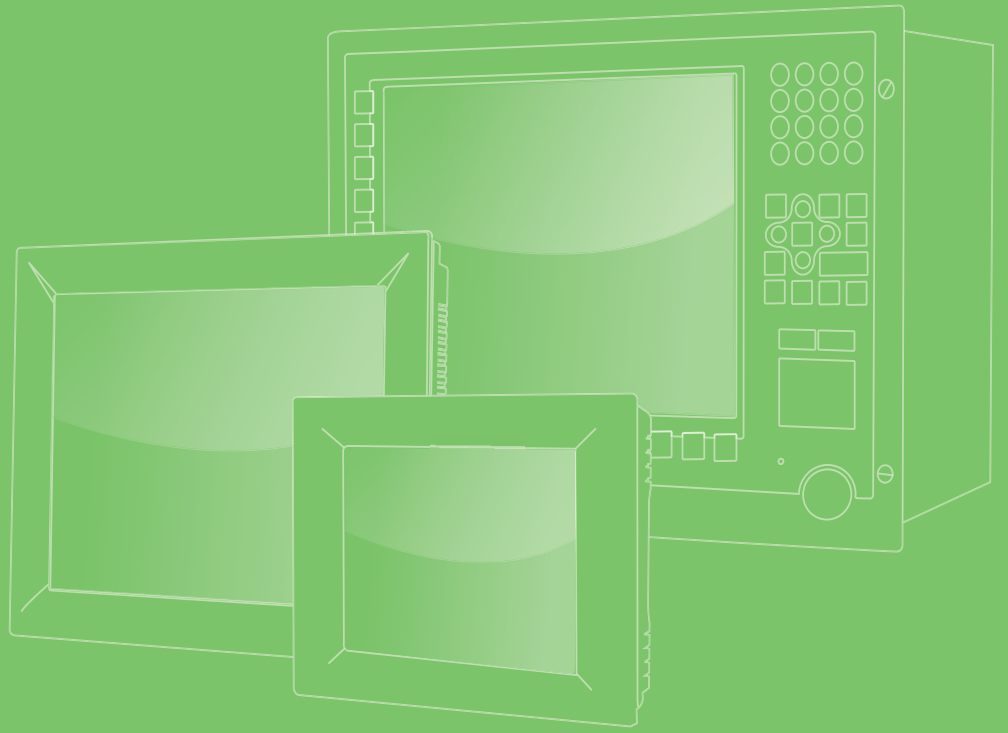


User Manual



PPC-6150/6170

**Intel® Core i3,i5/Celeron 1020E
processor based
microcomputer, with 15"/17"
color TFT LCD display**

ADVANTECH

Enabling an Intelligent Planet

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If you think you have a defective product, follow these steps:

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 merchandise authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
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 below 5000 Meters.

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, fit for almost any application. In addition, their user friendly interface makes it easy to operate. 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/m ²	350cd/m ²
Contrast	700	1000
LCD Operating 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
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 (default)		
	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)
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

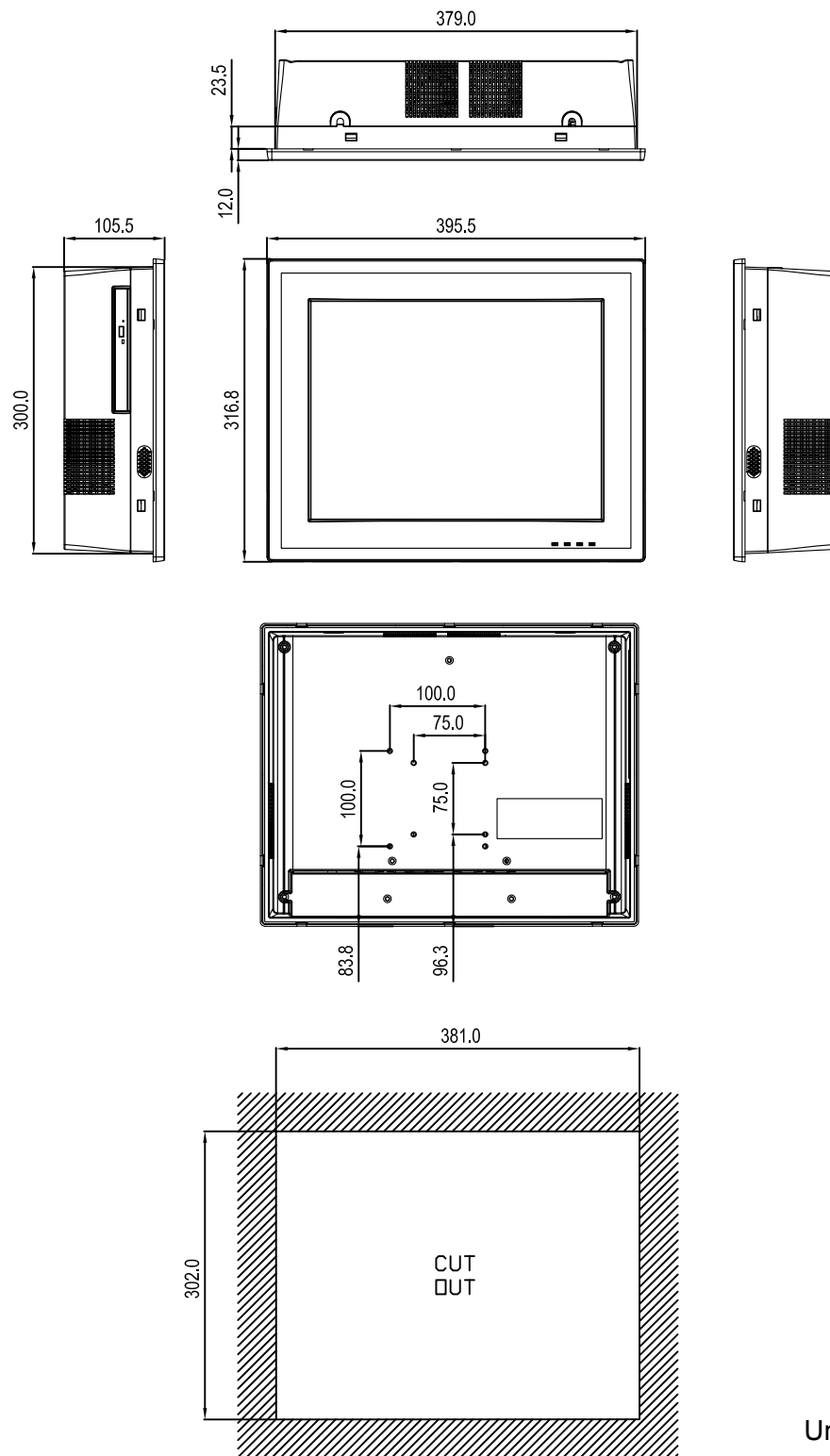
Note2:

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

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 the risk of injury.



PPC-6170:

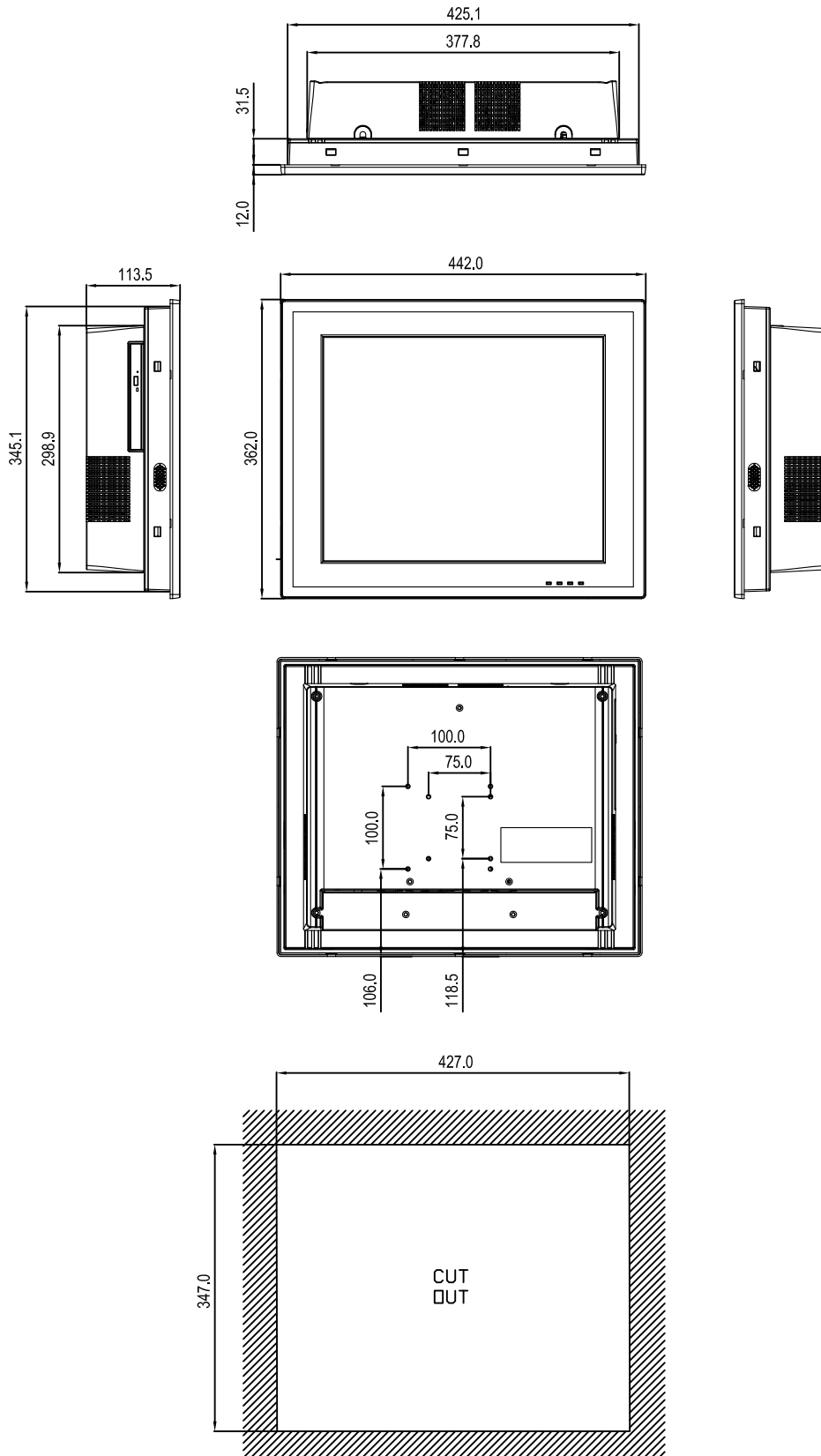


Figure 1.2 PPC-6170 dimensions

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

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



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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.

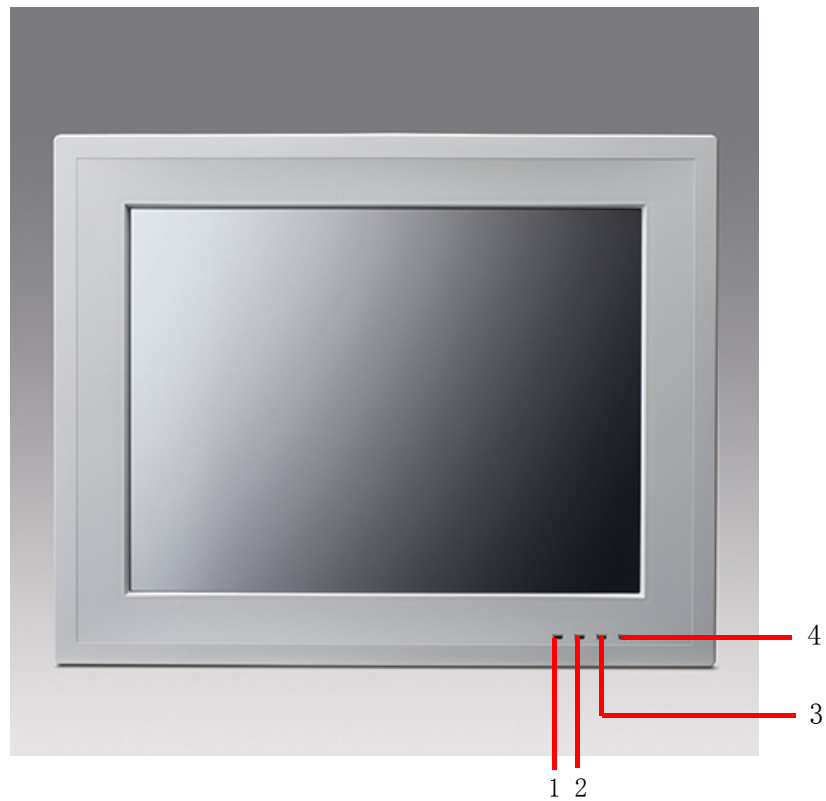


Figure 2.1 Front panel

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

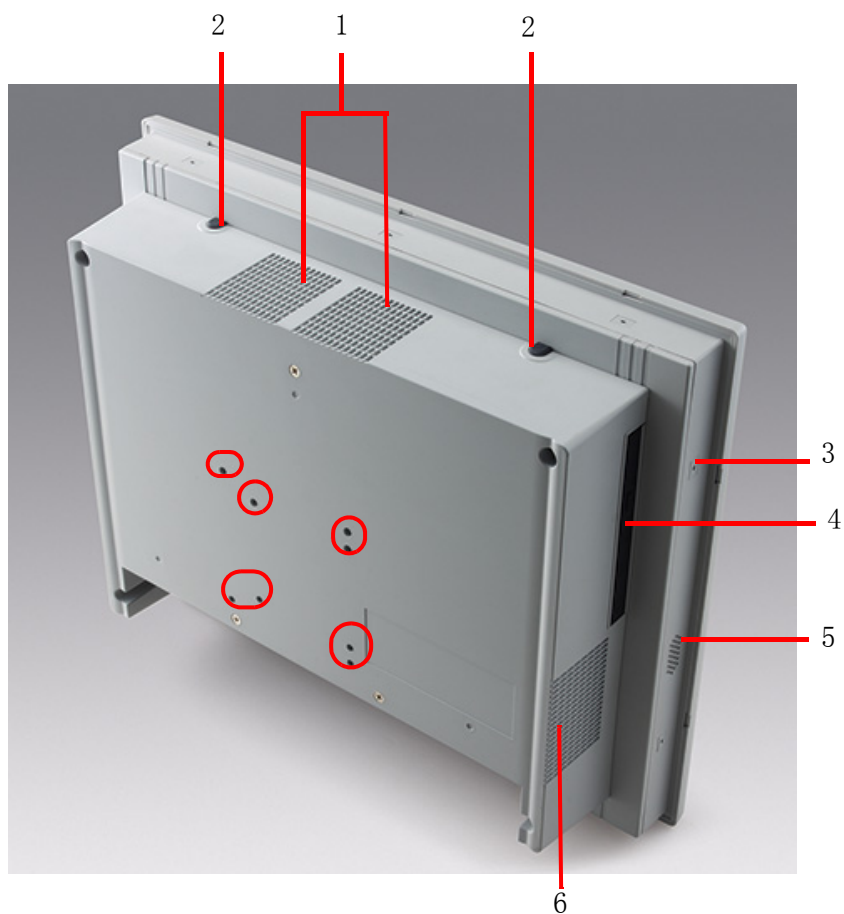


Figure 2.2 Side view

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:

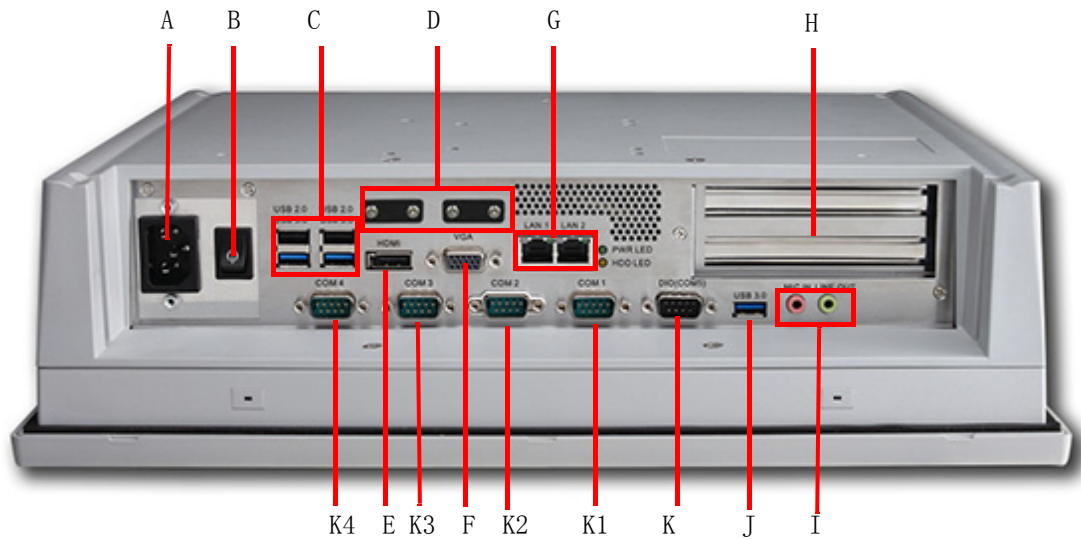


Figure 2.3 Location of I/O interfaces

- 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 Standard

1. Base on HDMI cable standard, when using the HDMI interface, purchase cables with a connector longer than 9mm long, or an imperfect contact may happen.



Figure 2.4

2. Keep same direction (groove side) between HDMI cable and PPC-61X0 HDMI connector.

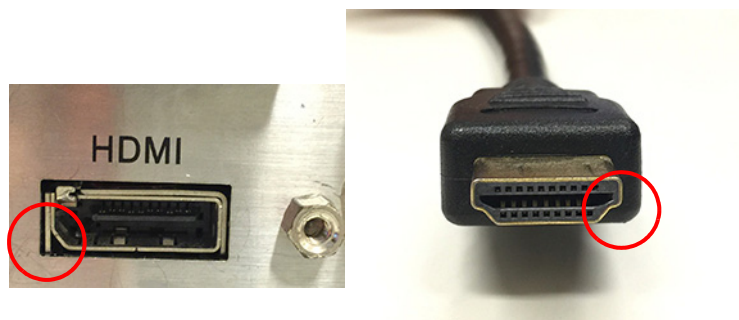


Figure 2.5

3. Insert the HDMI cable with groove side downward.



Figure 2.6

4. Insert HDMI cable close to the right of the side.



Figure 2.7

5. Align the HDMI Cable with HDMI connector and insert smoothly.

Note! *If it can't be inserted smoothly, don't use force. Adjust the HDMI cable and insert again.*



Figure 2.8

2.3 Install Memory Card

1. Remove the rear cover of the panel PC. (See Fig 2.9)

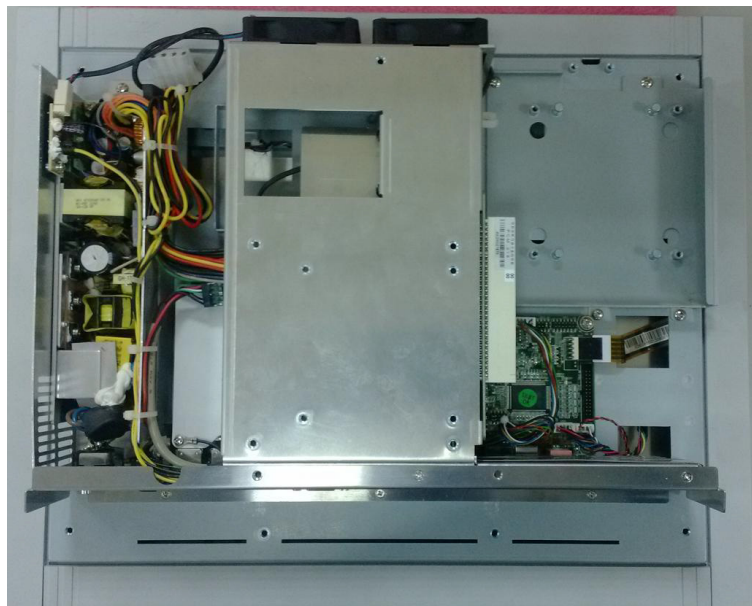


Figure 2.9 After removing rear cover

2. Remove the two screws of the riser card (see Fig 2.10), and pull it out.

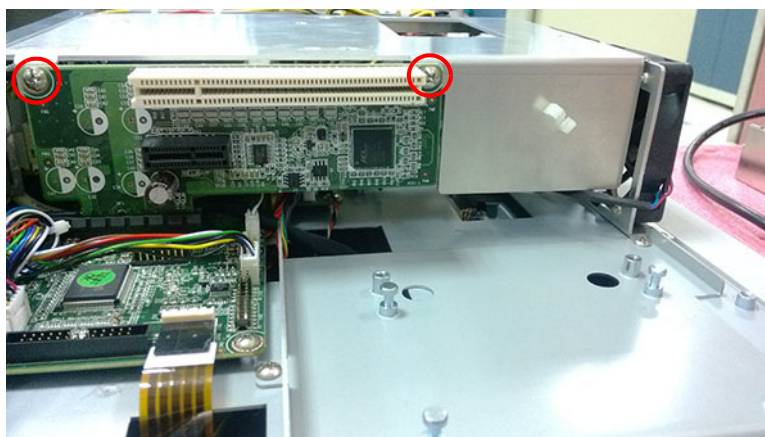


Figure 2.10

3. Remove all the screws of the reinforced board, including the three screws beside the fan (see Fig 2.11) and the one in I/O stop plate.

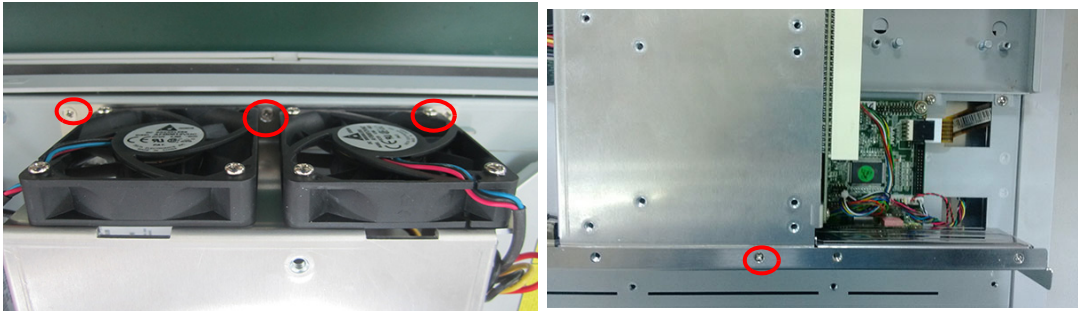


Figure 2.11

4. Remove the reinforced board. (see Fig 2.12)

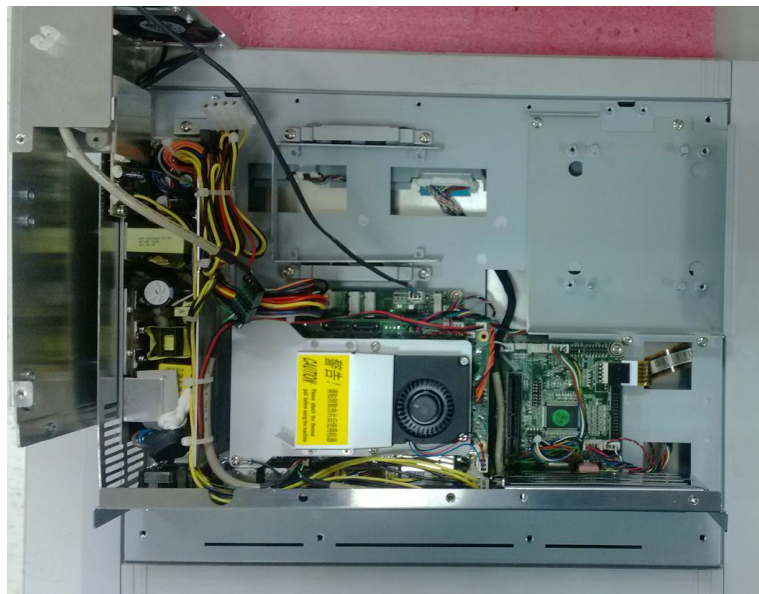


Figure 2.12

5. Remove CPU fan cable and the four screws of the CPU cooler and remove it.

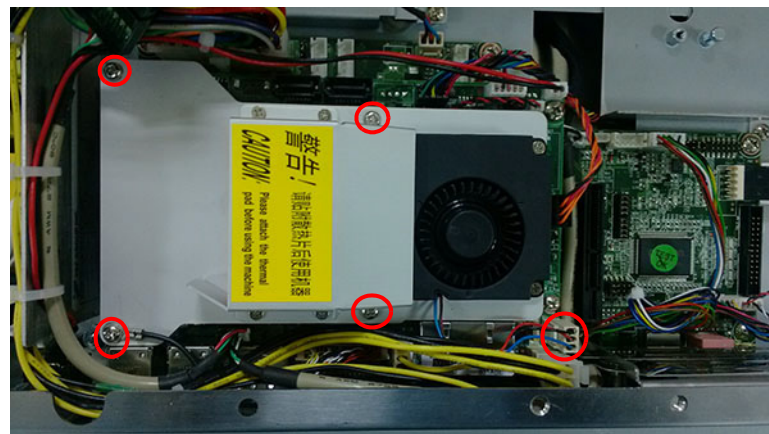


Figure 2.13

6. Insert the memory card in the slot, and take out the thermal pads of the CPU, QM77 and memory and place them in the correct locations (see Fig 2.14), then install the CPU cooler to complete the memory installation.

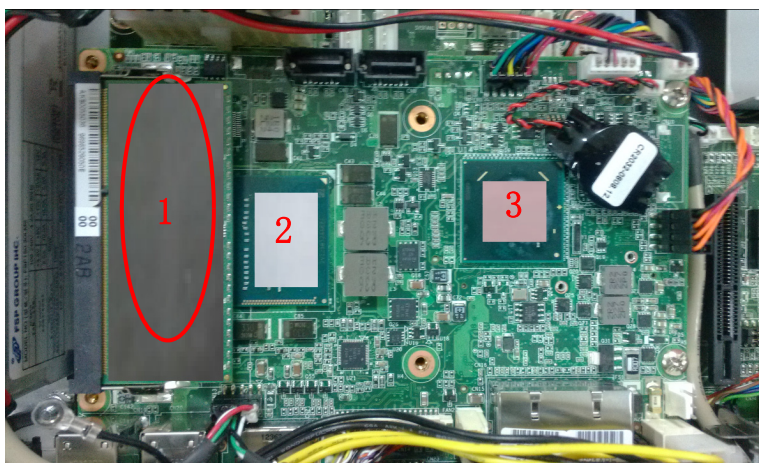


Figure 2.14

2.4 Install ODD

1. Remove the four screws as shown in Fig 2.15, and take out the HDD2 bracket.

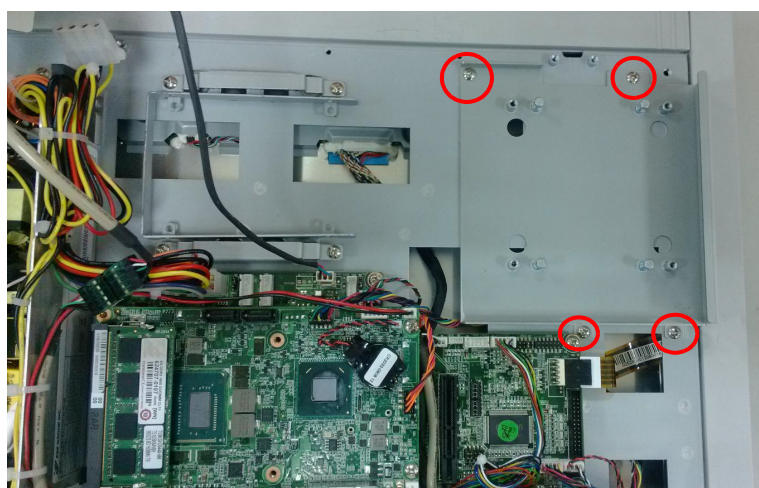


Figure 2.15

2. Take out ODD module, fix it onto the iron bracket, and connect the ODD cable to the corresponding interface.(See Fig 2.16)

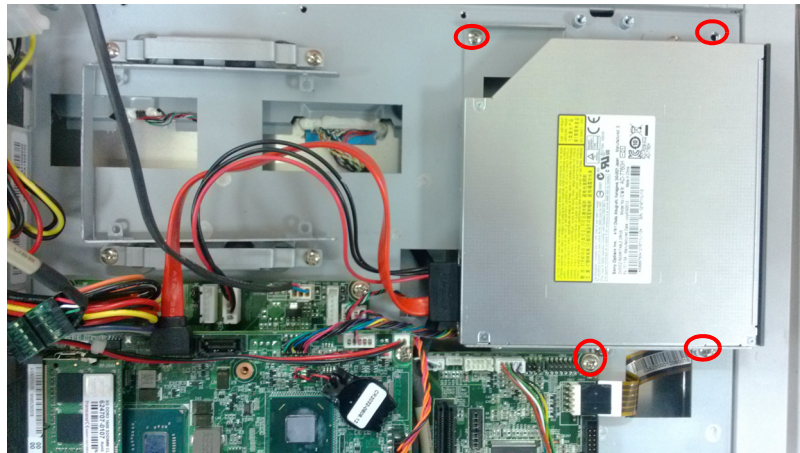


Figure 2.16

2.5 Install HDD

2.5.1 Install HDD1:

1. Please follow procedures 1~ 4 in Section 2.3.
2. Remove the four screws as indicated below, and then take down the U-type HDD bracket. (See Fig 2.17)

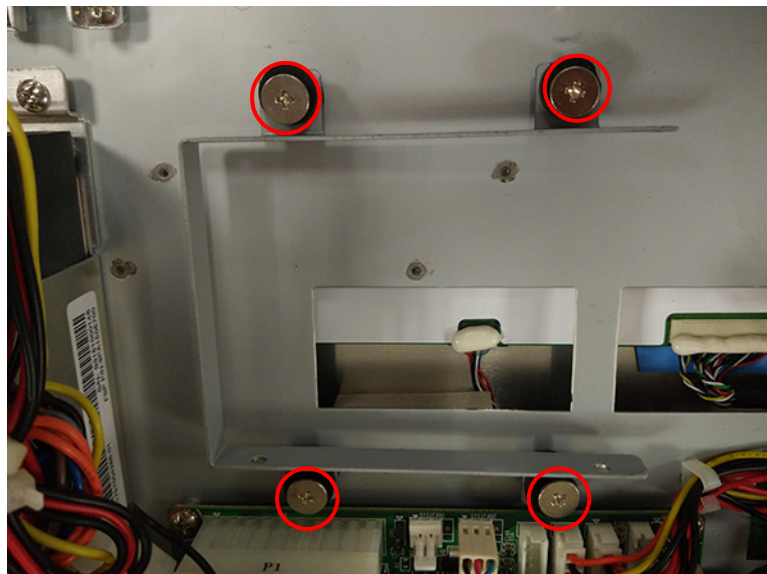


Figure 2.17

3. Take out the four 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 2.18)



Figure 2.18

4. Return to the original position, then connect HDD cable to the mainboard. (See Fig 2.19)

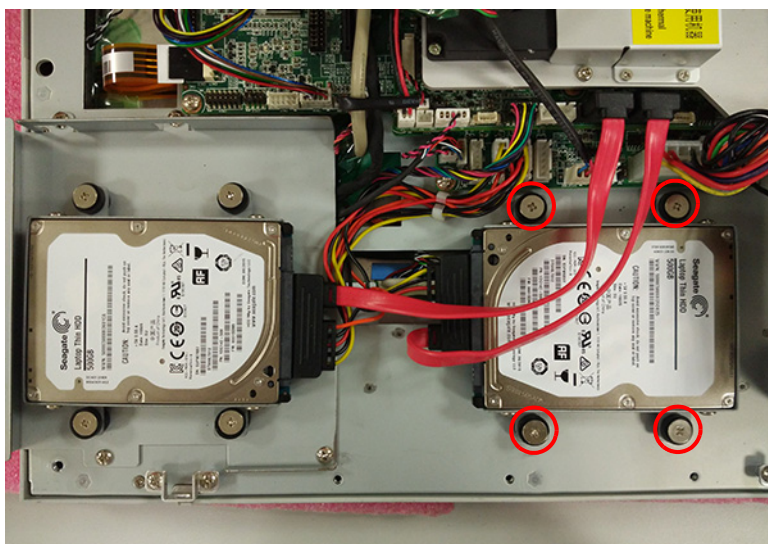


Figure 2.19

2.5.2 Install HDD2

1. Follow procedures 1~4 in Section 2.3.
2. Take out the U type bracket, four black washers, four screws. (See Fig 2.20)

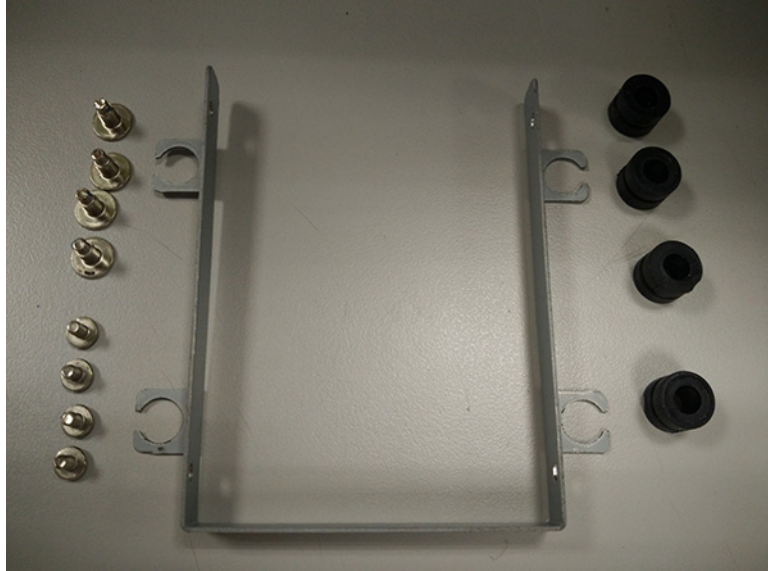


Figure 2.20

3. Position the four washers as shown in Fig 2.21. Then take out four M3 screws from the accessory box and secure the HDD onto the U-type cradle.



Figure 2.21

4. Connect HDD cables. (See Fig 2.22)



Figure 2.22

5. Complete the installation of HDD. (See Fig 2.23)

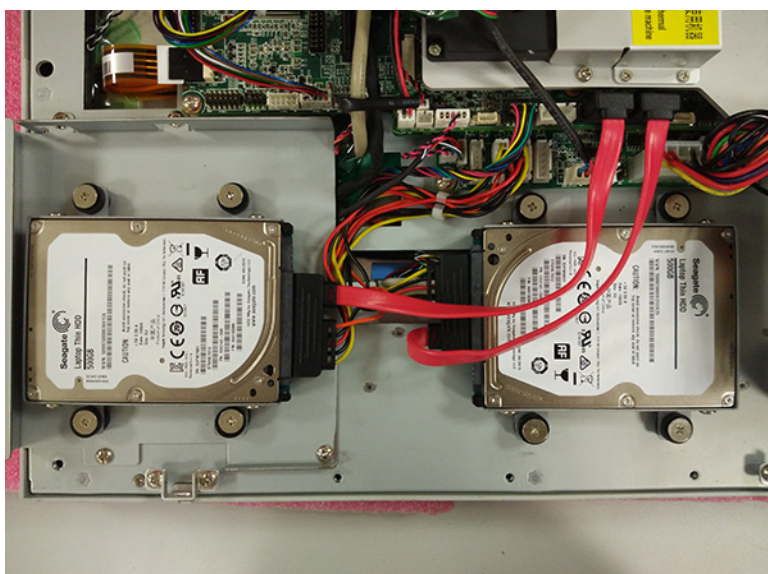


Figure 2.23

2.6 Install Mini SATA and Wireless Network Card

(The following installation procedures are only for professional technician's' reference.

The screws needed in this process can be found in the accessory box.

1. Follow the procedures in Section 2.3.
2. Untie the USB cable, and remove the cable and two screws in MIO mainboard.

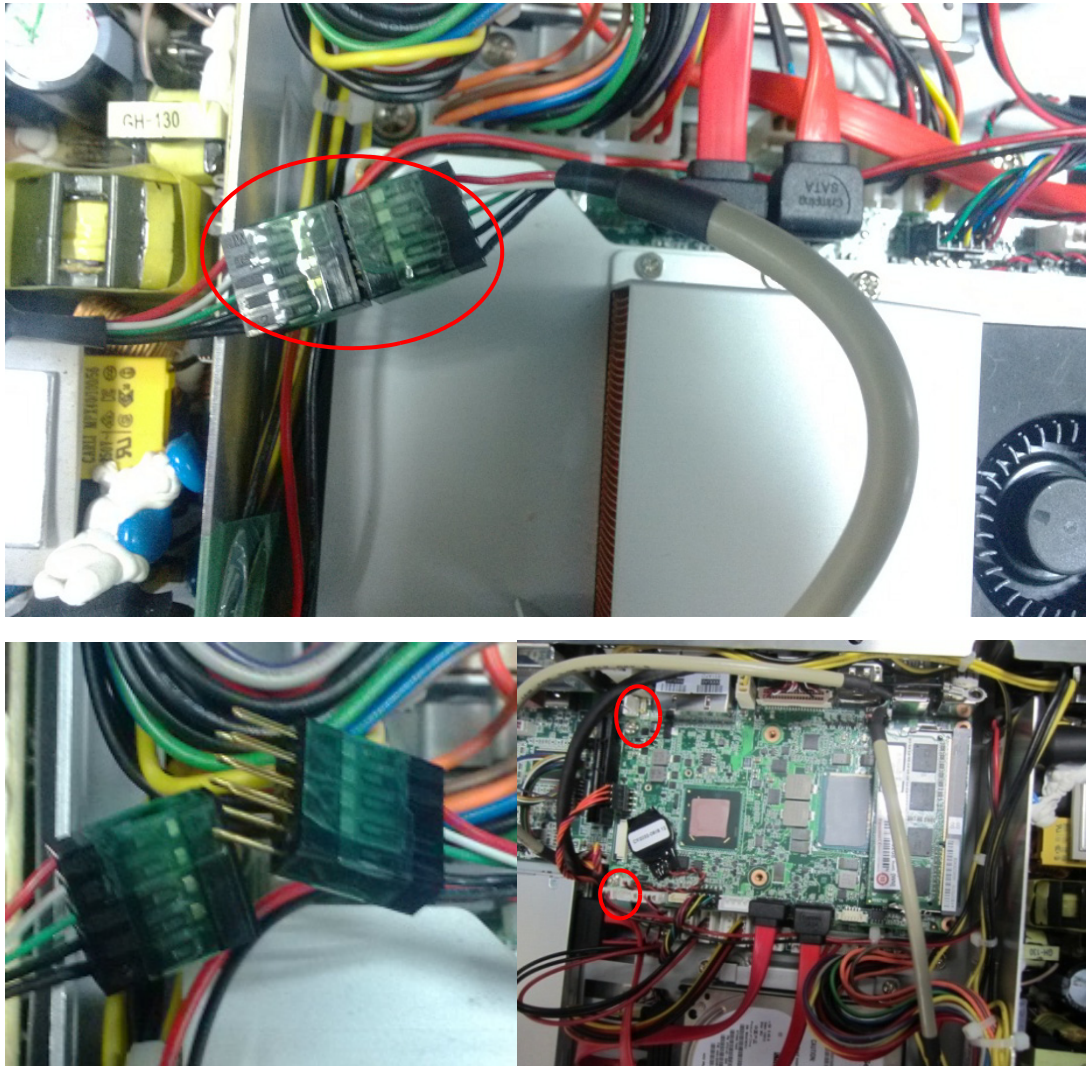


Figure 2.24

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

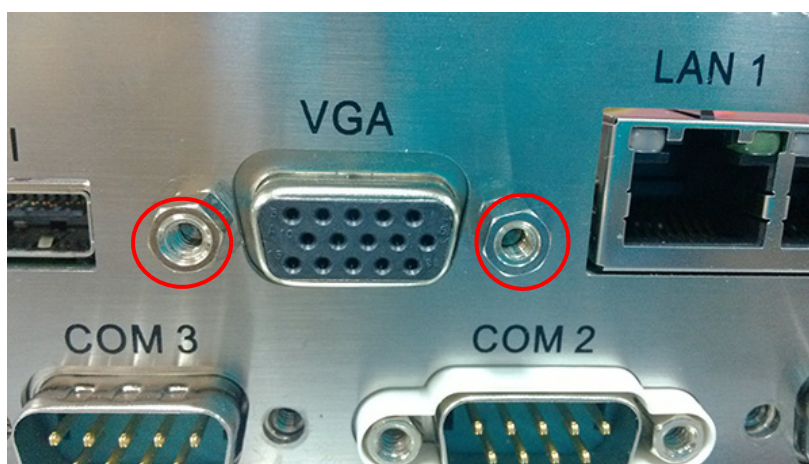
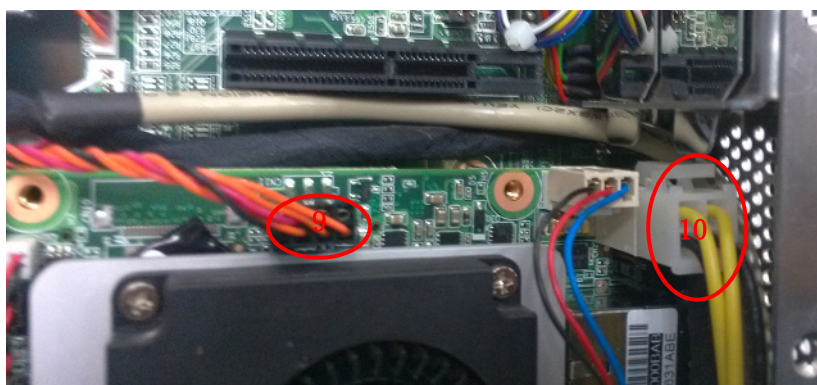
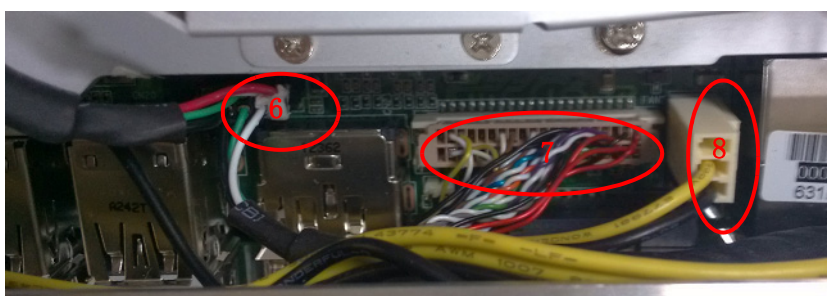
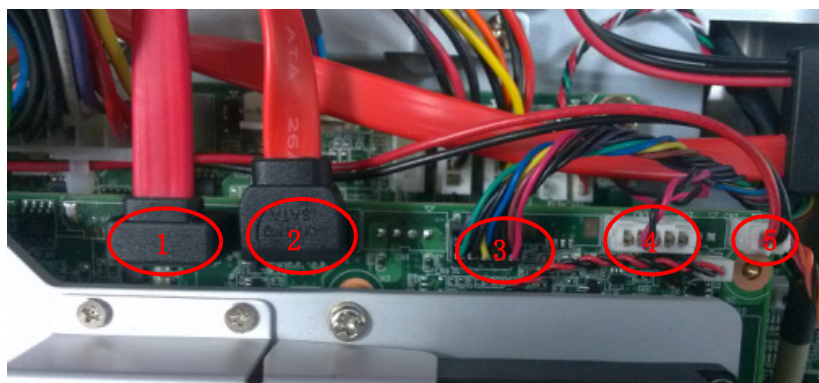


Figure 2.25

The steps to install the card are as follows. 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 2.26)

Note! *Wireless LAN long card and Mini SATA slot share one slot. Users need to configure the port as Mini SATA by BIOS, refer to the “BIOS Configuration” chapter for the details.*

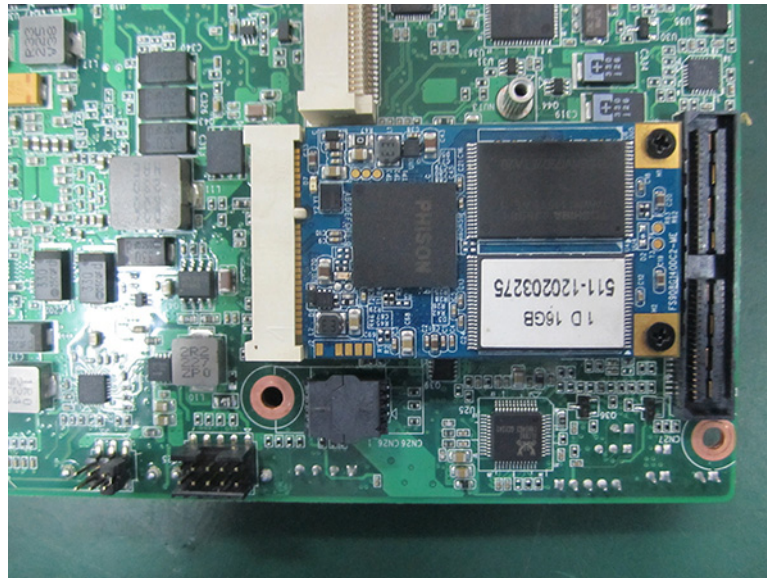


Figure 2.26

2.6.2 Install Wireless LAN Long Card

1. First remove the wireless LAN card antenna bracket. (See Fig 2.27)

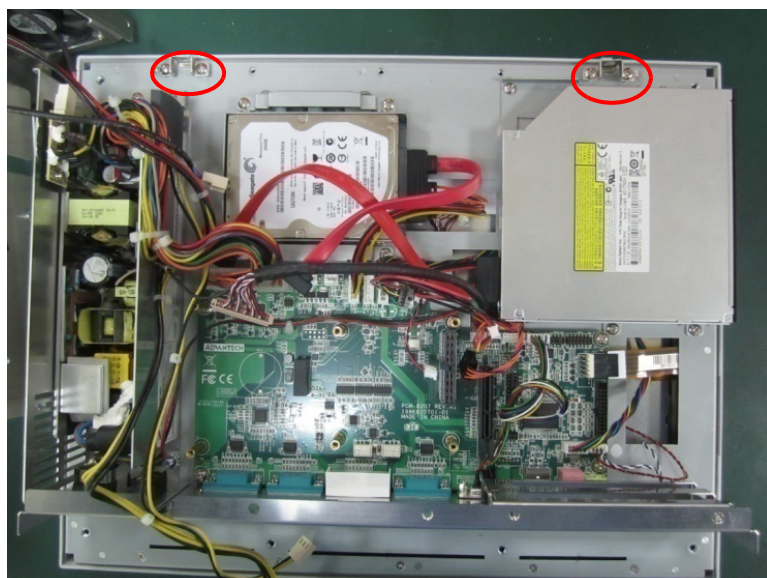


Figure 2.27

2. Fix the antenna onto the bracket. (See Fig 2.28)



Figure 2.28

3. Secure the bracket with the antenna onto M/B frame, the wiring method is shown in Fig 2.29.
The antenna receiver is secured onto the antenna terminal. (See Fig 2.30)

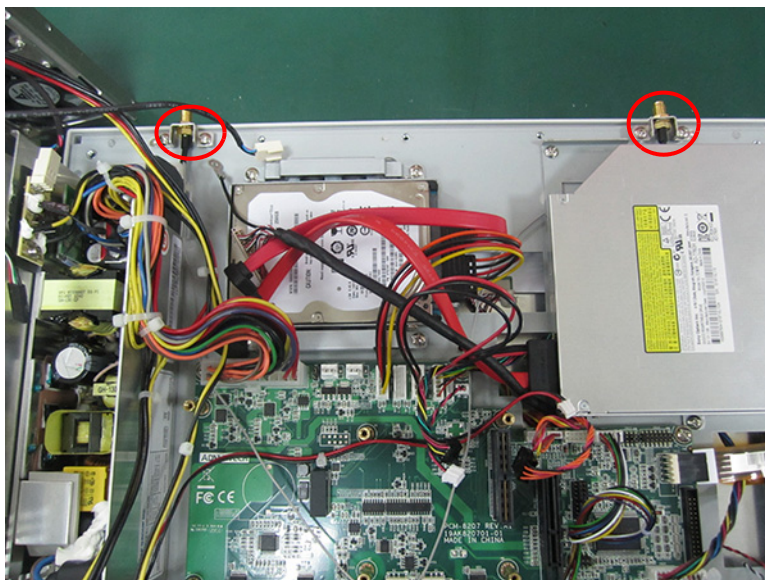


Figure 2.29

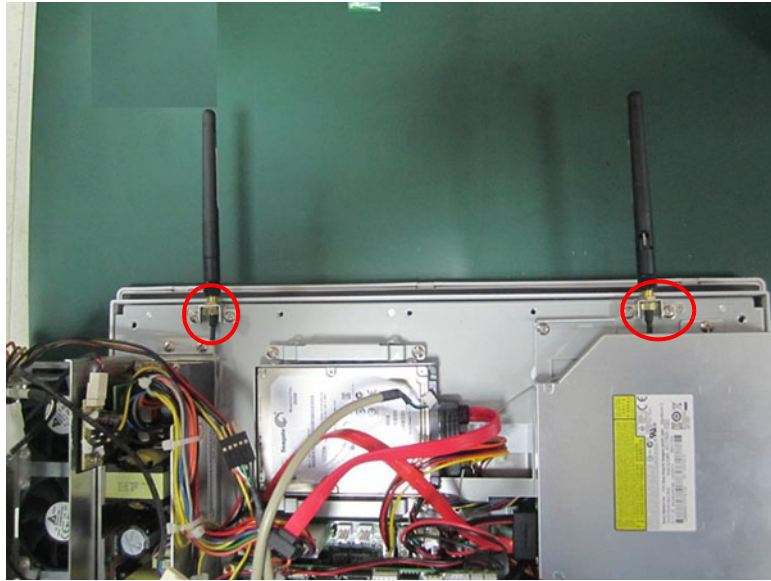


Figure 2.30

4. Remove two M2 X 6 screws from the accessory box, and insert the wireless LAN card into the 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.

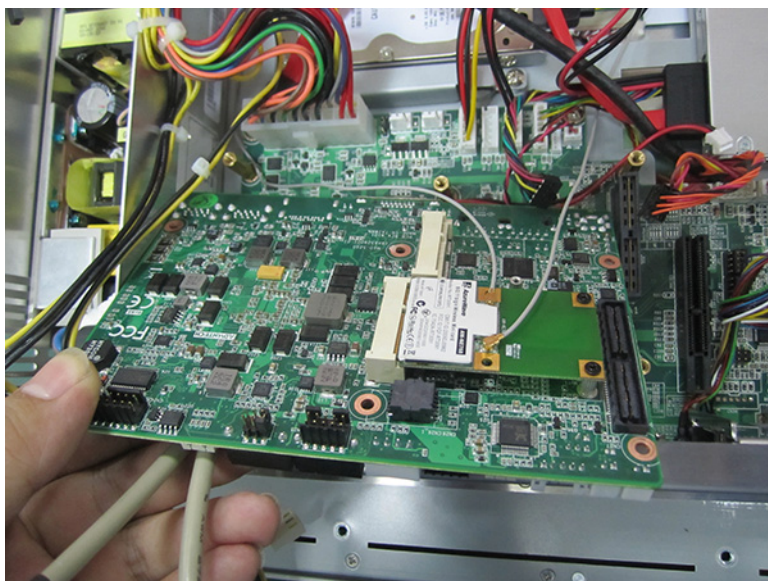


Figure 2.32

2.6.3 Install the 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 screws 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 the wireless LAN card, as shown in Fig 2.34.

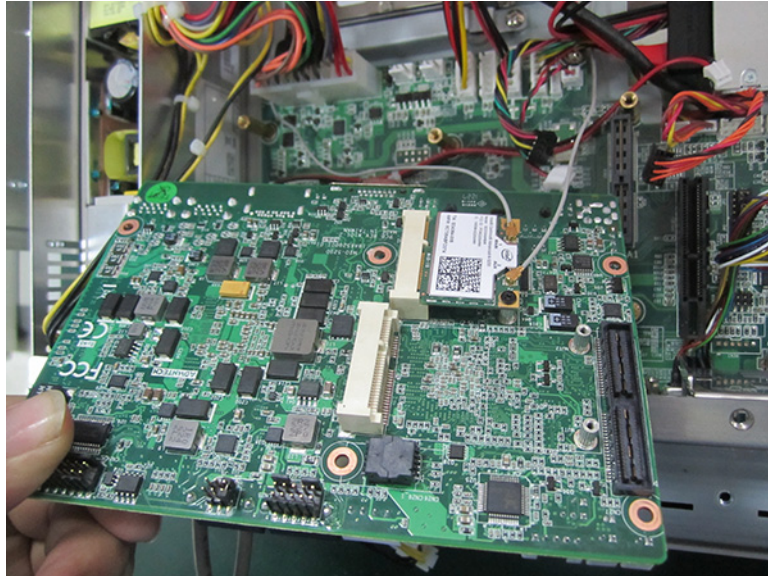


Figure 2.34

4. Reinstall the MIO mainboard, lock the screws and return the cables according to Procedure 3-6. Check all cables are correctly connected, as shown in Figures 2.35, 2.36 and 2.37 respectively.
5. Lock the cooler onto MIO mainboard and connect the MIO fan cable. (See Fig 2.35)

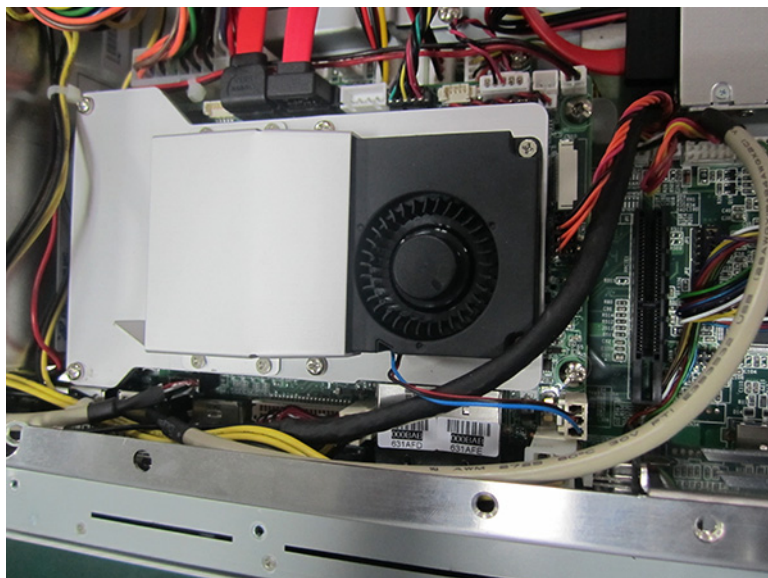


Figure 2.35

6. Connect the USB cable. (See Fig 2.36)

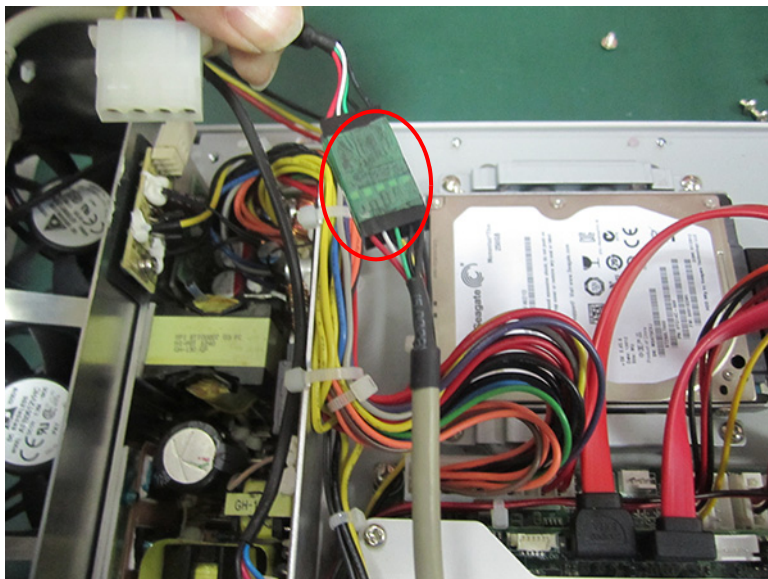


Figure 2.36

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

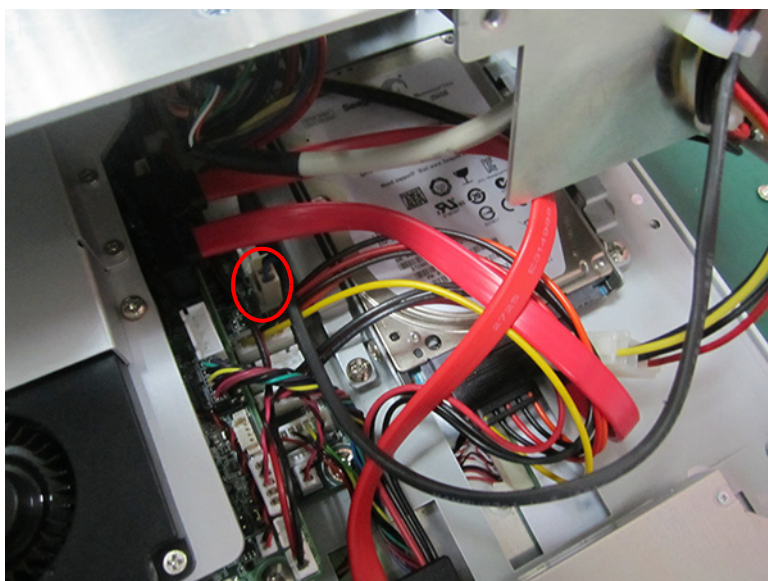


Figure 2.37

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

2.7 Installing the Riser Card

(See the Appendix for card image)

When using the PCM-916, users need to configure PCIeEx1 interface as “PCIEx4” Mode.

When using PCM-917/918/920, users need to configure PCIeEx1 interface as “PCIEx1” Mode

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

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

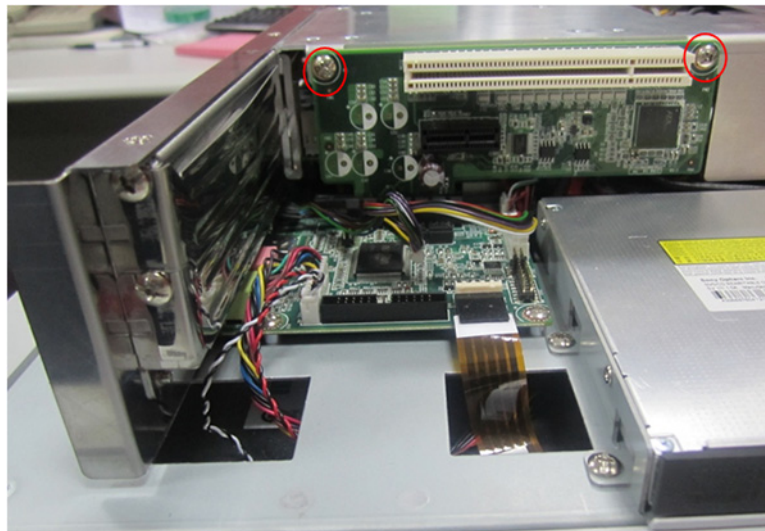


Figure 2.38

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

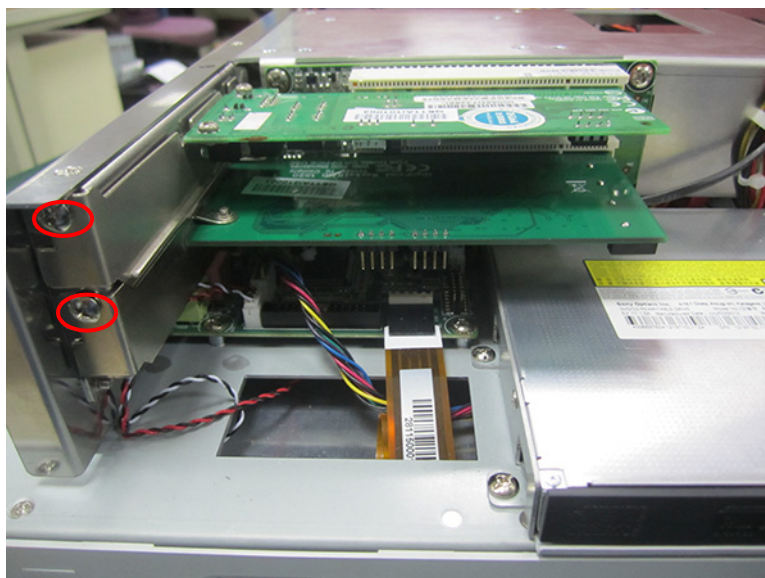


Figure 2.39

2.8 Panel Mount Bracket Installation

Follow the figures below:

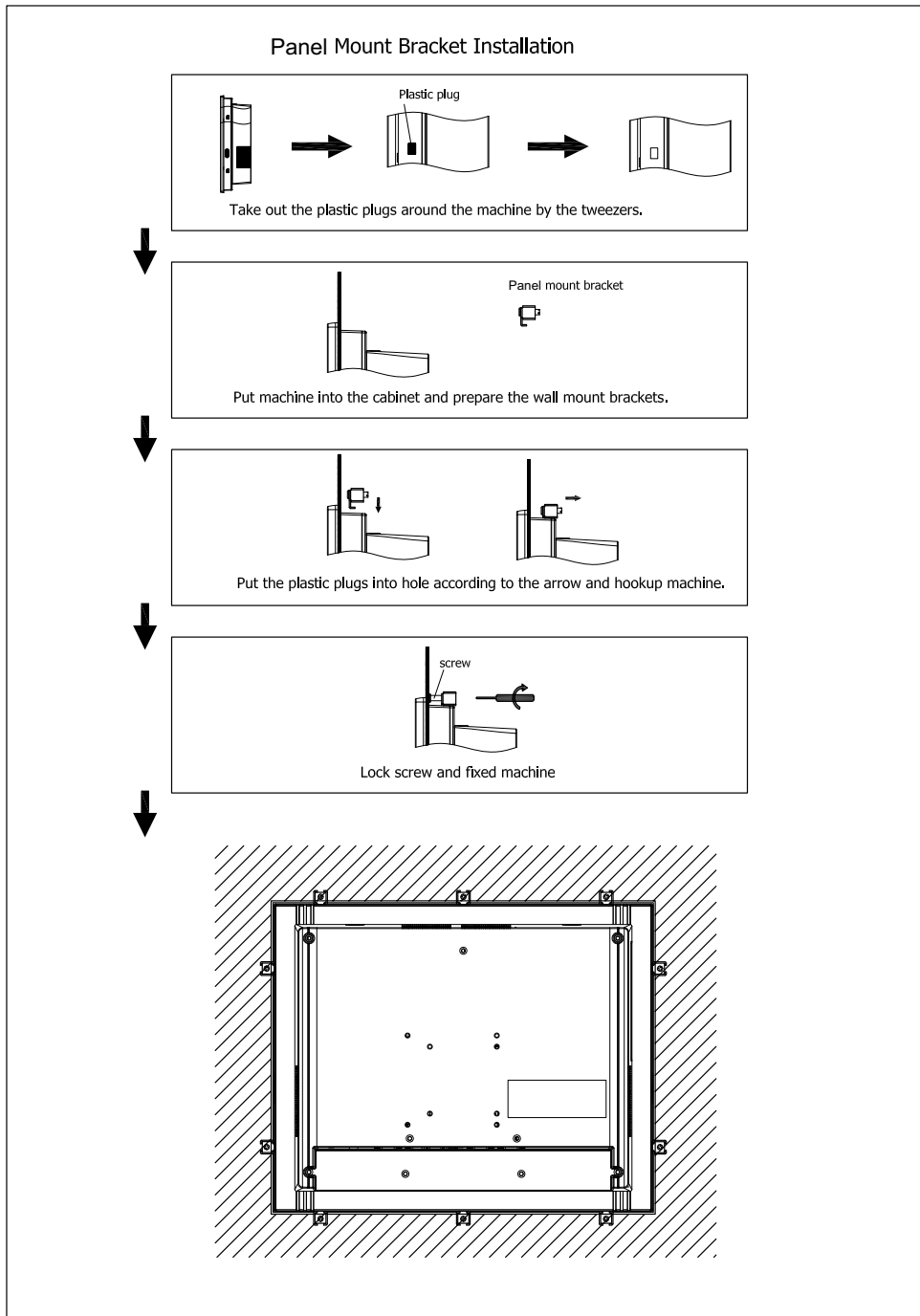


Figure 2.40

2.9 Power Cable Bracket Installation

1. Insert the power cable into the power interface.



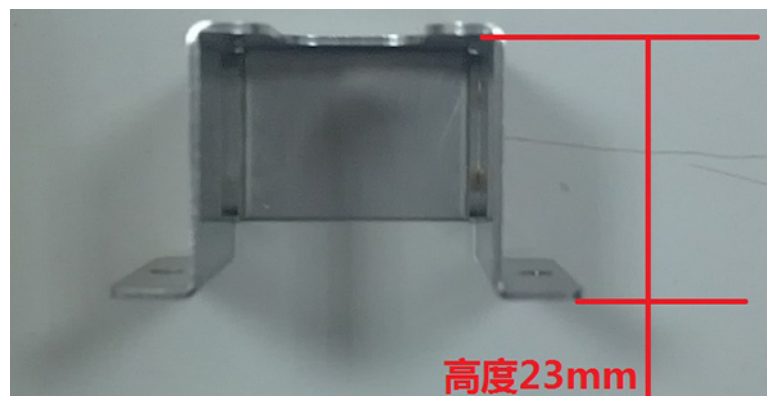
Figure 2.41

2. Lock the power cable bracket onto the machine using two M3X5 screws as shown in the figure below.



Figure 2.42

3. When using the power bracket, select the power cable with correct connector. The dimension of the bracket is shown below:



Chapter 3

Jumper Configuration

Sections include:

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

3.1 Jumpers & Connectors

3.1.1 PCM-8207

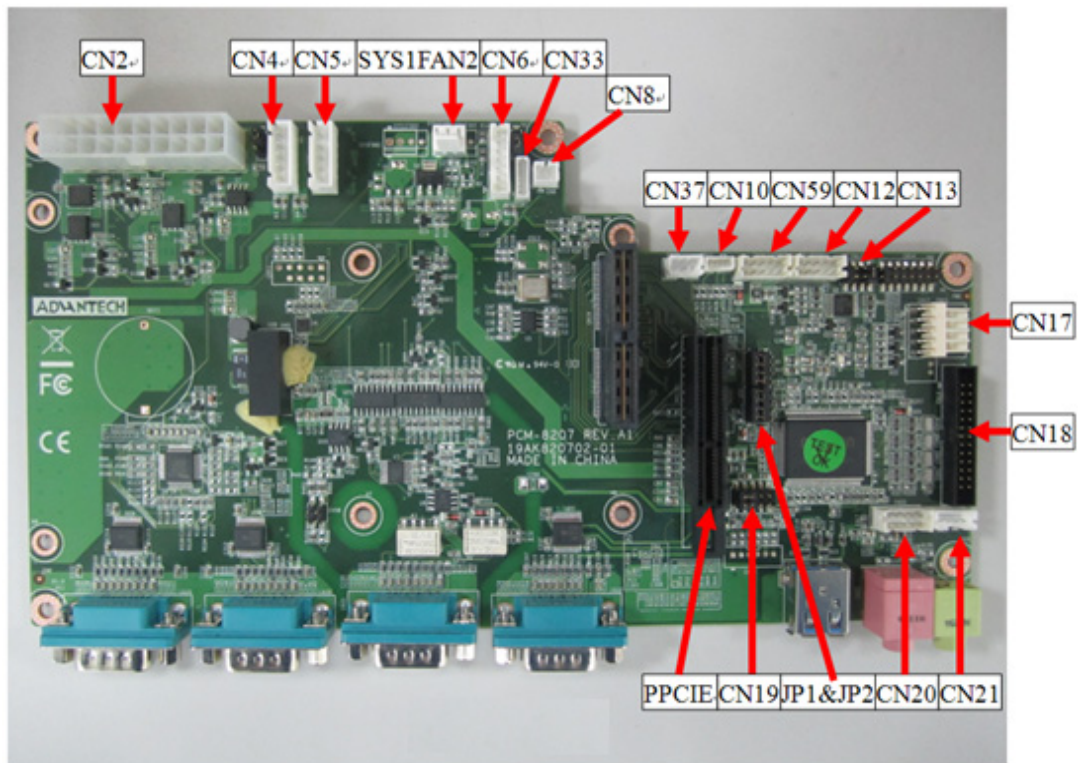
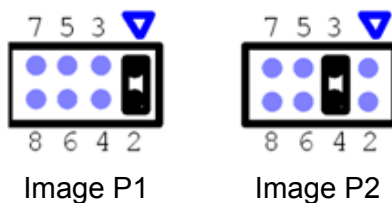


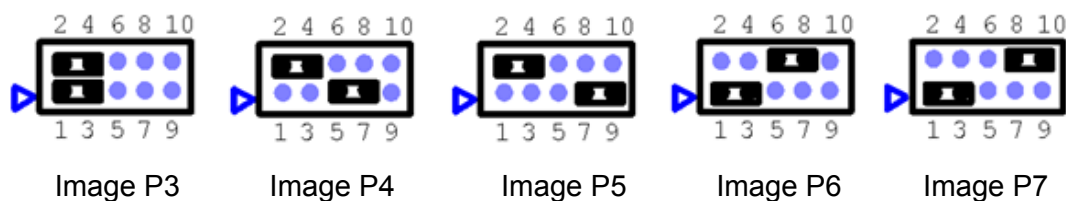
Figure 3.1 PCM-8207 front view

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)

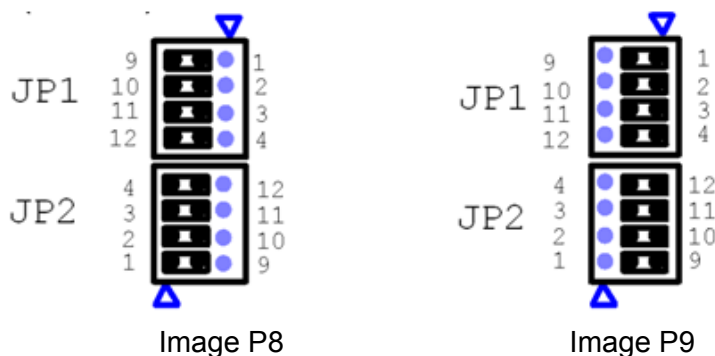
CN13	Images	LCD Selection
(1-2)	P1	17" LCD
(3-4)	P2	15" LCD



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



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



3.1.2 MIO-5290

Top

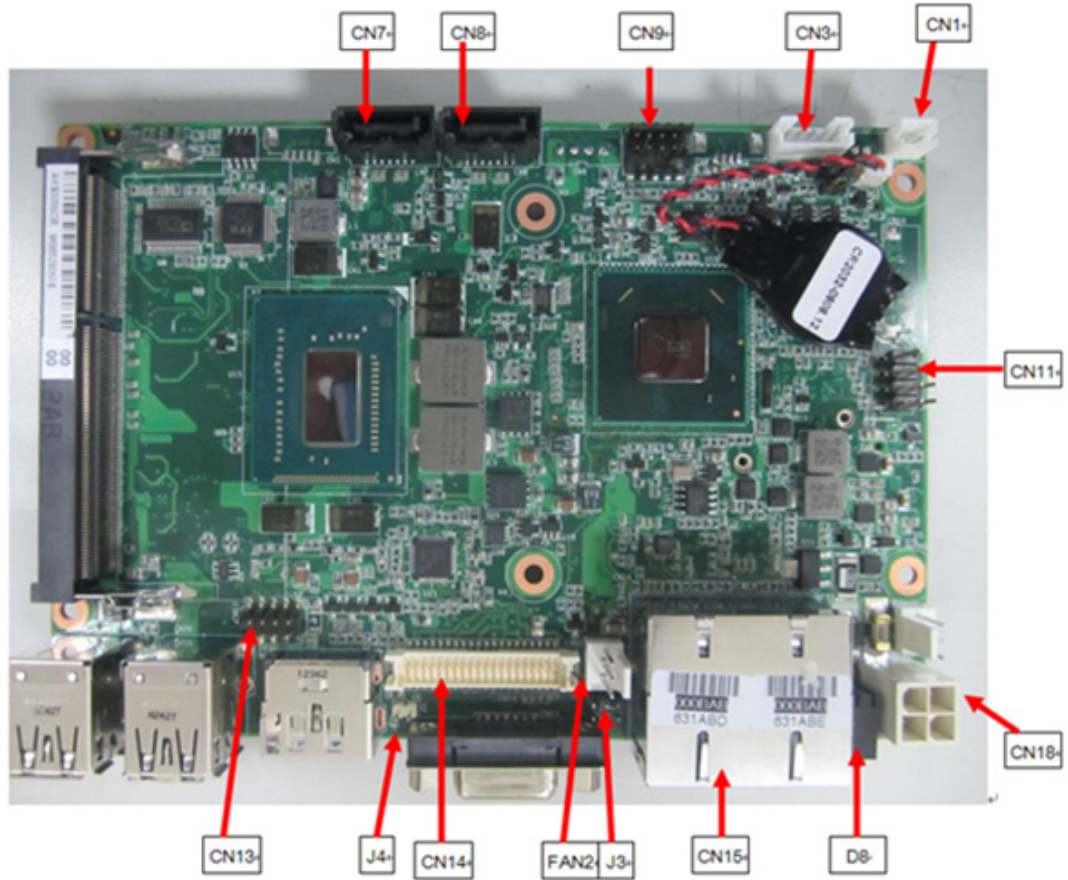


Figure 3.2 MIO-5290 front view

Bottom

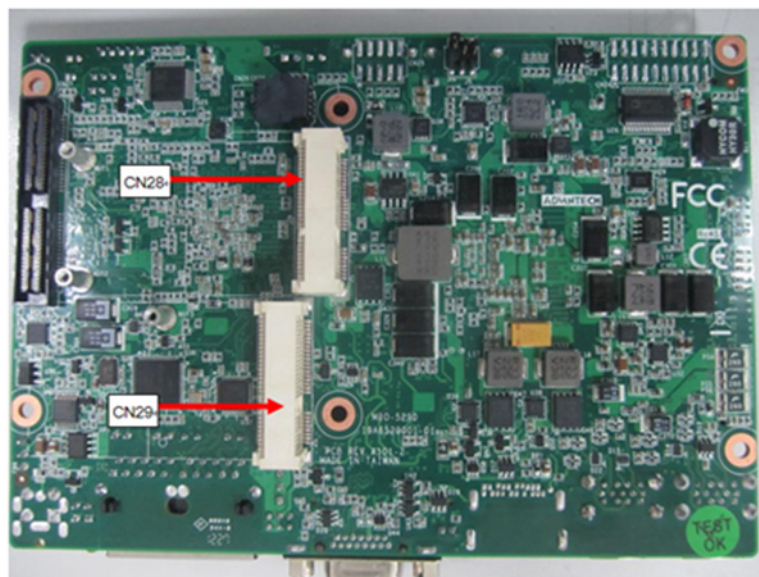
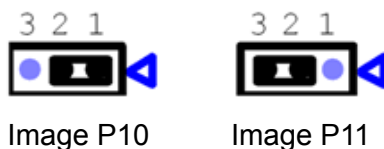


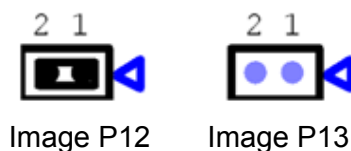
Figure 3.3 MIO-5290 rear view

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

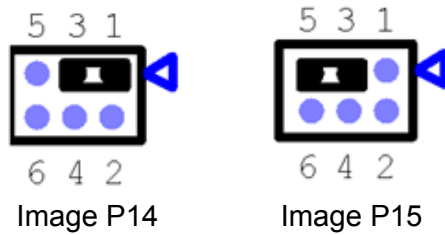
J1	Images	For Clear CMOS
Configuration		Functions
(1-2)	P10	Keep CMOS (Default)
(2-3)	P11	Clear CMOS



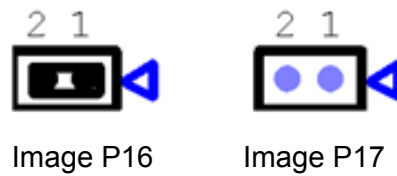
J2	Images	For ATX & AT Select
Configuration		Functions
On(1-2)	P12	AT mode
OFF(1-2)	P13	ATX mode (Default)



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



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



3.2 External COM PORT & DIO Switch and PIN Definition

(Open the rear cover before configuration)

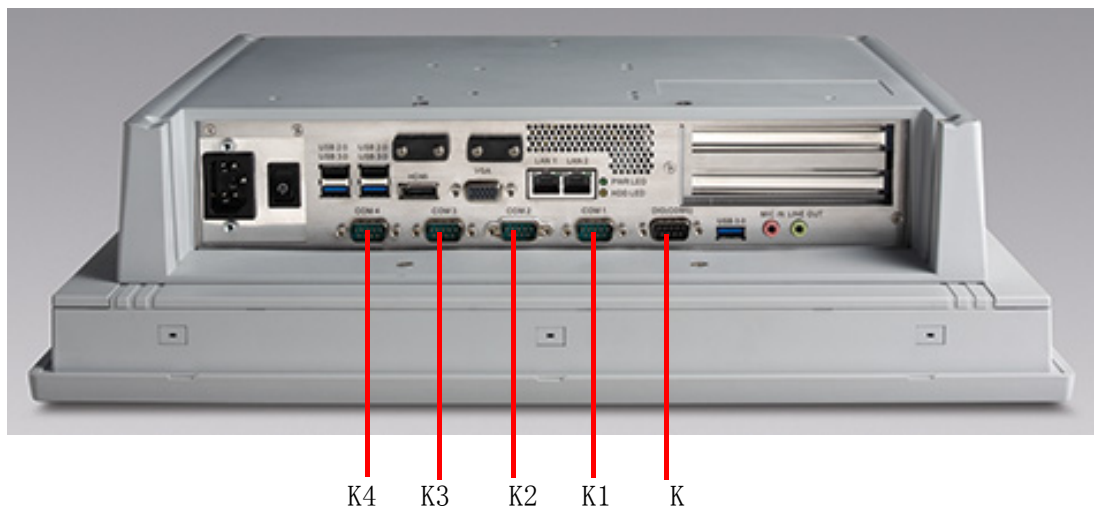


Figure 3.4 COM ports

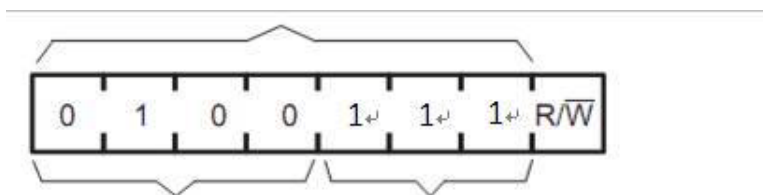
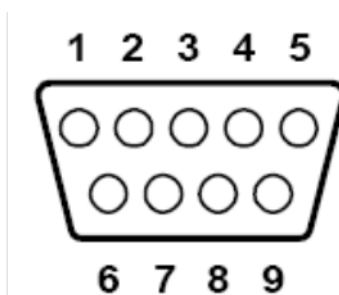
- K: DIO / COM5 port (by swapping pin header)
- K1: COM1(RS232, pin9 supports 5 V/12 V output)
- K2: COM2(RS232/422/485, with isolation)
- K3: COM3(RS232, pin9 supports 5 V/12 V output)
- K4: COM4 (RS232)

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}).

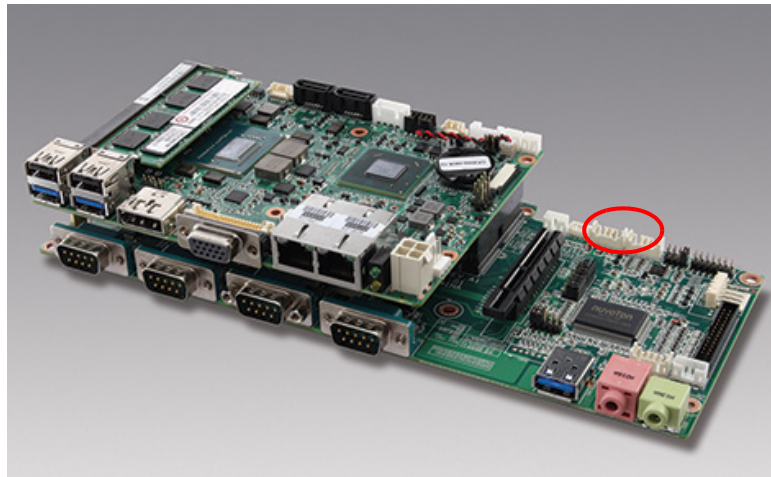
DIO:

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).

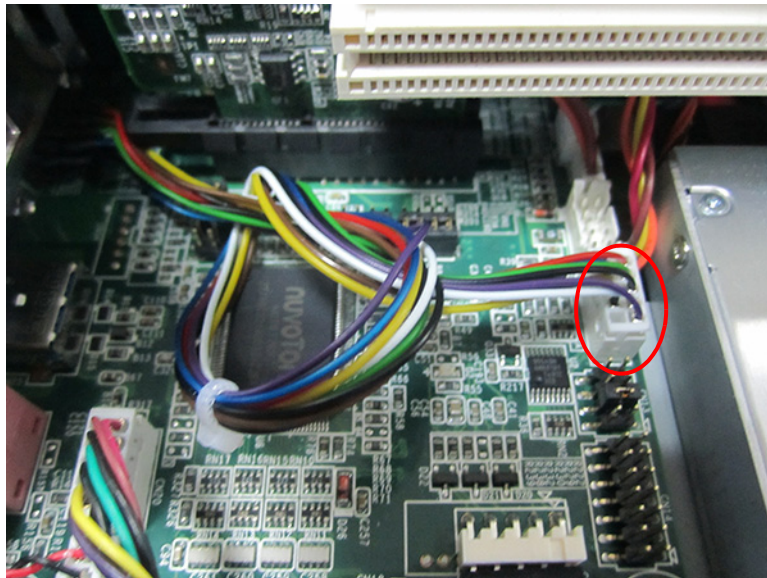


Figure 3.5

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 touchscreen driver.)

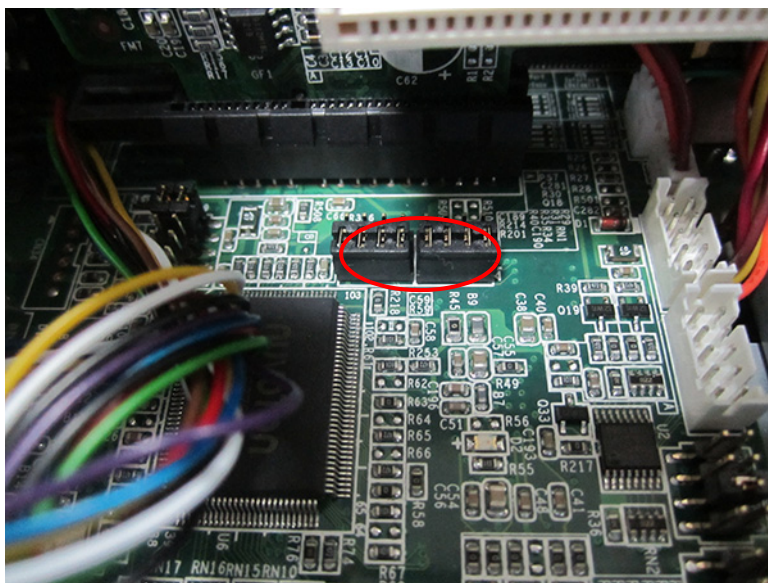


Figure 3.6

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

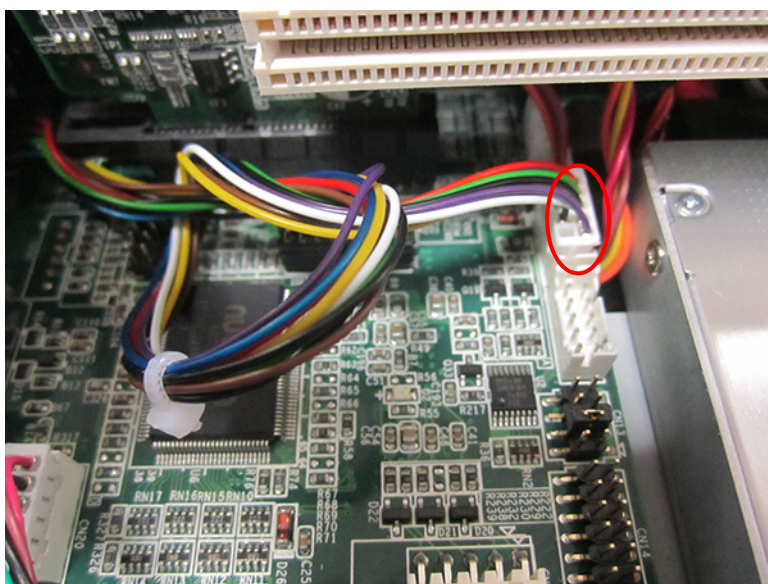


Figure 3.7

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.

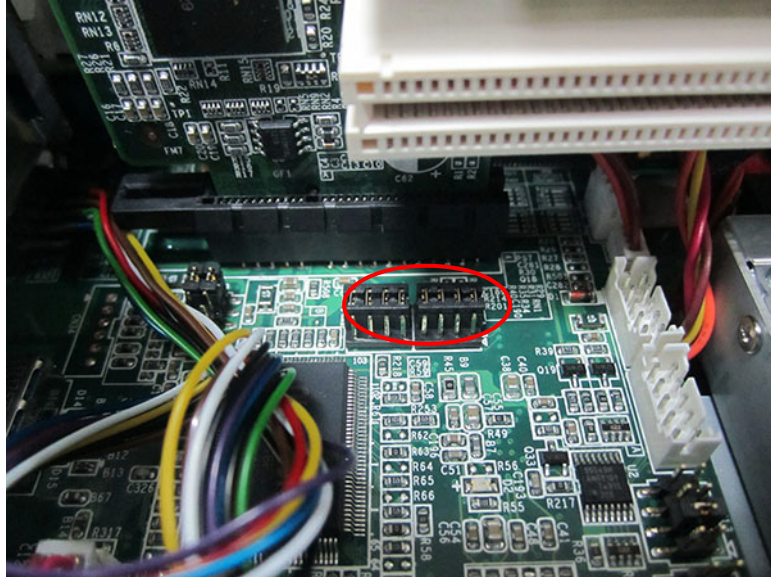


Figure 3.8

2. Use the USB to control the touchscreen.
Remove the DIO cable, and configure JP&JP2 as shown in the figure below, then reattach the DIO cable.

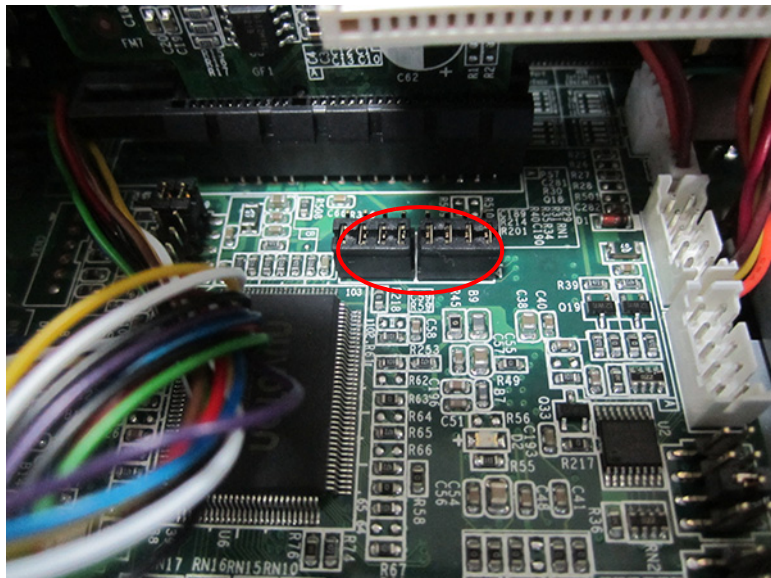


Figure 3.9

Chapter 4

Software Configuration

Sections include:

- Driver Installation
- BIOS Setup Program

4.1 Driver Installation

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

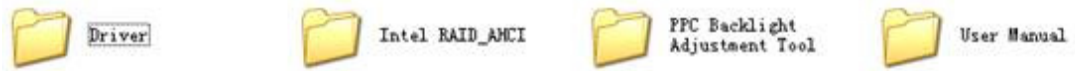


Figure 4.1 Drivers in the CD-ROM

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 refer to the “User manual” in this folder.

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

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

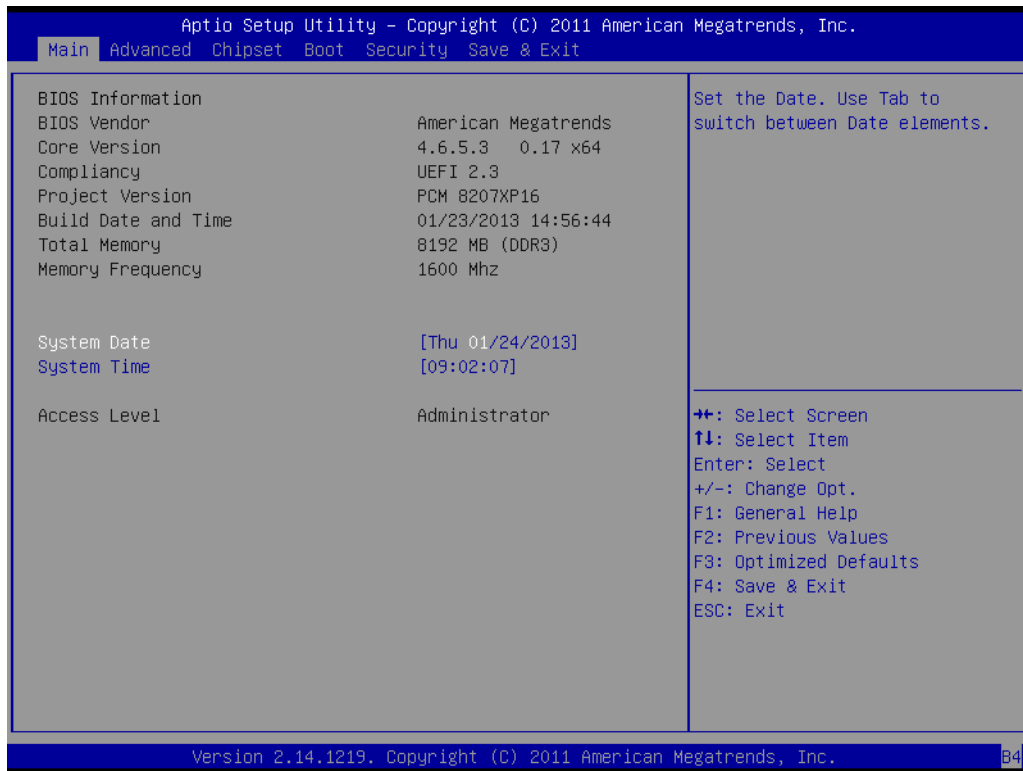
<http://www.advantech.com.cn/>

4.2 BIOS Setup

4.2.1 Enter BIOS

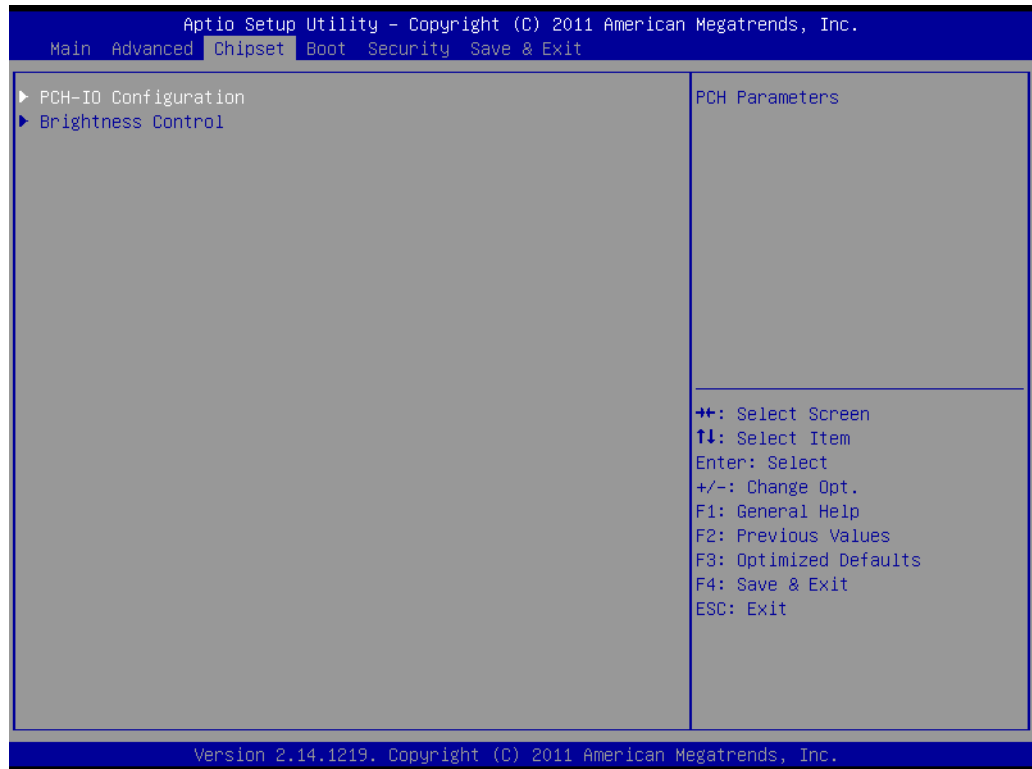
Start the computer and press “Delete” key to enter BIOS.

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

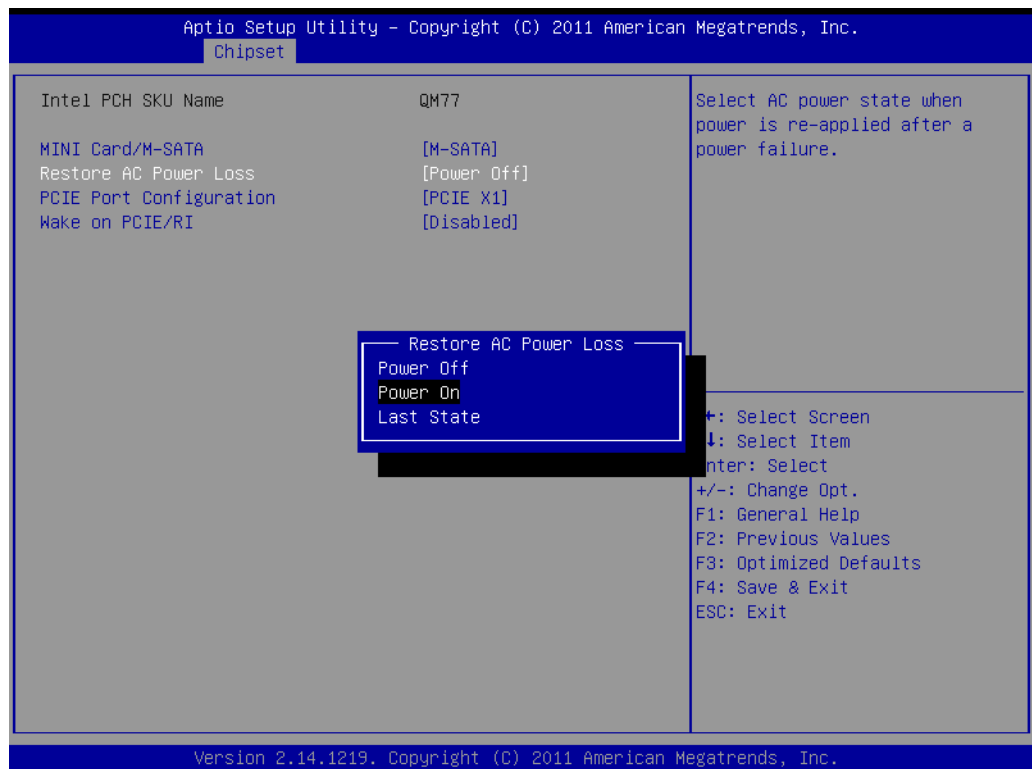


4.2.2 ATX & AT Mode Setup

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



2. Configure "Restore AC Power Loss" as "Power On".



4.2.3 Display Brightness Adjustment

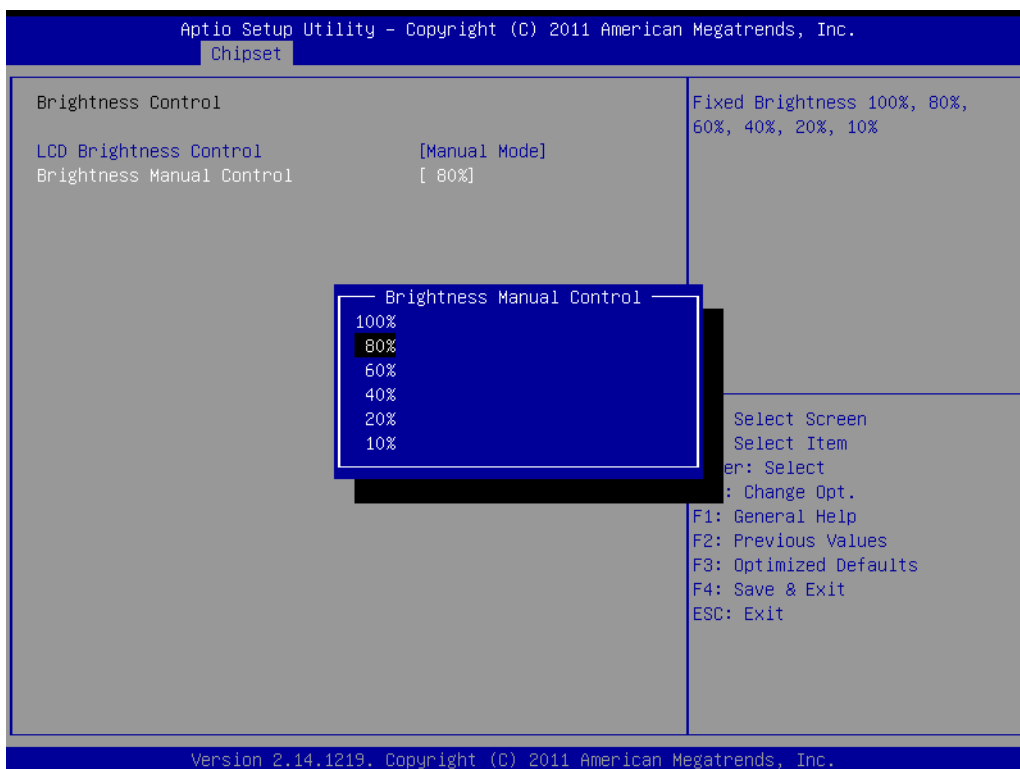
Select “Chipset” under “Brightness Control”.



A.Manual Adjustment Mode

“LCD Brightness Control” is configured as “Manual Mode” by default.

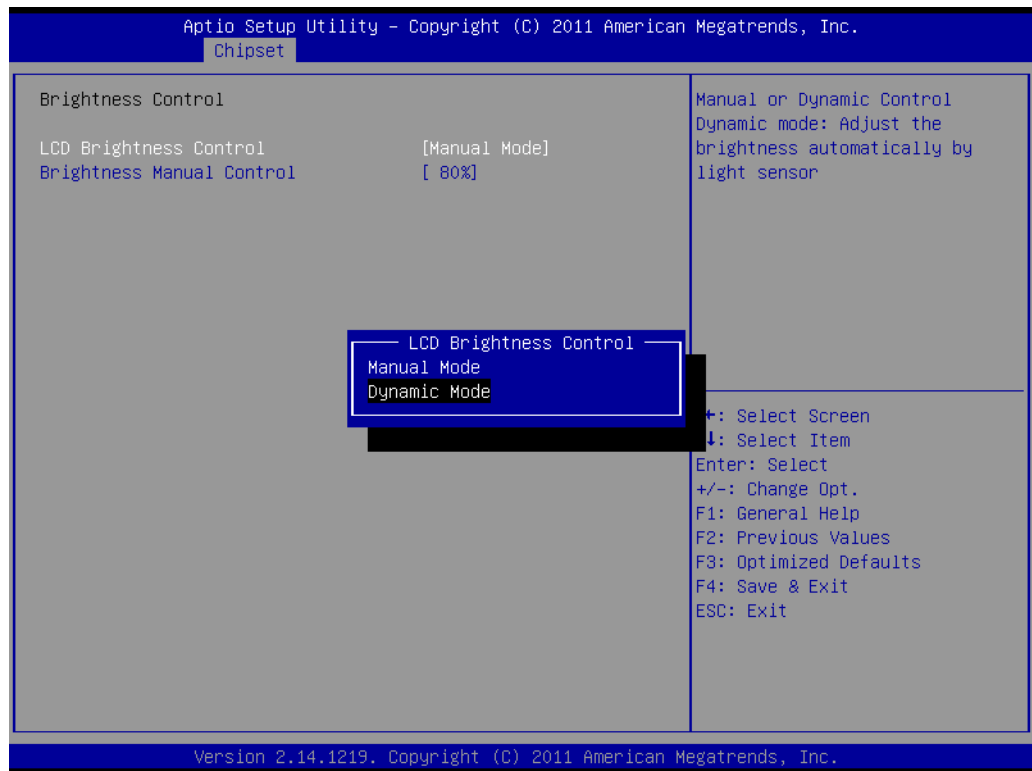
Select “Brightness Manual Control” under “Brightness Control”, and there will be six options:



B. Auto Sensor Adjustment Mode

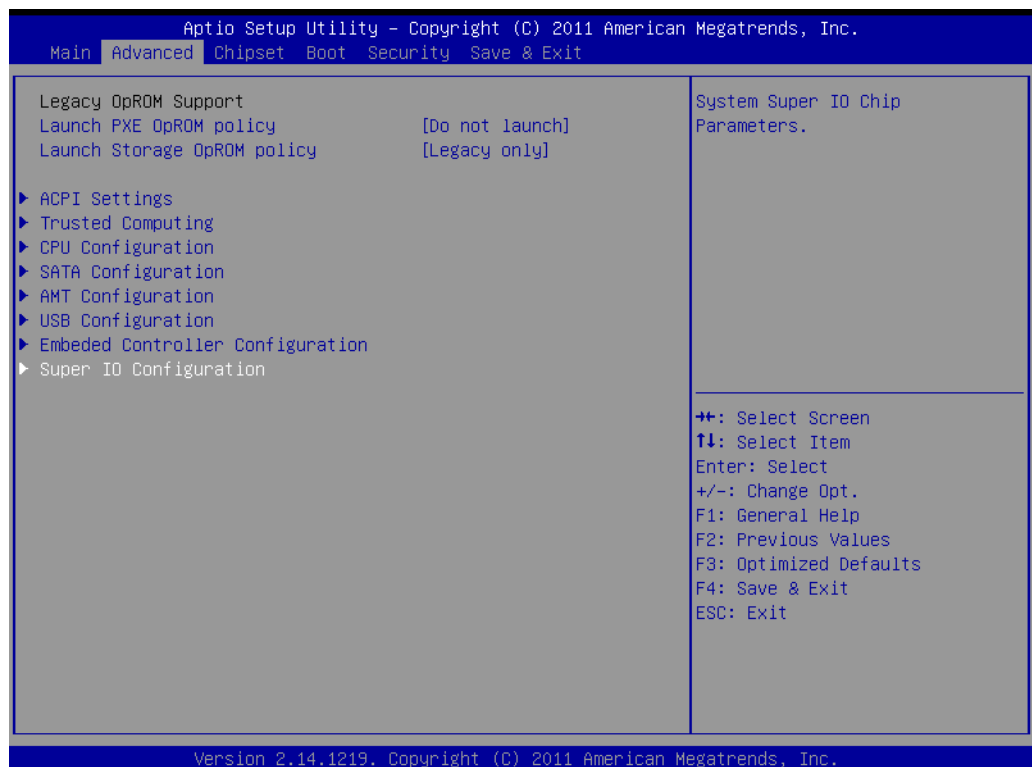
“LCD Brightness Control” is configured as “Dynamic Mode”, that is, auto sensor adjustment mode.

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



4.2.4 COM 232/422/485 Port

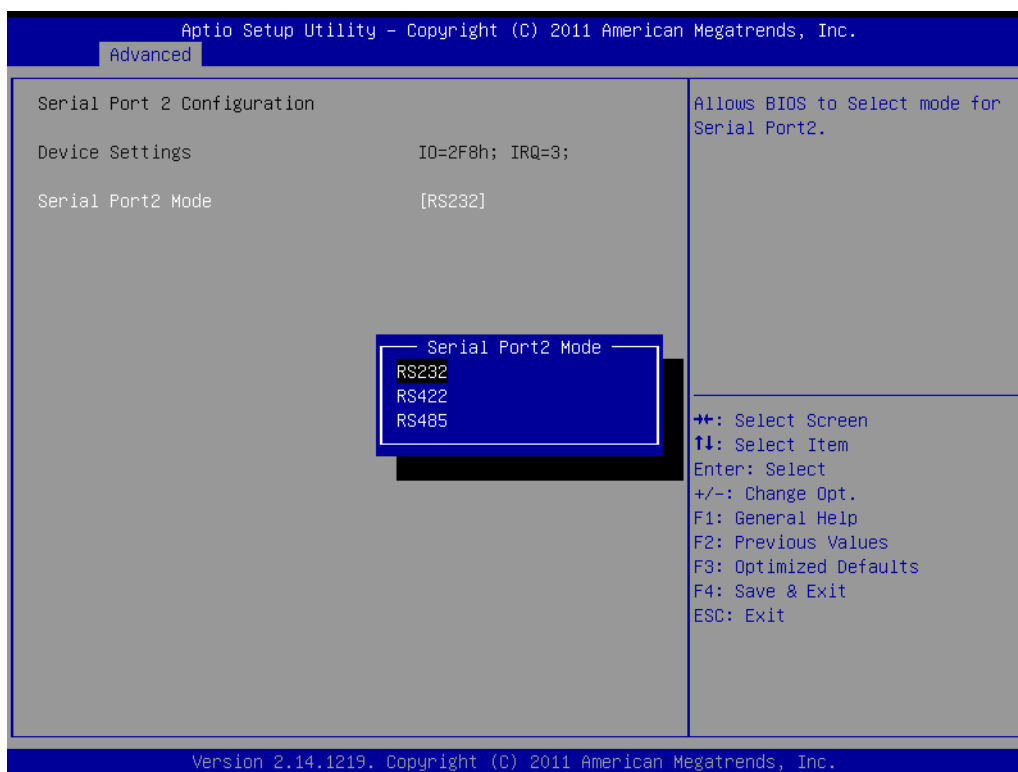
1. Select “Advanced” under “Super IO Configuration”.



2. Then Select "Serial Port 2 Configuration".

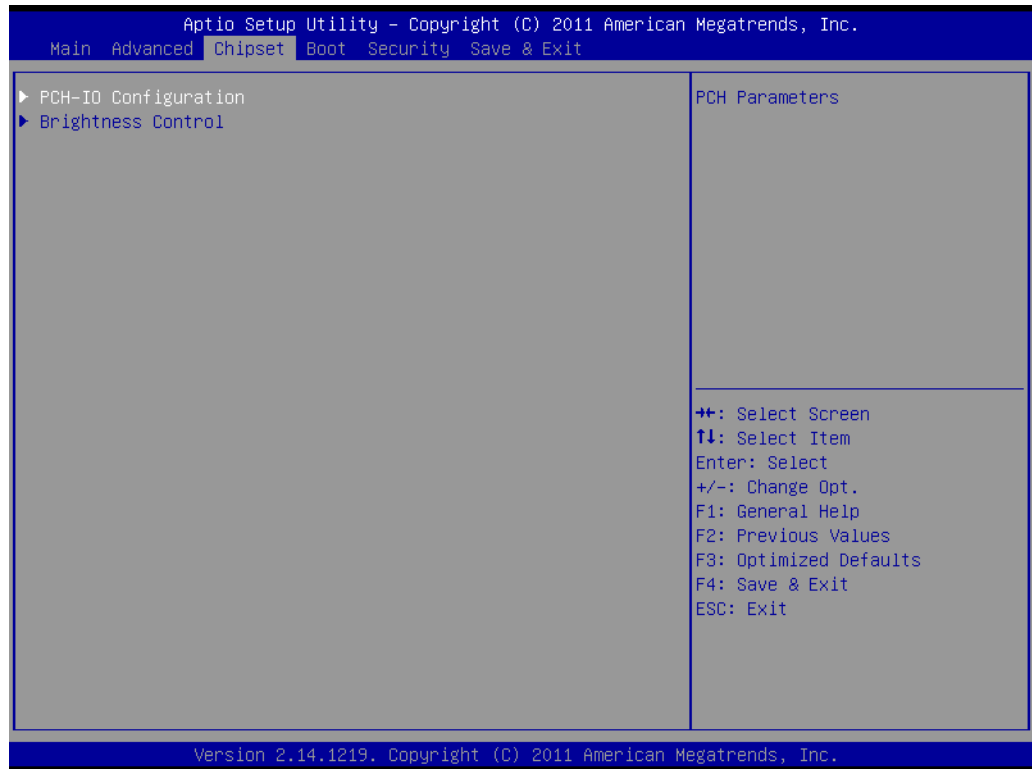


3. Then you can select the operation mode of COM2 by "Serial Port2 Mode".

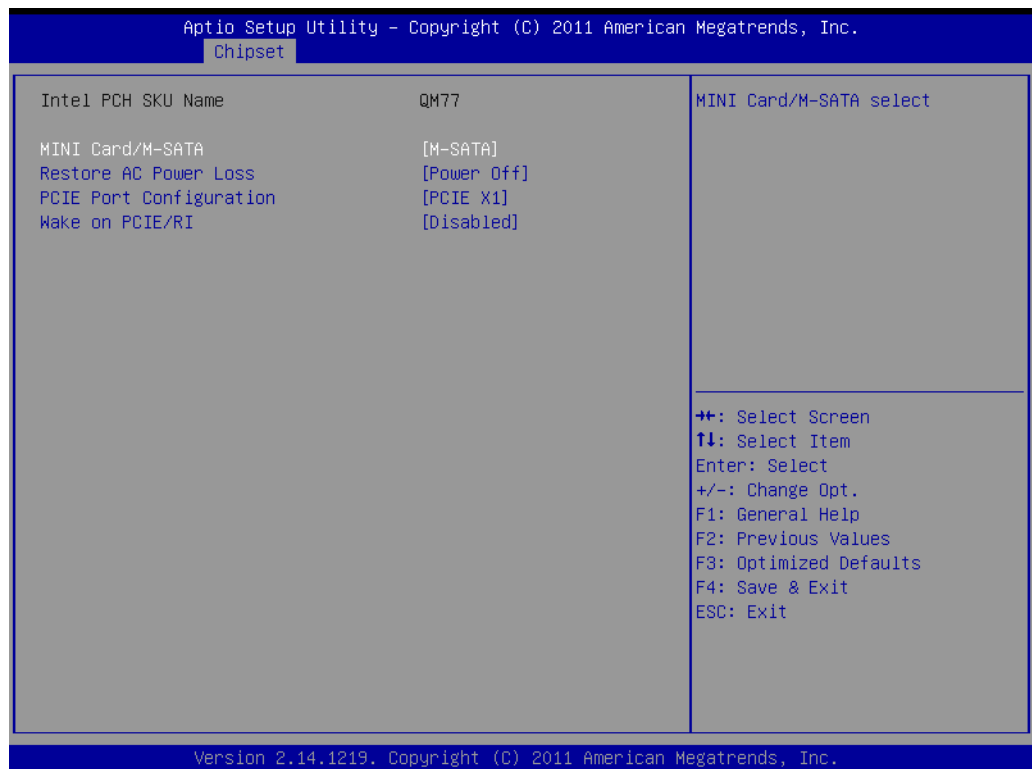


4.2.5 MiniPCIE & MiniSATA Configuration Method

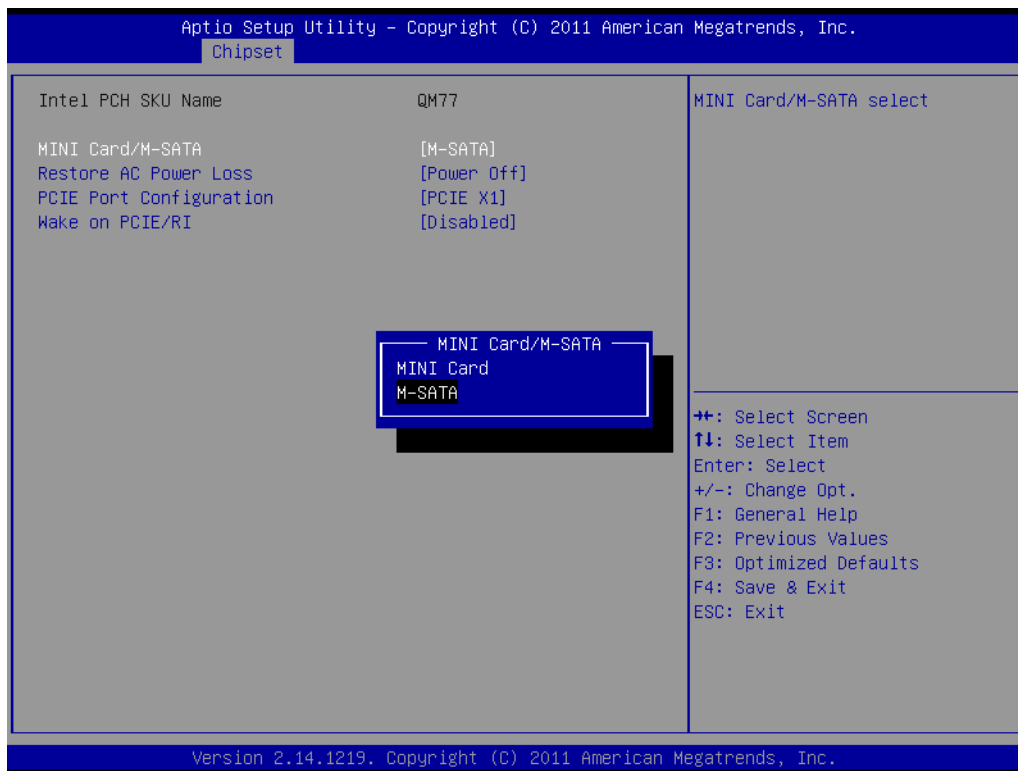
1. Select "Chipset" under "PCH-IO Configuration".



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

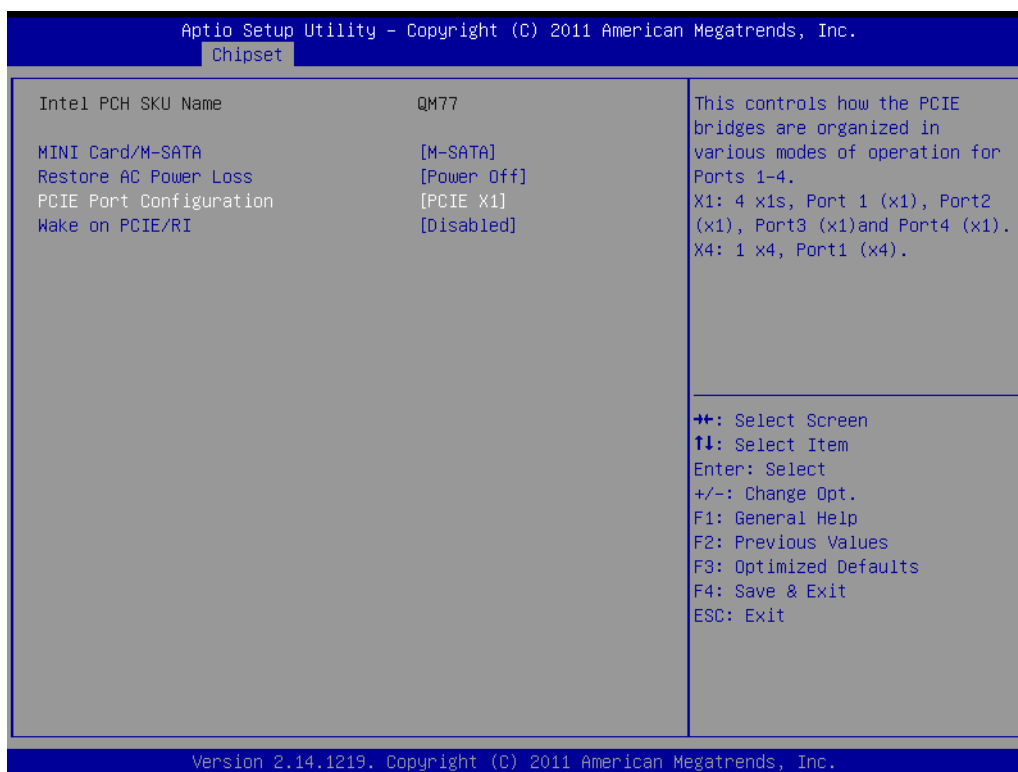


- Enter and select MINI PCIE type.
Mini Card: CN28 is of Mini PCIE interface.
M-SATA: CN28 is of Mini SATA interface.

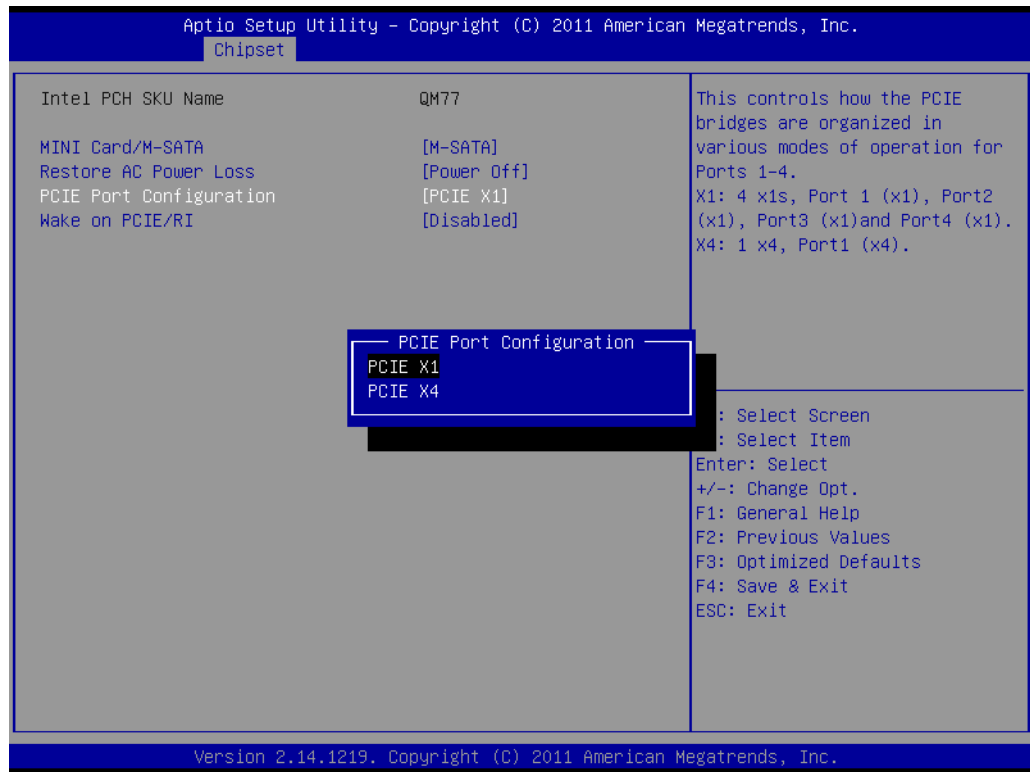


4.2.6 PCIE Mode Select (x1, x4)

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

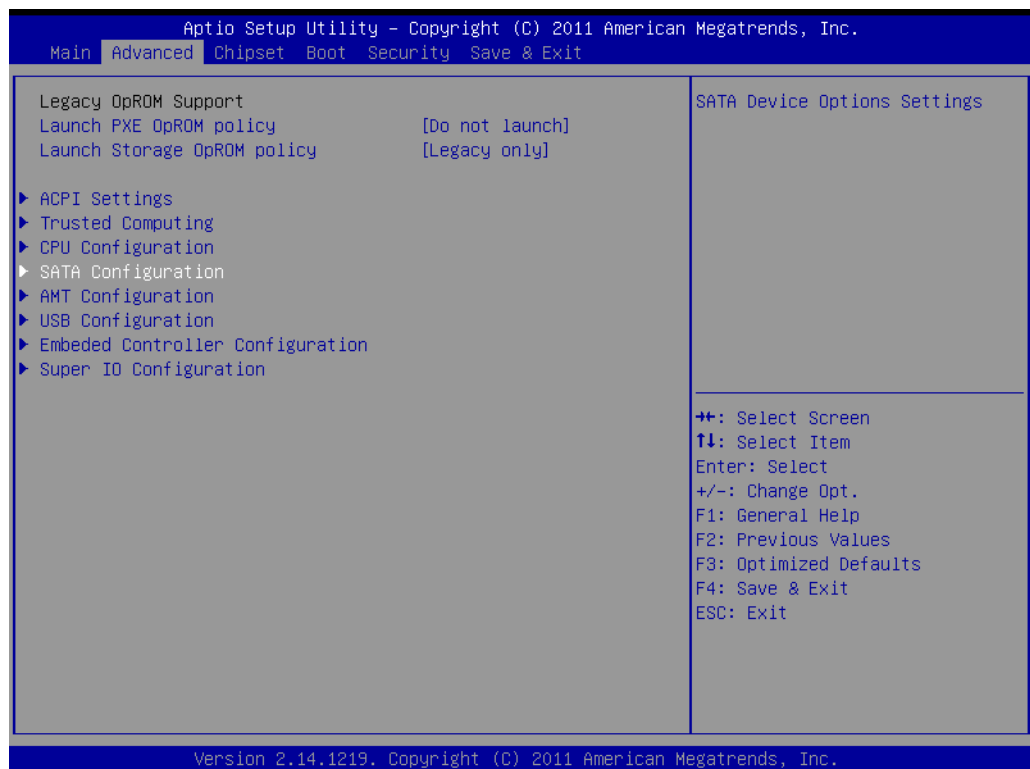


- Enter and select PCIE mode as x1 or x4.
 PCIE X1: PPCIEX1 interface includes 4 PCIEx1 interface. (Users need to set this mode when using PCM-917/918/920)
 PCIE X4: PPCIEX1 interface includes 1 PCIEx4 interface. (Users need to set this mode when using PCM-916)

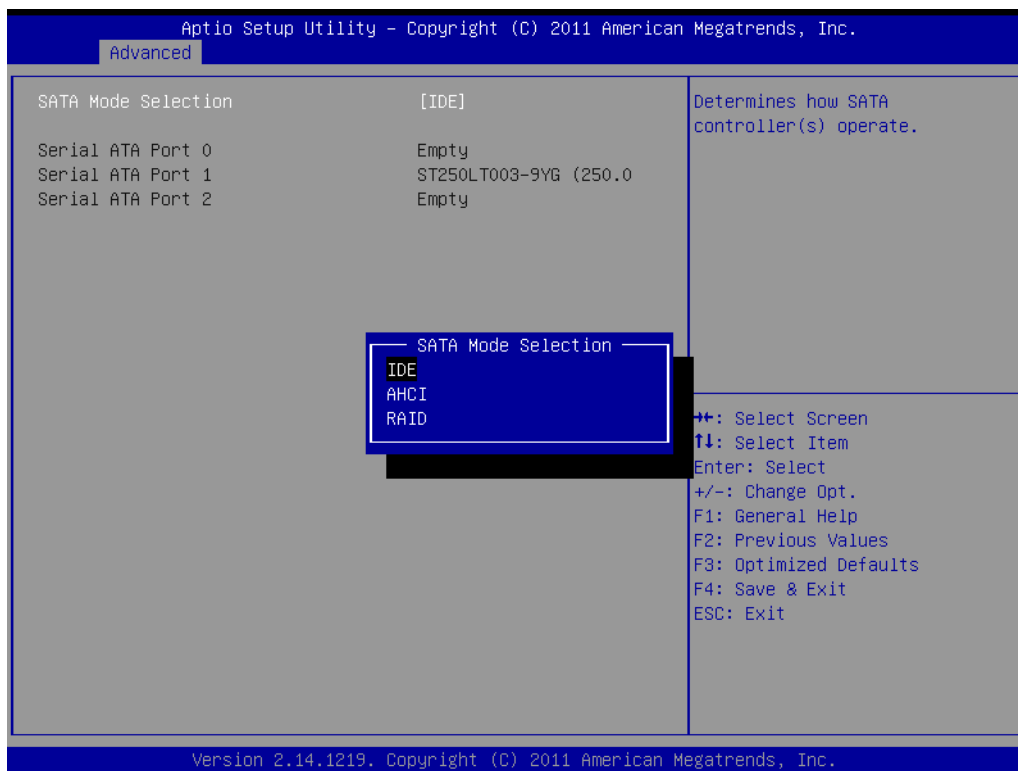


4.2.7 RAID Function Configuration

- Select "SATA Configuration" under "Advanced".



- Then select "RAID" in "SATA Mode Selection".

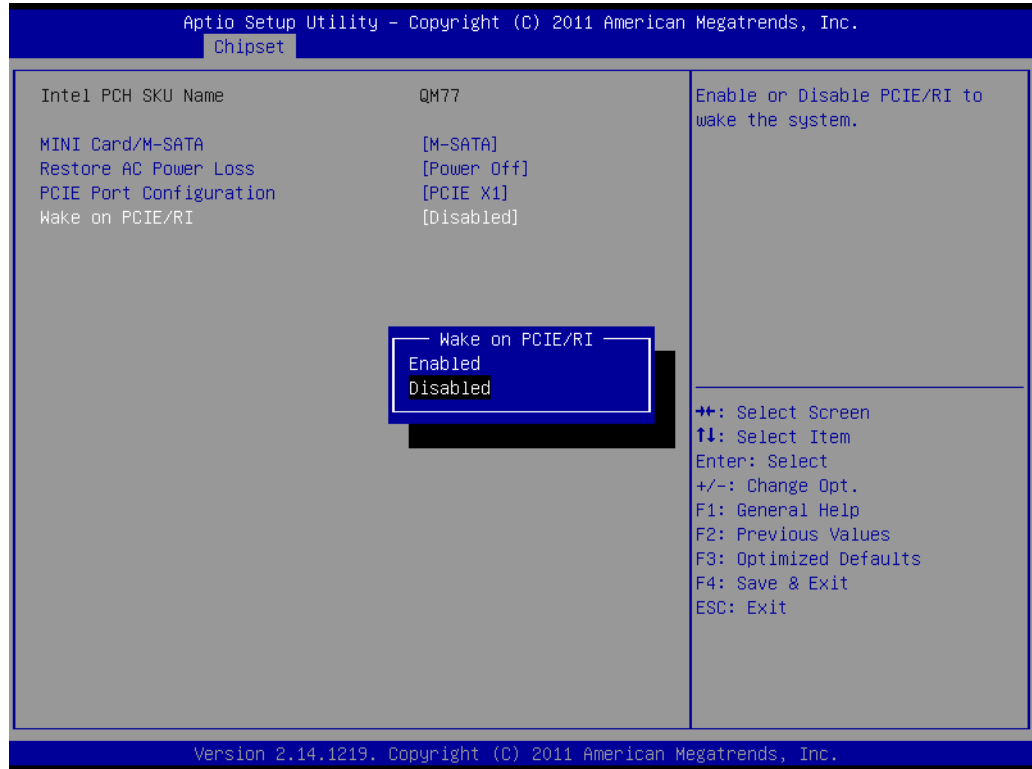


4.2.8 PCIE/RI Wakeup

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



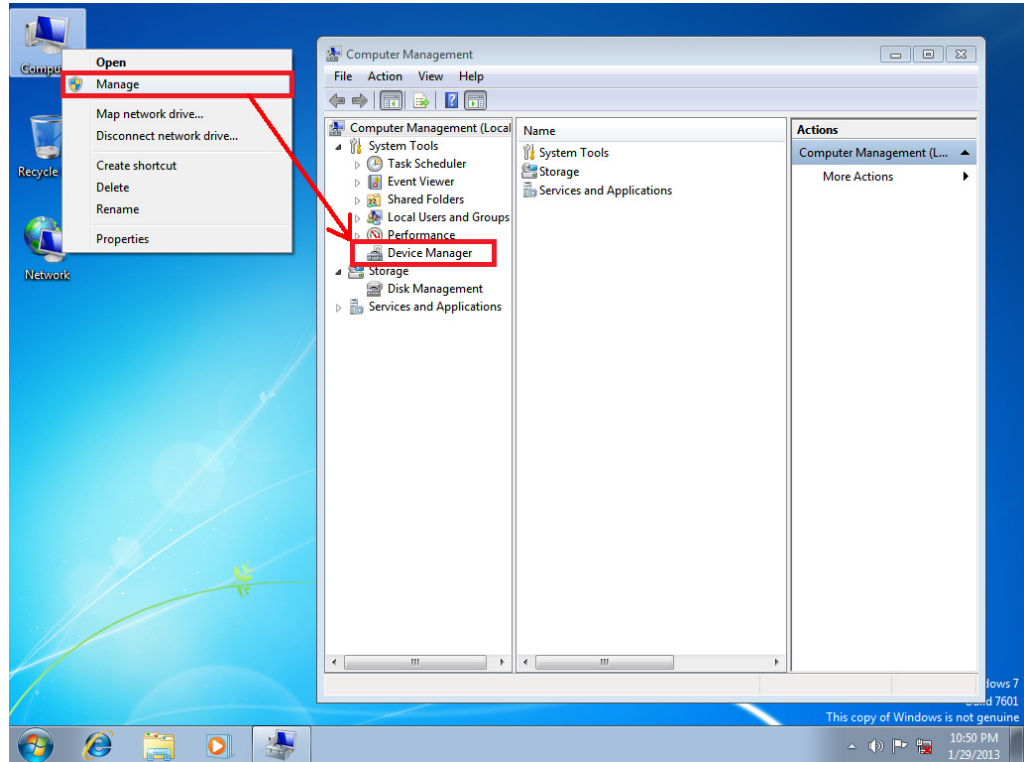
2. Select "Wake on PCIE/RI" as "Enabled" under "PCH-IO Configuration".



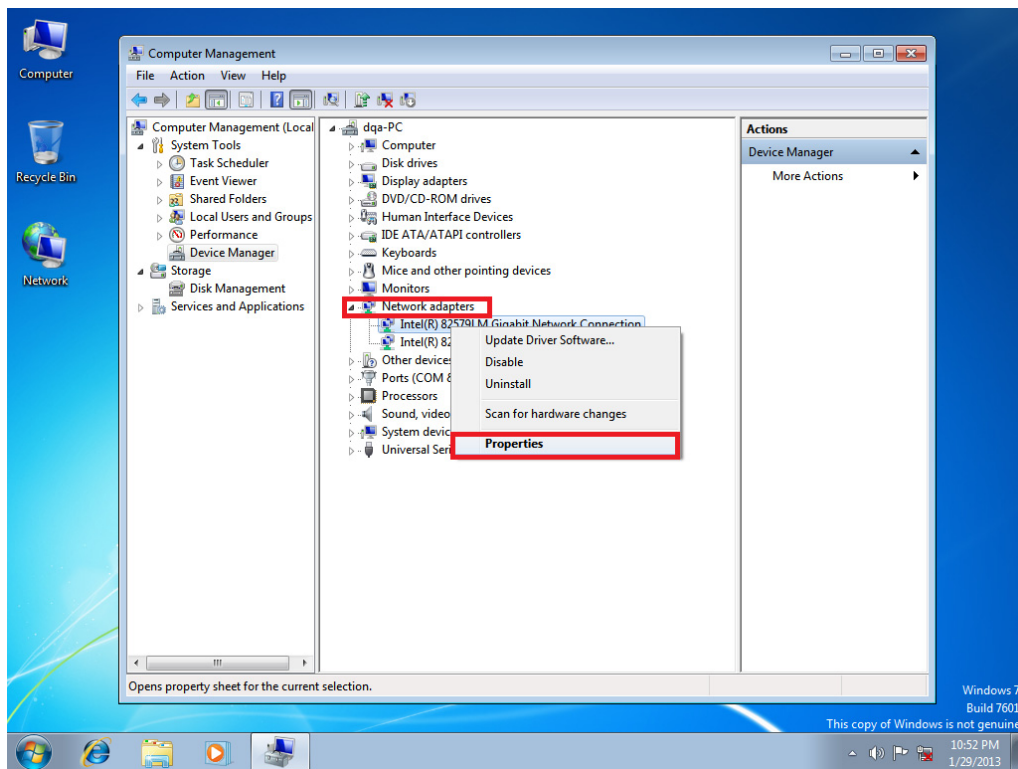
3. Open wake on LAN function in the system.

- A. Open wake on LAN function in windows 7.

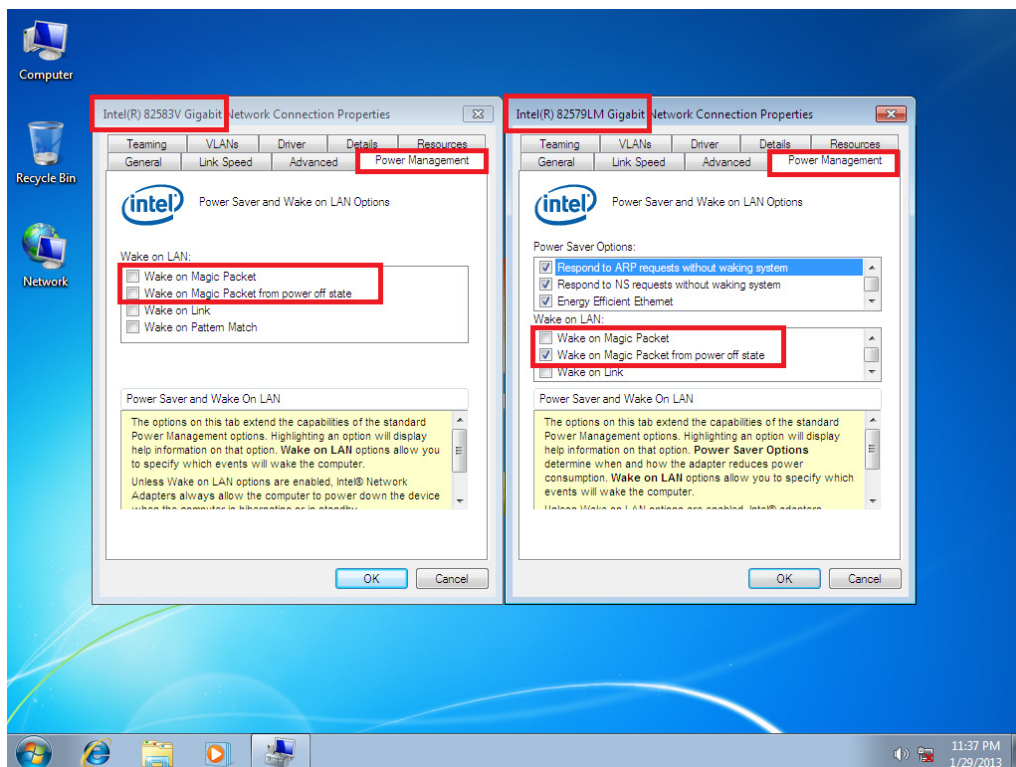
Right click "Computer" and select "Manage" to enter management interface, then select "Device Manager".



Select “Network adapters”, and two network devices will appear.
 Select any device with wake on LAN function, and right click to select “Properties”.

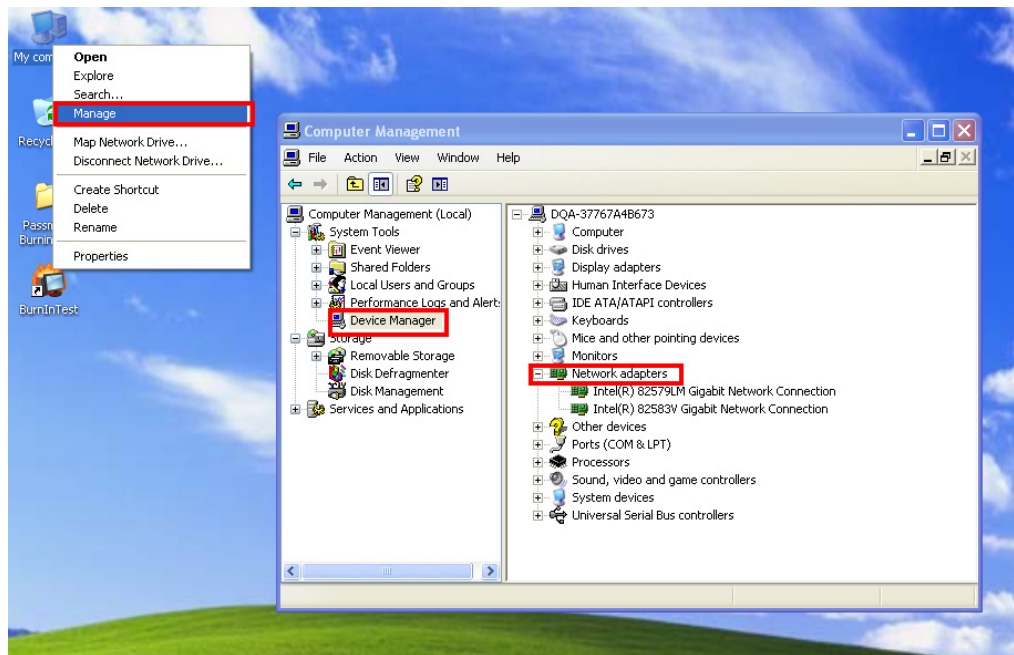


Select “Power Management”, and remember to check “Wake on Magic Packet” and “Wake on Magic Packet from power off state”.

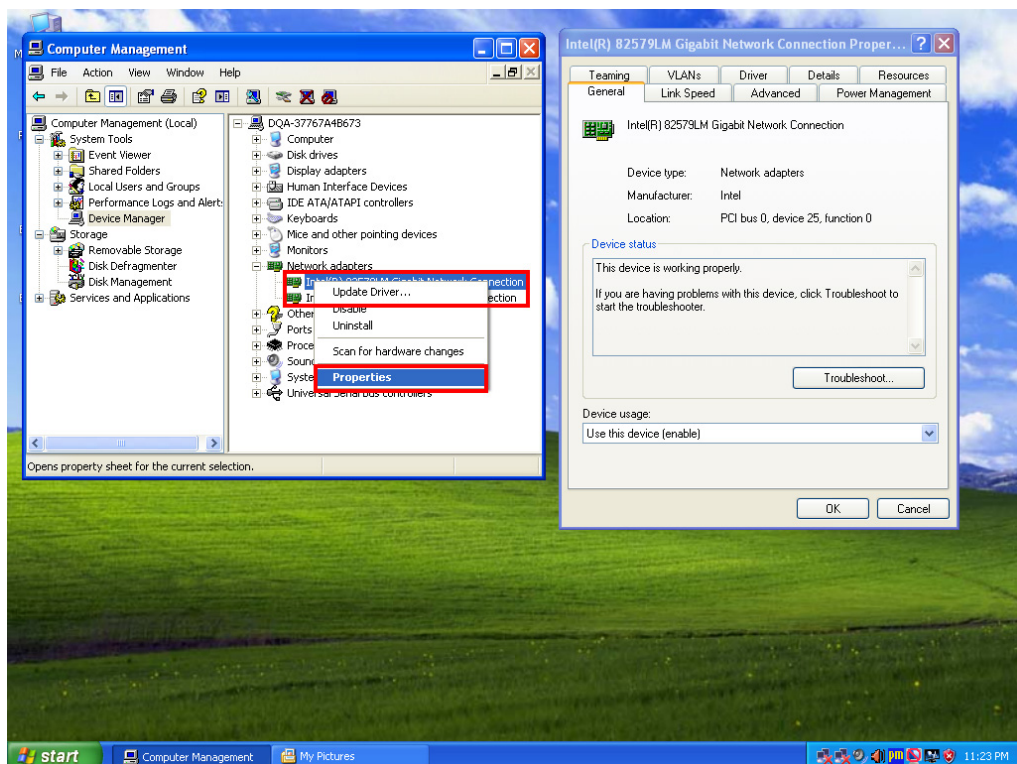


B. Open wake on LAN function in windows XP.

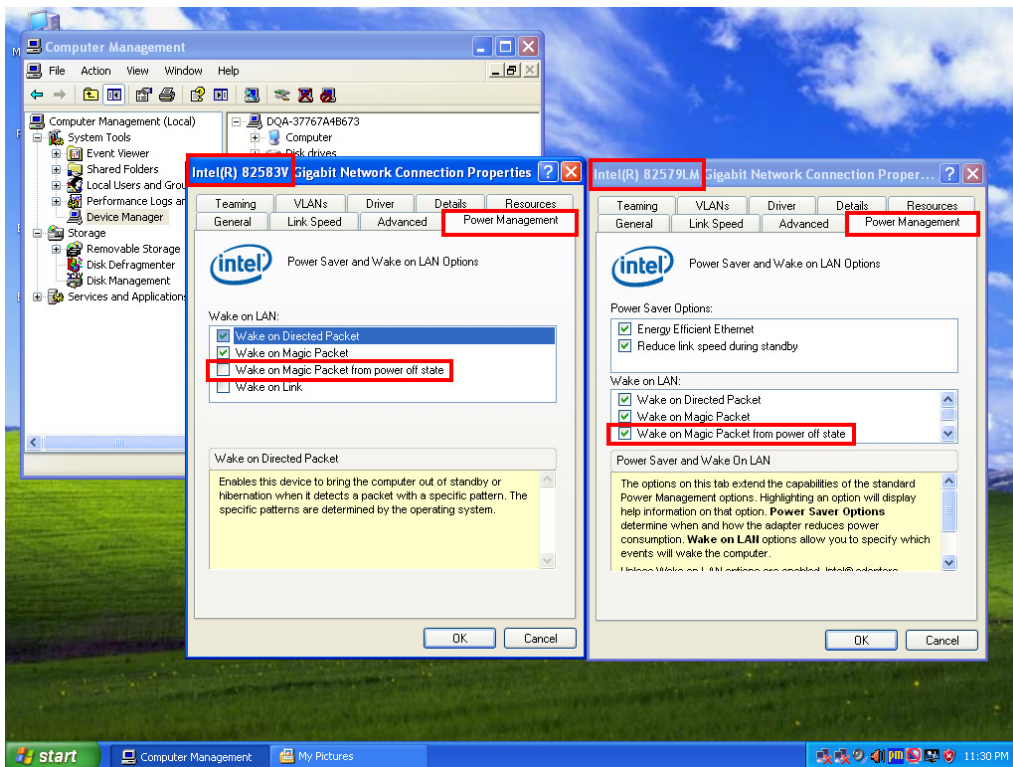
Right click “Computer” and select “Manage” to enter management interface, then select “Network adapters”, and 2 network devices will appear.



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”.

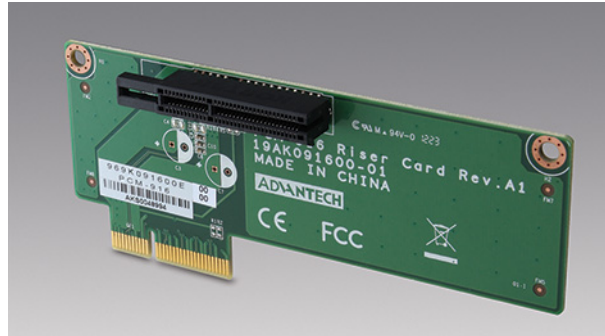


Appendix **A**

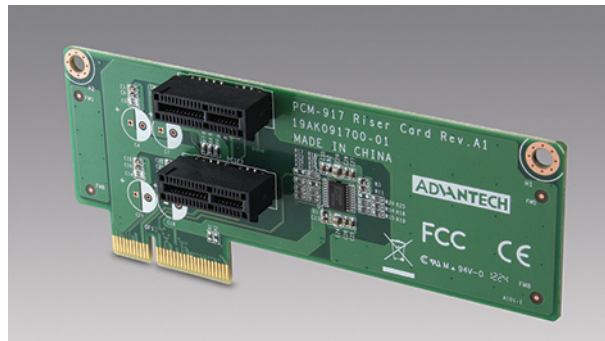
PCI/PCIE (Images) &
Dual HDD RAID
Function
Configuration

A.1 PCI/PCIE (Images)

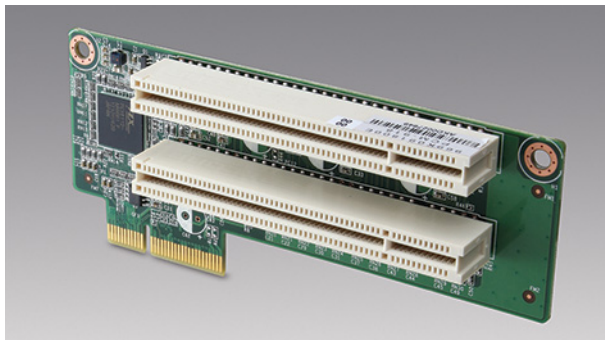
PCM-916 1-PCIEX4 slot (in the accessory box)



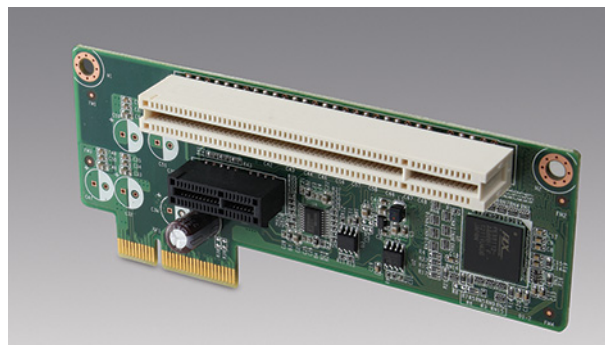
PCM-917 2-PCIEX1 slots (optional)



PCM-918 2-PCI32 slots (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:

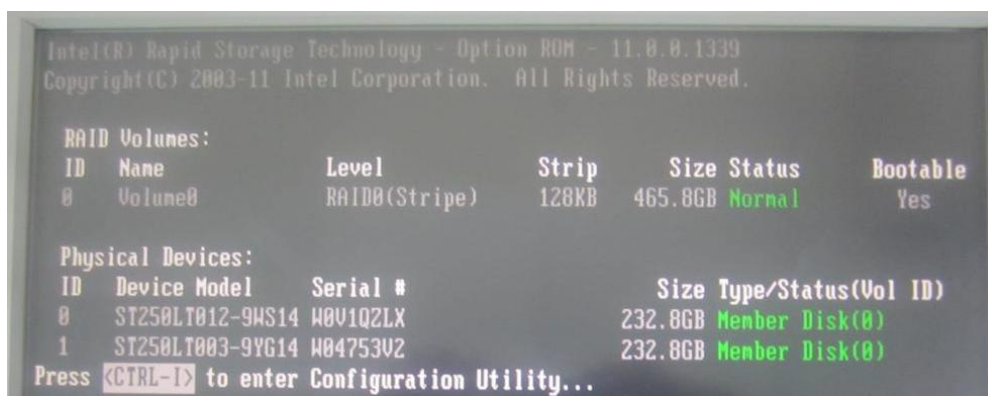
12 V	2 A
5 V	2 A
3.3 V	3 A
-12 V	100 mA

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

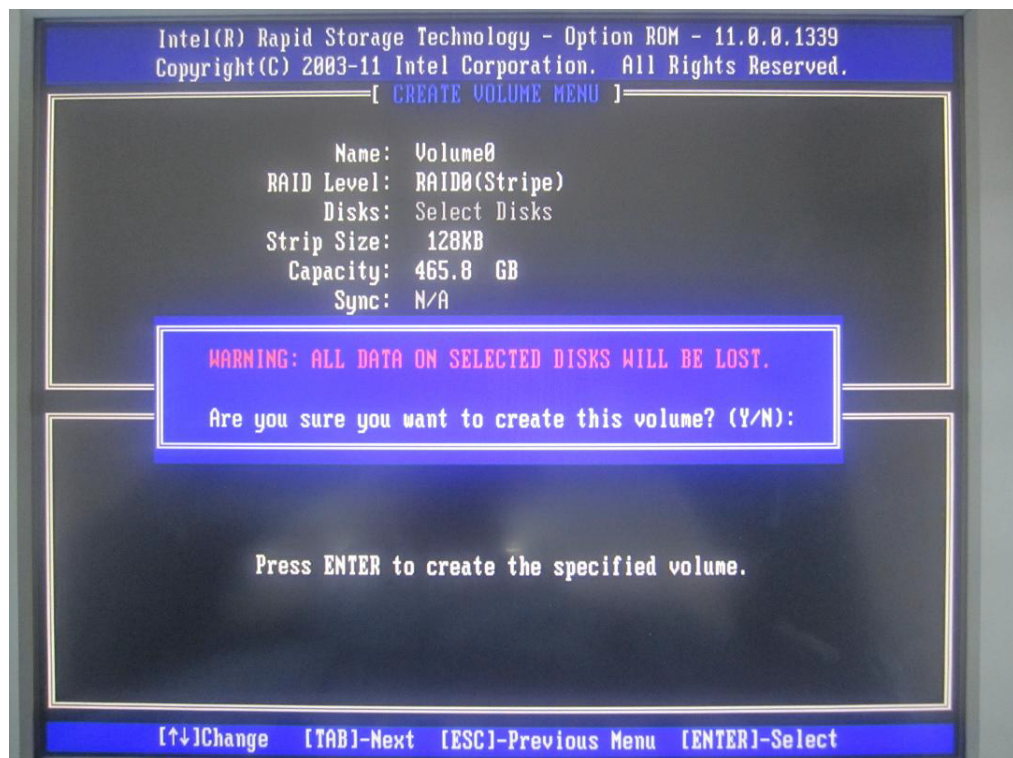
1. Enter BIOS and set SATA mode as RAID.
2. Please press "Ctrl+I" to enter RAID screen during bootup.



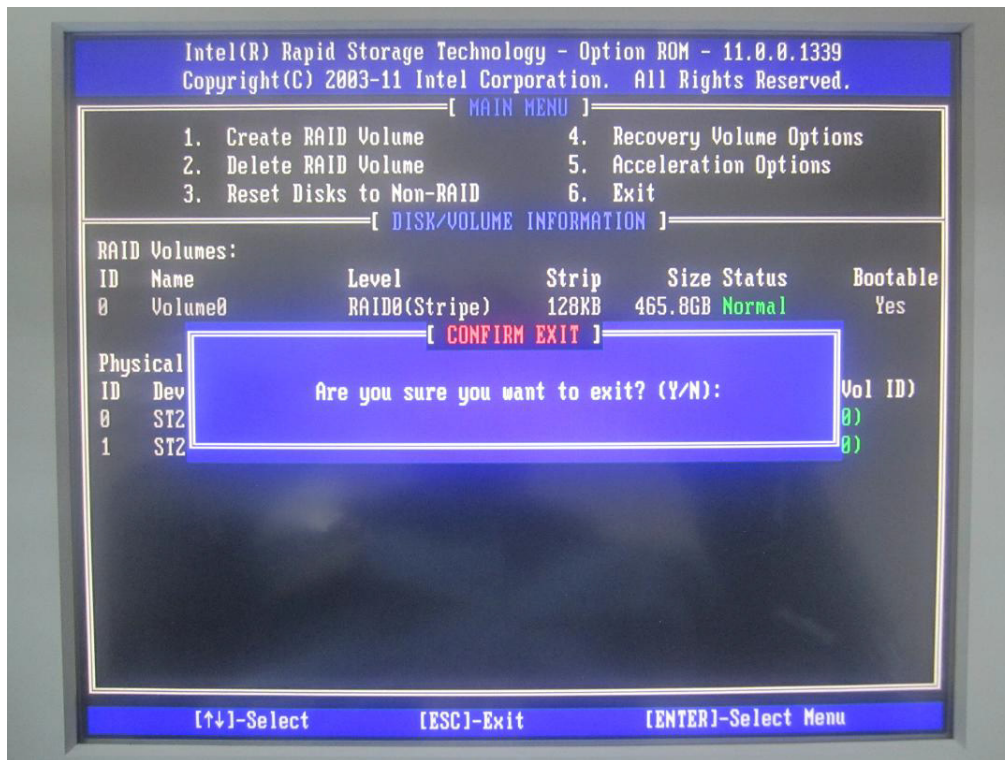
3. Select "Create RAID Volume" to create RAID.
Users can choose RAID0 or RAID1 mode here.



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.



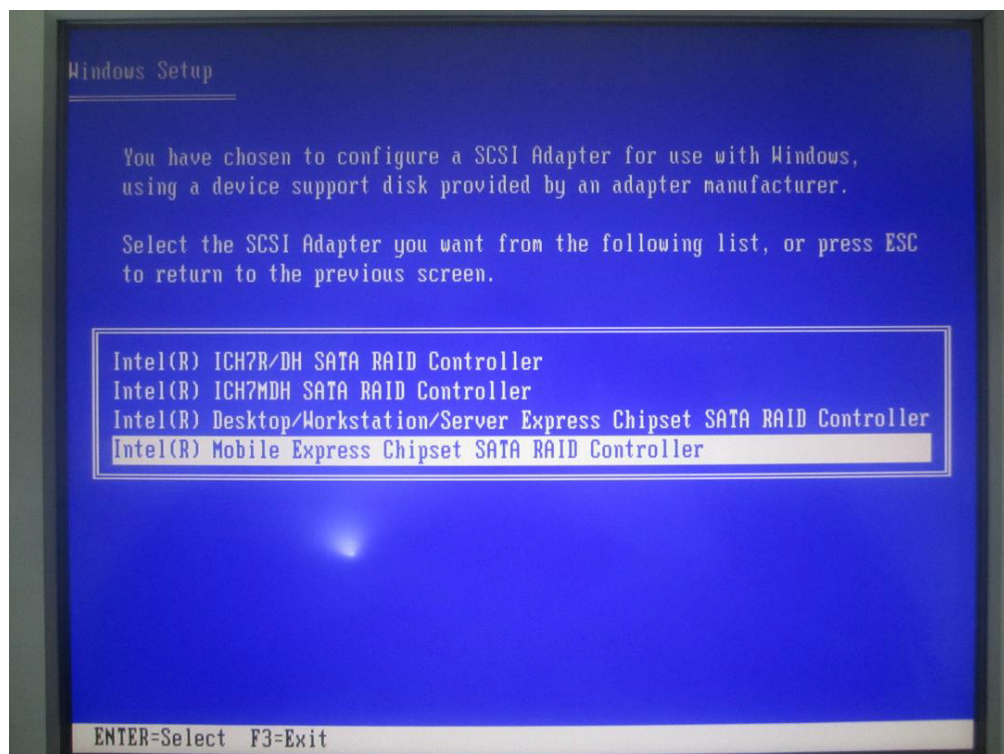
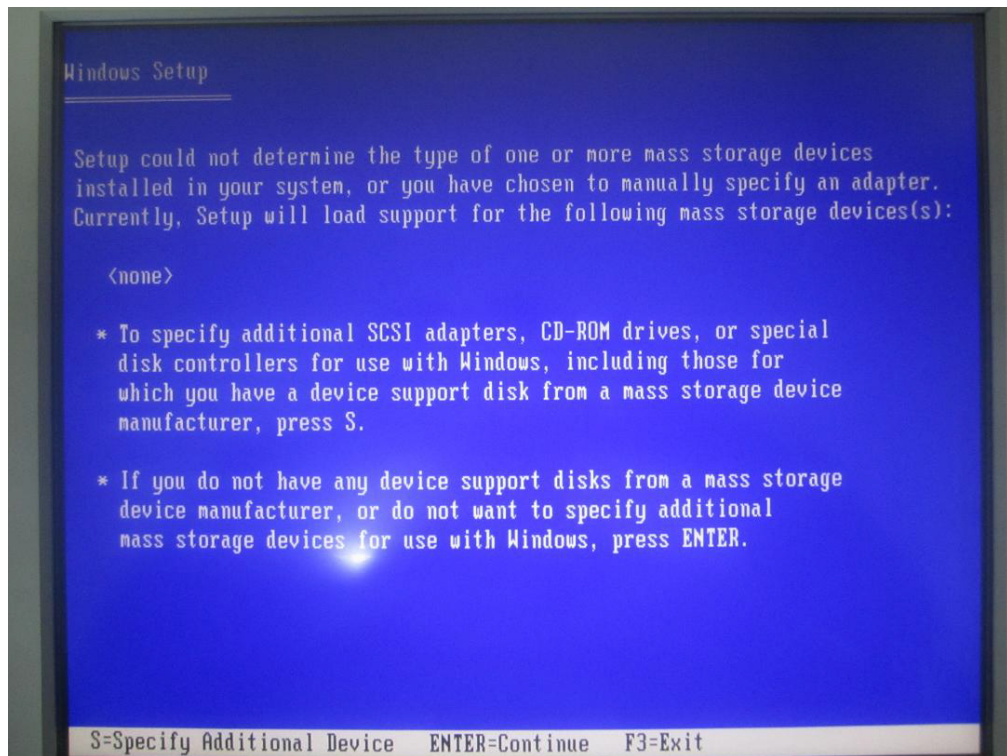
5. Select "Exit" and press "Y" to exit the screen.



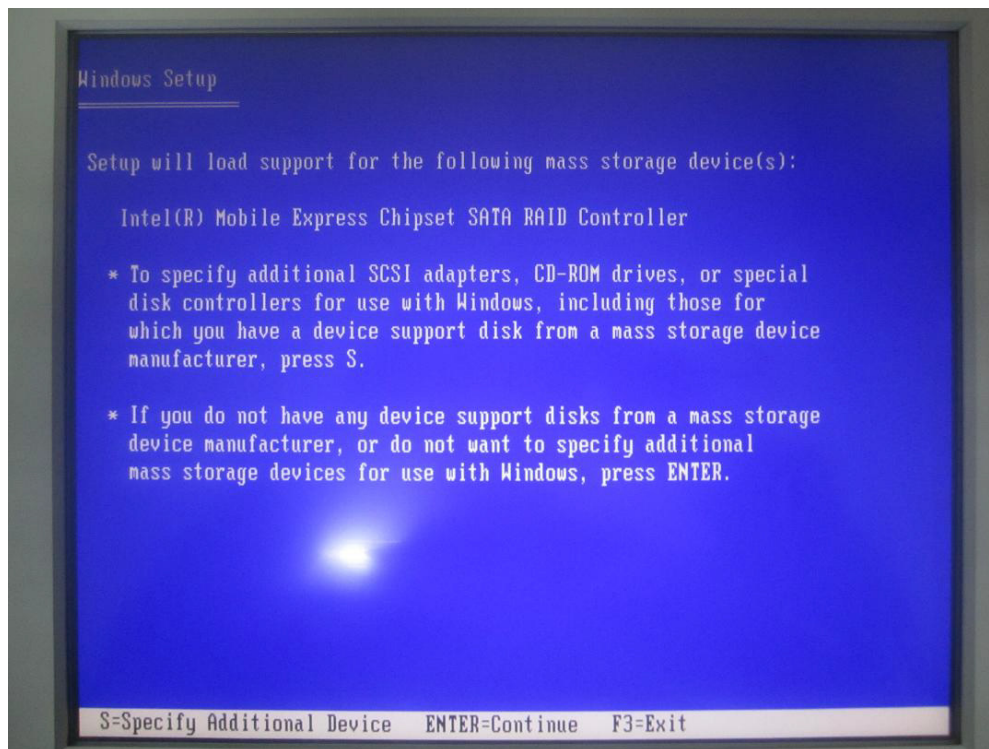
6. Then it will boot from CD-ROM. Press "F6" to wait loading RAID driver.



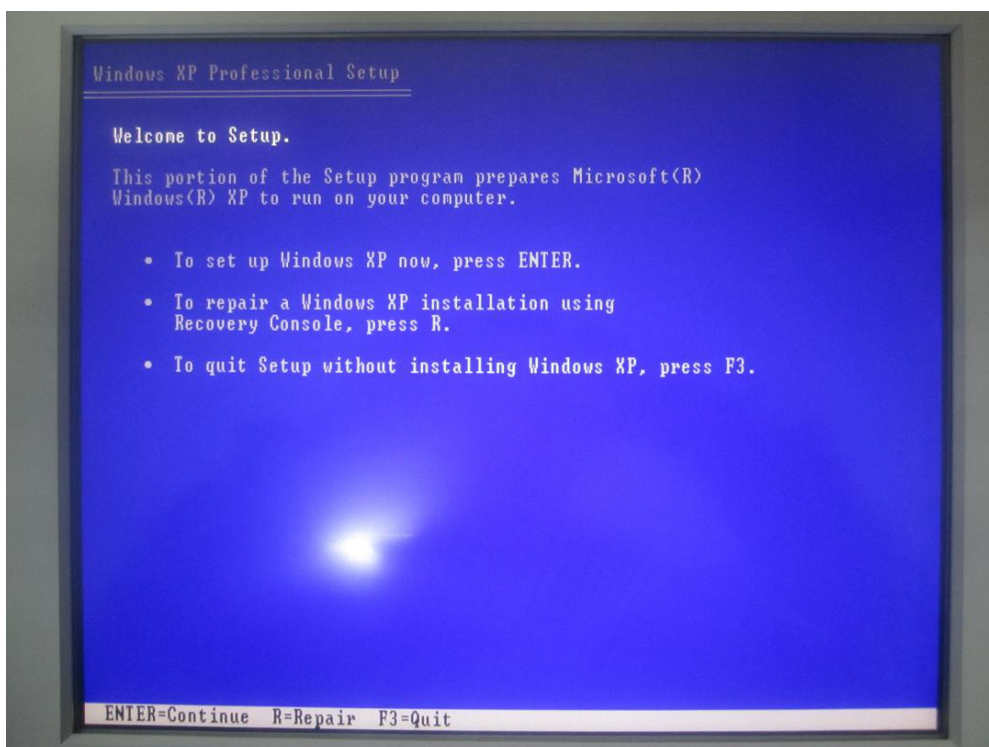
7. You can press "S" to select the driver when "loading driver" appears. Select "Intel (R) Mobile Express Chipset SATA RAID Controller" and press "Enter" to continue.



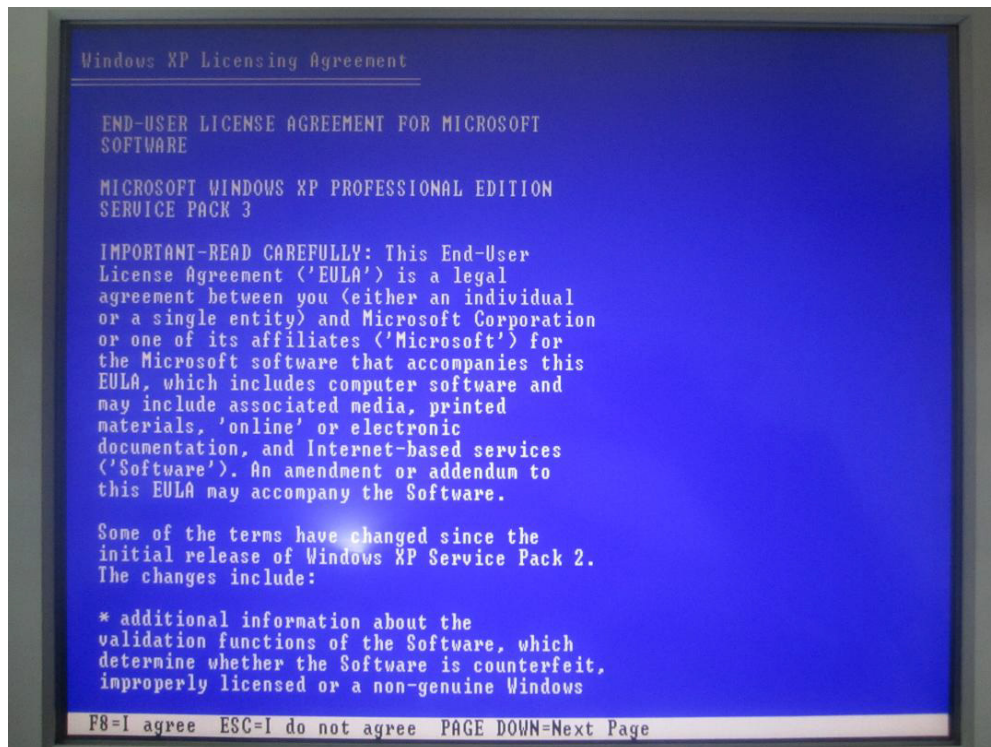
8. Press "Enter" to continue.



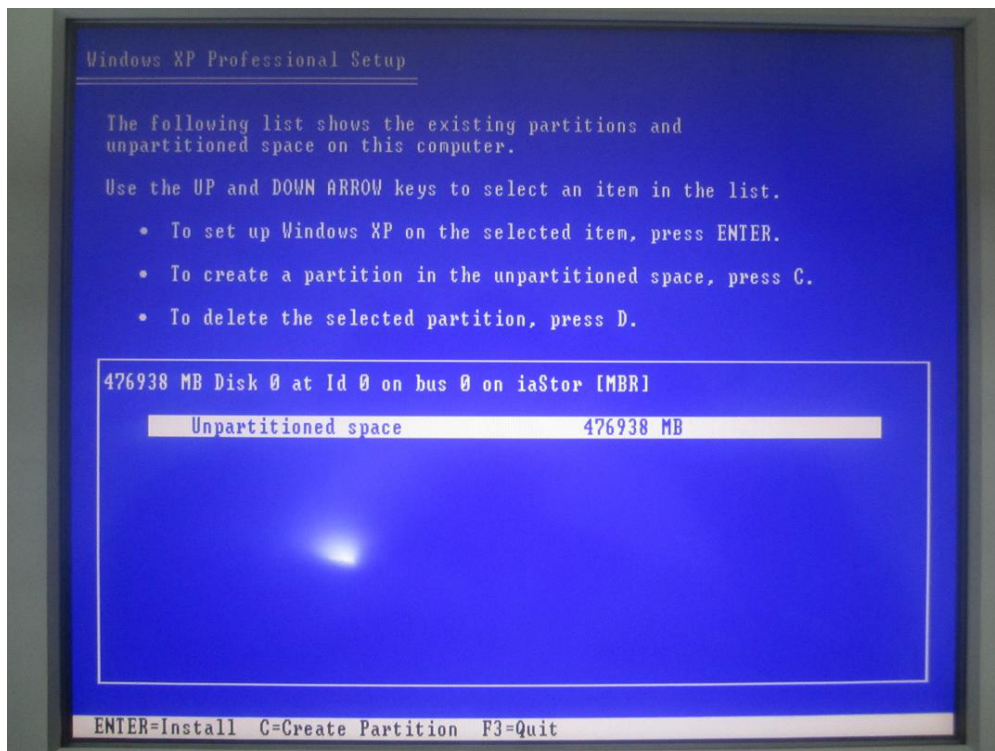
9. Press "Enter" to prepare installing system.



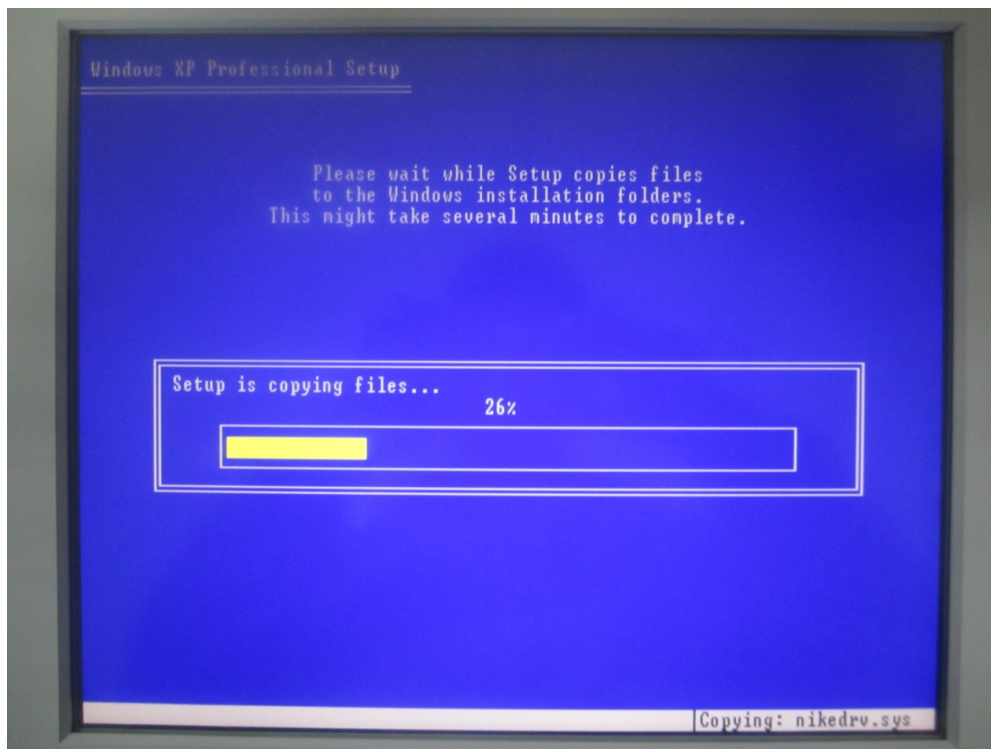
10. Press "F8" to agree starting installation.



11. It will appear the total HDD size after RAID configuration, then you can create partition.



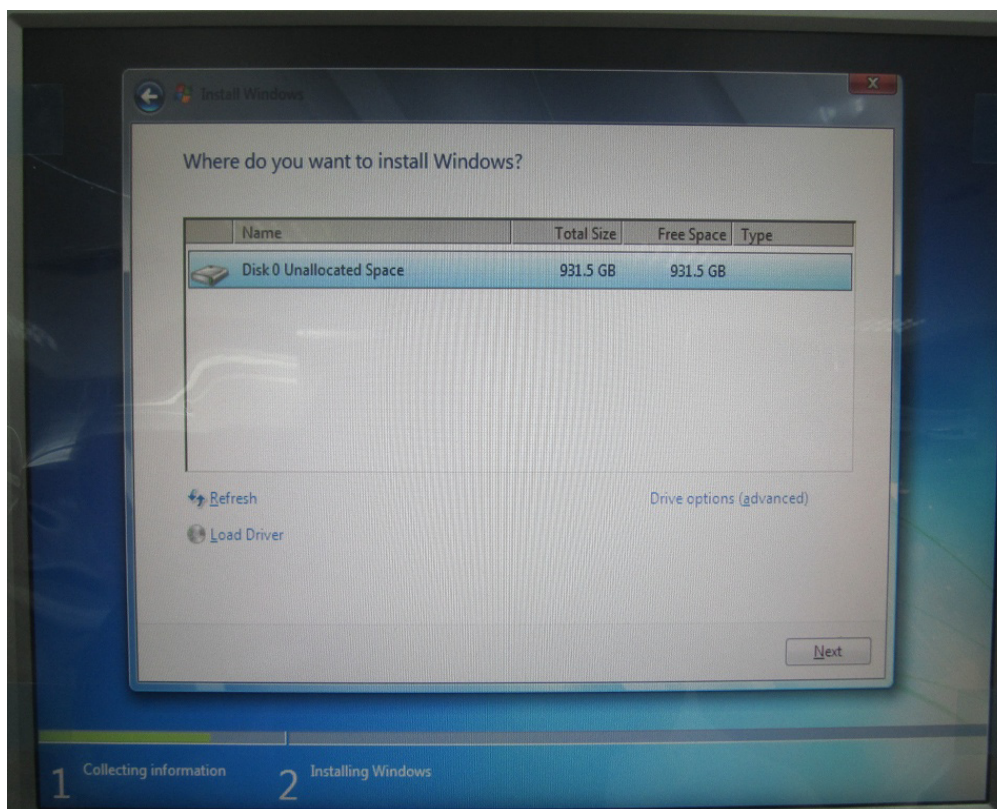
12. Finally wait until copying all files, and complete the installation according to the instructions.



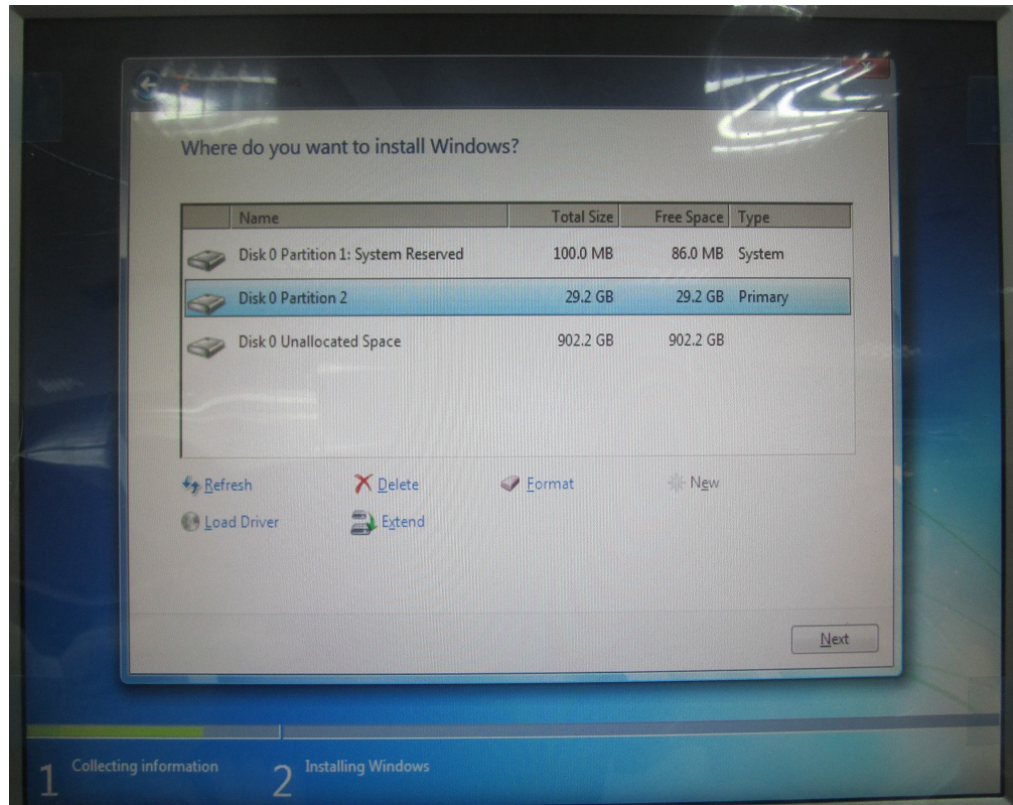
A.2.2 Windows 7 Dual HDD RAID System Installation Procedures

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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