

# eBOX-3560

Din Rail Fanless Box PC

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This restriction is subject to provide protection for system operation in business environment, which will produce, use and transmit radio frequency energy. Without notice of the instructions of the correct installation and use, it may cause harmful interference to radio communication. The interference prevention cannot be guaranteed even with proper installation according to the manual. If the device gets bad affect on the signal of radio / TV. User could insure by turn device on/off.

When this device produces some harmful interference, user can use the following measure to solve interference problem:

Setting the receiving antenna's direction or location

Increase the distance between this device and receiver.

Plug in this device's power connector into different circuits of the power outlet with receiver

If you need technical support, please inform the dealer or experienced radio/TV technical personnel.

**Warning:**

If user changes the setting unauthorized or repairs the device without any approval of the relevant authority, then user's rights of controlling this device will be canceled.

## ORDERING INFORMATION

Type	Description
eBOX-3560	Intel Apollo lake J3355 2.5G Dual Core CPU/without DDR3L RAM /without Disk /2*RS232/2 Giga LAN /4 USB3.0/HDMI /DC9~30V Input /DIN Rail Mount

### Optional Item

M-10006-0005A	Adapter 12V/3.33A,40W with 2pin phoenix terminal
M-11015-0002A	EU type power cord
M-11015-0010A	CN type power cord PSB-10+ST3
	Other type power cord

### Accessory

M-15005-0002A	1x DIN Rail Clip
	Mounting Bracket

## TECHNICAL SUPPORT AND SERVICE

Please visit: [en.nodka.com](http://en.nodka.com) to get the details.

User should collect the product information following:

- Product name and serial number.
- Attached device's description
- User's software's description (operational system, vision, application software and so on)
- Full description of the product's problem
- Full details of every error information

**Warning:**

1. DC 9~30V power input;
2. Package: be careful, please take the device by two hands;
3. Maintenance: please clean and maintain the surface by correct ways, only can uses the certificated or dry product to clean up.

## SAFETY INTRODUCTION

1. Please read the safety operating introduction very carefully.
2. Please store this manual so that refers it again.
3. Before clean up the device by wet cloth, please confirm that power connector is out of outlet, DO NOT use any liquid or decontamination spray to clean it up!
4. There must be an easy touched power outlet.
5. Please confirm that the device is be put on a stable platform before installation, accident fall may cause damages of device.
6. Please confirm that the voltage which is come from power outlet is fit on the requirement, before you connect the device to outlet.
7. Please arrange the power cable in a hiding place and do not cover anything on the cable.
8. Please be cautious of the warnings and notices on the device.
9. If the device is not used for a long time, shut off the power to avoid the damages by transient overvoltage.
10. DO NOT allow any liquid flow into the device so that cause fire or short circuit.
11. DO NOT pull the device up by yourself, please let any certificated engineer to do that for your safety.

If you meet the following situations, please repair it by professional person:

- Power cable or connector is broken;
- Liquid flow into the device.
- Device doesn't work properly. Or you can't make it work through the user manual.
- This device falls or any damage;
- Some obvious damage;

12. DO NOT store the device in out of the temperature range what we suggested, NOT less then -30°C or higher than 80°C, or may damage the device.

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# Chapter 1

## OVERVIEW

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## 1.1 Introductions



**Figure 1-1: eBOX-3560**

eBOX-3560 Intel® Atom™ Apollo Lake Low Power Fanless Industrial Computer, with Atom CPU J3355 (up to 2.5GHz), featured with Robust, Easy-to-use , Low cost ,Lower power consumption. Support mSATA as storage, and with sufficient IO, such as 2\* 1000Mbps LANS, 4\* USB 3.0 Ports, 2\* RS232/ RS485.

Adopted sealed box structure to prevent dust, large aluminium chassis heatsink for cooling and to ensure the stability and longer service life of system. eBOX-3560 can be used for a long time running and in the harsh environment of industrial field. It is widely used in intelligent transportation, machine vision, medical equipment, textile machinery, railway and traffic automation.eBOX-3560 is compatible with Windows 10\_64 operating system.

intelligent traffic, machine vision, medical equipment, textile machine, railway and industrial automation etc.

eBOX-3560 compatible with Windows 10, some popular Linux operating system and embedded operating system.

## 1.2 Features

- No Cable designed
- Fasten storage installation designed
- Intel Apollo Lake J3355 CPU, up to 2.5GHz processor

- 2 x Intel i210 1000Mbps RJ45 interfaces
- 2x RS-232 serial ports (Optional RS-485)
- Interfaces: HDMI / 2 x GLAN / 4 x USB / 2 x COM
- DC 9~30V, optional power adapter.

## 1.3 External Overview

All-steel box structure, with good shock resistance and impact resistance.

### 1.3.1 Front panel

The front side of the eBOX-3560 is full of the ports and surrounded by an aluminum magnesium alloy die-cast frame, hard anodized brushed.

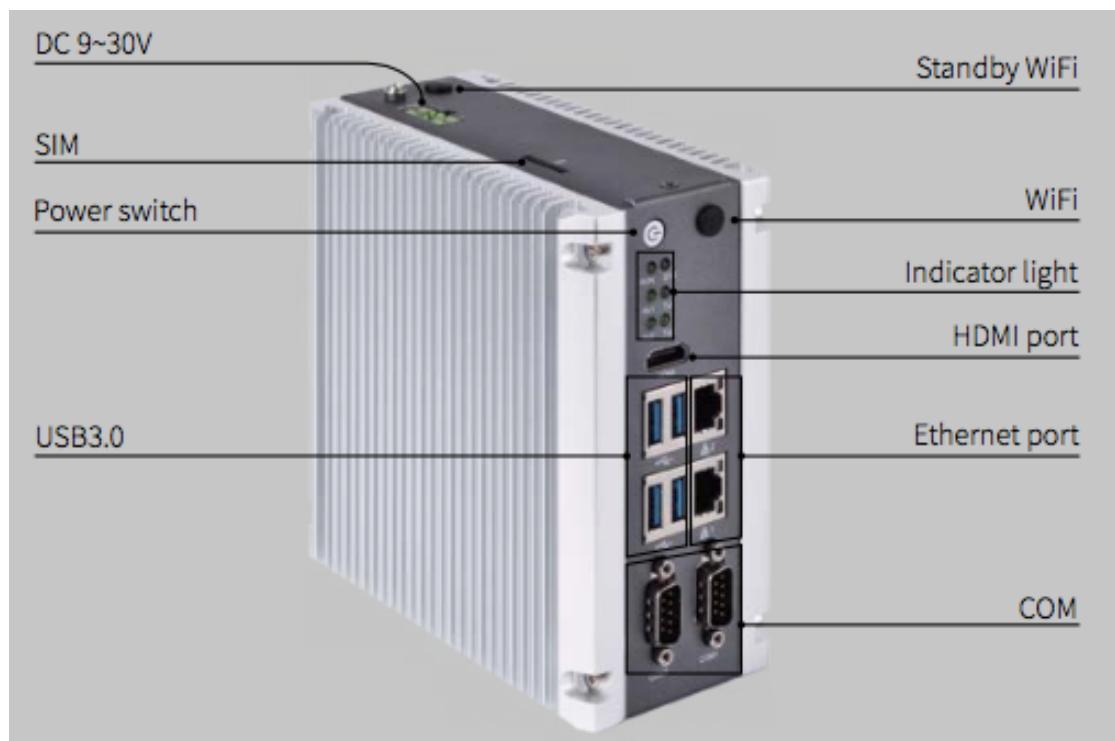


**Figure 1-2: Front panel**

### 1.3.2 Rear panel



Figure 1-3: Rear panel



## 1.4 Internal overview

Including motherboard/RAM/DISK.

## 1.5 Specifications

Type	eBOX-3560
<b>Hardware</b>	
Processor	Onboard Intel Apollo Lake J3355
CPU clock speed	2.5GHz
Chipset	Intel® Atom™ ApolloLake
RAM	1* 204pin SODIMM Slot, Up to 8GB
Hard drive	Support mSATA
Display	HDMI
Graphics	Integrated graphics media accelerator
Ethernet port	2 x i210 1000Mbps RJ-45 Ethernet port
Mini PCIe	2 x full size PCIe with SIM holder
USB	4 x USB 3.0
Serial port	2 x RS-232 serial ports (optional RS-485)
Watchdog	Programmable from 1~255seconds setting
Interfaces	HDMI / 2 x GLAN/4 x USB/2 x COM
<b>Structure</b>	
Structure	Aluminum alloy box,
Mounting method	DIN Rail
Total dimension	145 x 145 x 75mm (W x H x D)
Net weight	1.55kg
<b>Environment</b>	
Work temperature	-20-60°C (HDD-Free)
Storage temperature	-40-80°C
Power	DC 9~30V
Power consumption	17.4W
Constant temperature / wet test	60°C / 1000hrs
Relative humidity	10-9% (Non-condensing)
Vibration	50-500Hz, 1.5G, 0.19mm peak-peak value
Shock	10G / peak (11ms duration)

Table 1-1: Specification

## 1.6 Dimensions

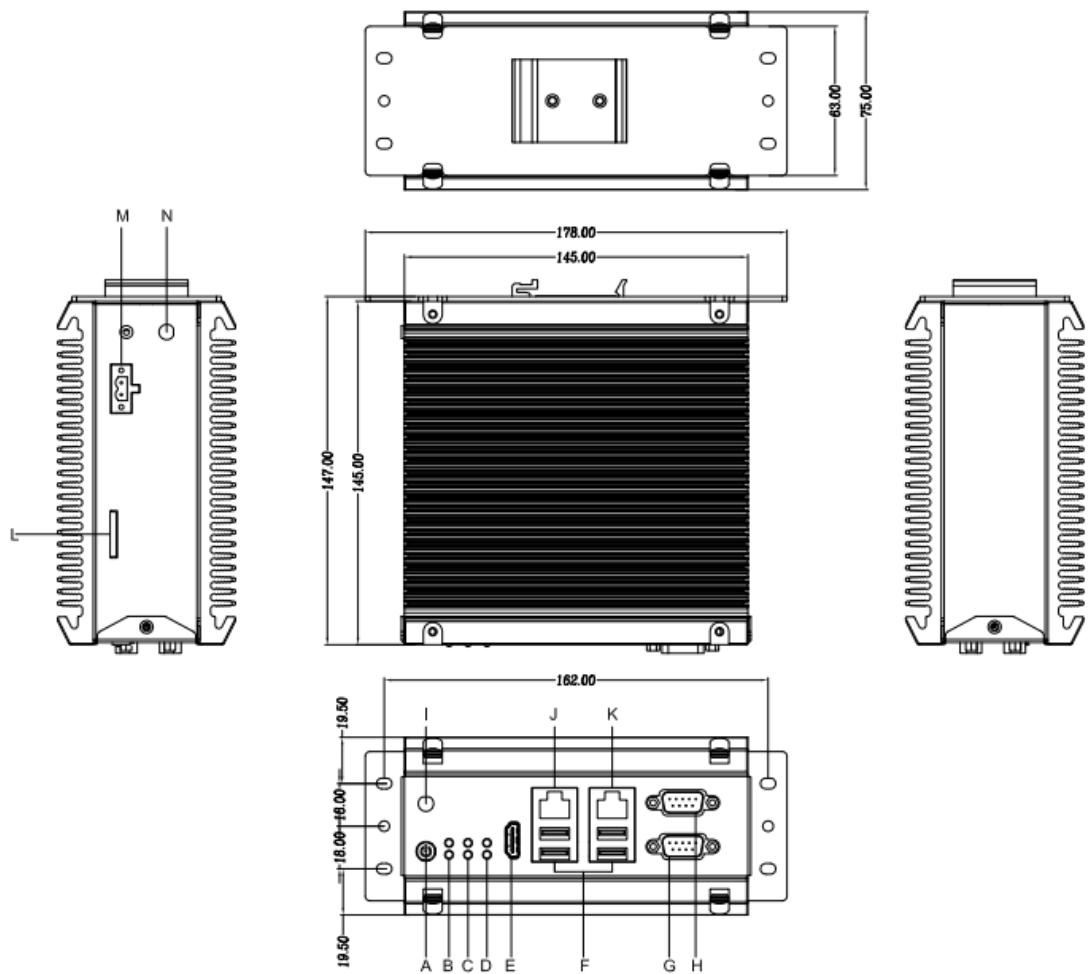


Figure 1-5: eBOX-3560 dimension

# Chapter 2

## INSTALLATION

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**Warning:**

When installing the eBOX-3560, make sure to:

- **Turn the power off:** chance of electrocution. Turn off the monitor and unplug it from the power supply.
- **Only let certified engineer change the hardware settings:** Incorrect settings can cause irreparable damage to the product.
- **Install the monitor with assistance:** The product is very heavy and maybe damage by drops and bumps. Two or more people should install the panel PC.
- **Take anti-static precautions:** Electrostatic discharge can destroy electrical components and injure the user. Users must ground themselves using an anti-static wristband or similar device.

The installation steps below should be followed in order:

**Step 1:** Unpack the box PC;

**Step 2:** Check all the required parts are included;

**Step 3:** Install the hard drive;

**Step 4:** Install the compact flash card;

**Step 5:** Mount the box PC;

**Step 6:** Connect peripheral devices to the bottom panel of the box PC;

**Step 7:** Connect the power cable;

**Step 8:** Configure the system;

## 2.1 Unpack the flat panel PC

Unpack the box PC, follow the steps below:

**Step 1:** Carefully cut the tape sealing the outside box. Only cut deep enough to break the tape.

**Step 2:** Open the outside box.

**Step 3:** Carefully cut the tape sealing the inside box. Only cut deep enough to break the tape.

**Step 4:** Open the inside box.

**Step 5:** Lift the monitor out the box.

**Step 6:** Remove the peripheral box from the main box.

## 2.2 Packing list:

Please check out all items by following list when you open the package:

Item	Image	Quantity
eBOX-3560		1
Mounting stand		1
DIN Rail clip		1
Power cord(optional)		1
Adapter(optional)		1

**Table 2-1: Packing list**

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

## 2.3 mSATA installation

**Step1:** Flip over this device and you can see its back.

**Step 2:** Unfasten the 4 silver retention screws beneath the device. (Figure 2-1)



**Figure 2-1: Remove the metal back cover from retention screws.**

**Step 3: Install mSATA**





## 2.4 Memory installation





## 2.6 Mounting system

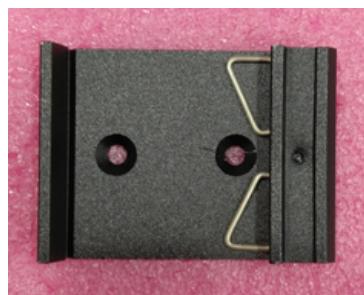
### Warning:

Dropping or bumping the EBOX PC during installation can cause serious or irreparable damage to the BOX PC

The following installation options are available:

### 2.6.1 DIN Rail mounting

The eBOX-3560 can be mounted using standard DIN rail clips. The rail installation example is shown below:



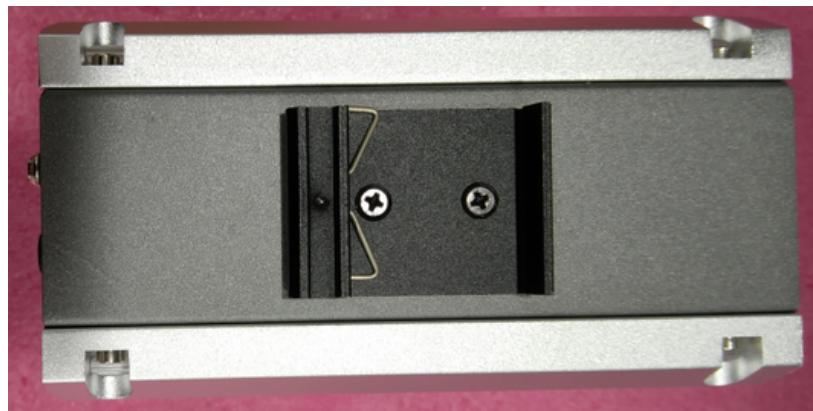
**Figure: DIN Rail clip**

Follow the instructions below to install the EBOX-3560 via DIN Rail Clip:

Note: Make sure that the DIN rail clip supports the standard rail mounting, and the EBOX-3560 uses DIN Rail for mounting

**Step1:** Purchase the guide rail separately and install the rail to the wall firmly according to the guide of the guide rail user's manual.

**Step 2:** Once the DIN rail clip is securely attached to the EBOX-3560, then snap the EBOX over the rail.



**Figure: DIN Rail clip installation**

### 2.6.1 Wall mounting

Follow the steps in below to mount the EBOX-3560 on the wall mount bracket: and secure the bracket to the wall:



**Figure: Wall mounting bracket**

**Step 1:** Fix bracket in Figure 2-8 to the mounting panel of eBOX.

**Step 2:** Carefully mark the location of the four bracket screw holes on the wall.

**Step 3:** Drill the four holes at the marked positions in order to install the bracket with screws.

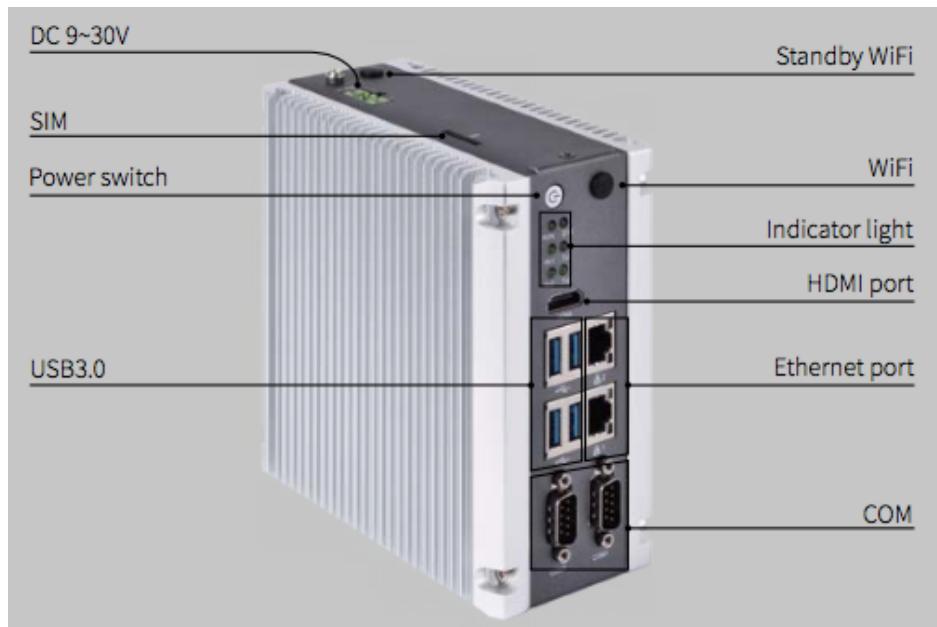
**Step 4:** Align the mounting bracket screw holes with the drilled holes on the wall.

**Step 5:** Insert and tighten screws into the four mounting holes , then secure the EBOX-3560 onto the wall.

**Step 6:** Tighten the bracket fixing screws, thus fixing the entire eBOX-3560.



## 2.7 Connectors



**Figure: IO interface**

### 2.7.1 LAN connection

The RJ-45 connectors enable connection to an extend network. To connect a LAN cable with a RJ-45 connector, please follow the instructions below.

**Step1: Locate the RJ-45 connector** on the bottom panel of the eBOX-3560.

**Step 2: Align the connectors.** Align the RJ-45 connector on the LAN cable with one of the RJ-45 connector on the bottom panel of the eBOX-3560. Please See below Figure:



Figure: LAN connection

**Step 3: Insert the LAN cable RJ-45 connector.** Once aligned, gently insert the LAN cable RJ-45 connector into the onboard RJ-45 port.

### 2.7.2 Serial device connection

**Step 1: Locate the DB-9 connector.**

**Step 2: Insert the serial connector.** Insert the DB-9 connector of a serial device into the DB-9 connector on bottom panel. Please see Figure 2-14.

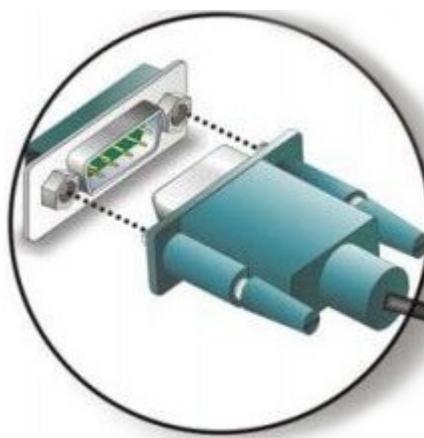


Figure: Serial device connector

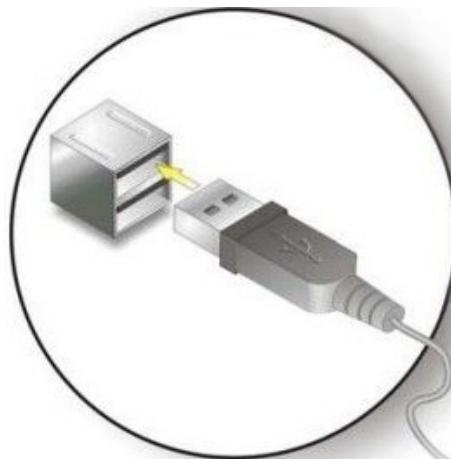
**Step 3: Secure the connector.** Secure the serial device connector to the external interface by tightening the two retention screws on either side of the connector.

### 2.7.3 USB connection

To connect USB device to the eBOX-3560, please follow the instruction below:

**Step 1: Located the USB connectors.**

**Step 2: Align the connectors.** Align the USB device connector with one of the connector on the bottom panel. Please See Figure



**Figure: USB Device connector**

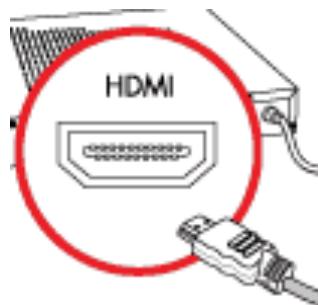
**Step 3: Insert the device connector.** Once aligned, gently insert the USB device connector into the onboard connector.

#### 2.7.4 HDMI connector

**Step 1: Located the HDMI connectors.**

**Step 2: Align the connectors.** Align connector on HDMI screen cable with the connector on the external peripheral interface.

**Step 3: Insert the HDMI connector.** Once the connectors are properly aligned with the insert the connector from the HDMI screen into HDMI connector on the eBOX-3560, please see the figure:



**Step 4: Secure the HDMI connector.** Secure the HDMI connector from the HDMI monitor to the external interface by tightening the two retention screws on either side of the connector.

## 2.8 Power connector

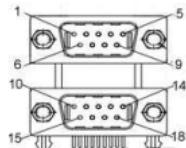
**Step 1:** Connect one end to the BOX PC.

**Step 2:** Connect the other end to the included power supply.

## 2.9 Connectors Definition

### ■ COM port

COM1~2 are DB9 connector and its definition is:

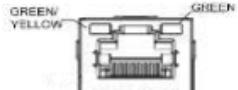


Pin	Signal	Pin	Signal
1	COM1_HCDCD232_485	2	COM1_HIN232_485
3	COM1_HSOUT	4	COM1_HDTR
5	GND	6	COM1_HDSR
7	COM1_HRTS	8	COM1_HCTS
9	COM1_HRI	10	COM2_HCDCD232_485
11	COM2_HIN232_485	12	COM2_HSOUT1
13	COM1_HDTR	14	GND
15	COM2_HDSR	16	COM2_HRTS
17	COM2_HCTS	18	COM2_HRI
19	GND	20	GND
21	GND	22	GND

9 线 RS232/RS485 可选择串口，支持最大 115200bps 速率。

Table: COM1~2 DB9 connector

### ■ USB



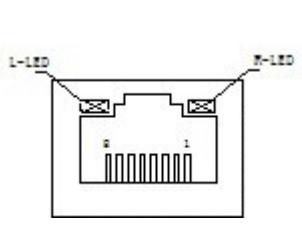
Pin	Signal	Pin	Signal
1	VCC	2	USB_PN2
3	USB_PP2	4	GND
5	USB3_RXN1	6	USB3_RXP1
7	GND	8	USB3_TXN1
9	USB3_TXP1	10	VCC
11	USB_PN0	12	USB_PP0
13	GND	14	USB3_RXN2
15	USB3_RXP2	16	GND
17	USB3_TXN2	18	USB3_TXP2
19	NC	20	LAN1_MDIP0
21	LAN1_MDIN0	22	LAN1_MDIP1
23	LAN1_MDIN1	24	LAN1_MDIP2
25	LAN1_MDIN2	26	LAN1_MDIP3
27	LAN1_MDIN3	28	GND
29	LAN_LED01	30	3.3V
31	3.3V	32	LED1/EESK1
33	IO_GND	34	IO_GND
35	IO_GND	36	IO_GND
37	IO_GND	38	IO_GND
39	IO_GND	40	IO_GND

Table: USB

## ■ Ethernet Interfaces (LAN1, LAN2)

We provide two 10/100/1000Mbps RJ-45 Ethernet interfaces, you can use it directly.

There are two status indicators, links status on the left side, data transmission status on the right side.



PIN	SIGNAL	PIN	SIGNAL
1	TX0+	5	TX2+
2	TX0-	6	TX2-
3	TX1+	7	TX3+
4	TX1-	8	TX3-

**Table: LAN connector**

Network status	Left(LILED) double colors(Orange/Green)		Right(ACTLED) single color(Yellow)	
1000M	N/A	Constant ON	Flash	OFF
100M	Constant ON	N/A	Flash	OFF
10M	OFF	OFF	Flash	OFF
Active description	Green	Orange	Data Transferring	No Data Transferring
	Linking indicator		Active status indicator	

**Table: Indicator of LAN connector**

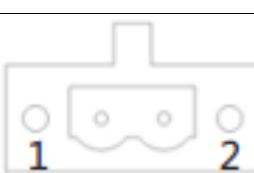
## ■ HDMI Interface:



Pin	Signal	Pin	Signal
1	HDMI_D2P	2	GND
3	HDMI_D2N	4	HDMI_D1P
5	GND	6	HDMI_D1M
7	HDMI_D0P	8	GND
9	HDMI_D0M	10	HDMI_CLKP
11	GND	12	HDMI_CLKM
13	NC	14	NC
15	HDMI_SCL	16	HDMI_SDA
17	GND	18	VDD_5V
19	HPD		

## ■ Power connector interface

eBOX-3560 offers a 2-pins power input interface:

	PIN	SIGNAL
	1	GND
	2	9~30V

**Table 2-10: Power connector**

**■ Switch button (PWR)**

We provide a power touch switch button(PWR) to power up on front panel.

**■ PWR, hard drive status indicators**

We provide a set of power, hard drive status indicators, you can know the procedure status by these indicators, green light constantly is for power-up. Red light flashing on hard drive indicator is shows that the hard drive is reading/writing data for now.

## 2.10 Driver installation

**Notice:**

The content of the CD may vary throughout the life cycle of the product and is subject to change without prior notice. Visit the NODKA website or contact technical support for the latest updates.

When you finish the system setup, user should setup the driver of chipset, network card, audio card, display card.

All drivers' program will be store in an optical disc in accessory box, That will helps user to install the driver and know the functions.

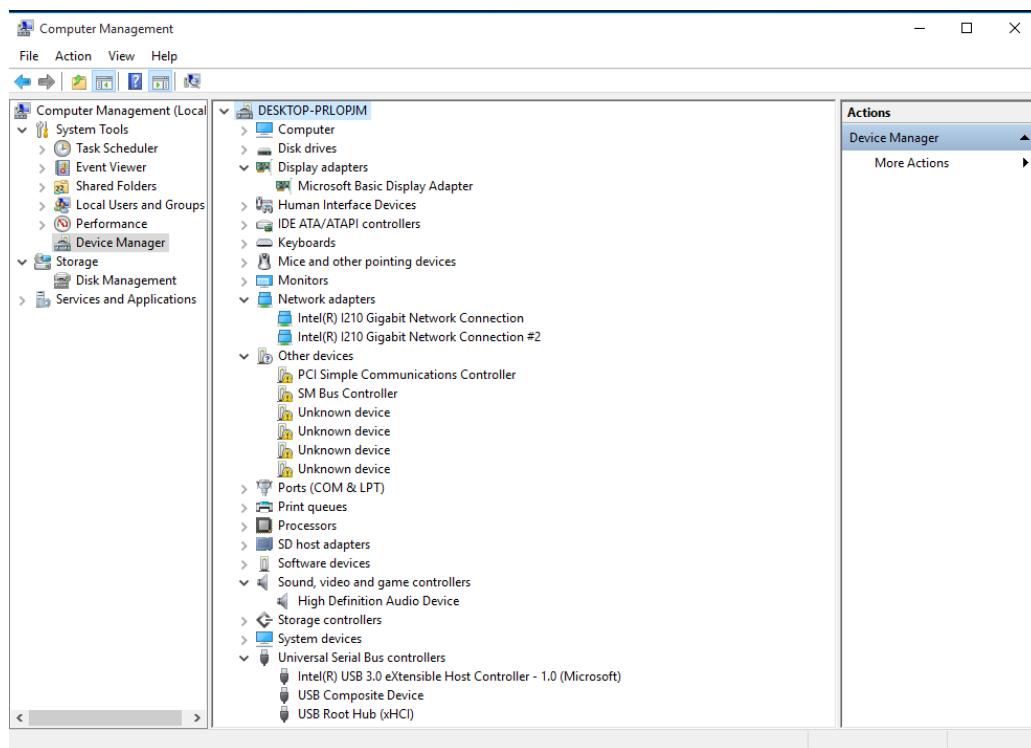
Installation steps: First step is chipset's driver (INF), then the other driver, it's better that once you finish a installation, reboot the system, now let's talk about method of Intel EMGD display card driver installation in Windows 10.

The following drivers can be installed on the system, each driver is in its own directory on the driver CD:

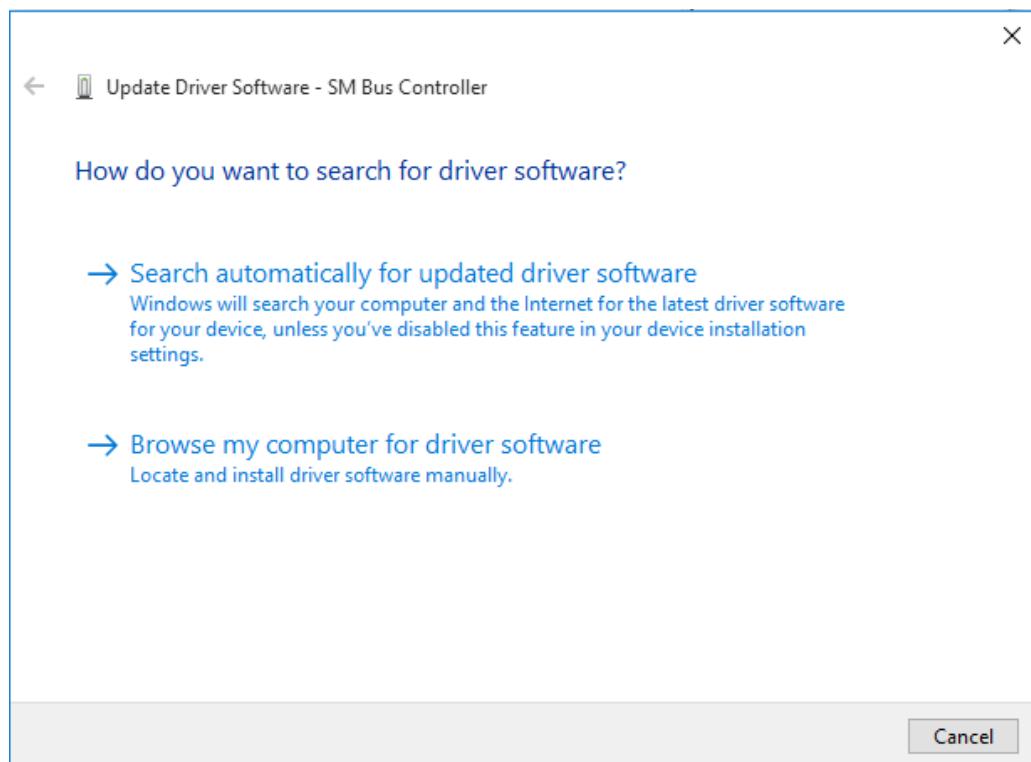
- Chipset driver
- Audio
- LAN
- Graphics driver
- Intel\_SIO
- TXE\_3.1

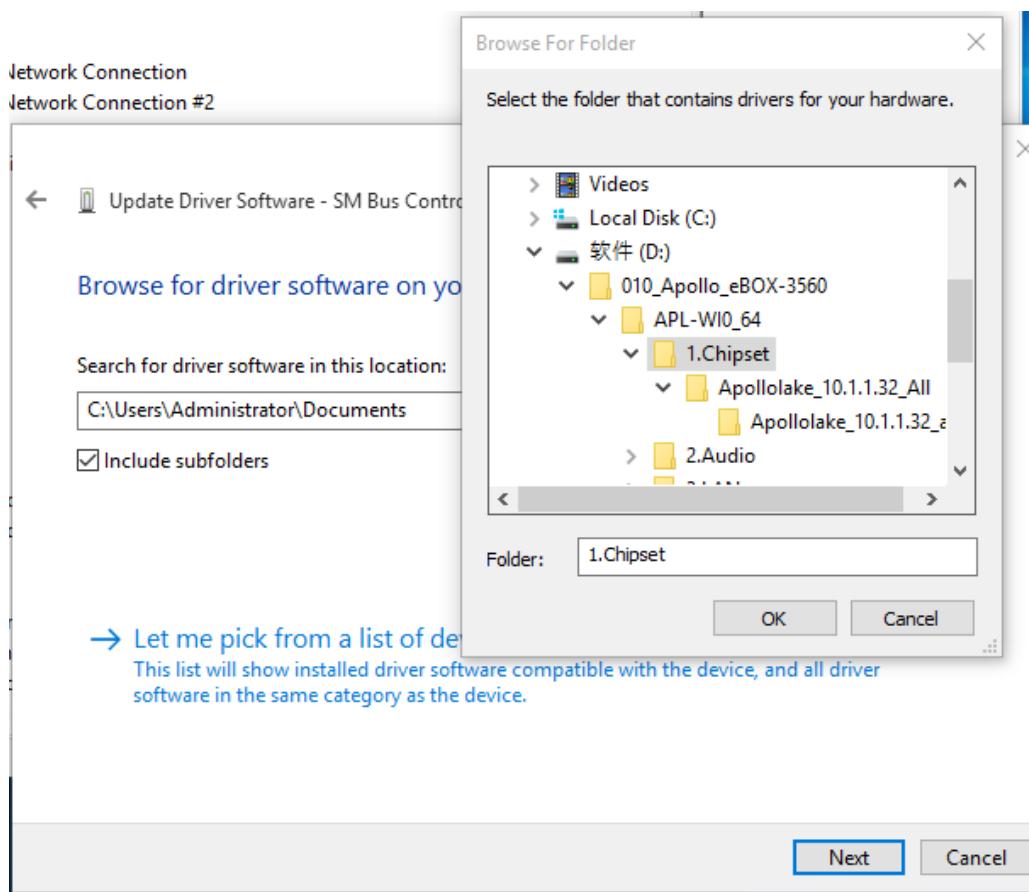
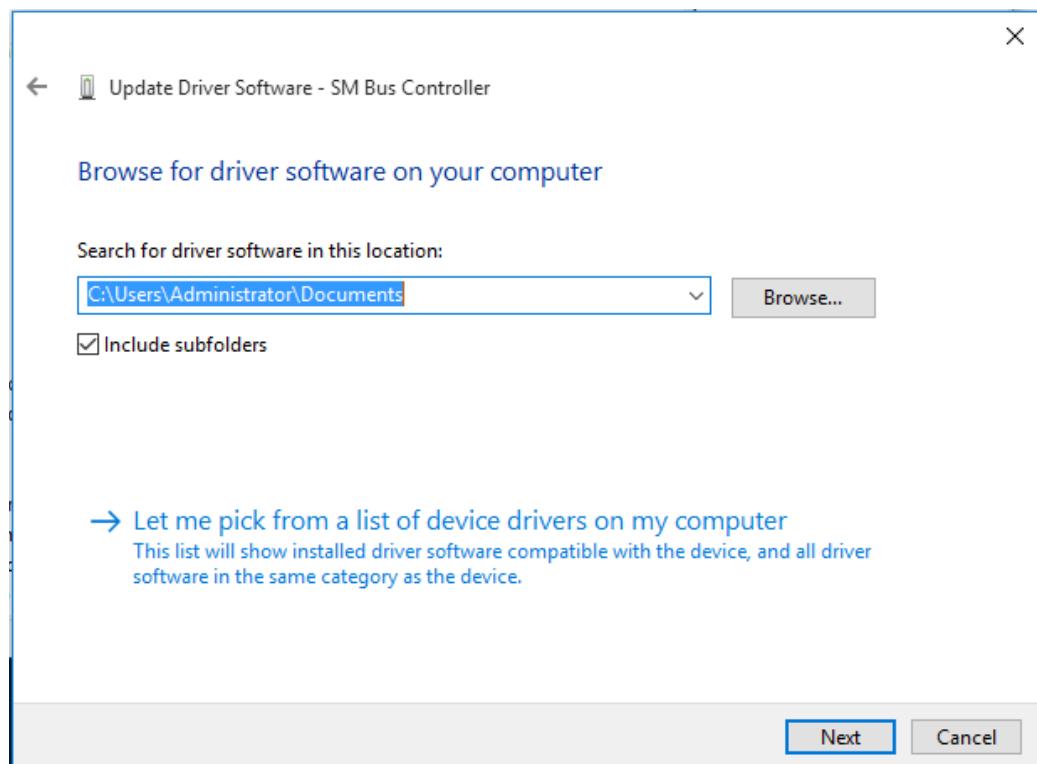
### 2.10.1 Chipset driver

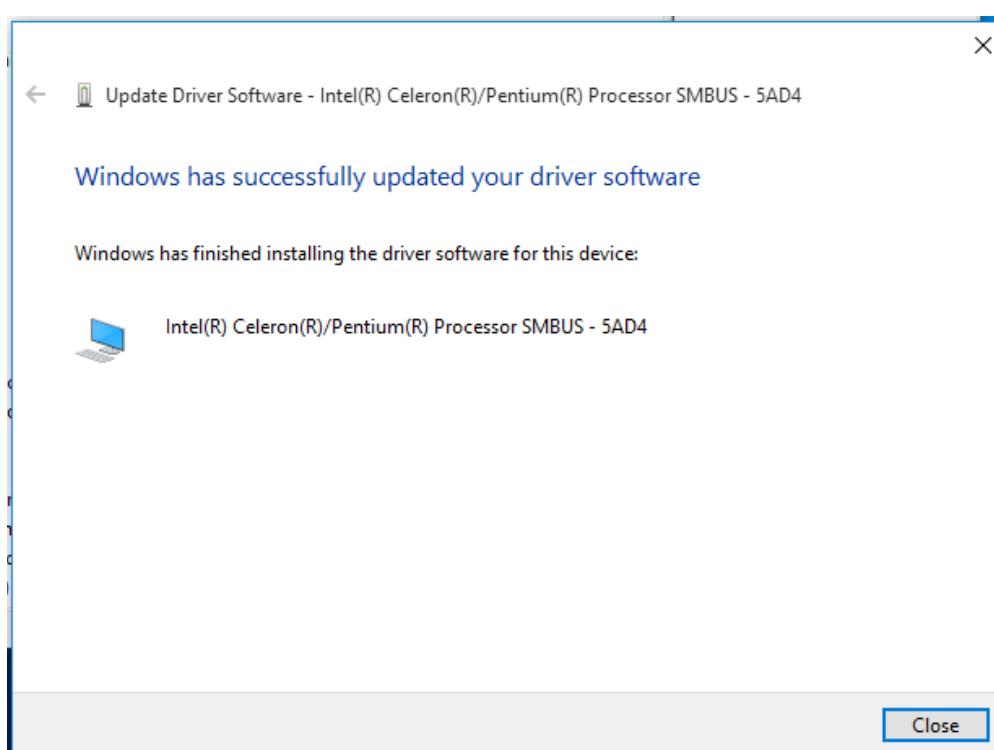
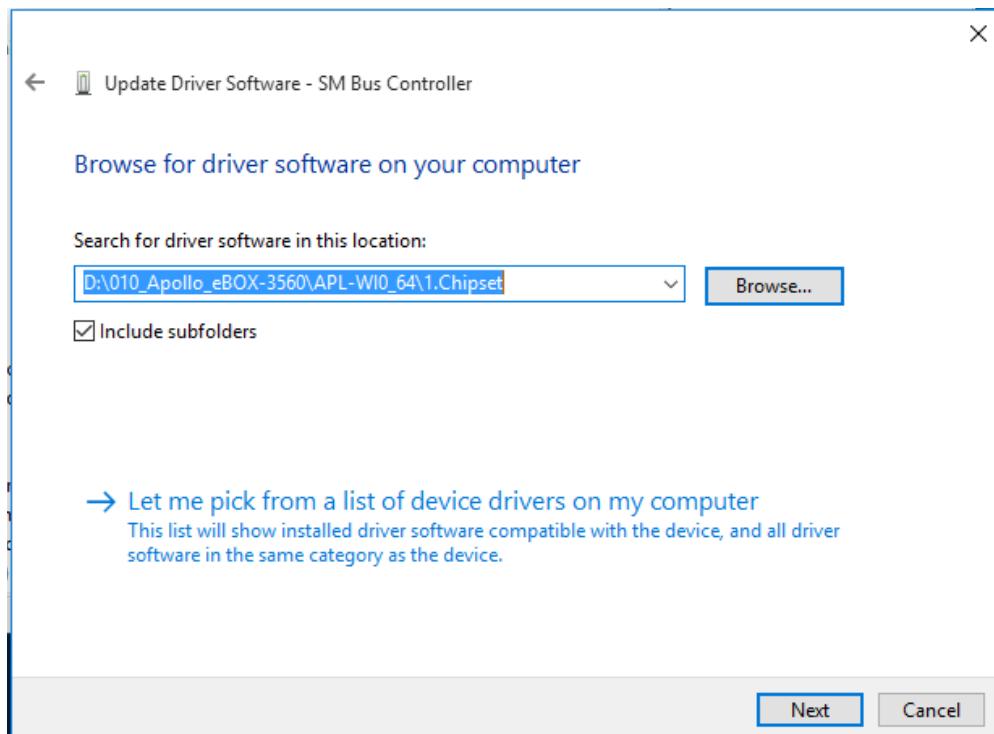
Enter into Device Manager



Right mouse button click “**SM Bus controller**”, then choose “Brower my computer for driver software”



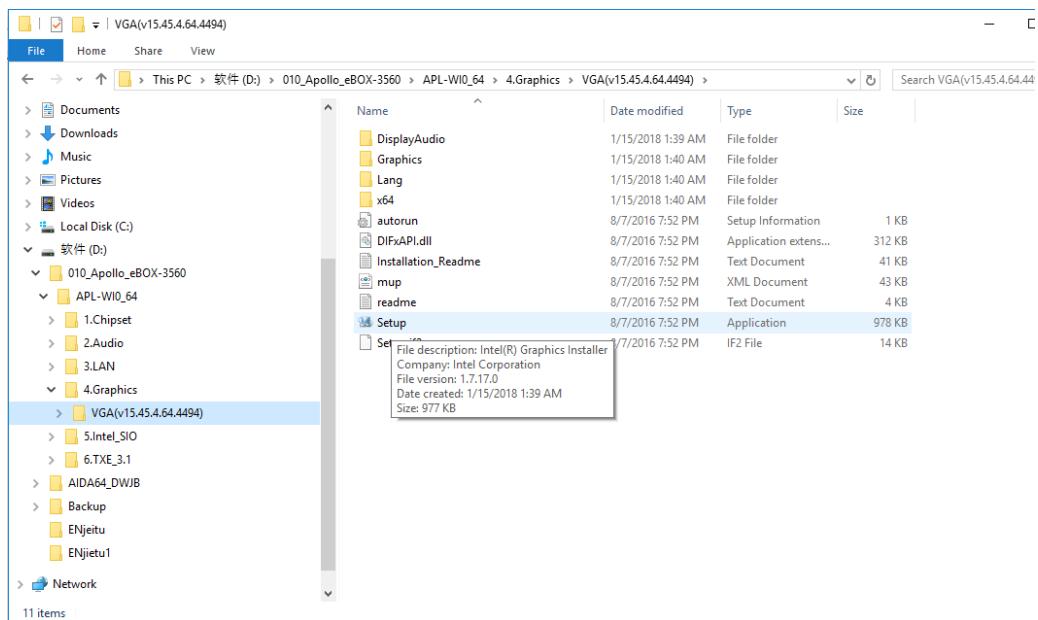




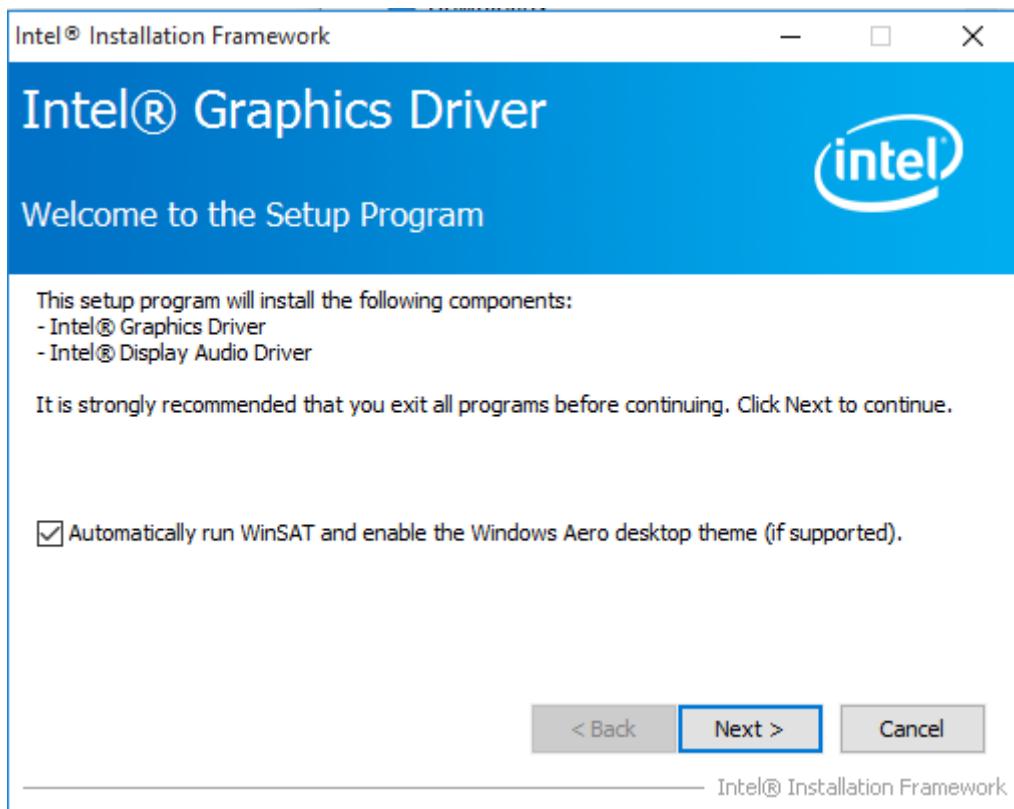
## 2.10.2 Graphics driver

Browse the product's driver disc or [D:\Backup\Drivers\2.graphics\Win7\\_32\\_8.14.1091](D:\Backup\Drivers\2.graphics\Win7_32_8.14.1091), you will see the driver file as following figure.

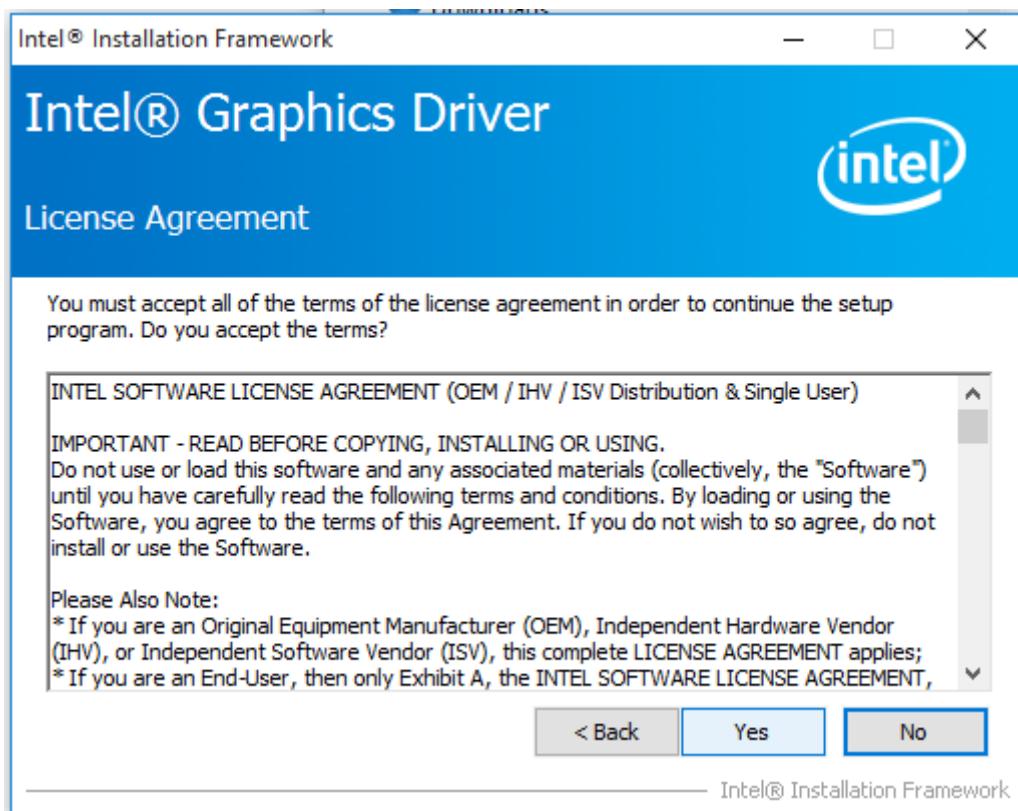
Double click the graphics driver program



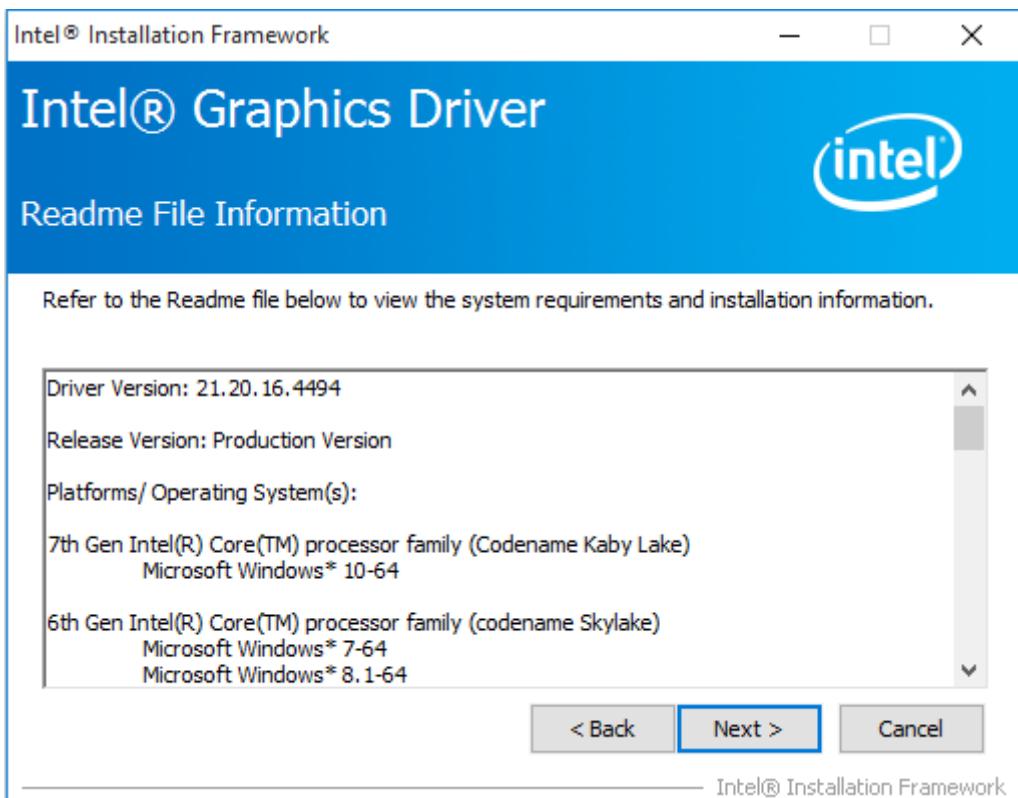
Please select “Automatically run WinSAT and enable the Windows Aero desktop theme (if supported)” then press <NEXT> to go to the next install page:



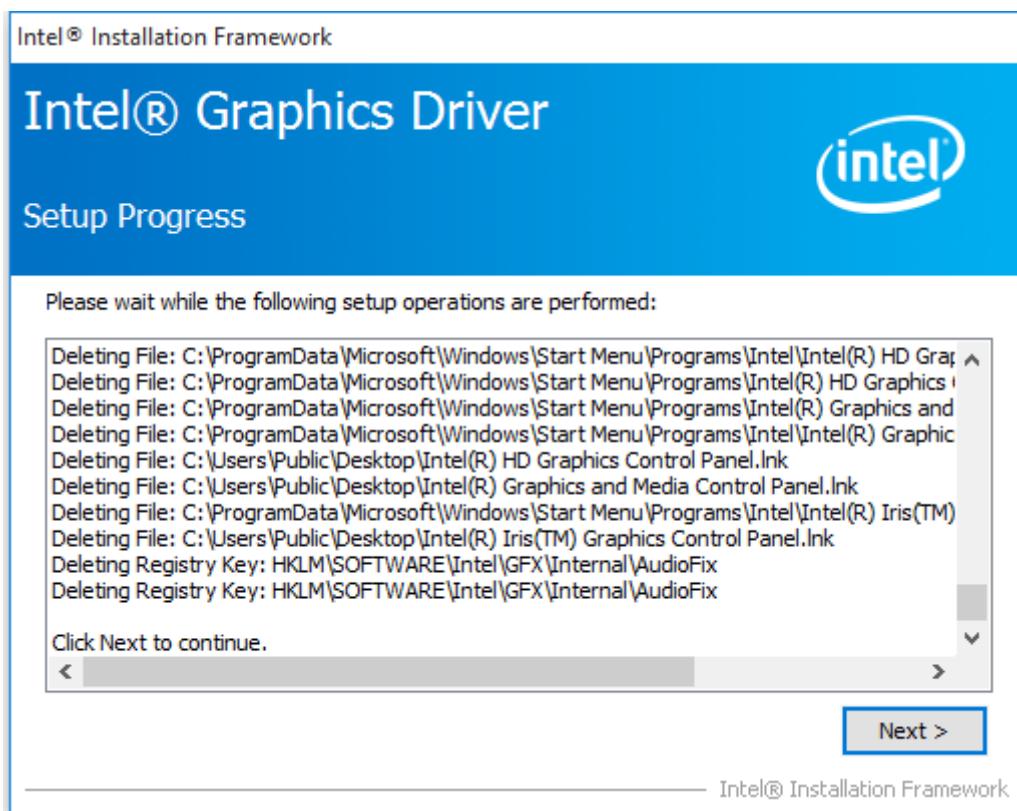
Press <YES> to agree the license agreement then go to the next step



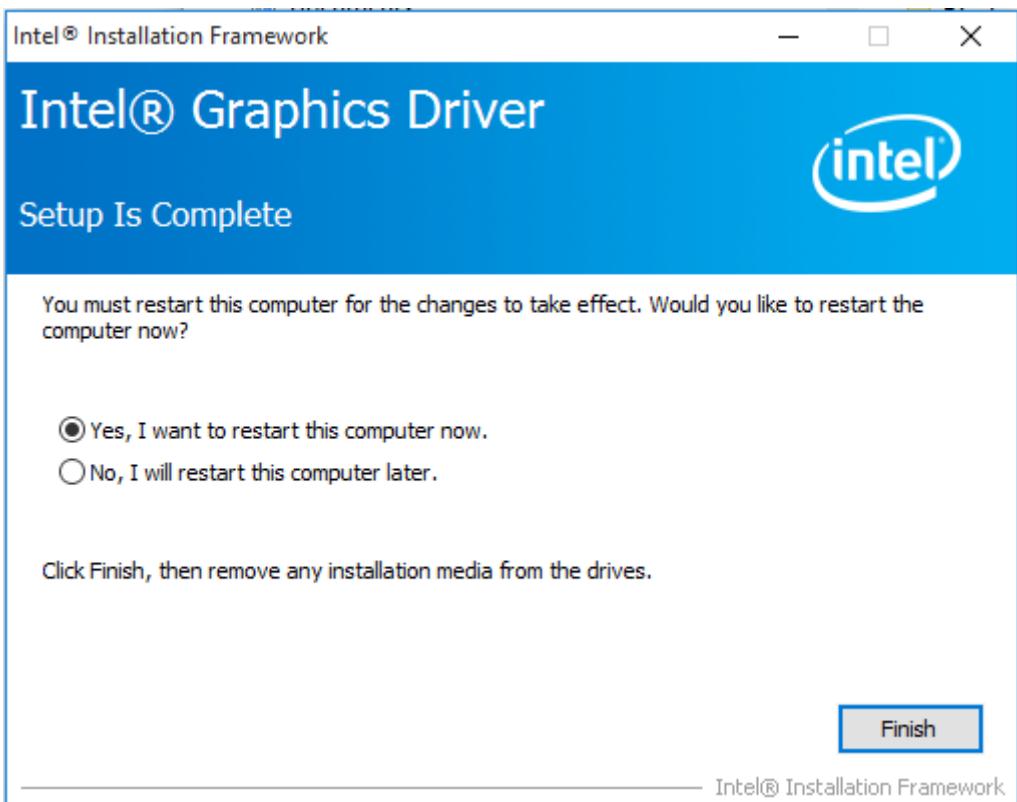
Click <Next> to continue:



Please wait, then press <NEXT> to go to:



After finish this installation, you should restart the computer immediately then you can install other device's driver. Select the <Yes, I want to restart this computer now> and press <Finish> to reboot the computer.

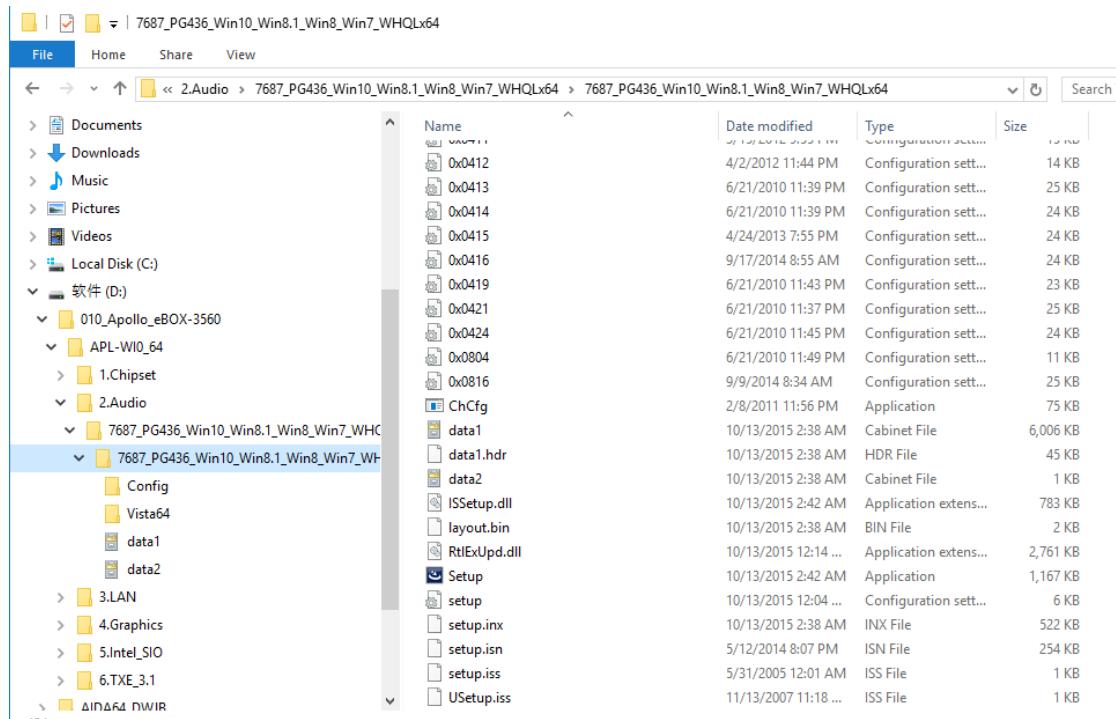


## 2.10.3 Audio driver

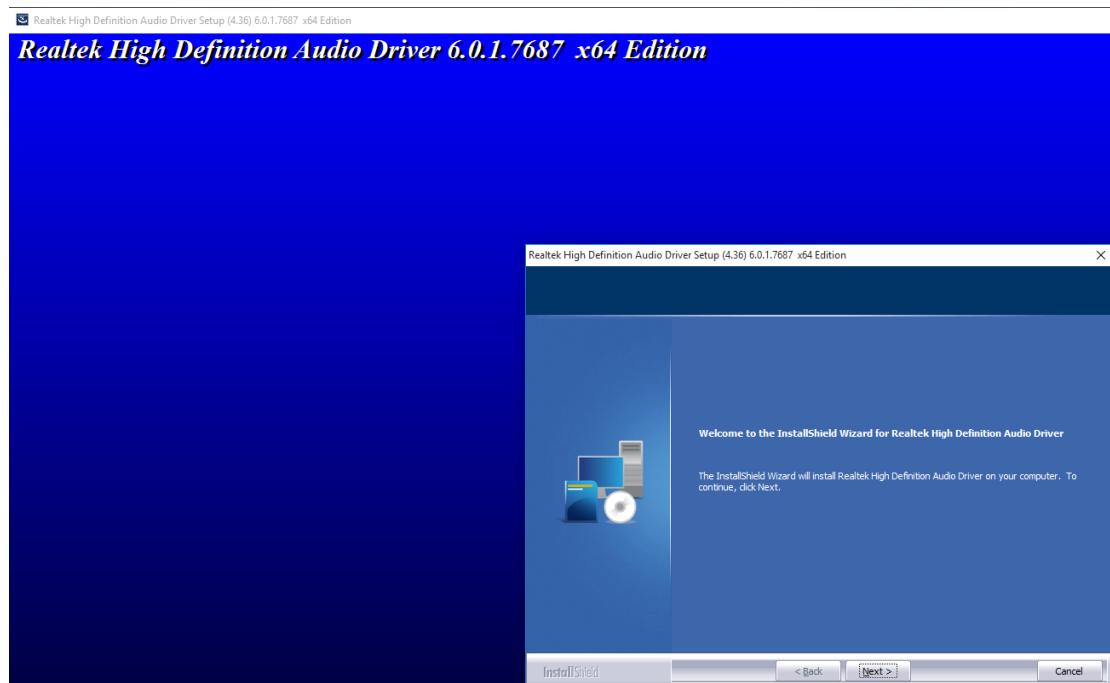
Browse the product's driver disc or

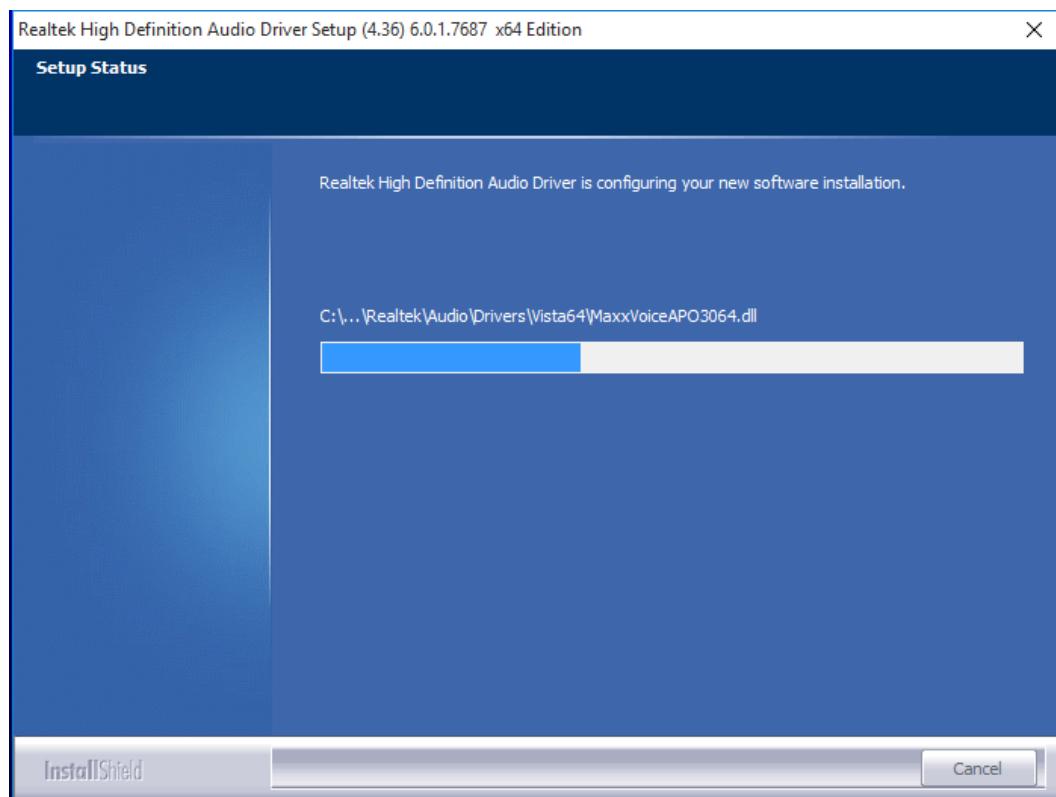
D:\Backup\Drivers\3.audio\32bit\_Vista\_Win7\_Win8\_R269, you will see the driver file as following figure.

Double click the graphics driver program

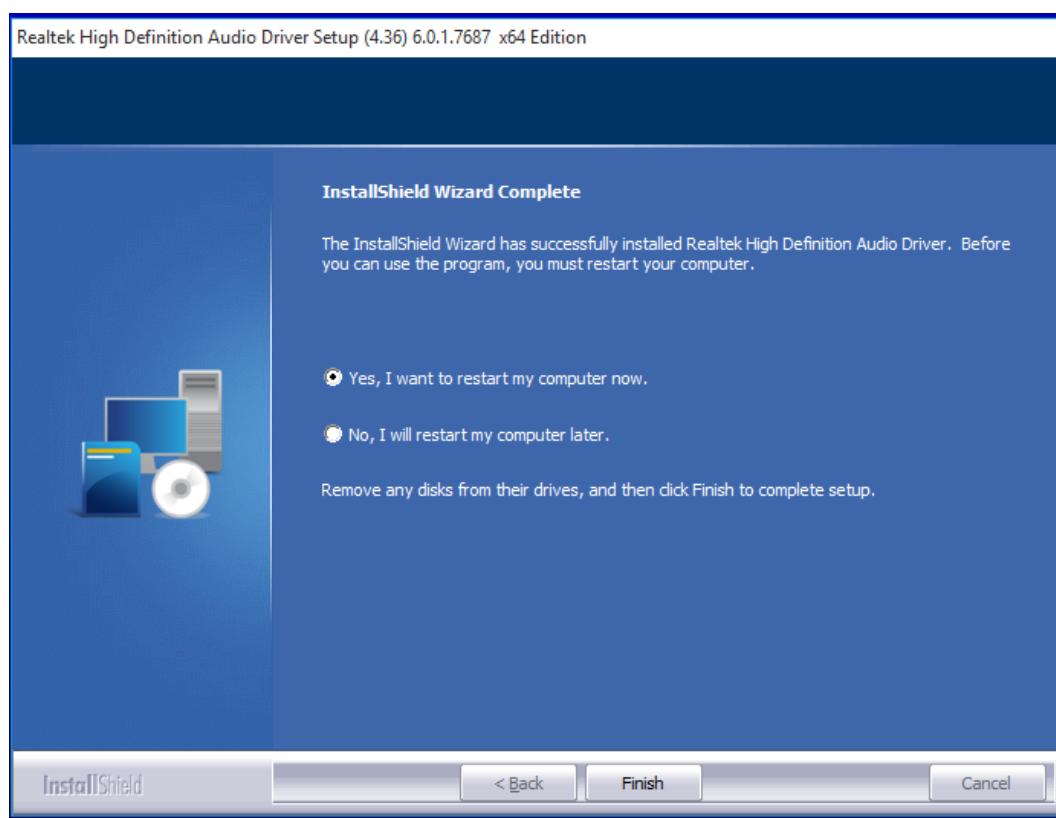


Wait and press <NEXT>





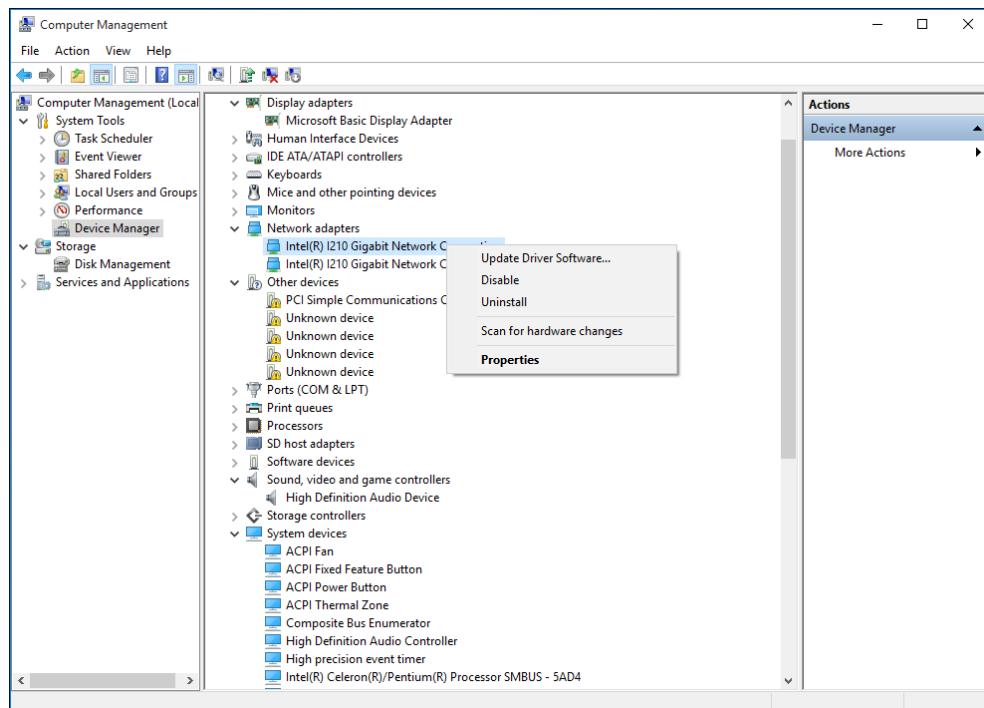
Wait for its installation and after finish this installation, you should restart the computer immediately then you can install other device's driver. Select the <Yes, I want to restart this computer now> and press <OK> to reboot the computer.



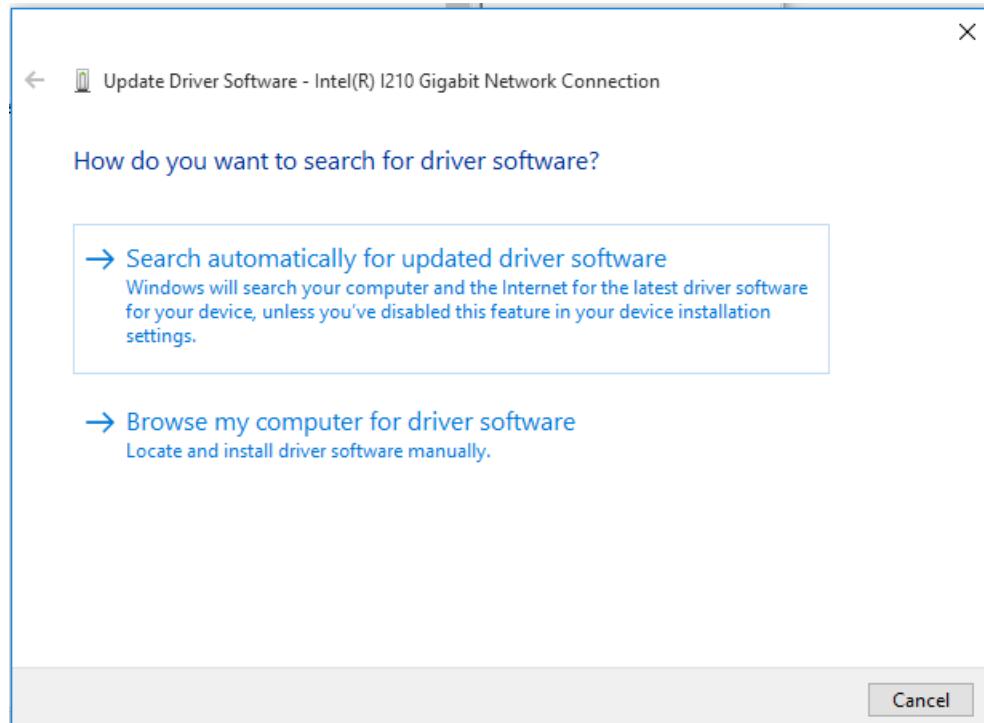
## 2.10.4 LAN driver

Browse the product's driver disc or <D:\Backup\Drivers\4.LAN\Setup.exe>, you will see the driver file as following figure.

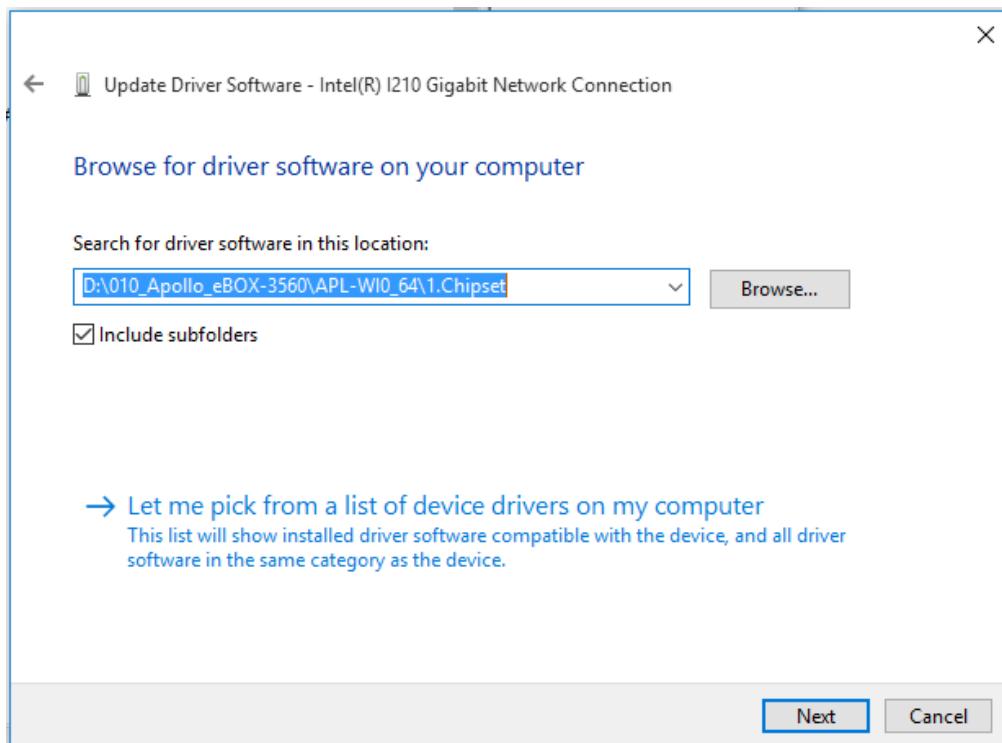
This time we install from Device Manager, please right key click, and choose <Update Driver Software..>



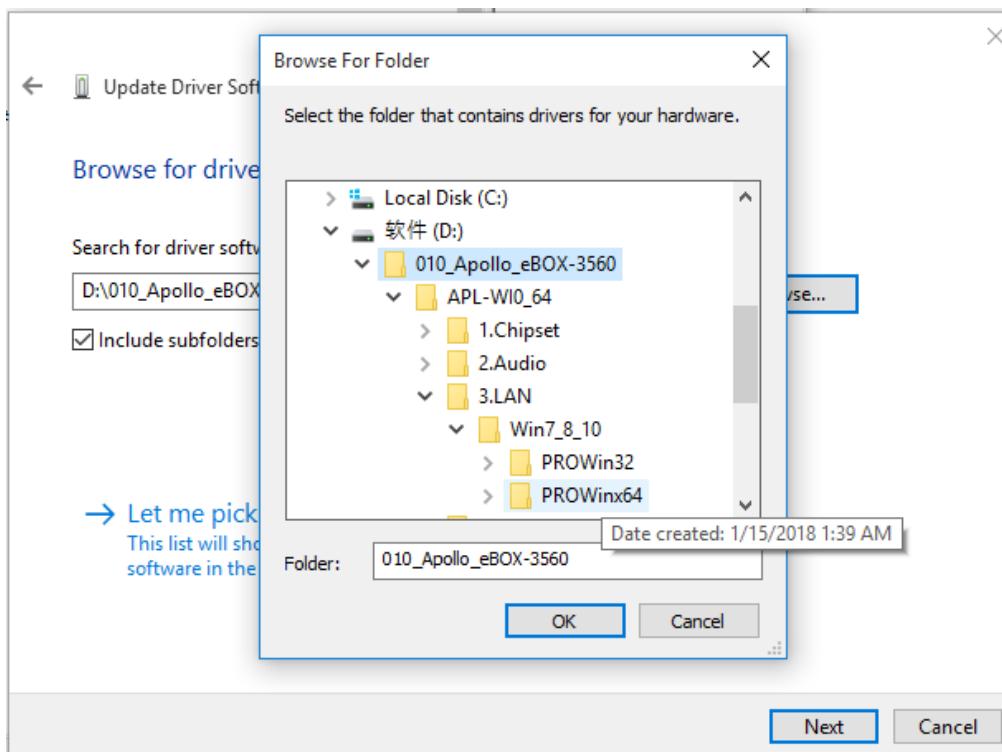
Choose <Browse my computer for driver software>.



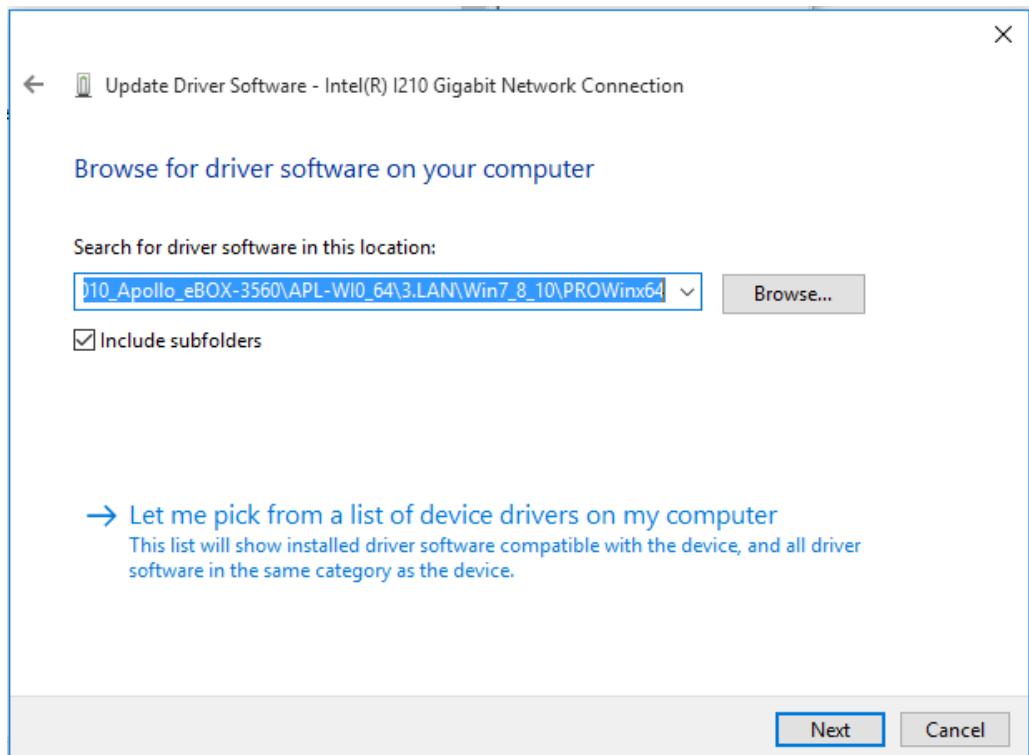
Press <Browse>:



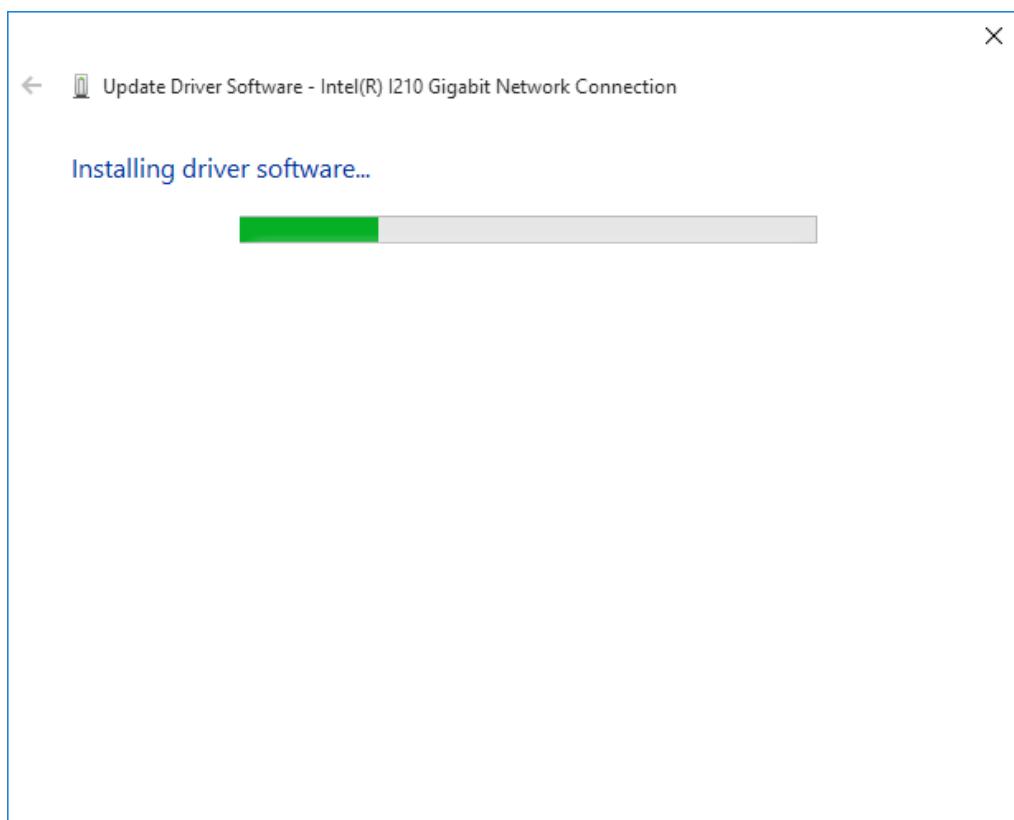
Press the right location as below, then click <OK>:



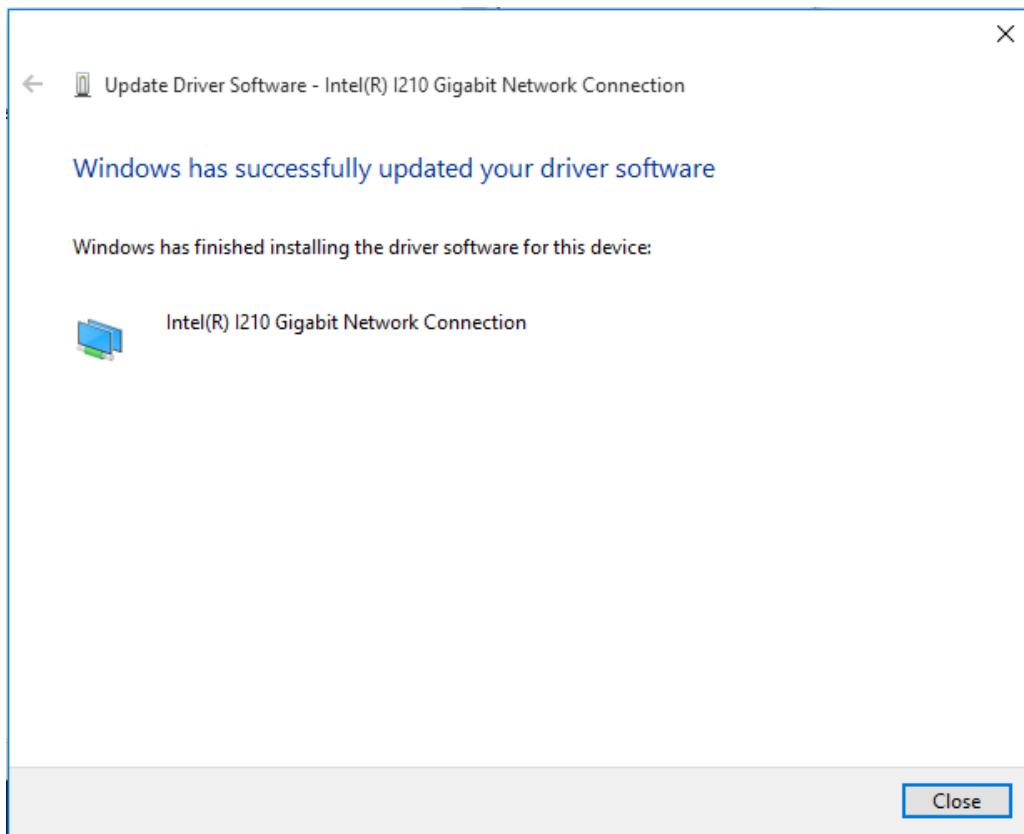
Press <NEXT>



Wait for installing driver software...



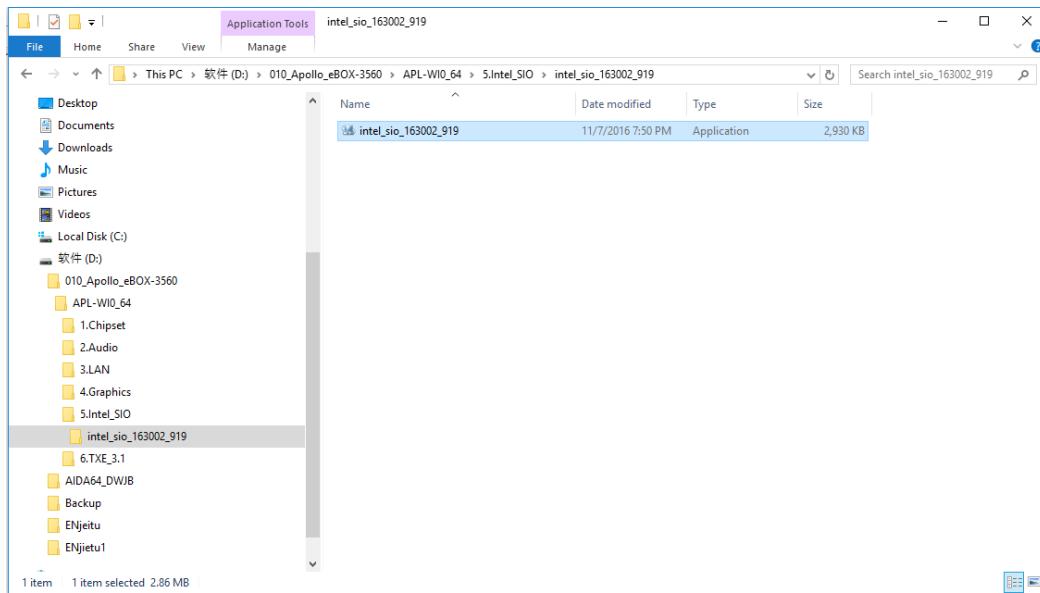
Press <Close> to finish:



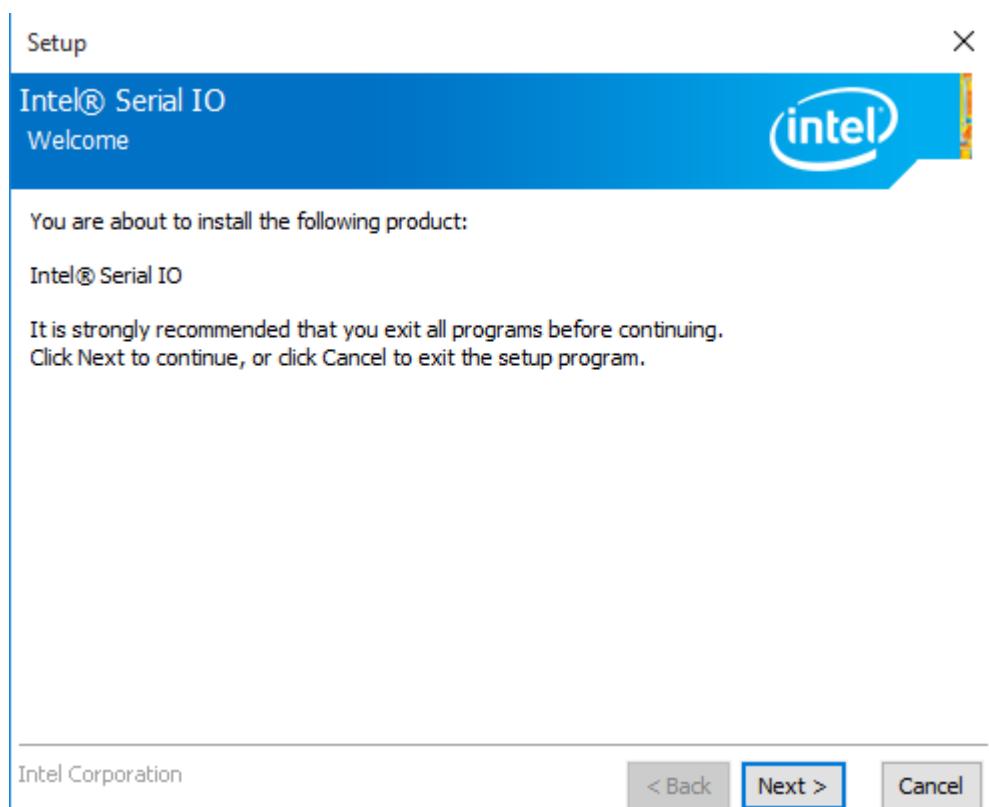
## 2.10.5 Intel\_SIO driver

Browse the product's driver disc or [D:\Backup\Drivers\5.intel\\_sio\\_163002\\_919](D:\Backup\Drivers\5.intel_sio_163002_919), you will see the driver file as following figure.

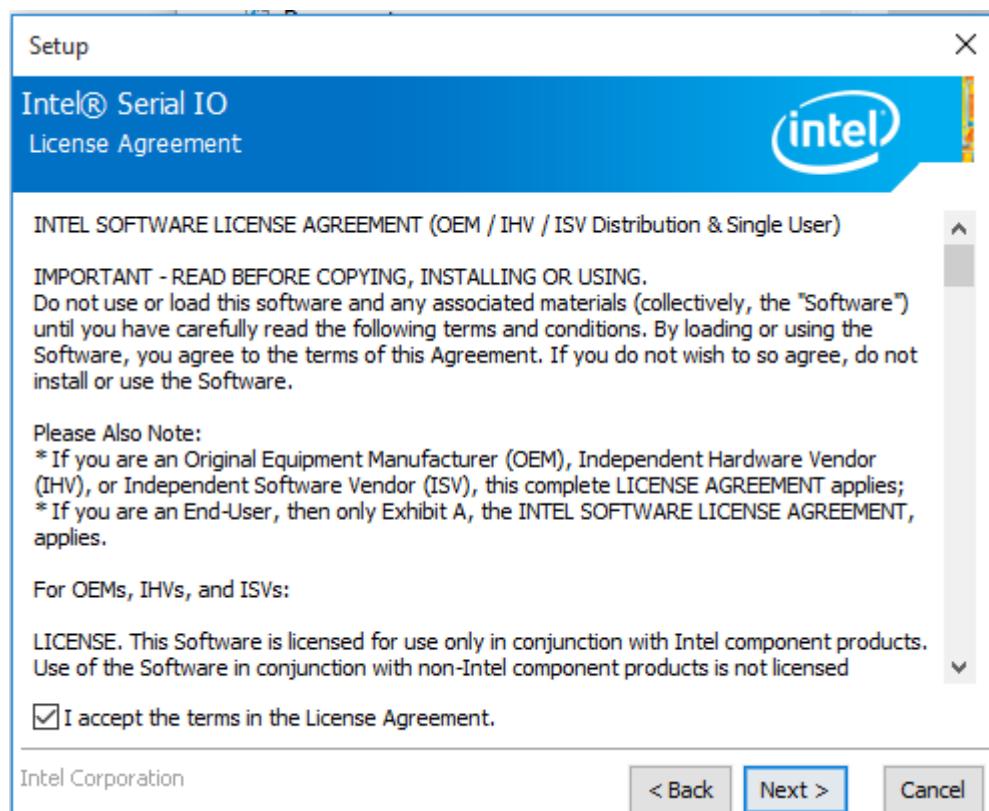
Double click <intel\_sio\_163002\_919>

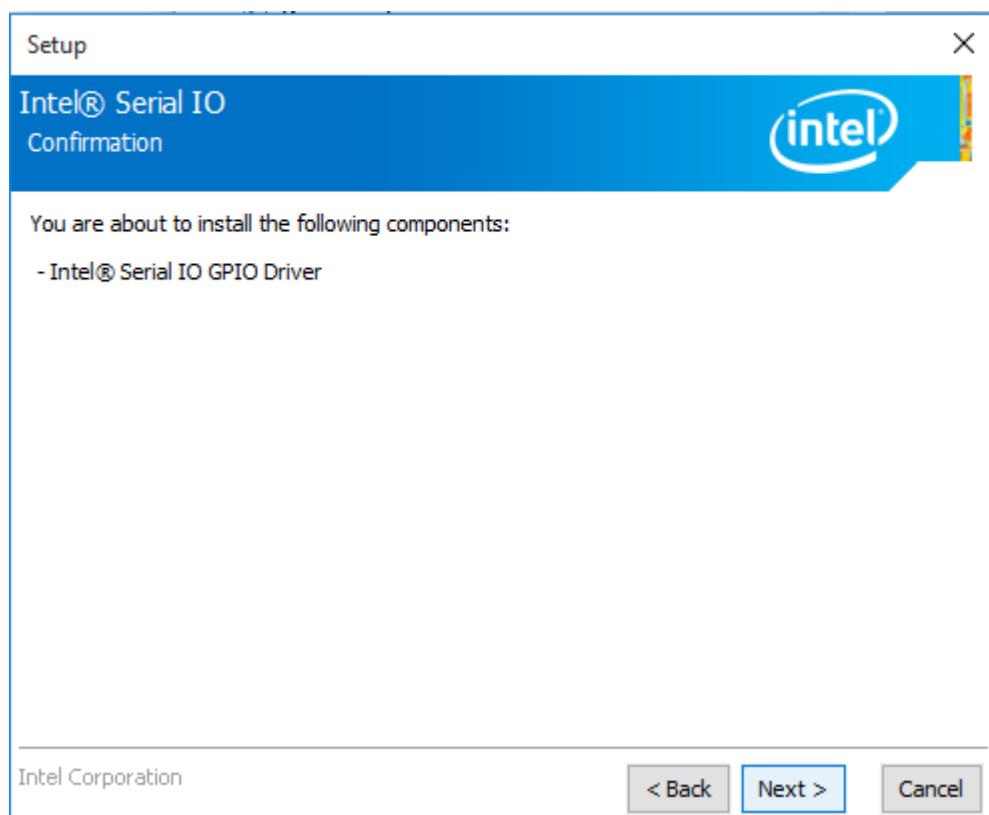
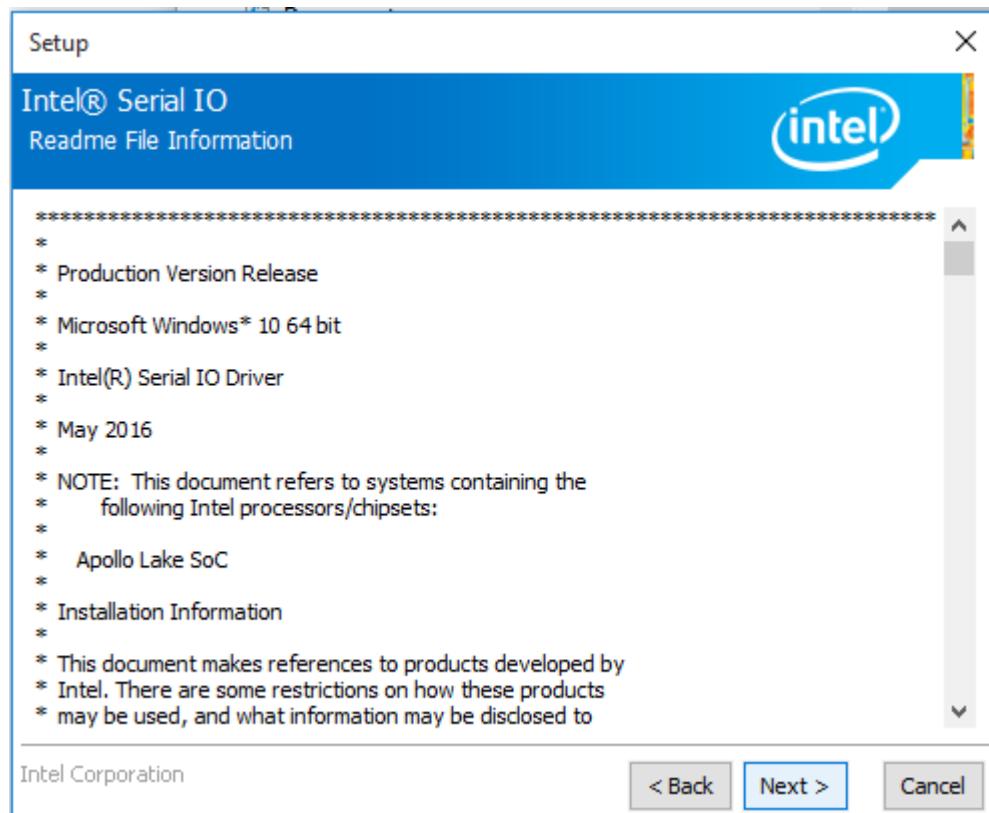


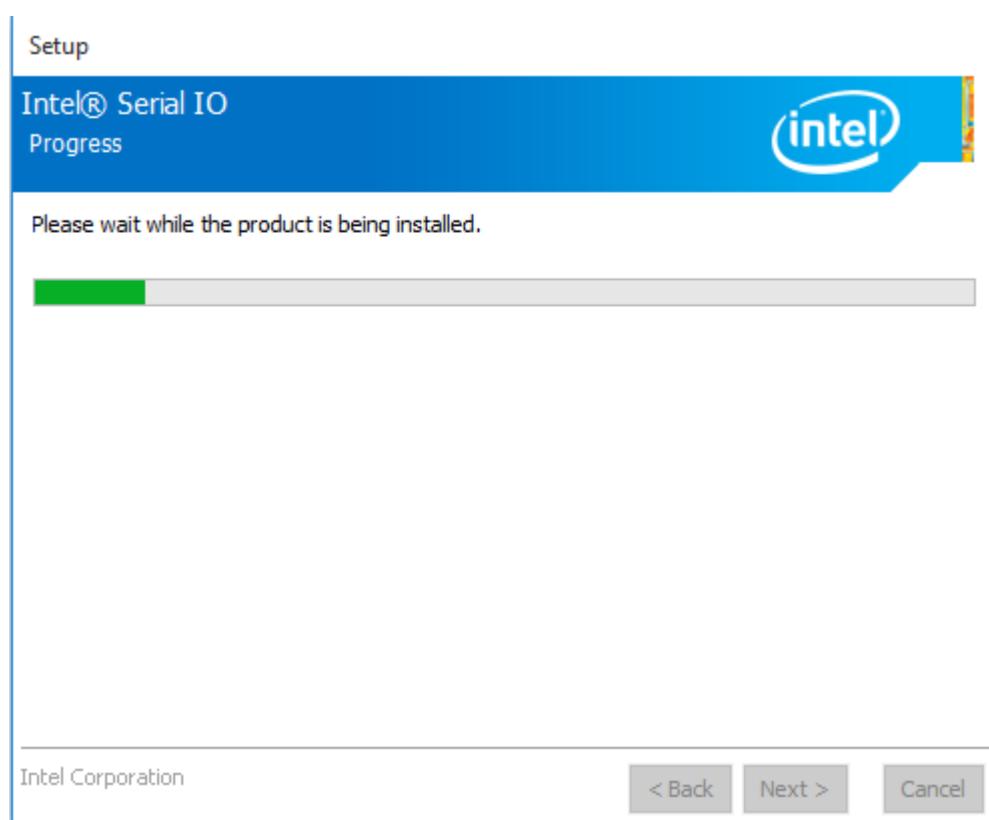
Press <NEXT>



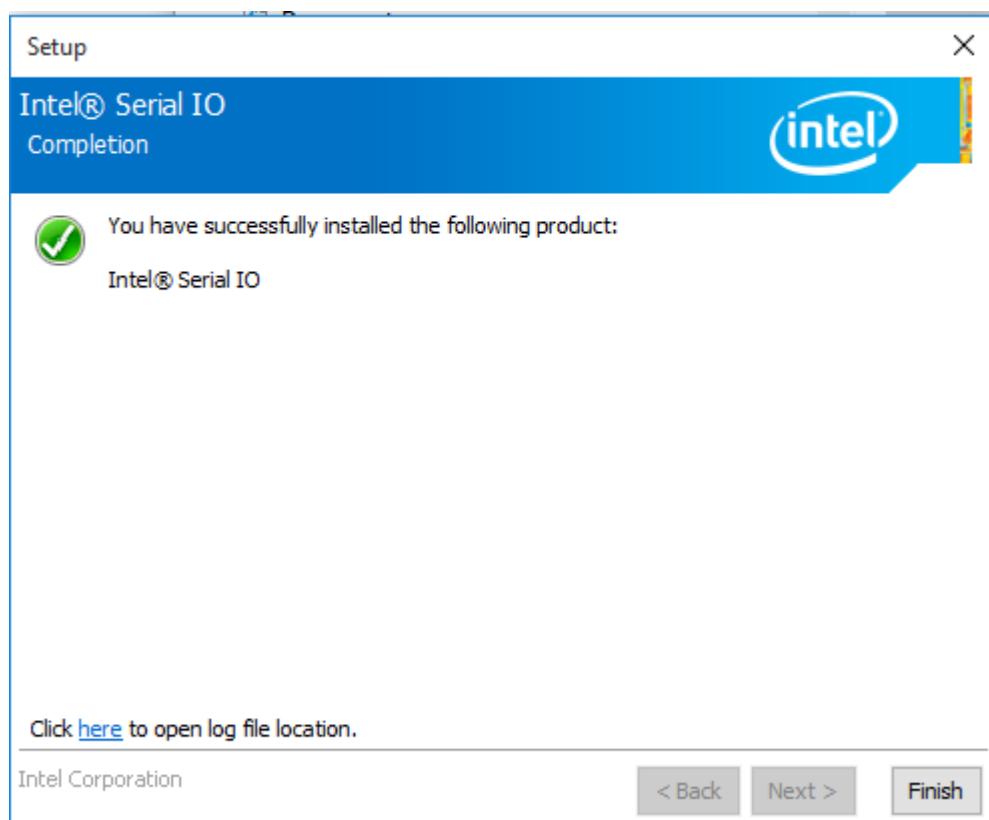
Choose <I accept the terms...>, then click <NEXT>.







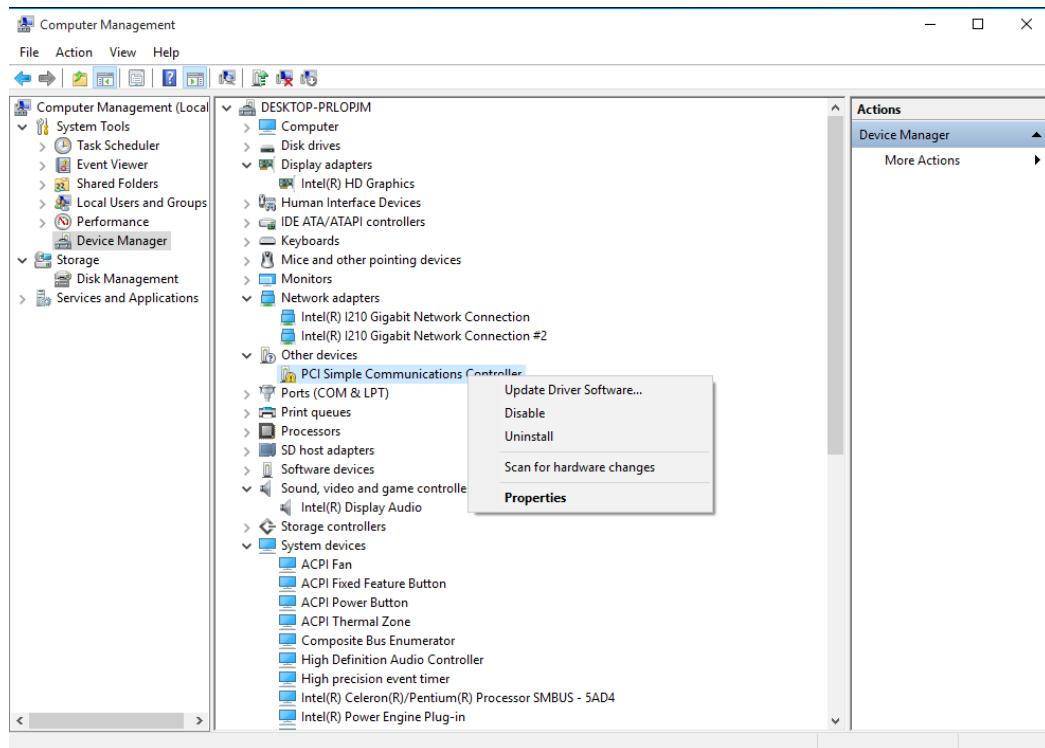
Finished.



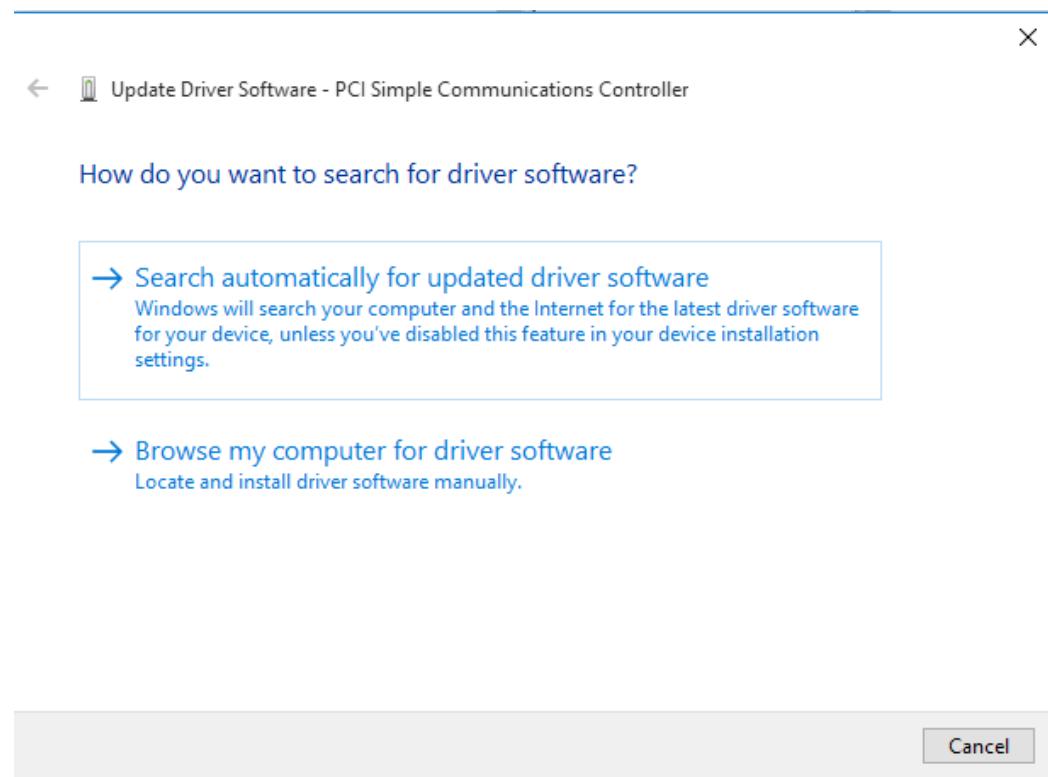
## 2.10.6 Intel TXE installation

This part supports the system that Intel Trusted Execution Engine Interface driver program. The “Intel Trusted Execution Engine” supports the safety booted and provides us the services that using Intel Platform Trust Technology (Intel PPT) and other platforms’ safety function needs.

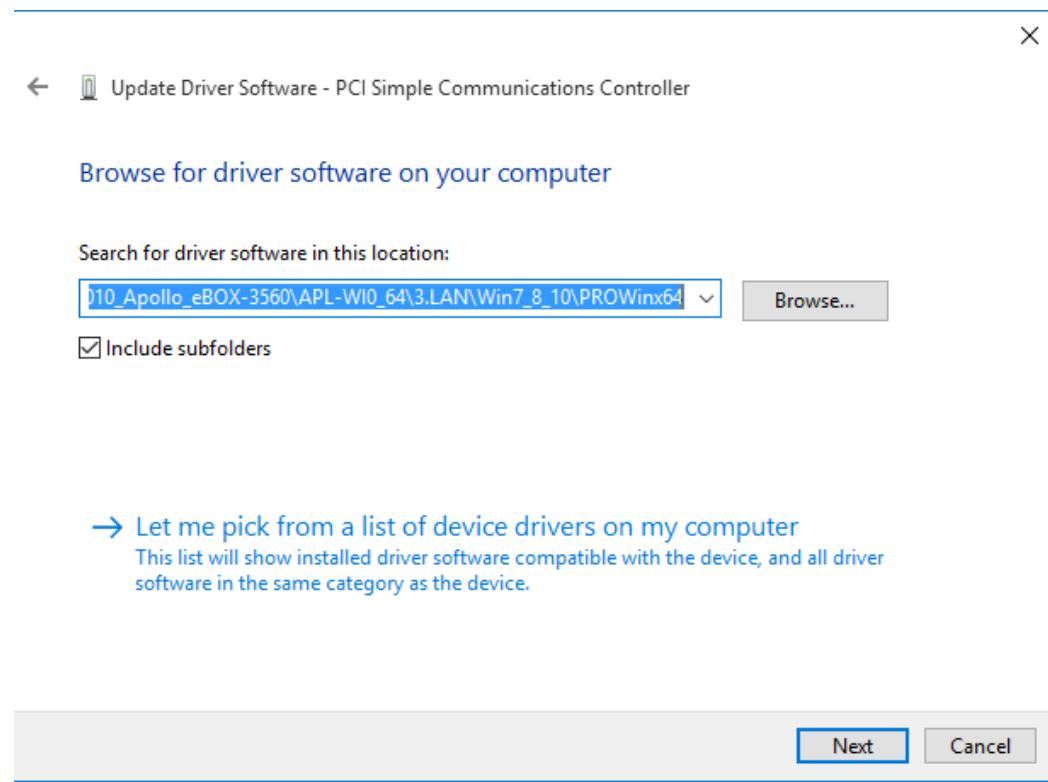
Install from Device Manager, please right click the location as below picture:



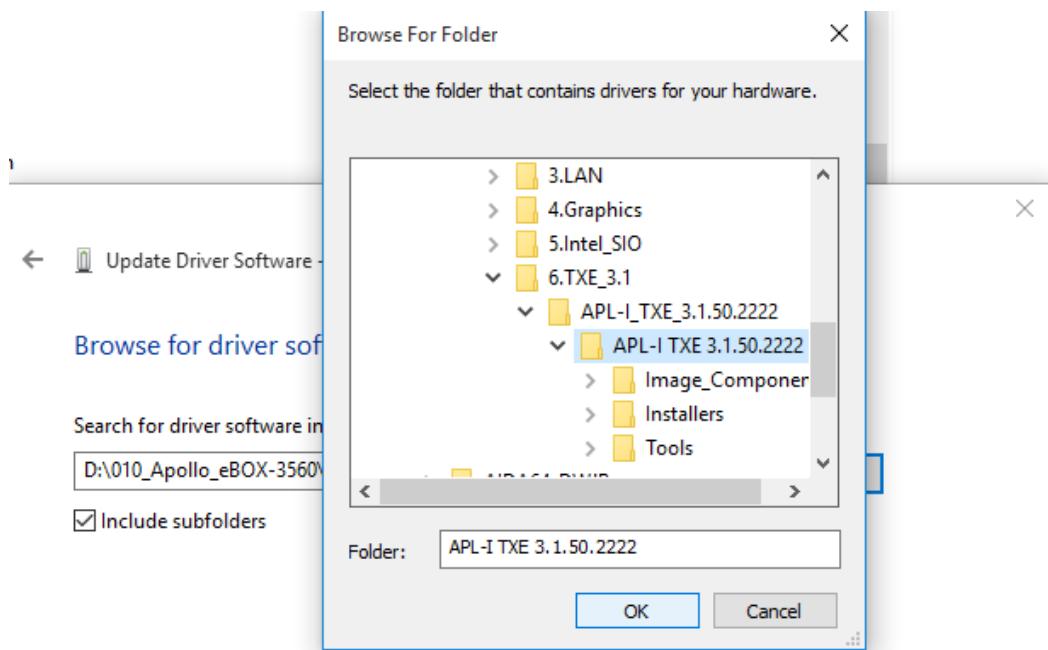
Choose <Browse my computer for driver software>:



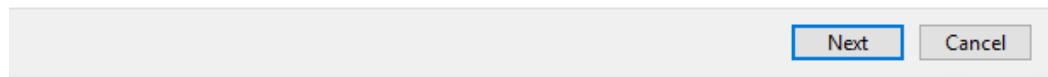
Click <Browse>:



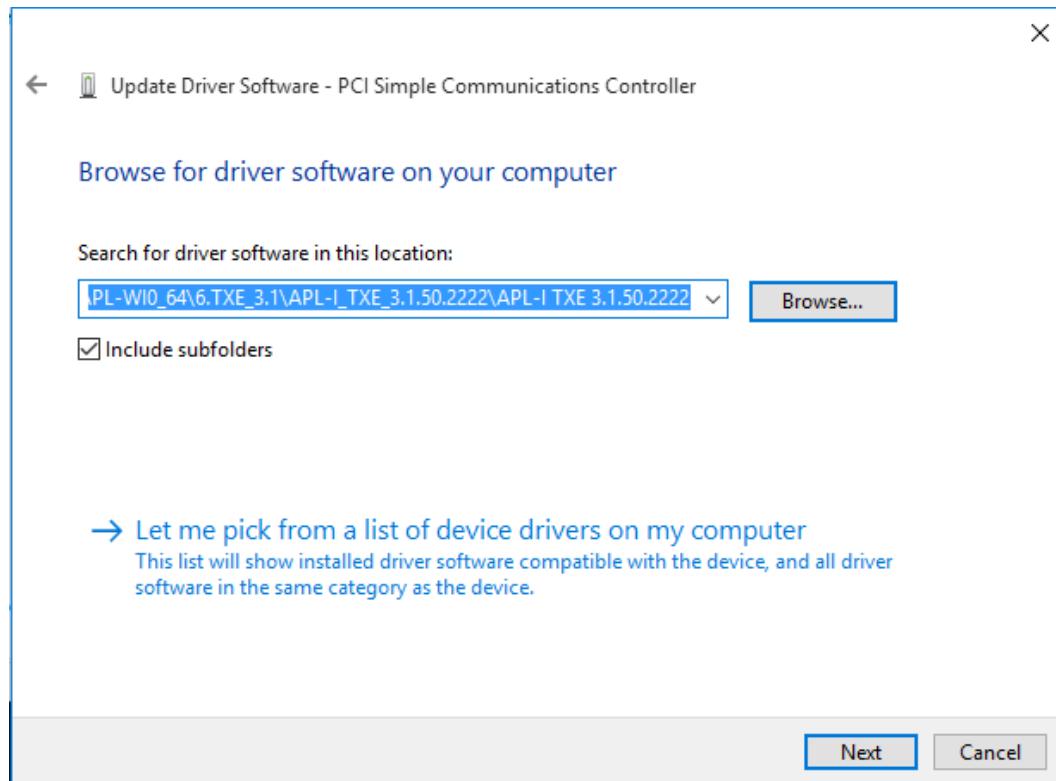
Browse the right location as below, then click <OK>.



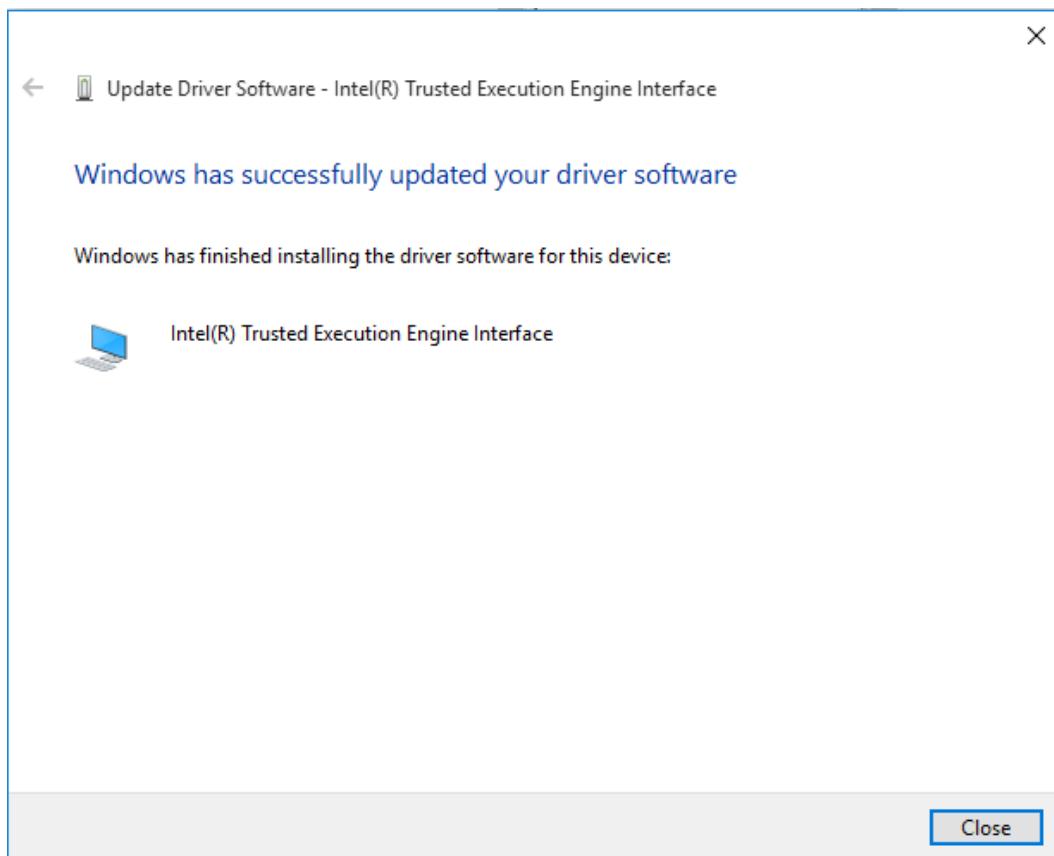
→ Let me pick from a list of device drivers on my computer  
This list will show installed driver software compatible with the device, and all driver software in the same category as the device.



Then press <Next> to continue.



Press <Close> to finish.

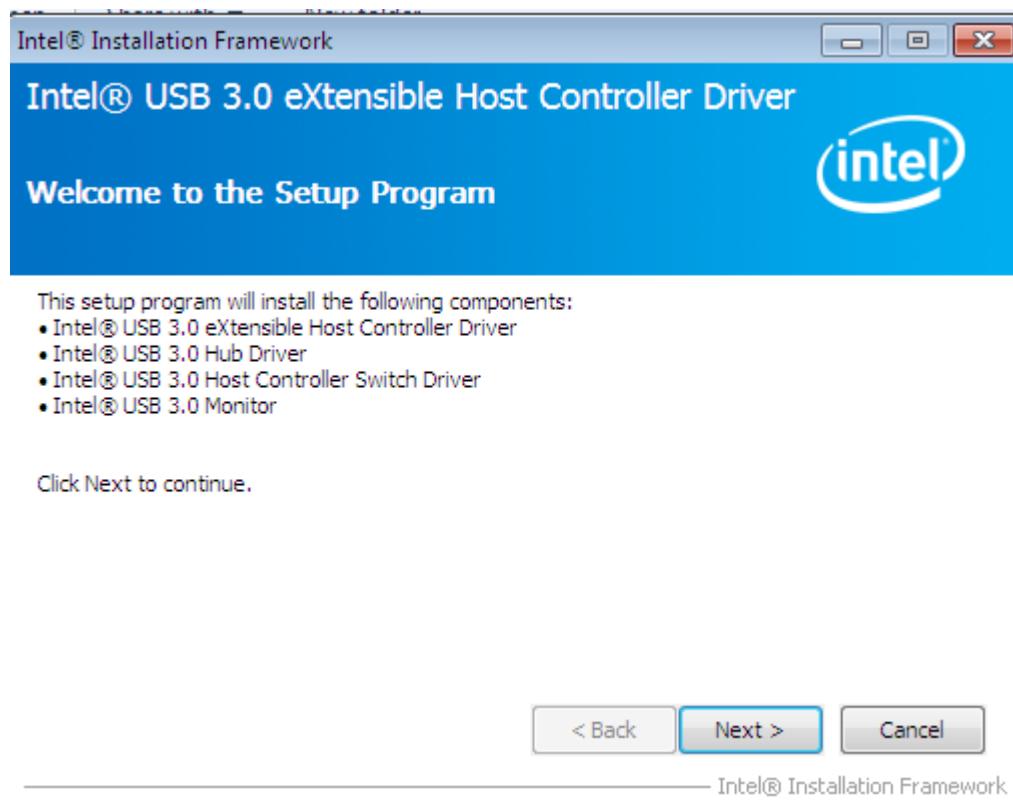


## 2.10.7 USB 3.0 installation

Here we introduce the USB 3.0 installation, just in case for the USB 3.0 doesn't work some time. Get into the folder what the path is: <D:\Backup\Drivers\7.USB 3.0\setup.exe> as shown as below:

Name	Date modified	Type	Size
apps	1/7/2016 3:21 PM	File folder	
Drivers	1/7/2016 3:21 PM	File folder	
Lang	1/7/2016 3:21 PM	File folder	
x64	1/7/2016 3:21 PM	File folder	
DIFxAPI.dll	11/2/2006 7:21 AM	Application extens...	312 KB
Intel USB 3.0 xHC Driver - Release Not...	3/7/2014 9:57 AM	PDF File	65 KB
Intel USB 3.0 xHC Driver-Bring Up Gui...	3/7/2014 9:57 AM	PDF File	1,205 KB
mup	3/6/2014 10:08 AM	XML Document	9 KB
Readme	3/6/2014 10:08 AM	Text Document	53 KB
Setup	3/6/2014 10:08 AM	Application	944 KB
Setup.if2	3/6/2014 10:08 AM	IF2 File	6 KB
USB3Ver.dll	3/6/2014 10:08 AM	Application extens...	41 KB

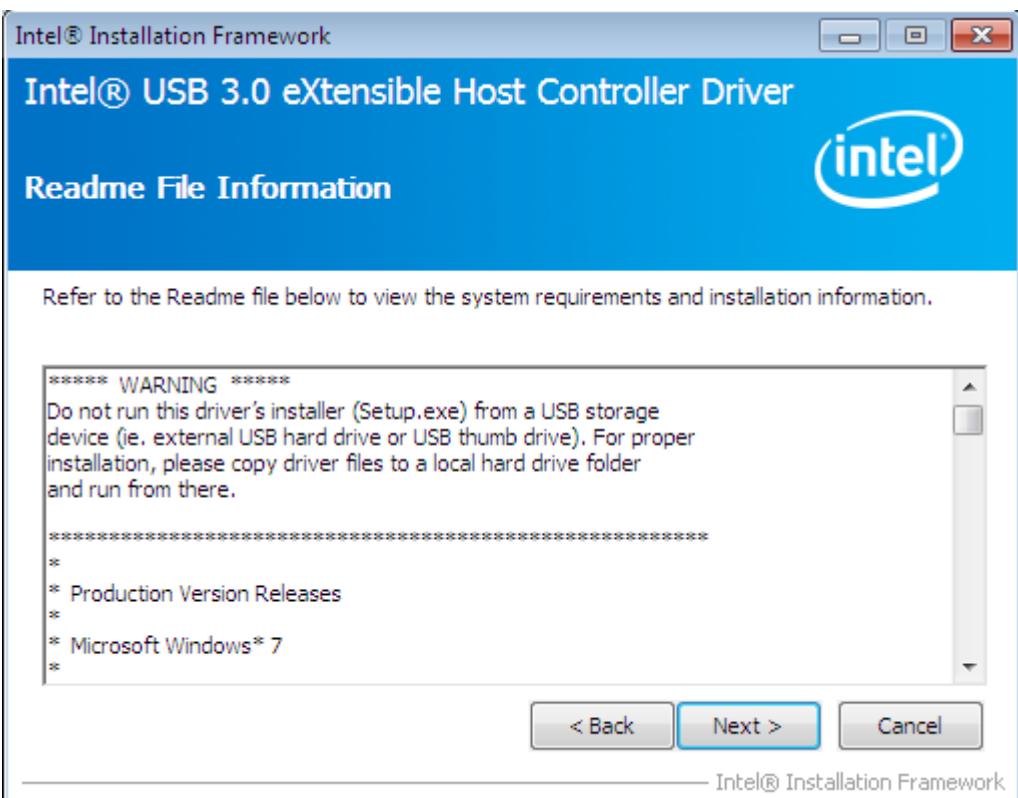
Press <NEXT> to get the next steps.



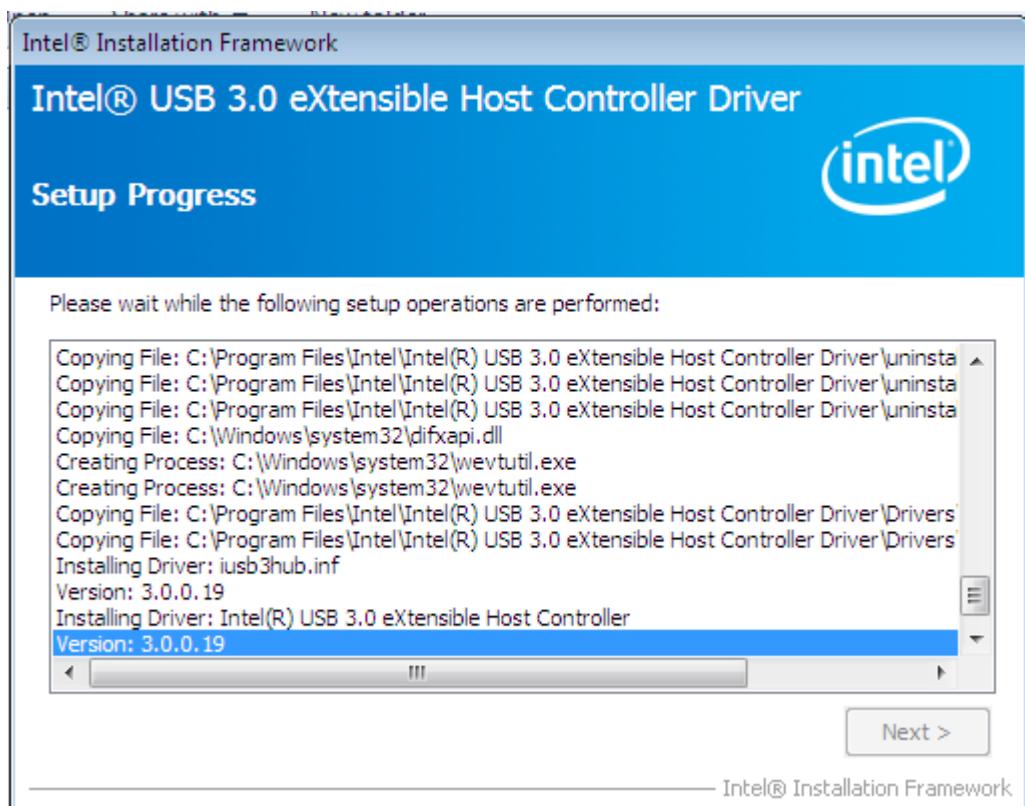
Press <YES> to continue



As always, Press <NEXT> to get into the next step.



Wait here and not do anything else until it's done.



If you encounter this message tip, please select <No, I will restart the computer later> and click <Finish> to finish the driver installation completely.



# Chapter 3

## BIOS Setup

---

## 3.1 Introduction

The BIOS is programmed onto the BIOS chip, the BIOS setup program allows changes to certain system settings. This chapter outlines the options that can be changed.

### 3.1.1 Starting setup

The AMI is activated when the computer is turned on. The setup program can be activated in one of two ways:

1. Press the <DEL> key as soon as the system is turned on.
2. Press the <DEL> key when the “Press Del to enter SETUP” tips appears on the screen.

If the message disappears before the <DEL> key is pressed, restarted the computer and try again.

### 3.1.2 Using setup

Use the arrow keys to highlight items. Press <ENTER> to select, use the <PAGE UP> and <PAGE DOWN> keys to change entries. Press <F1> for help and press <ESC> to quit. Navigation keys are shown in.

Key	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left side
Right arrow	Move to the item on the right side
ESC	Reset
+	Increase the numeric value or make changes
-	Decrease the numeric value make changes
F1	General help, only for the status page setup menu and option page setup menu
F2	Previous value
F3	Optimized defaults
F4	Save all the CMOS changes and reset
F12	Print screen

Table 3-1: BIOS navigation keys

### 3.1.3 Getting help

When **<F1>** is pressed a small help window describing the appropriate keys to use and the possible selection for the highlight item appears. To exits the help Windows press **<ESC>** or the **<F1>** key again.

### 3.1.4 Unable to reboot after configuration changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the jumper described in **Chapter 2**.

### 3.1.5 BIOS menu bar

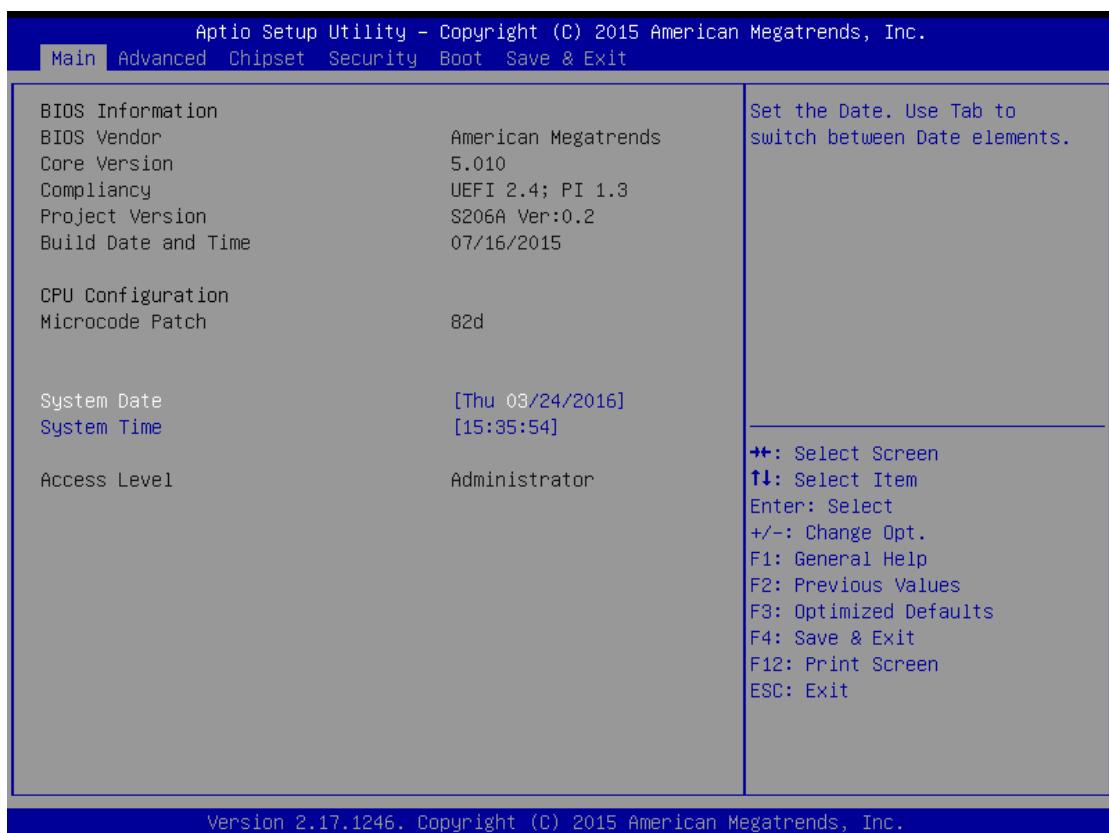
The menu bar on the top of the BIOS screen has the following main items:

- Main – Changes the basic system configuration.
- Advanced – Changes the advanced system settings
- PCI / PnP – Changes the advanced PCI / PnP settings
- Boot – Changes the system boot configuration.
- Security – Sets user and supervisor passwords.
- Chipset – Changes the chipset settings.
- Exit – Selects exit options and loads default settings.

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.

## 3.2 Main

When you first enter the BIOS Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.



**Figure 3-1 Main Setup Screen**

The Main BIOS setup screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured; options in blue can. The right frame displays the key legend.

Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

### 3.2.1 System Time / System Date

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

## 3.3 Advanced BIOS features setup

Select the Advanced tab from the eBOX-3560 setup screen to enter the Advanced BIOS Setup screen. You can select any of the items in the left frame of the screen, such as CPU Configuration, to go to the sub menu for that item. You can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screens is shown below. The sub menus are described on the following pages.

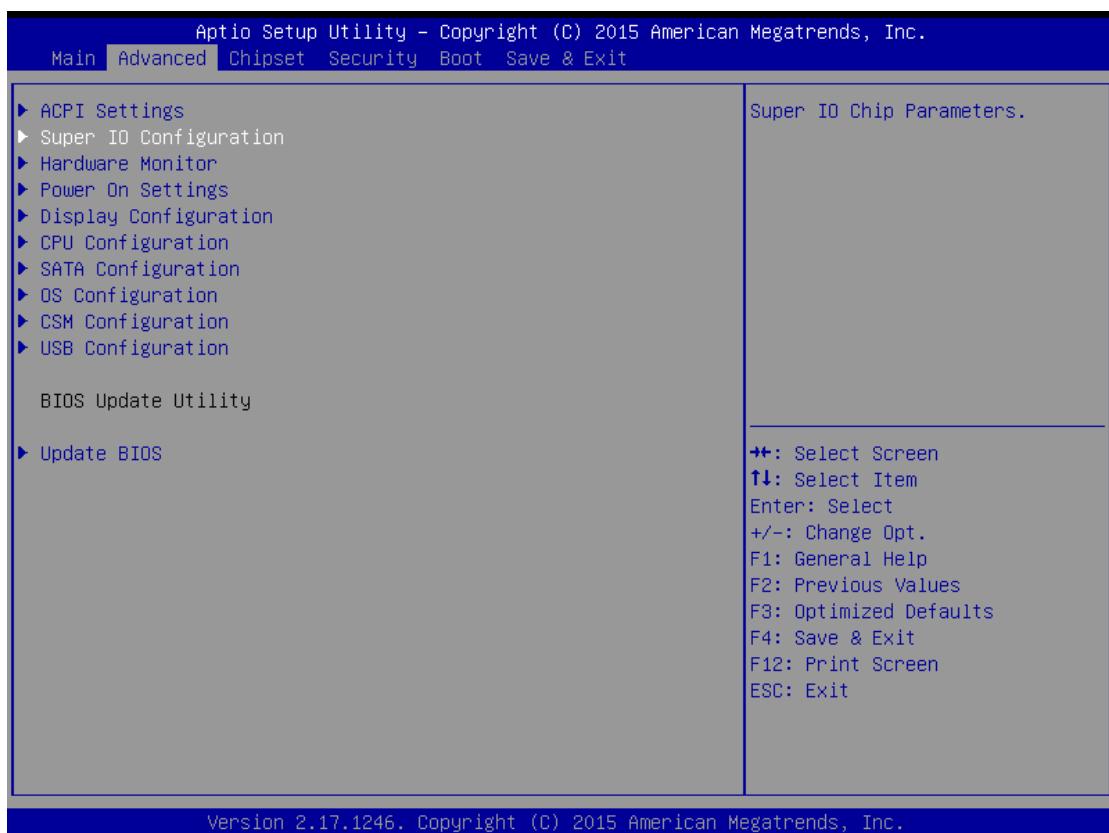
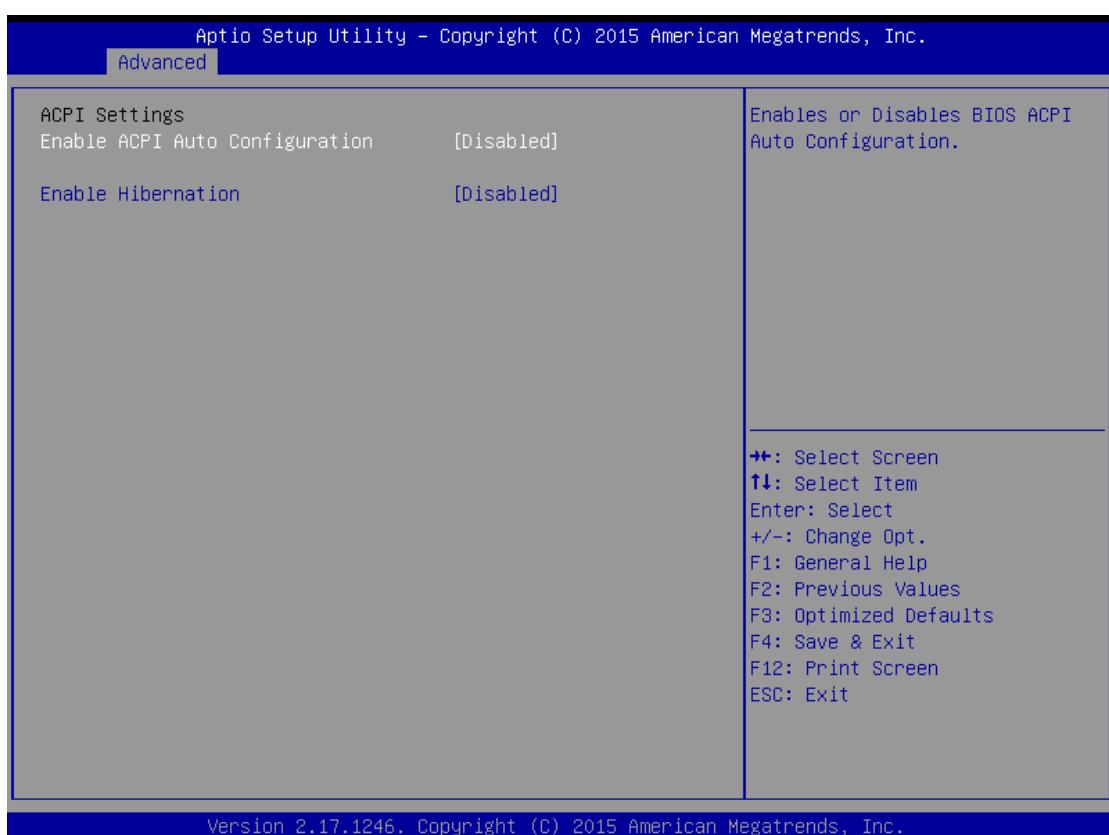
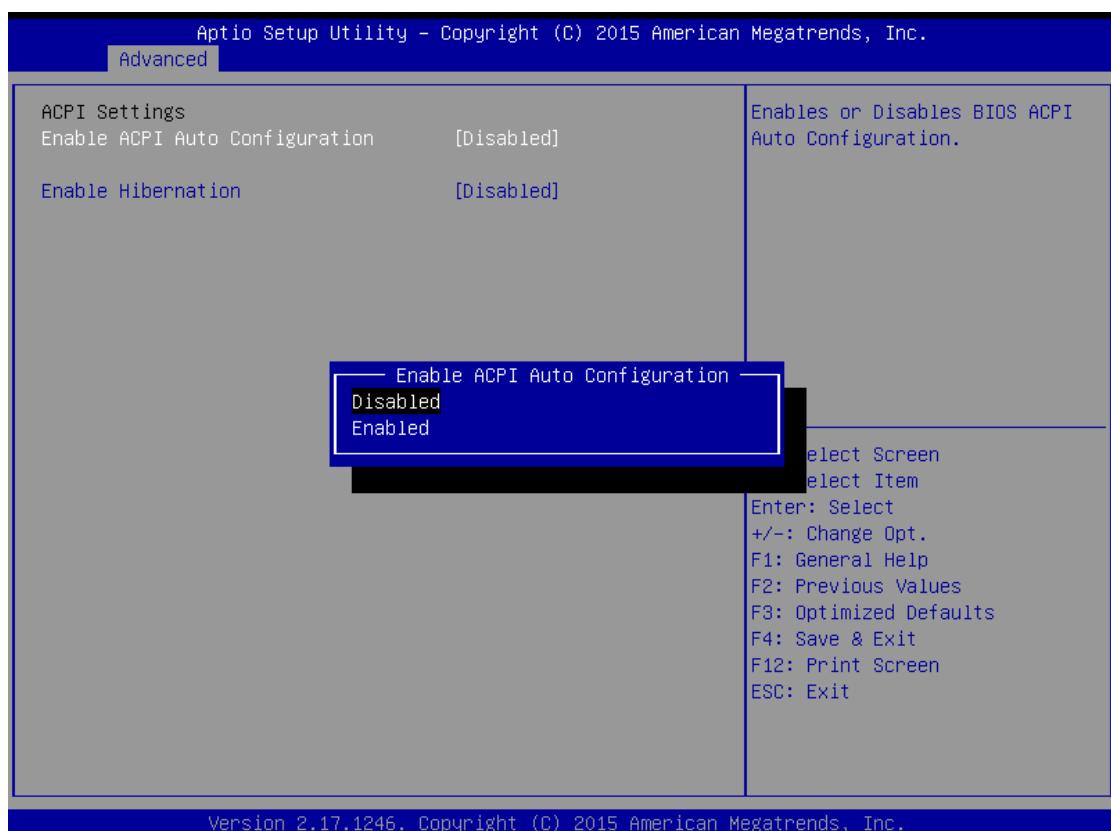


Figure 3-2 Advanced BIOS Features Setup Screen

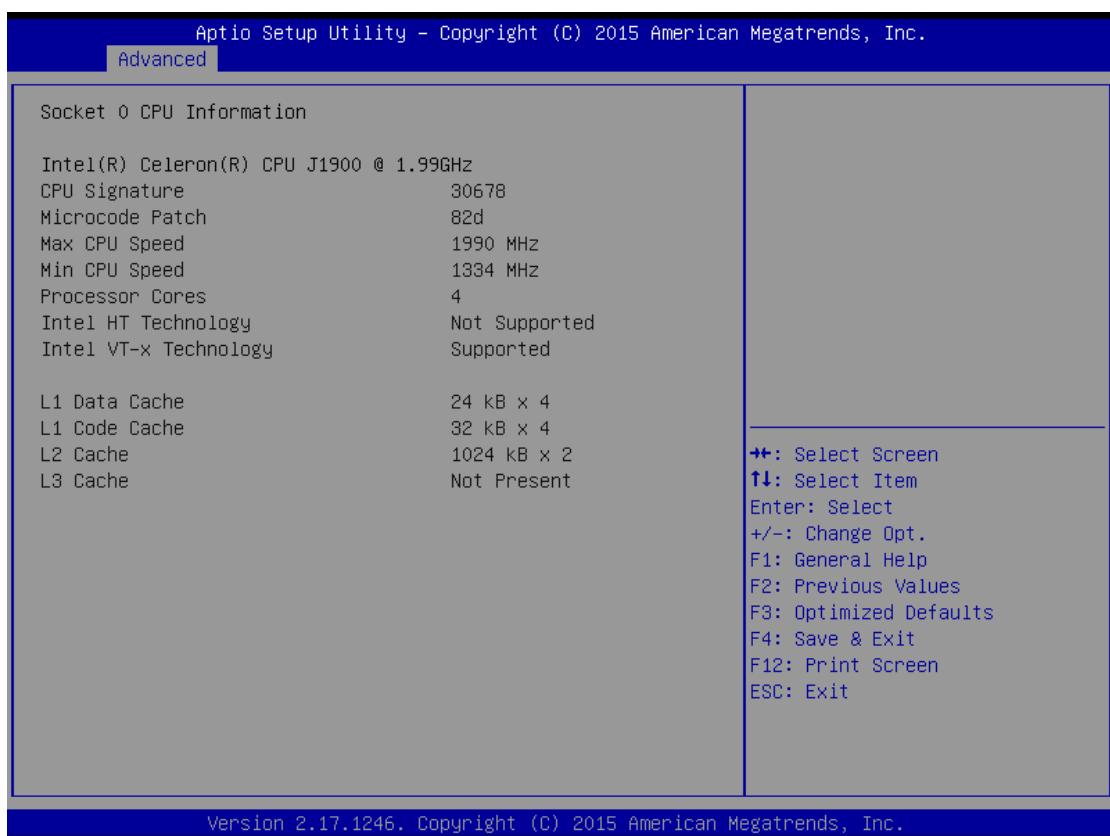
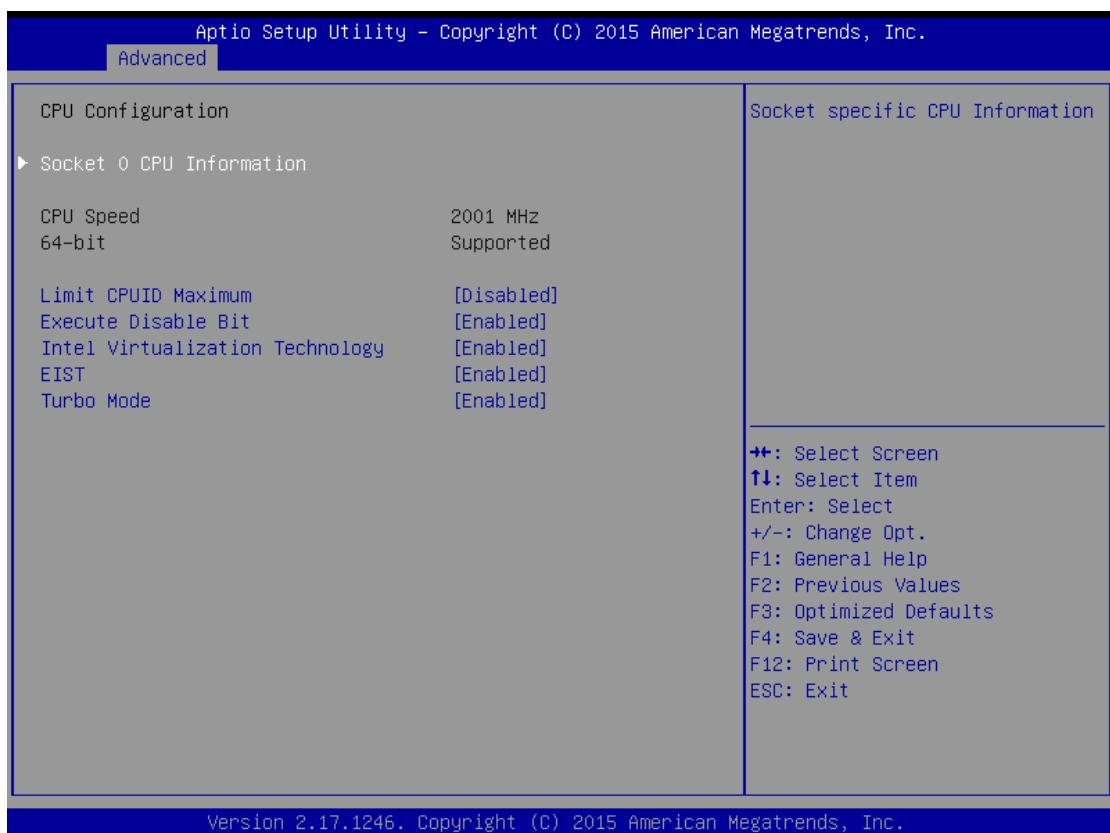
### 3.3.1 ACPI Setting

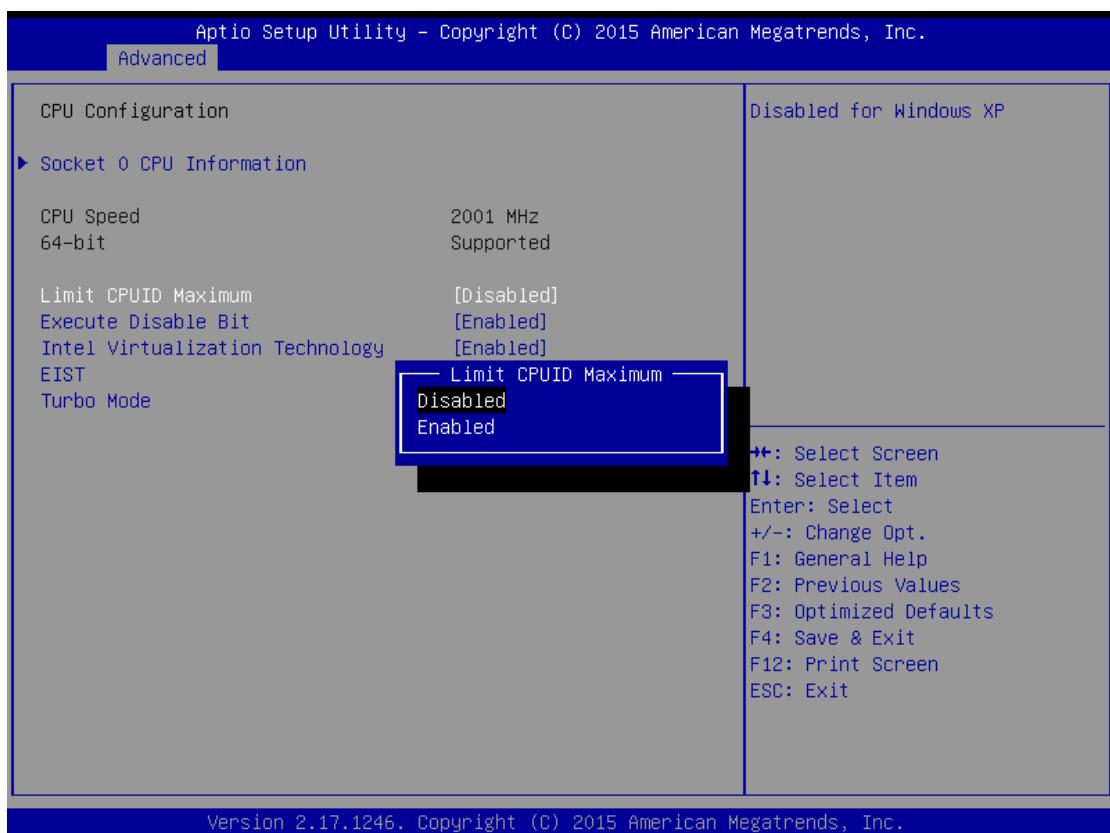




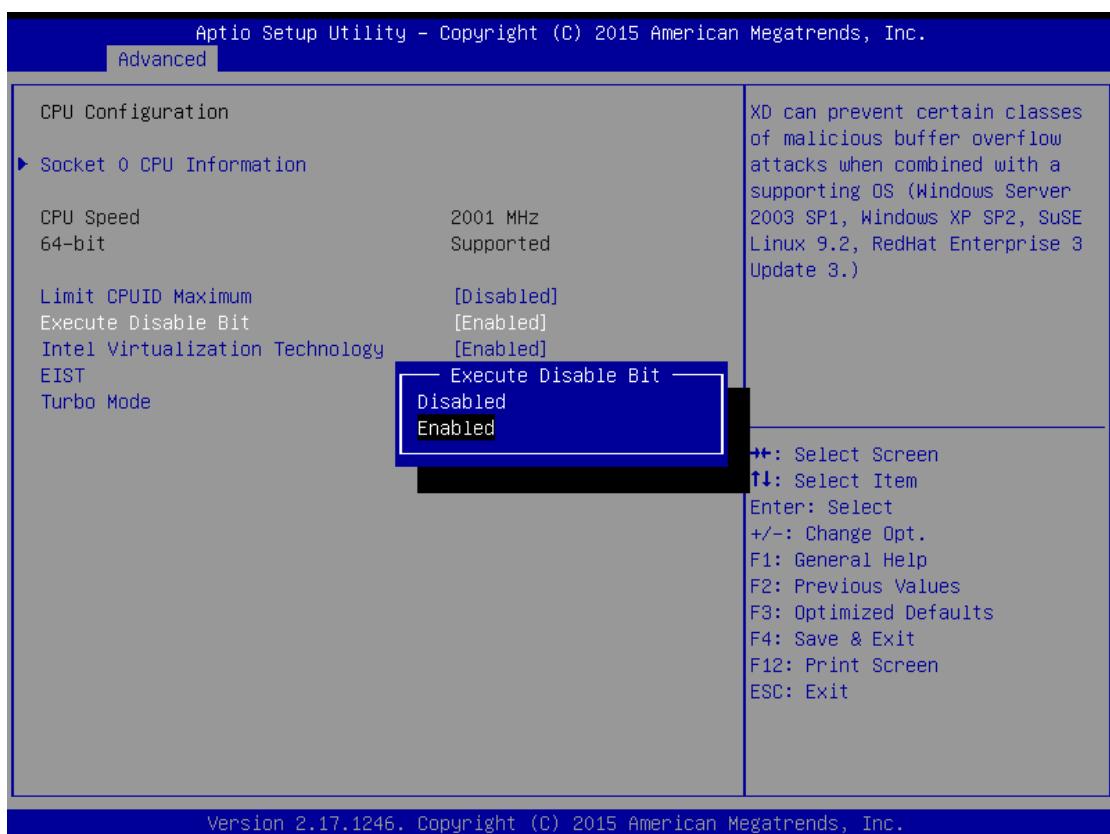
**Figure 3-4 ACPI Configuration Setting**

### 3.3.2 CPU Configuration Setting

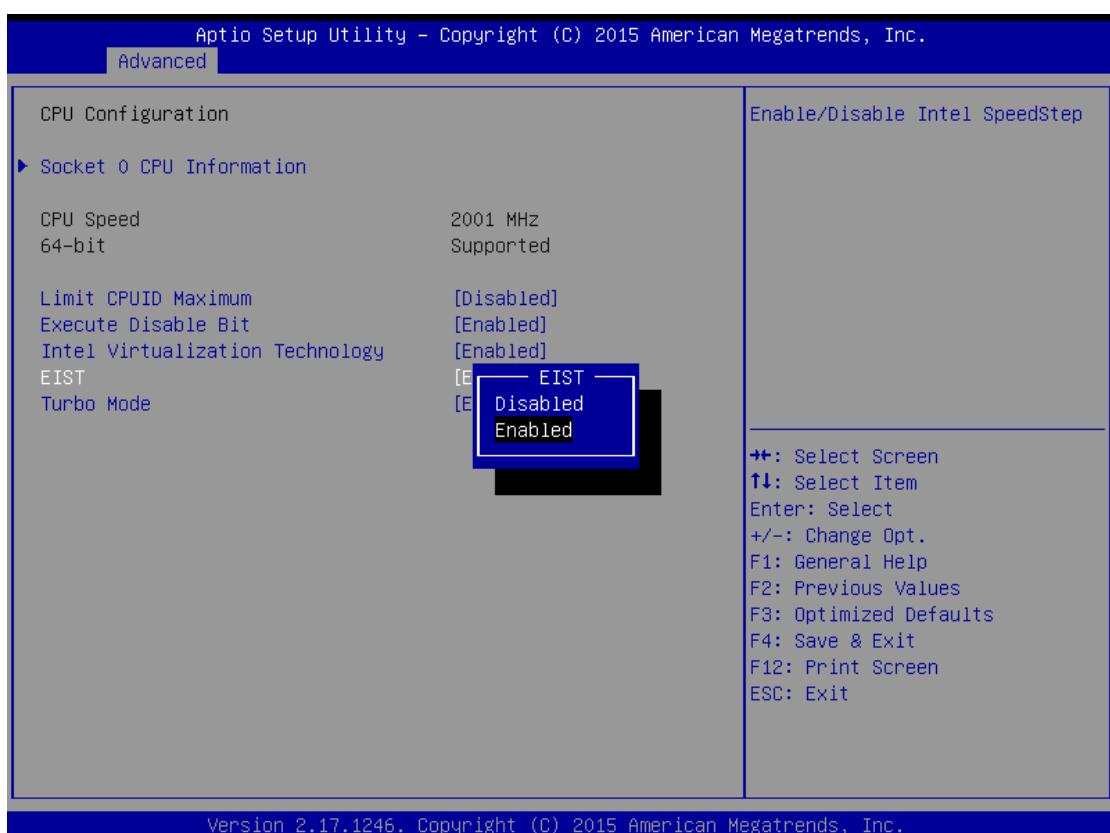
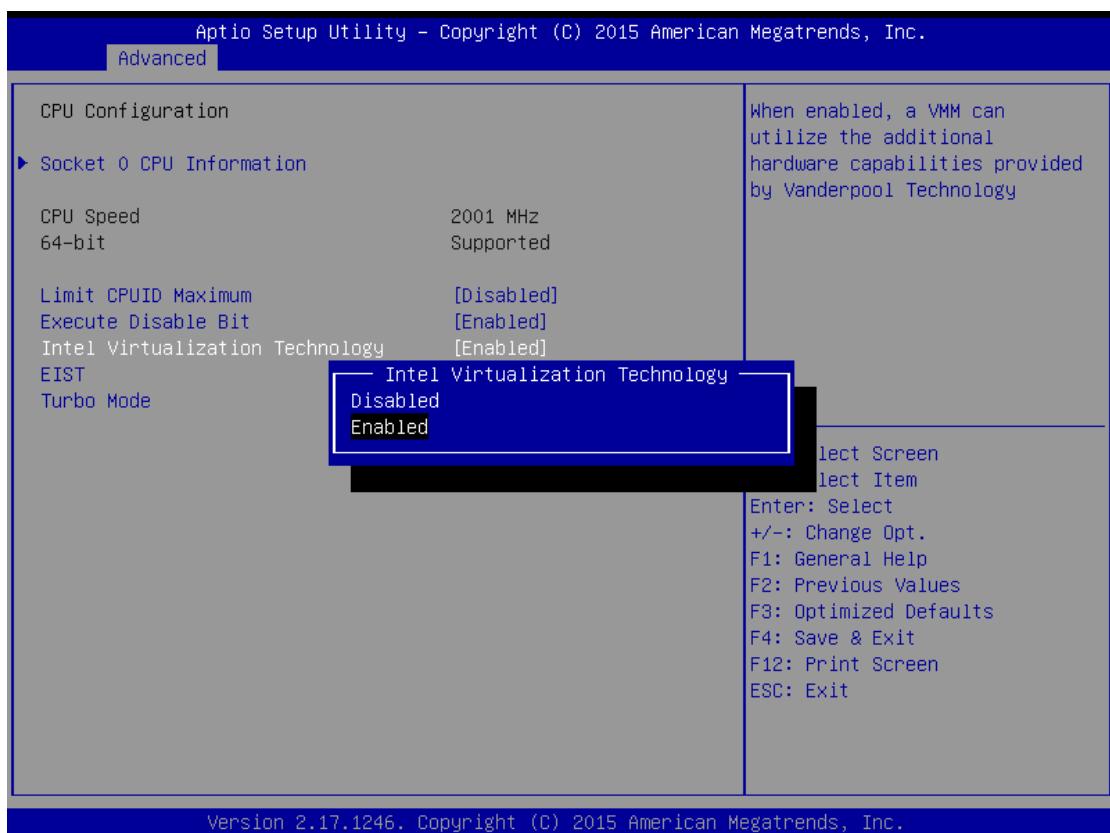




Version 2.17.1246. Copyright (C) 2015 American Megatrends, Inc.



Version 2.17.1246. Copyright (C) 2015 American Megatrends, Inc.



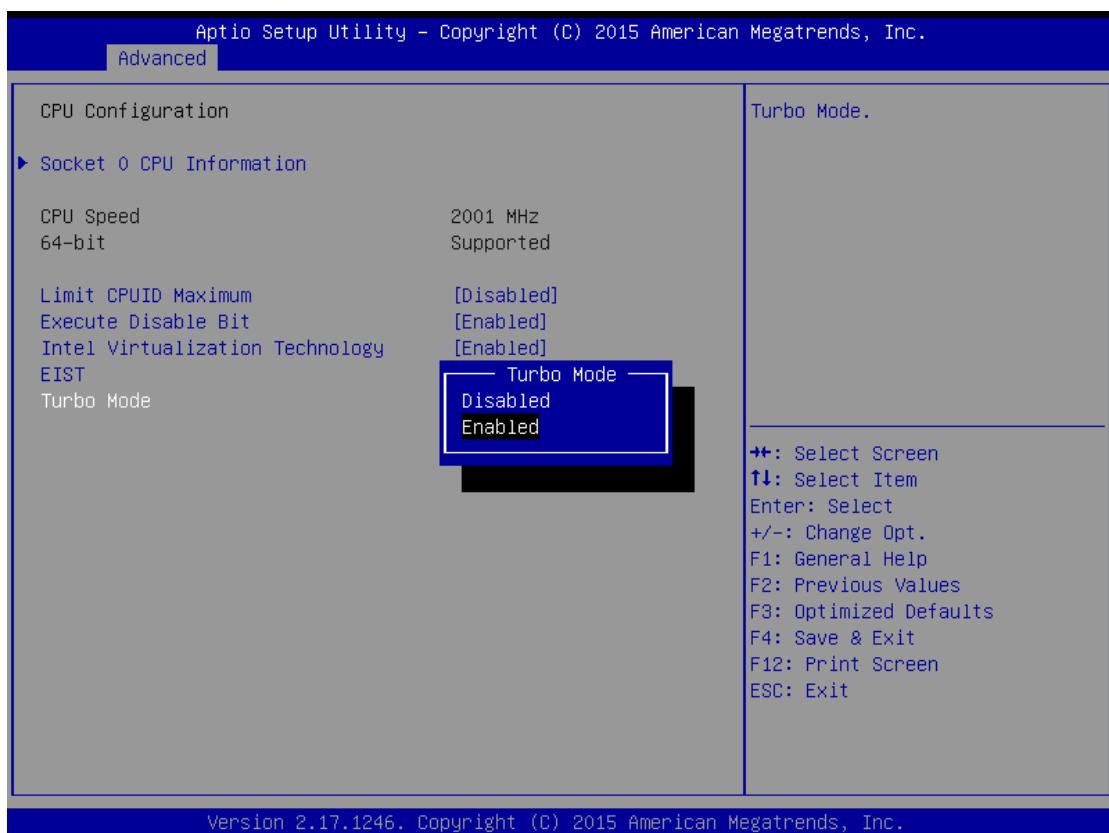


Figure 3-5 CPU Configuration Setting

■ **Limit CPUID Value Limit**

This item allows you to limit CPUID maximum value.

■ **Execute-Disable Bit Capability**

This item allows you to enable or disable the No-Execution page protection technology.

■ **Turbo mode**

This item allows you to enable or disable the turbo mode.

### 3.3.3 SATA Configuration

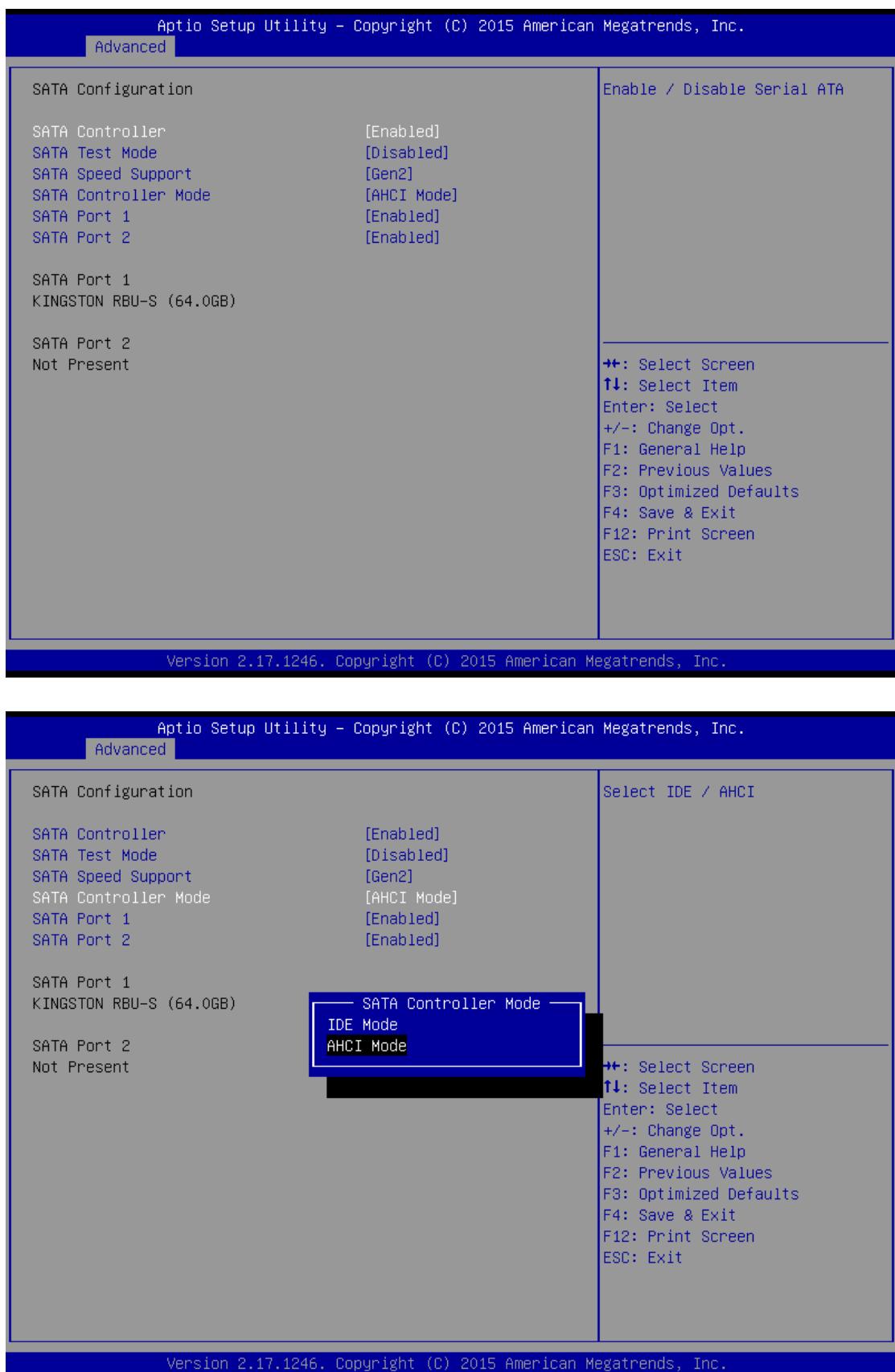
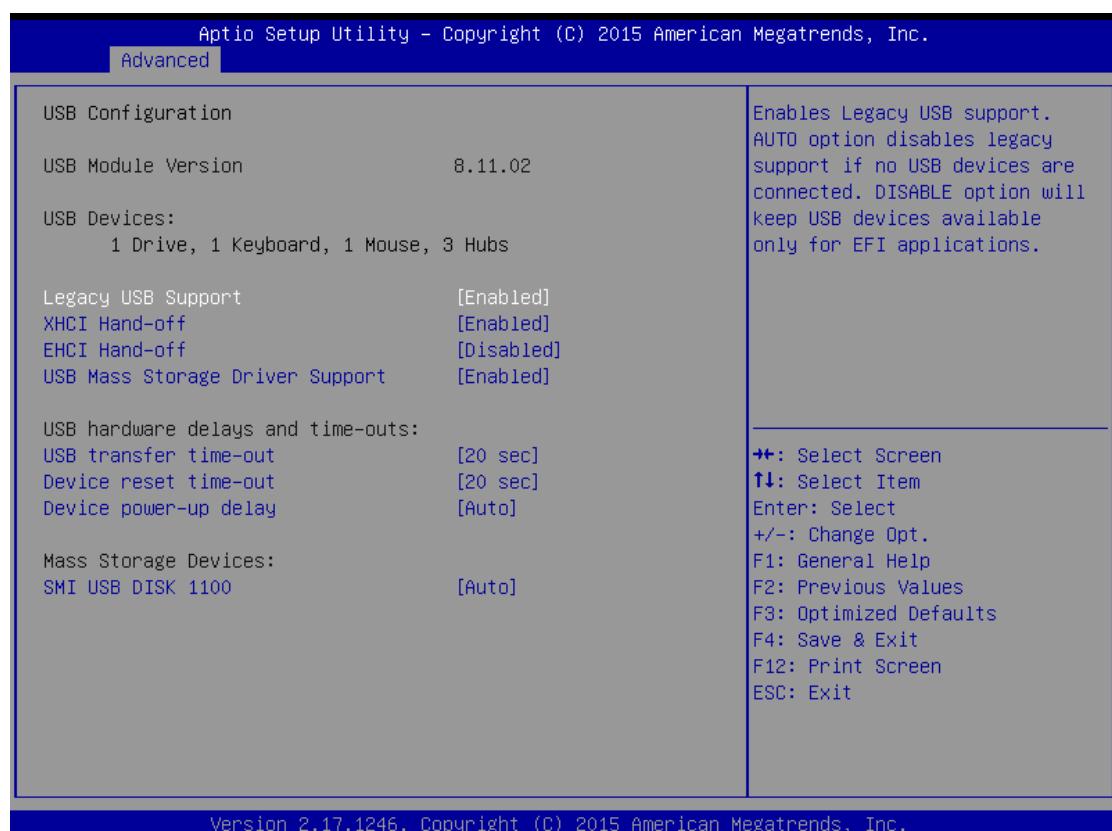


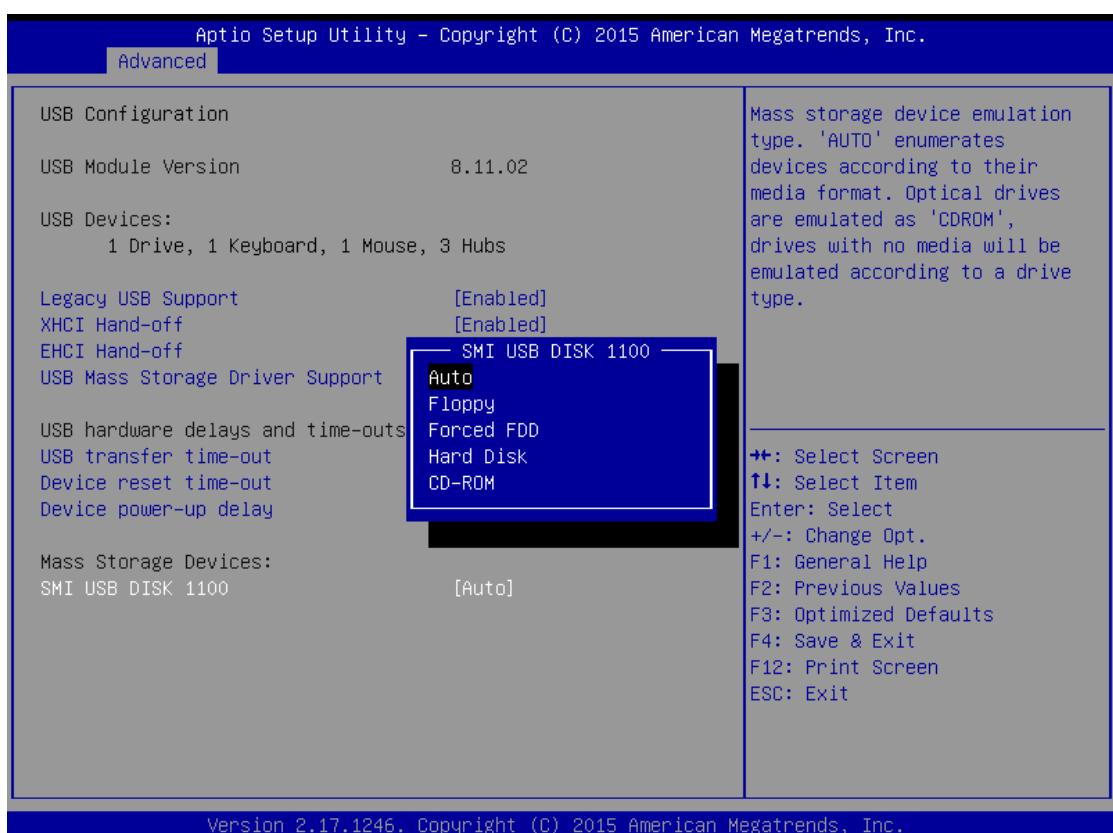
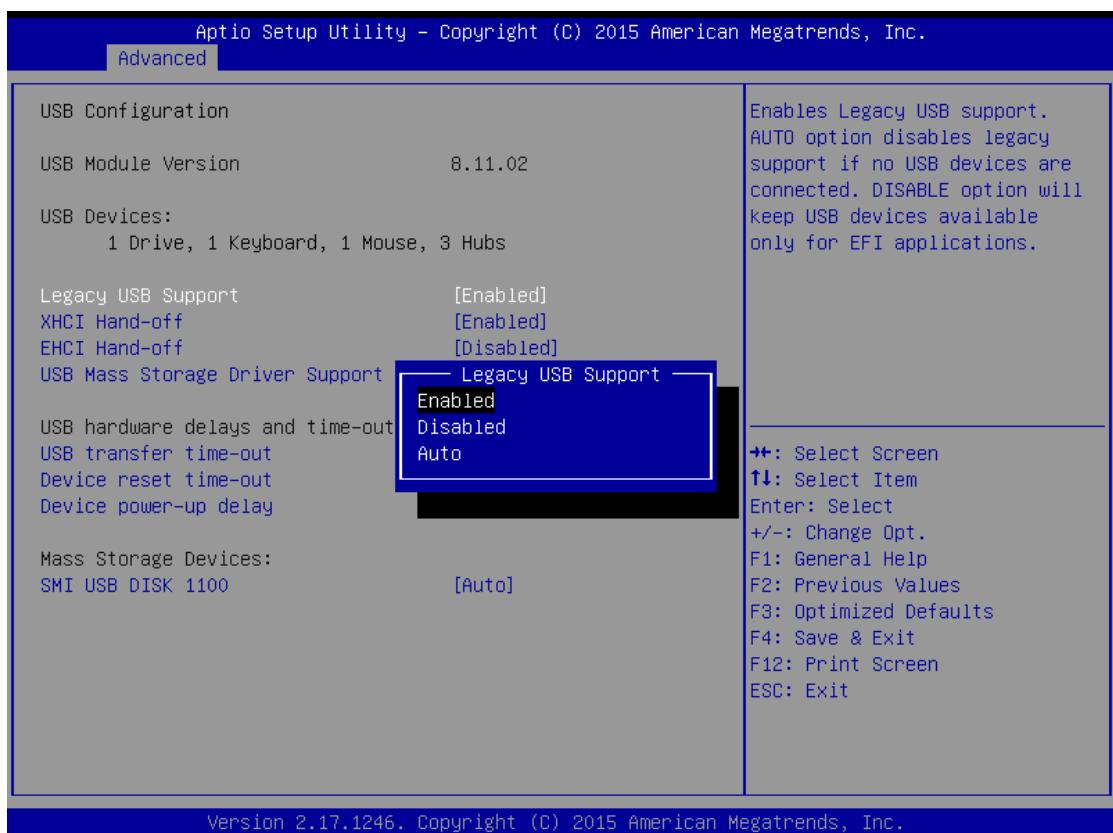
Figure 3-6 SATA Configuration

### ■ SATA controller mode Configuration

This item allows you to select Disabled / IDE / AHCI

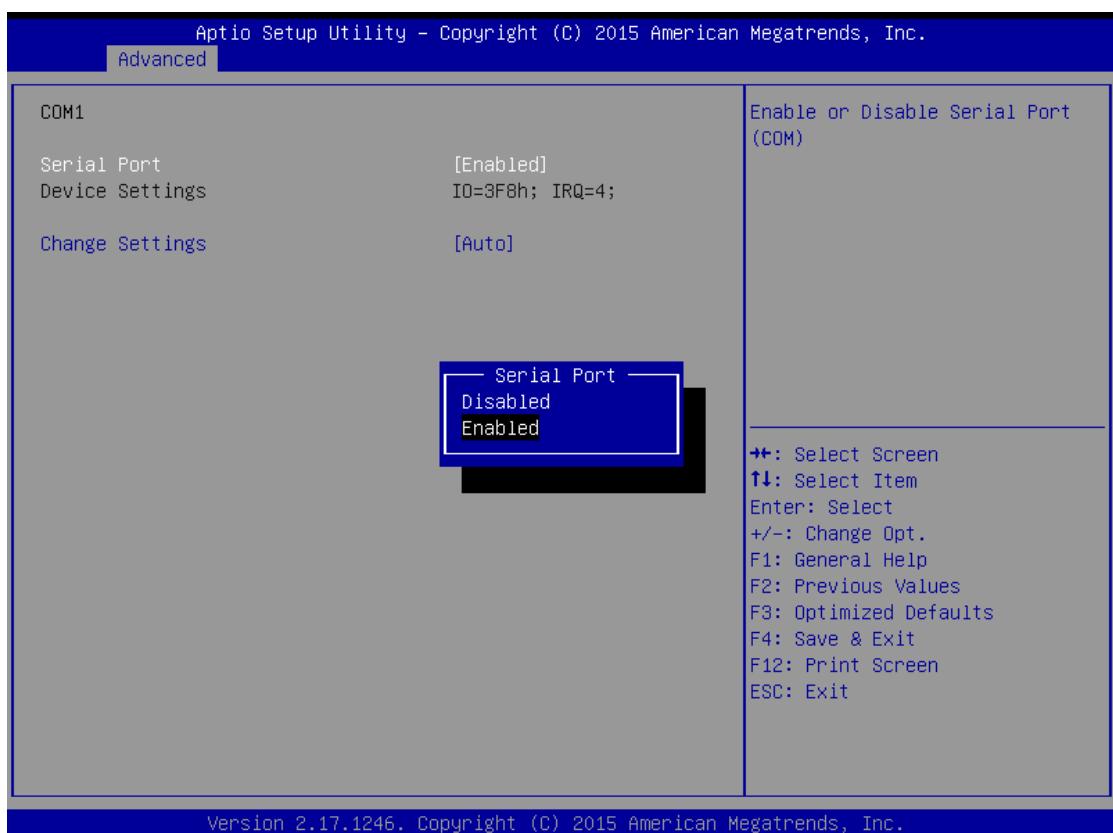
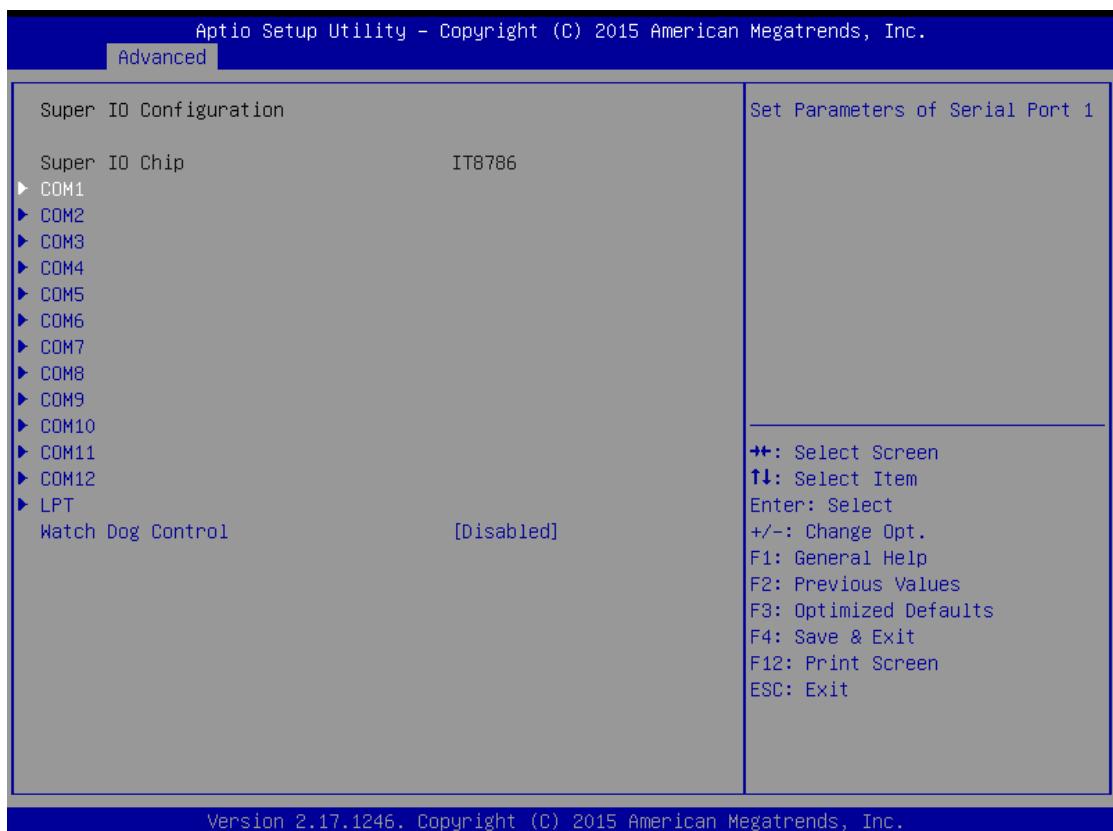
### 3.3.4 USB Configuration

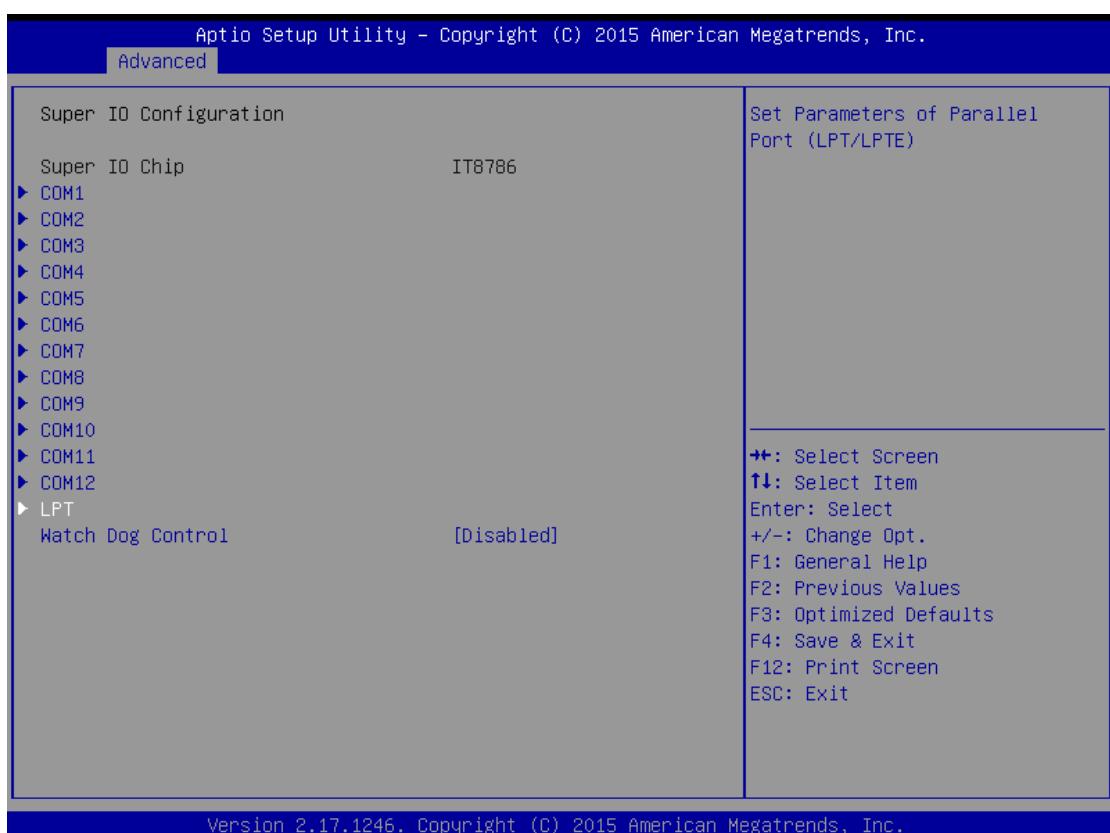
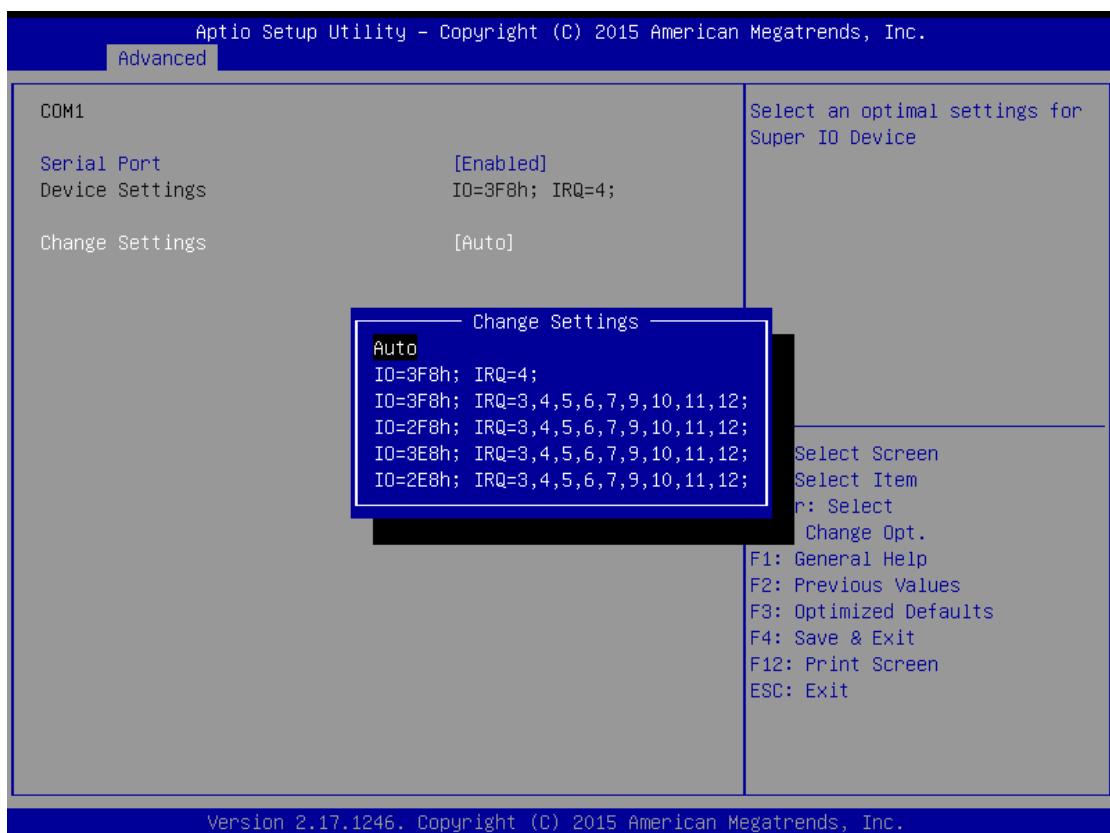


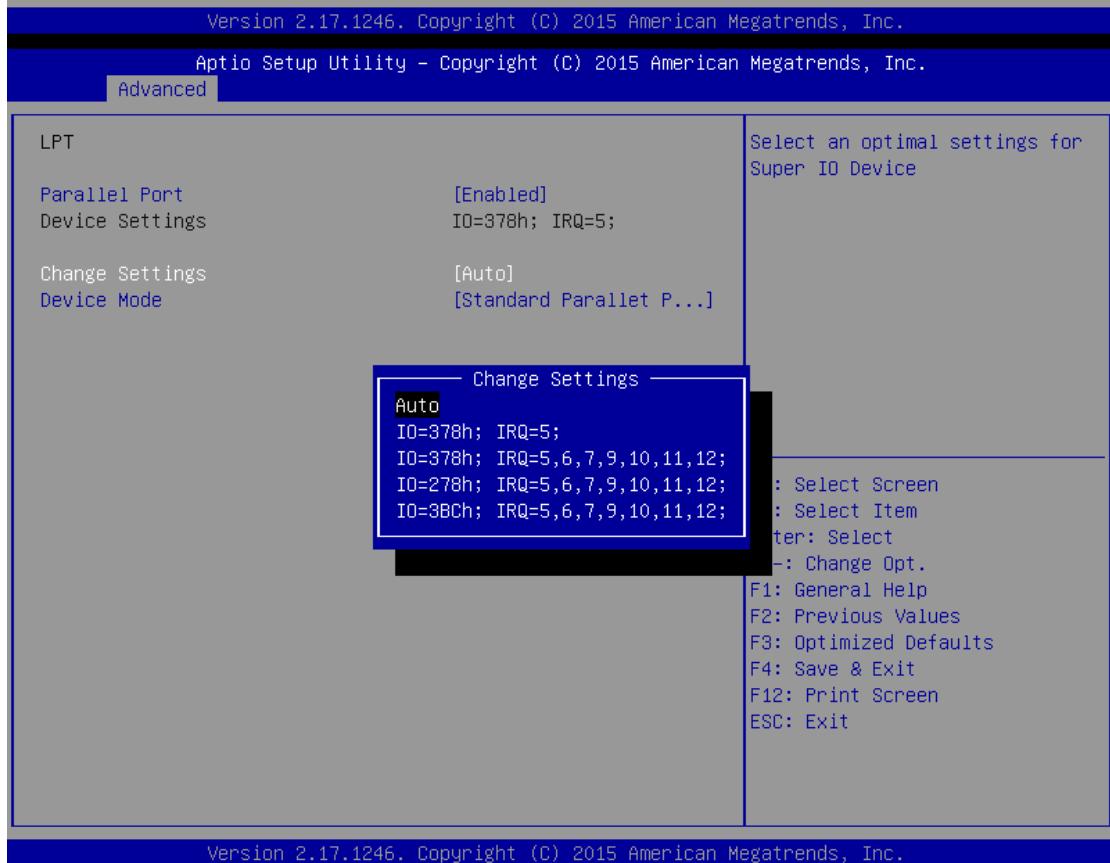
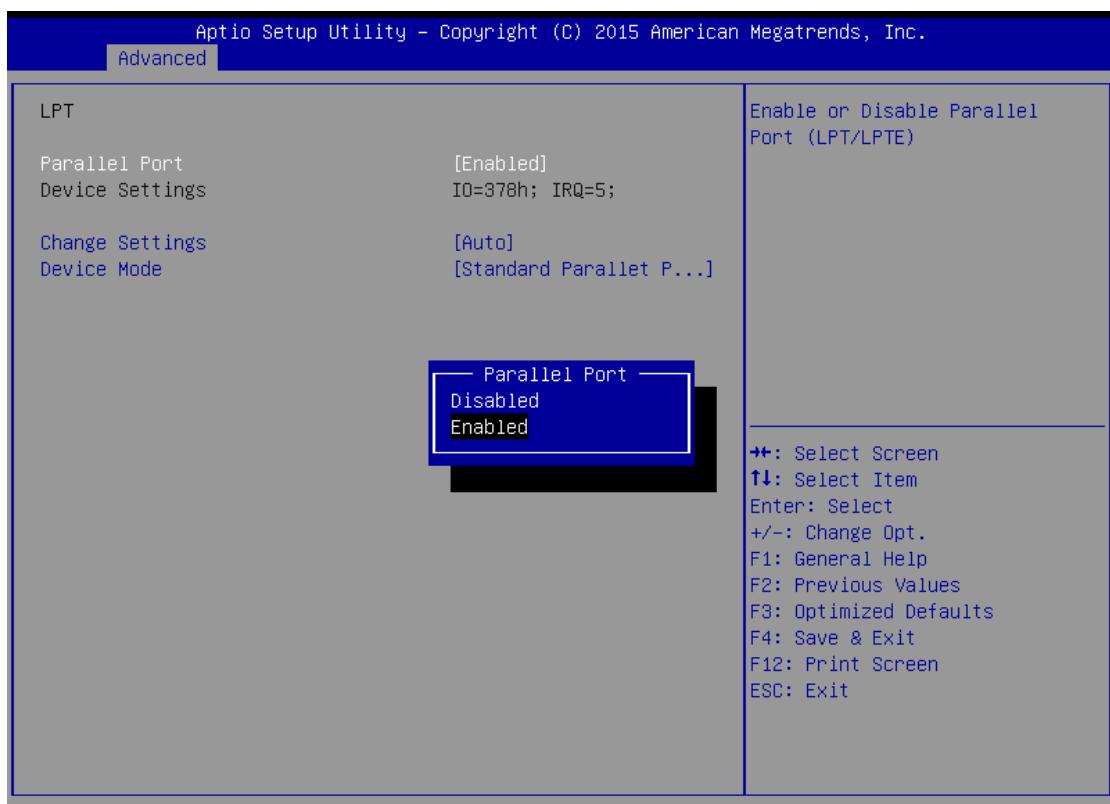


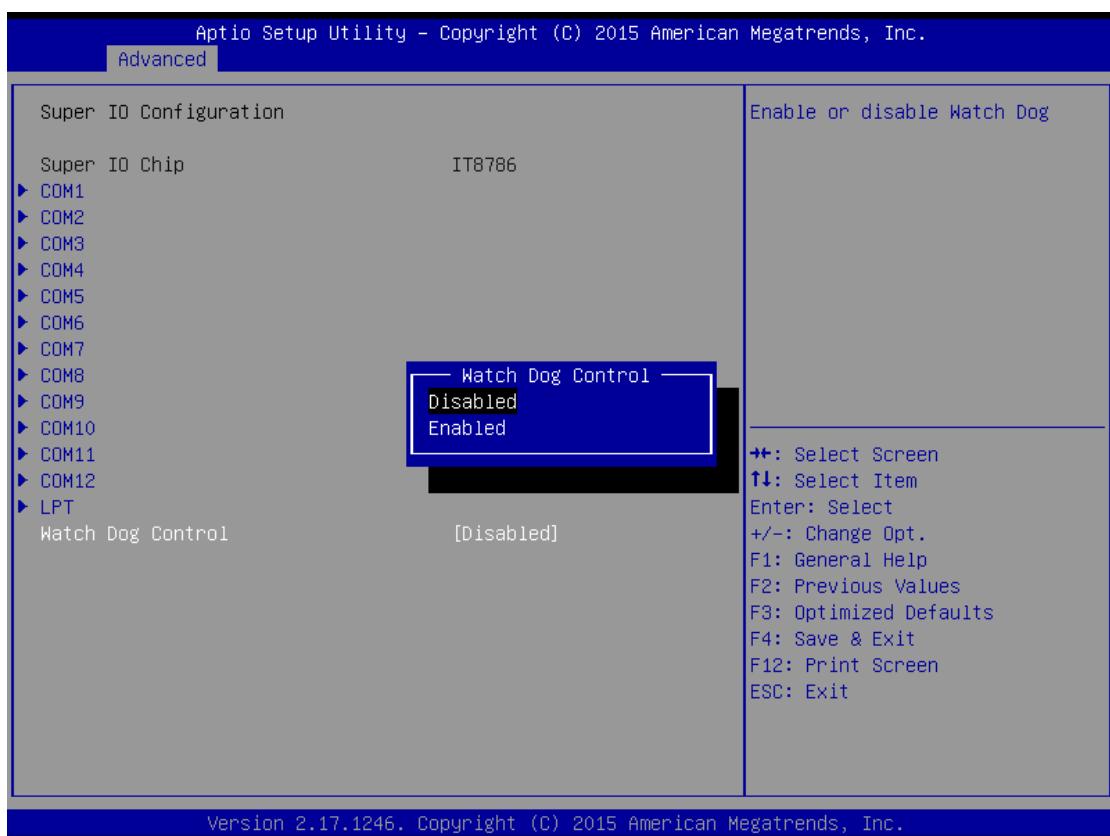
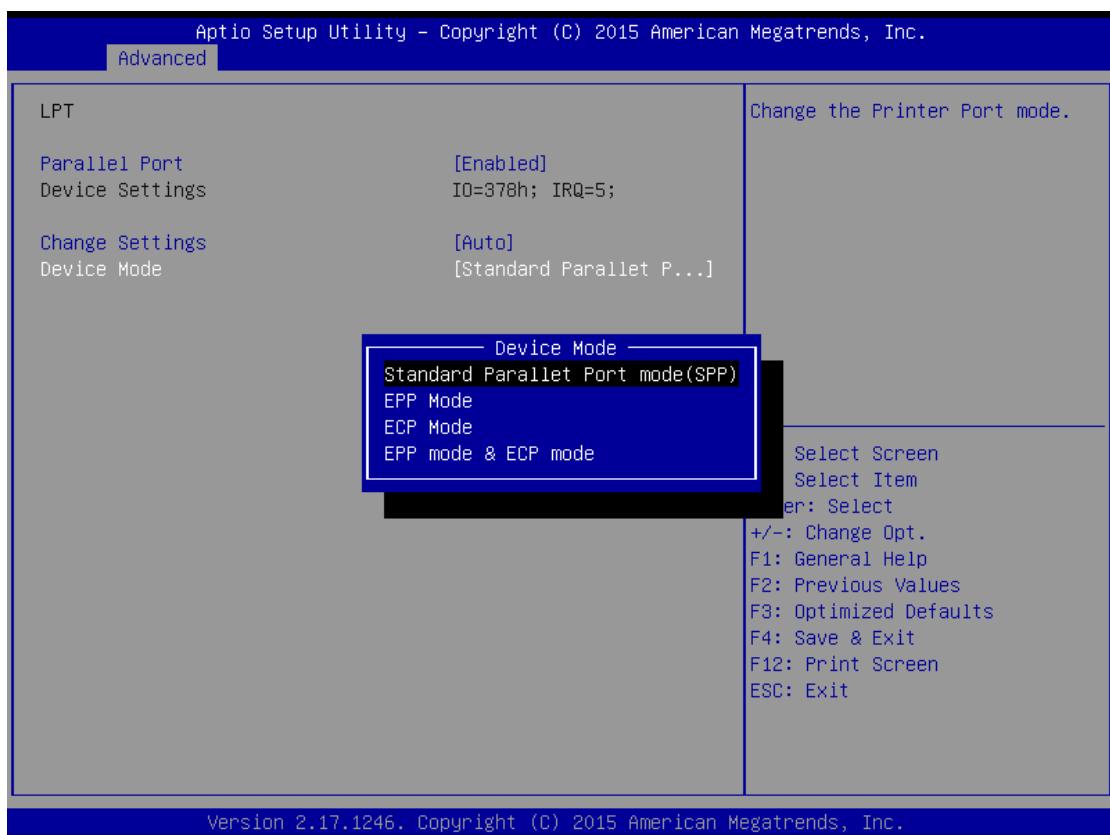
**Figure 3-7 USB Configuration**

### 3.3.5 Super I/O Configuration









**Figure 3-8Super I/O configuration**

■ **Device settings**

This item shows you the serial port1 ~ port12 of base addresses.

■ **Serial Port1- Port12 IRQ**

This item allows you to select serial port1 ~ port12 of IRQ.

■ **GPIO Setting**

These 6bit GPIO are extracted from SIO, but the M/B eBOX-3560 does NOT lead out this function, so this configuration is invalid.

### 3.3.6 PC Health Status

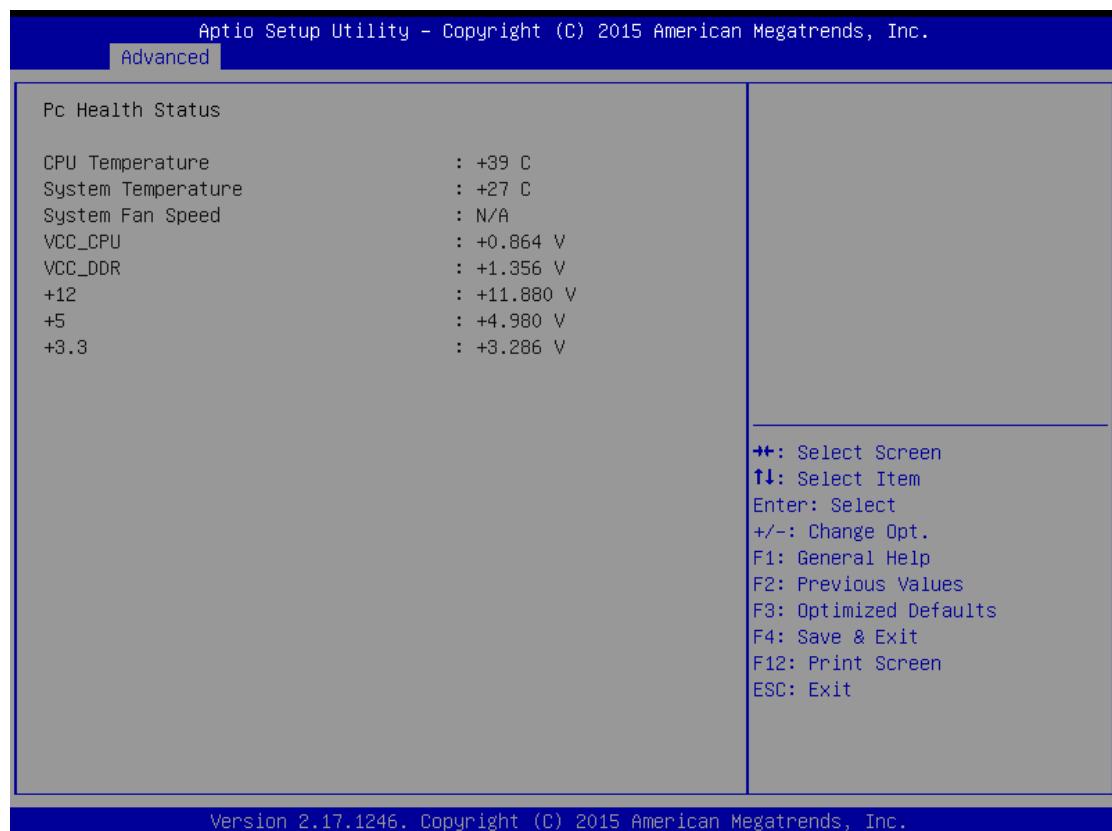
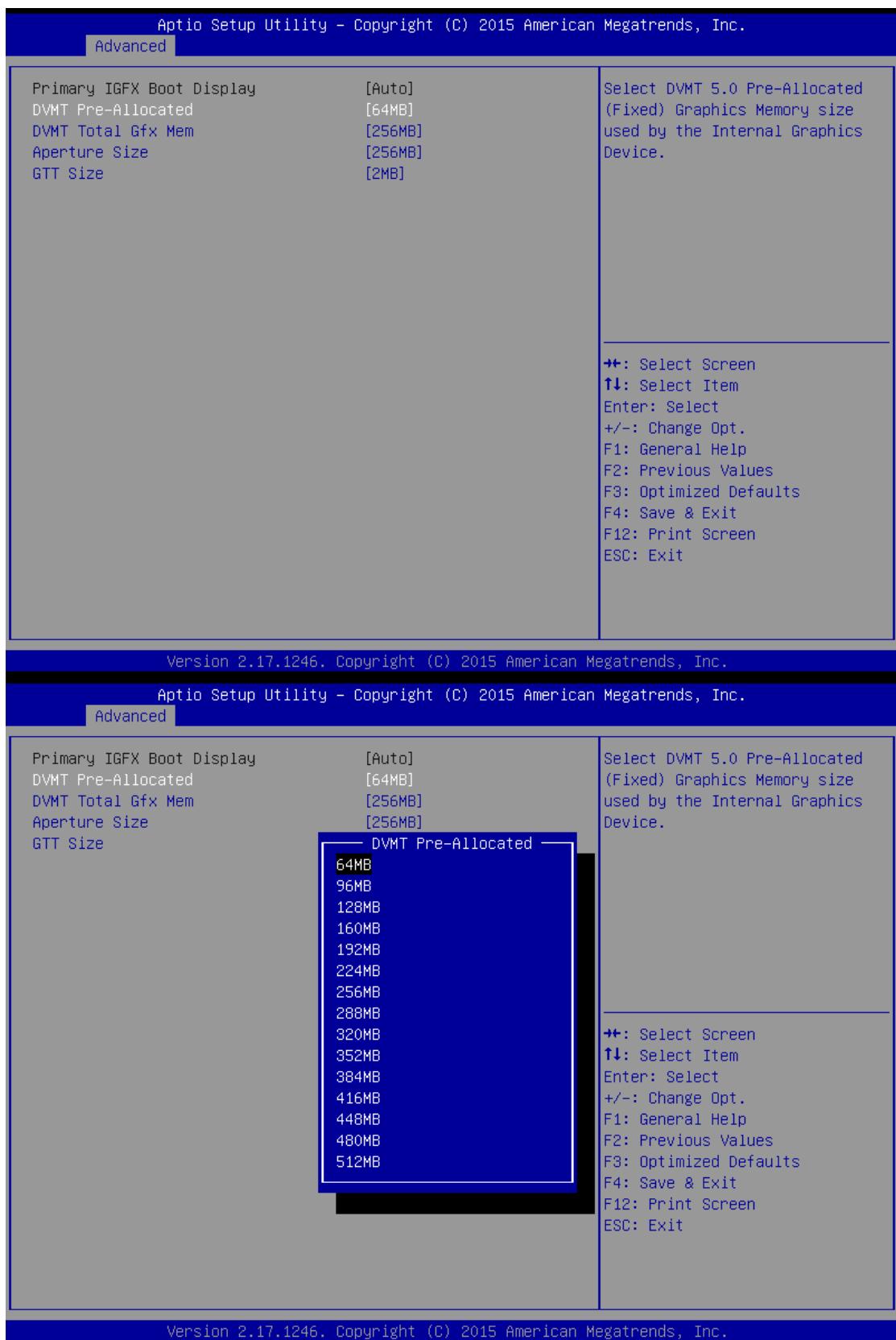
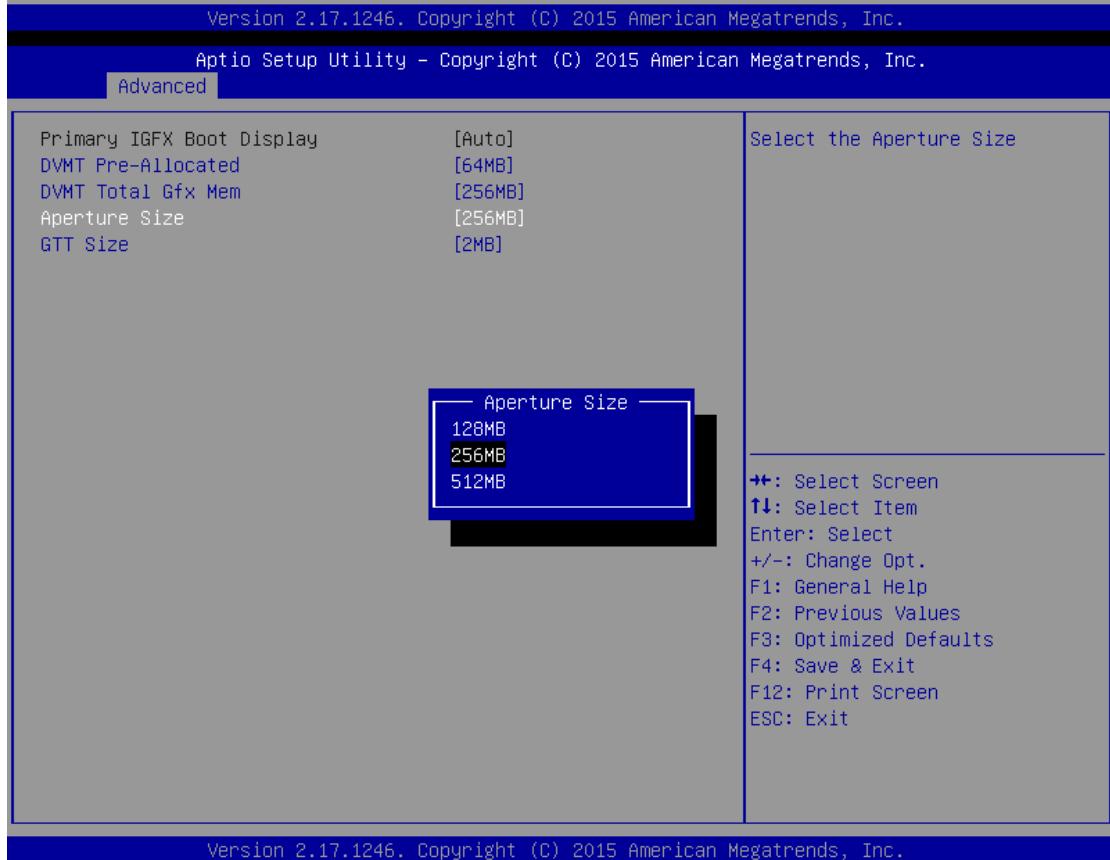
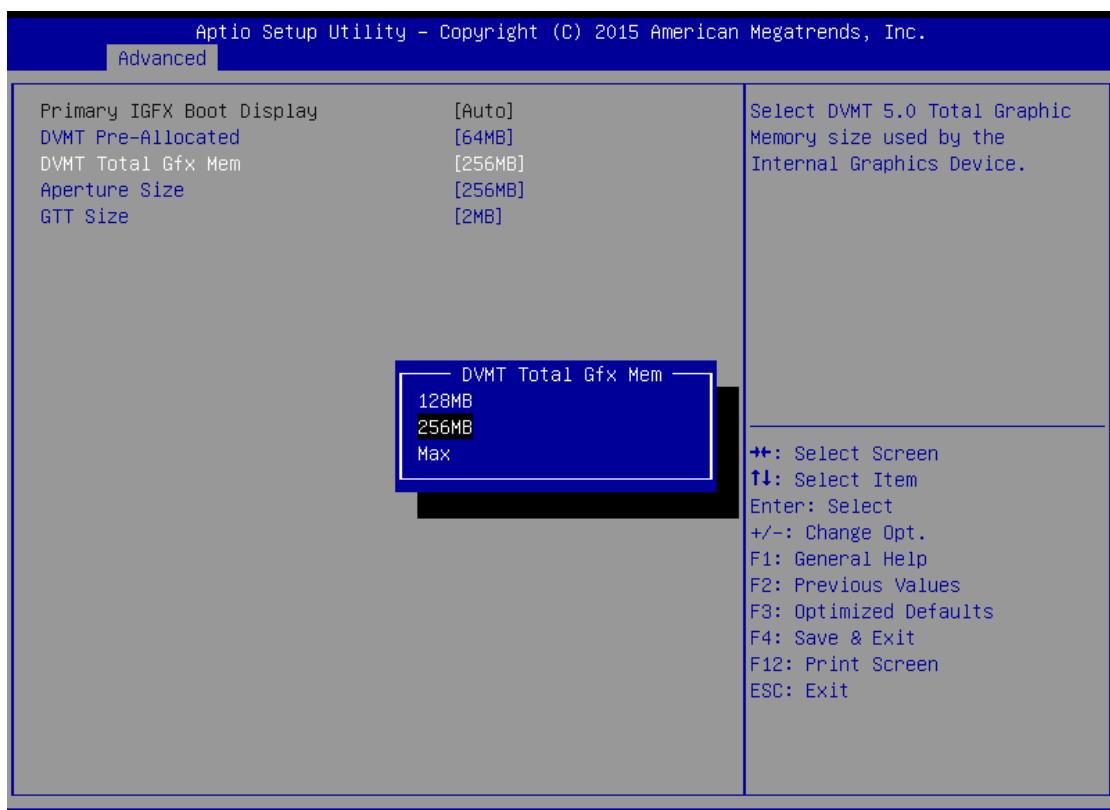
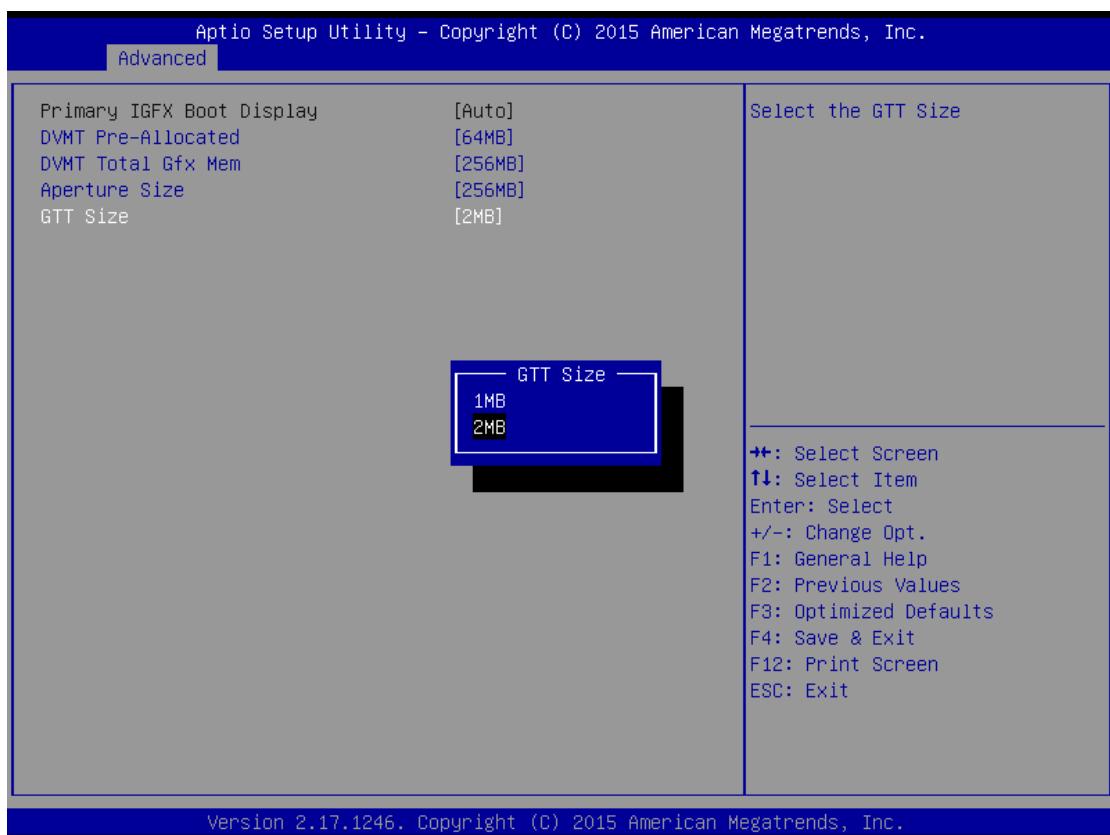


Figure 3-9 PC Health status

### 3.3.7 Display configuration



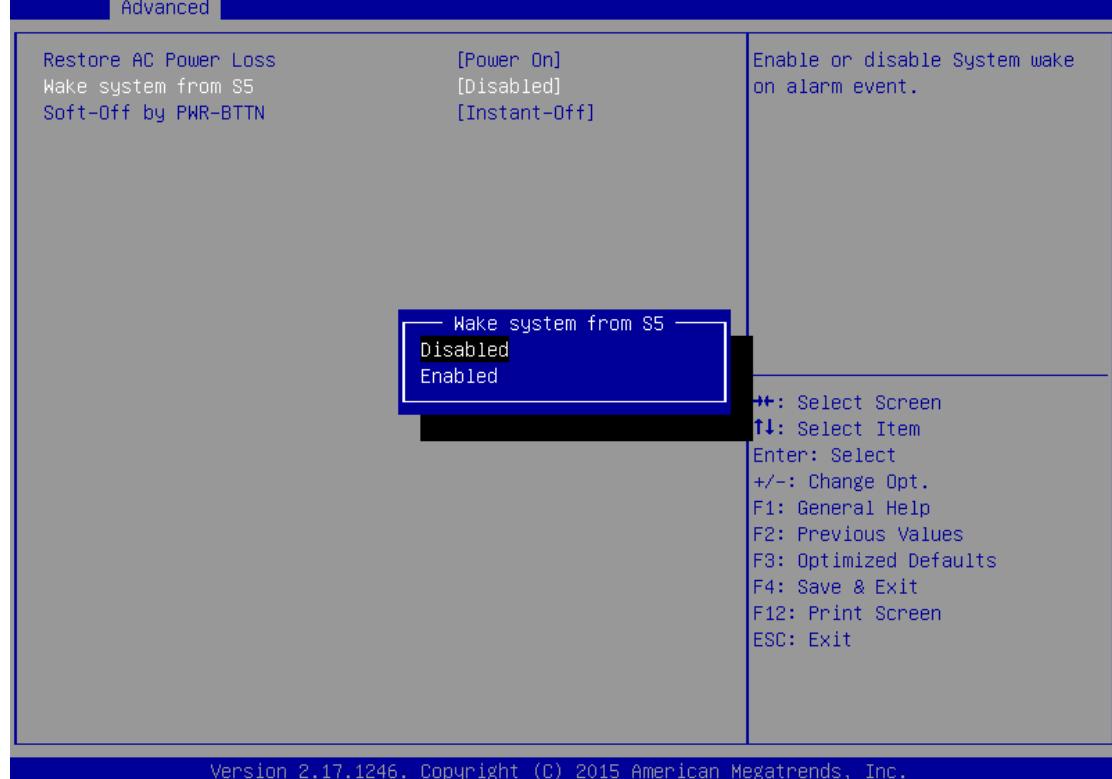
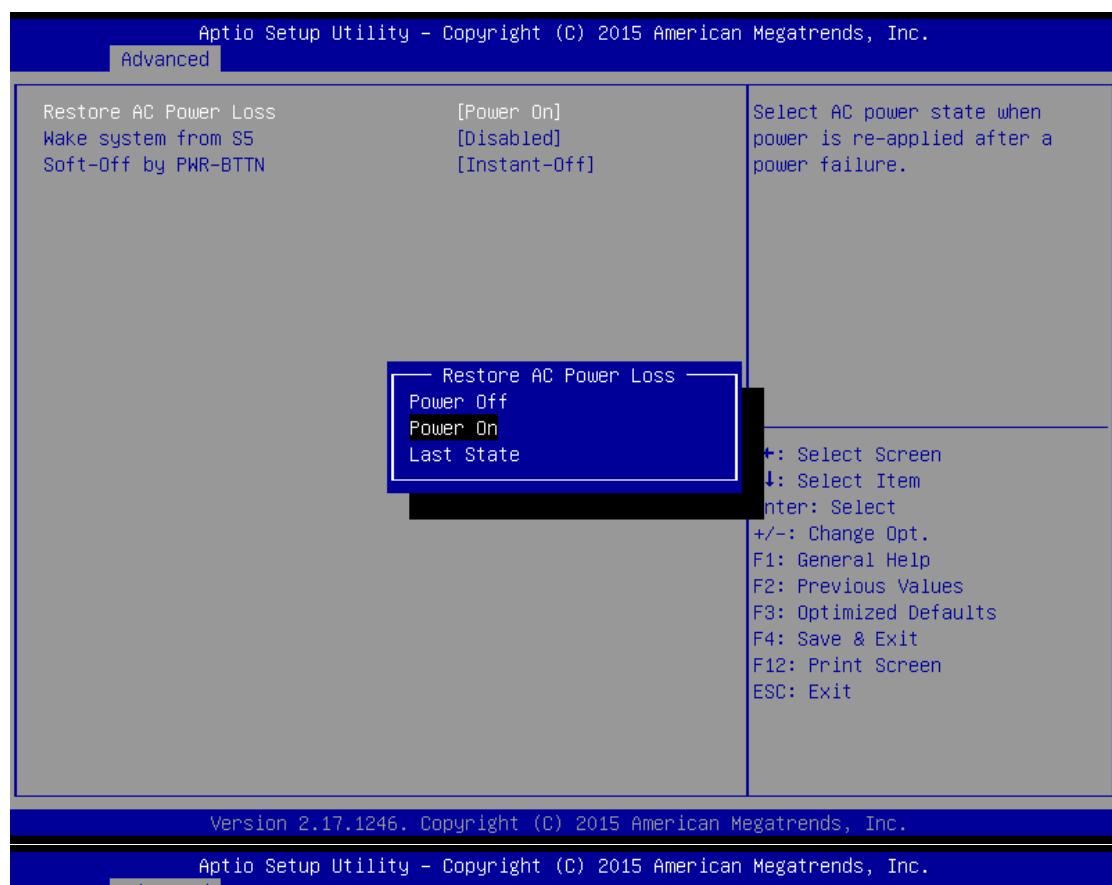




**Figure 3-12DisplayConfiguration**

- This selection item mainly for display application configuration.

### 3.3.8 Restore AC Power LOSS Configuration

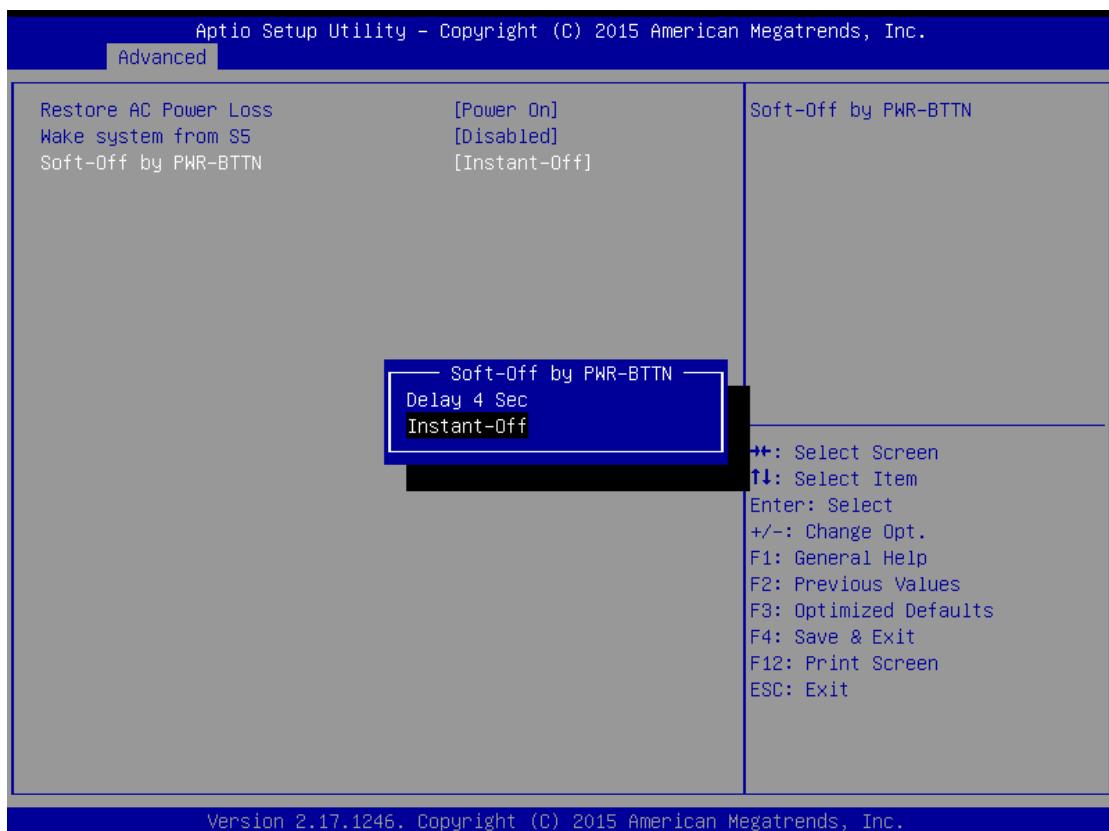


**Figure 3-16**Restore AC Power LOSS Settings

**Power OFF:** After accidental power-off, the device won't automatically boot-up when power-on again.

**Power ON:** After accidental power-off, the device will automatically boot-up when power-on again.

**Last State:** After accidental power-off, the device will recover to the state of the former state before power-off. i.e.: If the former state is "Power On", then the device will automatically boot-up when power-on again; if the former state is "Power off", then the device will remain power-off when the power-on again.



**Figure 3-17:** Soft-off by PWR-BTTN

## 3.4 Chipset Settings/ North Bridge

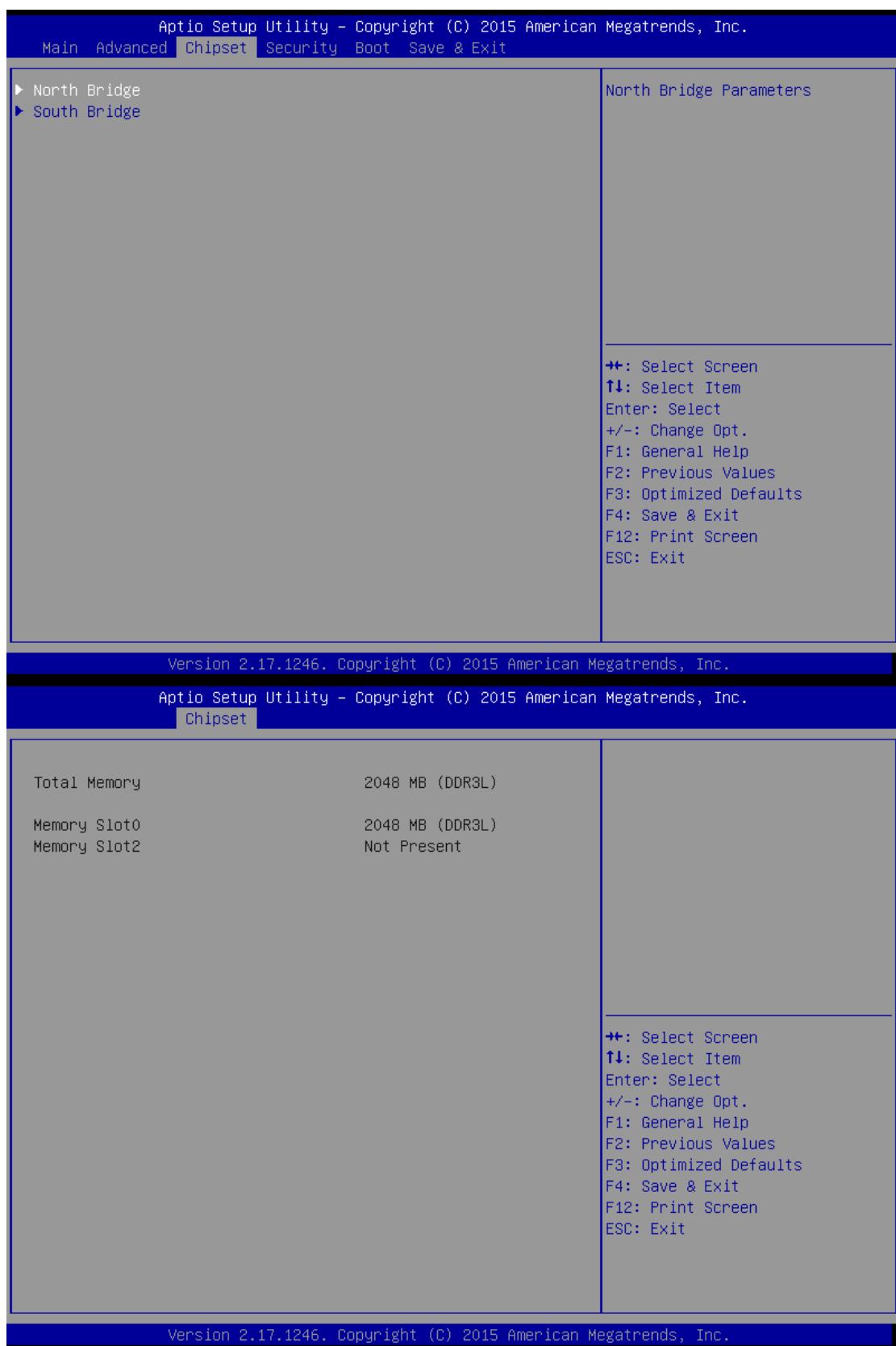


Figure 3-11 Chipset / north Settings

## 3.5 Chipset settings/ south bridge

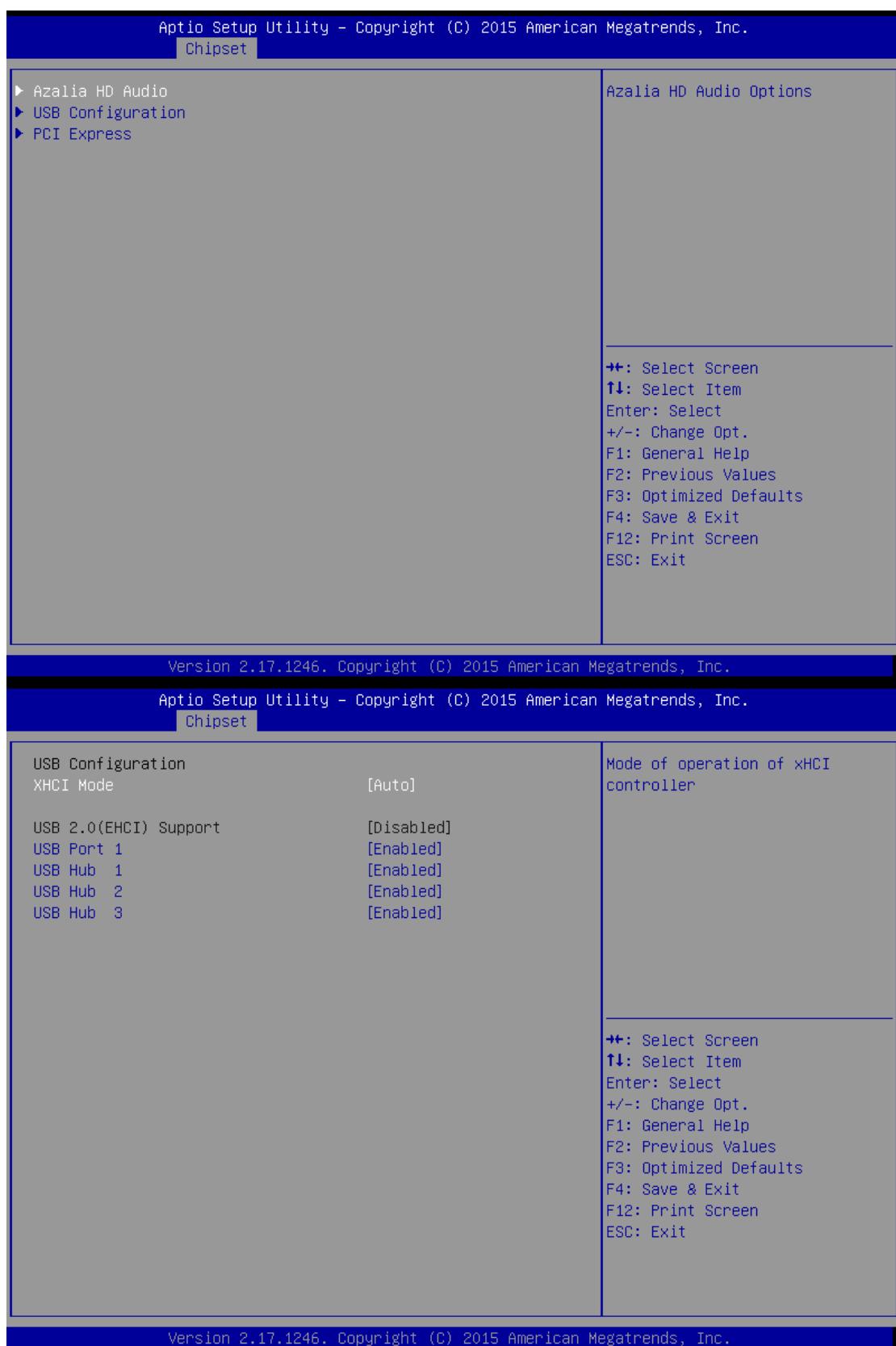


Figure 3-13 Advanced Chipset Settings

### 3.5.1 Audio Configuration

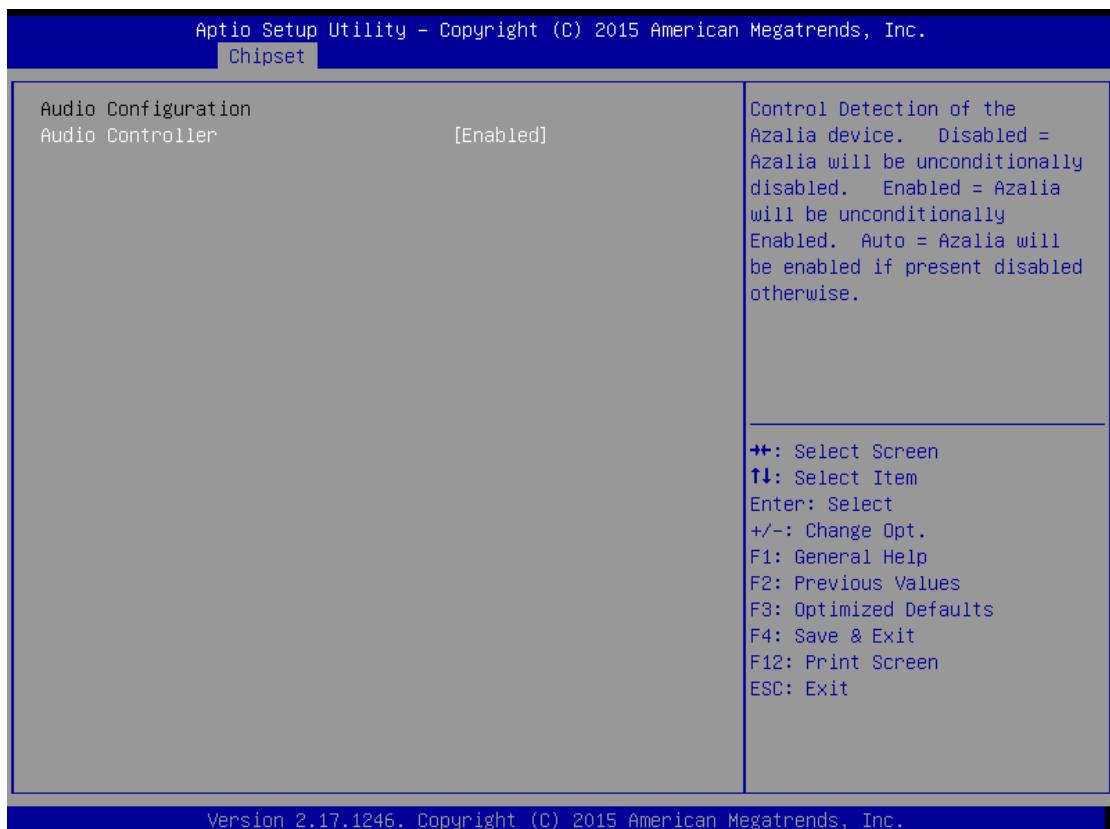


Figure 3-14 NM10 Chip Settings

- This selection item is for Chip integrated Audio configuration.

### 3.5.2 PCI Express Configuration

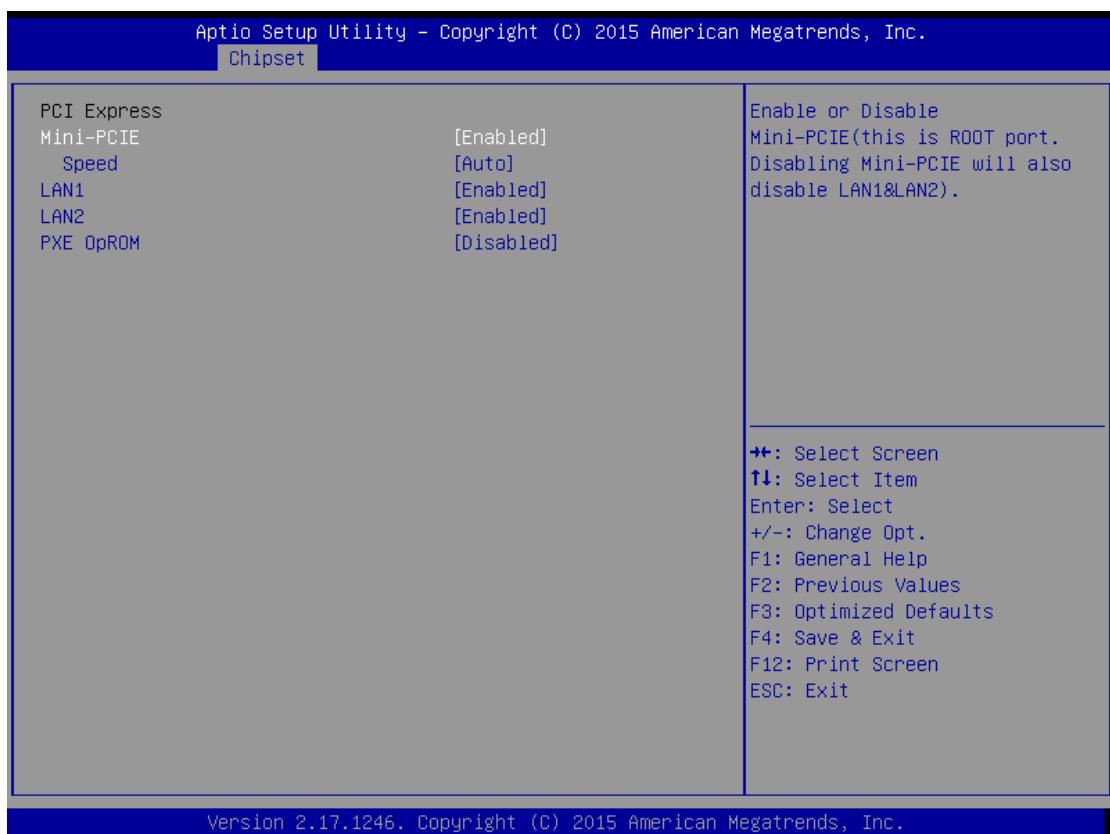
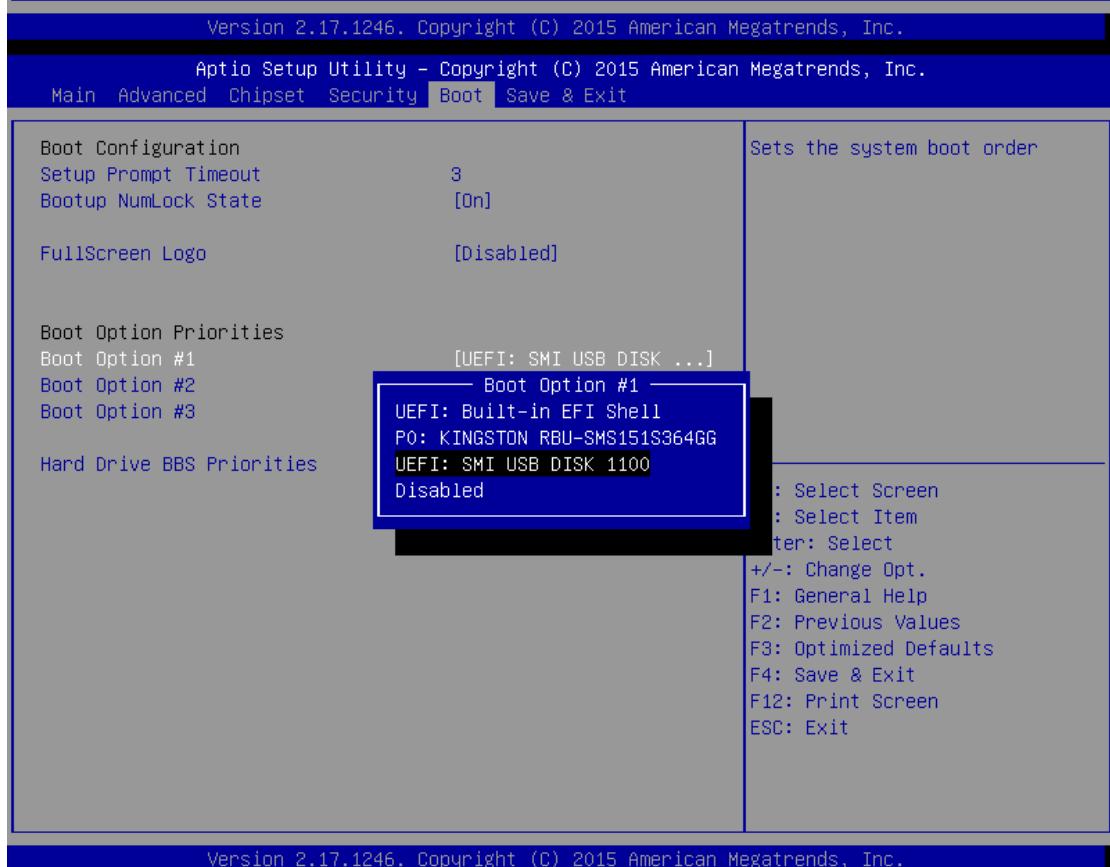
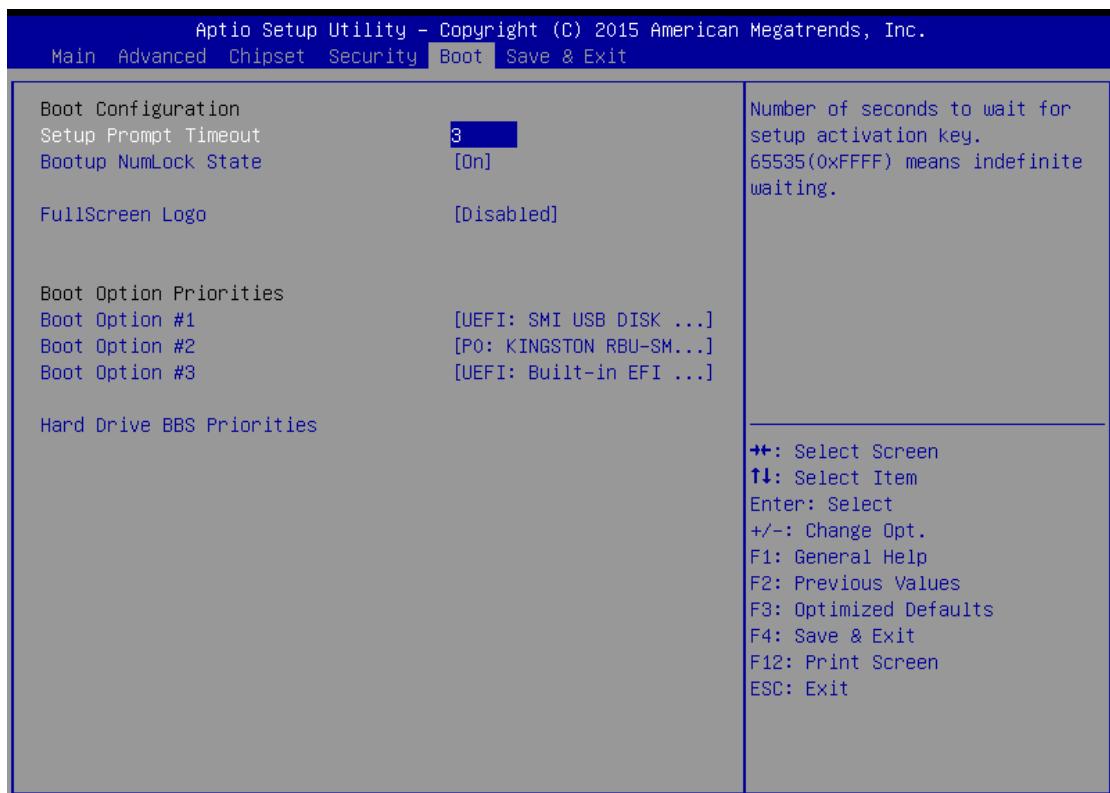
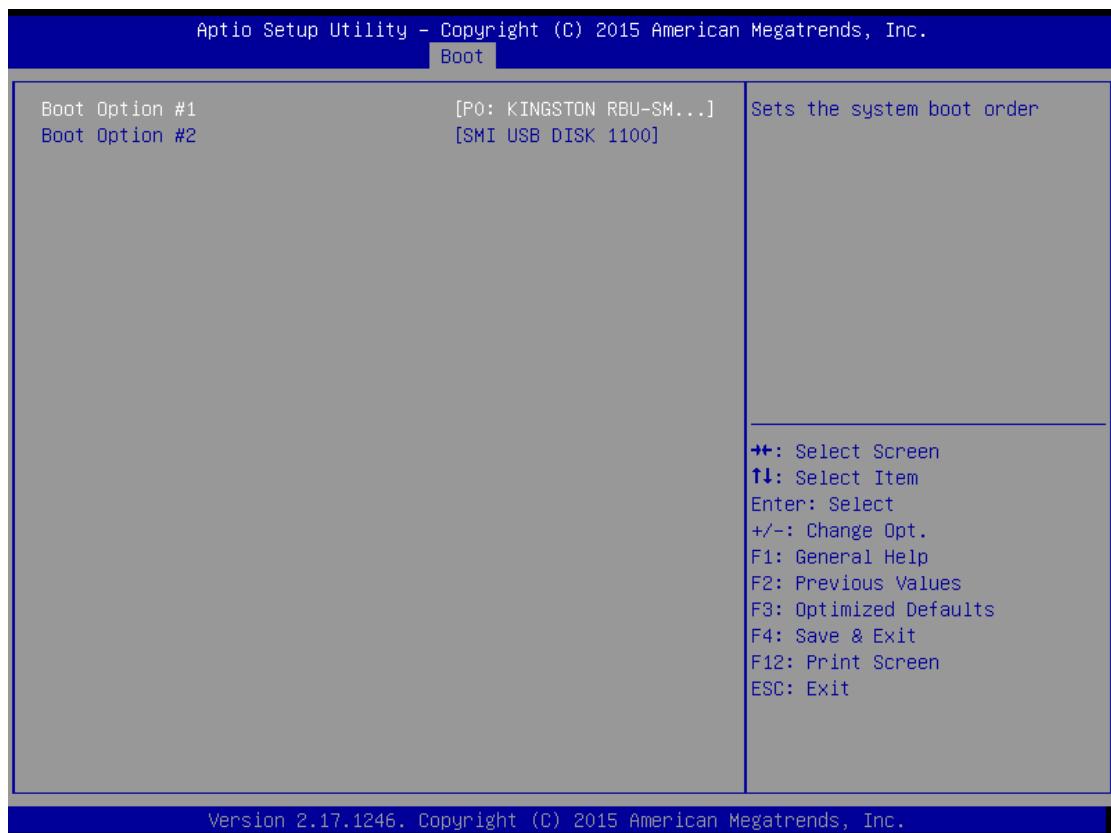


Figure 3-15PCI Express Port Settings

- **Mini-PCIE Ports Configuration**
- **PCIE Port 1are allocated to onboard LAN1 and LAN2**

### 3.5.3 BOOT Configuration





### 3.6 Exit Option

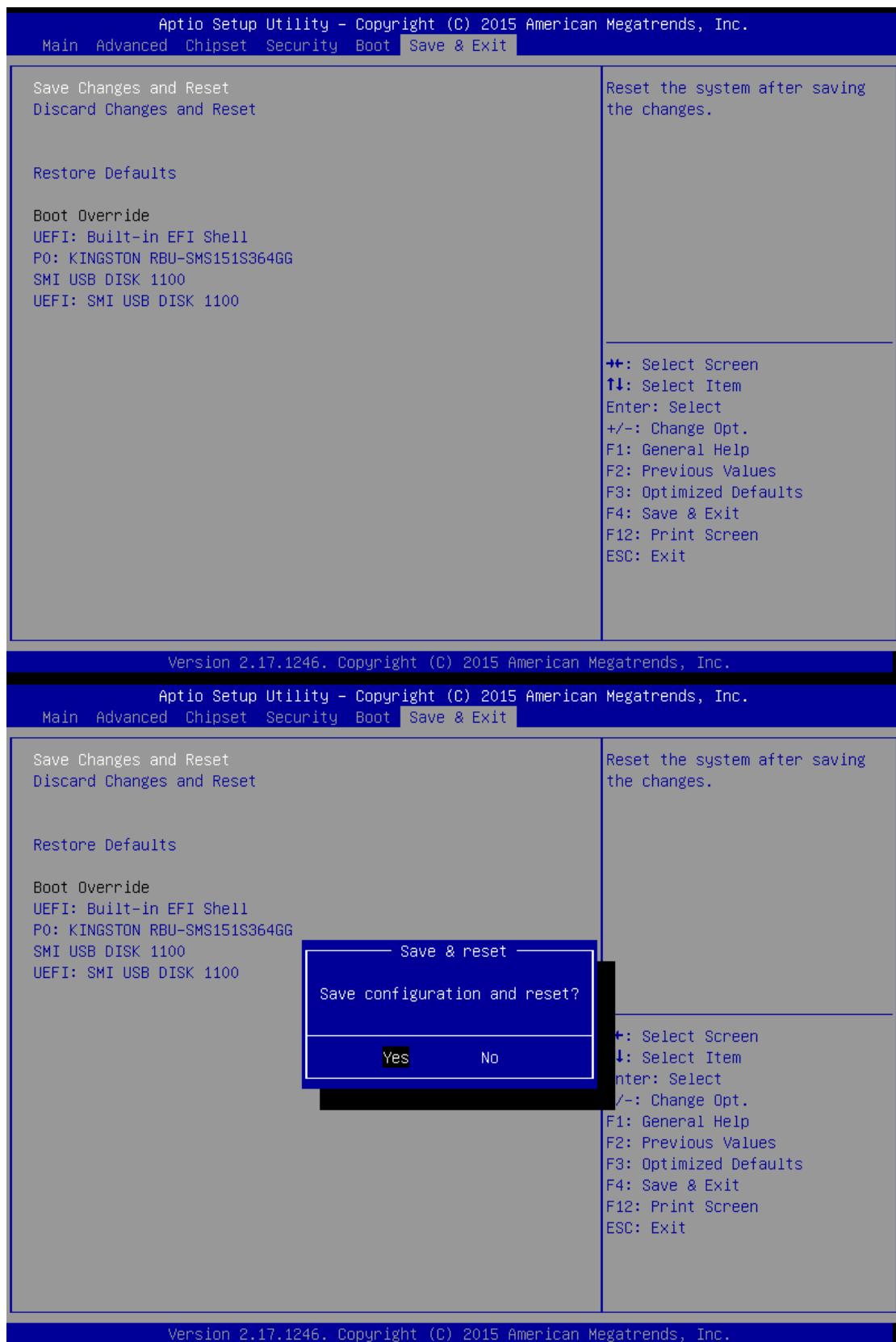


Figure 3-17 Exit Option

### **3.6.1 Save Changes and Exit**

When you have completed system configuration, select this option to save your changes, exit BIOS setup and reboot the computer so the new system configuration parameters can take effect.

1. Select Exit Saving Changes from the Exit menu and press <Enter>. The following message appears: Save Configuration Changes and Exit Now? [Ok] [Cancel]
2. Select Ok or cancel.

### **3.6.2 Discard Changes and Exit**

Select this option to quit Setup without making any permanent changes to the system configuration.

1. Select Exit Discarding Changes from the Exit menu and press <Enter>. The following message appears: Discard Changes and Exit Setup Now? [Ok] [Cancel]
1. Select Ok to discard changes and exit. Discard Changes
2. Select Discard Changes from the Exit menu and press <Enter>.

### **3.6.3 Load Optimal Defaults**

The eBOX-3560 automatically configures all setup items to optimal settings when you select this option. Optimal Defaults are designed for maximum system performance, but may not work best for all computer applications. In particular, do not use the Optimal Defaults if your computer is experiencing system configuration problems. Select Load Optimal Defaults from the Exit menu and press <Enter>.

### **3.6.4 Load Fail-Safe Defaults**

The eBOX-3560 automatically configures all setup options to fail-safe settings when you select this option. Fail-Safe Defaults are designed for maximum system stability, but not maximum performance. Select Fail-Safe Defaults if your computer is experiencing system configuration problems.

1. Select Load Fail-Safe Defaults from the Exit menu and press <Enter>. The following message appears: Load Fail-Safe Defaults? [OK] [Cancel]
2. Select OK to load Fail-Safe defaults.

# Chapter 4

## System Maintenance

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## 4.1 System Maintenance Introduction

If the components of the eBOX-3560 fail they must be replaced, such as the wireless LAN module or the motherboard. Please contact the system reseller or vendor to purchase the replacement parts. Back cover removal instructions and jumpersettings for the eBOX-3560 are described below.

## 4.2 Motherboard Replacement

In the case of motherboard failure, please contact a Nodka sales representative, reseller or system vendor. The motherboard is accessible after opening the rear cover.

## 4.3 Cover Removal

**Warning:**

**Turn off the power before removing the back cover.** Risk of electrocution. Severe damage to the product and injury to the body may occur if internal parts are touched while the power is still on.

**Warning:**

**Take antistatic precautions when working on the internal components.** Some internal components are easily damaged or destroyed by electrostatic discharge. Take antistatic precautions to prevent electrostatic discharge.

To replace any of the following components,

- Memory module
- Wireless LAN module
- Inverter

The back cover of the eBOX-3560 must be removed. To remove the back cover, loosen the screws, slide the cover down and then lift to remove.



A

## Safety Precautions

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**Warning:**

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the eBOX-3560:

## A.1 Safety Precautions

Please follow the safety precautions outlined in the sections that follow:

### A.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- **Follow the electrostatic precautions** outlined below whenever theeBOX-3560 is opened.
- **Make sure the power is turned off and the power cord is disconnected** whenever the eBOX-3560 is being installed, moved or modified.
- **Do not apply voltage levels that exceed the specified voltage range.** Doing so may cause fire and/or an electrical shock.
- **Electric shocks can occur** if the eBOX-3560 chassis is opened when the eBOX-3560 is running.
- **Do not drop or insert any objects** into the ventilation openings of theeBOX-3560.
- **If considerable amounts of dust, water, or fluids enter theeBOX-3560**, turn off the power supply immediately, unplug the power cord, and contact the eBOX-3560 vendor.
- **DO NOT** do the following:
  - **DO NOT** drop the eBOX-3560 against a hard surface.
  - **DO NOT** strike or exert excessive force onto the LCD panel.
  - **DO NOT** touch any of the LCD panels with a sharp object.
  - **DO NOT** use the eBOX-3560 in a site where the ambient temperature exceeds the rated temperature

### A.1.2 Anti-static Precautions

**Warning:**

Failure to take ESD precautions during the installation of the eBOX-3560 may result in permanent damage to the eBOX-3560 and sever injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the eBOX-3560. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the eBOX-3560 is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- **Wear an anti-static wristband:** Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- **Self-grounding:** Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- **Use an anti-static pad:** When configuring or working with an electrical component, place it on an anti-static pad. This reduces the possibility of ESD damage.
- **Only handle the edges of the electrical component:** When handling the electrical component, hold the electrical component by its edges.

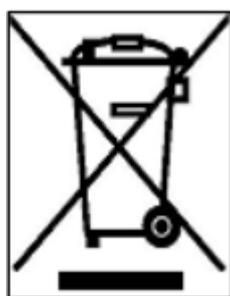
### A.1.3 Product Disposal

**CAUTION:**

Risk of explosion if battery is replaced by an incorrect type, only certified engineers should replace the on-board battery.

Dispose of used batteries according to instructions and local regulations.

Outside the European Union - If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method. Within the European Union:



EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States. Please follow the national guidelines for electrical and electronic product disposal.

## A.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the eBOX-3560, please follow the guidelines below.

### A.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the eBOX-3560, please read the details below.

- Except for the LCD panel, never spray or squirt liquids directly onto any other components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.
- The interior does not require cleaning. Keep fluids away from the interior.
- Be careful not to damage the small, removable components inside.
- Turn off before cleaning.
- Never drop any objects or liquids through the openings.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning.
- Avoid eating, drinking and smoking nearby.

## A.2.2 Cleaning Tools

Some components may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use for cleaning.

- **Cloth** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended.
- **Water or rubbing alcohol** – A cloth moistened with water or rubbing alcohol should be used.
- **Using solvents** – The use of solvents is not recommended as they may damage the plastic parts.
- **Vacuum cleaner** – Using a vacuum specifically designed for computers is one of the best methods of cleaning. Dust and dirt can restrict the airflow and cause circuitry to corrode
- **Cotton swabs** - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- **Foam swabs** - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

**B**

## **ALC662 Digital Microphone Configuration**

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## B.1 ALC662 Digital Microphone Configuration

To enable the ALC662 digital microphone function, follow the steps below.

**Step 1:** Make sure the Realtek ALC662 high definition audio driver has been installed on the system.

**Step 2:** To launch the Realtek ALC662 HD Audio Manager, double click either:

- The Realtek HD Audio Manager icon in the Notification Area of the system task bar (**Figure B-1**), or
- The Realtek HD Audio Manager icon in the Control Panel.



**Figure B-1: Realtek HD Audio Manager Icon [Task Bar]**

**Step 3:** The Realtek HD Audio Manager appears (**Figure B-2**).



**Figure B-2: Realtek HD Audio Manager**

**Step 4:** Click the **Mixer** tab.

**Step 5:** Select **Mic Volume** in the **Record** section (**Figure B-3**). The digital microphone function is now enabled.



**Figure B-3: Enabling the Digital Microphone Function**

**Step 6:** Move the slide bar to adjust the microphone volume (**Figure B-4**).



**Figure B-4: Adjusting the Microphone Volume**

**Step 7:** Click the Advanced icon (Figure B-5) to display the **advanced setting** screen.



Figure B-5: Mixer ToolBox Screen

**Step 8:** In the **Advanced setting** screen (Figure B-6), the user may turn on the Microphone Boost function.



Figure B-6: Advanced Setting Screen

# C

## Watchdog Timer

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**NOTE:**

The following discussion applies to DOS environment. NODKA support is contacted or the NODKA website visited for specific drivers for more sophisticated operating systems, e.g., Windows and Linux.

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMIs or a software bug. When the CPU stops working correctly, Watchdog Timer either performs a hardware reset (cold boot) or a Non-Maskable Interrupt(NMI) to bring the system back to a known state. A BIOS function call (INT 15H) is used to control the Watchdog Timer.

**INT 15H:**

<b>AH-6FH Sub-function</b>	
AL – 2:	Sets the Watchdog Timer's period.
BL:	Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup).

**Table C-1: AH-6FH Sub-function**

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. When the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

**NOTE:**

When exiting a program it is necessary to disable the Watchdog Timer, otherwise the system resets.

**Example program:****INITIAL TIMER PERIOD COUNTER**

```
;  
W_LOOP:  
MOV AX, 6F02H ; //setting the time-out value  
MOV BL, 30 ; //time-out value is 48 seconds
```

```
INT 15H
;

ADD THE APPLICATION PROGRAM HERE
;

CMP EXIT_AP, 1;           //is the application over?
JNE W_LOOP;              //No, restart the application
MOV AX, 6F02H;           //disable Watchdog Timer
MOV BL, 0;
INT 15H
;
;
EXIT
;
```

# D

## Hazardous Materials Disclosure

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## **D.1 Hazardous Materials Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC without Mercury**

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table below.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead(Pb)	Mercury(Hg)	Cadmium(Cd)	Hexavalent Chromium(CR(VI))	Polybrominated Biphenyls(PBB)	Polybrominated Diphenyl Ethers(PBDE)
Housing	X	O	O	O	O	X
Housing	X	O	O	O	O	X
Printed CircuitBoard	X	O	O	O	O	X
Metal Fasteners	X	O	O	O	O	O
Cable Assembly	X	O	O	O	O	X
Fan Assembly	X	O	O	O	O	X
Fan Assembly	X	O	O	O	O	X
Battery	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006

**Table D-1**

