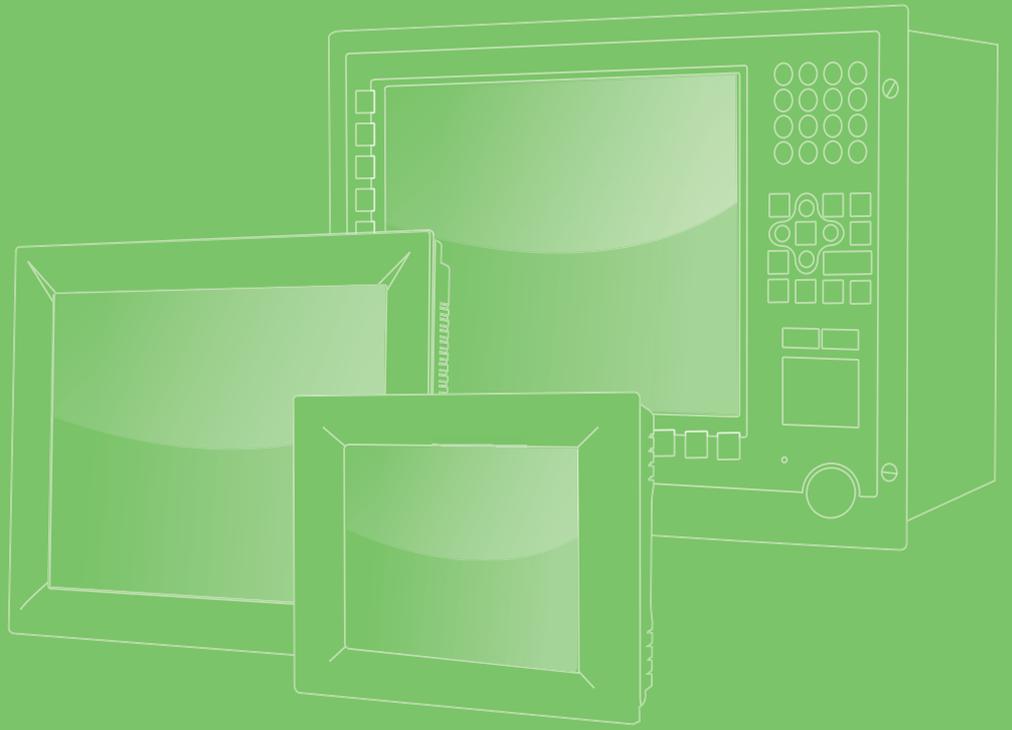


User Manual



PPC-3100S/3120S

**Intel® Celeron® N2930 Processor
based panel PC, with 10"/12" color
TFT LCD display**

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

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.

Technical Support and Assistance

1. Visit the ~~Advantech~~ web site at <http://support.ansi.com> where you can find the latest information about the product.
2. Contact your distributor, sales representative, or ~~Advantech~~ 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 -40° C (-40° 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.

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.



Manual Conventions

Warning! Warnings indicate conditions, which if not observed, can cause personal injury!



Caution! Cautions are included to help you avoid damaging hardware or losing data. e.g.



There is a danger of a new battery exploding if it is incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Note! Notes provide optional additional information.



Revision

Date	Version	Description/Change
May 2016	1.0	Initial

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Chapter 1

General Information

This chapter gives background information on PPC-3100S/3120S panel PC.

Sections include:

- Introduction
- Specifications
- Dimensions

1.1 Introduction

The PPC-3100S/3120S high value ultra slim Panel PC with industrial level TFT LCD, low power Intel® Celeron® N2930 1.86GHz Processor provides high computing performance in compact fanless embedded system.

With a high durability design, the PPC-3100S/3120S is equipped with a true-flat touch screen with IP65 front panel protection, die-cast Al Alloy enclosure and 5-wire resistive touch screen. It supports two serial ports, three USB ports, and two GbE LAN to satisfy various industrial applications. To provide further system monitoring and protection, the E-Eye in rear cover gives a clear signal of system operating status, helping people detecting and analysis.

1.2 Features

The feature of PPC-3100S/3120S includes:

- Robust Aluminum IP65 compliant front bezel
- Aesthetic ultra-thin compact fanless design with solid Al Alloy enclosure
- Embedded Intel Celeron® processor, quad core N2930 1.83GHz onboard
- One 204-pin DDR3L SO-DIMM slots (system max. 8GB)
- Two full-size Mini PCIe card slots (one supports mSATA SSD)
- Supports SATA 6Gb/s interface for 2.5" SATA storage
- Optional Mini PCIe 802.11b/g/n wireless module
- Supports one USB 3.0
- Supports E-eye monitoring and protection function in rear panel

1.3 Front Panel

The front side of PPC-3100S/3120S is a flat panel LCD with touch screen, which provides IP65 protection. (Figure 1.1)



Figure 1.1 Front panel of PPC-31x0S

1.4 Rear Panel

There are four VESA 75x75mm mounting holes and several retention screw holes on rear panel.(Figure 1.2), and E-eye LED display (Green) on the side of product label.

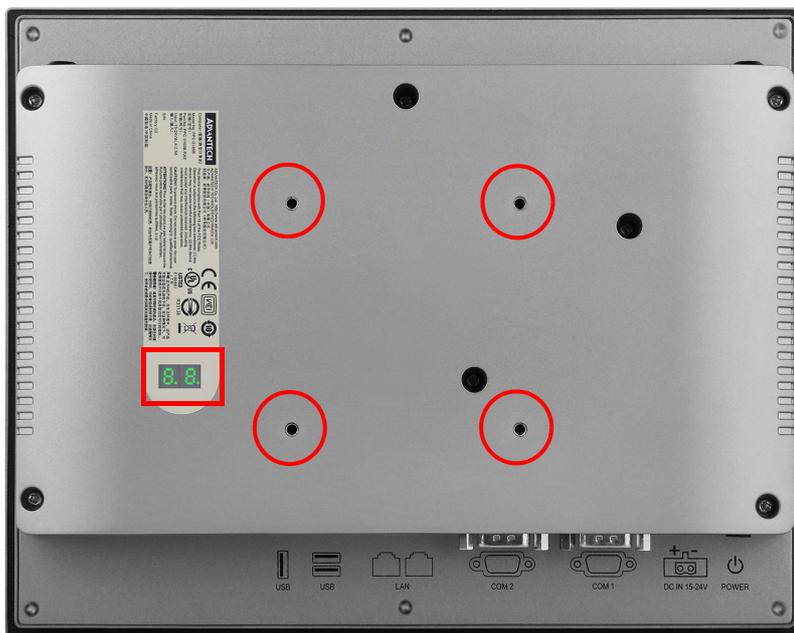


Figure 1.2 Rear panel of PPC-31x0S

1.5 Bottom Side

The following interfaces on bottom side are: (Figure 1.3)

- 1 x Power input connector
- 1 x Power switch
- 1 x RS-232 connector (COM1)
- 1 x RS-232/422/485 connector (COM2)
- 2 x RJ45 GbE
- 1 x USB 3.0
- 2 x USB 2.0



Figure 1.3 Bottom side of PPC-31x0S

1.6 Dimensions

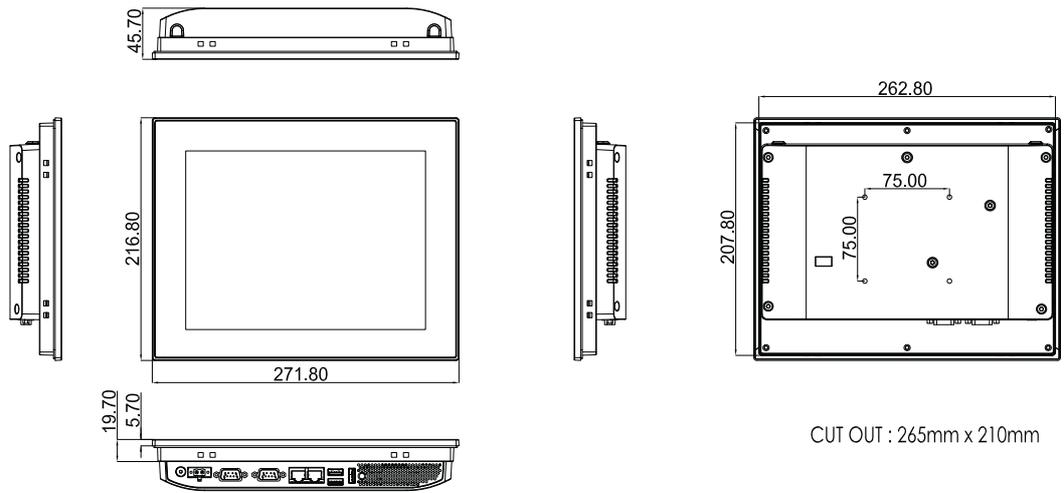


Figure 1.4 PPC-3100S dimension

PPC-3120S dimensions drawing as below:

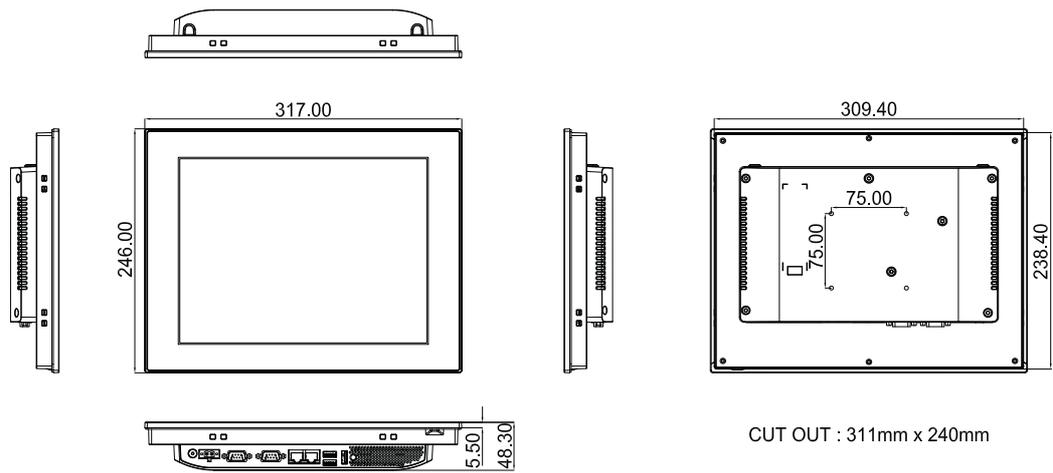


Figure 1.5 PPC-3120S dimension

1.7 Specifications

1.7.1 Specification Comparison

	PPC-3100S	PPC-3120S
LCD Display	10.4"	12.1"
Display Type	TFT LCD	TFT LCD
Resolution Max.	800 x 600	1024 x 768
Brightness	400	500
Color	16.2M/262k	16.2M/262k
Pixel Pitch	0.264(H) x 0.264(V)	0.24(H) x 0.24(V)
Viewing Angle	160, 140	160, 140
Contrast	700	700
Backlight Lifetime	30,000(Min.)	30,000(Min.)
Touchscreen type	5-w Resistive.	
Resolution	4096 x 4096	
Light Transmission	80±5% at 550nm wavelength	
Controller	RS232 interface	
Durability (Touches)	Greater than 35 million touches in one location without failure	
Enclosure	Aluminum	
CPU	Intel Celeron® N2930 1.83GHz 7.5W Quad Core onboard	
Memory	SO DIMM x 1, DDR3L 1333, Max. 8GB	
Storage 1	1 x 2.5' SATA slot (Optional, Need ordering HDD bracket model PPC-3100S-HDDE)	
Optional Storage	1 x mSATA	
Network (LAN)	2 x RJ45 LAN	
I/O Ports	1 x RS-232; 1 x RS-232/422/485 2 x USB 2.0; 1 x USB 3.0 1 x Full size mini PCIe	
OS Support	Win 7, Win 8.1, WES7, WEC7, Android, Linux	
Power Supply	12 - 24 Vdc	
Power Consumption	16W	18W
Operating Temperature	0 ~ 50°C (32 ~ 122°F) with SSD 0 ~ 40°C (32 ~ 104°F) with HDD	
Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)	
Relative Humidity	10 ~ 95% @ 40°C (non-condensing)	
Shock	Operating 10G peak acceleration (11ms duration), following IEC 60068-2-27	
Vibration	Operating random vibration test, 5 ~ 500Hz, 1Grms with HDD; 2Grms with SSD, following IEC 60068-2-64	
IP Level	IP65	
Safety and EMC	Safety: CE, UL, CCC, BSMI EMC: CE, FCC Class B, BSMI	
Dimensions	272 x 217 x 46mm	317 x 246 x 49mm
Weight	1.9 kg	2.1 kg

Note! For test conditions for above power consumption, please refer to Note



Test conditions of power consumption :

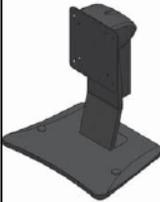
Memory: 4G DDR3L 1333

HDD: 500G 2.5"SATAIII

OS: Window 7 32 bit

Testing Software: Burn-In Test 7.0

1.8 Ordering Information

Item	Description	Image
PPC-3100S-RAE PPC-3120S-RAE	Panel PC with Intel Celeron® N2930 processor	
PPC-3100S-HDDE	Bracket model for 2.5" SSD/HDD installation	
PS-DC19-65AE	Power adapter AC100 ~ 240V, 65W, 19V	
PPC-WLAN-A1E	Wi-Fi module with antenna	
PPC-ARM-A03	ARM VESA standard	
PPC-174T-WL-MTE	Wall mount kit	
PPC-Stand-A1E	Stand kit	

Chapter 2

System Installation & Setup

Sections include:

- Quick Installation Guide
- Install Memory Card
- Install ODD
- Install HDD
- Install mSATA
- Install Wireless LAN Card
- Mounting the System

2.1 Quick Start Guide

Before you start to set up the panel PC, take a moment to be 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, Backside View shown in Figure 2.2 and I/O Connectors shown in Figure 2.3.



Figure 2.1 Frontside View



Figure 2.2 Backside View

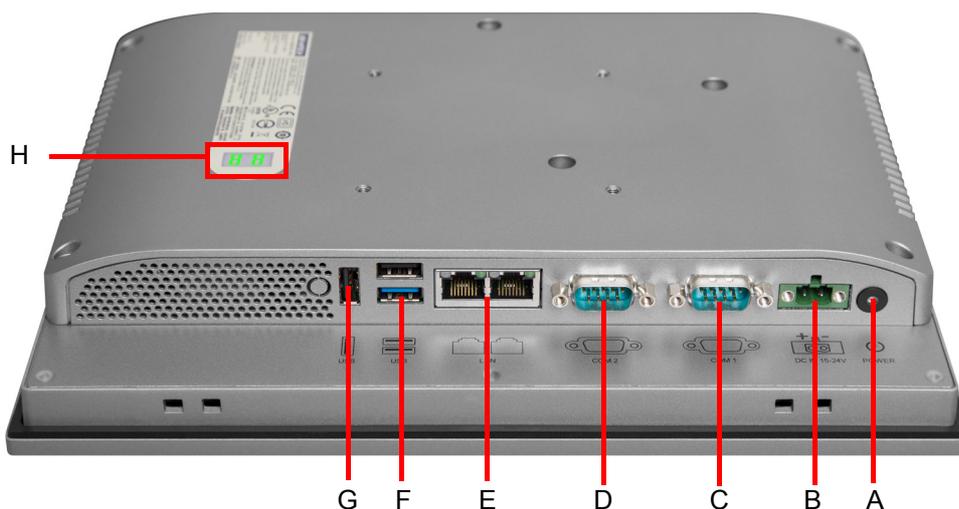


Figure 2.3 I/O Connectors

A: Power Button	E: 2 x Gigabit Ethernet ports
B: DC In	F: 1 x USB 3.0 + 1 x USB 2.0
C: COM1(RS232)	G: 1 x USB2.0
D: COM2(RS232/422/485)	H: E-eye

2.2 Installing Procedures

The following installation must be followed:

1. Install a memory card
2. Install SATA HDD or mSATA storage
3. Install peripheral devices
4. Mount the Panel PC
5. Configure the system

2.2.1 Installing Memory Card

1. Remove seven retention screws and pull out the cable, then take off the rear cover. (See Figures 2.4 and 2.5)



Figure 2.4 Retention screw on rear cover



Figure 2.5 Remove cable from Mainboard

2. Insert the memory card into the slot as indicated in the red square below, and attach the thermal pad for the memory from the accessory box, then the installation of the memory card is finished. (See Figure 2.6 and 2.7)

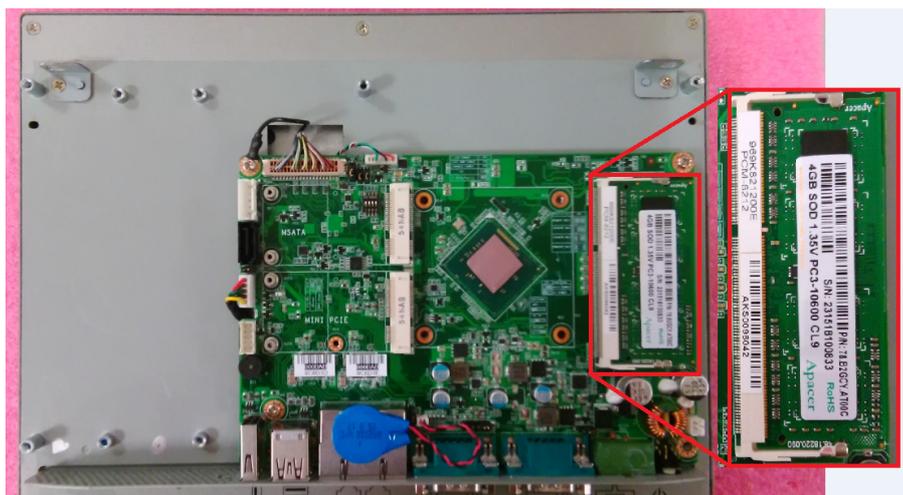


Figure 2.6 Install memory card



Figure 2.7 Attach thermal pad on memory

Warning! Please make sure the thermal pad (in the accessory box) attached on the memory surface as figure 2.7.



2.2.2 Install HDD

1. Remove the preinstalled four retention screws on HDD bracket. (See Figure 2.8)

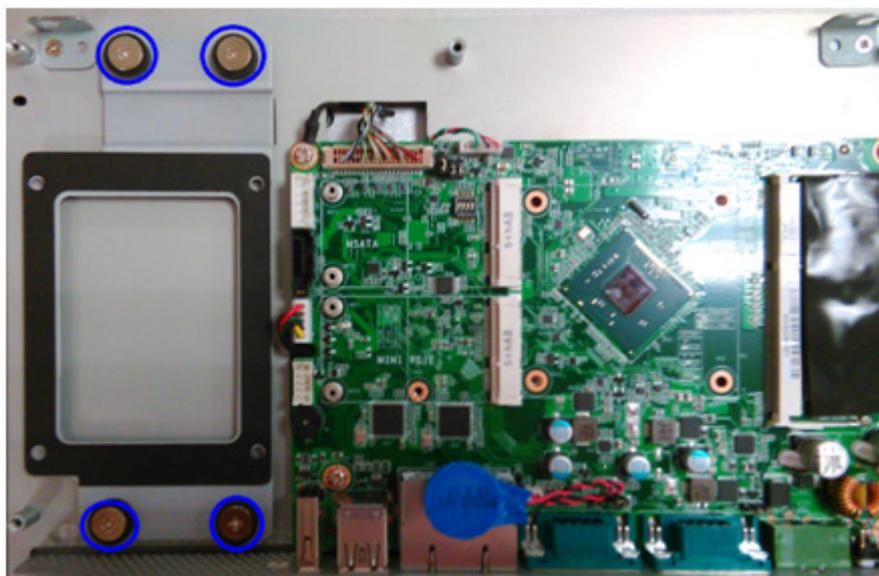


Figure 2.8 Retention screw on HDD bracket



Figure 2.9 HDD Module

2. Get SATA cable from the accessory box and connect it to the SATA HDD. (See Figure 2.9)



Figure 2.10 Connection of cable and SATA HDD

3. Get four retention screws in the accessory box and secure SATA HDD to the bracket. (See Figure 2.10).



Figure 2.11 Secure SATA HDD with screws

4. Locate and secure the SATA HDD module, and tie the SATA power cable, then plug the cable into the M/B corresponding connector. (See Figure 2.11)

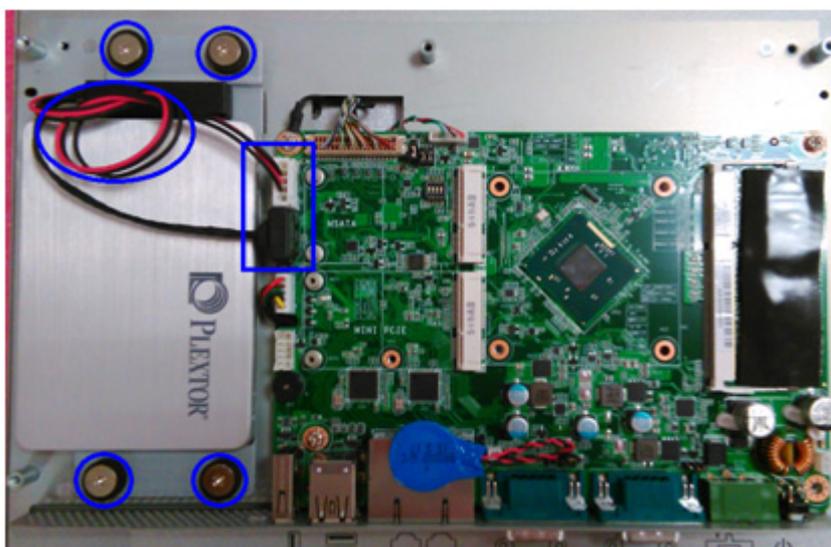


Figure 2.12 Connect SATA HDD to Mainboard

2.2.3 Installing mSATA

1. Locate mSATA card into the socket, push the the other end of mSATA card down and secure the mSATA module with the two retention screw in accessory box. (See Figure 2.12)

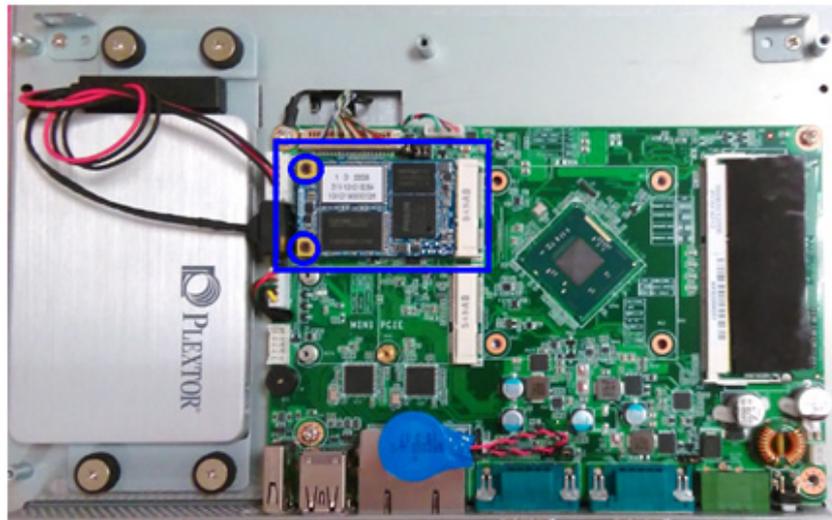


Figure 2.13 Install mSATA module

2.2.4 Installing Wireless LAN Module

2.2.4.1 Full-size card mini PCIe installation

1. Insert the Mini PCIe full size card into socket, and secure the card with the two retention screw in accessory box. And replace the original bracket with holed antenna bracket in accessory box. (See Figure 2.13)

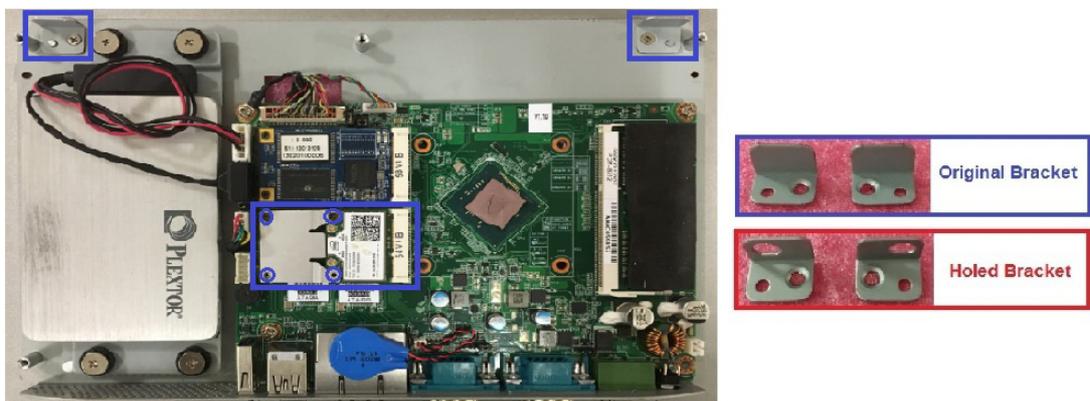


Figure 2.14 Install wireless LAN card

2.2.4.2 Half-size card mini PCIe installation

1. Get the hexagonal screw from the accessory box, locate it to the notch on the PCB and secure it. (See Figure 2.14)

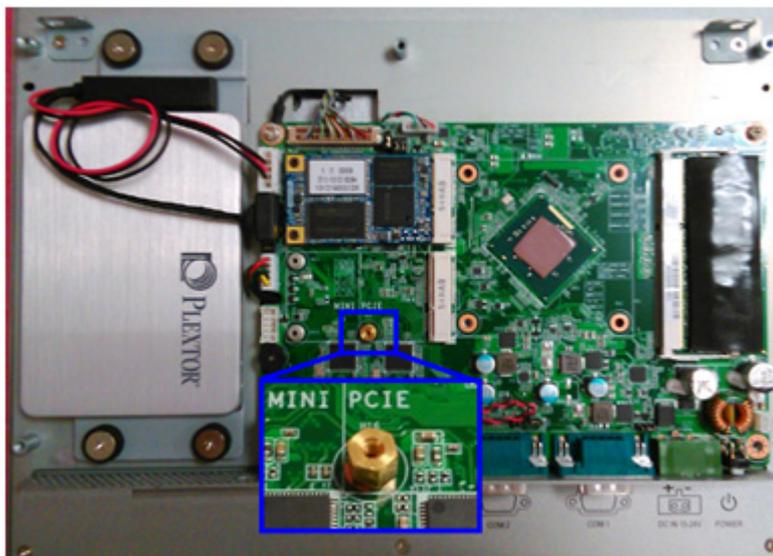


Figure 2.15 Location of retention screw

2. Insert the mini PCIe half size card into socket at an angle, and secure with a screw from the accessory box. And replace the original bracket with holed antenna bracket in accessory box. (See Figure 2.15)

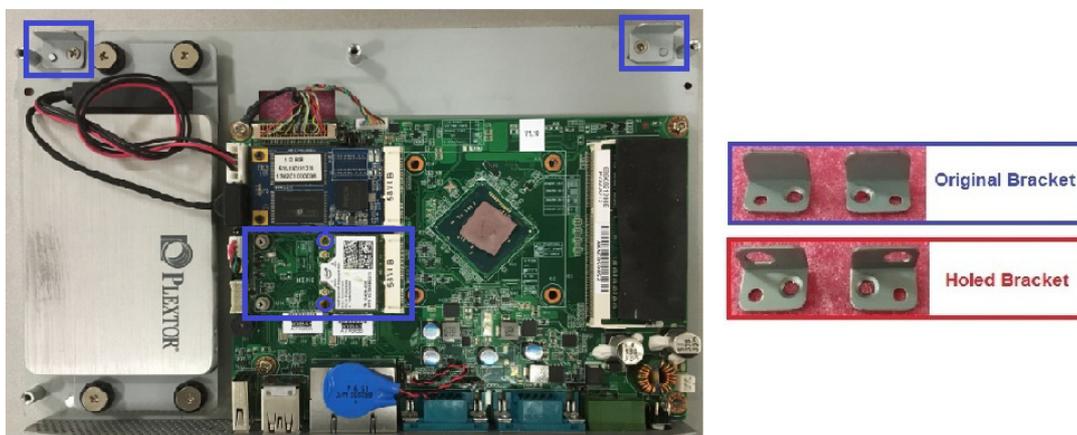


Figure 2.16 Secure the half-size mini PCIe card

3. Connect the antenna cables and fix them on brackets. Please note the cable routing. (See Figure 2.16 and Figure 2.17)



Figure 2.17 Antenna cables of Full-size mini PCIe LAN module



Figure 2.18 Antenna cables of Half-size mini PCIe LAN module

4. Remove the two plugs on top of the rear cover. (See Figure 2.18)

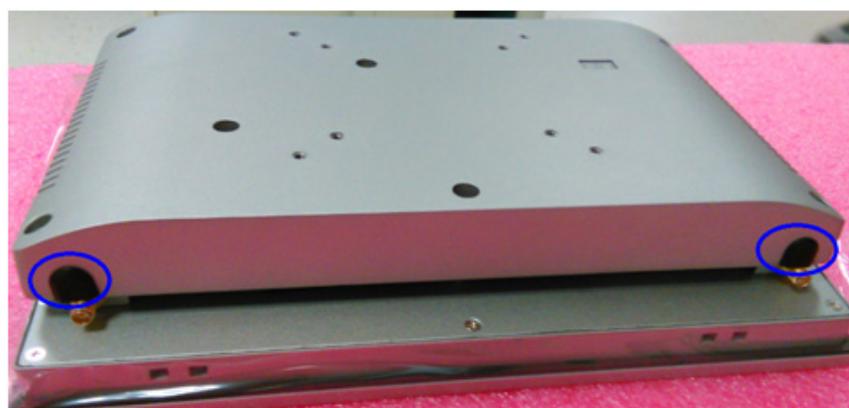


Figure 2.19 Remove plugs for antenna

5. Connect the cable to the Mainboard, then secure the rear cover. (See Figure 2.19)



Figure 2.20 Reinstall the rear cover

6. Install the external antenna. (See Figure 2.20)



Figure 2.21 Location of external antenna

2.3 Mounting the System

Warning! When mounting the panel PC, it is advisable to have more than one person help with the installation to prevent accidental damage to the panel and avoid personal injury.



The methods of mounting the panel PC are:

- Wall Mounting
- Panel Mounting
- Arm Mounting
- Stand Mounting

The mounting methods are described in the following sections.

2.3.1 Wall Mounting

To mount the panel PC onto a wall, please follow the Figure 2.21.

1. Select the location on the wall for the wall mounting bracket.
2. Mark the locations of the two screws holes in the bracket on the wall.
3. Drill two pilot holes at the marked locations on the wall
4. Align the wall-mounting bracket screw holes with the pilot holes.
5. Secure the mounting-bracket to the wall by inserting the retention screws into the two pilot holes and tightening them.

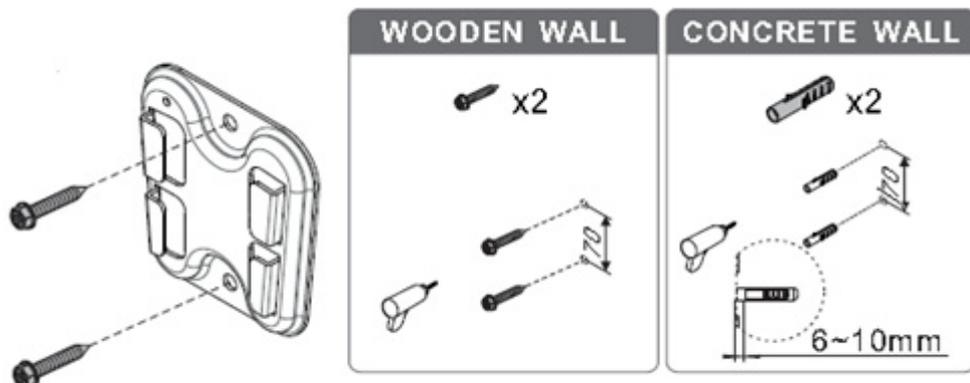


Figure 2.22 Mounting bracket on the wall

6. Insert M4 screws into the four screw holes on the rear panel and tighten until the screw shank is secured against the rear panel.

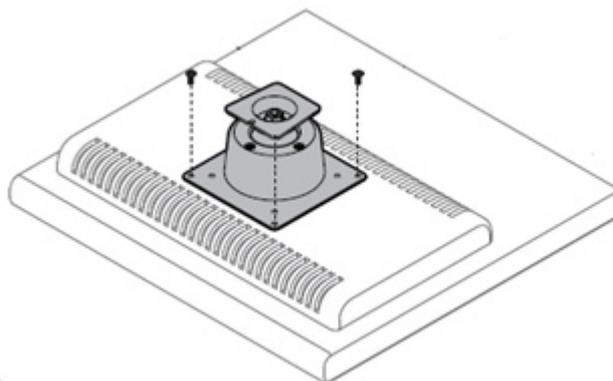
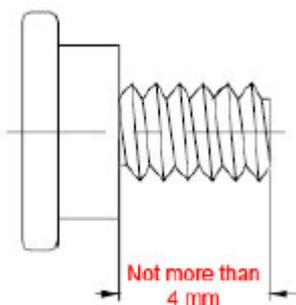


Figure 2.23 Location of four screws on rear panel

Warning! Please make sure the thread depth of the screw for rear panel should be not more than 4mm.



7. Align the Panel PC into the mounting bracket on the wall. (Figure 2.23)

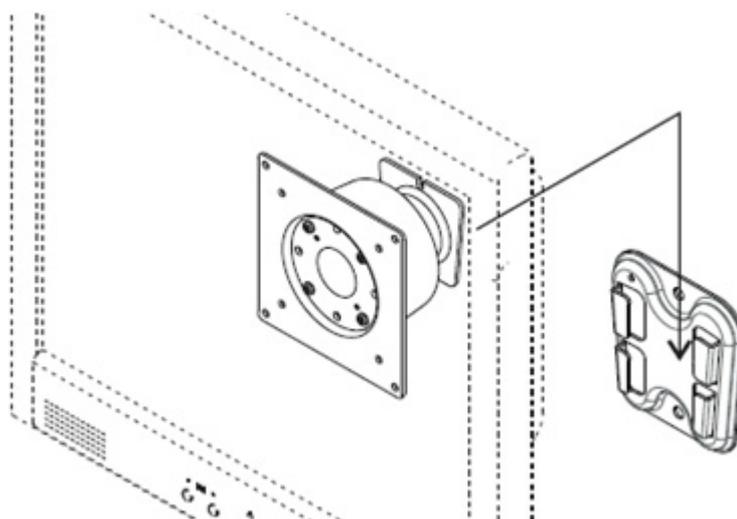


Figure 2.24

- Secure the panel PC by fastening the retention screw of the wall-mounting bracket. (Figure 2.24)

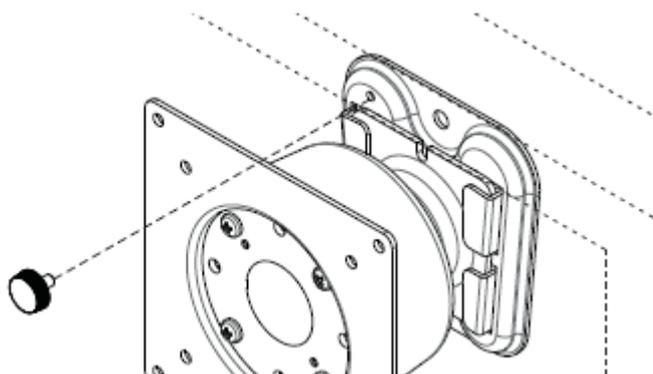


Figure 2.25 Secure the Panel PC

2.3.2 Panel Mounting

To mounting the flat bezel panel PC into a panel, please follow the steps below.

- Cut out a section corresponding to the size shown below. The dimensions unit is mm. (See Figure 2.21) (See Figure 2.22) (See Figure 2.23)

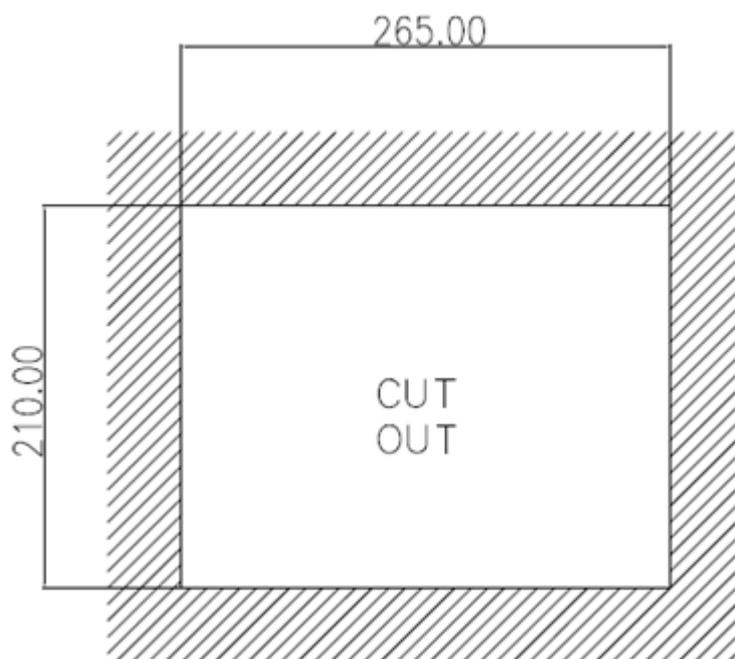


Figure 2.26 PPC-3100S Cut-out dimension

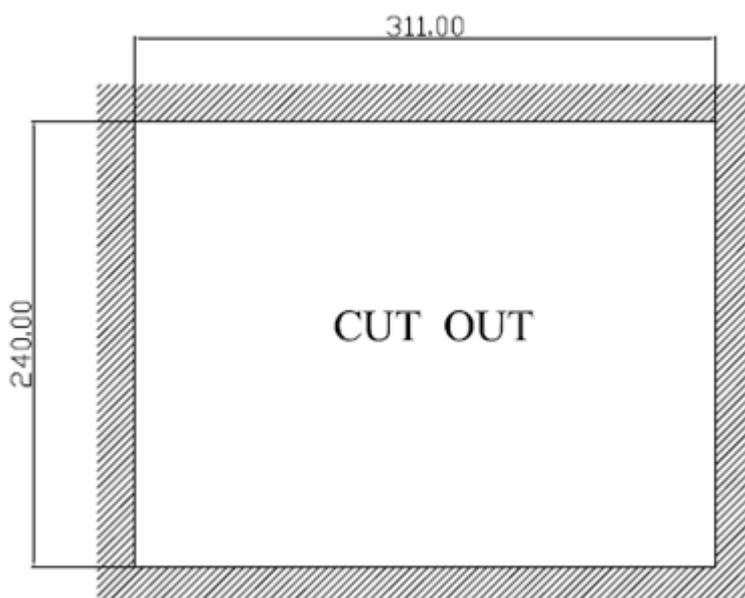


Figure 2.27 PPC-3120S Cut-out dimension

2. Put the machine into the cabinet and take out eight Hook Brackets from the accessory box. (See Figure 2.24)

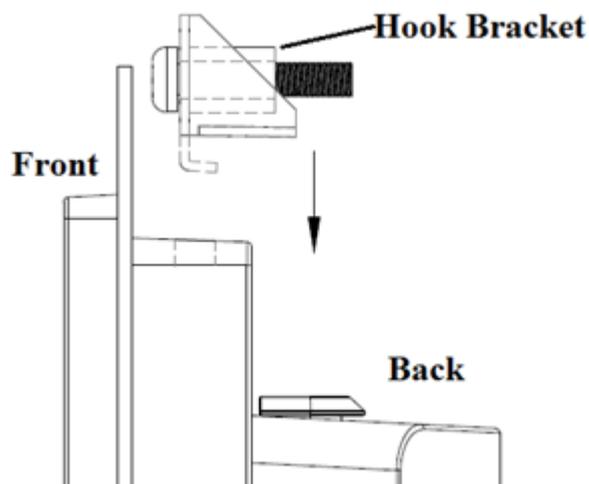


Figure 2.28 Hooks bracket for panel mounting

- Put the Hook Brackets into the holes according to the arrow and hookup machine. (See Figure 2.25)

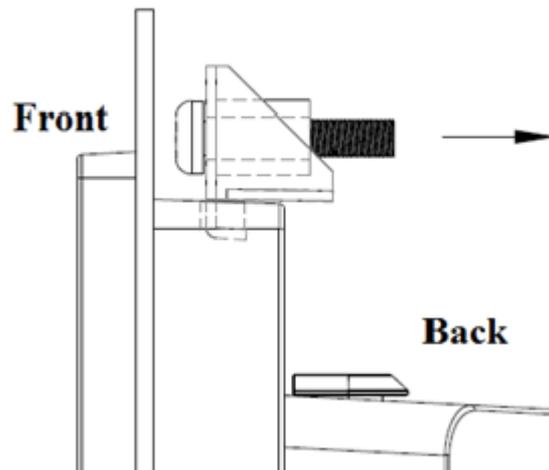


Figure 2.29 Hooks bracket location

- Lock screws and fixed machine. (See Figure 2.26)

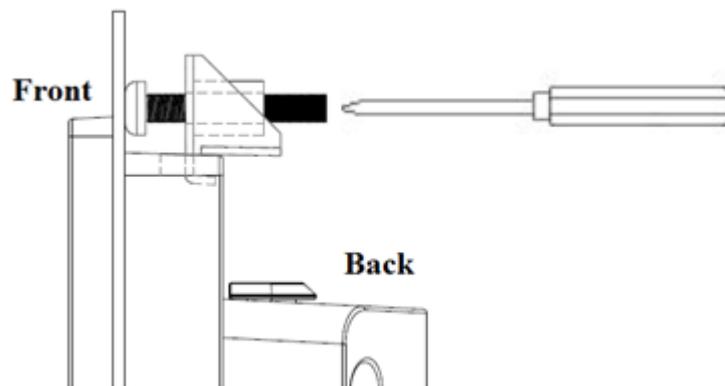


Figure 2.30 Fasten the Hook bracket

After fixing the machine. (See Figure 2.27)

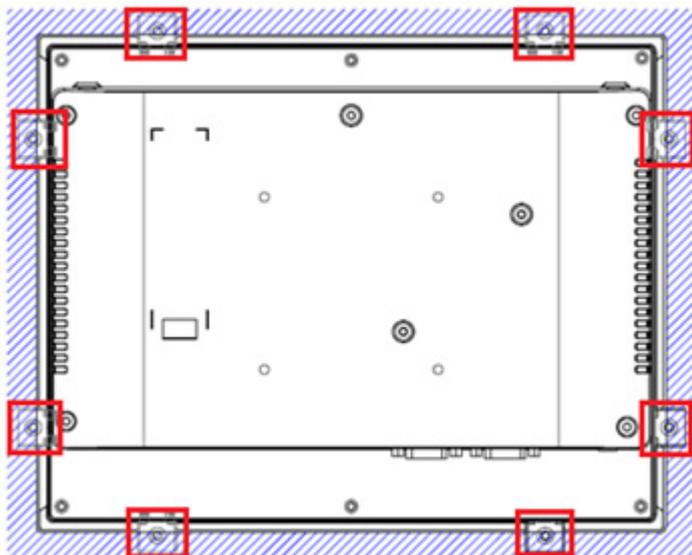


Figure 2.31 Back side view of panel mounting

2.3.3 Arm Mounting

PPC-31x0S is VESA compliant panel PC and can be mounted on an arm with a 75mm interface pad. To mount the PPC-31x0S on an arm, please follow the steps as below.

1. Refer to the installation instruction of mounting arm, correctly mount the arm onto the surface as a base.
2. Align the retention screw holes on the mounting arm interface with VESA holes in the panel PC, and secure the panel PC by four M4 retention screws. (see Figure 2.28)



Figure 2.32 Arm mounting

Warning! Please make sure the thread depth of the screw for rear panel should be not more than 4mm.



2.3.4 Stand Mounting

Before Stand Mounting, please check the packing list first.

Packing List							
No.	Name	Qty.	Pic.	No.	Name	Qty.	Pic.
A	Screw (M4x8L)	12 (4 x spare)		B	Screw (M4x6L)	6 (2 x spare)	
C	Screw (M4x5L)	2 (1 x spare)		1	Hinge	1	
2	VESA Bracket	1		3	Hinge Cover	1	
4	Base Plate	1					

To mount the panel PC to stand, please follow the steps below

1. As shown in the figure below use 4 screws of No. A in pack list to lock the VESA BKT to the machine. Depending on your needs, you can choose between using 75*75 mm or 100*100 mm of VESA mount.

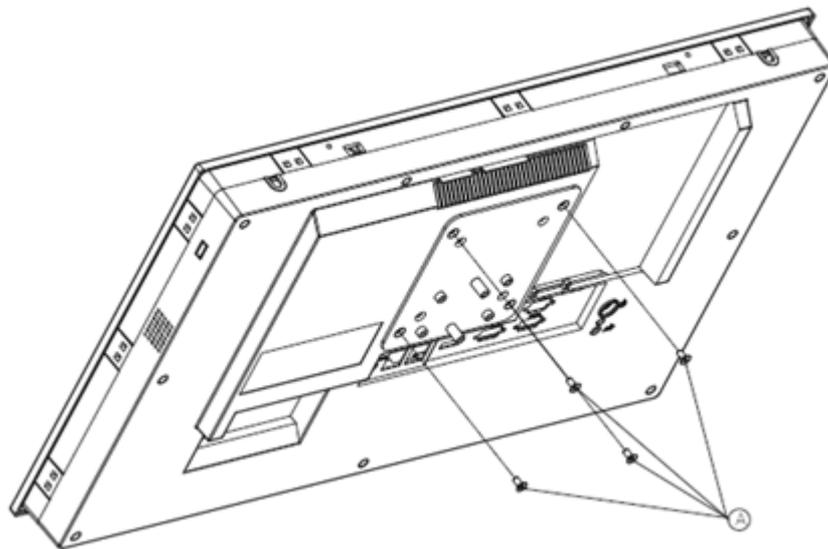


Figure 2.33 Screw Holes

2. As the figure below shows, use 4 screws of No. A in pack list to lock on the base plate.

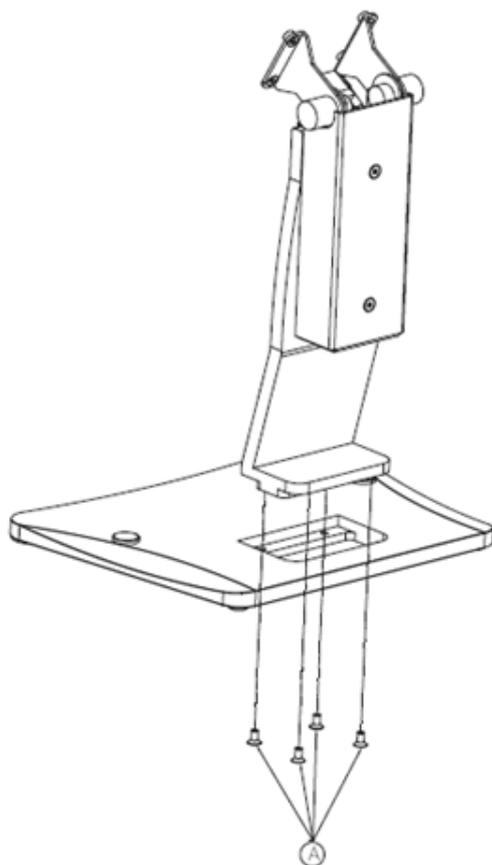


Figure 2.34 Securing Base

3. As the figure below shows use 4 screws of No. B in the pack list to secure the VESA Bracket.

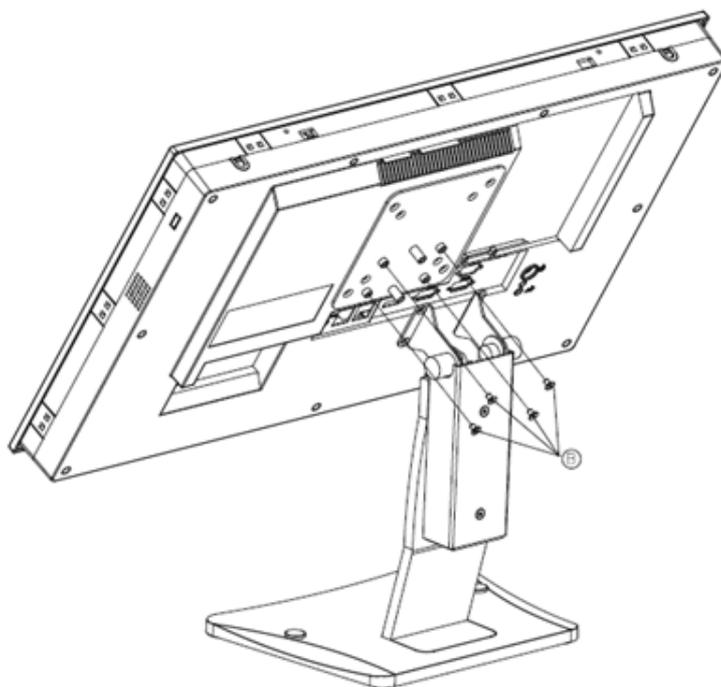


Figure 2.35 Securing VESA Bracket

4. As the figure below shows, use 1 x No. C screw in the pack list to secure the hinge cover.

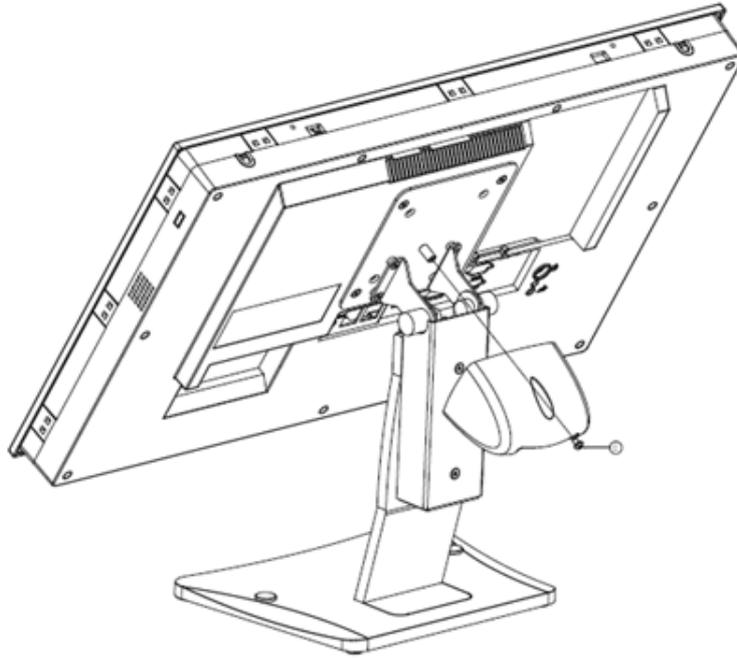


Figure 2.36 Securing Hinge Cover

Completed view of stand mounting a PPC machine

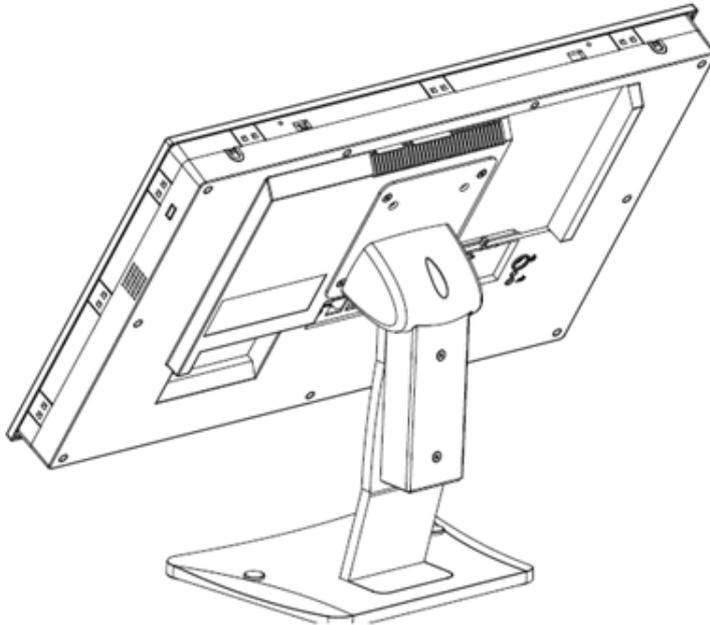


Figure 2.37 Complete Stand Mount View

Chapter 3

Jumper Setting

Sections include:

- Jumpers & Connectors
- External COM Ports and Pin Definitions

3.1 Motherboard layout diagram

Below is the motherboard layout diagram, internal peripheral connectors can be found in this diagram and accessible when the motherboard is outside of the chassis.

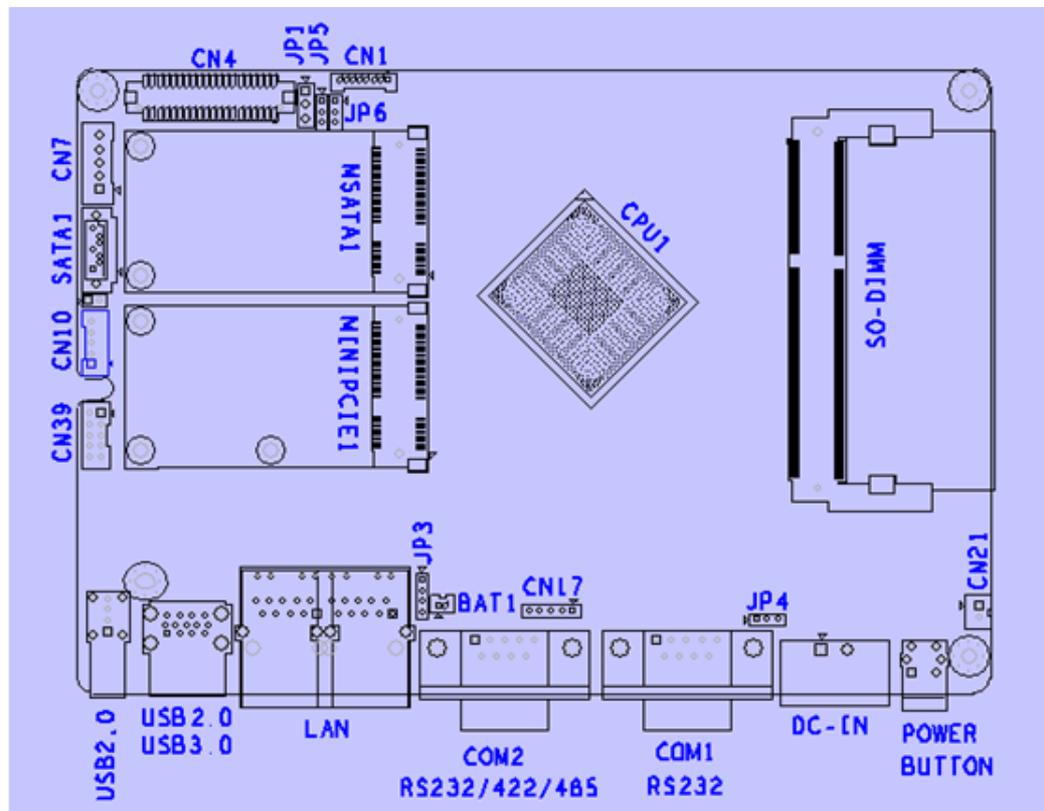


Figure 3.1 Mother board layout diagram (front side)

3.2 Internal jumpers and connectors

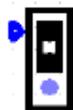
The table shows a list of internal jumpers and connectors in the motherboard, and pinouts can be found in the table.

Table 3.1: Internal jumpers and connectors

Connectors	Function	Type
CN1	LVDS backlight connector	Wafer 8P 1.25mm
CN4	LVDS connector	Wafer 20x2P 1.25mm
CN7	SATA power connector	Wafer 5P 2.5mm
SATA1	SATA connector	SATA 7P connector
CN10	Touch screen connector	Wafer 5P 2.0mm
CN17	COM1 PIN9 power select connector	Pin header 5P 2.0mm
CN21	Power button	Wafer 2P 2.0mm
CN39	LPC connector	Wafer 5x2P 2.0mm
JP1	LVDS power select jumper	Pin header 3P 2.54mm
JP3	RTC select jumper	Pin header 4P 2.0mm
JP4	ATX/AT select jumpwer	Pin header 3P 2.0mm
JP5	LVDS PWM power select jumper	Pin header 3P 2.0mm
JP6	LVDS enable power select jumper	Pin header 3P 2.0mm

3.2.1 LVDS power select jumper

JP1	Icon	LVDS Power Select Jumper
(1-2)	P1	5V
(2-3)	P2	3.3V
		Default*



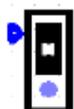
P1



P2

3.2.2 LVDS PWM power select jumper

JP5	Icon	LVDS PWM Power Select Jumper
(1-2)	P3	5V
(2-3)	P4	3.3V
		Default*



P3



P4

3.2.3 LVDS enable power select jumper

JP6	Icon	LVDS Enable Power Select Jumper
(1-2)	P5	5V
(2-3)	P6	3.3V
		Default*



P5



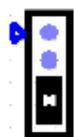
P6

3.2.4 RTC select

JP3	Icon	RTC Select
(2-3)	P7	Normal
(3-4)	P8	Clear CMOS
		Default*



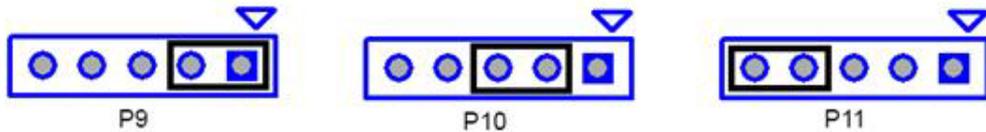
P7



P8

3.2.5 COM1 Pin 9 select

CN17	Icon	COM1 PIN9 Power Select
(1-2)	P9	COM1 RI Default*
(2-3)	P10	COM1 PIN9 5V
(4-5)	P11	COM1 PIN9 12V



3.2.6 ATX/AT select

JP4	Icon	ATX/AT Select
(1-2)	P12	AT
(2-3)	P13	ATX Default*



3.3 External COM Ports and Pin Definitions

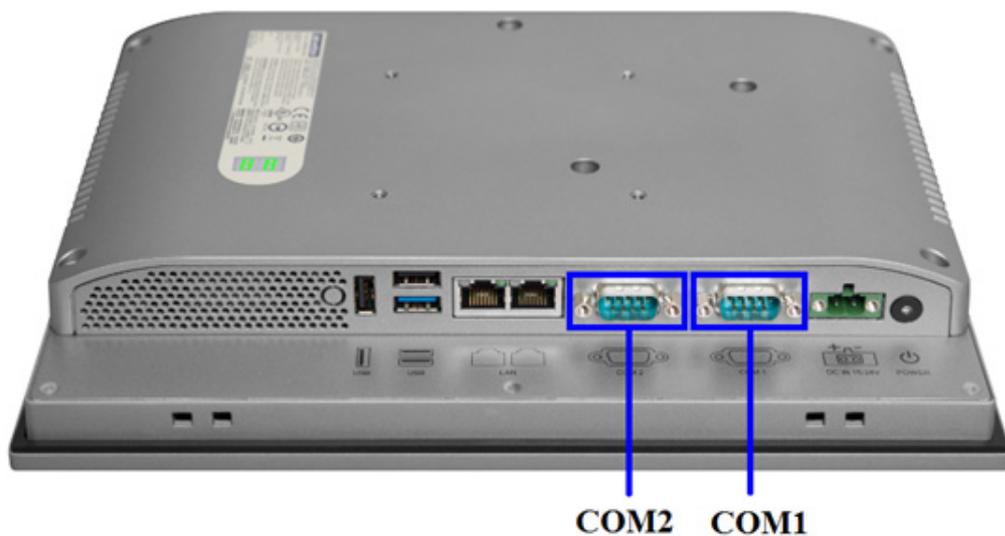


Figure 3.2 COM1 and COM2 Position

COM 1: RS232

COM1 Pin9 is set as RI signal by default and also can be set as 5 V or 12 V output via jumper setting.

COM2: RS232/422/485

Note! COM2 does not support RING function.



PIN	COM1	COM2		
	RS232	RS232	RS422	RS485
1	DCD	DCD	TX-	DATA-
2	RXD	RXD	TX+	DATA+
3	TXD	TXD	RX+	NC
4	DTR	DTR	RX-	NC
5	GND	GND	NC	NC
6	DSR	DSR	NC	NC
7	RTS	RTS	NC	NC
8	CTS	CTS	NC	NC
9	RING or 5V/12V Output	RING	NC	NC

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.

And please get the drivers from the below websites:

<http://www.asus.com>

Note! *Before Windows 8.x or Android is installed, firstly change the BIOS settings as explained in OS Selection section; 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 HMRFP0 → enable".

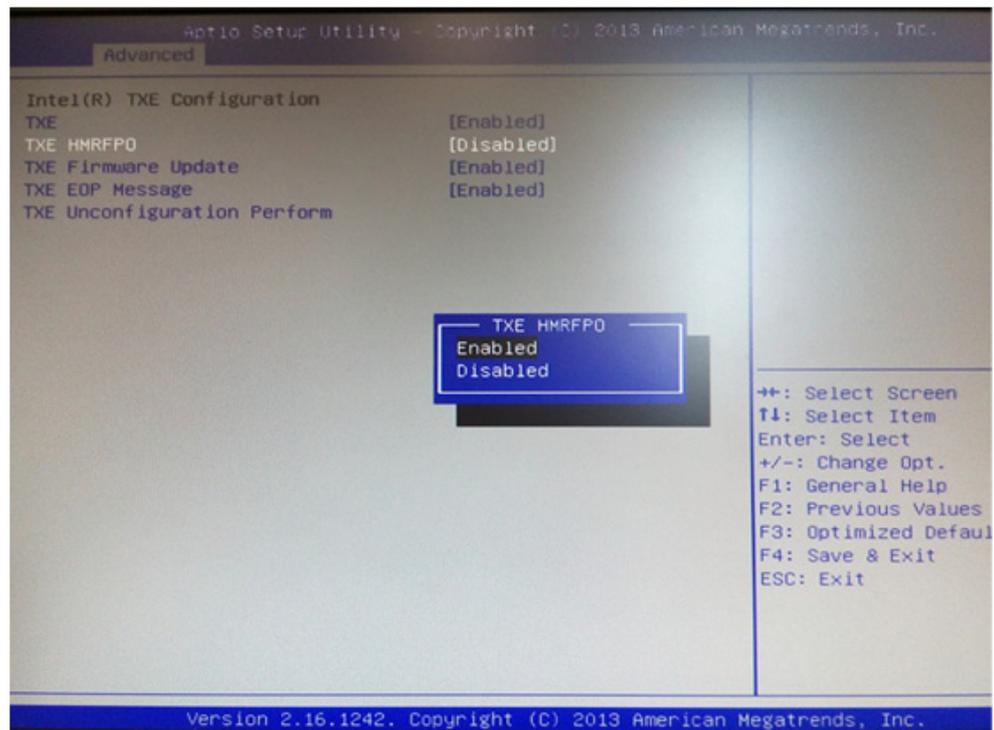


Figure 4.1

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.

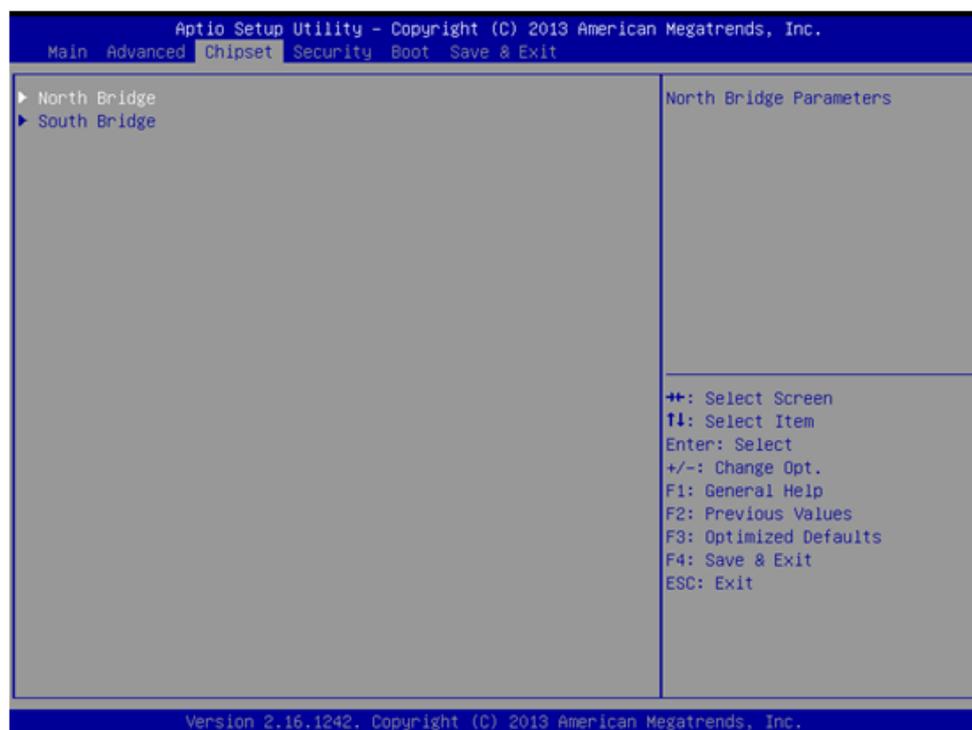
4.2.2 Entering BIOS Setup

When the power is turned on, press the 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

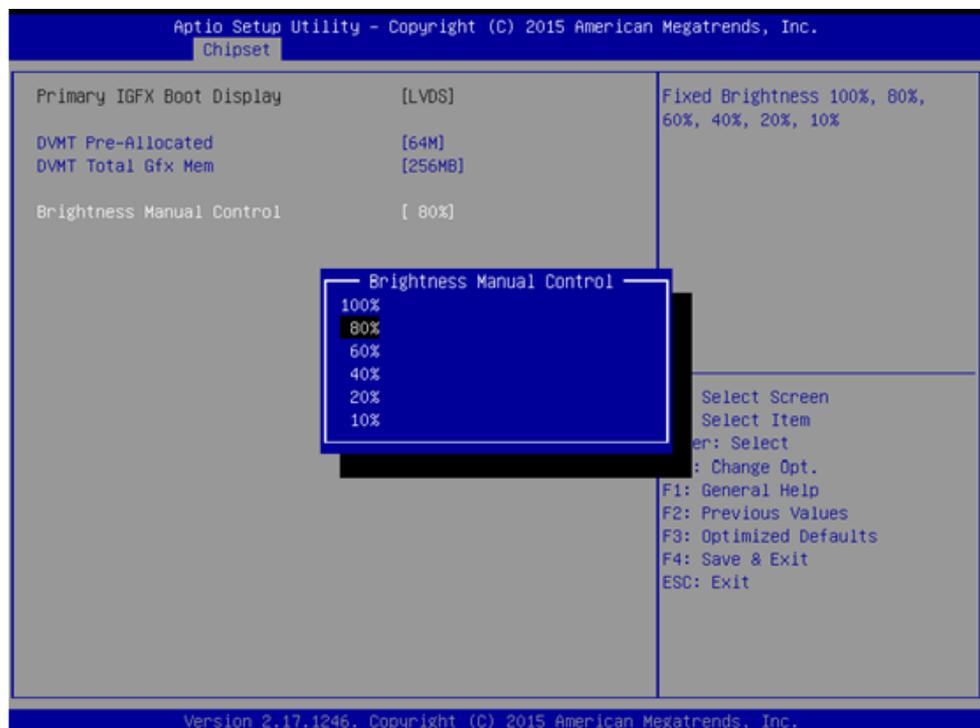
1. Select "Host Bridge" in "Chipset" tab.



2. Then select "Intel IGD Configuration".

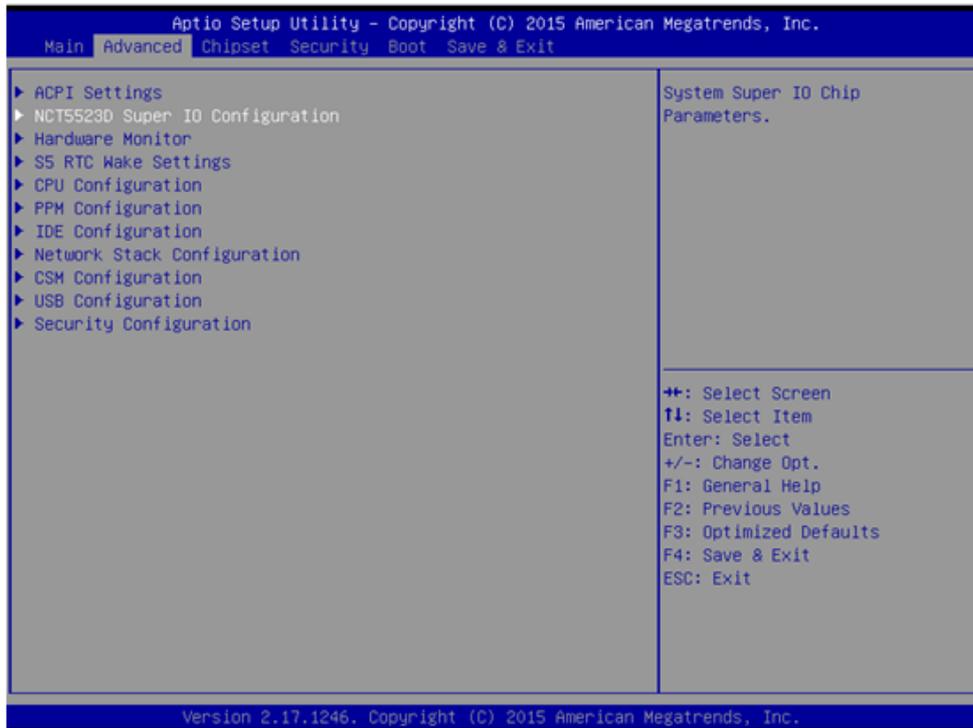


3. Select "Brightness Manual Control" and there will be six brightness levels to choose.

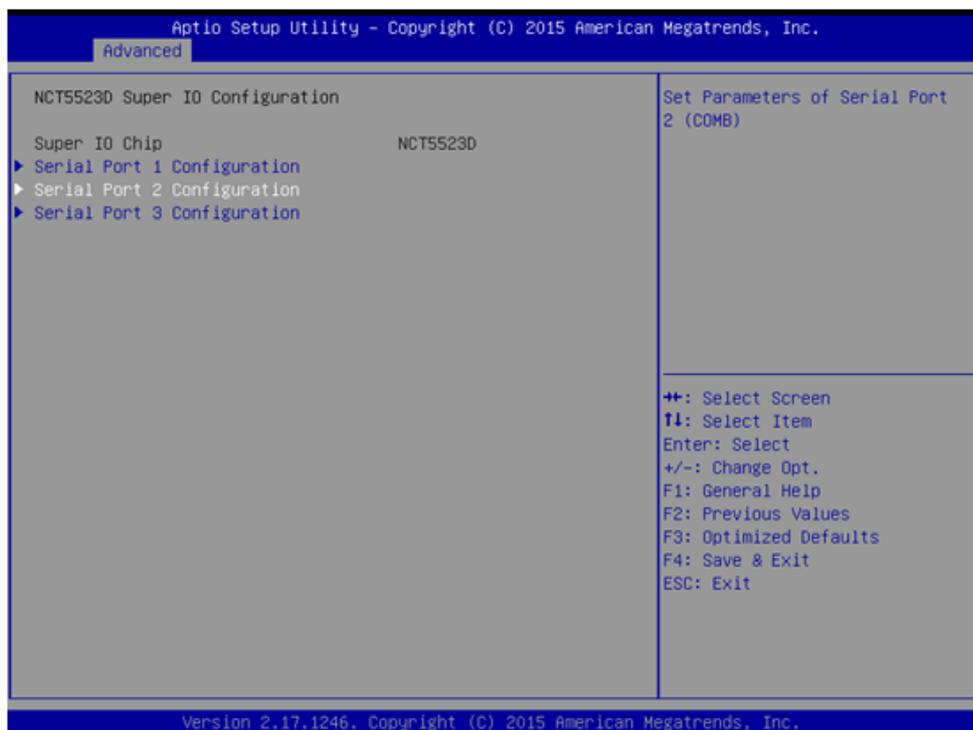


4.2.4 COM2 Mode Selection (RS232/RS422/RS485)

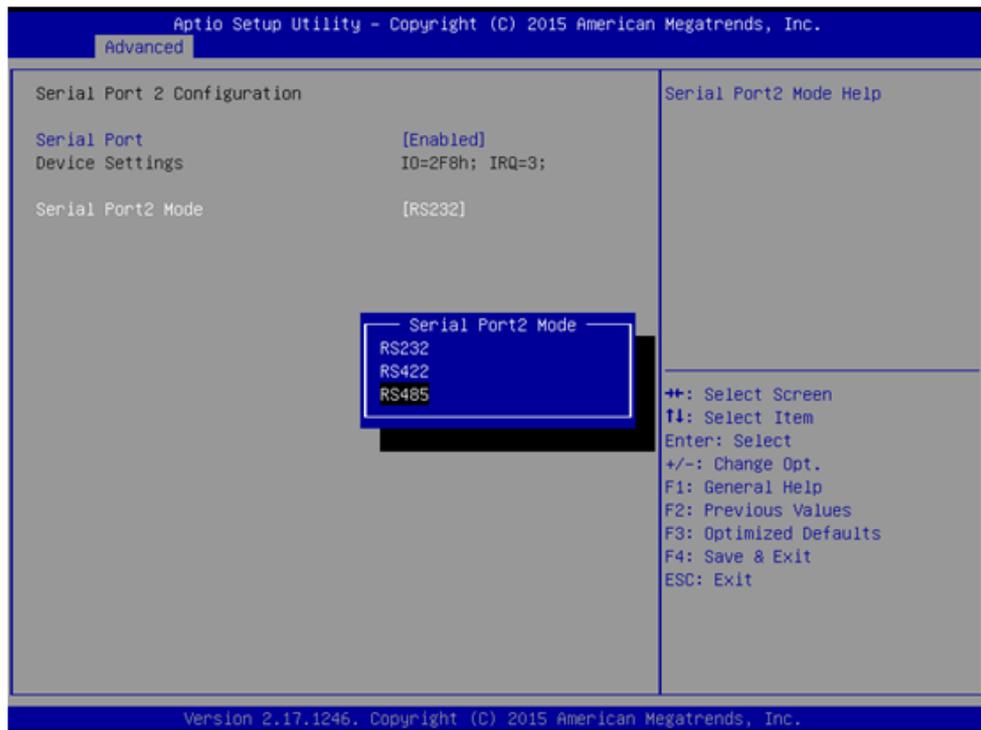
1. Select "NCT5523D Super IO Configuration" in the "Advanced" tab.



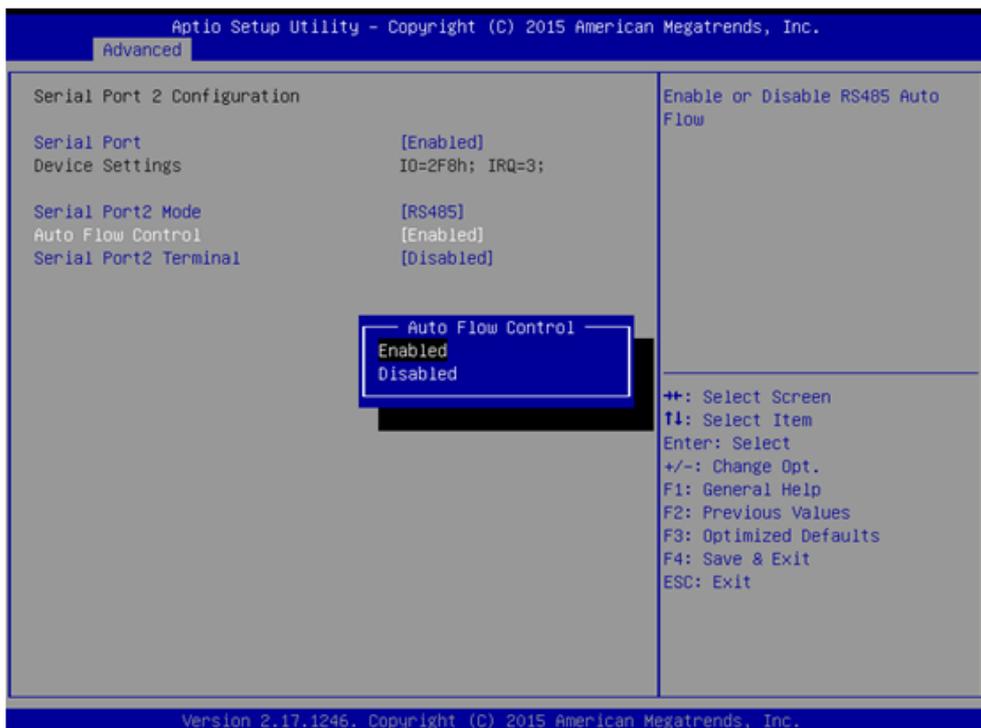
2. Select "Serial Port 2 Configuration" and then click



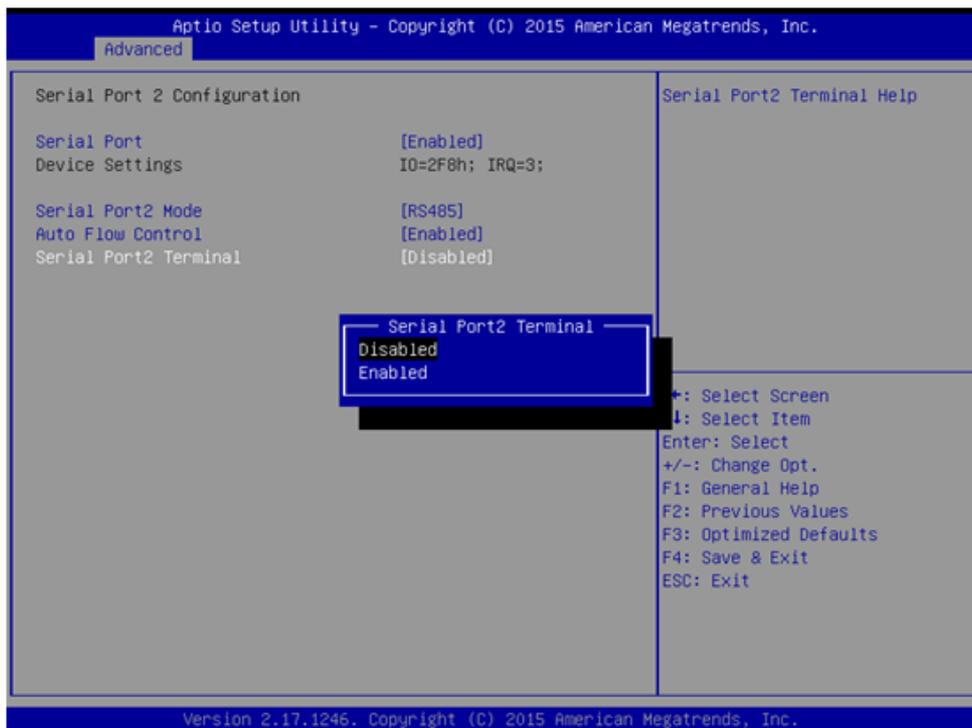
3. Select "Serial Port 2 Mode" and then click to select COM2 operation mode [RS232] or [RS422] or [RS485].



4. When COM2 Mode is selecting RS485, "Auto Flow Control" also can select [Enabled] or [Disabled]



- When COM2 Mode is selecting RS485, “Serial Port2 Terminal” also can select [Enabled] or [Disabled]



4.2.5 OS Selection

- Select “South Bridge” in the “Chipset” tab.



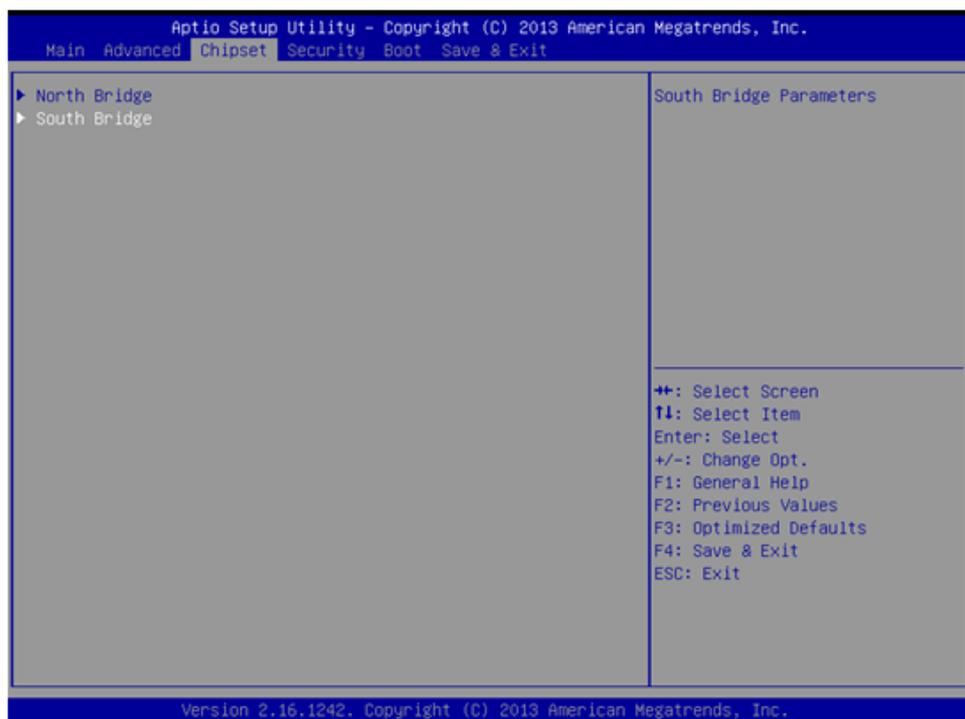
2. Different OSs can be selected through "OS Selection" [Windows 7]/[Android]/[Windows 8.X]

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

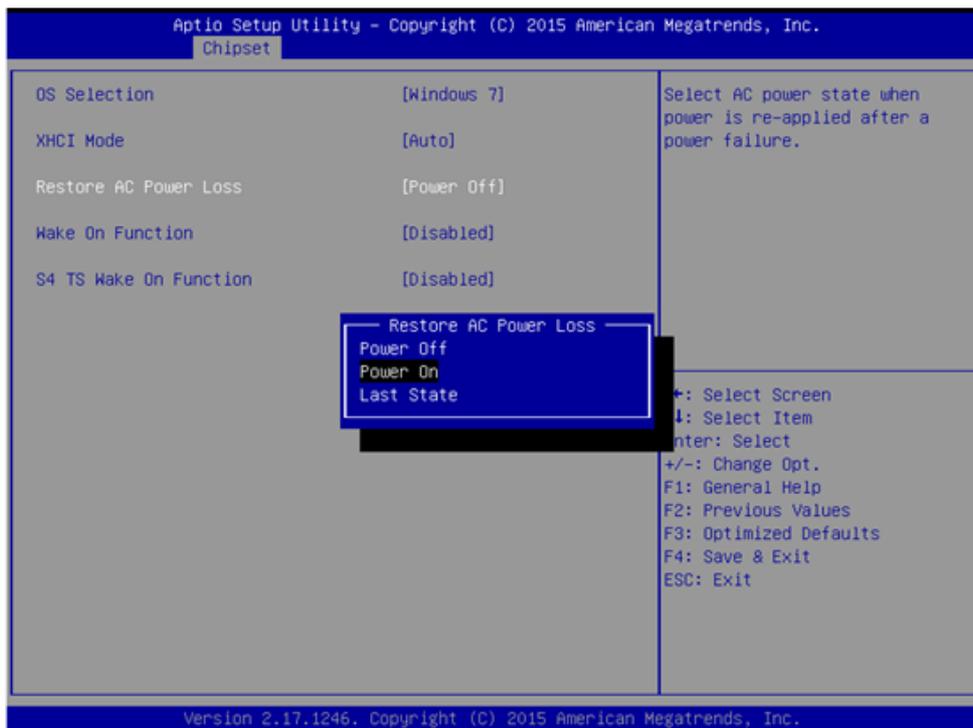


4.2.6 BIOS AT & ATX Setup

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



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

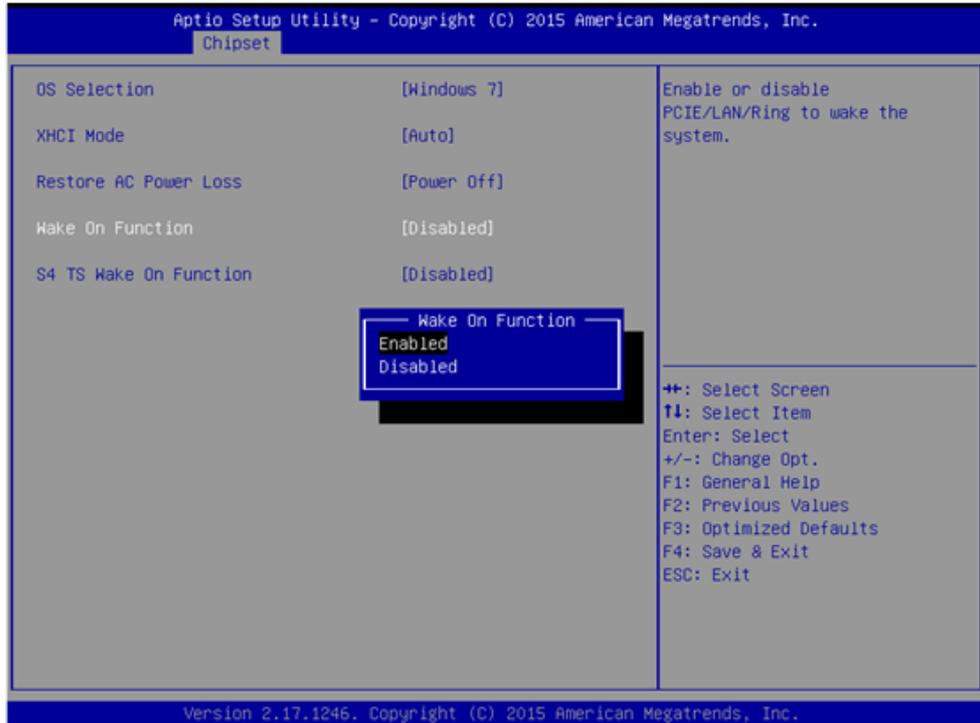


4.2.7 Wake on LAN

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

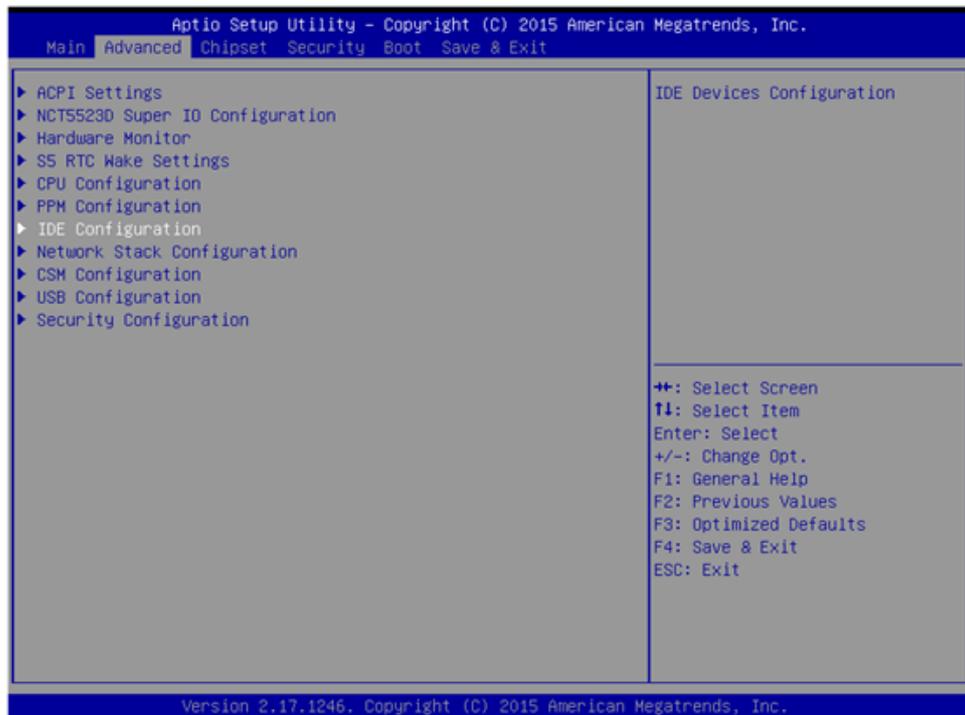


2. Set "Wake on Function" to "Enabled".

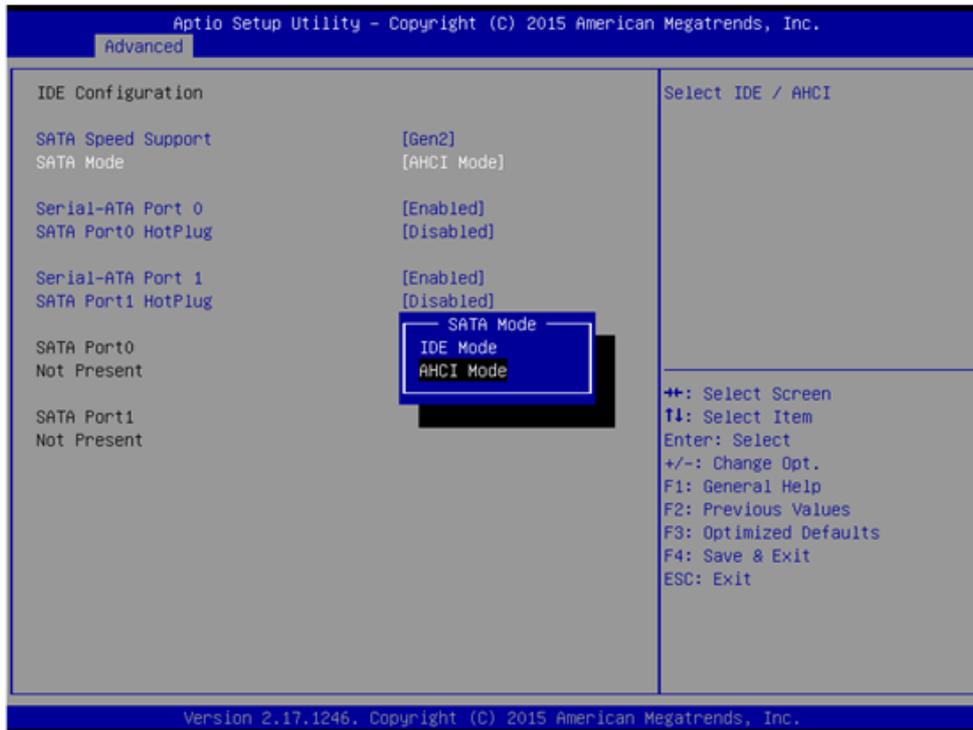


4.2.8 SATA Mode Selection

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

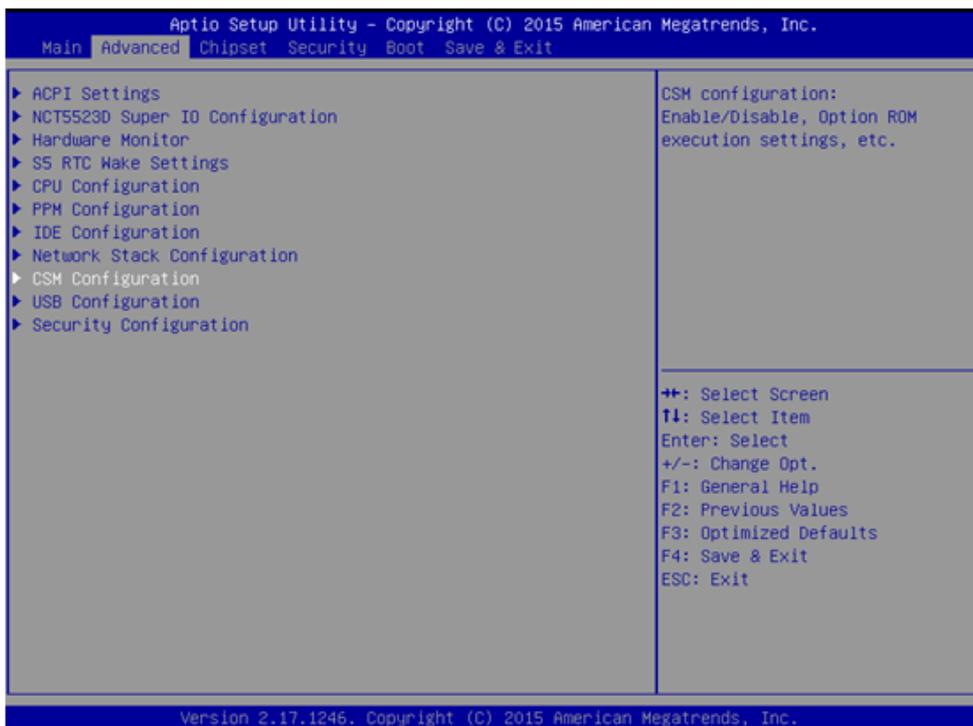


2. Select "SATA Mode".



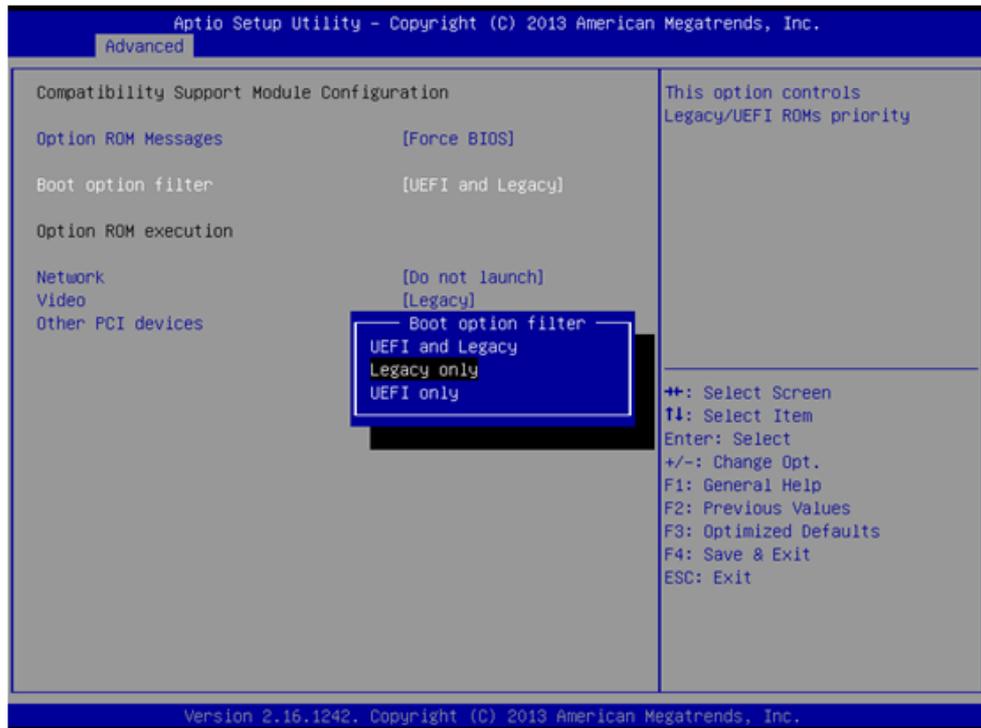
4.2.9 Boot Options

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**

BSMI RoHS

A.1 BSMI RoHS

設備名稱：電腦 Equipment name		型號（型式）：PPC-3100S/PPC-3120S series Type designation (Type)				
單元 Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛 Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr ⁺⁶)	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
液晶面板	—	○	○	○	○	○
電路板	—	○	○	○	○	○
配件（電源供應器）	—	○	○	○	○	○
其它固定組件（螺絲）	—	○	○	○	○	○
內外殼（外殼、按鍵、支架…等）	—	○	○	○	○	○
<p>備考 1. “超出 0.1 wt %” 及 “超出 0.01 wt %” 係指限用物質之百分比含量超出百分比含量基準值。 Note 1. “Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.</p> <p>備考 2. “○” 係指該項限用物質之百分比含量未超出百分比含量基準值。 Note 2. “○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.</p> <p>備考 3. “—” 係指該項限用物質為排除項目。 Note 3. The “?” indicates that the restricted substance corresponds to the exemption.</p>						

Appendix **B**

China ROHS

B.1 China ROHS

Dear Customer,

Thanks for choosing Advantech Product, to comply with China Electronic Industry Standard SJ/T11364 which require Marking for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products, herein report to you product's environmental protection as follows, Please disregard this notice if the product is not to be sold / installed in China

Model name	PPC-3100S/3120S Series					
Substance	Name and concentration of hazardous substances contained in product					
	Lead (Pb)	Hygrargyrum (Hg)	Cadmium (Cd)	hexavalent chrome (Cr(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Battery	X	O	O	O	O	O
Touchscreen	X	O	O	O	O	O
Copper stub	X	O	O	O	O	O
Eelectronic parts and components	X	O	O	O	O	O

O: Represent the concentration for this hazardous substance in all homogeneous materials of the part Comply with the limit of the standard of GB/T 26572.

X: Represent the concentration for this hazardous substance at least in one homogeneous material of this part exceeds the limit of the standard of GB/T 26572.

Enterprise statements:(for those exceeding the standard)

Content:

The mark of EPUP (Environmental Protection Use Period) in product label means in this period, by the normal operation mode, the hazardous substances won't leak out and deviate, so the product use won't result in serious environmental pollution, human injury or property loss, meanwhile, please don't take this period as the warranty date.

The products which attach with pollution control mark can be recycled, and should not be discarded at will.

Appendix **C**

E-eye Function

C.1 E-eye Function

Table C.1: PPC E-eye Monitoring Function List				
Item	Function	Failure Code	Error Description	Checking/Repair Suggestion
1	Main Board	E0	Main board start-up error	<ol style="list-style-type: none"> 1. Check power input 2. Check no short circuit by cables or others in system 3. Send mainboard off for repair
2	Memory	E1	Memory error	<ol style="list-style-type: none"> 1. Check memory install and memory type 2. Check memory and memory slot function 3. Send mainboard off for repair
3	Resistant Touch Screen	E2	Touch screen controller error	<ol style="list-style-type: none"> 1. Check touch function in operating system 2. Check detecting touch controller type (PM6000) in device manager 3. Send mainboard off for repair
4	LVDS	E3	LVDS transfer controller error	<ol style="list-style-type: none"> 1. Check display in operating system 2. Send mainboard off for repair
5	USB	E4	USB internal detecting error	<ol style="list-style-type: none"> 1. Check USB function by external USB device testing 2. Send mainboard off for repair
6	Serial Port	E5	serial port internal loopback error	<ol style="list-style-type: none"> 1. Check serial port function by external device testing 2. Send mainboard off for repair
7	LAN port	E6	LAN port controller error	<ol style="list-style-type: none"> 1. Check LAN port function by LAN connection testing 2. Send mainboard off for repair
9	SATA storage device	E8	SATA storage connection error	<ol style="list-style-type: none"> 1. Check SATA/mSATA device connected 2. Check SATA cable or mSATA device secure 3. Check connected SATA/mSATA device function 4. Send mainboard off for repair

Note! E-eye shows FF after the normal start-up and Self-Diagnosis:



Any of E0~E8 shown by E-eye means there is one or more errors. Values beyond E0~E8 indicates that this may be caused by other drivers or software

If some functions do not work but E-eye shows FF, this is because of the limitation of Self-Diagnosis function of E-eye.

Appendix **D**

Watchdog Timer Programming Example

D.1 Watchdog Timer Programming Example

The watchdog timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash.

This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, watchdog timer either performs a hardware reset to bring the system back to a known state.

The following watchdog timer example code is written in Intel 8086 assembly language, applies to DOS environment. And can be setup to 255 timer levels by software.

```
-----  
; Enter the Extended Function Mode  
;-----  
MOV DX, 2EH ; dependency by HW strap to 2Eh  
MOV AL, 87H  
OUT DX, AL  
OUT DX, AL  
;-----  
; Configure Logical Device 8, Configuration Register CR30  
;-----  
MOV DX, 2EH  
MOV AL, 07H  
OUT DX, AL ; point to Logical Device Number Reg.  
MOV DX, 2FH  
MOV AL, 08H  
OUT DX, AL ; select Logical Device 8  
  
;-----  
;set WDT logic device to active  
;-----  
MOV DX, 2EH  
MOV AL, 30H  
OUT DX, AL ; select CR30  
MOV DX, 2FH  
MOV AL, 01H  
OUT DX, AL ;set WDT active  
  
;-----  
;initial WDT mode  
;-----  
MOV DX, 2EH  
MOV AL, F0H  
OUT DX, AL  
MOV DX, 2FH  
MOV AL, 00H ; bit0: 0-Pulse Mode, 1- Level mode; bit3: 0- second mode, 1- minute  
mode;
```

```
OUT DX, AL ;set second mode, default value

;-----
;set WDT time-out value
;-----
MOV DX, 2EH
MOV AL, F1H
OUT DX, AL
MOV DX, 2FH
MOV AL, 05H
OUT DX, AL ;set time-out value is 5s; 00- time-out disable

;-----
; Exit the Extended Function Mode
;-----
MOV DX, 2EH
MOV AL, AAH
OUT DX, AL
```