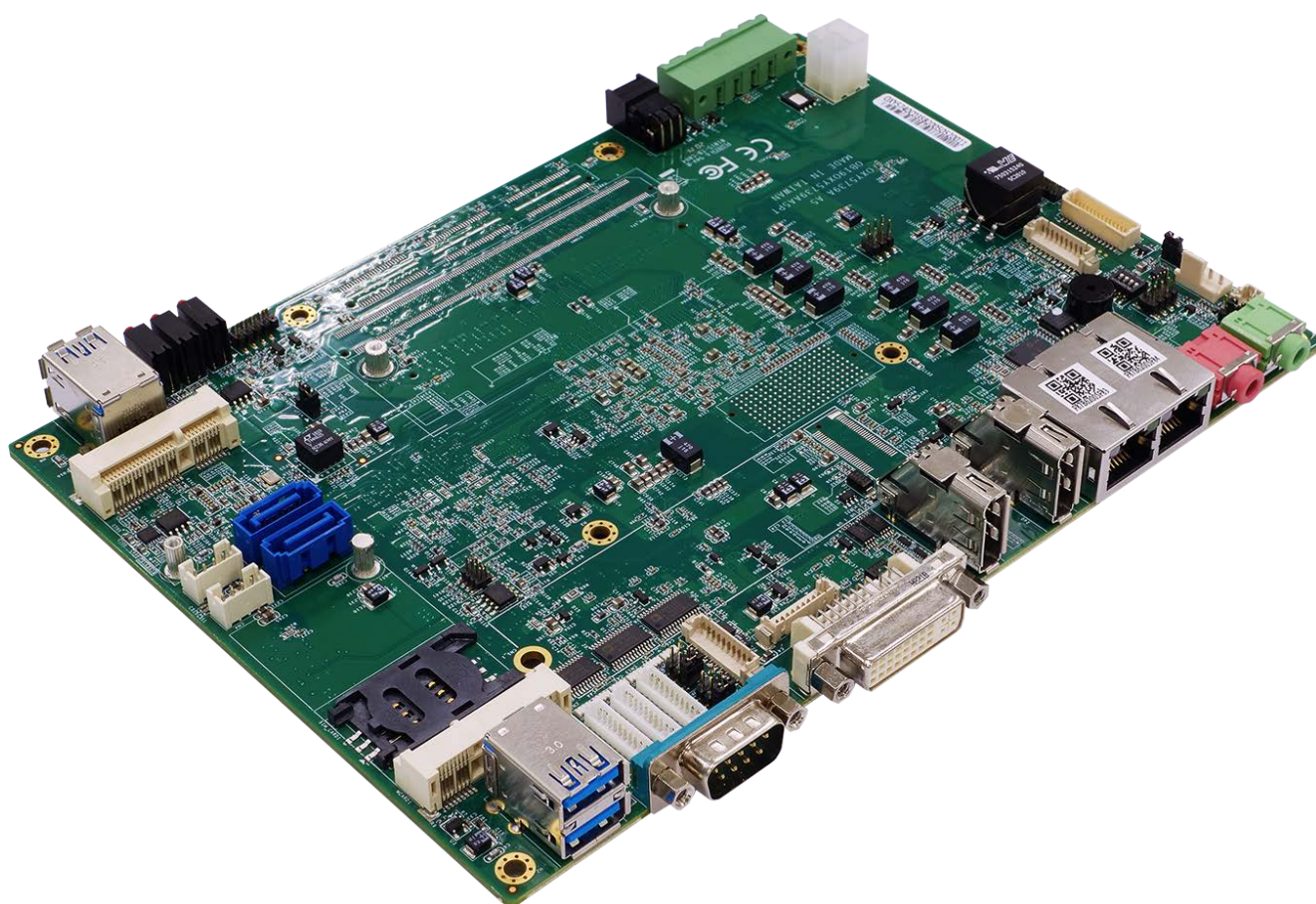


OXY5740C

Intel® QM175 EBX SBC, Kabylake
i7-7820EQ (4C x 3.7/3.0 GHz), 8M Cache



Safety Information

1. 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.

2. 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(dd/mm/yyyy)	Changes
Version 1.0	11/11/2019	Initial release
Version 1.1	18/08/2021	COM1 Pin Define modify

Packing list:

☐ CD (Driver + user's manual)



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

Table of Contents

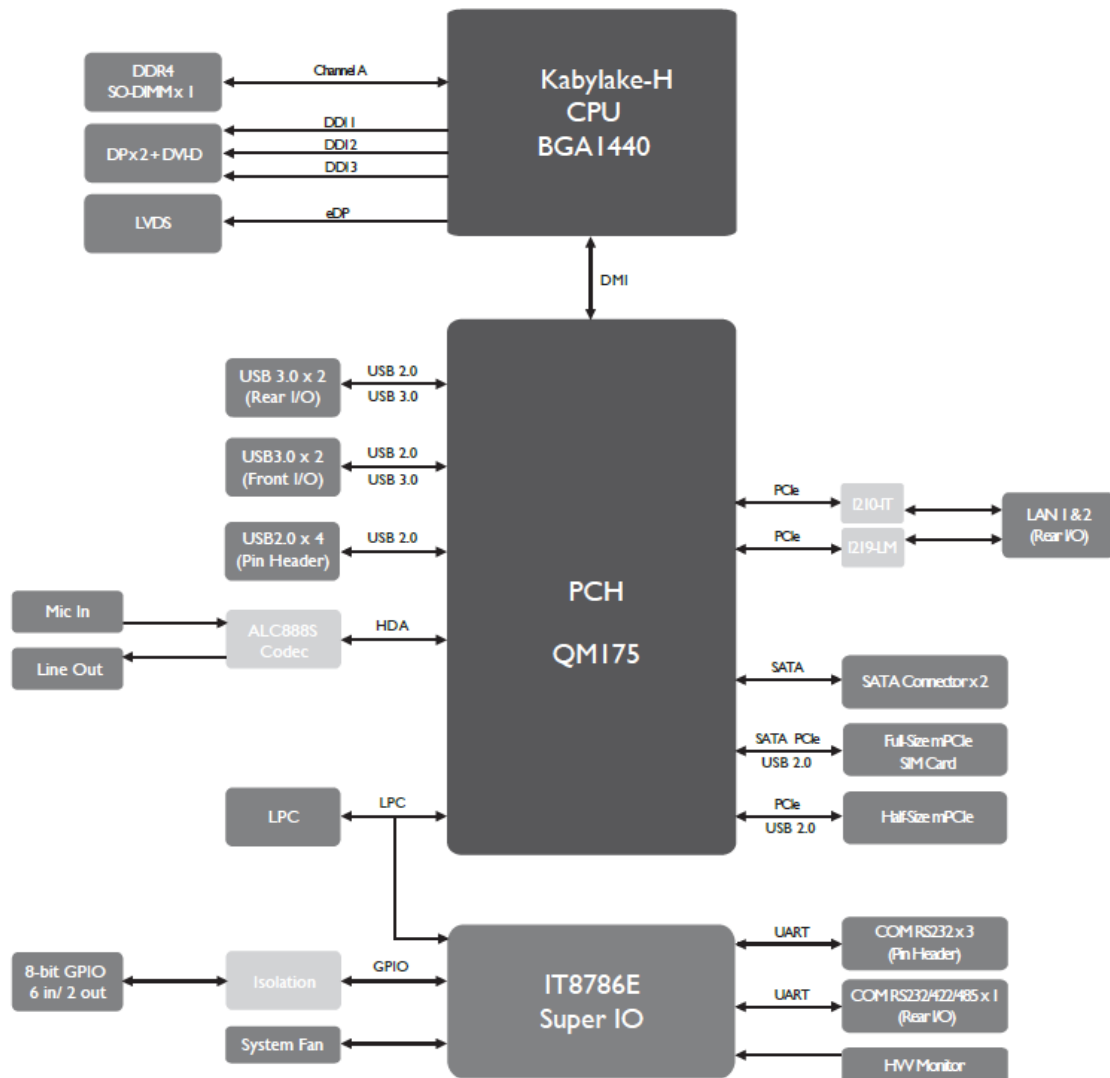
Chapter 1: Product Information

Safety Information	1
1. Electrical safety	1
2. Operation safety	1
Statement	1
Revision History	2
Packing list:	2
Optional Accessories:	2
Table of Contents	3-4
Chapter 1: Product Information	5
1.1 Block Diagram	5
1.2 Key Features	6
1.3 Board Placement	8
Chapter 2: Jumpers and Connectors	9
2.1 Jumpers and connectors list	9
2.2 Jumper Settings	10
CN19: LVDS CONNECTOR	10
SW3: LVDS Resolution select	10
JP3: LVDS_VDD select	12
CN18: Inverter connector	12
CPU FAN: CPU FAN Connector	13
CN1/CN3: Serial ATA Connectors	11
CN2/CN4: SATA POWER Connectors	11
CN17: Digital I/O Box Head	11
JP14: MCARD1 mSATA and mPCIe selection	12
MCARD1: Mini PCIe Card Slot<COLAY M SATA>	132
MCARD2: Mini PCIe Card Slot	13
LAN1/LAN2	13
CN20: USB 2.0	14
CN21: USB 2.0	14
CN8: USB3.0 *2	14
CN9: USB3.0 *2	14
CN6: Audio Jacks Connector (MIC)	15
CN7: Audio Jacks Connector (Line-Out)	15
CN22: DC Adapter Power Input	115
DC_JACK1: DC-IN	15

CN10: LPC (Update BIOS)	15
DP1: DISPLAY PORT	15
DP2: DISPLAY PORT	156
SIM_CARD1: SIM card socket	156
DVI: DVI-D	16
COM1: RS232/422/485 with 5V/12V selectable	16
JP4: COM1 5V/12V selection	16
JP5: COM2 5V/12V selection	16
COM2: RS232	17
COM3/4: RS232	17
CON A1: CONNECTOR A TOP	18
LED1: LAN1 LED STATUS	20
LED2: LAN2 LED STATUS	20
LED3: POWER/HDD LED	20
SW1: POWER BUTTON	20
FP1: Front Panel	20
FP2: LAN LED	21
CHAPTER 3: AMI BIOS UTILITY	21
3.1 STARTING	21
3.2 NAVIGATION KEYS	21
3.3 MAIN PAGE	21
3.4 ADVANCED PAGE	22
3.4.1 CPU Configuration	23
3.4.2 Power & Performance	23
3.4.3 PCH-FW Configuration	24
3.4.4 ACPI Setting	24
3.4.5 IT8786 Super IO Configuration	25
3.4.6 Hardware Monitor	27
3.4.7 CSM Configuration	28
3.5 Chipset	28
3.5.1 SA Configuration	29
3.5.1.1 Graphics Configuration	29
3.5.1.2 LCD Control	30
3.5.2 PCH-IO Configuration	31
3.6 Security	31
3.7 Boot	31
3.8 Save & Exit	32

Chapter 1: Product Information

1.1 Block Diagram



1.2 Key Features

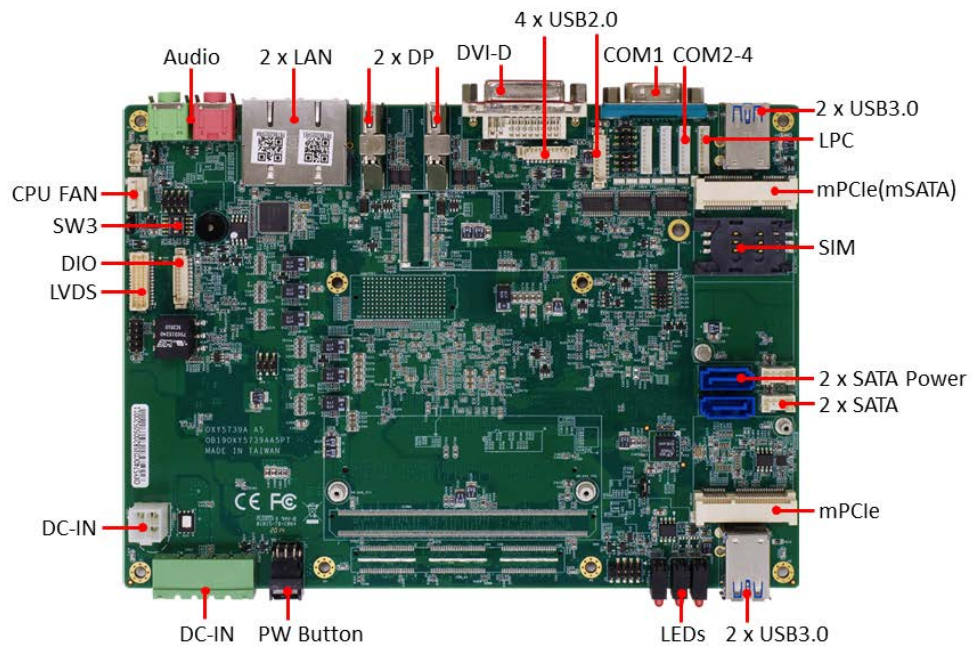
System	
CPU Type	Intel® Kabylake-H Core™ i7/i5, BGA type Intel® Core™ i7-7820EQ (8M Cache, up to 3.70 GHz) Intel® Core™ i5-7440EQ (6M Cache, up to 3.60 GHz)
Chipset	Intel® Haswell QM175 PCH
Memory Type	1 x DDR4 SO-DIMM up to 16GB SDRAM
BIOS	AMI® UEFI BIOS
Supoer I/O	ITE8786
Watchdog	1-255 sec. or 1-255 min. software programmable can generate system reset
Expansion Slot	1 x Full-size mPCIe/mSATA and SIM 1 x Half-size mPCIe
Display	
Chipset	Intel® HD Graphics 630
DisplayPort	2, Max resolution up to 3840 x 2160
DVI-D	1, Max resolution up to 2048 x 1536
LVDS	Dual channel 24-bit LVDS
Audio	
Codec	Realtek ALC887 High Definition Audio Codec
Ethernet	
Chipset	Intel® I210IT & i219-LM GbE
WOL	Yes
Boot from LAN	Yes for PXE
Rear I/O	
DisplayPort	1
DVI-D	1
Ethernet	2 x RJ45
COM Port	1 x RS232/422/485 with 5V/12V selectable
USB	2 x USB 3.0
Audio	1 x MIC, 1 x Line out
Front I/O	
USB	2 x USB 3.0
Indicator LED	LAN1, LAN2, Power, HDD LED
Power Button	1
Power Connector	1 (Terminal Block)
Internal I/O	
Touch Panel	1 x 5-pin
Front Panel	1 x (2 x 5-pin)
Smart Fan	1 x CPU FAN
Power Connector	2 (1 x 4-pin/ 2 x 2-pin)
SATA	2 x SATAIII (6 Gb/s)
USB	4 x USB 2.0

COM	3 x RS232 (COM2 with 5V/12V selectable)
LVDS	2 x 15-pin
DIO	2 x 10-pin, 6 in/2 out with isolation
SIM card holder	1
Power Requirements	
Input Voltage	12 VDC (4-pin terminal block for V+, V+, V-, V-)
Mechanical and Environment	
Form Factor	EBX
Power Type	12V DC-in
Dimension	203 x 146 mm (5.75" x 8")
Operating Temp.	-40 to 85°C
Storage Temp.	-40 to 85°C
Relative Humidity	10% to 90%, non-condensing

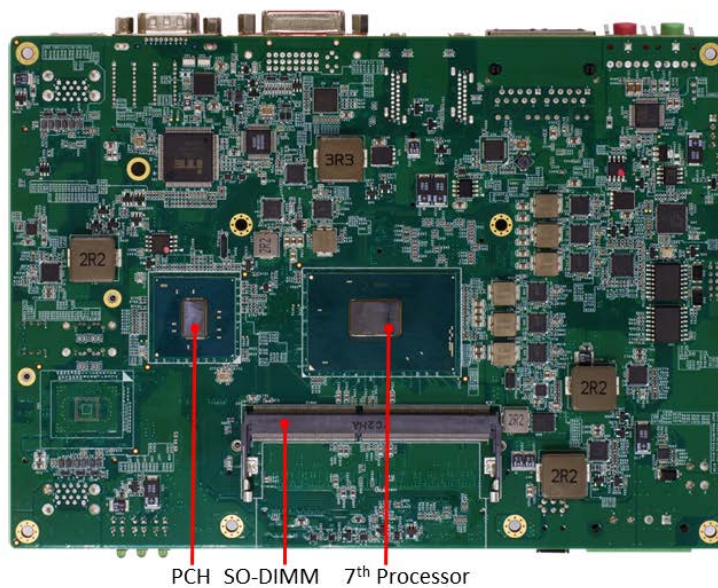
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1.3 Board Placement

OXY5740C Top Side



OXY5740C Bottom Side



Chapter 2: Jumpers and Connectors

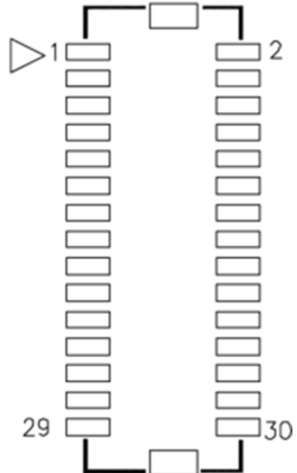
2.1 Jumpers and connectors list

Label	Function
BAT1	BATTERY connector
DIMM0	DDR4 SO DIMM Socket
CN19	LVDS CONNECTOR
MCARD1	Mini PCIE Card Slot<Full size Co-lay mSATA>
JP14	mSATA and mPCIE selection
MCARD2	Mini PCIE Card Slot (Half Size)
CN1/CN3	Serial ATA Connectors
CN2/CN4	SATA POWER
LAN1	INTEL I219LM
LAN2	INTEL I210IT
CN20/CN21	USB2.0 (Total 4 Port)
CN8	USB3.0 x 2
CN9	USB3.0 x 2
CN6	Audio Jacks Connector (MIC-In)
CN7	Audio Jacks Connector (Line-Out)
CN17	Digital I/O Box Head
CN10	LPC connector (Update BIOS)
DP1	DISPLAY PORT
DP2	DISPLAY PORT
DVI1	DVI-D
SIM_CARD1	SIM card socket
JP4	COM1 +12/+5V selection
JP5	COM2 +12/+5V selection
COM1	RS232/422/485 with 5V/12V selectable
COM2	RS232 with 5V/12V selectable
COM3	RS232
COM4	RS232
DC_JACK1	ATX12V DC connector
CN22	4P DC Terminal Block connector
CPU FAN	CPU FAN CONNECTOR
LED1	LAN1 LED STATUS
LED2	LAN2 LED STATUS
LED3	POWER/HDD LED
SW1	POWER BUTTON
CN18	LVDS POWER BOX HEADER
SW3	LVDS Resolution selection
FP1	Front Panel
FP2	LAN LED

2.2 Jumper Settings

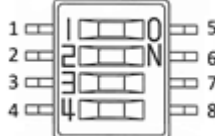
CN19: LVDS CONNECTOR

PIN	DEFINITION	PIN	DEFINITION
1	LVDS_BCLK	2	GND
3	LVDS_BCLK#	4	LVDS_A3
5	GND	6	LVDS_A3#
7	LVDS_B3	8	GND
9	LVDS_B3#	10	LVDS_ACLK
11	LVDS_B2	12	LVDS_ACLK #
13	LVDS_B2#	14	GND
15	LVDS_B1	16	LVDS_A2
17	LVDS_B1#	18	LVDS_A2#
19	LVDS_B0	20	LVDS_A1
21	LVDS_B0#	22	LVDS_A1#
23	GND	24	LVDS_A0
25	LVDS_DCC_SC	26	LVDS_A0#
27	LVDS_DCC_SD	28	GND
29	LVDS_VDD (define by JP3)	30	LVDS_VDD (define by JP3)



SW3: LVDS Resolution select

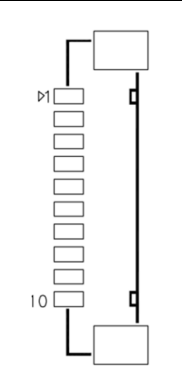
SW3				
1	2	3	4	DEFINITION
on	on	on	on	800*600/18bit (single)
off	on	on	on	1024*768/18bit (single)
on	off	on	on	1024*768/24bit (single)
off	off	on	on	1280*800/18bit(single)
on	on	off	on	1280*1024/24bit (dual)
off	on	off	on	1366*768/24bit(single)
on	off	off	on	1440*900/24bit (dual)
off	off	off	on	1920*1080/24bit (dual)



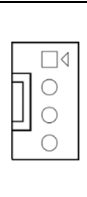
JP3: LVDS_VDD select

Jumper	Function description	Setting
1-2	3.3V	1  2  3 
2-3	5V	1  2  3 
Default setting: 2-3		

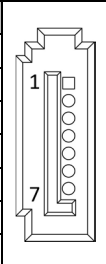
CN18: Inverter connector

PIN	DEFINITION	
1	12V	
2	12V	
3	12V	
4	5VS	
5	5VS	
6	GND	
7	GND	
8	BL_EN	
9	LVDS0_BKL_CTRL_R	
10	GND	

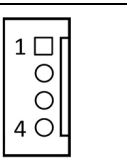
CPU FAN: CPU FAN Connector

PIN	DEFINITION	
1	CPUFAN_PWN	
2	CPUFAN_IO	
3	CPUFAN_VCC	
4	GND	

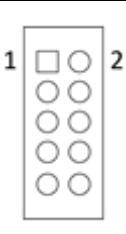
CN1/CN3: Serial ATA Connectors

PIN	DEFINITION	
1	GND	
2	TXP	
3	TXN	
4	GND	
5	RXN	
6	RXP	
7	GND	

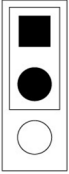
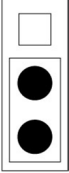
CN2/CN4: SATA POWER Connector

PIN	DEFINITION	
1	12V	
2	GND	
3	GND	
4	5VS	

CN17: Digital I/O Box Head

PIN	DEFINITION	PIN	DEFINITION	
1	VCC	2	GND	
3	DI_0	4	DI_1	
5	DI_2	6	DI_3	
7	DI_4	8	DI_5	
9	DO_0	10	DO_1	

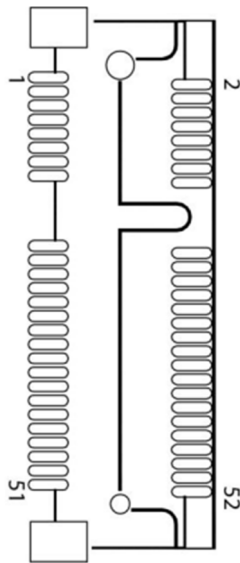
JP14: MCARD1 mSATA and mPCIE selection

Jumper	Function description	Setting
1-2	mPCIE	1 2 3 
2-3	mSATA	1 2 3 

Default setting: 1-2

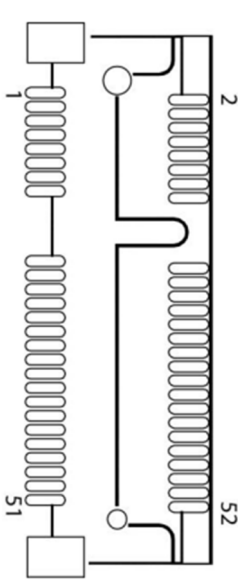
MCARD1: Mini PCIE Card Slot<COLAY M SATA>

PIN	DEFINITION	PIN	DEFINITION
1	WAKE#	2	3.3VAUX
3	COEX1	4	GND
5	COEX2	6	1.5V
7	CLKREQ#	8	UIM_PWR
9	GND	10	UIM_DATA
11	REFCLK-	12	UIM_CLK
13	REFCLK+	14	UIM_RESET
15	GND	16	UIM_VPP
17	Reserved	18	GND
19	Reserved	20	W_Disable#
21	GND	22	PERST#
23	PERn0	24	+3.3Vaux
25	PERp0	26	GND
27	GND	28	1.5V
29	GND	30	SMB_CLK
31	PETn0	32	SMB_DATA
33	PETp0	34	GND
35	GND	36	USB_D-
37	GND	38	USB_D+
39	+3.3VAUX	40	GND
41	+3.3VAUX	42	LED_WWAN#
43	GND	44	LED_WLAN#
45	Reserved	46	LED_WPAN#
47	Reserved	48	1.5V
49	Reserved	50	GND
51	Reserved	52	3.3VAUX



MCARD2: Mini PCIE Card Slot

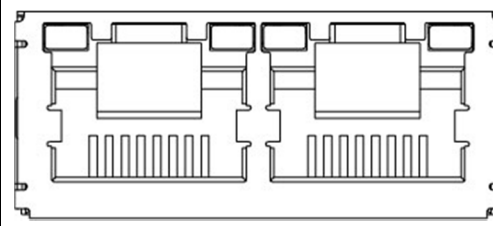
PIN	DEFINITION	PIN	DEFINITION
1	WAKE#	2	3.3V
3	Reserved	4	GND
5	Reserved	6	1.5V
7	CLKREQ#	8	UIM_PWR
9	GND	10	UIM_DATA
11	REFCLK-	12	UIM_CLK
13	REFCLK+	14	UIM_RESET
15	GND	16	UIM_VPP
17	Reserved	18	GND
19	Reserved	20	W_Disable#
21	GND	22	PERST#
23	PERn0	24	3.3Vaux
25	PERp0	26	GND
27	GND	28	1.5V
29	GND	30	SMB_CLK
31	PETn0	32	SMB_DATA
33	PETp0	34	GND
35	GND	36	USB_D-
37	Reserved	38	USB_D+
39	Reserved	40	GND
41	Reserved	42	LED_WWAN#
43	Reserved	44	LED_WLAN#
45	Reserved	46	LED_WPAN#
47	Reserved	48	1.5V
49	Reserved	50	GND
51	Reserved	52	3.3V



LAN1: Intel I219LM

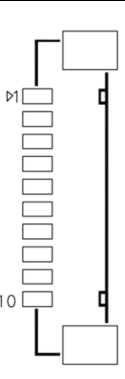
LAN2: Intel I210IT

LAN1		LAN2	
PIN	DEFINITION	PIN	DEFINITION
A1	I218_LAN1_MDIO_DP	B1	LAN2_MDIP0
A2	I218_LAN1_MDIO_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



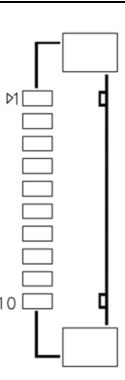
CN20: USB 2.0

PIN	DEFINITION
1	5V
2	USB1-
3	USB1+
4	GND
5	GND
6	5V
7	USB2-
8	USB2+
9	GND
10	GND



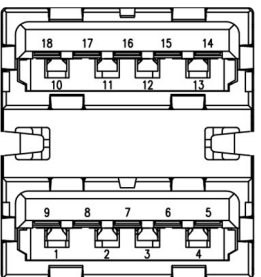
CN21: USB 2.0

PIN	DEFINITION
1	5V
2	USB1-
3	USB1+
4	GND
5	GND
6	5V
7	USB2-
8	USB2+
9	GND
10	GND



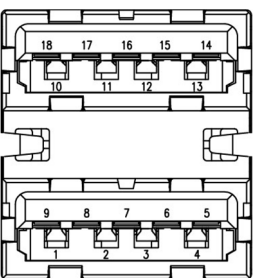
CN8: USB3.0 *2

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



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



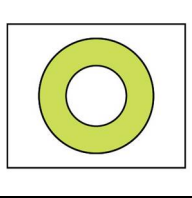
CN6: Audio Jacks Connector (MIC)

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



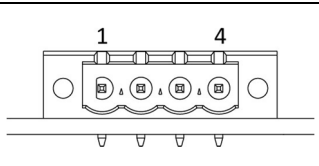
CN7: Audio Jacks Connector (Line-Out)

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



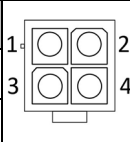
CN22: DC Adapter Power Input

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



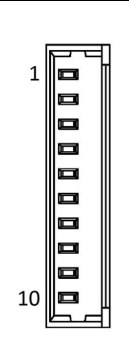
DC_JACK1: DC-IN

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



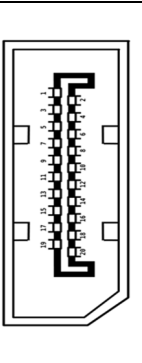
CN10: LPC (Update BIOS)

PIN	DEFINITION
1	GND
2	INT_SERIRQ
3	3.3V
4	LPC_AD0
5	LPC_AD1
6	LPC_AD2
7	LPC_AD3
8	LPC_FRAME#
9	CHIP_PLTRST#
10	CLK



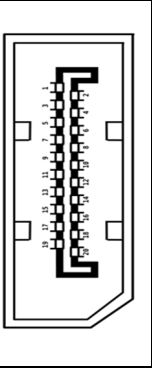
DP1: DISPLAY PORT

PIN	DEFINITION	PIN	DEFINITION
1	DPC_LANE0	2	GND
3	DPC_LANE0	4	DPC_LANE1
5	GND	6	DPC_LANE1
7	DPC_LANE2	8	GND
9	DPC_LANE2	10	DPC_LANE3
11	GND	12	DPC_LANE3
13	DDIC_DDC_AUX_SEL	14	GND
15	DPC_AUXP	16	GND
17	DPC_AUXN	18	DPC_DET
19	GND	20	DPC_PWR



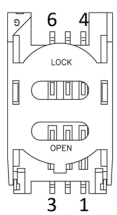
DP2: DISPLAY PORT

PIN	DEFINITION	PIN	DEFINITION
1	DPD_LANE0	2	GND
3	DPD_LANE0	4	DPD_LANE1
5	GND	6	DPD_LANEN1
7	DPD_LANE2	8	GND
9	DPD_LANEN2	10	DPD_LANE3
11	GND	12	DPD_LANEN3
13	DDID_DDC_AUX_SEL	14	GND
15	DDID_AUXP	16	GND
17	DDID_AUXN	18	DPD_DET
19	GND	20	DPD_PWR



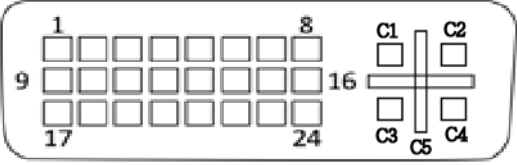
SIM_CARD1: SIM card socket

PIN	DEFINITION
1	VCC
2	RESET
3	CLOCK
4	GND
5	VPP
6	DATA



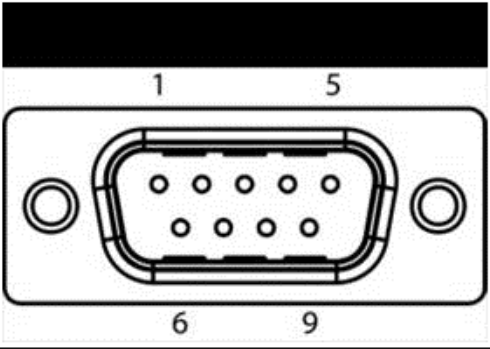
DVI: DVI-D

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



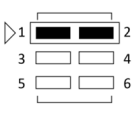
COM1: RS232/422/485 with 5V/12V selectable

Pin	RS-232	RS-422	Half Duplex RS-485
1	DCD#	TX-	DATA-
2	RXD	RX+	NA
3	TXD	TX+	DATA+
4	DTR#	RX-	NA
5	GND	GND	GND
6	DSR#	NA	NA
7	RTS#	NA	NA
8	CTS#	NA	NA
9	COM1P9SEL	COM1P9SEL	COM1P9SEL



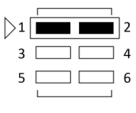
JP4: COM1 5V/12V selection

PIN	DEFINITION	PIN	DEFINITION
1	RI1#_OPTO	2	COM1P9SEL
3	5V	4	COM1P9SEL
5	12V	6	COM1P9SEL



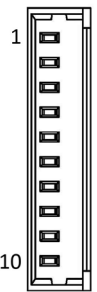
JP5: COM2 5V/12V selection

PIN	DEFINITION	PIN	DEFINITION
1	RI1#_OPTO	2	COM1P9SEL
3	5V	4	COM1P9SEL
5	12V	6	COM1P9SEL



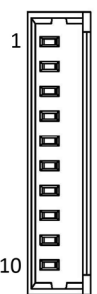
COM2: RS232, with 5V/12V selectable

PIN	DEFINITION
1	5VS
2	GND
3	COM2P9SEL
4	DTR-
5	CTS2-
6	TXD2-
7	RTS2-
8	RXD-
9	DSR-
10	DCD-

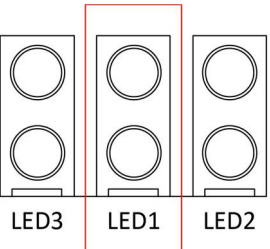


COM3/4: RS232

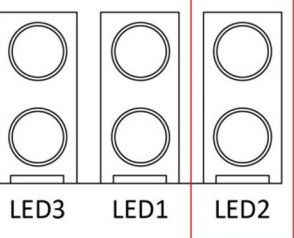
PIN	DEFINITION
1	5VS
2	GND
3	RI-
4	DTR-
5	CTS-
6	TXD-
7	RTS-
8	RXD-
9	DSR-
10	DCD-



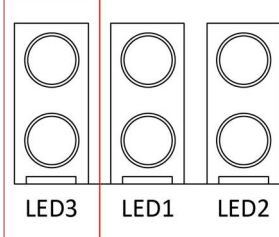
LED1: LAN1 LED STATUS

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

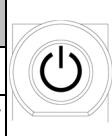
LED2: LAN2 LED STATUS

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

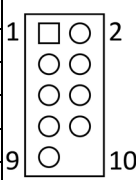
LED3: POWER/HDD LED

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

SW1: POWER BUTTON

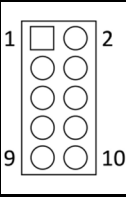
PIN	DEFINITION	
ON	NO LIGHT	
OFF	BLUE LIGHT	

FP1: Front Panel

PIN	DEFINITION	PIN	DEFINITION	
1	HDLED+	2	PLED+	
3	HDLED-	4	GND	
5	GND	6	EC_PWR_BTN	
7	EXT_RESET#	8	GND	
9	NC	10	NC	

FP2: LAN LED

PIN	DEFINITION	PIN	DEFINITION
1	3V3M	2	3V3M
3	LAN_LED_LNK#_ACT	4	LAN2_ACT#
5	LAN_LED_LNK_1000#	6	LAN2_LED_1000-
7	LAN_LED_LNK_100#	8	LAN2_LED_100-



Plug LED cable to FP2 pin header

Active LED: plug 1-3 pin

Single 1000M LED: plug 1-5 pin

Single 100M LED: plug 1-7 pin

Dual 1000M LED: plug 5-7 pin

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 key immediately.
- After the 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.

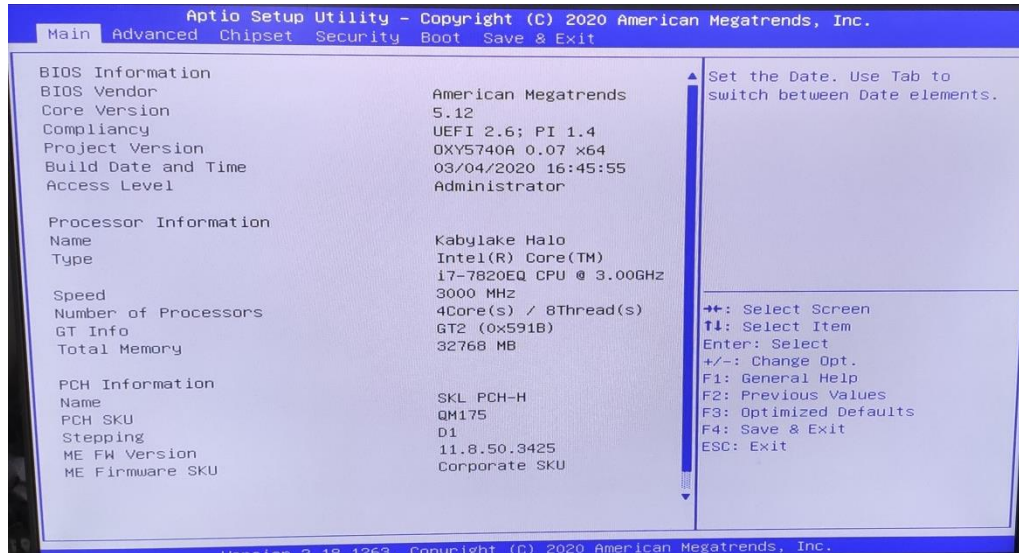


Some of the navigation keys may differ from one screen to another.

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.

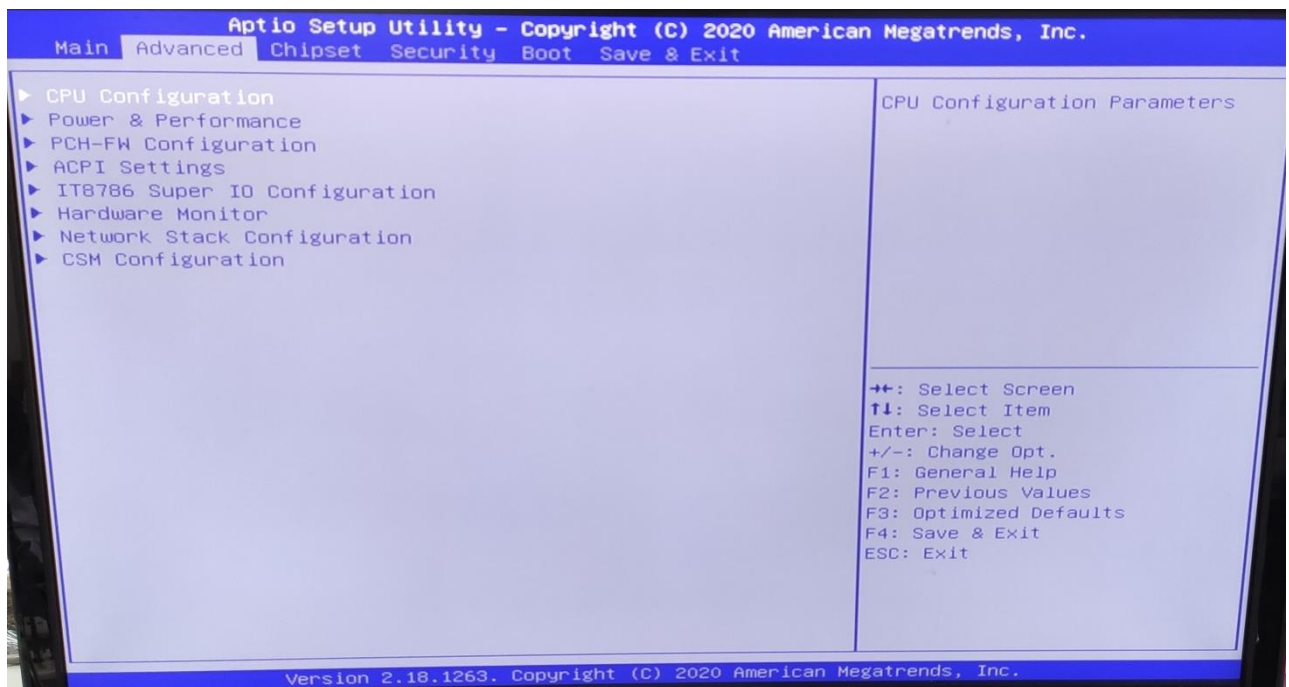
Note: The time is in 24-hour format. For example, 5:30 A.M. appears as 05:30:00, and 5:30 P.M. as 17:30:00.

Access Level

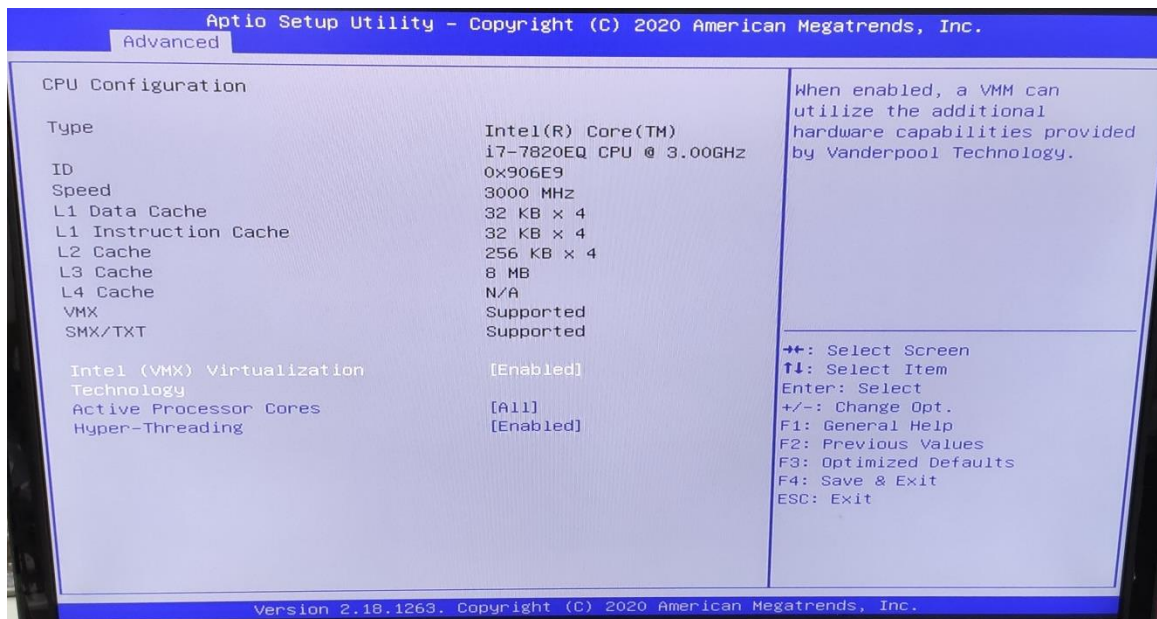
Display the access level of the current user in the BIOS.

3.4 Advanced Menu

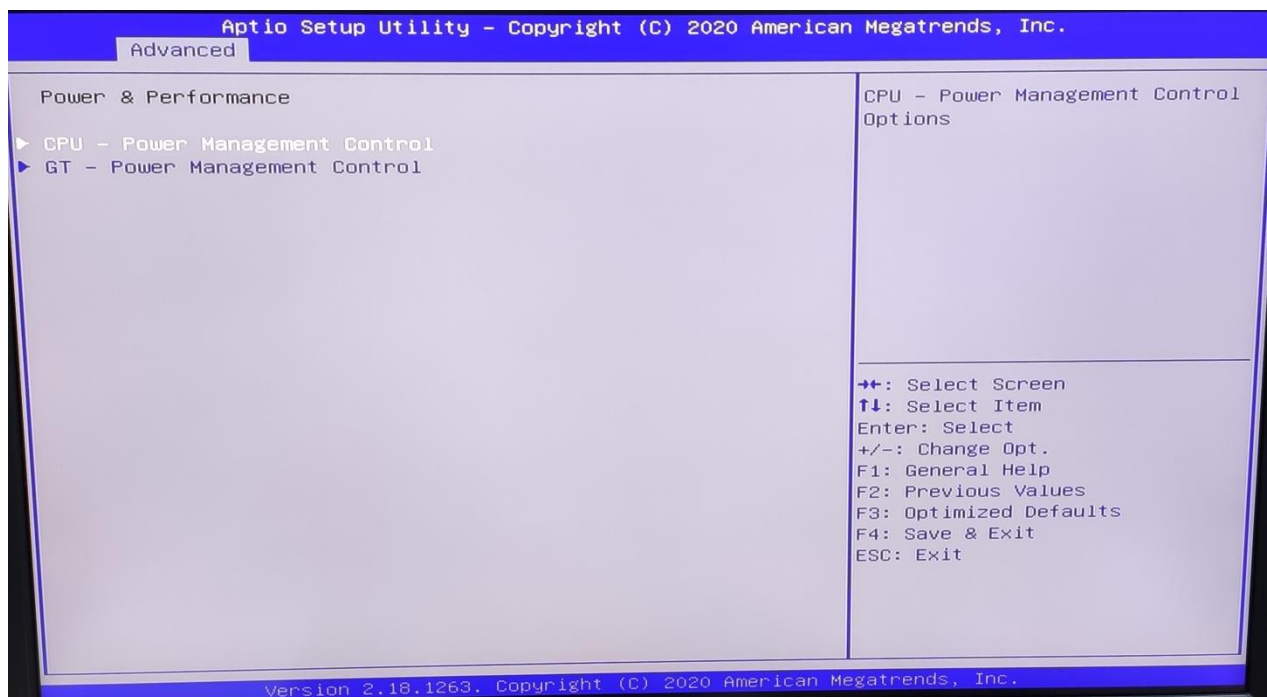
The Advanced Menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference. **Setting incorrect field values may cause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



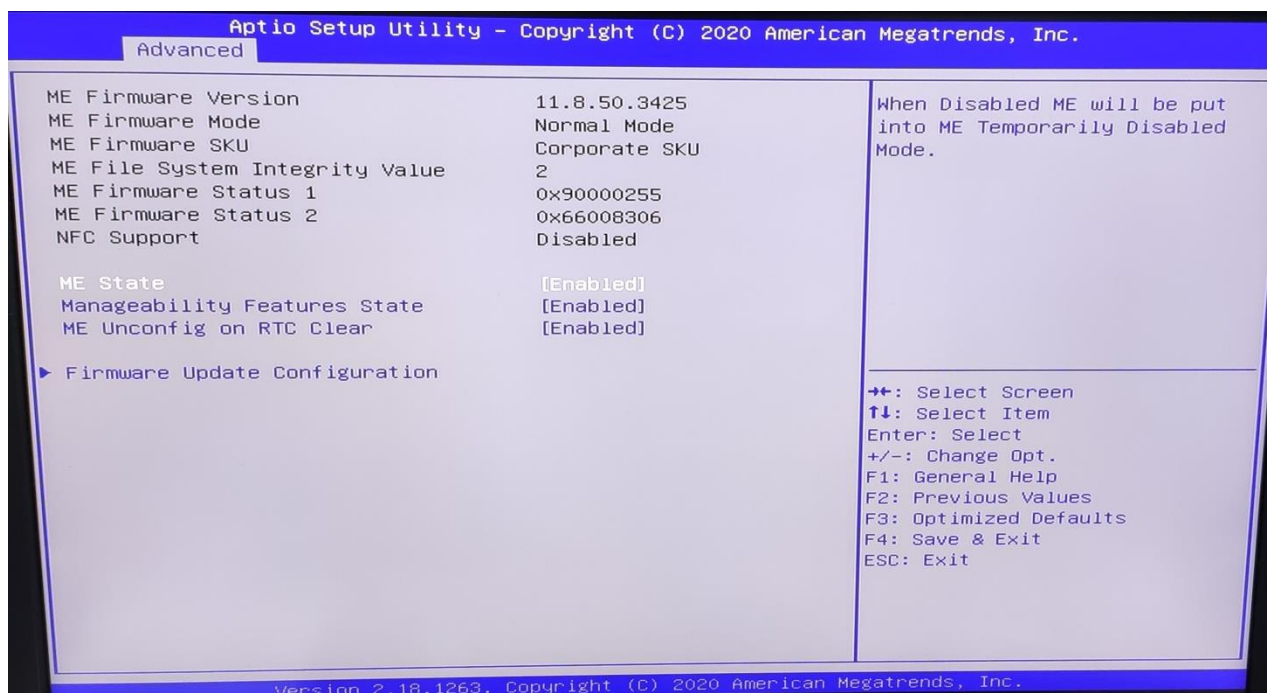
3.4.1 CPU Configuration



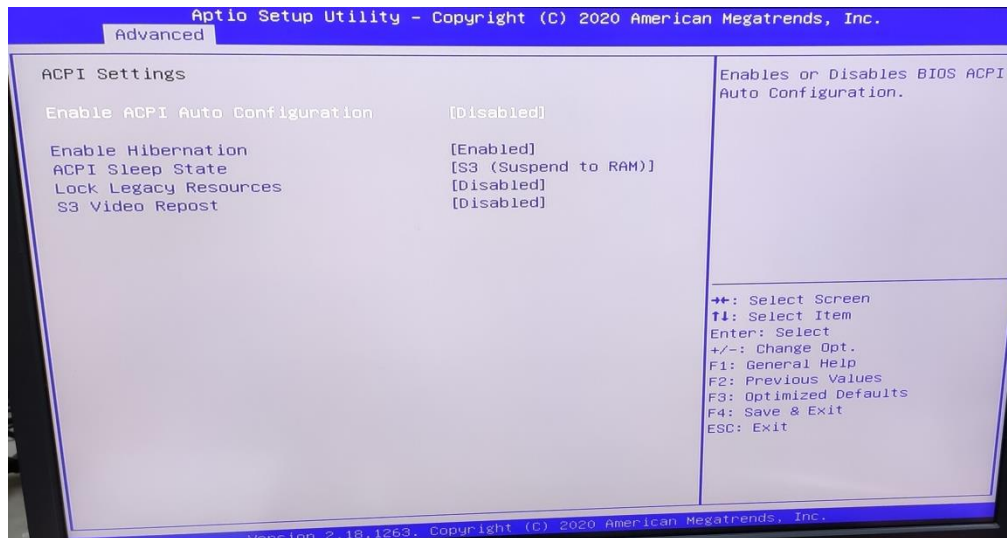
3.4.2 Power & Performance



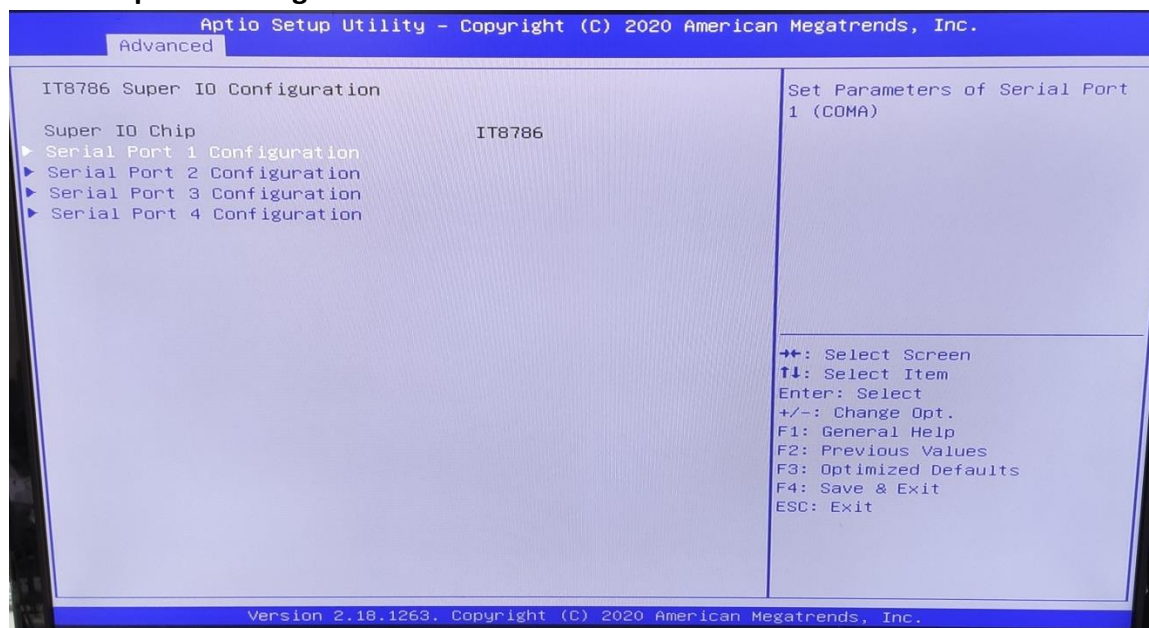
3.4.3 PCH-FW Configuration



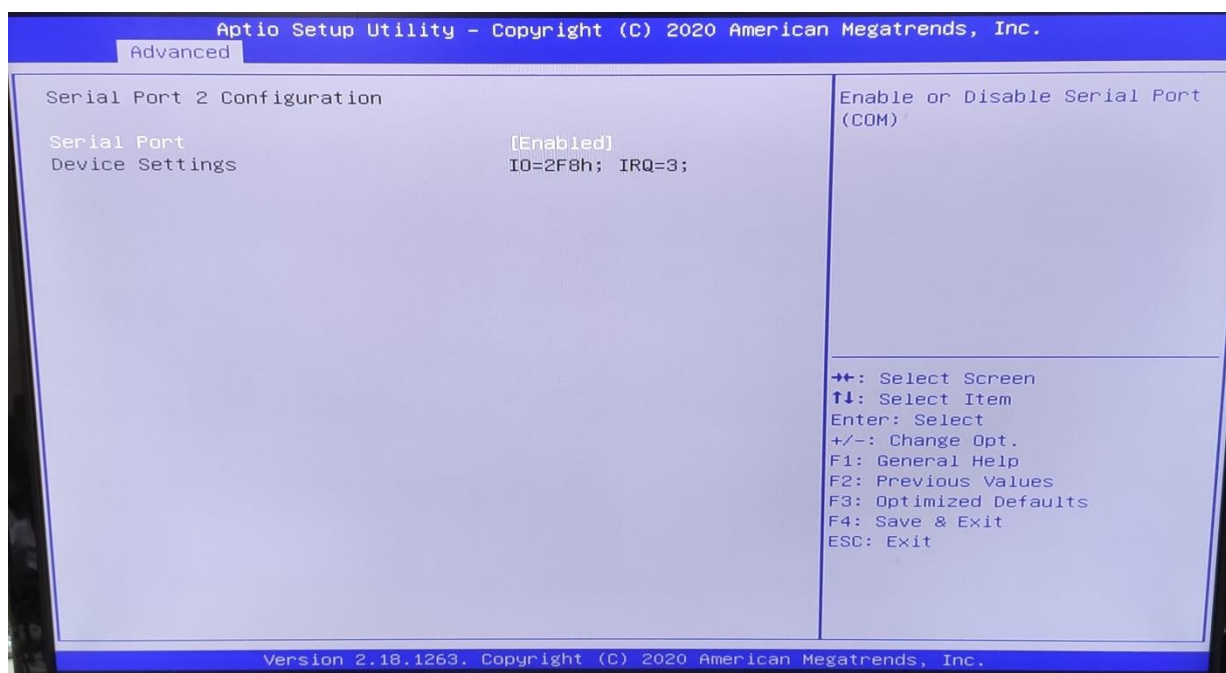
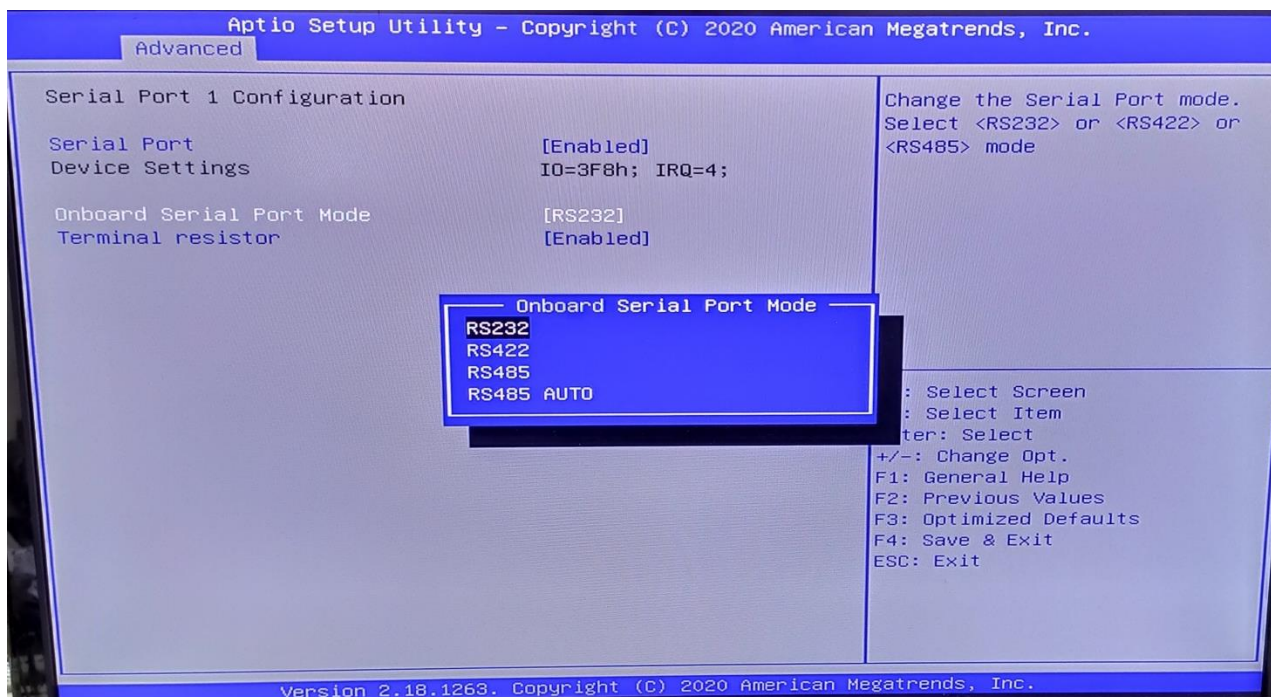
3.4.4 ACPI Setting

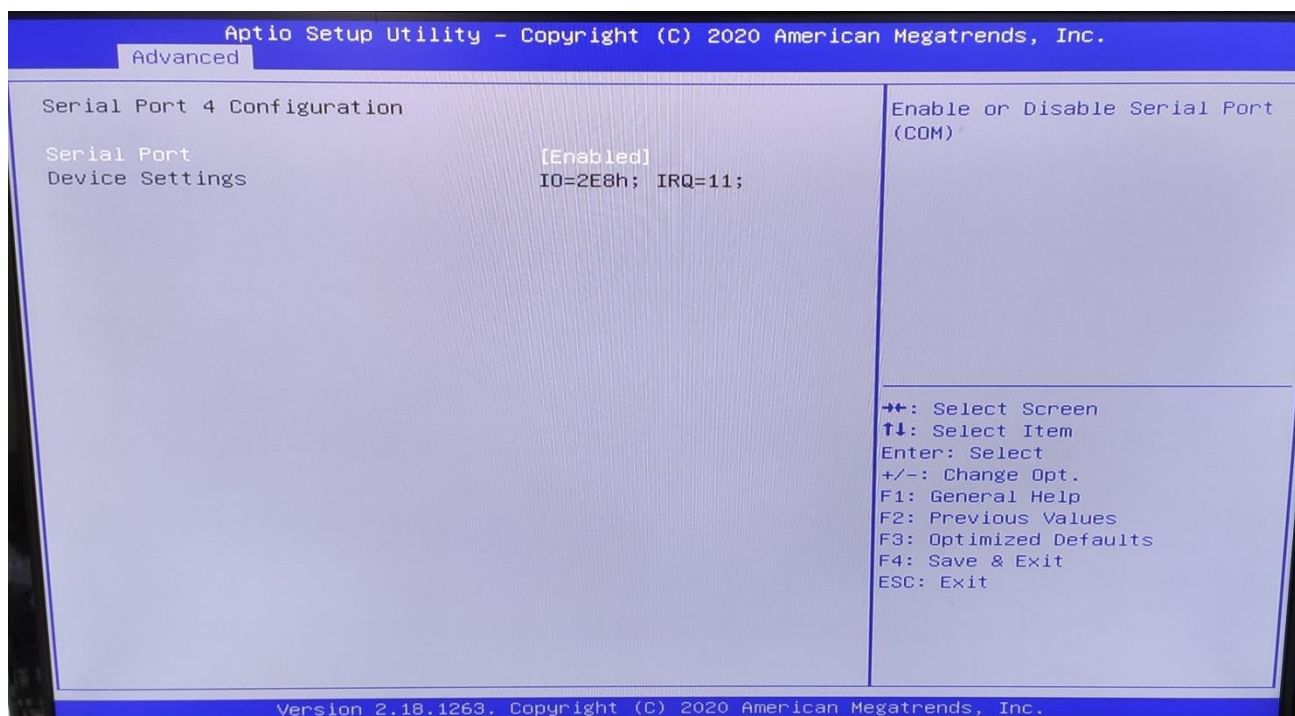
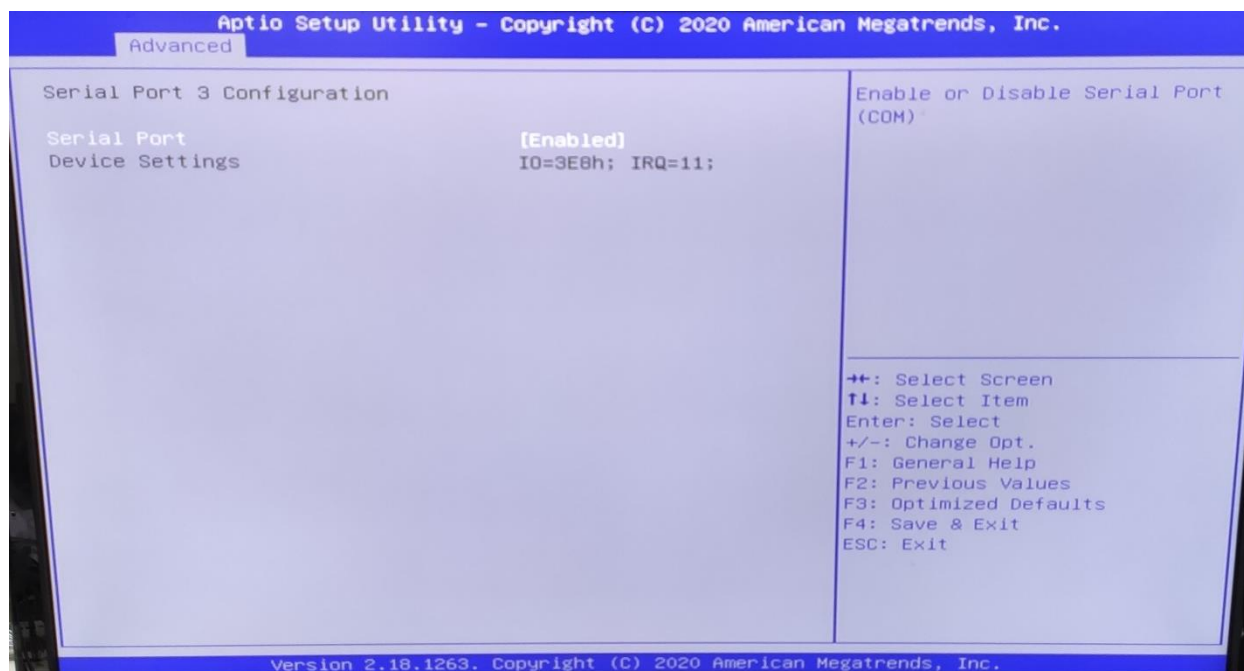


3.4.5 IT8786 Super IO Configuration

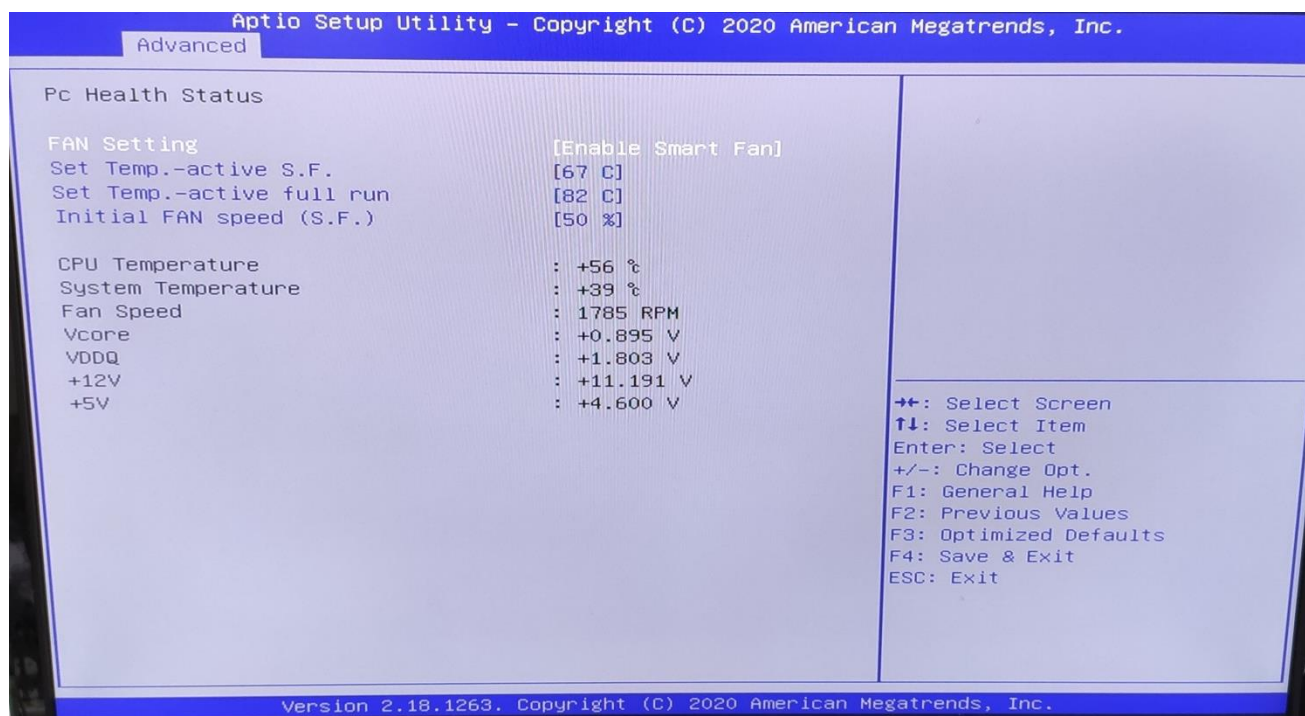


User can choose a mode (RS232/RS422/RS485) on each serial port.

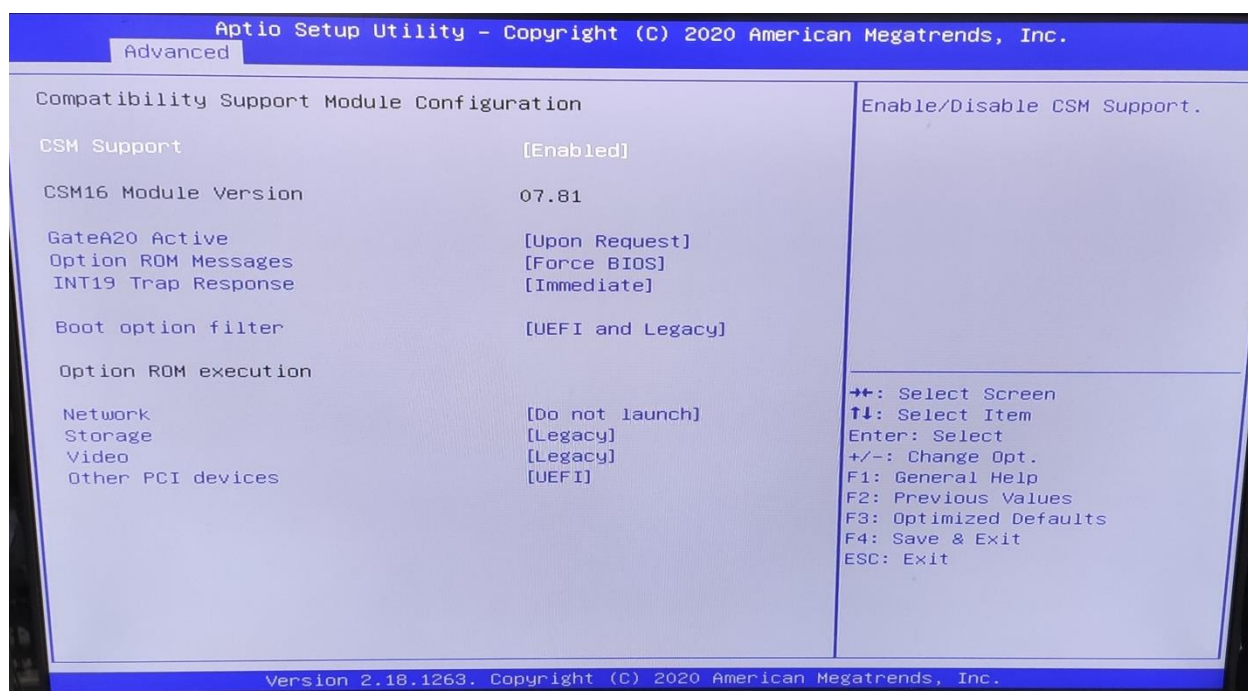




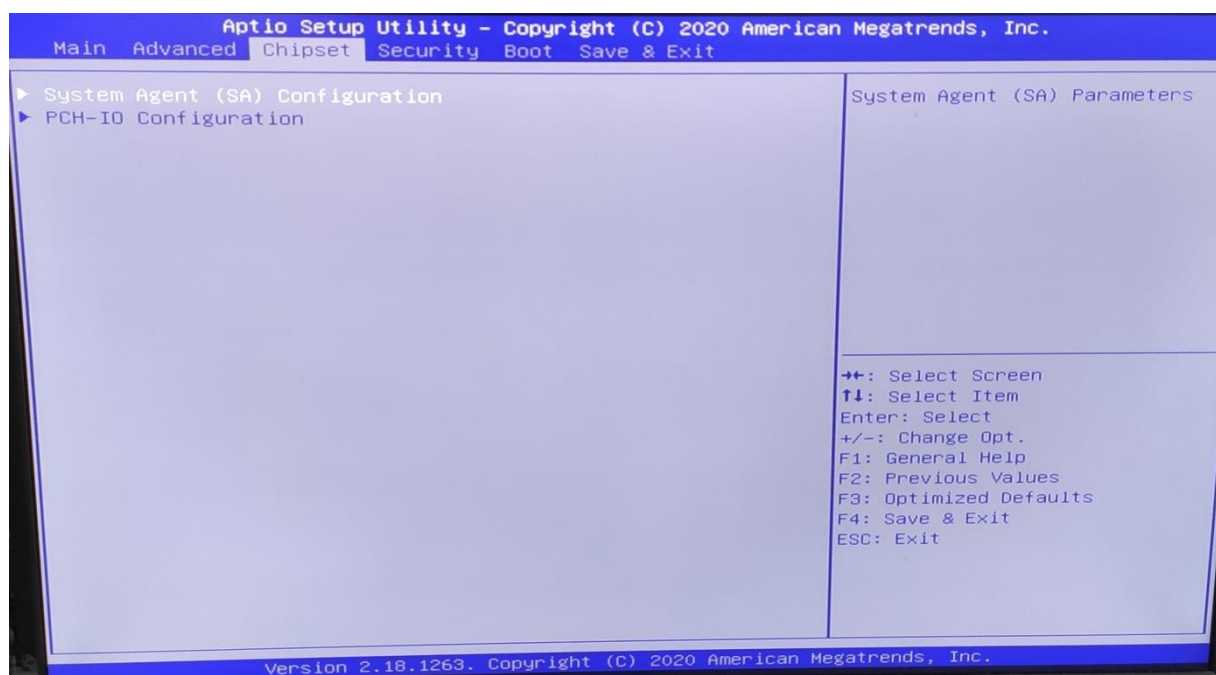
3.4.6 Hardware Monitor



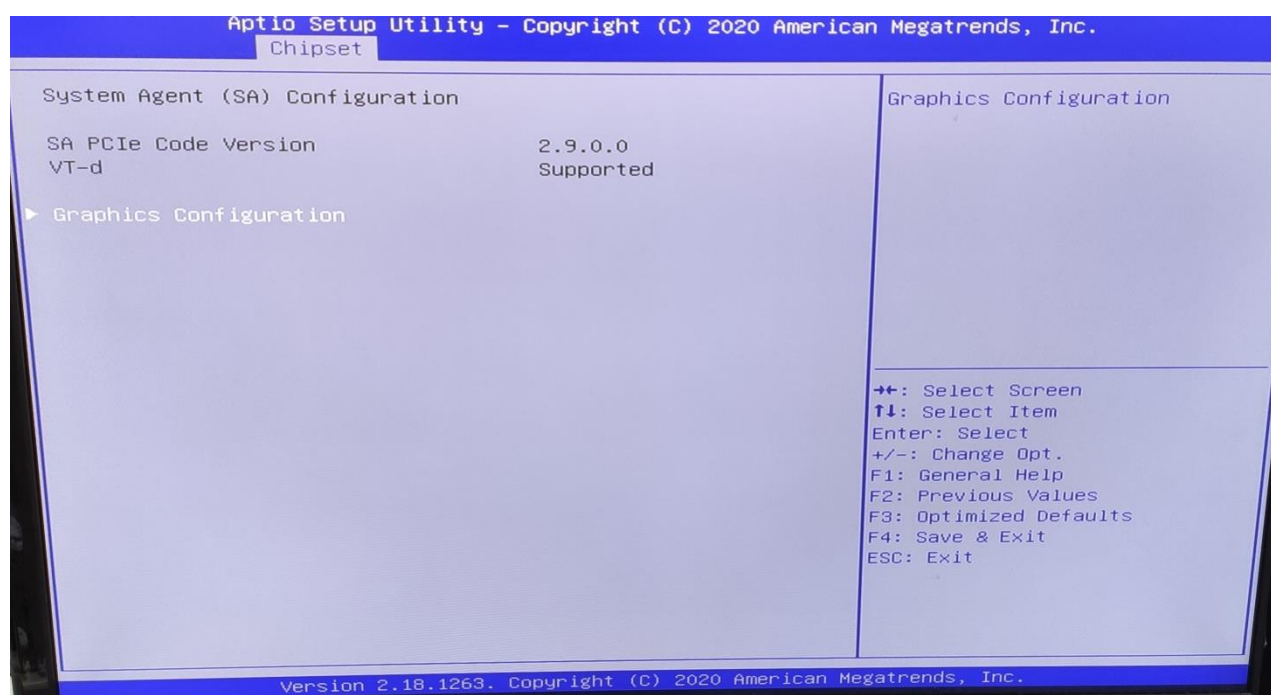
3.4.7 CSM Configuration



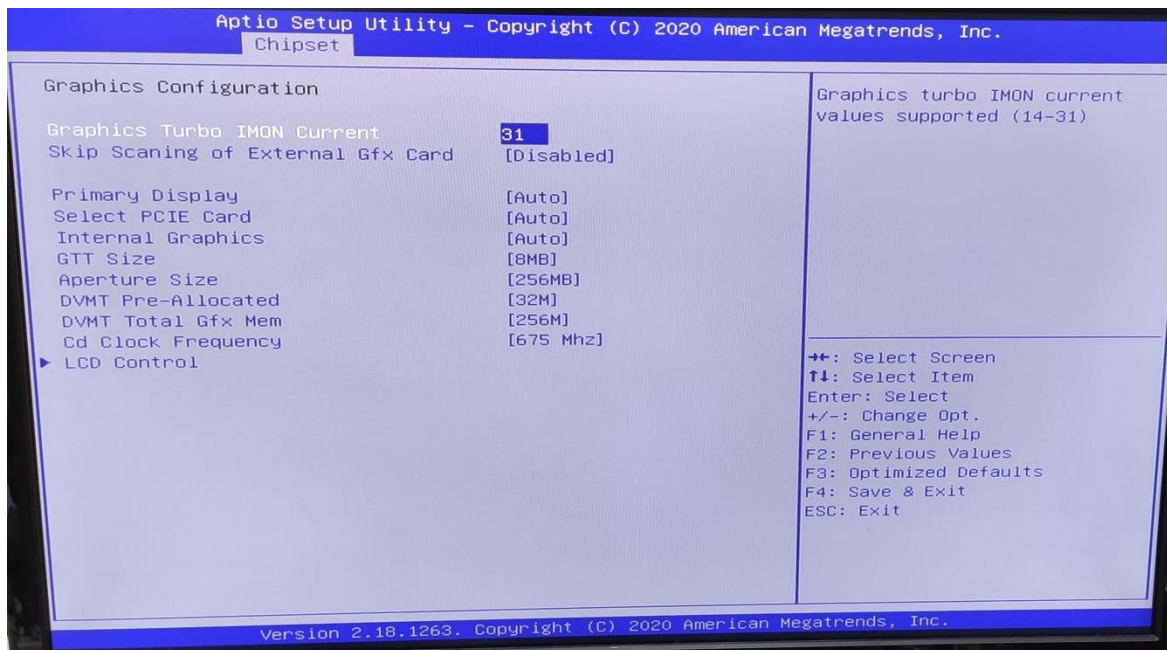
3.5 Chipset



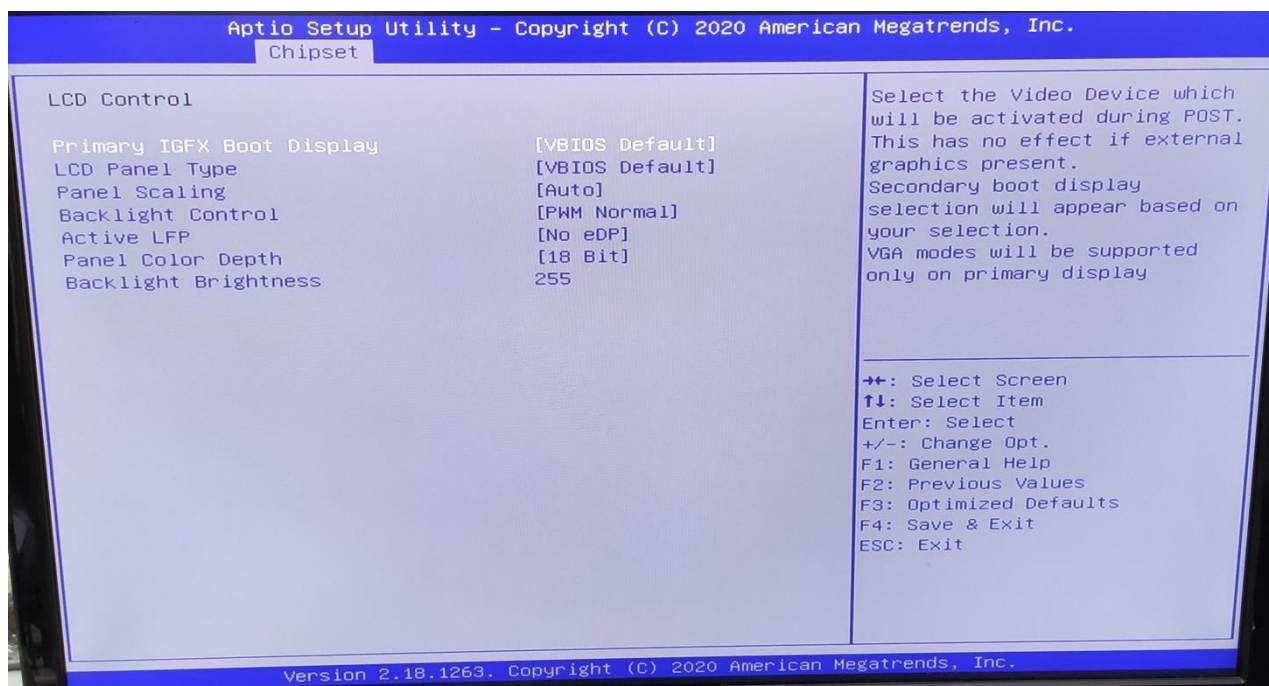
3.5.1 SA Configuration



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.

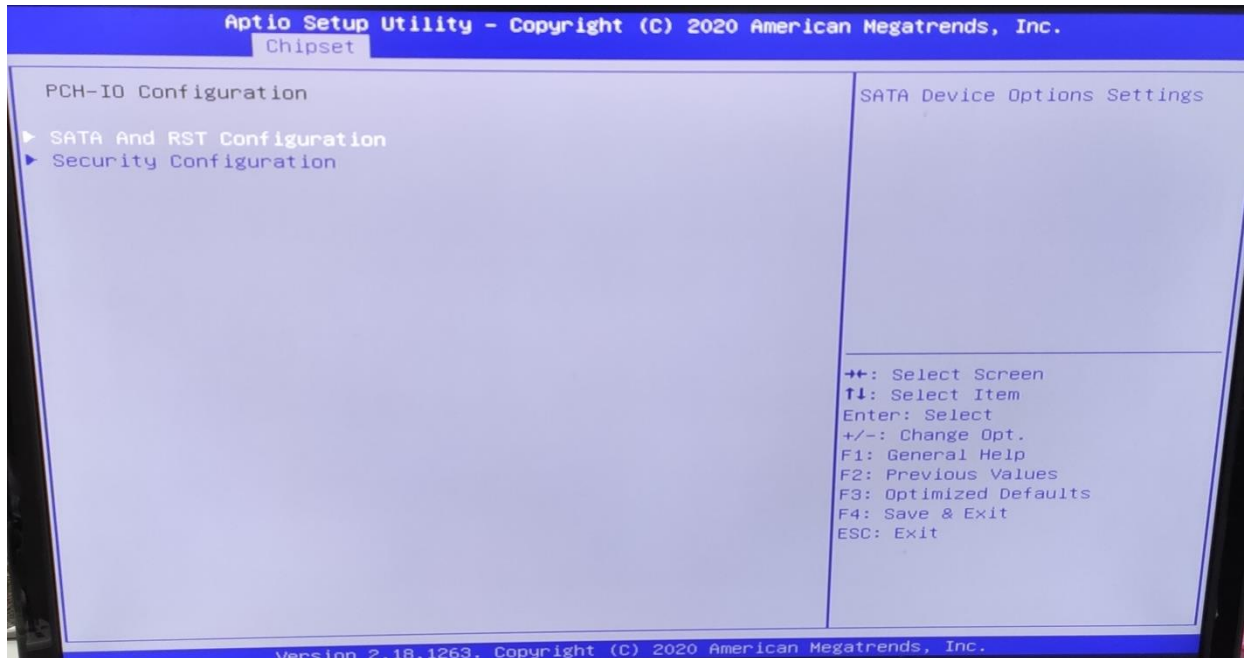
SDVO-LFP Panel Type: Select SDVO panel used by Internal Graphics Device by selecting the appropriate setup item.

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

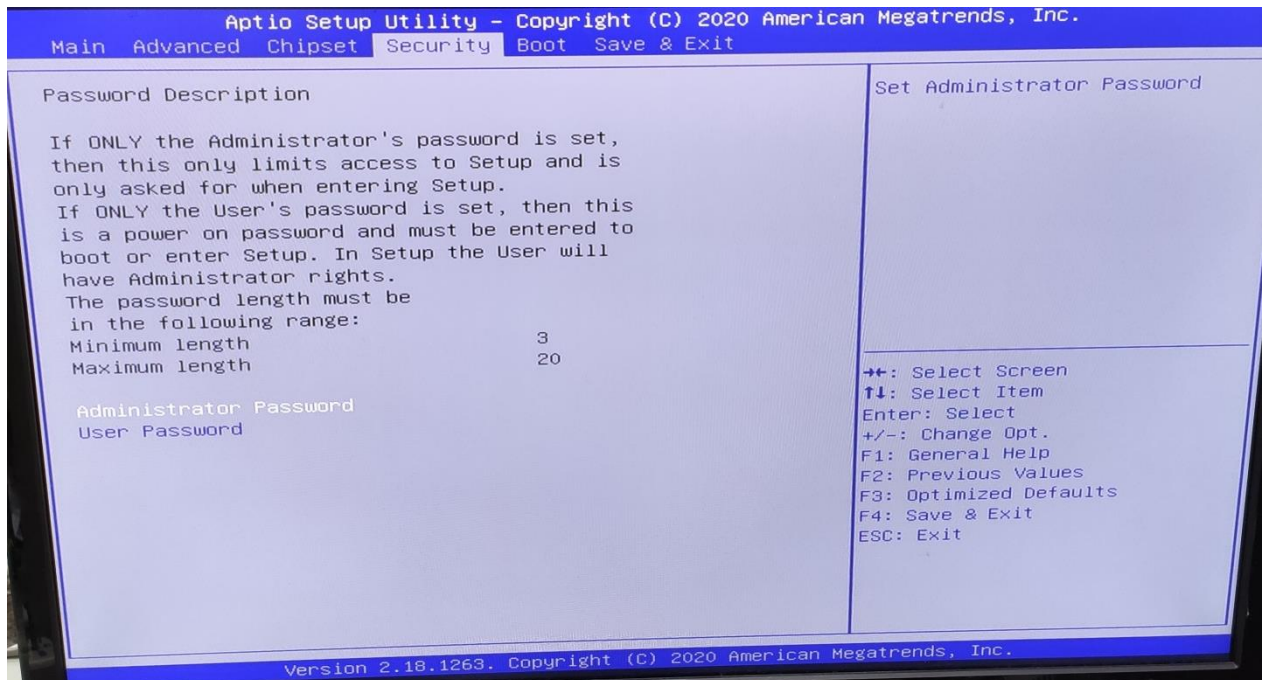
Backlight control: backlight control setting

Panel Color Depth: select the LFP panel color depth.

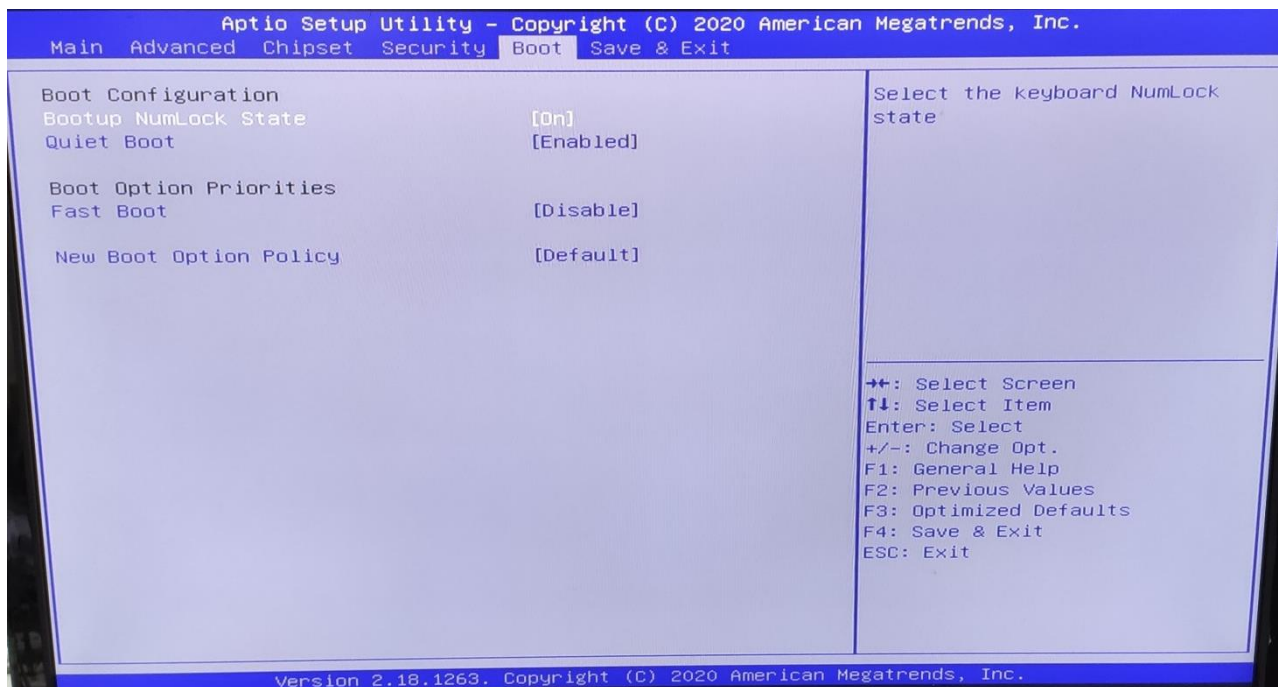
3.5.2 PCH-IO Configuration



3.6 Security



3.7 Boot



Bootup NumLock State: Select the keyboard NumLock state.

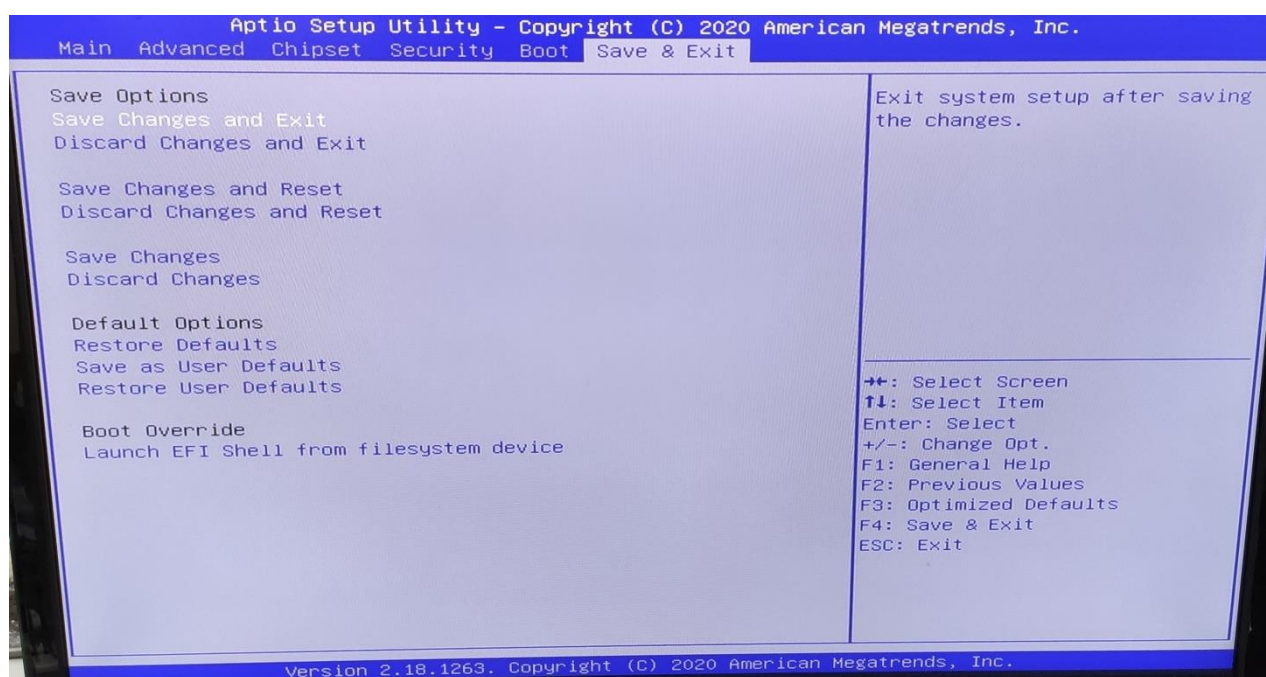
Quiet Boot: Enables or disables Quiet Boot option.

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.