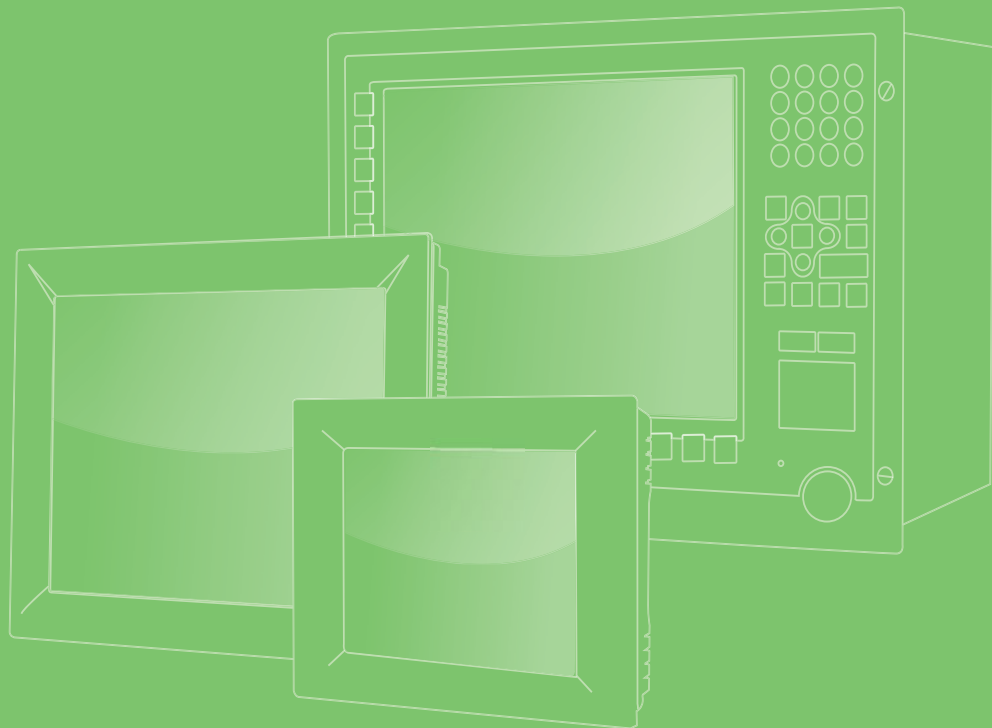# User Manual

PPC-6150/6170

Intel® Core i3,i5/Celeron 847E processor based microcomputer, with 15"/17" color TFT LCD display

ADVANTECH

Enabling an Intelligent Planet

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1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.

2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.

3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.

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5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

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Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Technical Support and Assistance

1. Visit the Advantech web site at http://support.advantech.com where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
   – Product name and serial number
   – Description of your peripheral attachments
   – Description of your software (operating system, version, application software, etc.)
   – A complete description of the problem
   – The exact wording of any error messages

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment does not work well, or you cannot get it to work according to the user's manual.
    - The equipment has been dropped and damaged.
    - The equipment has obvious signs of breakage.
15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
16. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

- To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
- Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

Power Warning

The power is only fit for areas with an altitude of 2000 M below.

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Chapter 1

General Information

This chapter gives background information on PPC-6150/6170 panel PC.

Sections include:
- Introduction
- Specifications
- Dimensions

1.1 Introduction

Advantech PPC-6150/6170 are Intel Core i3/i5 processor based panel PCs with 15" and 17" color LCD respectively. They feature powerful computing capability, modular design and excellent connection performance, almost fit for any application. In addition, they are also humanized information machine, which is highly represented by the user-friendly interface. For example, they have two expansion slots, dual HDDs, Intel RAID support, and an isolated RS-232/422 /485 port. These functions greatly improve the product reliability, and are able to satisfy most users' needs.

1.2 Specifications

1.2.1 Specification Comparison

Product	PPC-6150	PPC-6170
LCD Specification	15" LCD	17" LCD
Display Type	15" TFT LCD (LED backlight)	17" TFT LCD (LED backlight)
Max. Resolution	1024 x 768	1280 x 1024
Color	262K	262K
dot matrix	0.297 x 0.297mm	0.264 x 0.264mm
Viewing Angle	80 (left), 80 (right), 80 (top), 60 (bottom)	85 (left), 85 (right) 80 (top), 80 (bottom)
Brightness	350 cd/m2	350cd/m2
Contrast	700	1000
LCD Operation Temperature	-30 ~ 85° C	-30 ~ 85° C
Backlight Lifecycle	50, 000 hours	50, 000 hours
Weight	6.5 Kg (14.32 lb)	7.5 Kg (16.52 lb)
Dimensions	395.5 x 316.8 x 105.5 (mm) (15.6" x 12.5" x 4.15")	442.0 x 362.0 x 113.5 (mm) (17.4" x 14.25" x 4.47")

1.2.2 General Specifications

CPU	Model No.	Frequency	Cache
	Core i5-3610ME	2.7 GHz	4 M
	Core i3-3120ME	2.4 GHz	3 M
	Celeron 847E	1.1 GHz	2 M
Chipset	Intel QM77		
Memory	One 204 pin SO-DIMM slot, up to 8 G DDR3 (1600 MHz) / DDRL (1333 MHz)		
Storage 1	2.5" SATA HDD		
Storage 2	2.5" SATA HDD (support Intel RAID function) (optional)		
	Support slim 8X or above DVD +/- RW (optional)		
Network	2 x Gigabit Ethernet ports, support Intel AMT (GbE1- Intel 82579LM,GbE2–Intel 82583V)		
I/O Ports	4 x COM port: 1 x isolated RS-232/422/485; 3 x RS232		
	1 x GPIO/RS-232 (8 channels, TTL level)		
	3 x USB3.0 + 2 x USB2.0		
	2 x Gigabit Ethernet ports		
	1 x D-SUB VGA ports		
	1 x HDMI ports		
	1 x Line-out port,1 x Mic-in port, 2 x 1 W speaker (built-in)		
Expansion Slot	1 x PCI + 1 x PCIe x1 (optional)		
	1 x PCIe x4 (available in the accessory box)		
	2 x PCIe x1 (optional)		
	2 x PCI (optional)		
Additional Expansion Slot	1 x mini PCIe long card slot (support mSATA)		
	1 x mini PCIe half long card slot		
System	Windows XPE / Windows XP Pro / Windows Embedded Standard 7 / Windows 7		

1.2.3 Power Specifications

Model	PPC-6150	PPC-6170
Power (i5-3610ME)	61 W (test system: Windows7 32bit)	65 W (test system: Windows7 32bit)
	50 W (test system: Windows XP 32bit)	60 W (test system: Windows XP 32bit)
Power (i3-3210ME)	55 W (test system: Windows7 32bit)	55 W (test system: Windows7 32bit)
	47 W (test system: Windows XP 32bit)	47 W (test system: Windows XP 32bit)
Power (Celeron 847E)	48 W (test system: Windows7 32bit)	53 W (test system: Windows7 32bit)
	35 W (test system: Windows XP 32bit)	39 W (test system: Windows XP 32bit)
Output Power	150 W (Max.)	
Input Voltage	100-240 Vac, 50/60 Hz, 4 A ~ 2 A	

1.2.4 Touchscreen Specifications

Type	5-wire resistive
Resolution	2048 x 2048
Light Transmission	81%+/-3%
Controller	COM interface (can be used as USB interface, use COM5 as controller source)
Touchscreen Lifecycle	36,000,000 times

1.2.5 Environment Specifications

Operation Temperature	0 ~ 50° C (32 ~ 122° F)
Storage Temperature	-20 ~ 60° C (-4 ~ 140° F)
Relative Temperature	10 ~ 95% @ 40° C (non-condensing)
Shock	10 G peak acceleration (11 msec duration)
Vibration	5 ~ 500 Hz 1 G RMS

1.2.6 Certification Specifications

EMC	BSMI, CE, FCC Class A
Safety	CB, CCC, BSMI, UL

1.2.7 IP

Front Panel IP Grade	IP65

Note 1:

PPC-6170's power test conditions are as follows (for reference only, powers differ from different peripheral configurations)

Test Software	Test Configuration		Test System	Power (W)
Burn-in 7.0	Memory: Transcend DDR3 1600 SODIMM 8GBx1 HDD: Seagate ST250LT003 9YG141C-500 250GB SATA 2.5" IO: COM Port RS232 loopback x5: USB3.0 device x5	i5-3610ME @2.70 GHz	Windows 7 32bit	65
			Windows XP 32bit	55
		i3-3120ME @2.4 GHz	Windows 7 32bit	55
			Windows XP 32bit	47
		Celeron 847E @ 1.1GHz	Windows 7 32bit	53
			Windows XP 32bit	39

Note2:

PPC-6150's power test conditions are as follows (for reference only, powers differ from different peripheral configurations)

Test Software	Test Configuration		Test System	Power (W)
Burn-in 7.0	Memory: Transcend DDR3 1600 SODIMM 8GBx1 HDD: Seagate ST250LT003 9YG141C-500 250GB SATA 2.5" IO: COM Port RS232 loopback x5, USB3.0 device x5	i5-3610ME @2.70 GHz	Windows 7 32bit	61
			Windows XP 32bit	50
		i3-3120ME @2.4 GHz	Windows 7 32bit	50
			Windows XP 32bit	43
		Celeron847E @1.1 GHz	Windows 7 32bit	48
			Windows XP 32bit	35

1.3 Dimensions

PPC-6150:
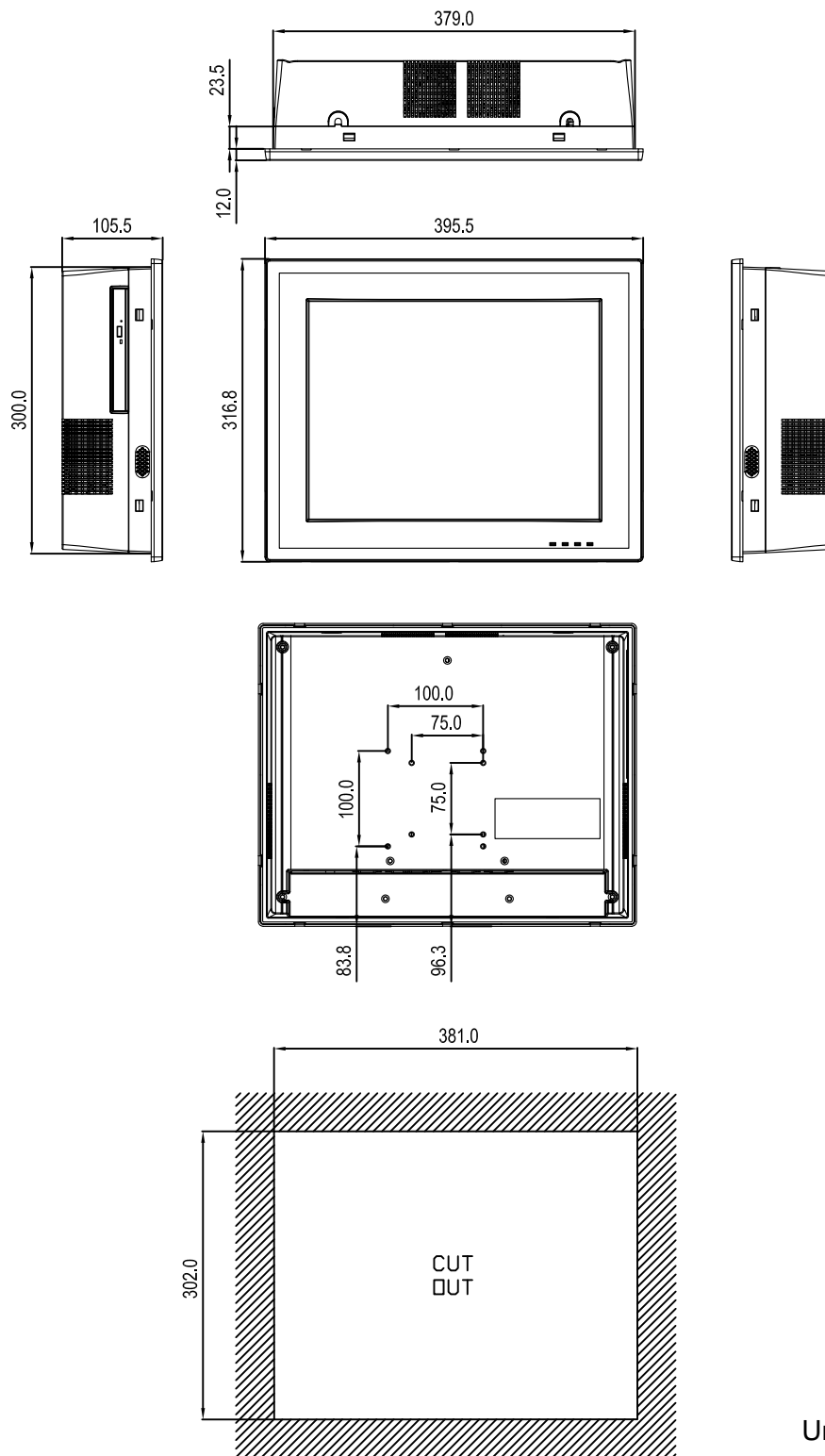
Unit: mm

Figure 1.1 PPC-6150 dimensions

Fixed VESA screw specification: M4; screw depth: 7.5 mm (Max)..

Warning!   *Use suitable mounting apparatus to avoid risk of injury.*

PPC-6170:
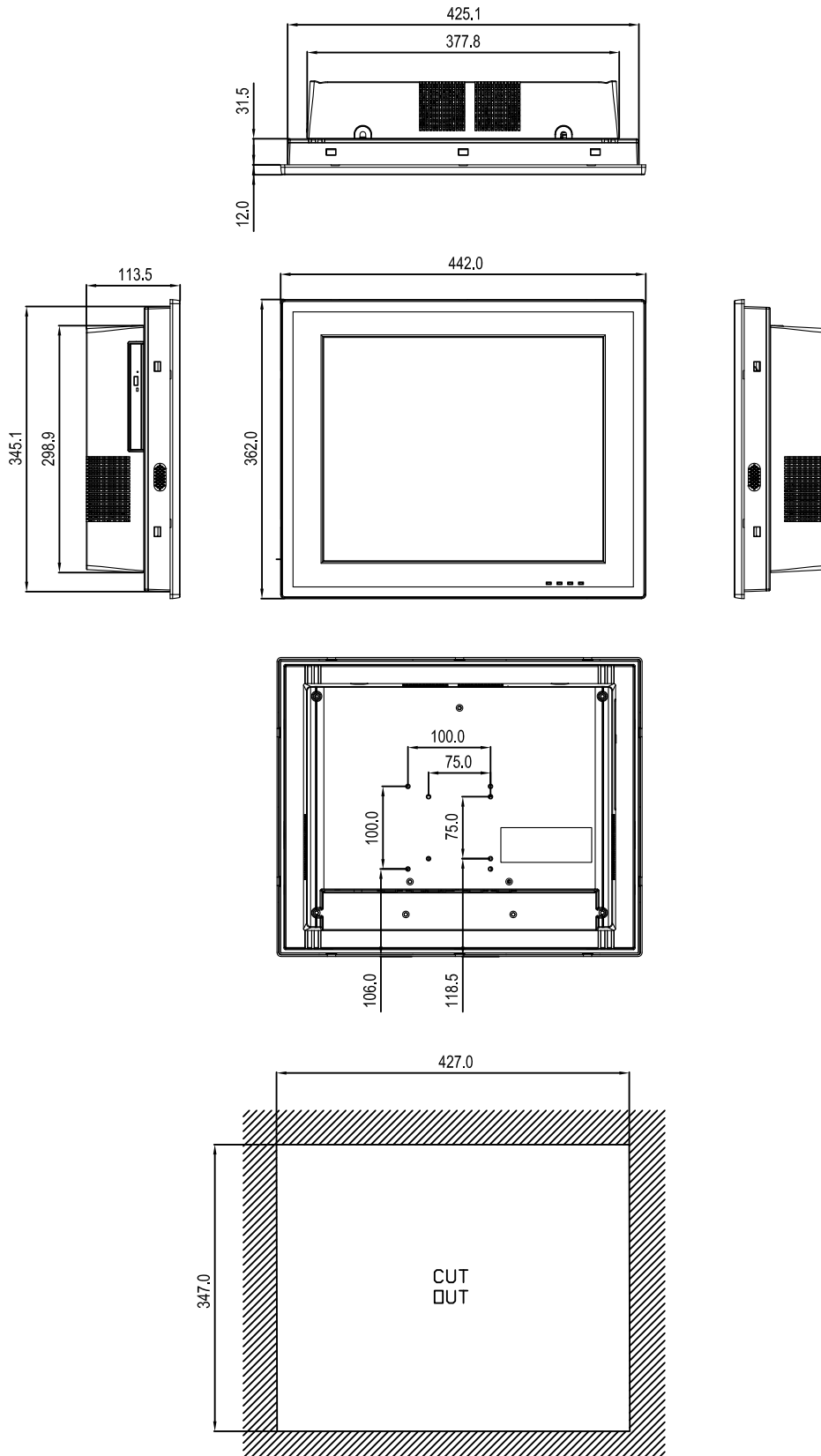
Figure 1.2 PPC-6170 dimensions

Fixed VESA screw specification: M4; screw depth: 7.5 mm (Max)..

Warning! *Use suitable mounting apparatus to avoid risk of injury.*

Chapter 2

System Installation & Setup

Sections include:
- Quick Installation Guide
- HDMI Specifications
- Install Memory
- Install ODD
- Install HDD
- Install MINI SATA and Wireless LAN Card
- Install Riser Card
- Panel Mount Bracket Installation
- Power Cable Bracket Installation

2.1 Quick Start Guide

Before you start to set up the panel PC, take a moment to become familiar with the locations and purposes of the controls, drives, connectors and ports, which are illustrated in the figures below.

When you place the panel PC upright on the desktop, its front panel appears as shown in Figure 2.1.
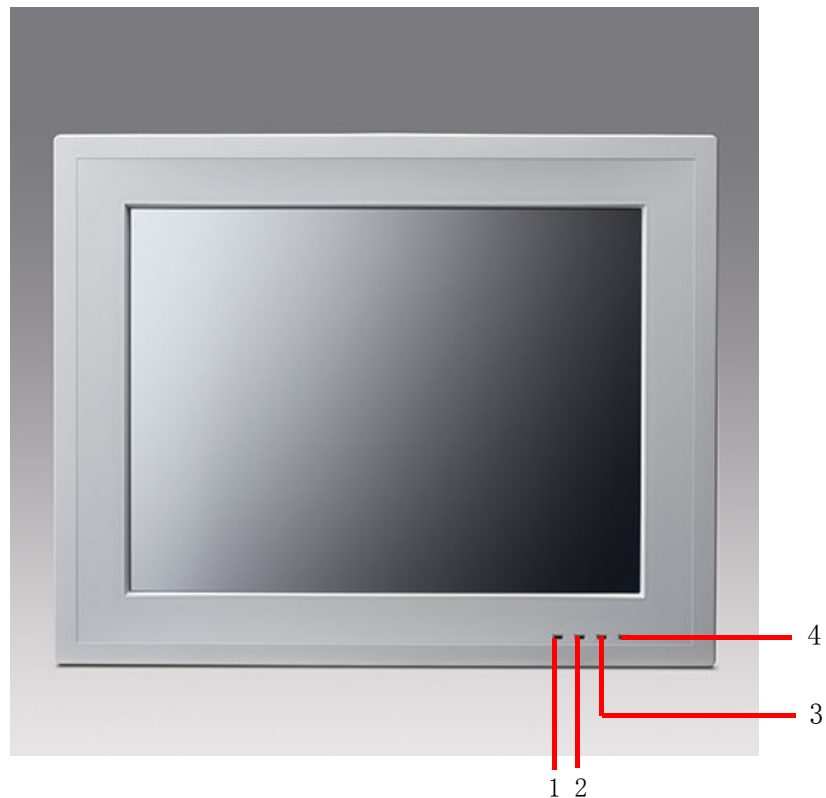
Figure 2.1 Front panel

1. Light sense
2. LAN LED
3. HDD LED
4. POWER LED

Status	LAN LED		HDD LED	POWER LED
	LAN1	LAN2		
Power Off (S5)	Off		Off	Yellow
Power On (S0)	Green (working, blink)	Yellow (working, blink)	Yellow (working, blink)	Green
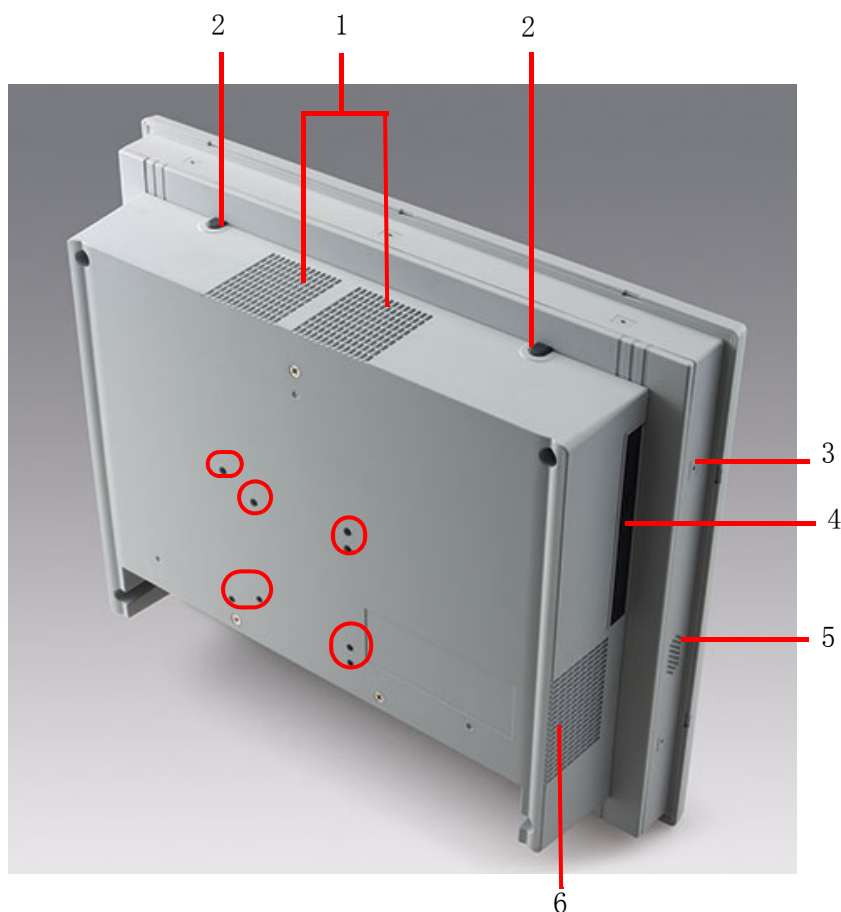
Figure 2.2 Side view

Red rectangle indicates VESA screw hole.

1. Air outlet
2. Antenna hole
3. Panel Mount Bracket hole (10 in PPC-6170, 8 in PPC-6150)
4. Slim type optical drive bay
5. Loudspeaker (dual)
6. Air inlet

Note! *Fixed VESA specification: M4; screw depth: 7.5 mm (Max).*

I/O interfaces:
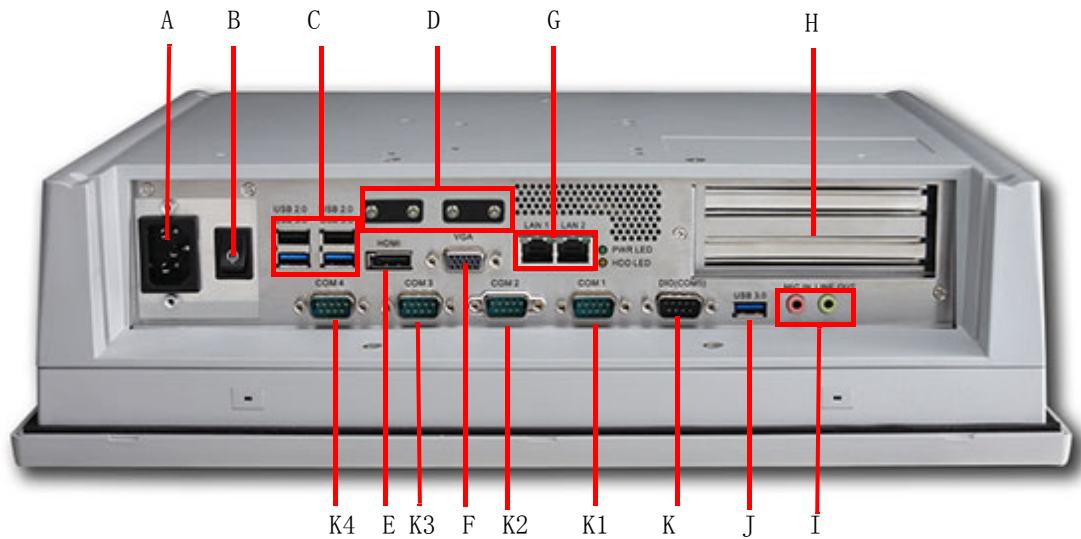
Figure 2.3 Location of I/O interfaces

A: AC power

B: Power

C: 2 x USB 3.0, 2 x USB 2.0

D: Wire clasp

E: HDMI port

F: VGA port

G: 2 x Gigabit Ethernet ports

H: 2 x Expansion slots

I: Line out/Mic in

J: 1 x USB 3.0 interface

K: DIO / COM5 port (by swapping pin header)

K1: COM1(RS232,Pin9 supports 5 V/12 V output)

K2: COM2(RS232/422/485,with isolation)

K3: COM3(RS232,Pin9 supports 5 V/12 V output)

K4: COM4(RS232)

Note! *Wire clasp dimension: 9 mm x 3.5 mm.*

2.2 HDMI Specifications

1. When using HDMI interface, please purchase cables of above 9 mm long (see Figure 2.4), or imperfect contact may happen.

Figure 2.4

2. Please insert the cable by the right ride. (See Fig 2.5)

Figure 2.5

2.3 Install Memory Card

1. Remove rear cover of the panel PC. (See Fig 2.6)
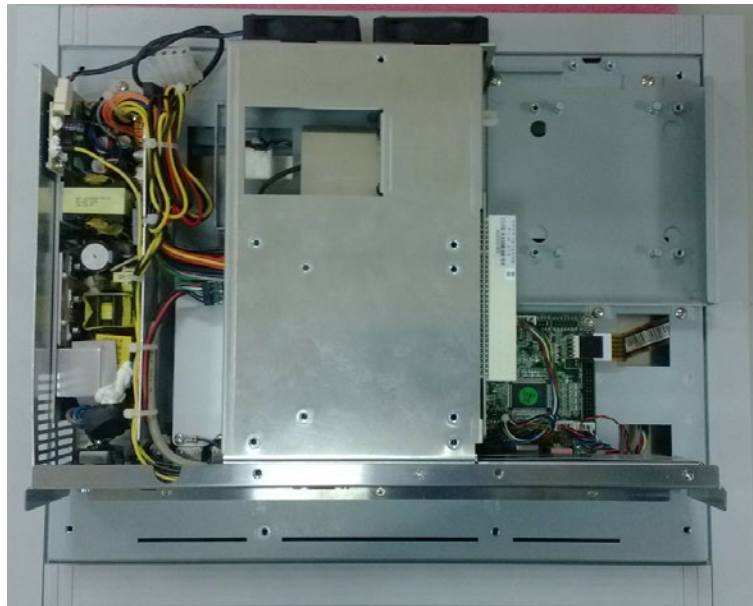
Figure 2.6 After removing rear cover

2. Remove the two screws of the riser card (see Fig 2.7), and pull out the card.
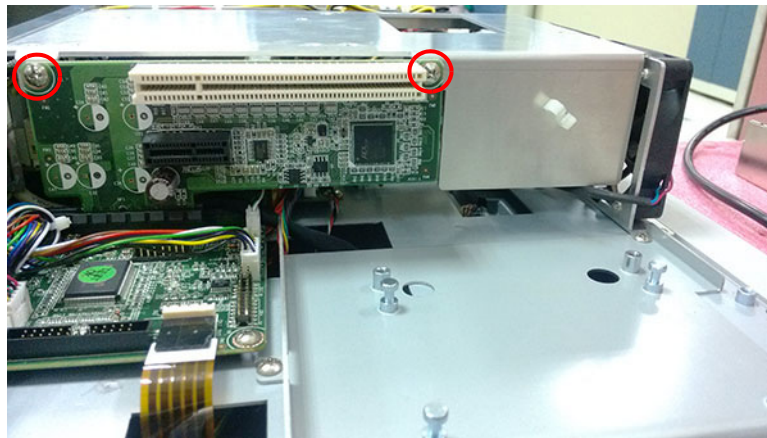
Figure 2.7

3. Remove all the screws in the reinforced board, including the three screws beside the fan (see Fig 2.8) and the one in I/O stop plate.
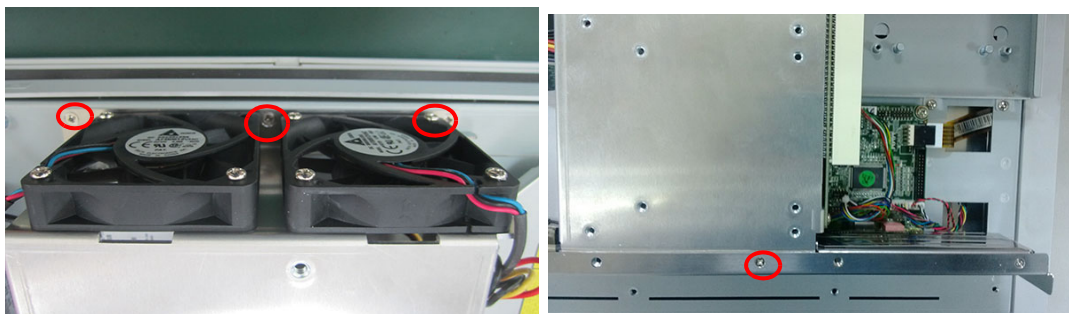
Figure 2.8

4. Remove the reinforced board. (see Fig 2.9)

Figure 2.9

5. Remove CPU fan cable and the 4 screws in CPU cooler and take out the CPU cooler.
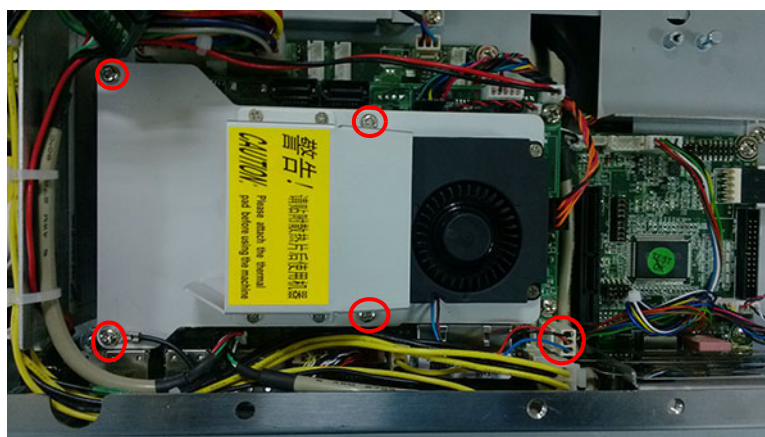
Figure 2.10

6. Insert the memory card in the slot, and take out the thermal pads of CPU, QM77 and memory and stick them in the correct locations (see Fig 2.11), then install the CPU cooler to complete the memory installation.
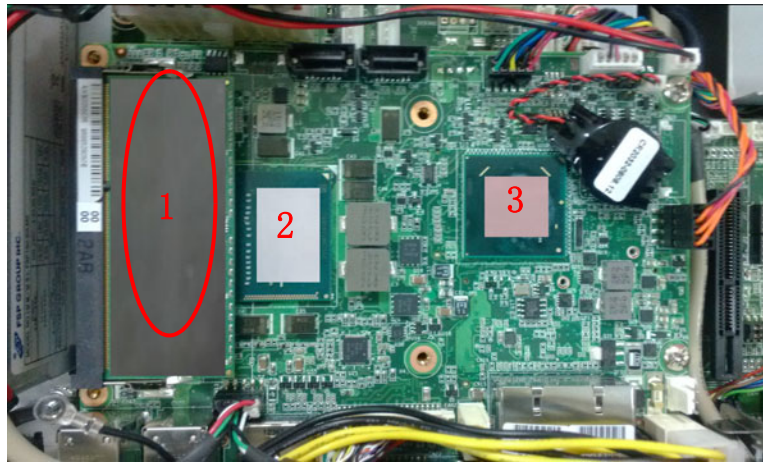
Figure 2.11

2.4 Install ODD

1. Remove the four screws as shown in Fig 2.12, and take out the HDD2 bracket.
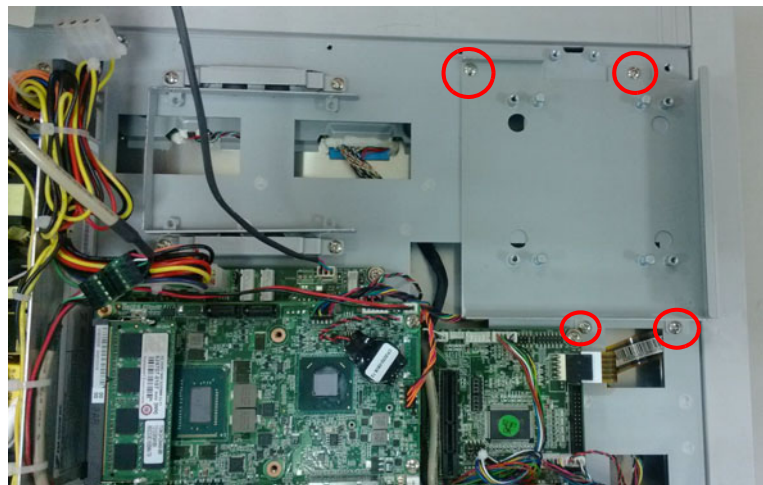
Figure 2.12

2. Take out ODD module, fix it onto the iron bracket, and connect the ODD cable to the corresponding interface.(See Fig 2.13)
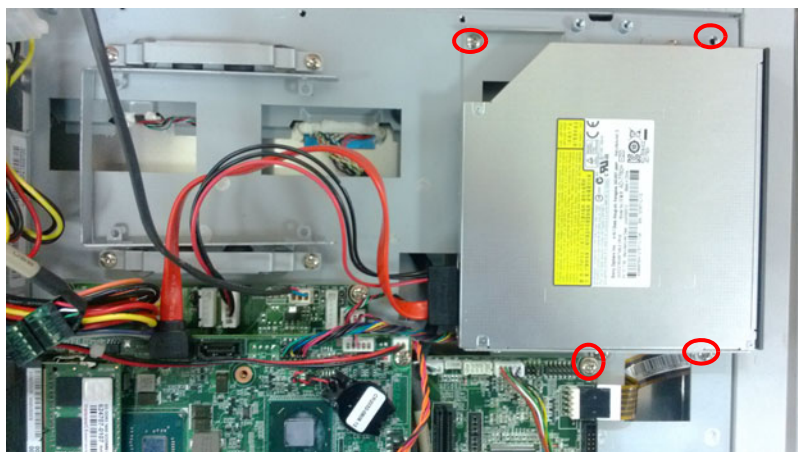
Figure 2.13

2.5 Install HDD

2.5.1 Install HDD1:

1. Please follow the procedures 1-4 in Section 2.3.
2. Take down the HDD hold-down clamp. (See Fig 2.14)
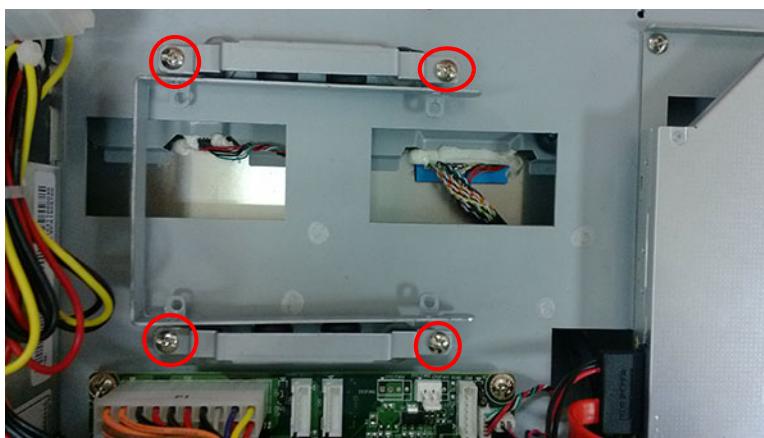
Figure 2.14

3. Take down the HDD U type bracket. (See Fig 2.15)
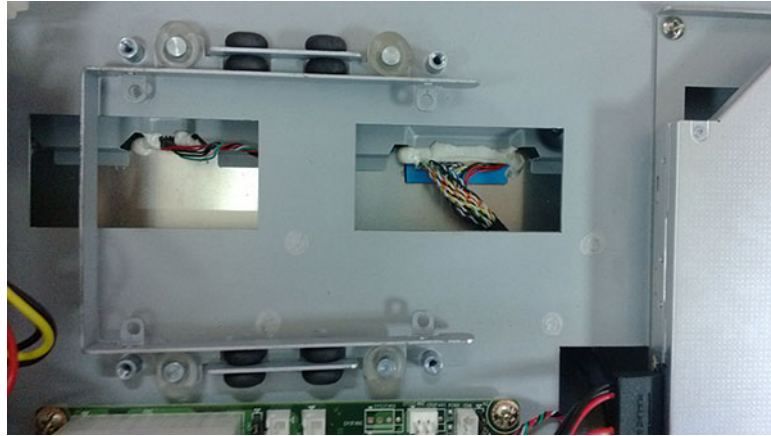
Figure 2.15

4. Take out the 4 screws, lock HDD onto the U type bracket (screws can be found in the accessory box, 4 x M3X4), and insert HDD cable into HDD module. (See Fig 2.16)
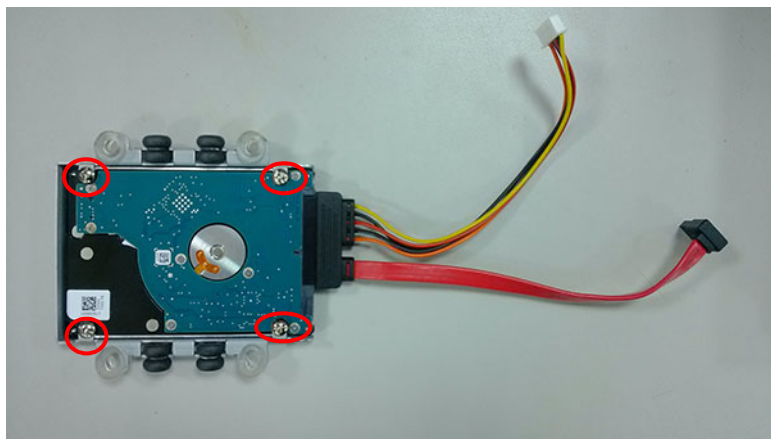
Figure 2.16

5. Return to the original position. (See Fig 2.17)
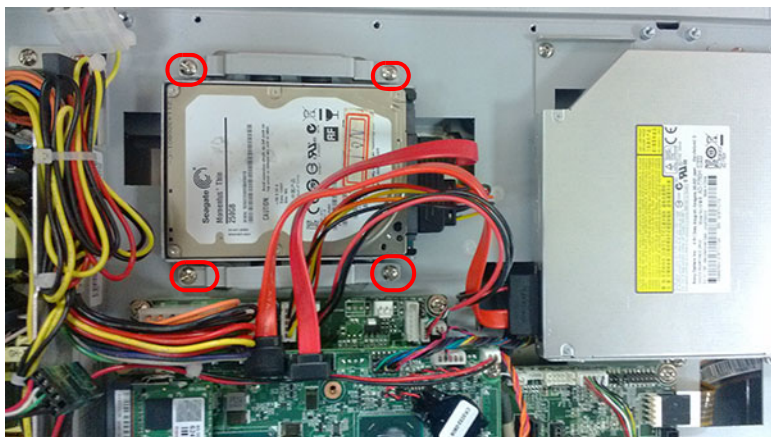
Figure 2.17

6.   Connect HDD cable to the mainboard. (See Fig 2.18).
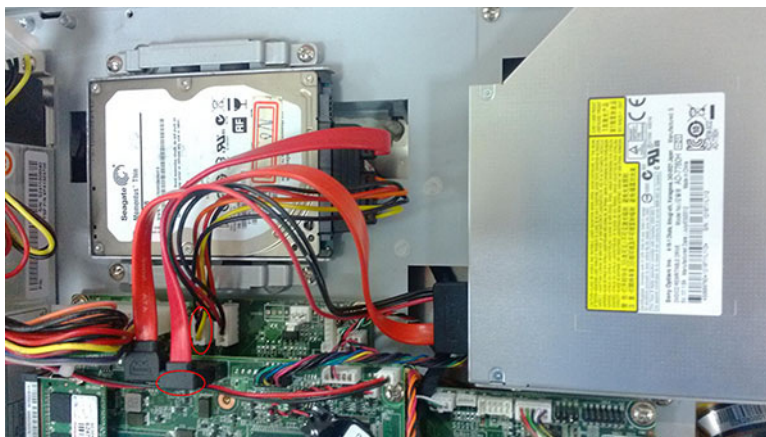
Figure 2.18

2.5.2 Install HDD2

1.   Please follow the procedures 1-4 in Section 2.3.
2.   Take out the U type bracket, 4 black washers, 4 transparent washers and 2 HDD hold-down clamps (with black foams attached). (See Fig 2.19)
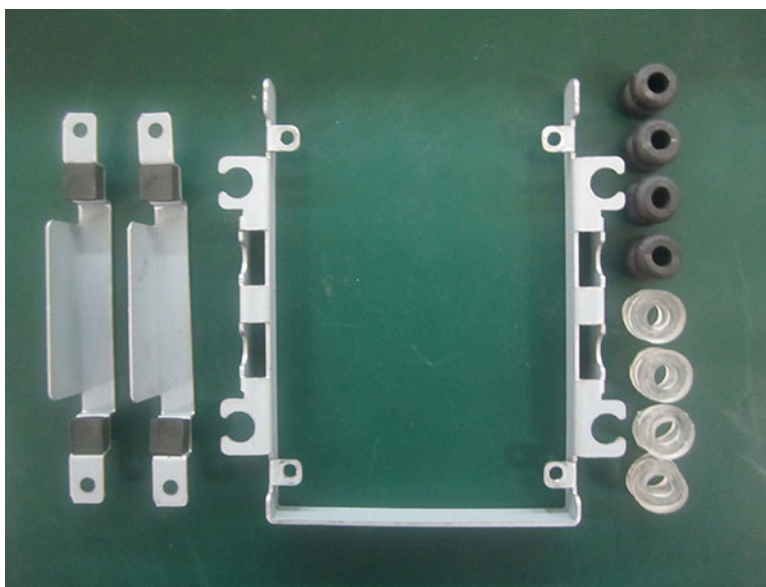
Figure 2.19

3. Position the 8 washers as shown in Fig 2.20. Please make sure the transparent washer U card is fixed in the U iron bracket, or HDD may be damaged easily.
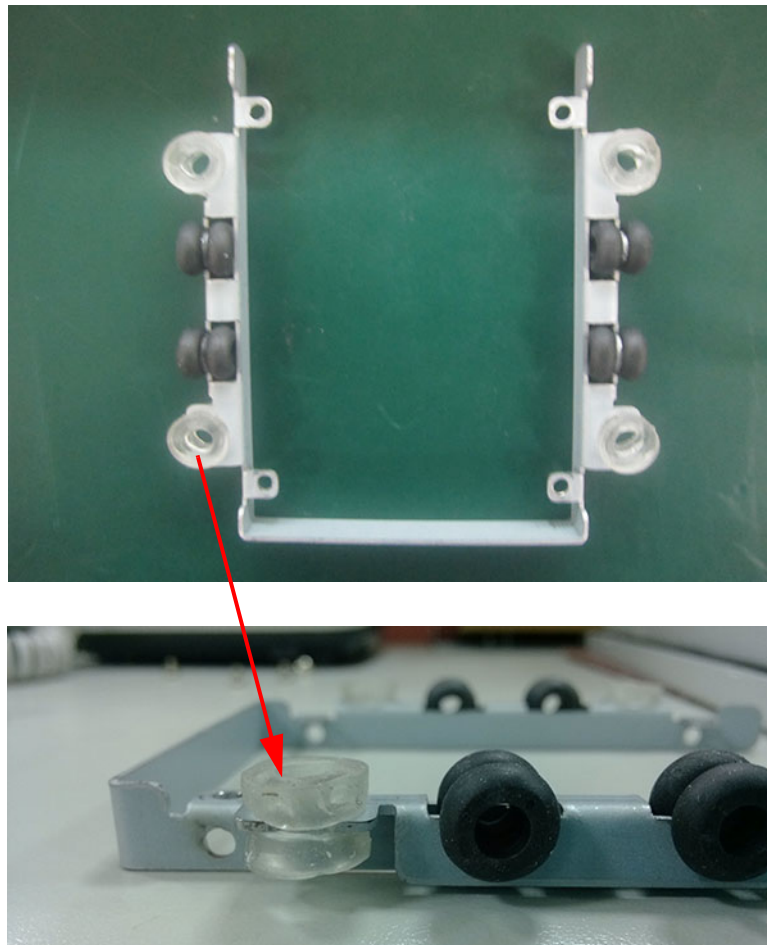
Figure 2.20

4. Take out 4 M3*4 screws, fix the HDD lock onto U type iron bracket, and insert the power cable. (See Fig 2.21)
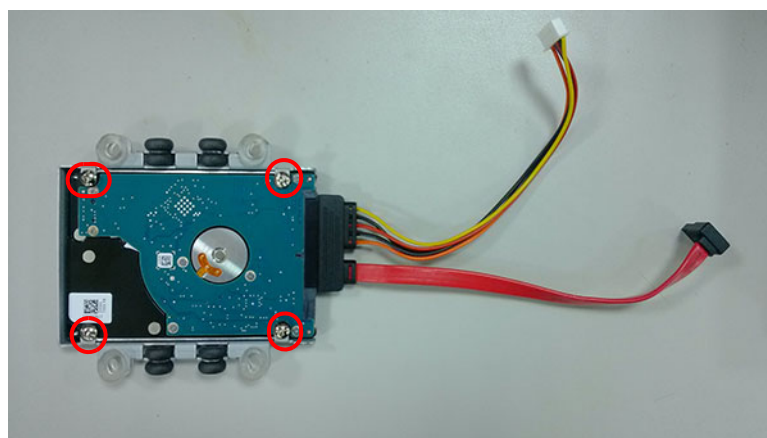
Figure 2.21

5.   Lock the hold-down clamp onto U type iron bracket with the 4 M3*4 screws, and fix the HDD onto HDD2 iron bracket.
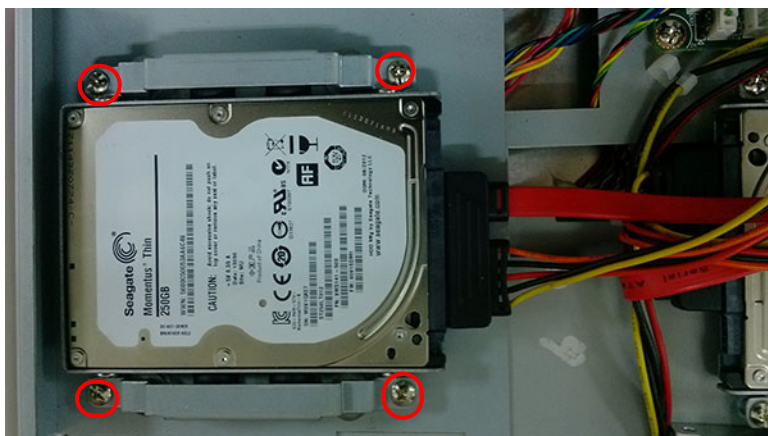
Figure 2.22

6.   Connect the HDD cable. (See Fig 2.23)
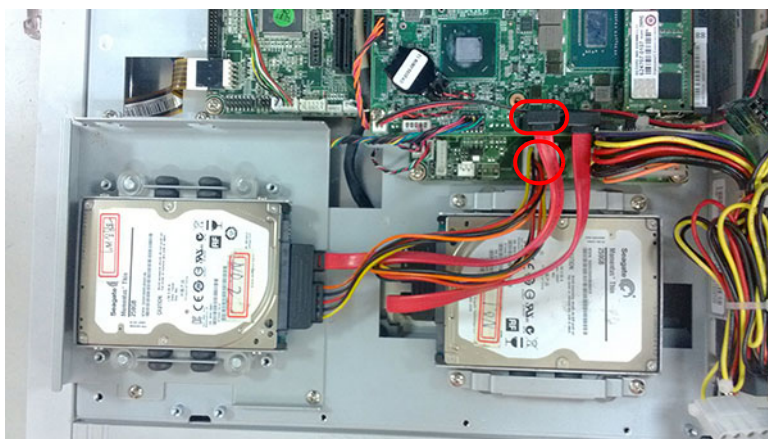
Figure 2.23

2.6 Install Mini SATA and Wireless Network Card

(The following installation procedures are only for professional technicists' reference. The screws needed in this process can be found in the accessory box.

1. Please follow the procedures in Section 2.3.
2. Untie USB cable, and then remove the cable and two screws in MIO mainboard.
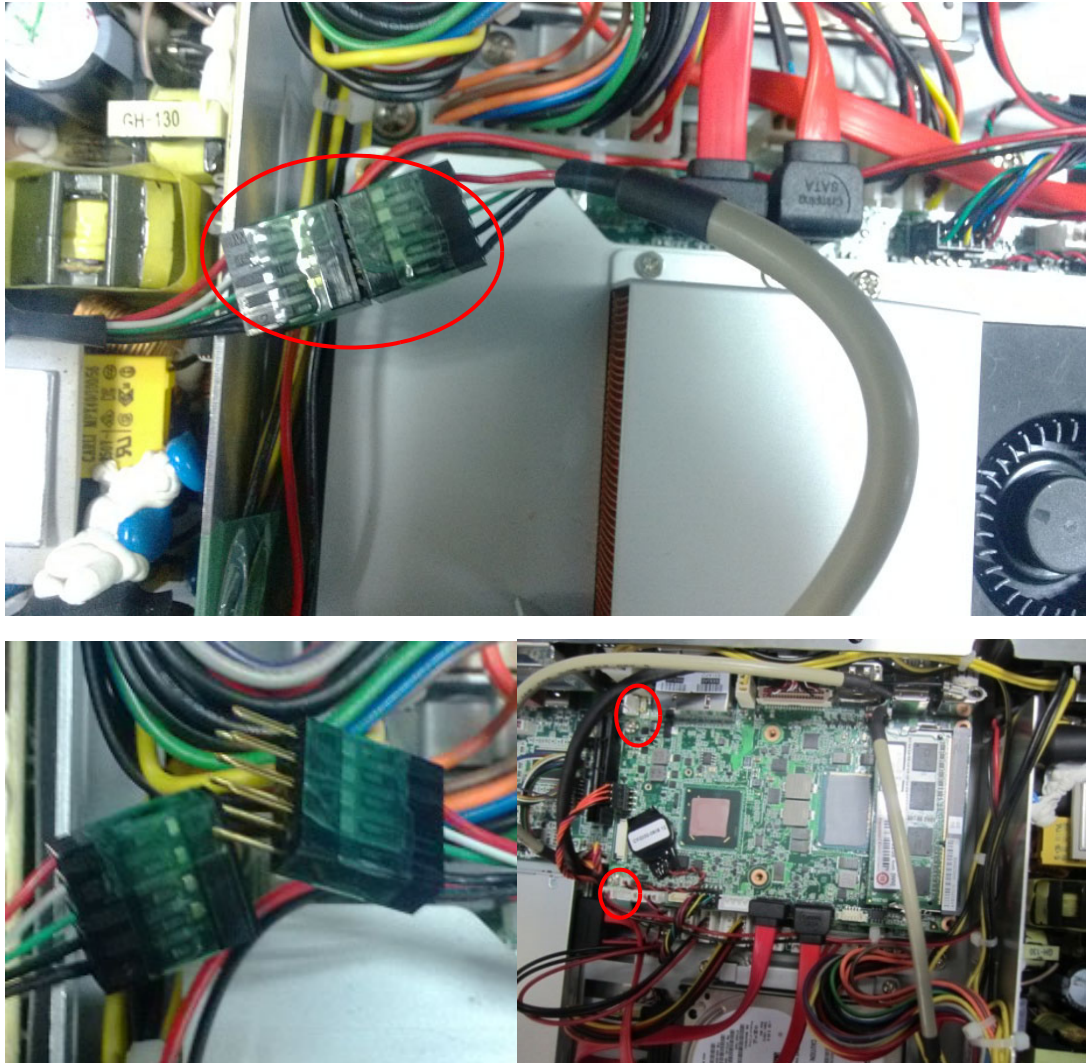
Figure 2.24

3. Unplug the cables beside the IO as shown below, and remove the 2 hexagonal screws in VGA of I/O back plate. Then vertically pull out MIO board. (See Fig 2.25)
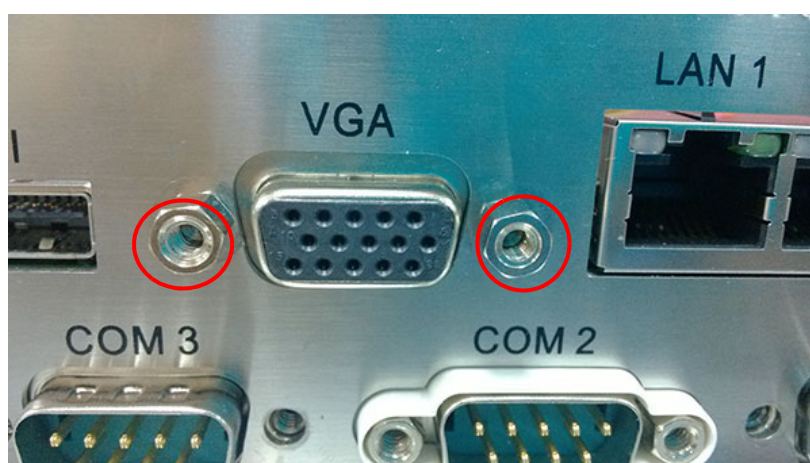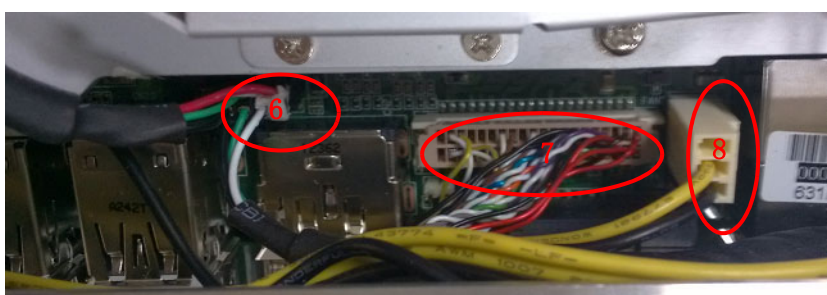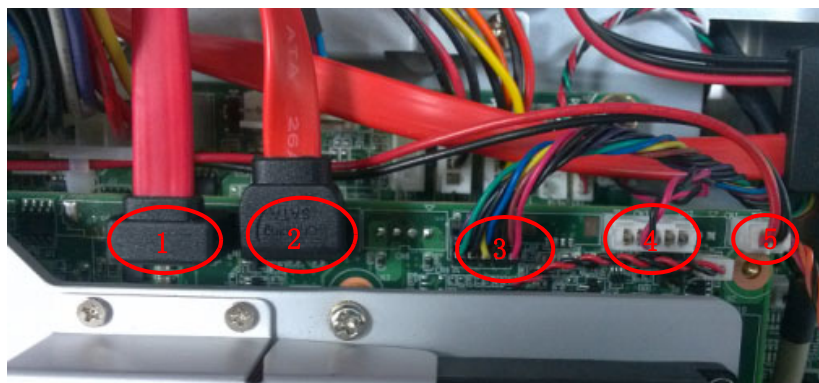
Figure 2.25

The steps to install the card are as follows. Please follow the corresponding steps to install.

Part A. Install MiNi SATA; Part B: Install wireless LAN long card; Part C. Install wireless LAN short card

2.6.1 Install MiNi SATA

1. Insert MiNi SATA card into PCIE slot, and fix it with two M2x 6. (See Fig 2.17)

> **Note!** Wireless LAN long card and MiNi SATA slot share one slot. Users need to configure the port as Mini SATA by BIOS, please refer to "BIOS Configuration" chapter for the details.
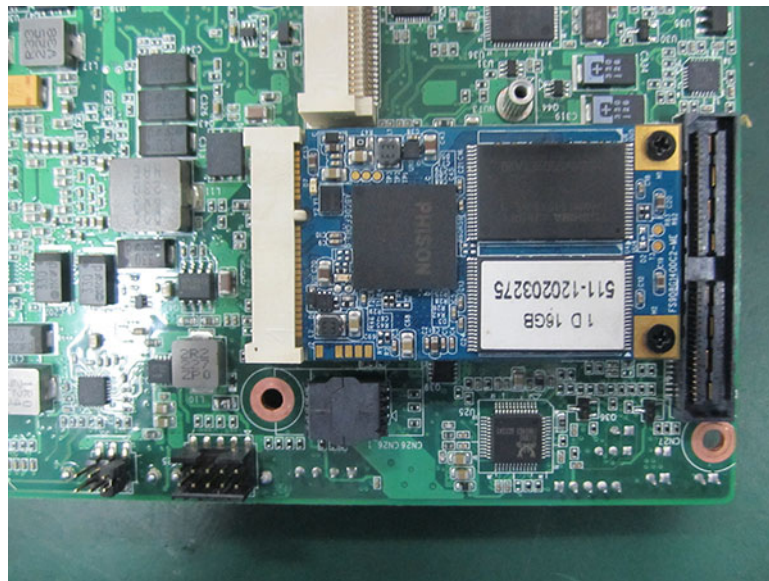
Figure 2.26

2.6.2 Install Wireless LAN Long Card

1. First take down wireless LAN card antenna bracket. (See Fig 2.27)
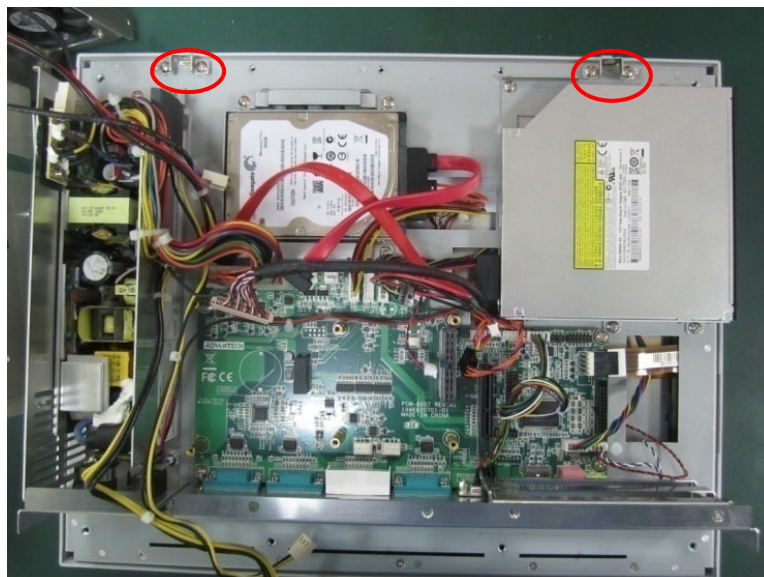
Figure 2.27

2. Fixed the antenna onto the bracket. (See Fig2.28)

Figure 2.28

3. Lock the bracket with antenna onto M/B frame, the wiring method is shown as Fig 2.29.
    The antenna receiver is locked onto the antenna terminal. (See Fig 2.30)
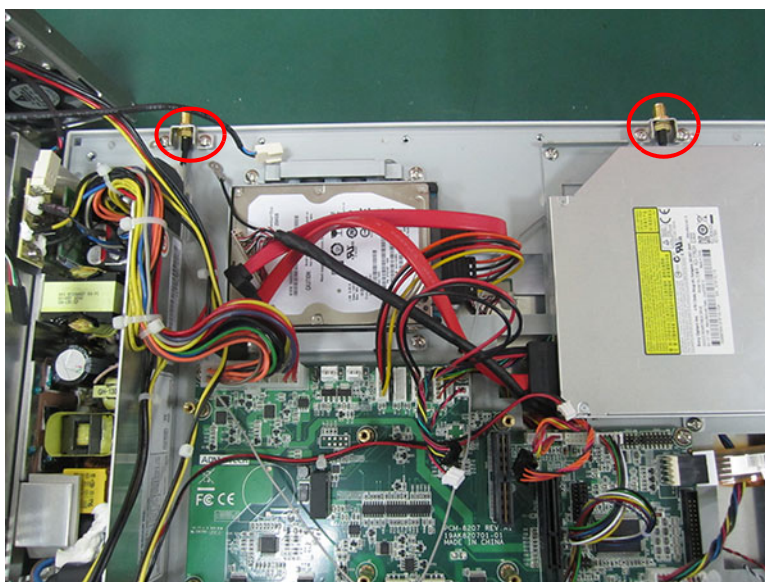
Figure 2.29
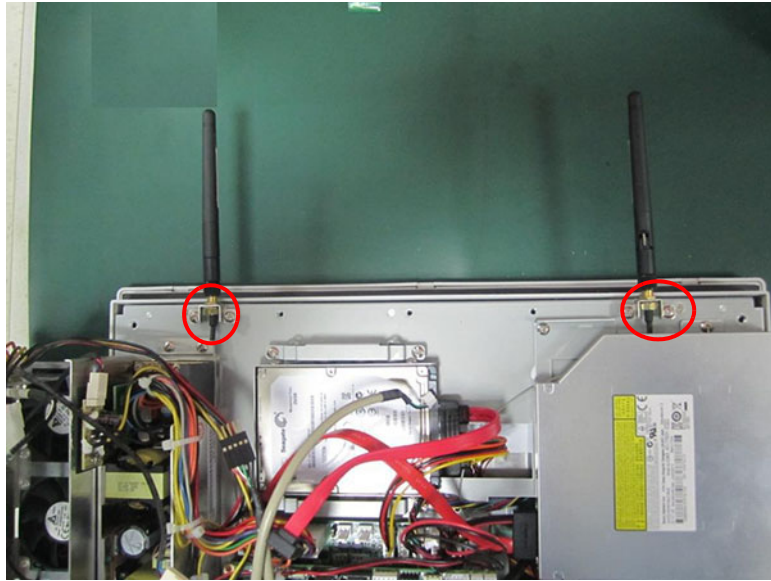
Figure 2.30

4. Take out two M2 X 6 screws from the accessory box, and insert the wireless LAN card into MIO-5290 CN28 slot.

> *Note!* Long card and MiNi SATA slot share one slot. Users need to configure the port as PCIE by BIOS, please refer to "BIOS Configuration" chapter for the details.
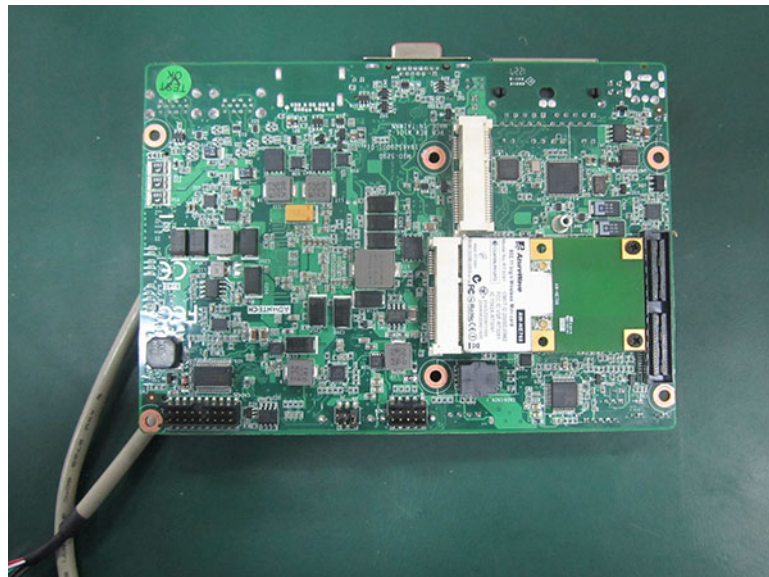
Figure 2.31

5. Connect the antenna to wireless LAN card, the wiring method of the long card is shown as Fig 2.32.
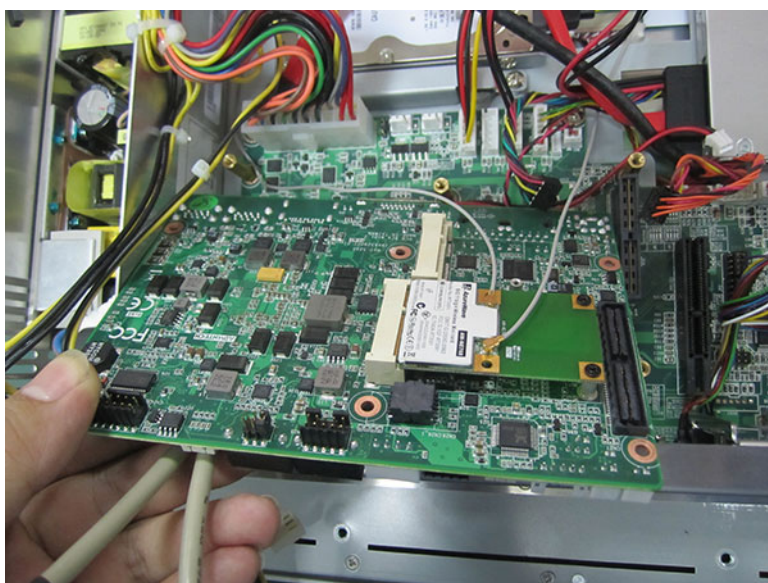
Figure 2.32

2.6.3 Install Wireless LAN Short Card

1. Follow the procedures in Section 2.6.2, and install the antenna to the machine.
2. Take out one M2 X 6 screw from the accessory box, and lock the short card into MIO-5290 CN29 card slot. (See Fig 2.33)

Figure 2.33

3. Connect the antenna to wireless LAN card, the wiring method of wireless LAN card is shown as Fig 2.34.
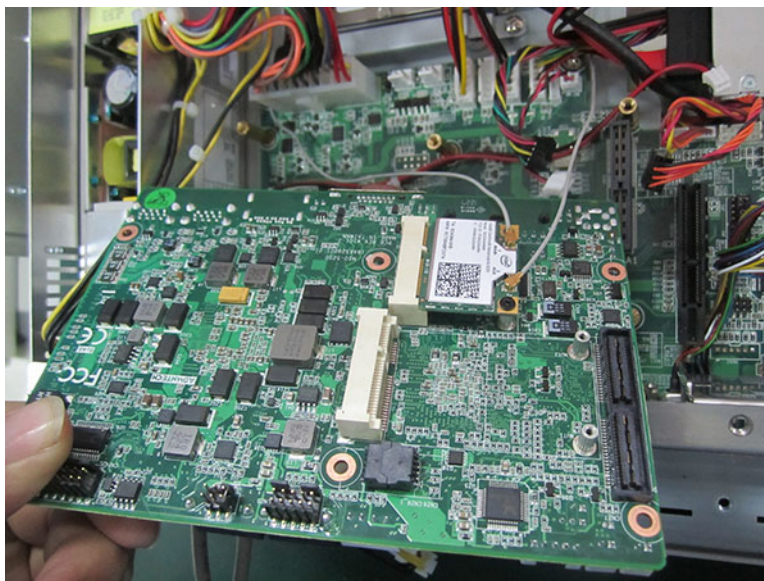
Figure 2.34

4. Reinstall MIO mainboard, lock the screws and return back the cables according to Procedure 3-6, then check if all cables are correctly connected, which is shown as Fig2.35, 2.36 and 2.37 respectively.

5. Lock the cooler onto MIO mainboard and connect the MIO fan cable. (See Fig 2.35)
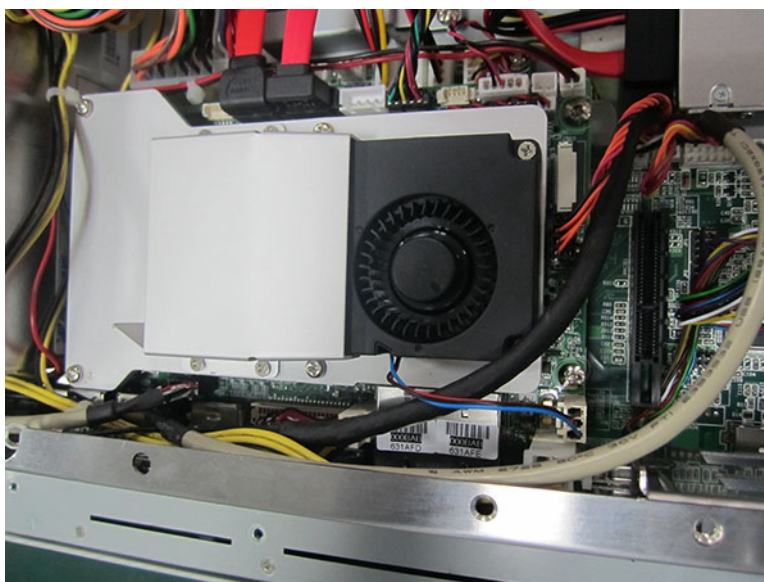
Figure 2.35

6. Connect the USB cable. (See Fig2.36)
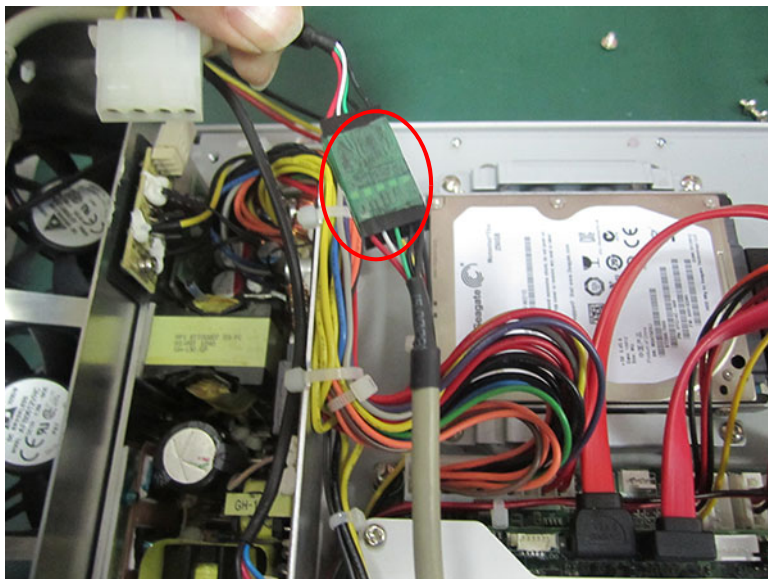
Figure 2.36

7. Lock the reinforced board and connect the fan cable, and check if the left system fan cable is connected well. (See Fig 2.37)
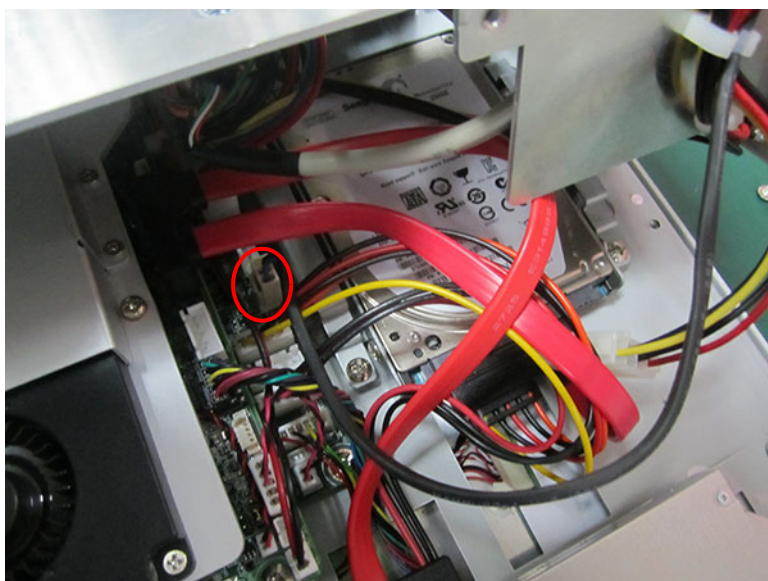
Figure 2.37

8. Lock the reinforced board, riser card and rear cover to complete the installation.

2.7 Install Riser Card

 (See the appendix for card image)

When using PCM-916, users need to configure PPCIEx1 interface as"PCIE x4" Mode.

When using PCM-917/918/920, users need to configure PPCIEx1 interface as "PCIE x1" Mode

For PPCIE interface configuration, please refer to "PCIE Mode Selection (x1, x4)" in "BIOS Configuration" chapter.

1. Remove the rear cover of panel PC.
2. Insert the riser card into the slot, and lock the two screws.(See Figure 2.38)
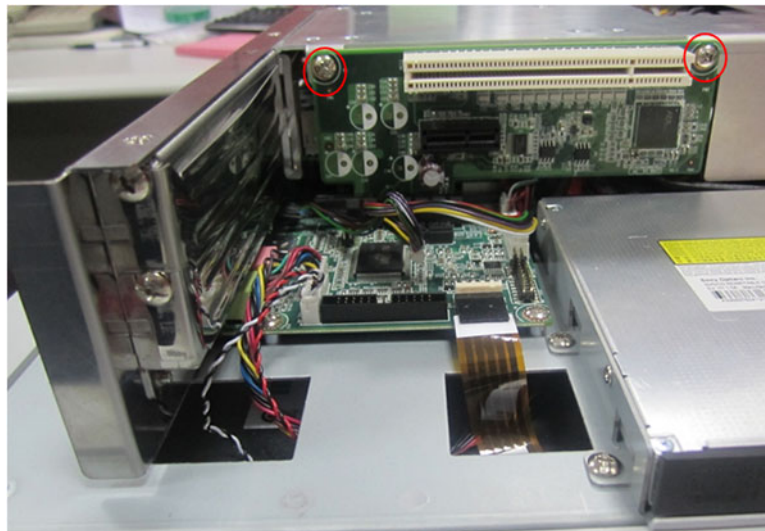
Figure 2.38

3. Remove the card slot back plate, and insert the needed card (See Fig 2.33), then fixed the screws and return back the rear cover.
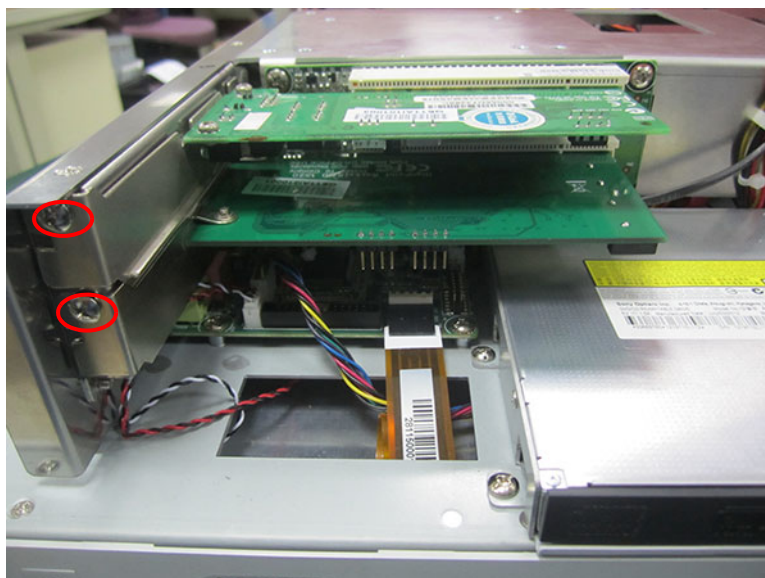
Figure 2.39

2.8 Panel Mount Bracket Installation

Please follow the figures below:
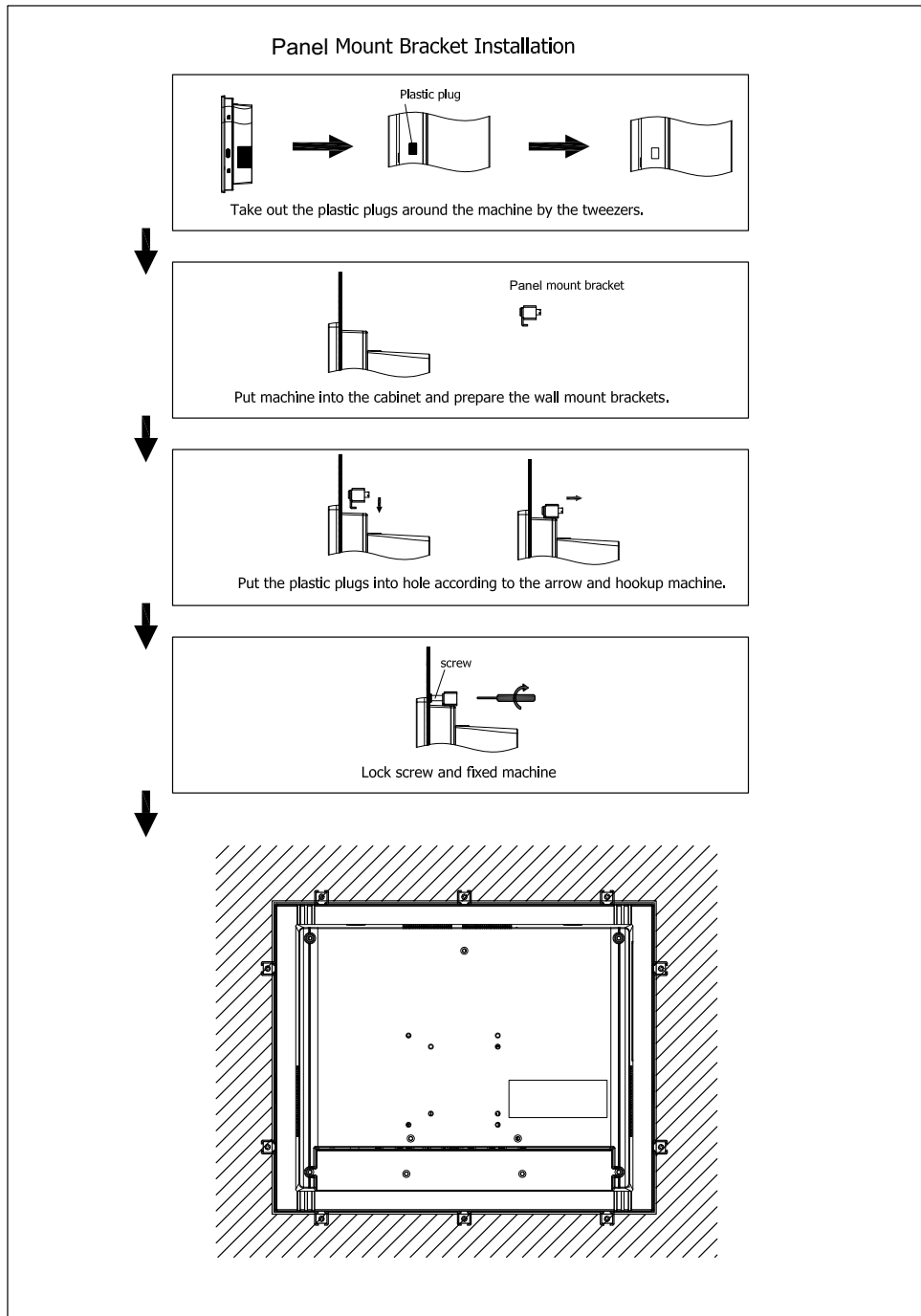
Figure 2.40

2.9 Power Cable Bracket Installation

1. Insert the power cable into the power interface.

Figure 2.41

2. Lock the power cable bracket onto the machine which is shown as the figure below. 2 M3X5 2 screws

Figure 2.42

3. When using power bracket, please select the power cable with correct connecter. The dimension of the bracket is shown as below:
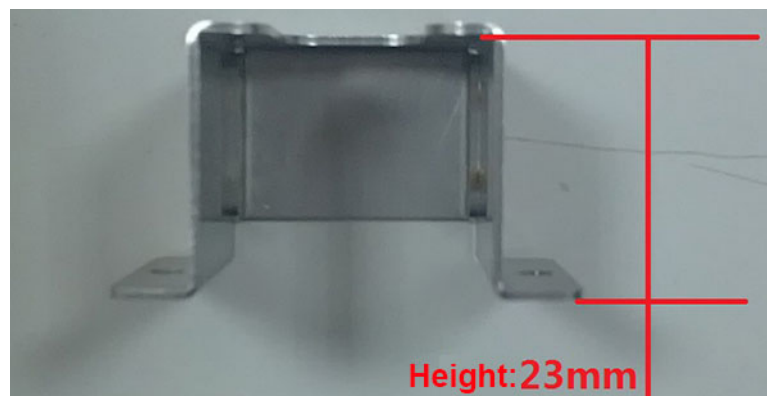
Chapter 3

Jumper Configuration

Sections include:

- **Jumper & Connectors**
- **Peripheral COM Port & DIO Switch and Pin Definitions**
- **Peripheral DIO and COM5 Port Switch**
- **Touchscreen Control Source Configuration**

3.1 Jumper & Connectors

3.1.1 PCM-8207
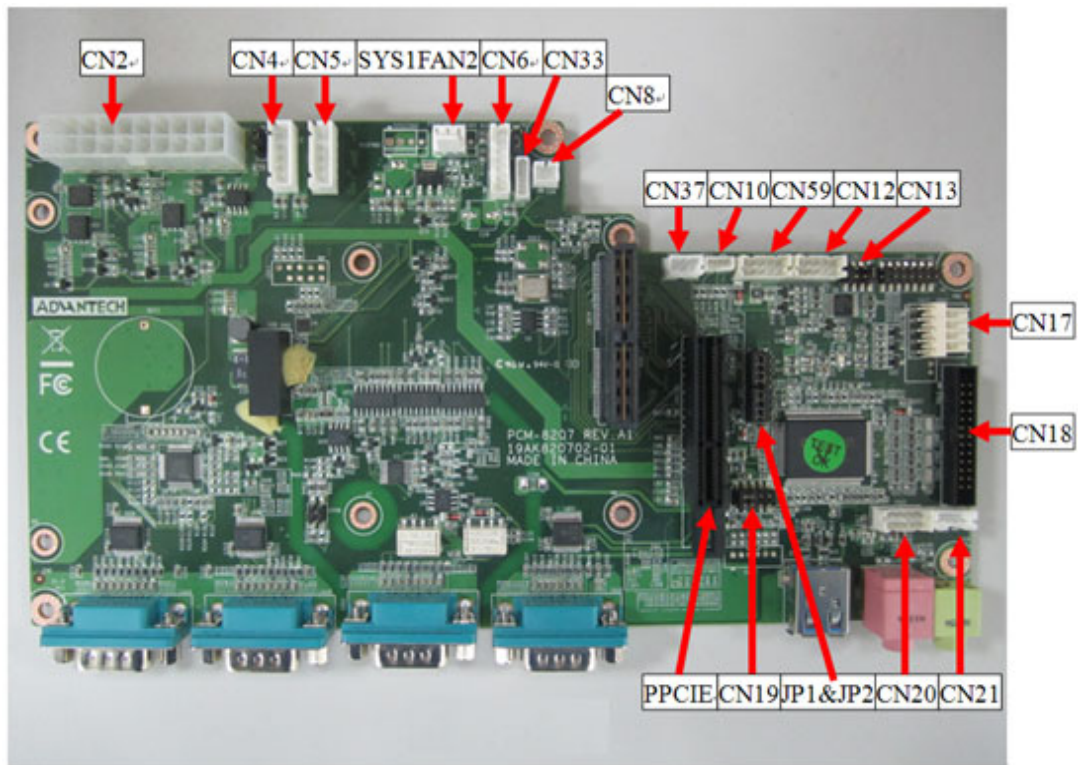
Figure 3.1 PCM-8207 front view

Connectors	Functions
CN2	ATX POWER
SYSFAN2	3PIN FAN
CN4/CN5	SATA POWER
CN33	LED driver board
CN8	Backlight enable
CN37	USB for touch
CN10	Light sense
CN59	COM5 (RS232, default for Touch)
CN12	DIO
CN13	LCD size select
CN17	Touch
CN18	LPT Port
CN21	Speaker
CN20	Audio
CN19	Pin9 power select (COM1&COM3)
JP1&JP2	Touch source select
PPCIE1	PCIEx4 (non standard)

CN13	Images	LCD Selection
(1-2)	P1	17" LCD
(3-4)	P2	15" LCD

Image P1   Image P2
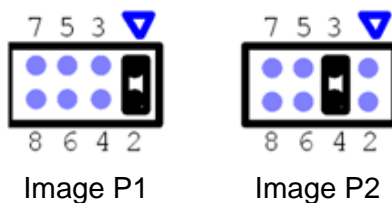
CN19	Images	COM1/COM3 Pin9 Power Selection
Configuration		**Function**
(1-3) (2-4) (Default)	P3	RI
(5-7)	P4	5 V (COM2 Pin9) (+/-10%, maximum 0.5 A)
(7-9)	P5	12 V (COM1 Pin9) (+/-10%, maximum 0.25 A)
(6-8)	P6	5 V (COM2 Pin9) (+/-10%, maximum 0.5 A)
(8-10)	P7	12 V (COM2 Pin9) (+/-10%, maximum 0.25 A)

Image P3   Image P4   Image P5   Image P6   Image P7
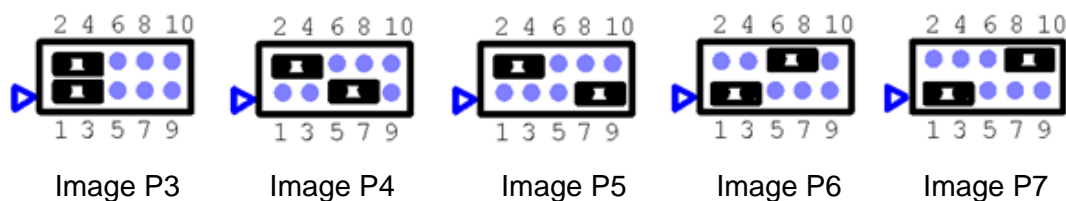
JP1&JP2	Images	Touch Source Selection
JP1 (5-9), JP1 (6-10) JP1 (7-11), JP1 (8-12) JP2 (1-5), JP2 (2-6) JP2 (3-7), JP2 (4-8)	P8 (Default)	COM5 control
JP1(1-5), JP1 (2-6) JP1 (3-7), JP1 (4-8) JP2(5-9), JP2 (6-10) JP2(7-11), JP1 (8-12)	P9	USB control
COM Port (default)		USB interface

Image P8   Image P9
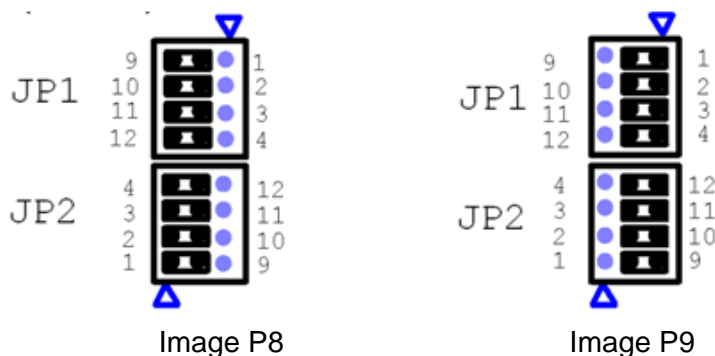
3.1.2 MIO-5290

Top
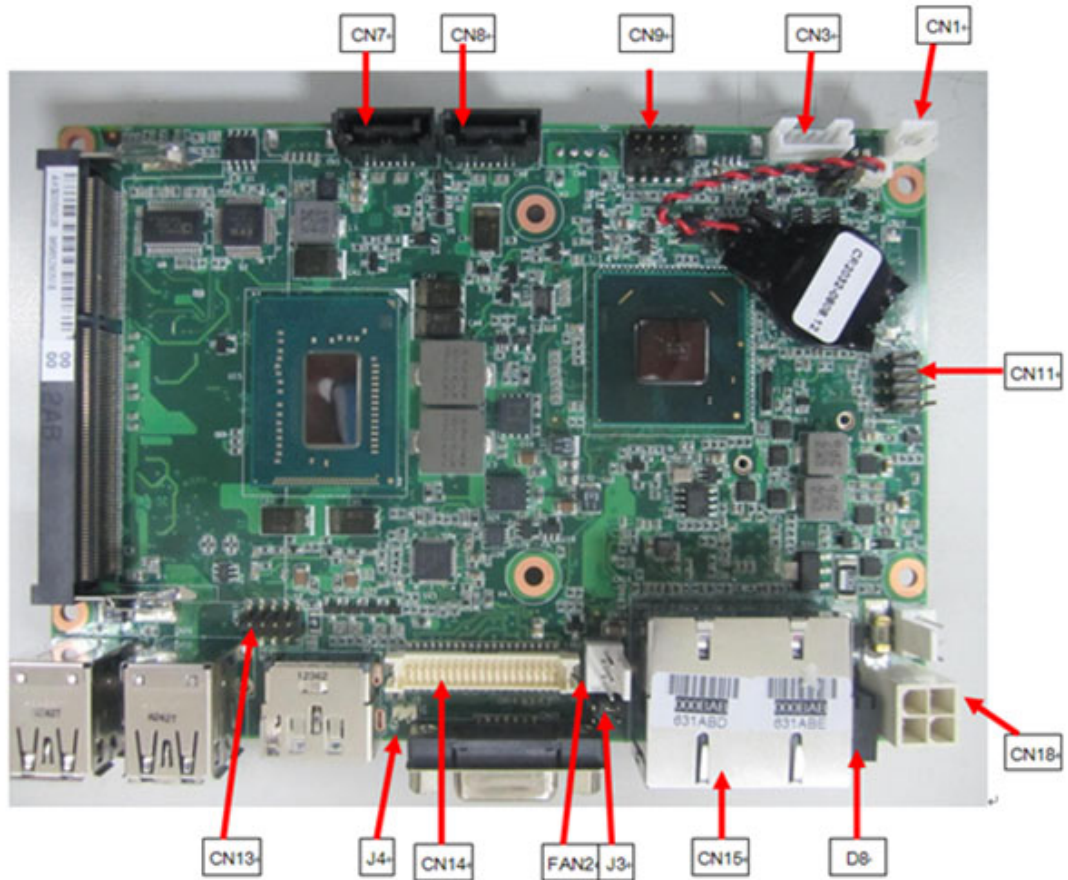
Figure 3.2 MIO-5290 front view

Bottom
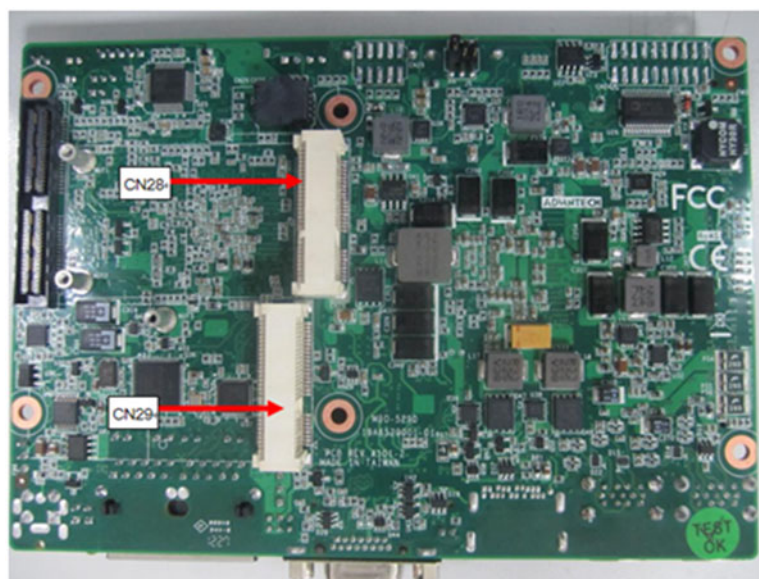
Figure 3.3 MIO-5290 rear view

Connectors	Functions
CN12	Memory
CN7/CN8	SATA
CN9	Audio
CN3	Backlight enable
CN1	Power button
J1	Clear CMOS
J2	ATX&AT select
CN11	LED board
FAN1	CPU FAN
FAN2	Power FAN
CN18	ATX 4PIN 12V POWER
CN14	LVDS
J3	LVDS Power select
J4	DDR3 POWER select
CN13	USB
CN28	Full Mini PCIE or Mini SATA (Selected by BIOS)
CN29	Half Mini PCIE

J1	**Images**	**For Clear CMOS**
Configuration		**Functions**
(1-2)	P10	Keep CMOS (Default)
(2-3)	P11	Clear CMOS

Image P10   Image P11
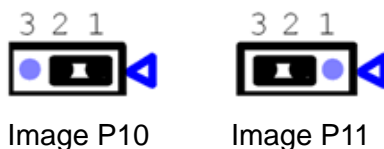
J2	**Images**	**For ATX & AT Select**
Configuration		**Functions**
On(1-2)	P12	AT mode
OFF(1-2)	P13	ATX mode (Default)

Image P12   Image P13
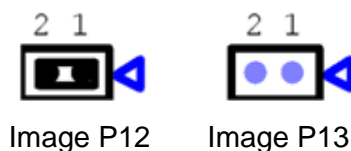
J3	**Images**	**For LVDS Power Select**
Configuration		**Functions**
(1-3)	P14	15"LCD mode
(3-5)	P15	17"LCD mode

Image P14   Image P15
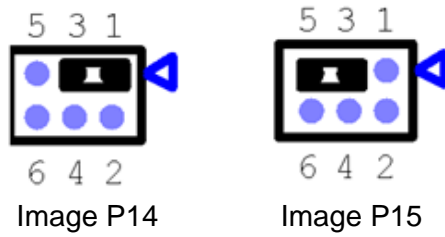
J4	Images	For DDR3 Power Select
Configuration		**Functions**
On (1-2)	P15	DDR3L mode
OFF (1-2)	P16	DDR3 mode (Default)

Image P16   Image P17
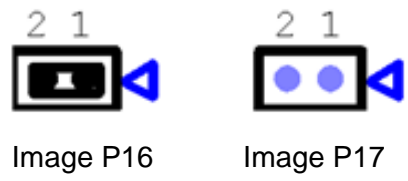
3.2 External COM PORT & DIO Switch and PIN Definition

(Open the rear cover before configuration)
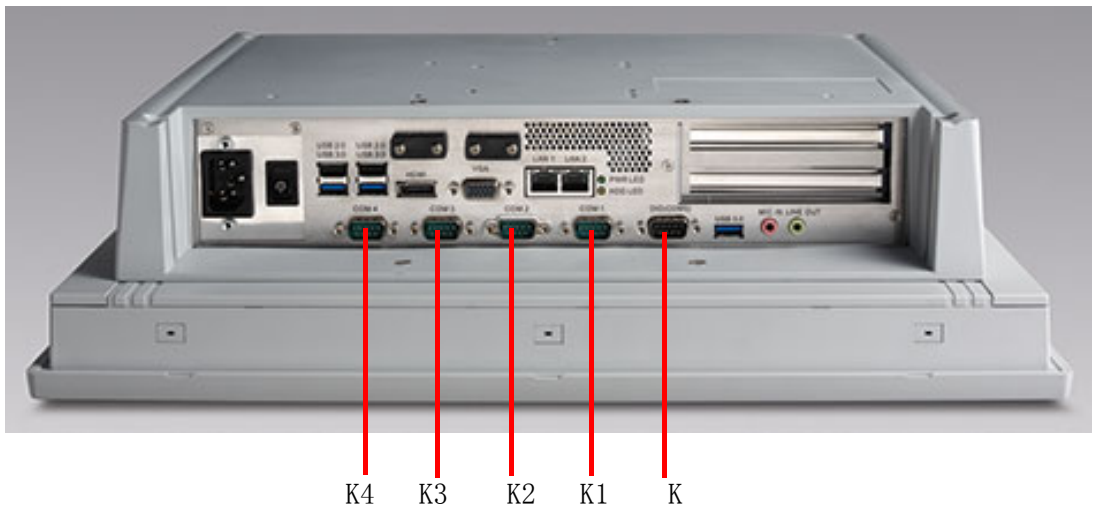
Figure 3.4 COM ports

K: DIO / COM5 port (by swapping pin header)

K1: COM1(RS232, pin9 supports 5 V/12 V output)

K2: COM2(RS232/422/485, with isolation)

K3: COM3(RS232, pin9 supports 5 V/12 V output)

K4: COM4 (RS232)

COM2:

1. The operation mode can be either RS232/422/485, selected by BIOS. (For details, please refer to "232/422/485 COM PORT" in "BIOS Configuration" chapter.

2. This port is designed with isolation function (1000 V_{DC}).

DIO:

1. Operation voltage 5 V+/-10%.
2. 8 bit parallel input and output port.
3. Control signal is SMBUS.
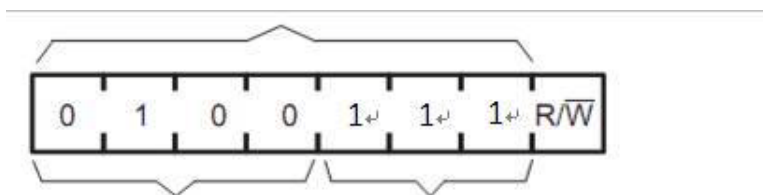
External COM PORT & DIO PIN definition:
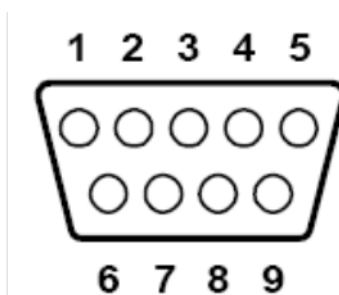
Ports	Functions			
Pin	RS232	RS422	RS485	DIO
1	DCD	422_TXD-	485_Data-	GND
2	RXD	422_TXD+	485_Data+	GPIO4
3	TXD	422_RXD+		GPIO0
4	DTR	422_RXD-		GPIO5
5	GND	GND		GPIO1
6	DSR			GPIO6
7	RTS			GPIO2
8	CTS			GPIO7
9	RIC			GPIO3

3.3 External Port DIO and COM5 Switch
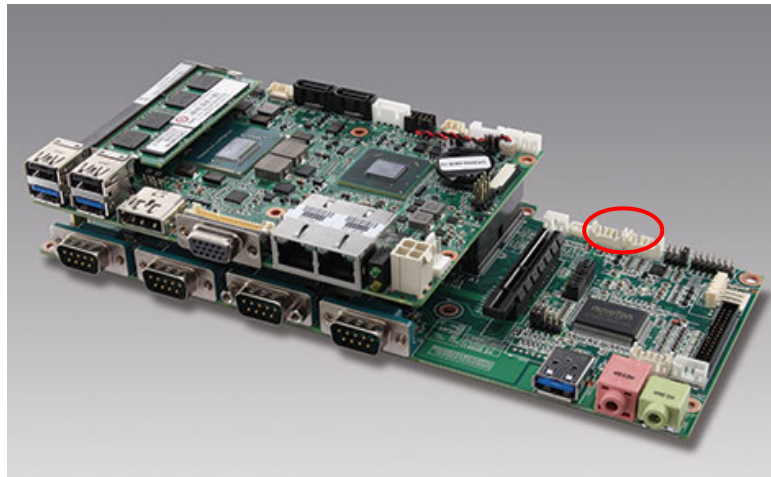
1. Configure the external port as DIO (default).

?
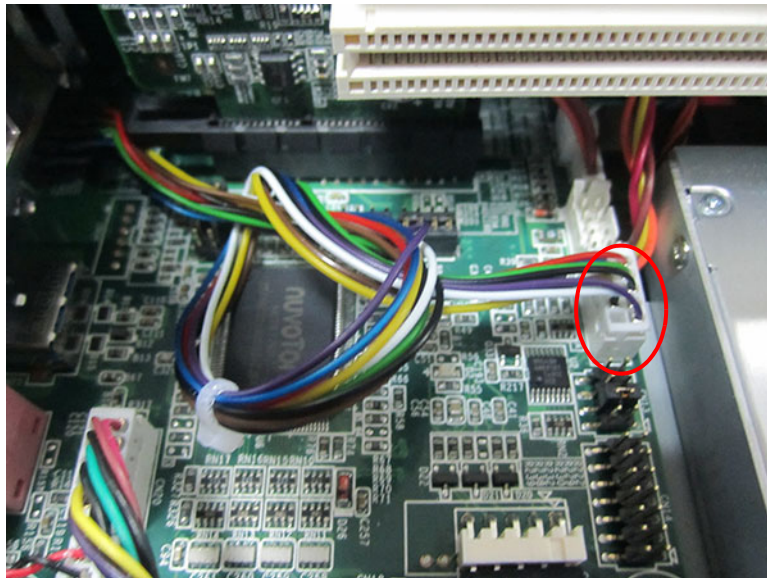
Figure 3.5

2. Configure the external port as COM5. (See Fig 3.6)
   a. Configure JP1 and JP2 as shown in Fig 3.6. (This configuration will change touchscreen's control source as USB, and the system needs to reinstall touch-screen driver.)
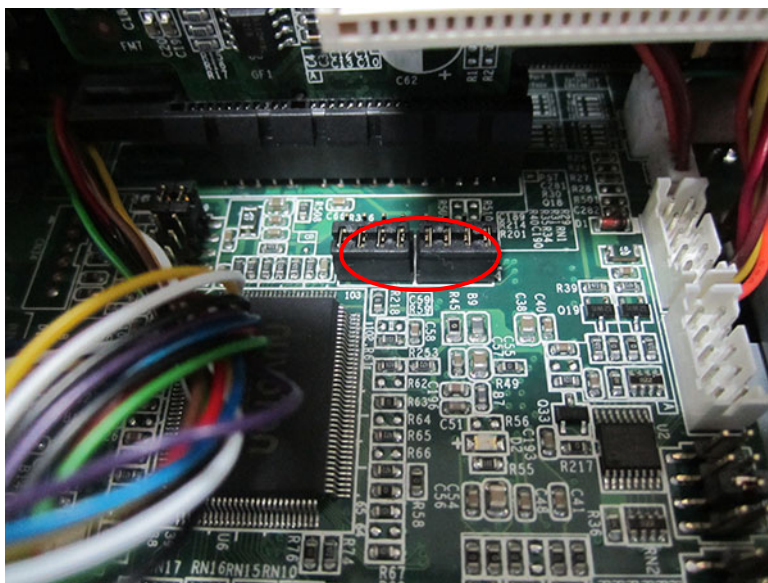
Figure 3.6

b. Connect the cable to COM5. (See Fig 3.7)
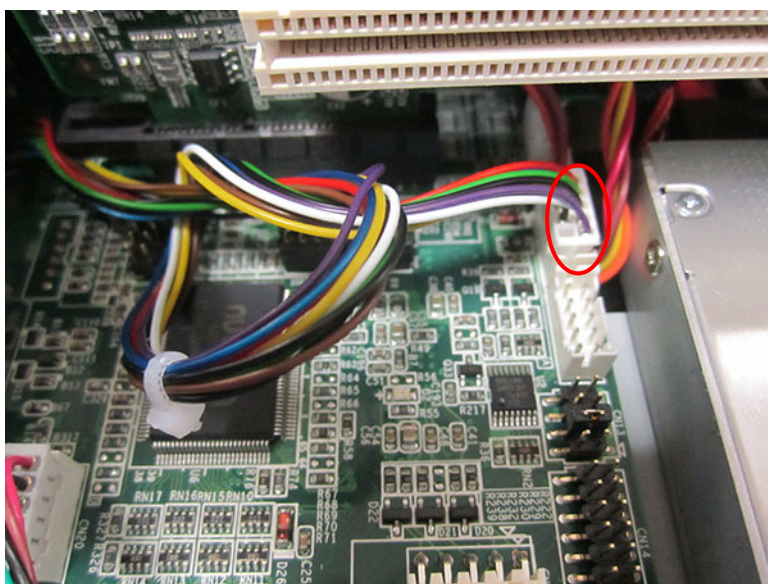
Figure 3.7

3.4 Touchscreen Control Source Configuration

(Open the rear cover first)

1. Use COM5 port to control touchscreen. (Default)

   Take down DIO cable, and configure JP&JP2 as shown in Fig 3.8, then insert the DIO cable.
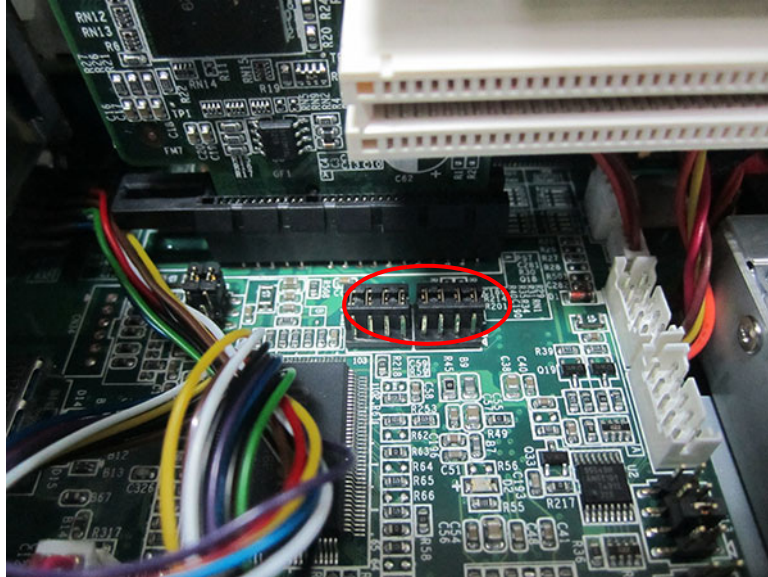
Figure 3.8

2. Use USB to control touchscreen.

   Take down DIO cable, and configure JP&JP2 as shown in the figure below, then insert the DIO cable.
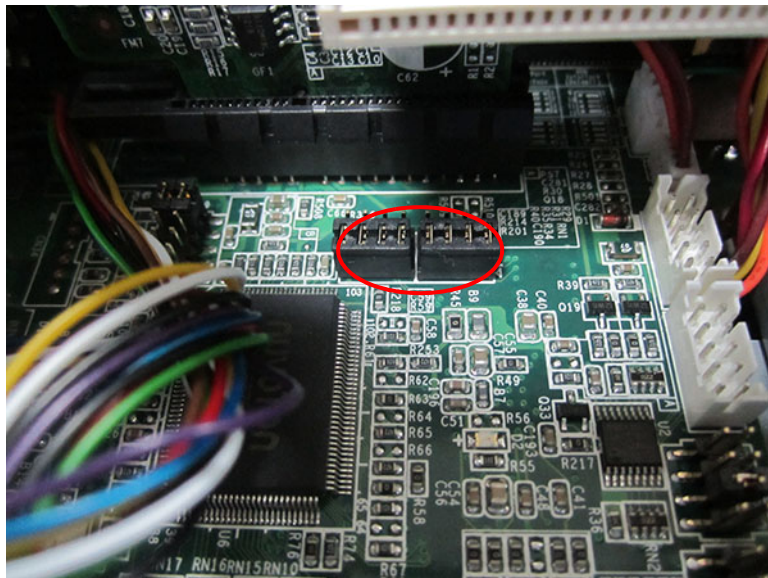
Figure 3.9

Chapter 4

Software Configuration

Sections include:
- Install Drivers
- BIOS Setup Program

4.1 Install Divers

When first using the system, users need to set up corresponding drivers, in order to ensure all functions are normal. Please take out the CD-ROM from the accessory box and open it in the system, the below folder will be shown:

Figure 4.1 Divers in the CD-ROM

All needed drivers are included in the CD-ROM, both Windows 7 and Windows XP systems can be used in all drivers except VGA.

Intel RAID_AHCI: All drivers needed to install during RAID assembly

PPC Backlight Adjustment Tool: Customers can use this program to adjust the LCD brightness in the system to optimize the display effect. For details please refer to "User manual" in this folder.

User manual: E-record of the user manual for this machine.

Please follow the instructions to install the drivers. The drivers in the accompanied CD-ROM may not be the latest version, if needed, please find it at:

http://www.advantech.com.cn/

4.2 BIOS Setup

4.2.1 Enter BIOS

Start the computer and press "Delete" key to enter BIOS.

Press "F4" to save and exit after any configuration, or the configuration won't be saved in BIOS.

```
              Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
       Main  Advanced  Chipset  Boot  Security  Save & Exit

       BIOS Information                                        Set the Date. Use Tab to
       BIOS Vendor                    American Megatrends      switch between Date elements.
       Core Version                   4.6.5.3   0.17 x64
       Compliancy                     UEFI 2.3
       Project Version                PCM 8207XP16
       Build Date and Time            01/23/2013 14:56:44
       Total Memory                   8192 MB (DDR3)
       Memory Frequency               1600 Mhz


       System Date                    [Thu 01/24/2013]
       System Time                    [09:02:07]

       Access Level                   Administrator            →←: Select Screen
                                                               ↑↓: Select Item
                                                               Enter: Select
                                                               +/-: Change Opt.
                                                               F1: General Help
                                                               F2: Previous Values
                                                               F3: Optimized Defaults
                                                               F4: Save & Exit
                                                               ESC: Exit



              Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.       B4
```

4.2.2 ATX & AT Mode Setup

1.   Select "PCH-IO Configuration" under "Chipset".

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
     Main  Advanced  Chipset  Boot  Security  Save & Exit

▶ PCH-IO Configuration                                    PCH Parameters
▶ Brightness Control




                                                          ↔: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit



          Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```
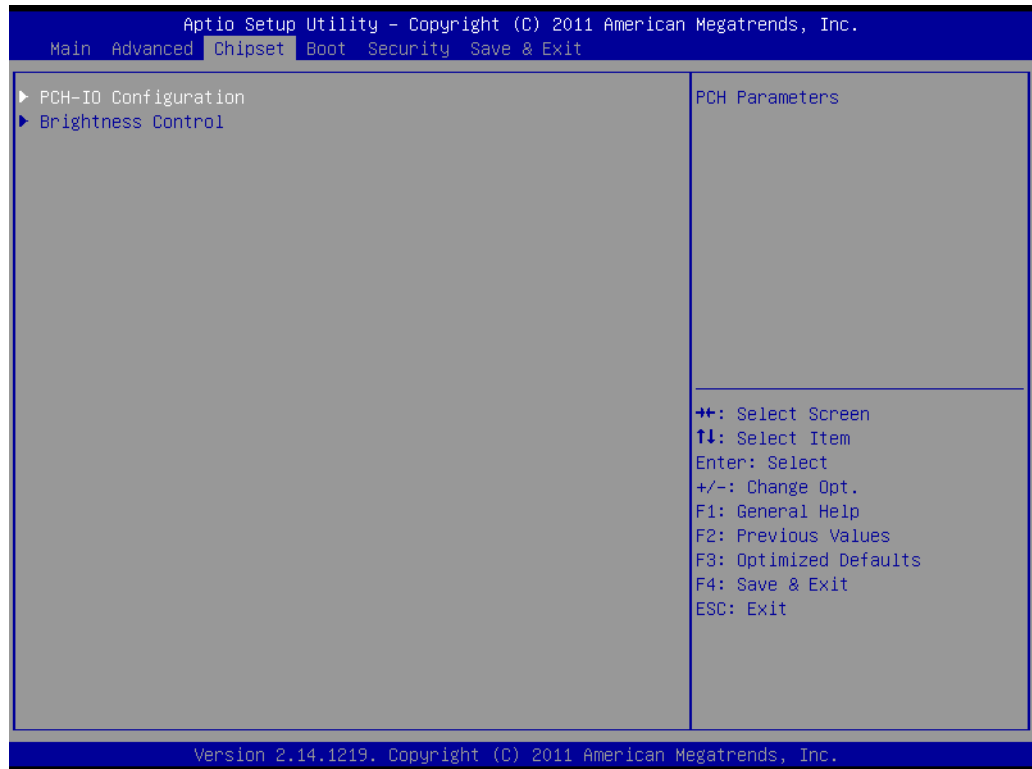
2.   Configure "Restore AC Power Loss" as "Power On".

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
                  Chipset

 Intel PCH SKU Name              QM77                Select AC power state when
                                                     power is re-applied after a
 MINI Card/M-SATA               [M-SATA]             power failure.
 Restore AC Power Loss          [Power Off]
 PCIE Port Configuration        [PCIE X1]
 Wake on PCIE/RI                [Disabled]


                        ── Restore AC Power Loss ──
                        Power Off
                        Power On                     ↔: Select Screen
                        Last State                   ↓: Select Item
                                                     nter: Select
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit



          Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

4.2.3   Display Brightness Adjustment

Select "Chipset" under "Brightness Control".

A.Manual Adjustment Mode

"LCD Brightness Control" is configured as "Manual Mode" by default.

Select "Brightness Manual Control" under "Brightness Control", and there will be 6 options:
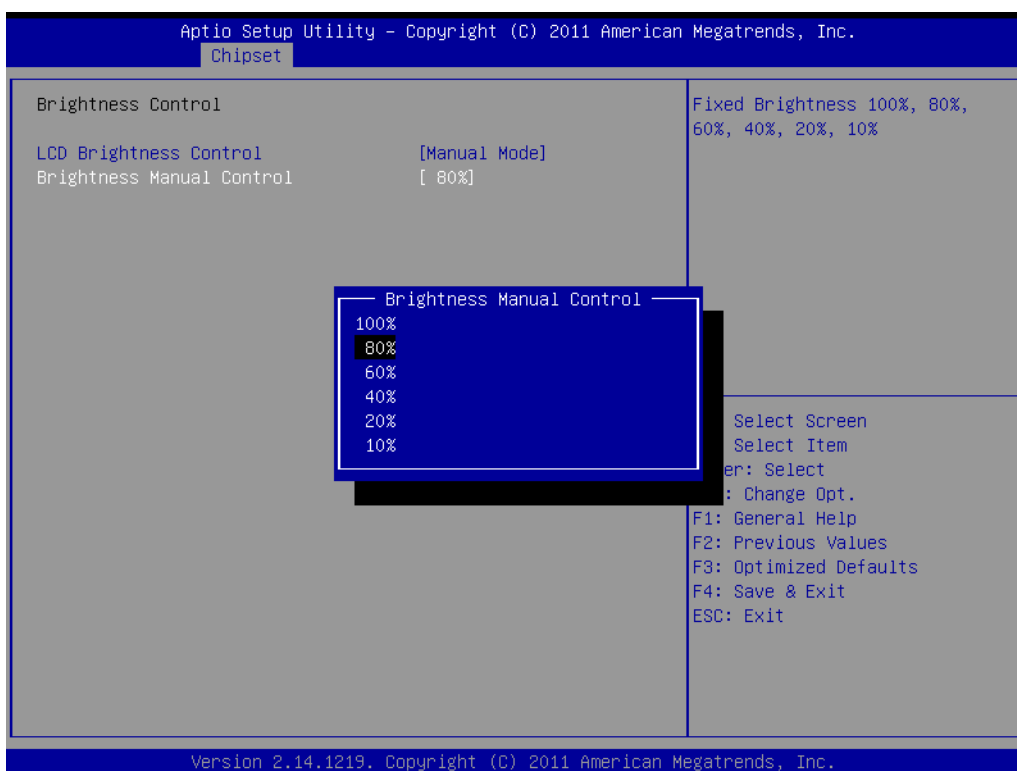
B. Auto Sensor Adjustment Mode

"LCD Brightness Control" is configured as "Dynamic Mode", that is, auto sensor adjustment mode.

Then the machine will automatically adjust the LCD brightness from sensor points.

```
         Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
                    Chipset

  Brightness Control                                    Manual or Dynamic Control
                                                        Dynamic mode: Adjust the
  LCD Brightness Control              [Manual Mode]     brightness automatically by
  Brightness Manual Control           [ 80%]           light sensor




                        ┌──── LCD Brightness Control ────┐
                        │ Manual Mode                    │
                        │ Dynamic Mode                   │
                        │                      →: Select Screen
                        │                      ↓: Select Item
                                               Enter: Select
                                               +/-: Change Opt.
                                               F1: General Help
                                               F2: Previous Values
                                               F3: Optimized Defaults
                                               F4: Save & Exit
                                               ESC: Exit




         Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

4.2.4 COM 232/422/485 Port

1. Select "Advanced" under "Super IO Configuration".

```
         Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
     Main  Advanced  Chipset  Boot  Security  Save & Exit

  Legacy OpROM Support                                  System Super IO Chip
  Launch PXE OpROM policy             [Do not launch]   Parameters.
  Launch Storage OpROM policy         [Legacy only]

▶ ACPI Settings
▶ Trusted Computing
▶ CPU Configuration
▶ SATA Configuration
▶ AMT Configuration
▶ USB Configuration
▶ Embeded Controller Configuration
▶ Super IO Configuration

                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit



         Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

2.   Then Select "Serial Port 2 Configuration".

```
            Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
   Advanced

 Super IO Configuration                                   Set Parameters of Serial Port
                                                          2 (COMB)
▶ Serial Port 1 Configuration
▶ Serial Port 2 Configuration
▶ Serial Port 3 Configuration
▶ Serial Port 4 Configuration
  System Fan Control              [Smart Fan]




                                                          →←: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit




            Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

3.   Then you can select the operation mode of COM2 by "Serial Port2 Mode".

```
            Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
   Advanced

  Serial Port 2 Configuration                             Allows BIOS to Select mode for
                                                          Serial Port2.
  Device Settings                  IO=2F8h; IRQ=3;

  Serial Port2 Mode                [RS232]




                          ┌─── Serial Port2 Mode ───┐
                          │ RS232                    │
                          │ RS422                    │     →←: Select Screen
                          │ RS485                    │     ↑↓: Select Item
                          └──────────────────────────┘     Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit




            Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

4.2.5 MiniPCIE & MiniSATA Configuration Method

1. Select "Chipset" under "PCH-IO Configuration".

```
               Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
        Main  Advanced  Chipset  Boot  Security  Save & Exit

   ▶ PCH-IO Configuration                                      PCH Parameters
   ▶ Brightness Control




                                                              →←: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F2: Previous Values
                                                              F3: Optimized Defaults
                                                              F4: Save & Exit
                                                              ESC: Exit




               Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

2. Then select "MINI Card/M-SATA".

```
               Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
                         Chipset

   Intel PCH SKU Name              QM77                        MINI Card/M-SATA select

   MINI Card/M-SATA                [M-SATA]
   Restore AC Power Loss           [Power Off]
   PCIE Port Configuration         [PCIE X1]
   Wake on PCIE/RI                 [Disabled]




                                                              →←: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F2: Previous Values
                                                              F3: Optimized Defaults
                                                              F4: Save & Exit
                                                              ESC: Exit



               Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```
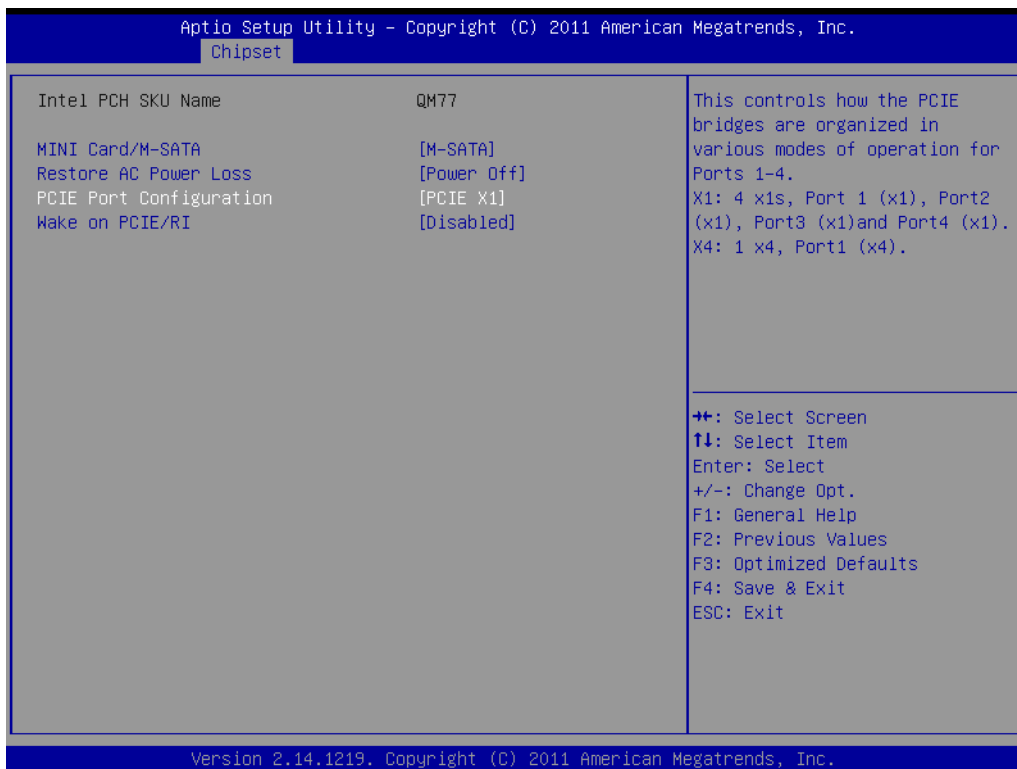
3. Enter and select MINI PCIE type.
    Mini Card: CN28 is of Mini PCIE interface.
   M-SATA: CN28 is of Mini SATA interface.

```
            Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
              Chipset

 Intel PCH SKU Name                    QM77                    MINI Card/M-SATA select

 MINI Card/M-SATA                      [M-SATA]
 Restore AC Power Loss                 [Power Off]
 PCIE Port Configuration               [PCIE X1]
 Wake on PCIE/RI                       [Disabled]




                            ┌──── MINI Card/M-SATA ────┐
                            │ MINI Card                │
                            │ M-SATA                   │
                            └──────────────────────────┘     →←: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F2: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Exit
                                                             ESC: Exit



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```

4.2.6 PCIE Mode Select (x1, x4)

1. Select "Chipset" under "PCIE Port Configuration".

```
            Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
              Chipset

 Intel PCH SKU Name                    QM77                    This controls how the PCIE
                                                               bridges are organized in
 MINI Card/M-SATA                      [M-SATA]                various modes of operation for
 Restore AC Power Loss                 [Power Off]             Ports 1-4.
 PCIE Port Configuration               [PCIE X1]               X1: 4 x1s, Port 1 (x1), Port2
 Wake on PCIE/RI                       [Disabled]              (x1), Port3 (x1)and Port4 (x1).
                                                               X4: 1 x4, Port1 (x4).






                                                             →←: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F2: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Exit
                                                             ESC: Exit




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```

2. Enter and select PCIE mode as x1 or x4.

PCIE X1: PPCIEX1 interface includes 4 PCIEx1 interface. (Users need to set this mode when using PCM-917/918/920)

PCIE X4: PPCIEX1 interface includes 1 PCIEx4 interface. (Users need to set this mode when using PCM-916)
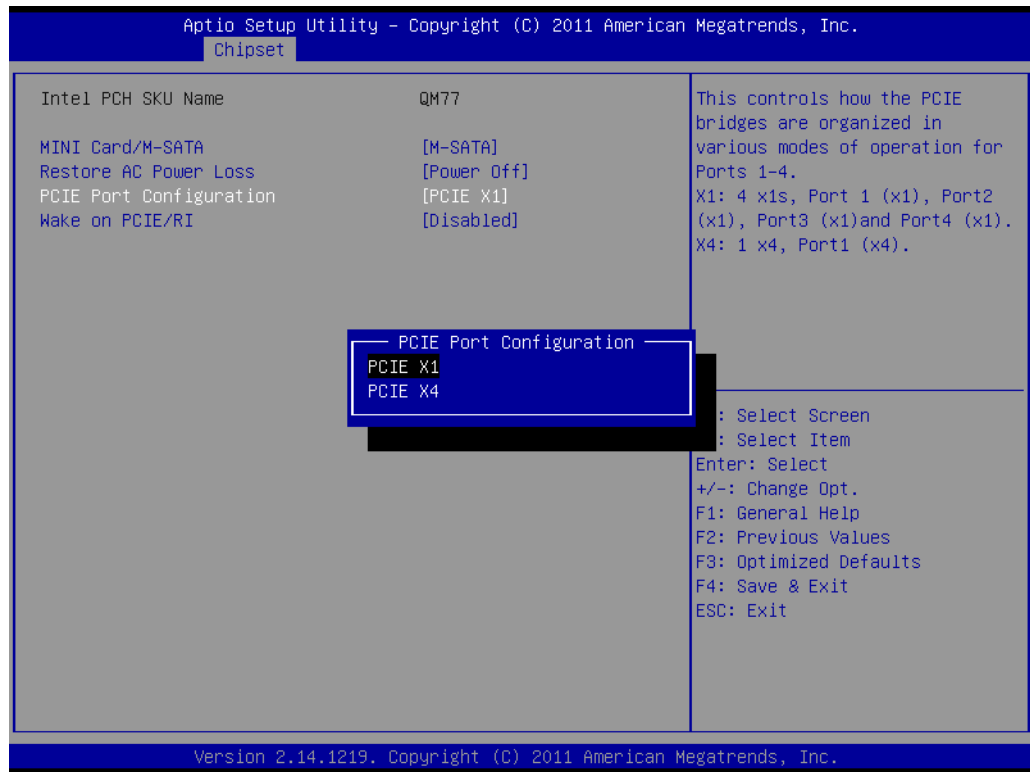
4.2.7 RAID Function Configuration

1. Select "SATA Configuration" under "Advanced".
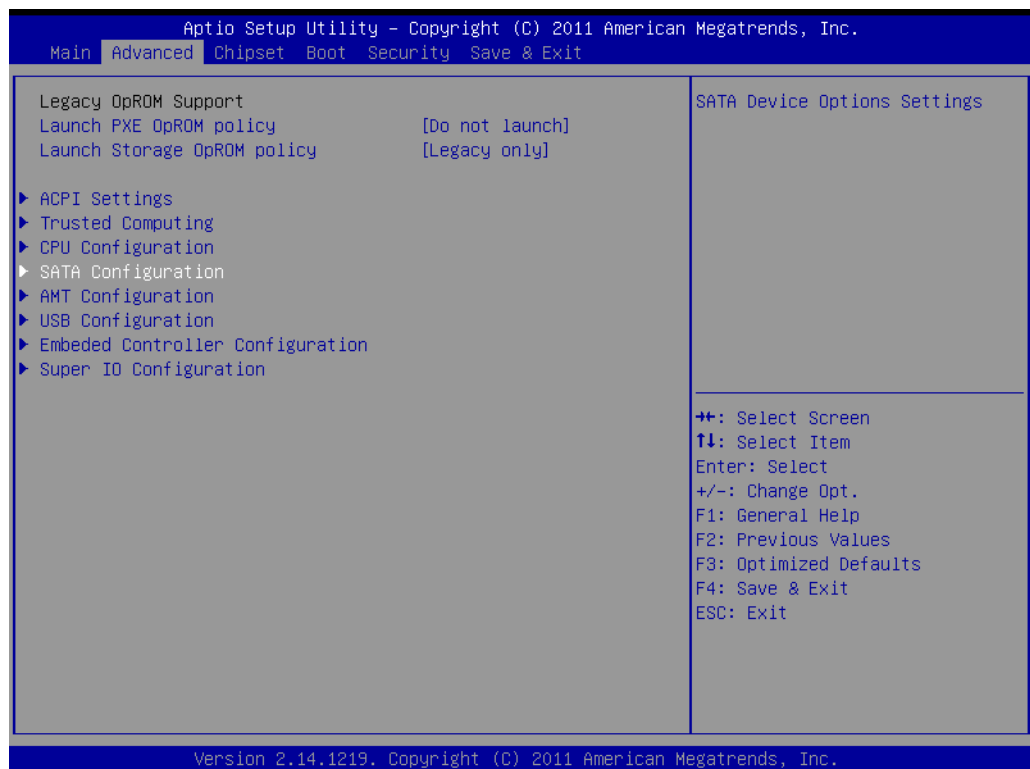
2. Then select "RAID" in "SATA Mode Selection".
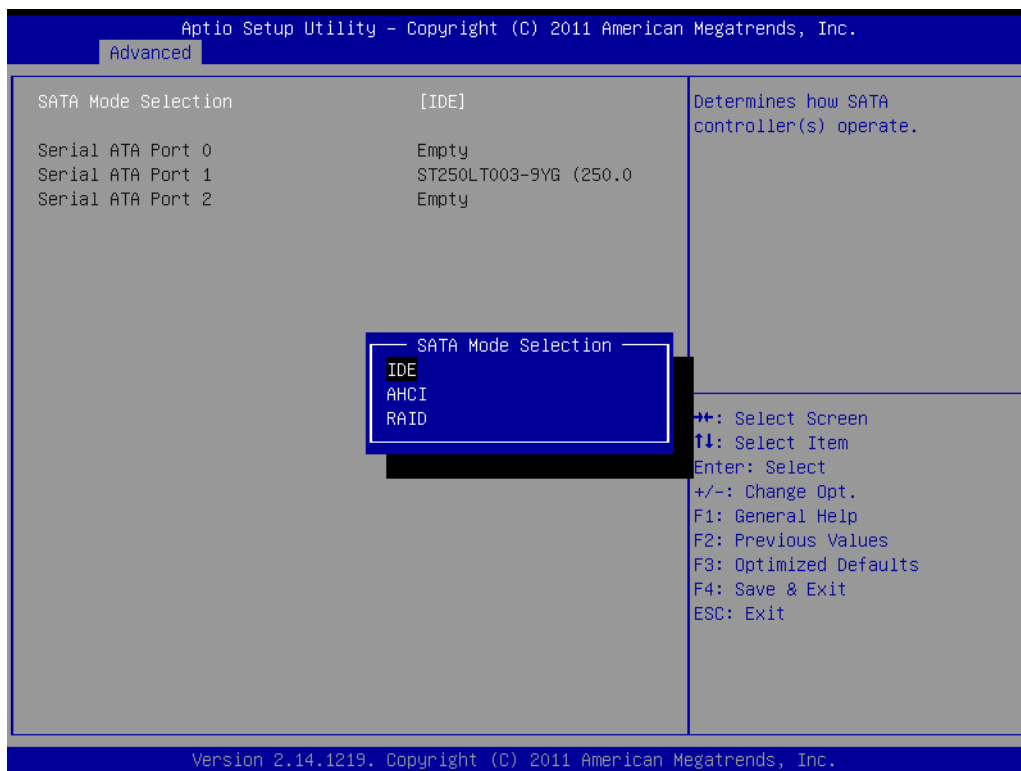
4.2.8 PCIE/RI Wakeup

1. Select "Chipset" under "PCH-IO Configuration".

2. Select "Wake on PCIE/RI" as "Enabled" under "PCH-IO Configuration".
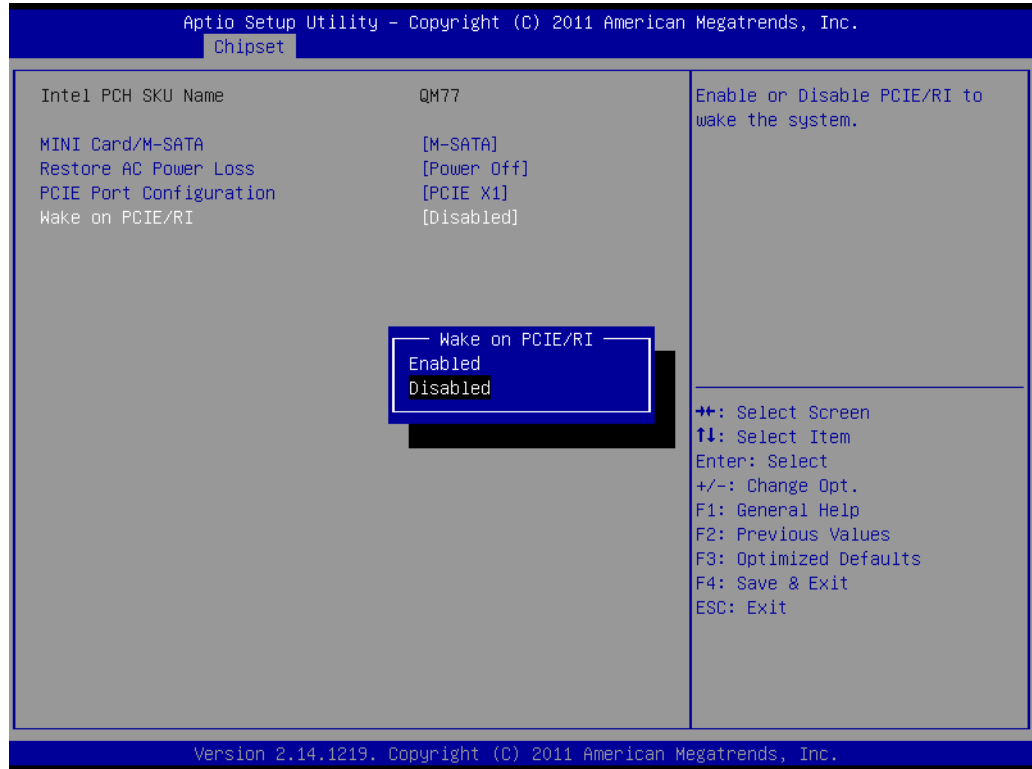
3. Open wake on LAN function in the system.

A. Open wake on LAN function in windows 7.

Right click "Computer" and select "Manage" to enter management interface, then select "Device Manager".
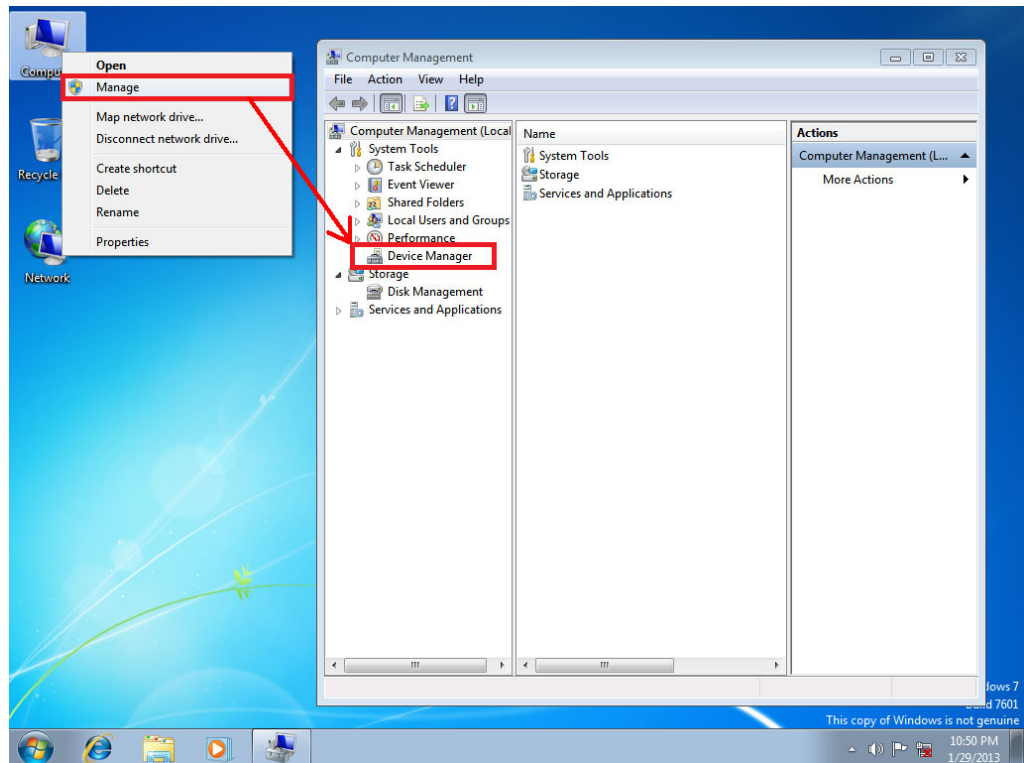
Select "Network adapters", and 2 network devices will appear.
Select any device with wake on LAN function, and right click to select "Properties".
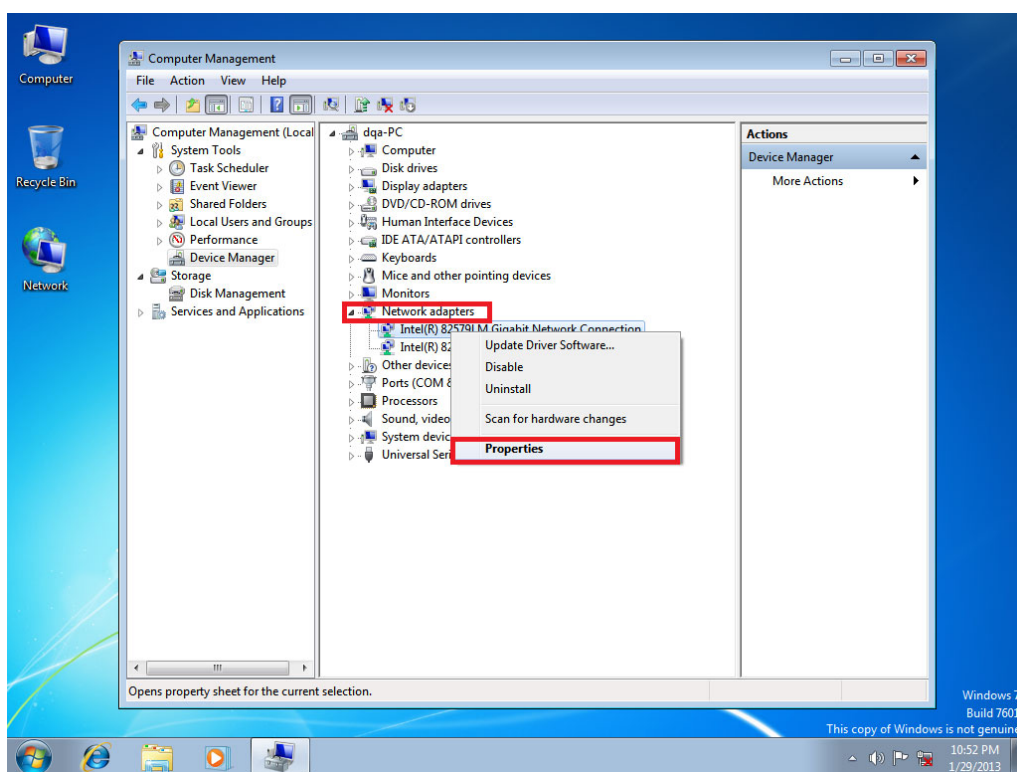
Select "Power Management", and remember to check "Wake on Magic Packet" and "Wake on Magic Packet from power off state".
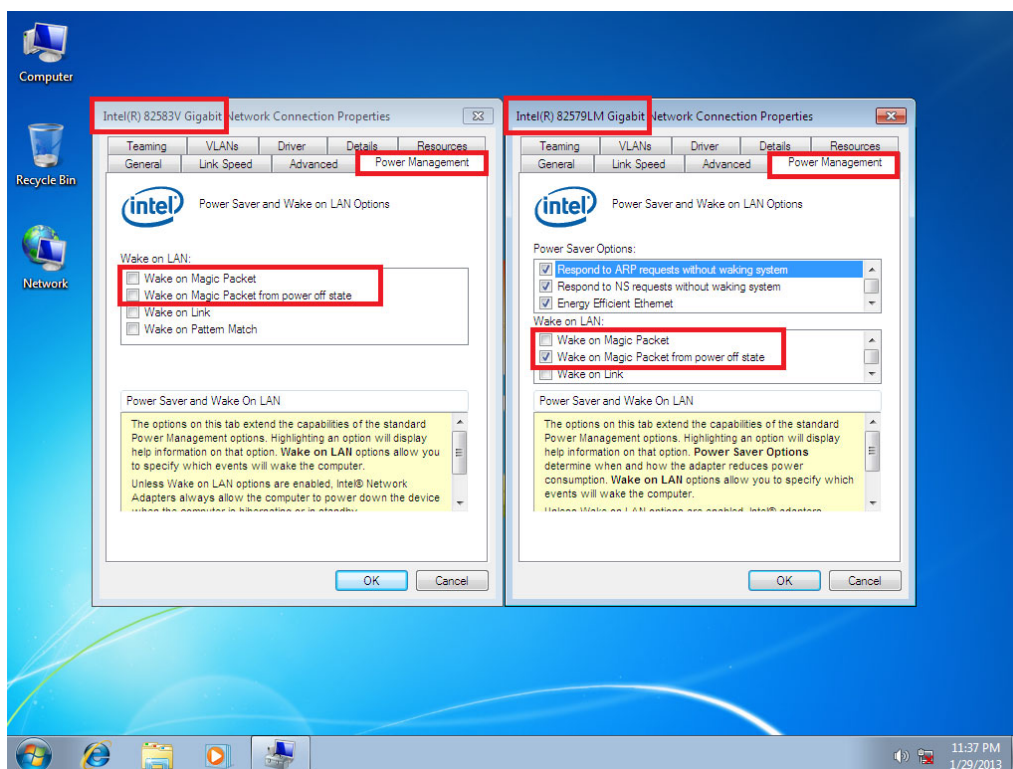
B. Open wake on LAN function in windows XP.

Right click "Computer" and select "Manage" to enter management interface, then select "Network adapters", and 2 network devices will appear.
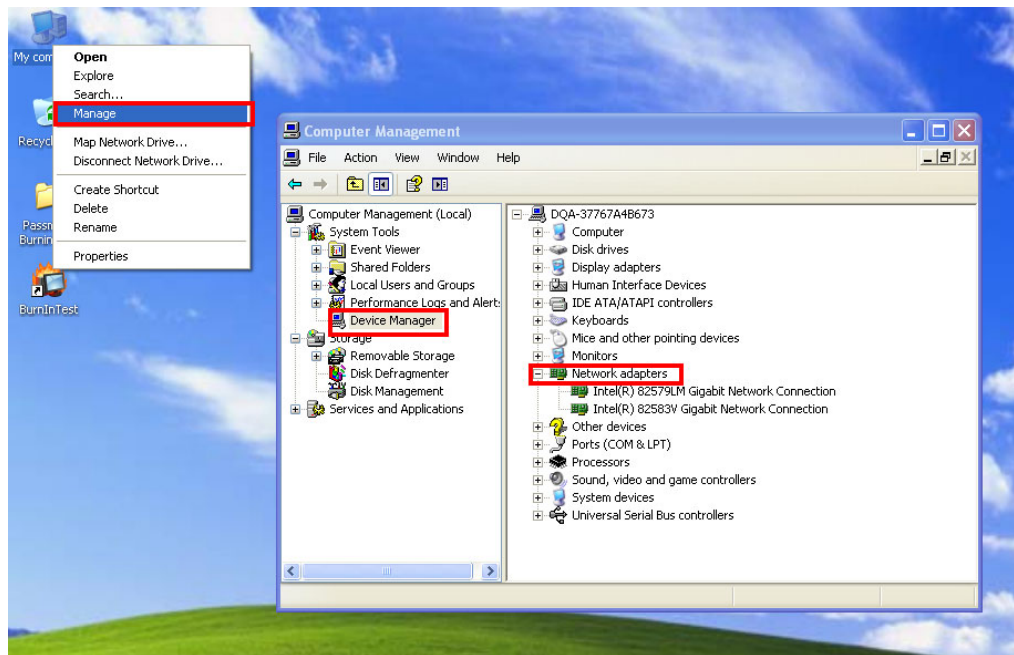
Select any device with wake on LAN function, and right click to select "Properties".
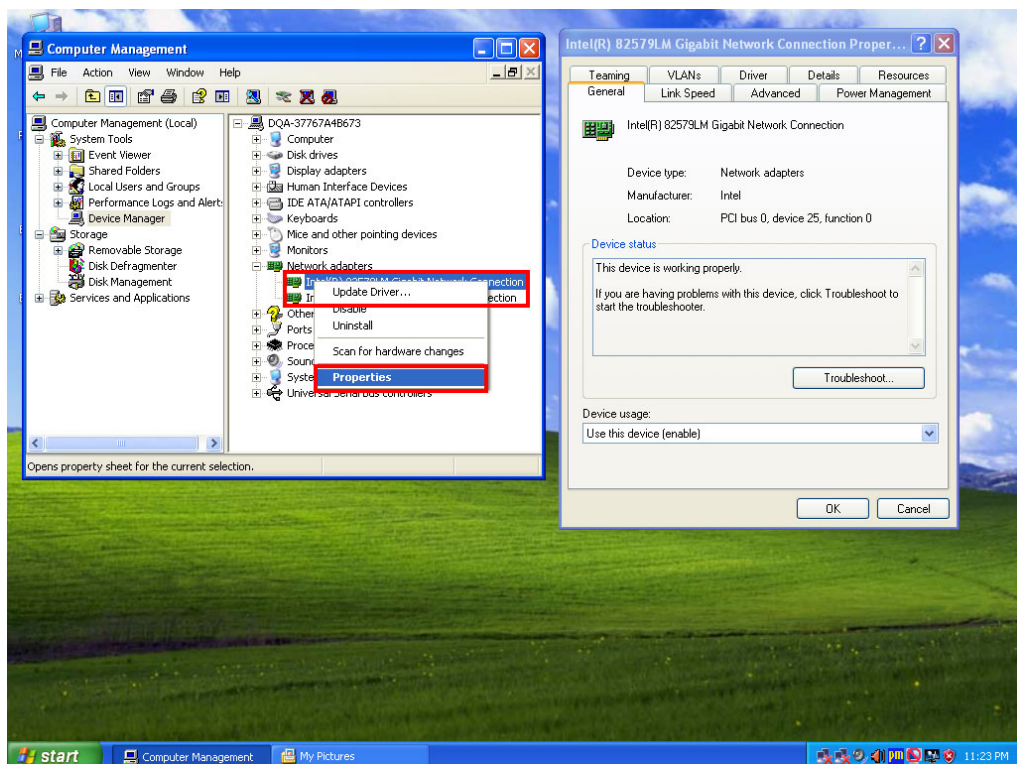
Select "Power Management", and remember to check "Wake on Magic Packet" and "Wake on Magic Packet from power off state".
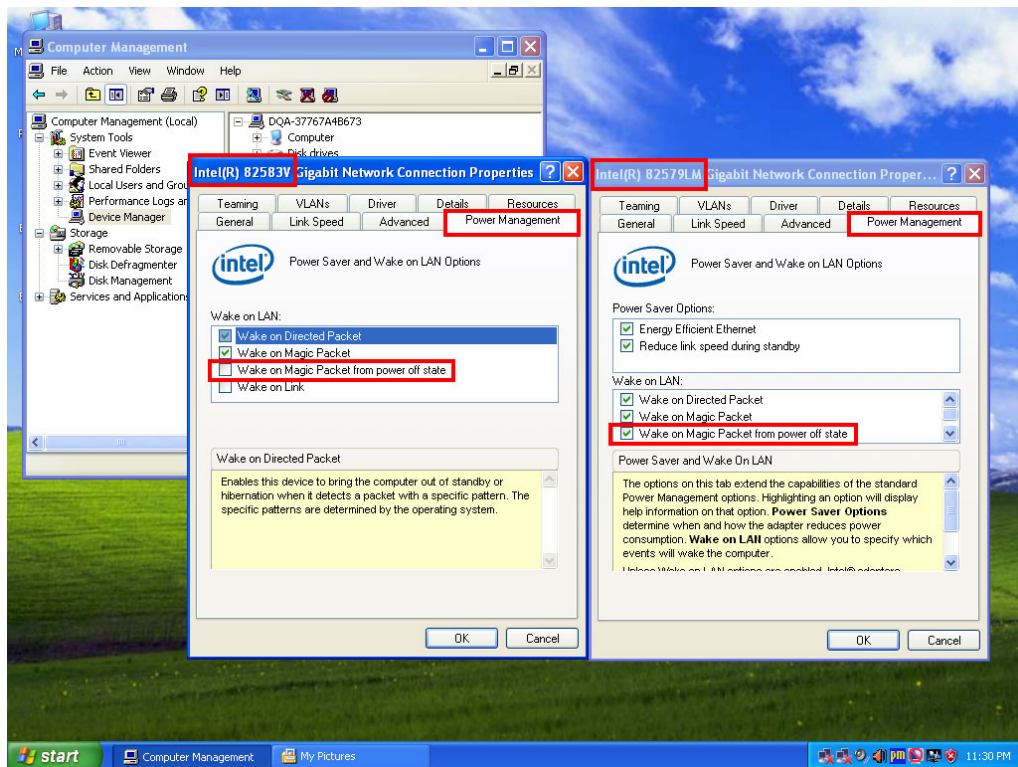
Appendix A

PCI/PCIE (Images) & Dual HDD RAID Function Configuration

A.1 PCI/PCIE (Images)

PCM-916 1-PCIEX4 slot (in the accessory box)

PCM-917 2-PCIEX1 slot (optional)
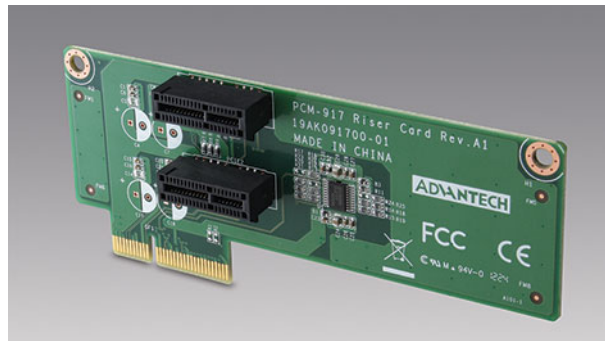
PCM-918 2-PCI32 slot (optional)
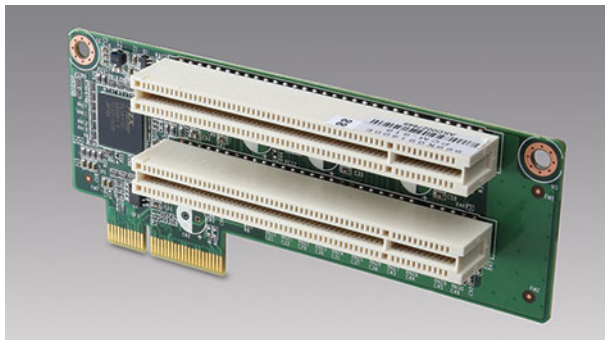
PCM-920 1-PCIEX1&1-PCI32 slot (default)
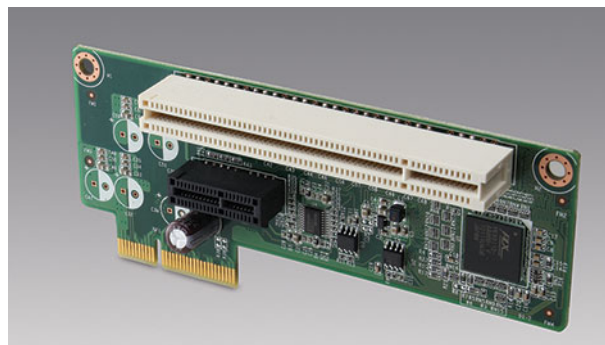
> **Note!** *The size of PCI and PCIE card can not exceed 208 mm long, and 105 mm wide.*

The total current load provided by the expansion slot is as follows:

12 V	2 A
5 V	2 A
3.3 V	3 A
-12 V	100 mA

Total output voltage of 12 V, 5 V and 3.3 V can not exceed 25 W.

A.2 Dual HDD RAID

A.2.1 Windows XP Dual HDD RAID System Installation Procedures

1. Enter BIOS and set SATA mode as RAID.
2. Please press "Ctrl+I" to enter RAID screen during bootup.
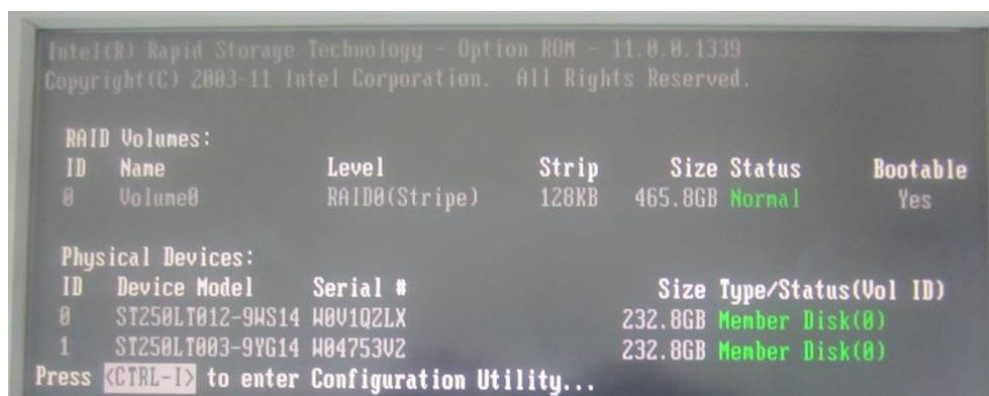
3. Select "Create RAID Volume" to create RAID.
   Users can choose RAID0 or RAID1 mode here.
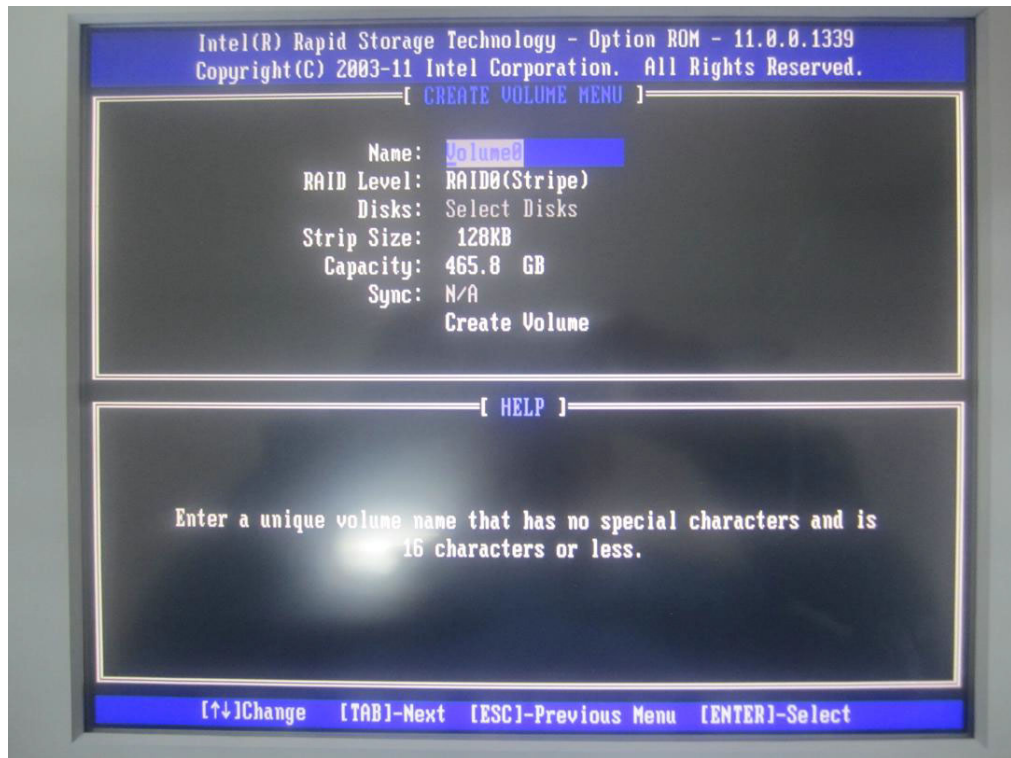
4. Select "Create Volume" after mode configuration, and you'll be reminded that RAID HDD data will be erased. Press "Y" to confirm selecting RAID mode.
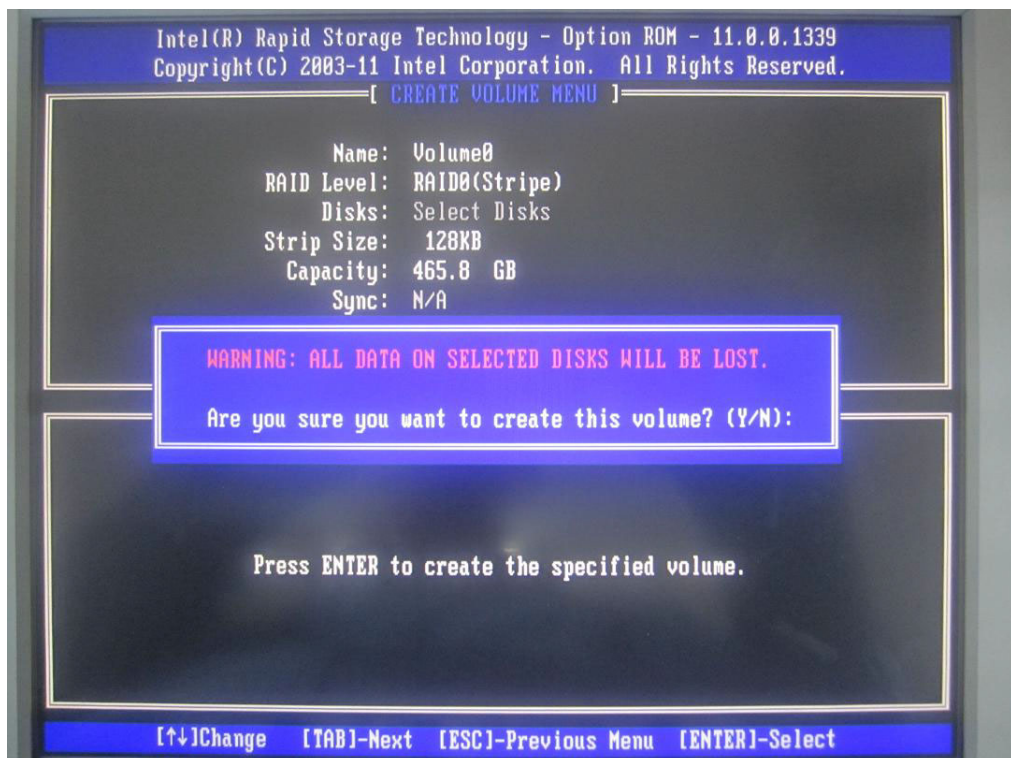
5. Select "Exit" and press "Y" to exit the screen.
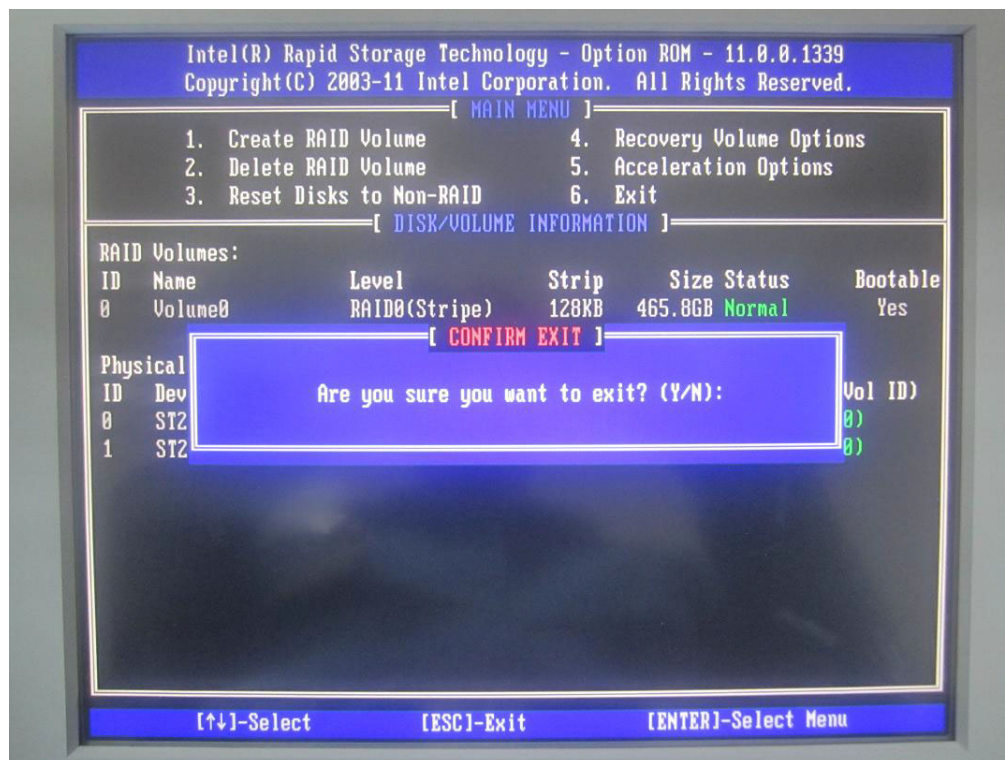
6. Then it will boot from CD-ROM. Press "F6" to wait loading RAID driver.
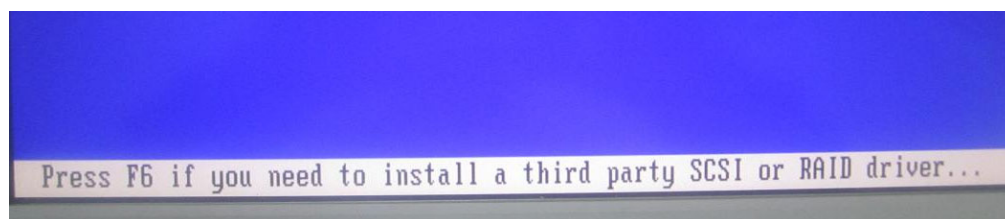
7. You can press "S" to select the driver when "loading driver" appears. Please select "Intel (R) Mobile Express Chipset SATA RAID Controller" and press "Enter" to continue.
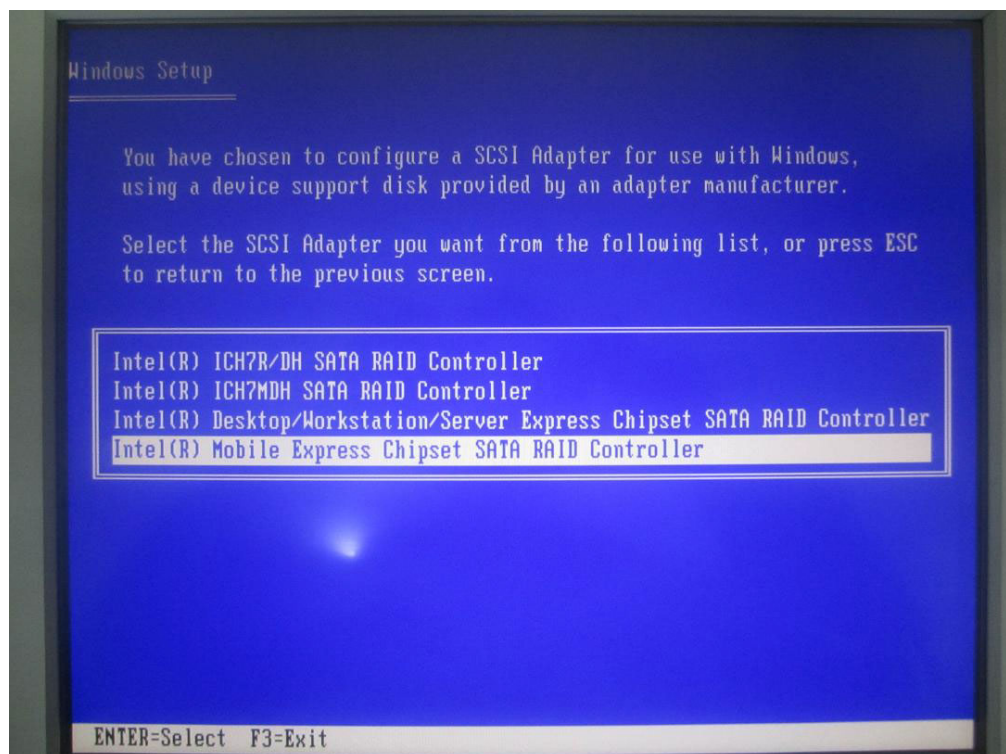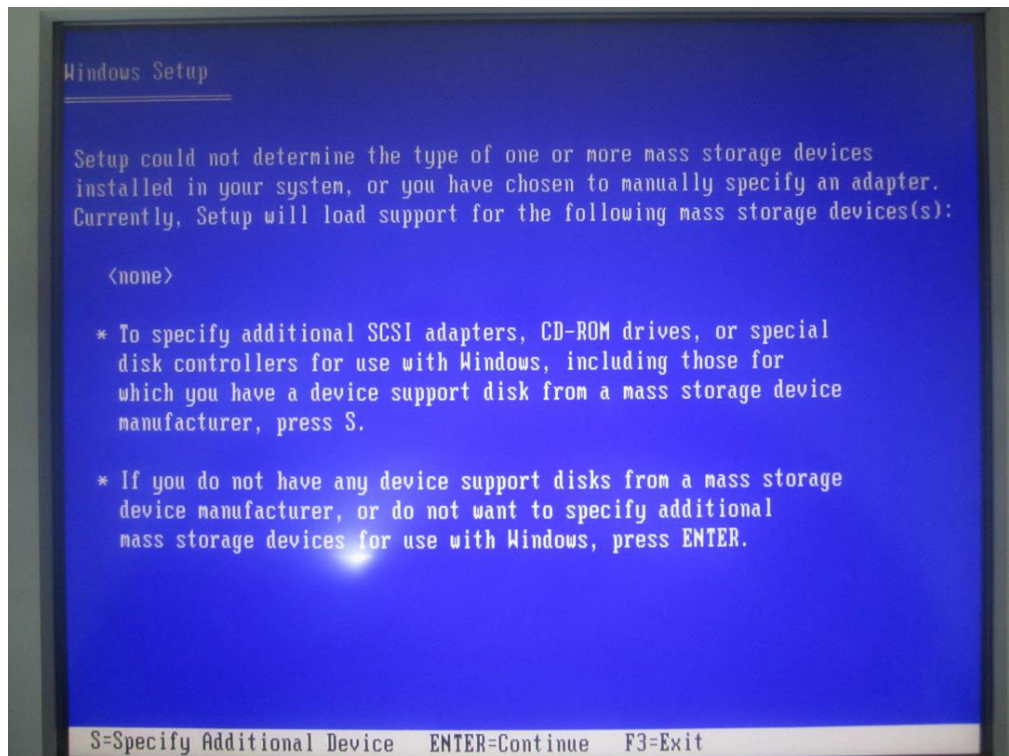
8. Press "Enter" to continue.
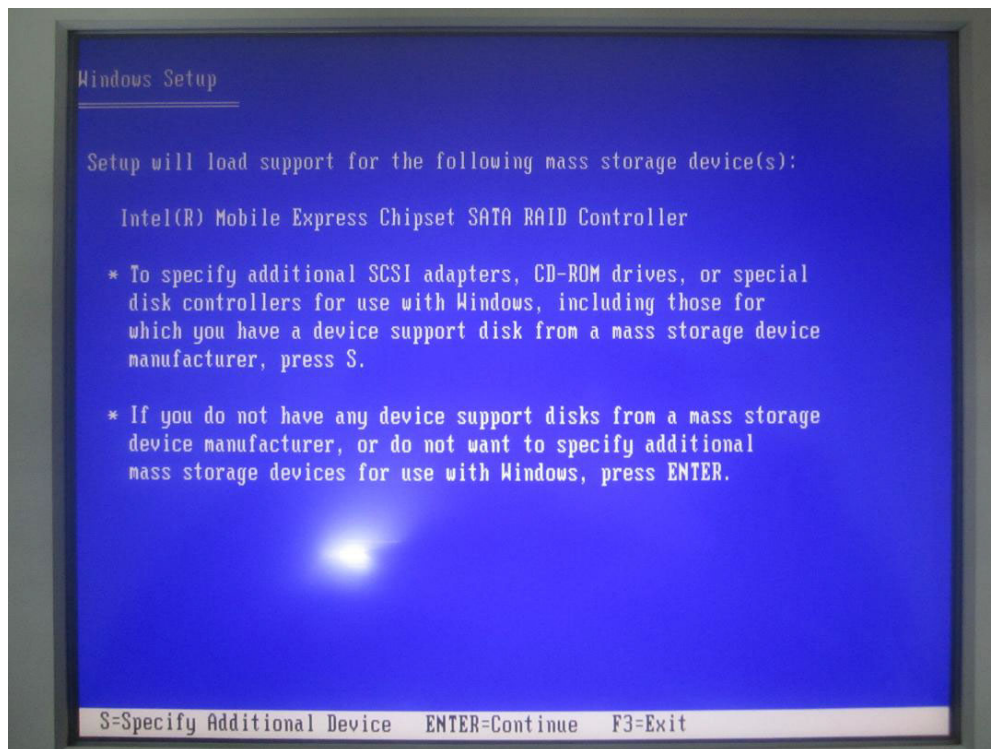
9. Press "Enter" to prepare installing system.
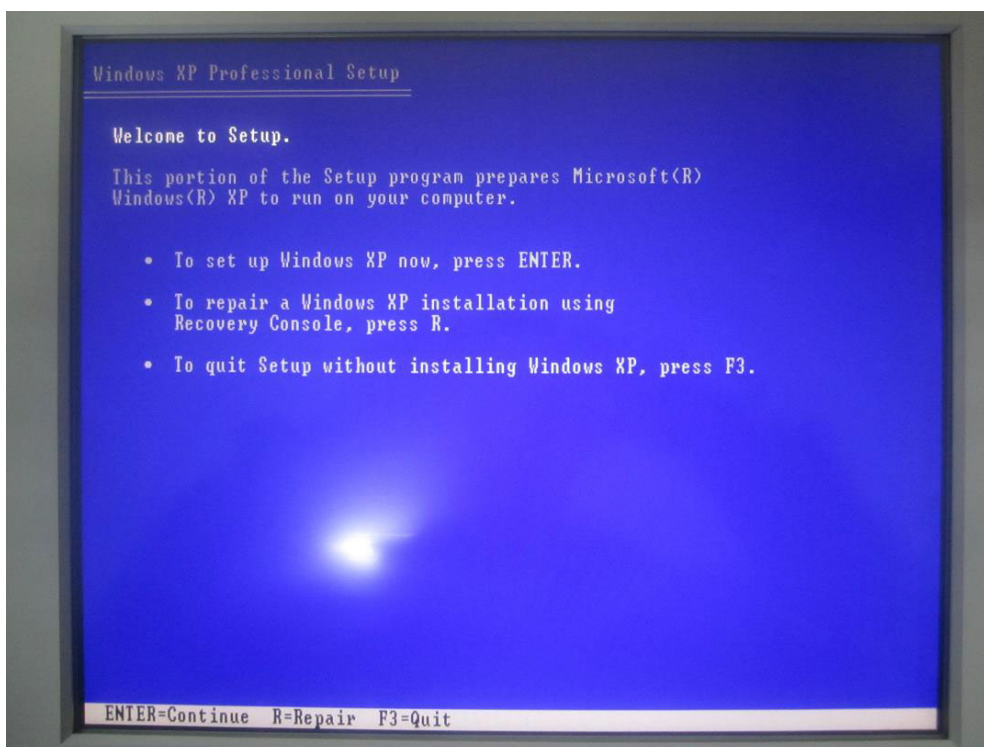
10. Press "F8" to agree starting installation.
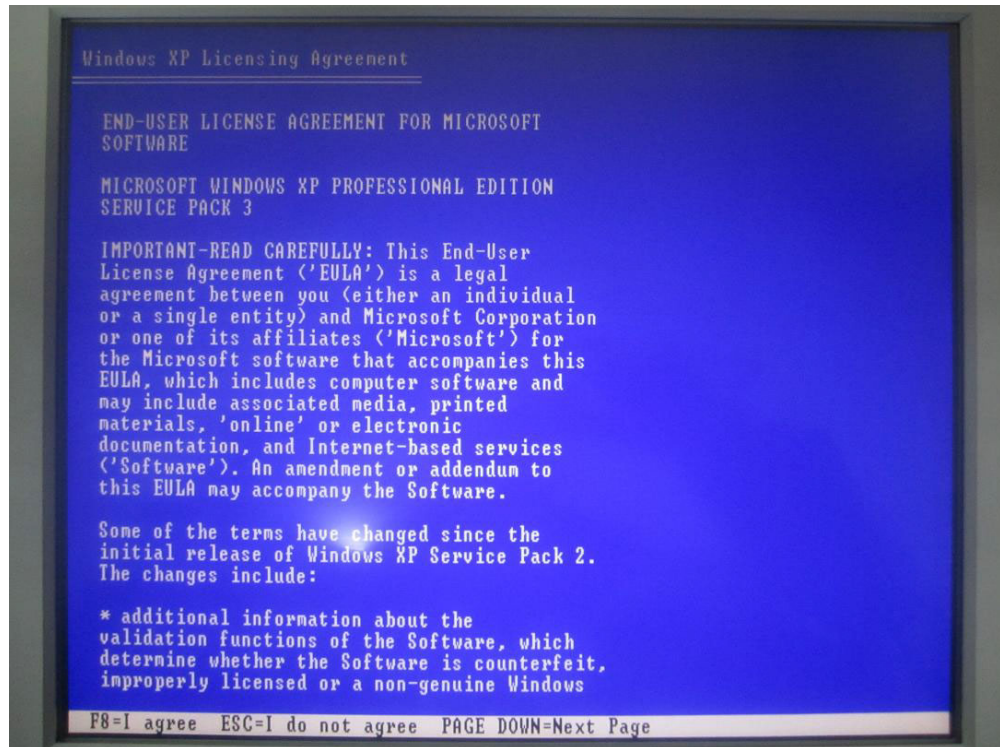
11. It will appear the total HDD size after RAID configuration, then you can create partition by your favorite.
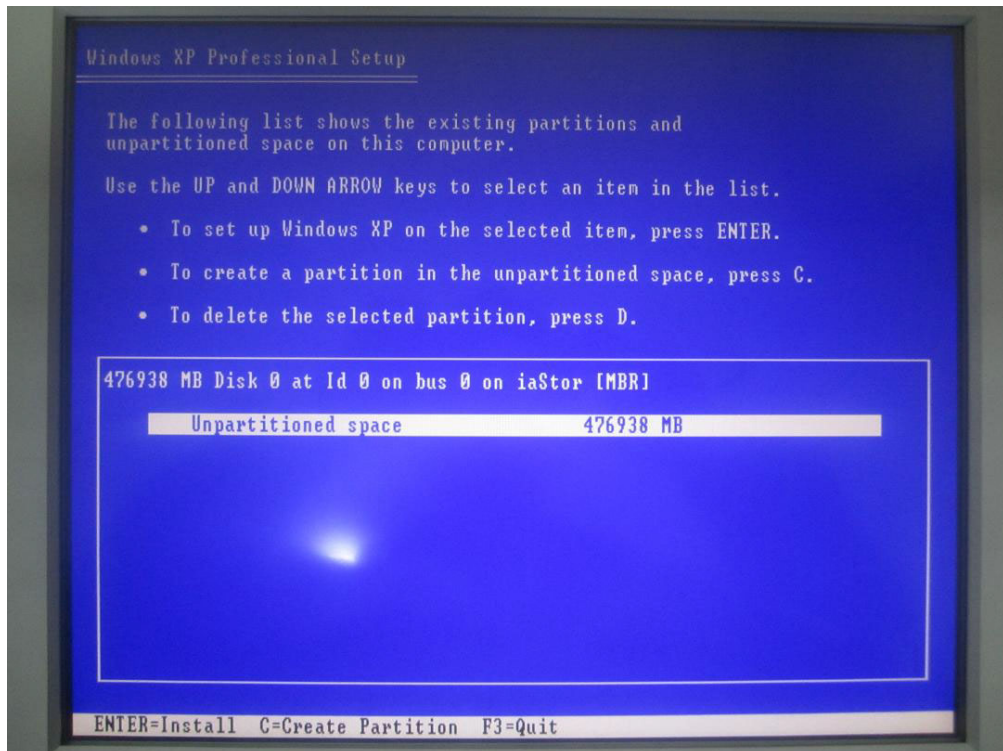
12. Finally wait until copying all files, and complete the installation according to the instructions.
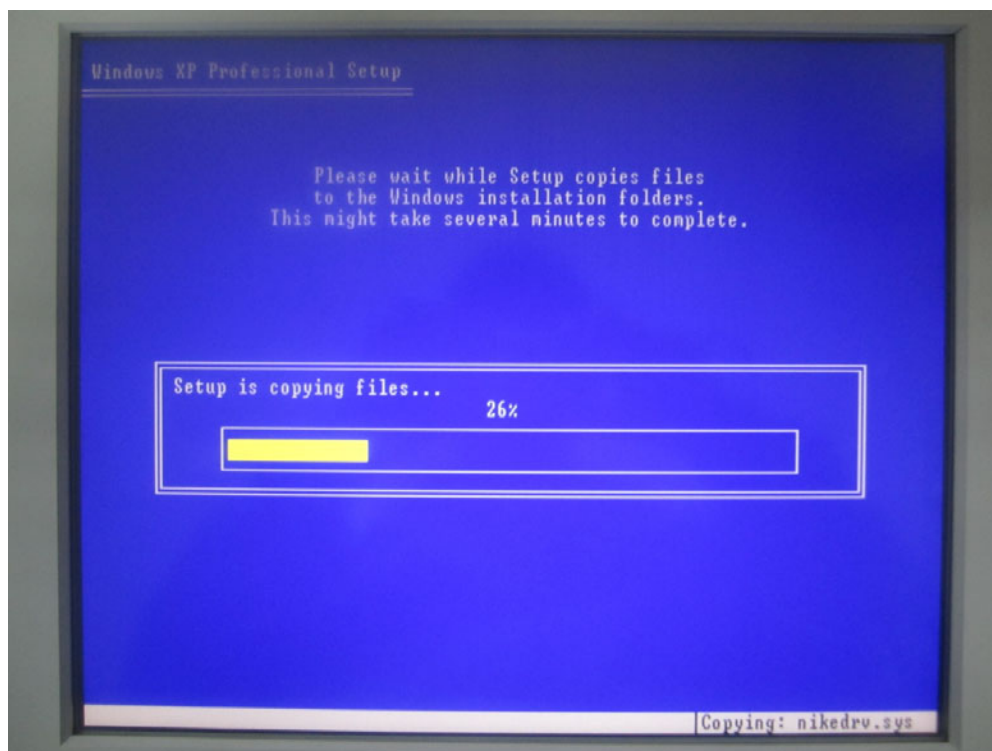

A.2.2 Windows 7 Dual HDD RAID System Installation Procedures

The preparation procedures of Windows 7 installation is the same as that of Windows XP. Users need to configure dual HDD as RAID mode and then start installation. It will continue introducing from the above step 5 here.

1. Continue with Step 5, boot from CD-ROM, and continue installation according to the instructions. It will appear the HDDs with RAID successfully configured.
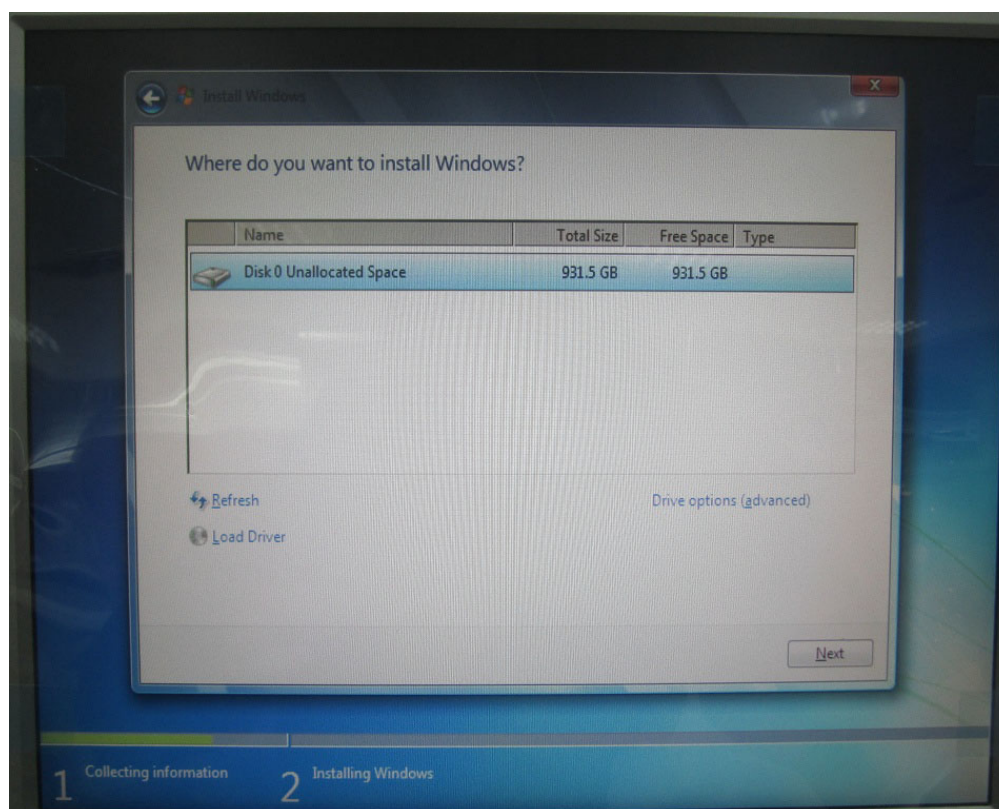
2. You can create partition by your favorite and continue installation.
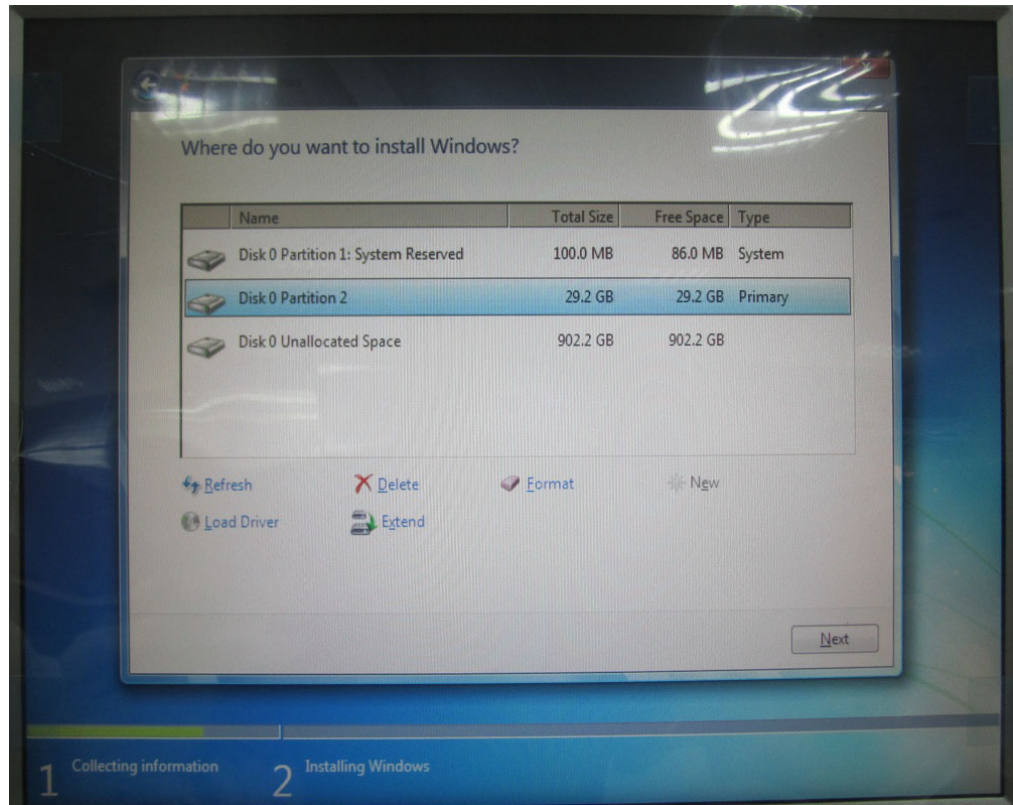
3. Click "Next" to continue and complete the installation.

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