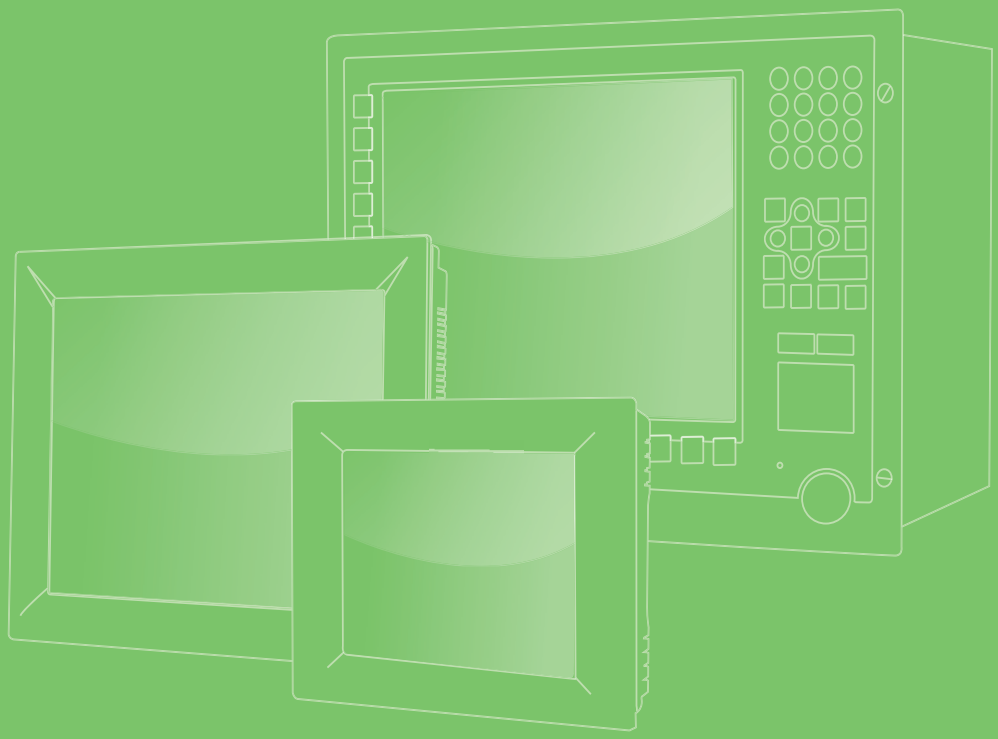

User Manual

PPC-8150/8170

Intel® Core™ i3 / i5 Processor based panel PC, with 15"/17" color TFT LCD display

ADVANTECH

Enabling an Intelligent Planet

Copyright

Acknowledgements

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All other product names or trademarks are properties of their respective owners.

Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

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 merchandize 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.

Part No. 200K815031 Edition 2

Printed in China April 2015

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 fit for areas with an altitude of 5000 M below.

Battery Information

Batteries, battery packs, and accumulators should not be disposed of as unsorted household waste. Please use the public collection system to return, recycle, or treat them in compliance with the local regulations.

Chapter 1

General Information

This chapter gives background information on the PPC-8150/8170 panel PC.

Sections include:

- Introduction
- Specifications
- Dimensions

1.1 Introduction

The PPC-8150 and 8170 are Panel PCs with an Intel® Core™ i3, i5 desktop processor, and a 15"/17" color TFT LCD panel. It features extremely high computing power and performance, excellent connectivity, and good expansion ability. In addition, its rich variety of I/Os makes it easy to operate for information applications, and provide a great solution for a wide-range of industrial applications.

1.2 Specifications

1.2.1 Specification Comparison

Product	PPC-8150	PPC-8170
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	16.7M
Dot Matrix	0.297 x 0.297 mm	0.264 x 0.264 mm
Viewing Angle	80 (left), 80 (right), 70 (top), 70 (bottom)	80 (left), 80 (right) 60 (up), 80 (down)
Brightness	400 cd/m^2	350 cd/m^2
Contrast	700	800
Backlight Lifecycle	50, 000 hours	50, 000 hours
Expansion Slot	One PCIe x 4 (pre-installed) One PCI (in the accessory box)	
Weight	6.98 Kg	9.2 Kg
Dimensions	395.5 x 316.8 x 110.5 (mm) (15.6" x 12.5" x 4.35")	442.0 x 362.0 x 113.5 (mm) (17.4" x 14.25" x 4.47")

1.2.2 General Specifications

CPU	Core i3-3220	Core i5-3550S
Frequency	3.3GHz	3.7 GHz
L3 Cache	3 MB	6 MB
Chipset	H61	
Memory	2x 204 PIN DDR3 SO-DIMM,DDR3 1066/1333/1600MHz SDRAM, up to 8 GB/4 GB per SO-DIMM	
Storage 1	1 x 2.5" SATA bay	
Network (LAN)	2 x Gigabit Ethernet connectors(RTL8111E)	
I/O ports	6 x COMs, (1 x RS-232/422/485, 5 x RS-232) 6 x USB 2.0 1 x VGA, 1 x DVI 1 x GPIO 8 bits (Internal pin header) 1 x Mic-in, 1 x Line-out 1 x PS/2 2 x 1 W speaker	
Additional Expansion	1 x Mini PCIe	

Fan	1 x 12 V 80 x 80 x 15mm Fan
OS Support	Win XP Pro / Windows 7 32 & 64 bit

1.2.3 Power Specifications

Model	**PPC-8150/8170 (AC Input)**
Watt	Maximum 180 W (ATX, PFC)
Input Voltage	100 ~ 240 V_{AC} (Full range)
Output Power	+5 V @ 16 A, +3.3 V @ 14 A, +12 V @ 14 A, -12 V @ 0.3 A, +5 Vsb @ 2 A
Minimum Load	+3.3 V @ 0.3 A, +12 V @ 1.0 A, +3.3 V @ 0.3 A, +12 V @ 1.0 A

Power Consumption	**PPC-8150**	**PPC-8170**
i3-3220	71 W (Test system: WIN7 32BIT)	81W (Test system: WIN7 32BIT)
i5-3550s	86 W (Test system: WIN7 32BIT)	96W (Test system: WIN7 32BIT)

Note! *For test conditions for above power consumption, please refer to Note 1 and Note 2.*

Note1: Test Conditions of Power Consumption for PPC-8150

Test Condition	**Test Configuration**	**Test System**	**Power Consumption**
BURIN IN 7.0	i3-3220 3.3G, 2GB*2, DDR3 1333, 160 GB Seagate HDD /6 2GB KINGSTON USB disk/6 COM Port loopback	WIN7 32Bit	71 W
BURIN IN 7.0	i5-3550s / 2GB*2 1333MHZ memory / 6 COM Port loopback / 6 USB disk/ WD500GB SATA HDD WIN7 32 BIT OS + Burn in 7.0	WIN7 32Bit	86 W

Note2: Test conditions of power consumption for PPC-8170:

Test Condition	Test Configuration	Test System	Power Consumption
BURIN IN 7.0	i3-3220 3.3G, 2GB*2, DDR3 1333, 160 GB Seagate HDD /6 2GB KINGSTON USB disk/6 COM Port loopback	WIN7 32Bit	81W
BURIN IN 7.0	i5-3550s / 2GB*2 1333MHZ memory / 6 COM Port loopback / 6 USB disk/ WD500GB SATA HDD WIN7 32 BIT OS + Burn in 7.0	WIN7 32Bit	96W

1.2.4 Touchscreen Specifications

Type	5-wire resistive
Resolution	2048 x 2048
Light Transmission	80% +/- 3%
Controller	USB interface
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	Operating 10 G peak acceleration (11 ms duration), follows IEC 60068-2-27
Vibration	Operating Random Vibration Test 5 ~ 500 Hz, 1 Grms, follows IEC 60068-2-64

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

1.3 Dimensions

PPC-8150:

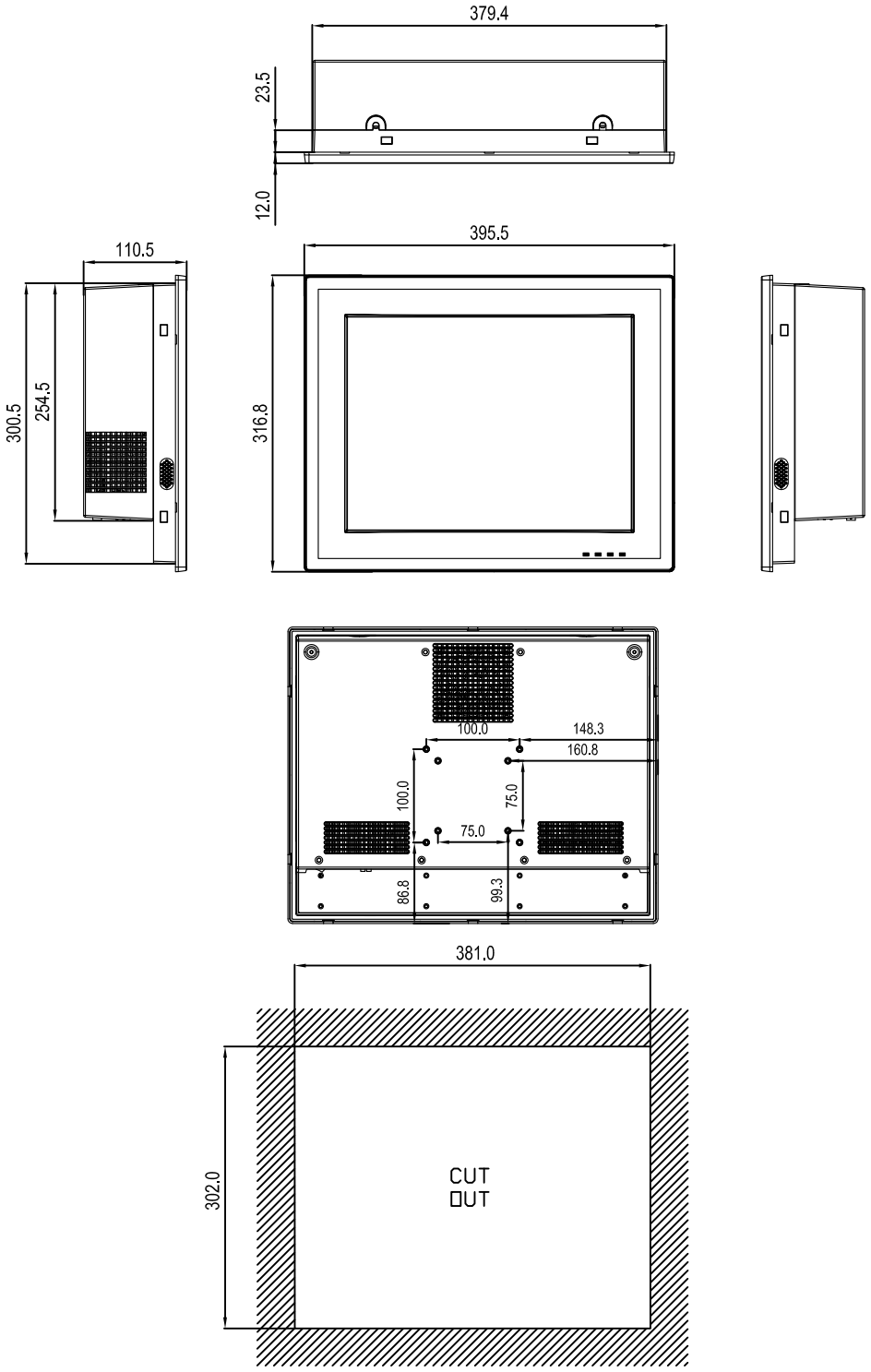


Figure 1.1 PPC-8150 dimensions

The above units are all mm.

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

PPC-8170:

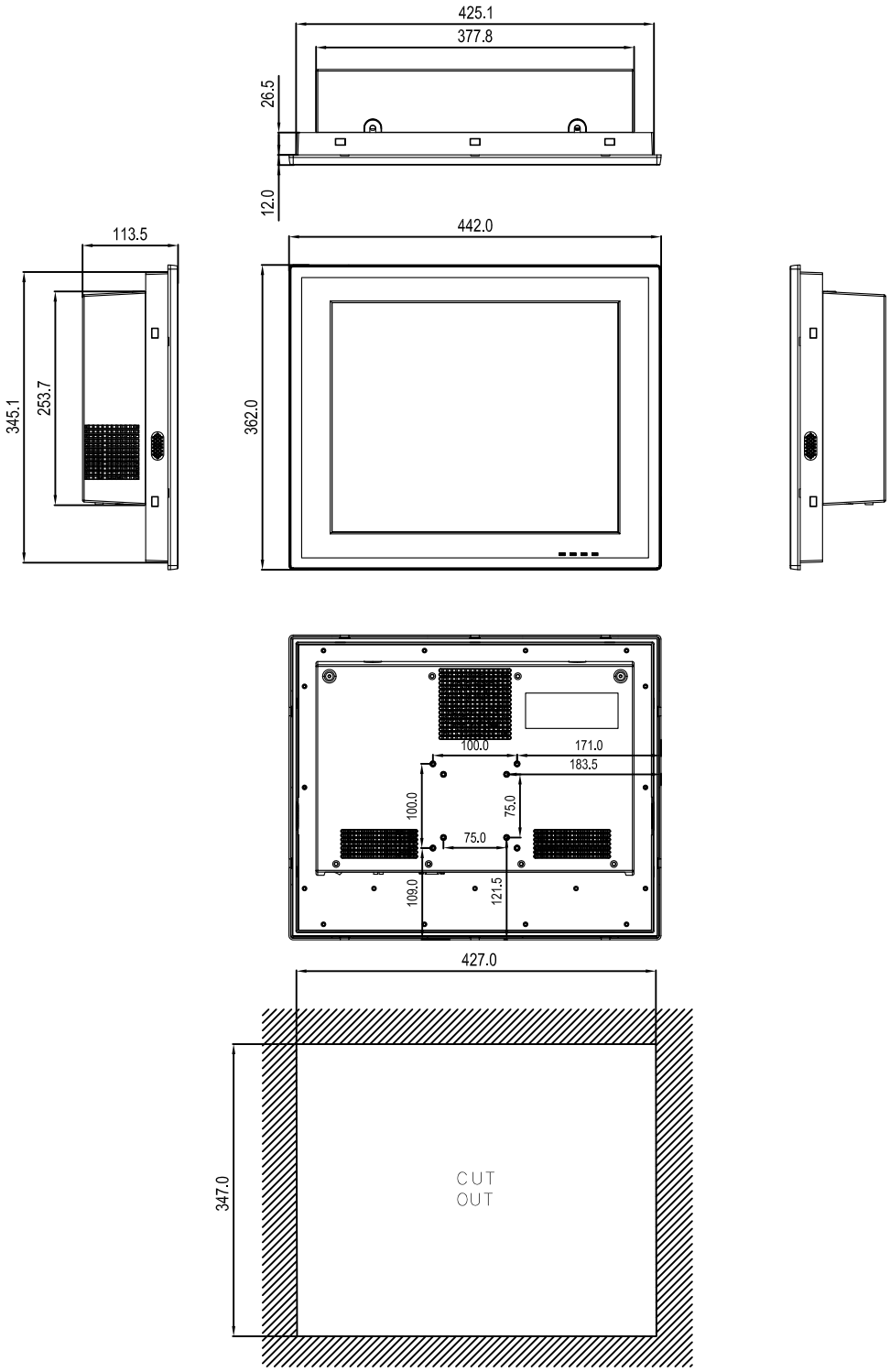


Figure 1.2 PPC-8170 dimensions

The above units are all mm.

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

Chapter 2

System Installation & Setup

Sections include:

- Quick Start Guide
- Installation Procedures
- Install Memory Card
- Install HDD
- Install PCIe or PCI Card
- Install Wireless LAN Card
- Hook Installation Method

2.1 Quick Start Guide

Before you start setting 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 view

Figure 2.2 Left view

Figure 2.3 Right view

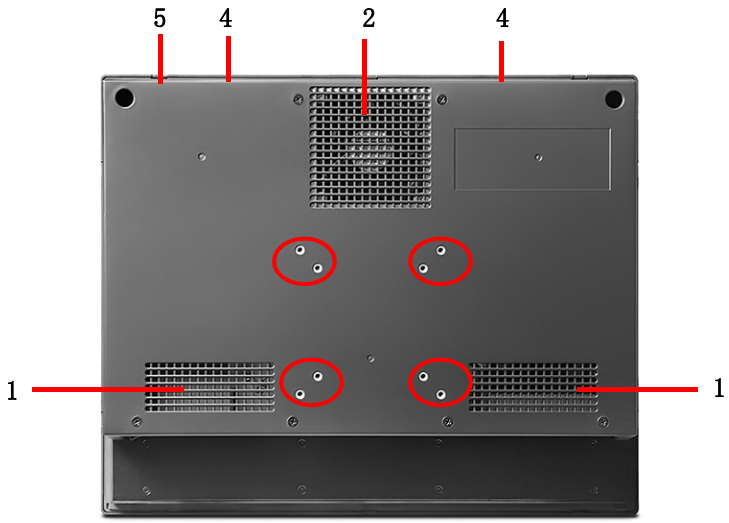


Figure 2.4 Rear view (PPC-8150)

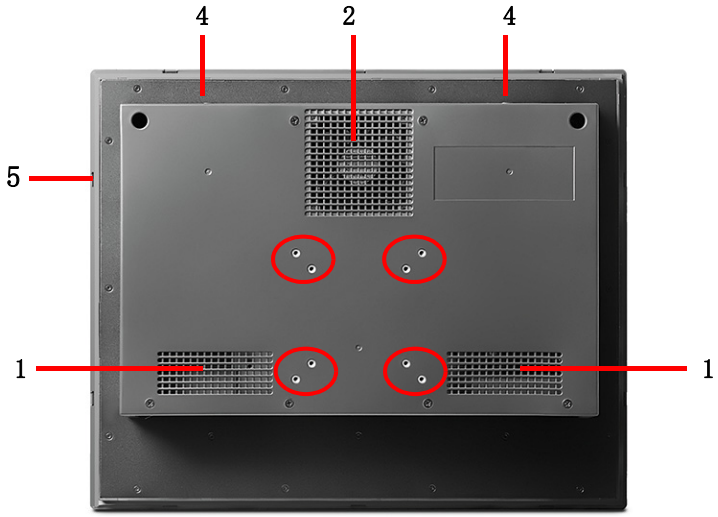


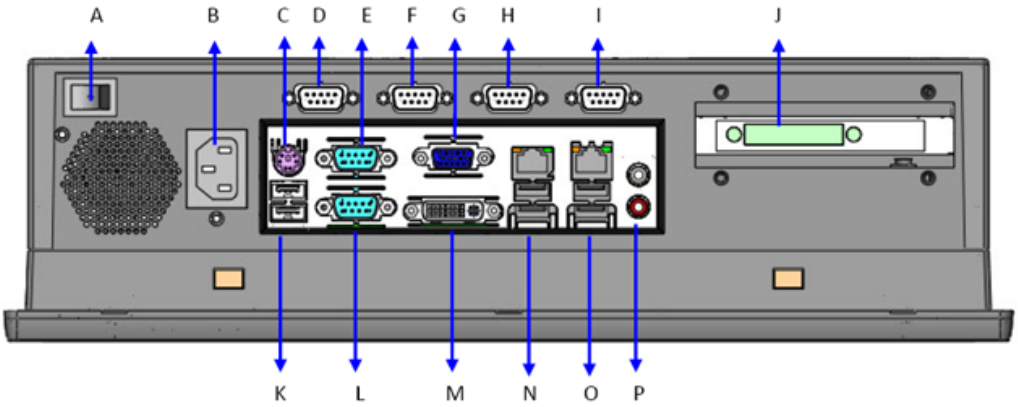
Figure 2.5 Rear view (PPC-8170)

Red circles indicate VESA screw holes.

1. Air inlets
2. Air outlet
3. Loudspeaker (dual)
4. Antenna holes
5. Panel Mount Bracket hole (10 on PPC-8170, 8 on PPC-8150)

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

I/O interfaces:



A. Power button	B. AC power input	C. PS/2	D. RS/232
E. RS232/422/485	F. RS232	G. VGA	H. RS232
I. RS232	J. Riser card expansion	K. USB	L. RS232
M. DVI	N. LAN2+USB	O. LAN1+USB	P. Audio Line- out/Mic

Figure 2.6 PPC-8150/8170 IO interfaces

2.2 Installation Procedures

Before you start the computer, please follow these procedures for set up:

1. Check and adjust jumpers on the motherboard (see Chapter 3).
2. Install Memory card.
3. Install HDD.
4. Install add-on cards.
5. Connect the wires, cables and accessories.
6. Mount the computer
7. Program the BIOS settings.
8. Install an operating system.

Warning!

1. *Switch off and unplug every time you access its interior.*
2. *The motherboard inside the system is composed of many delicate ICs, chips and other integrated circuit components. These components are easily damaged by static shock.*

When you begin to install components, please:

- Avoid touching the metal parts of the motherboard.
- Use an anti-static bracelet when handling CPU or RAM module.
- Put RAM modules and the CPU inside an anti-static bag or a similar place before installation.

2.2.1 Connect Keyboard and Mouse

Connect the keyboard and mouse to panel PC's I/O interfaces.

2.2.2 Connect Power

The power button is located on the bottom right-hand side of the panel PC

Note! *Power cable is optional.*

2.3 Install Memory Card

1. Unscrew the 8 screws and remove the rear cover (See Figure 2.7)

Note! *The installation methods of PPC-8150 and PPC-8170 are the .*
The following instructions use the PPC-8150.

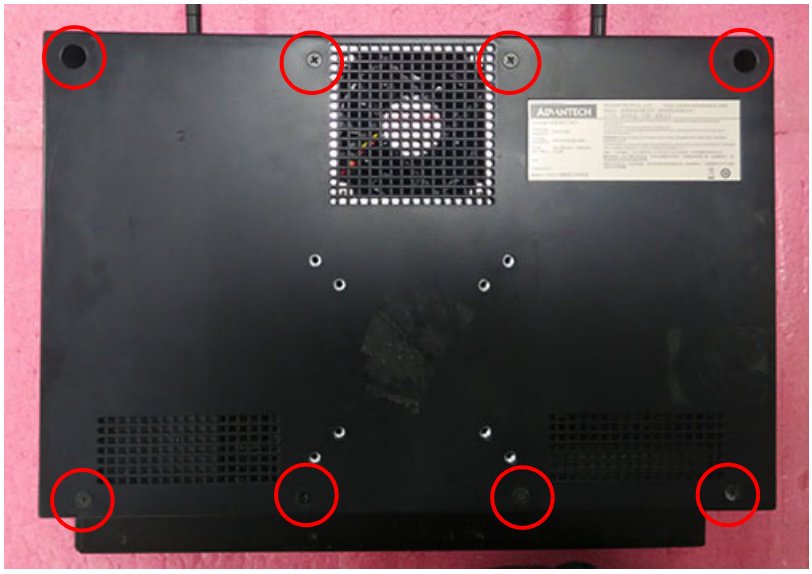


Figure 2.7 Rear Cover

2. Remove Reinforcing plate. (See Figure 2.8)

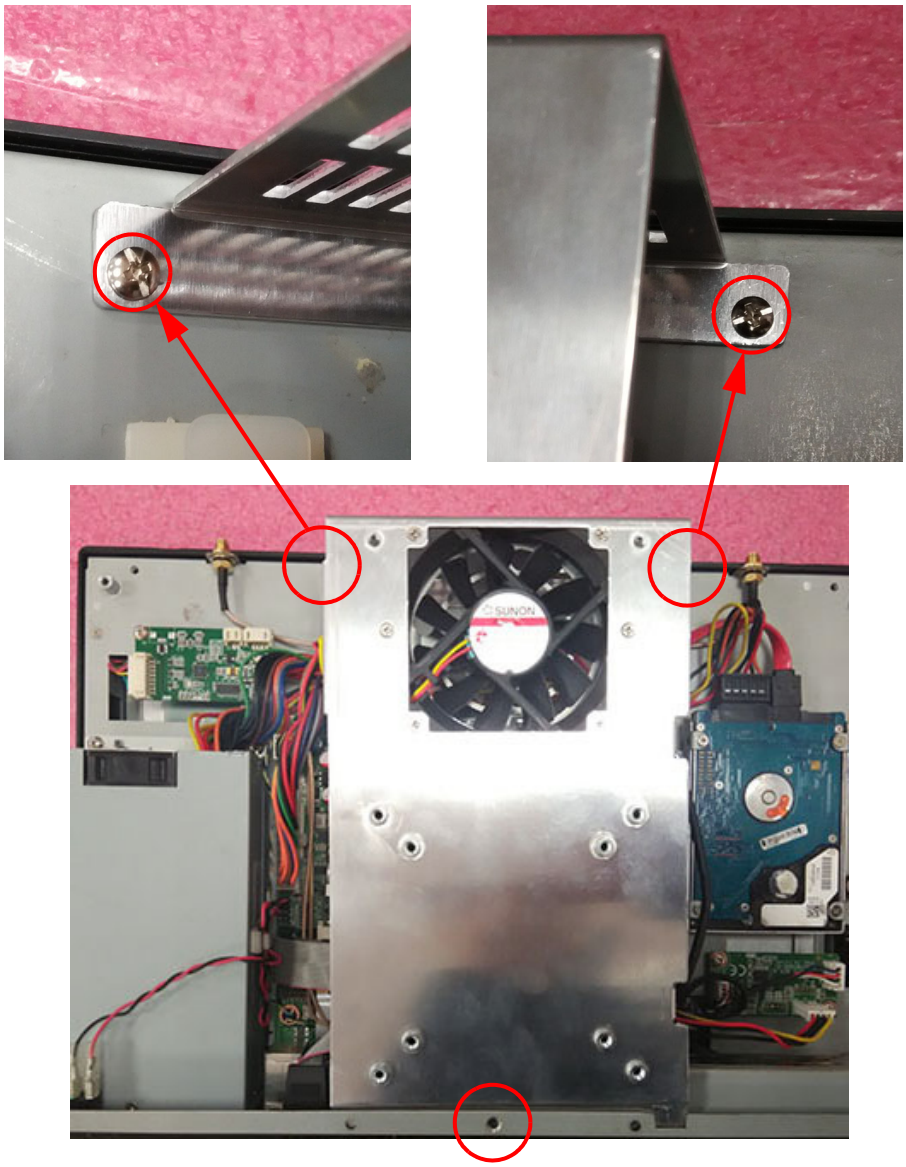


Figure 2.8 Reinforcing plate

3. Insert the memory card into the slot.

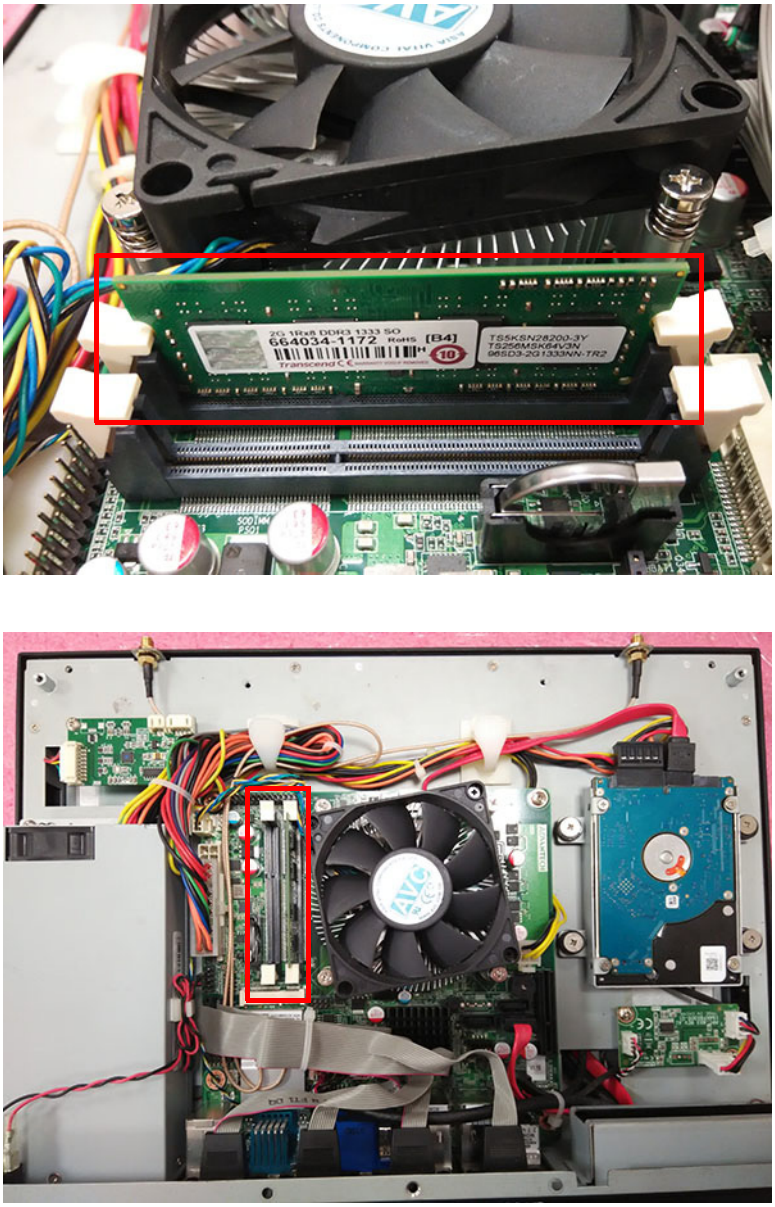


Figure 2.9 Memory card

2.4 Install HDD

1. Unscrew the four screws on HDD chassis and remove it. (See Figure 2.10)

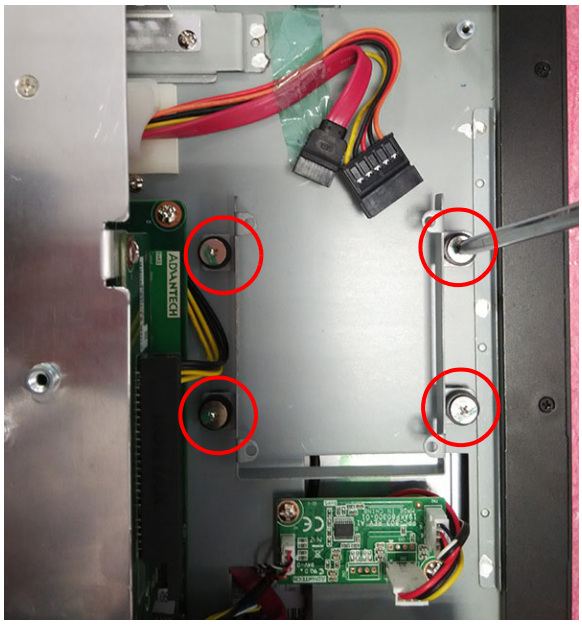


Figure 2.10 HDD Chassis

2. Take out 4 x M3 screws from the accessory box and fix them to the HDD ironware bracket (See Figure 2.11).

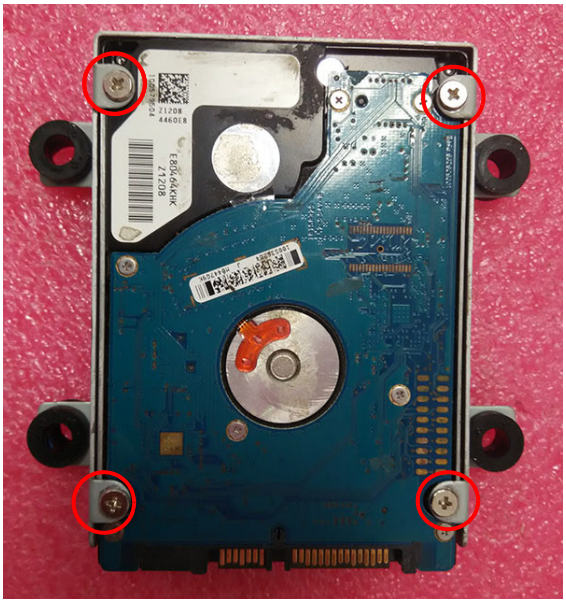


Figure 2.11 HDD Screws

3. Then reattach the HDD bracket and connect SATA HDD cable, the assembled HDD module is shown as Figure 2.12.

Figure 2.12 HDD and SATA Cable

2.5 Install PCIe or PCI Card

1. Insert the riser card into the slot, and fix with two screws. The riser card is PCIex4 by default, and PCI riser card in the accessory box which allows users to select it by themselves.

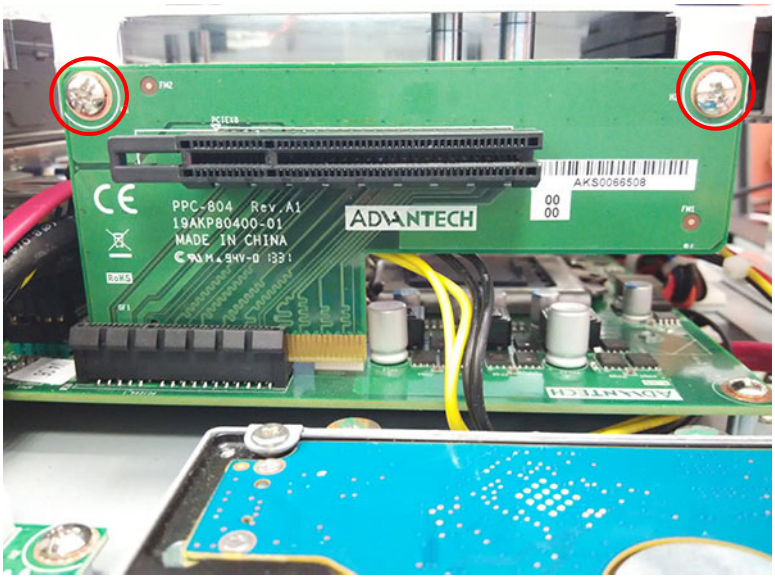


Figure 2.13 PCIe Riser card installation

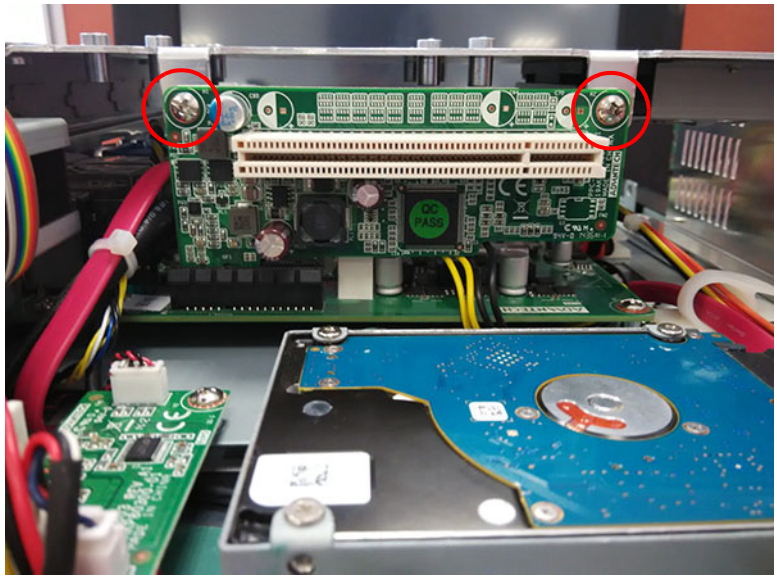


Figure 2.14 PCI Riser card installation

2. Remove the card slot blanking plate and insert the card, then tighten the screws and return the rear cover.

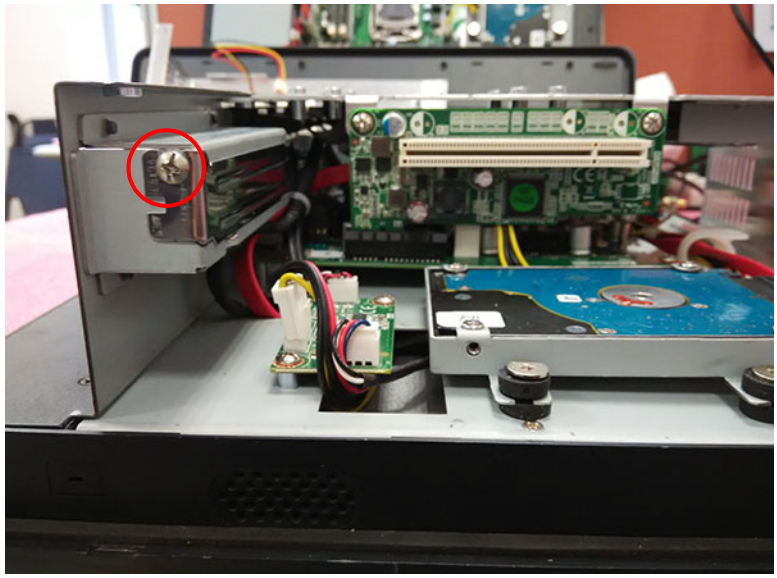


Figure 2.15 Blanking Plate

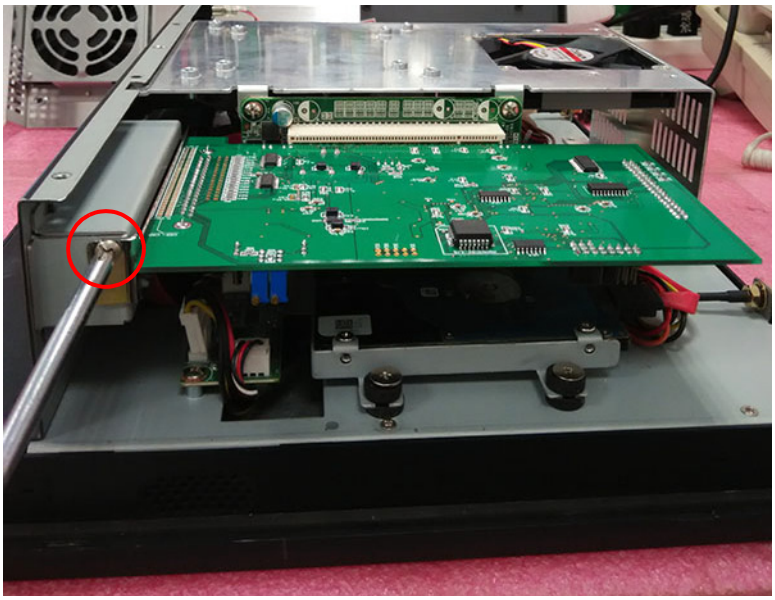


Figure 2.16 Secure PCI Card

2.6 Install Wireless LAN Card

Note! *In the below installation procedures of wireless LAN card, PPC-WLAN-A2E is used.*

1. Assemble the wireless LAN card with ironware with the screws accompanied by the Wi-Fi Module.

Figure 2.17 Wi-Fi Module

2. Insert the wireless card into the correct mainboard slot, and fix it with a screw from the accessory box.

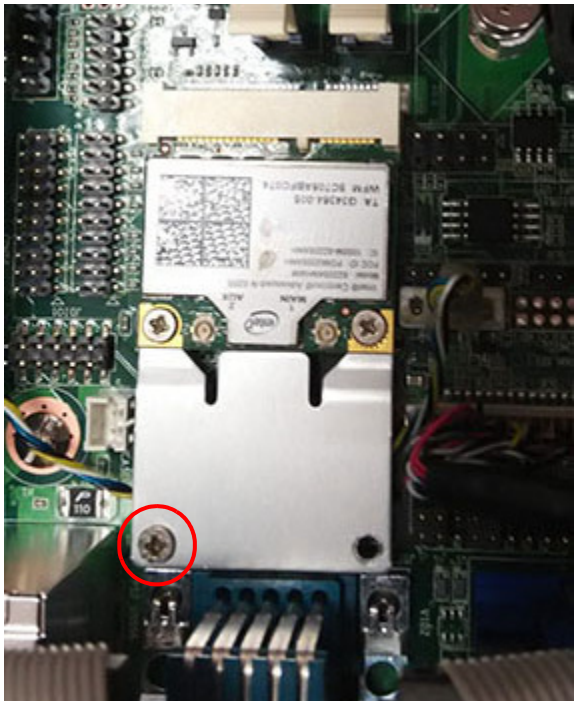


Figure 2.18 Wireless Card Installation

3. Connect the cables of the wireless LAN card to the antenna holder. Note the installation direction of the cable end and nut / washer.

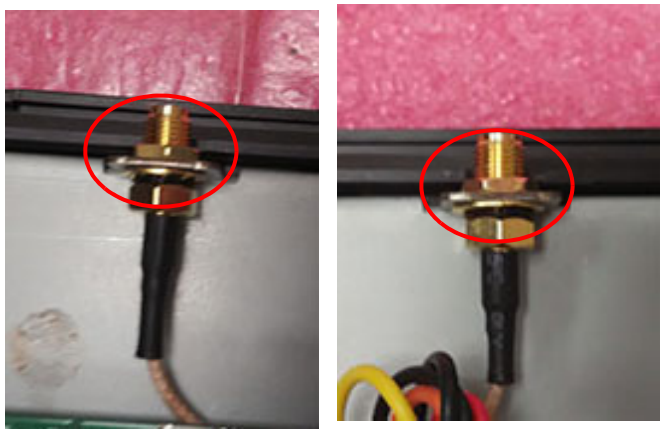


Figure 2.19 Antenna Connection

4. Lock the assembled antenna holder onto the machine, and connect the cable to wireless LAN card. (See Figure 2.20) Then take out the thermal pad from the accessory box and attach it onto the wireless LAN card.

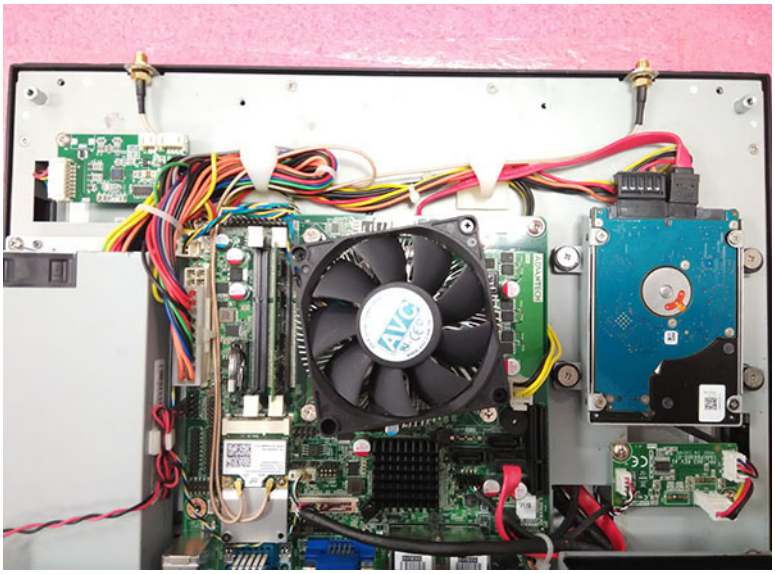


Figure 2.20 Attaching Wireless Card

5. Install the bracket. (See Figure 2.21)

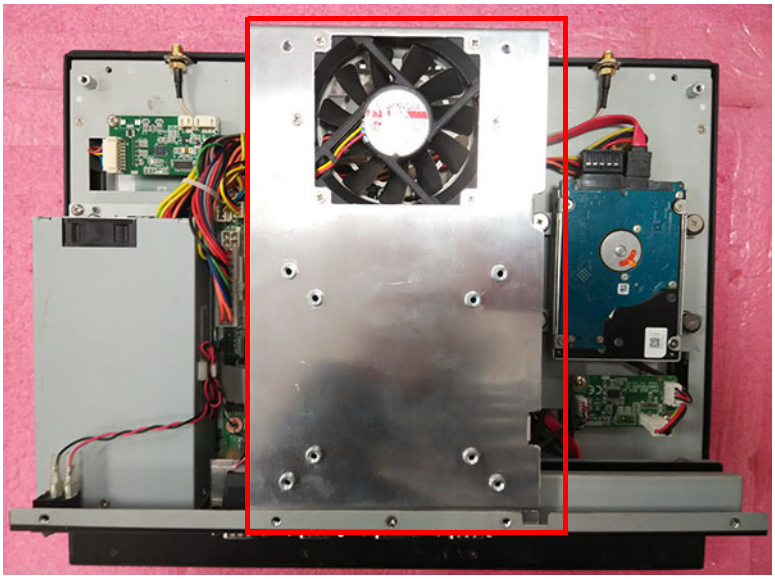


Figure 2.21 Fan Bracket

6. Replace the rear cover. (See Figure 2.22)

Figure 2.22 Rear Cover

7. Install the wireless module antenna to complete the whole process.

Figure 2.23 Wireless Antennas

2.7 Hook Installation

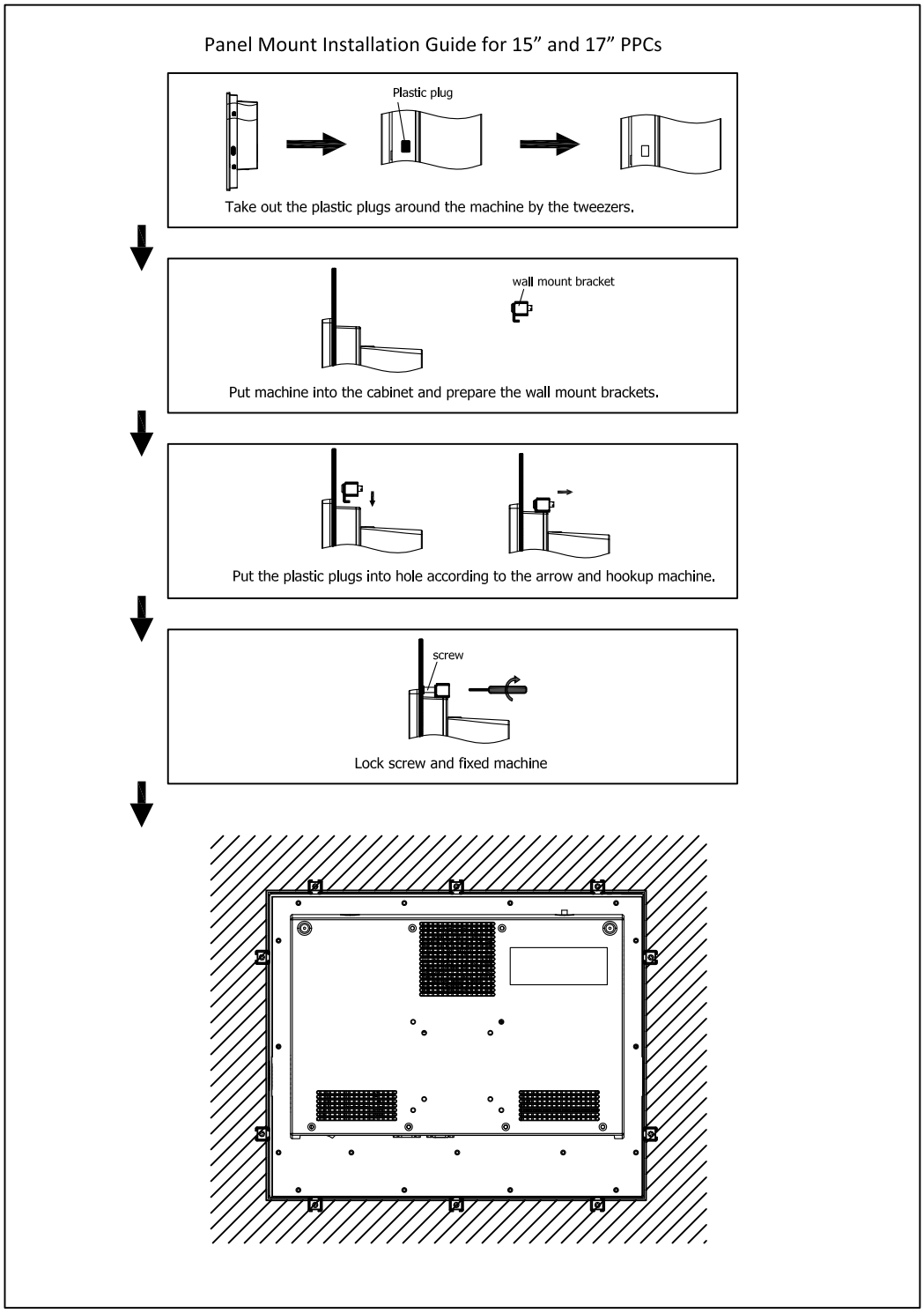


Figure 2.24 Hook installation method

Chapter 3

Jumper Settings

3.1 Introduction

You can access most of the connectors from the top of the board as it is being installed in the chassis. If you have a number of cards installed or have a packed chassis, you may need to partially remove the card to make all the connections.

3.2 System Panel (F_PANEL)

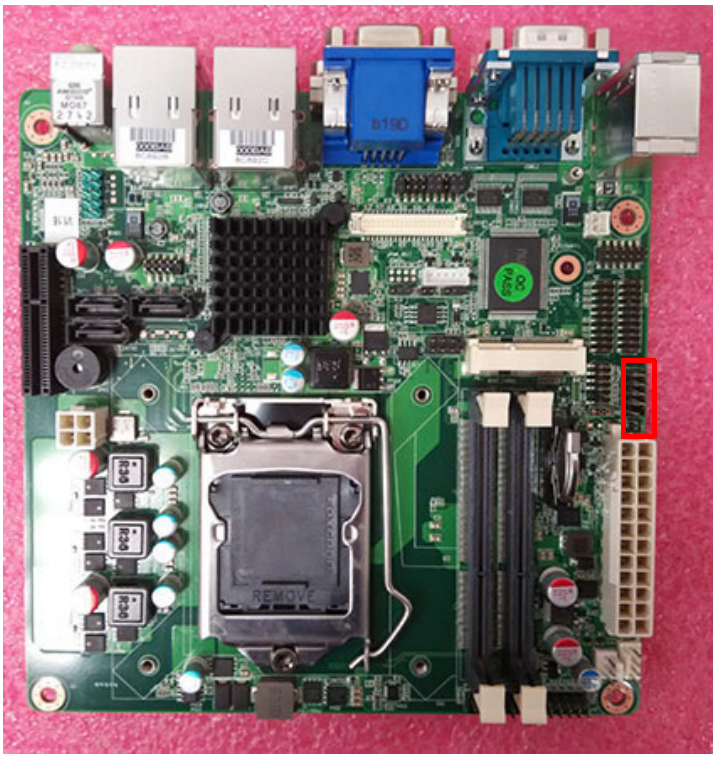


Table 3.1: System Panel (F_PANEL)

Pin	Signal	Pin	Signal
1	HDDLED+	2	POWERLED+
3	HDDLED-	4	POWERLED-
5	GND	6	PWSWITCH
7	RESET	8	GND
9	NC		

- **ATX Power Button/Soft-off Button (Pin 6-8 PWRBT)**
  This 2-pin connector is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the BIOS settings. Pressing and holding the power switch for more than four seconds while the system is ON turns the system OFF.
- **Reset Button (Pin 5-7 SYS_RST)**
  This 2-pin connector is for the chassis-mounted reset button to reboot the system without turning off the power.
- **Power LED (Pin 2-4 PWRLED)**
  This 2-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

- **Hard Disk Drive Activity LED (Pin 1-3 HDLED)**
  This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.

3.3 General Purpose I/O Connector (JDIO1)

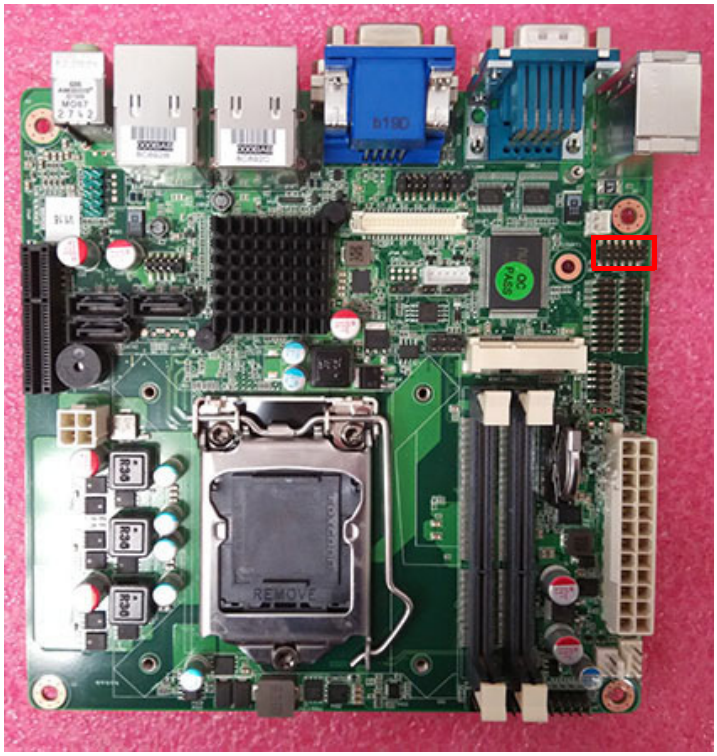


Table 3.2: General Purpose I/O Connector (JDIO1)

Pin	Signal	Pin	Signal
1	SIO_SPIO0	2	SIO_SPIO4
3	SIO_SPIO1	4	SIO_SPIO5
5	SIO_SPIO2	6	SIO_SPIO6
7	SIO_SPIO3	8	SIO_SPIO7
9	SMB_CLK_MAIN	10	SMB_DAT_MAIN
11	GND	12	SVCC GPIO

3.4 JSETCOM1

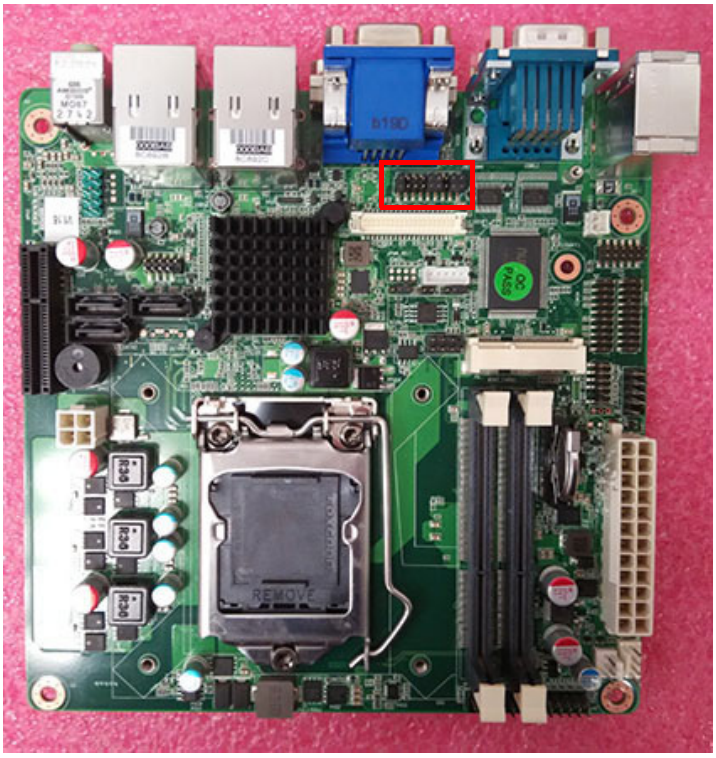
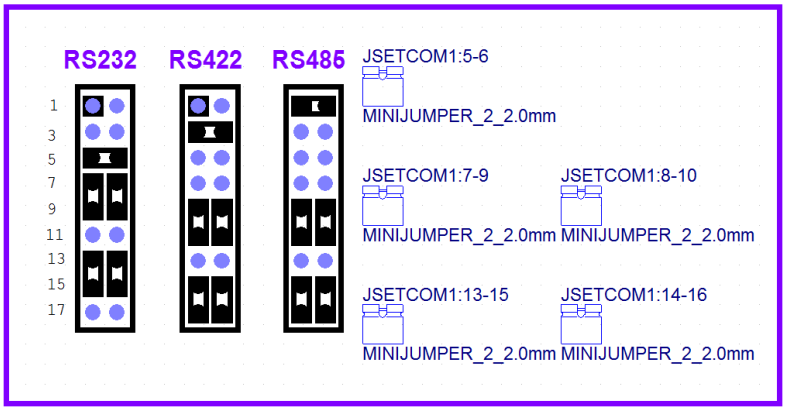


Table 3.3: JSETCOM1

Pin	Signal	Pin	Signal
1	UART1_RXD	2	COM1_485_RXD
3	UART1_RXD	4	COM1_422_RXD
5	UART1_RXD	6	COM1_232_RXD
7	COM1_BUF_DCD#	8	COM1_BUF_TXD
9	COM1_DCD#	10	COM1_TXD
11	COM1_TXD422-	12	COM1_RXD422+
13	COM1_BUF_RXD	14	COM1_BUF_DTR#
15	COM1_RXD	16	COM1_DTR#
17	COM1_TXD422+	18	COM1_RXD422-



3.5 LPT1

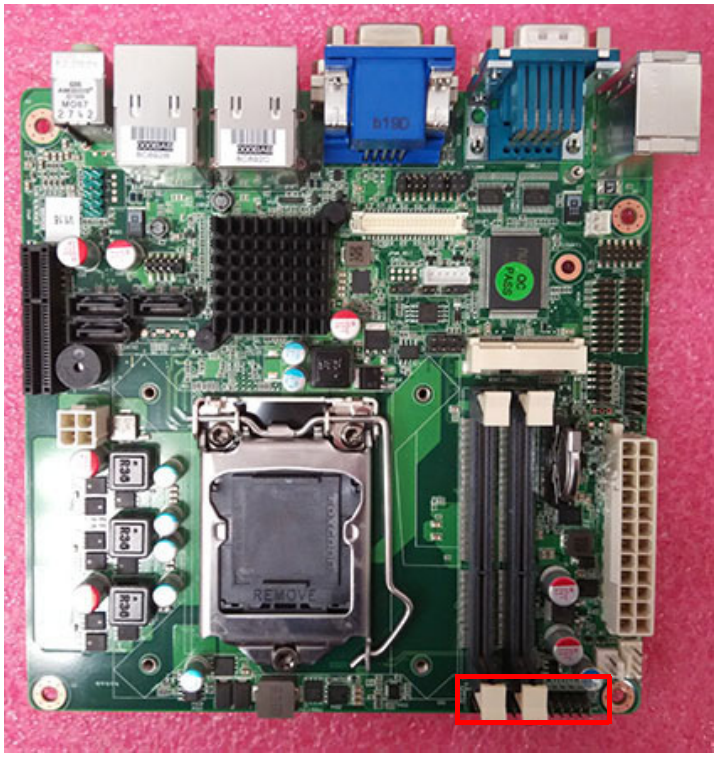


Table 3.4: LPT1

Pin	Signal	Pin	Signal
1	STB#	2	AFD#
3	DATA0	4	ERR#
5	DATA1	6	INIT#
7	DATA2	8	SLIN#
9	DATA3	10	GND
11	DATA4	12	GND
13	DATA5	14	GND
15	DATA6	16	GND
17	DATA7	18	GND
19	ACK#	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	NC

Chapter 4

BIOS Setup

4.1 Introduction

AMI BIOS has been integrated into many motherboards, and has been very popular for over a decade. People sometimes refer to the AMI BIOS setup menu as BIOS, BIOS setup or CMOS setup.

With the AMI BIOS Setup program, you can modify BIOS settings to control the special features of your computer. The Setup program uses a number of menus for making changes. This chapter describes the basic navigation of the PPC-8150/8170 setup screens.

4.2 BIOS Setup

The PPC-8150/8170 Series system has an integrated AMI BIOS, with a CMOS SETUP utility that allows users to configure required settings or to activate certain system features.

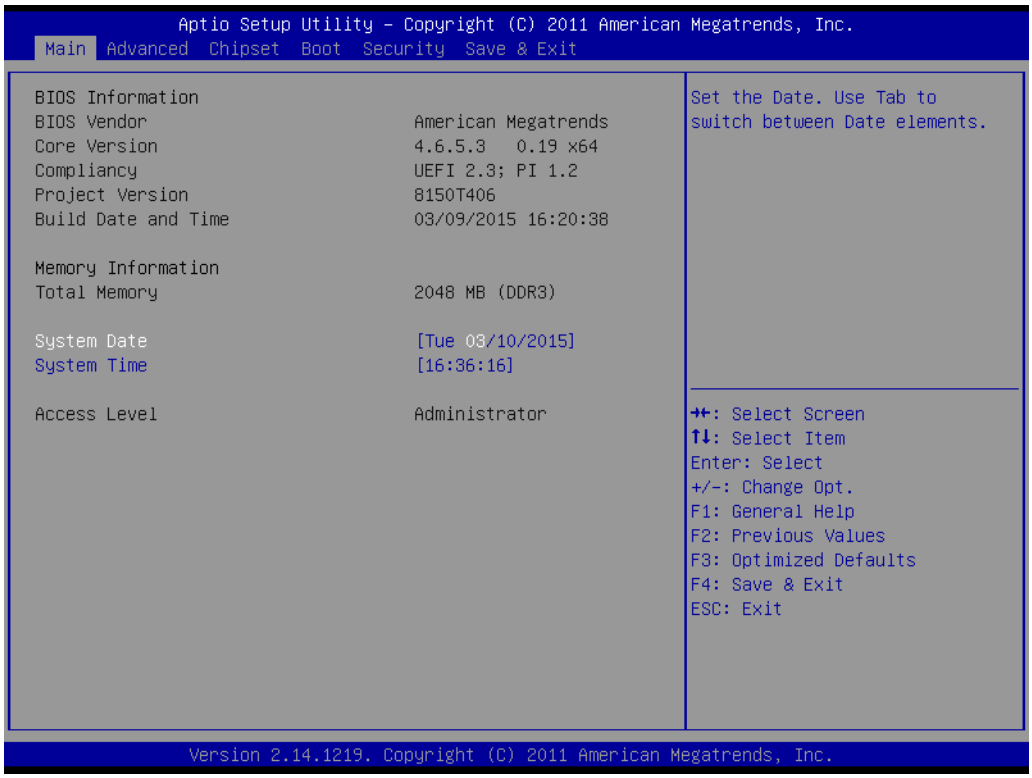
The CMOS SETUP saves the configuration in the CMOS RAM of the motherboard. When the power is turned off, the battery on the board supplies the necessary power to preserve the CMOS RAM.

When the power is turned on, press the <Del> button during the BIOS POST (Power-On Self Test) to access the CMOS SETUP screen.

Control Keys	
< ↑ >< ↓ >< ← >< → >	Move to select item
<Enter>	Select Item
<Esc>	Main Menu - Quit and not save changes into CMOS Sub Menu - Exit current page and return to Main Menu
<Page Up/+>	Increase the numeric value or make changes
<Page Down/->	Decrease the numeric value or make changes
<F1>	General help, for Setup Sub Menu
<F2>	Previous Values
<F3>	Optimized Defaults
<F4>	Save & Exit

4.3 Main BIOS Setup

Press <Del> to enter AMI BIOS CMOS Setup Utility, the Main Menu will appear on the screen. Use the arrow keys to select the items and press <Enter> to accept or enter the sub-menu.



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

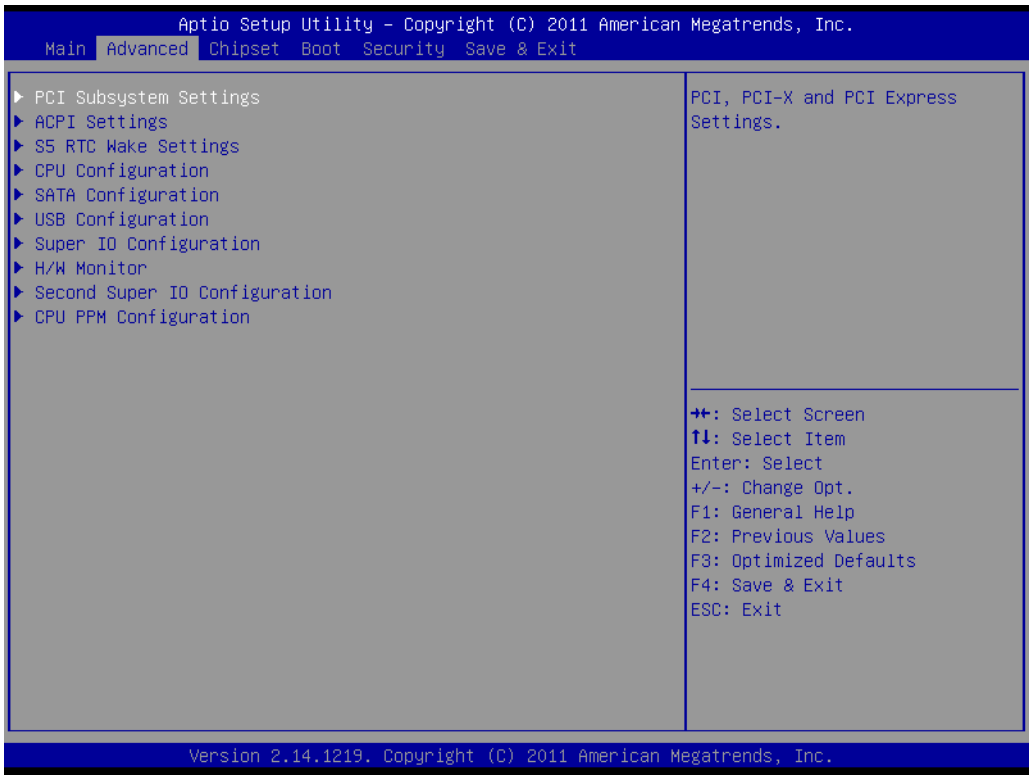
Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

- **System time / System date**

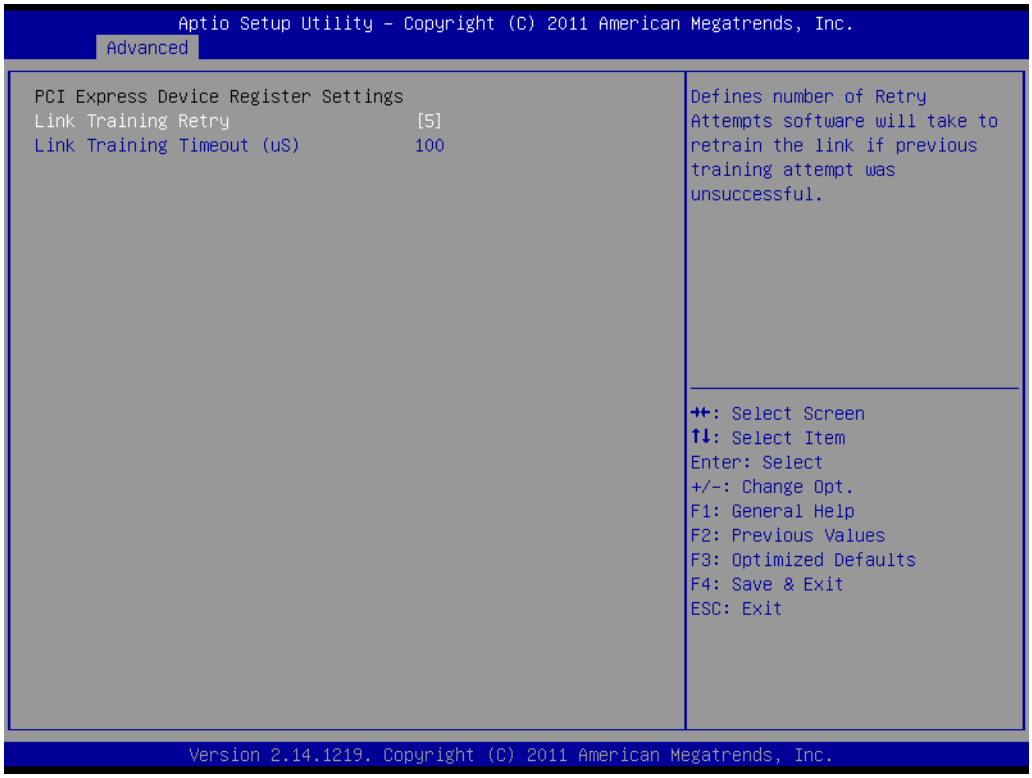
  Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time must be entered in HH:MM:SS format.

4.3.1 Advanced BIOS Features

Select the Advanced tab from the PPC-8150/8170 setup screen to enter the Advanced BIOS Setup screen. You can select any of the items in the left frame of the screen, such as CPU Configuration, to go to the sub menu for that item. You can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screen is shown below. The sub menus are described on the following pages.

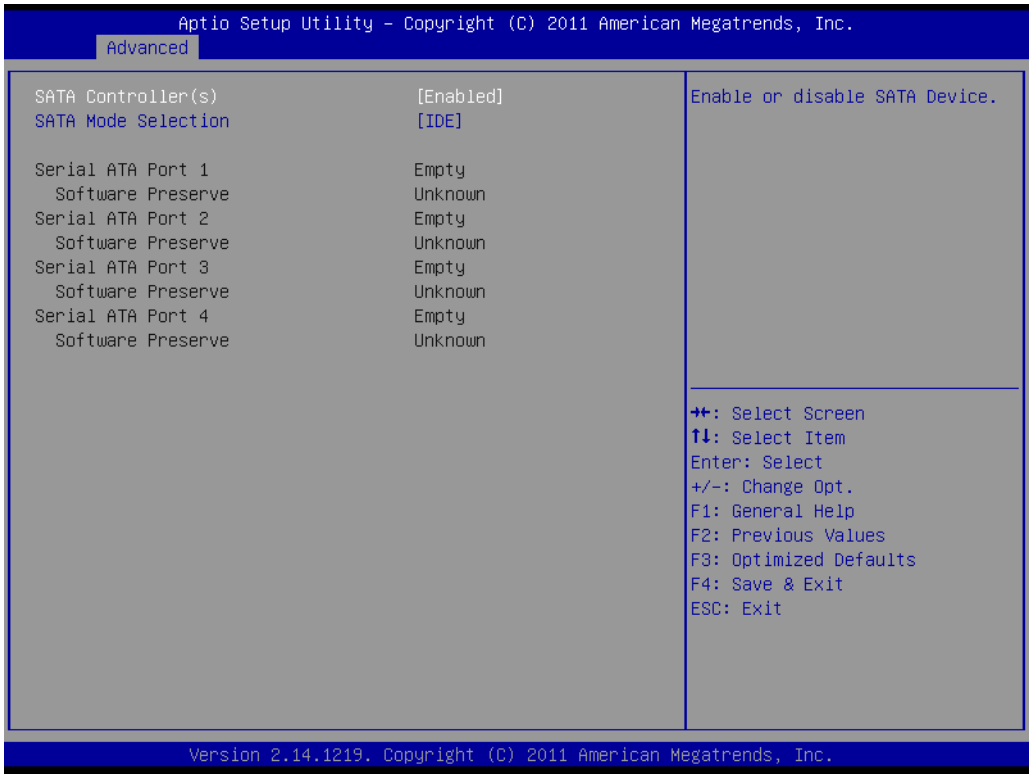


4.3.2 PCI Express Settings



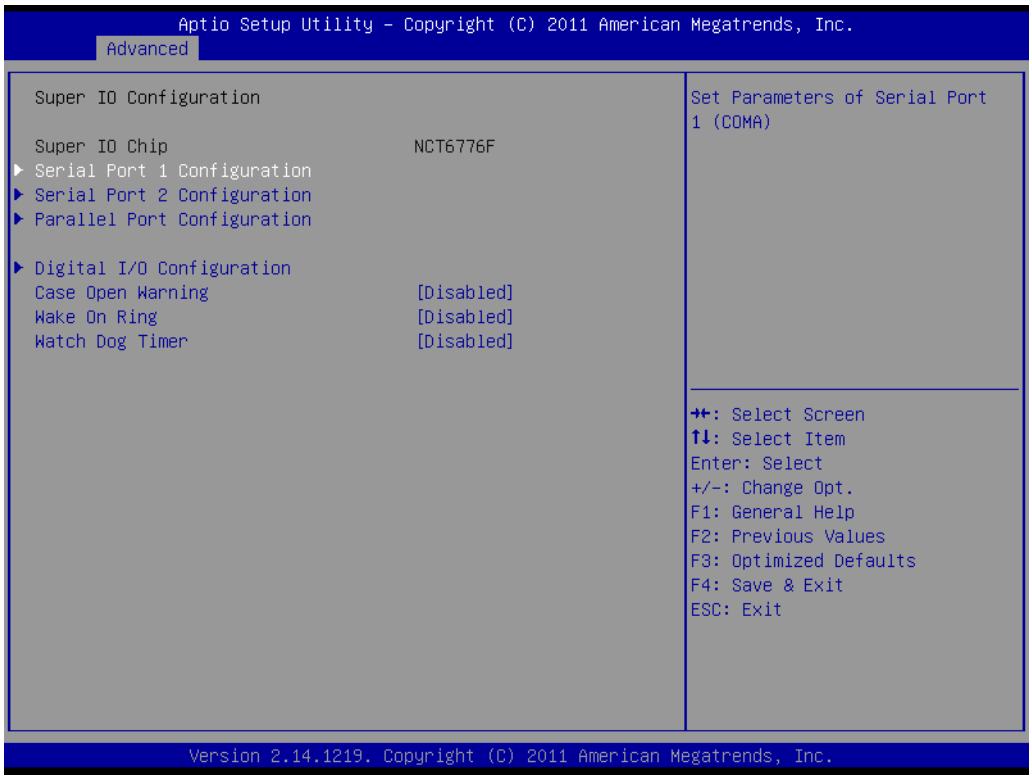
- **Link Training Retry**
  To adjust the retry times when PCIE Link failure
- **Link Training Timeout**
  To set up timeout for link training

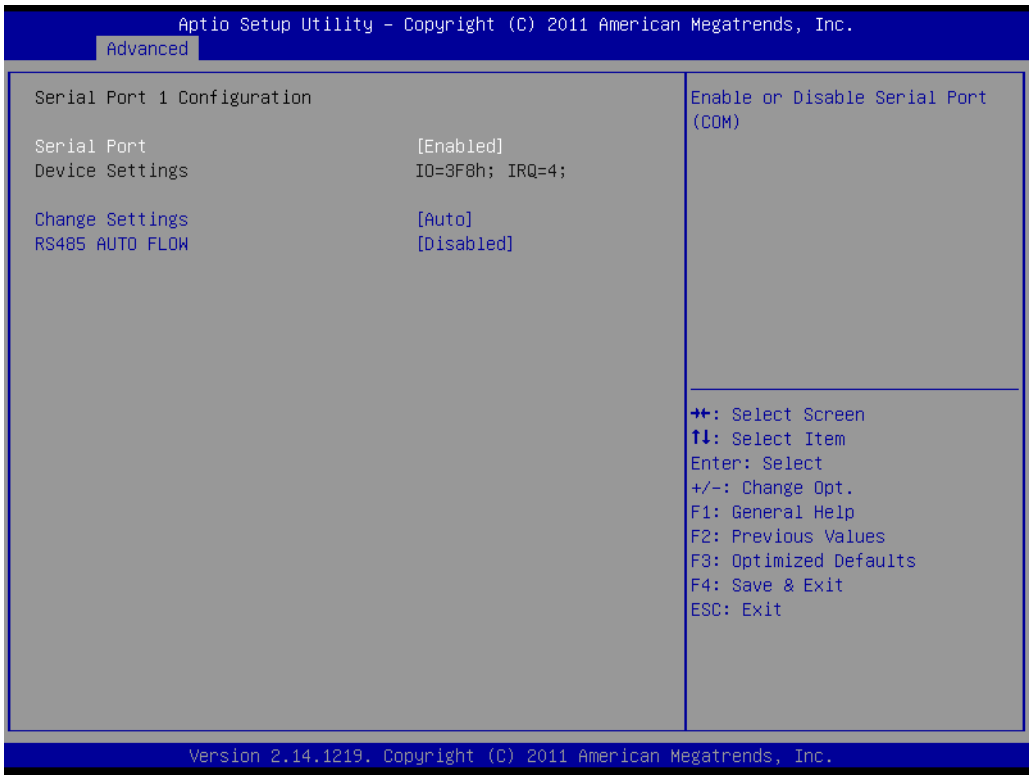
4.3.3 SATA Configuration



- **SATA Controllers**
  To enable or disable SATA controller.
- **SATA Mode Selection**
  This can be configured as IDE or AHCI mode.

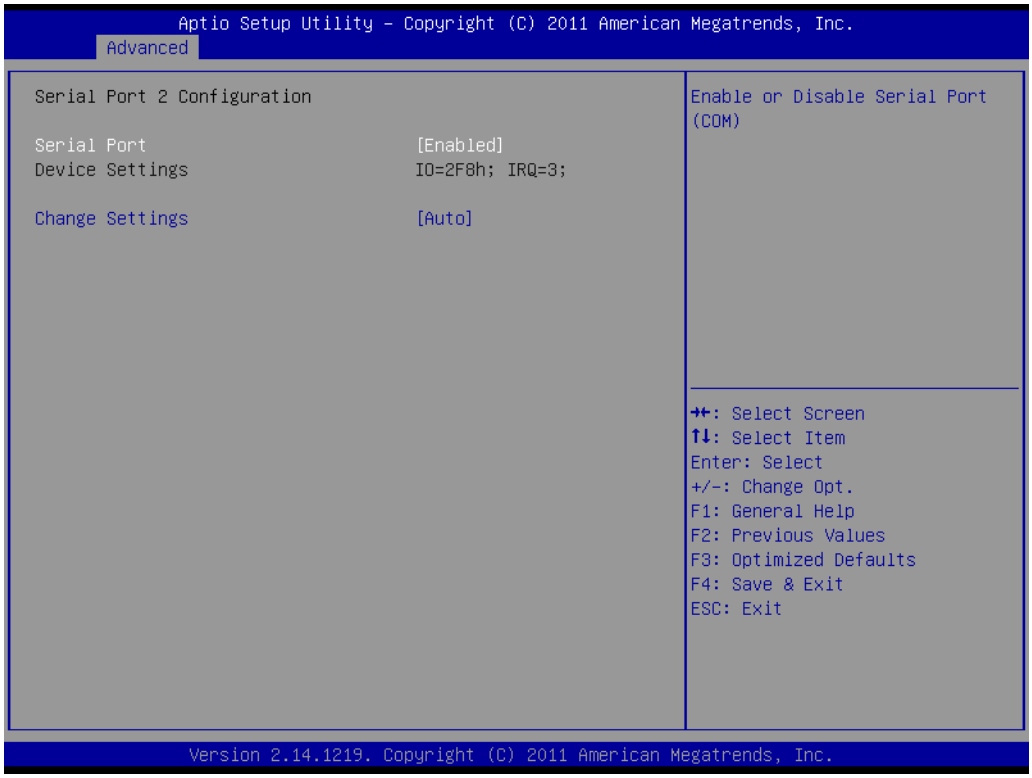
4.3.4 Super IO Configuration





Serial Port 1 Configuration

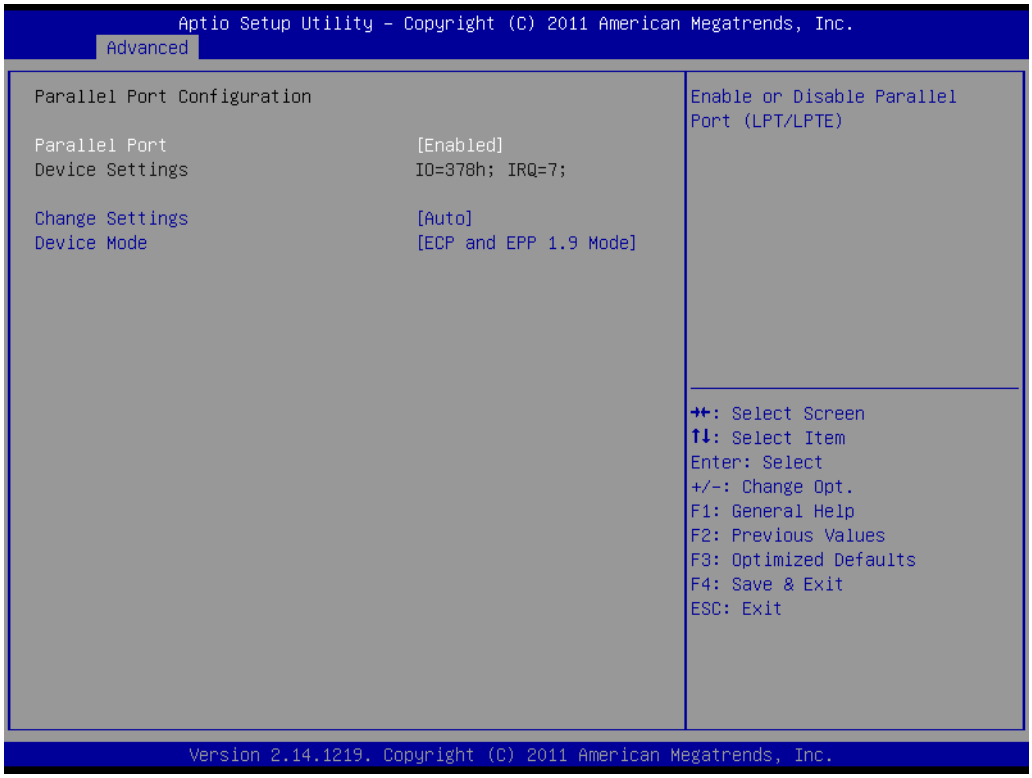
- **Serial Port**
  To “enable” or “disable” Serial Port 1.
- **Change Settings**
  To select the I/O address/IRQ setting for serial port 1.
- **Auto flow control**
  When the COM is to set as RS-485, it supports auto flow control function.



Serial Port 2 Configuration

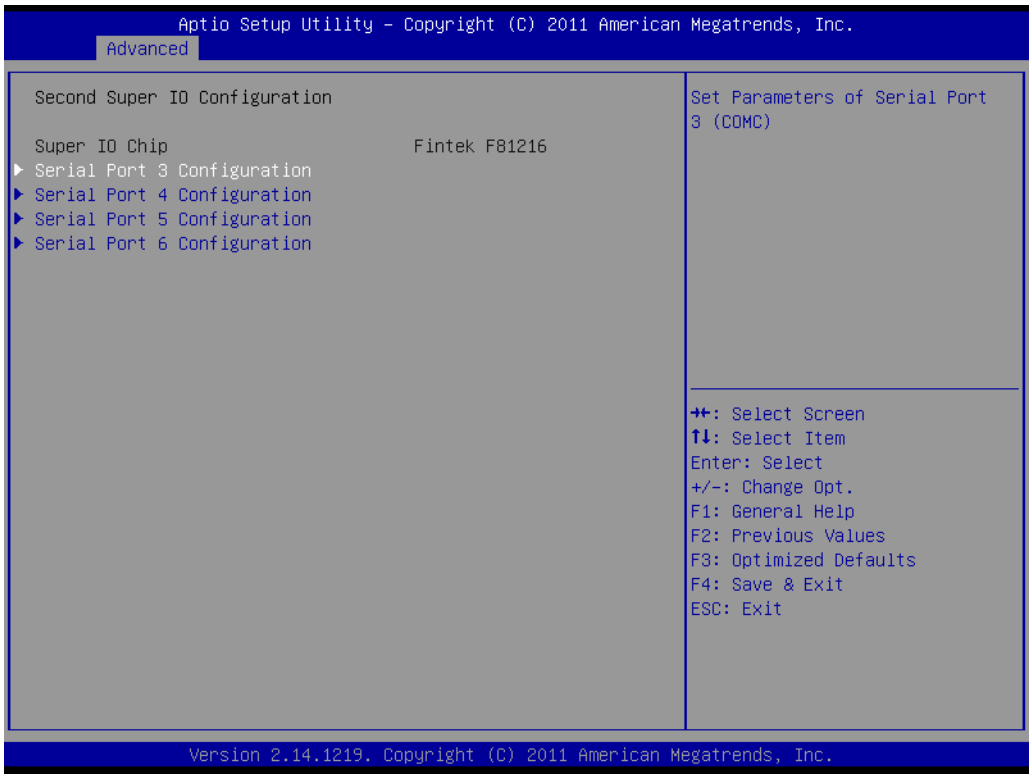
- **Serial Port**
  To “enable” or “disable” Serial Port 2.
- **Change Settings**
  To select the IO address/IRQ setting for serial port 2.

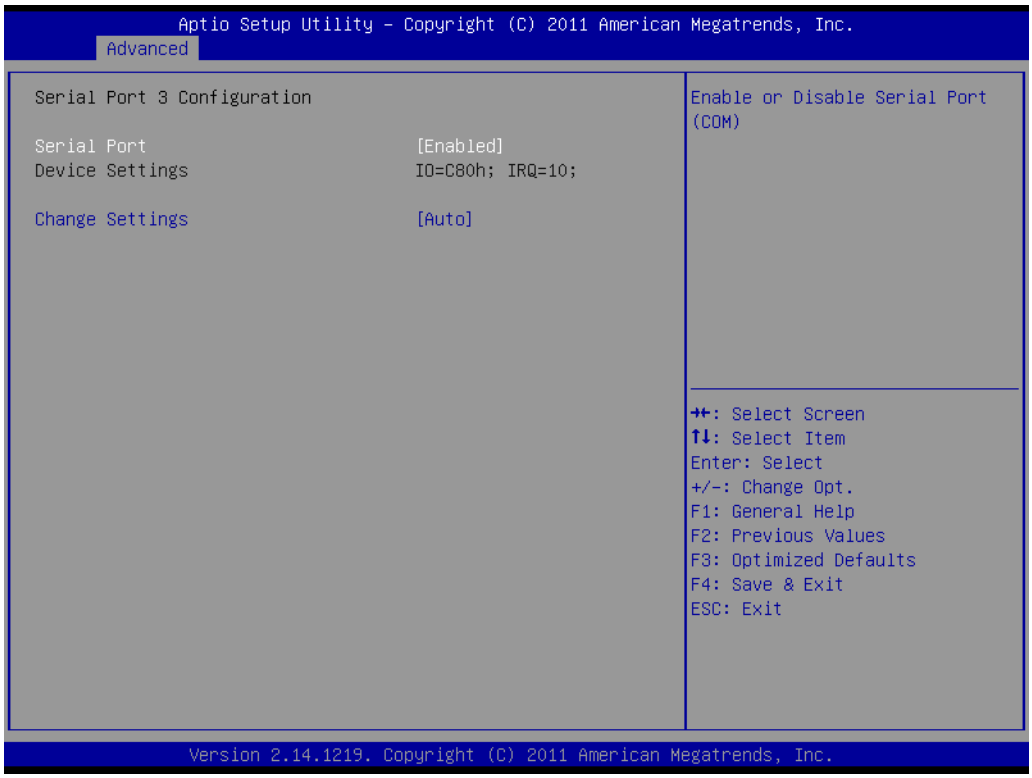
Parallel Port Configuration



- **Parallel Port**
  To enable or disable Parallel Port.

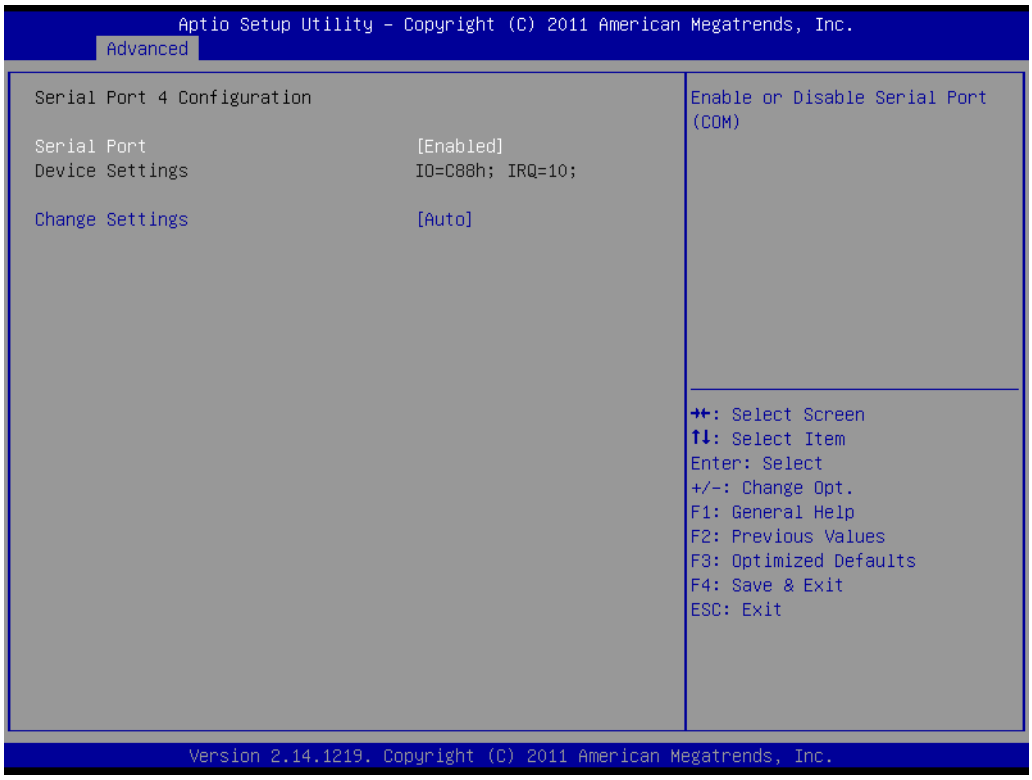
4.3.5 Second Super IO Configuration





Serial Port 3 Configuration

- **Serial Port**
  To “enable” or “disable” Serial Port 3.
- **Change Settings**
  To select the IO address/IRQ setting for serial port 3.



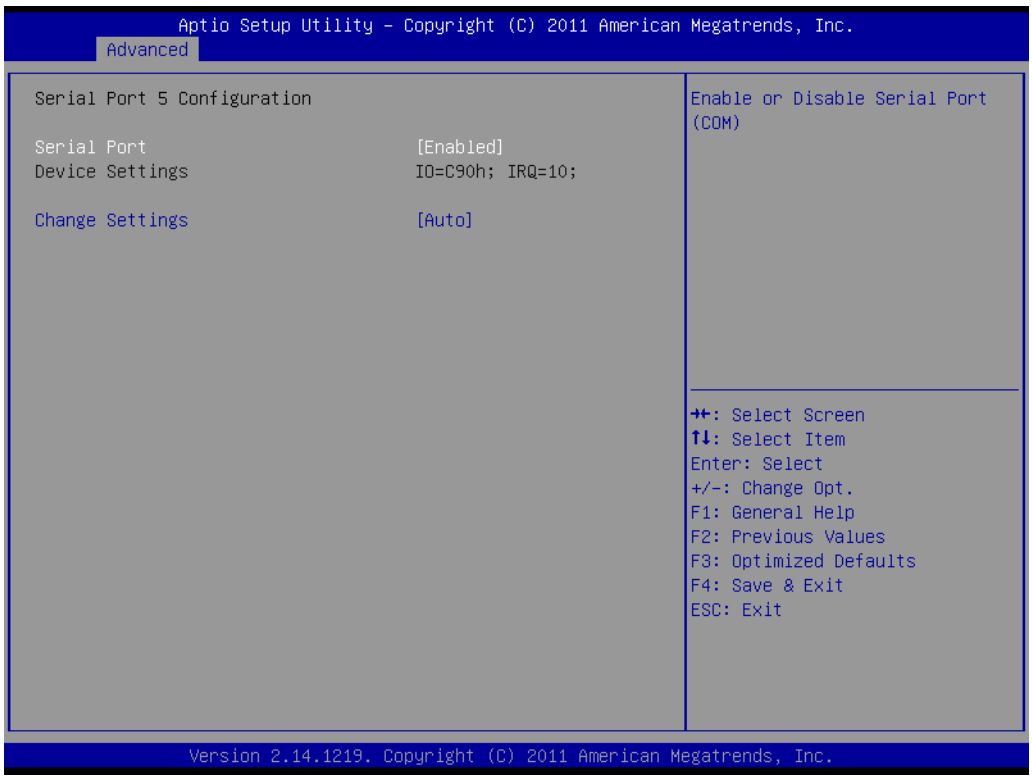
Serial Port 4 Configuration

- **Serial Port**

  To “enable” or “disable” Serial Port 4.

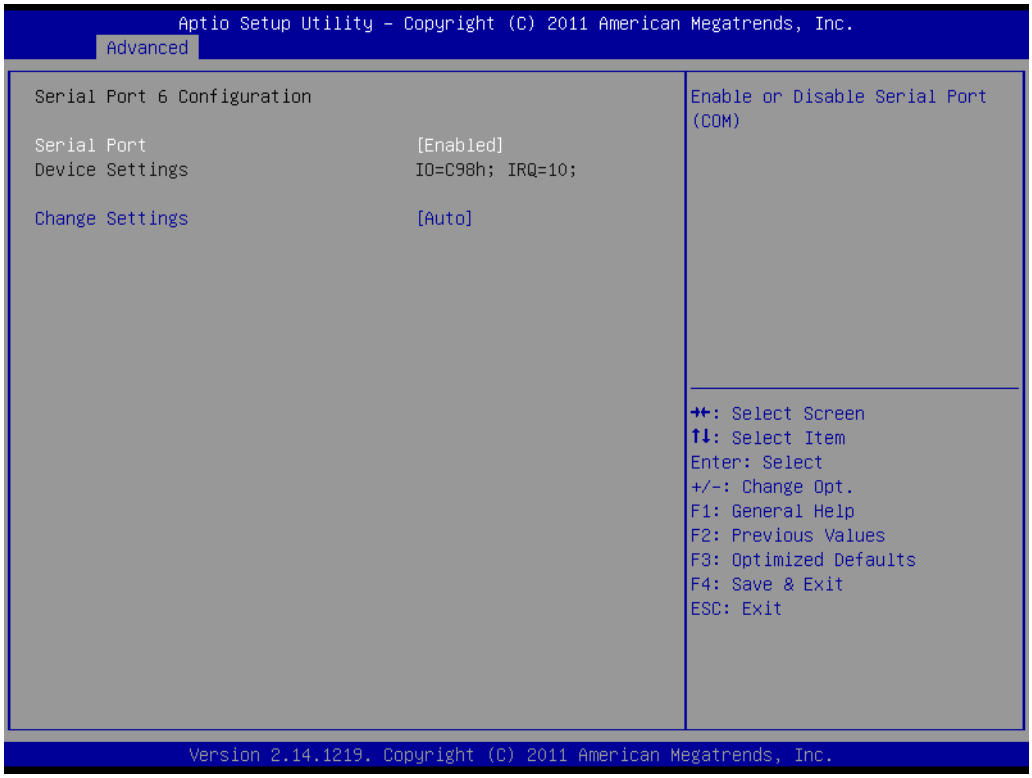
- **Change Settings**

  To select the I/O address/IRQ setting for serial port 4.



Serial Port 5 Configuration

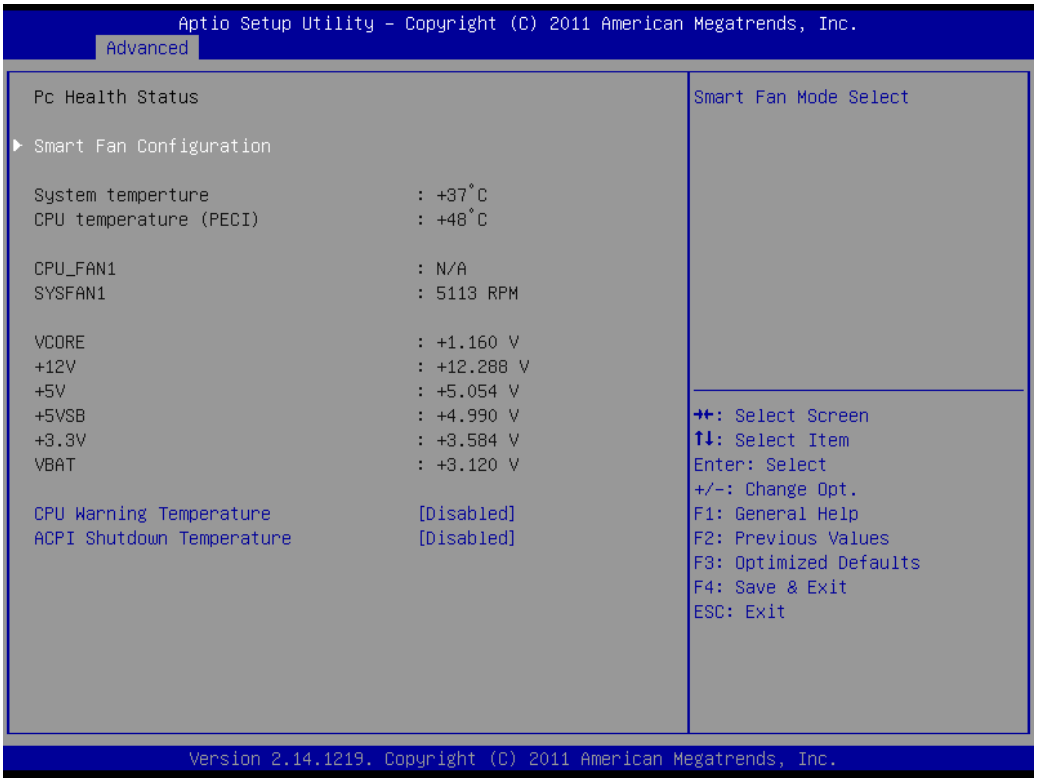
- **Serial Port**
  To ,"enable" or "disable" Serial Port 5.
- **Change Settings**
  To select the IO address/IRQ setting for serial port 5.



Serial Port 6 Configuration

- **Serial Port**
  To "enable" or "disable" Serial Port 6.
- **Change Settings**
  To select the IO address/IRQ setting for serial port 6.

4.3.6 H/W Monitor



Smart Fan Configuration

- **CPU Smart Fan**
  To enable or disable the CPU's smart fan.
- **System Smart Fan**
  To enable or disable the system's Smart Fan.

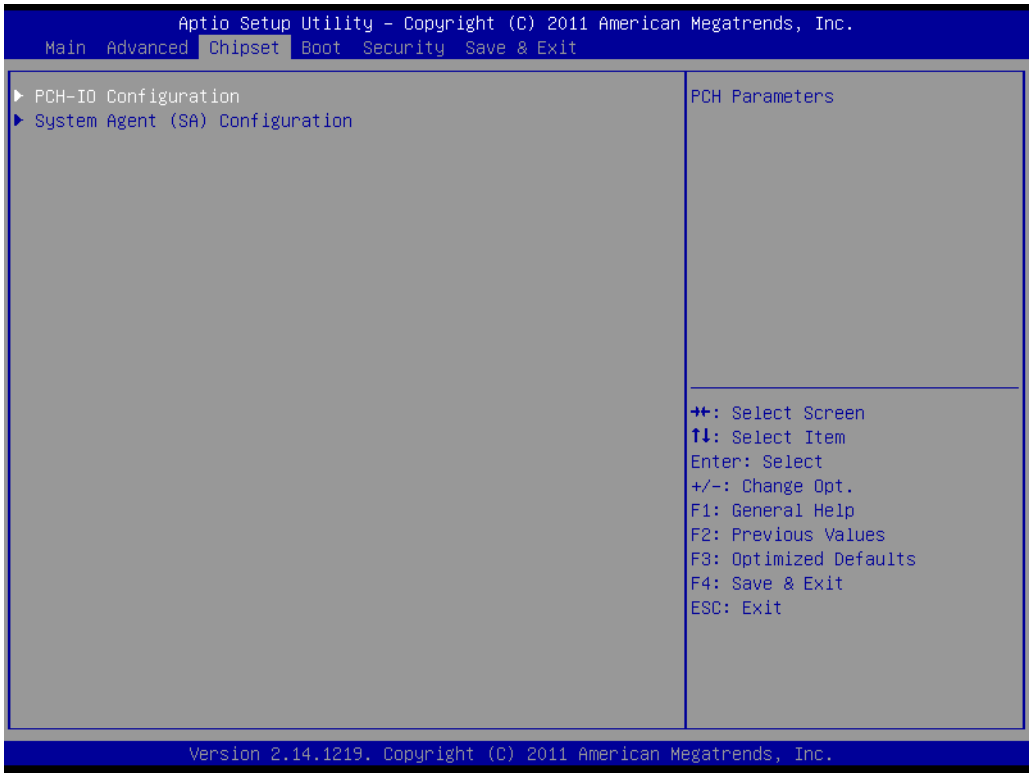
CPU Warning Temperature

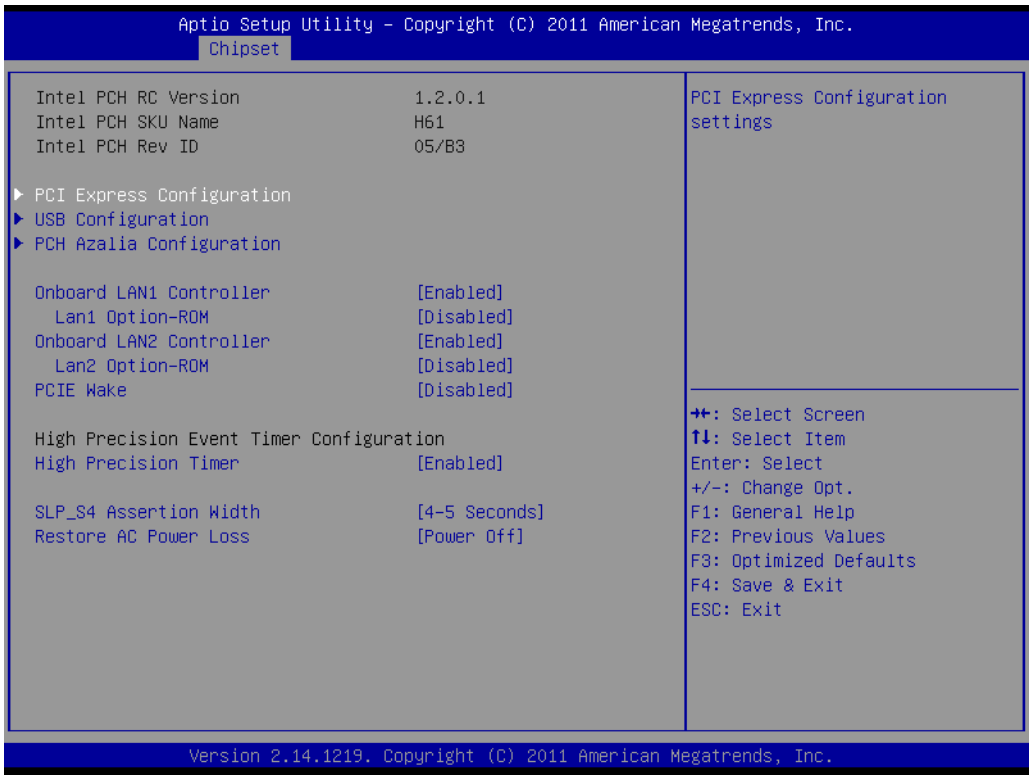
ACPI Shutdown Temperature

4.4 Chipset Configuration Settings

Select the chipset tab from the BIOS setup screen to enter the Chipset setup screen. Users can select any item in the left frame of the screen, such as PCI express Configuration, to go to the sub menu for that item. Users can display a Chipset Setup option by highlighting it using the <Arrow> keys. All Chipset Setup options are described in this section. The Chipset Setup screens are shown below. The sub menus are described on the following pages.

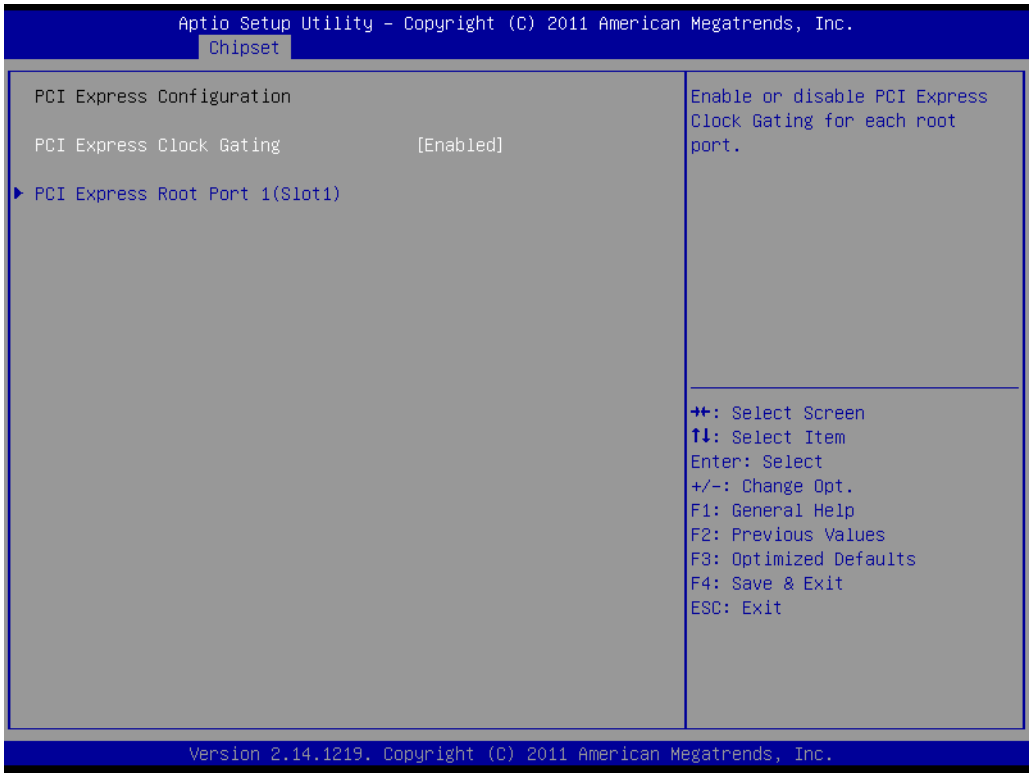
4.4.1 PCH-IO Configuration





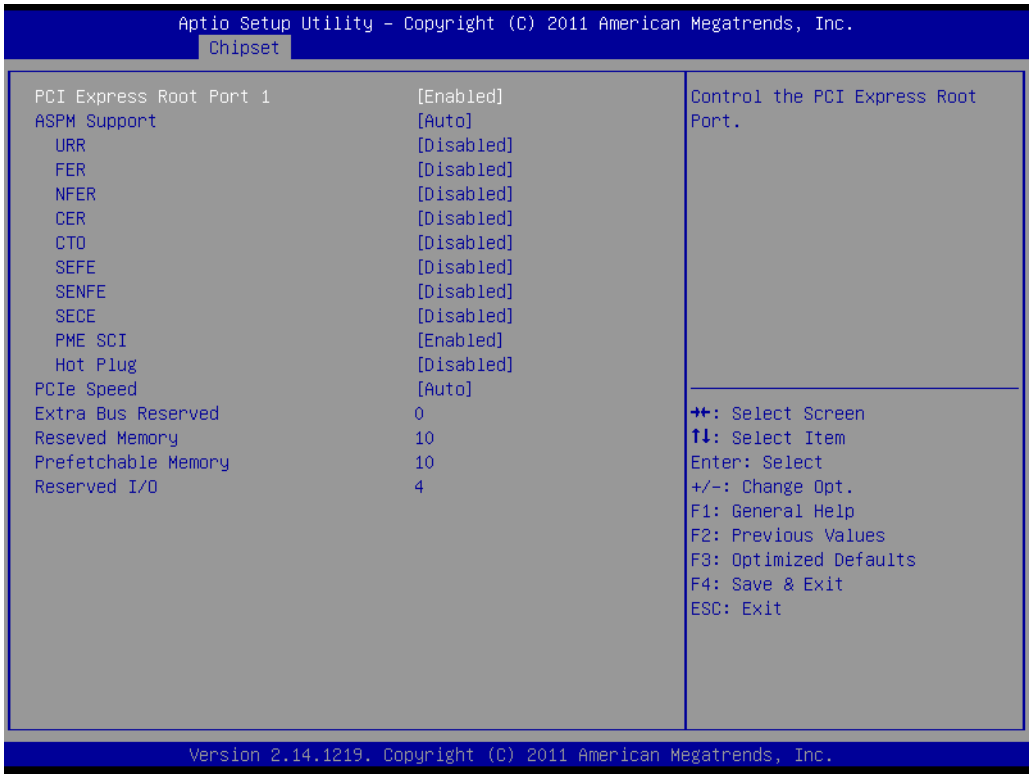
- **PCI Express Configuration**
  Detail of PCI Express items.
- **USB Configuration**
  Details of USB items.
- **PCH Azalia Configuration**
  Details of PCH azalia items.
- **LAN controller**
  Enables or disables the LAN1/2 controller.
- **LAN option-ROM**
  Enables or disables the LAN1/2 option-ROM.
- **PCIE Wake**
  Enables or disables PCIE device wake up from sleep state.
- **High Precision Timer**
  Enables or disables the high precision timer.
- **SLP_S4 Assertion Width**
  This item allows users to set a delay of sorts.
- **Restore AC Power Loss**
  This item allows users to select off, on and last state.

4.4.1.1 PCI Express Configuration



- **PCI Express Clock Gating**
  Enable or disable PCI express clock gating.

4.4.1.2 PCI Express Root Port 1

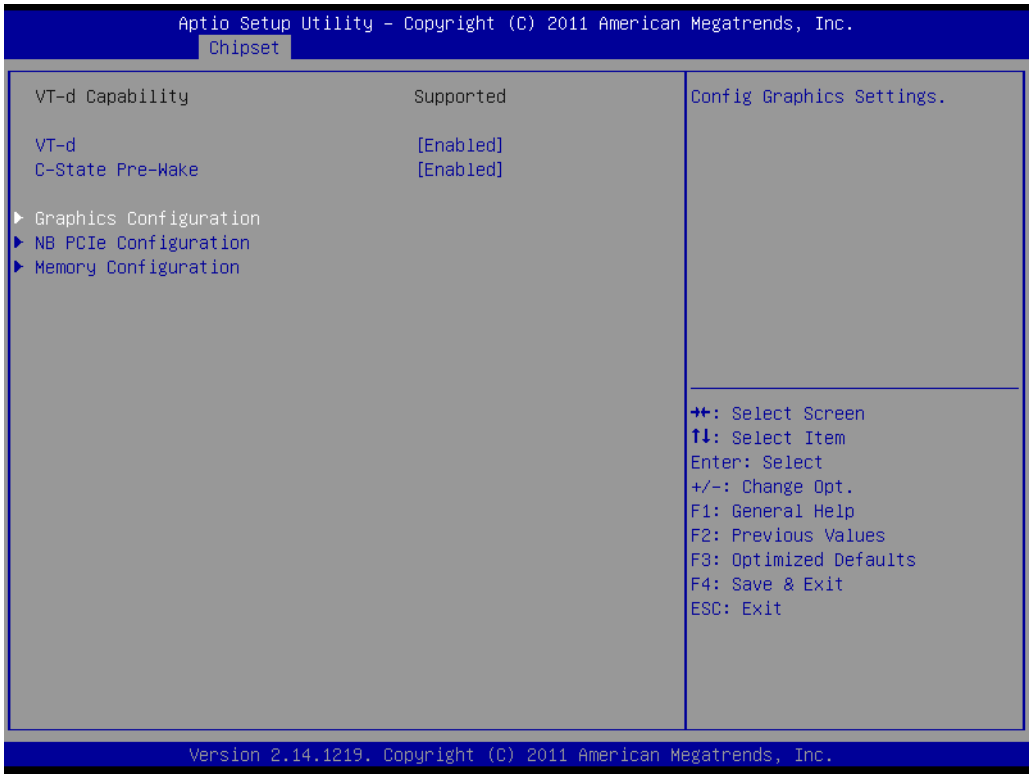


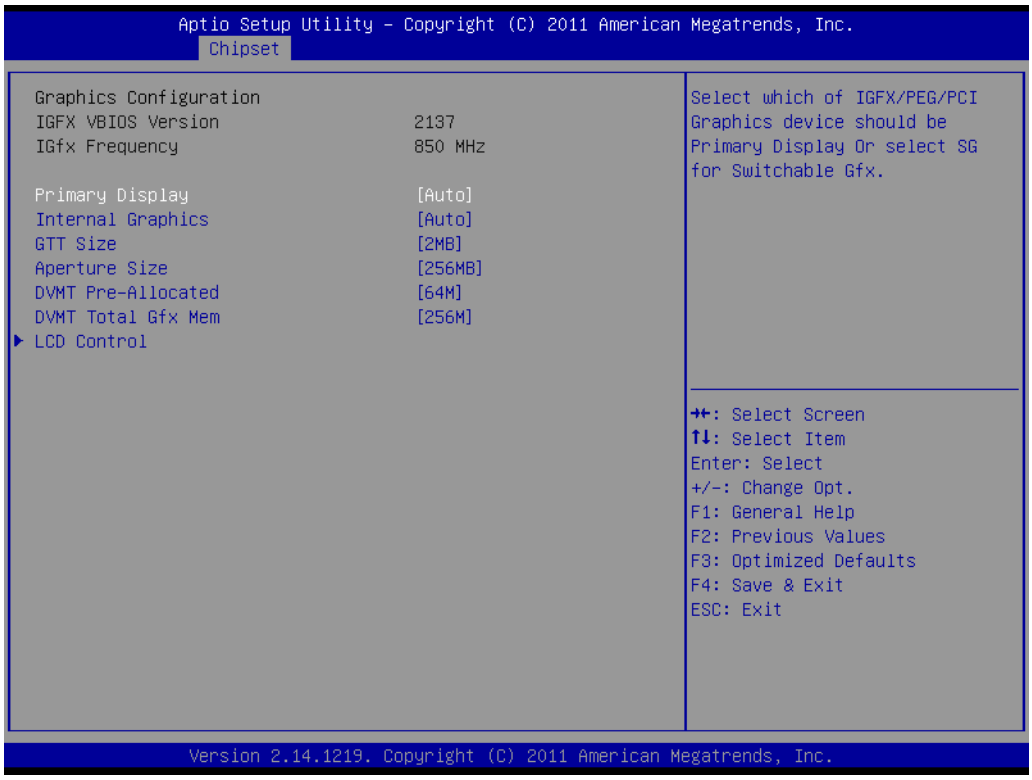
This page allows users to adjust the parameters for PCI express root port 1.

- **ASPM Support**
  Allow user to set the ASPM Level. Force L0s - Force all links to L0s State. AUTO - BIOS auto configure. DISABLE - Disables ASPM.
- **URR**
  Enable or disable PCI Express Unsupported Request Reporting.
- **FER**
  Enable or disable PCI Express Device Fatal Error Reporting.
- **NFER**
  Enable or disable PCI Express Device Non-Fatal Error Reporting.
- **CER**
  Enable or disable PCI Express Device Correctable Error Reporting.
- **CTO**
  Enable or disable PCI Express Completion Timer TO.
- **SEFE**
  Enable or disable Root PCI Express System Error on Fatal Error.
- **SENFE**
  Enable or disable Root PCI Express System Error on Non-Fatal Error.
- **SECE**
  Enable or disable Root PCI Express System Error on Correctable Error.
- **PME SCI**
  Enable or disable PCI Express PME SCI.
- **Hot Plug**
  Enable or disable PCI Express Hot Plug.
- **PCIe Speed**
  Select PCI Express port speed.

- **Extra Bus Reserved**
  Extra Bus Reserved for bridges behind this Root Bridge.
- **Reserved Memory**
  Reserved Memory Range for this Root Bridge.
- **Prefetchable Memory**
  Prefetchable Memory Range for this Root Bridge.
- **Reserved I/O**
  Reserved I/O (4K/8K/12K/16K/20K) Range for this Root Bridge

4.4.2 System Agent Configuration





- **Primary Display**
  This item allows users to select which graphics controller to use as the primary boot device.
- **Internal Graphics**
  This item allows users to enable or disable IGD.
- **GTT Size**
  This item allows users to select GTT size.
- **Aperture Size**
  This item allows users to select aperture size.
- **DVMT Pre-Allocated**
  This item allows users to select DVMT pre-allocated memory size.
- **DVMT Total Gfx Mem**
  This item allows users to select DVMT total memory size.
- **LCD Control**
  This item allows users to setup Display Control configuration.

4.4.2.1 LCD Control Configuration

- **Primary IGFX Boot Display**

  This items allow users to select the video device which will be activated during post. The available options are VBIOS Default, VGA, LVDS, DVI.

- **LVDS Panel Type:**

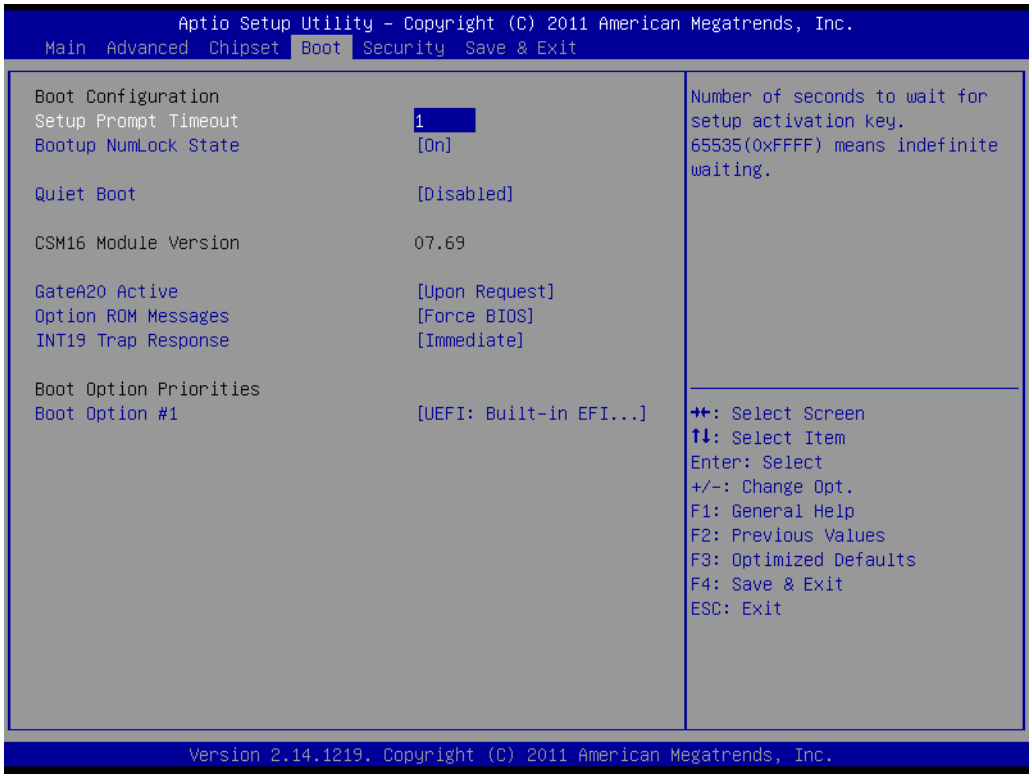
  1024 x 768 18-bit

  1024 x 768 24-bit

  1280 x 1024 48-bit

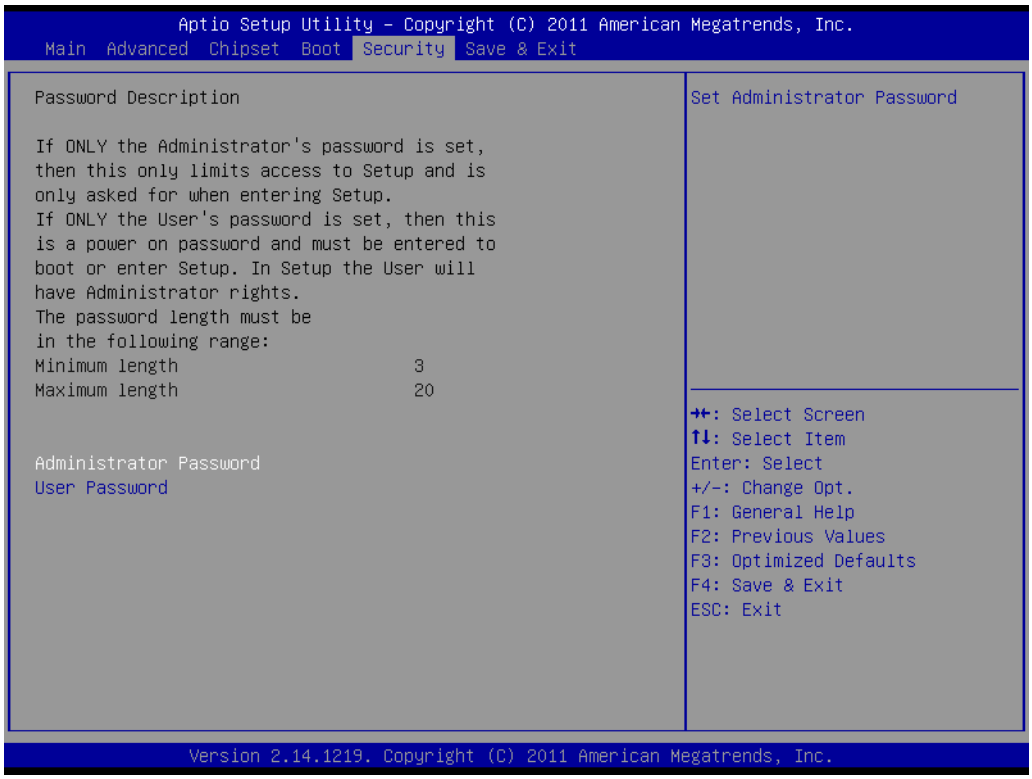
  1366 x 768 24-bit

4.5 Boot Configuration



- **Setup Prompt Timeout**
  This item allows you to change the number of seconds to wait for the setup activation key.
- **Bootup NumLock State**
  Select the Power-on state for Numlock.
- **Quiet Boot**
  If this option is set to Disabled, the BIOS display normal POST messages. If Enabled, an OEM Logo is shown instead of POST messages.
- **GateA20 Active**
  This item allows you to select upon request or always.
- **Option ROM Messages**
  Sets display mode for option ROM.
- **INT19 Trap Response**
  This item allows option ROMs to trap interrupt 19.
- **Boot Option PrioritiesNT19 Trap Response**
  Set the system boot order.

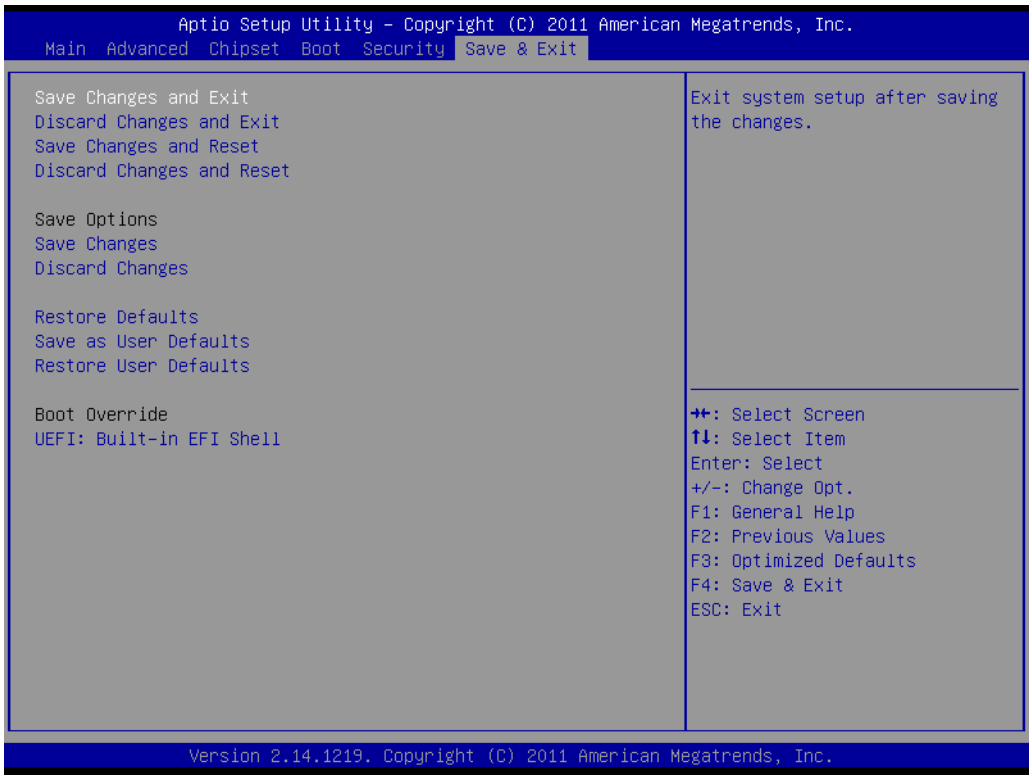
4.6 Security Setting



Select Security Setup from the PPC-8150/8170 Setup main BIOS setup menu. All Security Setup options, such as password protection and virus protection are described in this section. To access the sub menu for the following items, select the item and press<Enter>: Change Administrator / User Password.

- **Administrator Password**
  Select this option and press <ENTER> to access the sub menu, and then type in the password. Set the Administrator password.
- **User Password**
  Select this option and press <ENTER> to access the sub menu, and then type in the password. Set the User Password.

4.7 Save & Exit Configuration



- **Save Changes and Exit**

  When users have completed system configuration, select this option to save changes, exit BIOS setup menu and reboot the computer to take effect all system configuration parameters.

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

- **Discard Changes and Exit**

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

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

- **Restore Default**

  The BIOS automatically configures all setup items to optimal settings when users select this option. Defaults are designed for maximum system performance, but may not work best for all computer applications. In particular, do not use the Defaults if the user's computer is experiencing system configuration problems. Select Restore Defaults from the Exit menu and press <Enter>.

- **Save as User Default**

  Save the all current settings as a user default.

- **Restore User Default**

  Restore all settings to user default values.

- **Boot Override**

  Shows the boot device types on the system.

Chapter 5

Installing Drivers

5.1 Installing Drivers

When you install the OS to panel PC for the first time, you should install the corresponding drivers to make sure all the functions will work properly. Take the CD-ROM out of the accessory box and insert it into the system.

Windows XP: All drivers are needed when installing Windows XP.

Windows 7: All drivers are needed when installing Windows 7.

User manual: Digital copy of the PC's user manual.

Complete the installation based on the OS you use. The drivers on the CD-ROM may not be the latest version, get the latest version from the website below:

http://www.advantech.com/

Appendix A

Programming the Watchdog Timer

A.1 Programming the Watchdog Timer

The PPC-8150/8170's watchdog timer can be used to monitor system software operation and take corrective action if the software fails to function within the programmed period. This section describes the operation of the watchdog timer and how to program it.

A.1.1 Watchdog Timer Overview

The watchdog timer is built into the super I/O controller Nuvoton NCT6776F. It provides the following user-programmable functions:

- Can be enabled and disabled by user program
- Timer can be set from 1 to 255 seconds or 1 to 255 minutes
- Generates an interrupt or resets signal if the software fails to reset the timer before time-out

A.1.2 Programming the Watchdog Timer

The I/O port address of the watchdog timer is 2E (hex) and 2F (hex). 2E (hex) is the address port. 2F (hex) is the data port. You must first assign the address of register by writing an address value into address port 2E (hex), then write/read data to/from the assigned register through data port 2F (hex).

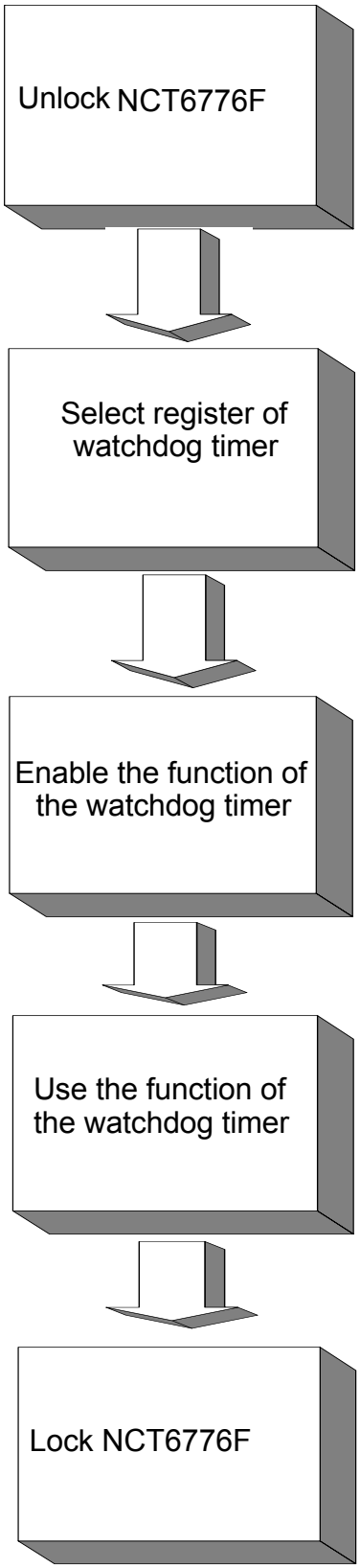

Unlock NCT6776F
Select register of watchdog timer
Enable the function of the watchdog timer
Use the function of the watchdog timer
Lock NCT6776F

Table A.1: Watchdog Timer Registers		
Address of Register (2E)	**Attribute**	
Read/Write	Value (2F) & description	
87 (hex)	-----	Write this address to I/O address port 2E (hex) twice to unlock the NCT6776F.
07 (hex)	write	Write 08 (hex) to select register of watchdog timer.
30 (hex)	write	Write 01 (hex) to enable the function of the watchdog timer. Disabled is set as default.
F5 (hex)	write	Set seconds or minutes as units for the timer. Write 0 to bit 3: set second as counting unit. [default] Write 1 to bit 3: set minutes as counting unit.
F6 (hex)	write	0: stop timer [default] 01~FF (hex): The amount of the count, in seconds or minutes, depends on the value set in register F5 (hex). This number decides how long the watchdog timer waits for strobe before generating an interrupt or reset signal. Writing a new value to this register can reset the timer to count with the new value.
F7 (hex)	read/write	Bit 7:Write 1 to enable mouse to reset the timer, 0 to disable[default]. Bit 6: Write 1 to enable keyboard to reset the timer, 0 to disable.[default] Bit 5: Write 1 to generate a timeout signal immediately and automatically return to 0. [default=0] Bit 4: Read status of watchdog timer, 1 means timer is “timeout”.
AA (hex)	-----	Write this address to I/O port 2E (hex) to lock the watchdog timer 2.

A.1.3 Example Program

1. Enable watchdog timer and set 10 sec. as timeout interval

```
;---------------------------------------------------------
Mov dx,2eh; Unlock NCT6776F
Mov al,87h
Out dx,al
Out dx,al
;---------------------------------------------------------
Mov al,07h; Select registers of watchdog timer
Out dx,al
Inc dx
Mov al,08h
Out dx,al
;---------------------------------------------------------
Dec dx; Enable the function of watchdog timer
Mov al,30h
Out dx,al
Inc dx
Mov al,01h
Out dx,al
;---------------------------------------------------------
Dec dx; Set second as counting unit
Mov al,0f5h
Out dx,al
Inc dx
In al,dx
And al,not 08h
Out dx,al
;---------------------------------------------------------
Dec dx; Set timeout interval as 10 seconds and start counting
Mov al,0f6h
Out dx,al
Inc dx
Mov al,10
Out dx,al
;---------------------------------------------------------
Dec dx; Lock NCT6776F
Mov al,0aah
Out dx,al
```

2. Enable watchdog timer and set 5 minutes as timeout interval

```
;---------------------------------------------------------
Mov dx,2eh; Unlock NCT6776F
Mov al,87h
Out dx,al
Out dx,al
```

```
;------------------------------------------------------------
Mov al,07h; Select registers of watchdog timer
Out dx,al
Inc dx
Mov al,08h
Out dx,al
;------------------------------------------------------------
Dec dx; Enable the function of watchdog timer
Mov al,30h
Out dx,al
Inc dx
Mov al,01h
Out dx,al
;------------------------------------------------------------
Dec dx; Set minute as counting unit
Mov al,0f5h
Out dx,al
Inc dx
In al,dx
Or al,08h
Out dx,al
;------------------------------------------------------------
Dec dx; Set timeout interval as 5 minutes and start counting
Mov al,0f6h
Out dx,al
Inc dx
Mov al,5
Out dx,al
;------------------------------------------------------------
Dec dx; Lock NCT6776F
Mov al,0aah
Out dx,al
```

3. Enable watchdog timer to be reset by mouse

```
;------------------------------------------------------------
Mov dx,2eh; Unlock NCT6776F
Mov al,87h
Out dx,al
Out dx,al
;------------------------------------------------------------
Mov al,07h; Select registers of watchdog timer
Out dx,al
Inc dx
Mov al,08h
Out dx,al
;------------------------------------------------------------
```

```
Dec dx; Enable the function of watchdog timer
Mov al,30h
Out dx,al
Inc dx
Mov al,01h
Out dx,al
;--------------------------------------------------------
Dec dx; Enable watchdog timer to be reset by mouse
Mov al,0f7h
Out dx,al
Inc dx
In al,dx
Or al,80h
Out dx,al
;--------------------------------------------------------
Dec dx; Lock NCT6776F
Mov al,0aah
Out dx,al
```

4. Enable watchdog timer to be reset by keyboard

```
;--------------------------------------------------------
Mov dx,2eh; Unlock NCT6776F
Mov al,87h
Out dx,al
Out dx,al
;--------------------------------------------------------
Mov al,07h; Select registers of watchdog timer
Out dx,al
Inc dx
Mov al,08h
Out dx,al
;--------------------------------------------------------
Dec dx; Enable the function of watchdog timer
Mov al,30h
Out dx,al
Inc dx
Mov al,01h
Out dx,al
;--------------------------------------------------------
Dec dx; Enable watchdog timer to be strobed reset by keyboard
Mov al,0f7h
Out dx,al
Inc dx
In al,dx
Or al,40h
Out dx,al
```

```
;--------------------------------------------------------
Dec dx; Lock NCT6776F
Mov al,0aah
Out dx,al
```

5. Generate a time-out signal without timer counting

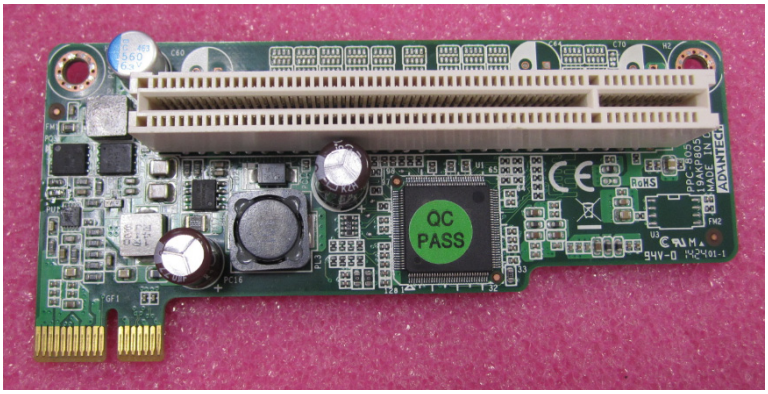
```
;--------------------------------------------------------
Mov dx,2eh; Unlock NCT6776F
Mov al,87h
Out dx,al
Out dx,al
;--------------------------------------------------------
Mov al,07h; Select registers of watchdog timer
Out dx,al
Inc dx
Mov al,08h
Out dx,al
;--------------------------------------------------------
Dec dx; Enable the function of watchdog timer
Mov al,30h
Out dx,al
Inc dx
Mov al,01h
Out dx,al
;--------------------------------------------------------
Dec dx; Generate a time-out signal
Mov al,0f7h
Out dx,al ;Write 1 to bit 5 of F7 register
Inc dx
In al,dx
Or al,20h
Out dx,al
;--------------------------------------------------------
Dec dx; Lock NCT6776F
Mov al,0aah
Out dx,al
```

Appendix B

PCIe /PCI Photos

B.1 PCI/PCIE (Images)

PPC-805 PCI Riser Card (in the accessory box)

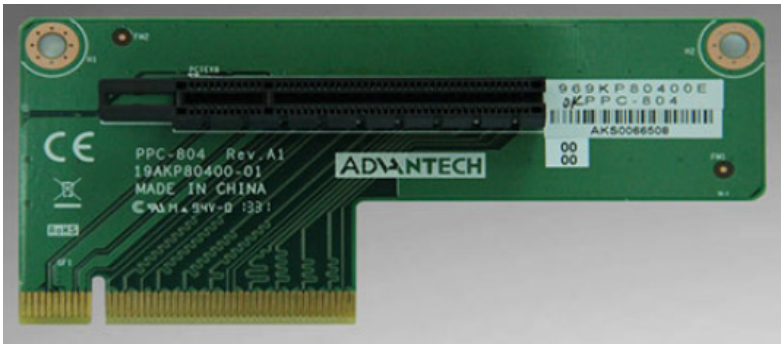


Note! *The size of PCI and PCIE card can not exceed 199 mm long, 102 mm wide, and 37 mm thick.*

The total current load provided by PPC-8150 /PPC-8170 PCI slot is no more than 20 W. See the details as below:.

-12 V	0.1 A
+12 V	0.5 A
+5 V	4 A
+3.3 V	2.5 A
+3.3 VSB	0.25 A

One PCIex4 (pre-installed)



The total current load provided by PPC-8150 /PPC-8170 PCIe slot is no more than 25 W.

12 V	2.1 A
3.3 V	3 A
3.3 VSB	0.375 A

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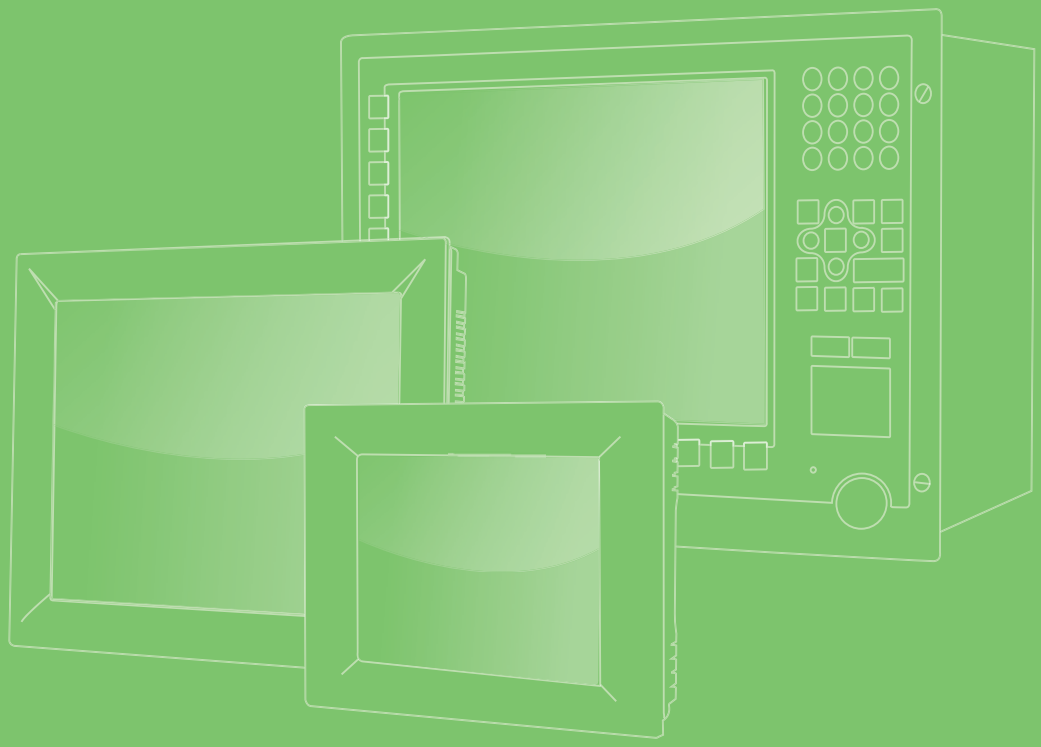
www.advantech.com

Please verify specifications before quoting. This guide is intended for reference purposes only.

All product specifications are subject to change without notice.



用户手册

PPC-8150/8170

带 15"/17" 彩色 TFT LCD 显示器并搭载 Intel® Core™ i3 / i5 处理器的平板电脑

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版权声明

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Microsoft Windows® 为 Microsoft Corp. 的注册商标。

所有其它产品名或商标均为各自所属方的财产。

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如果您认为您购买的产品出现了故障，请遵循以下步骤：

1. 收集您所遇到的问题信息 （例如，CPU 主频、使用的研华产品及其它软件、硬件等）。请注意屏幕上出现的任何不正常信息显示。
2. 打电话给您的供货商，描述故障问题。请借助手册、产品和任何有帮助的信息。
3. 如果您的产品被诊断发生故障，请从您的供货商那里获得 RMA （Return Material Authorization） 序列号。这可以让我们尽快地进行故障产品的回收。
4. 请仔细地包装故障产品，并在包装中附上完整的售后服务卡片和购买日期证明（如销售发票）。我们对无法提供购买日期证明的产品不提供质量保证服务。
5. 把相关的 RMA 序列号写在外包装上，并将其运送给销售人员。

料号：200K815031　　第二版

中国印刷　　2015 年 4 月

符合性声明

CE

本设备已通过 CE 测试，符合以屏蔽电缆进行外部接线的环境规格标准。建议用户使用屏蔽电缆，此种电缆可从研华公司购买。如需订购，请与当地分销商联系。

CE

本产品已经通过 CE 环境规格检测。测试条件之一是在工业环境中进行产品操作。为了使产品免受 ESD（静电放电）和 EMI 泄露造成的损害，强烈建议用户使用符合 CE 标准的工业产品。

FCC A 级

注意：根据 FCC 规则第 15 款，本设备已经过检测并被判定符合 A 级数字设备标准。这些限制旨在为商业环境下的系统操作提供合理保护，使其免受有害干扰。本设备会产生、耗费和发射无线电频率能量，如果没有按照手册说明正确安装和使用，可能会对无线电通讯造成有害干扰。此时，用户需自行解决干扰问题。

警告使用者：

這是甲類測試產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

技术支持与服务

1. 有关该产品的最新信息，请访问研华公司的网站：
   http://support.advantech.com.cn
2. 用户若需技术支持，请与当地分销商、销售代表或研华客服中心联系。进行技术咨询前，用户须将下面各项产品信息收集完整：
   - 产品名称及序列号
   - 外围附加设备的描述
   - 用户软件的描述（操作系统、版本、应用软件等）
   - 产品所出现问题的完整描述
   - 每条错误信息的完整内容

安全指示

1. 请仔细阅读此安全操作说明。
2. 请妥善保存此用户手册供日后参考。
3. 用湿抹布清洗设备前，请从插座拔下电源线。请不要使用液体或去污喷雾剂清洗设备。
4. 对于使用电源线的设备，设备周围必须有容易接触到的电源插座。
5. 请不要在潮湿环境中使用设备。
6. 请在安装前确保设备放置在可靠的平面上，意外跌落可能会导致设备损坏。
7. 设备外壳的开口是用于空气对流，从而防止设备过热。**请不要覆盖这些开口。**
8. 当您连接设备到电源插座上前，请确认电源插座的电压是否符合要求。
9. 请将电源线布置在人们不易绊到的位置，并不要在电源线上覆盖任何杂物。
10. 请注意设备上的所有警告和注意标语。
11. 如果长时间不使用设备，请将其同电源插座断开，避免设备被超标的电压波动损坏。
12. 请不要让任何液体流入通风口，以免引起火灾或者短路。
13. 请不要自行打开设备。为了确保您的安全，请由经过认证的工程师来打开设备。
14. 如遇下列情况，请由专业人员来维修：
    - 电源线或者插头损坏；
    - 设备内部有液体流入；
    - 设备曾暴露在过于潮湿的环境中使用；
    - 设备无法正常工作，或您无法通过用户手册来使其正常工作；
    - 设备跌落或者损坏；
    - 设备有明显的外观破损。
15. 请不要把设备放置在超出我们建议的温度范围的环境，即不要低于 -20° C （-4° F）或高于 60° C （140° F），否则可能会损坏设备。
16. **注意：**计算机配置了由电池供电的实时时钟电路，如果电池放置不正确，将有爆炸的危险。因此，只可以使用制造商推荐的同一种或者同等型号的电池进行替换。请按照制造商的指示处理旧电池。

根据 IEC 704-1:1982 的规定，操作员所在位置的声压级不可高于 70dB(A)。

免责声明：该安全指示符合 IEC 704-1 的要求。研华公司对其内容的准确性不承担任何法律责任。

安全措施 - 静电防护

为了保护您和您的设备免受伤害或损坏，请遵照以下安全措施：

- 操作设备之前，请务必断开机箱电源，以防触电。不可在电源接通时接触 CPU 卡或其它卡上的任何元件。
- 在更改任何配置之前请断开电源，以免在您连接跳线或安装卡时，瞬间电涌损坏敏感电子元件。

电源警告语

此电源仅适用于海拔 5000M 以下地区安全适用。

电池信息

电池、电池组和蓄电池不应作为未分类的生活垃圾处理。请使用公共收集系统返回和回收，或按照当地法规要求进行处理。

目录

第 1 章

概述

本章介绍了 PPC-8150/8170 平板电脑的基本信息。

内容包括：

- 产品简介
- 产品规格
- 产品尺寸

1.1 简介

PPC-8150/8170 是一款配有 Intel® Core™ i3/i5 处理器以及 15"/17" 彩色 TFT LCD 显示器的平板电脑。该产品具有极高的计算能力以及卓越的连接性和扩展性能。此外，其丰富 IO 支持使其方便在信息应用中使用，并为宽温工业应用提供了绝佳的解决方案。

1.2 产品规格

1.2.1 差异规格

产品	PPC-8150	PPC-8170
LCD 规格	15" LCD	17" LCD
显示类型	15" TFT LCD (LED 背光)	17" TFT LCD (LED 背光)
最大分辨率	1024 x 768	1280 x 1024
支持色彩	262K	16.7M
点距	0.297 x 0.297 mm	0.264 x 0.264 mm
视角	80 (左)、80 (右)、 70 (上)、70 (下)	80 (左)、80 (右)、 60 (上)、80 (下)
亮度	400 cd/m^2	350 cd/m^2
对比度	700	800
背光灯寿命	50, 000 小时	50, 000 小时
扩展卡槽	1 x PCIe x4 (预安装) 1 x PCI (位于附件盒中)	
产品重量	6.98 Kg	9.2 Kg
产品尺寸	395.5 x 316.8 x 110.5 (mm) (15.6" x 12.5" x 4.35")	442.0 x 362.0 x 113.5 (mm) (17.4" x 14.25" x 4.47")

1.2.2 一般规格

CPU	Core i3-3220	Core i5-3550S
频率	3.3 GHz	3.7 GHz
L3 缓存	3 MB	6 MB
芯片组	H61	
内存	2 x 204 针 DDR3 SO-DIMM, DDR3 1066/1333/1600 MHz SDRAM, 每个 SO-DIMM 通道最高支持 8 GB/4 GB	
存储 1	1 x 2.5" SATA 磁盘	
网络 (LAN)	2 x 千兆位以太网接口 (RTL8111E)	
I/O 接口	6 x COMs、1 x RS-232/422/485、5 x RS-232 6 x USB 2.0 1 x VGA、1 x DVI 1 x GPIO 8 位 (内部排针) 1 x 麦克输入、1 x 线路输出 1 x PS/2 2 x 1W 扬声器	

附加扩展	1 x Mini PCIe
风扇	1 x 12 V 80x80x15mm 风扇
OS 支持	Win XP Pro / Windows 7 32 & 64 bit

1.2.3 电源规格

型号	**PPC-8150/8170 （AC 输入）**
瓦	最大 180 W (ATX、PFC)
输入电压	100 ~ 240 V_{AC} （满量程）
输出功率	+5 V @ 16 A、+3.3 V @ 14 A、 +12 V @ 14 A、-12 V @ 0.3 A、 +5 Vsb @ 2 A
最小负载	+3.3 V @ 0.3 A、+12 V @ 1.0 A、 +3.3 V @ 0.3 A、+12 V @ 1.0 A

功耗	**PPC-8150**	**PPC-8170**
i3-3220	71 W （测试系统： WIN7 32Bit）	81 W （测试系统： WIN7 32Bit）
i5-3550s	86 W （测试系统： WIN7 32Bit）	96 W （测试系统： WIN7 32Bit）

注！ *对于以上功耗的测试状况，请参考注 1 和注 2。*

注 1： PPC-8150 功耗测试状况

测试条件	**测试配置**	**测试系统**	**功耗**
BURIN IN 7.0	i3-3220 3.3G，2GB*2，DDR3 1333，160 GB Seagate HDD /6 x 2GB KINGSTON U 盘 /6 x COM 端口回路	WIN7 32Bit	71 W
BURIN IN 7.0	i5-3550s / 2GB*2 1333MHZ 内存 / 6 x COM 端口回路 / 6 x U 盘 / WD500GB SATA HDD WIN7 32 BIT OS + Burn in 7.0	WIN7 32Bit	86 W

注 2： PPC-8170 功耗测试状况

测试条件	**测试配置**	**测试系统**	**功耗**
BURIN IN 7.0	i3-3220 3.3G，2GB*2，DDR3 1333，160 GB Seagate HDD /6 x 2GB KINGSTON U 盘 /6 x COM 端口回路	WIN7 32Bit	81W

BURIN IN 7.0	i5-3550s / 2GB*2 1333MHZ memory / 6 x COM 端口回路 / 6 x U 盘 / WD500GB SATA HDD WIN7 32 BIT OS + Burn in 7.0	WIN7 32Bit	96W

1.2.4 触摸屏规格

类型	五线电阻式
分辨率	2048 x 2048
透光率	80%+/-3%
控制器	USB 界面
触摸寿命	36,000,000 次

1.2.5 环境规格

工作温度	0 ~ 50° C (32 ~ 122° F)
存储温度	-20 ~ 60° C (-4 ~ 140° F)
相对湿度	10 ~ 95% @ 40° C (非凝结)
冲击	工作时 10 G 峰值加速度 (持续时间 11 ms)，符合 IEC 60068-2-27 标准
振动	工作时随机振动测试 5 ~ 500 Hz，1 Grms，符合 IEC 60068-2-64 标准

1.2.6 认证规格

EMC	BSMI、CE、FCC Class A
安全认证	CB、CCC、BSMI、UL

1.2.7 防尘防水等级

前面框 防尘防水	IP65

1.3 产品尺寸

PPC-8150:

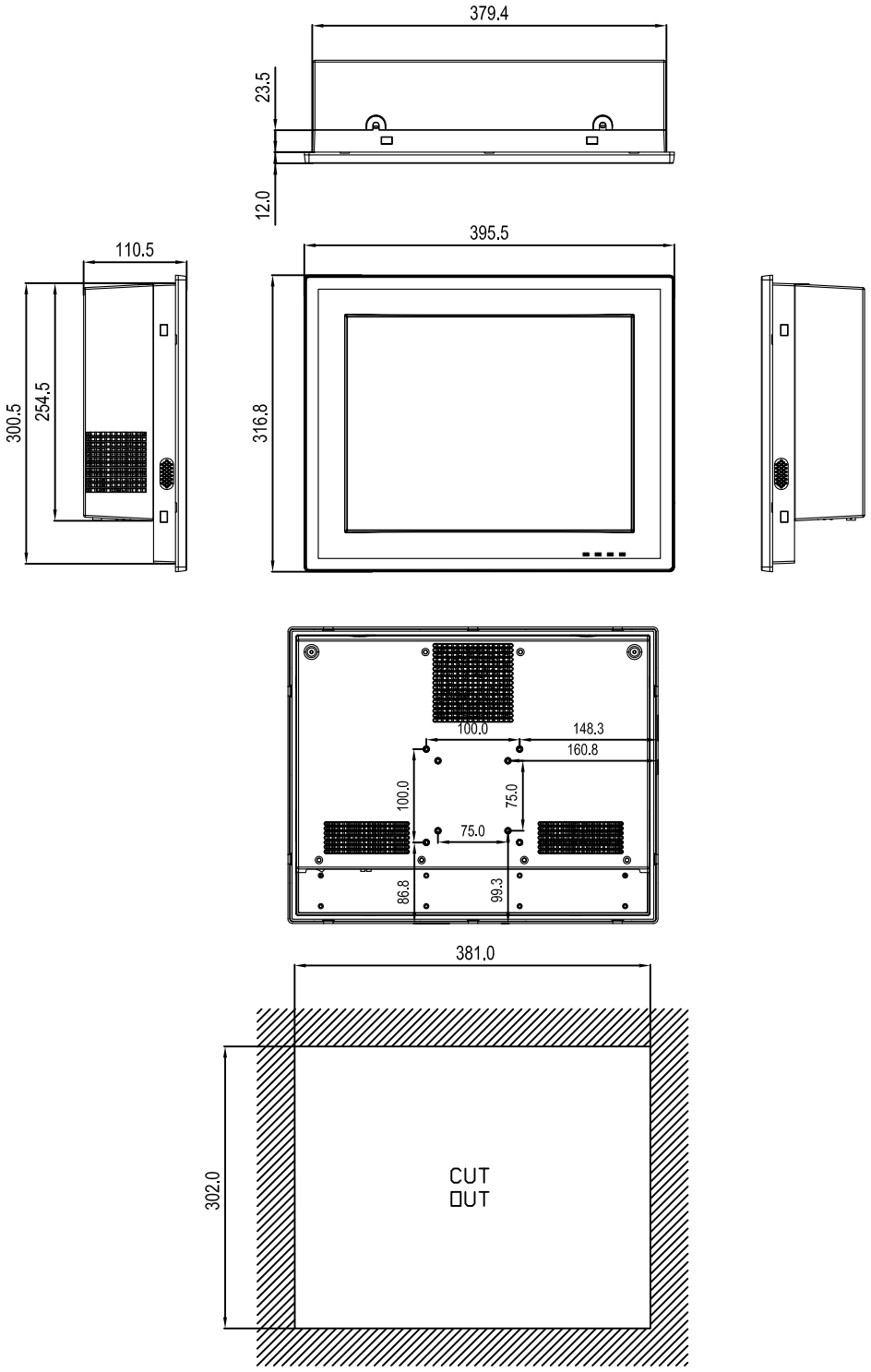


图 1.1： PPC-8150 产品尺寸

以上单位均为 (mm)

注意！ *固定 VESA 螺丝规格 :M4，螺孔深度 :7.5 mm （最大）。*

PPC-8170:

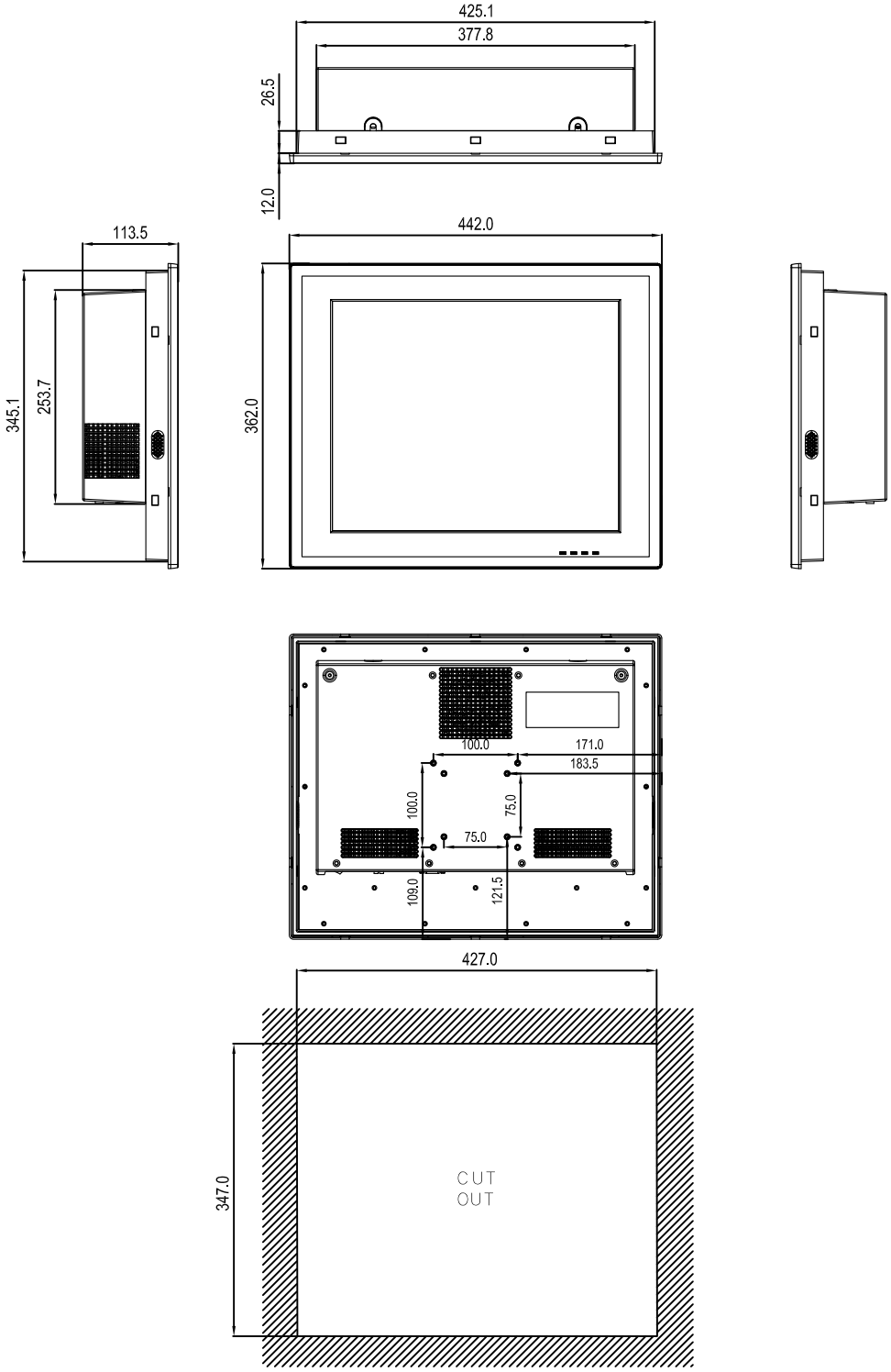


图 1.2： PPC-8170 产品尺寸

以上单位均为 (mm)

注意！ *固定 VESA 螺丝规格 :M4，螺孔深度 :7.5 mm （最大）。*

第 2 章

系统使用安装 & 设置

内容包括：

- 快速入门指南
- 安装步骤
- 安装内存卡
- 安装硬盘
- 安装 PCIe 或 PCI 卡
- 安装无线网卡
- 挂钩安装方式

2.1 快读安装指南

安装平板电脑之前，请先熟悉平板电脑的每个控制键、驱动器、接口和端口的位置及功能（请参考以下内容和图例）。

当平板电脑竖直放置在桌面上时，其前面板如图 2.1 所示。

图 2.1： 平板电脑前面板

图 2.2： 平板电脑左侧视图

图 2.3： 平板电脑右侧视图

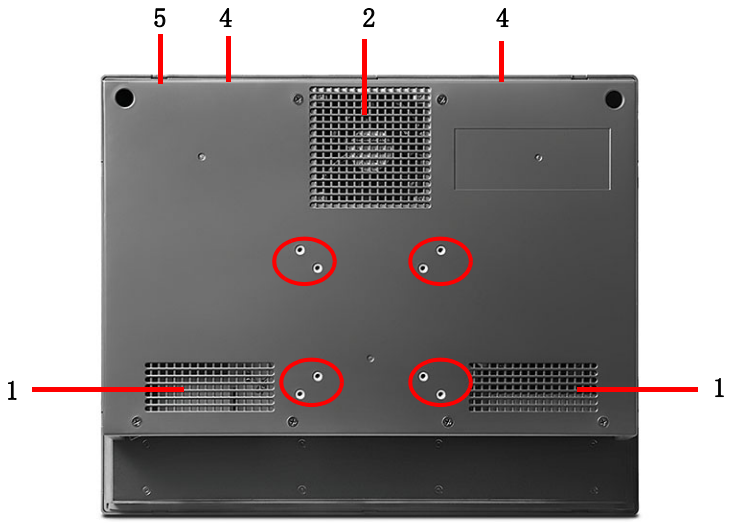


图 2.4： 平板电脑背面视图 (PPC-8150)

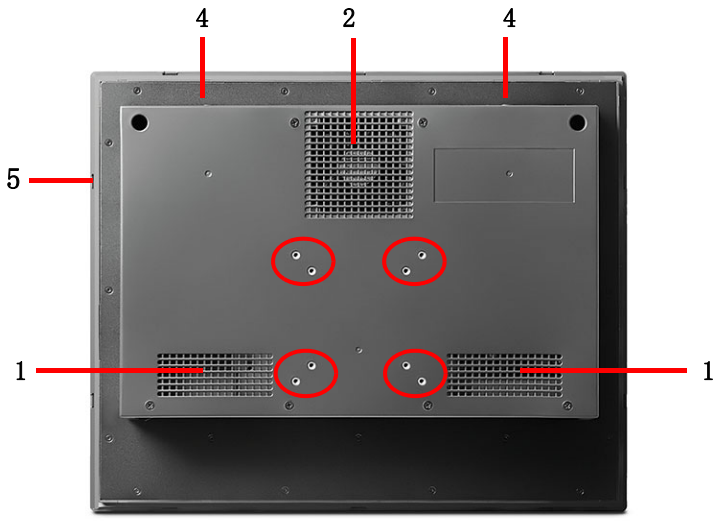
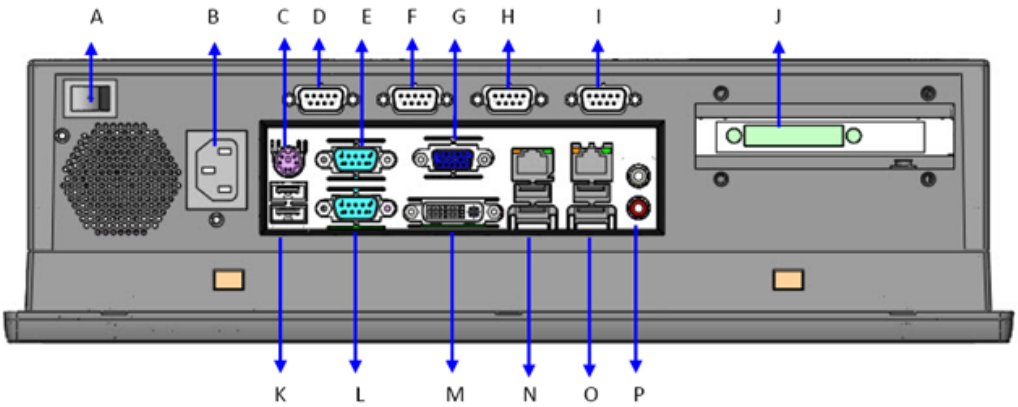


图 2.5： 平板电脑背面视图 (PPC-8170)

红色框内为VESA螺丝孔位。(注意: 固定VESA螺丝规格: M4，螺孔深度: 7.5mm(最大)。)

1. 进风口
2. 出风口
3. 喇叭（左右对称）
4. 天线孔
5. 面板安装挂钩孔 (PPC-8170 共 10 处，PPC-8150 共 8 处）

IO 端口标注



A. 电源按钮 B. AC 电源输入 C. PS/2 D. RS/232 E. RS232/422/485 F. RS232
G. VGA H. RS232 I. RS232 J. 转接卡扩展 K. USB L. RS232 M. DVI
N. LAN2+USB O. LAN1+USB P. 音频线路输出 / 麦克

图 2.6： PPC-8150/8170 IO 端口标注

2.2 安装步骤

运行计算机时前，请按照这些步骤进行设置：

1. 检查并调节母板上的跳线。
2. 安装内存卡。
3. 安装 HDD。
4. 安装附加卡。
5. 连接线缆及其附件。
6. 安装计算机。
7. 编程 BIOS 设置。
8. 安装操作系统。

警告！

1. *每次访问机箱内部时都请关闭电源和拔下电源线。*
2. *系统内部母板由许多专用 IC、芯片和其它集成电路元件所组成。这些元件极易被静电损坏。*

安装部件时请注意以下几点：

- 避免接触母板的金属部分。
- 接触 CPU 或 RAM 模块时请使用防静电手环。
- 安装之前请将 RAM 模块和 CPU 放在防静电手袋或相似地方。

2.2.1 连接键盘和鼠标

将键盘和鼠标连接至平板电脑的 I/O 接口。

2.2.1.1 连接电源

电源按钮位于平板电脑的右下方。

注！ *电源线可选购。*

2.3 安装内存卡

1. 移除 8 个螺丝并卸下后盖。（如图 2.7）

注！ *PPC-8150 和 PPC-8170 的安装过程是相同的。下面以 PPC-8150 为例进行说明。*

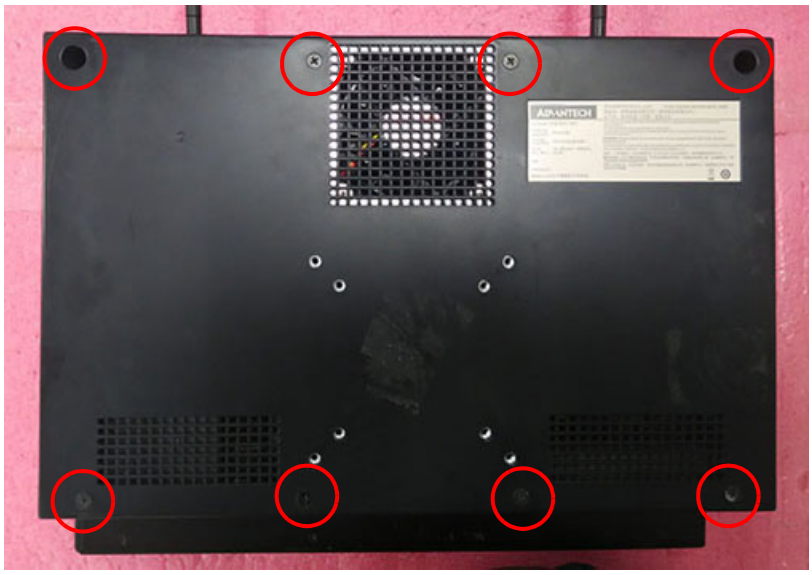


图 2.7：

2. 移除加强板。（如图 2.8）

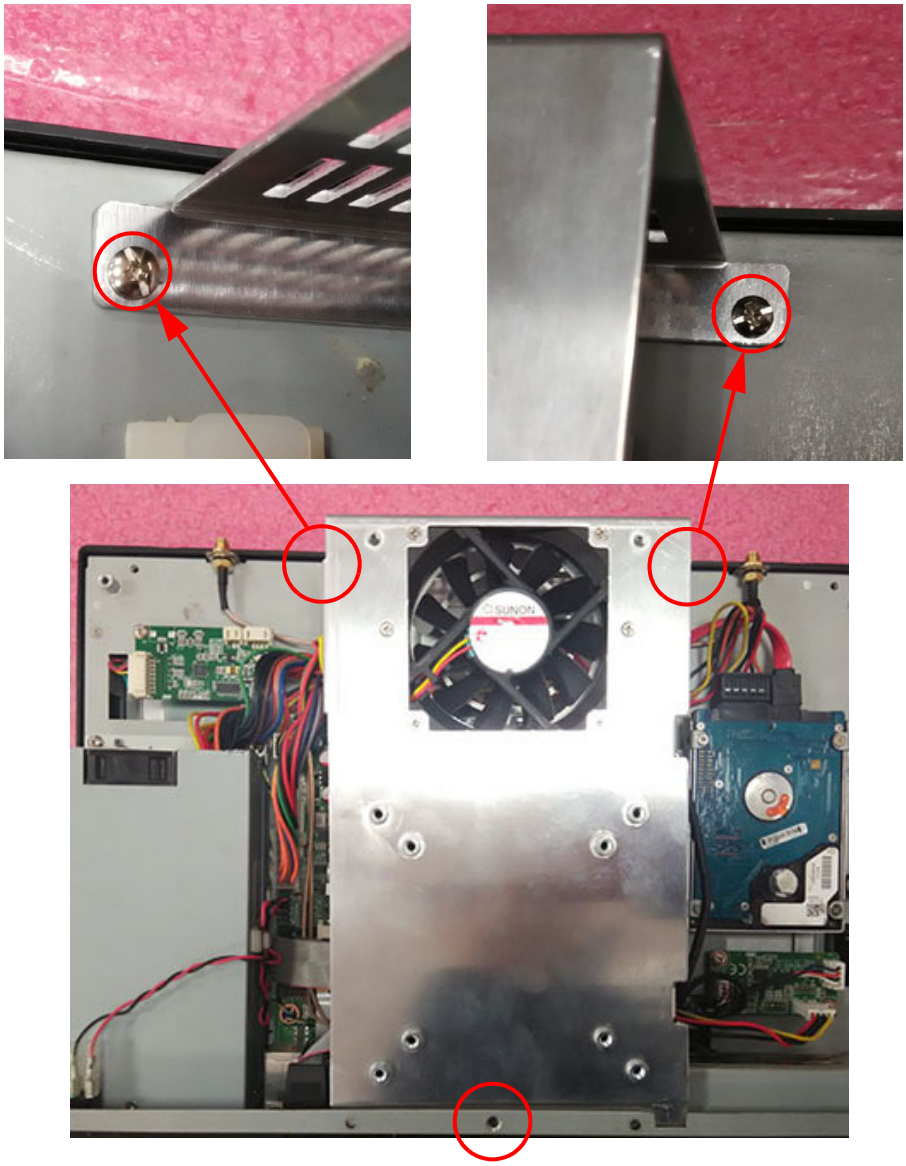


图 2.8：

3. 将内存卡插入插槽。

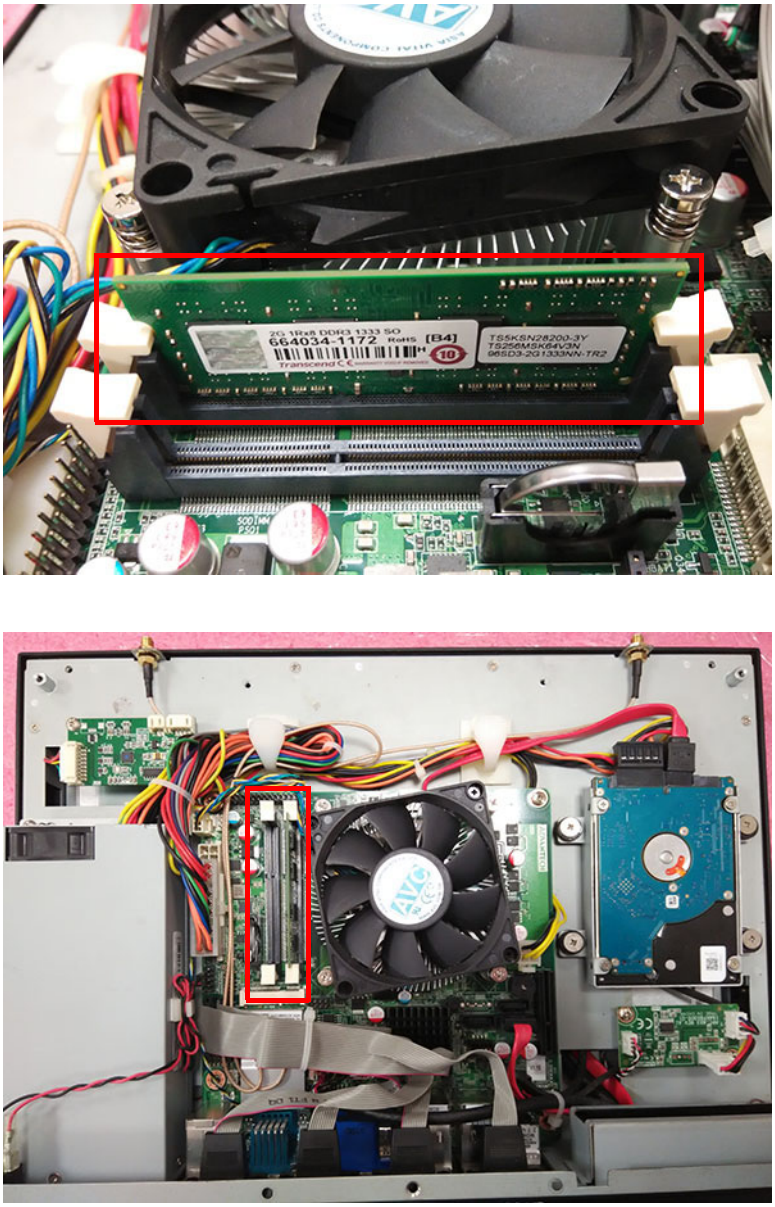


图 2.9：

2.4 安装硬盘

1. 4 颗 HDD 支架螺丝依次拆除。

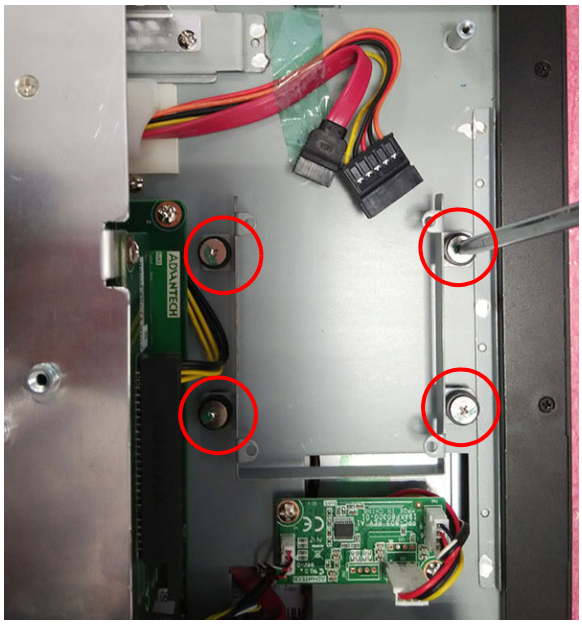


图 2.10：

2. 将附件盒中的 4 颗 M3 HDD 螺丝依次锁附到支架上面。（如图 2.11）

图 2.11：

3. 将组装好的 HDD 装到机器上面，锁附 4 颗支架螺丝，并连接 HDD 电缆。（如图 2.12）

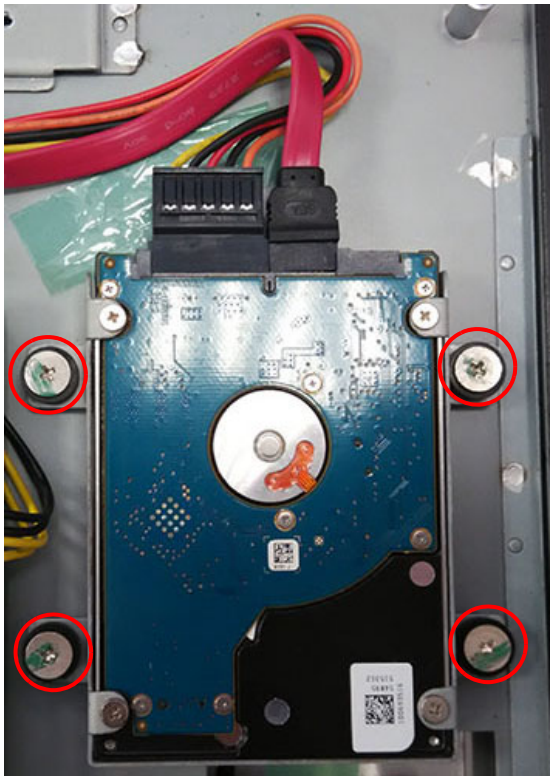


图 2.12：

2.5 安装 PCIe 或 PCI 卡

1. 将转接卡插入插槽，并用螺丝固定。（如图 2.13）转接卡默认为 PCIe x 4，附件盒中的 PCI 转接卡可根据需求选择。

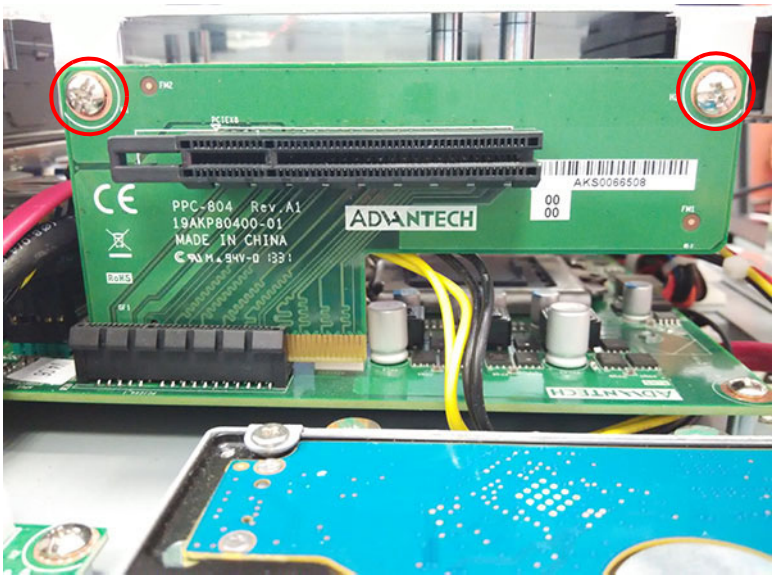


图 2.13： 安装 PCIe 转接卡

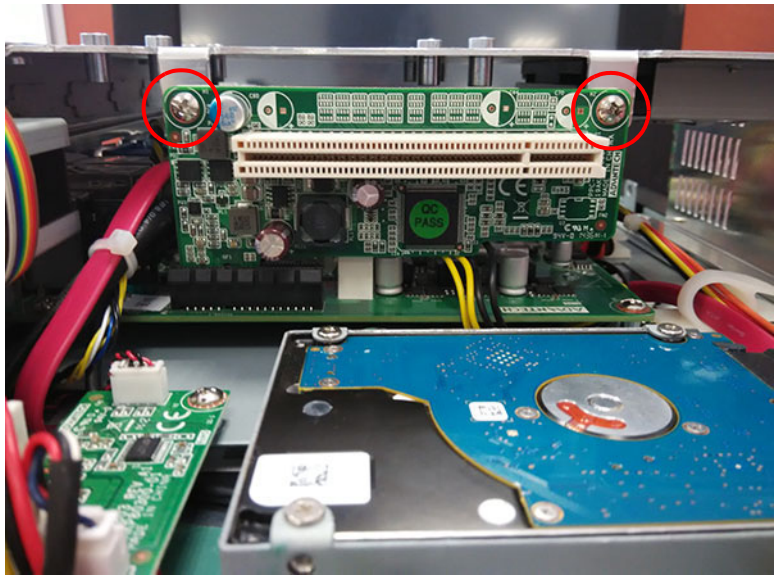


图 2.14： 安装 PCI 转接卡

2. 移除卡槽屏蔽并插入板卡 （如图 2.14），然后固定螺丝并放回后盖。

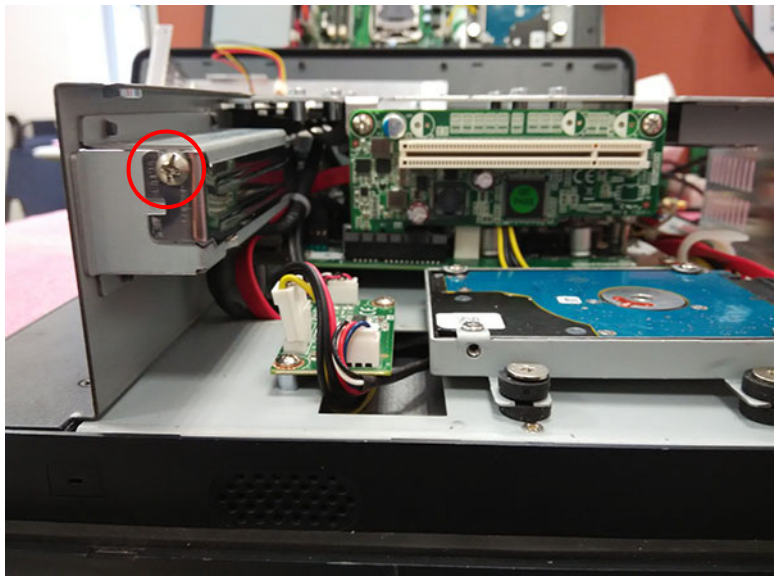


图 2.15：

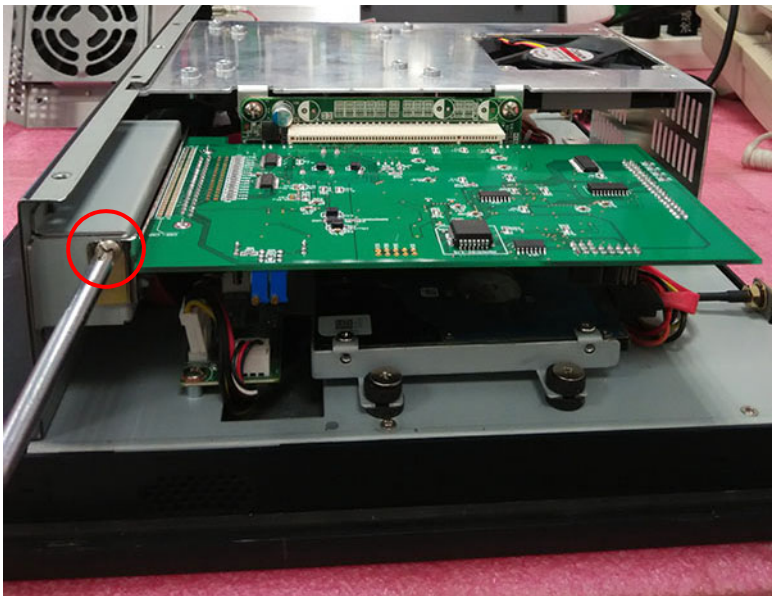


图 2.16：

2.6 安装无线网卡

注！ *在以下无线网卡安装步骤中，已采用 PPC-WLAN-A2E 模块 （选购）。*

1. 用 Wi-Fi 模块里面所附螺丝将无线网卡与铁件组装起来。（如图 2.15）

图 2.17：

2. 把无线网卡锁附在主板上面，并用附件盒中的 1 颗螺丝固定。（如图 2.16）

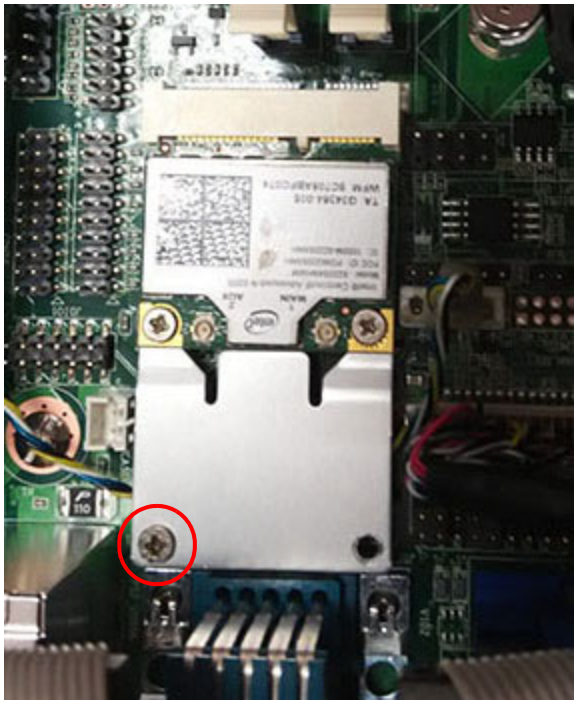


图 2.18：

3. 将无线模组的线缆连接至天线支架。请注意线缆以及螺丝 / 垫圈的安装方向。（如图 2.17）

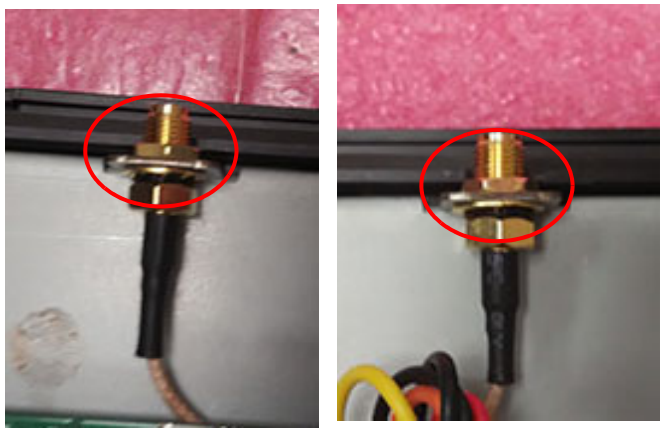


图 2.19：

4. 将组装好的天线支架锁附在机器上，并将线缆连接至无线网卡。（如图 2.18）然后从附件盒中取出散热垫并安装在无线网卡上。

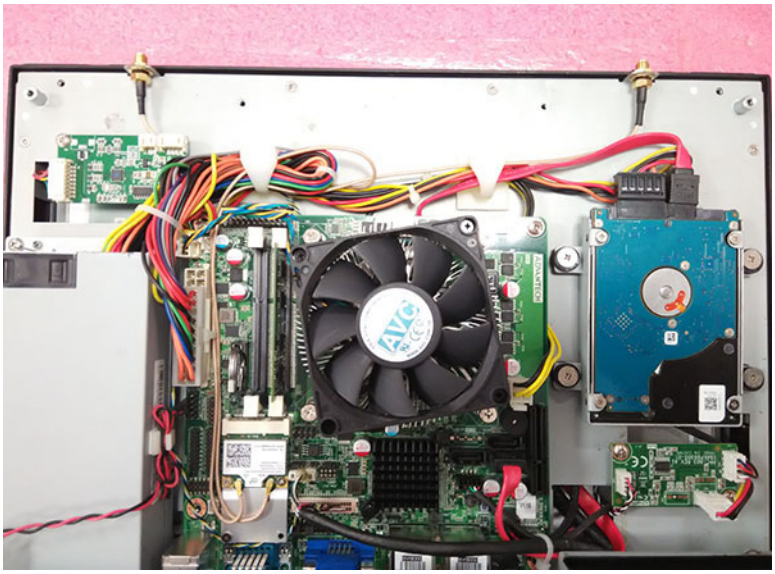


图 2.20：

5. 安装支架。（如图 2.19）

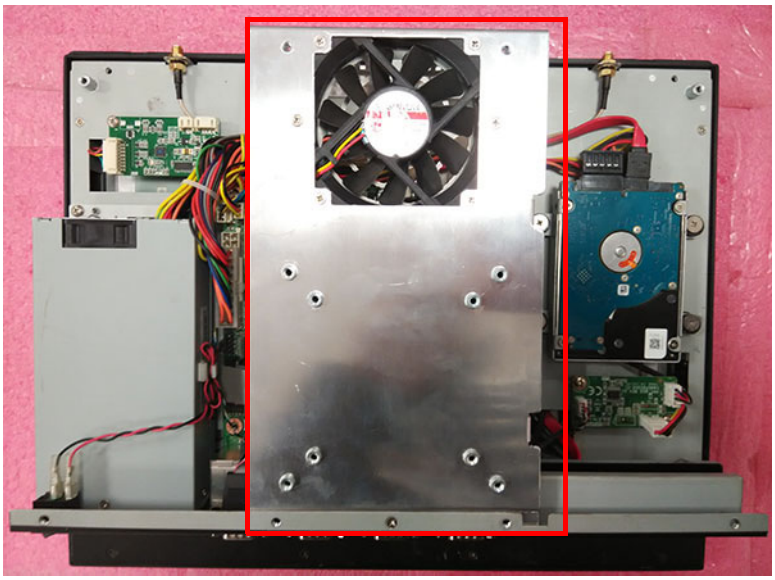


图 2.21：

6. 放回机箱后盖。（如图 2.20）

图 2.22：

7. 安装无线模组天线，即完成无线模组安装。

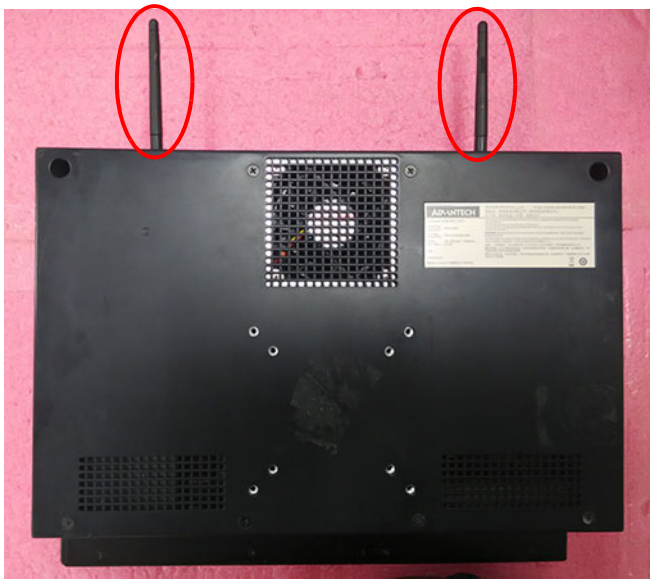


图 2.23：

2.7 挂钩安装方式

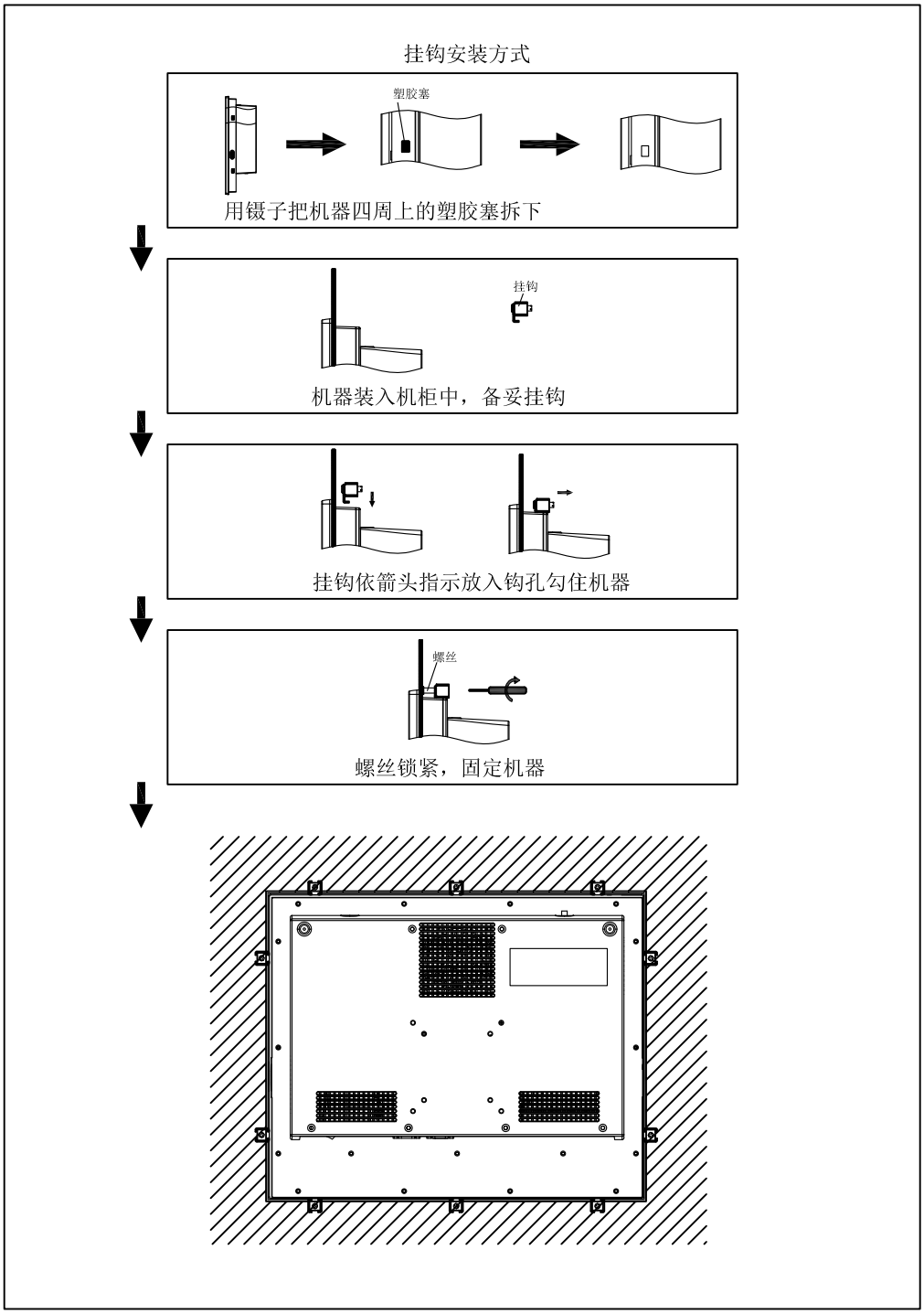


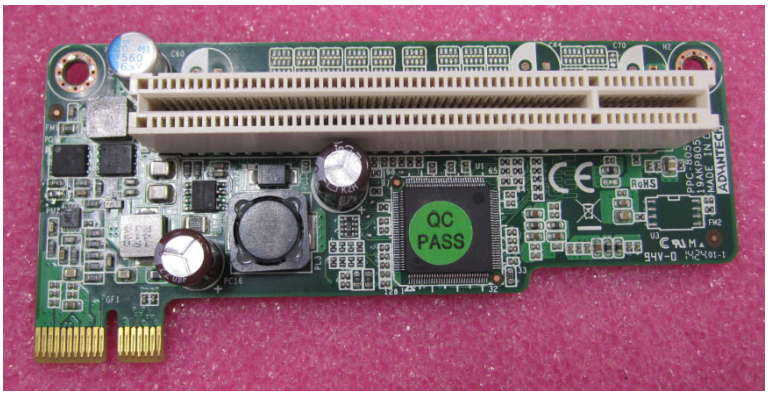
图 2.24： 挂钩安装

附录 A

PCI/PCIE （照片）

A.1 PCI/PCIE （照片）

PPC-805 PCI 转接卡 （放置在附件盒中）

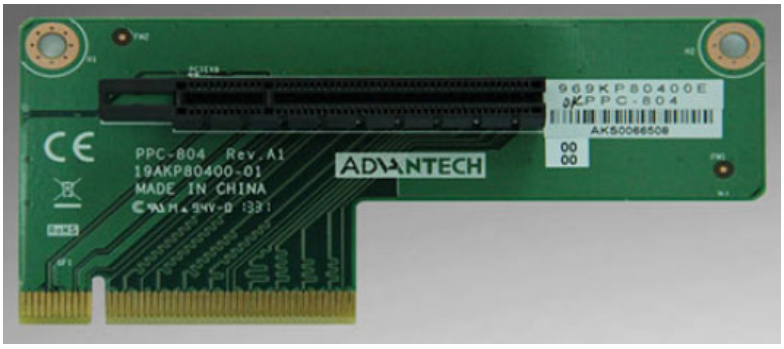


注意！ *PCI 或者 PCIE 卡片最长长度不能超过 199 mm，最宽宽度不能超过 102 mm。厚度不可超过 37 mm。*

PPC-8150 /PPC-8170 PCI 插槽可提供负载电流 （总共不大于 20 W）

-12 V	0.1 A
+12 V	0.5 A
+5 V	4 A
+3.3 V	2.5 A
+3.3 VSB	0.25 A

1 个 PCIe x4 转接卡 （预安装）



PPC-8150 /PPC-8170 PCIe 插槽可提供负载电流 （总共不大于 25 W）

12 V	2.1 A
3.3 V	3 A
3.3 VSB	0.375 A

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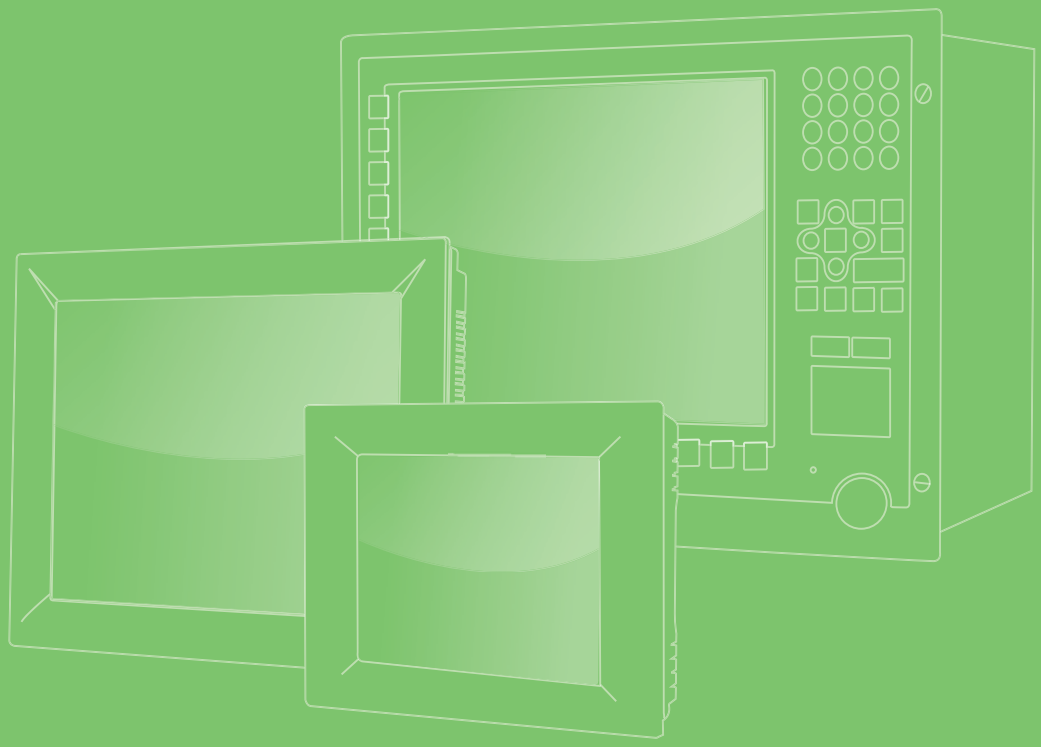

用戶手冊

PPC-8150/8170

帶 15"/17" 彩色 TFT LCD 顯示器並搭載 Intel® Core™ i3 / i5 處理器的平板電腦

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版權聲明

認可聲明

Intel 和 Pentium 為 Intel Corporation 的商標。

Microsoft Windows® 為 Microsoft Corp. 的注冊商標。

所有其它產品名或商標均為各自所屬方的財產。

PPC-8150/8170 用戶手冊中文第一版，參照 PPC-8150/8170 用戶手冊英文第一版。

產品品質保證 （兩年）

從購買之日起，研華為原購買商提供兩年的產品品質保證。但對那些未經授權的維修人員維修過的產品不予提供品質保證。研華對於不正確的使用、災難、錯誤安裝產生的問題有免責權利。

如果研華產品出現故障，在質保期內我們提供免費維修或更換服務。對於出保產品，我們將會酌情收取材料費、人工服務費用。請聯繫相關銷售人員瞭解詳細情況。

如果您認為您購買的產品出現了故障，請遵循以下步驟：

1. 收集您所遇到的問題資訊 （例如，CPU 主頻、使用的研華產品及其它軟體、硬體等）。請注意螢幕上出現的任何不正常資訊顯示。
2. 打電話給您的供應商，描述故障問題。請借助手冊、產品和任何有說明的資訊。
3. 如果您的產品被診斷發生故障，請從您的供應商那裡獲得 RMA (Return Material Authorization) 序號。這可以讓我們儘快地進行故障產品的回收。
4. 請仔細地包裝故障產品，並在包裝中附上完整的售後服務卡片和購買日期證明（如銷售發票）。我們對無法提供購買日期證明的產品不提供品質保證服務。
5. 把相關的 RMA 序號寫在外包裝上，並將其運送給銷售人員。

料號：200K815031　　第二版

中國印刷　　2015 年 4 月

符合性聲明

CE

本設備已通過 CE 測試，符合以遮罩電纜進行外部接線的環境規格標準。建議用戶使用遮罩電纜，此種電纜可從研華公司購買。如需訂購，請與當地經銷商聯繫。

CE

本產品已經通過 CE 環境規格檢測。測試條件之一是在工業環境中進行產品操作。為了使產品免受 ESD（靜電放電）和 EMI 洩露造成的損害，強烈建議用戶使用符合 CE 標準的工業產品。

FCC A 級

注意：根據 FCC 規則第 15 款，本設備已經過檢測並被判定符合 A 級數位設備標準。這些限制旨在為商業環境下的系統操作提供合理保護，使其免受有害干擾。本設備會產生、耗費和發射無線電頻率能量，如果沒有按照手冊說明正確安裝和使用，可能會對無線電通訊造成有害干擾。此時，用戶需自行解決干擾問題。

警告使用者：

這是甲類測試產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

技術支援與服務

1. 有關該產品的最新資訊，請訪問研華公司的網站：
   http://support.advantech.com.cn
2. 用戶若需技術支援，請與當地經銷商、銷售代表或研華客服中心聯繫。進行技術諮詢前，使用者須將下面各項產品資訊收集完整：
   - 產品名稱及序號
   - 週邊附加設備的描述
   - 使用者軟體的描述 （作業系統、版本、應用軟體等）
   - 產品所出現問題的完整描述
   - 每條錯誤資訊的完整內容

安全指示

1. 請仔細閱讀此安全操作說明。
2. 請妥善保存此用戶手冊供日後參考。
3. 用濕抹布清洗設備前，請從插座拔下電源線。請不要使用液體或去汙噴霧劑清洗設備。
4. 對於使用電源線的設備，設備周圍必須有容易接觸到的電源插座。
5. 請不要在潮濕環境中使用設備。
6. 請在安裝前確保設備放置在可靠的平面上，意外跌落可能會導致設備損壞。
7. 設備外殼的開口是用於空氣對流，從而防止設備過熱。請不要覆蓋這些開口。
8. 當您連接設備到電源插座上前，請確認電源插座的電壓是否符合要求。
9. 將電源線佈置在人們不易絆到的位置，並不要在電源線上覆蓋任何雜物。
10. 請注意設備上的所有警告和注意標語。
11. 如果長時間不使用設備，請將其同電源插座斷開，避免設備被超標的電壓波動損壞。
12. 請不要讓任何液體流入通風口，以免引起火災或者短路。
13. 請不要自行打開設備。為了確保您的安全，請由經過認證的工程師來打開設備。
14. 如遇下列情況，請由專業人員來維修：
    - 電源線或者插頭損壞；
    - 設備內部有液體流入；
    - 設備曾暴露在過於潮濕的環境中使用；
    - 設備無法正常工作，或您無法通過用戶手冊來使其正常工作；
    - 設備跌落或者損壞；
    - 設備有明顯的外觀破損。
15. 請不要把設備放置在超出我們建議的溫度範圍的環境，即不要低於 -20° C（-4° F）或高於 60° C （140° F），否則可能會損壞設備。
16. **注意：**電腦配置了由電池供電的即時時鐘電路，如果電池放置不正確，將有爆炸的危險。因此，只可以使用製造商推薦的同一種或者同等型號的電池進行替換。請按照製造商的指示處理舊電池。

根據 IEC 704-1:1982 的規定，操作員所在位置的聲壓級不可高於 70 dB(A)。

免責聲明：該安全指示符合 IEC 704-1 的要求。研華公司對其內容的準確性不承擔任何法律責任。

安全措施 - 靜電防護

為了保護您和您的設備免受傷害或損壞，請遵照以下安全措施：

- 操作設備之前，請務必斷開主機殼電源，以防觸電。不可在電源接通時接觸 CPU 卡或其它卡上的任何元件。
- 在更改任何配置之前請斷開電源，以免在您連接跳線或安裝卡時，瞬間電湧損壞敏感電子元件。

電源警告語

此電源適用於海拔 5000 M 以下地區安全適用。

電池信息

電池、電池組和蓄電池不應作為未分類的生活垃圾處理。請使用公共收集系統返回和回收，或按照當地法規要求進行處理。

目錄

第 1 章

概述

本章介绍了 PPC-8150/8170 電腦的基本資訊。

内容包括：

- 產品簡介
- 產品規格
- 產品尺寸

1.1 產品簡介

PPC-8150/8170 是一款配有 Intel? Core? i3/i5 處理器以及 15″/17″ 彩色 TFT LCD 顯示器的平板電腦。該產品具有極高的計算能力以及卓越的連線性和擴展性能。此外，其豐富 IO 支援使其方便在資訊應用中使用，並為寬溫工業應用提供了絕佳的解決方案。

1.2 產品規格

1.2.1 差異規格

產品	PPC-8150	PPC-8170
LCD 規格	15” LCD	17” LCD
顯示類型	15” TFT LCD (LED 背光)	17” TFT LCD (LED 背光)
最大解析度	1024 x 768	1280 x 1024
支持色彩	262K	16.7M
點距	0.297 x 0.297 mm	0.264 x 0.264 mm
視角	80 (左)、80 (右)、 70 (上)、70 (下)	80 (左)、80 (右)、 60 (上)、80 (下)
亮度	400 cd/m^2	350 cd/m^2
對比度	700	800
背光燈壽命	50, 000 小時	50, 000 小時
擴展卡槽	1 x PCIe x4 (預先安裝) 1 x PCI (位於附件盒中)	
產品重量	6.98 Kg	9.2 Kg
產品尺寸	395.5 x 316.8 x 110.5 (mm) (15.6” x 12.5” x 4.35”)	442.0 x 362.0 x 113.5 (mm) (17.4” x 14.25” x 4.47”)

1.2.2 一般規格

CPU	Core i3-3220	Core i5-3550S
頻率	3.3 GHz	3.7 GHz
L3 緩存	3 MB	6 MB
晶片組	H61	
記憶體	2 x 204 針 DDR3 SO-DIMM, DDR3 1066/1333/1600MHz SDRAM, 每個 SO-DIMM 通道最高支持 8 GB/4 GB	
存儲 1	1 x 2.5″ SATA 磁片	
網路 (LAN)	2 x 十億位元乙太網介面 (RTL8111E)	
I/O 介面	6 x COMs、1 x RS-232/422/485、5 x RS-232 6 x USB 2.0 1 x VGA、1 x DVI 1 x GPIO 8 位 (內部排針) 1 x 麥克輸入、1 x 線路輸出 1 x PS/2 2 x 1W 揚聲器	
附加擴展	1 x Mini PCIe	

風扇	1 x 12 V 80 x 80 x 15mm 風扇
OS 支持	Win XP Pro / Windows 7 32 & 64 bit

1.2.3 电源规格

型號	**PPC-8150/8170 （AC 輸入）**
瓦特數	最大 180 W (ATX、PFC)
輸入電壓	100 ~ 240 V_{AC} （滿量程）
輸出功率	+5 V @ 16 A、+3.3 V @ 14 A、+12 V @ 14 A、-12 V @ 0.3 A、+5 Vsb @ 2 A
最小負載	+3.3 V @ 0.3 A、+12 V @ 1.0 A、 +3.3 V @ 0.3 A、+12 V @ 1.0 A

功耗	**PPC-8150**	**PPC-8170**
i3-3220	71 W（測試系統： WIN7 32Bit）	81 W（測試系統： WIN7 32Bit）
i5-3550s	86 W（測試系統： WIN7 32Bit）	96 W（測試系統： WIN7 32Bit）

注！ *對於以上功耗的測試狀況，請參考注 1 和注 2。*

注 1：PPC-8150 功耗測試狀況

測試條件	**測試配置**	**測試系統**	**功耗**
BURIN IN 7.0	i3-3220 3.3G，2GB*2，DDR3 1333，160 GB Seagate HDD /6 x 2GB KINGSTON U 盤 /6 x COM 埠回路	WIN7 32Bit	71 W
BURIN IN 7.0	i5-3550s / 2GB*2 1333MHZ 記憶體 / 6 x COM 埠回路 / 6 x U 盤 / WD500GB SATA HDD WIN7 32 BIT OS + Burn in 7.0	WIN7 32Bit	86 W

注 2： PPC-8170 功耗測試狀況

測試條件	**測試配置**	**測試系統**	**功耗**
BURIN IN 7.0	i3-3220 3.3G，2GB*2，DDR3 1333，160 GB Seagate HDD /6 x 2GB KINGSTON U 盤 /6 x COM 埠回路	WIN7 32Bit	81 W

BURIN IN 7.0	i5-3550s / 2GB*2 1333MHZ memory / 6 x COM 埠回路 / 6 x U 盤 / WD500GB SATA HDD WIN7 32 BIT OS + Burn in 7.0	WIN7 32Bit	96 W

1.2.4 觸控式螢幕規格

類型	五線電阻式
解析度	2048 x 2048
透光率	80%+/-3%
控制器	USB 介面
觸摸壽命	36,000,000 次

1.2.5 環境規格

工作溫度	0 ~ 50° C (32 ~ 122° F)
存儲溫度	-20 ~ 60° C (-4 ~ 140° F)
相對濕度	10 ~ 95% @ 40° C (非凝結)
衝擊	工作時 10 G 峰值加速度 (持續時間 11 ms)，符合 IEC 60068-2-27 標準
振動	工作時隨機振動測試 5 ~ 500 Hz，1 Grms，符合 IEC 60068-2-64 標準

1.2.6 認證規格

EMC	BSMI、CE、FCC Class A
安全認證	CB、CCC、BSMI、UL

1.2.7 防塵防水等級

前面框 防塵防水	IP65

1.3 產品尺寸

PPC-8150:

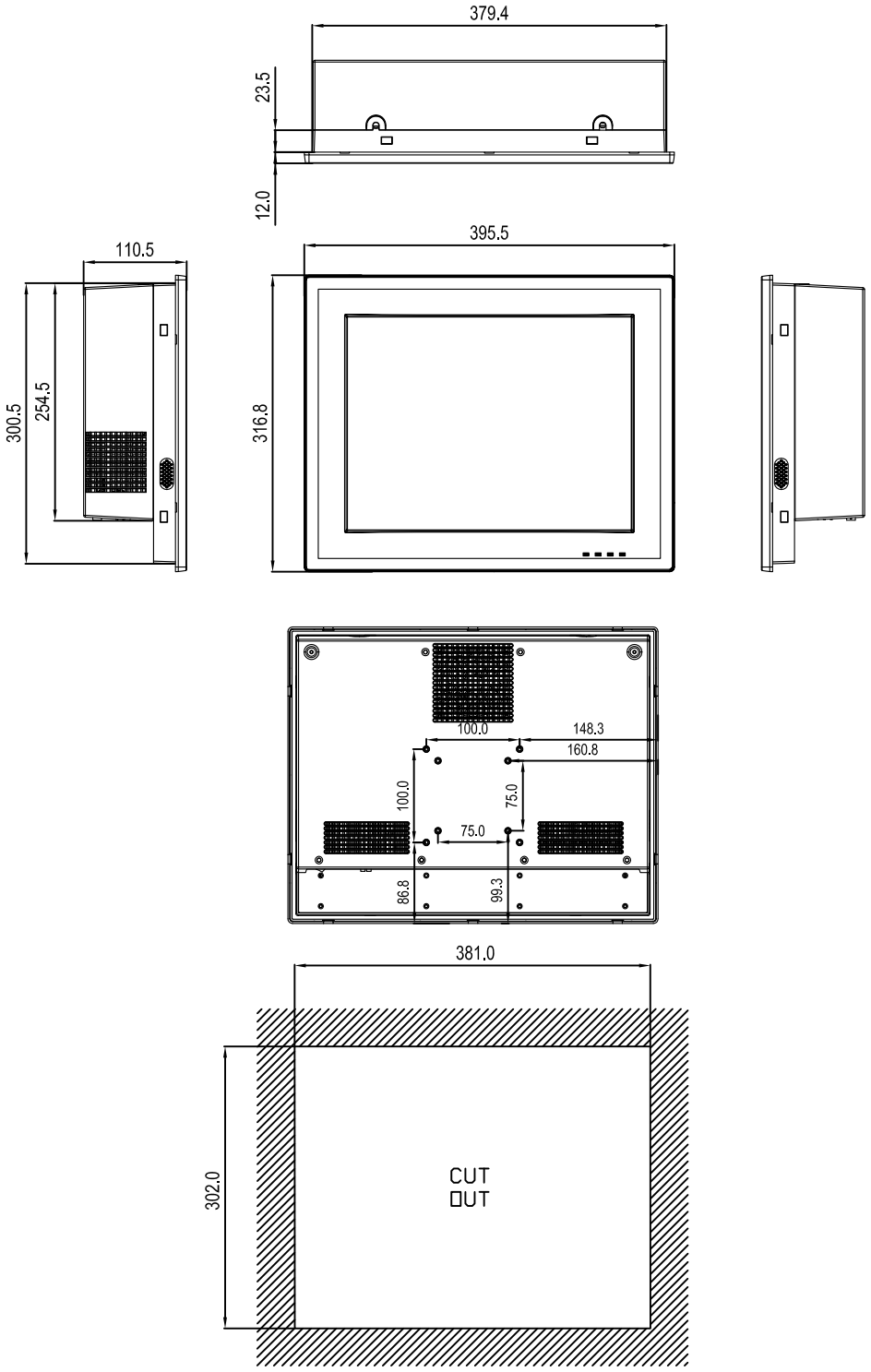


圖 1.1： PPC-8150 產品尺寸

以上單位均為 (mm)

注意！ *固定 VESA 螺絲規格：M4，螺孔深度：7.5 mm （最大）。*

PPC-8170:

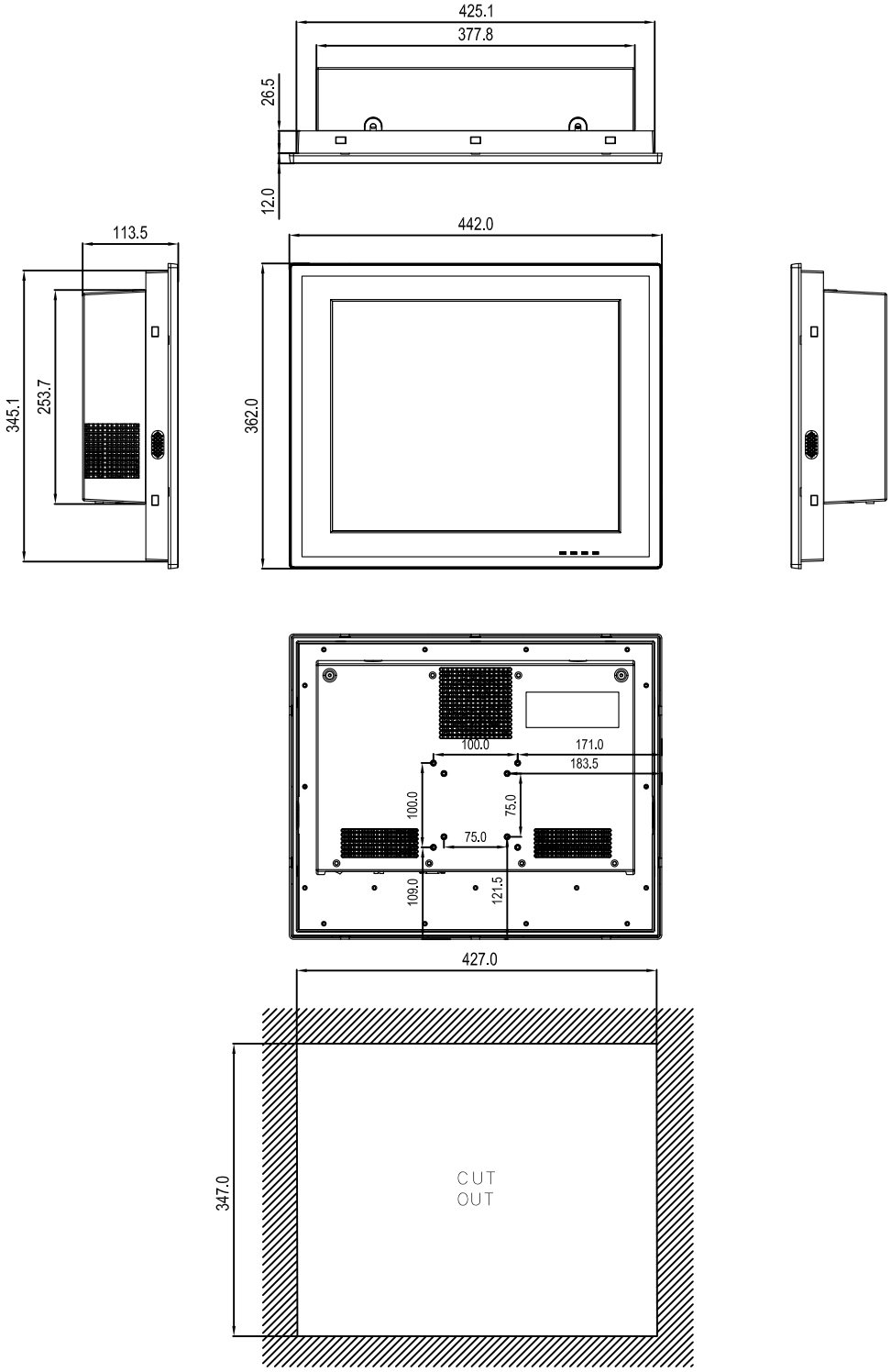


圖 1.2： PPC-8170 产品尺寸

以上单位均为 (mm)

注意！ *固定 VESA 螺絲規格：M4，螺孔深度：7.5 mm （最大）。*

第 2 章

系統使用安裝 & 設置

內容包括：

- 快速入門指南
- 安裝步驟
- 安裝記憶體卡
- 安裝硬碟
- 安裝 PCIe 或 PCI 卡
- 安裝無線網卡
- 掛鉤安裝方式

2.1 快讀安裝指南

安裝電腦之前，請先熟悉電腦的每個控制鍵、驅動器、介面和埠的位置及功能（ 請參考以下內容和圖例 ）。

當電腦豎直放置在桌面上時，其前面板如圖 2.1 所示。

圖 2.1： 電腦前面板

圖 2.2： 電腦左側視圖

圖 2.3： 電腦右側視圖

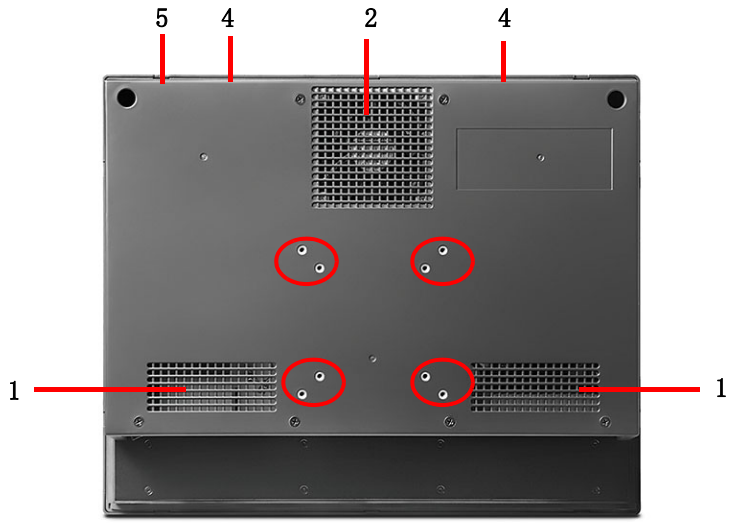


圖 2.4： 電腦背面視圖 (PPC-8150)

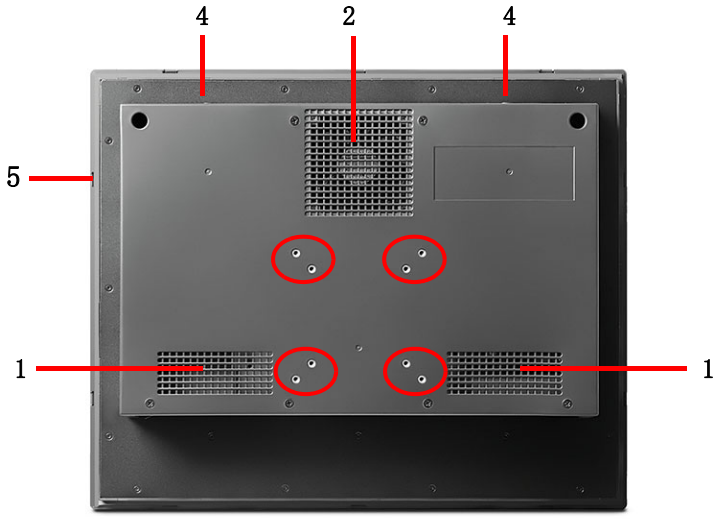
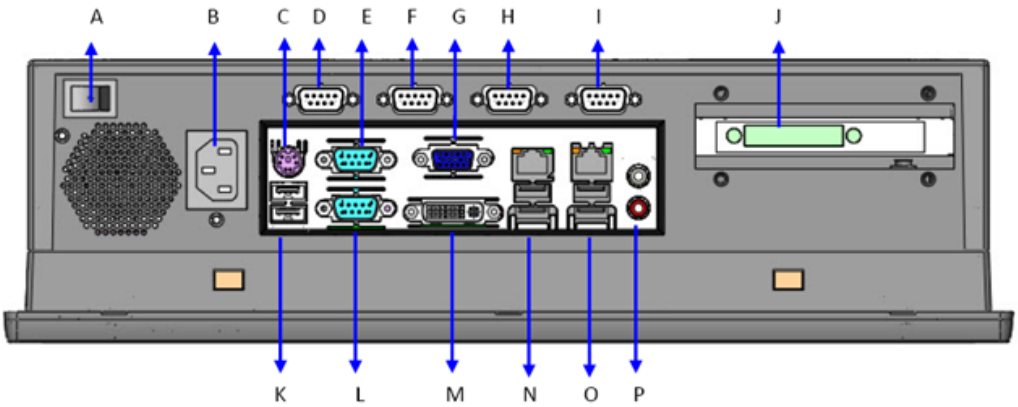


圖 2.5： 電腦背面視圖 (PPC-8170)

紅色框內為VESA螺絲孔位。(注意: 固定VESA螺絲規格: M4，螺孔深度: 7.5mm(最大)。)

1. 進風口
2. 出風口
3. 喇叭 (左右對稱)
4. 天線孔
5. 面板安裝掛鉤孔 (PPC-8170 共 10 處，PPC-8150 共 8 處)

IO 埠標注：



A. 電源按鈕　B. AC 電源輸入　C. PS/2　D. RS/232　E. RS232/422/485　F. RS232
G. VGA　H. RS232　I. RS232　J. 轉接卡擴展　K. USB　L. RS232　M. DVI
N. LAN2+USB　O. LAN1+USB　P. 音訊線路輸出 / 麥克

圖 2.6： PPC-8150/8170 IO 埠標注

2.2 安裝步驟

運行電腦時前，請按照這些步驟進行設置：

1. 檢查並調節主機板上的跳線。
2. 安裝記憶體卡。
3. 安裝 HDD。
4. 安裝附加卡。
5. 連接線纜及其附件。
6. 安裝電腦。
7. 程式設計 BIOS 設置。
8. 安裝作業系統。

警告！

1. *每次訪問主機殼內部時都請關閉電源和拔下電源線。*
2. *系統內部主機板由許多專用 IC、晶片和其它積體電路元件所組成。這些元件極易被靜電損壞。*

安裝部件時請注意以下幾點：

- 避免接觸主機板的金屬部分。
- 接觸 CPU 或 RAM 模組時請使用防靜電手環。
- 安裝之前請將 RAM 模組和 CPU 放在防靜電手袋或相似地方。

2.2.1 連接鍵盤和滑鼠

將鍵盤和滑鼠連接至平板電腦的 I/O 介面。

2.2.2 連接電源

電源按鈕位於平板電腦的右下方。

注！ *電源線可選購。*

2.3 安裝記憶體卡

1. 移除 8 個螺絲並卸下後蓋。（如圖 2.7）

注！ *PPC-8150 和 PPC-8170 的安裝過程是相同的。下面以 PPC-8150 為例進行說明。*

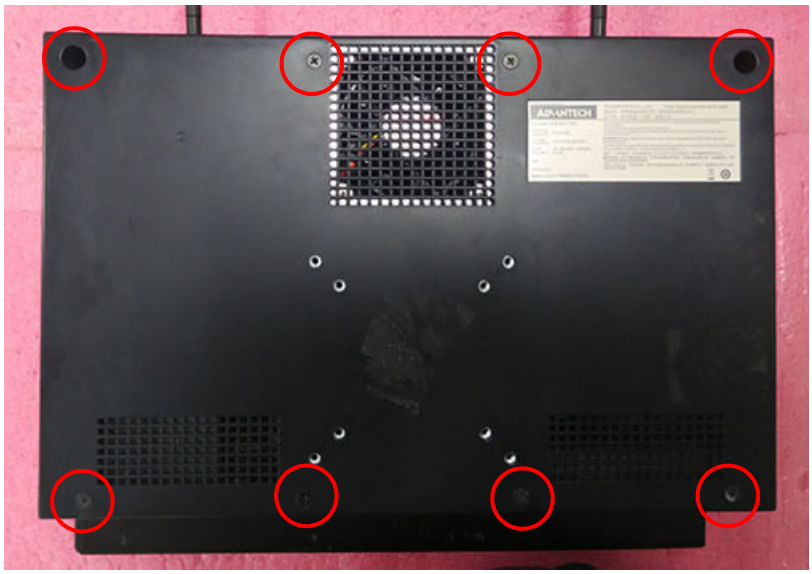


圖 2.7：

2. 移除加強板。（如圖 2.8）

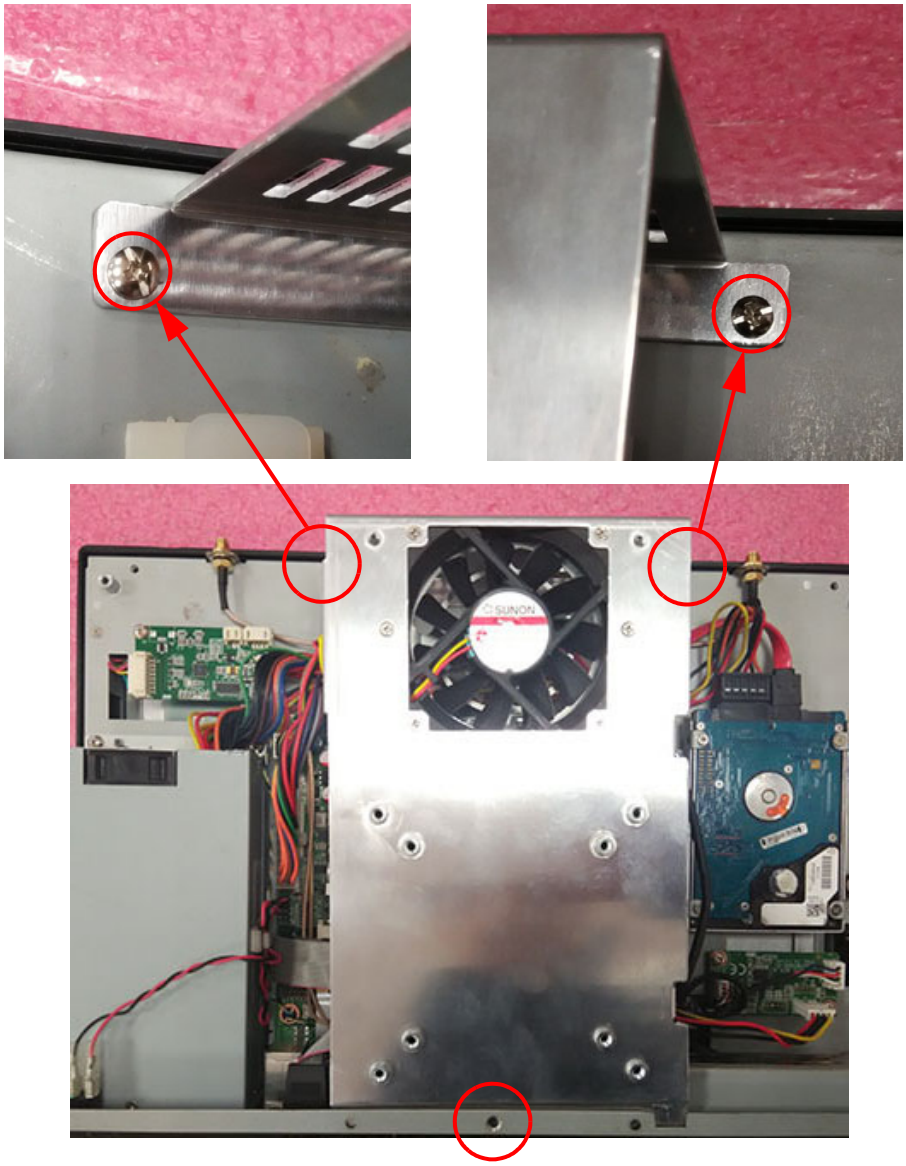


圖 2.8：

3. 將記憶體卡插入插槽。

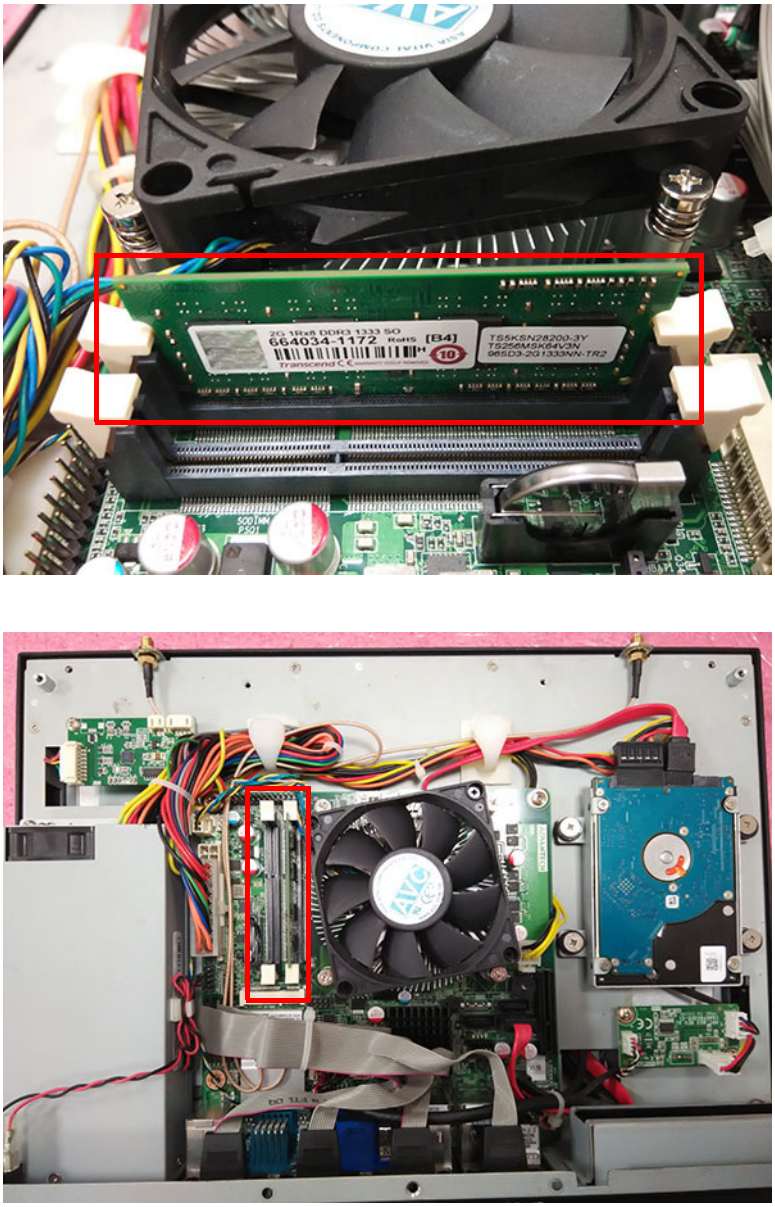


圖 2.9:

2.4 安裝硬碟

1. 4 顆 HDD 支架螺絲依次拆除。

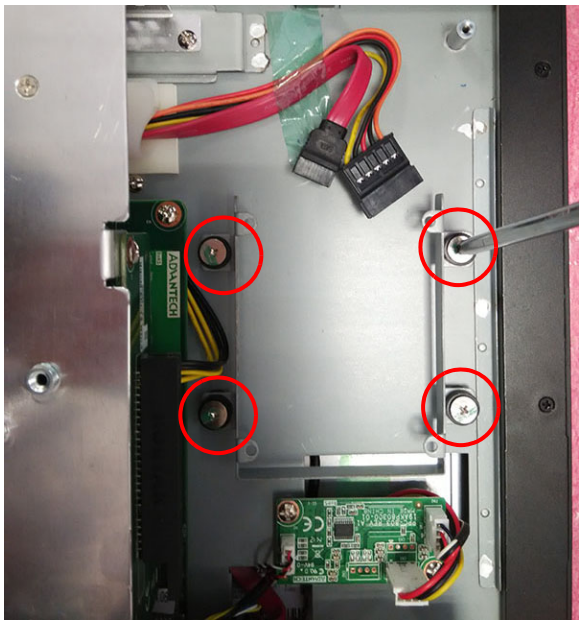


圖 2.10：

2. 將附件盒中的 4 顆 M3 HDD 螺絲依次鎖附到支架上面。（如圖 2.11）

圖 2.11：

3. 將組裝好的 HDD 裝到機器上面，鎖附 4 顆支架螺絲，並連接 HDD 電纜。（如圖 2.12）

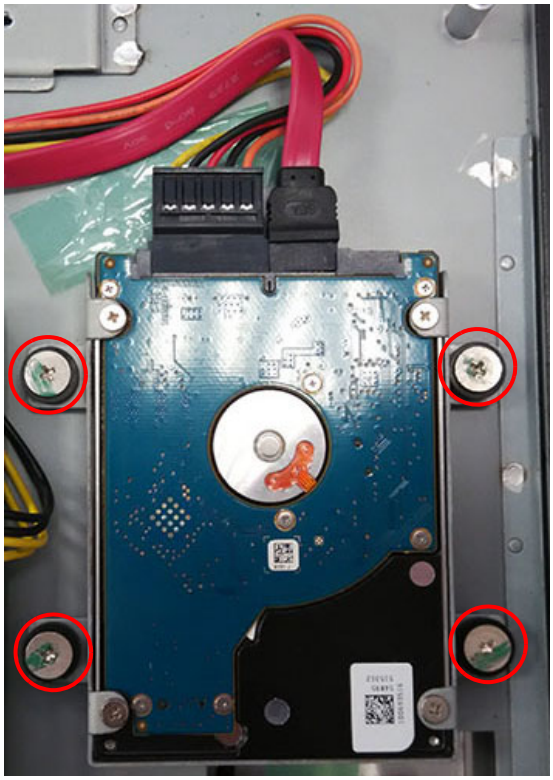


圖 2.12：

2.5 安裝 PCIe 或 PCI 卡

1. 將轉接卡插入插槽，並用螺絲固定。（如圖 2.13）轉接卡預設為 PCIe x 4，附件盒中的 PCI 轉接卡可根據需求選擇。

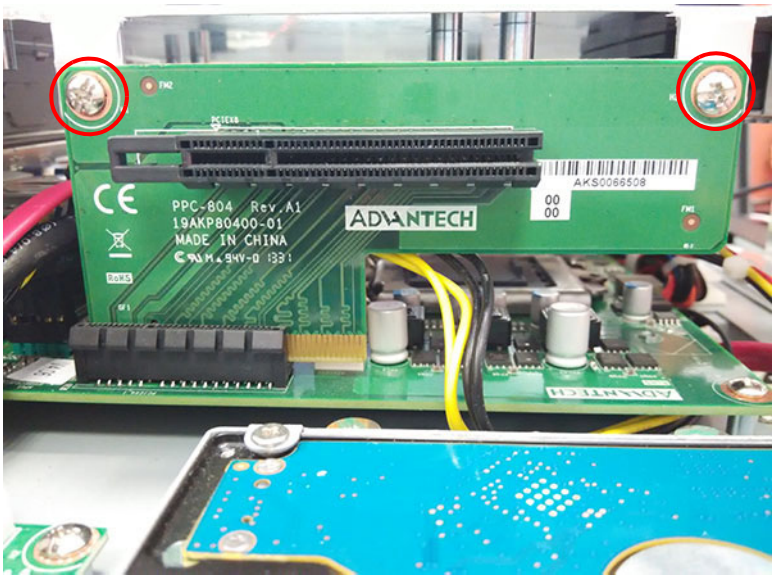


圖 2.13： 安裝 PCIe 轉接卡

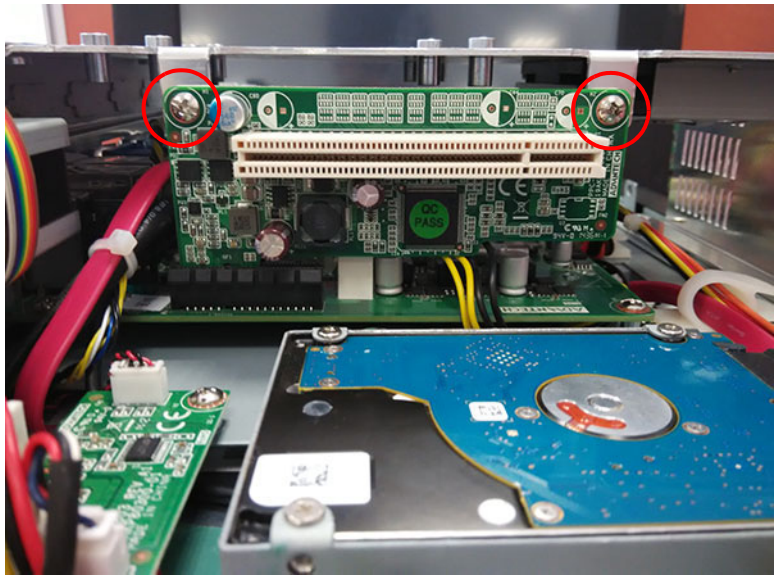


圖 2.14： 安裝 PCI 轉接卡

2. 移除卡槽遮罩並插入板卡 （如圖 2.14），然後固定螺絲並放回後蓋。

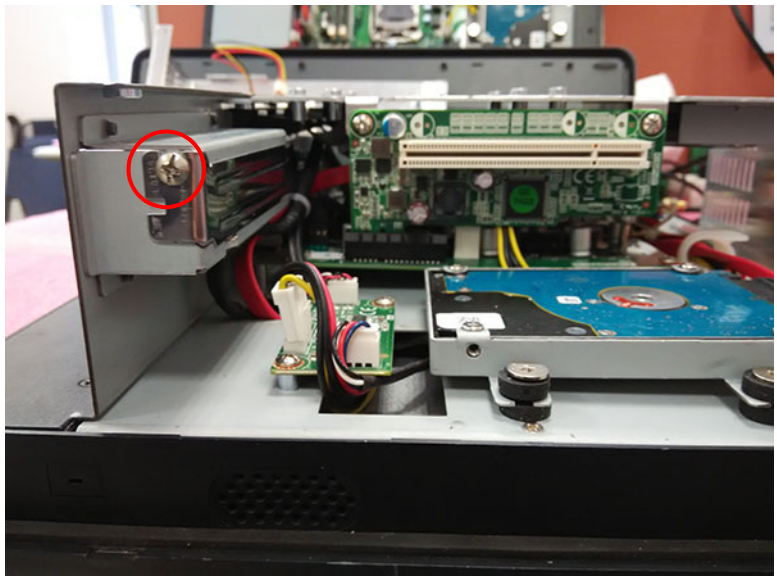


圖 2.15：

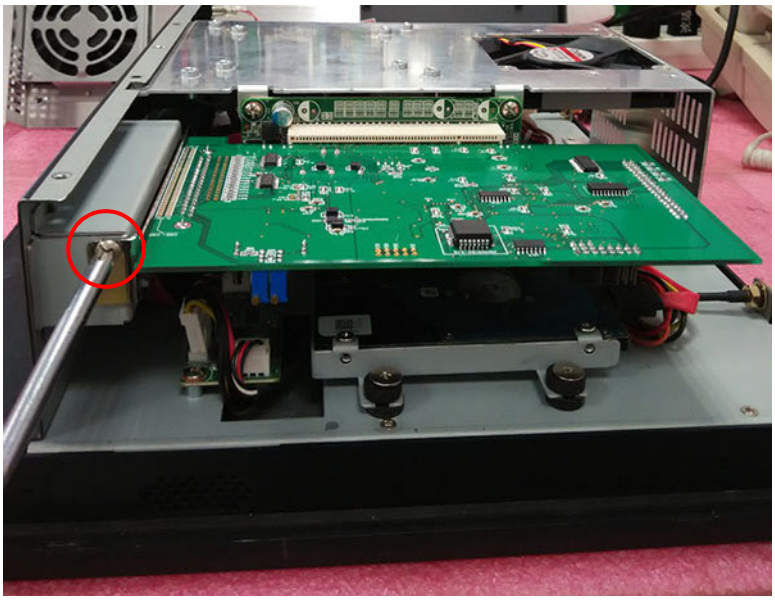


圖 2.16：

2.6 安裝無線網卡

注！ *在以下無線網卡安裝步驟中，已採用 PPC-WLAN-A2E 模組 （選購）。*

1. 用 Wi-Fi 模組裡面所附螺絲將無線網卡與鐵件組裝起來。（如圖 2.15）

圖 2.17：

2. 將無線網卡鎖附在主機板上面，並用附件盒中的 1 顆螺絲固定。（如圖 2.16）

圖 2.18：

3. 將無線模組的線纜連接至天線支架。請注意線纜以及螺絲 / 墊圈的安裝方向。（如圖 2.17）

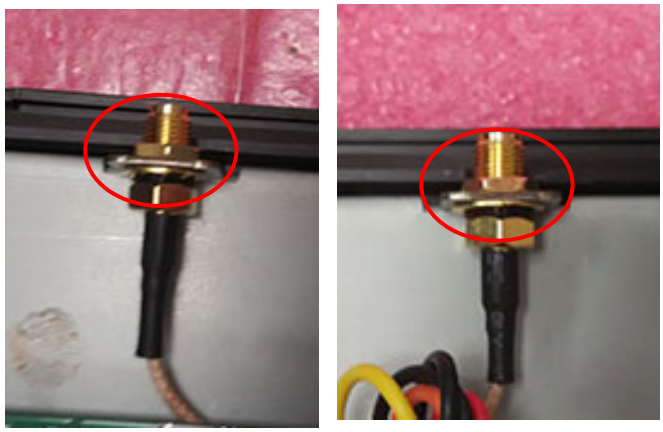


圖 2.19：

4. 將組裝好的天線支架鎖附在機器上，並將線纜連接至無線網卡。（如圖 2.18）然後從附件盒中取出散熱墊並安裝在無線網卡上。

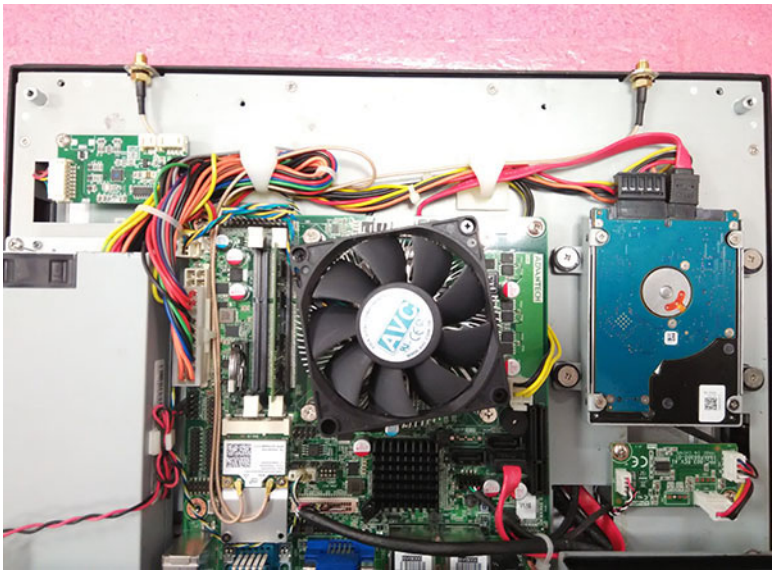


圖 2.20：

5. 安裝支架。（如圖 2.19）

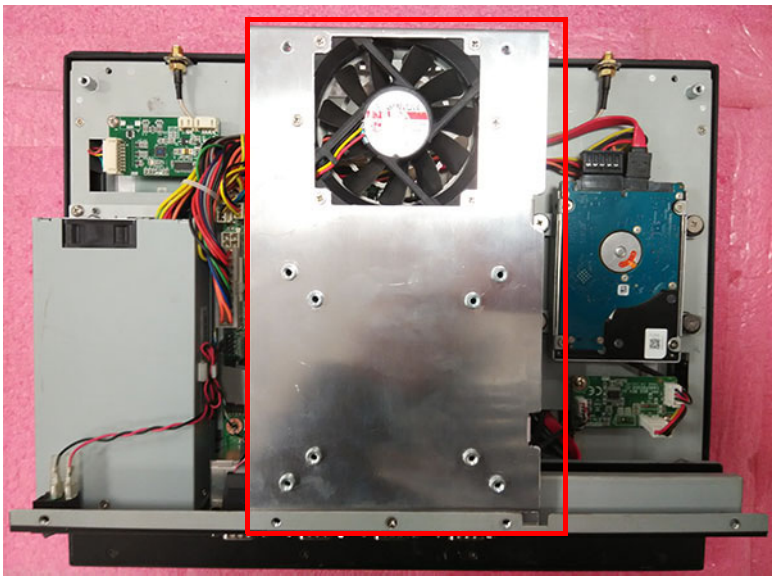


圖 2.21：

6. 放回主機殼後蓋。（如圖 2.20）

圖 2.22：

7. 安裝無線模組天線，即完成無線模組安裝。

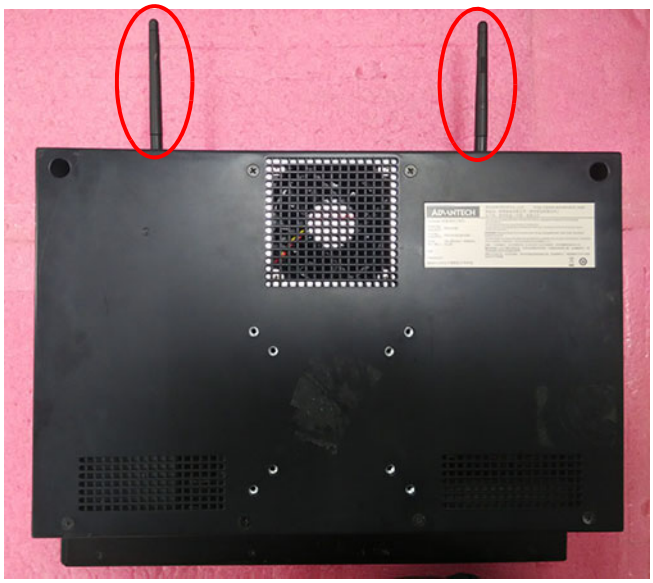


圖 2.23：

2.7 掛鉤安裝方式

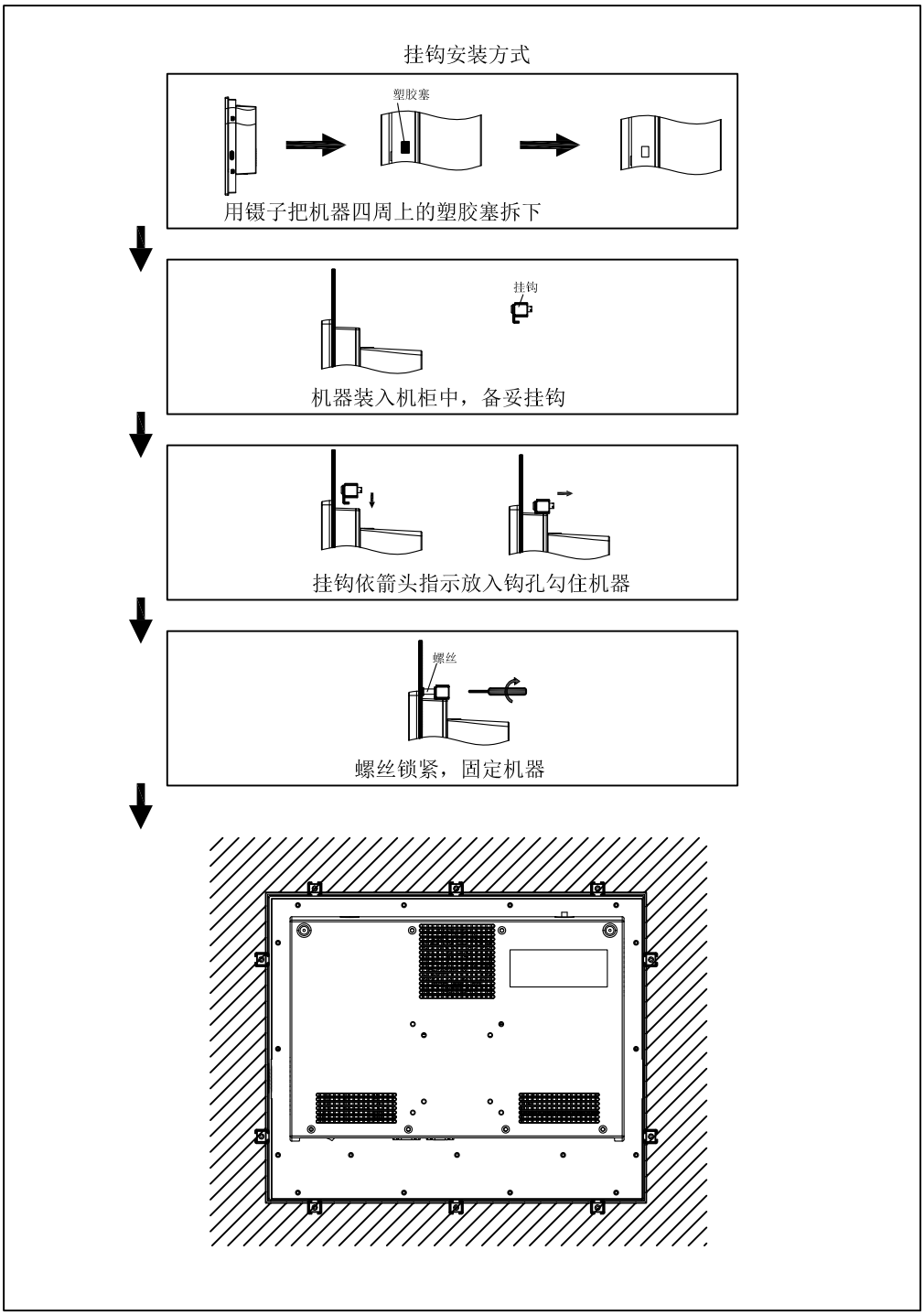


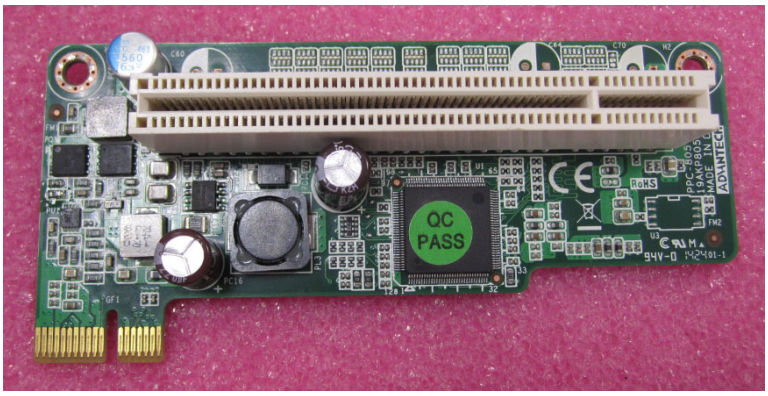
圖 2.24： 掛鉤安裝

附錄 A

PCI/PCIE （照片）

A.1 PCI/PCIE （照片）

PPC-805 PCI 轉接卡 （放置在附件盒中）



注意！ *PCI 或者 PCIE 卡片最長長度不能超過 199 mm，最寬寬度不能超過 102 mm。厚度不可超過 37 mm。*

PPC-8150 /PPC-8170 PCI 插槽可提供負載電流（總共不大於 20 W）

-12 V	0.1 A
+12 V	0.5 A
+5 V	4 A
+3.3 V	2.5 A
+3.3 VSB	0.25 A

1 個 PCIe x4 轉接卡 （預先安裝）

PPC-8150 /PPC-8170 PCIe 插槽可提供負載電流（總共不大於 25 W）

12 V	2.1 A
3.3 V	3 A
3.3 VSB	0.375 A

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使用前請檢查核實產品的規格。本手冊僅作為參考。
產品規格如有變更，恕不另行通知。