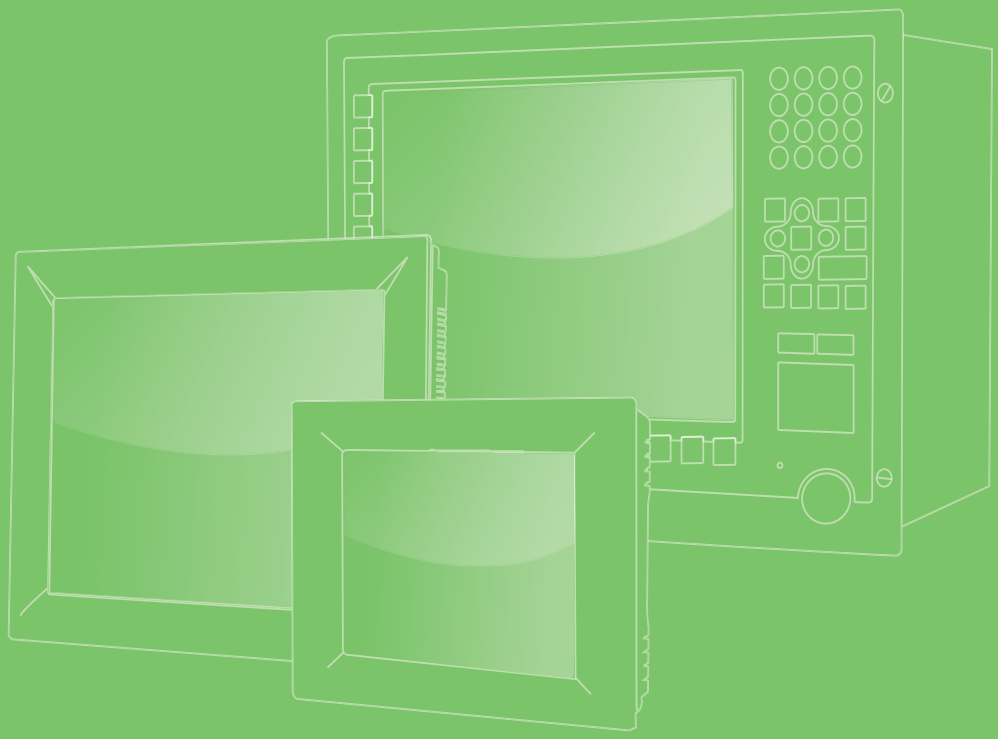

User Manual

PPC-3150/3170/3190

Intel® Atom E3845 Processor based panel PC, with 15"/17"/19" color TFT LCD display

ADVANTECH

Enabling an Intelligent Planet

Copyright

Acknowledgements

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Microsoft Windows is registered trademark of Microsoft Corp.

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. 200K315011 Edition 2

Printed in China June 2015

Declaration of Conformity

CE

This product has passed the CE test for environwaremental 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 environwaremental 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 environwarement. 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 ENVironwareMENT 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 ENVironwareMENT.
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 below5,000 M.

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.

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Contents

Chapter 1

General Information

This chapter gives background information on PPC-3150/3170/3190 panel PC.

Sections include:

- Introduction
- Specifications
- Dimensions

1.1 Introduction

PPC-3150/3170/3190 (15",17" & 19"), fanless panel PCs don't only deliver high performance by Intel Atom processor but also supports a wide operating temp. (-20 ~ 60°C) and wide range of power input (9 ~ 32 V_{DC}). It consolidates performance and reliability in one system. With multiple I/Os: four COM (two internal ports optional for COM module), one USB 3.0, one isolated RS-422/485 and dual Intel Gigabit Ethernet make it easier to connect to devices and be integrated into machine building industry. The PCI/PCIe expansion is allowed to add on field bus or proprietary card makes more application possibility.

1.2 Specifications

1.2.1 Specification Comparison

Product	PPC-3150	PPC-3170	PPC-3190
LCD Specification	15'' LCD	17'' LCD	19" LCD
Display Type	15" TFT LCD (LED backlight)	17" TFT LCD (LED backlight)	19" TFT LCD (LED Backlight)
Max. Resolution	1024 x 768	1280 x 1024	1280 x 1024
Color	16.7M	16.7M	16.7M
Dot matrix	0.297 x 0.297 mm	0.264 x 0.264 mm	0.294x0.294 mm
Viewing Angle	80 (left), 80 (right), 70 (top), 70 (bottom)	80 (left), 80 (right) 60 (top), 80 (bottom)	85 (left), 85 (right) 80 (up), 80 (down)
Brightness	400 cd/m^2	350 cd/m^2	350 cd/m^2
Contrast	700	800	1,000
Backlight Lifecycle	50, 000 hours	50, 000 hours	50, 000 hours
Weight	5.3 kg (11.6 lb)	6.27 kg (13.9 lb)	7.9kg (17.3lb)
Dimensions	396.5 x 317.6 x 65.3(mm) (15.6" x 12.5" x 2.57")	442.0 x 362.0 x 69.5 (mm) (17.4" x 14.25" x 2.73")	458.2 x 384 x 67.3(mm) (18" x 15" x 2.6")

1.2.2 General Specifications

	Model No.	Frequency	Cache
CPU	Atom E3845	1.91 GHz	2 M
Chipset	Intel Atom Processor E3800 Series		
Memory	1 x 204-pin slot support up to 8 GB DDR3L		
Storage 1	1 x 2.5” SATA bay		
Optional Storage & I/O	Either one ■ 1 x Full size mSATA ■ CFast card (optional module) ■ CF card (optional module) ■ Internal USB connector for USB dongle (optional module) ■ 2 x DB9 for two RS-232 or one RS-232 and one GPIO (optional module)		
Network (LAN)	2 x Gigabit Ethernet (Intel I210)		
I/O Ports	■ 1 x isolated RS-422/485 ■ 4 x RS-232 (2 internal for optional COM module) ■ 1 x GPIO (8 channels, TTL level) (Reserved) ■ 1 x USB 3.0 + 3 x USB 2.0 ■ 2 x Gigabit Ethernet ■ 1 x D-SUB VGA port ■ 1 x DP1.1a port ■ 1 x Line-out, 1 x Mic-in, 2 x 1 W speaker (internal)		
Expansion Slots	Either one: ■ 1 x PCI (standard) ■ 1 x PCIe x 1 (in the accessory box)		
Other Expansions	1 x Full-size Mini PCIe slot		
OS Support	WES7 / Windows 7 / Windows 8 / Windows 8.1		

1.2.3 Power Specifications

Model Name	PPC-3190	PPC-3170	PPC-3150
Power Consumption	27W(Test system:Win7 32 bits)	34 W (Test system: Win7 32 bit)	30 W (Test system: Win7 32 bit)
Output Power		50 W	
Input Voltage		9 ~ 32 V_{DC}, 6 A ~ 2 A	

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

1.2.4 Touchscreen Specifications

Type	5-wire Resistive
Resolution	2048 x 2048
Light Transmission	80%+/-3%(PPC-3150/3170) 81%+/-3%(PPC-3190)
Controller	USB interface
Durability (Touches)	36 million
Software Driver Support	Windows 7/ Windows 8 / Windows 8.1

1.2.5 Environment Specifications

Operating Temperature	0 ~ 50° C (32 ~ 122° F) with 2.5" SATA HDD -20 ~ 60° C (-4 ~ 140° F) with -40 ~ 85 ° C mSATA or 2.5” SSD
Storage Temperature	-40 ~ 60° C (-40 ~ 140° F)
Relative Temperature	10 ~ 95% @ 40° C (non-condensing)
Shock	10 G peak acceleration (11 msec duration), IEC 60068-2-27 compliant
Vibration	5 ~ 500 Hz, 1 Grms, IEC 60068-2-64 compliant

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 compliant

Note 1:

Test conditions of power consumption for PPC-3190

Test Condition	Test Configuration		Test System	Power Consumption (W)
Burn-in 7.0	Memory: 4G DDR3L 1333 HDD: 500G 2.5" SATAIII IO:COM Port RS232 loopback x2, USB3.0x1, USB2.0x3, VGA,LAN Loopback4	ATOM E3845 2M 1.91G	Window 7 32 bit	27

Note 2:

Test conditions of power consumption for PPC-3170:

Test Condition	Test Configuration		Test System	Power Consumption (W)
Burn-in 7.0	Memory: 4G DDR3L 1333 HDD: 500G 2.5”SATAIII MSATA: MSATA 32G MLC IO: COM Port RS232 loopback x 4, USB 3.0 x 1, USB 2.0 x 4	ATOM E3845 2M 1.91G	Window 7 32 bit	34

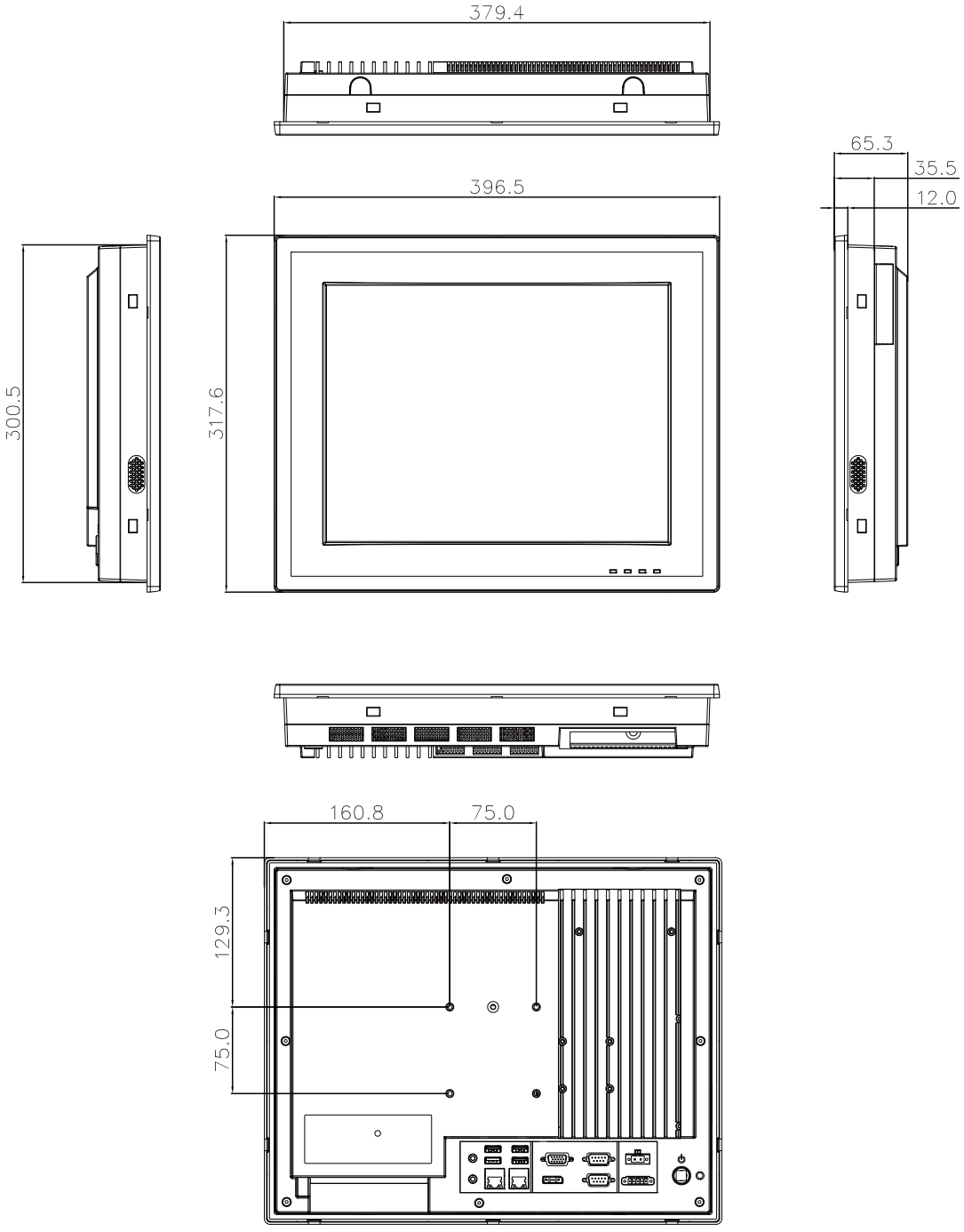
Note 3:

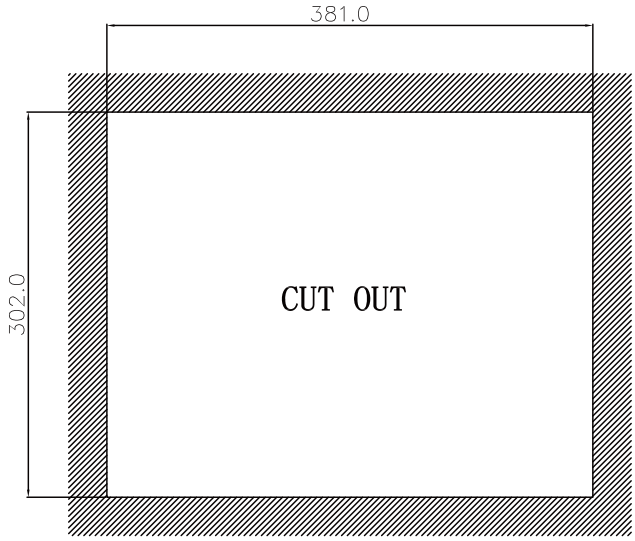
Test conditions of power consumption for PPC-3150:

Test Condition	Test Configuration		Test System	Power Consumption (W)
Burn-in 7.0	Memory: 4G DDR3L 1333 HDD: 500G 2.5”SATAIII MSATA: MSATA 32G MLC IO: COM Port RS232 loopback x 4, USB 3.0 x 1, USB 2.0 x 4	ATOM E3845 2M 1.91G	Window 7 32 bit	30

1.3 Dimensions

PPC-3150:



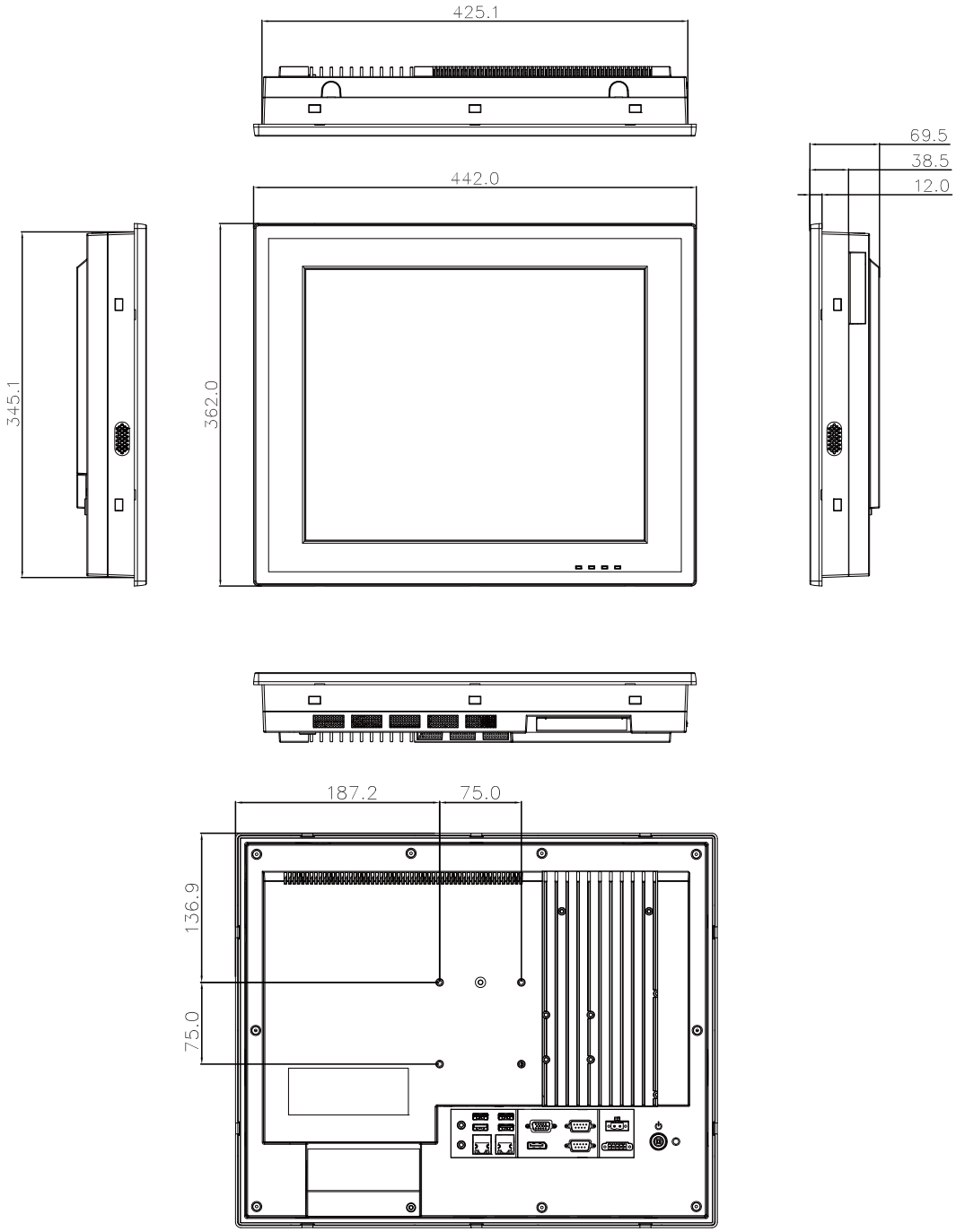


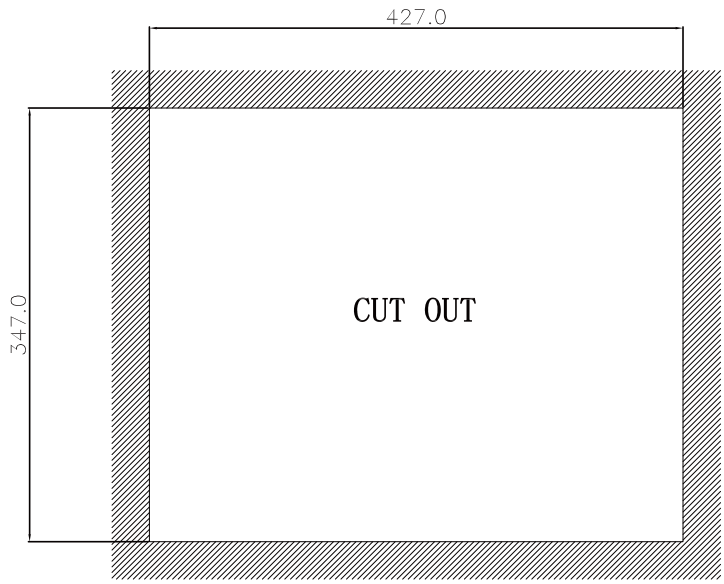
Unit: mm

Figure 1.1 PPC-3150 dimensions

Warning! *Fixed VESA screw specification: M4; screw depth: 8 mm (Max). Use suitable mounting apparatus to avoid risk of injury.*

PPC-3170:





Unit: mm

Figure 1.2 PPC-3170 dimensions

Warning! *Fixed VESA screw specification: M4; screw depth: 8 mm (Max). Use suitable mounting apparatus to avoid risk of injury.*

PPC-3190

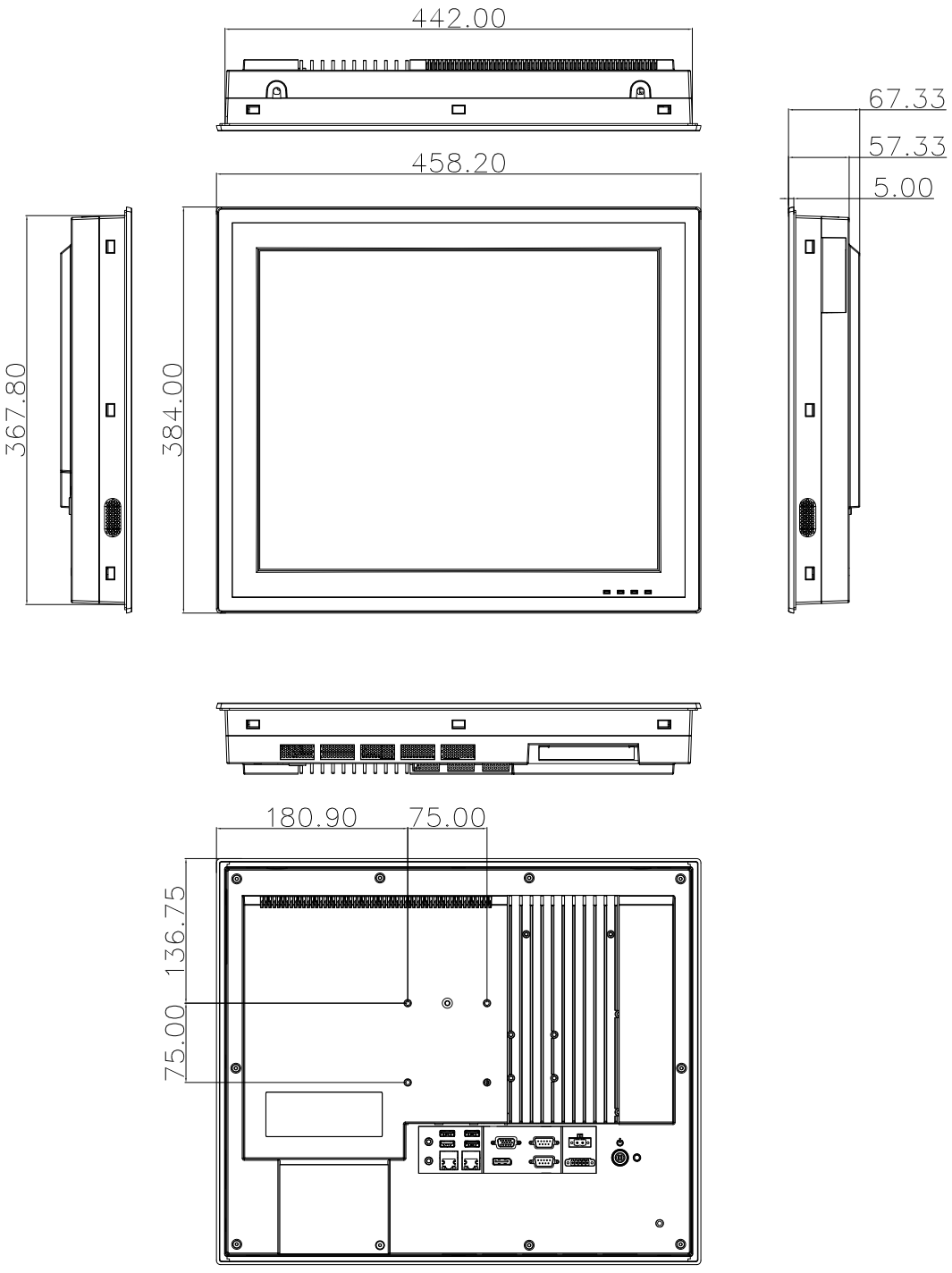
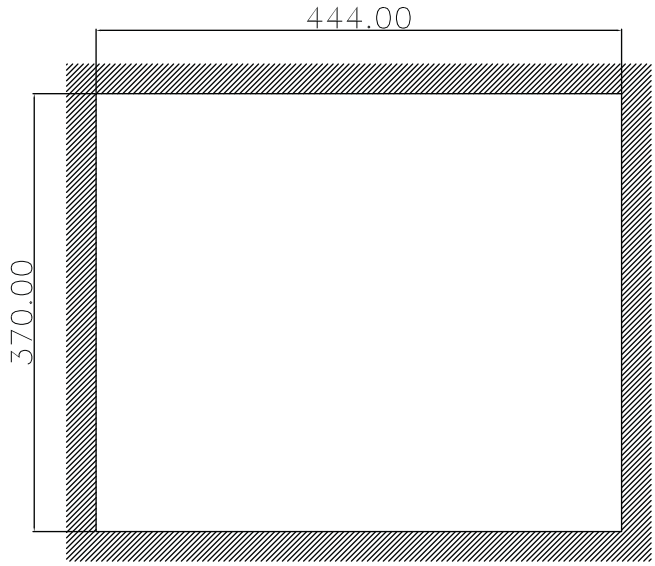


Figure 1.3 PPC-3190 dimensions



Warning! *Fixed VESA screw specification: M4; screw depth: 8 mm (Max). Use suitable mounting apparatus to avoid risk of injury.*

Chapter 2

System Installation & Setup

Sections include:

- Quick Installation Guide
- Installation Procedures
- Installing HDD
- Installing Mini SATA
- Installing the Wireless LAN Card
- Installing the Riser Card
- AT/ATX Function Switch
- Hook Installation
- Installing Optional Modules

2.1 Quick Installation 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. (Network status LED) LAN LED
2. (HDD status LED) HDD LED
3. (Power status LED) POWER LED

Status	LAN LED		HDD LED	POWER LED
	LAN1	LAN2		
Power off (S5)	Off	Off	Off	Off
Power on (S0)	Yellow (Operating, blinking)	Green (Operating, blinking)	Yellow (Operating, blinking)	Green

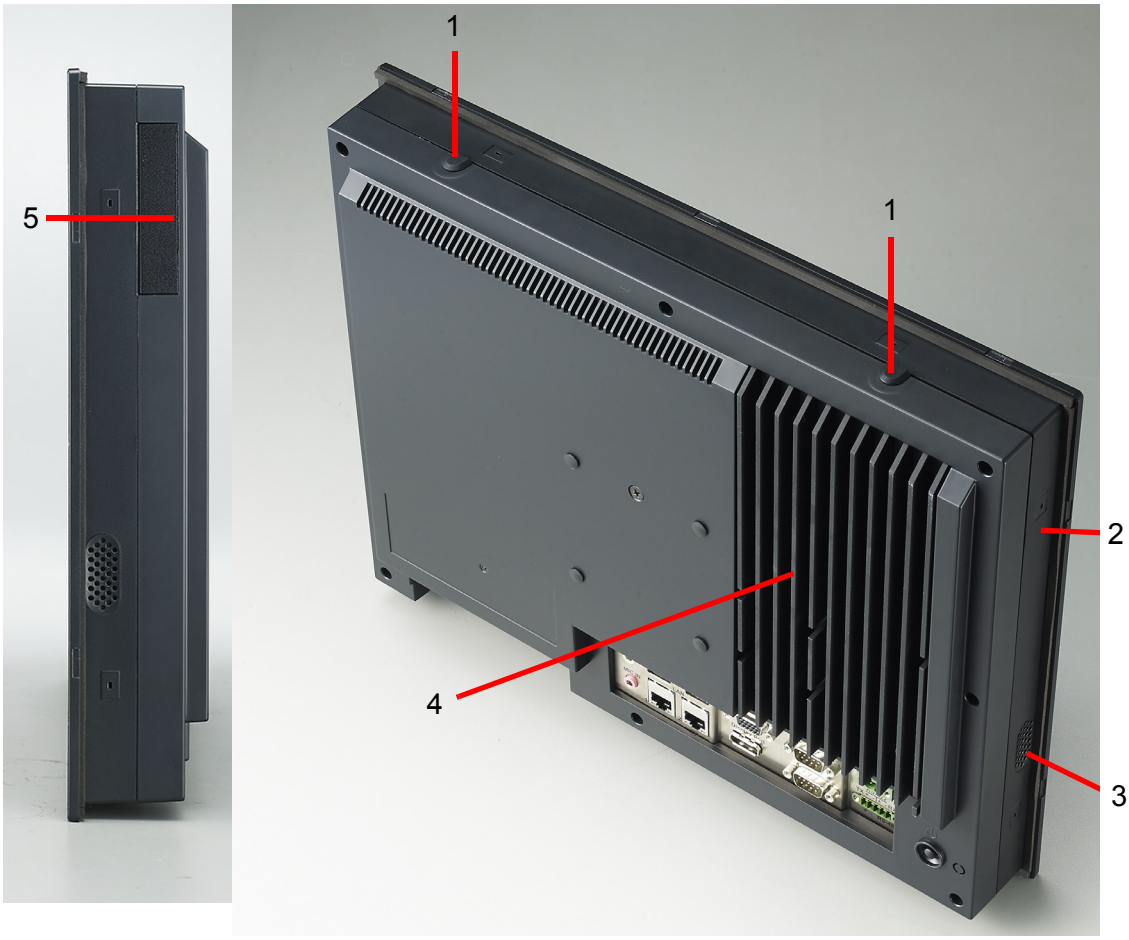


Figure 2.2 Side View

1. Antenna holeS
2. Panel mounting hook holes (8 in PPC-3150,10 in PPC-3170,12 in PPC-3190)
3. Speakers (right and left)
4. CPU heatsink
5. Optional module expansion slot

Note! *Fixed VESA screw specification: M4; screw depth: 8 mm (Max).*

I/O connectors:

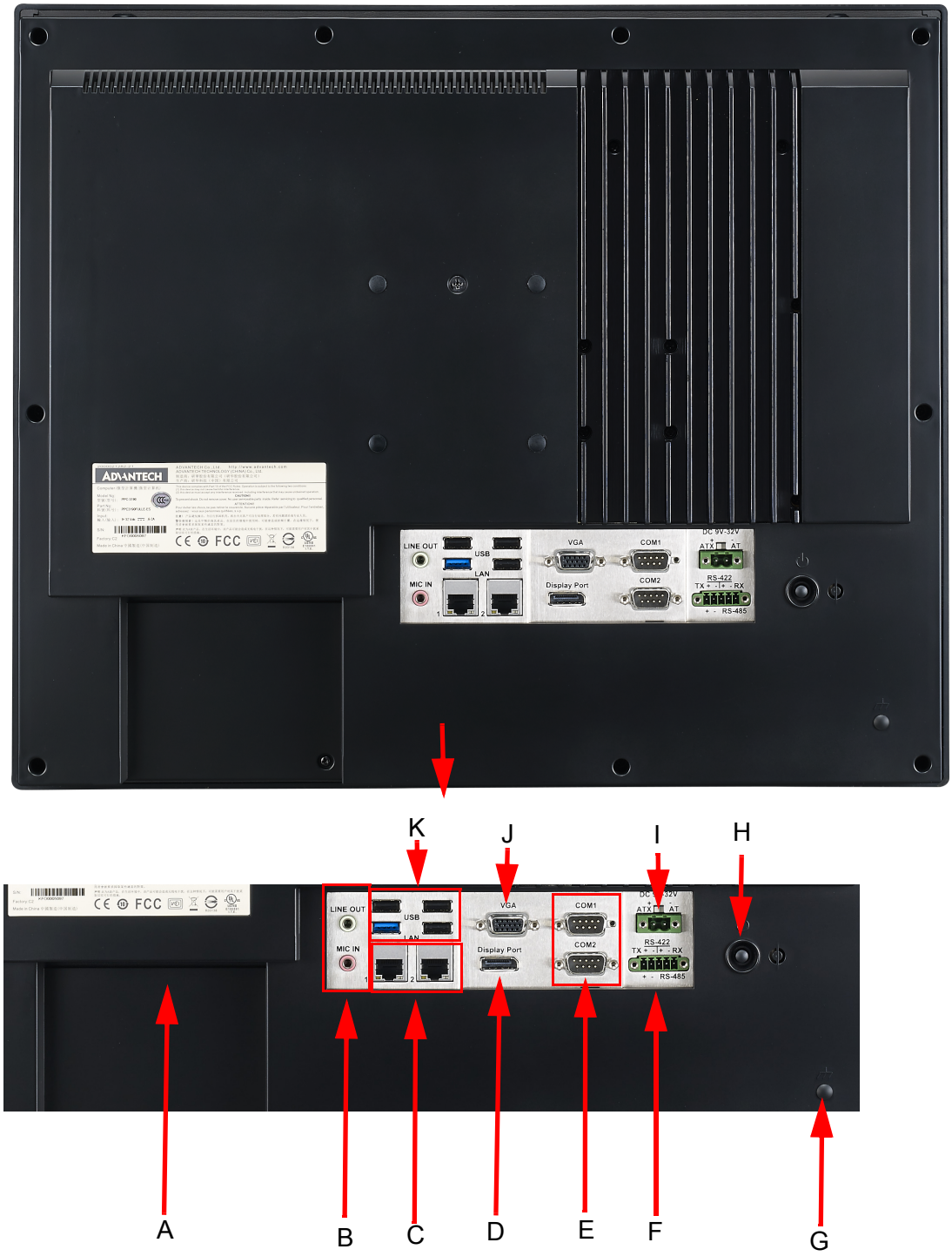


Figure 2.3 I/O Connectors

A: Expansion slot (PCI or PCIe x1)
B: Line-out/Mic-in
C: 2 x Gigabit Ethernet ports
D: Display port
E: 2 x RS-232 ports
F: Isolated RS-422/485 port
G: Ground Line (PPC-3190 only)
H: Power button
I: DC jack and AT/ATX switch
J: VGA port
K: 1 x USB 3.0 + 3 x USB 2.0 ports

2.2 Installation Procedures

2.2.1 Connecting Power Cable

The panel PC has DC power socket (9 ~ 32 V). When connecting the power cable, please hold the plug end. Please follow the procedures below:

1. If you want to use AT power, please switch to AT mode as shown in below figure (ATX mode is by default).
2. Connect 2-pin male connector of the power cable to power socket (2-pin male connector is in accessory box).

Figure 2.4 Connect Power Cable

2.2.2 Connect Keyboard and Mouse

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

2.2.2.1 Connecting Power

The power button is located in the right bottom side of the panel PC.

Note! *Power cable and adapter are optional.*

2.3 Install Memory Card

1. Remove the 11 screws (red) and take off the 4 plugs (yellow) from the rear cover. (See Figures 2.5 and 2.6)

Figure 2.5

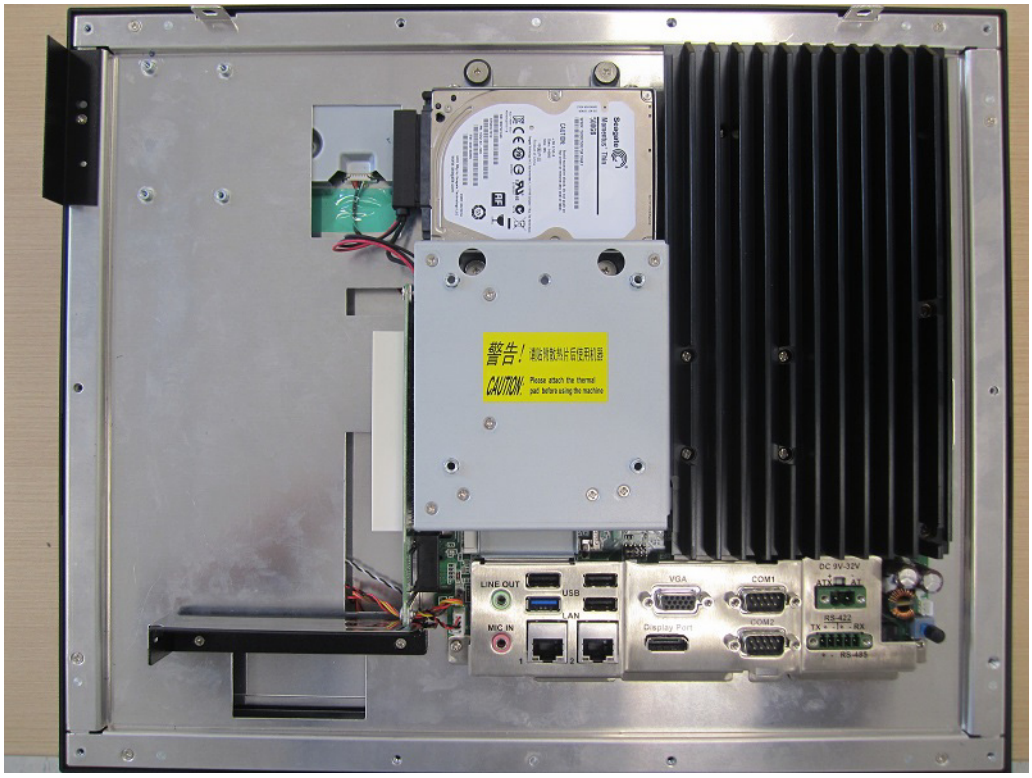


Figure 2.6

2. Loosen the 8 screws of the heat sink and then remove it. (See Figure 2.7)

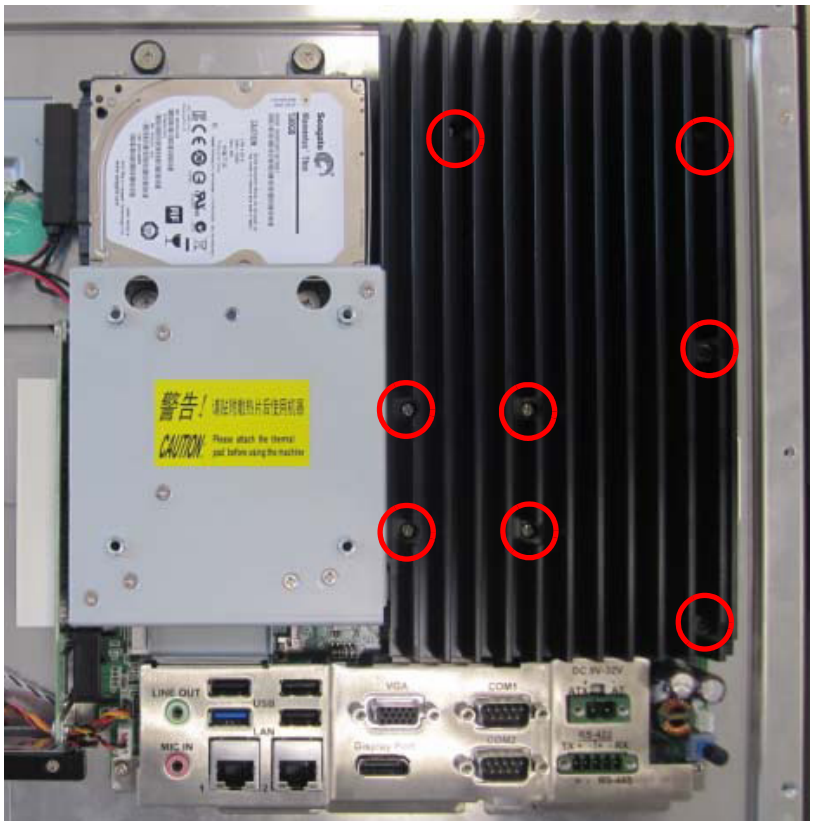


Figure 2.7

3. Insert the memory card into the slot as indicated in the red square below, and take out the thermal pad for the memory and CPU from the accessory box, then the installation of the memory card is finished. (See Figure 2.11)

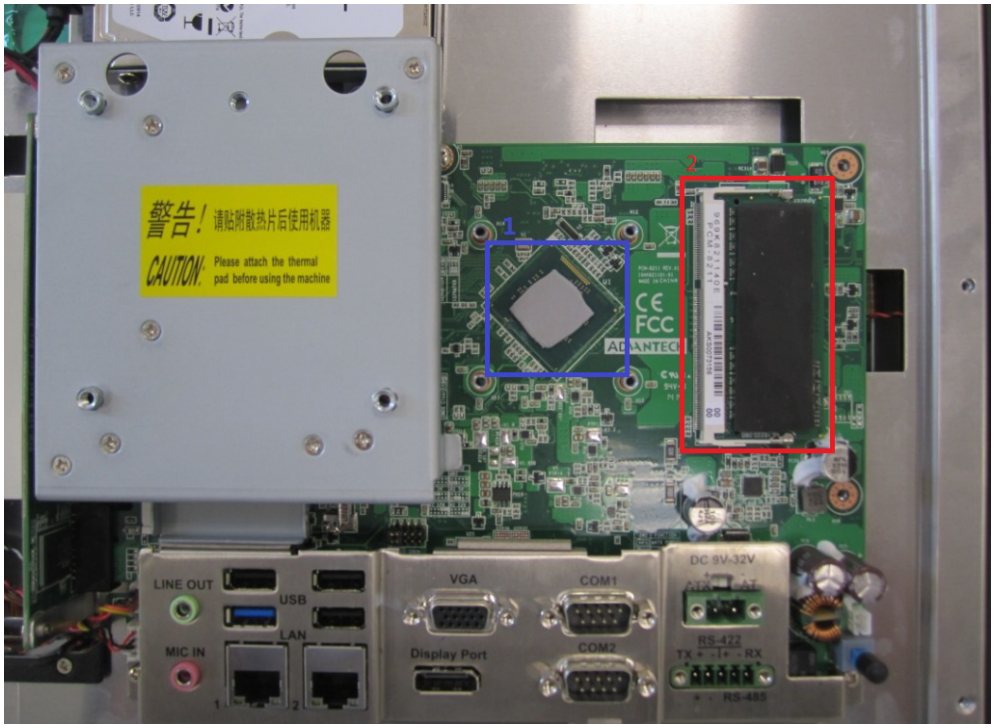


Figure 2.8

2.4 Installing HDD

1. Remove the 11 screws (red) on rear cover and remove the 4 plugs (yellow). (See Figure 2.5 and 2.6)
2. Remove the four screws on VESA ironware. (See Figure 2.9)

Figure 2.9

3. Unscrew the four screws on HDD cover and remove it. (See Figure 2.10)

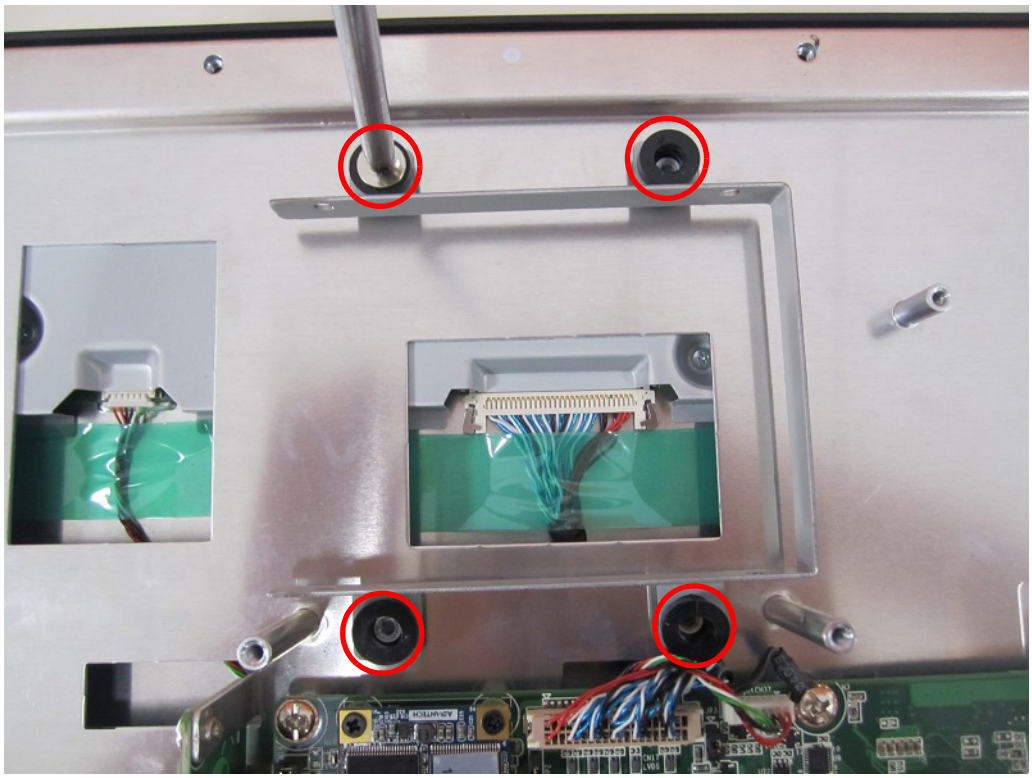


Figure 2.10

4. Take out 4 screws from the accessory box and fix them to the HDD case bracket (See Figure 2.11). Then take out the HDD data cable from the accessory box and connect it to the HDD, the assembled HDD module is shown as Figure 2.12.

Figure 2.11

Figure 2.12

5. Reconnect the HDD bracket, and connect the data cable to the mainboard. (See Figure 2.13)

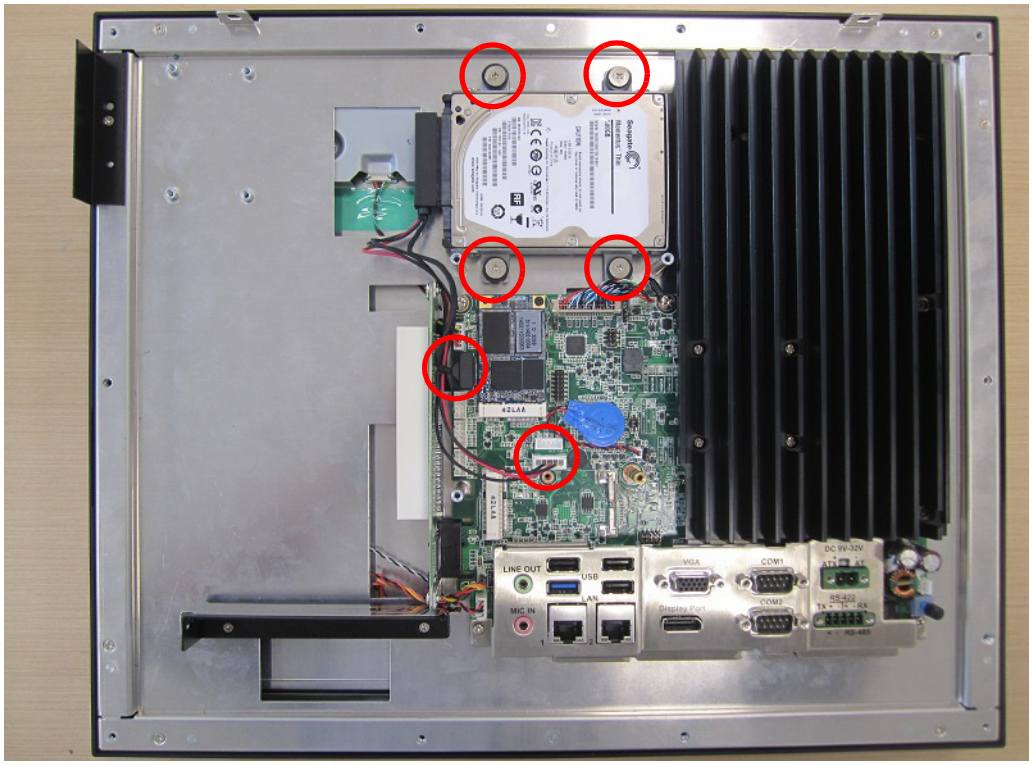


Figure 2.13

2.5 Installing MiniSATA

1. Follow installation steps 1 ~ 2 in the Section 2.4, and you'll see the disassembled machine as shown in Figure 2.14.

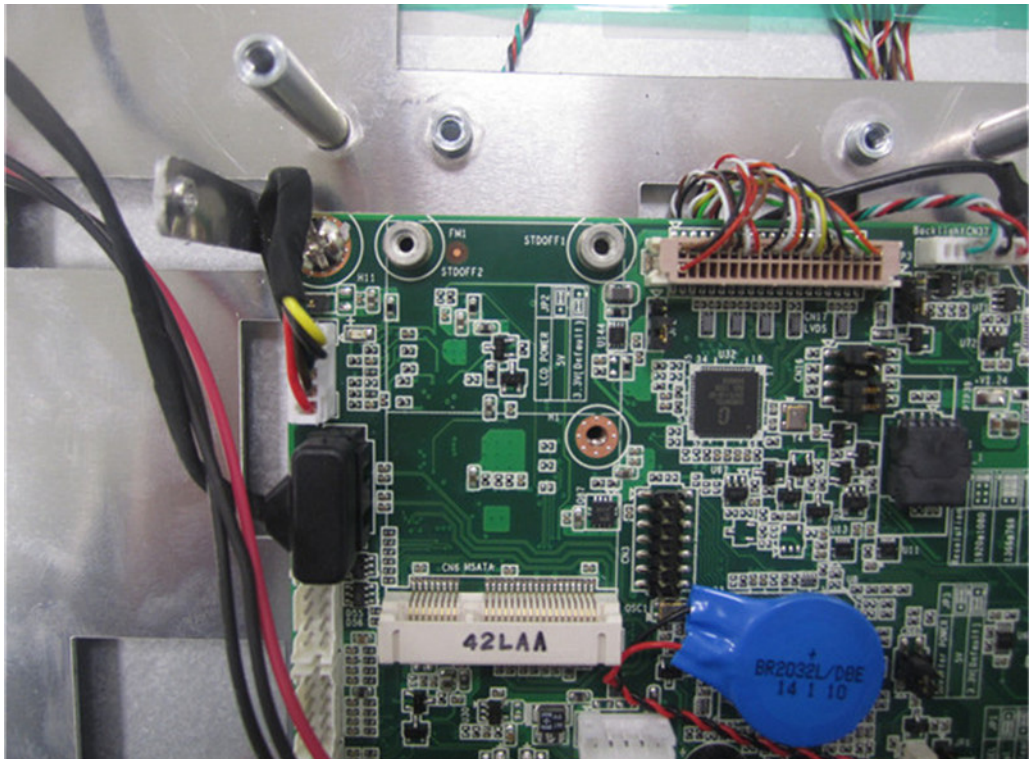


Figure 2.14

2. When installing MiniSATA long card, insert Mini SATA card into the correct mainboard slot, and fix it with two M2.5x4 screws in the accessory box. Then take out the thermal pad from the accessory box and attach it onto the MiniSATA card. (See Figure 2.15)

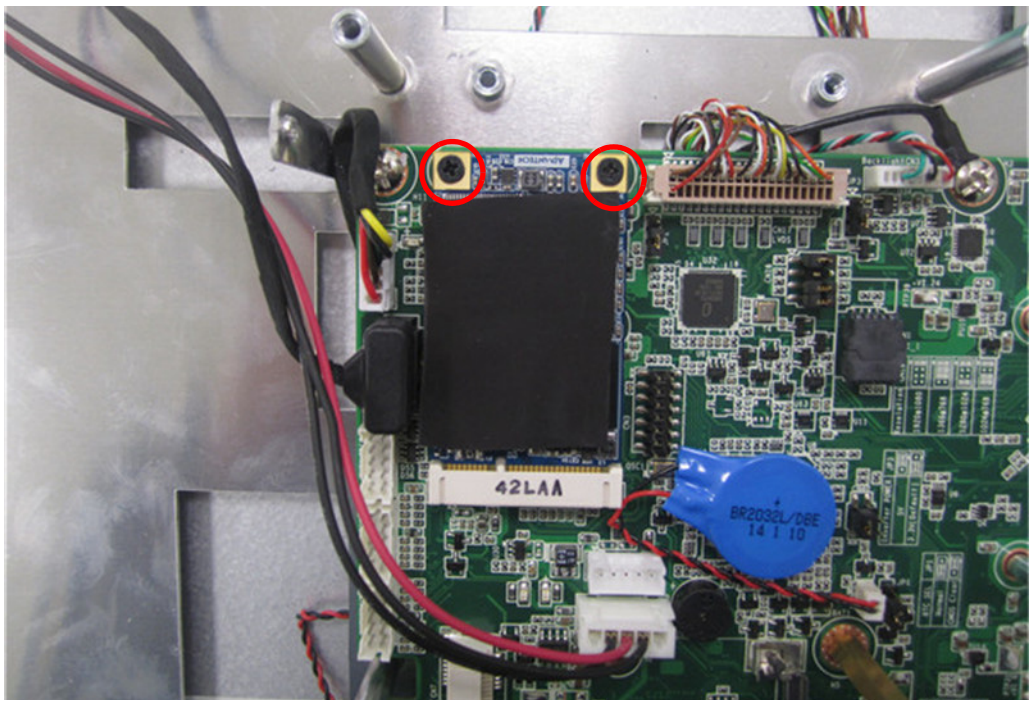


Figure 2.15

3. When installing the MiniSATA short card, first fix it with a copper cylinder screw from the accessory box. (See Figure 2.16) Then insert the short card into the correct mainboard slot, finally fix it with a screw and attach the thermal pad onto the card, which can both be found in the accessory box. (See Figure 2.17 and Figure 2.18)

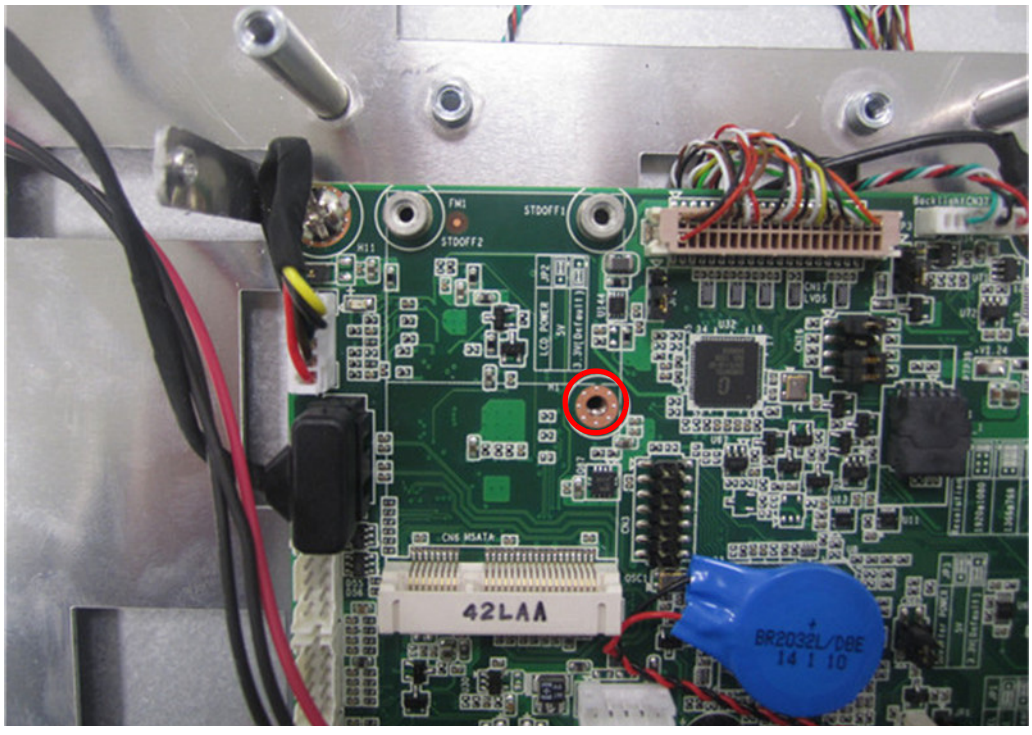


Figure 2.16

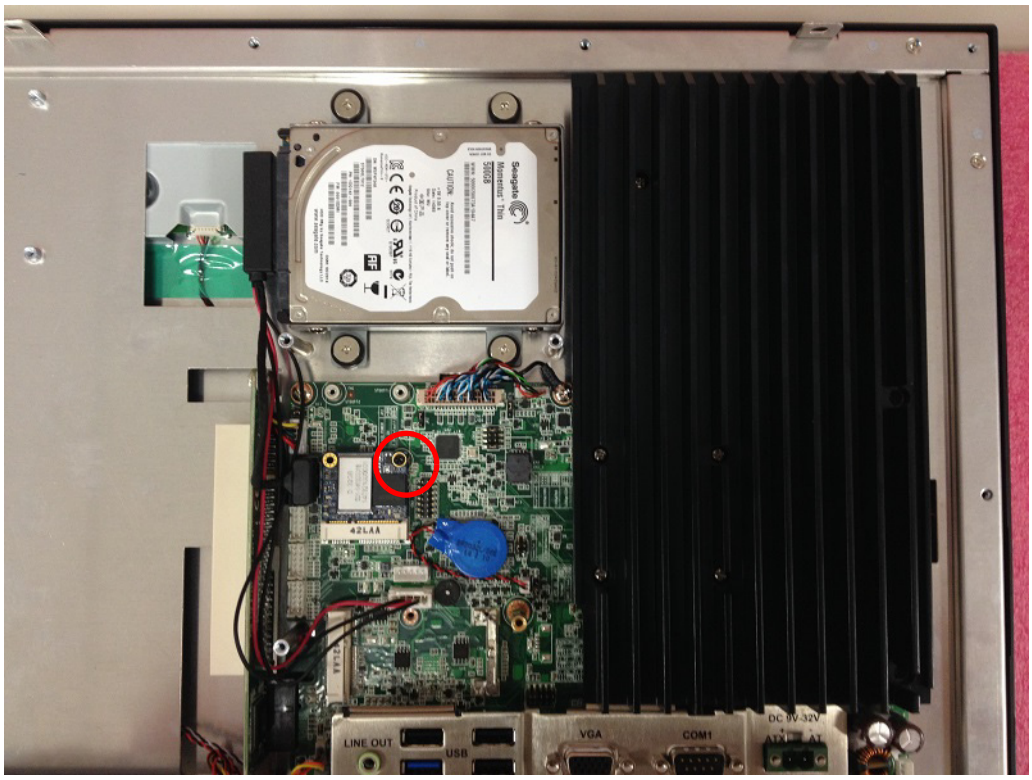


Figure 2.17

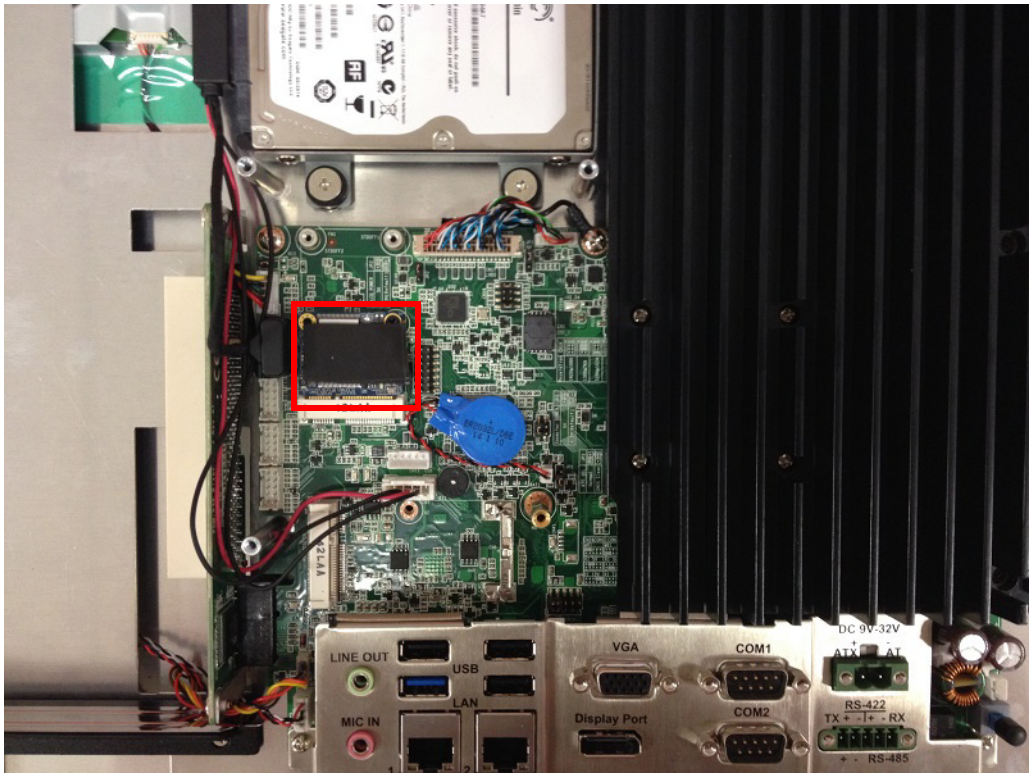


Figure 2.18

4. Follow the disassembly steps to replace and fix the VESA cover and rear cover.

2.6 Installing the Wireless LAN Card

1. Follow installation steps 1 ~ 2 in the Section 2.4, and you'll see the disassembled machine as shown in Figure 2.19.

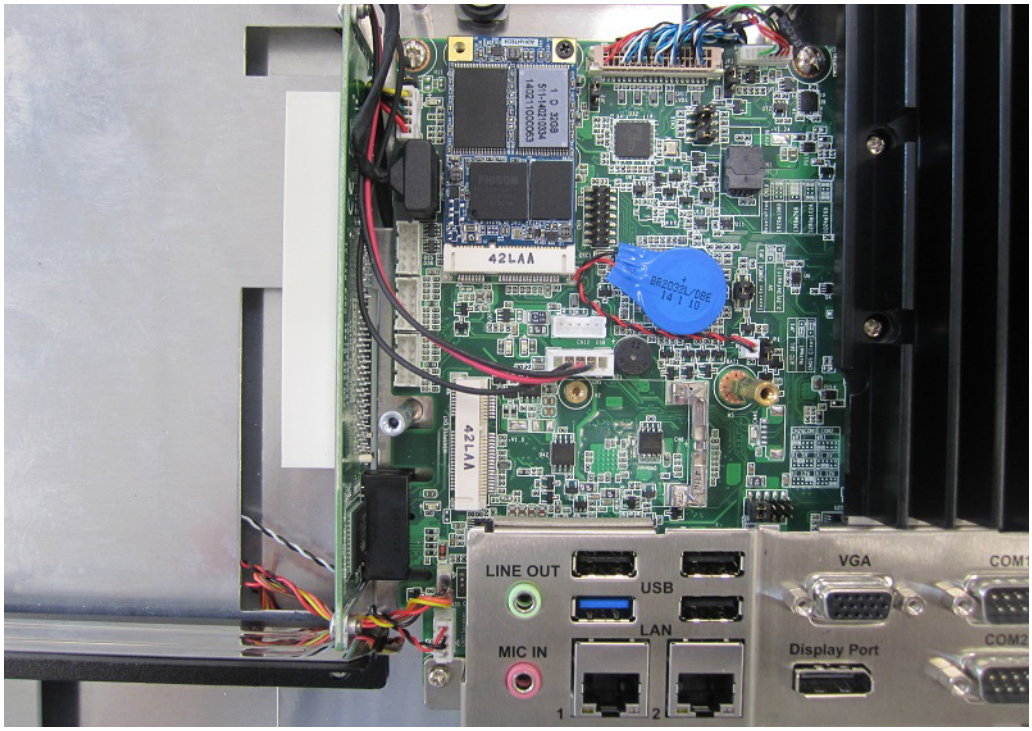


Figure 2.19

2. When installing Wireless short card, first take out a hexagonal screw from the accessory box and fix it to the below area. (See Figure 2.20) Then insert the short card into the correct mainboard slot, and fix it with a screw from the accessory box. (See Figure 2.21)

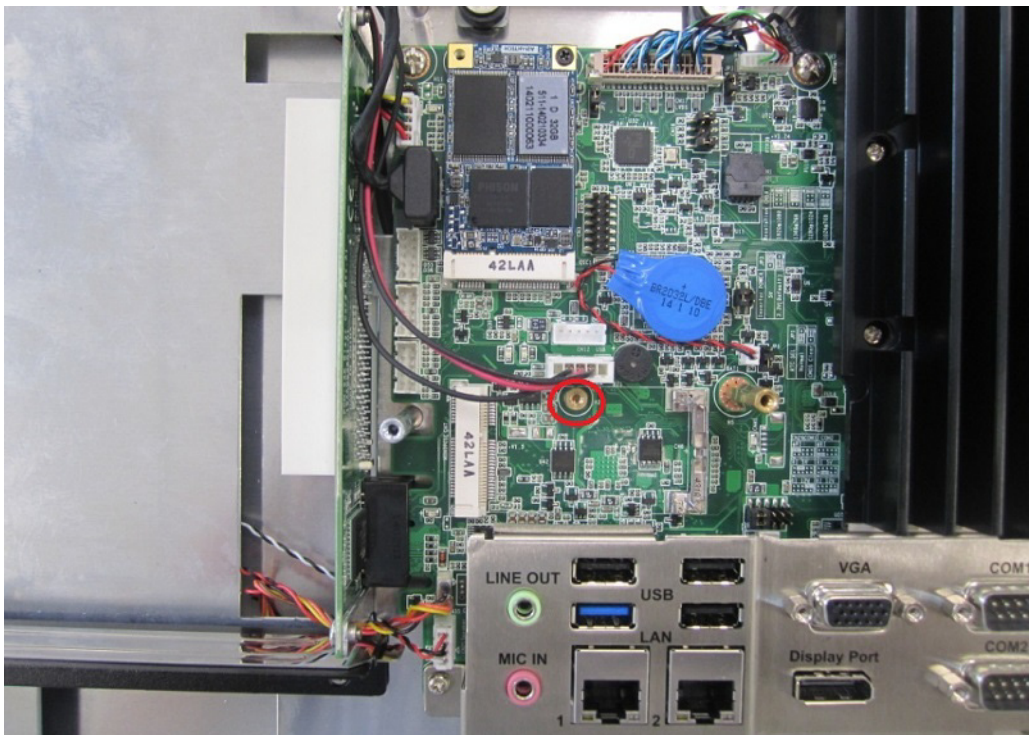


Figure 2.20

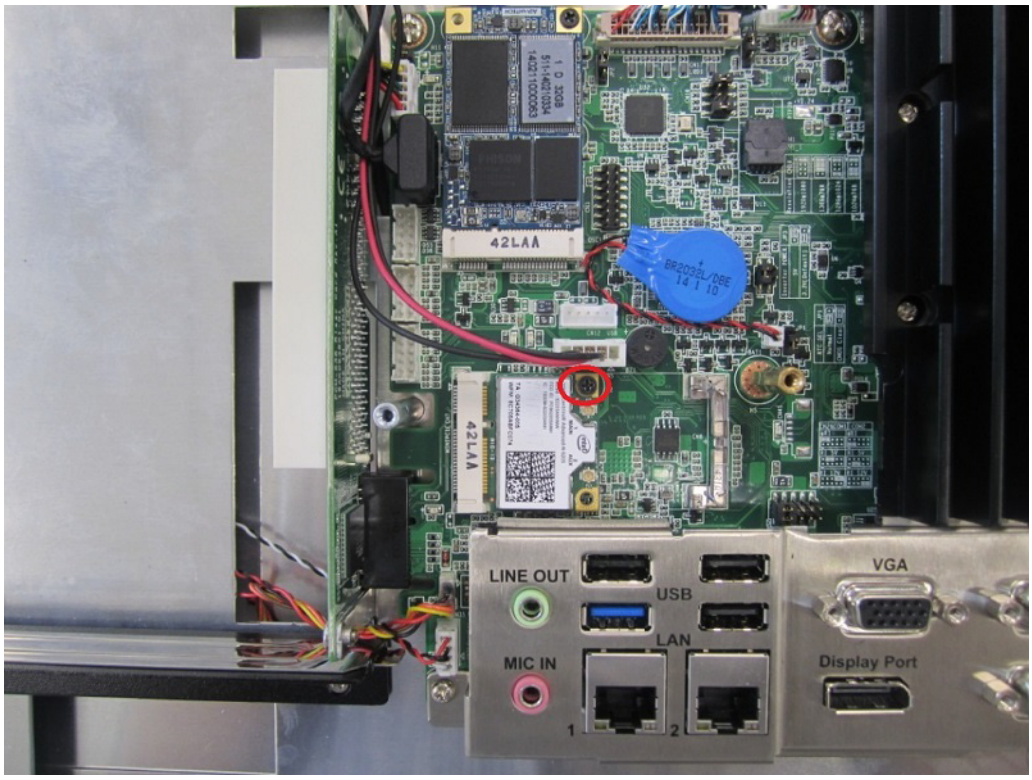


Figure 2.21

3. Take down the antenna holder in the upper left corner and upper right corner of the machine. (See Figure 2.22) (This step is only for the PPC-3150)

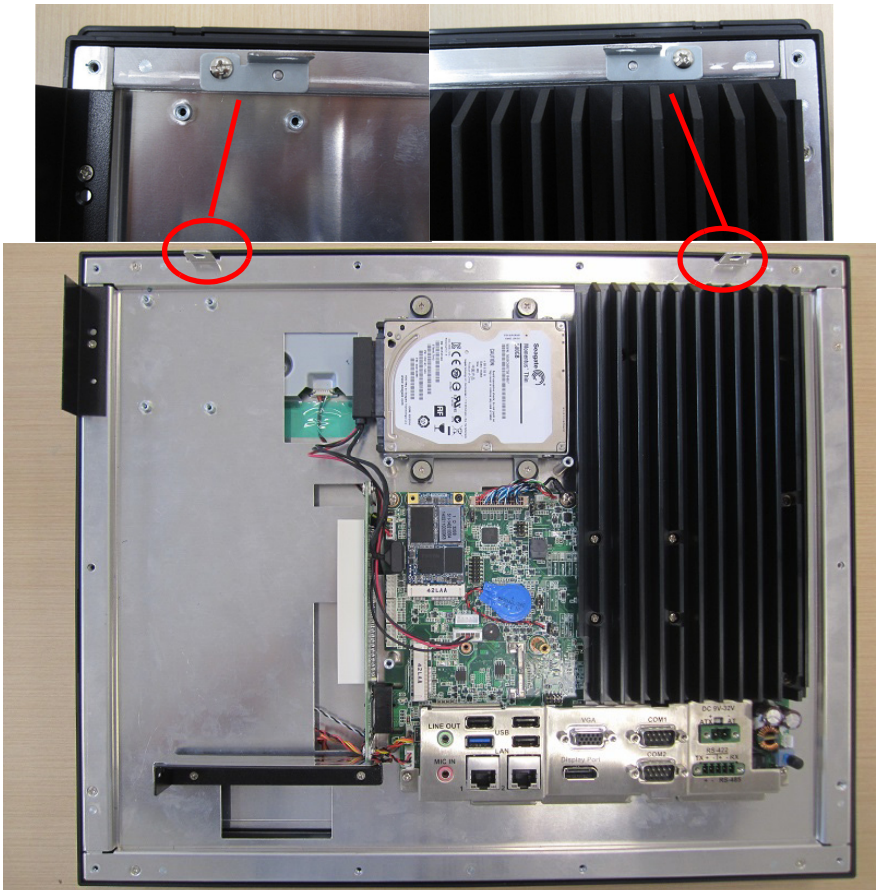


Figure 2.22

4. Connect the cables of the wireless LAN card to the antenna holder. Please note the installation direction of the cable end and nut / washer. (See Figure 2.23) (This step is only for PPC-3150)

Figure 2.23

5. Lock the assembled antenna holder onto the machine, and connect the cable to wireless LAN card. (See Figure 2.24) Then take out the thermal pad from the accessory box and attach it onto the wireless LAN card.

Figure 2.24

6. Relock the VESA cover, and take down the two plugs of the top rear cover. (See Figure 2.25) Then return the rear cover and finish the installation of wireless LAN card module and antenna. (See Figure 2.26)

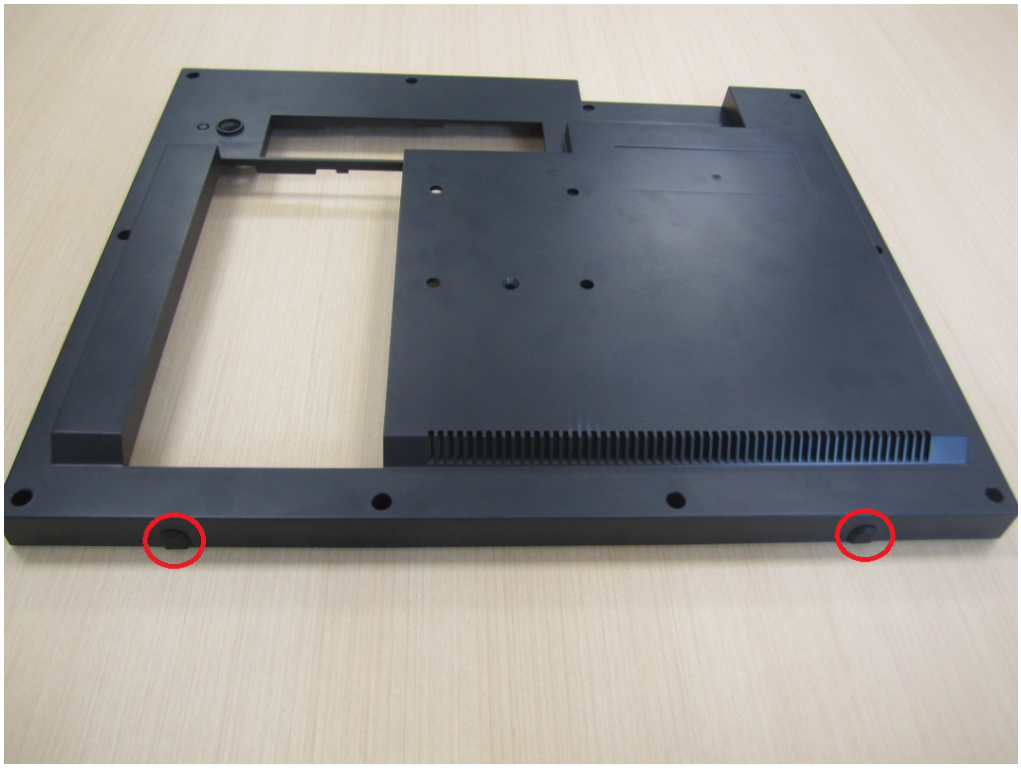


Figure 2.25

Figure 2.26

Note! *In the above wireless LAN card installation procedures the PPC-WLAN-A1E is actually adopted for PPC-3150 & 3170; PPC-WLAN-A2E is adopted for PPC-3190*

2.7 Installing the Riser Card

1. Remove the rear cover of the panel PC.
2. Insert the riser card into the slot, and fix with two screws. (See Figure 2.27) The riser card is PCIE to PCI by system default, and the one in the accessory box is PCIE to PCIE, which allows users to select by themselves.

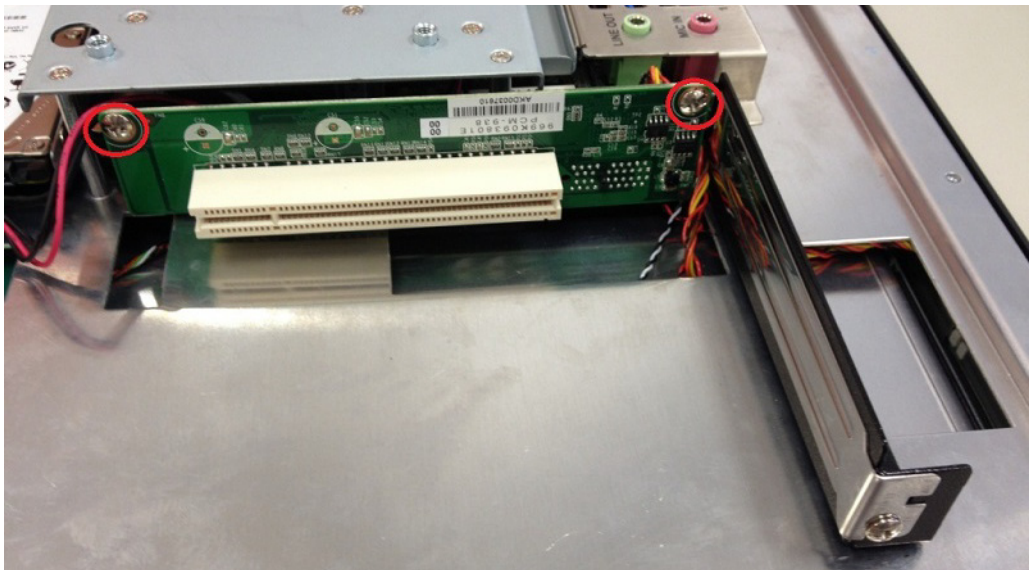


Figure 2.27

3. Remove the card slot shield and insert the card (see Figure 2.28), then tighten the screws and return the rear cover.

Figure 2.28

Note! *The maximum dimension of the riser card is 176 mm x 107 mm for both PPC-3150/ PPC-3170/3190.*

2.8 AT/ATX Function Switch

The switch built into the machine, lets you choose between AT/ATX functions without removing the rear cover. (See Figure 2.29 and Figure 2.30)

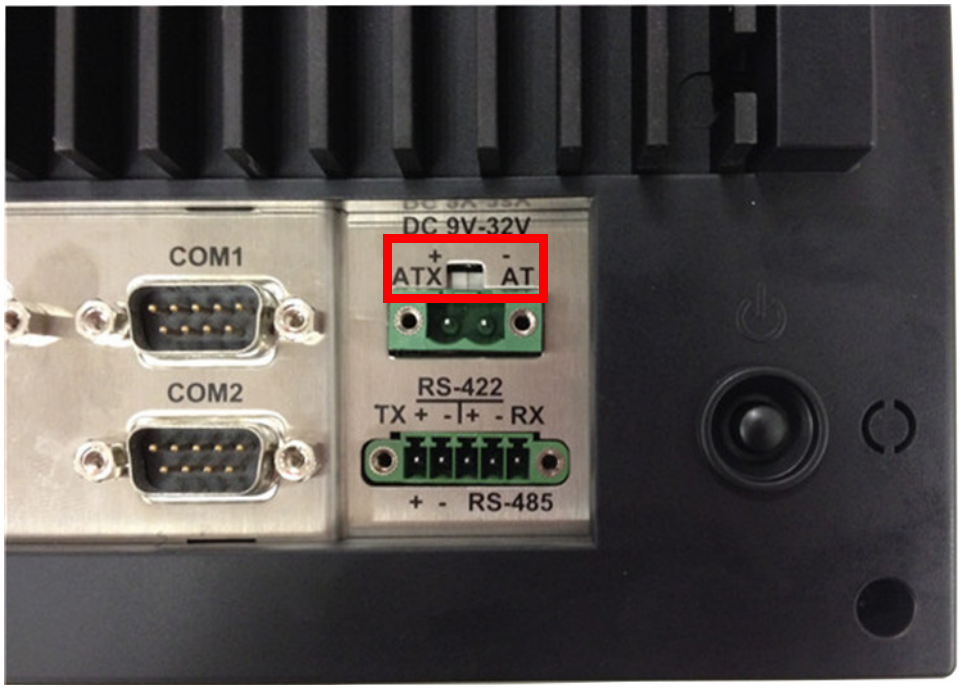
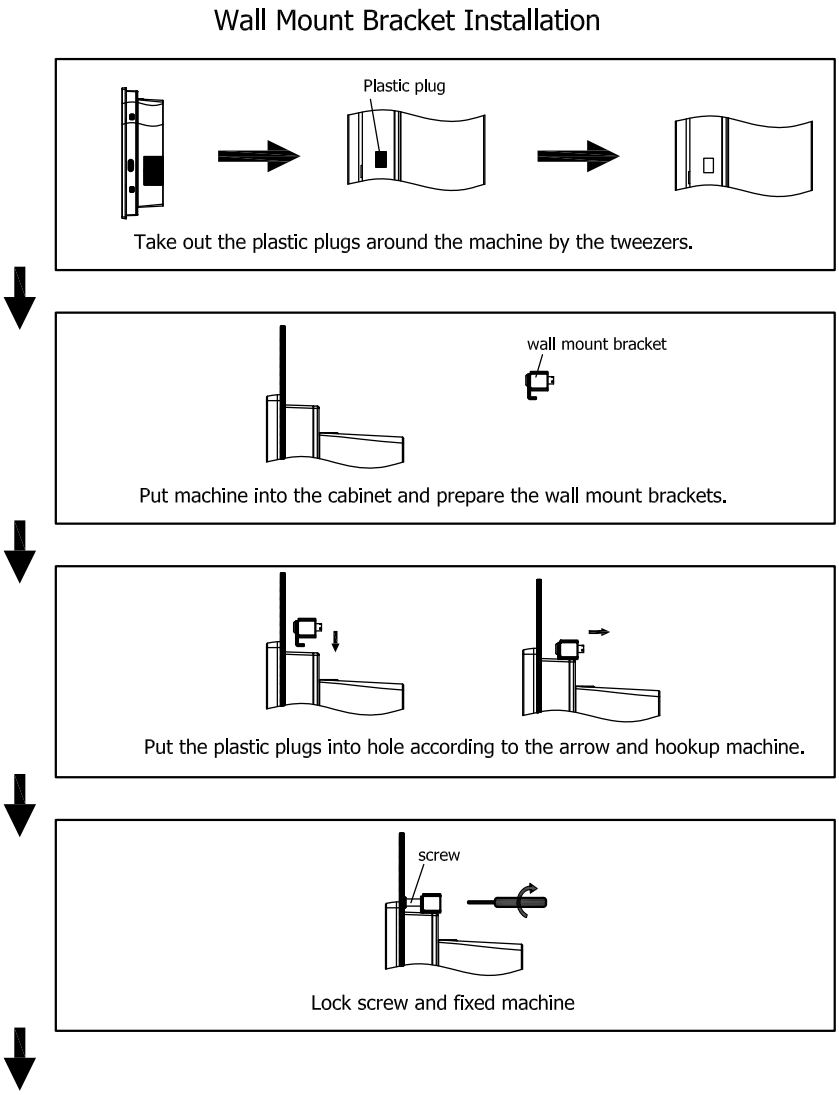


Figure 2.29 ATX Mode

Figure 2.30 AT Mode

2.9 Hook Installation

Follow the figures below:



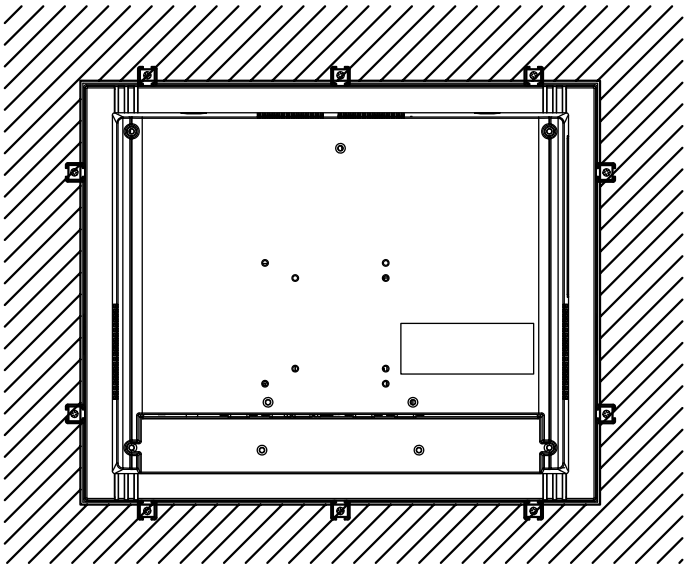


Figure 2.31

2.10 Installing Optional Modules

The PPC-3150/3170/3190 supports four optional modules: USB module, CFast module, CF module and COM module (See Figure 2.32).

For detailed installation procedures, see Sections A, B, C and D below.

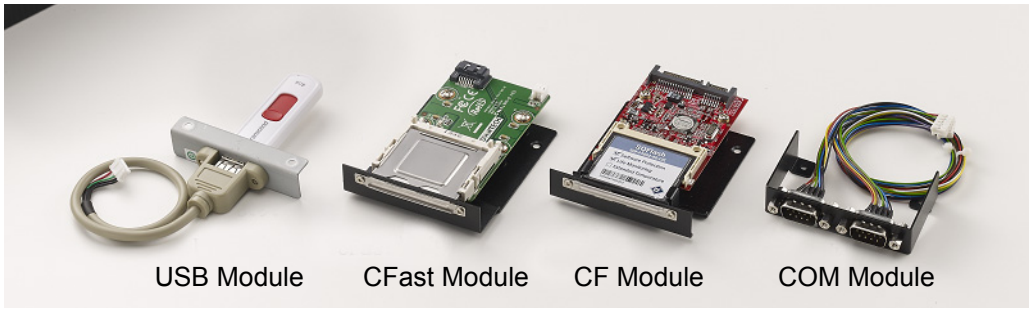


Figure 2.32

A. Installing a CFast Module

1. Remove the eleven screws (red) and remove the four plugs (yellow) from the rear cover. (See Figure 2.33 and 2.34)

Figure 2.33

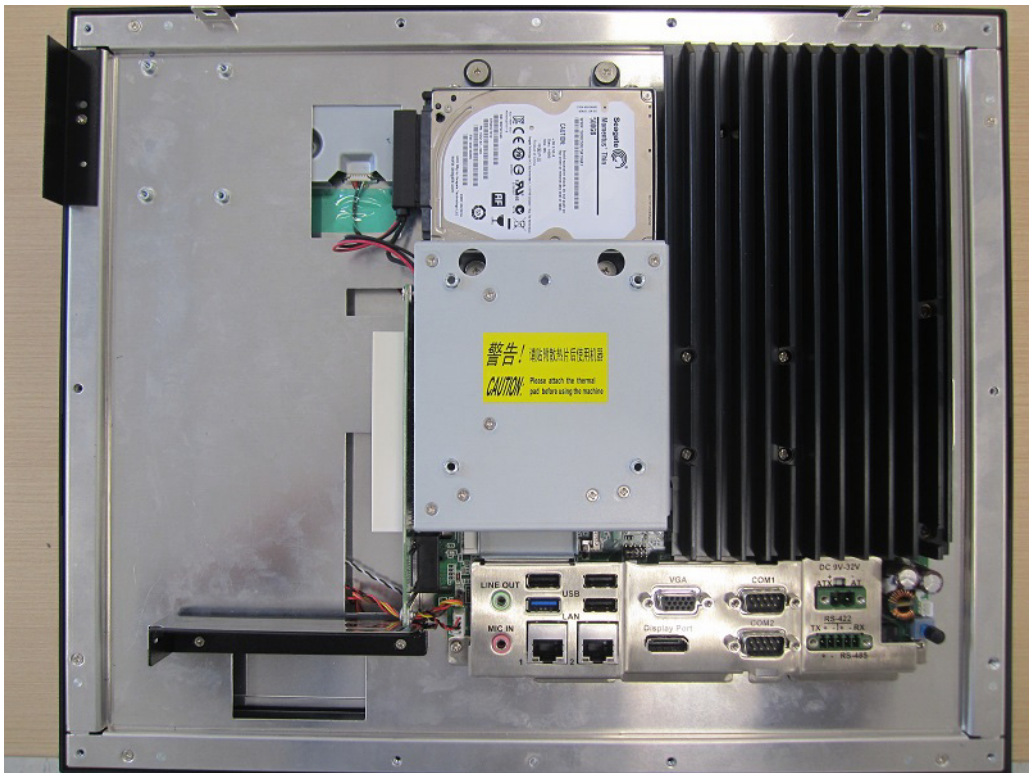


Figure 2.34

2. Remove the four screws on VESA cover. (See Figure 2.35)

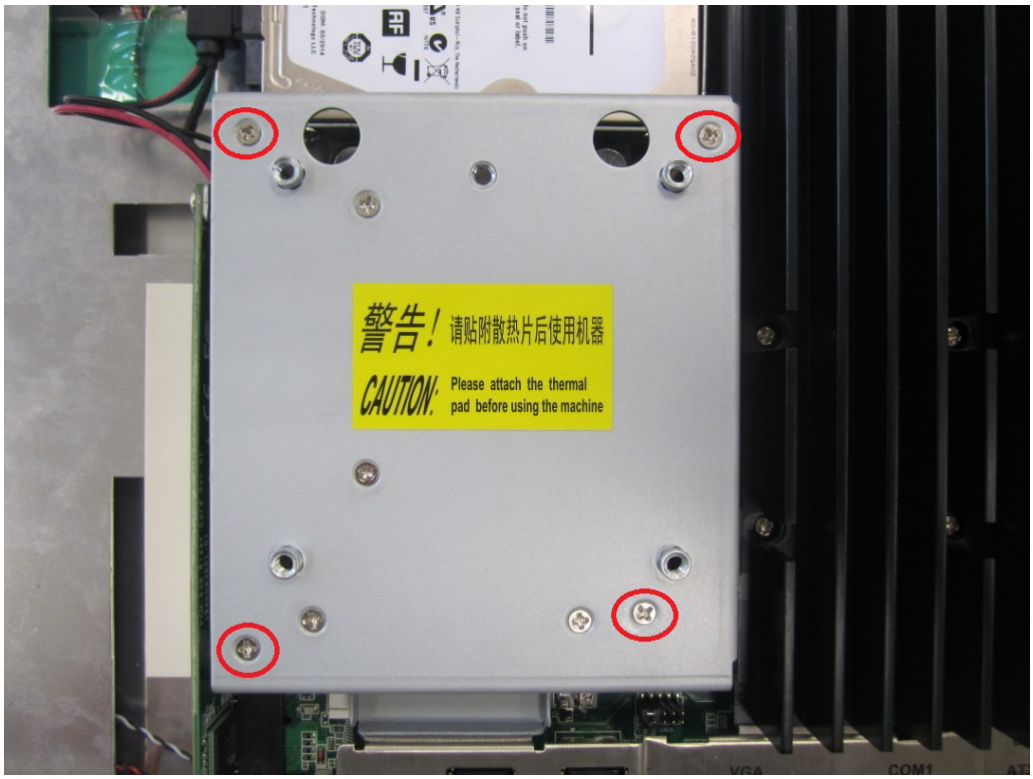


Figure 2.35

3. Remove the screw on the side of I/O cover. (See Figure 2.36)

Note! *Please keep the cover properly for future use when the module is not installed.*

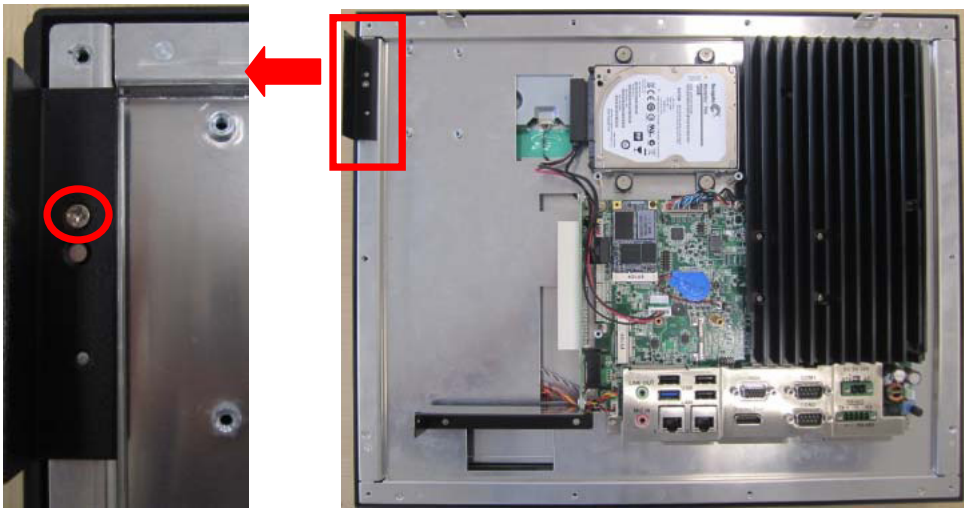


Figure 2.36

4. Take the CFast module out of module box and remove the two screws on its side.Fix the metal tray to the top of CFast card, and insert it in the direction as indicated in the below figure. Then tighten the two screws and connect the red SATA cables. (See Figure 2.37)
The assembled CFast module is shown in Figure 2.38.

Note! *When installing the CFast card, the metal try should be installed on the top.*

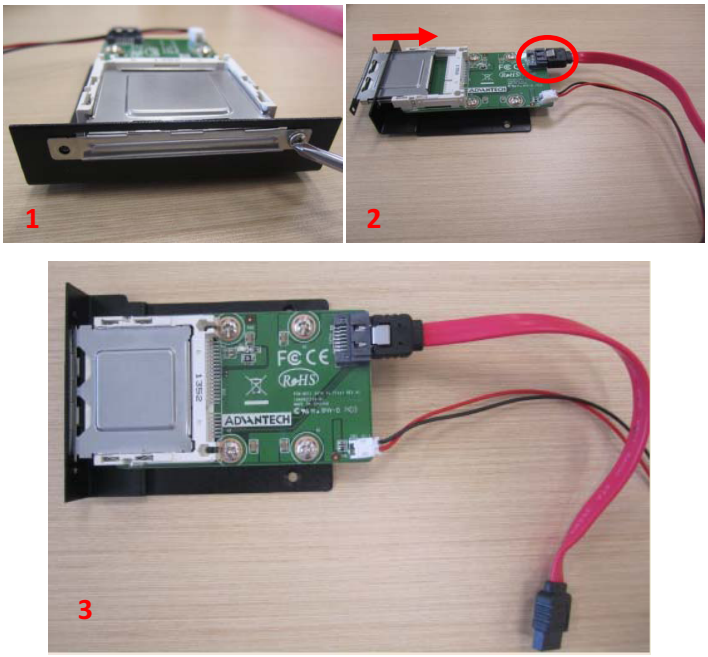


Figure 2.37

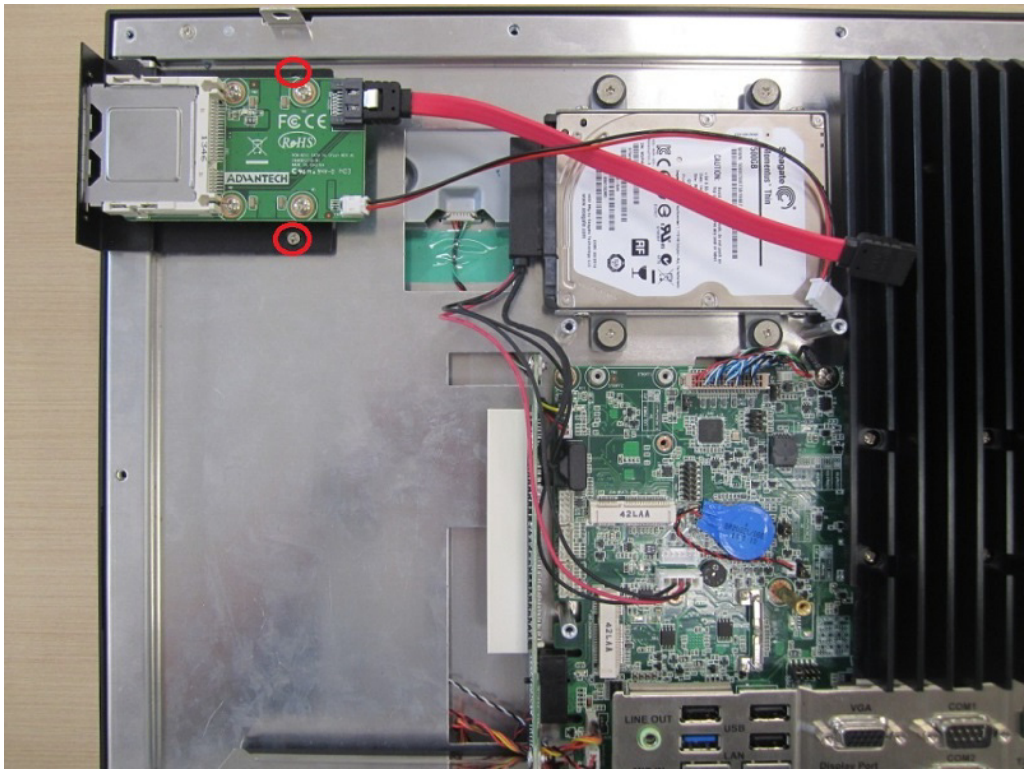


Figure 2.38

5. Take out a copper cylinder and fix it to the position marked with red circle in Figure 2.39. Then take out a screw to secure the MiniSATA to the SATA Micro ATX board onto the position marked with a red rectangle in FIgure 2.40.

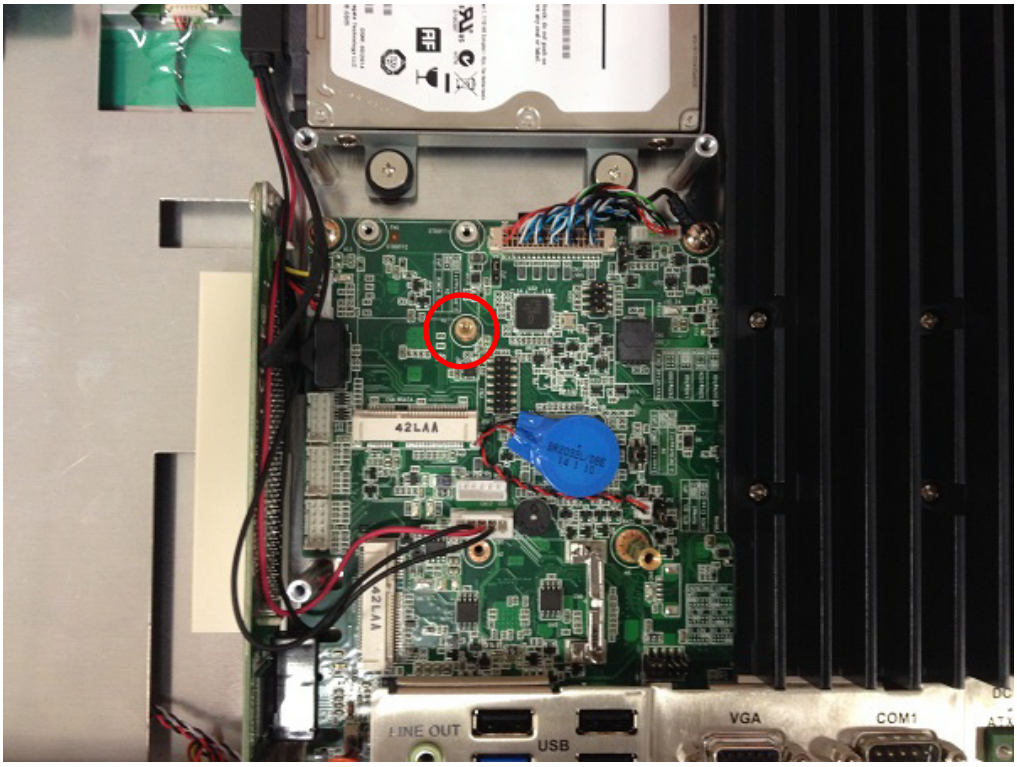


Figure 2.39

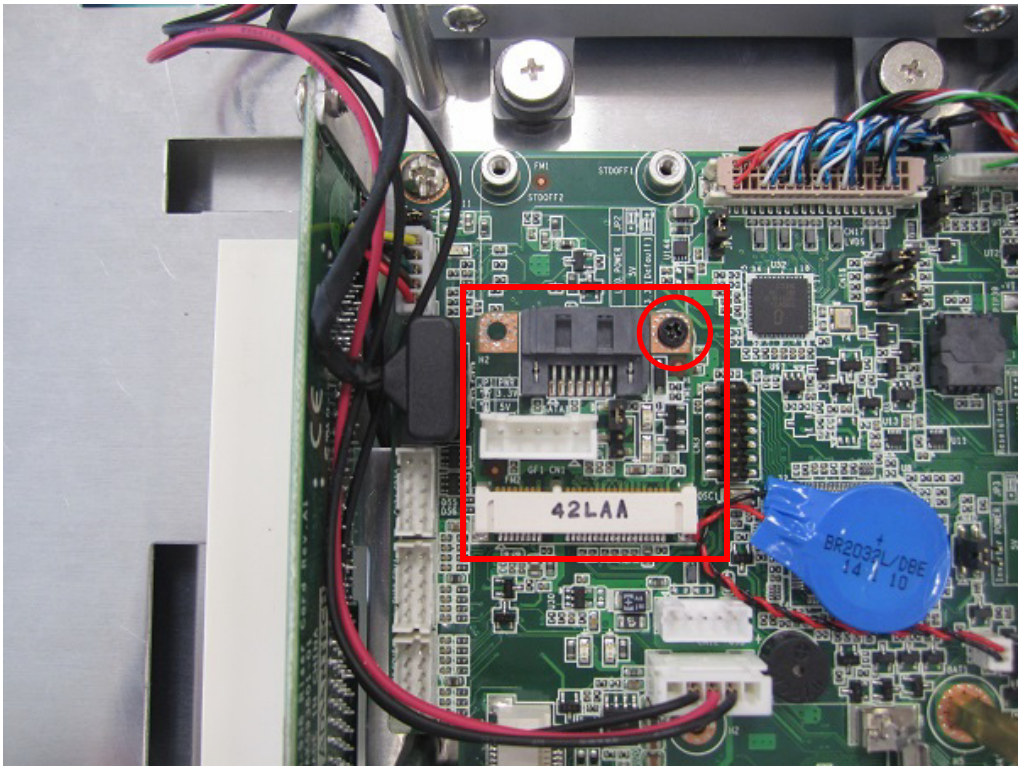


Figure 2.40

6. Connect the red SATA cable and power cable to their respective connectors, then bind them with a cable tie. (See Figure 2.41)

Figure 2.41

7. Remove the iron plate on the rear side of VESA cover. (See Figure 2.42) Then lock VESA cover as shown in Figure 2.43. Lastly, replace the rear cover and fix it to finish the installation.

Note! *Please keep the two screws removed from VESA cover for the future installation of the MSATA.*

Figure 2.42

Figure 2.43

B. Installing a CF Card Module

1. Follow steps 1 ~ 3 in Section A.
2. Take the CF module from the module box and remove the two screws on iron tray.Fix the metal tray to the bottom of the CF card, and insert it in the direction as indicated in the below figure. Then connect the SATA+SATA Power line. (See Figure 2.34)
   The assembled CF card module is shown in Figure 2.44.

Note! *When installing the CF card, the metal tray should be installed on the bottom.*

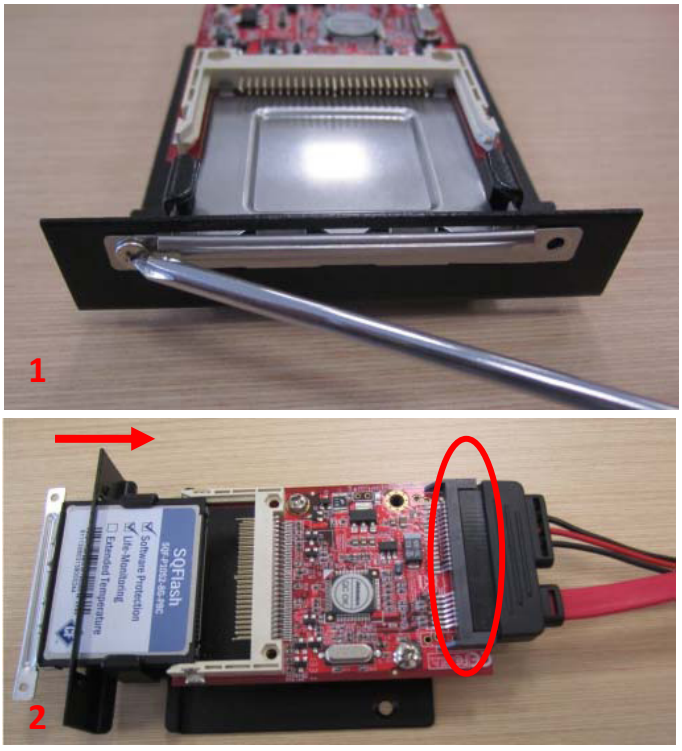


Figure 2.44

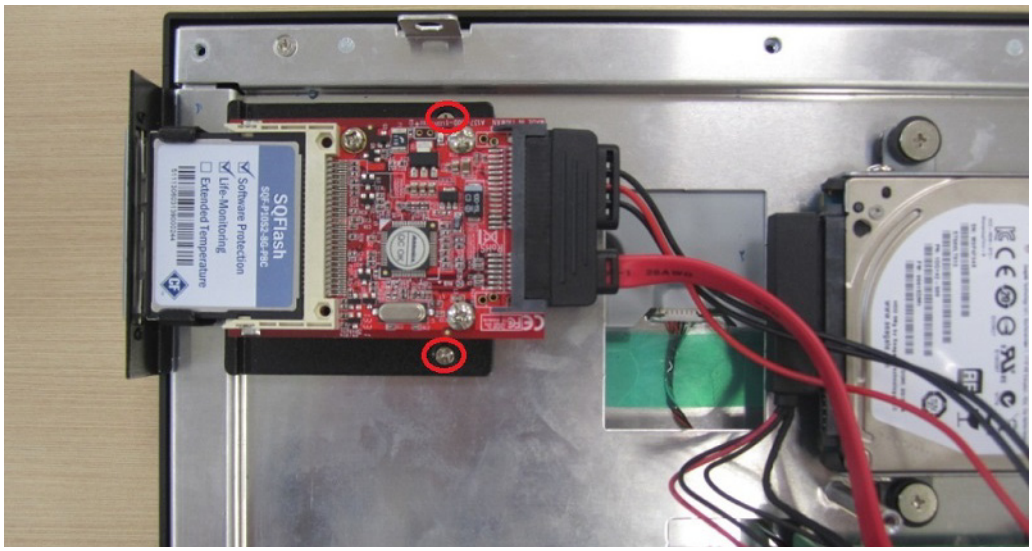


Figure 2.45

3. Follow Step 5 in Section A to fix Mini-SATA to SATA board.
4. Connect the other end of SATA+SATA Power line, then bind the cables with a cable tie. (See Figure 2.46)

Figure 2.46

5. Follow Step 7 in Section A to fix VESA cover.(See Figure 2.47) Then replace the rear cover and fix it to complete the installation.

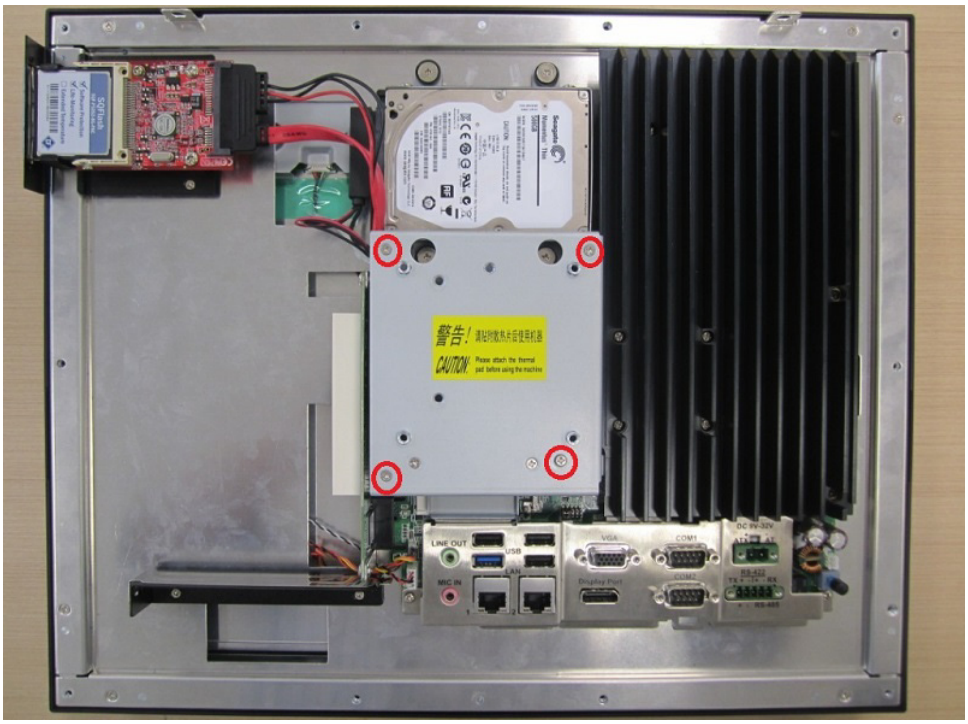


Figure 2.47

Note! *The module does not support AHCI mode, which should be configured in the BIOS. Refer to Section 4.2.8 for details.*

C. Installing USB Module

1. Follow steps 1 ~ 2 in Section A.
2. Take USB module out of module box and use the two screws to fix it. Then connect the other end of the USB cable and bind it with a cable tie. (See Figure 2.48)

Figure 2.48

3. Fix the VESA cover as shown in Figure 2.49. Then replace the rear cover and fix it to finish the installation.

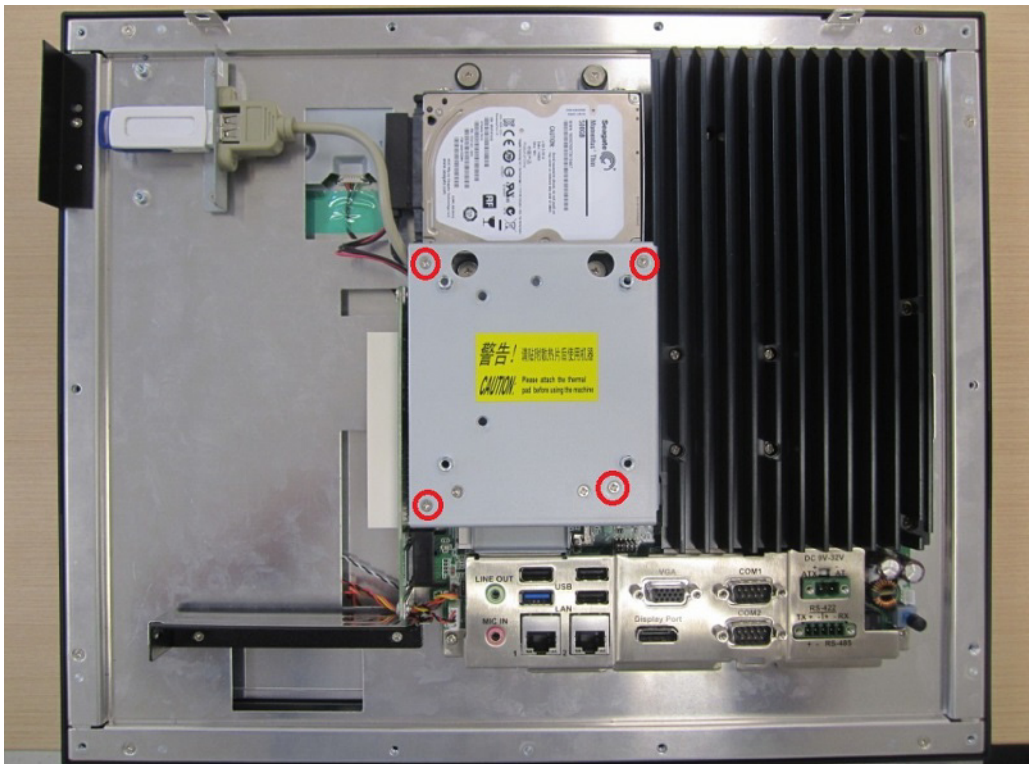


Figure 2.49

Note! *If a USB device is inserted, the length of it should not exceed 65 mm. (See Figure 2.50)*

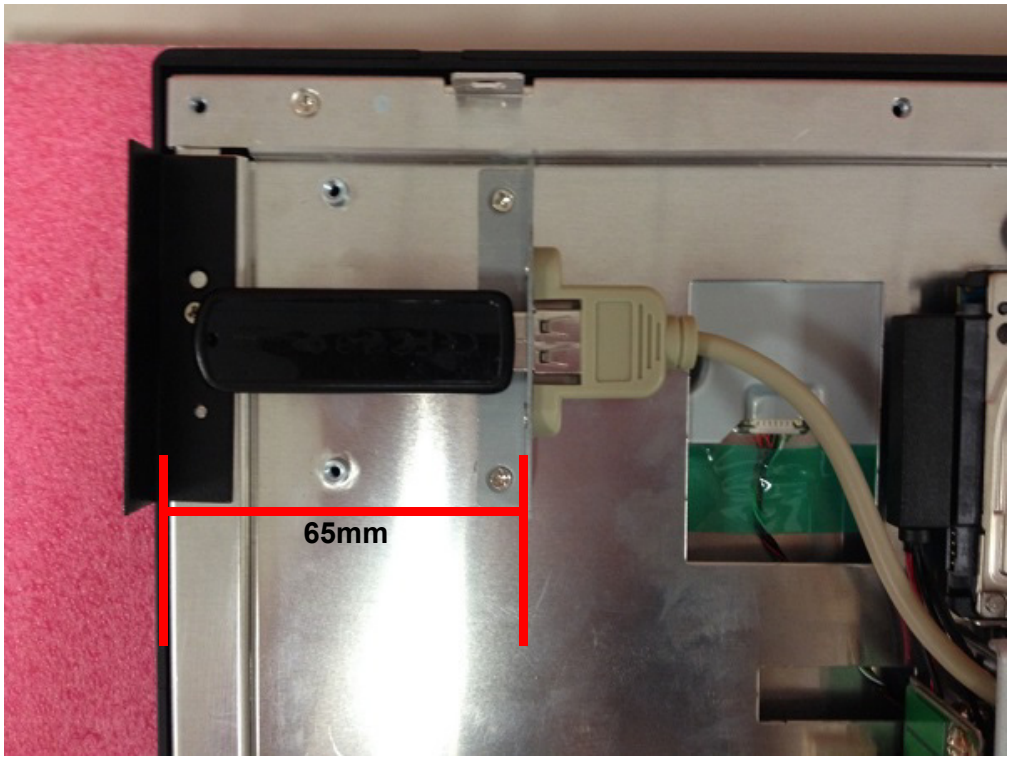


Figure 2.50

D. Installing COM Module

There are two ways to fix a COM cable: One is to fix it onto the COM cover (default); the other is to fix in onto the shield of the expansion card. See below for details.

D.1 Installing COM module onto the side I/O shield:

1. Follow steps 1 ~ 3 in Section A.
2. Take the COM module out of module box and fix it with two screws. Then connect COM cable and bind it with a cable tie. (See Figure 2.51)

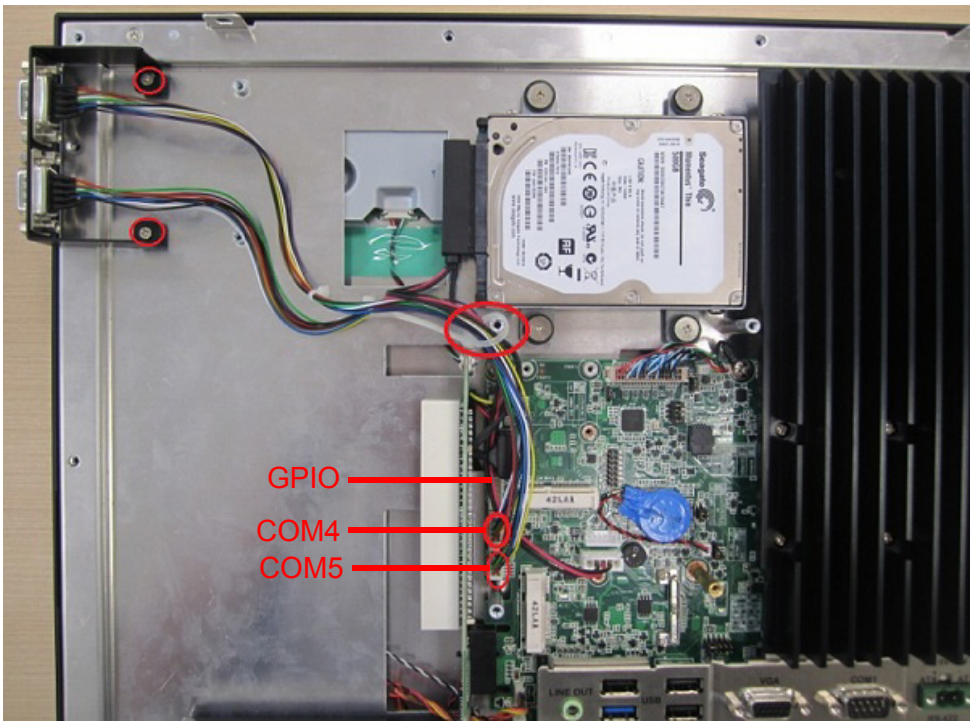


Figure 2.51

3. Fix VESA ironware as shown in Figure 2.52. Then replace the rear cover and fix it to finish the installation.

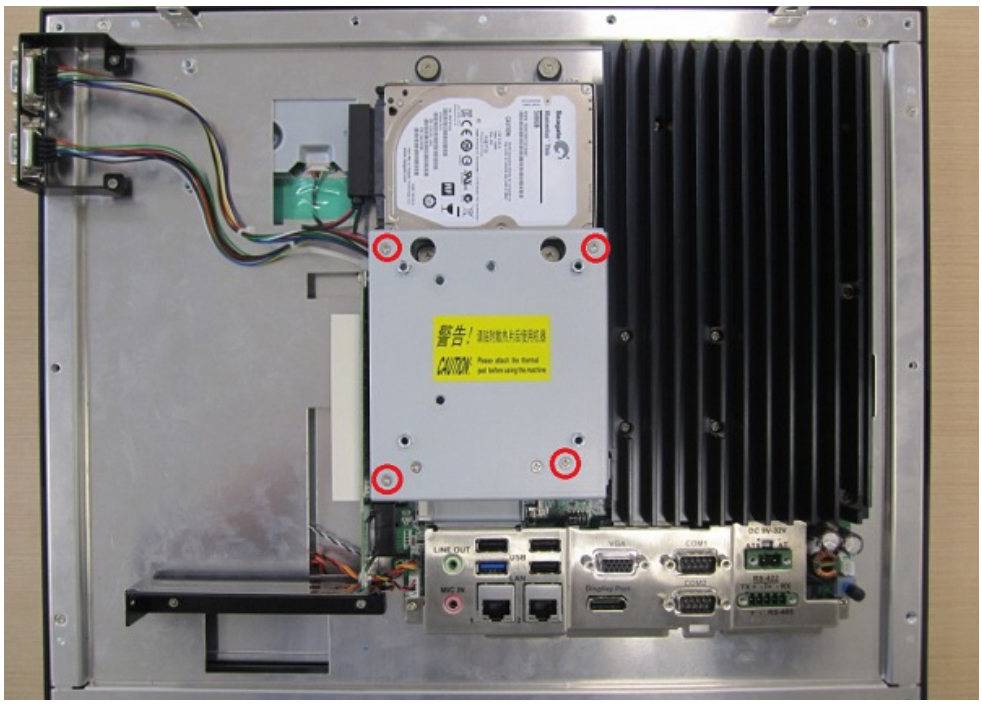


Figure 2.52

D.2 Installing a COM module on the expansion slot:

1. Follow steps 1 ~ 2 in Section A.
2. Remove two COM cables from COM ironware and fix it onto the shield of expansion slot. (See Figure 2.53)

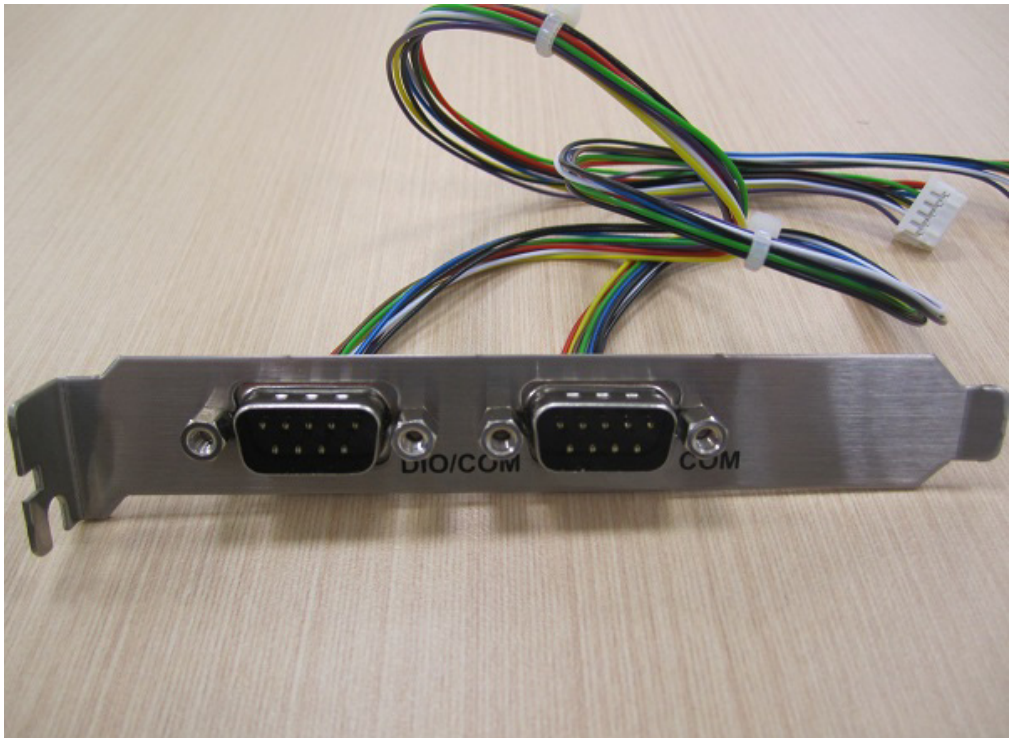


Figure 2.53

3. Remove the two screws on the riser card and the screw on the shield of expansion slot. (See Figure 2.54)

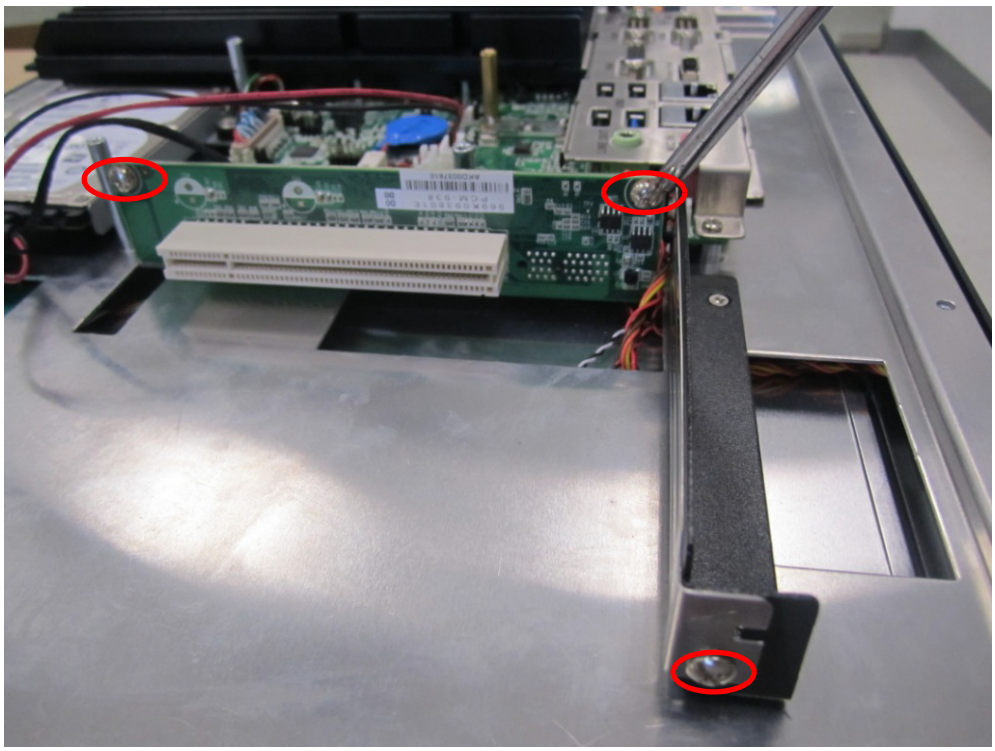


Figure 2.54

4. Fix COM module on the blade of expansion slot. Then connect two COM cables and bind them with cable ties. (See Figure 2.55)

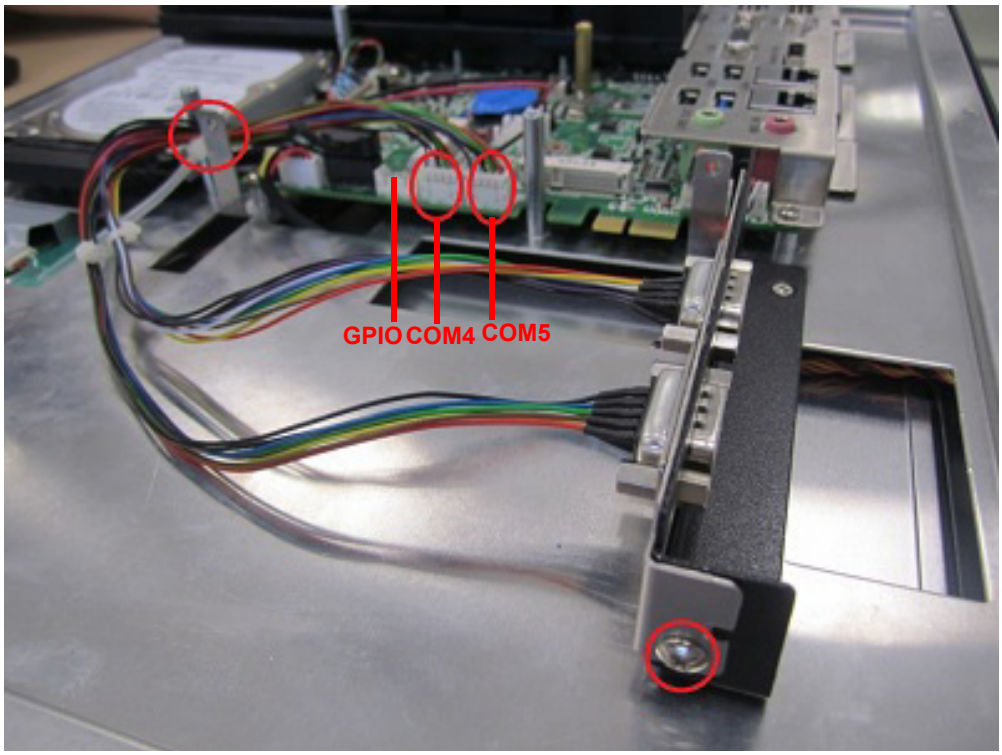


Figure 2.55

5. Fix VESA cover as shown in Figure 2.56. Then replace the rear cover and fix it to finish the installation.

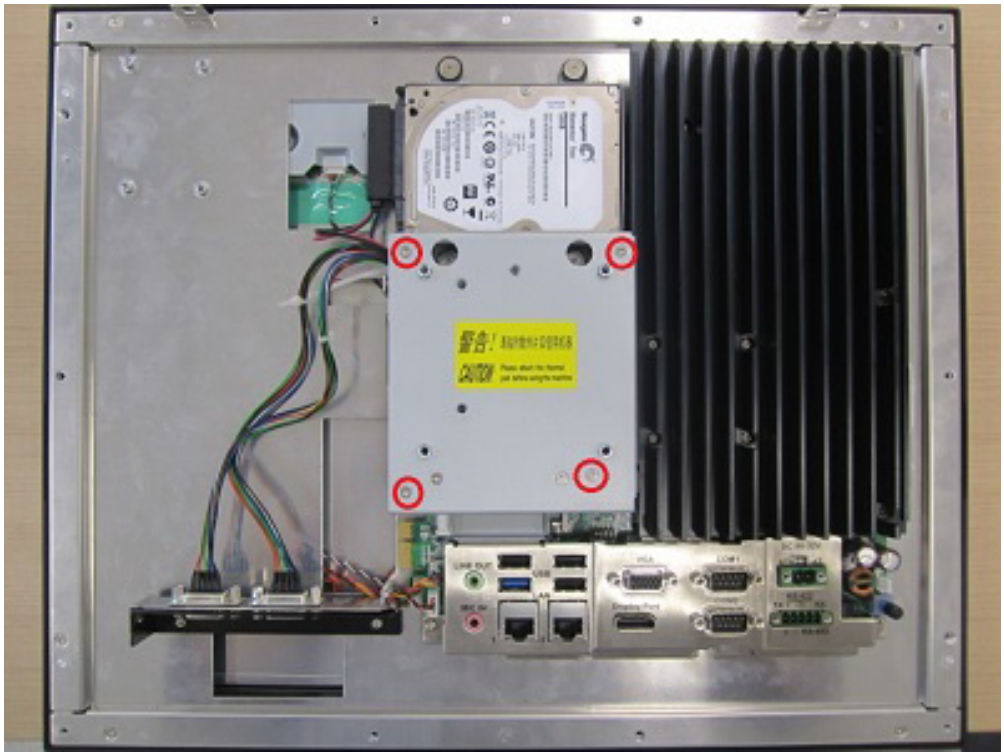


Figure 2.56

Chapter 3

Jumper Setting

Sections include:

- **Jumpers and Connectors**
- **External COM Ports and Pin Definitions**

3.1 Jumpers and Connectors

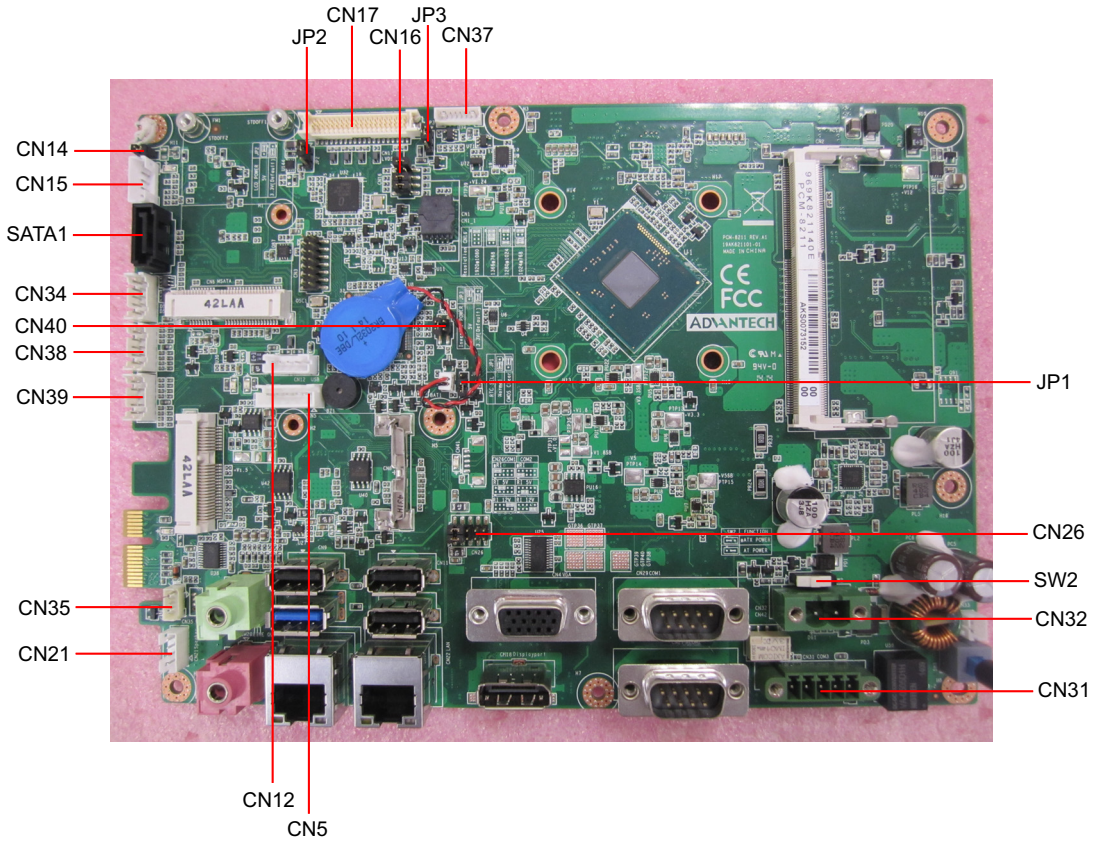


Figure 3.1

Connector	Function
CN5	SATA1 power
CN12	Internal USB
CN14	Touchscreen power
CN15	Touchscreen connector
CN16	LCD selection
CN17	LVDS
CN21	Speaker
CN26	Pin9 power selection (COM1 & COM2)
CN31	Isolated COM
CN32	Input power
CN33	Power button
CN34	GPIO
CN35	SMBUS
CN37	Driving board
CN38/39	COM4/COM5
CN40	USB HUB (Select by switch)
SW2	ATX/AT switch
JP1	Clear CMOS
JP2/JP3	LCD power selection
SATA1	SATA1

JP1	Icon	RTC Selection	
(2-3)	P1	Normal*	Default*
(3-4)	P2	Clear CMOS	

P1

P2

JP2	Icon	LCD Power	
(1-2)	P3	5V	
(2-3)	P4	3.3V	Default*

P3

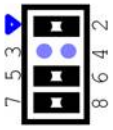
P4

JP3	Icon	Driving Board Power	
(1-2)	P5	5V	
(2-3)	P6	3.3V	Default*

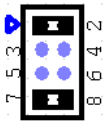
P5

P6

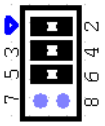
CN16	Icon	Resolution	
(1-2)(5-6)(7-8)	P7	1024*768 24bit	Default* (PPC-3150)
(1-2)(7-8)	P8	1280*1024 24bit	Default* (PPC-3170/3190)
(1-2)(3-4)(5-6)	P9	1366*768 18bit	
(1-2)	P10	1920*1080 24bit	



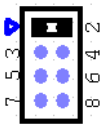
P7



P8

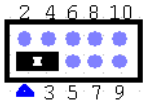


P9

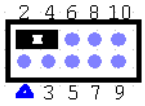


P10

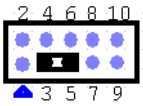
CN26		COM1/2 RI Type Selection	
(1-3)/(2-4)	P11/P12	COM2/COM1 RI	Default*
(3-5)/(4-6)	P13/P14	COM2/COM1 5V	
(7-9)/(8-10)	P15/P16	COM2/COM1 12V	



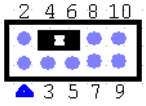
P11



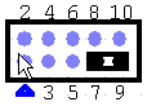
P12



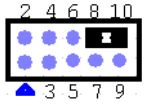
P13



P14

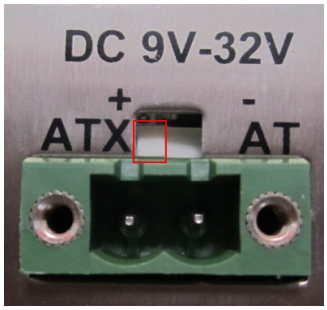


P15

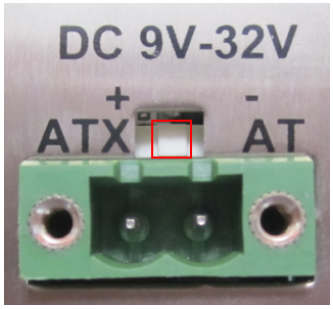


P16

SW2		AT/ATX Selection	
1-3	P17	ATX power	Default*
2-3	P18	AT power	



P17



P18

3.2 External COM Ports and Pin Definitions

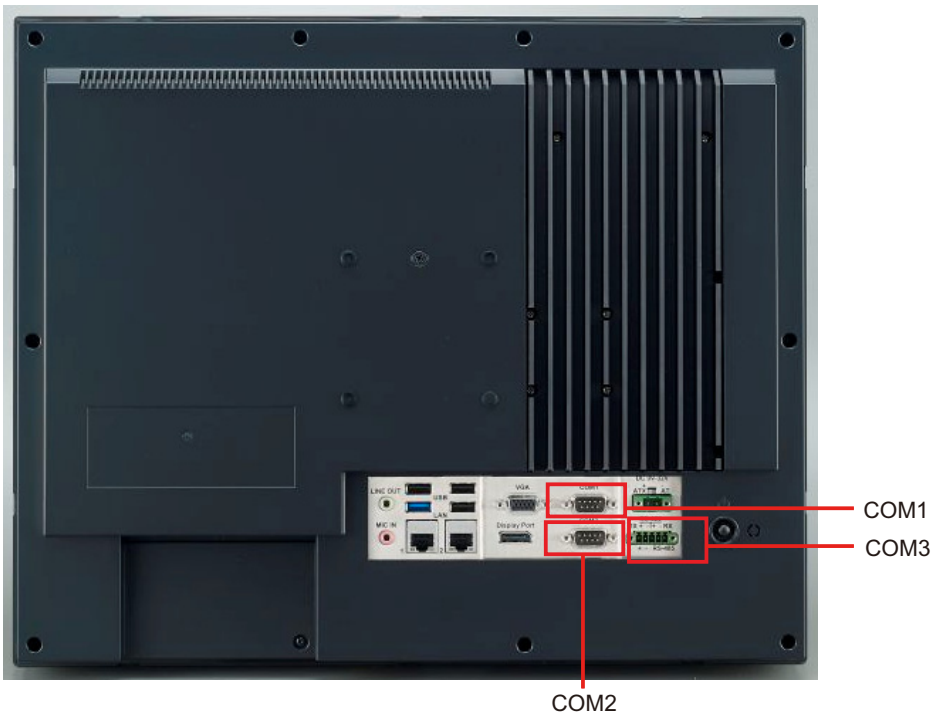


Figure 3.2

COM1 & 2 and 4 & 5: RS232, COM1 Pin9 support 5V/12V input.

COM 3: RS-422/485

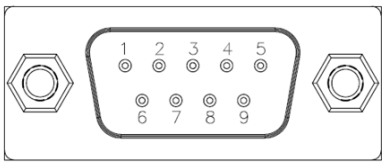
DIO: 8 bit input/output and control with SMBUS

COM1:

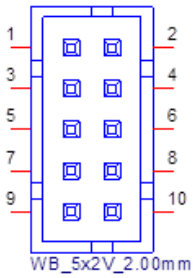
COM Pin9 is set as RI signal by default and also can be set as 5 V or 12 V output via jumper setting.

Note! *COM2 does not support RING function.*

Pin	COM 1	COM 2	CN38&39 (Internal) /COM4 & COM5	GPIO (Internal) /DIO
1	DCD	DCD	DCD	GND
2	RXD	RXD	RXD	GPIO4
3	TXD	TXD	TXD	GPIO0
4	DTR	DTR	DTR	GPIO5
5	GND	GND	GND	GPIO1
6	DSR	DSR	DSR	GPIO6
7	RTS	RTS	RTS	GPIO2
8	CTS	CTS	CTS	GPIO7
9	RING or 5V/12V input	For UPS	RING	GPIO3
10			+5V/-	+5V/-

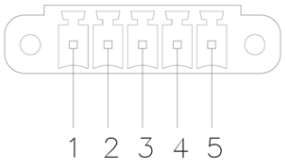


COM1 & 2 and 4 & 5 & DIO



CN38 & 39 & GPIO

COM3: RS422/485 isolated 1000 V_{DC}, which can be set in BIOS.



Pin	1	2	3	4	5
RS422	TX+	TX-	RX+	RX-	GND
RS485	D+	D-			GND

UART RS485 Auto Flow Control

COM3 supports RS485 auto flow control function.

When RS485 auto flow control function is enabled, it will drive RTS# pin to high or low level.

Chapter 4

Software Setup

Sections include:

- Installing Drivers
- BIOS Setup Program

4.1 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 CD-ROM out of the accessory box and insert it into the system.

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

Windows 8: All drivers needed when installing on Windows 8.

Windows 8.1: All drivers needed when installing on Windows 8.1

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

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

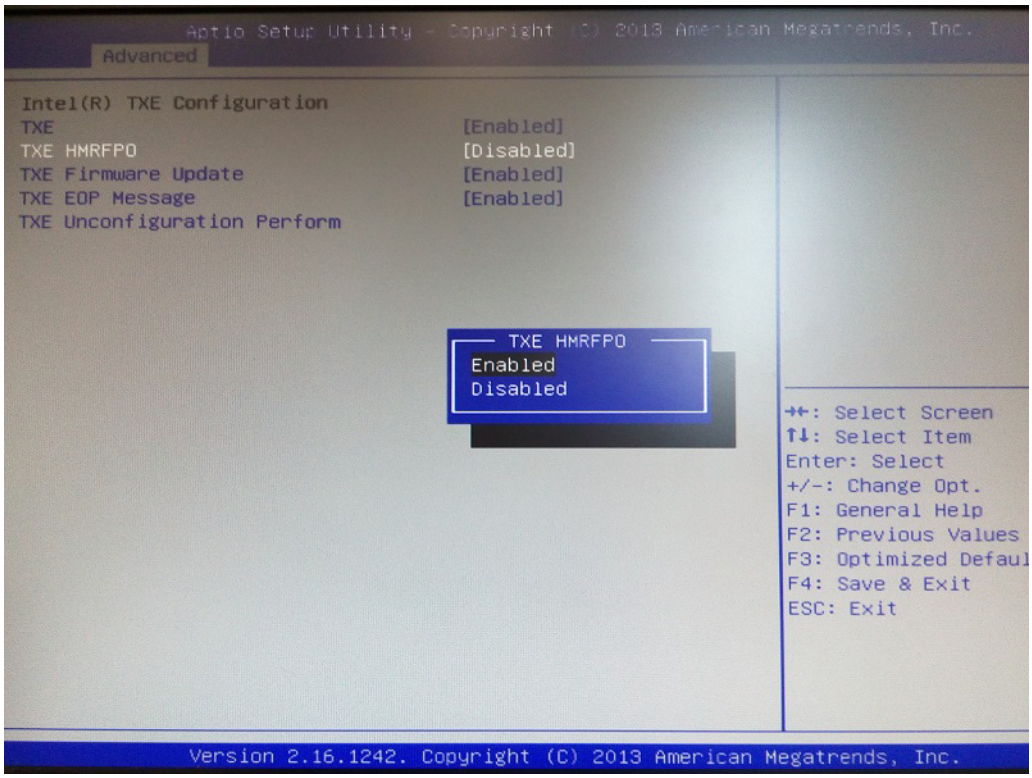
http://www.advantech.com/

Note! *Before Windows 8.x or Android is installed, firstly change the BIOS settings as explained in page 60; otherwise, the installation will fail. If Windows 7 is installed, it is not necessary to change the BIOS settings.*

4.2 BIOS Setup Program

4.2.1 Update BIOS

1. When entering the BIOS menu, select “Advanced → Security configuration → TXE HMRFPO → Enabled”.

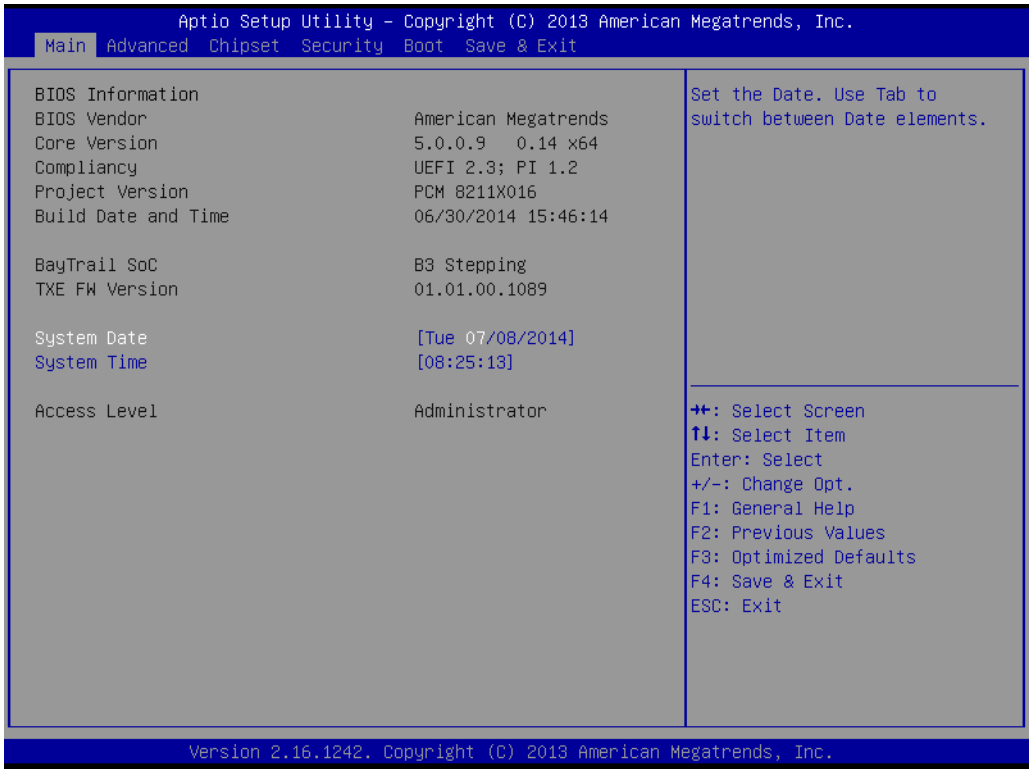


2. Restart the computer.
3. Execute AFUDOS 8211BIOS.bin /P /B /N /X /ME.
4. Power on the system again after it is powered off.
5. The BIOS is then updated.

4.2.2 Entering BIOS Setup

When the power is turned on, press the <Del> button to enter BIOS setup screen.

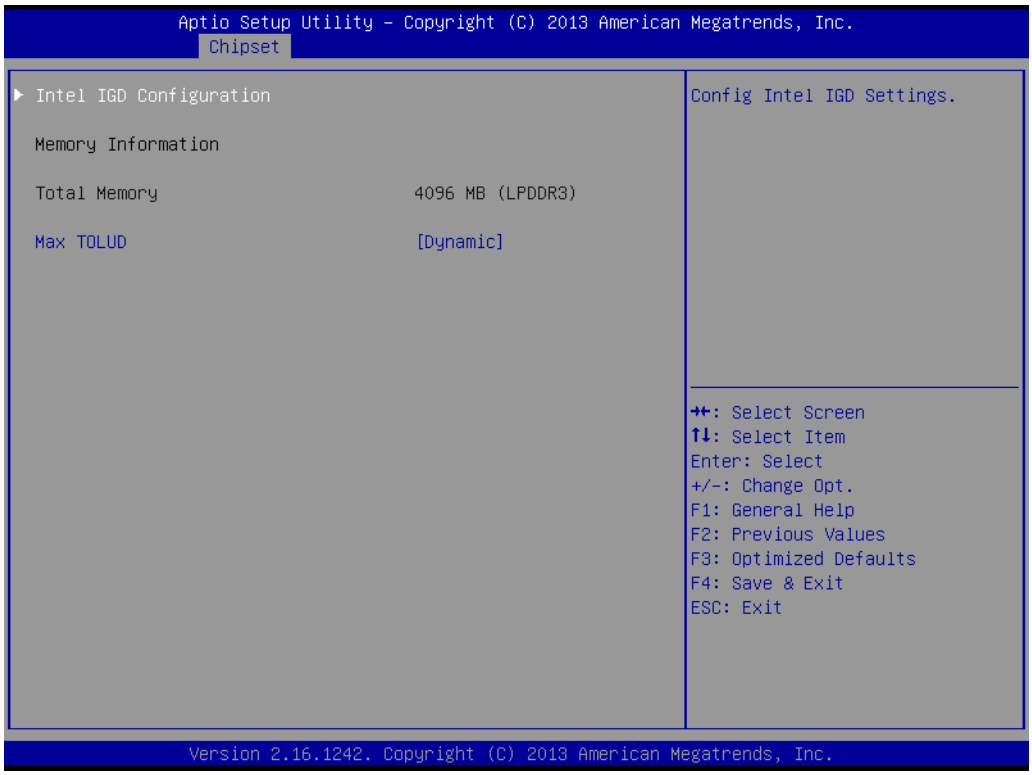
Whenever a change is made, press <F4> to save and exit; otherwise the settings will not be saved in the BIOS.



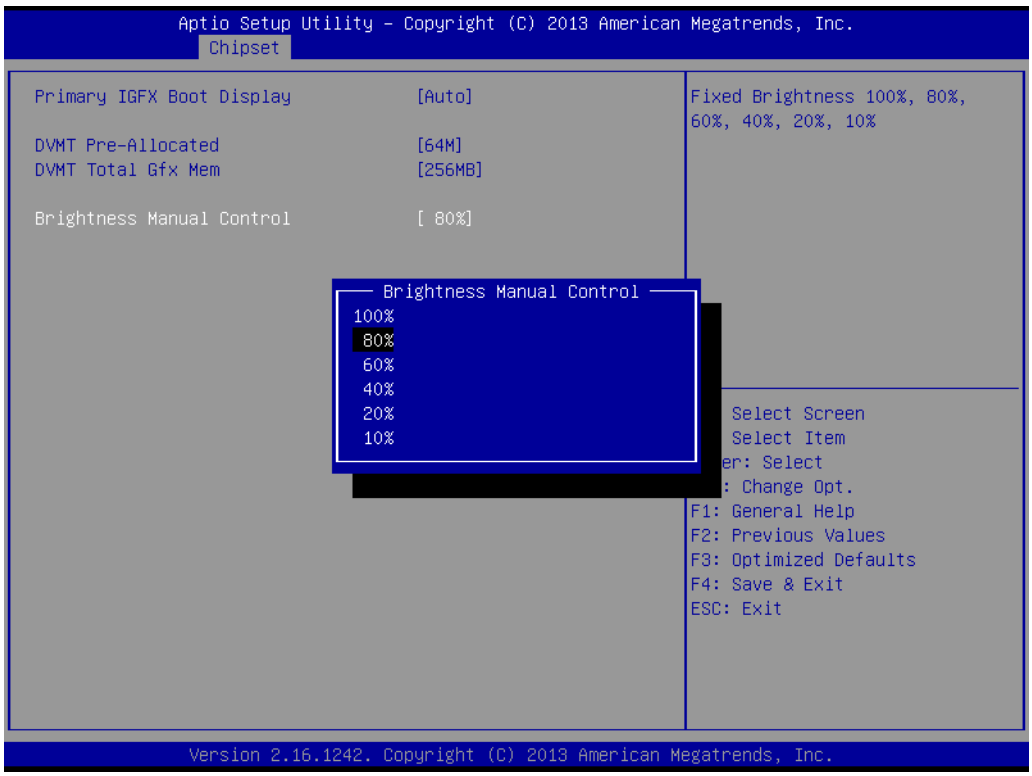
4.2.3 Adjustment of LCD Brightness

1. Select “Host Bridge” in “Chipset” tab.

2. Then select “Intel IGD Configuration”.

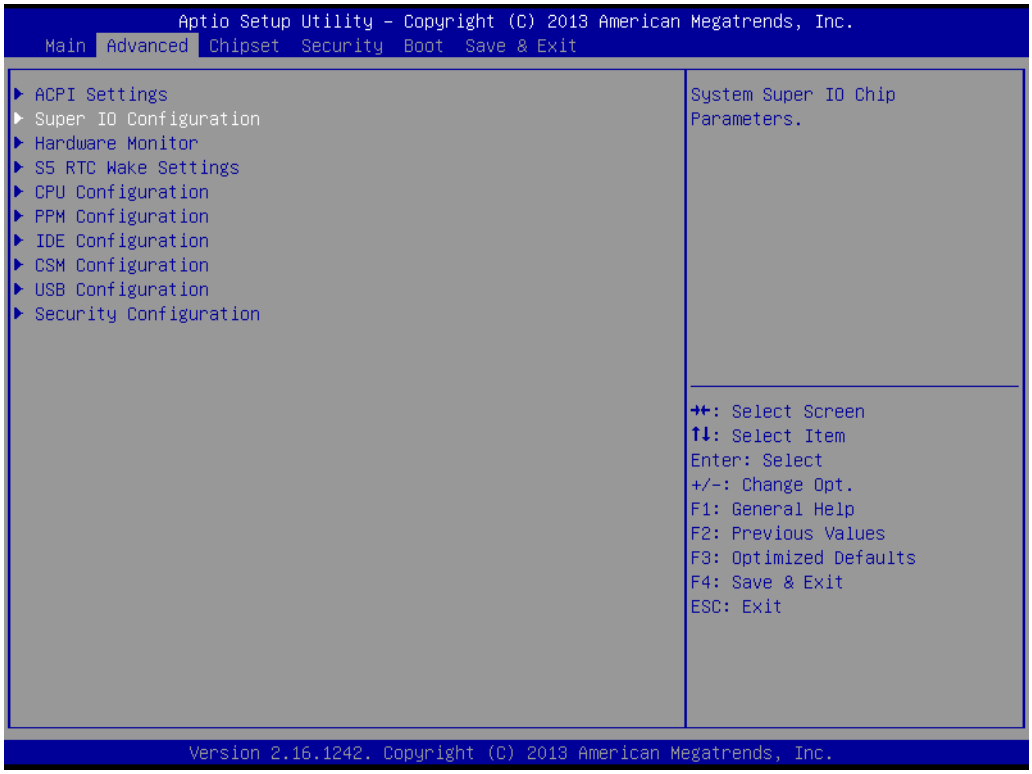


3. “LCD Brightness Control” is set to “Manual Mode” by default, which means you should adjust the brightness by yourself.
Select “Brightness Manual Control” under “Brightness Control” and there will be six brightness levels to choose.

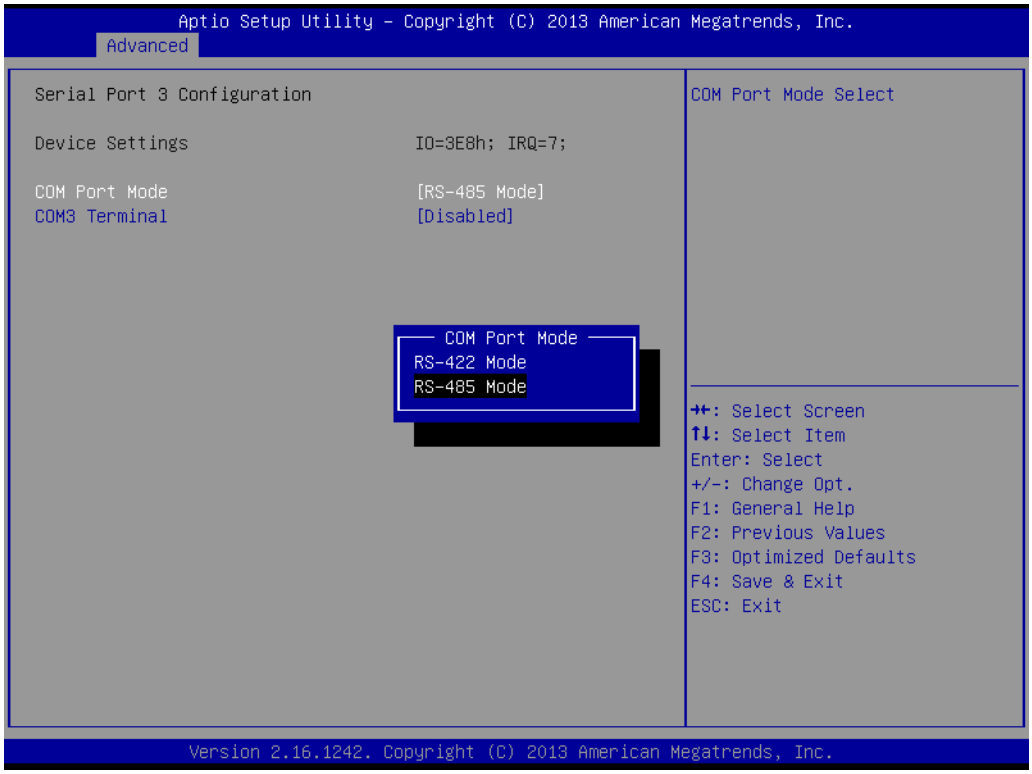


4.2.4 COM3 Mode Selection (RS422/RS485)

1. Select “Super IO Configuration” in the “Advanced” tab.

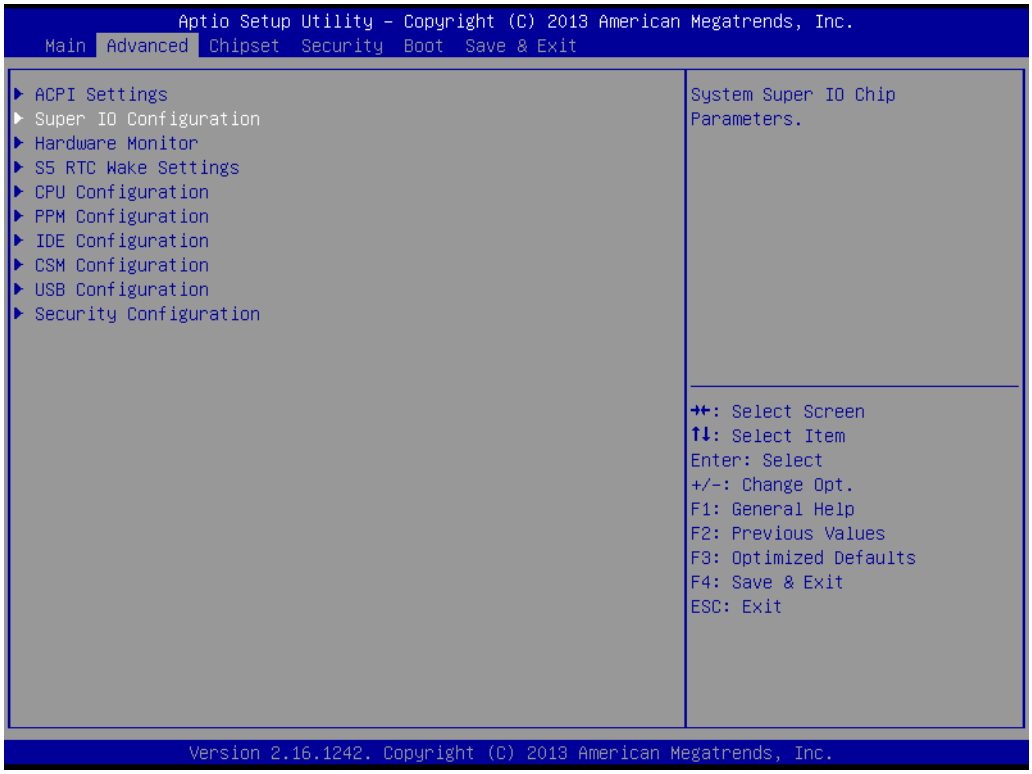


2. Select "Serial Port 3 Configuration" and then click "COM Port Mode" to choose the COM3 operation mode.

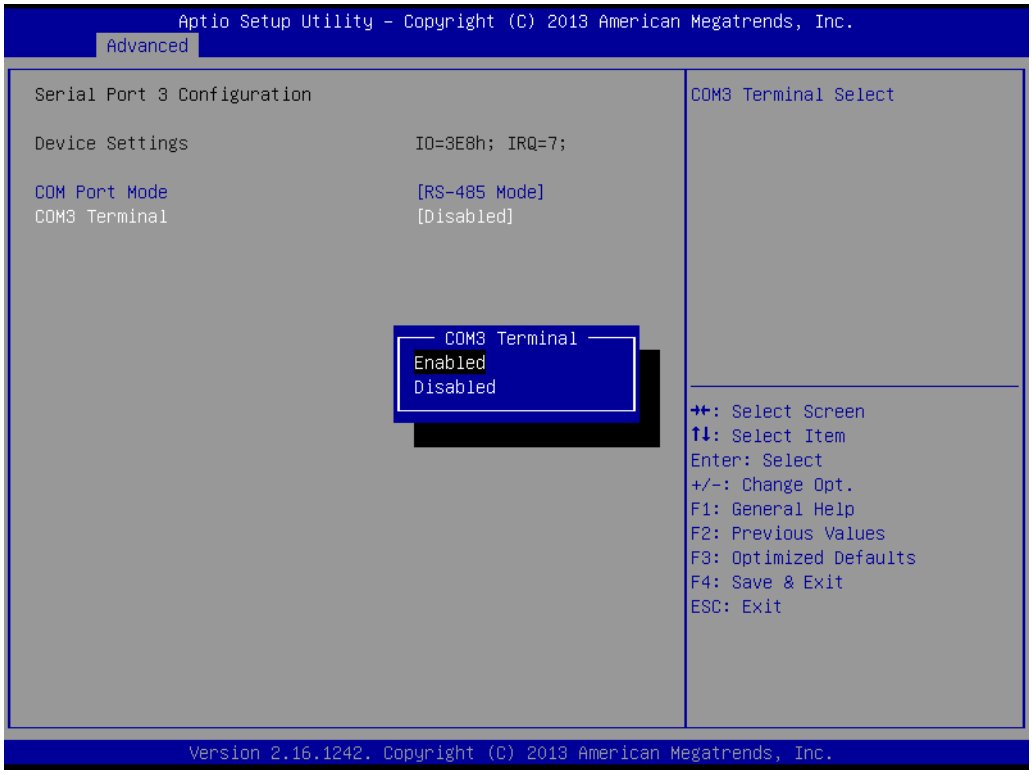


4.2.5 COM3 RS485 Terminal Selection

1. Select "Super IO Configuration" in "Advanced" tab.



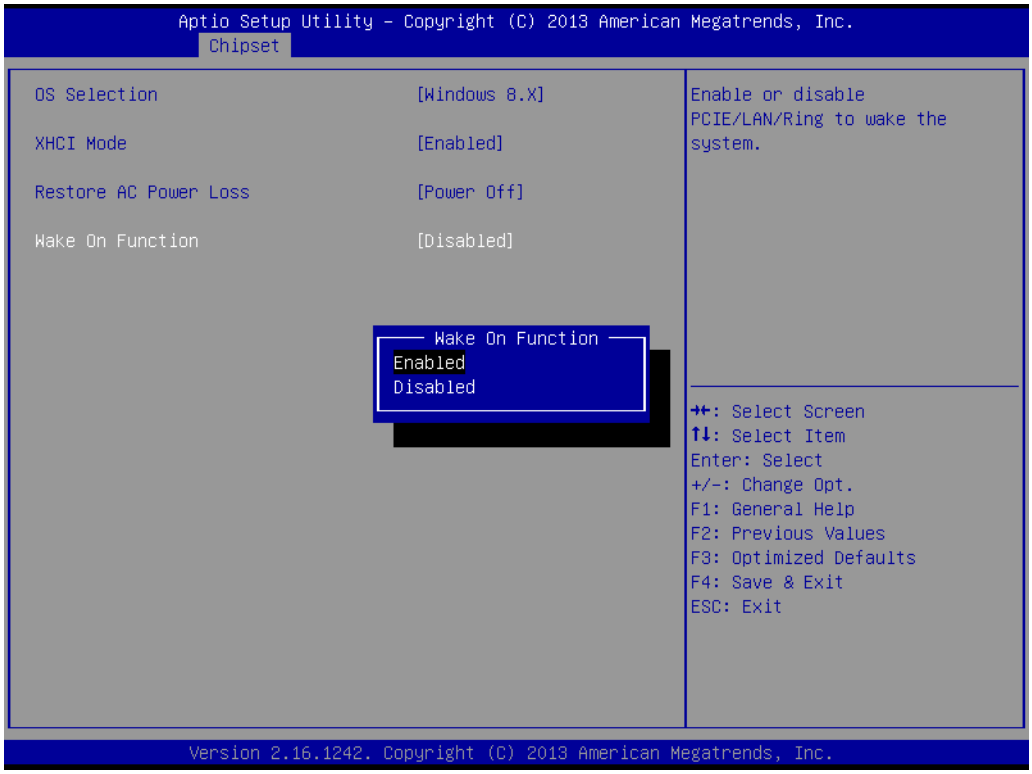
2. Set “COM3 Terminal” under “Serial Port 3 Configuration” to “Enabled”.



4.2.6 Wake on LAN

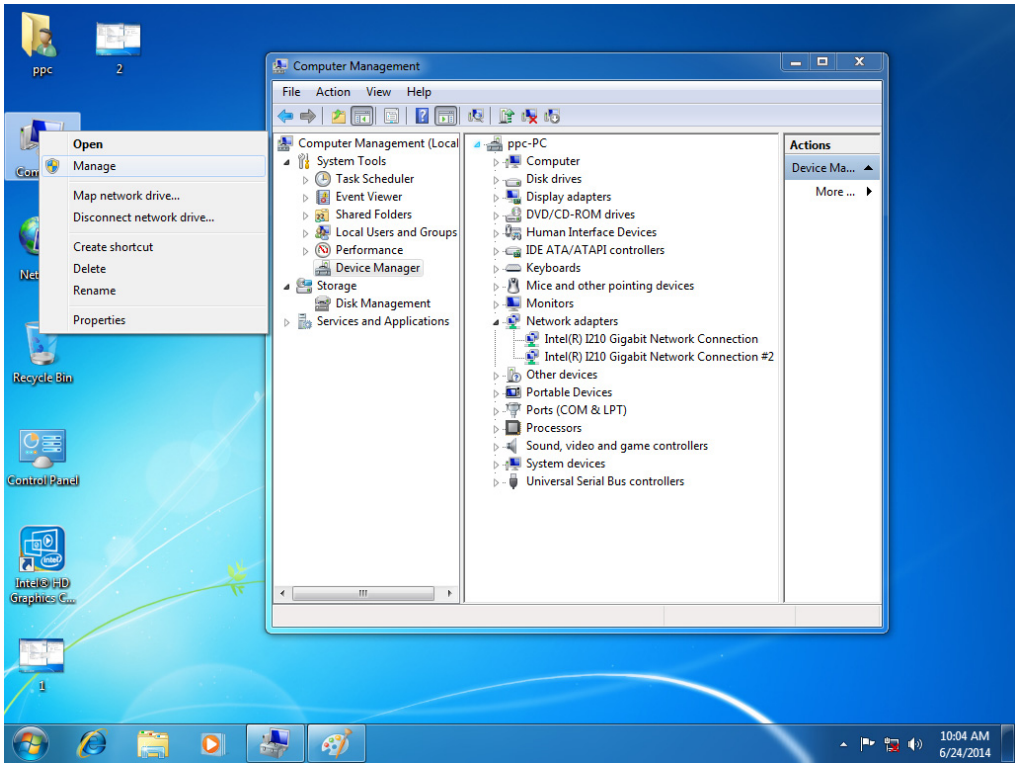
1. Select "South Bridge" in the "Chipset" tab.

2. Set “Wake on Function” to “Enabled”.

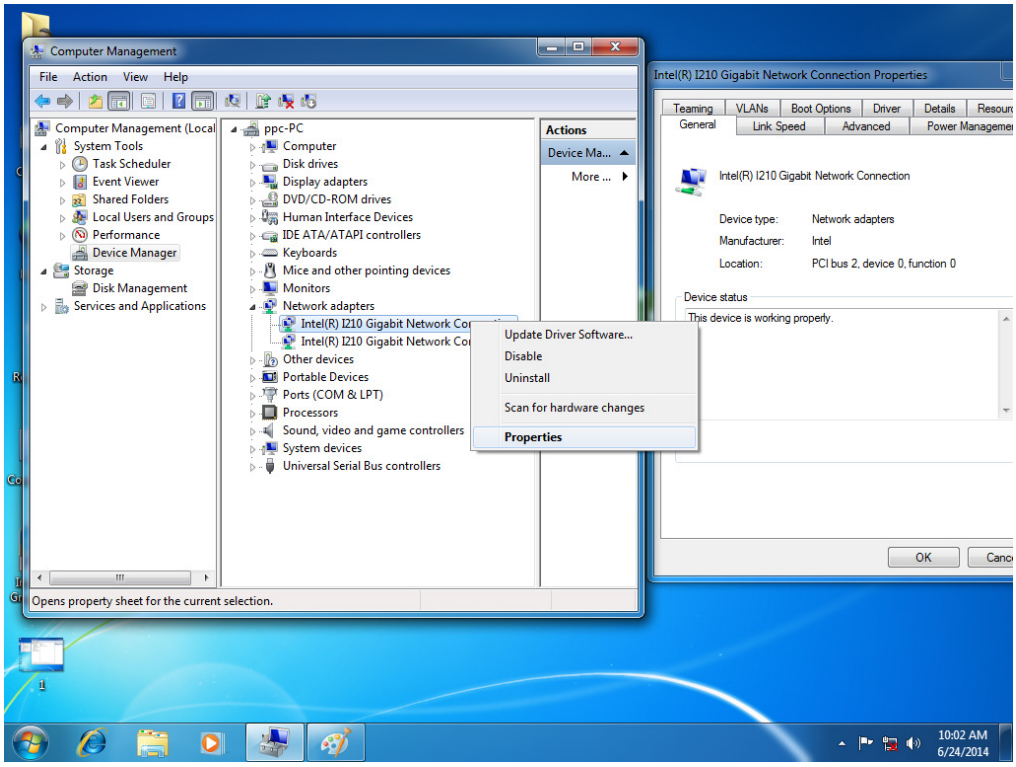


A. Wake on LAN in Windows 7

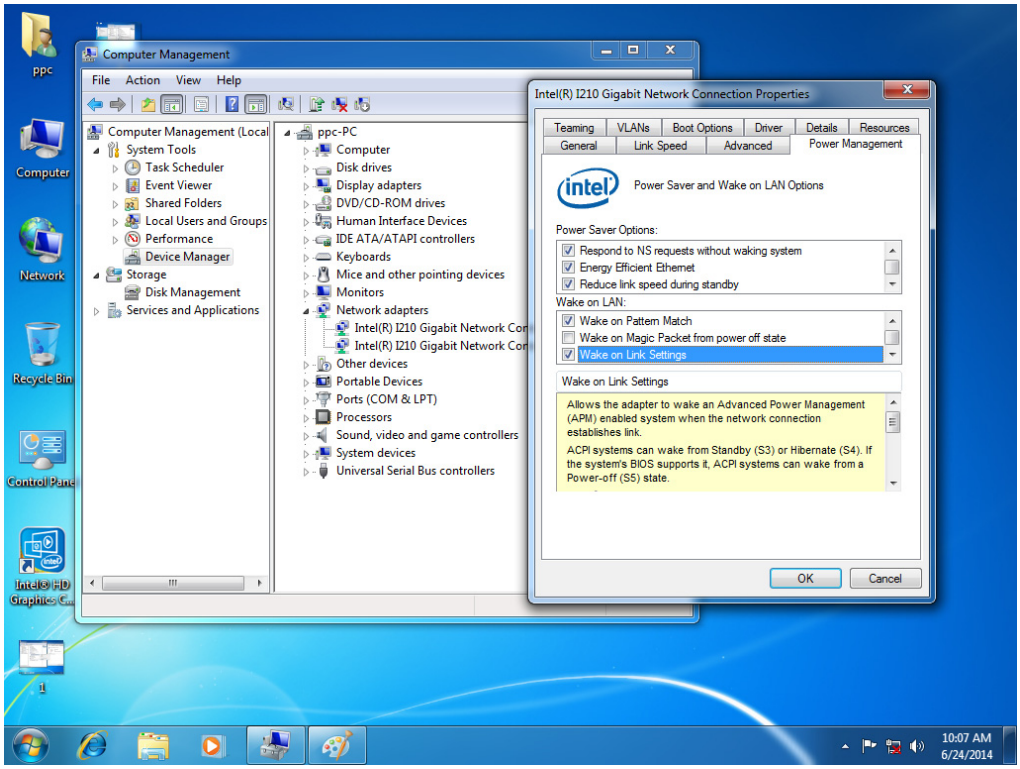
1. Save the settings and exit the OS.
2. Right-click "Computer" and select "Manage" to open the "Computer Management" window.



3. Click "Device Manager" and select "Network adapters". Right-click the desired LAN port and select "Properties" to open "Intel GBE Network Controller Properties" window.

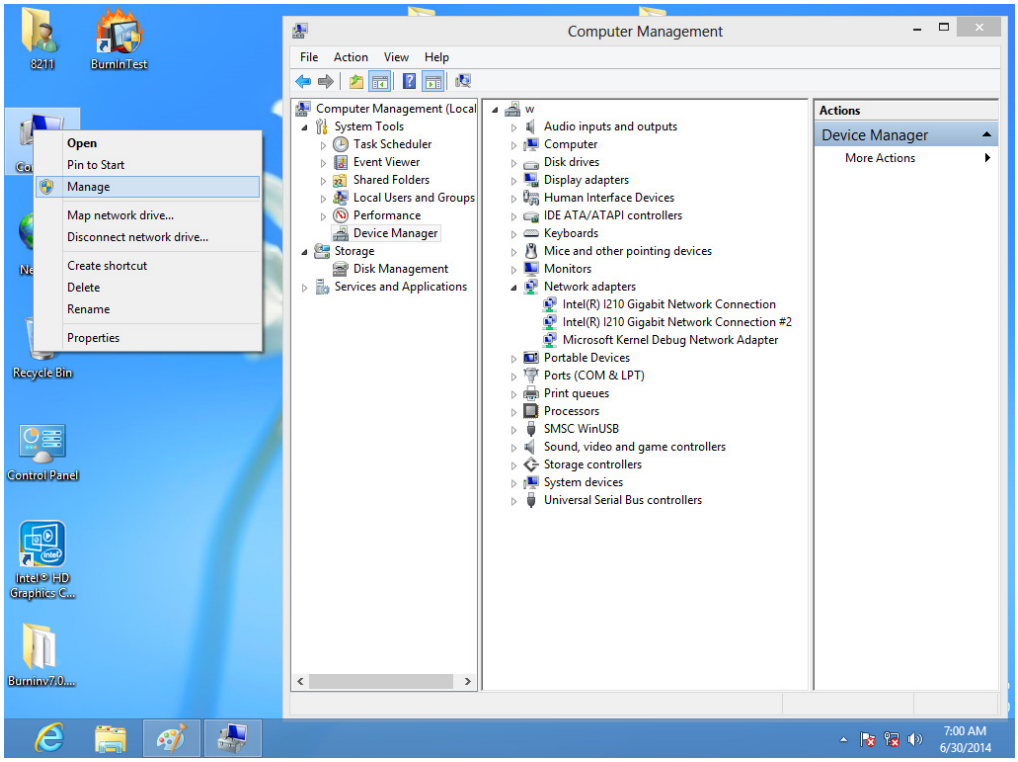


4. Select "Power Management" tab in "Intel GBE Network Controller Properties" window and make sure “Wake on link setting ”box is checked.

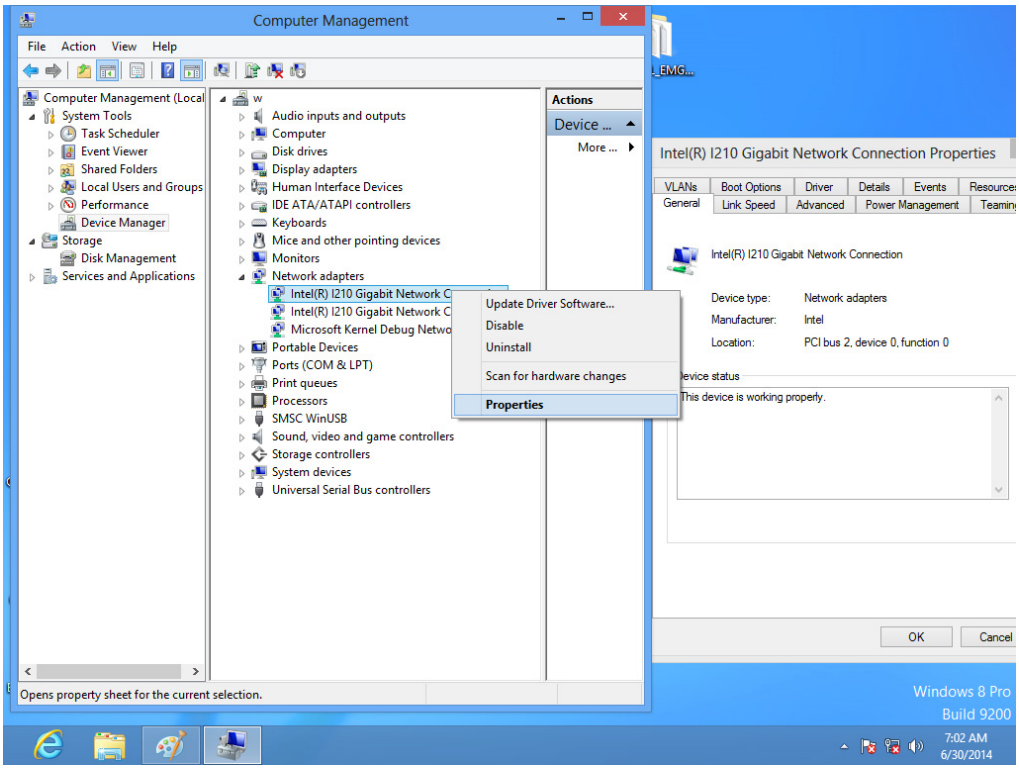


B. Wake on LAN in Windows 8

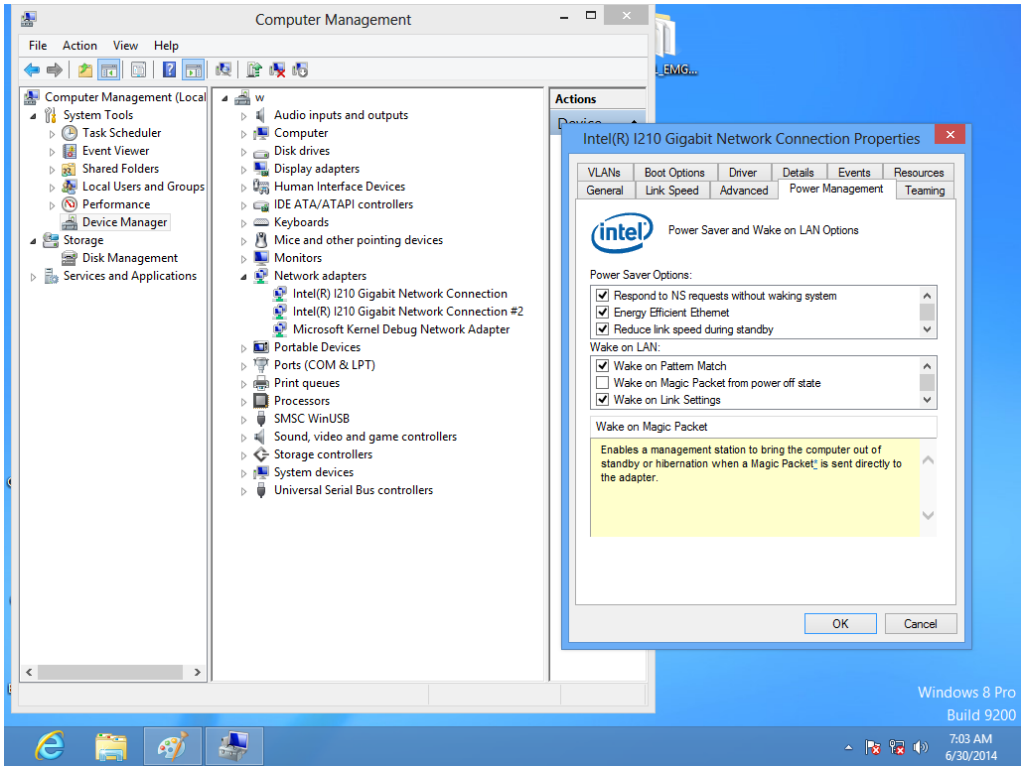
1. Save the settings and exit the OS.
2. Right-click “Computer” and select “Manage” to open the “Computer Management” window.



3. Click "Device Manager" and select "Network adapters". Right-click the desired LAN port and select "Properties" to open the "Intel GBE Network Controller Properties" window.



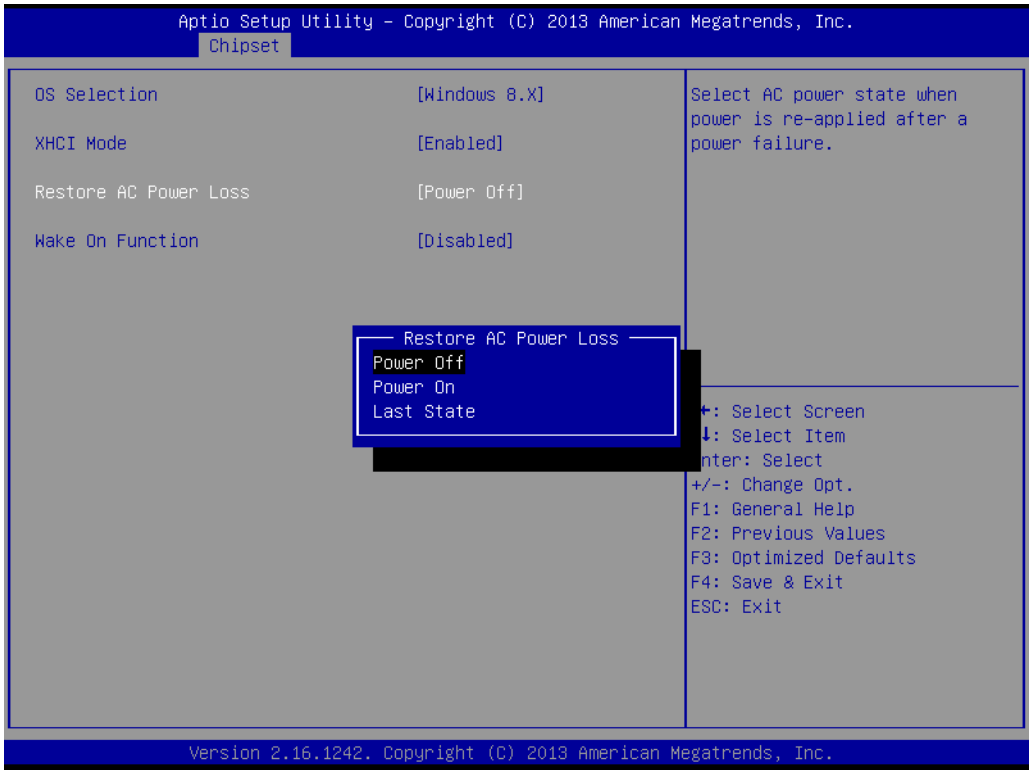
4. Select the "Power Management" tab in the "Intel GBE Network Controller Properties" window and make sure the “Wake on link setting” box is checked.



4.2.7 AT & ATX Setup

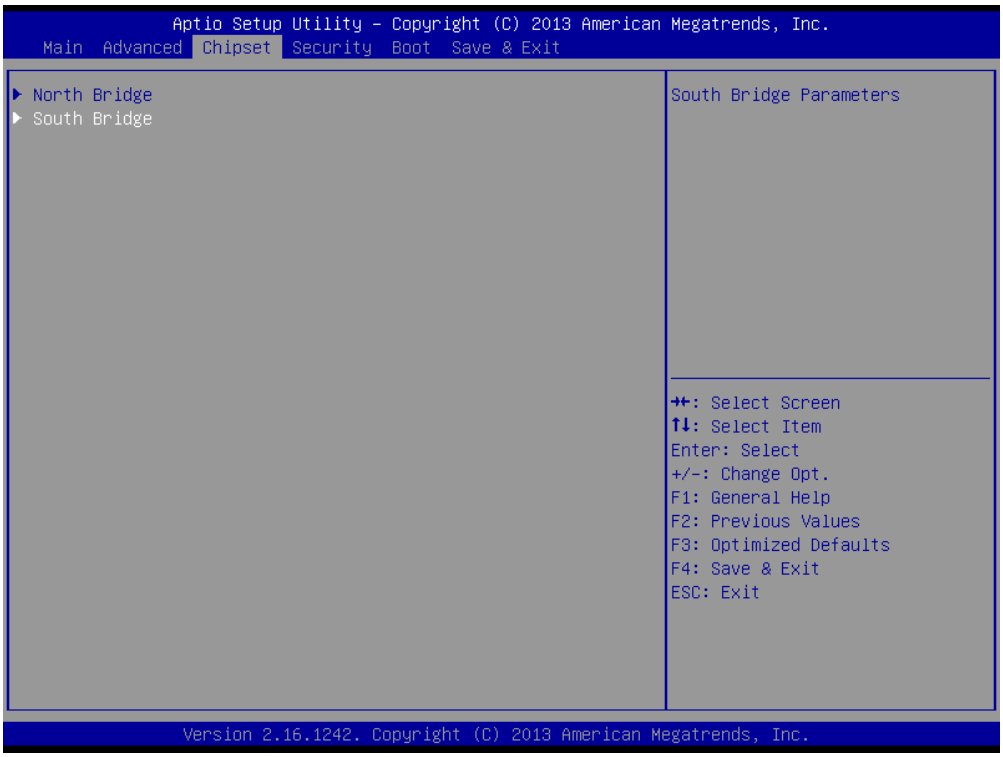
1. Select "South Bridge" in the "Chipset" tab.

2. In “Restore AC Power Loss”, set “Power On” to “AT” and “Power Off” to “ATX”.



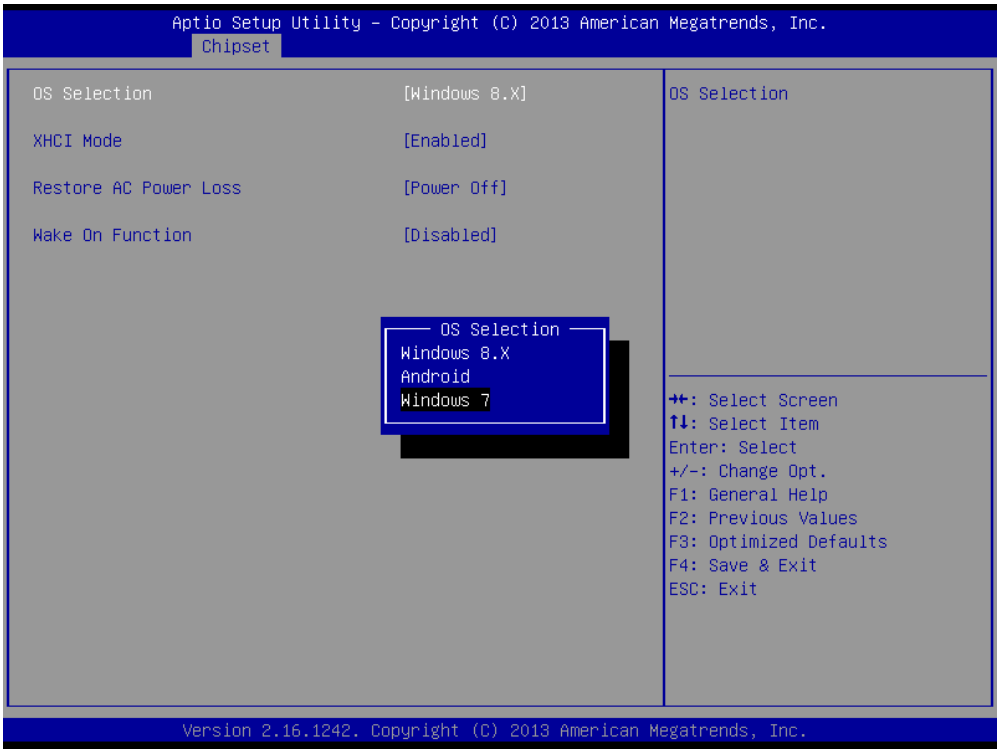
4.2.8 OS Selection

1. Select "South Bridge" in the "Chipset" tab.



2. Different OSs can be selected through “OS Selection”.

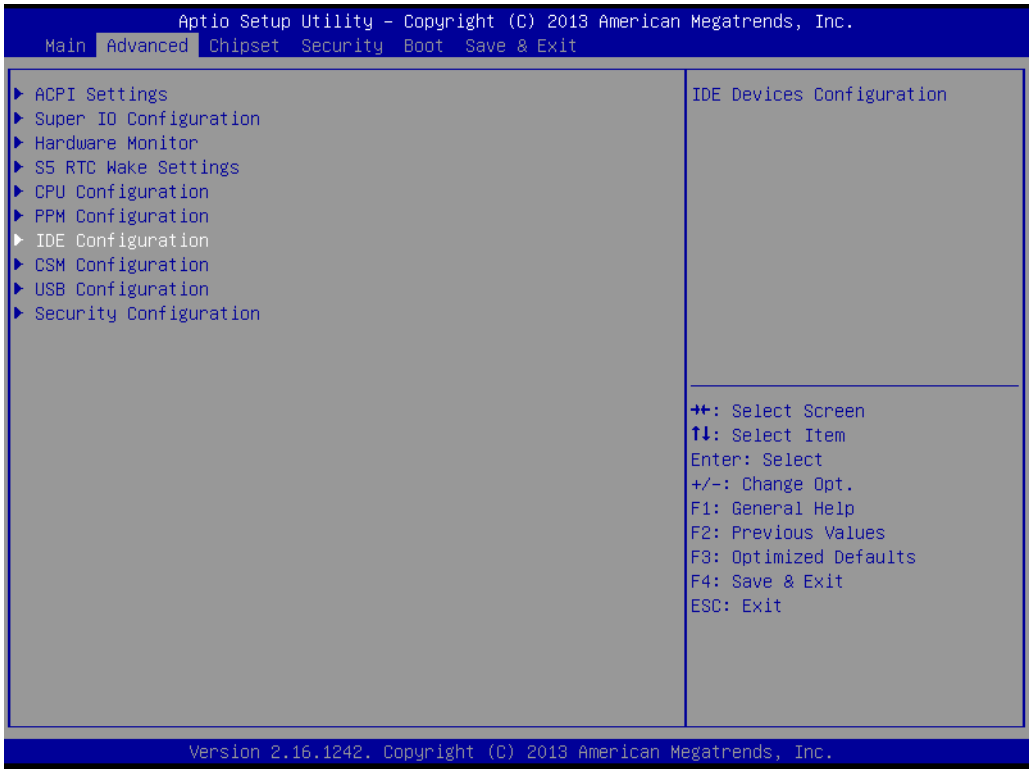
Note! *“OS Selection" is preset as Windows 7, which needs to be changed when Windows 8.X or Android OS is installed.*



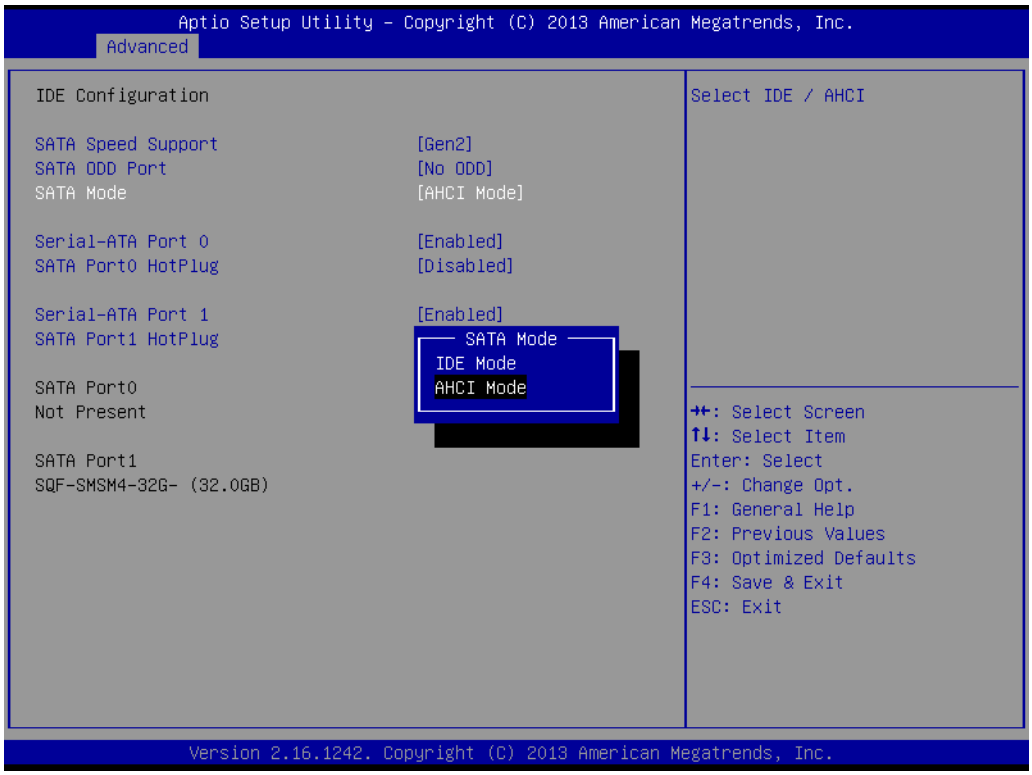
4.2.9 SATA Mode Selection

1. Select "IDE Configuration" in the "Advanced" tab.

Note! *The default mode is AHCI. IDE mode can only be selected when CF module is used.*

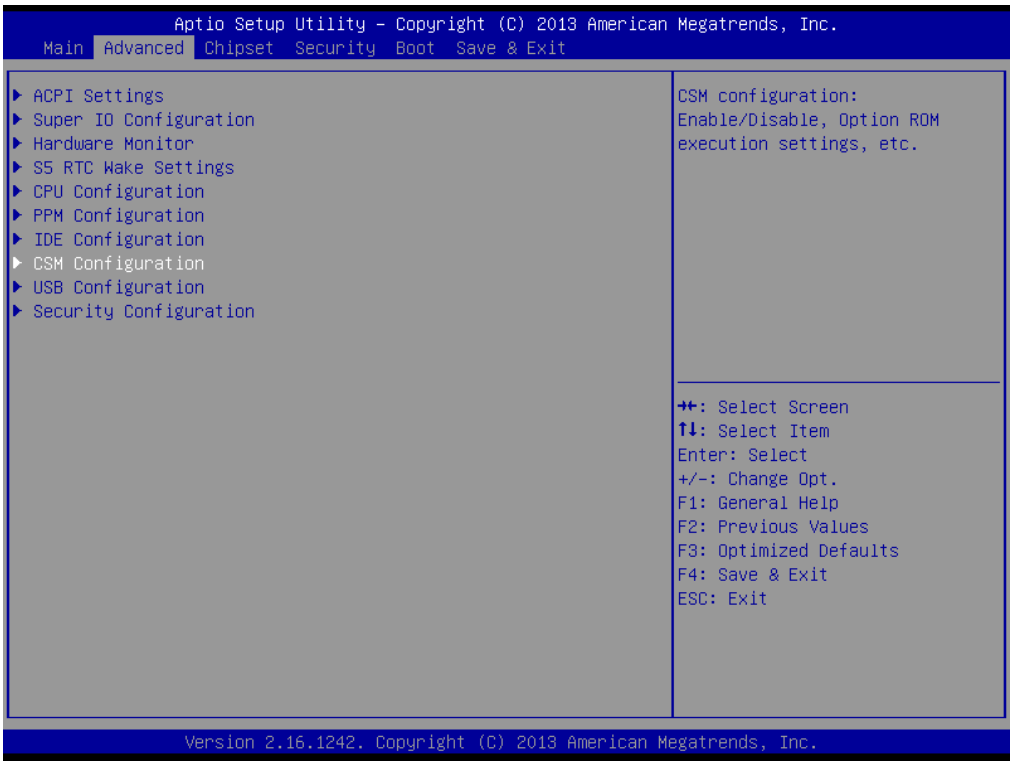


2. Select “SATA Mode”.



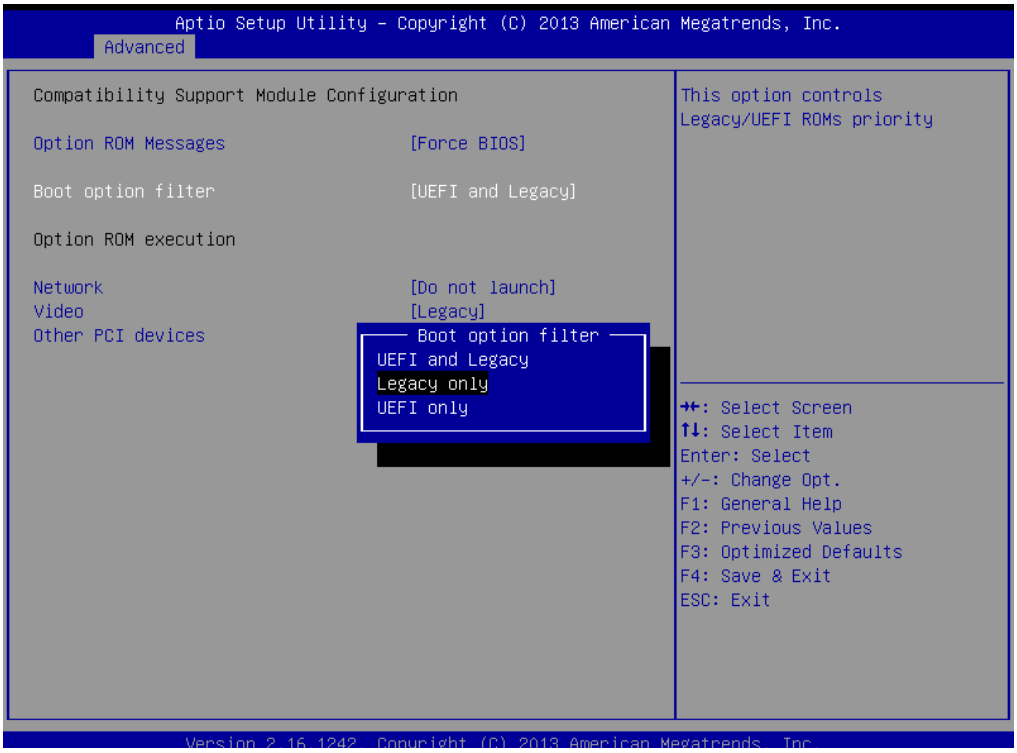
4.2.10 Boot Options

1. Select "CSM Configuration" in the "Advanced" tab.



2. Select “Boot option filter”.

Note! *Boot option is set as “Legacy only” by default. If “UEFI only” is selected, only Windows 7 64bits or Windows 8.x 64bits can be supported. If UEFI 32bit OS is required, please update BIOS.*

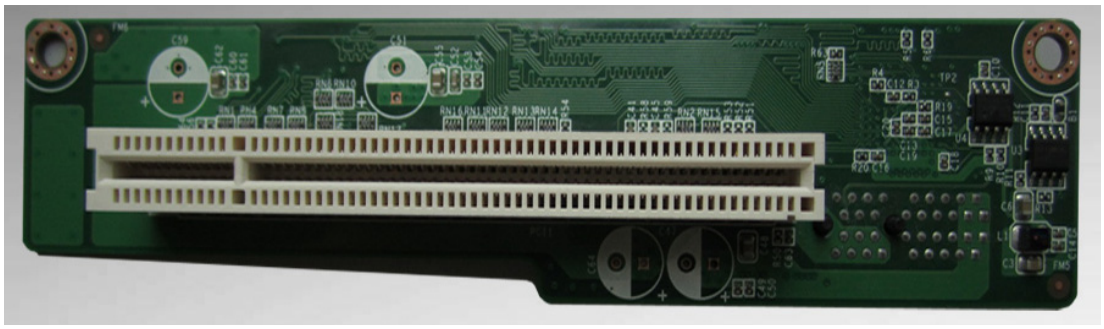


Appendix A

PCI/PCIE Photos

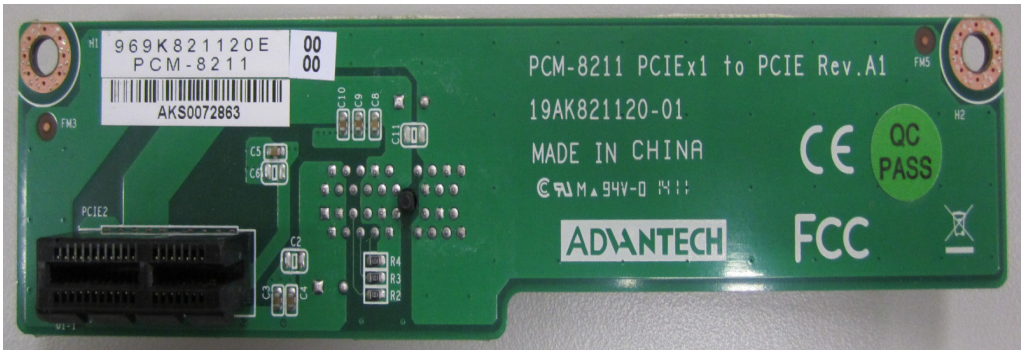
A.1 PCI/PCIE Photos

The PCM-938 PCIEx1 to PCI slot (Default. This riser card is only for the PPC-3170 & PPC-3190).

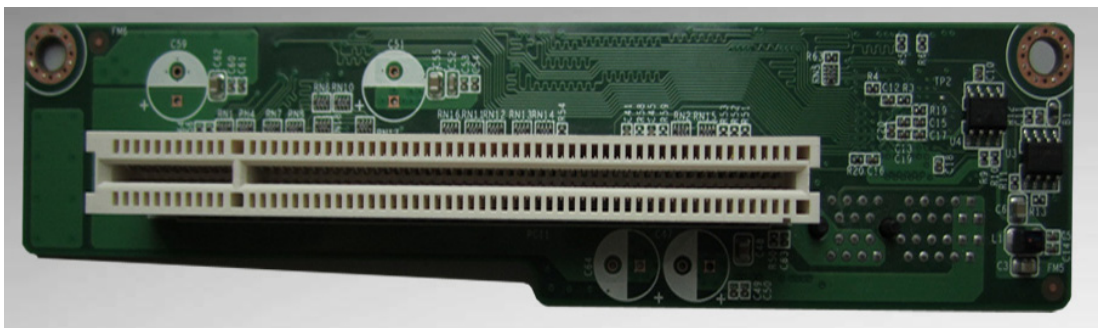


The PCM-939 PCIEx1 to PCIEx1 slot (In accessory box. This riser card is only for the PPC-3170 & PPC-3190).

969K821120E PCIEx1 to PCIEx1 slot (In accessory box. This riser card is only for the PPC-3150).



969K821130E PCIEx1 to PCI slot (Default. This riser card is only for the PPC-3150).



Note! *The maximum length of PCI or PCIE card should not exceed 176 mm, and its maximum width should not exceed 107 mm.*

The space above the card should not exceed 18 mm, and it below the card should not exceed 10 mm.

The total load current the PCIE expansion slot supports is as follows:

12 V	0.5 A
3.3 V	3 A
3.3 SB	0.375 A

The total output power for 12 V, 3.3 V and 3.3 SB should not exceed 17 W.

The total load current the PCI expansion slot supports is as follows:

12 V	0.5 A
5 V	2 A
3.3 V	3 A
-12 V	0.1A

The total output power for 12 V, 5V, 3.3 V and -12 V should not exceed 25 W.

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

All product specifications are subject to change without notice.