

INOVATTIO[®]
COMPUTADORES

INO ARMY RS-485



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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.

Warning:

1. DC 12~24V 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 over voltage.
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

1.1 Introductions



Figure 1-1: INO ARMY RS-485

INO ARMY RS - 485 is a fanless mini PC based on Intel® Core™ 6th /7th generation Skylake

i7/i5/i3/Pentium/Celeron high-performance processor, compact and with large aluminum fin radiator, without cable design inside.

The performance is increasing 30% than the 6th generation Intel® Core™ processor's.

It used dual channel DDR4 SODIMM, up to 32GB. There are 2 Intel 210AT Ethernet slots, can extended to 6 Ports. There are VGA, DVI and HDMI interface and support multi screen synchronous. There are 8USB 2.0/3.0, 4 RS232 and 2 RS232/485, support PCI/PCIe extender.

OS support Windows 7, Windows 10 and Linux.

1.2 Features

- Based on Intel® Core™ 6th /7th generation high-performance processor
- With large aluminum fin radiator
- Without cable design inside
- Dual channel DDR4 SODIMM, up to 32GB
- 2 Intel 210AT Ethernet slots, can extended to 6 ports
- VGA, DVI and HDMI interface and support multi screen synchronous
- 8USB 2.0/3.0, 4 RS232 and 2 RS232/485

1.3 External Overview

All aluminum alloy die-casting box structure, with good shock and vibration resistance.

1.3.1 Front panel

The front side of thARMY RS-485 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-3000
Hardware	
Processor	Intel® Core™6th/7th generation i7/i5/i3 /Pentium/Celeron, LGA1151
Chipset	Intel H110 Express Chipset
RAM	2*284-pin, DDR4-2400MHzSODIMMSlot, Support upto 32GB
Hard drive	Support mSATA /HDD
Display	VGA+DVI+HDMI
Mounting	Support Desktop and wall-mounted mounting
Ethernet port	2 x i210 1000Mbps RJ-45 Ethernet port
Mini PCIe	2 x full size PCIe with SIM holder
PCIe & PCI	1 x PCIe x16 slot or 1 x 32bits PCI
USB	4 x USB 3.0/2.0, 4xUSB 2.0/1.1
Serial port	6 x RS-232 serial ports (COM5~COM6 optional RS-485 by Jumper)
Watchdog	Programmable from 0~255 seconds setting
I/O Port	VGA/DVI/HDMI/2GLAN/8USB/6COM/AUDIO
Structure	
Structure	Aluminum alloy box
Total dimension	240 x 240x 95mm (W x H x D)
Net weight	3kg
Environment	
Work temperature	-20 ~ 60°C (-4°F ~140°F) (Wide temperature SSD)
Storage temperature	-40 ~ 80°C (-40 ~ 176°F)
Power	DC +14~ +24 V
Power consumption	27W-55W
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 1-5: Specification

1.6 Dimensions

Figure 1-6: A R M Y R S - 4 8 5 dimension

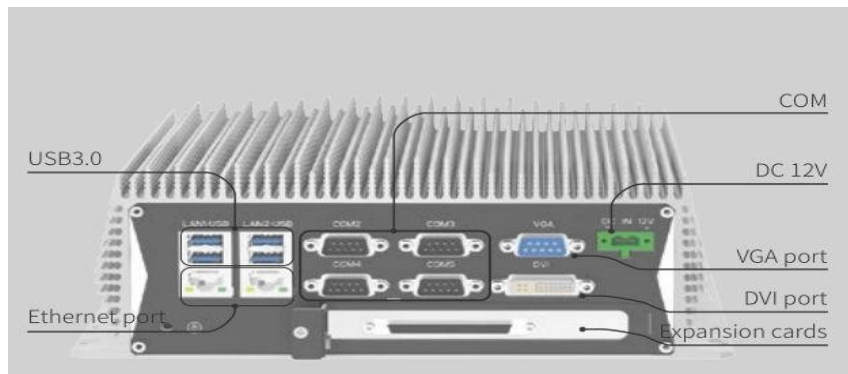
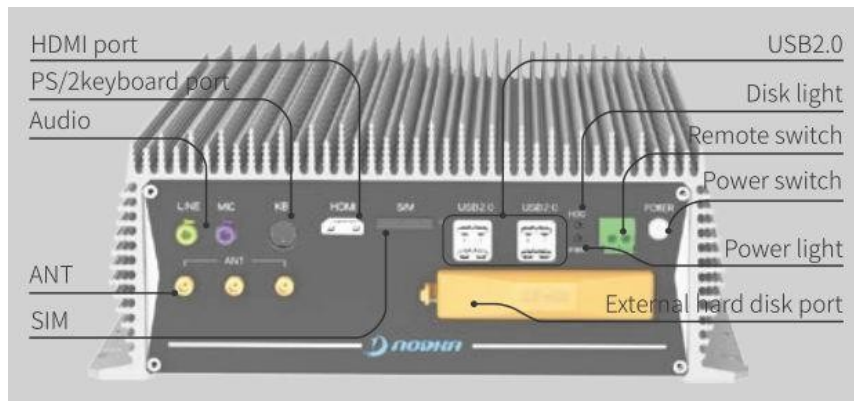
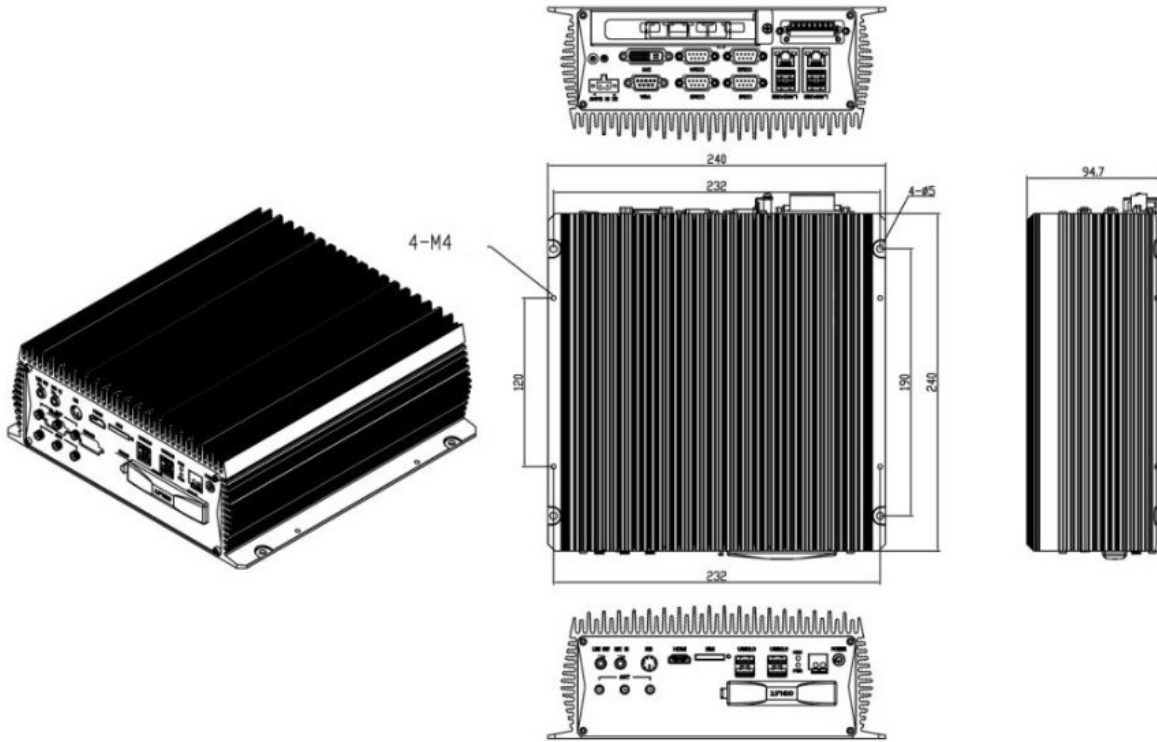


Figure 1-6-2: Dimensions

Chapter 2

INSTALLATION

Warning:

When installing the ARMY RS-485, 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.

2.1 The installation

With unique independent structure design, you can install hard disk and do COM port setup easily.

How to change the HDD

Step 1: Put the ARMY RS-485 horizontally as below:

Step 2: Check all the required parts are included;

Step 3: Find the orange color HDD cover and open the cover;



Step 4: Find the white and blue label, open the cushion and pull the label to change card;

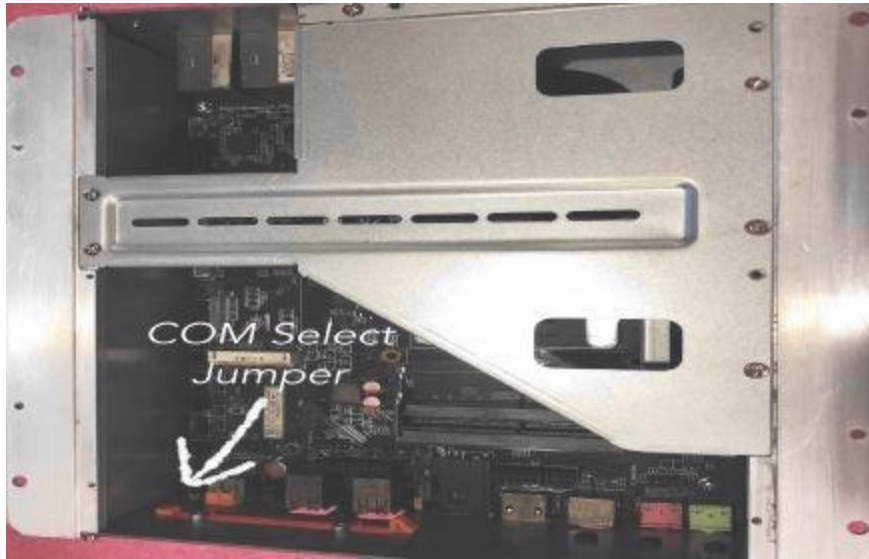


COM Port Jumper Setup :

Step 1: Flip the device to the back, remove the screws of cover, as below:



Step 2:After open the cover, use the jumper cap to set the jumper as the picture:



Step 3:RS232/RS485jumper setting:

PIN	Definition	PIN	Definition
1	NDCD6	2	SIN6_485TX-
3	RS485_TX-6	4	PWMOUT
5	SOUT6_485TX+	6	RS485_TX+6
7	COM_RST	8	RST_OF6
9	GND		

2.2 Packing list:

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

Item	Image	Quantity
ARMY RS-485	 A photograph of the ARMY RS-485 device, a rectangular metal chassis with a large heat sink on top. The front panel features several ports: two USB ports, two RJ45 ports, two serial ports, a VGA port, and a DVI port. A green LED indicator is visible on the left side of the front panel.	1

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

2.3 Introduction of installation

Before the installation, please find the location and function of the control parts, drives, ports. It is made of aluminum-magnesium alloy, anodized coating, to ensure that excellent heat dissipation and strong.

On the back, we can find HDMI port, Audio port, USB port, power switch and so on.



Front



Back

2.4 Mounting system

Warning:

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

The following installation options are available:

2.4.1 Wall mounting

Step 1: Select the location on the wall for the wall-mounting bracket.

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

Step 3: Drill four pilot holes at the marked locations on the wall, for the bracket retention screws.

Step 4: Align the wall-mounting bracket screw holes with the pilot holes.

Step 5: Secure the mounting-bracket to the wall by inserting the retention screws into the four pilot holes and tightening them

2.5 Connectors



2.5.1 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 .

Step 2: Align the connectors. Align the RJ-45 connector on the LAN cable with one of the RJ-45connector onthebottompanel . Please SeebelowFigure:

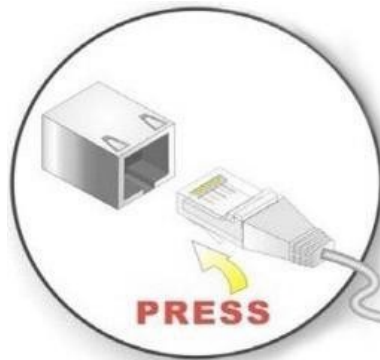


Figure: LAN connection

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.

2.5.2 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.

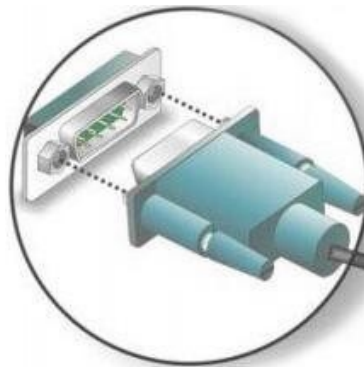


Figure: Serial device connector

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.

2.5.3 USB connection

To connect USB device, 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

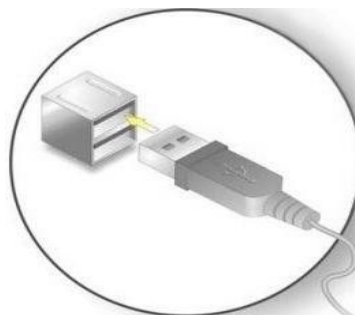


Figure: USB Device connector

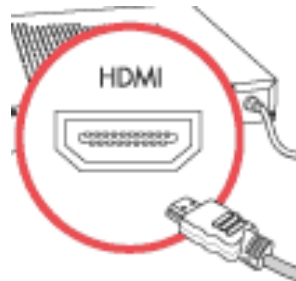
Step 3: Insert the device connector. Once aligned, gently insert the USB device connector into the onboard connector.

2.5.4 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 connect, 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.

2.6 Power connector

Step 1: Connect one end to the ARMY RS-485.

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

2.7 Connectors Definition

COM port

Army RS-485 provide 6COM, COM1-COM4 are standard DB9 interface. COM1 9PIN defined RI, Here is the definition:

	PIN	Signal
		RS232
	1	DCD
	2	RXD
	3	TXD
	4	DTR
	5	GND
	6	DSR

	7	RTS
	8	CTS
	9	RI

Table: COM1~4 DB9 connector

COM5~COM6 are 8 pin terminal, Here is the definition:

	COM5				COM6			
	1	2	3	4	5	6	7	8
RS232		RX	TX	G		RX	TX	G
RS485	485-	485+		G	485-	485+		G

COM5 and COM6
default RS232

COM5 and COM6
RS485 setting

Table: COM5~6 8 pin terminal

USB

1 standard single layer USB port in front, 2*2 standard double layer USB at A/I port, 5 USB ports can be used at the same time. Defined as below:

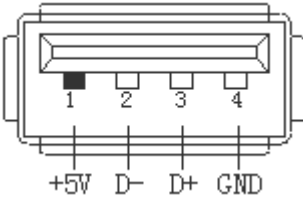
	PIN	Signal
	1	+5V
	2	Date-
	3	Date+
	4	GND

Table: USB

Audio port (LINE-OUT)

One standard Ø3.5 Phone Jack audio LINE OUT, can be connect the audio device to use directly.

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.

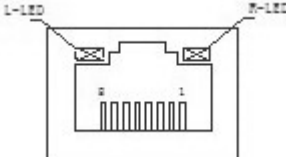
	PIN	SIGNAL	PIN	SIGNAL
	1	TX0+	5	TX2+
	2	TX0-	6	TX2-
	3	TX1+	7	TX3+
	4	TX1-	8	TX3-

Table: LAN connector

Network status	Left(LILED) double colors(Orange/ Green)		Right(ACTLED) single color(Yellow)	
	1000M	N/A	Constant ON	Flash
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

CRT display output ports

One standard DB15 display output ports. Users can connect the CRT display device directly. The definitions of pin as below:

	PIN	Signal	PIN	Signal
	1	RED	2	GREEN
	3	BLUE	4	NC
	5	GND	6	GND
	7	GND	8	GND
	9	+5V	10	GND
	11	NC	12	DDCD_ATA
	13	HSYNC	14	VSYNC
	15	DDC_CLK		

Table: CRT displays

DVI port

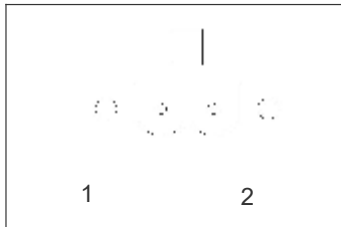
One DVI-D port on the rear, can be dual display with VGA, definitions as below:

DVI_I connector	PIN	Function	PIN	Function
	1	TMDS data 2-	13	TMDS data 3+
	2	TMDS data 2+	14	+5V D-C power supply
	3	TMDS data 2/4 Shield line	15	Landing (+5return circuit)
	4	TMDS data	16	Hot plug detection
	5	TMDS data	17	TMDS data 0-
	6	DDC clock	18	TMDS data 0+
	7	DDC data	19	TMDS data 0/5 Shield
	8	Analog vertical	20	TMDS data 5-

		synchronization		
	9	TMDS data 1-	21	TMDS data 5+
	10	TMDS data 1+	22	TMDS Clock Shield
	11	TMDS data 1/3 Shield	23	TMDS clock+
	12	TMDS data 3-	24	TMDS clock-
	C1	Analog vertical synchronization	C4	Analog horizontal synchronization
	C2	Analog Green	C5	Analog Landing (RGB return circuit)
	C3	Analog Blue		

Power input ports

Two PIN power input ports , definition as below:

	PIN	Definition
	1	GND
	2	+12V~+24V

Power connector interface

eBOX-3000 offers a 2-pins power input interface:

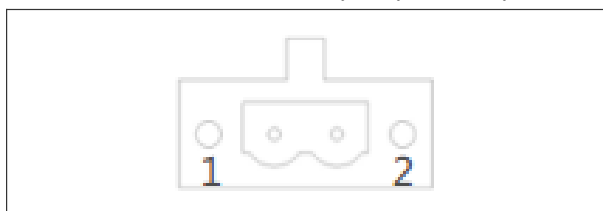
	PIN	SIGNAL
	1	GND
	2	+12~24V

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 is for power-up. Red light flashing on hard drive indicator shows that the hard drive is reading/writing data for now.

2.8 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 stored in CD in accessory box, That will helps user to install the driver and know the functions.

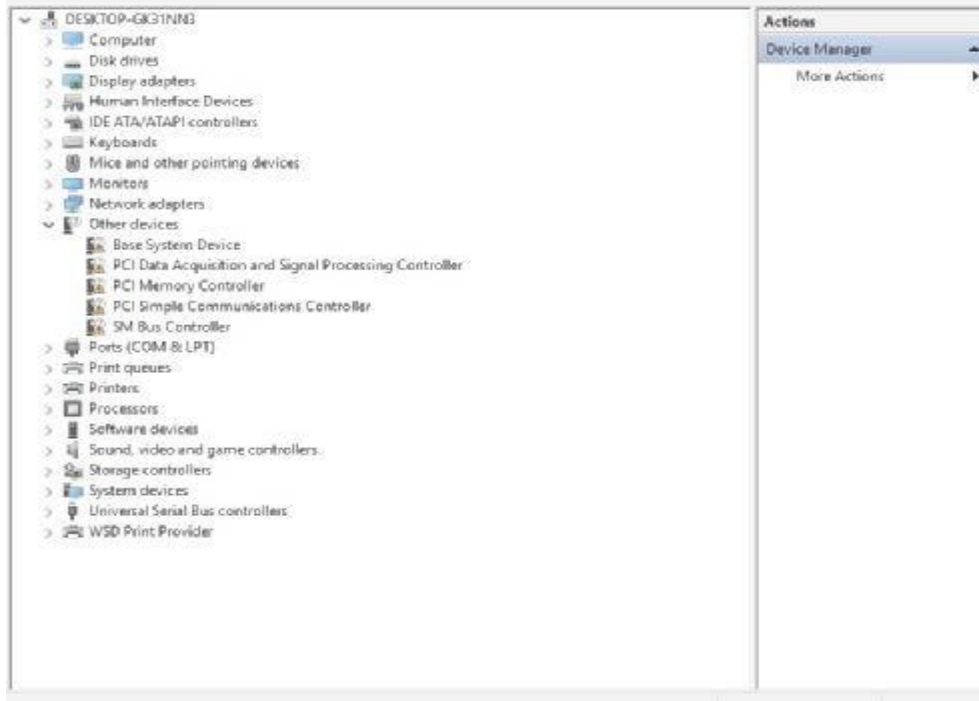
Installation steps: First step is chipset's driver (INF), then the other driver, it's better that once you finish a installation, reboot the system, now let's talk about method of Intel EMGD display card driver installation in Windows 10.

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

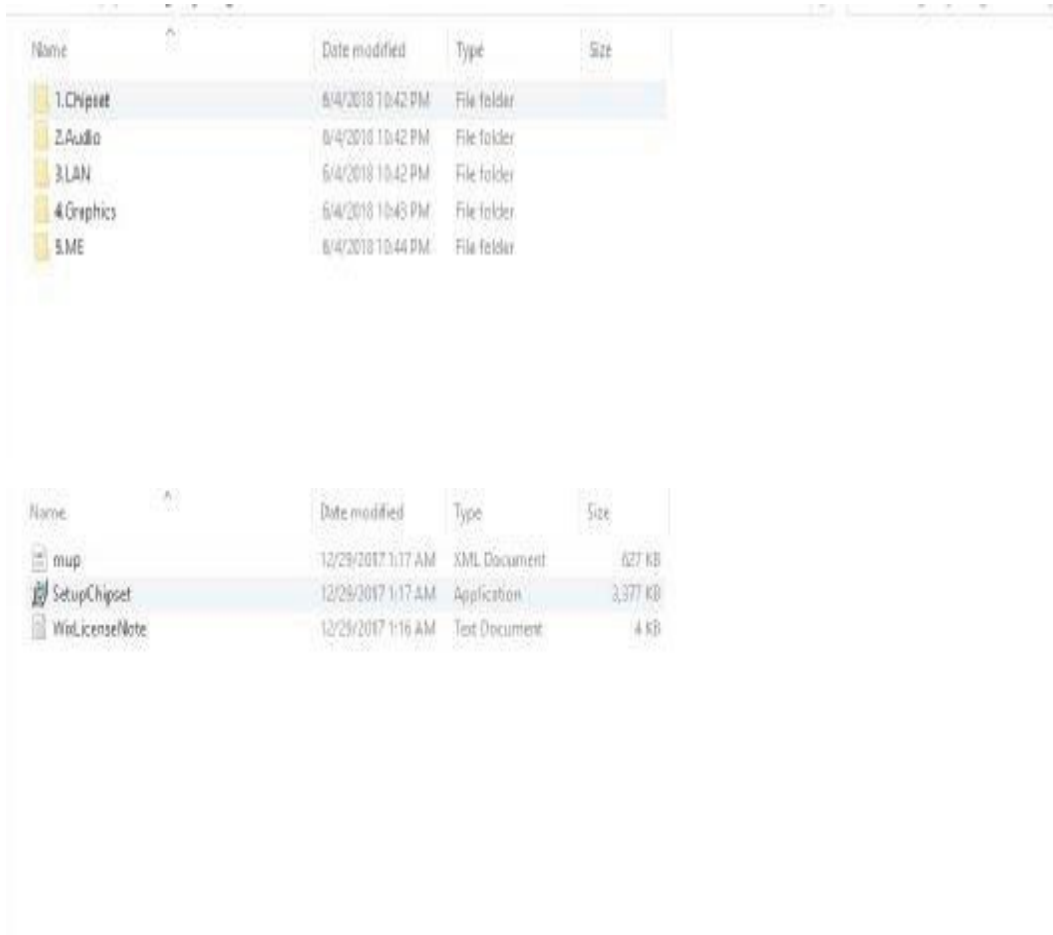
- Chipset driver
- Graphics driver
- Audio
- LAN
- ME driver

2.8.1 Chipset driver

Move the mouse to the desktop, right mouse button to computer management. Right mouse button click "**SM Bus controller**" with the exclamatory mark to update . Picture as below:



Press <Chipset>



Press <Setup Chipset>



Press <Next>



Press <Accept>

Intel(R) Chipset Device Software



Completion

You have successfully installed the following product:

Intel(R) Chipset Device Software

You must restart this computer for the changes to take effect.

[View Log Files](#)

Restart Now

Restart Later

Press <Restart Now>

2.8.2 Graphics driver

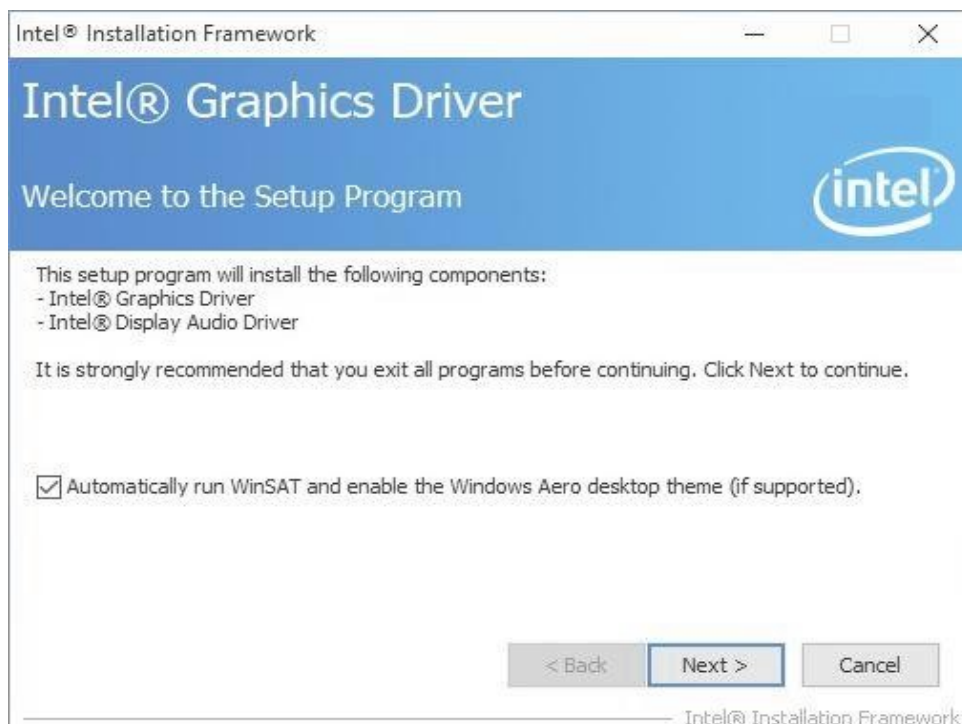
Browse the product's driver disc or D:\Backup\Drivers\2.graphics\Win7_32_8.14.1091, you will see the driver file as following figure.

Double click the graphics driver program

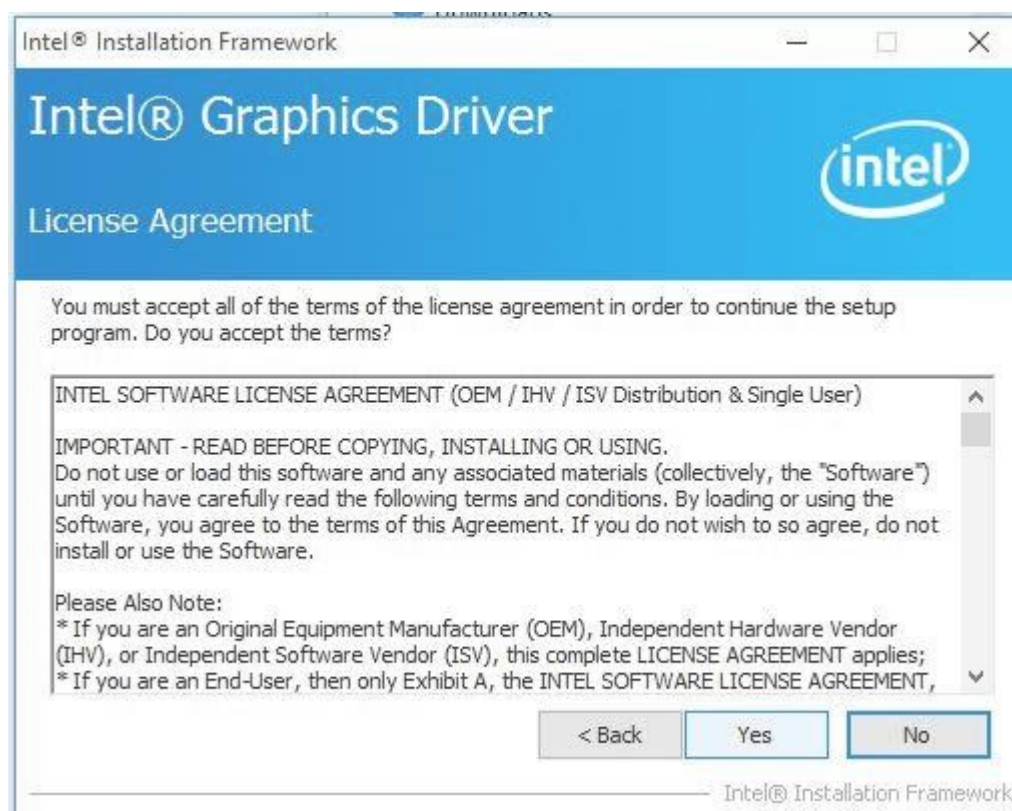
Name	Date modified	Type	Size
DisplayAudio	6/4/2018 10:43 PM	File folder	
Graphics	6/4/2018 10:44 PM	File folder	
Lang	6/4/2018 10:44 PM	File folder	
x64	6/4/2018 10:44 PM	File folder	
autorun	5/25/2017 11:25 PM	Setup Information	1 KB
DIFxAPI.dll	5/25/2017 11:25 PM	Application extens...	312 KB
mup	5/25/2017 11:26 PM	XML Document	54 KB
ReadMe	5/30/2017 2:08 AM	Text Document	6 KB
Setup	5/25/2017 11:26 PM	Application	989 KB
Setup.if2	5/25/2017 11:26 PM	IF2 File	16 KB

Press<Setup>

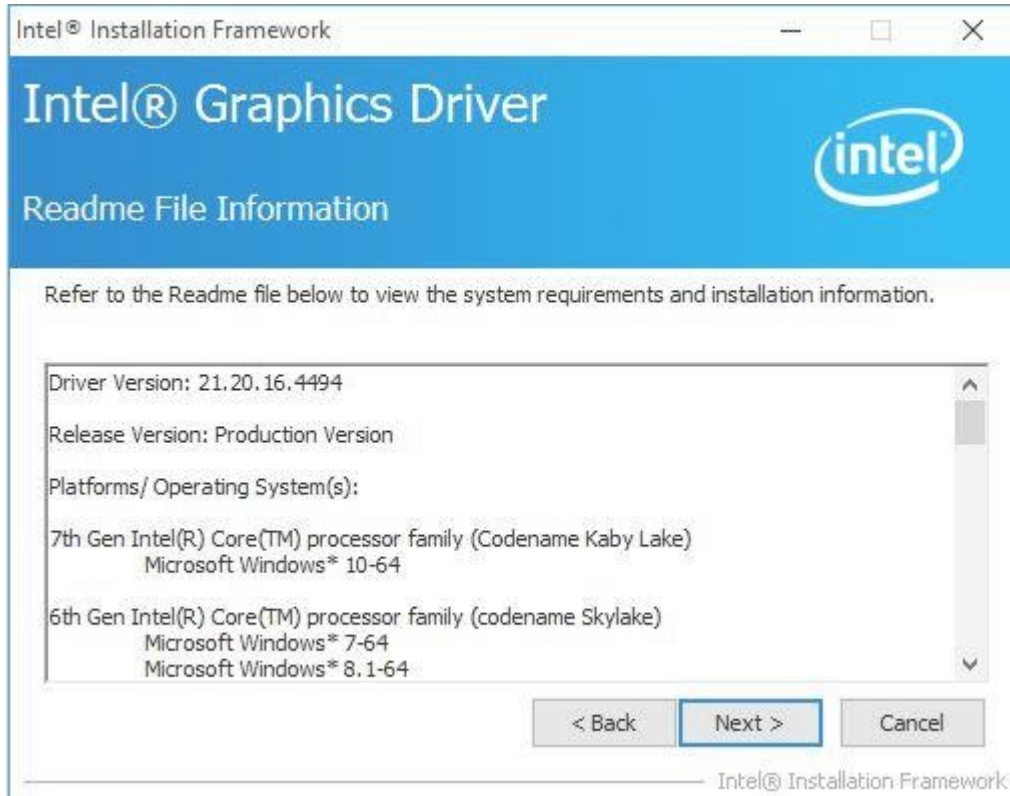
Please select "Automatically run WinSAT and enable the Windows Aero desktop theme (if supported)" then press <NEXT> to go to the next install page:



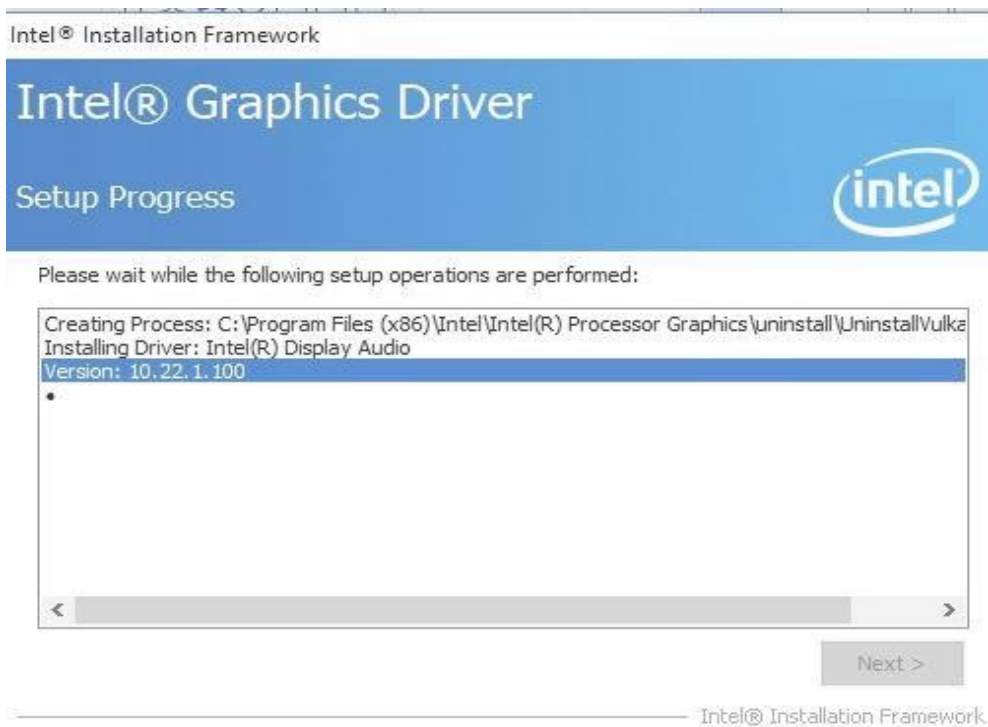
Press <YES> to agree the license agreement then go to the next step

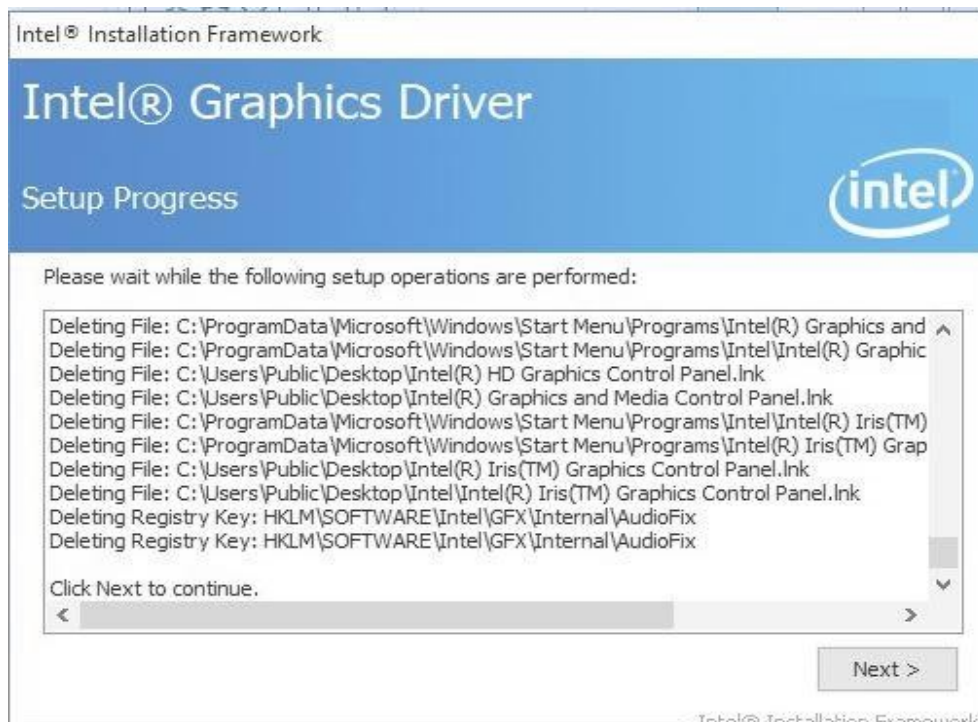


Click <Next> to continue:



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





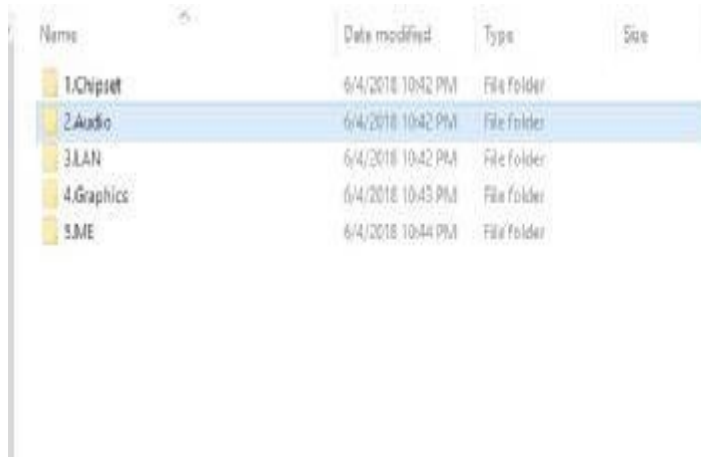
After finish this installation, you should restart the computer immediately then you can install other device's driver. Select the <Yes, I want to restart this computer now> and press <Finish> to reboot the computer.



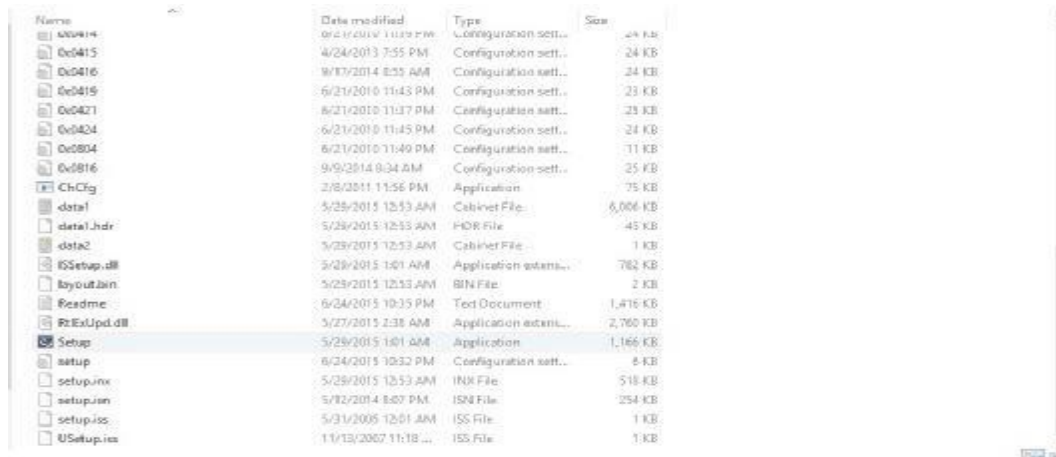
2.8.3 Audio driver

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.



Press <Audio>



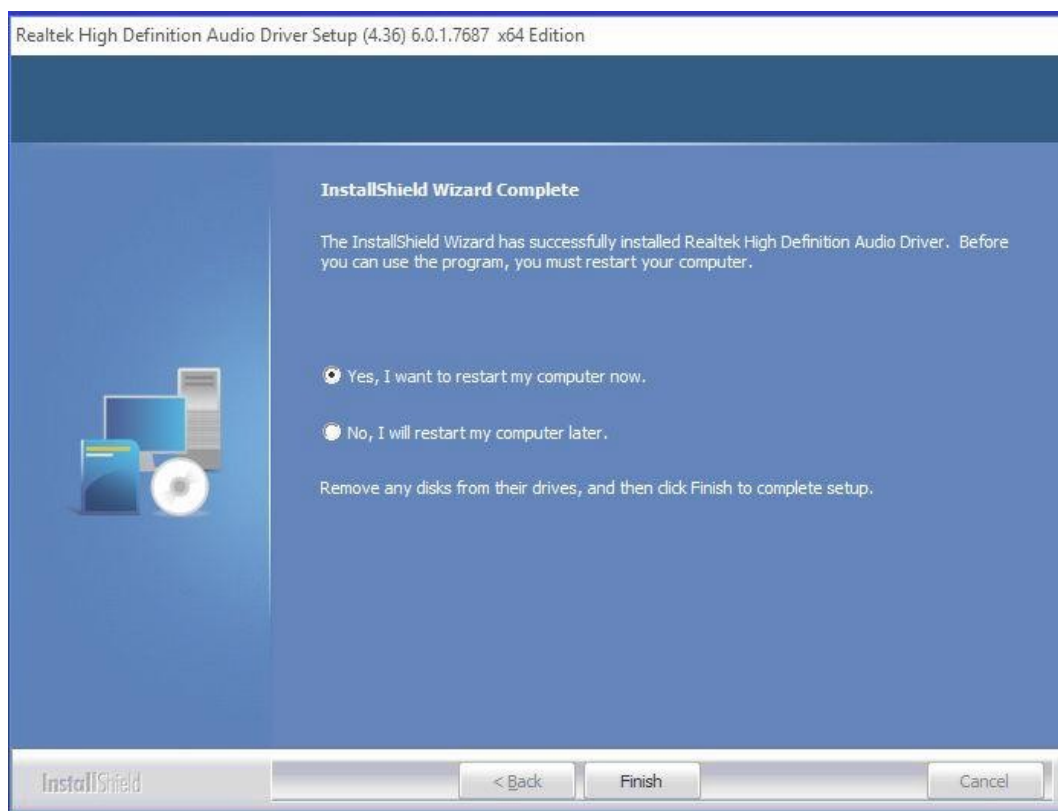
Press <Setup>



Wait and press <NEXT>



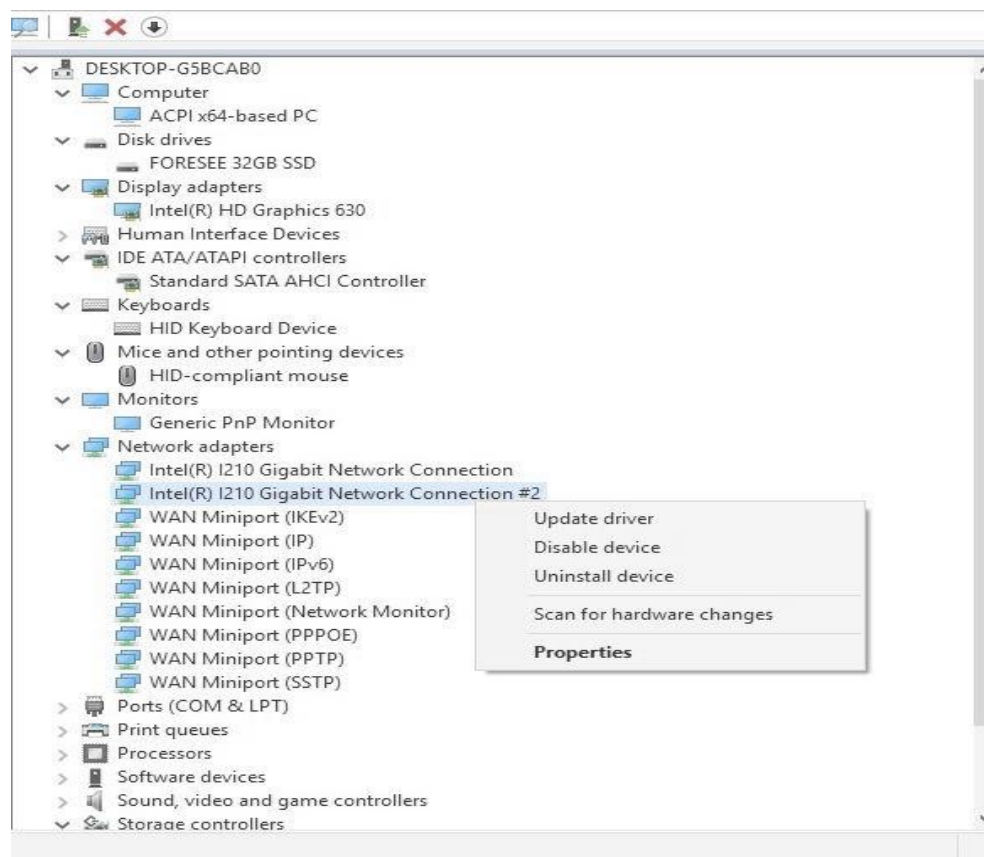
Wait for its installation and after finish this installation, you should restart the computer immediately then you can install other device's driver. Select the <Yes, I want to restart this computer now> and press <Finish> to reboot the computer.



2.8.4 LAN driver

Browse the product's driver disc or <D:\Backup\Drivers>, 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..>



Press <Update driver>:

← Update Drivers - Intel(R) I210 Gigabit Network Connection #2

How do you want to search for drivers?

→ Search automatically for updated driver software
Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.

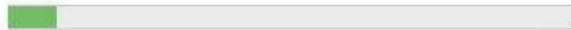
→ Browse my computer for driver software
Locate and install driver software manually.

Cancel

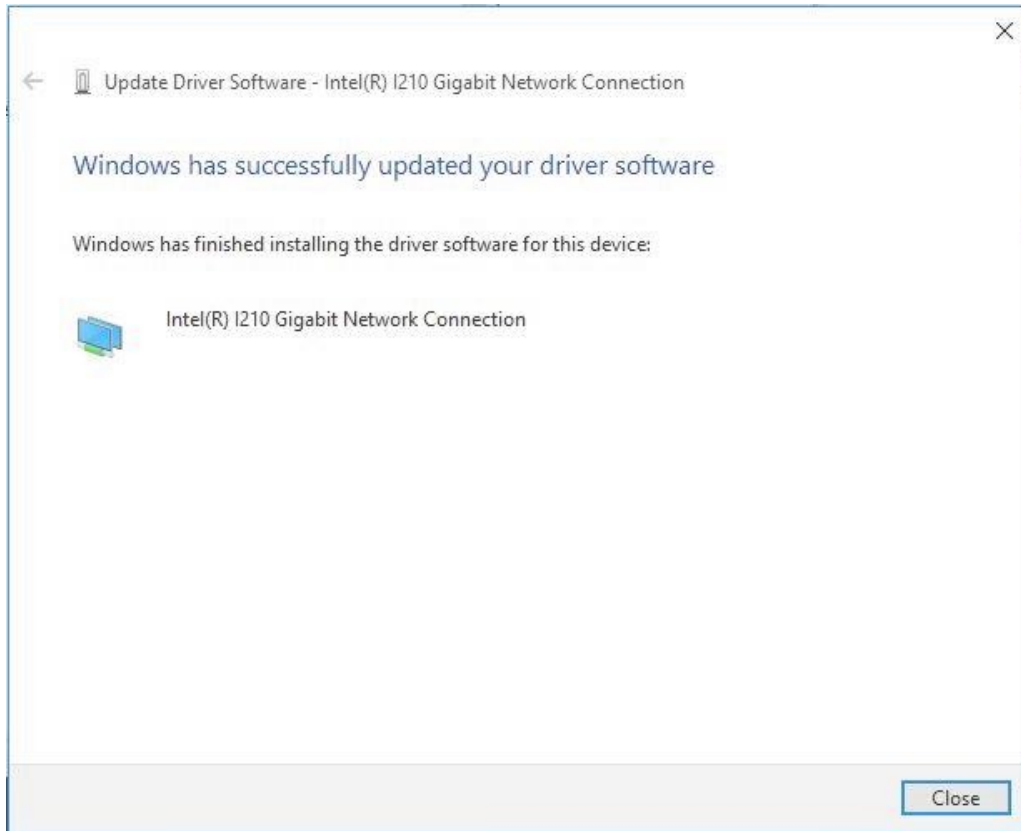
Press <Browse my computer for driver software>

← Update Drivers - Intel(R) I210 Gigabit Network Connection #2

Installing drivers...



Wait for installing driver software...



Press <Close> to finish:

2.8.5 ME driver

Name	Date modified	Type	Size
IntelMEFWer.dll	12/29/2017 1:16 AM	Application extens...	23 KB
mup	12/29/2017 1:17 AM	XML Document	28 KB
SetupME	12/29/2017 1:18 AM	Application	74,593 KB

Press <SetupME>

Setup

Intel® Management Engine Components Welcome



You are about to install the following product:

Intel® Management Engine Components 11.7.0.1054

It is strongly recommended that you exit all programs before continuing.
Click Next to continue, or click Cancel to exit the setup program.

Intel Corporation

< Back

Next >

Cancel

Press<Next>

Setup

Intel® Management Engine Components Destination Folder



Click Next to install to the default folder, or click Change to choose another destination folder.

C:\Program Files (x86)\Intel\Intel(R) Management Engine Components

Change...

Intel Corporation

< Back

Next >

Cancel

Press<Next>

Setup

Intel® Management Engine Components
License Agreement



INTEL SOFTWARE LICENSE AGREEMENT(OEM / IHV / ISV Distribution & Single User)

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Do not use or load software (including drivers) from this site or any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement, which Intel may modify from time to time following reasonable notice to You. If you do not wish to so agree, do not install or use the Software.

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- If you are an End-User, then only Exhibit A, the INTEL SOFTWARE LICENSE AGREEMENT, applies.

For OEMs, IHVs and ISVs:

LICENSE. Subject to the terms of this Agreement, Intel grants to You a nonexclusive,

I accept the terms in the License Agreement.


Intel Corporation

< Back Next > Cancel

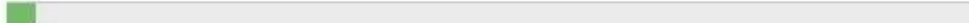
Press<Next>

Setup

Intel® Management Engine Components
Progress



Please wait while the product is being installed.



Intel Corporation

< Back Next > Cancel

Setup

Intel® Management Engine Components Completion



You have successfully installed the following components:

- Intel® Management Engine Interface
- Local Management Service
- Intel® Trusted Connect Service



Click [here](#) to open log file location.

Intel Corporation

< Back

Next >

Finish

Press<Finish>

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

When the system is connected to the power supply, you can see the information entering the BIOS setting prompt after the normal boot. At this time (other time invalid) press the button designated by the prompt information (usually the key) to enter the BIOS setup program.

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

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

If the message disappears before the 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

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.

3.3 Advanced BIOS features setup

Select the Advanced tab from the eBOX-3000 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.

3.3.1 ACPI Setting

Cursor move to Advanced/ Acpi Settings, can set the hibernate and sleep.

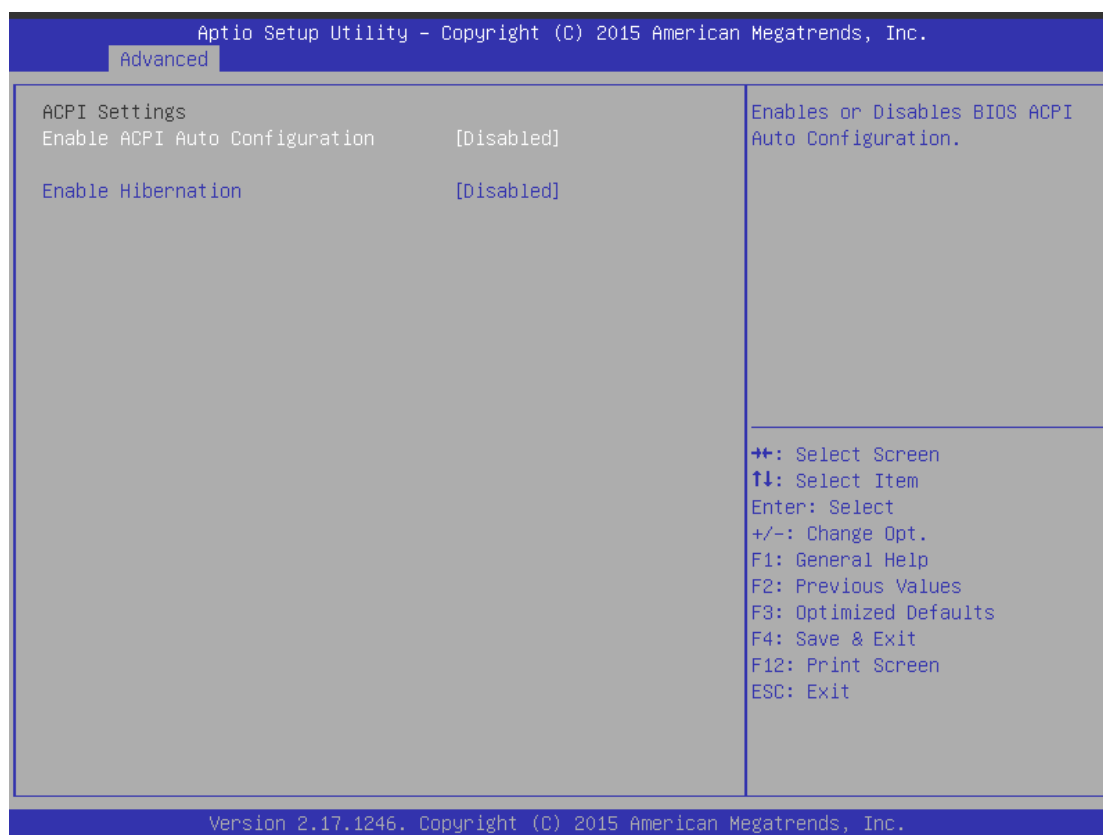
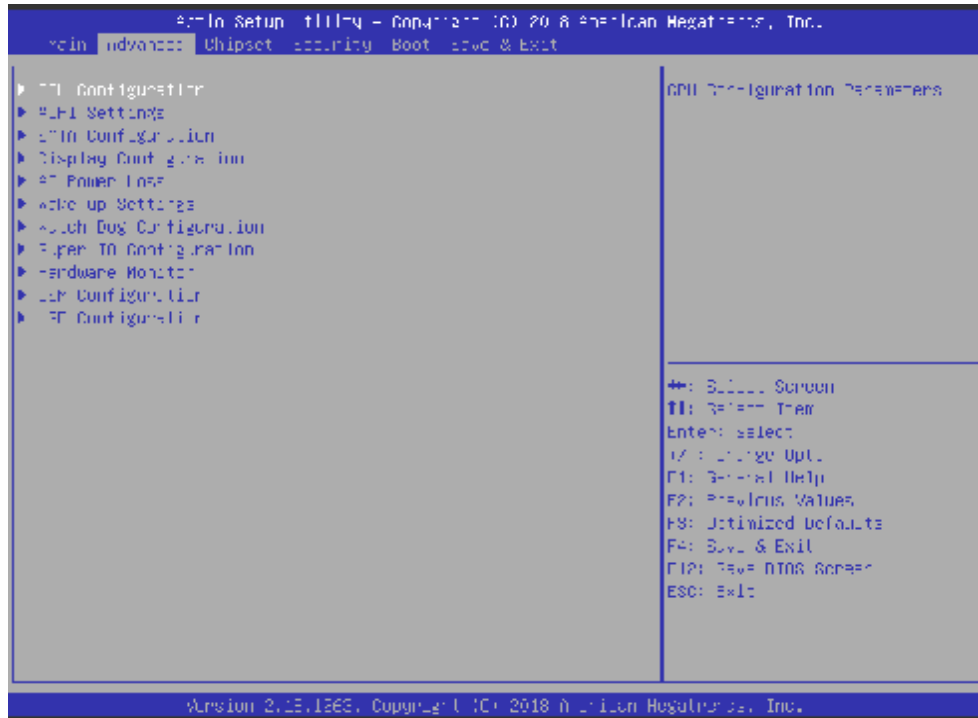


Figure 3-4 ACPI Configuration Setting

3.3.2 CPU Configuration Setting

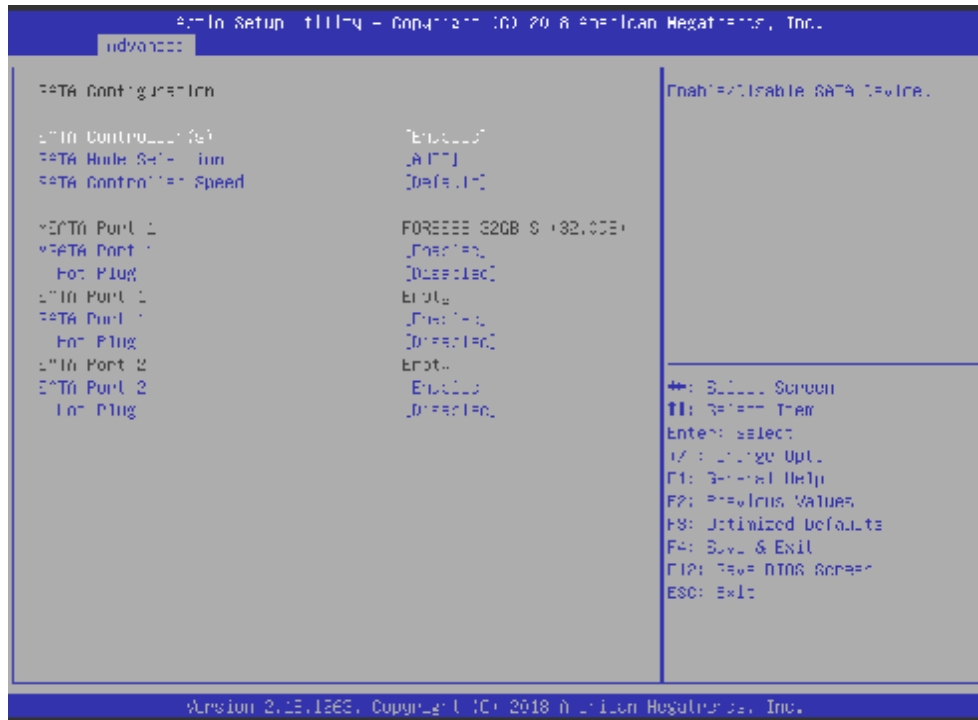
Select Advanced and move to Advanced BIOS, you can choose the any one item on the left, such as CPU Configuration, then enter the submenu.



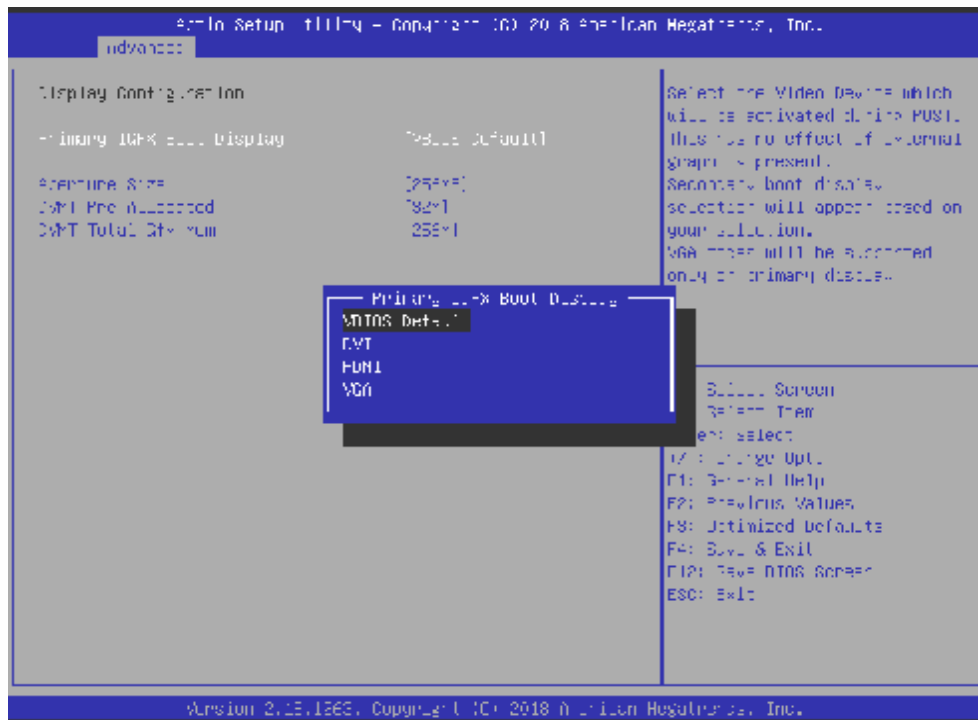
Move to Advanced/CPU Configuration, can see the CPU FSB etc



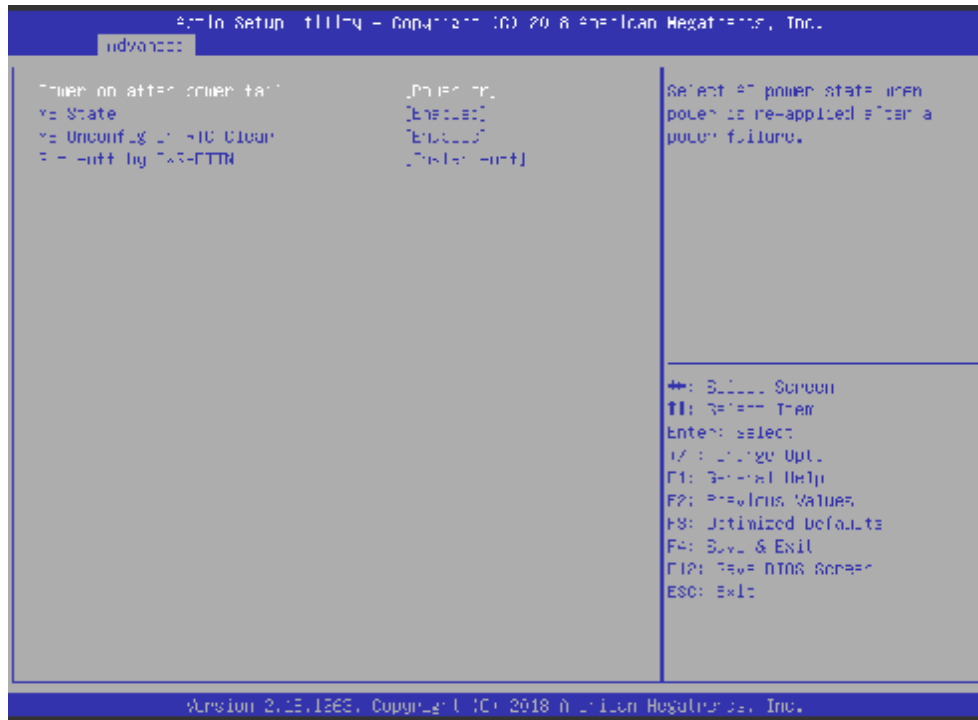
3.3.3 SATA Configuration



3.3.4 Display Configuration



3.3.5 Ac power loss



3.3.6 Wake Up Setting



3.3.7 Super IO Configuration

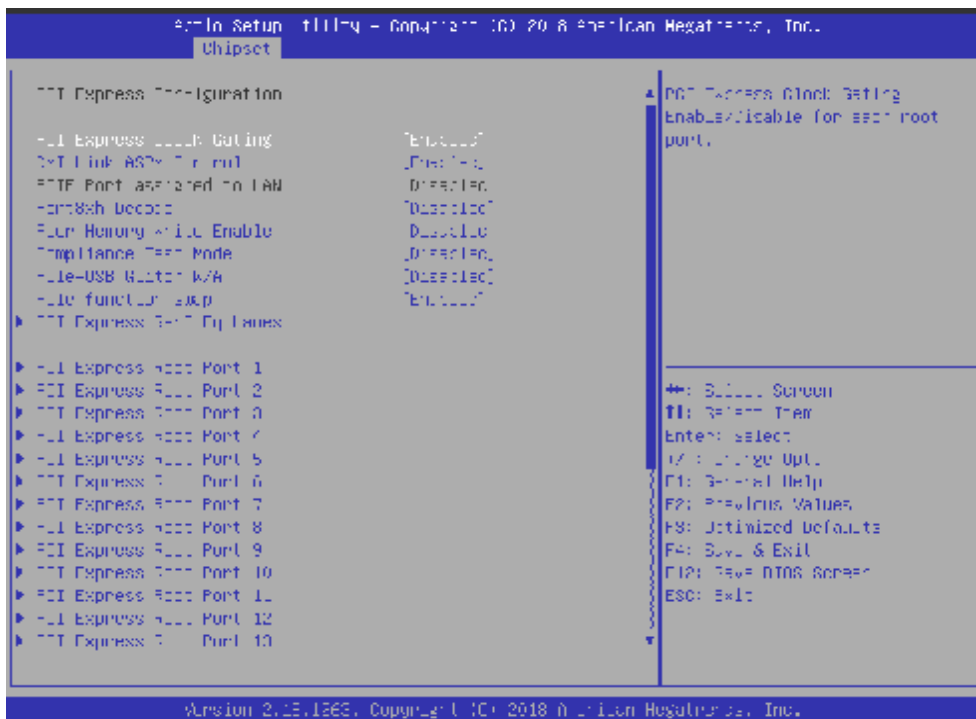
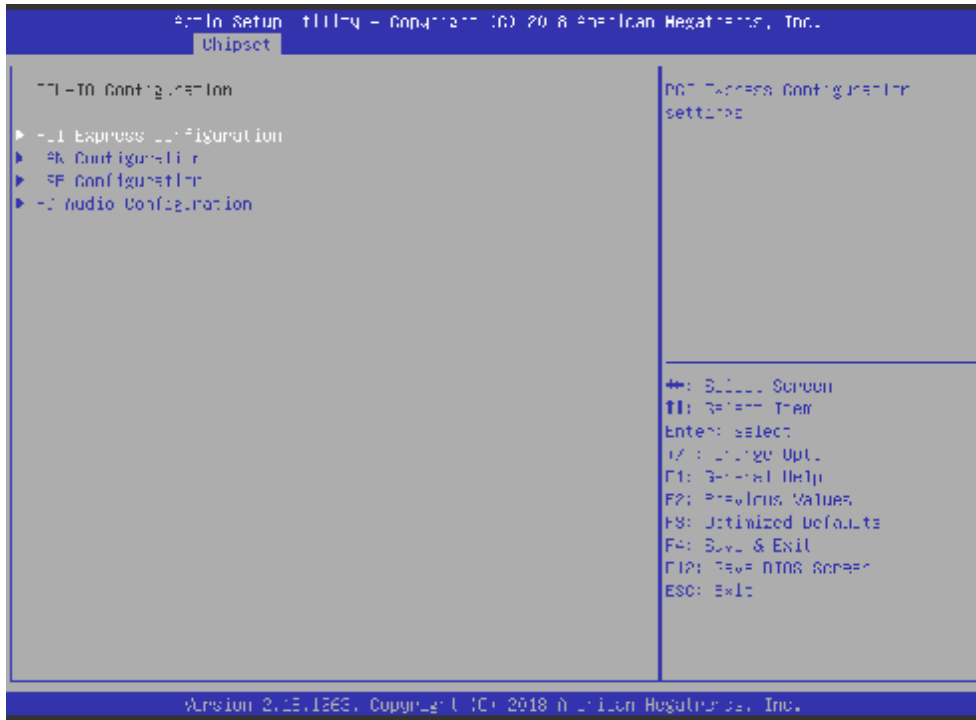


3.3.8 USB Configuration



3.4 Chipset Settings

Select the <chipset> enter to the Advanced BIOS, you can select any item on the left, such as Pci Express Configuration. Enter to the submenu, you can describe the submenu one by one.



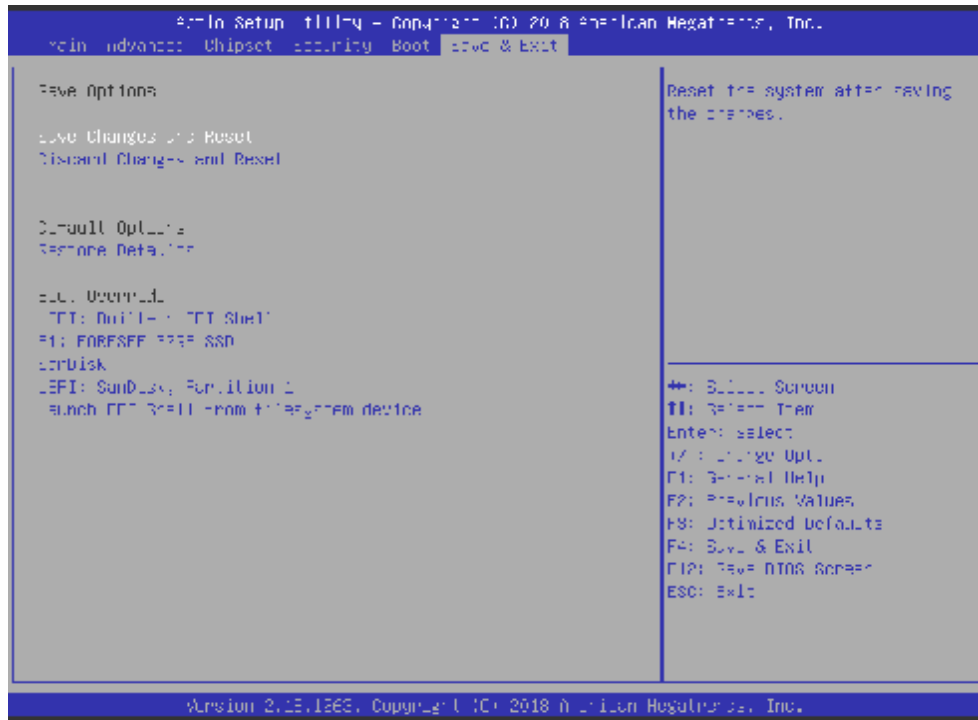
3.5 Security



3.6 BOOT Configuration



3.7 Save & Exit



Chapter 4

System Maintenance

4 . 1 System Maintenance Introduction

If the components fail they must be replaced, such as the wireless LAN module or the motherboard. Please contact the INOVATTIO COMPUTERS to purchase the replacement parts. Back cover removal instructions and jumper settings for the are described below.

4 . 2 Motherboard Replacement

In the case of motherboard failure, please contact INOVATTIO COMPUTER. 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 anti-static precautions when working on the internal components. Some internal components are easily damaged or destroyed by electrostatic discharge. Take anti-static precautions to prevent electrostatic discharge.

To replace any of the following components,

- Memory module
- Wireless LAN module
- Inverter

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



A

Safety Precautions

Warning:

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

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 electrical precautions** outlined below whenever the PC is opened.
 - **Make sure the power is turned off and the power cord is disconnected** whenever the ARMY is being installed, moved or modified.
 - **Do not apply voltage level that exceed the specified voltage range.** Doing so may cause fire and/or an electrical shock.
 - **Electrical shocks can occur** if the chassis is opened when the ARMY is running.
 - **Do not drop or insert any objects** into the ventilation opening.
If any fluids drop on the power supply immediately, unplug the power cord, and contact the eBOX-3000 vendor.
- **DONOT** do the following:
 - **DONOT** drop the PC against a hard surface.
 - **DONOT** strike or exert excessive force on the LCD panel.
 - **DONOT** touch any of the LCD panels with a sharp object.
 - **DONOT** use the PC 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 may result in permanent damage and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the ARMY RS-485 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 ARMY RS- 485, please follow the guidelines 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 swabs 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

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 HDAudio 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



Watchdog Timer

NOTE:

The following discussion applies to DOS environment

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-Mask able 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:

AH-6FH Sub-function	
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

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 replace able 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)	HexavalentChromium(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
<p>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</p> <p>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</p>						

Table D-1

