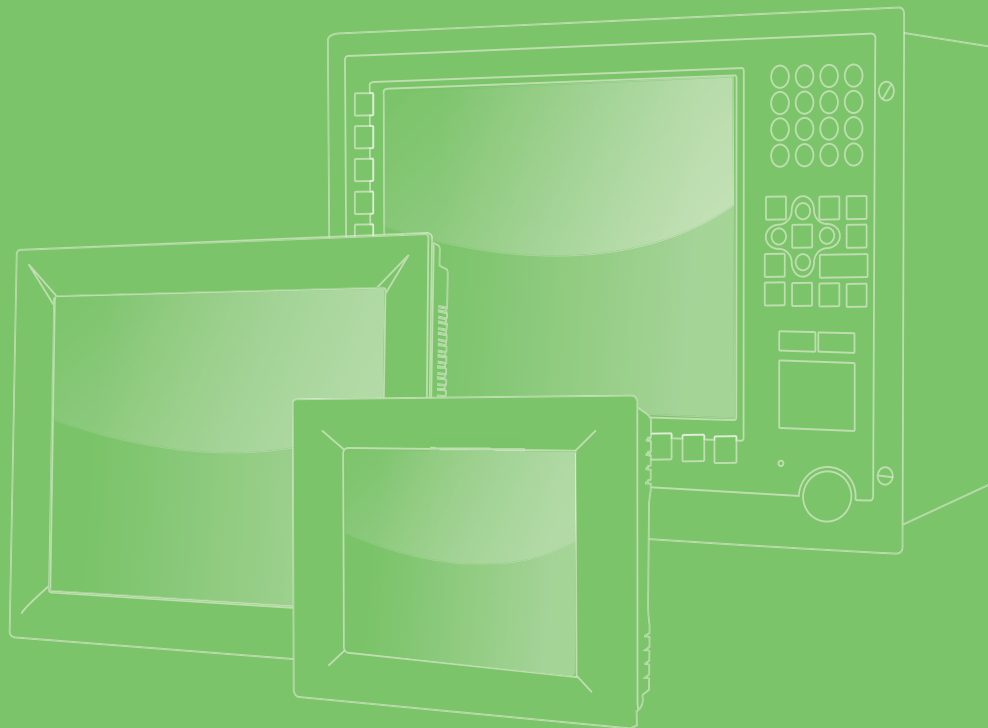# User Manual

PPC-3151

Intel® Core i Processor Based Micro-Computer with 15" Color TFT LCD Display

ADVANTECH

Enabling an Intelligent Planet

Copyright

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Acknowledgements

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Microsoft Windows and MS-DOS are registered trademarks 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.

Declaration of Conformity

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 www.advantech.com/support 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.

17. This product is intended to be supplied by an UL certified DC source rated 9-32Vdc, 10-3A. Tma 50 degree C minimum, if need further assistance, please contact Advantech for further information.

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.

Contents

Chapter 1

Overview

This chapter gives background information on the PPC-3151 panel PC.

Sections Include:

- Introduction
- Specifications
- Dimensions

1.1 Introduction

PPC–3151 is a new generation XGA (1024 x 768) panel PC. It is based on the 6th. Gen Intel Core processor and adopts an effective fanless thermal solution, featuring excellent performance and reliability, for this product series. PPC–3151 offers multiple I/O, including 3 COMs, 4 USBs, and dual Giga Ethernet ports, which allows for easier connection with any peripheral devices and easier integration with machine manufacturing. It provides PCIe/ PCI expansion for more applications. The multi-control touchscreen is consistent with the current operating experience and user habits.

1.2 Specifications

1.2.1 General Specifications

Product Name	PPC-3151			
LCD Specification	15" LCD			
Display Type	15" TFT LCD (LED backlight)			
Max. Resolution	1024 x 768			
Color	16.7M/262K			
Dot Pitch	0.297 x 0.297 mm			
Viewing Angle	88° (Left), 88° (Right), 88° (Up), 88° (Down) (Typ.)			
Luminance	500 cd/m2(Typ.)			
Contrast	2500 (Typ.)			
Backlight Life	70,000 hrs			
Weight	5.4 Kg (11.90 lb)			
Dimension	391.4 x 312.5 x 55.35 mm (15.41" x 12.3" x 2.18")			
CPU	Model	Base Frequency	Turbo	Cache
	i5-6300U	2.4GHz	3.0GHz	3M
Memory	1 x 260-pin slot, supports up to 16G DDR4			
Storage	1 x 2.5" SATA HDD/SSD			
Network (LAN1, LAN2)	2 x Giga Ethernet ports			
I/O Connectors	2 x RS-232 ports, 1 x RS-422/485 port, 4 x USB 3.0 connectors 2 x Giga Ethernet ports 1 x VGA port, 1 x DP connector 1 x Line-out, 1 x Mic-in, 2 x 1 W speaker (internal) 1 x Phoenix power connector, 1 x power switch			
Expansion Slots	1 x PCIe x1 (standard configuration)			
	1 x PCI (in accessory box)			
Additional Expansion Slots	1 x Mini PCIe card slot 1 x M.2 card slot (supported model: 22 x 42 mm, SATA interface)			
OS	Win 7(32Bit/64Bit)/Win 8.1(64Bit)/Win 10(64Bit)/Linux			

1.2.2 Power Specifications

Power Consumption	i5: 60 W (Test system: Windows7 64bit)
Input Voltage	9 - 32 Vdc, 10 ~ 3 A

Note!   *For its test conditions, please see Note 1.*

1.2.3 Touchscreen Specifications

Type	10-point projective capacitive
Light Transmission	85%+/-3%
Controller	USB interface

1.2.4 Environment Specifications

Operating temperature	0 ~ 50°C (32 ~ 122°F) (SSD) 0 ~ 45°C (32 ~ 113°F) (HDD)
Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)
Relative Humidify	10 ~ 95% @ 40°C (Non-condensing)
Shock	10 G peak acceleration (11 ms duration)
Vibration	5 ~ 500 Hz 1 G RMS

1.2.5 Certifications

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

1.2.6 IP Grade

Front Panel Dustproof and waterproof	IP65

Note 1:

Power consumption of PPC-3151 is shown below:

Test Software	Test Configuration	Test System
Burn-in 7.0	Memory: 8G DDR4 2133 HDD: 2.5" 500G SATA III I/O: COM Port RS232 loopback x 2, USB 3.0 x 4	Win 7 (64bit)

1.3 Dimensions

Unit: mm

379.31

391.40

55.35
45.35
7.50

300.41

312.50

158.20   75.00

126.75

75.00

382.00

303.00
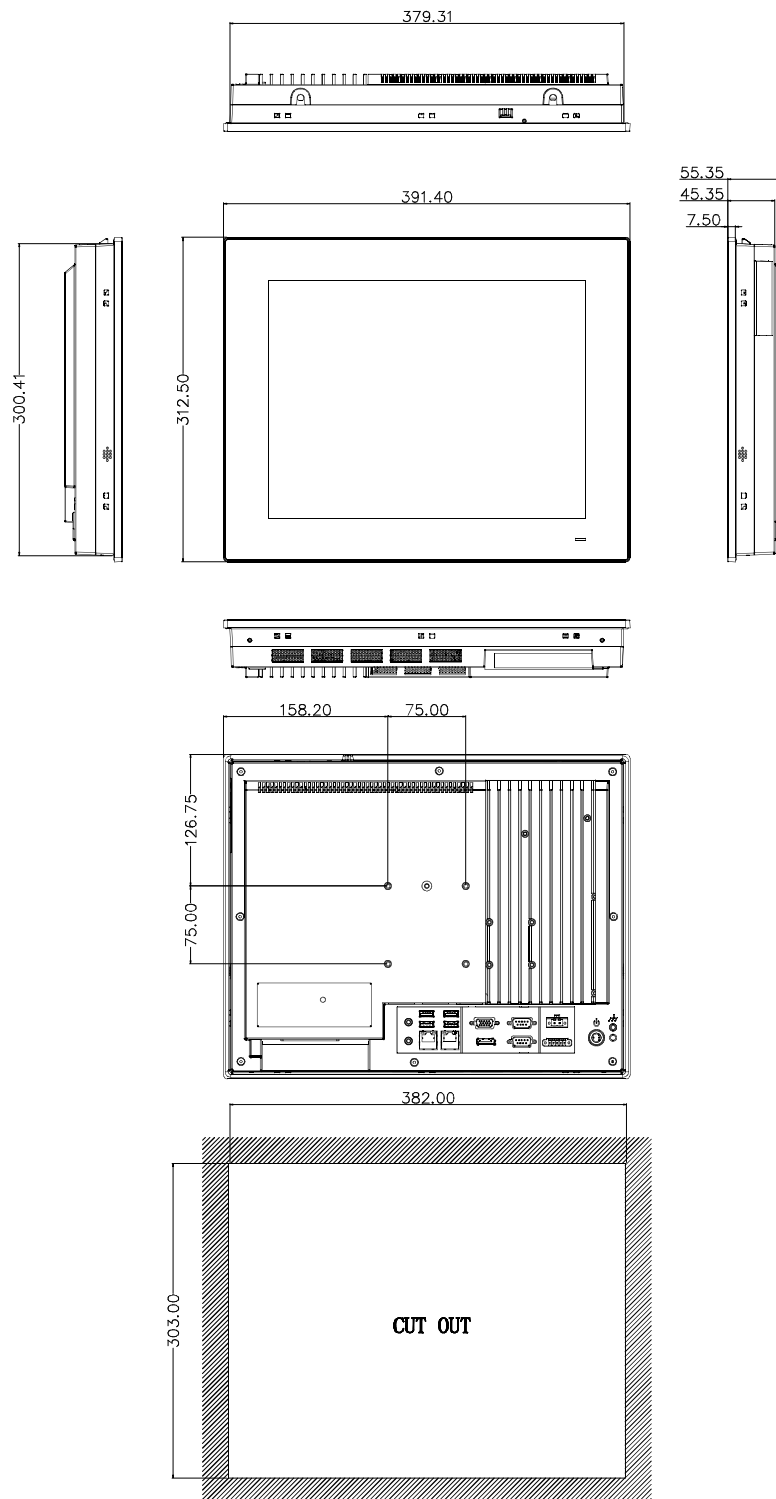
CUT OUT

Cut-Out dimension:382 x 303 mm

Note! *Screw specification: M4; hole depth is 8 mm for maximum. Use suitable mounting apparatus to avoid risk of injury.*

Chapter 2

System Installation and Setup

Sections Include:
- Quick Tour
- Installation Procedures
- Replacing Memory
- Installing HDD
- Installing M.2
- Installing Wireless LAN
- Installing Expansion Card
- Adjusting AT/ATX Functions
- Grounding
- Installing Hooks
- Single Person Quick Installation Guide

2.1 A Quick Tour

Before you install the panel PC, please be familiar with the location and function of each control key, driver, connector and port (please refer to the following content and figures).

When the panel PC is placed on the desk, its front panel is shown as Figure 2.1.
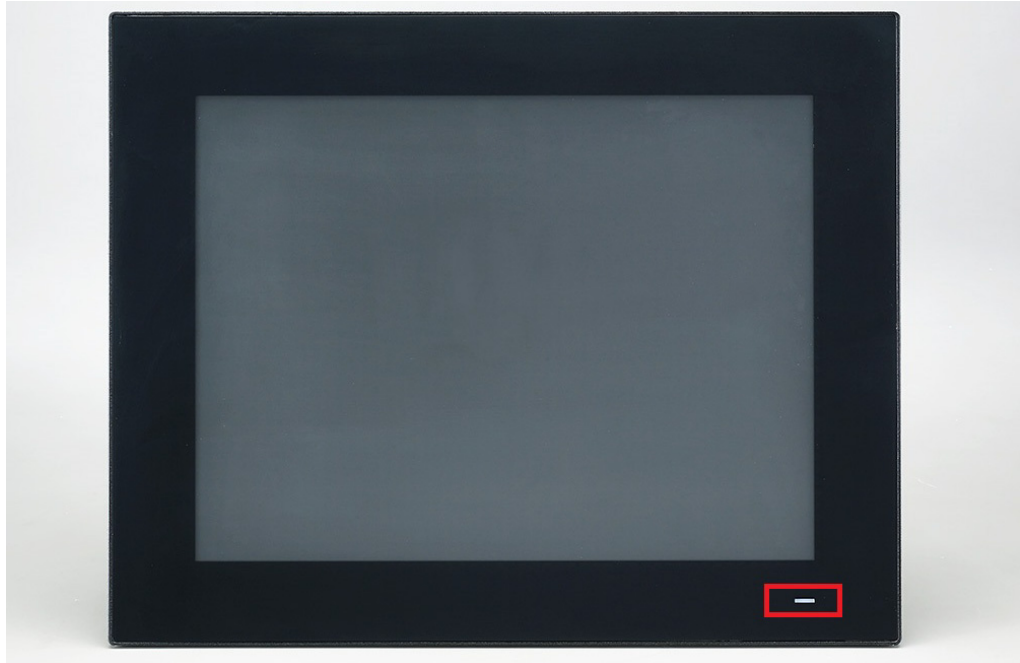
Figure 2.1: Front View

Power status LED: Off (S5) Orange; Sleep (S3) Orange; On (S0) Blue.
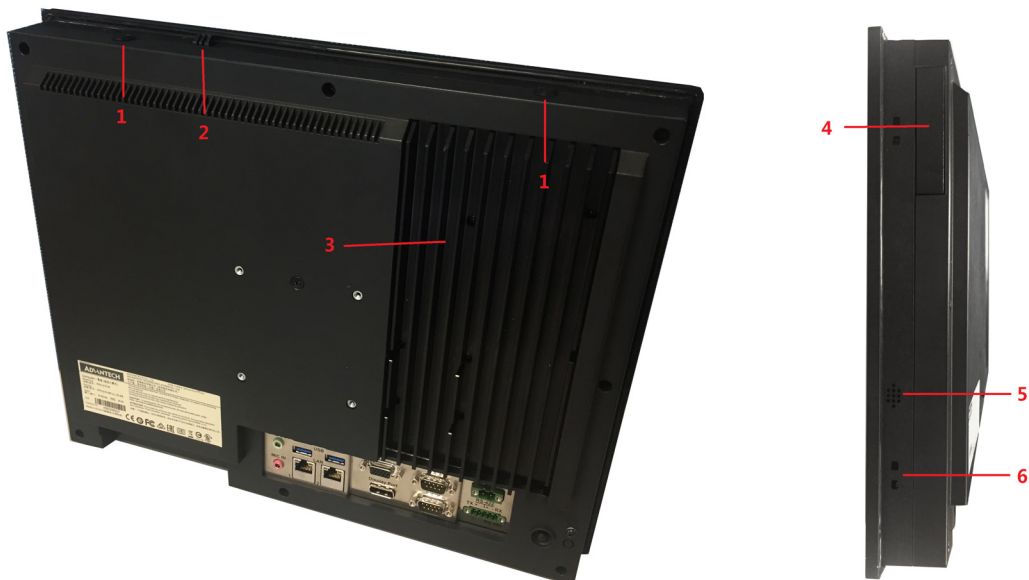
Figure 2.2: Side View

1. Antenna hole
2. Quick installation clip
3. CPU heatsink
4. Expansion slot for optional module
5. Speaker (left, right)
6. Hooking holes for panel installation (ten holes)

I/O connectors:
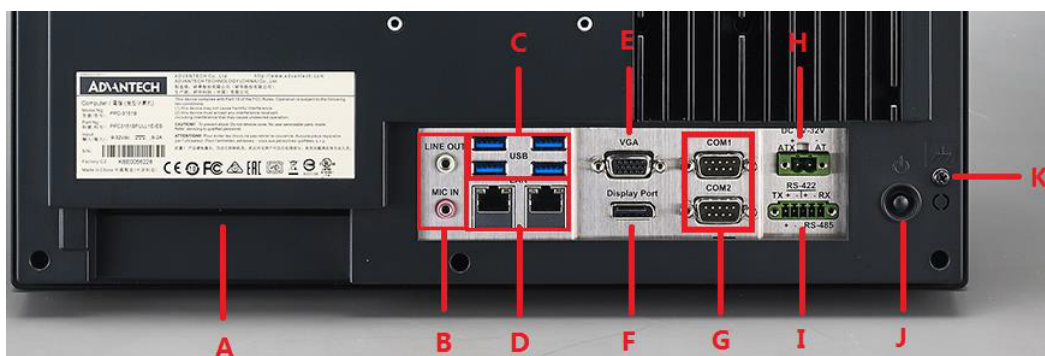
Figure 2.3: I/O Connectors

A: PCI/PCIE expansion slots x 4

B: Line-out / Mic-in

C: 4 x USB 3.0

D: 2 x Giga Ethernet ports

E: VGA

F: DP

G: 2 x RS-232

H: DC power connector (9-32V)

I: 1 x RS-422/485

J: Power switch

K: Grounding screw

2.2 Installation Procedures

2.2.1 Connecting Power Cord

The panel PC supports 9 - 32 V DC power supply. Please always hold the plug end when connecting the power cord. Please follow the below procedures to connect the power cord:

1. Plug the 2-pin connector into the DC inlet of the panel PC.
2. Connect power cord with power adapter with the 3-pin female connector.

Figure 2.4: Connecting Power Cord

2.2.2 Connecting Keyboard and Mouse

Connect mouse and keyboard to the I/O connector of the panel PC. Refer to Figure 2.3, C, USB.

2.2.3 Switching on the Panel PC

Power switch is located at the lower right corner of the rear cover. Refer to Figure 2.3, J, Power switch.

> **Note!** Power cord and adapter are optional.

2.3 Installing Memory

1. Unfasten the screws marked with red circles (see below left figure).
2. Pop-up the hook marked with a red oval (see below right figure) to remove the rear cover.

3. Unfasten the screws indicated in the below left figure and take out the heatsink, then replace the memory.
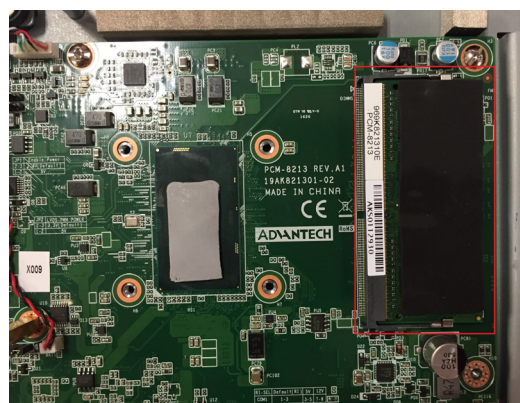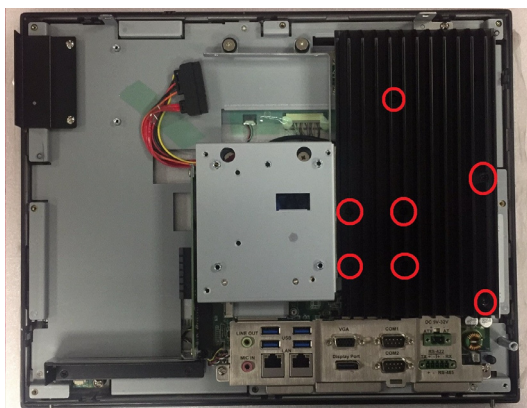
2.4 Installing HDD

1. Follow the procedures in Chapter 2.3 to remove the rear cover. Unfasten the screws marked with red circles and remove VESA holder below left, then take out the HDD bracket below right.
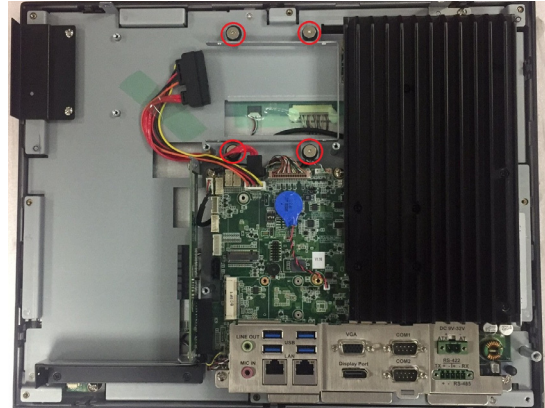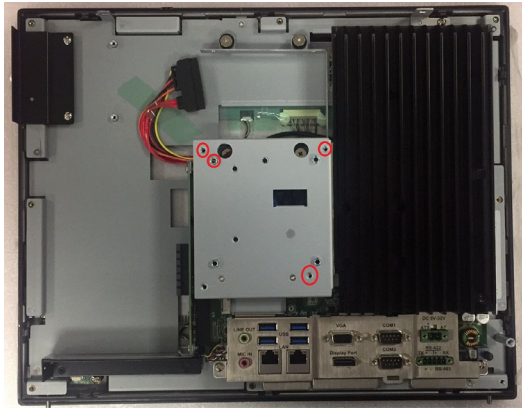
2. Take out 4 screws (see below) from the accessory box to secure the HDD onto the bracket, then replace and fix the HDD bracket.
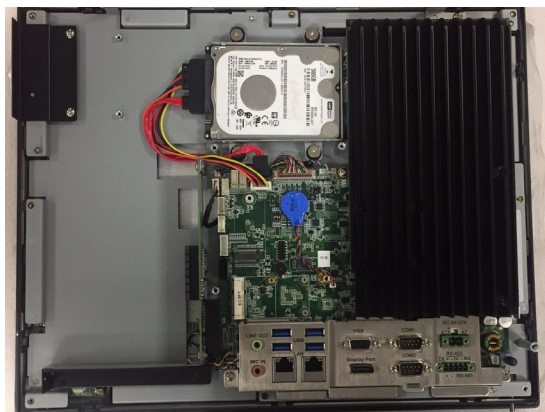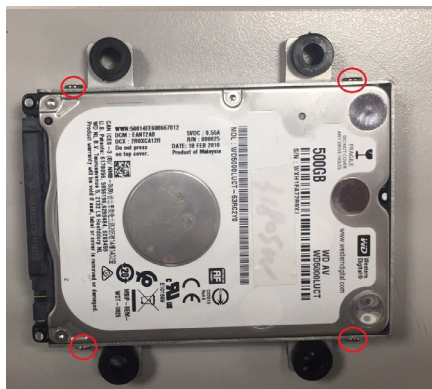
2.5 Installing M.2

1. Follow the procedures in Chapter 2.3 and 2.4 to remove rear cover and VESA holder.
2. Unfasten the screws marked with red circles, and then fix M.2 to the location marked with a red rectangle.
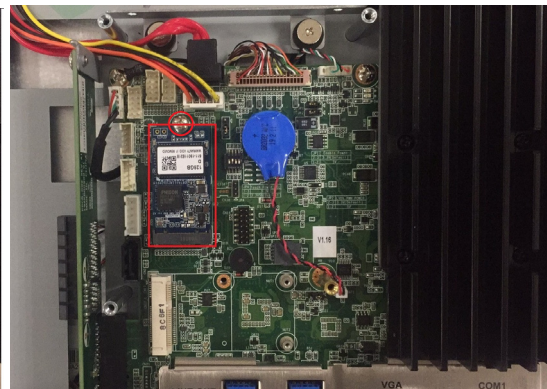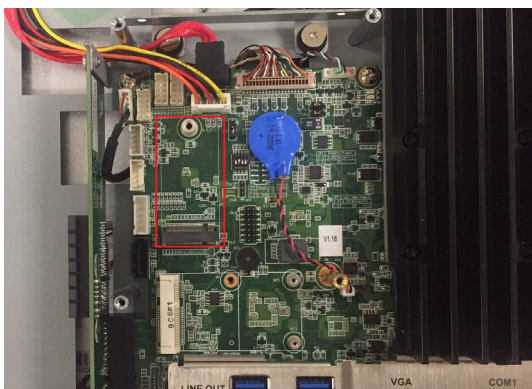
> **Note!** *Please note the pin direction when installing a M.2 device. Only 22 x 42mm M.2 device with a SATA interface is supported.*

2.6 Installing Wireless LAN Card

1. Follow the procedures in Chapter 2.3 and 2.4 to remove rear cover and VESA holder.
2. The installation of a full-size card is shown as below. Unfasten the screws marked with rec circles and then secure the card to the location with a red rectangle.
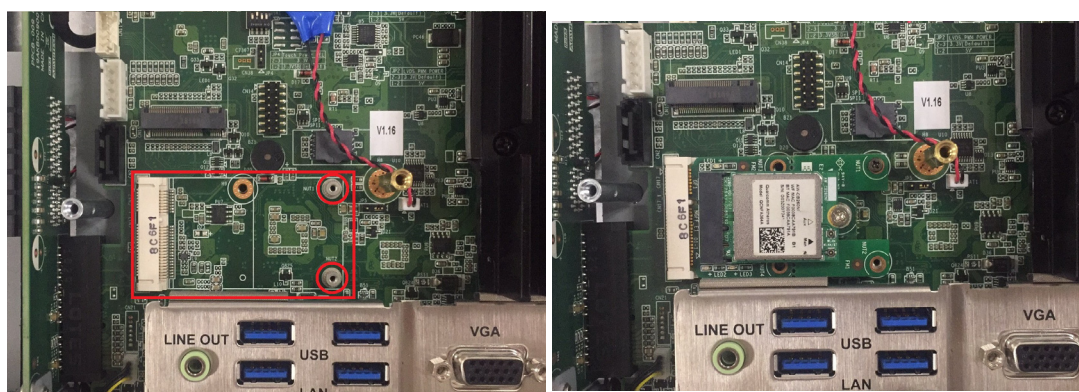
3. The installation of a PCIE half-size card is shown below. Take out copper cylinders and screws from the accessory box.

4. Please refer to diagram below to help connect the cables of the wireless LAN card module to the antenna bracket. Note the installation direction of the cable end, screw caps, and washers. To make antenna installation easier, please first remove the two brackets marked with the red rectangles and then replace them when the installation is completed.
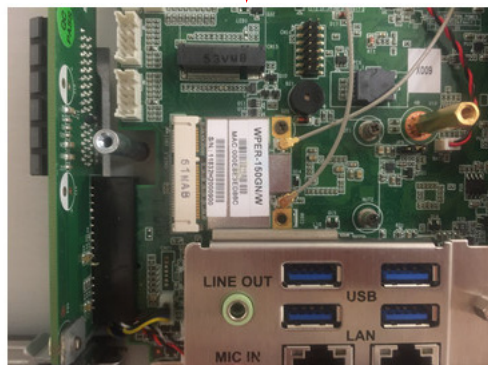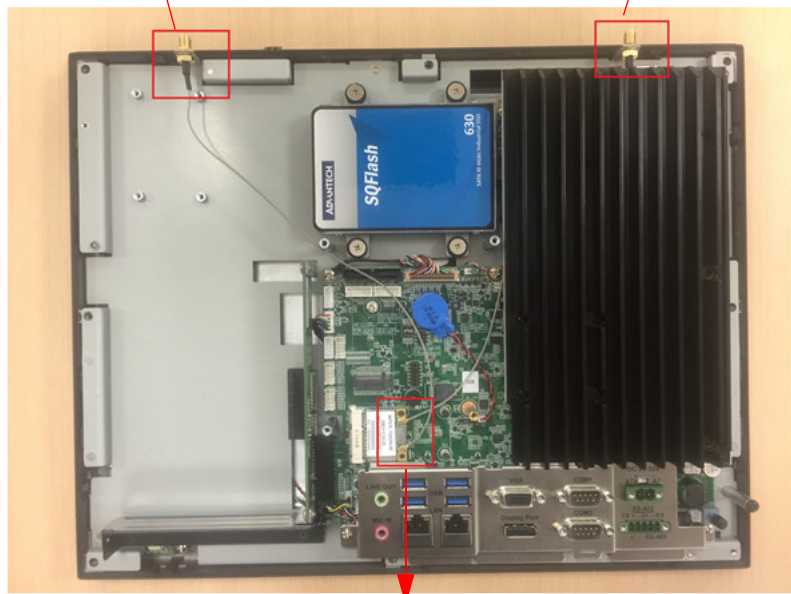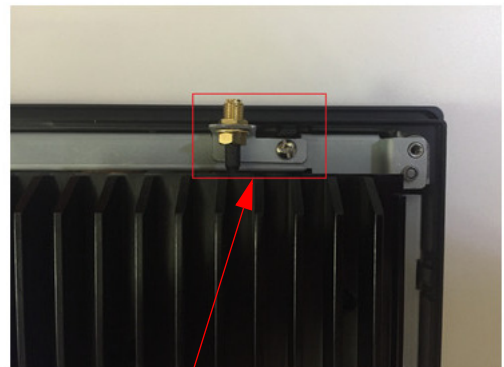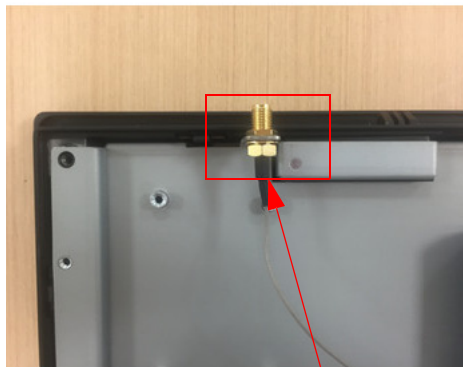
5. Remove two plugs on the rear cover as shown below.
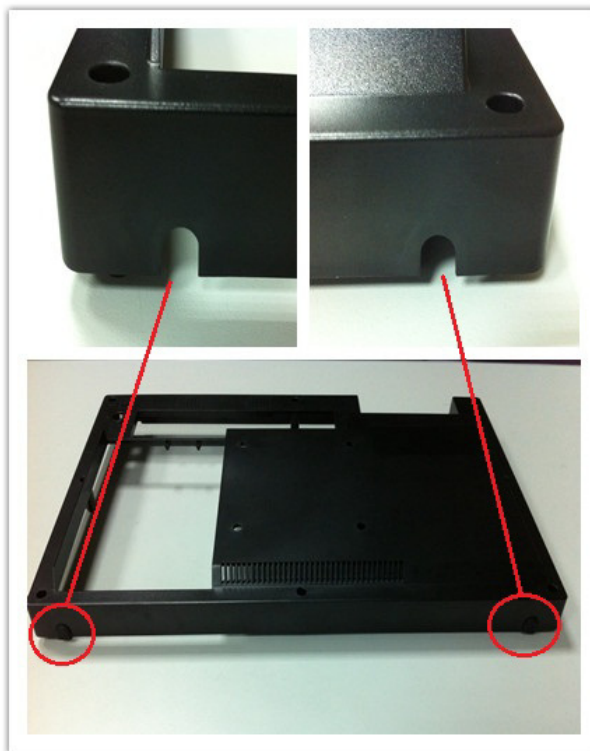
6. Then replace the rear cover and install the antenna of wireless LAN card module.

> **Note!** *Advantech wireless LAN card module (PN: PPC-WLAN-C1E) is optional.*

2.7 Installing TPM module

1. Follow the procedures in Chapter 2.3 and Chapter 2.4 to remove rear cover and VESA bracket. Fetch TPM card (Advantech PN: 96923260J0E) from TPM module, use a screw fix TPM card on VESA bracket (as below figure).
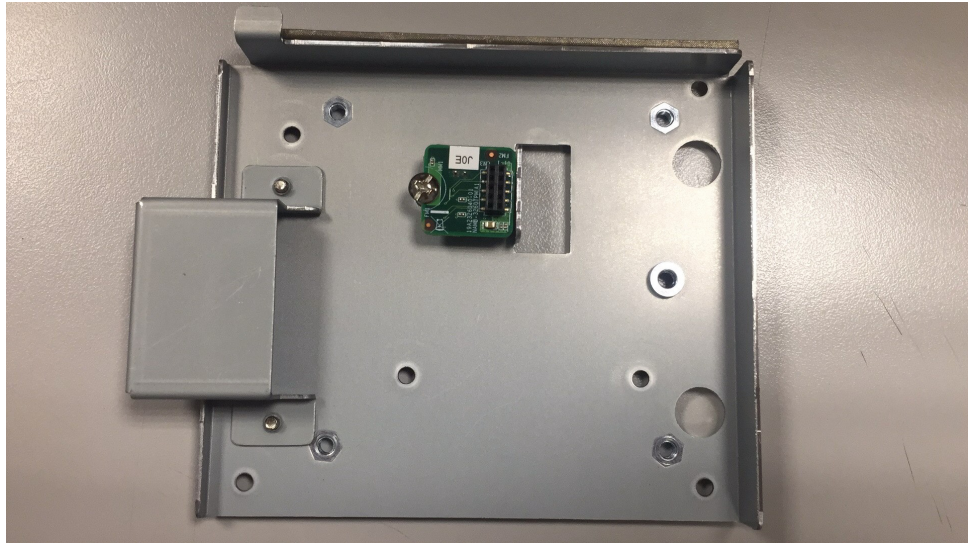
2.   Fetch cable from TPM module, insert the cable on the connector of TPM card. Make sure the white dot matches with the TPM card first pin. (see below figure)
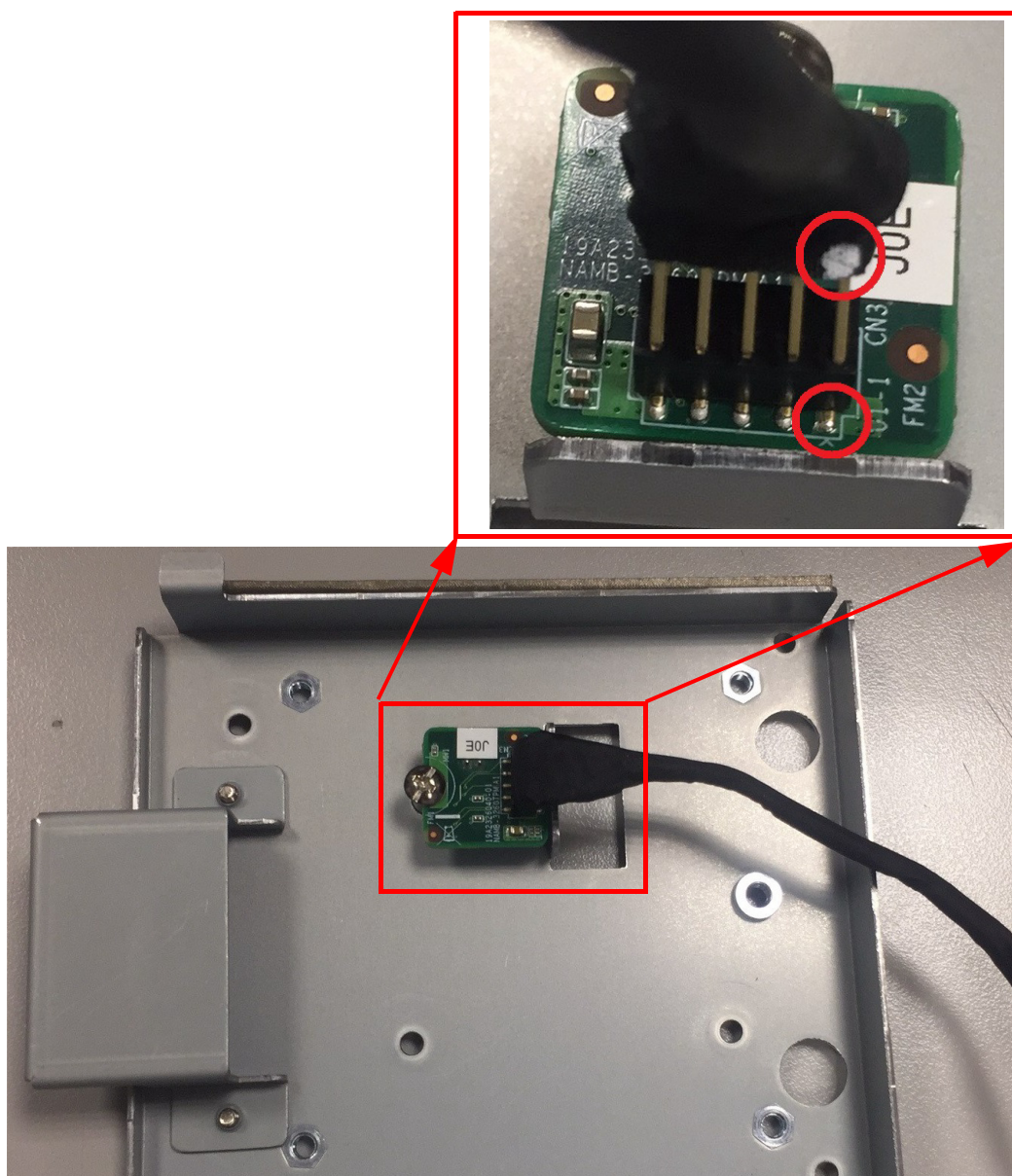
3. Make sure the TPM cable white dot pin matches with connector CN14 Pin1 on the motherboard, and insert TPM cable to CN14 connect. Then use screws to install the back VESA bracket on the motherboard.
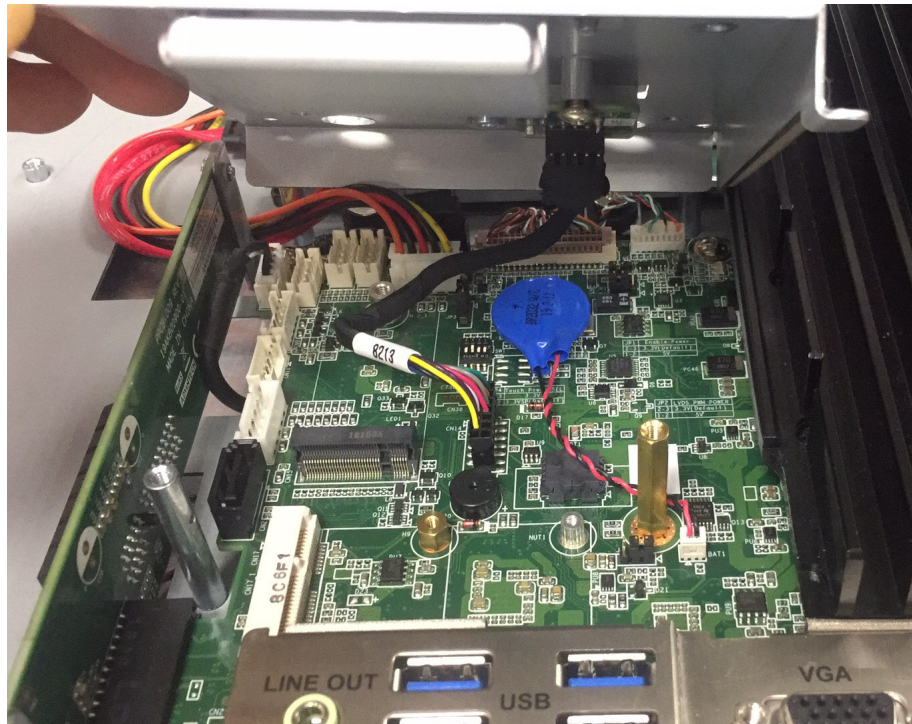
2.8 Installing Side COM/GPIO

1. Follow the procedures in Chapter 2.3 and Chapter 2.4 to remove rear cover and VESA bracket. Fetch materials from COM port module (Advantech PN: PPC-3150-COME) as below figure.
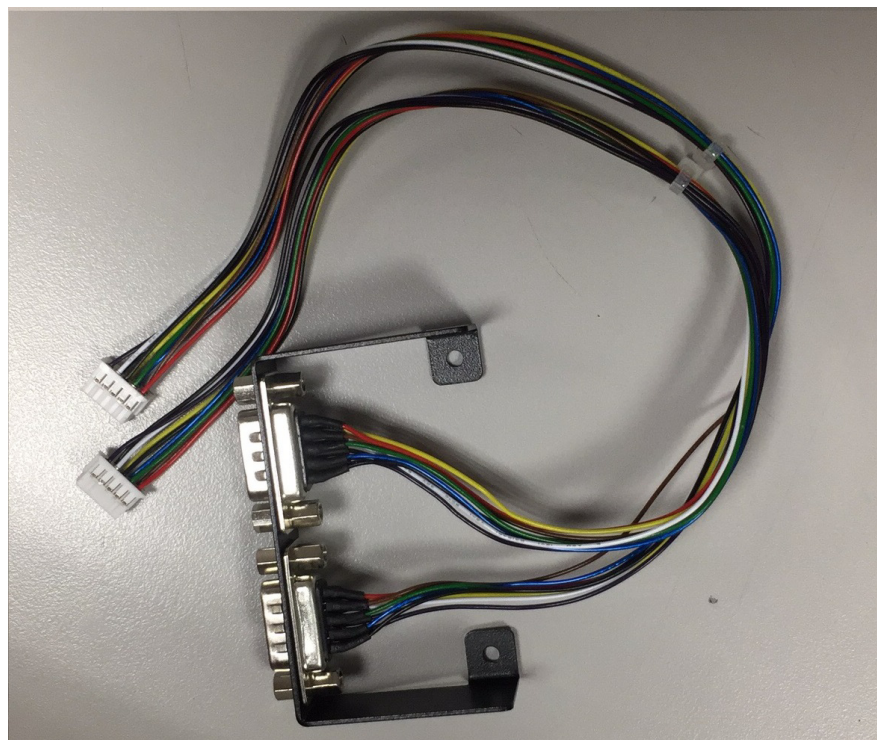
2. Assemble COM port module following the figure below. Use two screws to fix COM port module on system frame. Insert COM4 cable on CN16 connector. For COM3/GPIO cable, there are two functions. It is COM3 if you insert the cable with the CN13 connector. It is GPIO if you insert the cable with the CN12 connector.
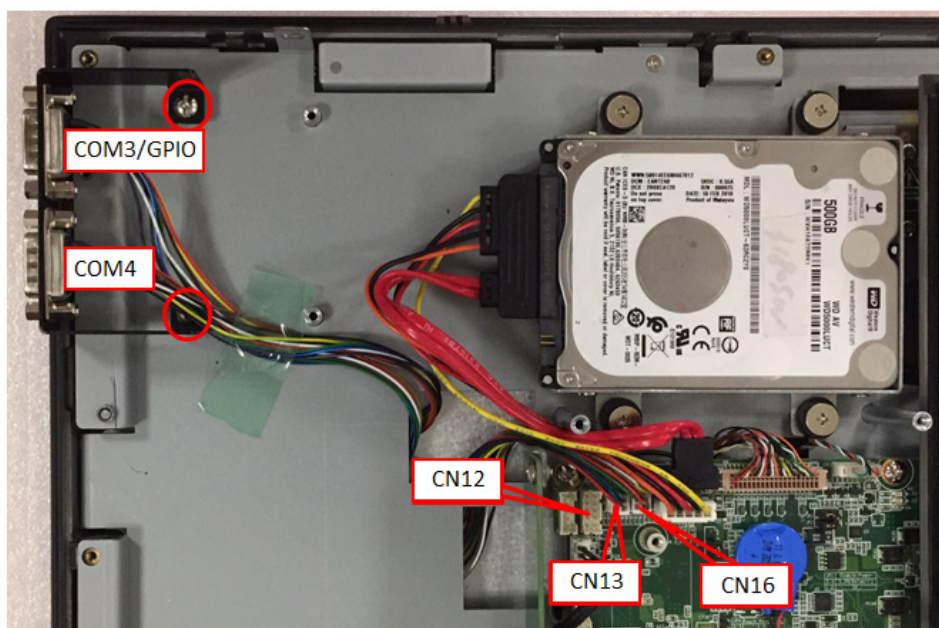
3. Assemble back VESA bracket and rear cover after COM port module is installed.

2.9 Installing Expansion Card

1. Follow the procedures in Chapter 2.3 to remove rear cover
2. Remove the screws and the blank plate marked with a red rectangle to install the expansion card. The product comes with a PCIE riser card and a PCI riser card is also provided in the accessory box for additional use.
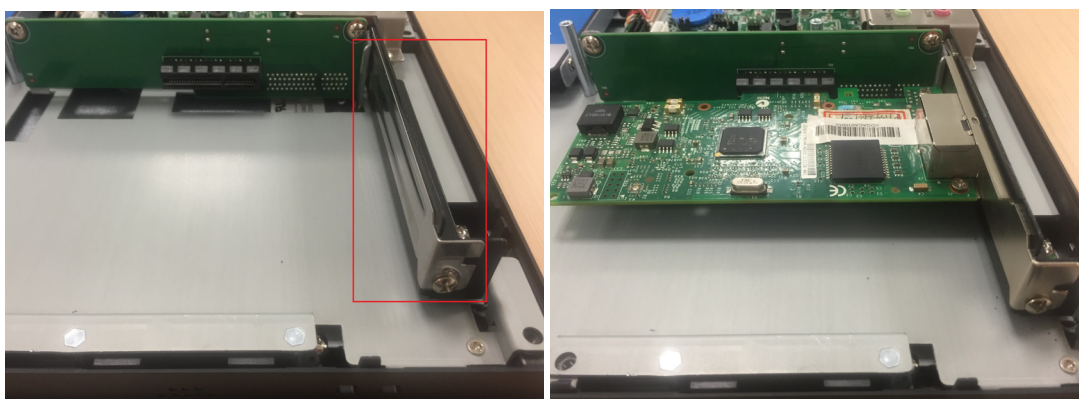
Note! *The maximum supported size of the expansion card is 176mm x 107mm.*

2.10 Adjusting AT/ATX Functions

You can adjust AT or ATX function by the internal switch indicated by the red rectangle without removing the rear cover.
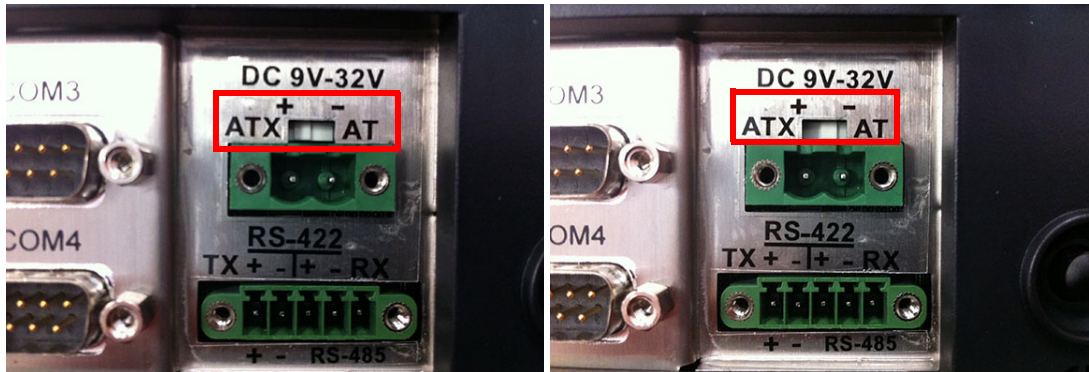
2.11 Grounding

Grounding screw is marked with a red circle as below. It is recommended that products with a capacitive screen should be properly grounded.

2.12 Installing Hook

Please refer to the figure below:

挂钩安装方式

机器装入机柜中，备妥挂钩

挂钩依箭头指示放入钩孔勾住机器

螺丝锁紧，固定机器
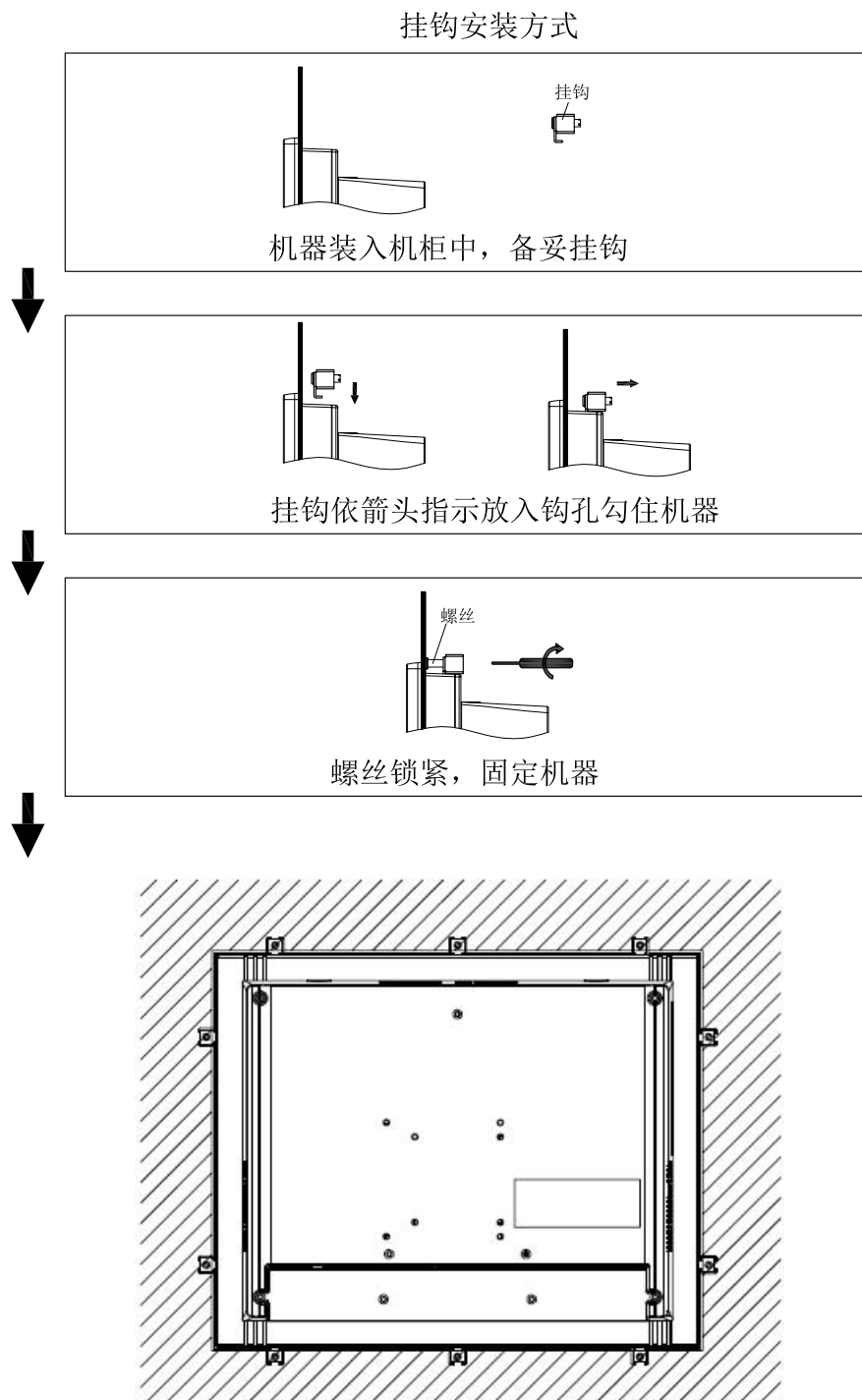
2.13 Solo Quick Installation

Please follow the below procedures to complete the wall mount by yourself.

1. Unfasten the two screws at the bottom as shown in below.
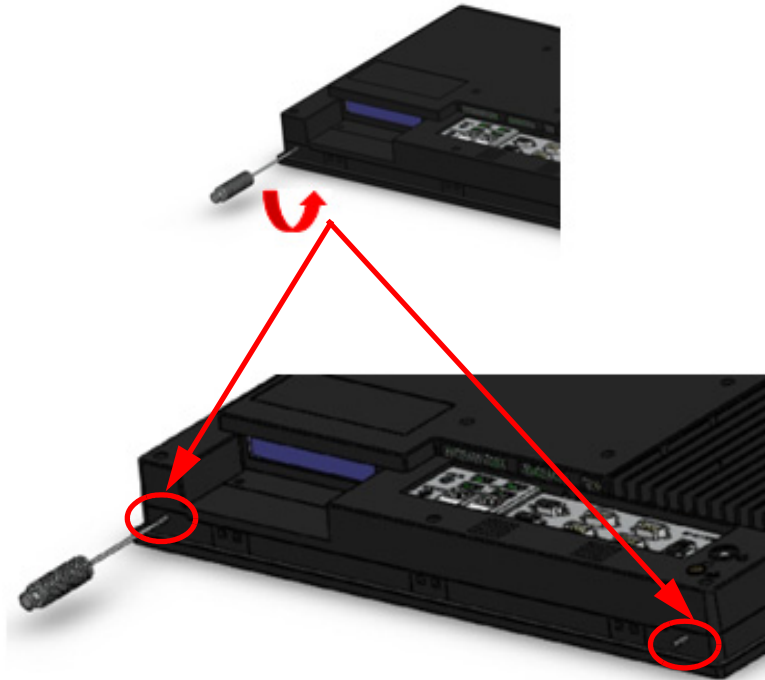
2. Please refer to the below figure to place and push the panel PC into the opening on the wall, then the hook will secure the PC onto the wall.
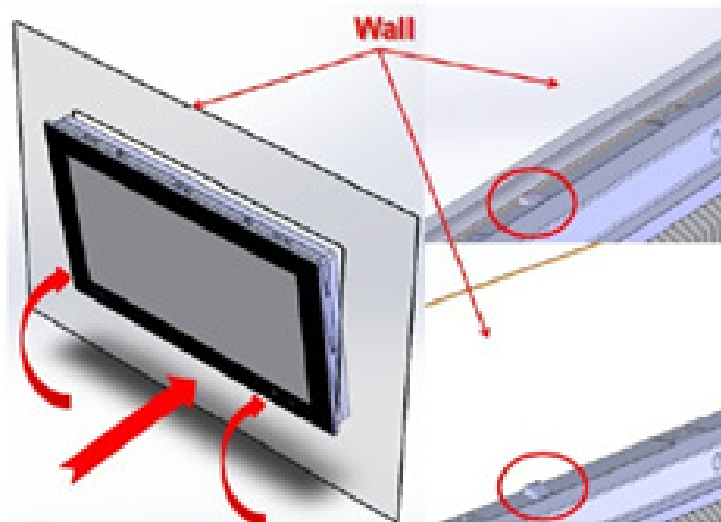
3. Here the wall mount is completed. Then please refer to Chapter 2.10 "Installing Hook" to fasten the hook screw in order to firmly secure the panel PC.
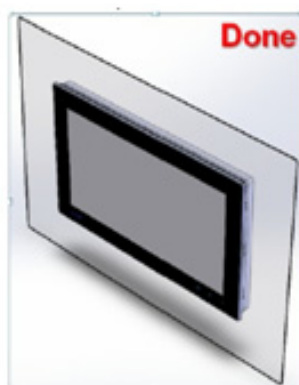
Note! *It is recommended that the panel inlaid depth should be less than 2mm (0.079") according to "Quick Installation Guide". In other circumstances, it is recommended that the panel inlaid depth should be less than 3mm (0.118").*

Chapter   3

Jumper and Switch Settings

Sections Include:
- Jumpers and Connectors
- External COM Port & DIO Switch and Pin Assignments

3.1 Jumpers and Connectors
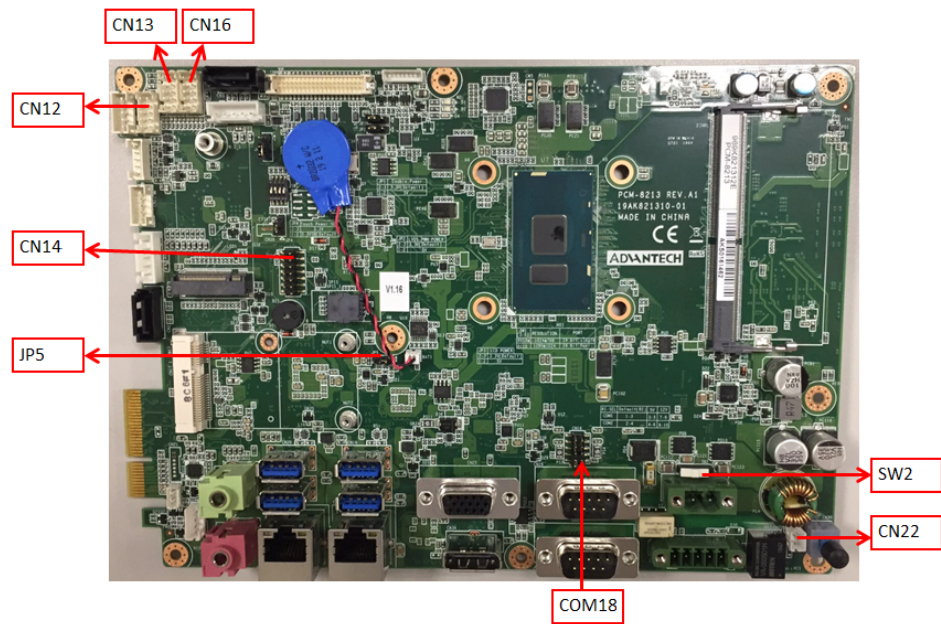
Connector	Function
CN12	GPIO
CN18	COM Pin9 power selection
CN22	Power button
SW2	AT/ATX selection
JP5	Clear CMOS
CN13	COM3
CN14	LPC
CN16	COM4

JP5	Icon	Clear CMOS	
(1-2)	P9	Normal *	Default *
(2-3)	P10	Clear CMOS	
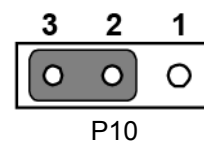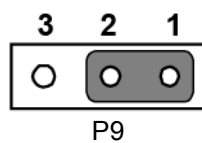
CN18		COM1/2 RI type selection	
(1-3)/(2-4)	P9/P10	COM1/COM2 RI	Default *
(3-5)/(4-6)	P11/P12	COM1/COM2 5V	
(7-9)/(8-10)	P13/P14	COM1/COM2 12V	
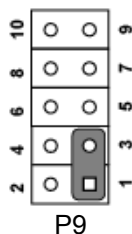
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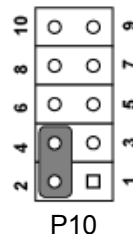
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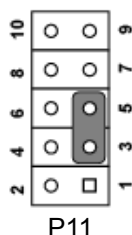
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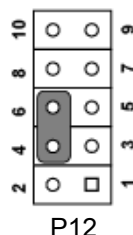
P12
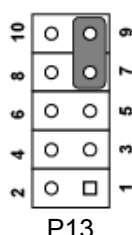
P13
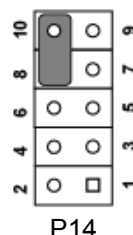
P14

CN12	Pin	Signal
	1	GND
	2	GPIO4
	3	GPIO0
	4	GPIO5
	5	GPIO1
	6	GPIO6
	7	GPIO2
	8	GPIO7
	9	GPIO3
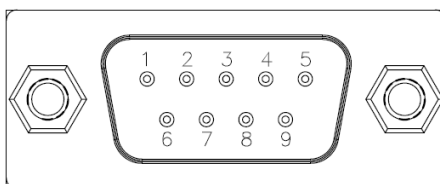
3.2   External COM Port Pin Assignments

COM1-2   COM5
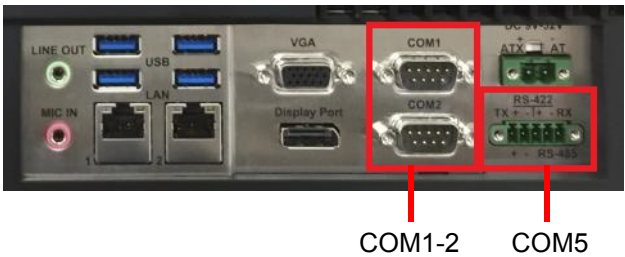
COM 1, COM 2 (RS232, Pin9 supports 5 V/12 V output)
COM 5 RS-422/485

COM1-2:

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

Pin9 is set as RI signal in COM port by default, and can be set as 5V/12V output by Jumper. 12V: Max. 200 mA; 5V: Max. 500 mA.
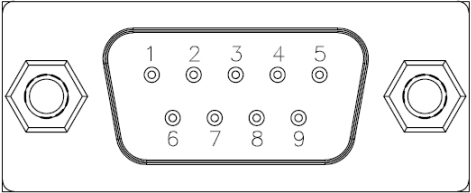
COM5: RS422/485 supports isolation voltage of 1000 VDC, which can be selected by BIOS.
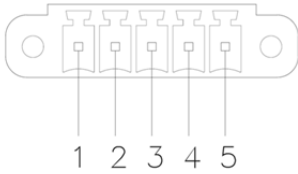
Pin	1	2	3	4	5
RS422	TX+	TX-	RX+	RX-	GND
RS485	D+	D-			GND

UART RS485 auto flow control

COM5 supports RS485 auto flow control function

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

Chapter 4

Software Setup

Sections Include:
- Installing Drivers
- BIOS Setup Utility

4.1 Installing Drivers

When you install the system for the first time, please install the corresponding drivers in advance to make sure all the functions run normally. Please select the drivers to be installed based on the OS you use. Please go to the Advantech official website to get the latest versions of the drivers: http://www.advantech.com.cn/

4.2 BIOS Setup Utility

4.2.1 Entering BIOS Setup

You can enter BIOS setup utility by pressing "Delete".

You should always press "F4" to save the settings you have made and exit the setup utility, otherwise those settings will not be saved in BIOS.

```
         Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.
  Main  Advanced  Chipset  Security  Boot  Save & Exit

  BIOS Information                                      Choose the system default
  BIOS Vendor              American Megatrends          language
  Core Version             5.0.1.1   0.31 x64
  Compliancy               UEFI 2.4.0; PI 1.3
  Project Version          PCM 82130000P60X012
  Build Date and Time      08/17/2016 10:34:07
  Access Level             Administrator

  System Language          [English]

  System Date              [Tue 08/23/2016]
  System Time              [09:29:35]


                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit



         Version 2.17.1255. Copyright (C) 2016 American Megatrends, Inc.
```

4.2.2 LCD Brightness Adjustment

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

```
              Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.
     Main  Advanced  Chipset  Security  Boot  Save & Exit

 ▶ System Agent (SA) Configuration                          System Agent (SA) Parameters
 ▶ PCH-IO Configuration




                                                           →←: Select Screen
                                                           ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F2: Previous Values
                                                           F3: Optimized Defaults
                                                           F4: Save & Exit
                                                           ESC: Exit



              Version 2.17.1255. Copyright (C) 2016 American Megatrends, Inc.
```

2. Then choose "Graphics Configuration" under "System Agent (SA) Configuration" item.

```
              Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.
        Chipset

 System Agent Bridge Name          Skylake          Graphics Configuration
 SA PCIe Code Version              1.9.0.0
 VT-d                              Supported

 VT-d                              [Enabled]
 Above 4GB MMIO BIOS assignment    [Disabled]

 ▶ Graphics Configuration
 ▶ Memory Configuration
 ▶ GT - Power Management Control

                                                     →←: Select Screen
                                                     ↑↓: Select Item
                                                     Enter: Select
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit


              Version 2.17.1255. Copyright (C) 2016 American Megatrends, Inc.
```

3. Select "LCD Control" under "Graphics Configuration".

```
                  Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.
                     Chipset

   Graphics Configuration                                        LCD Control

   DVMT Pre-Allocated                      [32M]
   DVMT Total Gfx Mem                      [256M]
 ▶ LCD Control




                                                                ←→: Select Screen
                                                                ↑↓: Select Item
                                                                Enter: Select
                                                                +/-: Change Opt.
                                                                F1: General Help
                                                                F2: Previous Values
                                                                F3: Optimized Defaults
                                                                F4: Save & Exit
                                                                ESC: Exit



                  Version 2.17.1255. Copyright (C) 2016 American Megatrends, Inc.
```
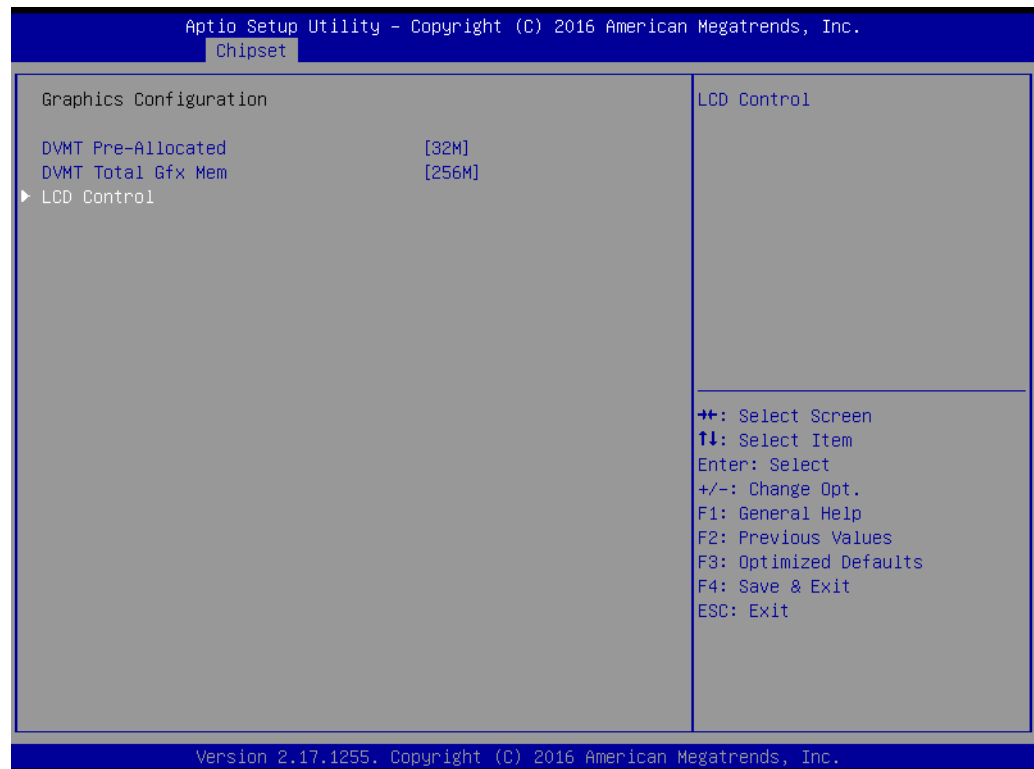
4. Select "Brightness Manual Control" under "Brightness Control", and there will be six brightness options to choose.

```
                  Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.
                     Chipset

   LCD Control                                                  Fixed Brightness 100%, 80%,
                                                                60%, 40%, 20%, 10%
   Primary IGFX Boot Display              [VBIOS Default]
   Brightness Manual Control              [ 80%]


                        ┌─── Brightness Manual Control ───┐
                        │  100%                           │
                        │   80%                           │
                        │   60%                           │
                        │   40%                           │
                        │   20%                  Select Screen
                        │   10%                  Select Item
                        └─────────────────────────────────┘ er: Select
                                                              : Change Opt.
                                                                F1: General Help
                                                                F2: Previous Values
                                                                F3: Optimized Defaults
                                                                F4: Save & Exit
                                                                ESC: Exit



                  Version 2.17.1255. Copyright (C) 2016 American Megatrends, Inc.
```

4.2.3 COM5 Mode (RS422/485) Selection

1. Select "NCT6106D Super I/O Configuration" under "Advanced" tab.

```
                 Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.
          Main  Advanced  Chipset  Security  Boot  Save & Exit

       ▶ ACPI Settings                                              System Super IO Chip
       ▶ AMT Configuration                                          Parameters.
       ▶ PCH-FW Configuration
       ▶ NCT6106D Super IO Configuration
       ▶ H/W Monitor
       ▶ CPU Configuration
       ▶ SATA Configuration
       ▶ Network Stack Configuration
       ▶ CSM Configuration
       ▶ USB Configuration

                                                                    →←: Select Screen
                                                                    ↑↓: Select Item
                                                                    Enter: Select
                                                                    +/-: Change Opt.
                                                                    F1: General Help
                                                                    F2: Previous Values
                                                                    F3: Optimized Defaults
                                                                    F4: Save & Exit
                                                                    ESC: Exit

                 Version 2.17.1255. Copyright (C) 2016 American Megatrends, Inc.
```

2. Then choose "Serial Port5 Configuration" under "NCT6106D Super I/O Configuration" item.

```
                 Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.
          Advanced

       NCT6106D Super IO Configuration                              Set Parameters of Serial Port
                                                                    5 (COME)
       Super IO Chip                       NCT6106D
       ▶ Serial Port 1 Configuration
       ▶ Serial Port 2 Configuration
       ▶ Serial Port 3 Configuration
       ▶ Serial Port 4 Configuration
       ▶ Serial Port 5 Configuration

                                                                    →←: Select Screen
                                                                    ↑↓: Select Item
                                                                    Enter: Select
                                                                    +/-: Change Opt.
                                                                    F1: General Help
                                                                    F2: Previous Values
                                                                    F3: Optimized Defaults
                                                                    F4: Save & Exit
                                                                    ESC: Exit

                 Version 2.17.1255. Copyright (C) 2016 American Megatrends, Inc.
```

3. Click "Serial Port 5 Configuration" item to choose the operating mode of COM5.
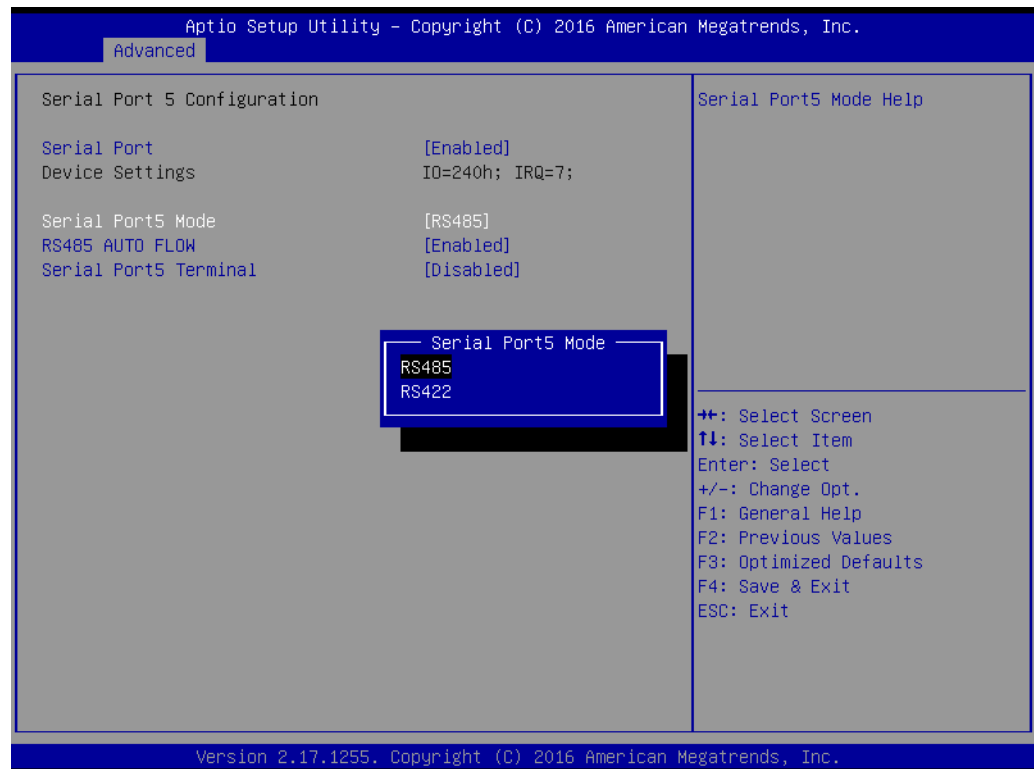
4.2.4 Wake Up by LAN

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

2. Set "Deep Sleep" as "Disabled". Then set "Wake On By PCIE Wake" and "Wake on By LAN1 (219LM)" as "Enabled".

```
          Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.
            Chipset

   Intel PCH RC Version           1.9.0.0                   Enable or disable integrated
   Intel PCH SKU Name             PCH-LP Mobile (U)         LAN to wake the system. (The
                                  Premium SKU               Wake On LAN cannot be disabled
   Intel PCH Rev ID               21/C1                     if ME is on at Sx state.)


   Deep Sleep                     [Disabled]
   Wake On By PCIE Wake(I211/Ring) [Enabled]
   Wake on By LAN1(219LM)         [Enabled]
   Restore AC Power Loss          [Power Off]

                                                            →←: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Exit
                                                            ESC: Exit



          Version 2.17.1255. Copyright (C) 2016 American Megatrends, Inc.
```

3. Save all the settings and exit. Then enter the OS.
4. Right-click on "Computer" and select "Manage" to pop up "Computer Management" window.
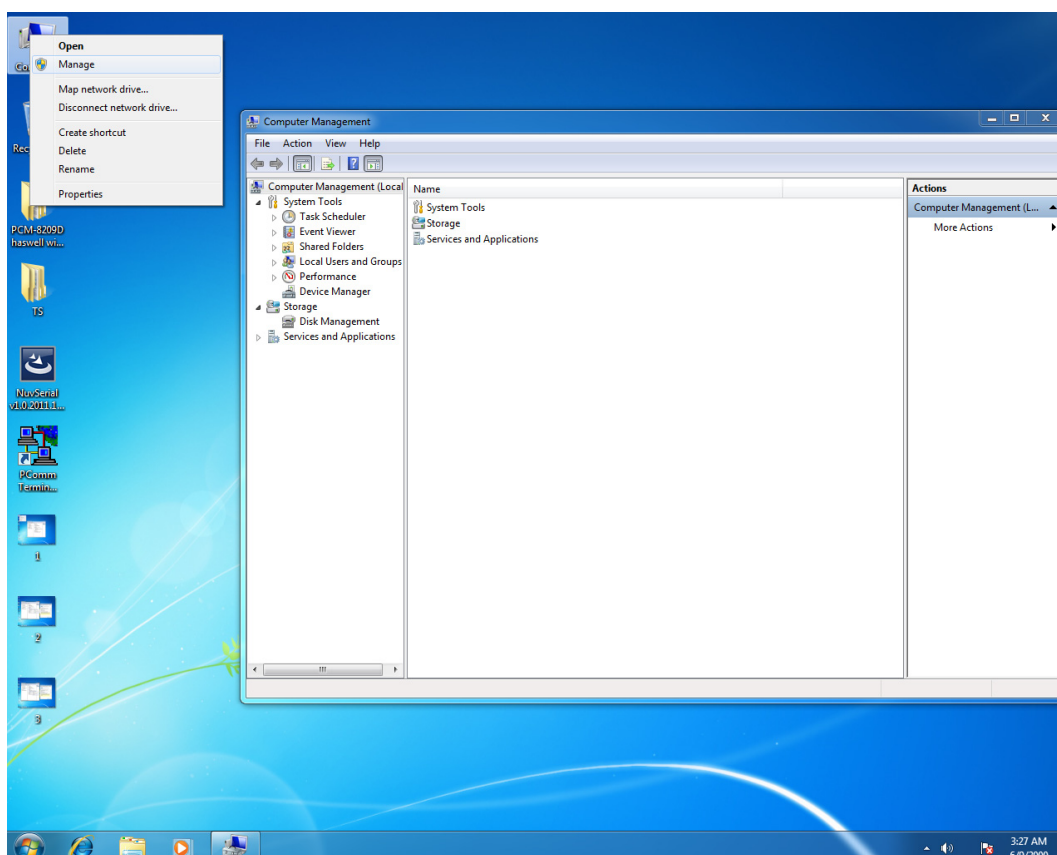
5. Click "Device Manager" to select "Network adapters". Then right-click on the LAN port you want to use and select "Properties" to pop up "Intel(R) Ethemet" window.
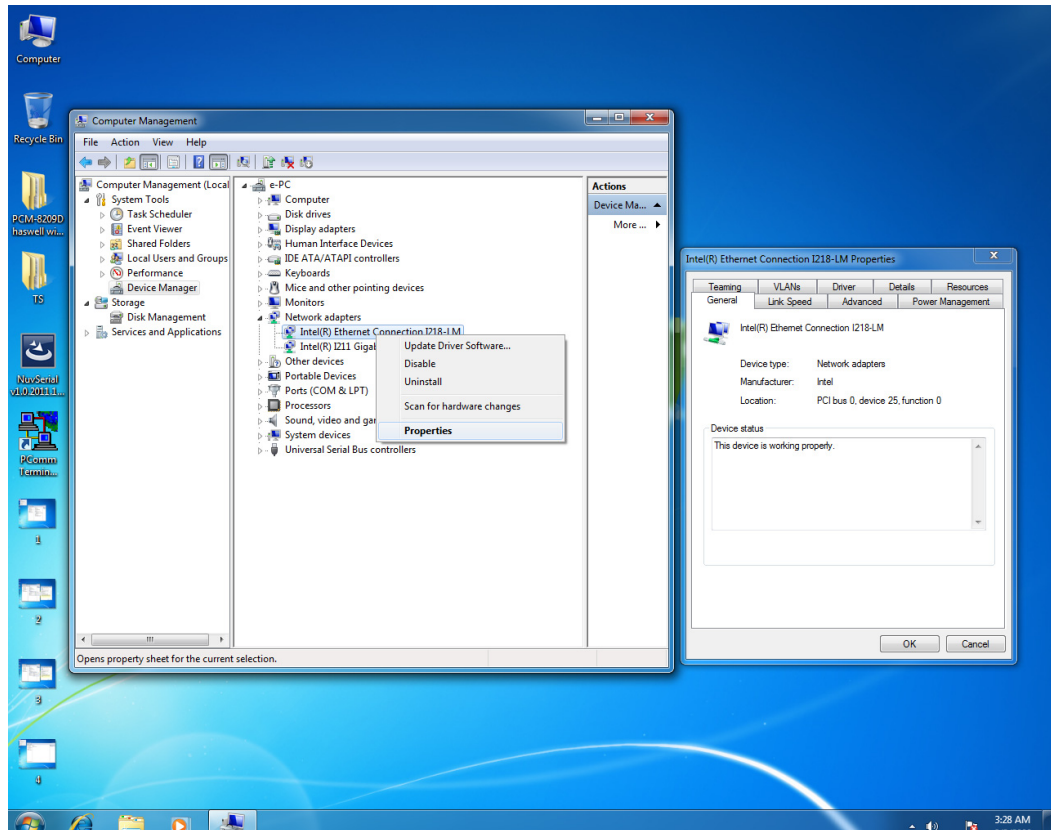
6. In "Intel(R) Ethemet" window, go to "Power Management" tab and check the boxes of "Work On Magic Packet", "Work On Pattern Match" and "Work On Magic Packet From Power Off State".
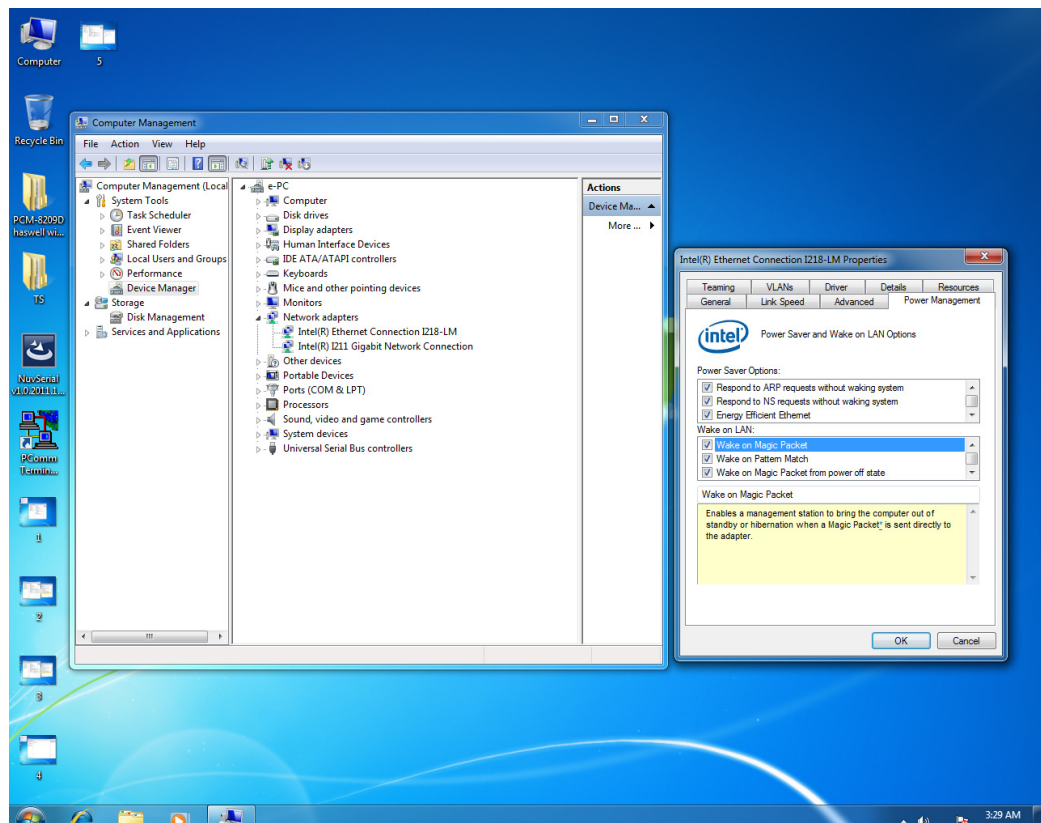
4.2.5 TPM Setup

1. Select Trusted Computing option in the Advanced tab

```
            Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
     Main  Advanced  Chipset   Security   Boot  Save & Exit
 ──────────────────────────────────────────────────────────────────────────────
 ▶ Trusted Computing                              Trusted Computing Settings
 ▶ ACPI Settings
 ▶ AMT Configuration
 ▶ PCH-FW Configuration
 ▶ NCT6106D Super IO Configuration
 ▶ H/W Monitor
 ▶ CPU Configuration
 ▶ SATA Configuration
 ▶ Network Stack Configuration
 ▶ CSM Configuration
 ▶ USB Configuration
                                                 ──────────────────────────────
                                                 ➜←: Select Screen
                                                 ↑↓: Select Item
                                                 Enter: Select
                                                 +/-: Change Opt.
                                                 F1: General Help
                                                 F2: Previous Values
                                                 F3: Optimized Defaults
                                                 F4: Save & Exit
                                                 ESC: Exit



            Version 2.17.1255. Copyright (C) 2019 American Megatrends, Inc.
```
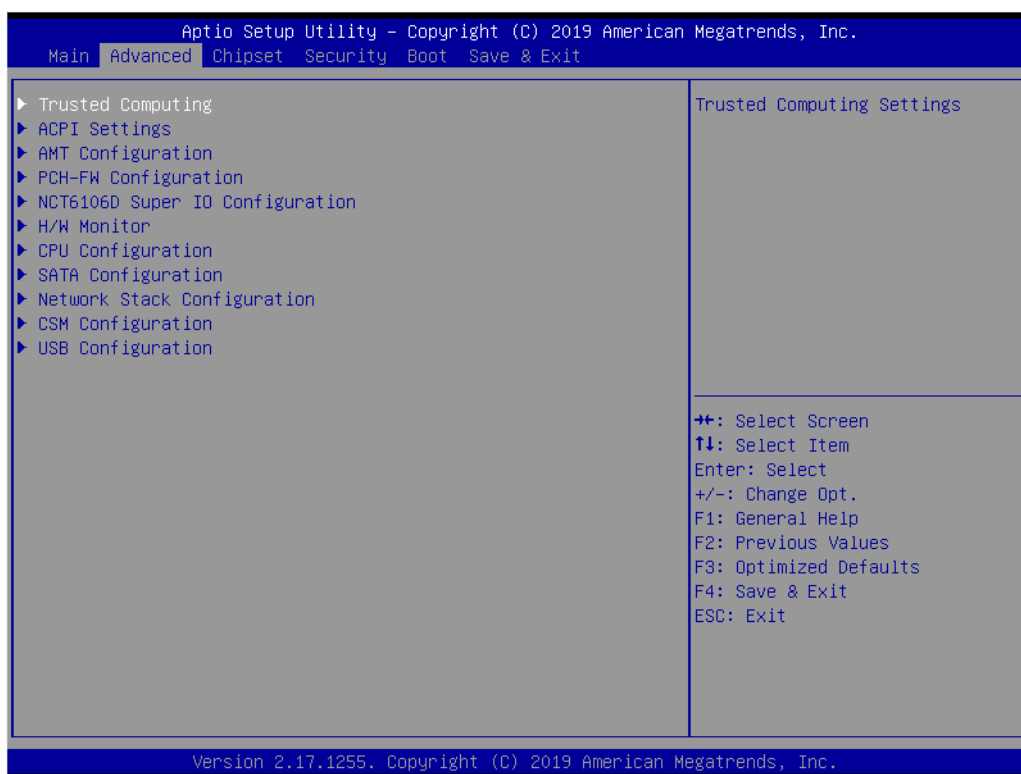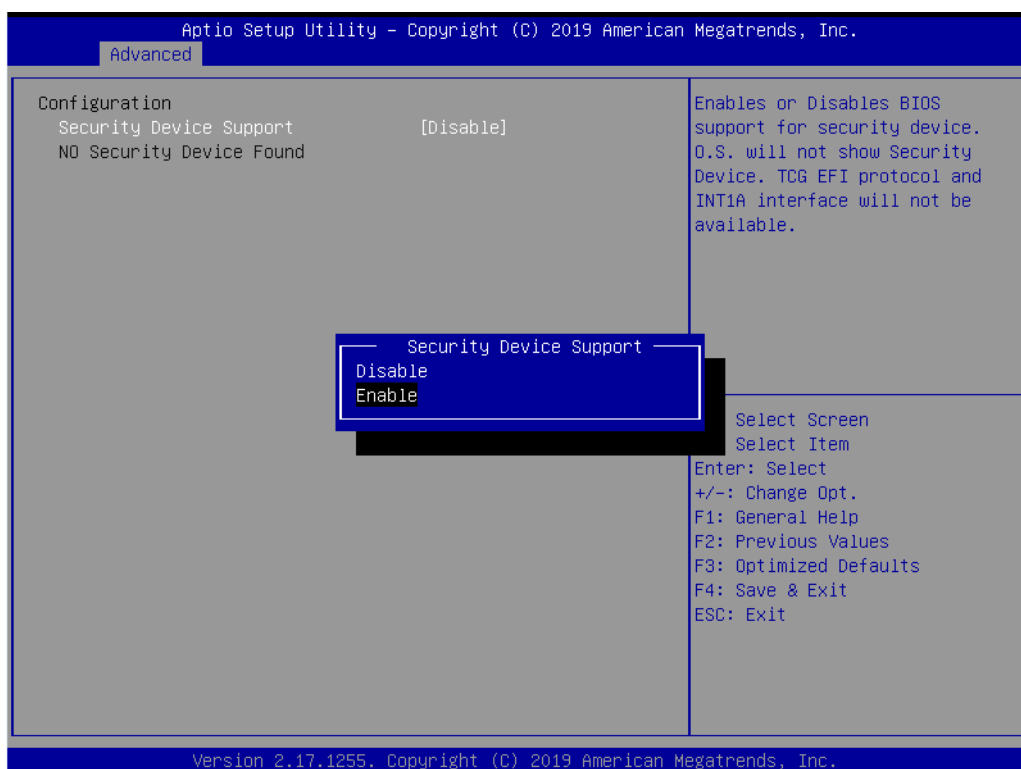
2. Set the Security Device Support option to Enabled

```
            Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
     Advanced
 ──────────────────────────────────────────────────────────────────────────────
 Configuration                                   Enables or Disables BIOS
   Security Device Support        [Disable]      support for security device.
   NO Security Device Found                      O.S. will not show Security
                                                 Device. TCG EFI protocol and
                                                 INT1A interface will not be
                                                 available.


                     ┌──── Security Device Support ────┐
                     │  Disable                         │
                     │  Enable                          │
                     └──────────────────────────────────┘
                                                 Select Screen
                                                 Select Item
                                                 Enter: Select
                                                 +/-: Change Opt.
                                                 F1: General Help
                                                 F2: Previous Values
                                                 F3: Optimized Defaults
                                                 F4: Save & Exit
                                                 ESC: Exit


            Version 2.17.1255. Copyright (C) 2019 American Megatrends, Inc.
```

3. Restart after saving

Enabling an Intelligent Planet