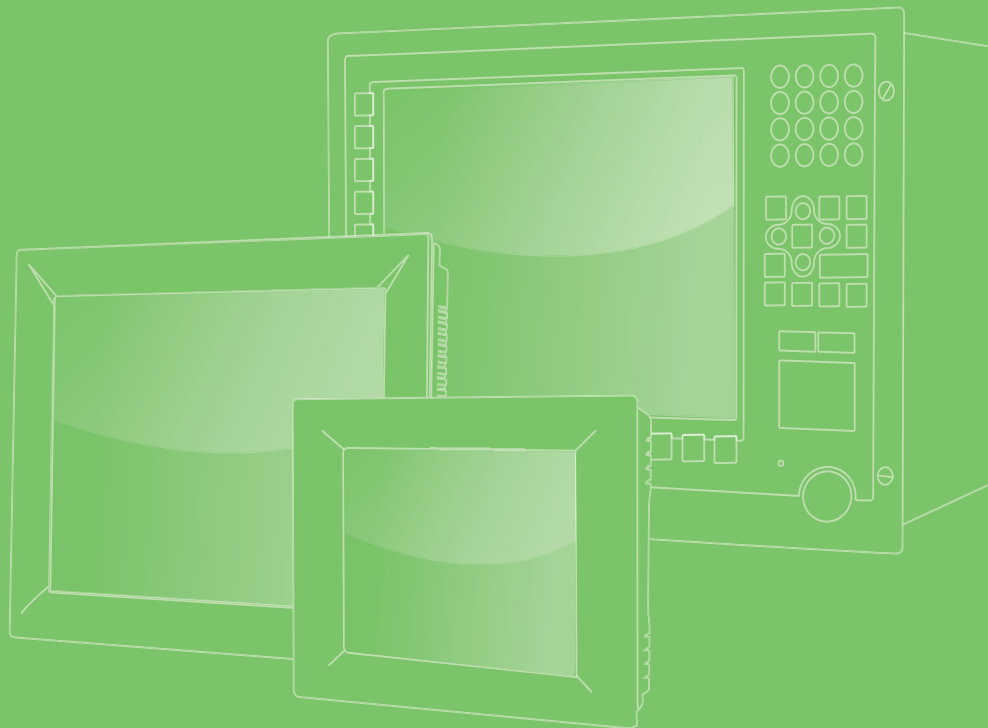


User Manual



PPC-3211W

Intel® Core i processor based
microcomputer, with 21.5" color
TFT LCD display

ADVANTECH

Enabling an Intelligent Planet

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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.

FCC Class B

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Technical Support and Assistance

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

Safety Instructions

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

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

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

Safety Precaution - Static Electricity

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

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

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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Chapter 1

General Information

This chapter gives background information on the PPC-3211W panel PC.

Sections include:

- Introduction
- Specifications
- Dimensions

1.1 Introduction

The PPC-3211W is a new generation Panel PC with WXGA (1920 x 1080) screen. The system is equipped with a high performance Intel Core i CPU and with a high efficiency fanless thermal design in which the heat is easily dissipated. It has multiple I/O ports (five COM, five USB and two Gigabit ethernet) and PCIe/PCI expansion allows users to add-on field bus or proprietary cards making more applications possible.

1.2 Specifications

1.2.1 General Specifications

Product	PPC-3211W-P75A
LCD Display	21.5"
Display Type	21.5" TFT LCD (LED backlight)
Resolution Max.	1920 x 1080
Brightness	300 cd/m ²
Color	16.7M
Pixel Pitch	0.24825 x 0.24825 mm
Viewing Angle	89 (Left), 89 (Right), 89 (Up), 89 (bottom)
Contrast	5000
Backlight Lifetime	50, 000 hours
CPU	Intel® Core™ i5-7300U dual core (default); i7-7600U / i3-7100U (optional)
Memory	1 x SODIMM, DDR4 1866/2133, max. 16 GB (1.2V)
Storage	2 x 2.5" SATA bay (supports Intel RAID); 1 x M.2 bay (size: 22 x 42 mm, socket 2 B key, for storage only)
Network (LAN)	2 x 10/100/1000 Mbps Ethernet (Intel® I211-AT; Intel® I219LM)
I/O Ports	2 x RS-232, 1 x RS-422/485 with 1K VDC isolation, Either 2 x RS-232 or 1 x RS-232 + 1 x GPIO(TTL, 8 pin programmable) on right side (optional module) 4 x USB 3.0, 1 x Line-out, 1 x Mic-in 1 x DB15 VGA 1 x DisplayPort (1.2) 1 x TPM 2.0 (optional)
Expansion	1 x Mini PCIe 1 x PCIe x 4 (Default); 1 x PCI (in the accessory box)
Speaker	2 x 1W
OS Support	Microsoft® Windows 10 (64 bit); Linux
Dimensions	558.40 x 349.80 x 63.80 mm (21.98 x 13.77 x 2.51 in)
Weight	7.67kg(16.87 lb)

1.2.2 Power Specifications

- Power Supply: 9 - 32 Vdc
- Power Consumption: 75W
- Output Voltage: 10-2.5A

1.2.3 Touchscreen Specifications

- Touchscreen type: Multi-touch projected capacitive
- Light Transmission: 88 % ± 2 %
- Controller: USB interface

1.2.4 Environment Specifications

- Operating Temperature: 0 ~ 50 °C (32 ~ 122 °F)
- Storage Temperature: -20 ~ 60 °C (-4 ~ 140 °F)
- Relative Humidity: 10 ~ 95% @ 40°C (non-condensing)
- Shock: Operating 10 G Peak Acceleration (11 ms Duration), Follows IEC 60068-2-27
- Vibration: Operating random vibration test, 5 ~ 500Hz, 1Grms with HDD; 2Grms with SSD, following IEC 60068-2-64

1.2.5 Certification Specifications

- Safety: CB, UL, CCC,BSMI
- EMC: CE, FCC Class B, BSMI

1.2.6 IP

Front Panel IP Grade: IP65

1.2.7 Power Test Conditions

PPC-3211W's power test conditions are as follows:

Test Software	Test Configuration	Test System
Burn in 8.1	Memory: 16G SO-DDR4-2400 x 1 HDD:500G WD AV 2.5"x 1 SSD:64G 640 Series 2.5"x 1 IO: COM Port RS232 loopback x4, USB 3.0 device x4, USB 2.0 x1	Win10 64Bit

1.3 Dimensions

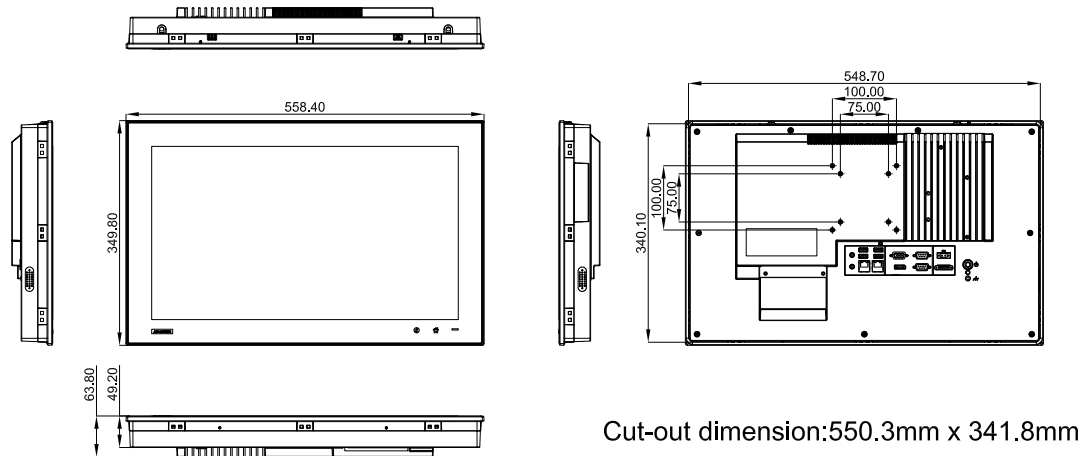


Figure 1.1 PPC-3211W dimensions

Note! Supports VESA 100 x 100mm & 75 x 75mm; please use M4 screws, 6 mm depth (maximum). Use suitable mounting apparatus to avoid risk of injury.



Chapter 2

System Installation & Setup

Sections include:

- Quick Installation Guide
- Installation Procedures
- Installing Memory
- Installing HDD
- Installing M.2
- Installing Wireless LAN
- Installing Side COM Port/GPIO
- Installing TPM
- Installing Expansion Card
- AT/ATX Function Switch
- Grounding Installation
- Hook Installation
- Independent Quick Installation

2.1 Quick Start Guide

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

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

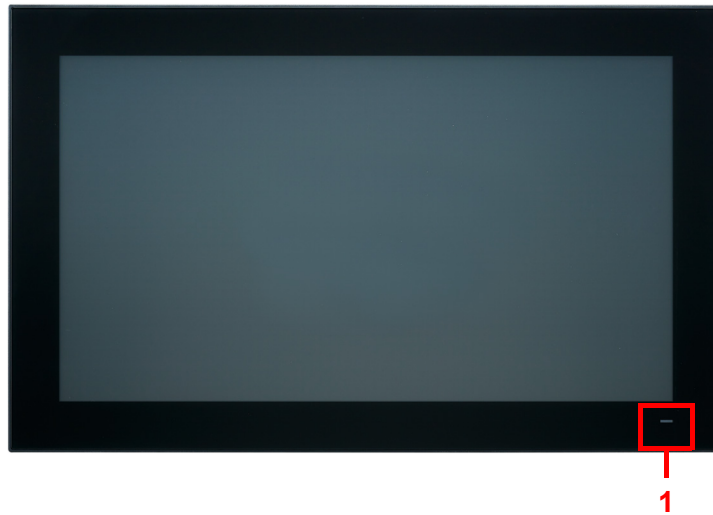


Figure 2.1 Front panel

1. Power status indicator, off (S5): orange, on (S0): blue

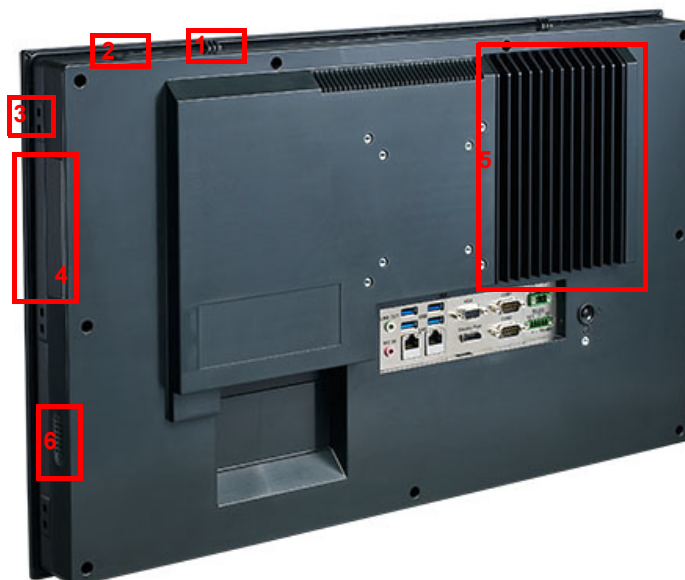


Figure 2.2 Side view

1. Quick installation clip (two)
2. Antenna hole (two)
3. Panel Mount Bracket holes (twelve)
4. Side RS-232x2 interface (optional)
5. CPU cooler
6. Speaker (two)

I/O interfaces:

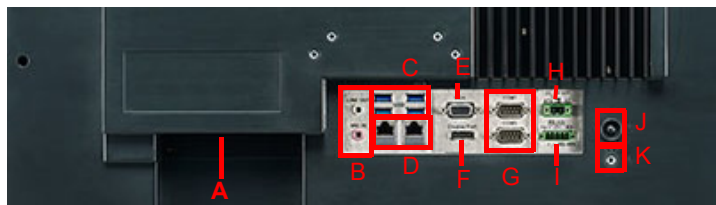


Figure 2.3 Location of I/O interfaces

A: PCI/PCIE x4 Expansion slot

B: Line out/Mic in

C: 4 x USB 3.0

D: 2 x Giga Ethernet

E: VGA

F: DP

G: 2xCOM RS232

H: DC power(9-32 V)

I: 1 x COM RS422/485

J: Power button

K: Grounding screw

2.2 Installation Procedures

2.2.1 Connecting the 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. Connect the female end of the power cable to panel PC's DC socket.
2. Connect the male end of the power cable to power outlet.



Figure 2.4 Connecting the power cable

2.2.2 Connecting the Keyboard and Mouse

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

2.2.3 Power ON

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. Loosen the screws as indicated in the red circle. (See Fig 2.5)
2. Press the red areas to pull out the hook (See Fig 2.6 ~ 2.8) and open the rear cover.

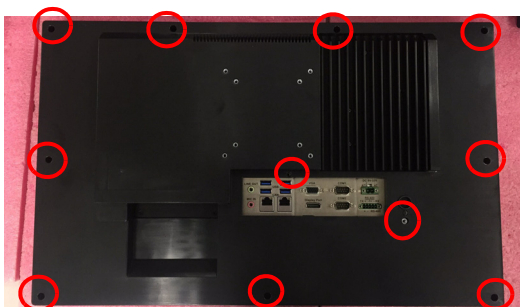


Figure 2.5



Figure 2.6



Figure 2.7

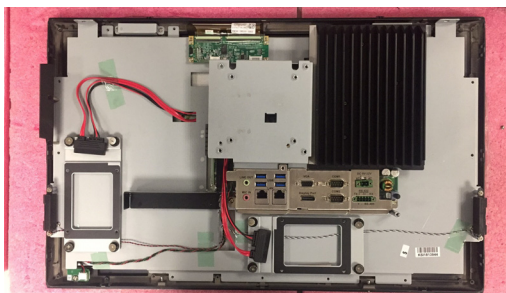


Figure 2.8

3. Remove the yellow warning tag first. Then remove the screws as indicated in the red circle. (See Fig 2.9), and take out the strength plate & CPU heatsink.

Note! Take out the black and blue thermal grease from the accessory box (as indicated in Figure 2.10). Attach the CPU heatsink and strength plate after the grease is applied.

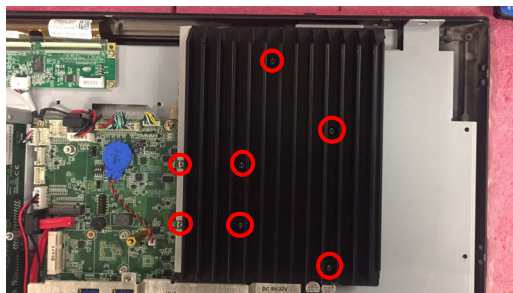
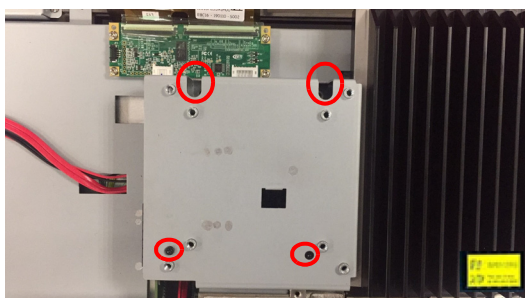


Figure 2.9

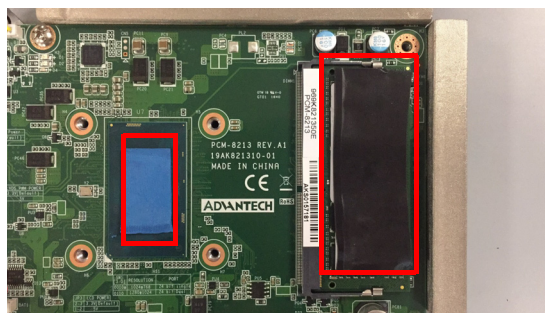


Figure 2.10

Note! CPU cooler pad surface is isolated by anodization treatment to avoid static electricity (CPU contact side excluded).



2.4 Installing the HDD

1. Follow the procedures in Section 2.3 to open the rear cover and remove the screws as indicated in the red circles in Fig 2.11.
2. Install the HDD (see Fig 2.12), and take out the 4 screws from the accessory box to fix the HDD and then fix the strength-plate (8 screws will be needed if using two HDDs).
3. Lock the HDD bracket, and connect the HDD cable to the mainboard. (See Fig 2.13)

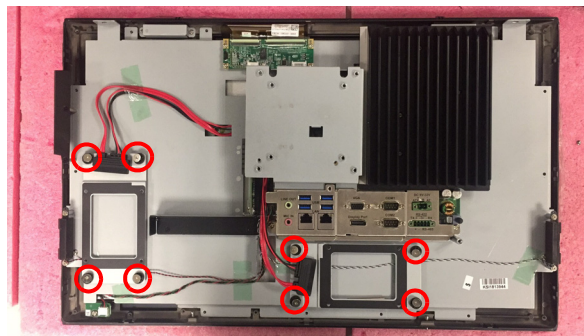


Figure 2.11



Figure 2.12

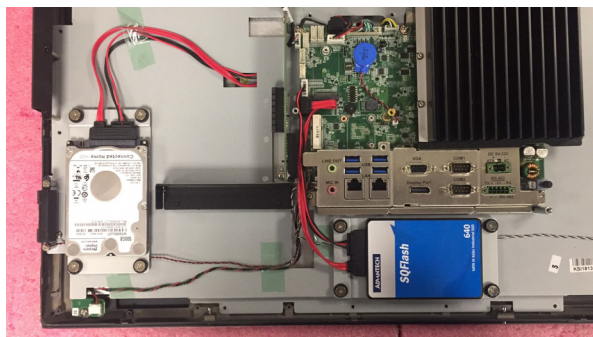


Figure 2.13

2.5 Installing M.2

1. Follow the procedures in Section 2.3 to remove the rear cover and strength-plate. (See Fig 2.14)
2. Plug the M.2 into the mainboard interface, and remove the 2 M2.5x4 screws from the accessory box to fix it (See Fig 2.15).
3. Return the rear cover and strength-plate.

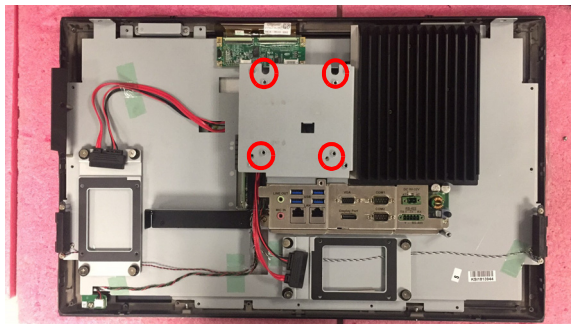


Figure 2.14

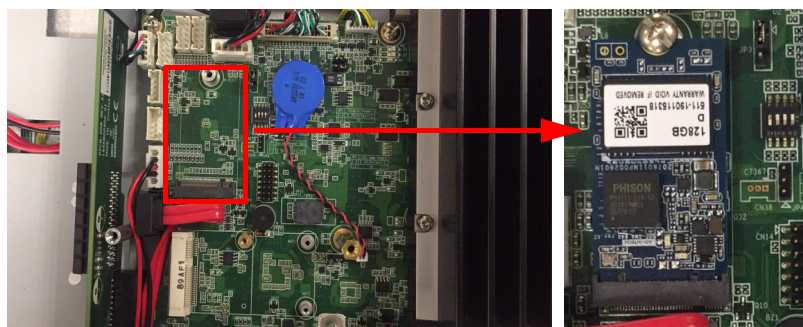


Figure 2.15

2.6 Installing Wireless LAN Card

1. Follow the procedures in Section 2.3 to open the rear cover and strength-plate. The wireless LAN card can be installed to the locations as indicated in Fig 2.16; for the wireless short card, you need to take out one hexagonal screw from the accessory box to fix it (Note: If a half-size PCIE is used, then screw in the red circle should be tightened, See Fig 2.17).



Figure 2.16

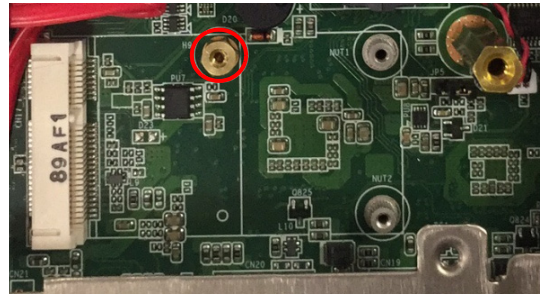


Figure 2.17

2. Connect the wireless LAN card module cable to the antenna bracket, please note the installation direction of cable end and screws/cushions. (See Fig 2.18)
3. Remove the two plugs on the left and right sides of the rear cover. (See Fig 2.19)
4. Return the rear cover and install the antenna of the wireless LAN card module. (See Fig 2.20)

Note! For wireless LAN card module, choose Advantech Product: (Part No. PPC-WLAN-C1E).

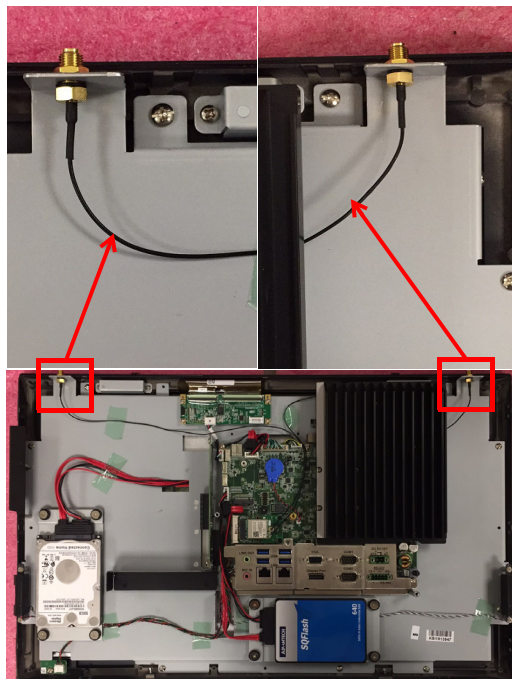


Figure 2.18

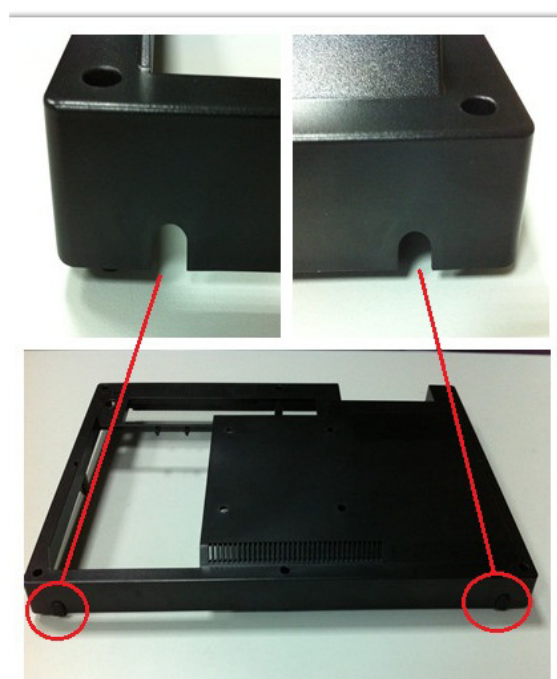


Figure 2.19

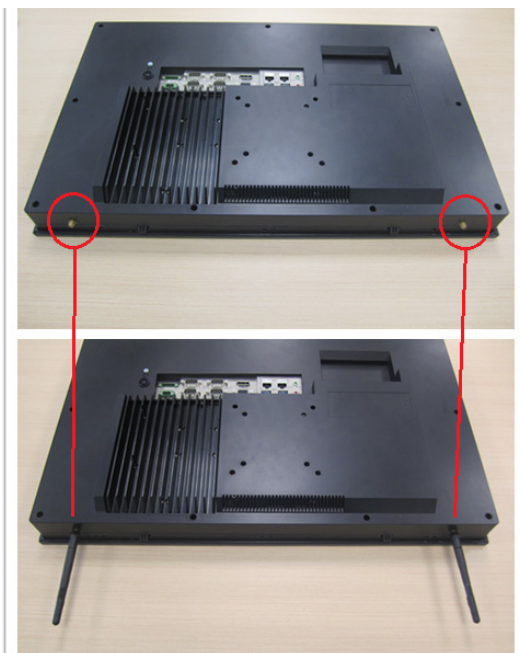
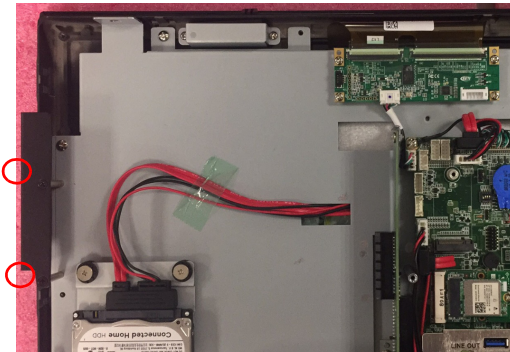


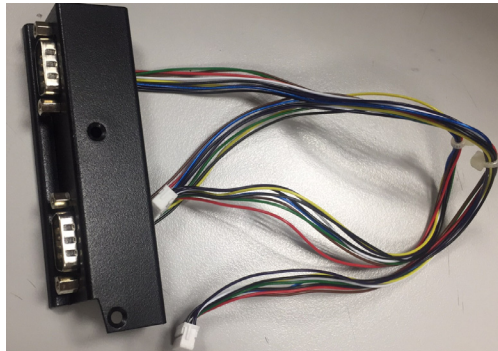
Figure 2.20

2.7 Installing Side COM Port/GPIO

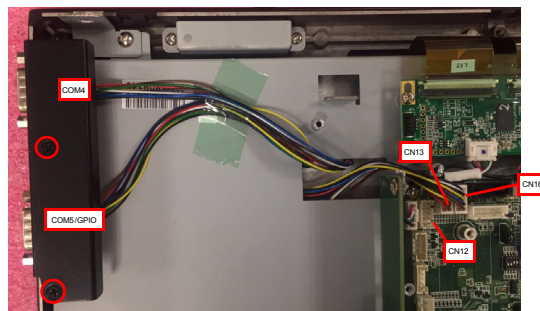
1. Refer to Section 2.3 to remove the back cover and reinforcing plate and remove the side COM flap by removing the 2 screws within the 2 red circles.



2. Take out the serial port module and assemble it as below.

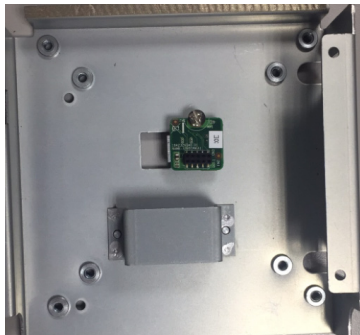


3. Integrate the assembled serial module into the system (the two screws in the red circles are fixed). Then insert the cable of COM4 into CN16 and the COM5 cable into where CN13 is located based on the figure below. Then put the reinforcing plate and the back cover to their original places. If you insert the cable of COM5 into CN12, COM5 will support GPIO.

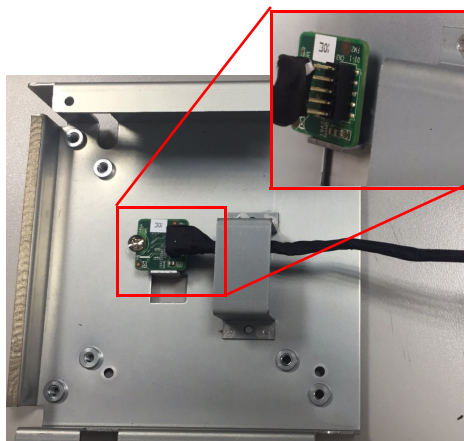


2.8 Installing TPM (current mechanism only supports 98R3P321110)

1. Refer to Section 2.3 to remove the back cover and the reinforcement plate. Remove the TPM card (96923260J0E) from the TPM module and fix it on the back of the reinforcement plate. See figure below.



2. Insert the cable into the TPM interface. Note that the white point corresponds to the first pin of the TPM board. The direction of the line is as follows.



3. Align the white point of the TPM Cable Pin 1 and the Pin of the motherboard CN14, and insert the screws on the reinforcing plate.



2.9 Installing the Riser Card

1. Remove the rear cover of the Panel PC. Then remove the screws and shield as indicated in the red circle in Fig 2.21 and install the expansion card.
2. The original machine provides PCIe x4 riser card (PCM-939), and the installation is shown as Fig 2.21 and 2.22).
3. The installation of expansion PCI riser card is shown as Fig 2.23 and Fig 2.24.

Note! The maximum dimensions of the expansion card is 175mm x 106.7 mm.

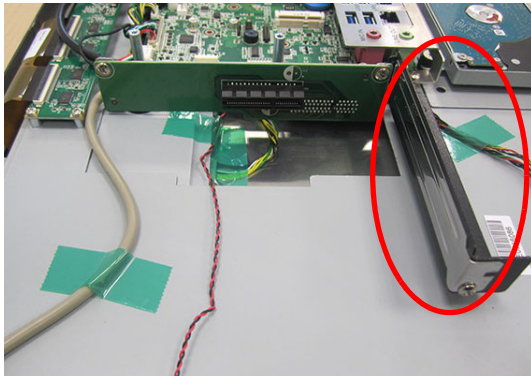


Figure 2.21

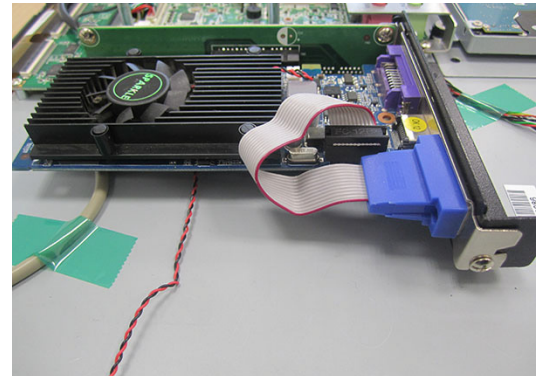


Figure 2.22



Figure 2.23



Figure 2.24

2.10 AT/ATX Function Switch

The switch is built in to the machine. Use it to choose AT/ATX functions without removing the rear cover.

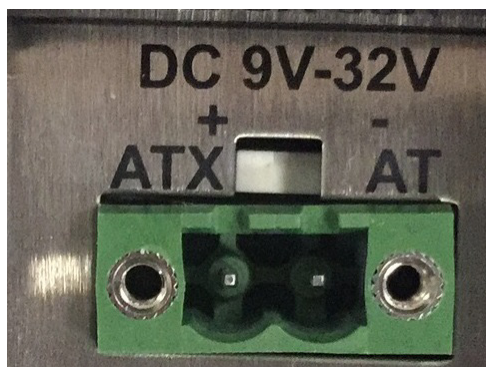


Figure 2.25 ATX mode



Figure 2.26 AT mode

2.11 Grounding Installation

Loosen the screws, remove down the plastic cover, plug in the grounding cable, and then fix the screws. (See Fig 2.27 ~ Fig 2.30)



Figure 2.27



Figure 2.28

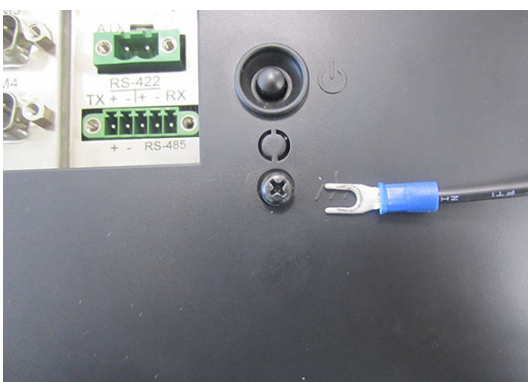


Figure 2.29



Figure 2.30

Note! The grounding cable is not provided in the accessory box.



2.12 Hook Installation

Follow the figures below:

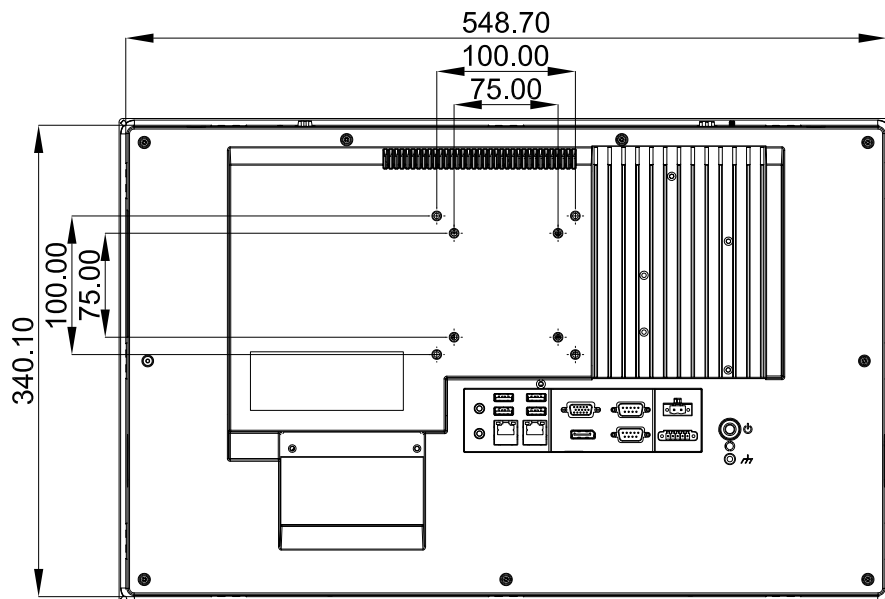
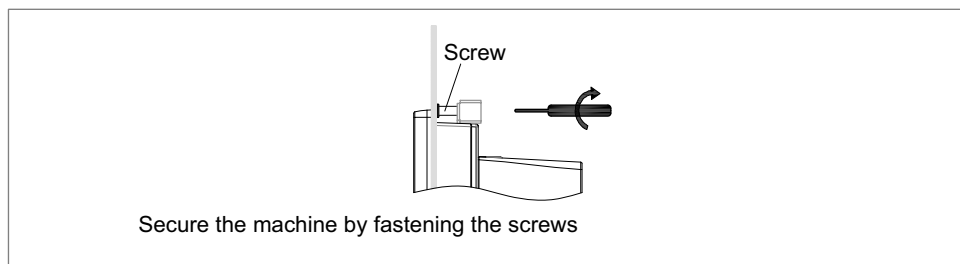
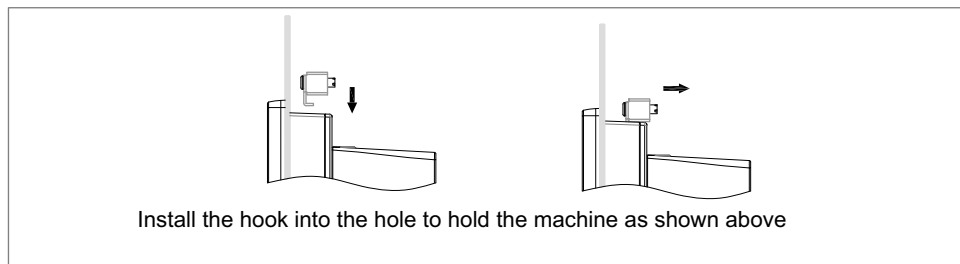
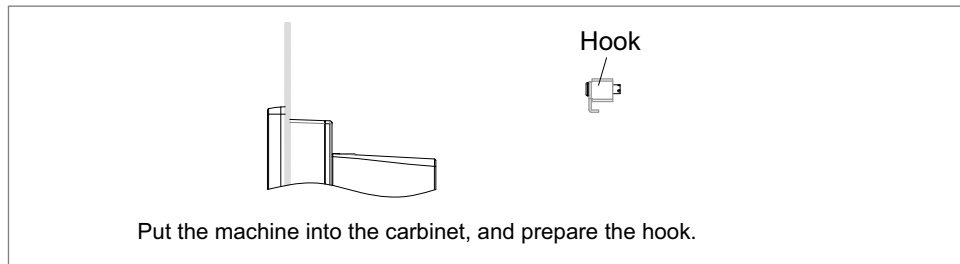
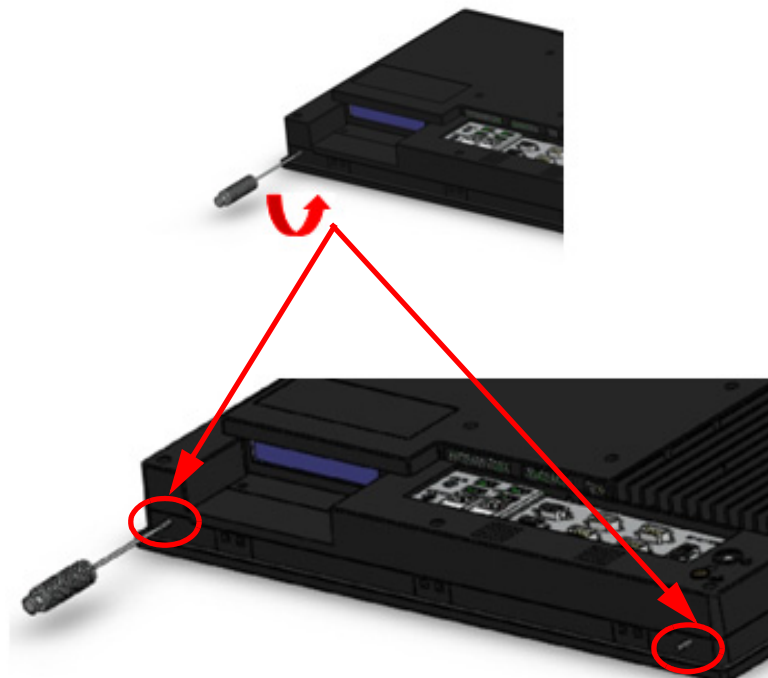


Figure 2.31 Hook Installation

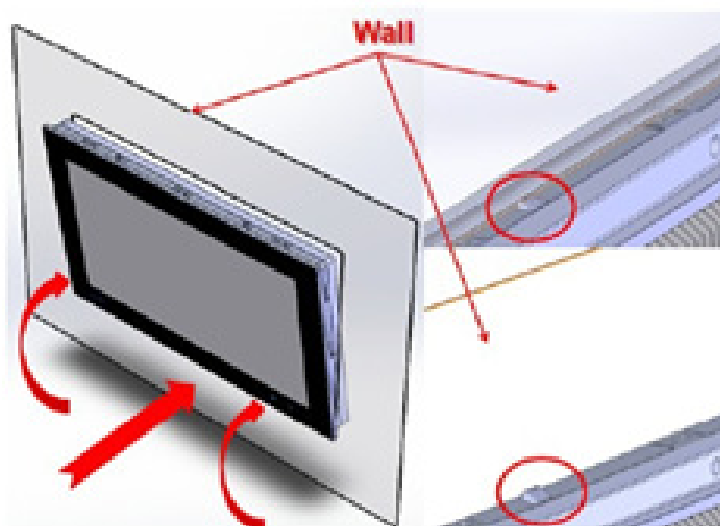
2.13 Solo Quick Installation

Users can independently complete the panel wallmount installation by quick installation guide. Follow the procedures below:

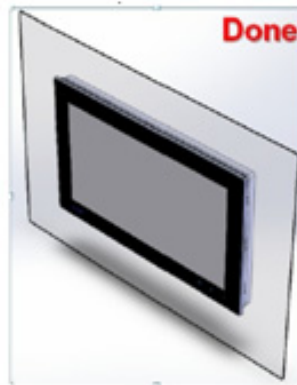
1. Loosen the two screws at the base, see the figure below.



2. Push the machine into a gap in the wall, the spring hook will lock the machine into the wall.



- Installation is complete as shown in the figure below. Then in the rear of the machine, lock the hook screw and fix the machine according to Section 2.10 "Hook Installation".



Note! *It is recommend that the mount thickness is smaller than 2 mm (0.079") according to quick installation guide. For other situations, the recommended thickness is less than 6 mm (0.236").*



Chapter 3

Jumper Configuration

Sections include:

- Jumper & Connectors
- External COM Port Pin Definition

3.1 Jumper & Connectors

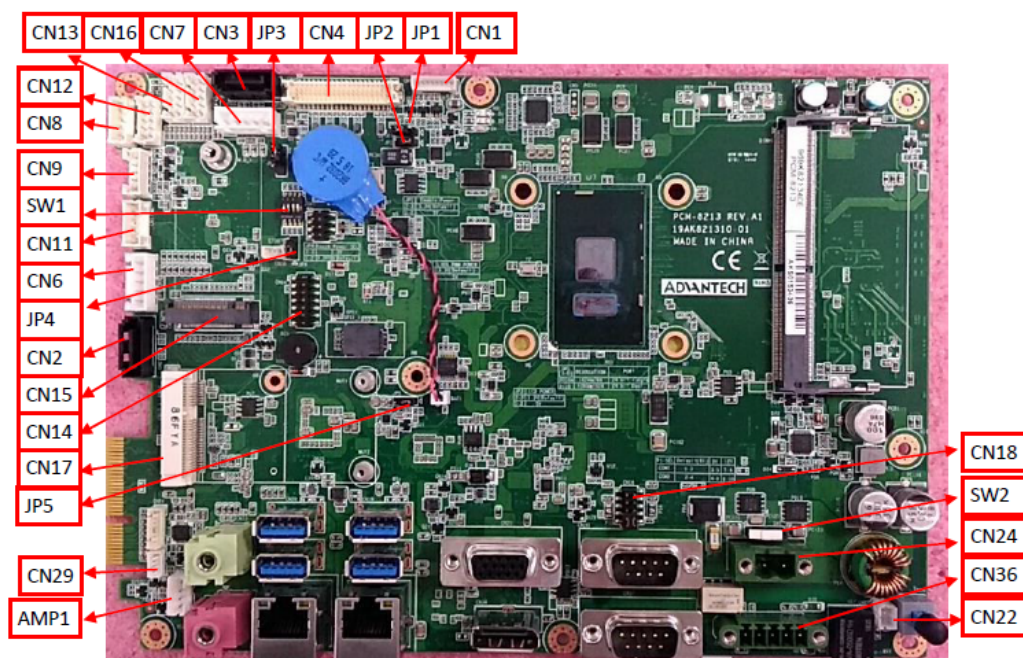
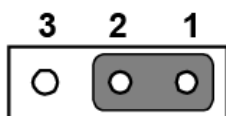


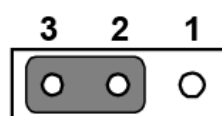
Figure 3.1 PCM-8213 front view

Connectors	Functions
CN1	Inverter
CN2/CN3	SATA1/ SATA2
CN4	LVDS
CN6/CN7	SATA POWER
CN8/CN9	Internal USB
CN11	Resistance Touch
CN12	GPIO
CN16/CN13	COM4/COM5
CN14	LPC CONN
CN15	M.2 Conn
CN17	MiniPCIE Conn
CN18	COM Pin9 Power Select (COM1&COM2)
CN22	Power Button
CN24	Power Input
CN29	Front LED
CN36	COM3 (RS422/485)
AMP1	Amplifier Conn
JP1/JP2	Invert Enable/PWM Power Select
JP3	Panel Power Select
JP4	Touch Power Select
JP5	RTC Reset
SW1	Panel Resolution
SW2	AT/ATX Select

JP1	Picture	Invert Enable Power Select
(1-2)	P1	5V
(2-3)	P2	3.3V Default*

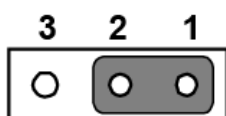


P1

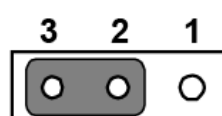


P2

JP2	Picture	Invert PWM Power Select
(1-2)	P3	5V
(2-3)	P4	3.3V Default*

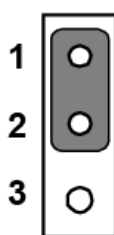


P3

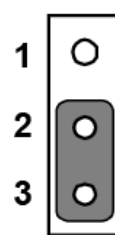


P4

JP3	Picture	Panel Power Select
(1-2)	P5	5V
(2-3)	P6	3.3V Default*

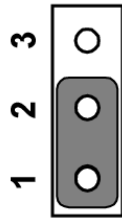


P5

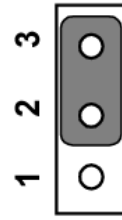


P6

JP4	Picture	Resistance Touch Power Select
(1-2)	P7	3.3VSB Default*
(2-3)	P8	3.3V

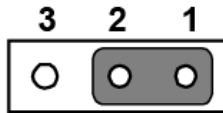


P7

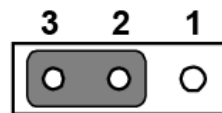


P8

JP5	Picture	RTC Reset
(1-2)	P9	Normal*
(2-3)	P10	CMOS Clear

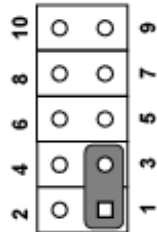


P9

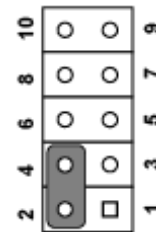


P10

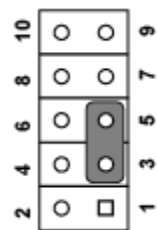
CN18	Picture	COM1/2 RING and Power Select
(1-3)/(2-4)	P11/P12	COM1/COM2 RI
(3-5)/(4-6)	P13/P14	COM1/COM2 5V
(7-9)/(8-10)	P15/P16	COM1/COM2 12V



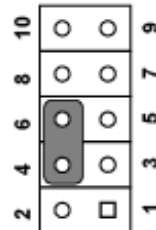
P11



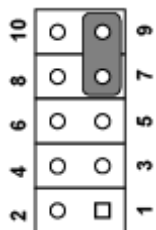
P12



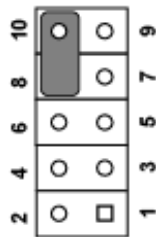
P13



P14

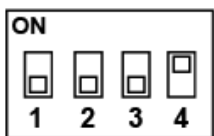


P15

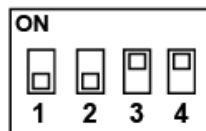


P16

SW1	AT/ATX Select		
1,2,3 off; 4 on	P17	1920*1080(48bit)	PPC-3211W
1,2 off; 3, 4 on	P18	1920*1080(48bit)	PPC-3151W

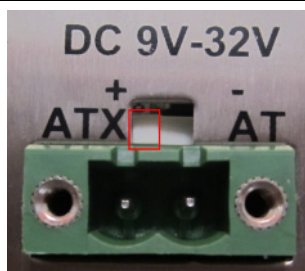


P17

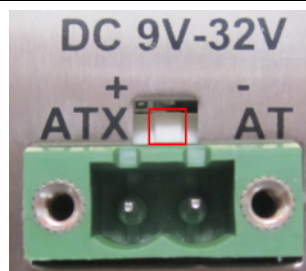


P18

SW2	AT/ATX Select		
1-3	P19	ATX Power	Default*
2-3	P20	AT Power	



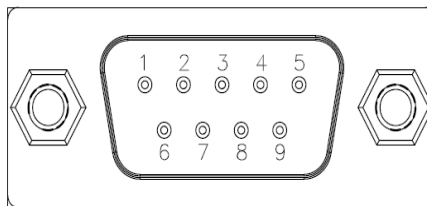
P19



P20

CN12 GPIO

Pin	Name
1	GND
2	GPIO4
3	GPIO0
4	GPIO5
5	GPIO1
6	GPIO6
7	GPIO2
8	GPIO7
9	GPIO3



3.2 External COM Port Pin Definition

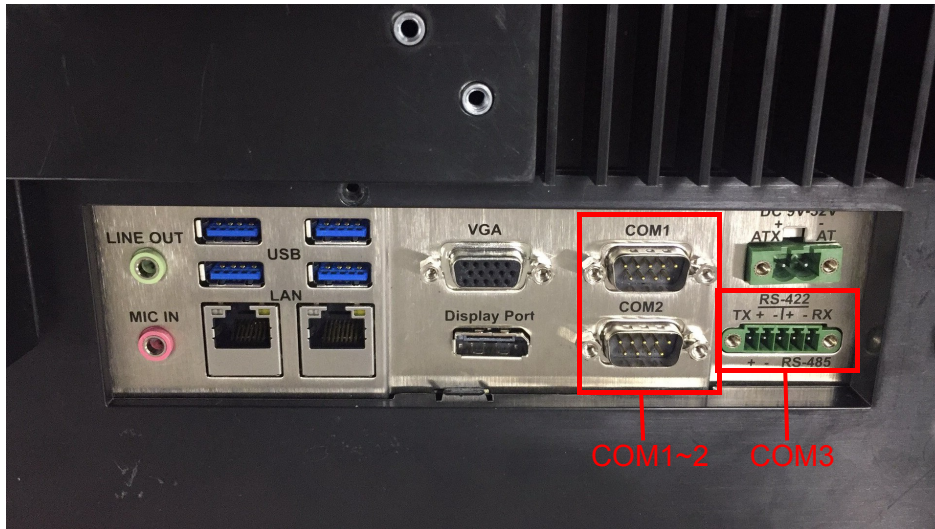


Figure 3.2 COM ports

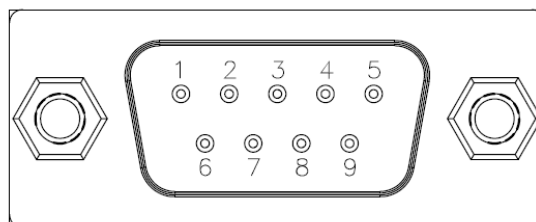
COM 1 and COM 2 (RS232, pin 9 supports 5 V/12 V output)

COM 3 RS-422/485

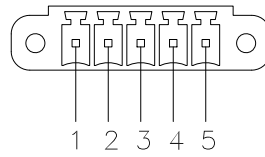
COM 1-2:

PIN	COM1/COM2
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RING or 5V/12V output

Pin 9 is set as RI signal in COM port by default, and could be set as 5V/12V output by Jumper



COM3: RS422/485 with Isolation 1000 VDC, BIOS selectable



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

UART RS485 Auto Flow Control

COM5 supports RS485 auto flow control function for all UART.

When enabling the RS485 auto control function, it will automatically drive RTS# pin to logic high or low for flow control.

To make this RS485 auto flow control function work, please note that the parity and stop-bit setting has to be one of the following three settings:

- (1) 8 data bits + 1 parity bit + 1 stop bit
- (2) 8 data bits + 1 parity bit + 2 stop bits
- (3) 8 data bits + 2 stop bits

Chapter 4

Software Configuration

Sections include:

- Installing Drivers
- BIOS Setup Program

4.1 Install Drivers

Before installing software on the panel PC, install the corresponding drivers to ensure full functionality.

All drivers can be downloaded from the Advantech website

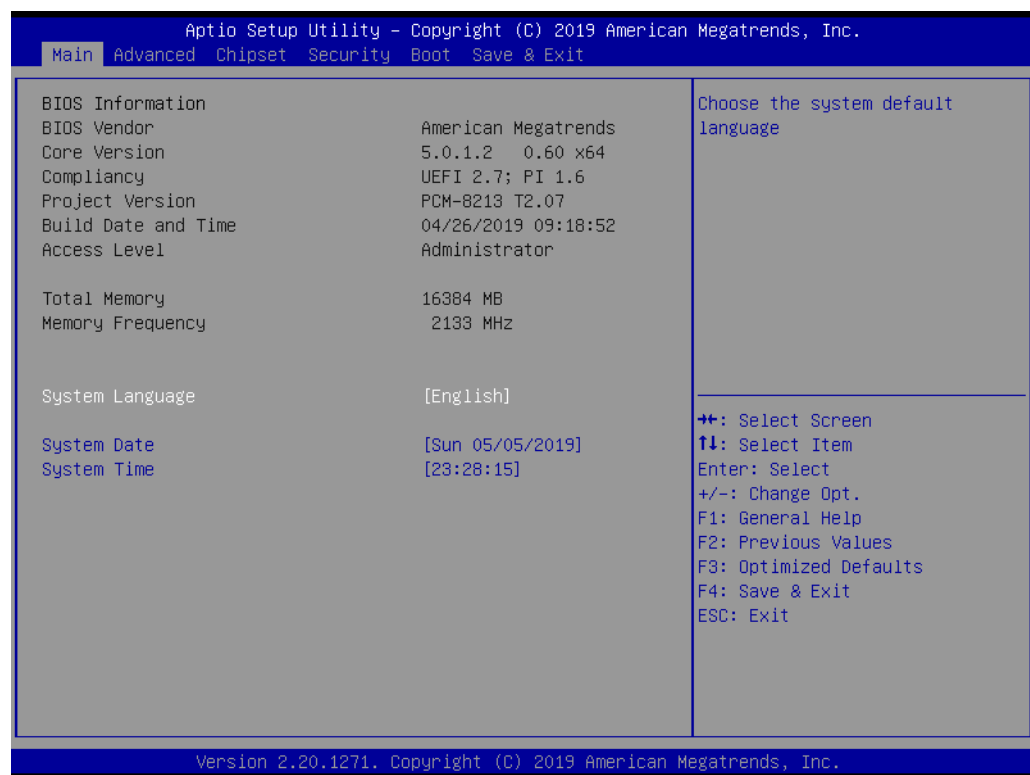
<http://www.advantech.com>

4.2 BIOS Setup Program

4.2.1 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.



4.2.2 Adjustment of LCD Brightness

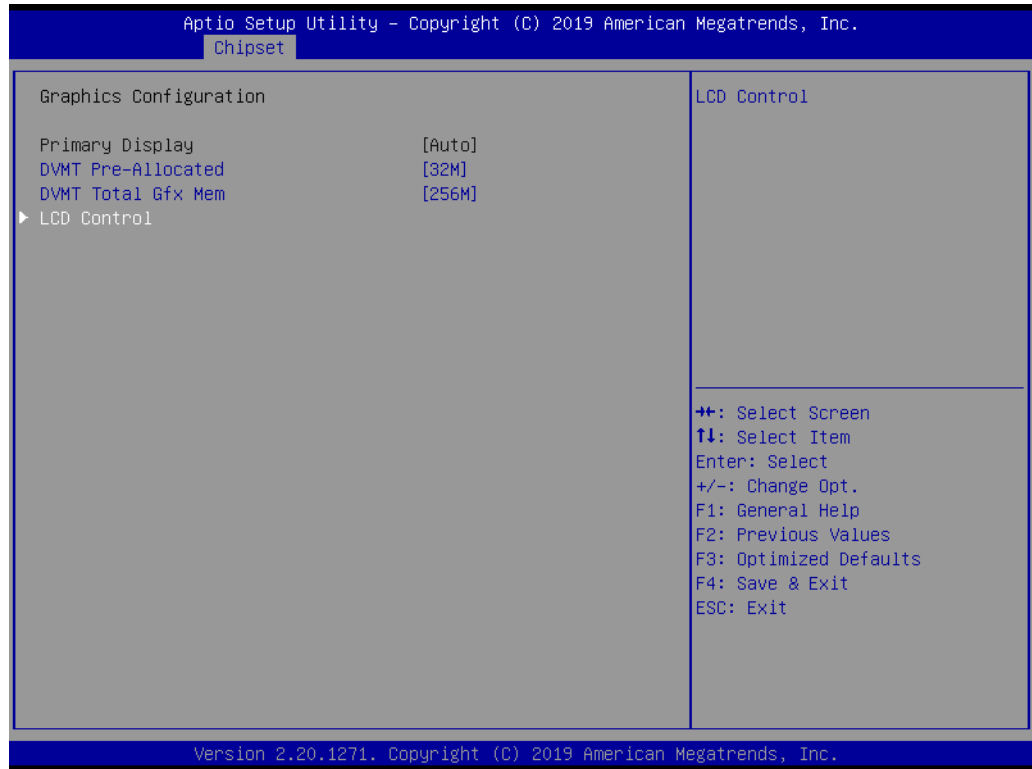
1. Select "System Agent (SA) Configuration" in "Chipset" tab.



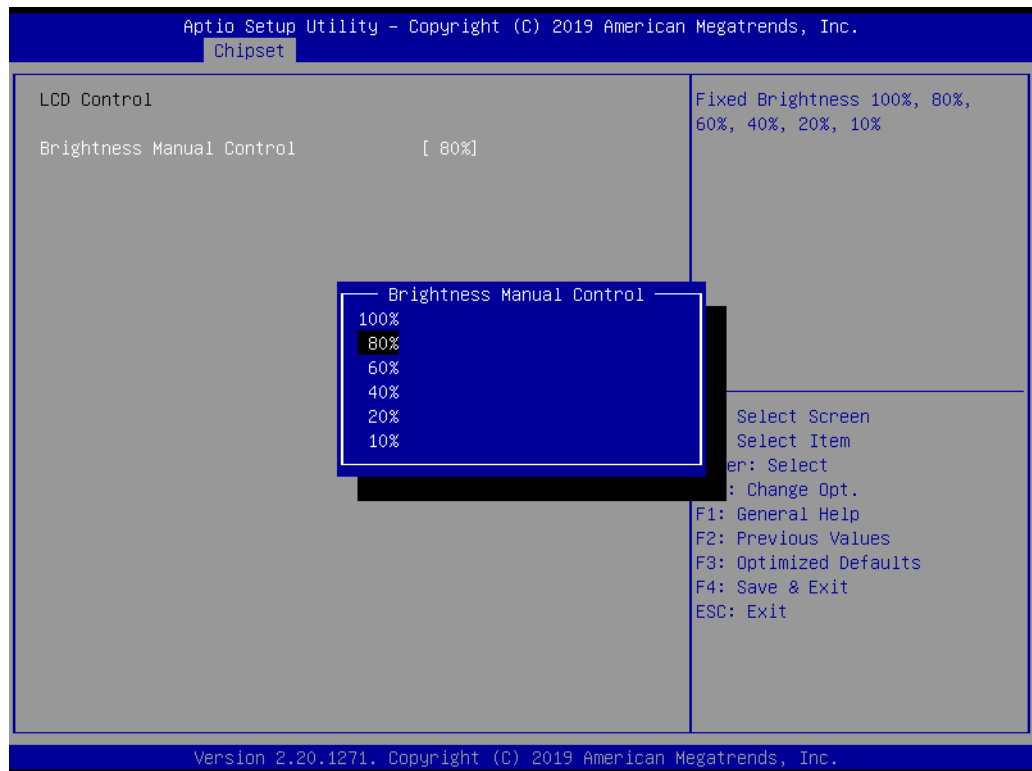
2. Then select "Graphics Configuration".



3. Select "LCD Control".

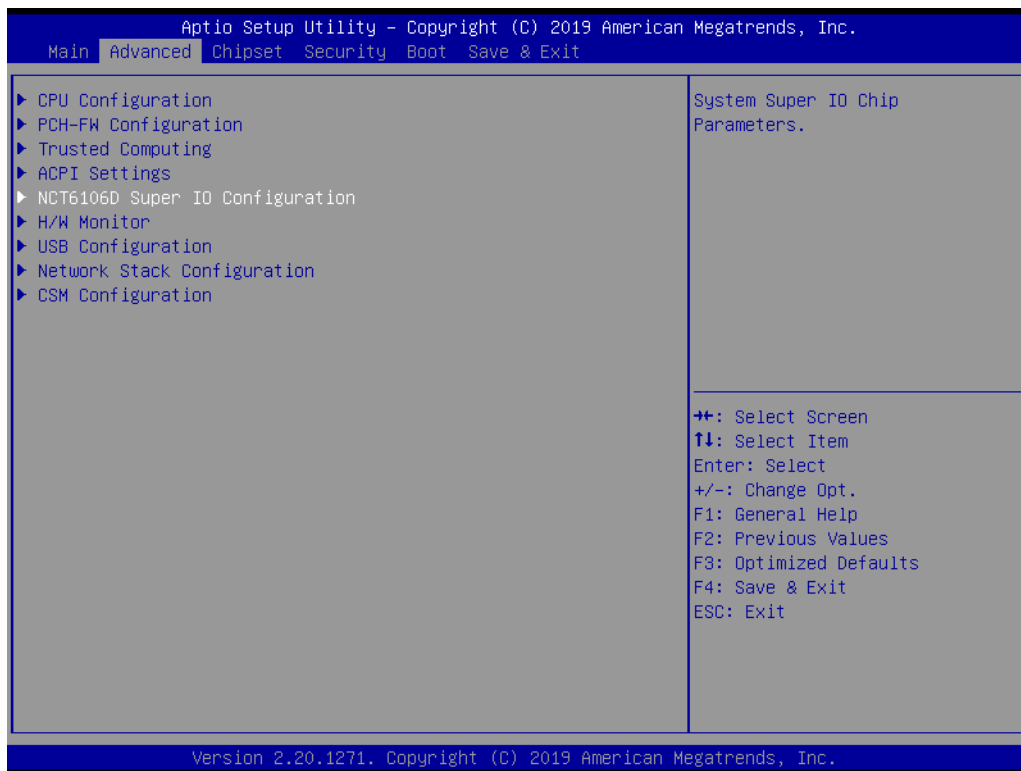


4. There will be six brightness levels to choose in "Brightness Manual Control"

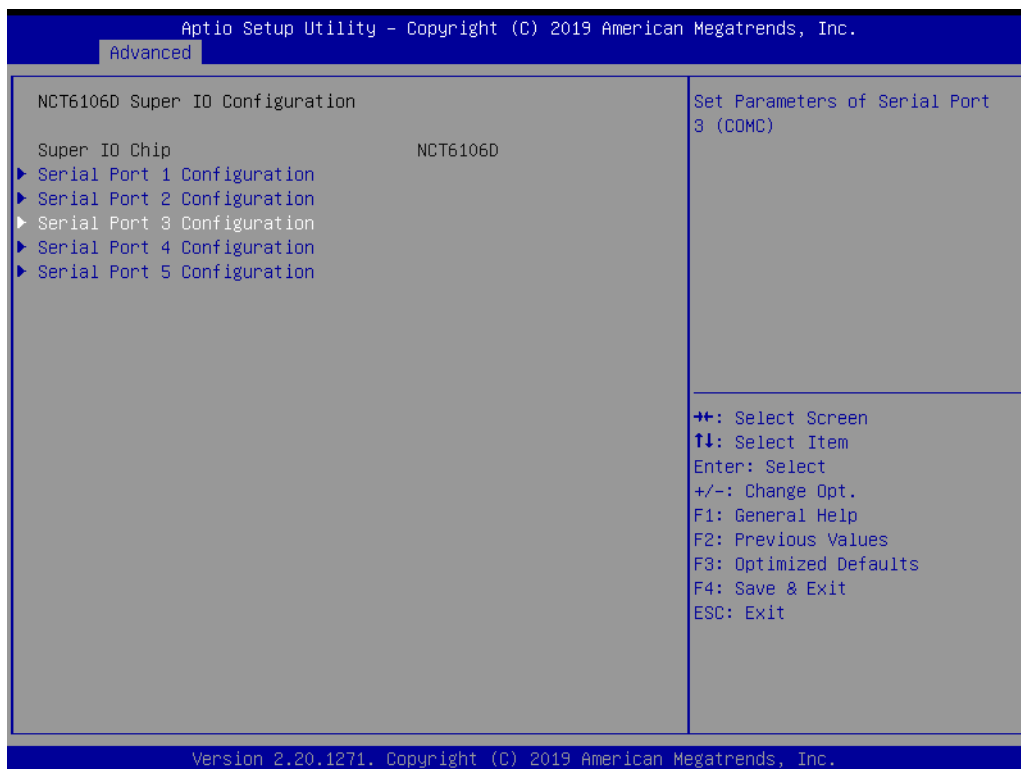


4.2.3 COM3 Mode Selection (RS422/RS485)

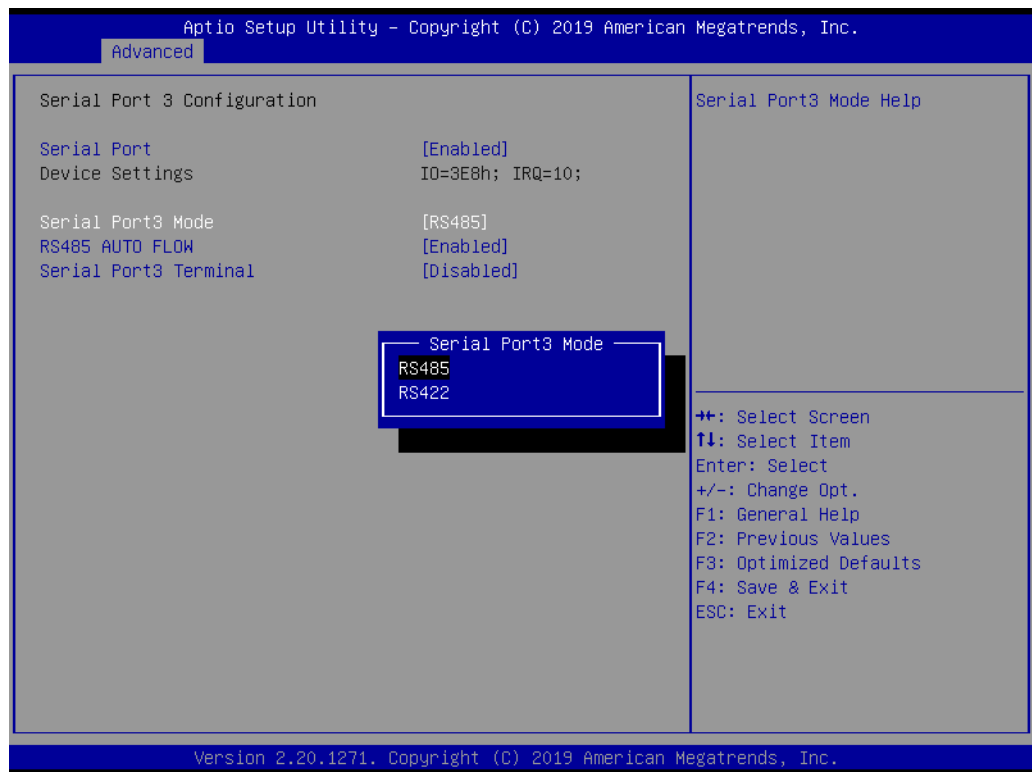
1. Select "NCT6106D Super IO Configuration" in the "Advanced" tab.



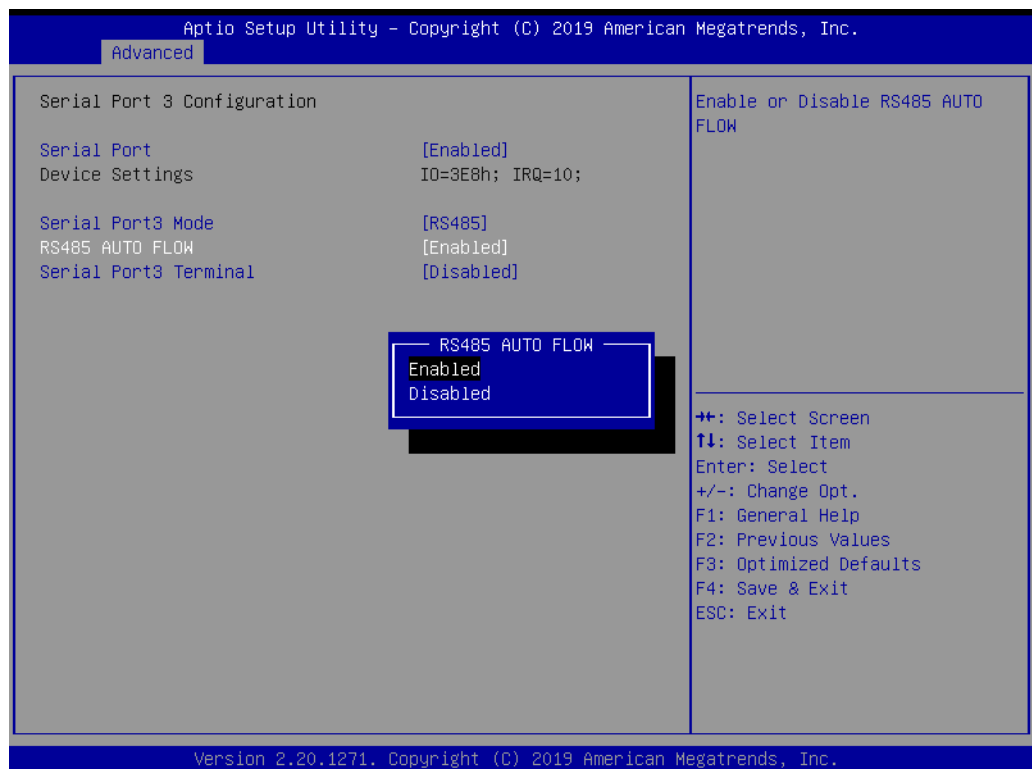
2. Select "Serial Port 3 Configuration" and click to select.



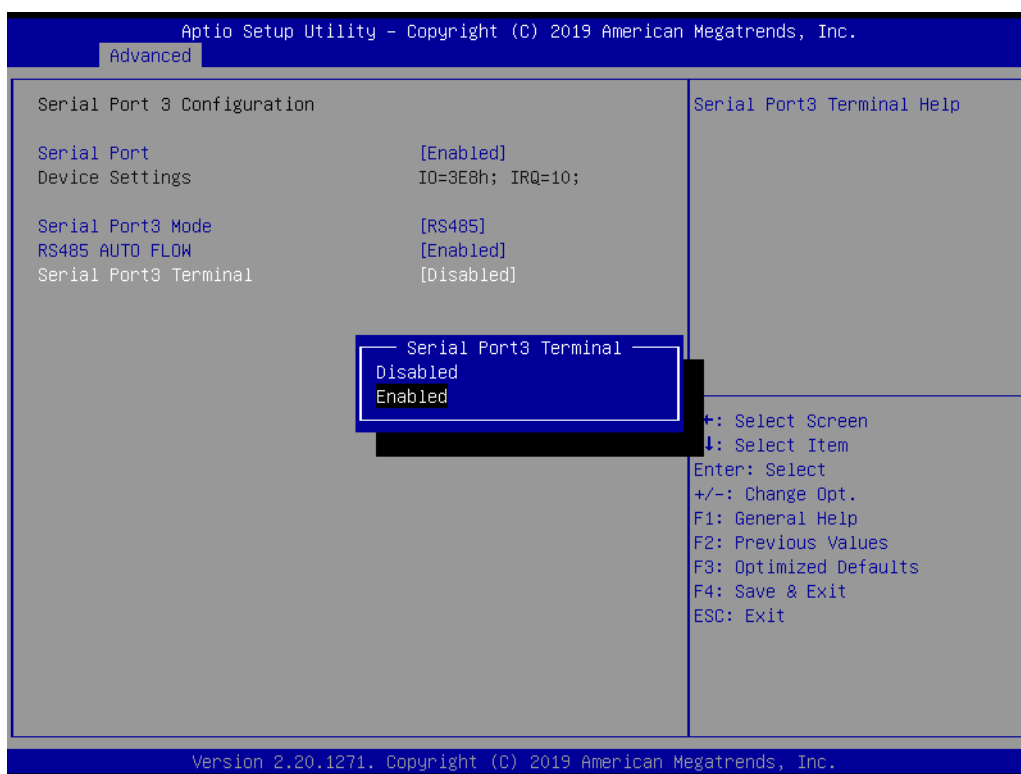
3. Select "Serial Port 3 Mode" and then click to select COM3 operation mode [RS422] or [RS485]



4. When COM3 Mode is selecting RS485, "RS485 Auto Flow" also can select [Enabled] or [Disabled]



When COM3 Mode is RS422/RS485, "Serial Port3 Terminal" can also select [Enabled] or [Disabled]

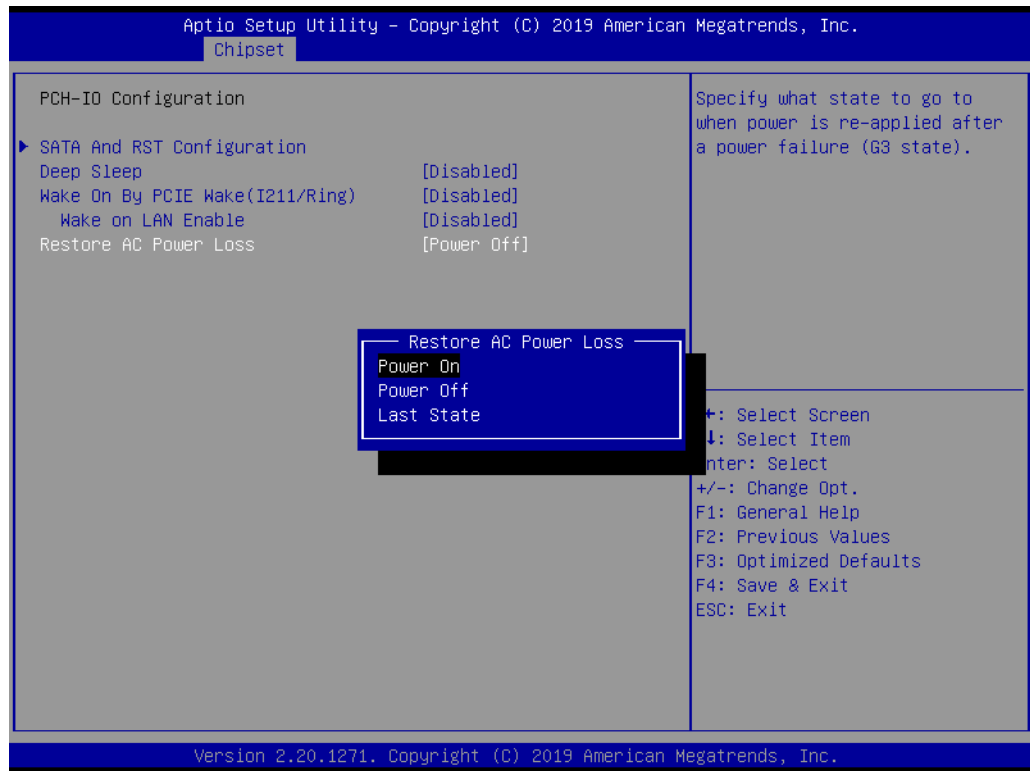


4.2.4 BIOS AT & ATX Setup

1. Select "PCH-IO Configuration" in the "Chipset" tab.



- In "Restore AC Power Loss", set "Power On" for "AT mode" and "Power Off" for "ATX mode".

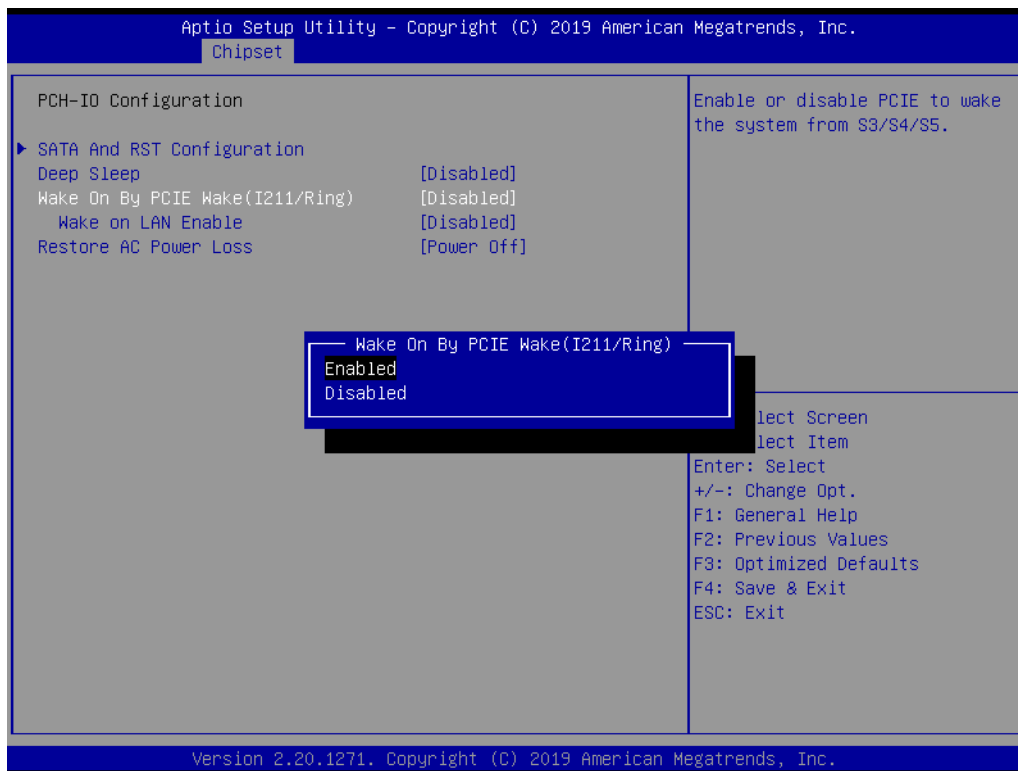


4.2.5 Wake on LAN or Ring

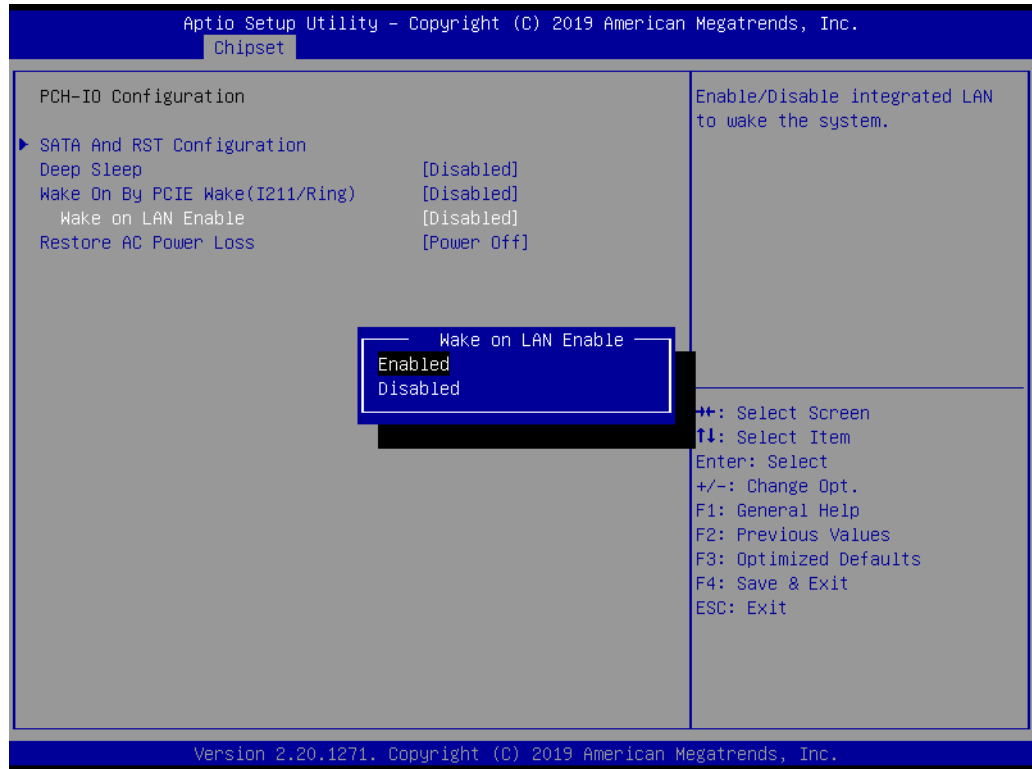
1. Select "PCH-IO Configuration" in the "Chipset" tab.



2. Set "Wake on By PCIE Wake" to "Enabled" if wake up is through I211 or Ring.

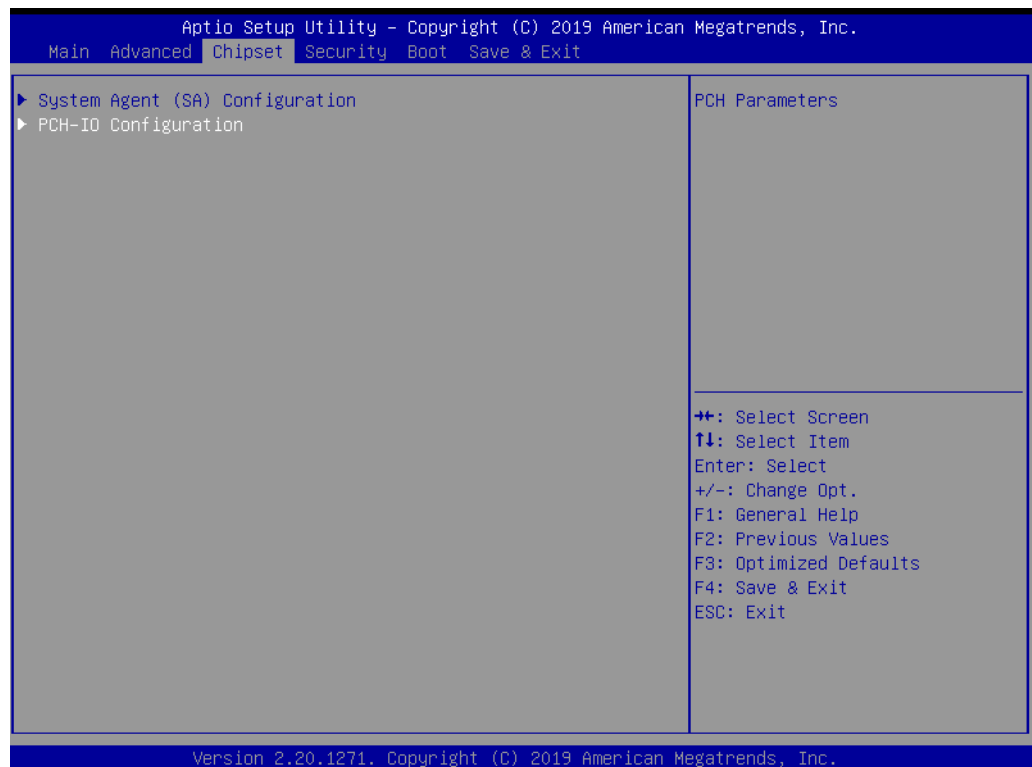


3. Set "Wake on LAN Enable" to "Enabled" if wake up is through I219.

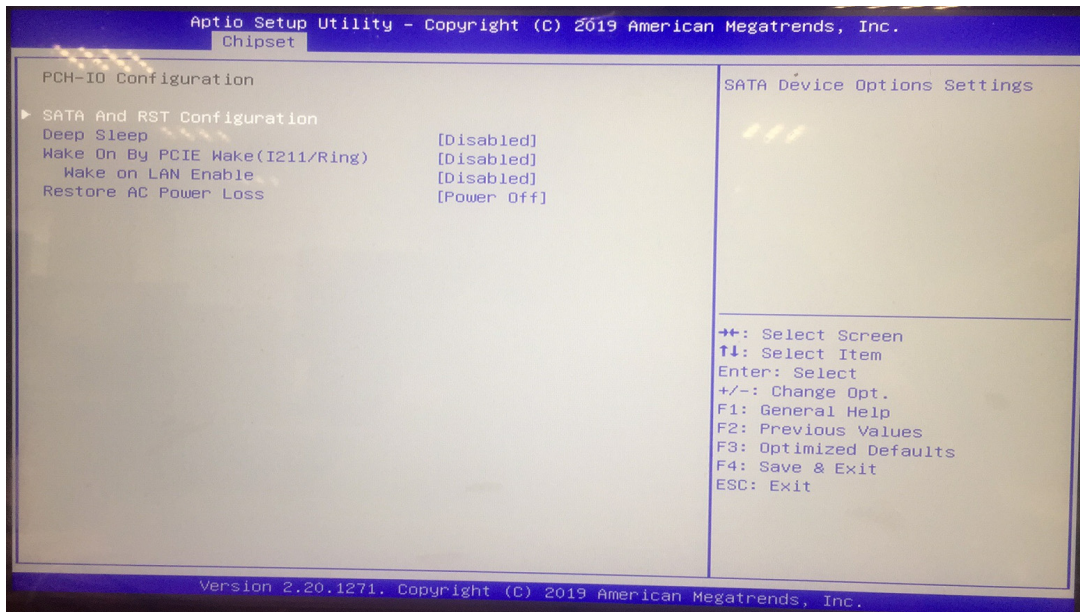


4.2.6 Installing RAID

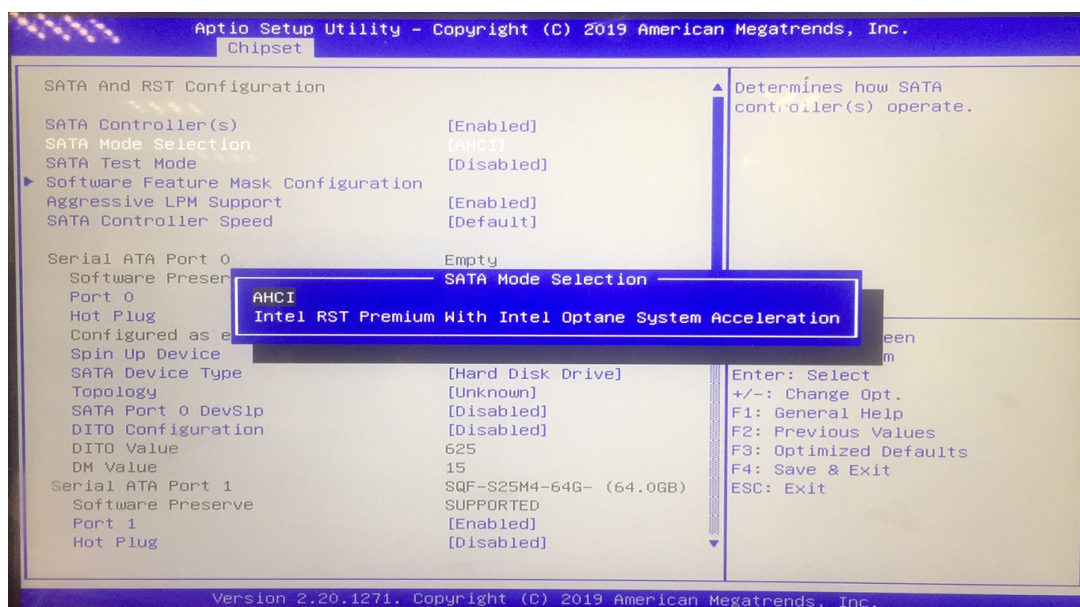
1. Press the Del key to enter the BIOS and select "PCH-IO Configuration" under Chipset.



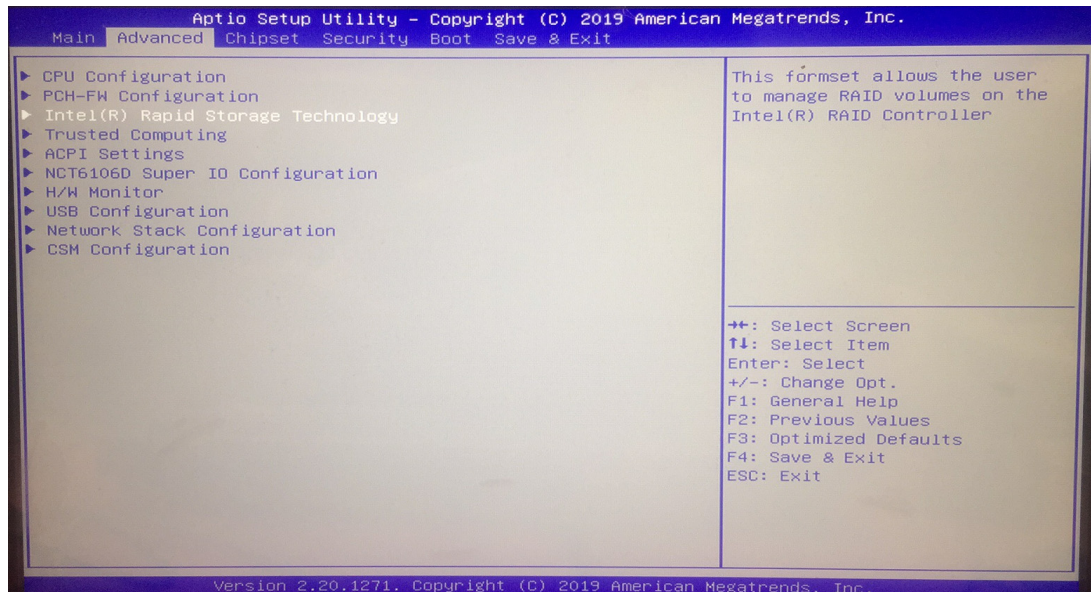
2. Select "SATA AND RST Configuration" and press Enter.



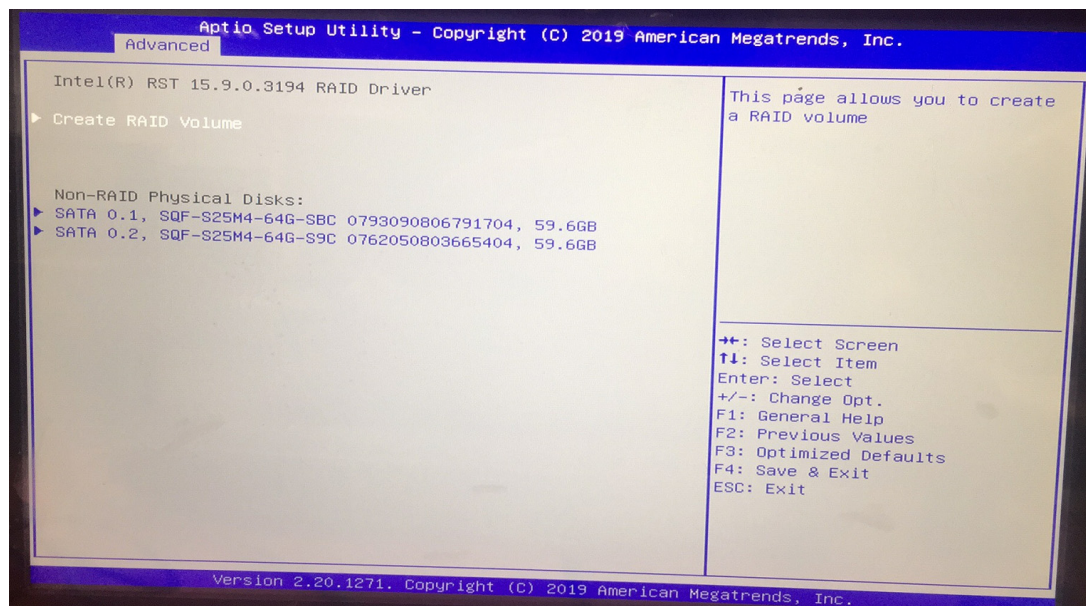
3. Select "SATA Mode Selection" and select "Intel RST Premium with Intel Optane System Acceleration". Save and restart the BIOS Setup interface.



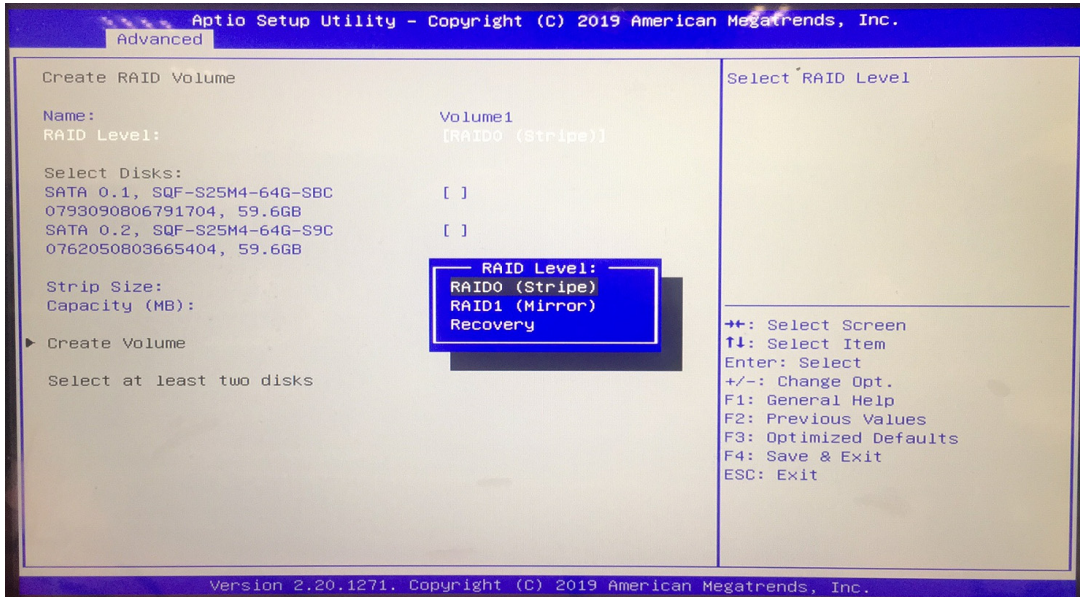
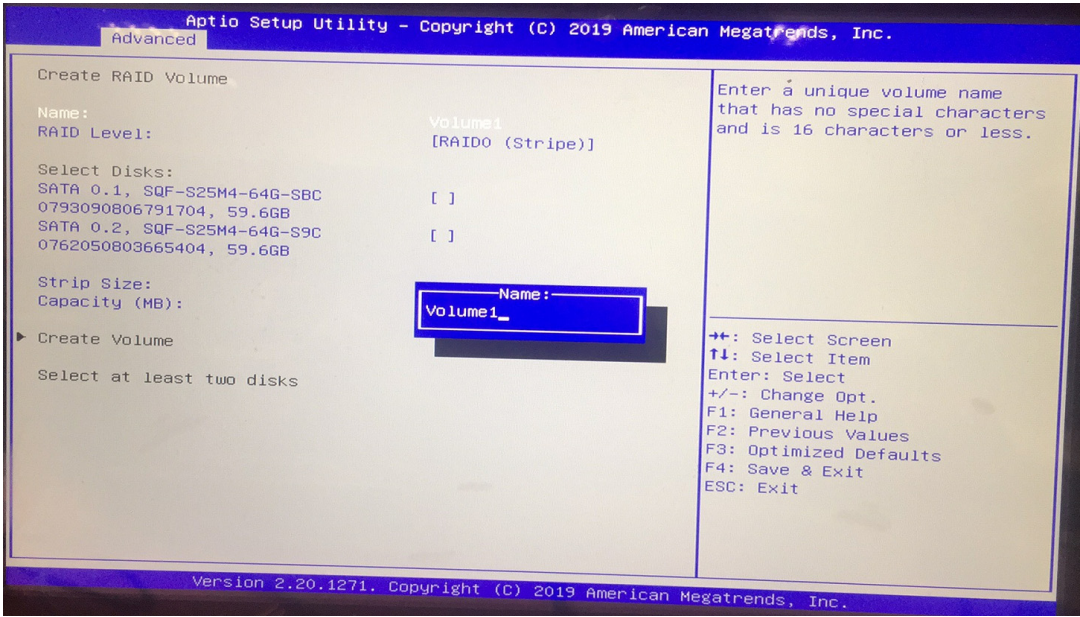
4. Select "Intel(R) Rapid Storage Technology" under the "Advanced" option.

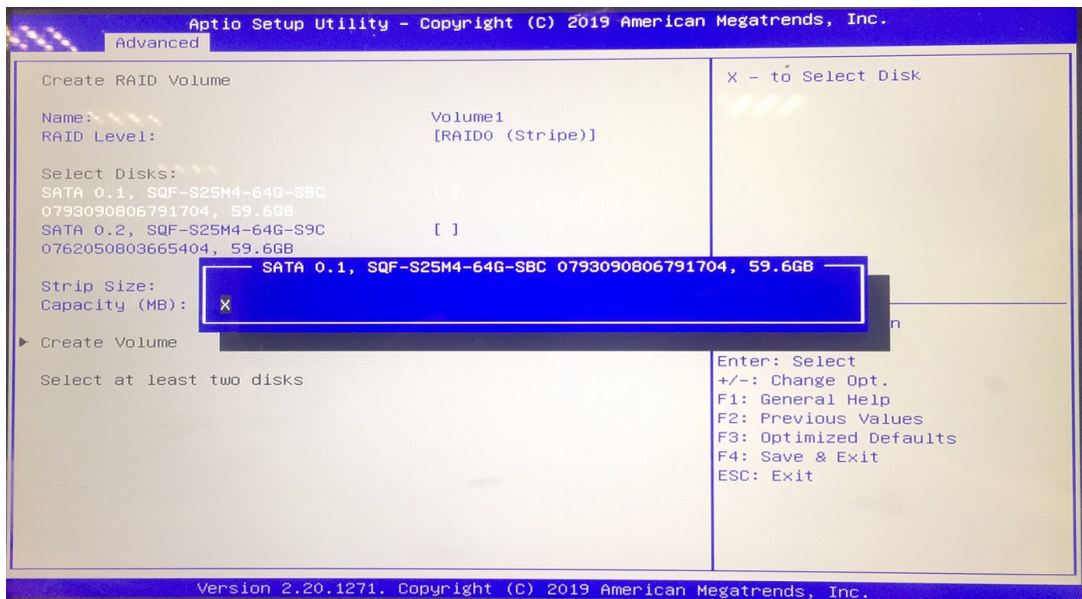


5. Select "Create RAID Volume" to enter the RAID settings page.

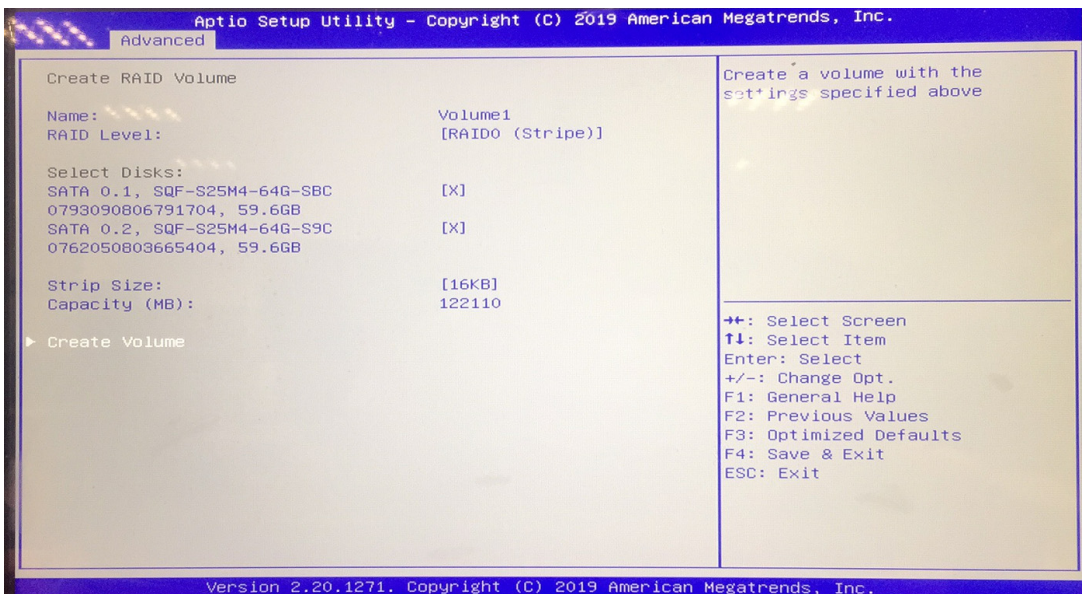


6. Set "Name" and "RAID Level" and select the corresponding storage device.



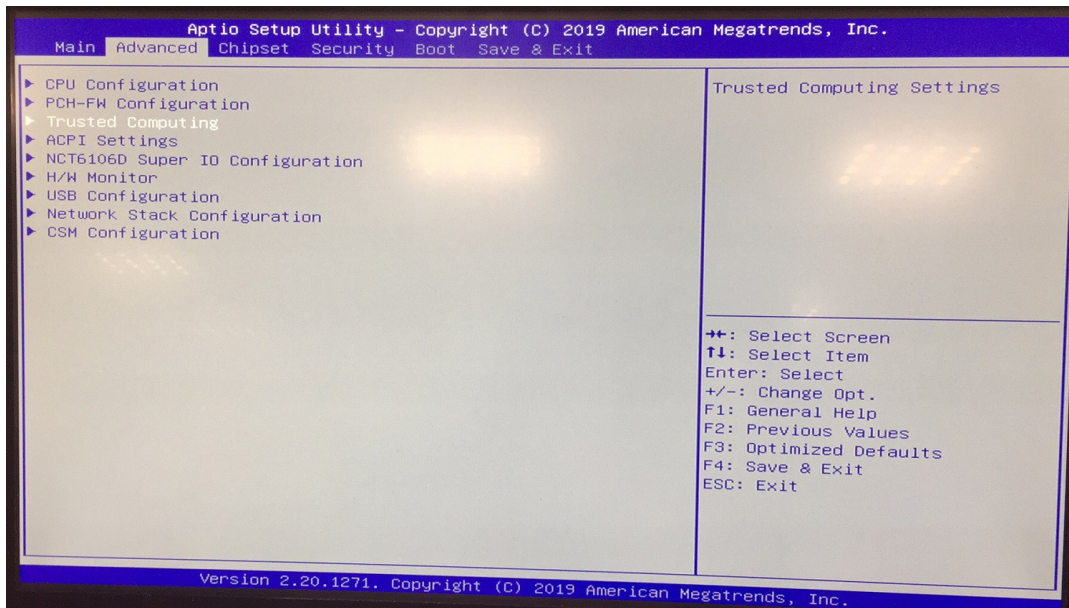


7. Finally select "Create Volume". Save and exit the BIOS setup interface, and allow the machine to boot from the installation device to enter normal installation procedures.

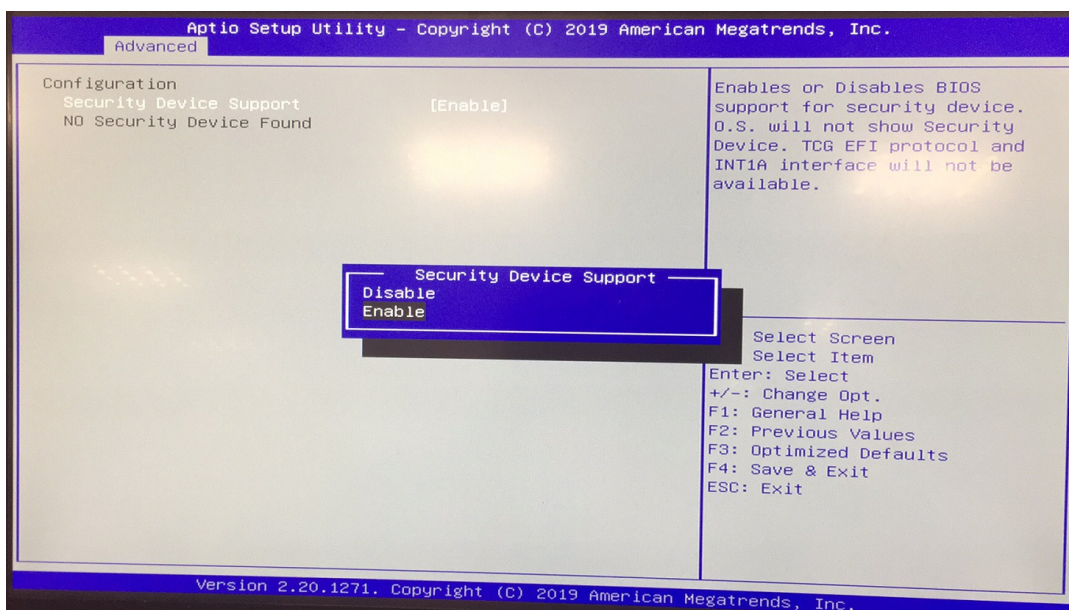


4.2.7 TPM Settings

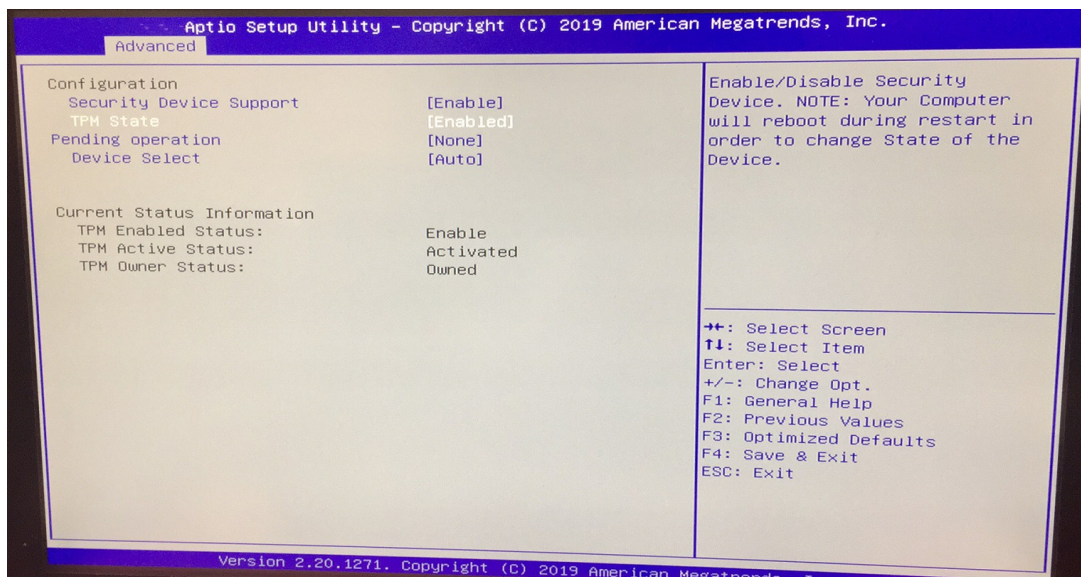
1. Press the Del key to enter the BIOS and select "Trusted Computing" under Advanced.



2. Change the Security Device Support setting to "Enable", save and exit and restart.



3. Entering the BIOS again will show that the device is found, and then it can operate normally.



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