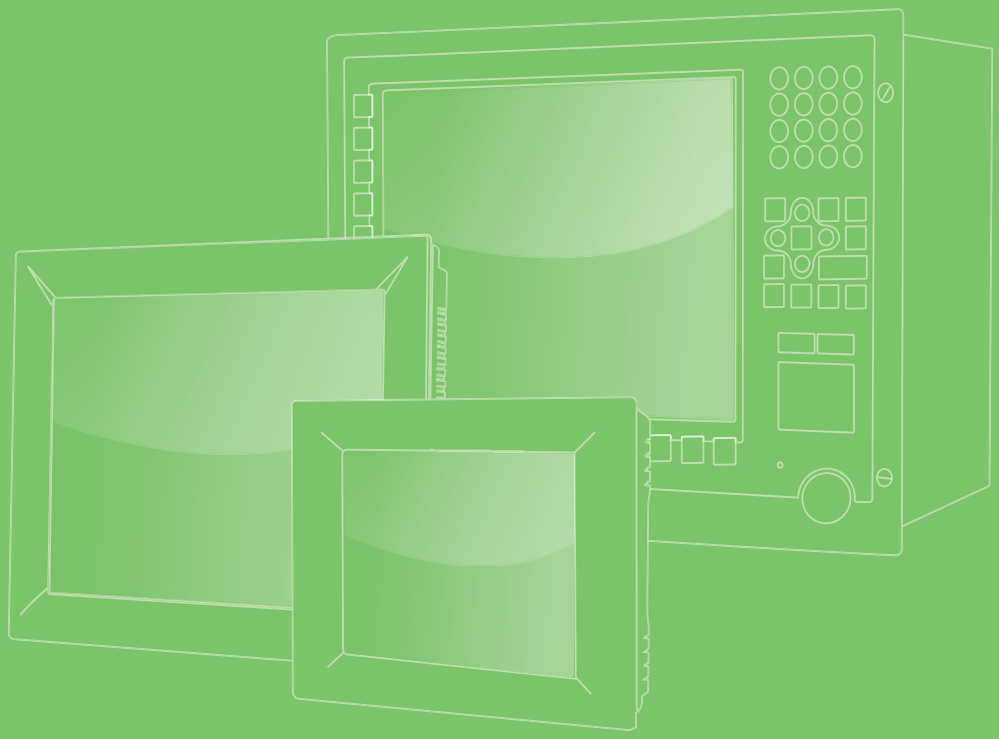

User Manual

PPC-310/312/315/321W EHL

10.4"/12.1"/15"/21.5" Fanless Panel PC with Intel® Celeron® J6412 Processor

ADVANTECH

Enabling an Intelligent Planet

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Acknowledgments

Product Warranty (2 years)

Advantech warrants the original purchaser that 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 that have been repaired or altered by persons other than repair personnel authorized by Advantech, or products that 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 customers never need to use our repair service. However, if an Advantech product is defective, it will be repaired or replaced free of charge during the warranty period. For out-of-warranty repairs, customers are billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details.

If you believe your product is defective, follow the steps outlined below.

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 on-screen messages displayed when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any relevant information readily available.
3. If your product is diagnosed as defective, obtain a return merchandise authorization (RMA) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a completed Repair and Replacement Order Card, and proof of purchase date (such as a photocopy of your sales receipt) into a shippable container. Products returned without a proof of purchase date are not eligible for warranty service.
5. Write the RMA number on the outside, and ship the package prepaid to your dealer.

Part No. 2003321W10 Edition 1

Printed in China May 2023

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 damage resulting from electrostatic discharge (ESD) or electromagnetic interference (EMI) leakage, we strongly recommend using CE-compliant industrial enclosure products.

Technical Support and Assistance

1. Visit the Advantech website at http://support.advantech.com to obtain the latest product information.
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 calling:
   - 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.
   Veuillez lire attentivement ce manuel d'instructions de sécurité.
2. Retain this startup manual for future reference.
   Veuillez conserver ce manuel d'instructions pour référence ultérieure.
3. Disconnect the equipment from power outlets before cleaning. Use only a damp cloth for cleaning. Do not use liquid or spray detergents.
   Débranchez l'appareil de toutes les prises de courant avant le nettoyage. Nettoyez-le uniquement à l'aide d'un chiffon humide. Ne pas utiliser de detergents liquides ou pulvérisateurs.
4. For pluggable equipment, the power outlet socket must be located near the equipment and easily accessible.
   Pour les appareils enfichables, la prise de courant doit être placée près de l'appareil et facilement accessible.
5. Protect the equipment from humidity.
   Protégez l'appareil contre l'humidité.
6. Place the equipment on a reliable surface during installation. Dropping or letting the equipment fall may cause damage.
   Placez l'appareil sur une surface fiable pendant l'installation. L'abandon ou la chute de l'appareil pourrait causer des dommages.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. Do not cover the openings.
   Les ouvertures du boîtier sont pour la convection d'air. Protégez l'appareil contre la surchauffe. Ne couvrez pas les ouvertures.
8. Warning: ensure that the voltage of the power source is correct before connecting the equipment to a power outlet. The power outlet socket should have a grounded connection.

Assurez-vous que la tension de la source d'alimentation est correcte avant de connecter l'appareil à une prise de courant. La prise de courant doit avoir une bonne connexion mise à la terre.

9. Position the power cord away from high-traffic areas. Do not place anything over the power cord.
   Placez le cordon d'alimentation à l'écart des zones à fort trafic. Ne placez rien sur le cordon d'alimentation.
10. All cautions and warnings on the equipment should be noted.
    Attention à toutes les précautions et avertissements indiqués sur l'appareil.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage from transient over-voltage.
    Si l'appareil n'est pas utilisé pendant une longue période, déconnectez-le de la source d'alimentation pour éviter les dommages causés par une surtension transitoire.
12. Never pour liquid into an opening. This may cause fire or electrical shock.
    Ne versez jamais de liquide dans une ouverture. Sinon, cela pourrait provoquer un incendie ou un choc électrique.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
    N'ouvrez jamais l'appareil. Pour des raisons de sécurité, l'appareil ne doit être ouvert que par un technician qualifié.
14. If one of the following occurs, have the equipment checked by service personnel:
    Si l'un des cas suivants se produit, demandez aide à un technicien qualifié:

- The power cord or plug is damaged.
  Le cordon d'alimentation ou la fiche est endommagé.
- Liquid has penetrated the equipment.
  Le liquide a pénétré dans l'appareil.
- The equipment has been exposed to moisture.
  L'appareil a été exposé à l'humidité.
- The equipment is malfunctioning or does not function according to the user manual.
  L'appareil est défectueux ou ne fonctionne pas conformément aux instructions.
- The equipment has been dropped or damaged.
  L'appareil a été abandonné et endommagé.
- The equipment shows obvious signs of breakage.
  L'equipement montre des signes évidents des casse.

15. Do not leave the equipment in an environment with a storage temperature of below -20 °C (-4 °F) or above 60 °C (140 °F) as this may cause damage. The equipment should be kept in a controlled environment.
    L'appareil montre des signes évidents de rupture. Ne laissez pas cet appareil dans un environnement dont la température de stockage est inférieure à -20°C (-4 °F) ou supérieure à 60 °C (140 °F), car cela pourrait causer des dommages. L'appareil doit être surveillé dans l'environnement.
16. CAUTION: Batteries are at risk of exploding if incorrectly replaced. Replace only with the same or equivalent type as recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.
    ATTENTION: Il y a danger d'explosion s'il y a rem¬placement incorrect de la pile. Remplacer uniquement avec une pile du même type ou d'un type équivalent recommandé par le constructeur.
17. In accordance with the IEC 704-1:1982 specifications, the sound pressure level at the operator's position should not exceed 70 dB (A).

Conformément aux spécifications de l'IEC 704-1:1982, le niveau de pression acoustique à la position de l'opérateur ne dépasse pas 70 dB (A).

18. Power to this equipment should be supplied by a UL-certified power adapter or DC power source with mating connector and an output rating of 12 ~ 30 V_{DC}, 5 ~ 2A (for PPC-312/315/321W) or 7 ~ 3.5 A (for PPC-310), and an operating temperature tolerance of 50 °C / 122 °F for SSDs. For further assistance, contact Advantech.
19. DISCLAIMER: These instructions are provided in accordance with IEC 704-1 standards. Advantech disclaims all responsibility for the accuracy of any statements contained herein.
    AVERTISSEMENT: Ces instructions sont fournies conformément aux normes IEC 704-1. Advantech decline toute responsabilité quant à la précision de toute déclaration contenue dans le présent document.
20. Do not expose the equipment to direct sunlight, or install the equipment in an environment with direct sunlight, as this may cause damage.

Safety Precautions - Static Electricity

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

- To avoid electrical shock, always disconnect the power from the PC chassis before manually handling the device. Do not touch any components on the CPU card or other cards while the equipment is powered on.
- Disconnect the power before executing any configuration changes. A sudden rush of power after connecting a jumper or installing 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 local regulations.

Manual Conventions

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

Caution! *Cautions are included to prevent hardware damage and data loss.*

For example, "Batteries are at risk of exploding if replaced with an incorrect type. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Par exemple, "Si la batterie est remplacée par un modèle inapproprié, il y a un risque d'explosion. Remplacer les produits identiques ou équivalents recommandés par le fabricant. Traitement des piles usagées selon les instructions du fabricant."

Note! *Notes provide additional information.*

Revision

Date	Version	Description/Change
February 2023	1.0	Initial

Contents

Chapter 1

General Information

This chapter details general information regarding PPC-310/312/315/321W EHL.

- Introduction
- Specifications
- Dimensions

1.1 Introduction

Advantech's PPC-310/312/315/321W EHL is an all-in-one light panel PC with a wide format 10.4"/12.1"/15"/21.5" TFT LCD screen. It is powered by an Intel® Celeron® J6412 processor, PPC-310/312/315/321W EHL to provide high performance, optimal memory, graphics, and peripheral I/O support in a compact, fanless, embedded system. With a high-durability design, PPC-310/312/315/321W EHL adopts a flat touchscreen with an IP66-rated front panel in a die-cast aluminum alloy enclosure. It is ideal for MES, processing, and general industrial equipment integration.

1.2 Key Features

- Robust IP66-rated true-flat color TFT LCD
- Ultra-thin fanless design with solid aluminum alloy enclosure
- Intel® Celeron® J6412 quad-core, 2.0 GHz processor CPU with fanless design
- Supports E-Key for wireless module
- Supports expansion via M.2 slot
- Supports Windows Embedded Linux and Android OS
- Supports VESA 75 x 75 mounting holes
- Dual 2.5GBASE-T Ethernet Supports Time-Sensitive Network (TSN) technology

1.3 Front Panel

The PPC-310/312/315/321W EHL front panel is a true-flat color TFT LCD touchscreen with Projected Capacitive Multi-Touch. The front panel is IP66 rated for dust and water tolerance (Figure 1.1).

Note: The examples provided in this manual are of the PPC-310 model.

Figure 1.1 Front Panel

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

1.4 Rear Panel

The PPC-310/312/315/321W EHL rear panel features four VESA mount (75 x 75 mm /2.95 x 2.95 in) holes located on its bottom side, as demonstrated below:

VESA mount screws: 4 x M4 screws, screw depth: 8 mm (max.)

Figure 1.2 Rear Panel

1.5 Panel Bottoms

The system's I/O, located on the bottom of the device, (Figures 1.3) are listed below:

- 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 RJ-45 GbE
- 2 x USB 3.1
- 2 x USB 2.0
- 1 x Type-C (USB only)
- 1 x HDMI

Figure 1.3 Panel PC Bottom

1.6 Dimensions

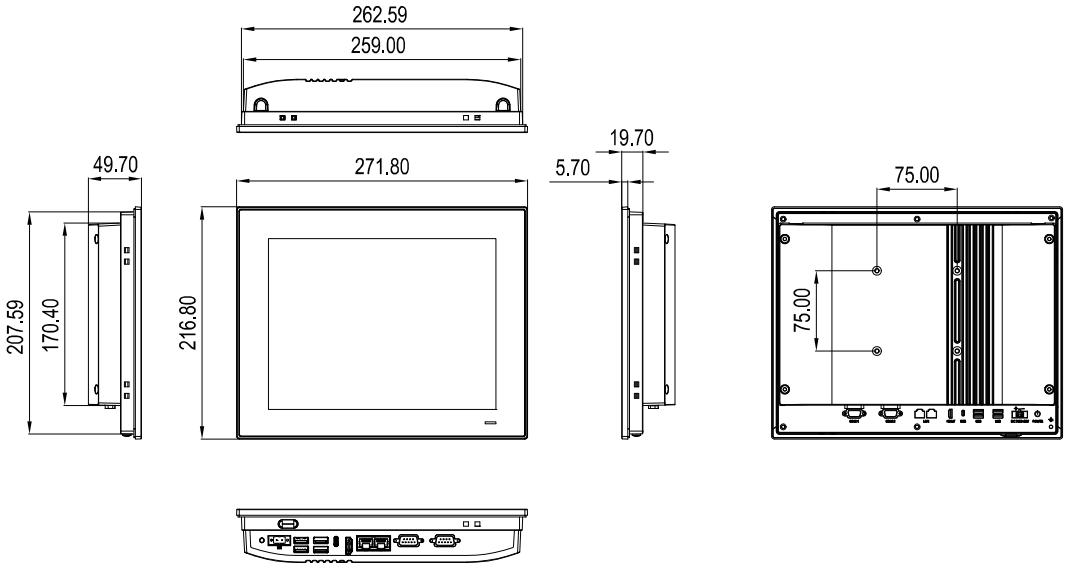


Figure 1.4 PPC-310 EHL Dimensions

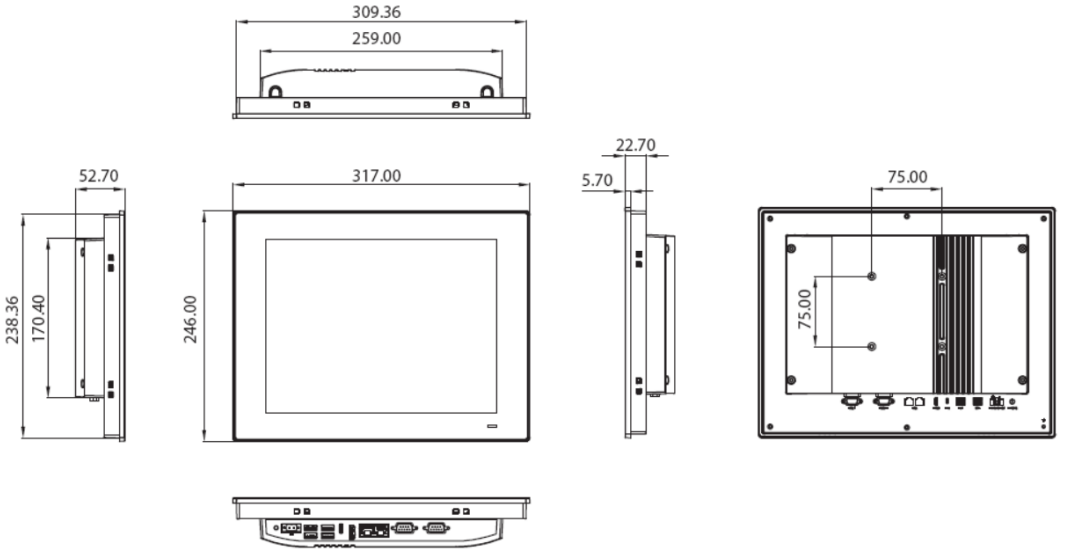


Figure 1.5 PPC-312 EHL Dimensions

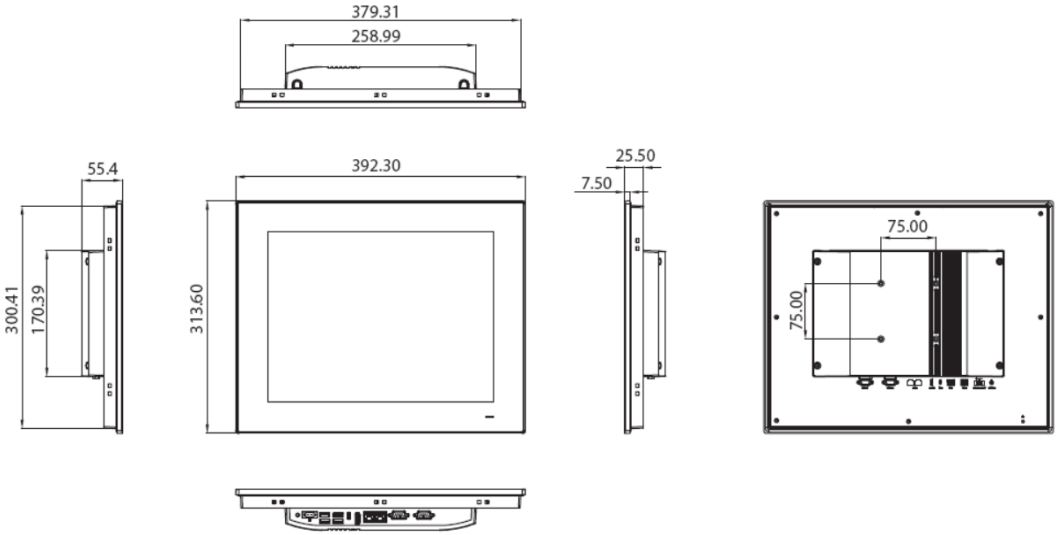


Figure 1.6 PPC-315 Dimensions

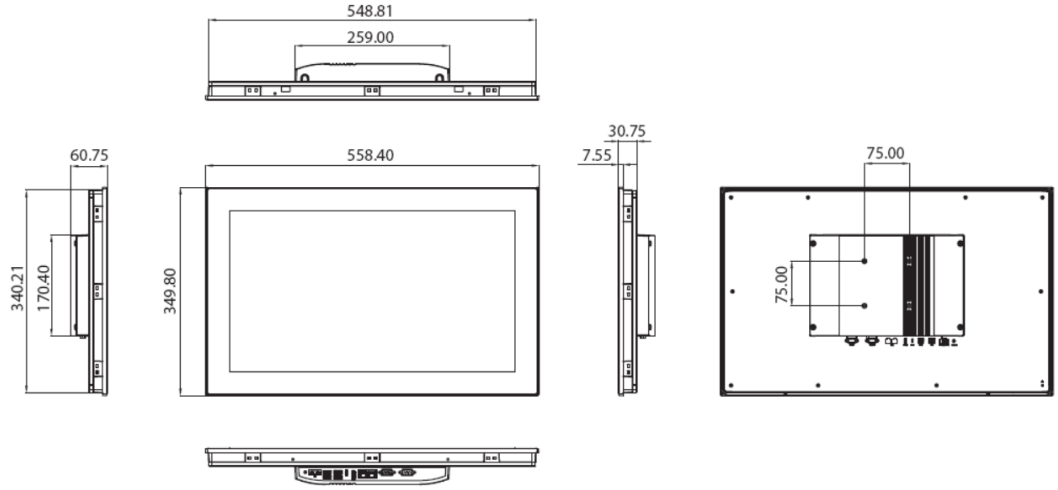


Figure 1.7 PPC-321W Dimensions

1.7 Specifications

Table 1.1: Specifications							
	PPC-310-RJ60A	**PPC-310-PJ60A**	**PPC-312-RJ60A**	**PPC-312-PJ60A**	**PPC-315-RJ60A**	**PPC-315-PJ60A**	**PPC-321W-PJ60A**
LCD Size	10.4"	10.4"	12.1"	12.1"	15"	15"	21.5"
Display Type	TFT LCD	TFT LCD	TFT LCD	TFT LCD	TFT LCD	TFT LCD	TFT LCD
Resolution	1024 x 768	1024 x 768	1024 x 768	1024 x 768	1024 x 768	1024 x 768	1920 x 1080
Brightness	350	350	500	500	300	300	250
Color	16.2M/262K	16.2M/262K	16.7M/262K	16.7M/262K	16.2M/262K	16.2M/262K	16.7M
Pixel Pitch (H x V)	0.0685 x 2055	0.0685 x 2055	0.24 x 0.24	0.24 x 0.24	0.29 x 0.297	0.29 x 0.297	0.248 x 0.248
Viewing Angle	176/176	176/176	160/140	170/178	160/176	160/176	178/178
Contrast	1000	1000	700	700	1300	1300	1000
Backlight Lifetime	30,000 hrs	30,000 hrs	30,000 hrs	30,000 hrs	50,000 hrs	50,000 hrs	50,000 hrs
Touchscreen Type	5-wire resistive	Projected capacitive 10-point multi-touch	5-wire resistive	Projected capacitive 10-point multi-touch	5-wire resistive	Projected capacitive 10-point multi-touch	Projected capacitive 10-point multi-touch
Light Transmission	80±5%	88±2%	80±5%	88±2%	80±5%	88±2%	88%
Controller	USB interface	USB interface	USB interface	USB interface	USB interface	USB interface	USB interface
Durability	At least 35,000,000 touches	Glass surface hard-ness 7H	At least 35,000,000 touches	Glass surface hard-ness 7H	At least 35,000,000 touches	Glass surface hard-ness 7H	Glass surface hard-ness 7H
Enclosure	Aluminum alloy						
CPU	Intel® Celeron® J6412 quad-core, 2.0 GHz, 10 W						
Memory	1 x SODIMM DDR4 3200, up to 32 GB						
Storage 1	1 x 2.5" SATA slot (optional; requires the HDD bracket module 98R3P300020)						
Optional Storage	1 x M.2 slot: M key for storage (SATA only, 2242 & 2280)						
Network (LAN)	2 x 10/100/1000/2500 Mbps Ethernet (Intel® I225-LM)						
I/O Ports	1 x RS-232 1 x RS-232/422/485 (adjustable through BIOS) 2 x USB 2.0 2 x USB 3.1 1 x HDMI 1.4 1 x Type-C (USB 3.1 only, output 5V/1.5A)						
Expansion	1 x M.2 2230 E-Key for wireless card						
OS Support	Microsoft® Windows 10 IOT LTSC (64-bit), Linux, Android						
Power Supply	12-30 VDC						
Power Consumption	35 W		40 W		45 W		50 W
Operating Temperature	-10 ~ 50 °C (14 ~ 122 °F)						

Storage Temperature	-20 ~ 60 °C (-4 ~ 140 °F)			
Relative Humidity	10 ~ 95% @ 40 °C / 104 °F (non-condensing)			
Shock Tolerance	Operation at 10G peak acceleration (11 ms duration), following IEC 60068-2-27			
Vibration Tolerance	Operation with random vibration at 5 ~ 500 Hz, 2 Grms with SSD, in accordance with IEC 60068-2-64			
Safety and EMC	Safety: CB, UL, CCC, BSMI, UKCA EMC: CE, FCC Class B, BSMI, UKCA			
Dimensions	271.8 x 216.8 x 49.7 mm (10.7 x 8.5 x 2 in)	317 x 246 x 52.7 mm (12.5 x 9.7 x 2.07 in)	392.3 x 313.6 x 55.4 mm (15.4 x 12.3 x 2.2 in)	558.4 x 349.8 x 60.8 mm (22 x 13.8 x 2.4 in)
Weight	3.1 kg (6.8 lb)	3.6 kg (7.9 lb)	5 kg (11 lb)	7.2 kg (15.9 lb)

Note! *The test conditions for the power consumption values provided above were as follows:*

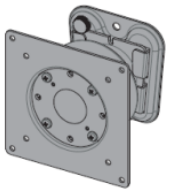
Memory: 16 GB DDR4 3200

HDD: 64 GB SSD

OS: Windows 10 (64-bit)

Software: Burn-In Test 8.1

1.8 Ordering Information

Table 1.2: Ordering Information		
Part Number	**Description**	**Image**
PPC-310-PJ60A PPC-310-RJ60A PPC-312-PJ60A PPC-312-RJ60A PPC-315-PJ60A PPC-315-RJ60A PPC-321W-PJ60A	Panel PC with Intel® Celeron® J6412	
96PSA-A90W19OT-3	Power adapter 100 ~ 240 VDC, 90 W, 19V	
PPC-WLAN-D2	Wi-Fi module with antenna	
PPC-ARM-A03	Arm mount VESA standard	
PPC-174T-WL-MTE	Wall mount kit	
PPC-Stand-A1E	Stand kit	

Chapter 2

System Installation and Setup

- Quick System Tour
- Memory Card Installation
- HDD Installation
- M.2 Installation
- Wireless LAN Card Installation
- Mounting the System

2.1 Quick System Tour

Before setting up the panel PC, take a moment to identify the locations of the device controls, drives, connectors, and ports (as shown in Figure 2.3). When placed upright, the PPC-310/312/315/321W front panel should appear as shown in Figure 2.1. Since PPC-310/312/315/321W are series models, the following photos in the manual are PPC-310 examples.

Figure 2.1 Panel PC Front View

1. Power status LED: Off (S5) Orange; Sleep (S3) Orange; On (S0) Blue.

Figure 2.2 Panel PC Rear View

1. GND screw

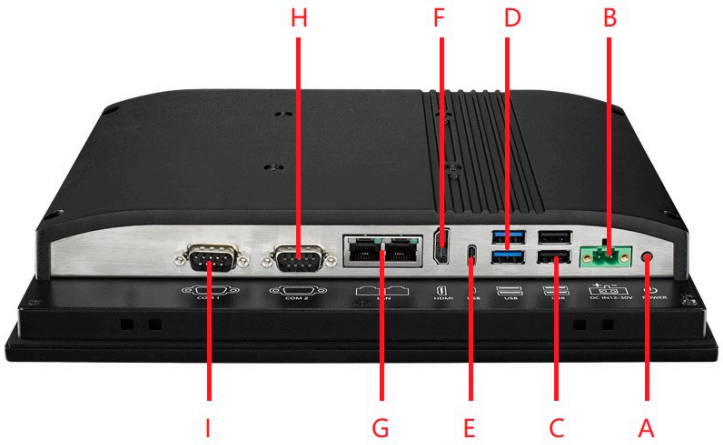


Figure 2.3 Panel PC Bottom with I/O

A: Power button
B: DC In
C: 2 x USB 2.0
D: 2 x USB 3.1
E: 1 x Type-C
F: 1 x HDMI 1.4
G: 2 x RJ-45 LAN
H: COM2 (RS-232/422/485)
I: COM1 (RS-232)

2.2 Installation Procedures

When installing system hardware, adhere to the following order:

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

2.2.1 Memory Card Installation

1. Remove the 8 screws shown in the circles, then remove the rear cover.

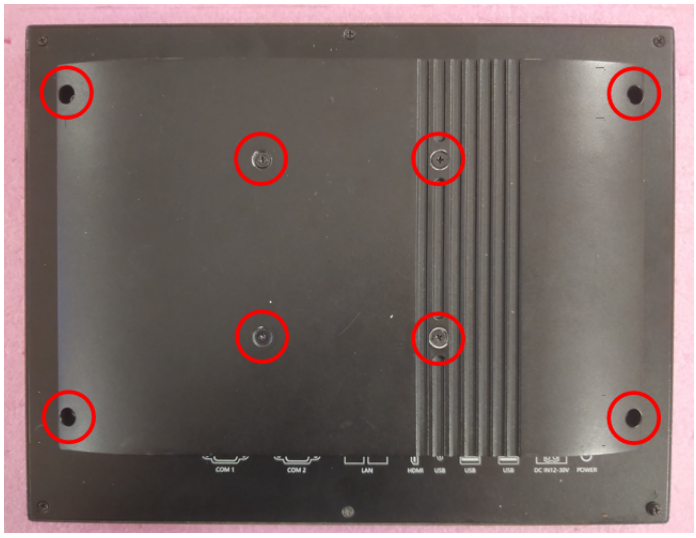


Figure 2.4 Retention Screws on the Rear Cover

2. Insert the memory card into the corresponding slot on the main board, then place the thermal pad provided in the accessory box on top of the memory card and CPU. Remember to remove the protective film before using the thermal pad.

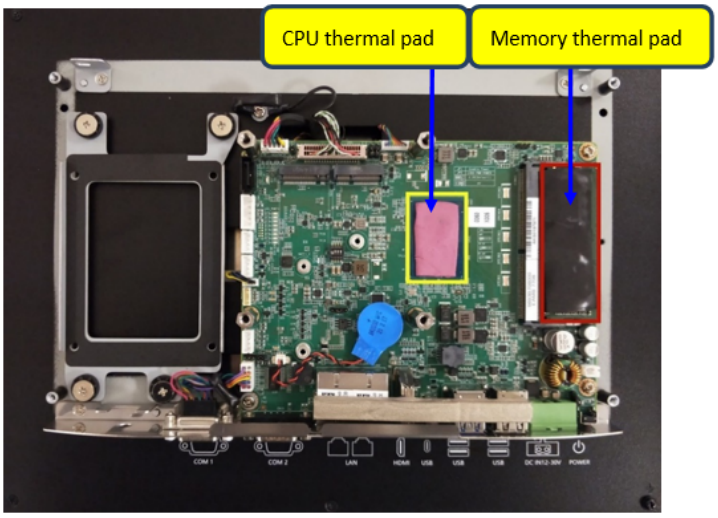


Figure 2.5 Memory Card Installation

2.2.2 SDD Installation

1. Remove the screws on the rear cover and remove the rear cover.
2. Gather the components of the SSD bracket module (requires ordering the HDD bracket module 98R3P300020).

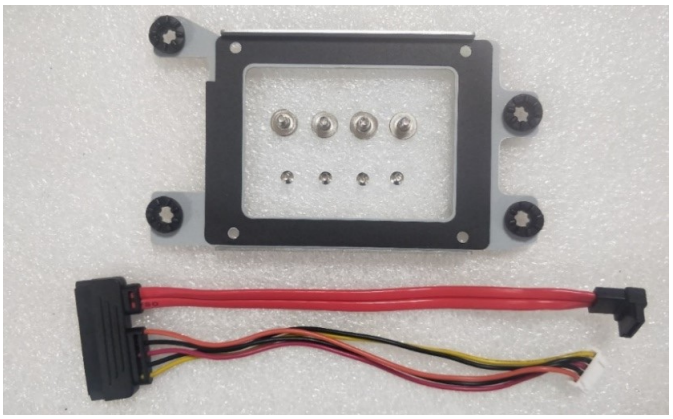


Figure 2.6 HDD Module Bracket

3. Connect the SATA cable provided in the accessory box to the SATA HDD module.

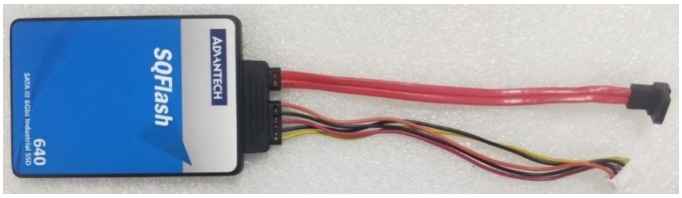


Figure 2.7 SATA Cable Connected to SATA HDD

4. Using the four screws provided in the accessory box, affix the SATA HDD module to the HDD bracket.

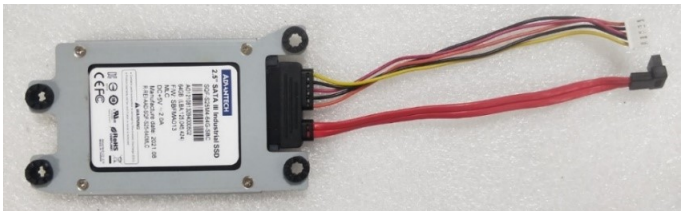


Figure 2.8 Secure SATA HDD with Screws

5. Affix the SATA HDD bracket to the main board. Tie the SATA power cable in place and then plug the cable into the corresponding connector on the mother-board.
   Caution: Don't allow the rear cover to put pressure on the SSD cable.

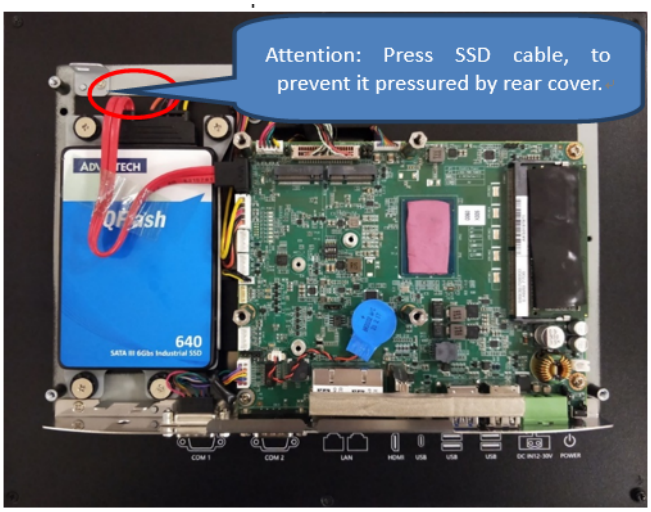


Figure 2.9 SATA HDD Connected to the Mainboard

2.2.3 M.2 Installation

2.2.3.1 M.2 2280 Card Installation

1. Assemble the M.2 2280 card on the motherboard.

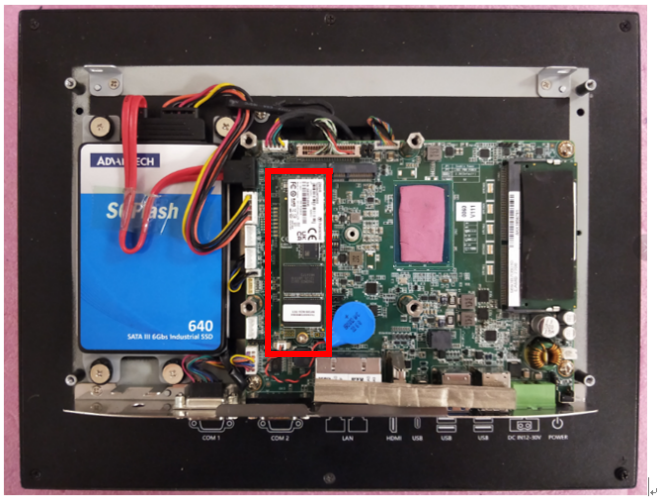


Figure 2.10 M.2 Installation

2. Remove the thermal pad from the accessory box, and apply it to the M.2 card.

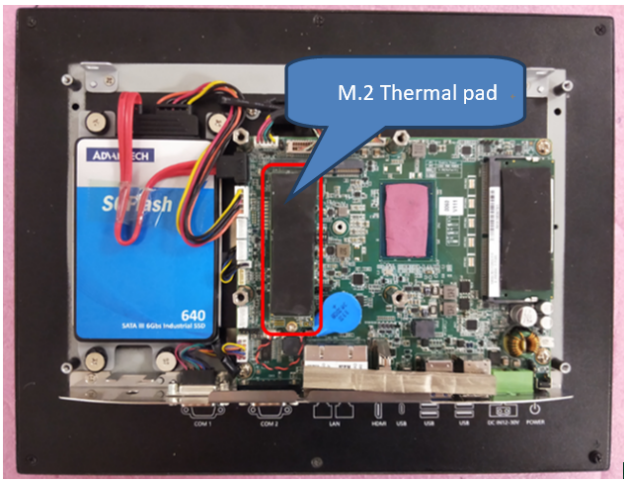


Figure 2.11 Apply the Thermal Pad to the M.2

2.2.3.2 M.2 2242 Card Installation

1. First, take out a pillar from the accessory box and install it on the motherboard as shown in the figure below.

Figure 2.12 Install the Pillar on the Motherboard

2. Install the M.2 2242 card on the motherboard with a screw.

Figure 2.13 Install the M.2 2242 Card on the Motherboard

3. Take out the thermal pad from the accessory box, and affix it to the M.2 card.

Note: An M.2 2280 thermal pad cut in half can be used as an M.2 2242 thermal pad.

Figure 2.14 Apply the Thermal Pad on the M.2 2242 Card

2.2.4 Install the Wi-Fi Module

1. Remove the rear cover.
2. Assemble the antenna bracket on the antenna cable.

Figure 2.15 Assemble the Bracket with the Antenna Cable

3. Assemble the Wi-Fi card and the thermal pad.

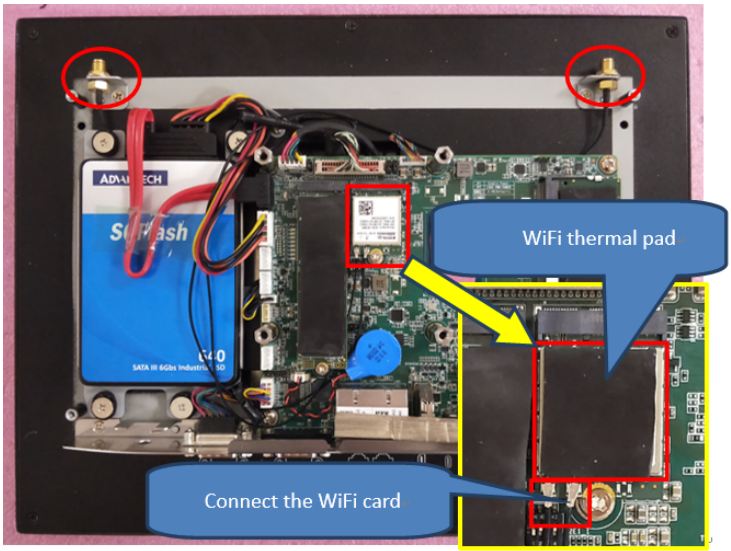


Figure 2.16 Assemble the Wi-Fi Card and Thermal Pad

4. Assemble the rear cover, and install the antenna.

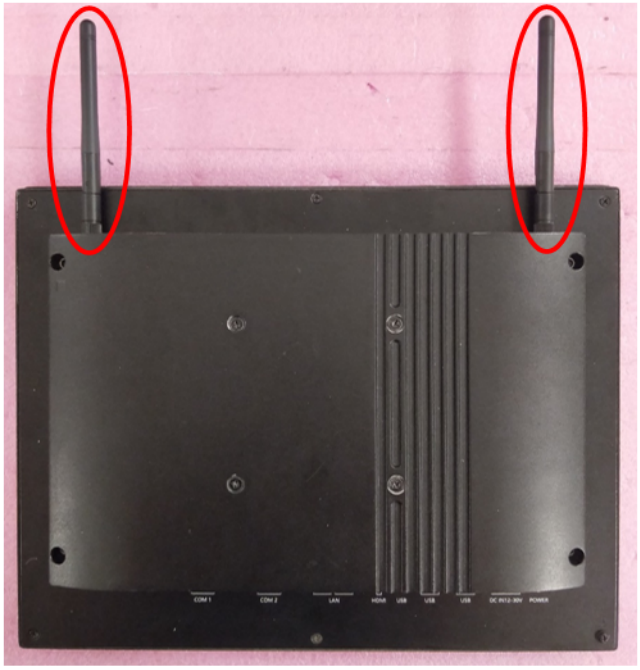
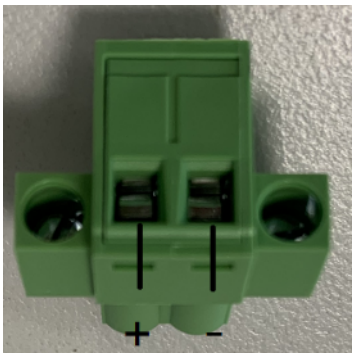


Figure 2.17 Assemble the Wi-Fi Antenna

2.2.5 System Power on

A 2-pin power connector is included in the accessory box. Connect the power connector to 12-30V_{DC} power lines and plug the power cables into the system power receptor. The DC power source shall comply with ES1 requirements, and the output rating is 12-30V_{DC}, 8-4 A, with a minimum operating temperature of 50 °C. It has to be evaluated according to IEC/UL 60950-1 and/or IEC/UL 62368-1.



The terminal block is suitable for 16 AWG min., with a torque value 4.5 lb-in min. Use copper conductors only. It must be installed by a trained and skilled person.

2.3 Mounting the System

Warning! *When mounting the panel PC, more than one person should perform the installation to prevent accidental damage to the panel or personal injury.*

Le comité constate qu'el-nasr mounting, Plus d'une personne installation to prevent the cadre accidental damage to the personal injury.

The panel PC supports various mounting options, as listed below:

- Wall mounting
- Panel mounting
- Arm mounting
- Stand mounting

2.3.1 Wall Mounting

To mount the panel PC onto a wall, follow the instructions below (see Figure 2.20 for additional reference).

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

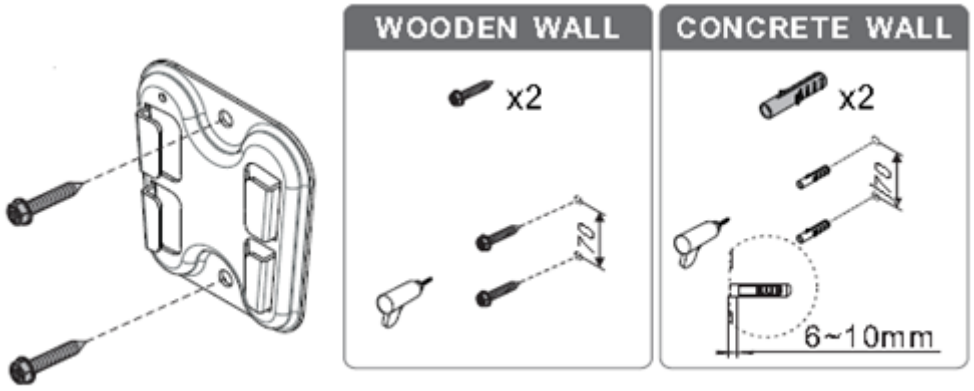


Figure 2.18 Wall Mount Plate

6. Insert four M4 screws into the holes on the panel PC and tighten them to secure the bracket to the rear panel.

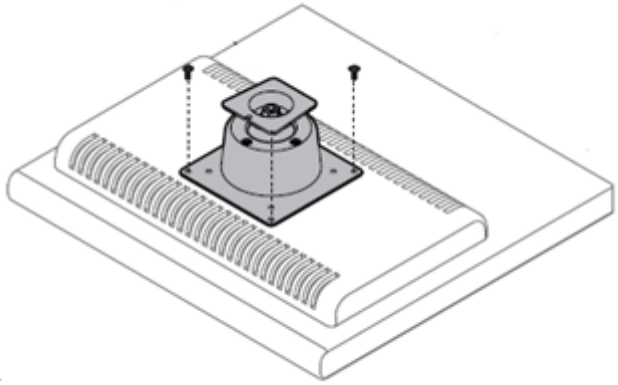
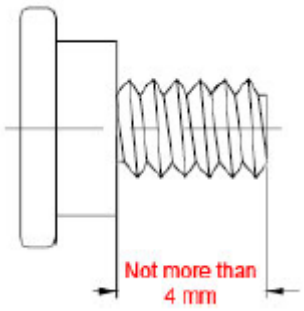


Figure 2.19 Rear Panel Screw Locations

Warning! *Ensure that the thread depth of the screws on the rear panel does not exceed 4 mm (0.15 in).*

Assurez-vous que la profondeur du filetage des vis sur le panneau arrière ne dépasse pas 4 mm.



7. To mount the panel PC on the wall, align the wall mount bracket attached to the panel PC with the wall mount plate on the wall and slide the panel PC downward to hang the bracket on the mount plate.

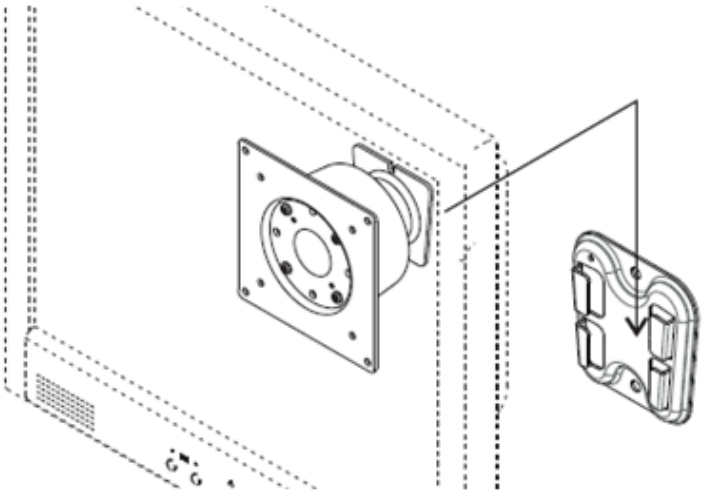


Figure 2.20 Mounting the Panel PC on a Wall

8. Secure the panel PC in place by tightening the screws into the wall mount bracket.

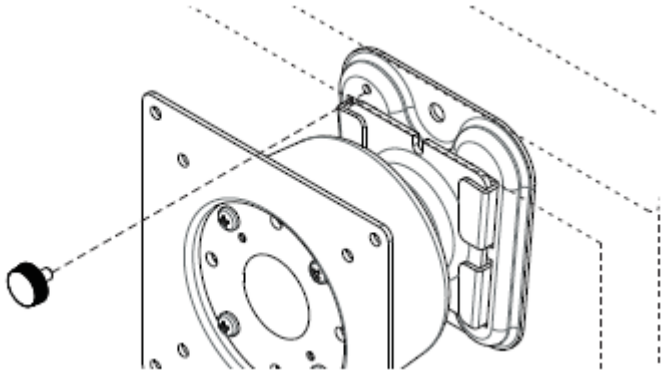


Figure 2.21 Securing the Panel PC

2.3.2 Panel Mounting

To mount the flat bezel panel PC onto a panel, follow the steps below.

1. Prepare a panel cutout according to the Panel PC dimensions. Panel cutout dimensions:
   PPC-310: 265 x 210 mm / 10.43 x 8.27 in
   PPC-312: 311 x 240 mm / 12.24 x 9.45 in
   PPC-315: 382 x 303 mm / 15.04 x 11.93 in
   PPC-321W: 550 x 342 mm / 21.65 x 13.46 in
2. Insert the panel PC into the cutout. Retrieve the hook brackets and M6 x 21L screws from the accessory box (8 for PPC-310/312; 10 for PPC-315, and 12 for PPC-321W).
   Veuillez installer le panneau PC dans la découpe. Récupérez les crochets et les vis M6 x 21L de la boîte à accessoires.

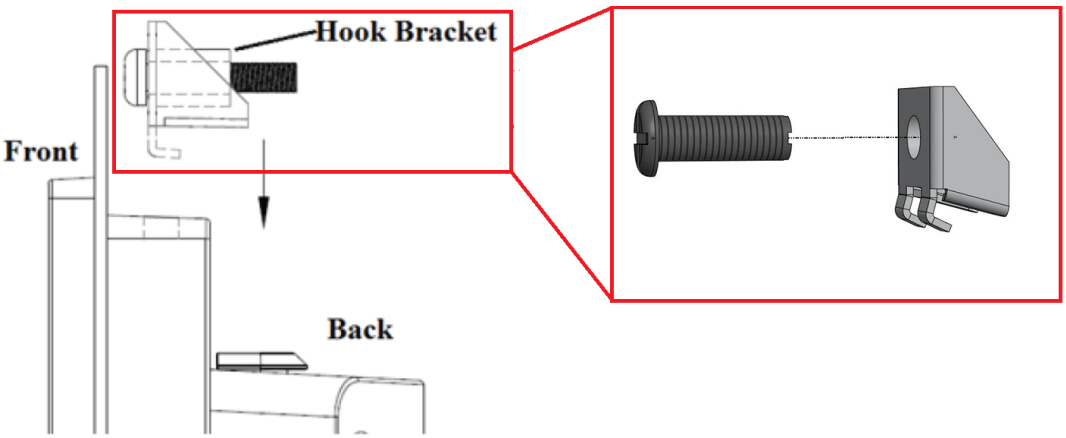


Figure 2.22 Hook Brackets for Panel Mounting

3. Insert the hook brackets into the holes following the direction of the arrows shown in Figure 2.25 and hang the panel PC.

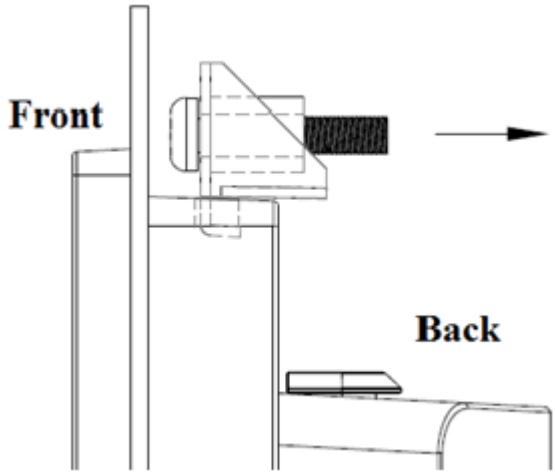


Figure 2.23 Locations of Hook Brackets

4. Tighten the screws to secure the panel PC in place (Figure 2.26).

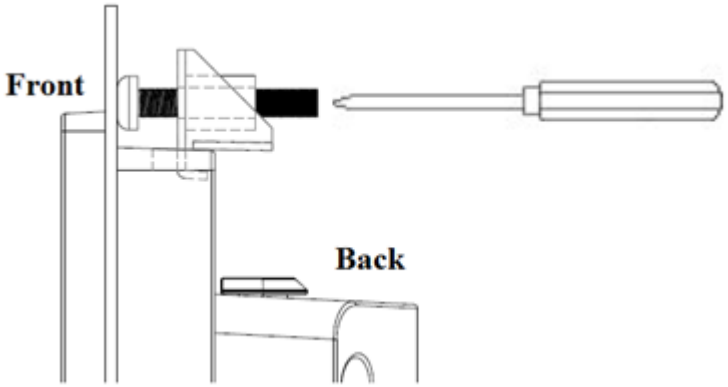


Figure 2.24 Fasten the Hook Bracket

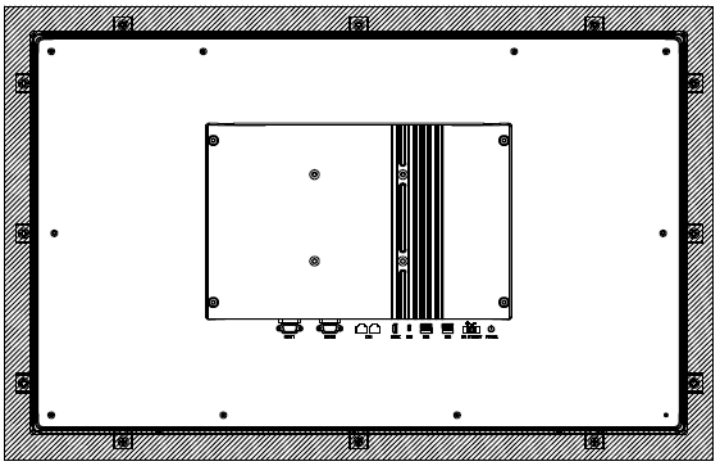


Figure 2.25 Panel Mount Rear View

(Take the PPC-321W drawing as example.)

2.3.3 Arm Mounting

PPC-310/312/315/321W can be mounted on a VESA-compliant arm mount with a 100 mm (3.93 in) interface pad. To affix the panel PC to an arm mount, follow the steps below.

1. Refer to the installation instructions for the mounting arm to correctly mount the arm onto the surface of the base.
2. Align the retention screw holes on the mounting arm interface with VESA holes on the panel PC, and secure the panel PC with the four M4 retention screws.

Figure 2.26 Arm Mount for the Panel PC

Warning! *Ensure that the thread depth of the screws on the rear panel does not exceed 4 mm (0.15 in).*

2.3.4 Stand Mount

Before assembling the stand mount, check that the product was shipped with the following items:

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 onto the stand, follow the steps below:

1. Use four M4 x 8L screws to affix the VESA bracket to the panel PC. Users can choose a 100 x 100 mm (3.93 x 3.93 in) VESA mount according to their requirements.

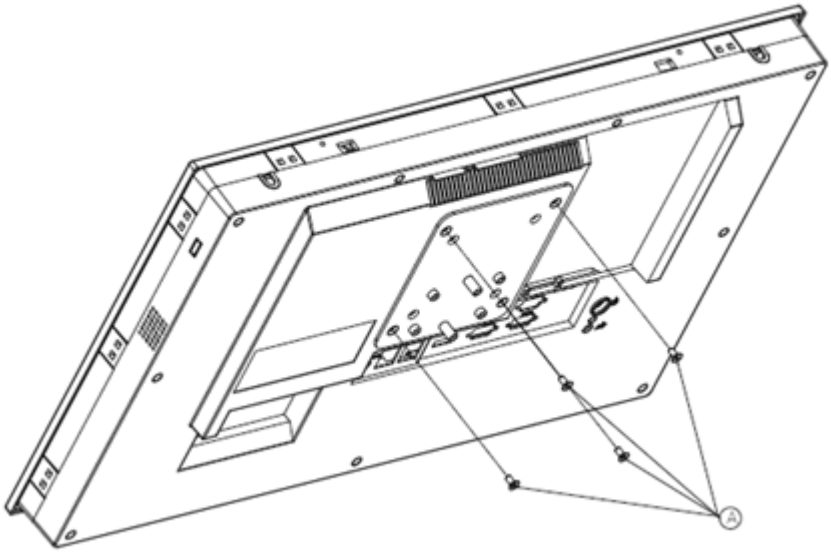


Figure 2.27 VESA Mount Screw Holes

2. Use the four M4 x 8L screws to secure the base plate to the mount stand.

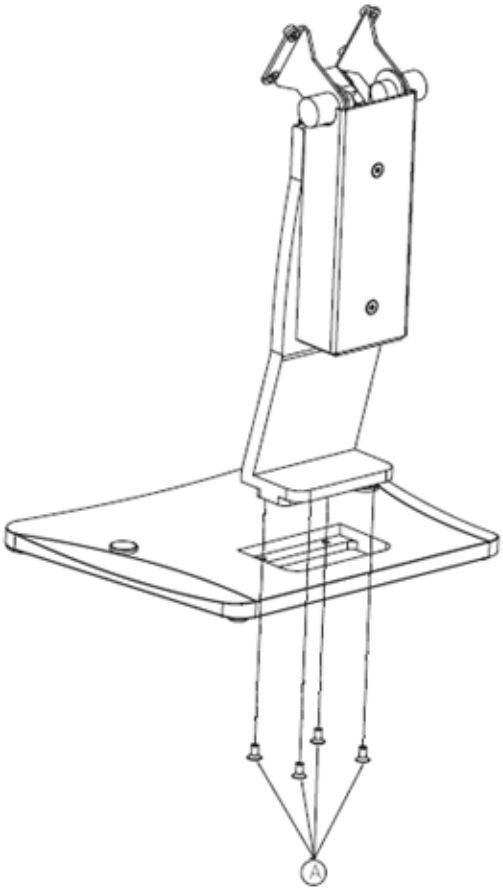


Figure 2.28 Securing the VESA Mount Base

3. Use four M4 x 6L screws to secure the mount stand to the VESA mount bracket.

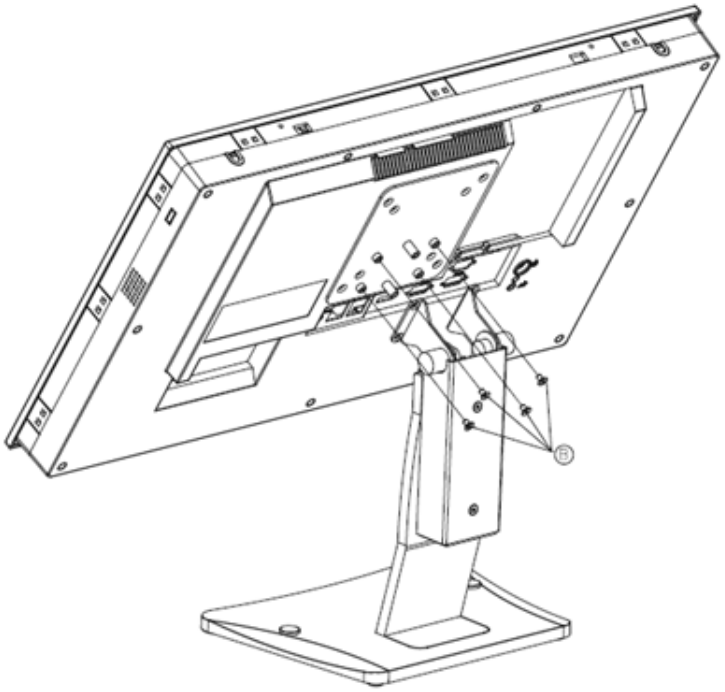


Figure 2.29 Securing the VESA Mount Bracket

4. Use one M4 x 5L screw to secure the stand mount hinge cover.

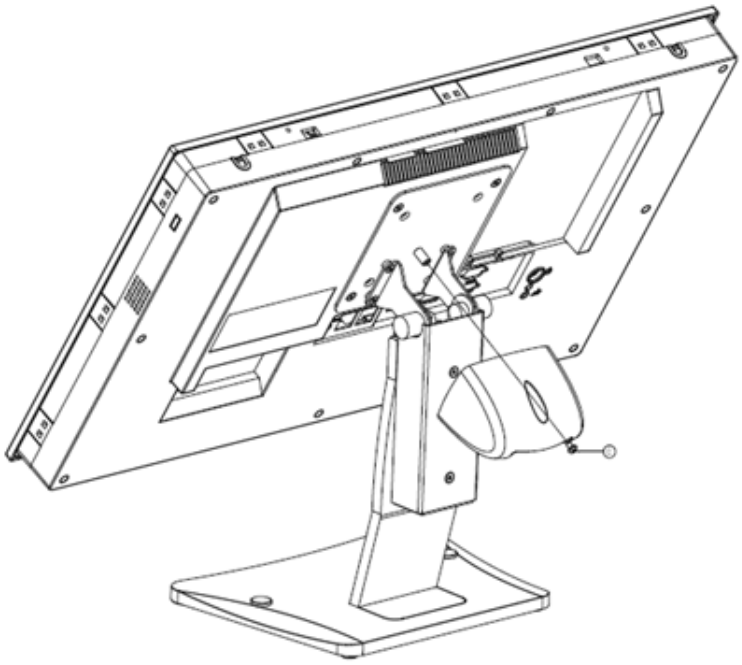


Figure 2.30 Securing the Stand Mount Hinge Cover

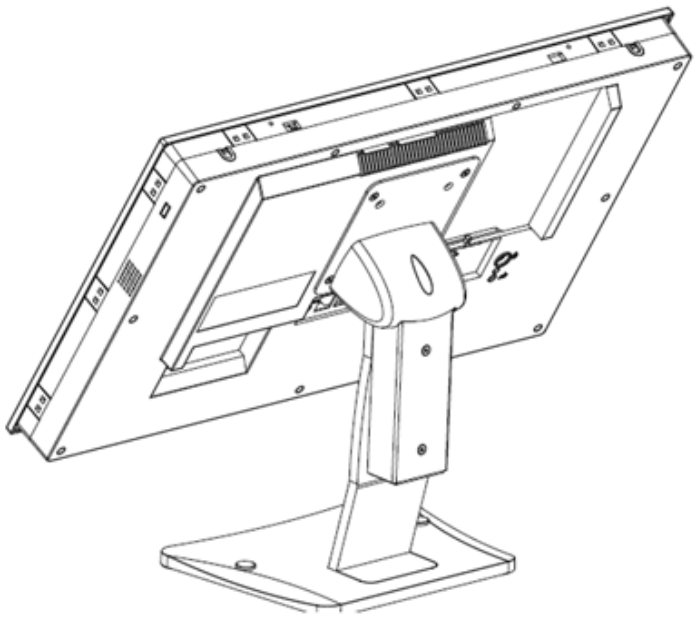


Figure 2.31 Completed Stand Mount

2.3.5 Cabinet Installation and Grounding

Follow these instructions to install the PPC system, and pay attention to the ground pin, which should be connected to the earth/ground. The PPC system should give the best performance for optimal EMI immunity, ESD immunity, surge immunity, and system isolation. If the PPC system is embedded in the cabinet, the PPC system's ground, and the cabinet's ground, and the earth/ground should be connected together.

1. Install the PPC system into the cabinet.

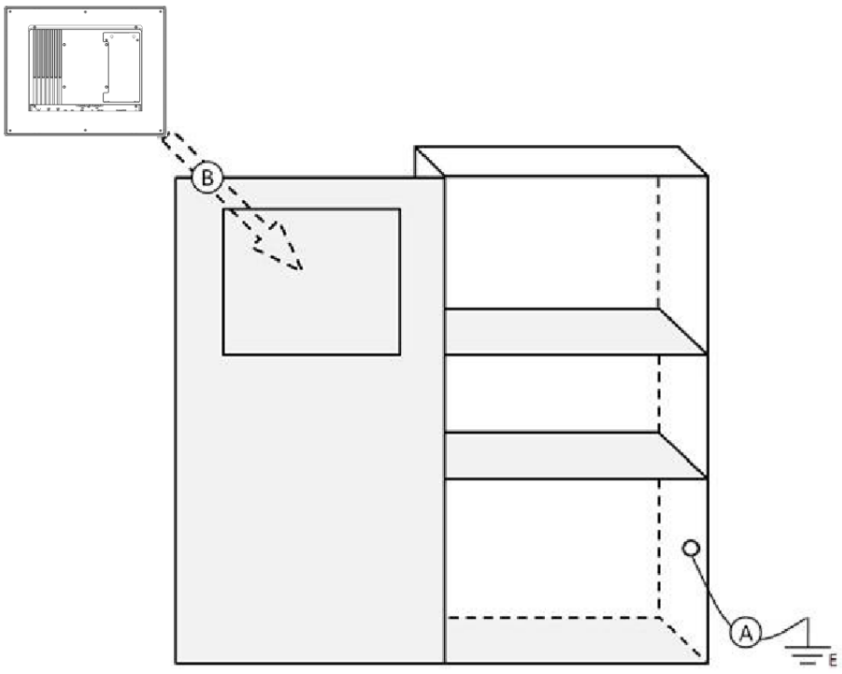


Figure 2.32 Install the PPC System into the Cabinet

Step A: Connect the cabinet to the earth/ground.

Step B: Embed the null PPC system into the cabinet without any I/O or power cables.

2. System wiring.

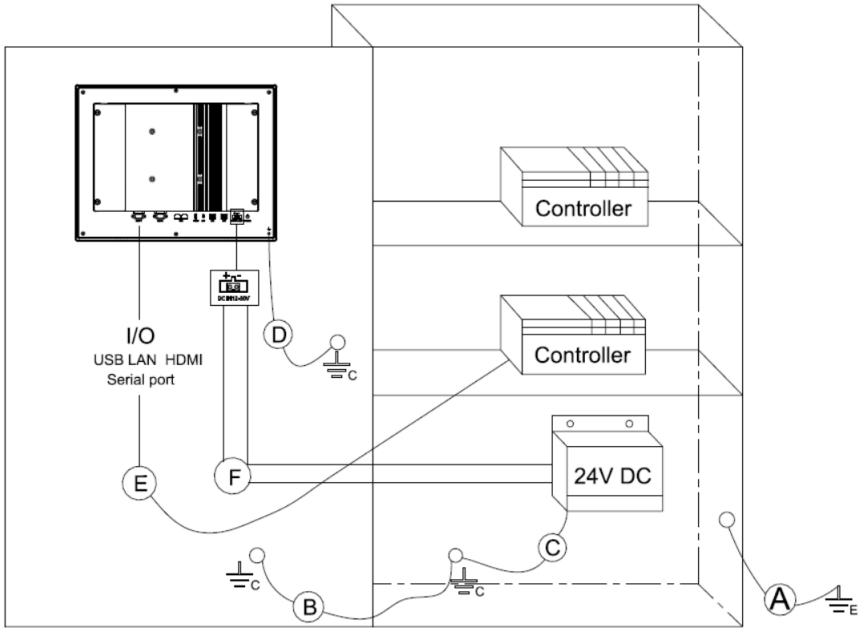


Figure 2.33 System Wiring Cabinet

Step A: Connect the cabinet to the earth/ground.

Step B: Ensure that all cabinets have been grounded together.

Step C: Connect the ground of the power supply to the cabinet.

Step D: Connect the ground pin of the PPC system to the cabinet.

Step E: Connect the I/O to the controller if needed.

Step F: Connect the V+ and V- of the power supply to the PPC system.

Note! *The wire of the protective earthing conductor shall be green-and-yellow, xx AWG / 0.75 mm2 and connected to the earth of the building.*

Ensure that the voltage of the power source is correct before connecting the equipment to a power outlet by means of a power cord connected to a socket outlet with an earthing connection.

Chapter 3

Jumper Settings

- Jumpers and Connectors
- External COM Ports and Pin Definitions

3.1 Motherboard Jumpers and Connectors

The motherboard connectors are shown below (Figure 3.1). The internal peripheral connectors are accessible when the motherboard is outside of the chassis.

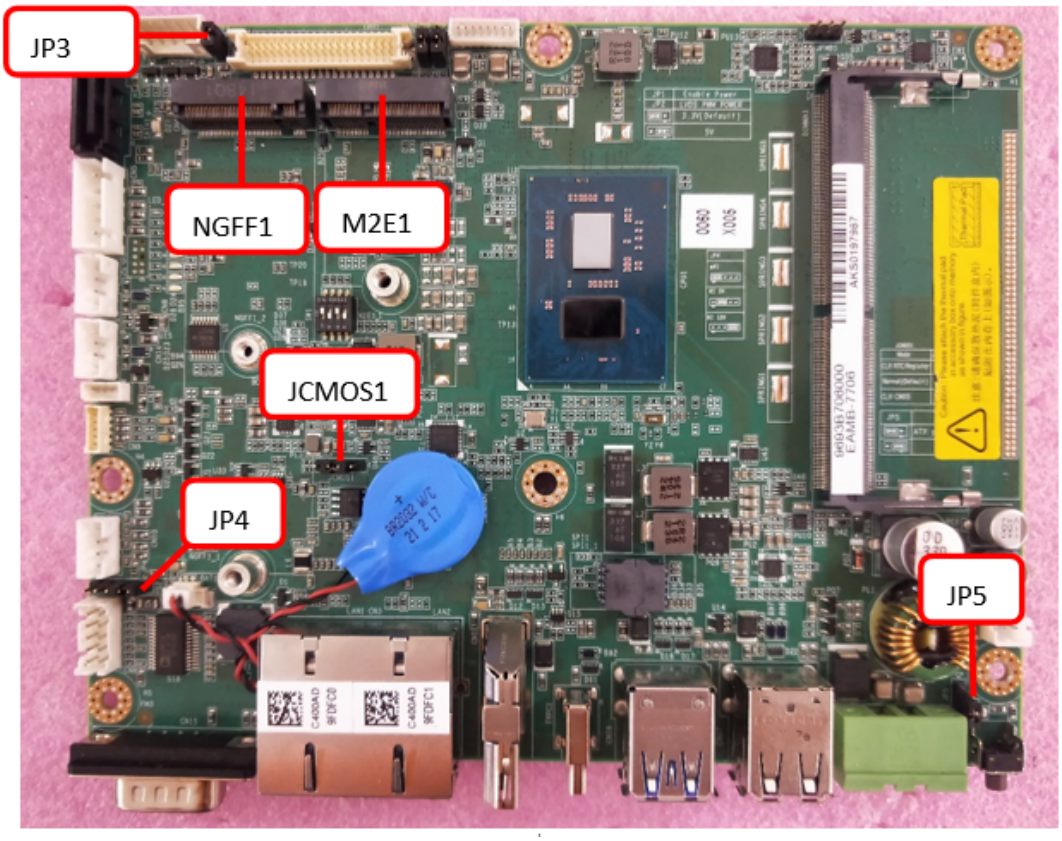


Figure 3.1 Motherboard

The internal jumpers and connectors on the motherboard and their pinouts are listed in the table below.

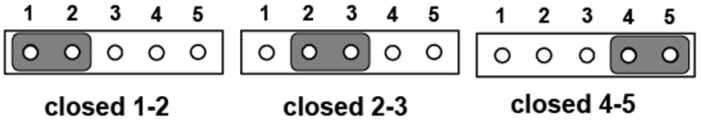
Table 3.1: Motherboard Jumpers and Connectors

Connector	Function
NGFF1	M.2 M-Key 2280 or 2242
M2E1	M.2 E-Key 2230
JCMOS1	RTC Select
JP4	COM1 Pin 9 Power Select
JP5	ATX/AT Select
JP3	Resistive Touch Power Select

3.1.1 COM1 Pin 9 Power Select

Table 3.2: COM1 Pin 9 Power Selection

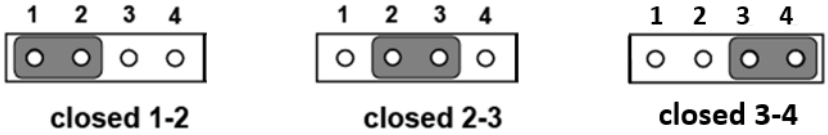
JP4	Function
1-2pin	COM1 RI (Default*)
2-3pin	COM1 Pin9 5V
4-5pin	COM1 Pin9 12V



3.1.2 RTC Selection

Table 3.3: RTC Selection

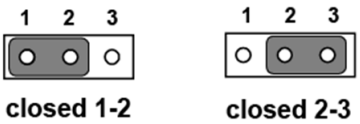
JCMOS1	Function
1-2pin	CLR RTC Register
2-3pin	Normal (Default*)
3-4pin	Clear CMOS



3.1.3 ATX/AT Selection

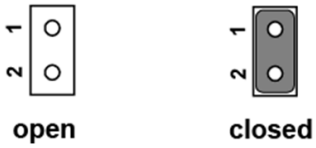
Table 3.4: ATX/AT Selection

JP5	Function
2-3pin	ATX power (Default*)
1-2pin	AT power



3.1.4 Touch Power Selection

Table 3.5: Touch Power Selection	
JP3	**Function**
Open	PCT
Closed	RES



Note: The resistive touch model needs a JP3 jumper added. The projected capacitive touch model should have the JP3 jumper removed.

3.2 External COM Ports and Pin Definitions

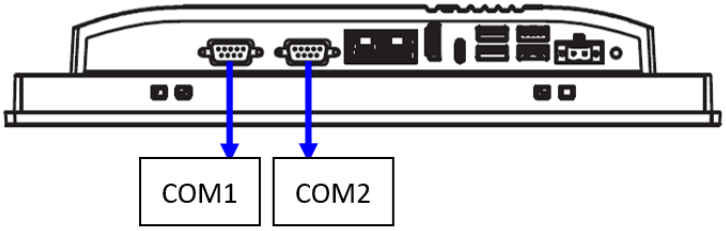


Figure 3.2 Location of COM1 and COM2 Ports

COM1: RS-232

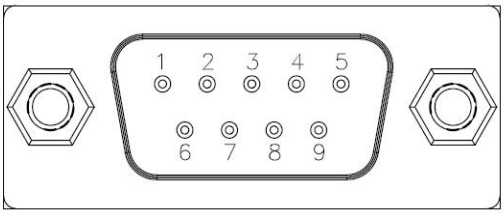
COM1 Pin 9 is set as “RI” by default. This setting can be changed to 5V or 12V output using a jumper.

COM2: RS-232/422/485

Note! *COM2 does not support a ring function.*

Table 3.6: External COM Ports and Pin Definitions

Pin	COM1	COM2		
	RS-232	**RS-232**	**RS-422**	**RS-485**
1	DCD	DCD	TX-	DATA-
2	RXD	RXD	TX+	DATA+
3	TXD	TXD	RX+	NC
4	DTR	DTR	RX-	NC
5	GND	GND	GND	GND
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

- Driver Installation
- BIOS Setup Program

4.1 Driver Installation

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

All drivers can be downloaded from the Advantech website:

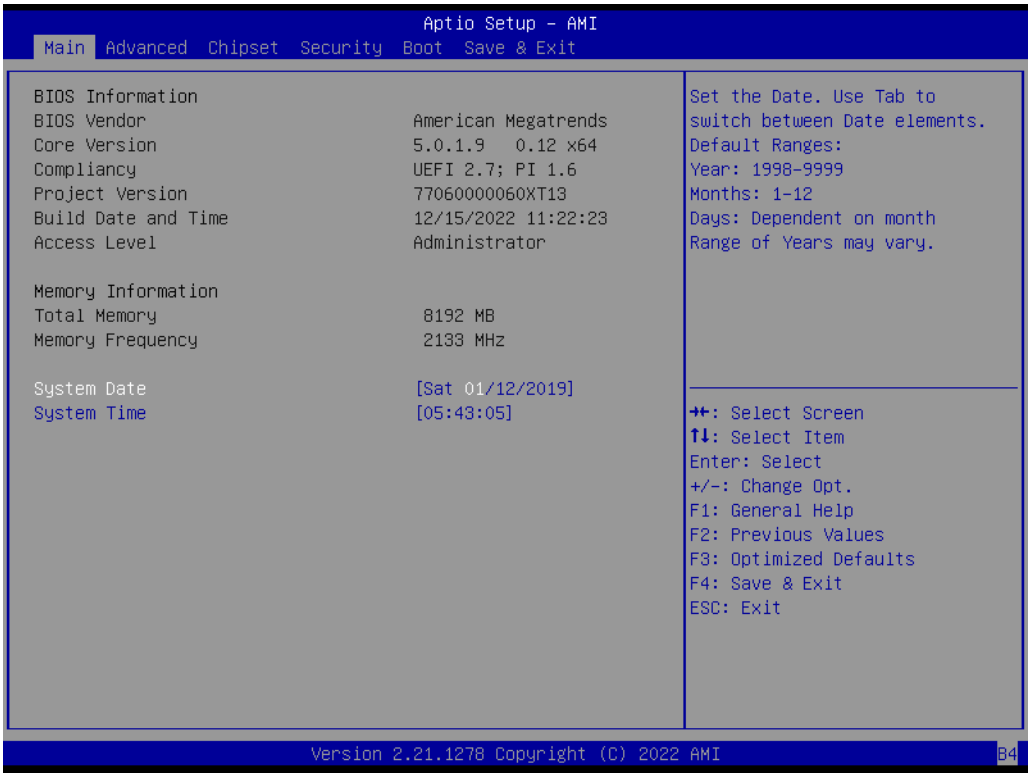
http://www.advantech.com

4.2 BIOS Setup Utility

4.2.1 Main Setup

You can enter the BIOS setup utility by pressing "Delete" while the computer is booting.

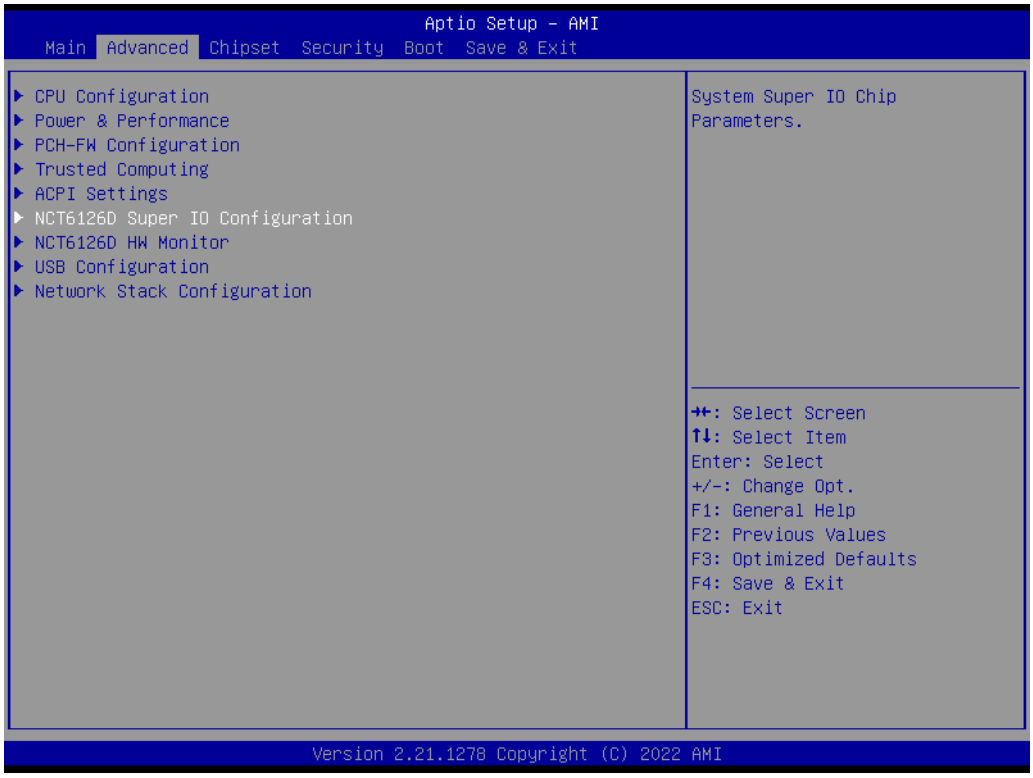
You should always press "F4" to save the settings you have made and exit the setup utility; otherwise those settings will not be saved in BIOS.



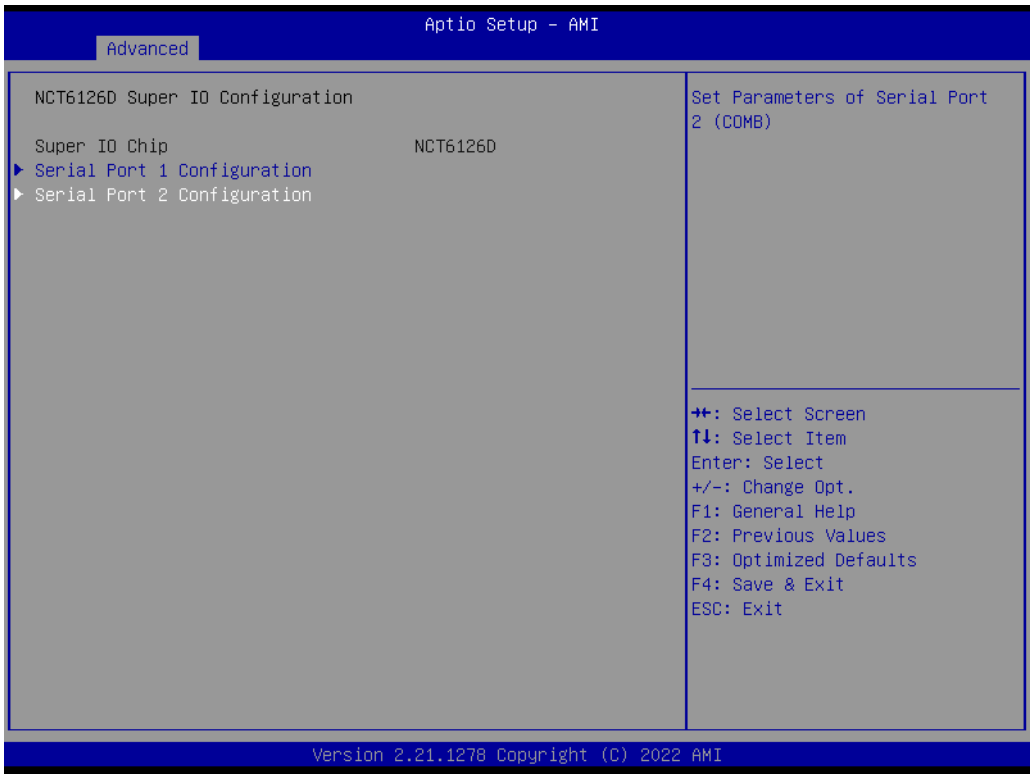
4.2.2 Advanced BIOS Features Setup

Following is the COM2 Mode Selection (RS232/RS422/RS485):

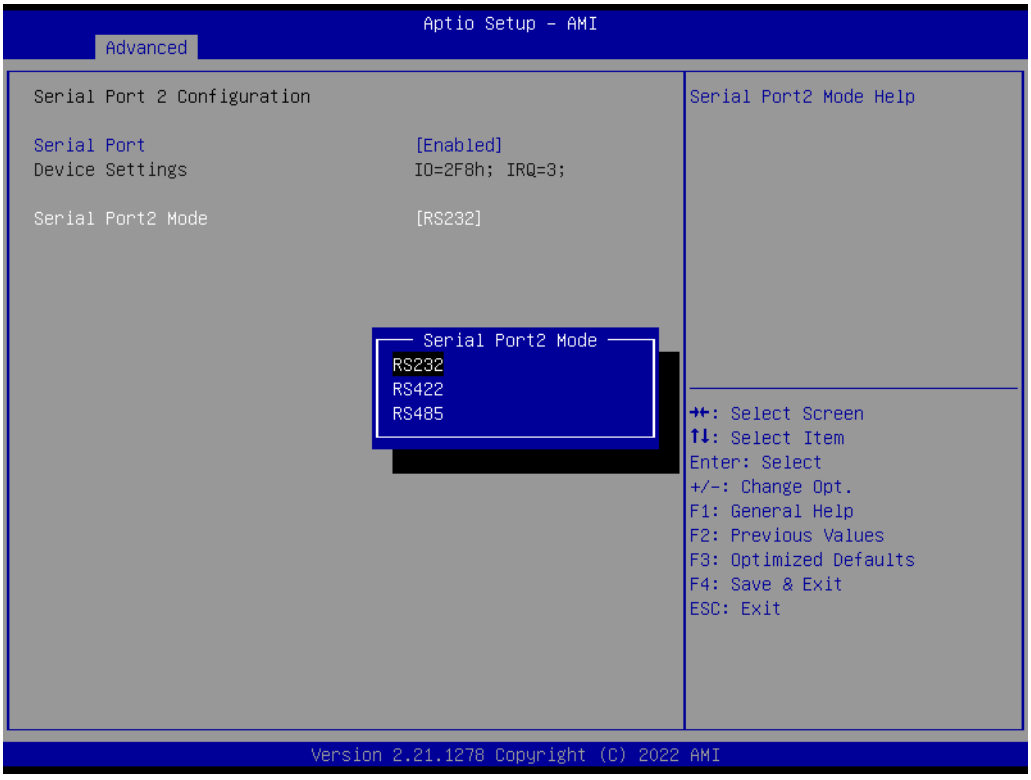
1. Select **NCT6126D Super IO Configuration** from the **Advanced** tab.



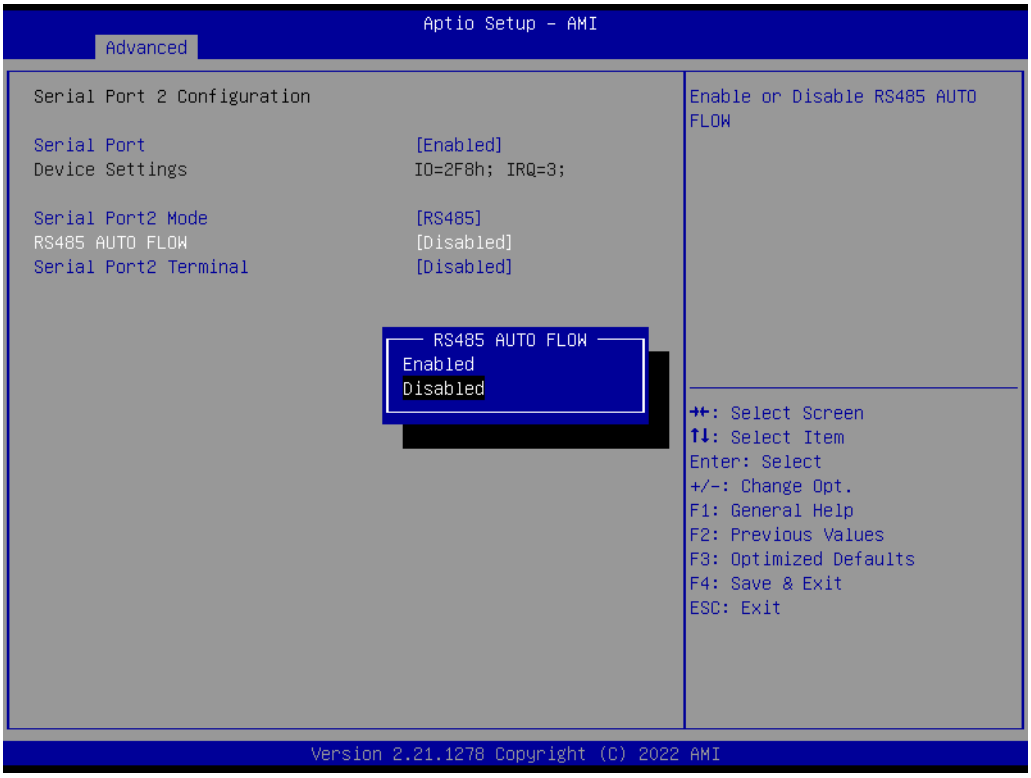
2. Select the **Serial Port 2 Configuration** option.



3. Select the **Serial Port 2 Mode** option to set the COM2 operation mode as RS232, RS422, or RS485.



4. If COM2 mode is set as RS485, the **RS485 Auto Flow** control option can be Enabled or Disabled.

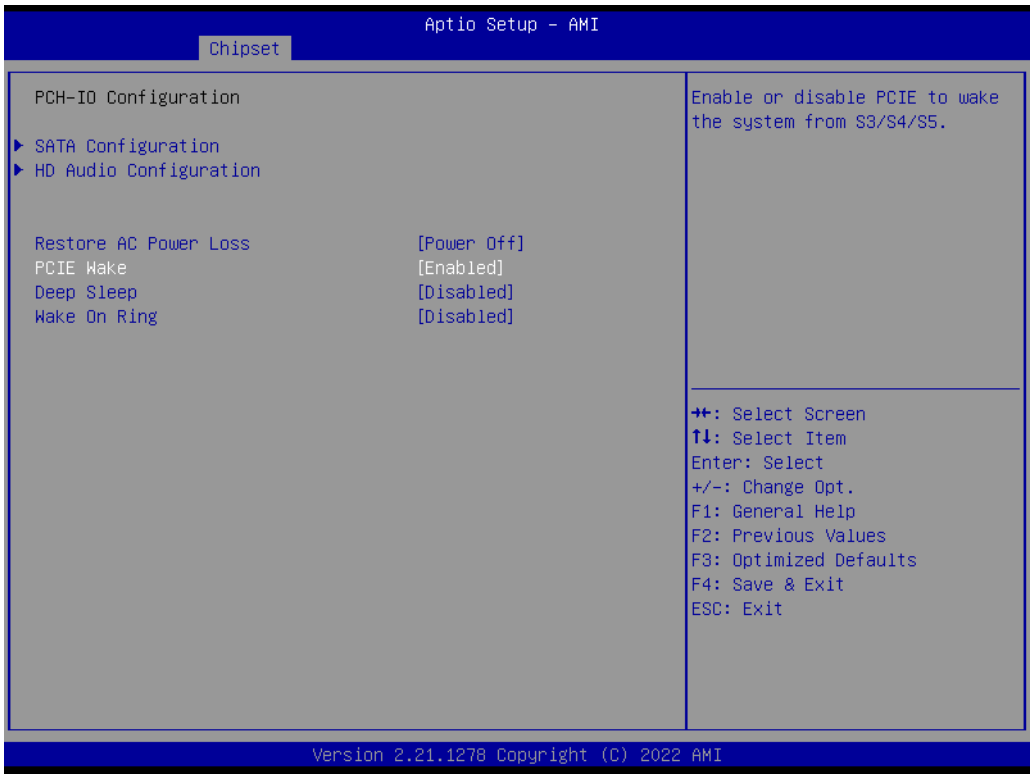


4.2.3 Chipset Configuration

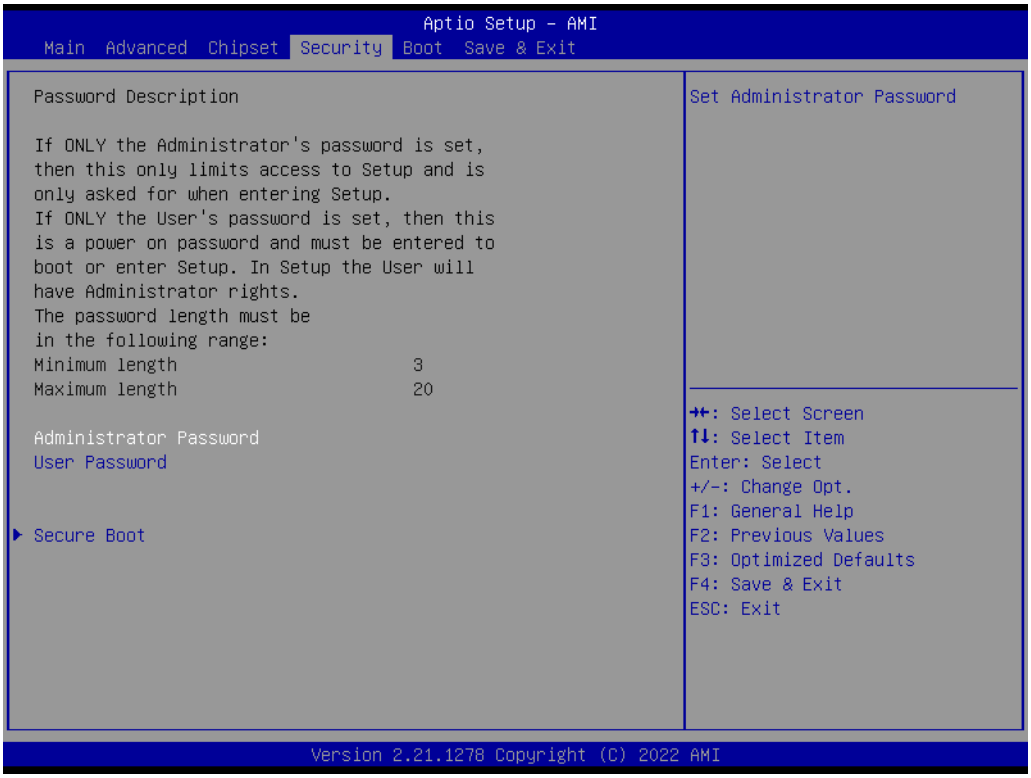
The following is Wake-on-LAN:

1. Select the **PCH-IO Configuration** option from the Chipset tab.

2. Set the PCIE Wake option to Enabled.

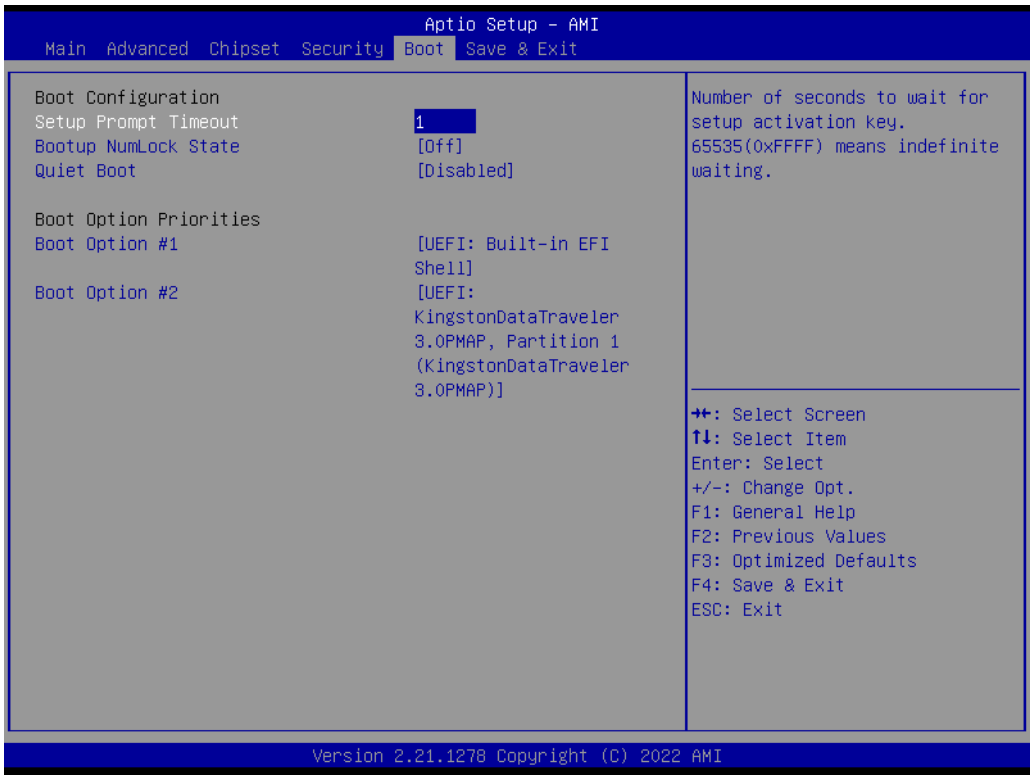


4.2.4 Security



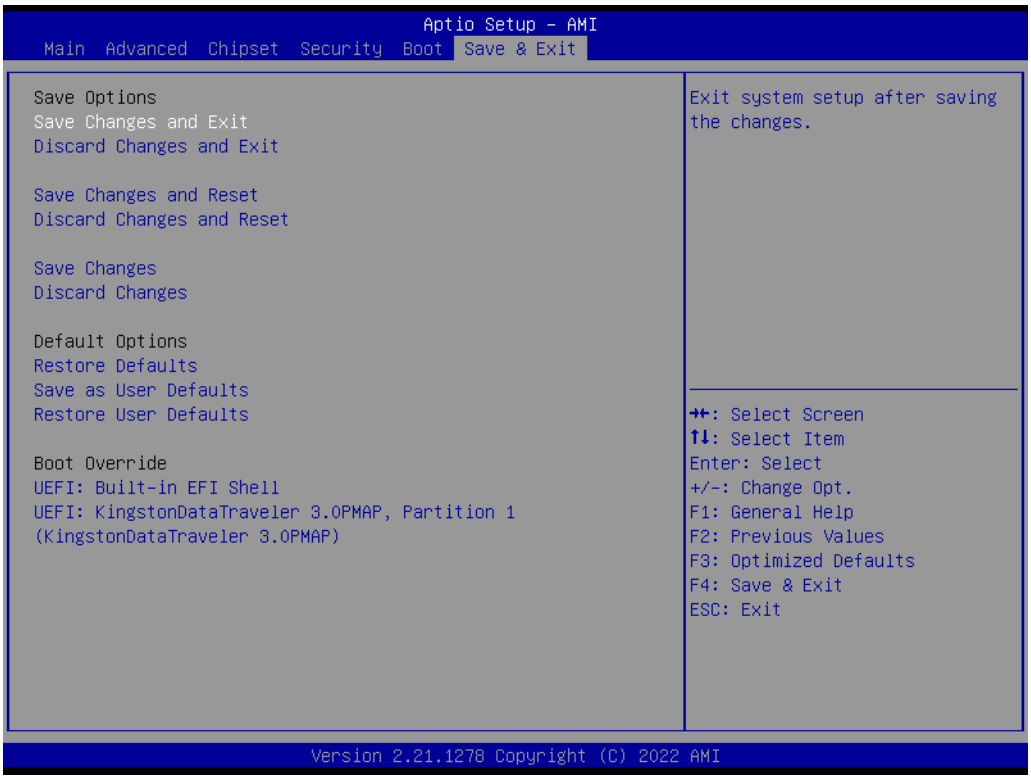
- **Set Administrator Password**

4.2.5 Boot



- **Setup Prompt Timeout**
  This item allows users to set the number of seconds to wait for the setup activation key. 65535 (oxFFFF) means indefinite waiting.
- **Bootup NumLock State**
  This item allows users to select the keyboard NumLock state.
- **Quiet Boot**
  This item allows users to enable/disable the quiet boot option.
- **Boot Option #1**
- **Boot Option #2**

4.2.6 Save & Exit



- **Save Changes and Exit**
  This item allows users to exit the system setup after saving changes.
- **Discard Changes and Exit**
  This item allows users to exit the system setup without saving changes.
- **Save Changes and Reset**
  This item allows users to reset the system after saving changes.
- **Discard Changes and Reset**
  This item allows users to reset the system without saving changes.
- **Save Changes**
  This item allows users to save any changes to the setup options.
- **Discard Changes**
  This item allows users to discard any changes to the setup options.
- **Restore Defaults**
  This item allows users to restore/load default values for all setup options.
- **Save as User Defaults**
  This item allows users to save all current settings as user defaults.
- **Restore User Defaults**
  This item allows users to restore all setup options to the user default values.

Appendix A

BSMI RoHS

A.1 BSMI RoHS

設備名稱：電腦 Equipment name	型號（型式）：PPC-310/312/315/321w EHL series(型號參考次頁) Type designation (Type)					
單元 Unit	限用物質及其化學符號 Restricted substances and their 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）	—	○	○	○	○	○

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.

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.

備考 3.“－”係指該項限用物質為排除項目。
Note 3. “-” indicates that the restricted substance corresponds to the exemption.

製造商：研華股份有限公司
地址：台北市內湖區瑞光路 26 巷 20 弄 1 號
電話：02-27927818

Manufacturer: ADVANTECH Co., Ltd.
Address: No. 1 Alley 20 Lane 26, Ruiguang Rd., Neihu District, Taipei City
Telephone: 02-27927818

Appendix B

BSMI Series Models

PPC-310 產品附錄型號

PPC-310-PJ60A	PPC-310-RJ60A	PPC-310-PJ60AU
PPC-310-RJ60AU	PPC-310-PJ60B	PPC-310-RJ60B
PPC-310-PJ60C	PPC-310-RJ60C	PPC310PJ2201-T
PPC310PJ2202-T	PPC310PJ2203-T	PPC310PJ2301-T
PPC310PJ2302-T	PPC310PJ2303-T	PPC310PJ2304-T
PPC310PJ2305-T	PPC310PJ2306-T	PPC310PJ2401-T
PPC310PJ2402-T	PPC310PJ2403-T	PPC310PJ2404-T
PPC310PJ2405-T	PPC310PJ2406-T	PPC310PJ2501-T
PPC310PJ2502-T	PPC310PJ2503-T	PPC310PJ2504-T
PPC310PJ2505-T	PPC310PJ2506-T	PPC310PJ2601-T
PPC310PJ2602-T	PPC310PJ2603-T	PPC310PJ2604-T
PPC310PJ2605-T	PPC310PJ2606-T	PPC310PJ2701-T
PPC310PJ2702-T	PPC310PJ2703-T	PPC310PJ2704-T
PPC310PJ2705-T	PPC310PJ2706-T	PPC310PJ2801-T
PPC310PJ2802-T	PPC310PJ2803-T	PPC310PJ2804-T
PPC310PJ2805-T	PPC310PJ2806-T	PPC310RJ2201-T
PPC310RJ2202-T	PPC310RJ2203-T	PPC310RJ2301-T
PPC310RJ2302-T	PPC310RJ2303-T	PPC310RJ2304-T
PPC310RJ2305-T	PPC310RJ2306-T	PPC310RJ2401-T
PPC310RJ2402-T	PPC310RJ2403-T	PPC310RJ2404-T
PPC310RJ2405-T	PPC310RJ2406-T	PPC310RJ2501-T
PPC310RJ2502-T	PPC310RJ2503-T	PPC310RJ2504-T
PPC310RJ2505-T	PPC310RJ2506-T	PPC310RJ2601-T
PPC310RJ2602-T	PPC310RJ2603-T	PPC310RJ2604-T
PPC310RJ2605-T	PPC310RJ2606-T	PPC310RJ2701-T
PPC310RJ2702-T	PPC310RJ2703-T	PPC310RJ2704-T
PPC310RJ2705-T	PPC310RJ2706-T	PPC310RJ2801-T
PPC310RJ2802-T	PPC310RJ2803-T	PPC310RJ2804-T
PPC310RJ2805-T	PPC310RJ2806-T	

PPC-312 產品附錄型號

PPC-312-PJ60A	PPC-312-RJ60A	PPC-312-PJ60AU
PPC-312-RJ60AU	PPC-312-PJ60B	PPC-312-RJ60B
PPC-312-PJ60C	PPC-312-RJ60C	PPC312PJ2201-T
PPC312PJ2202-T	PPC312PJ2203-T	PPC312PJ2301-T
PC312PJ2302-T	PPC312PJ2303-T	PPC312PJ2304-T
PPC312PJ2305-T	PPC312PJ2306-T	PPC312PJ2401-T
PPC312PJ2402-T	PPC312PJ2403-T	PPC312PJ2404-T
PPC312PJ2405-T	PPC312PJ2406-T	PPC312PJ2501-T
PPC312PJ2502-T	PPC312PJ2503-T	PPC312PJ2504-T
PPC312PJ2505-T	PPC312PJ2506-T	PPC312PJ2601-T
PPC312PJ2602-T	PPC312PJ2603-T	PPC312PJ2604-T
PPC312PJ2605-T	PPC312PJ2606-T	PPC312PJ2701-T

PPC312PJ2702-T	PPC312PJ2703-T	PPC312PJ2704-T
PPC312PJ2705-T	PPC312PJ2706-T	PPC312PJ2801-T
PPC312PJ2802-T	PPC312PJ2803-T	PPC312PJ2804-T
PPC312PJ2805-T	PPC312PJ2806-T	PPC312RJ2201-T
PPC312RJ2202-T	PPC312RJ2203-T	PPC312RJ2301-T
PPC312RJ2302-T	PPC312RJ2303-T	PPC312RJ2304-T
PPC312RJ2305-T	PPC312RJ2306-T	PPC312RJ2401-T
PPC312RJ2402-T	PPC312RJ2403-T	PPC312RJ2404-T
PPC312RJ2405-T	PPC312RJ2406-T	PPC312RJ2501-T
PPC312RJ2502-T	PPC312RJ2503-T	PPC312RJ2504-T
PPC312RJ2505-T	PPC312RJ2506-T	PPC312RJ2601-T
PPC312RJ2602-T	PPC312RJ2603-T	PPC312RJ2604-T
PPC312RJ2605-T	PPC312RJ2606-T	PPC312RJ2701-T
PPC312RJ2702-T	PPC312RJ2703-T	PPC312RJ2704-T
PPC312RJ2705-T	PPC312RJ2706-T	PPC312RJ2801-T
PPC312RJ2802-T	PPC312RJ2803-T	PPC312RJ2804-T
PPC312RJ2805-T	PPC312RJ2806-T	

PPC-315 產品附錄型號

PPC-315-PJ60A	PPC-315-RJ60A	PPC-315-PJ60AU
PPC-315-RJ60AU	PPC-315-PJ60B	PPC-315-RJ60B
PPC-315-PJ60C	PPC-315-RJ60C	PPC315PJ2201-T
PPC315PJ2202-T	PPC315PJ2203-T	PPC315PJ2301-T
PC315PJ2302-T	PPC315PJ2303-T	PPC315PJ2304-T
PPC315PJ2305-T	PPC315PJ2306-T	PPC315PJ2401-T
PPC315PJ2402-T	PPC315PJ2403-T	PPC315PJ2404-T
PPC315PJ2405-T	PPC315PJ2406-T	PPC315PJ2501-T
PPC315PJ2502-T	PPC315PJ2503-T	PPC315PJ2504-T
PPC315PJ2505-T	PPC315PJ2506-T	PPC315PJ2601-T
PPC315PJ2602-T	PPC315PJ2603-T	PPC315PJ2604-T
PPC315PJ2605-T	PPC315PJ2606-T	PPC315PJ2701-T
PPC315PJ2702-T	PPC315PJ2703-T	PPC315PJ2704-T
PPC315PJ2705-T	PPC315PJ2706-T	PPC315PJ2801-T
PPC315PJ2802-T	PPC315PJ2803-T	PPC315PJ2804-T
PPC315PJ2805-T	PPC315PJ2806-T	PPC315RJ2201-T
PPC315RJ2202-T	PPC315RJ2203-T	PPC315RJ2301-T
PPC315RJ2302-T	PPC315RJ2303-T	PPC315RJ2304-T
PPC315RJ2305-T	PPC315RJ2306-T	PPC315RJ2401-T
PPC315RJ2402-T	PPC315RJ2403-T	PPC315RJ2404-T
PPC315RJ2405-T	PPC315RJ2406-T	PPC315RJ2501-T
PPC315RJ2502-T	PPC315RJ2503-T	PPC315RJ2504-T
PPC315RJ2505-T	PPC315RJ2506-T	PPC315RJ2601-T
PPC315RJ2602-T	PPC315RJ2603-T	PPC315RJ2604-T
PPC315RJ2605-T	PPC315RJ2606-T	PPC315RJ2701-T

PPC315RJ2702-T PPC315RJ2703-T PPC315RJ2704-T
PPC315RJ2705-T PPC315RJ2706-T PPC315RJ2801-T
PPC315RJ2802-T PPC315RJ2803-T PPC315RJ2804-T
PPC315RJ2805-T PPC315RJ2806-T

PPC-321W 產品附錄型號

PPC-321W-PJ60A PPC-321W-PJ60AU PPC-321W-PJ60B
PPC-321W-PJ60C PPC321WPJ2201-T PPC321WPJ2202-T
PPC321WPJ2203-T PPC321WPJ2301-T PC321WPJ2302-T
PPC321WPJ2303-T PPC321WPJ2304-T PPC321WPJ2305-T
PPC321WPJ2306-T PPC321WPJ2401-T PPC321WPJ2402-T
PPC321WPJ2403-T PPC321WPJ2404-T PPC321WPJ2405-T
PPC321WPJ2406-T PPC321WPJ2501-T PPC321WPJ2502-T
PPC321WPJ2503-T PPC321WPJ2504-T PPC321WPJ2505-T
PPC321WPJ2506-T PPC321WPJ2601-T PPC321WPJ2602-T
PPC321WPJ2603-T PPC321WPJ2604-T PPC321WPJ2605-T
PPC321WPJ2606-T PPC321WPJ2701-T PPC321WPJ2702-T
PPC321WPJ2703-T PPC321WPJ2704-T PPC321WPJ2705-T
PPC321WPJ2706-T PPC321WPJ2801-T PPC321WPJ2802-T
PPC321WPJ2803-T PPC321WPJ2804-T PPC321WPJ2805-T
PPC321WPJ2806-T

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