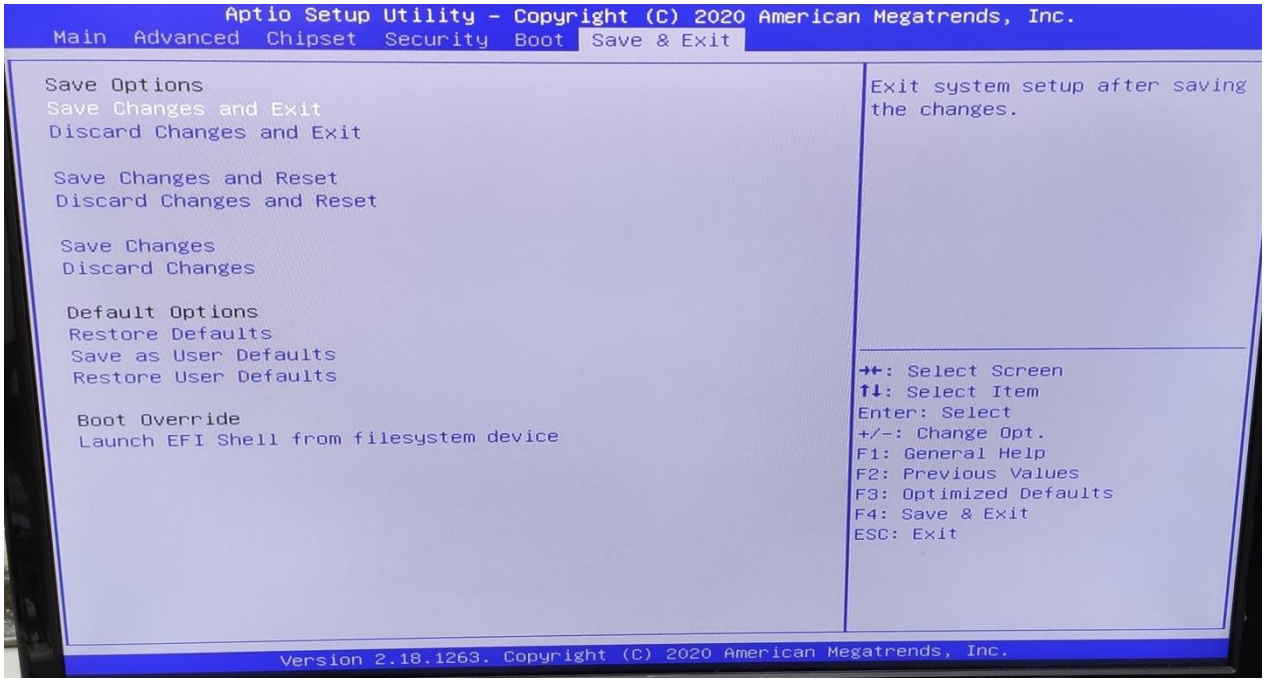
**Quiet Boot:** Enables or disables Quiet Boot option.

**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.