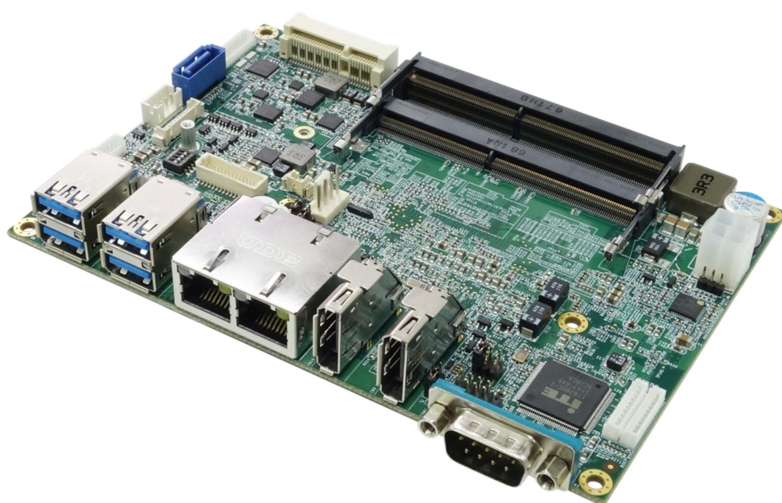




# OXY5361A

3.5" SBC with Intel® Skylake-U SoC



**User's Manual**

Revision Date: February 09,2022

## 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 (dd.mm.yyyy)	Changes
V0.9	01.06.2017	Draft
V1.0	13.06.2017	Initial Release
V1.1	15.06.2017	Update latest product photo Change JP13.JP14,JP15 default setting Change LVDS and CN18 pin define.
V1.2	20.06.2017	Change LPC pin define
V1.3	02.12.2020	Add LVDS VDD JP24 pin define
V1.4	07.10.2021	Add SATA Power J6 & ATX Power CN11 pin define
V1.5	26.10.2021	Modify Half size mPCIe slot only support mSATA
V1.6	22.11.2021	Add COM1 pin define
V 1.7	09.02.2022	Add AMP1 pin define

## Packing list

- OXY5361A 3.5" SBC
- CD (Driver + user's manual)
- Optional Accessories
  - Cable kit:
    - SATA cable
    - SATA power cable
    - USB cable
    - COM cable
  - Thermal kit:
    - Copper heat spreader
    - Passive heatsink



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

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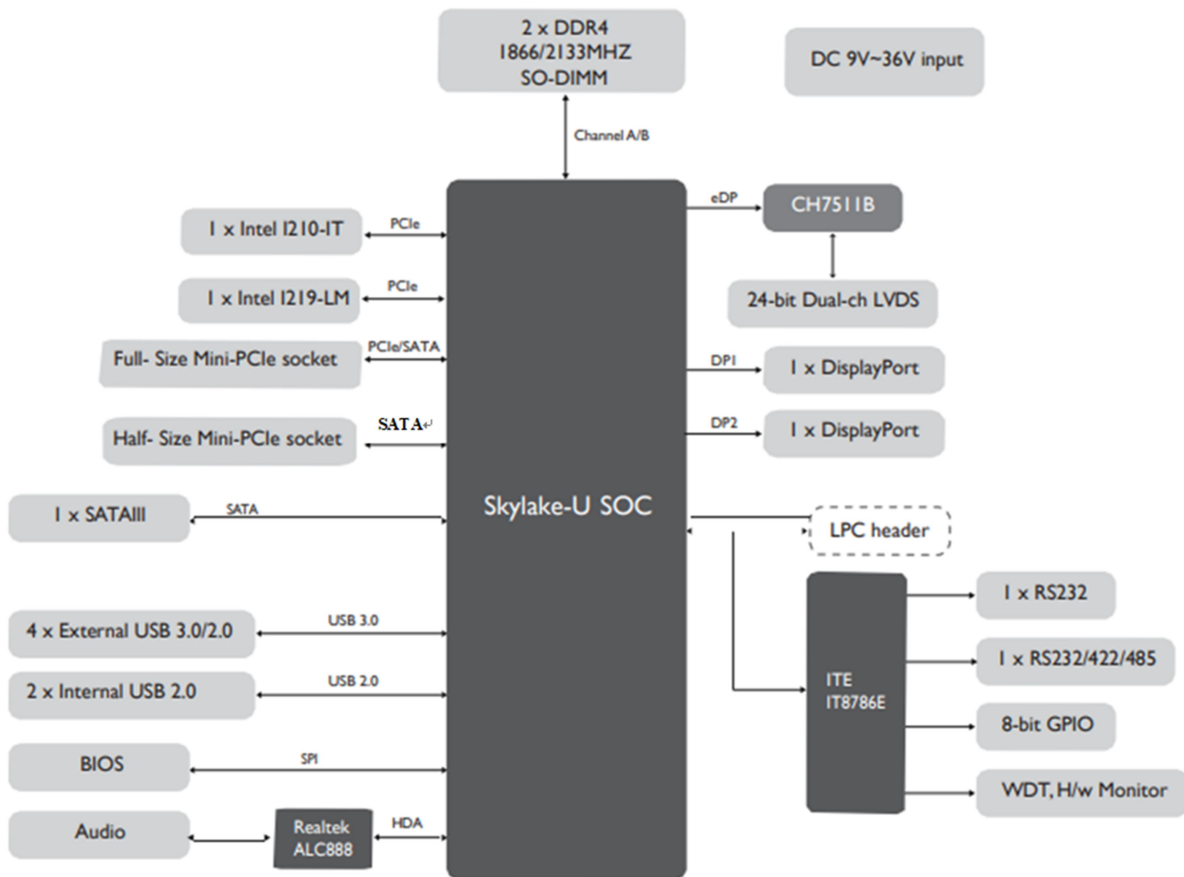
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## Chapter 1: Product Information

### 1.1 Block Diagram



## 1.2 Key Features

System	
CPU Type	Intel® Skylake-U series, BGA type Intel® Core™ i3-6100U (3M Cache, 2.3GHz) (15W) Intel® Core™ i5-6300U (3M Cache, 2.4GHz) (15W) Intel® Core™ i7-6600U (4M Cache, 2.6GHz) (15W)
Memory Type	2 x SO-DIMM DDR4 2133MHz up to 32 GB
BIOS	AMI® UEFI BIOS
Super I/O	Fintek F8786E
Watchdog	1-255 sec.
Expansion Slot	1 x Full-size mPCIe/mSATA 1 x Half-size mSATA
Display	
Chipset	Intel® Integrated
Display Port	Max. resolution 4096 x 2304
LVDS	Dual channel 24bit LVDS
Display Type	Display Port, LVDS
Audio	
Codec	Realtek ALC888 High Definition Audio Codec
Ethernet	
Chipset	1 x Intel® I210-IT , 1 x Intel® I219-LM GbE LAN (support 10/100/1000 Mbps for 2 x RJ45 ports)
WOL	Yes
Boot from LAN	Yes for PXE
Rear I/O	
DisplayPort	2 x DisplayPort
Ethernet	2 x RJ45
USB	4 x USB 3.0
COM	1 x RS232
Internal I/O	
SATA	1 x SATAIII (6 Gb/s)
USB	2 x USB 2.0
COM	1 x RS232/422/485
AUDIO	Mic-in, Line-out 1 x 3W amplifier (Optional)
FAN	1 x CPU fan
LVDS	30-pin connector

# OXY5361A User's Manual

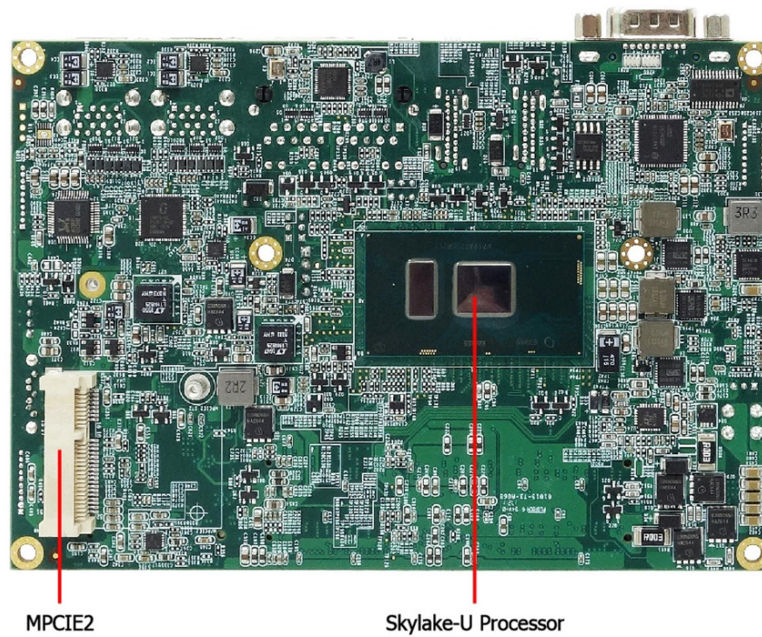
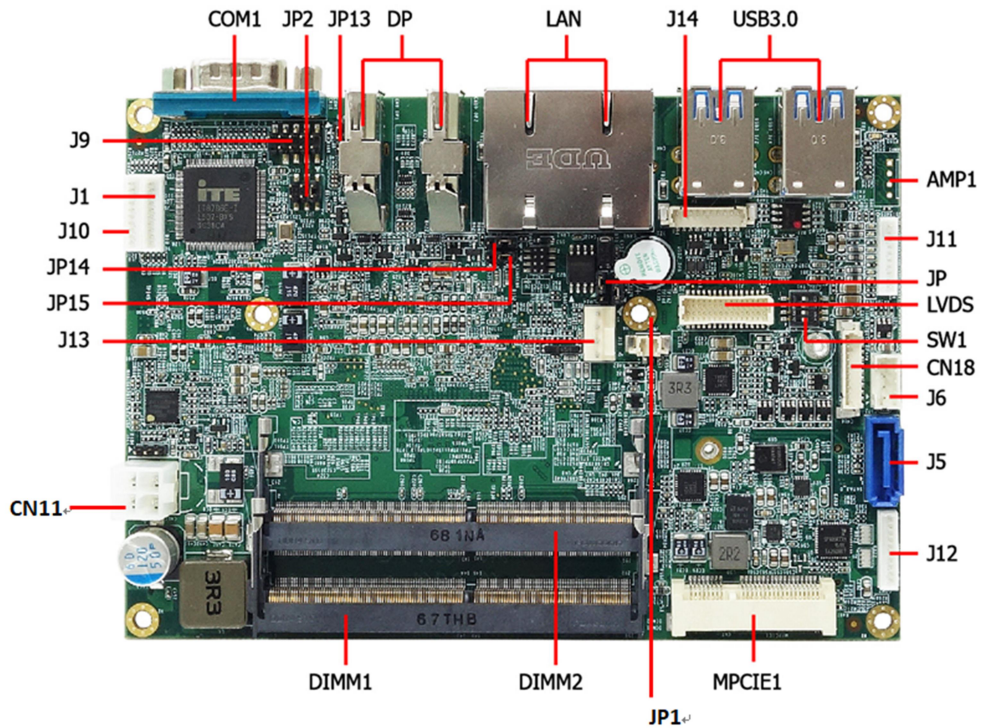
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DIO	8bit
<b>Mechanical and Environment</b>	
Form Factor	3.5" SBC
Power Type	9~36V DC-in, 4-pin ATX power connector, AT/ATX mode support
Dimension	146mm x 101mm (5.7" x 4")
Operating Temp.	-20 to 85°C
Storage Temp	-40 to 85°C
Relative Humidity	10% to 90%, non-condensing
<b>Standard Compliance</b>	
Standard Compliance	CE/FCC
<b>OS</b>	
OS Support	Windows®10 64bit , Linux(Support by request)

**\*All specifications and photos are subject to change without notice.**



## 1.3 Board Placement



## Chapter 2: Jumpers and Connectors

### 2.1 Onboard connector and jumper list



Label	Function
COM1 (Rear)	RS232, DB9 connector
DP1 (Rear)	DisplayPort
DP2 (Rear)	DisplayPort
LAN1 (Rear)	RJ45 connector
LAN2 (Rear)	RJ45 connector
USB1/2 (Rear)	2 x USB3.0
USB3/4 (Rear)	2 x USB3.0
MPCIE1	Full-size mPCIe/mSATA
MPCIE2	Half-size mSATA
AMP1	Amplifier
LVDS	LVDS
CN18	LVDS Control Connector
CN11	ATX Power
J1	DIO header
J5	SATAIII connector
J6	SATA power
J9	Front panel
J10	LPC header
J11	Audio
J12	COM2, RS232/422/485
J13	CPU fan
J14	2 x USB2.0, USB5/6
SW1	LVDS resolution Select
JP1	Clear CMOS
JP2	COM1 RI/+5V/+12V select
JP13	AT/ATX select
P14	mPCIe1 SATA/PCIe select

JP15	mPCIE2 SATA/PCIe select
JP24	LVDS Signal Power

## 2.2 Connector and jumper pin definition

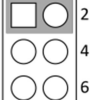
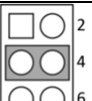
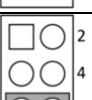
### 2.2.1 Jumper

#### JP1: Clear CMOS

Jumper	Function description	Setting
1-2	Normal	
2-3	Clear CMOS	


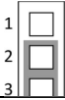
Default setting: 1-2

#### JP2: COM1 RI/+5V/+12V

Jumper	Function description	Setting
1-2	Ring	
3-4	5V	
5-6	12V	

Default setting: 1-2

#### JP13: AT/ATX Mode



Jumper	Function description	Setting
1-2	ATX	
2-3	AT	

Default setting: 2-3



# OXY5361A User's Manual

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## JP14: mPCIe1 signal select

Jumper	Function description	Setting
1-2	SATA	
2-3	PCIe	
Default setting: 2-3		

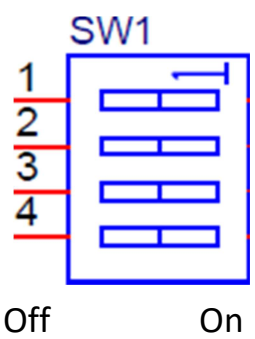
## JP15: mPCIe2 signal select

Jumper	Function description	Setting
1-2	SATA	
2-3	PCIe	
Default setting: 2-3		

## JP24 LVDS Signal Power

1-2	5V
2-3	3V3

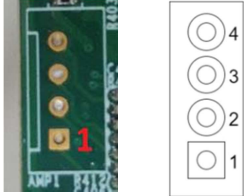
## SW1: LVDS Resolution

Resolution	Color depth	Channel	Setting				Drawing
			Switch1	Switch2	Switch3	Switch4	
800 x 600	18-bit	Single	On	On	On	On	
1024 x 768	18-bit	Single	Off	On	On	On	
1024 x 768	24-bit	Single	On	Off	On	On	
1280 x 800	18-bit	Single	Off	Off	On	On	
1280 x 1024	24-bit	Dual	On	On	Off	On	
1366 x 768	24-bit	Single	Off	On	Off	On	
1440 x 900	24-bit	Dual	On	Off	Off	On	
1920 x 1080	24-bit	Dual	Off	Off	Off	On	

## 2.2.2 Connector

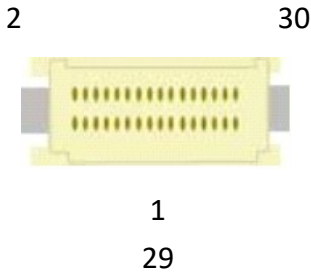
### AMP1

Pin	Definition
1	SP_OUTL-
2	SP_OUTL+
3	SP_OUTR+
4	SP_OUTR-



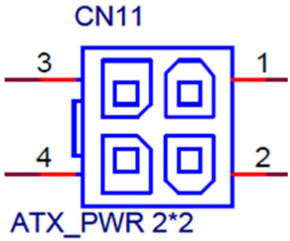
### LVDS

Pin	Definition	Pin	Definition
1	LVDS_CLK+	2	GND
3	LVDS_CLK-	4	LVDSA3+
5	GND	6	LVDSA3-
7	LVDSB3+	8	GND
9	LVDSB3-	10	LVDSA_CLK+
11	LVDSB2+	12	LVDSA_CLK-
13	LVDSB2-	14	GND
15	LVDSB1+	16	LVDSA2+
17	LVDSB1-	18	LVDSA2-
19	LVDSB0+	20	LVDSA1+
21	LVDSB0-	22	LVDSA1-
23	GND	24	LVDSA0+
25	LVDS_SCLK	26	LVDSA0-
27	LVDS_SDATA	28	GND
29	VDD	30	VDD



### CN11: ATX Power

PIN	DEFINITION
1	GND
2	GND
3	DC in
4	DC in

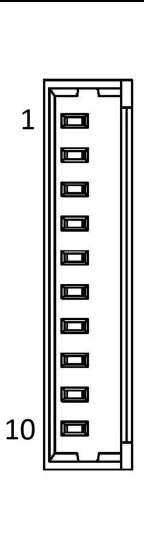


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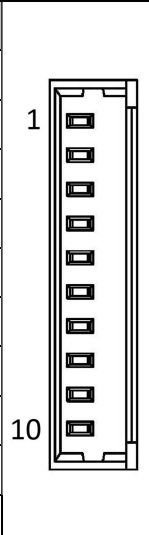
## CN18: LVDS Control connector

PIN	DEFINITION
1	+12V
2	+12V
3	+12V
4	5V
5	5V
6	GND
7	GND
8	Backlight Enable
9	Backlight control
10	GND



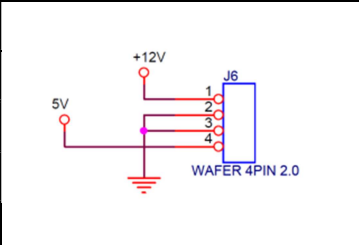
## J1: DIO

PIN	DEFINITION
1	DIO0
2	DIO1
3	DIO2
4	DIO3
5	DIO4
6	DIO5
7	DIO6
8	DIO7
9	3.3V
10	GND



## J6: SATA Power

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

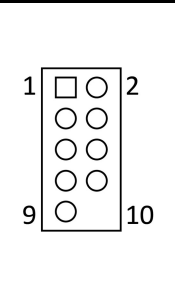


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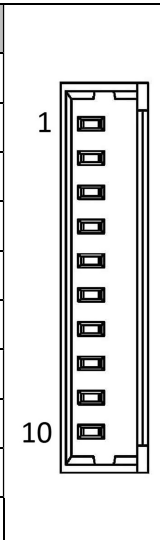
## J9: Front Panel

PIN	DEFINITION	PIN	DEFINITION
1	FP_HDLED+	2	FP_PLED+
3	SATALED#	4	GND
5	GND	6	EC_PWR_BTN
7	RESET-	8	GND
9			



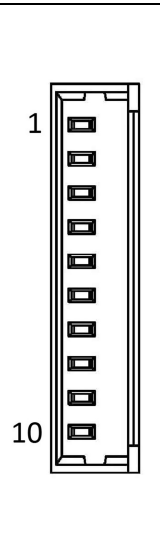
## J10: LPC

PIN	DEFINITION
1	GND
2	GND
3	+3.3VSB
4	LPC_AD0
5	LPC_AD1
6	LPC_AD2
7	LPC_AD3
8	LPC_FRAME#
9	PLTRST#_BUF1
10	LPC_CLK_1



## J11: Audio

PIN	DEFINITION
1	GND
2	MIC1_JD
3	MIC1_R
4	MIC1_L
5	FRONT_JD
6	FRONT_R
7	FRONT_L
8	LINE1_JD
9	LINE1_R
10	LINE1_L

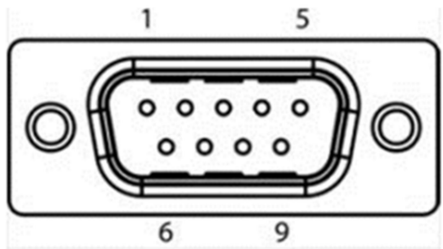


# OXY5361A User's Manual

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## COM1: RS232 with 5V/12V selectable

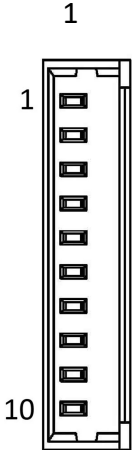
Pin	RS-232
1	DCD#
2	RXD
3	TXD
4	DTR#
5	GND
6	DSR#
7	RTS#
8	CTS#
9	COM1P9SEL



## J12: COM2 RS232/422/485

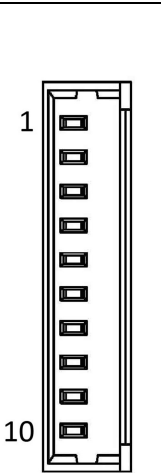
Note: RS232/422/485 can be set by BIOS.

Pin	RS232 mode (Default)	RS422 mode	RS485 mode
1	5V		
2	GND	GND	GND
3	RI		
4	DTR	RX-	
5	CTS		
6	TXD	RX+	
7	RTS		
8	RXD	TX+	DATA-
9	DSR		
10	DCD	TX-	DATA+



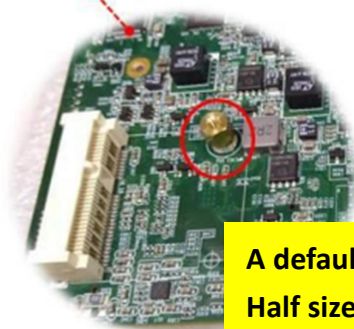
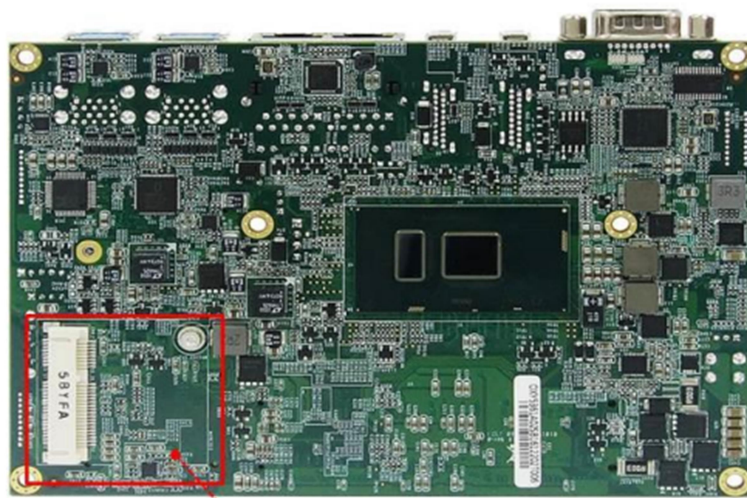
## J14: USB2.0 x 2

PIN	DEFINITION
1	+5V
2	USB5-
3	USB5+
4	GND
5	GND
6	+5V
7	USB6-
8	USB6+
9	GND
10	GND

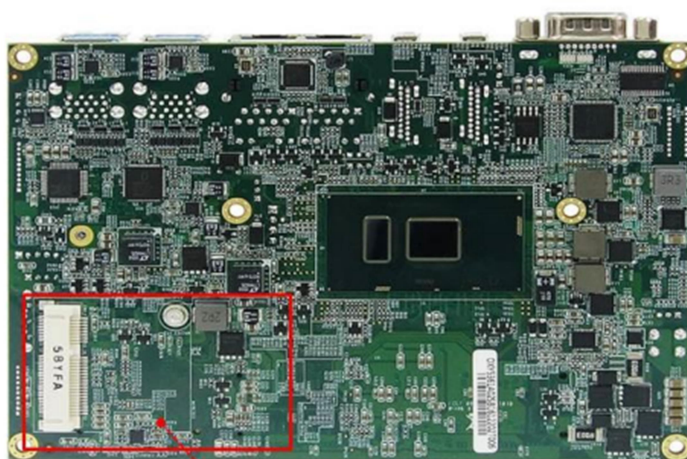




## Chapter 3: Quick Installation Guide

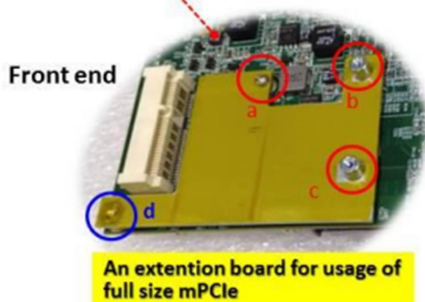


A default screw for usage of Half size mSATA

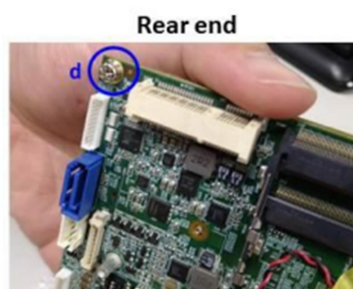


### Quick Installation Guide

- Step 1:** Remove default screw for half size mPCIe
- Step 2:** Use screws/copper pillars to fix extension board from the **front end** of OXY5361A (**Location a, b, c**)
- Step 3:** Turn to the back of the motherboard.
- Step 4:** Use screws/copper pillars to fix extension board from the **rear end** of motherboard (**Location d**)



An extension board for usage of full size mPCIe



Rear end

## Chapter 4: 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.

### 4.1 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.

### 4.2 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.

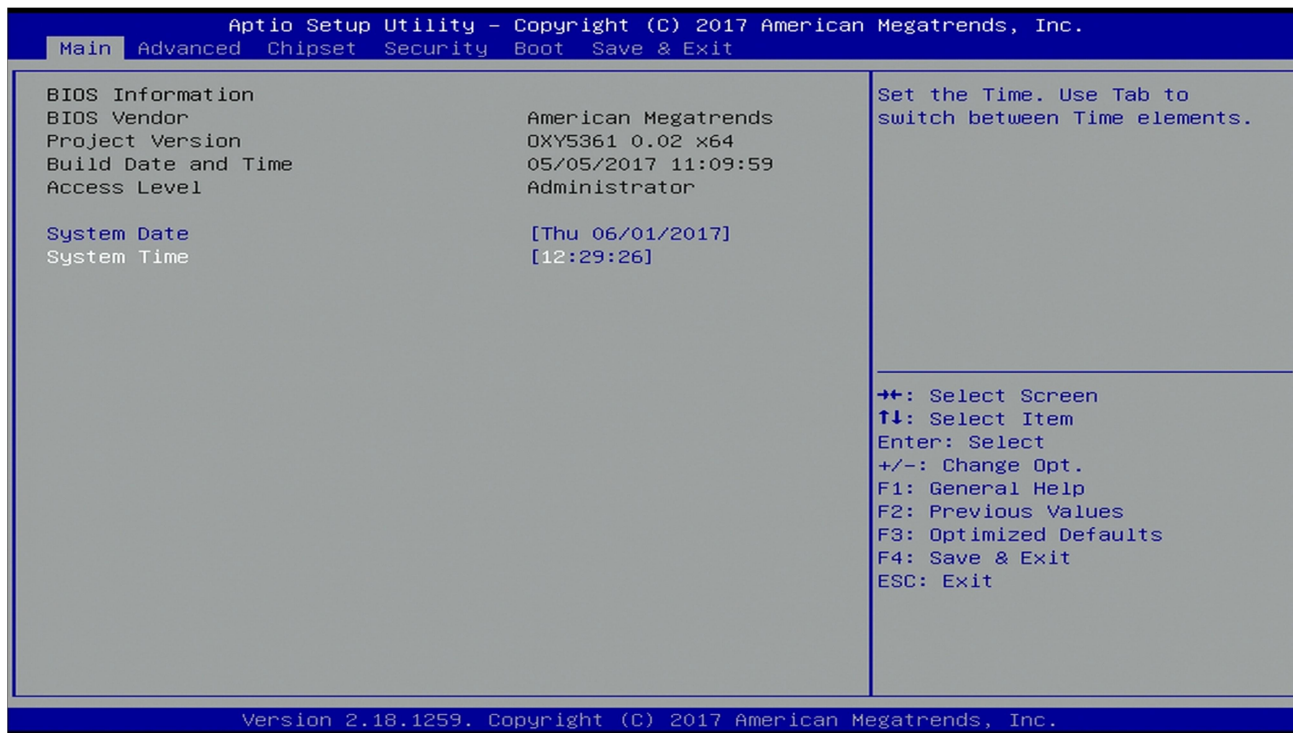


Some of the navigation keys may differ from one screen to another.

<b>Left/Right</b>	The Left and Right <Arrow> keys moves the cursor to select a menu.
<b>Up/Down</b>	The Up and Down <Arrow> keys moves the cursor to select a setup screen or sub-screen.
<b>+– Plus/Minus</b>	The Plus and Minus <Arrow> keys changes the field value of a particular setup setting.
<b>F1</b>	The <F1> key offer general help.
<b>F2</b>	The <F3> key load previous values.
<b>F3</b>	The <F3> key load optimized defaults.
<b>F4</b>	The <F4> key saves any changes made and exits the BIOS setup utility.
<b>Esc</b>	The <Esc> key discards any changes made and exits the BIOS setup utility.
<b>Enter</b>	The <Enter> key displays a sub-screen or changes a selected or highlighted option in each menu.

## 4.3 Main Menu

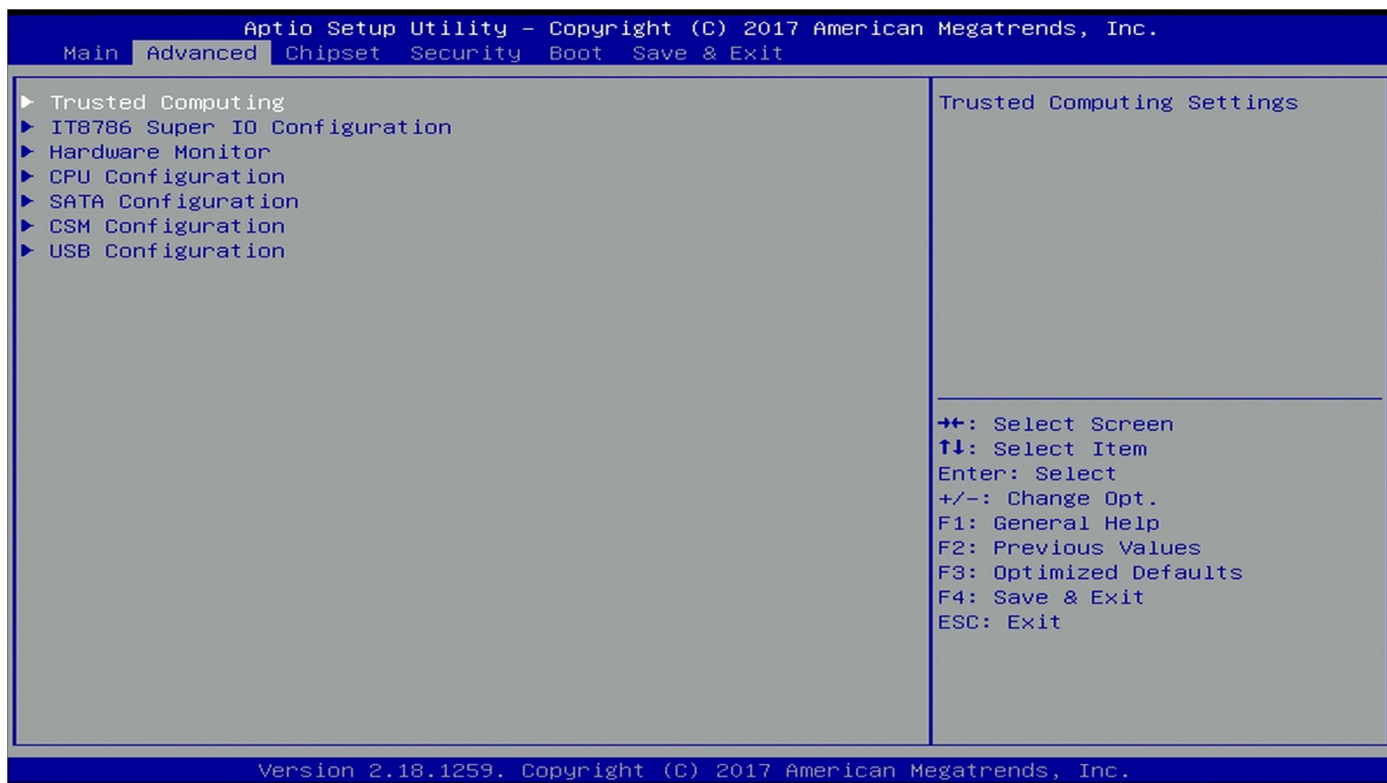
The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.



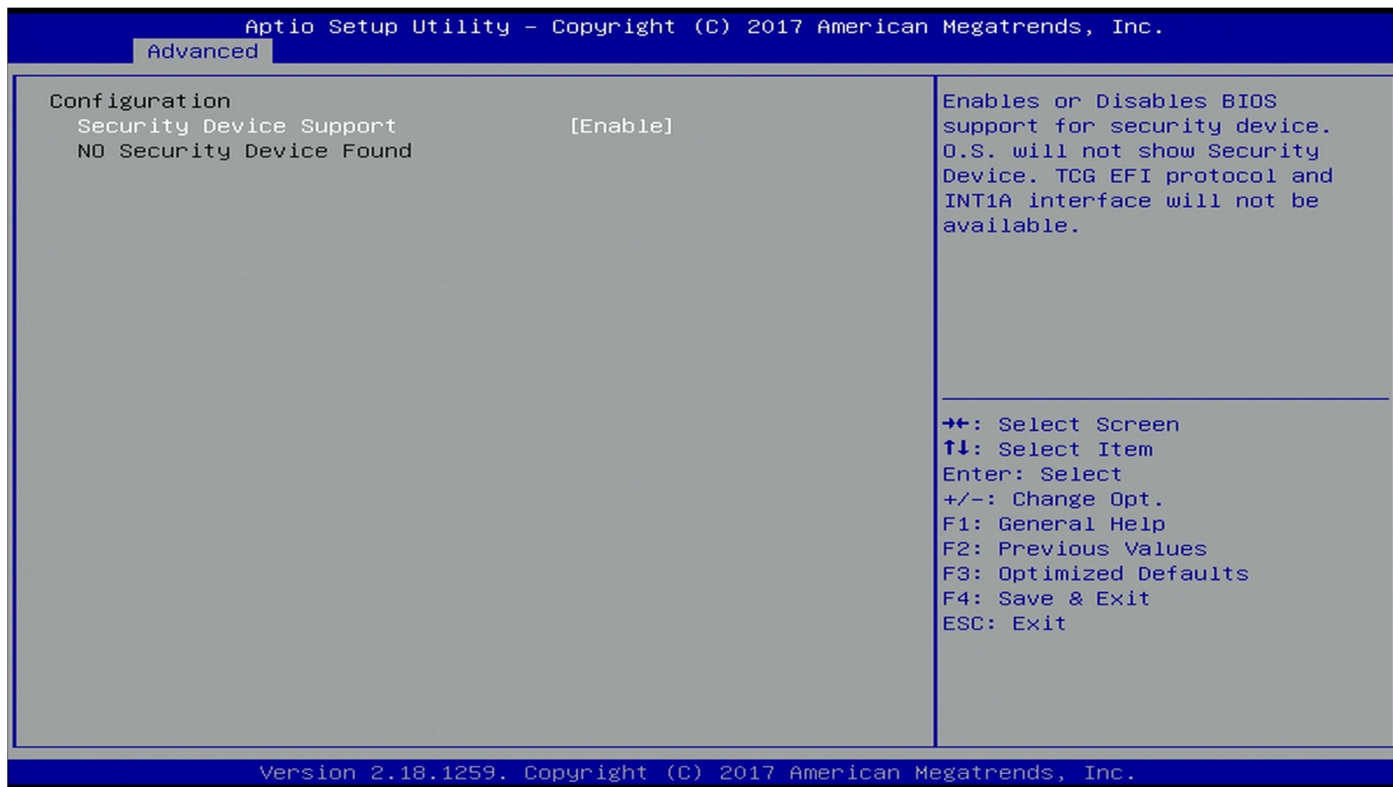
## 4.4 Advanced Menu

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.

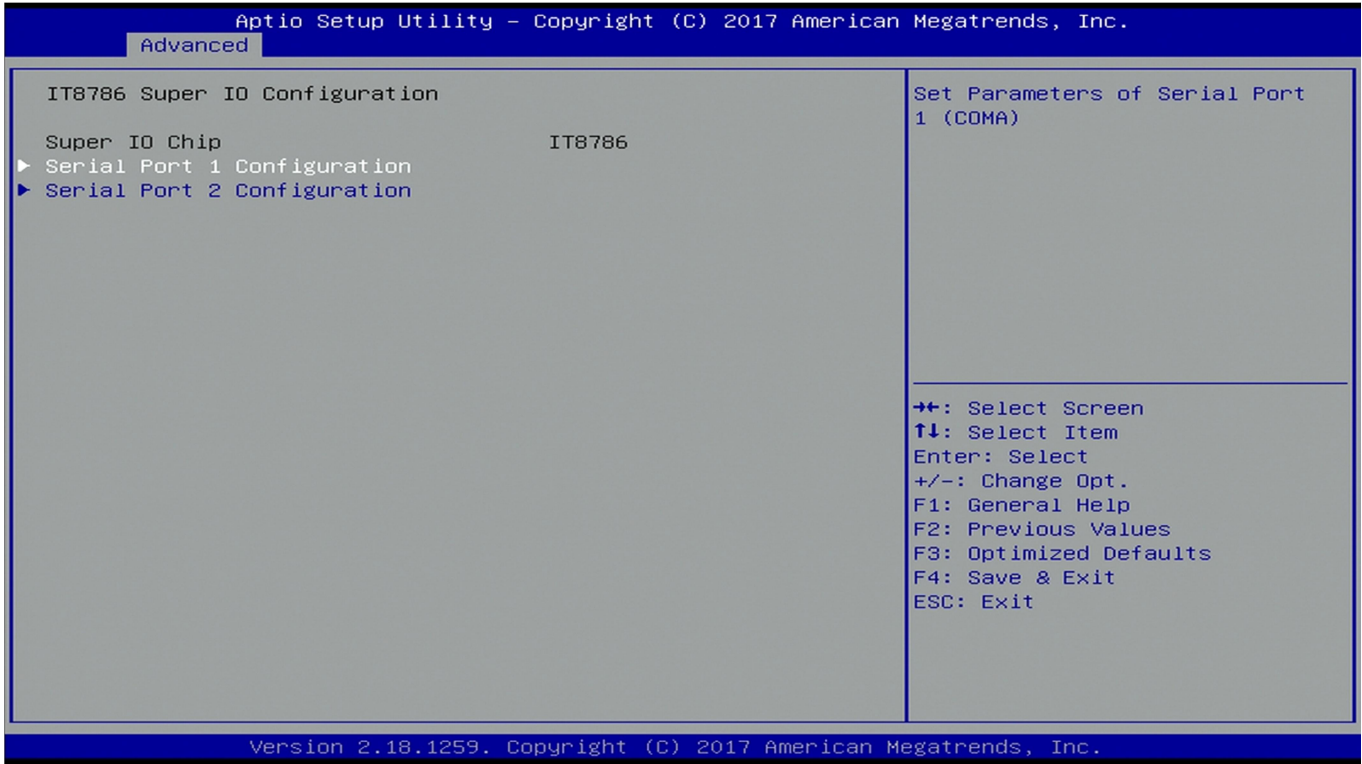
**Setting incorrect field values may cause the system to malfunction.**



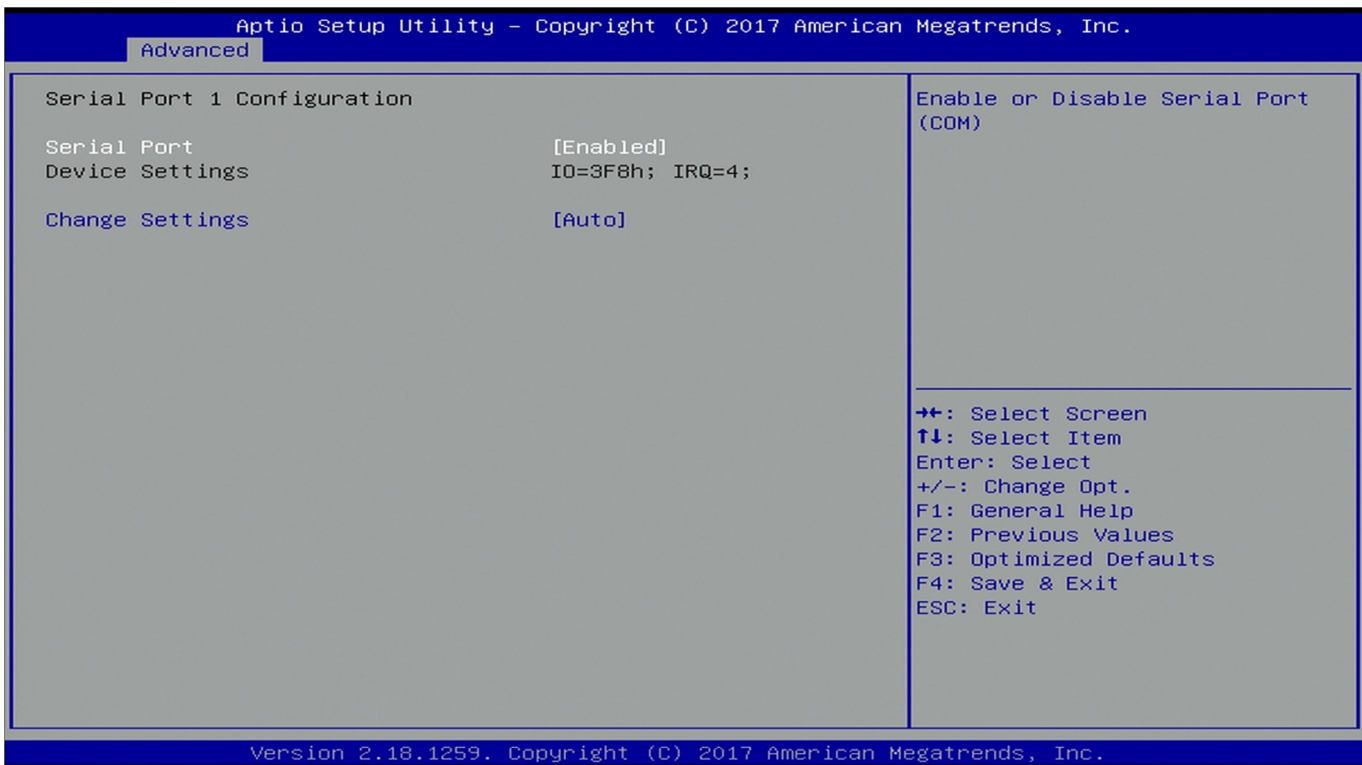
## 4.4.1 Trust Computing



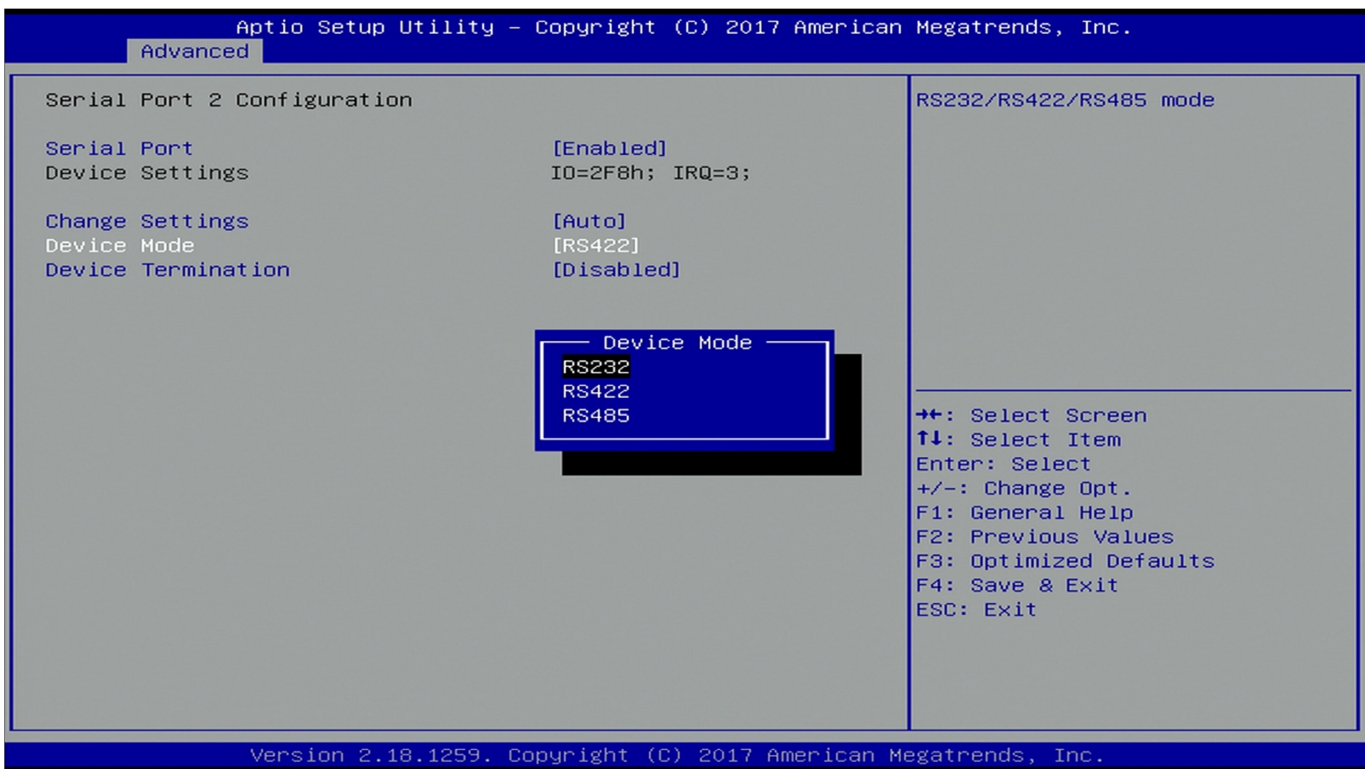
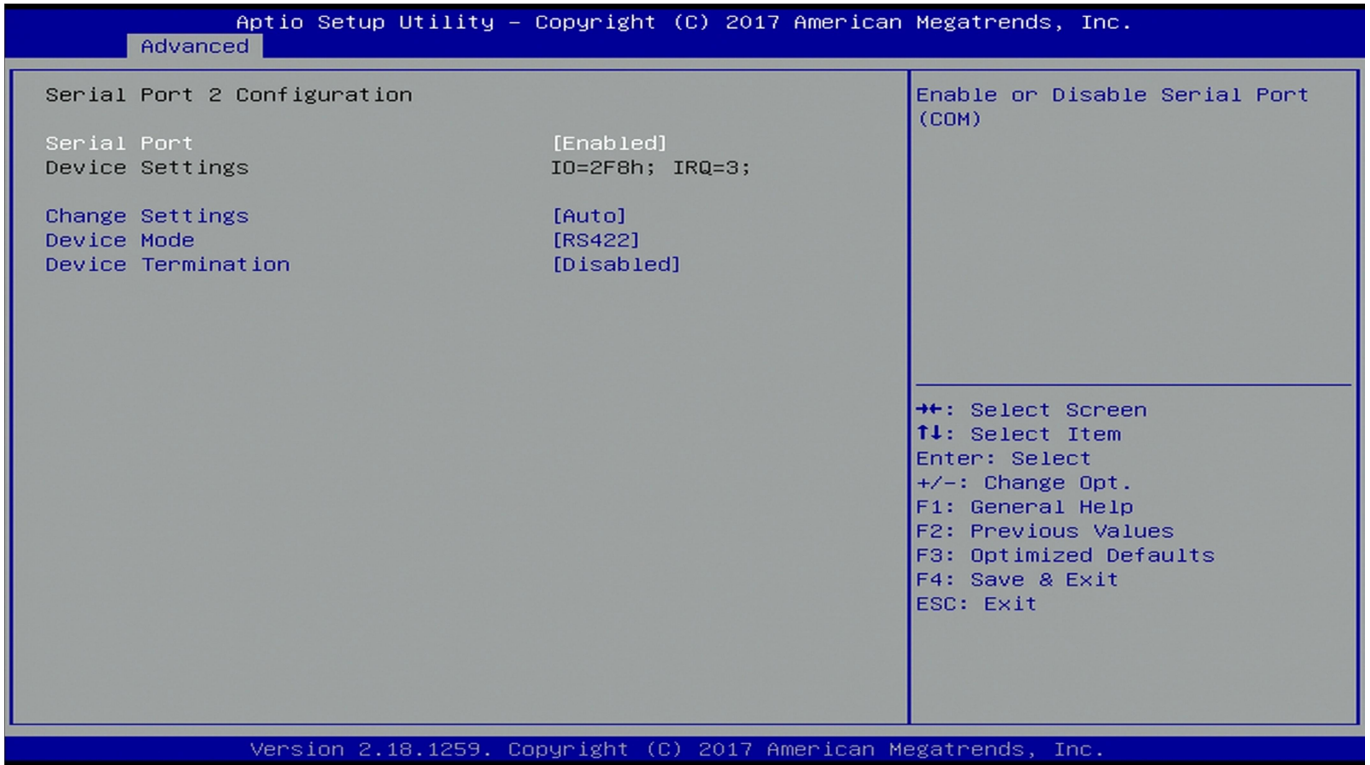
## 4.4.2 IT8786 Super IO Configuration



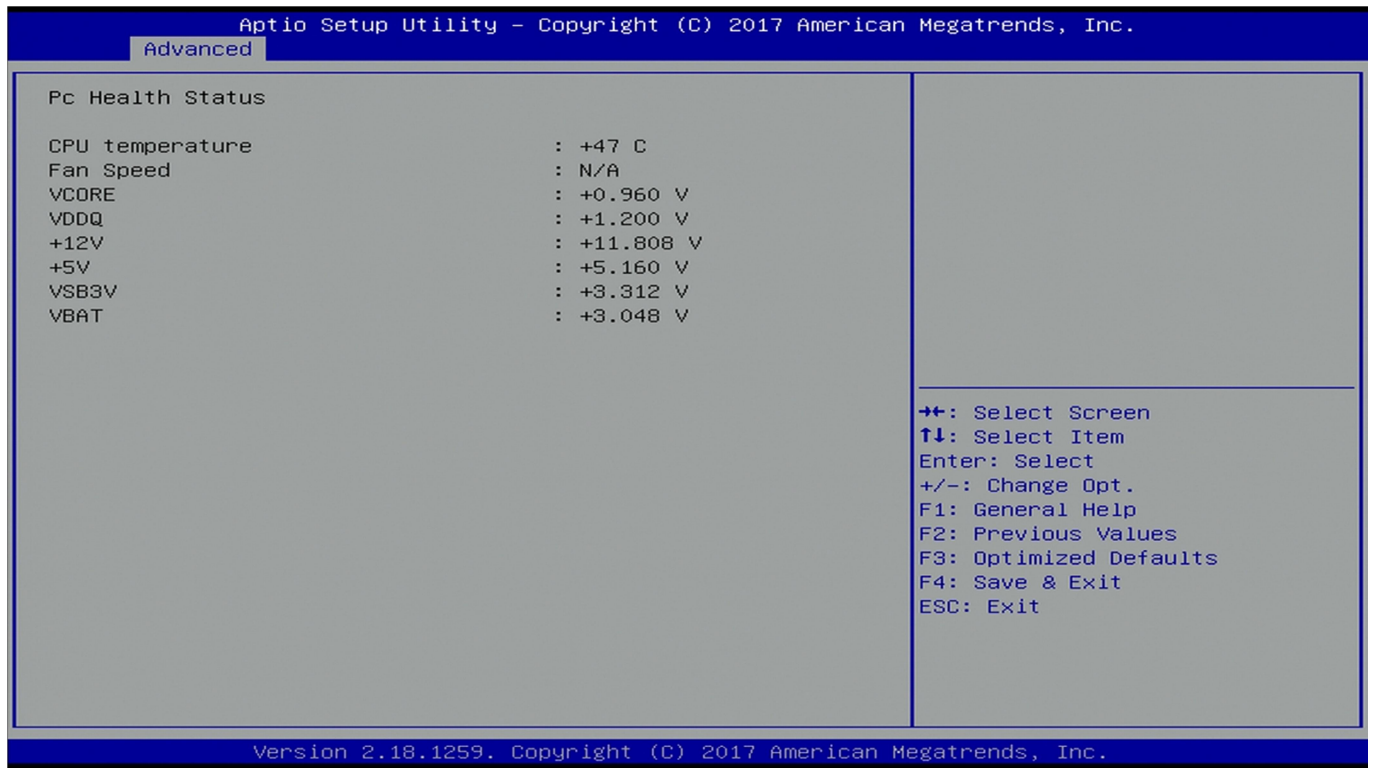
### 4.4.2.1 Serial Port 1 Configuration



## 4.4.2.2 Serial Port 2 Configuration

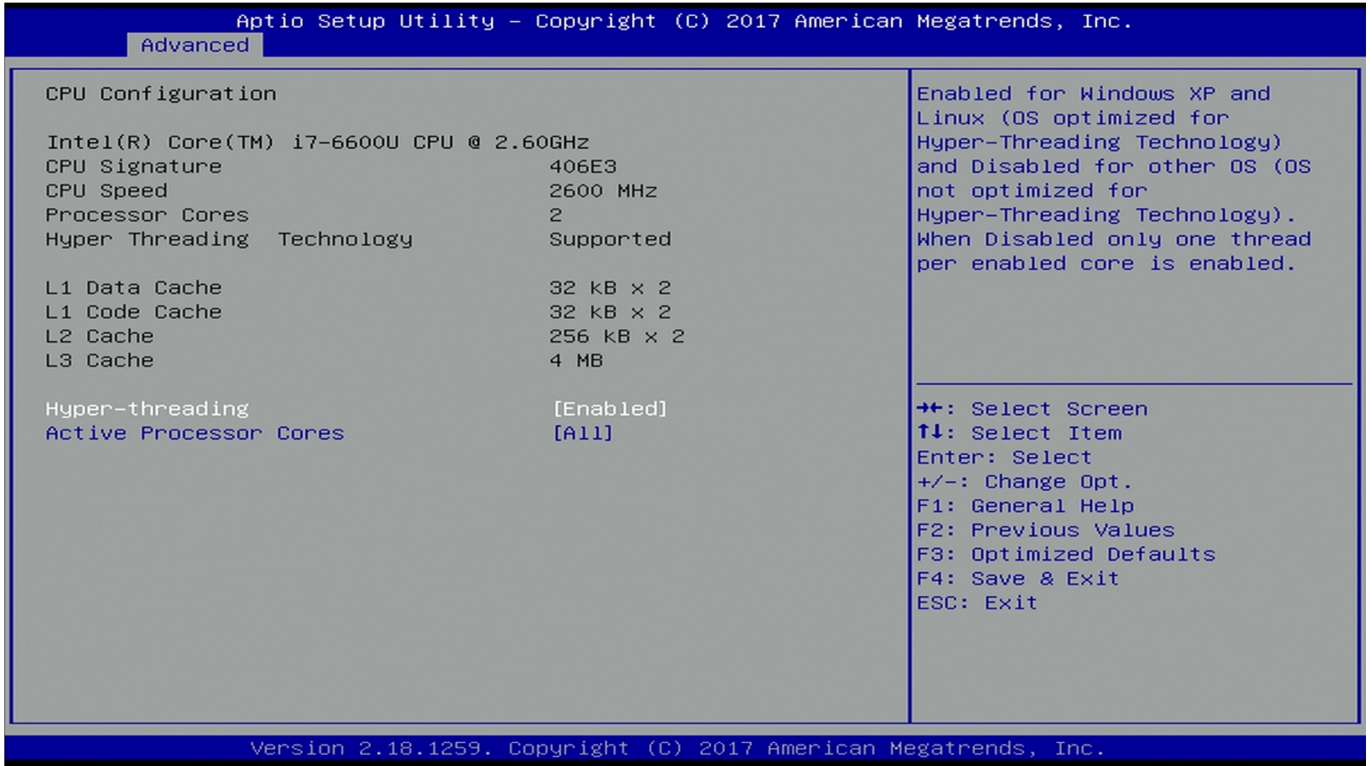


## 4.4.3 Hardware Monitor



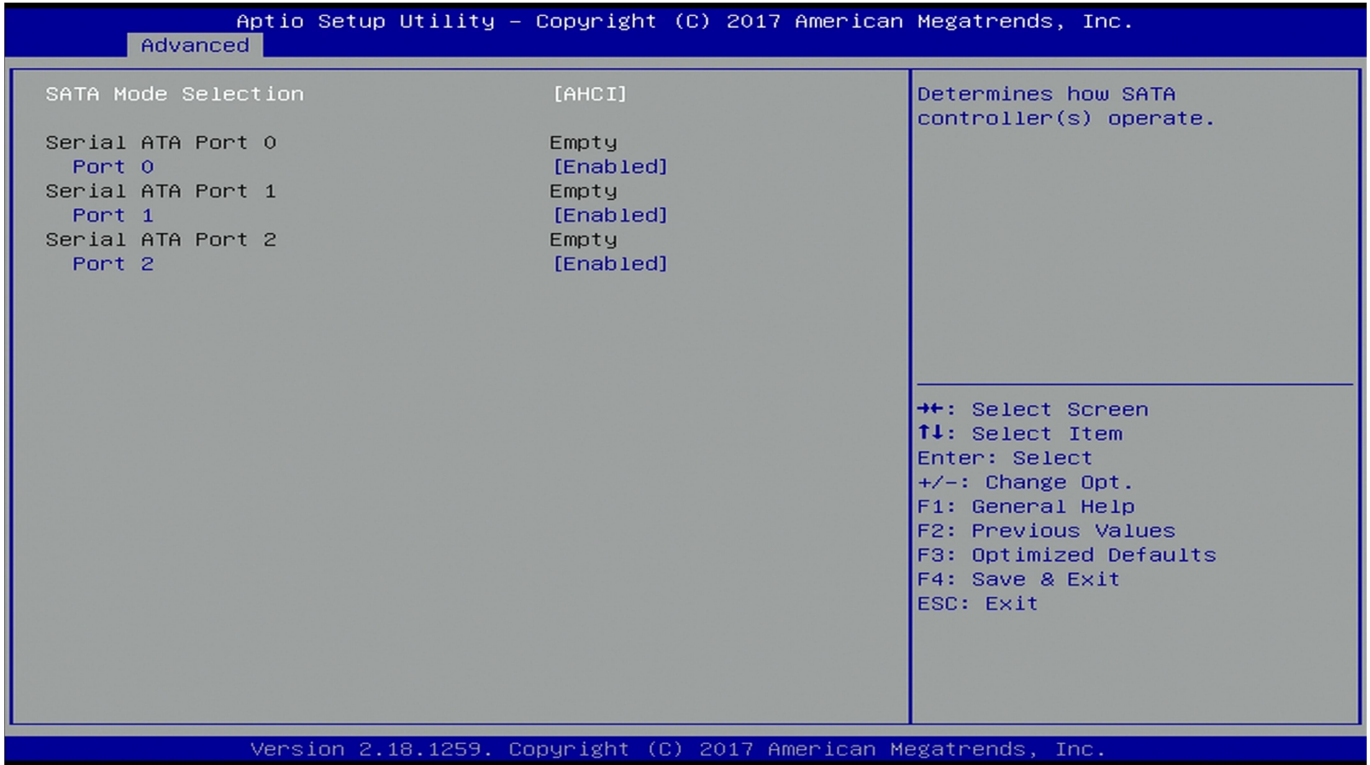


## 4.4.4 CPU Configuration



The screenshot shows the Aptio Setup Utility interface for CPU configuration. The title bar reads "Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc." and the menu bar shows "Advanced". The main content area is divided into two columns. The left column lists system information: "CPU Configuration" (Intel(R) Core(TM) i7-6600U CPU @ 2.60GHz), "CPU Signature" (406E3), "CPU Speed" (2600 MHz), "Processor Cores" (2), "Hyper Threading Technology" (Supported), "L1 Data Cache" (32 KB x 2), "L1 Code Cache" (32 KB x 2), "L2 Cache" (256 KB x 2), "L3 Cache" (4 MB), "Hyper-threading" ([Enabled]), and "Active Processor Cores" ([All]). The right column contains a descriptive text: "Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology). When Disabled only one thread per enabled core is enabled." Below this text is a legend: "++: Select Screen", "↑↓: Select Item", "Enter: Select", "+/-: Change Opt.", "F1: General Help", "F2: Previous Values", "F3: Optimize Defaults", "F4: Save & Exit", and "ESC: Exit". The footer of the window reads "Version 2.18.1259. Copyright (C) 2017 American Megatrends, Inc."

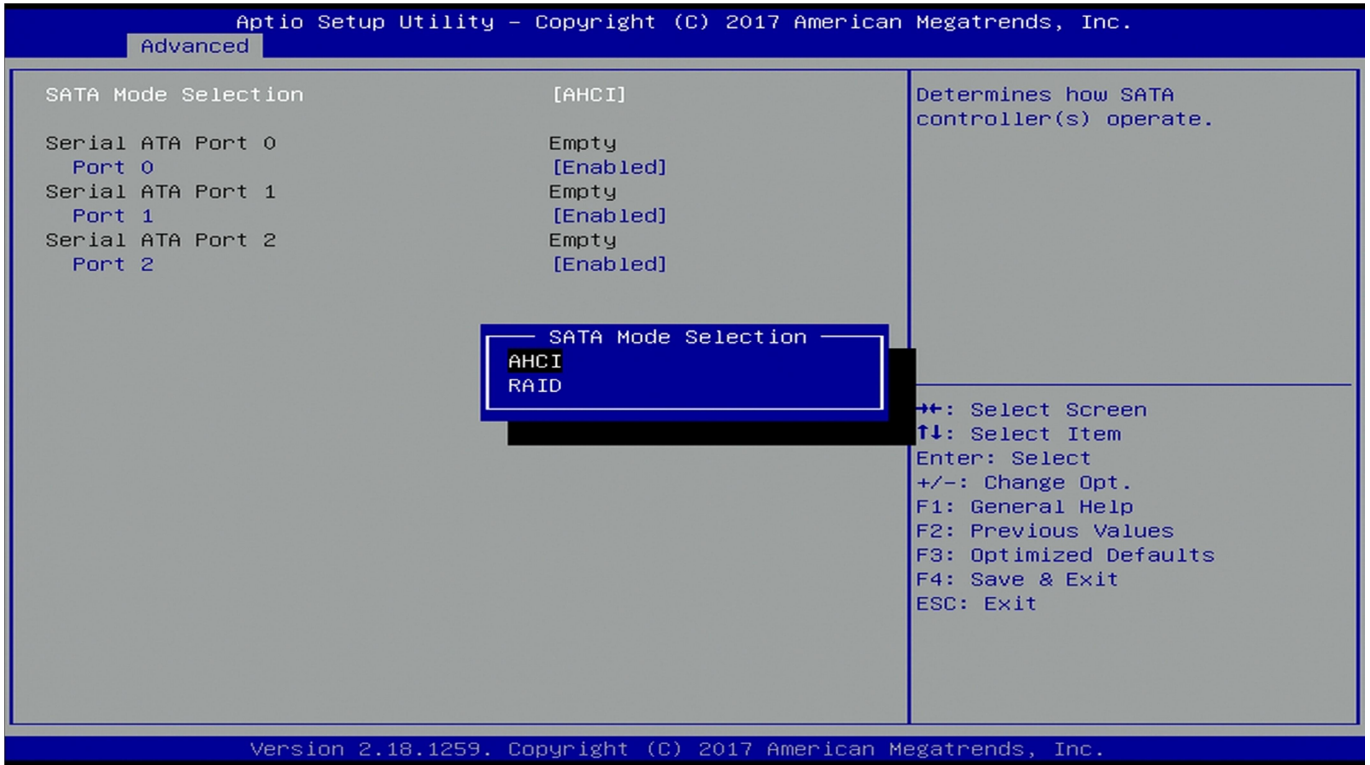
## 4.4.5 SATA Configuration



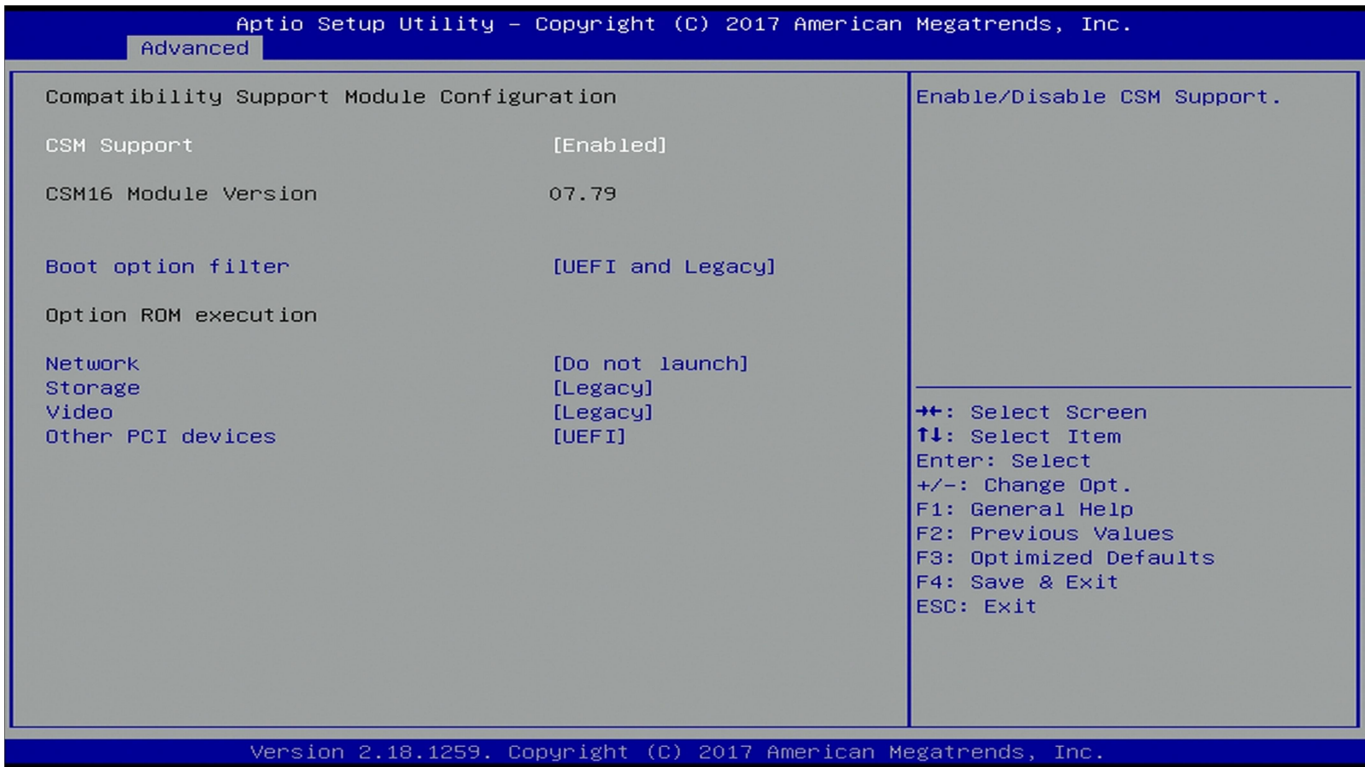
The screenshot shows the Aptio Setup Utility interface for SATA configuration. The title bar reads "Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc." and the menu bar shows "Advanced". The main content area is divided into two columns. The left column lists SATA settings: "SATA Mode Selection" ([AHCI]), "Serial ATA Port 0" (Empty, [Enabled]), "Serial ATA Port 1" (Empty, [Enabled]), and "Serial ATA Port 2" (Empty, [Enabled]). The right column contains a descriptive text: "Determines how SATA controller(s) operate." Below this text is a legend: "++: Select Screen", "↑↓: Select Item", "Enter: Select", "+/-: Change Opt.", "F1: General Help", "F2: Previous Values", "F3: Optimize Defaults", "F4: Save & Exit", and "ESC: Exit". The footer of the window reads "Version 2.18.1259. Copyright (C) 2017 American Megatrends, Inc."

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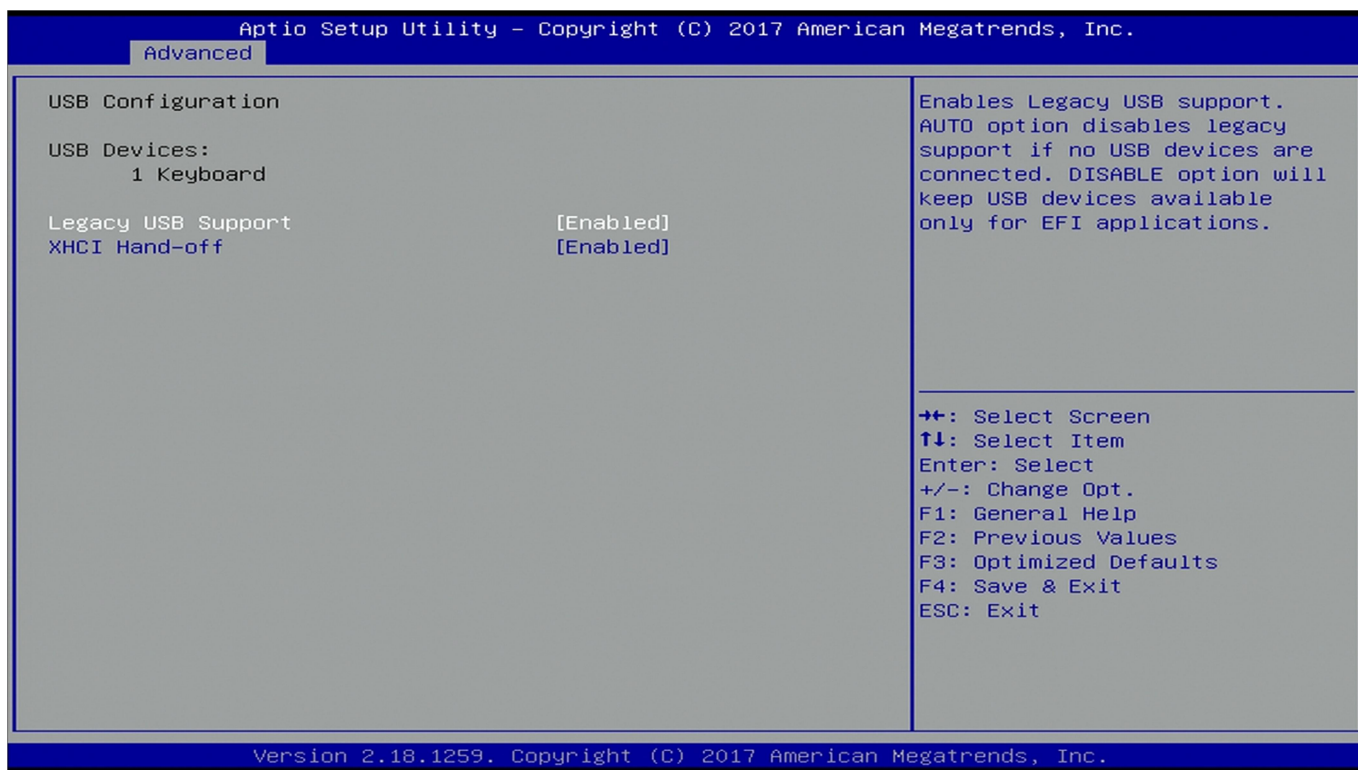
Revision Date: February 09, 2022



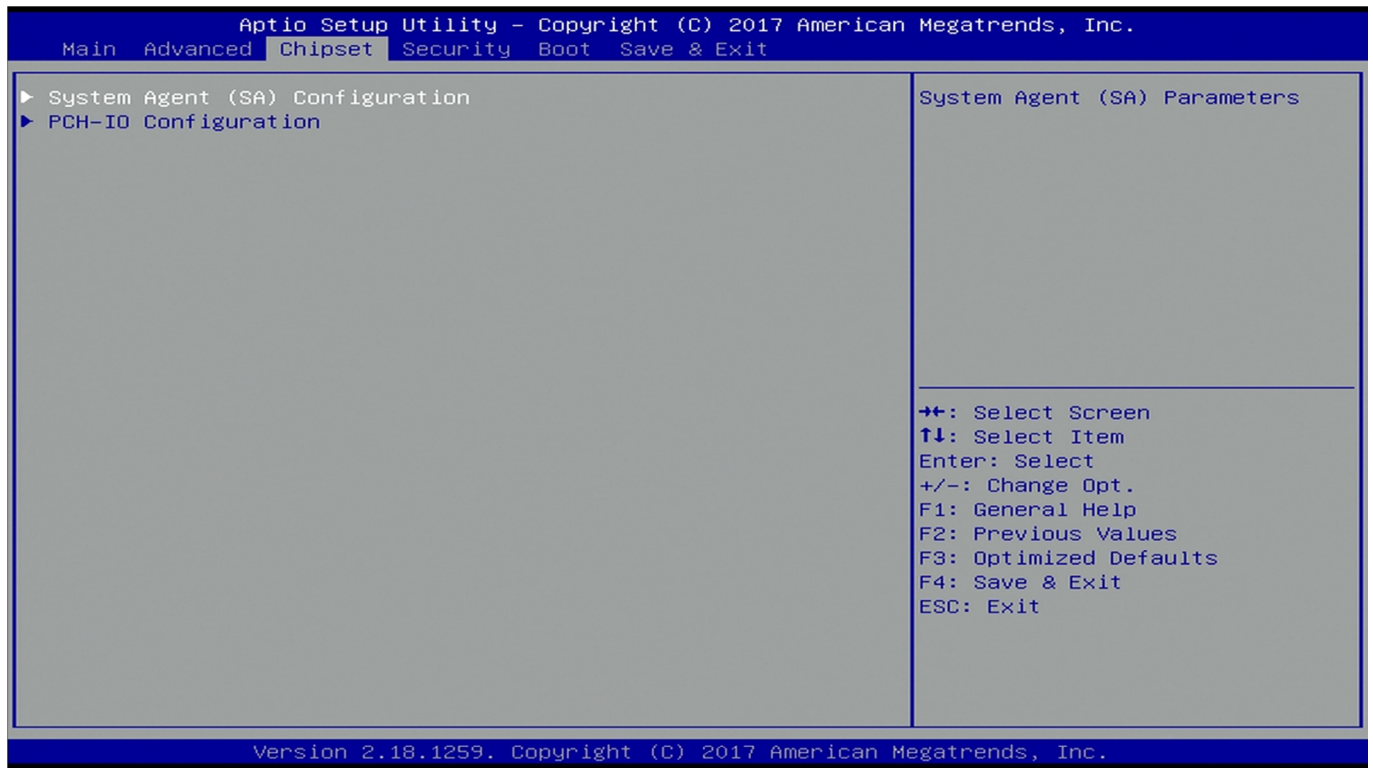
## 4.4.6 CMS Configuration



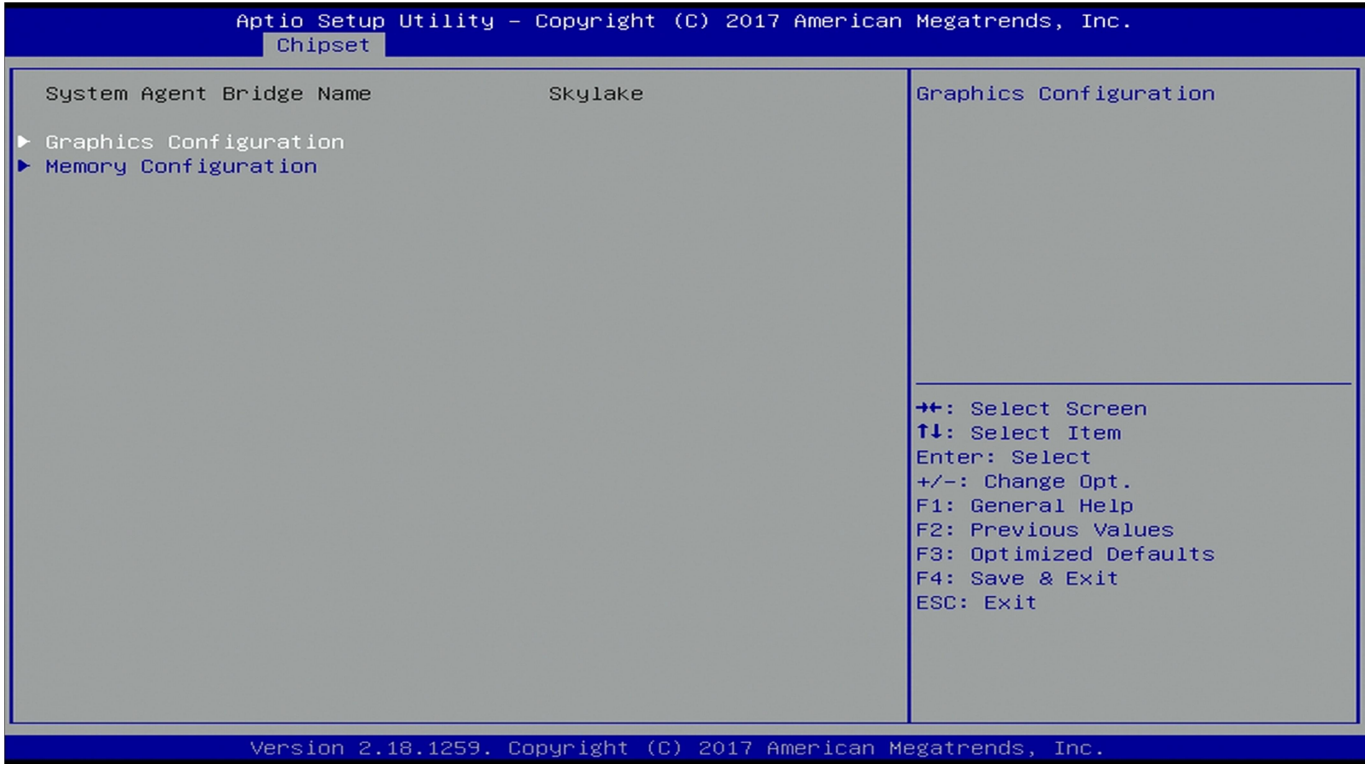
## 4.4.7 USB Configuration



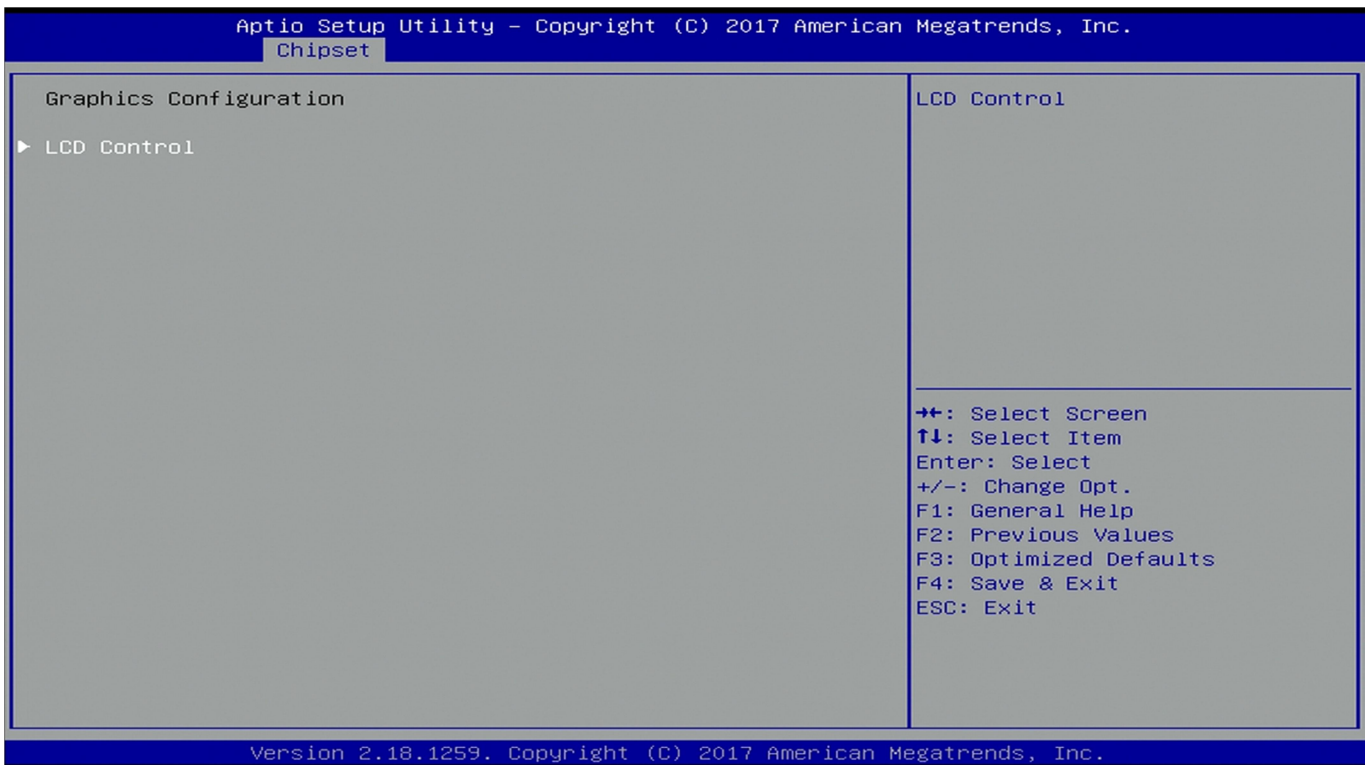
## 4.5 Chipset



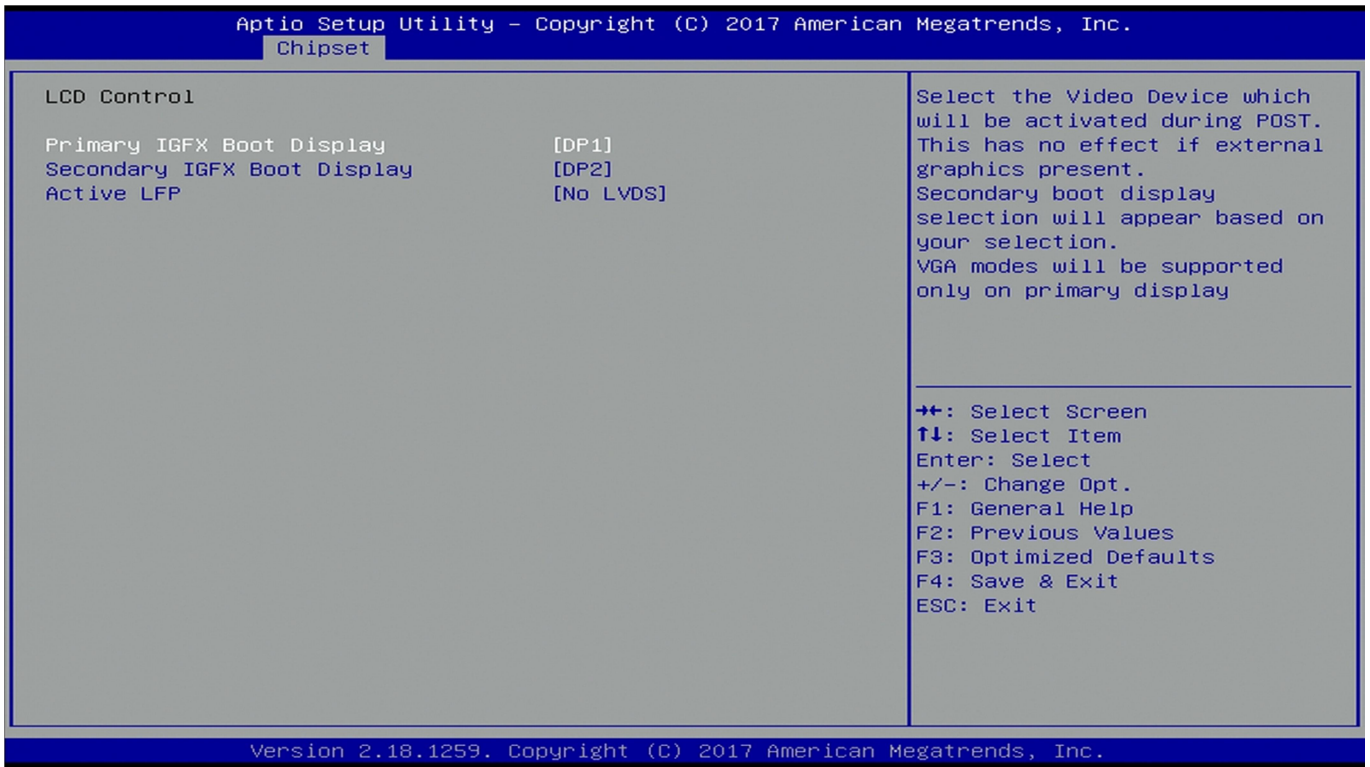
## 4.5.1 System Agent (SA) Configuration



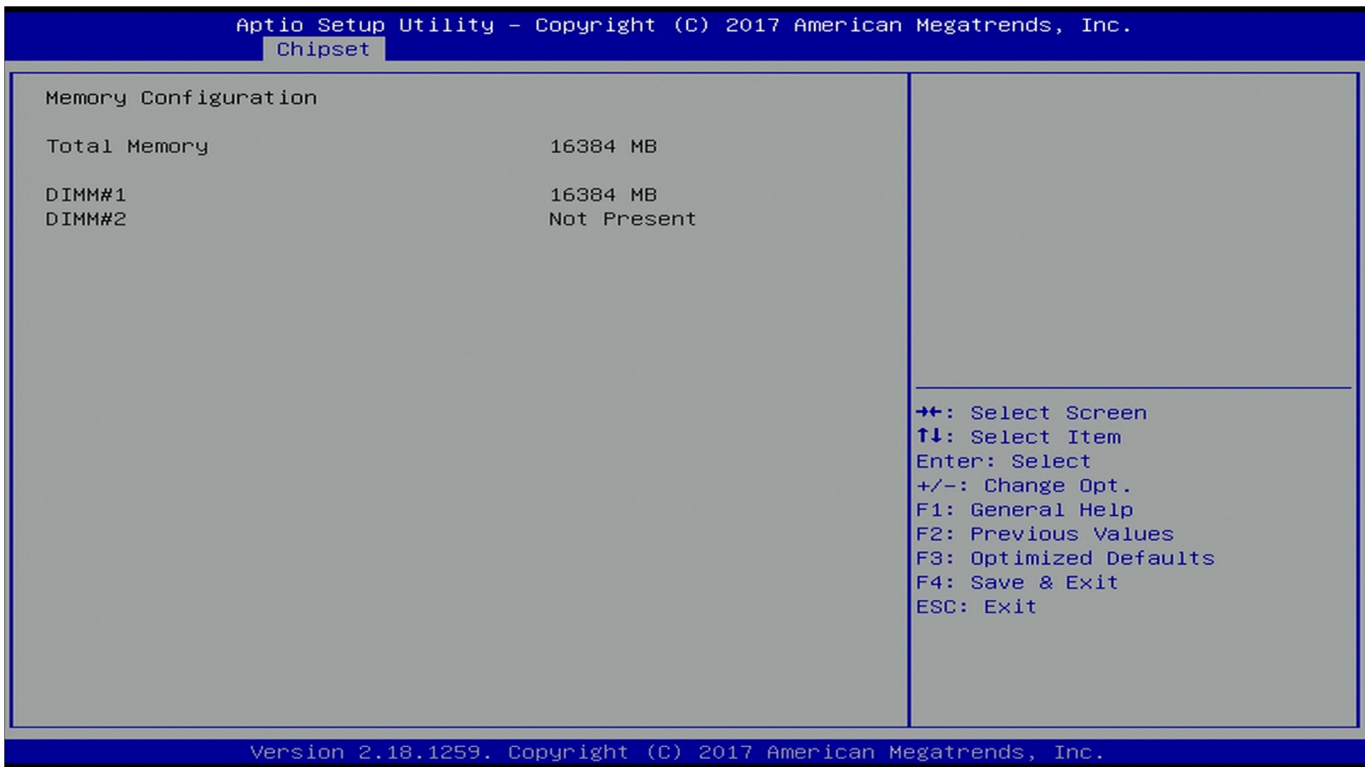
### 4.5.1.1 Graphic Configuration



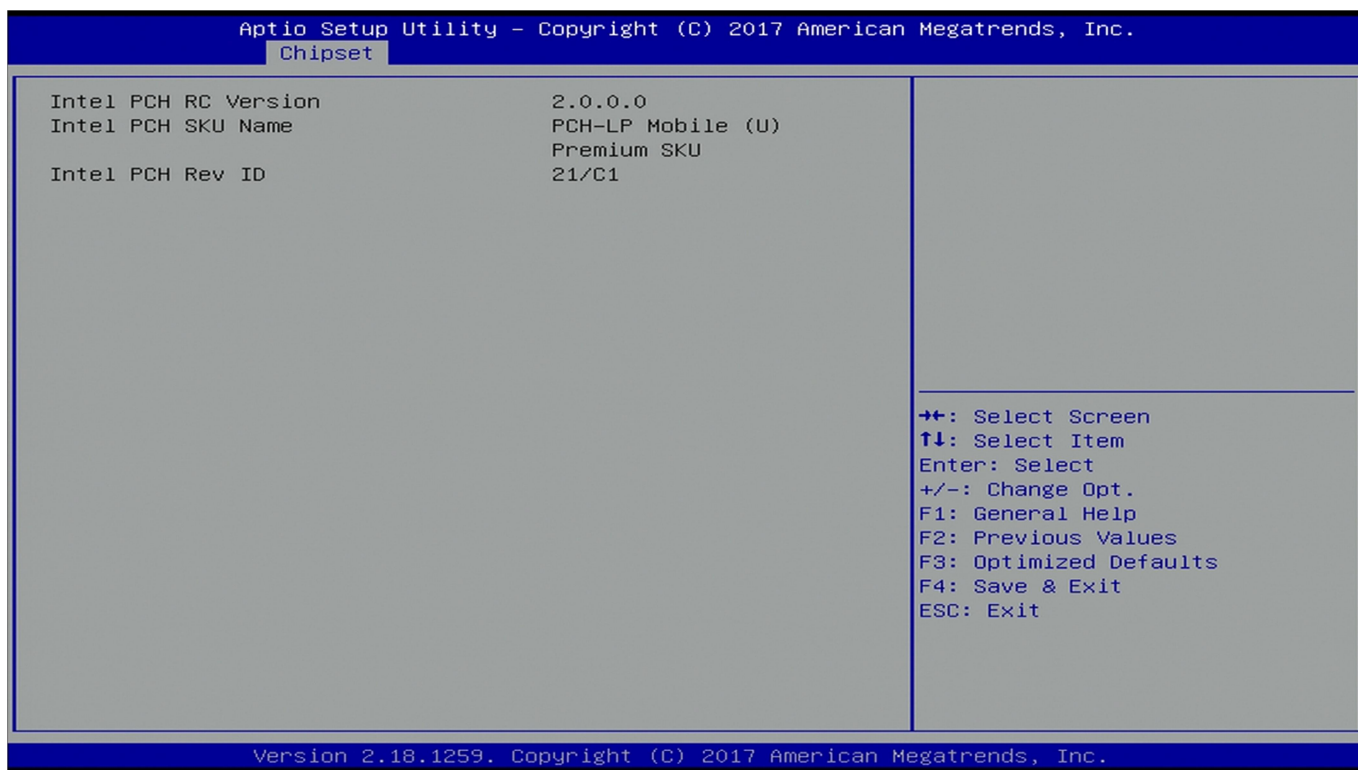
## 4.5.1.1.1 LCD Control



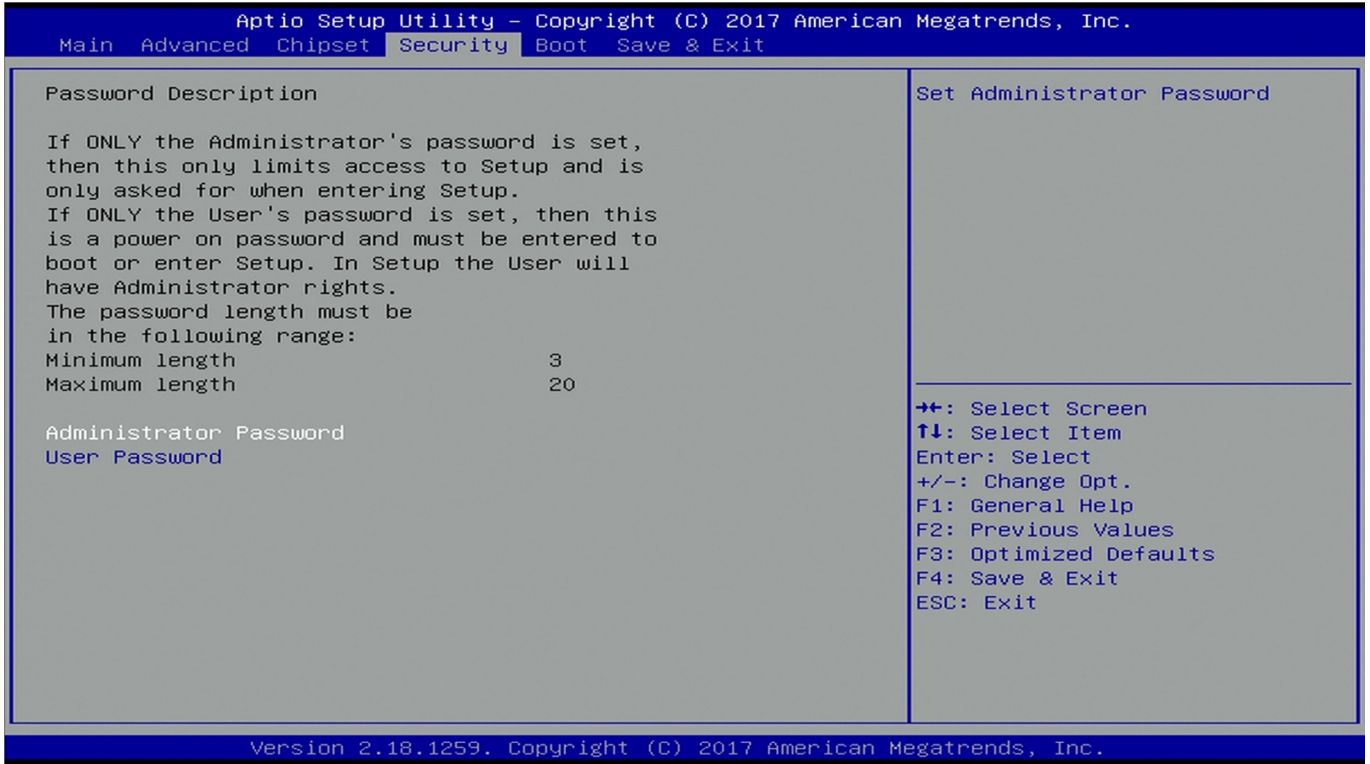
## 4.5.1.2 Memory Configuration



## 4.5.2 PCH-IO Configuration



## 4.6 Security



### Administrator Password

Set administrator password.

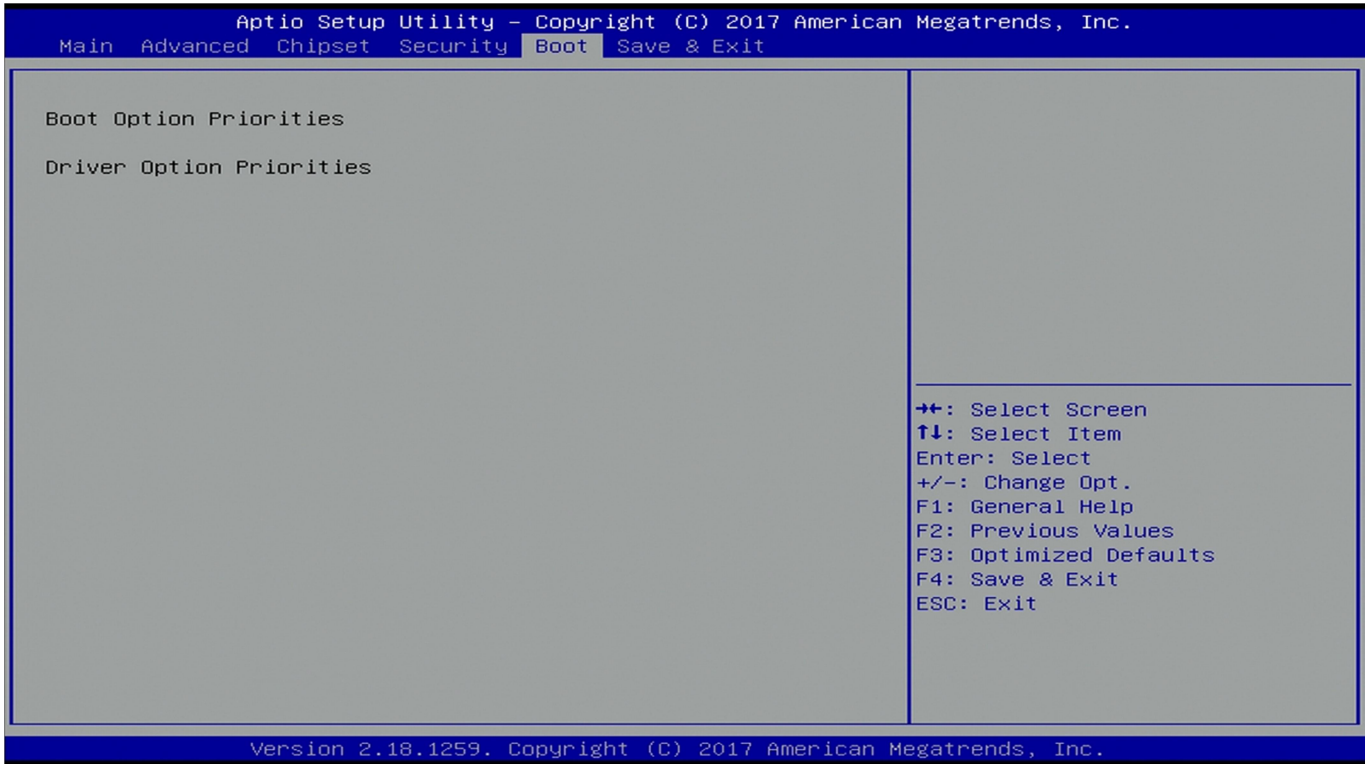
### User Password

Set user Password.



## 4.7 Boot Menu

This section is used to configure the boot features.



## 4.8 Save & Exit

