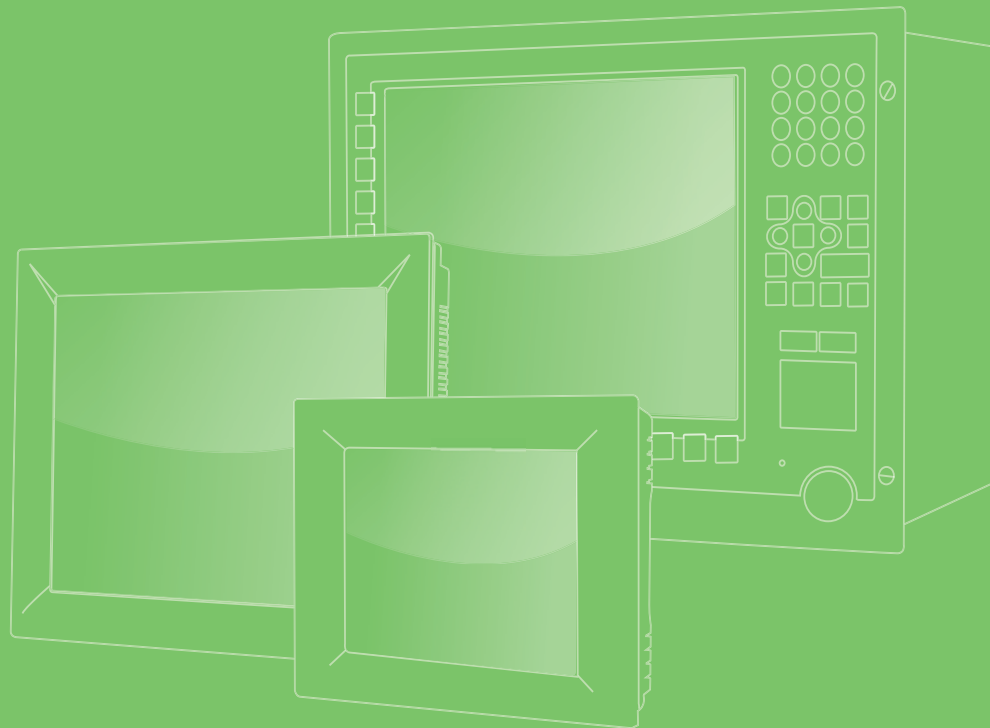


User Manual



PPC-315W/318W/321W/ 324W TGL

**15.6"/18.5"/21.5"/23.8" Panel PC with
TFT LED and 11th Gen Intel[®] Core™ i
Processor**

ADVANTECH

Enabling an Intelligent Planet

Copyright

The documentation and the software included with this product are copyrighted 2025 by Advantech Co., Ltd. All rights are reserved. Advantech Co., Ltd. reserves the right to make improvements to the products described in this manual at any time without notice. No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without the prior written permission of Advantech Co., Ltd. The information provided in this manual is intended to be accurate and reliable. However, Advantech Co., Ltd. assumes no responsibility for its use, nor for any infringements of the rights of third parties that may result from its use.

Acknowledgments

Intel® and Celeron® are trademarks of Intel® Corporation.

Microsoft Windows is a registered trademark of Microsoft Corp.

All other product names or trademarks are properties of their respective owners.

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.

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 at hand 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.
Veillez lire attentivement ce manuel d'instructions de sécurité.
2. Retain this startup manual for future reference.
Veillez 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 détergents 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.
Avertissement: 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 technicien 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.
15. The equipment shows obvious signs of breakage. 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 remplacement 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. The products are intended to be supplied by a UL-certified power supply or DC source suitable for use at a TMA of 50 °C / 122 °F min., with output rated 12 ~ 30 V_{DC}, 8 - 4 A, ES1 (or SELV). If you require further information, please contact Advantech for assistance.
Le produit doit être alimenté par une alimentation certifiée UL ou CC pour l'utilisation à une température de 50 °C / 122 °F au minimum, et la sortie nominale est 12 ~ 30 V_{DC}, 8 - 4 A, ES1 (ou SELV). Si vous avez besoin plus d'informations, veuillez contacter Advantech pour d'aide.
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.



Contents

Chapter 1 General Information1

1.1	Introduction	2
1.2	Key Features	2
1.3	Front Panel.....	2
	Figure 1.1 Front Panel	2
1.4	Rear Panel	3
	Figure 1.2 Rear Panel.....	3
1.5	Panel Bottom.....	3
	Figure 1.3 Panel PC Bottom	3
1.6	Dimensions	4
	Figure 1.4 PPC-315W TGL Dimensions.....	4
	Figure 1.5 PPC-318W TGL Dimensions.....	4
	Figure 1.6 PPC-321W TGL Dimensions.....	4
	Figure 1.7 PPC-324W TGL Dimensions.....	5
1.7	Specifications	5
	Table 1.1: Specifications	5
1.8	Ordering Information	7

Chapter 2 System Installation and Setup9

2.1	Quick System Tour.....	10
	Figure 2.1 Panel PC Front View	10
	Figure 2.2 Panel PC Rear View	10
	Figure 2.3 Panel PC Bottom with I/O	11
2.2	Installation Procedures.....	11
2.2.1	Memory Card Installation	11
	Figure 2.4 Memory Card Installation.....	12
	Figure 2.5 Affix the CPU Thermal Pad.	13
2.2.2	Install the SSD	13
	Figure 2.6 Retention Screws on the SSD Bracket.....	13
	Figure 2.7 SSD Module Bracket	14
	Figure 2.8 SATA Cable Connected to the SATA SSD.....	14
	Figure 2.9 Secure the SATA SSD with Screws	14
	Figure 2.10 SATA SSD Connected to the Motherboard	15
2.2.3	Install M.2 Devices	15
	Figure 2.11 M.2 Installation	15
	Figure 2.12 Affix the Thermal Pad to the M.2	16
2.2.4	Install the Wi-Fi Module	16
	Figure 2.13 Assemble the Brackets to the Antenna Cables	16
	Figure 2.14 Assemble the Wi-Fi Card.....	17
	Figure 2.15 Attach the Wi-Fi Antennae.....	17
2.2.5	System Power On	18
	Figure 2.16 Terminal Block	18
2.3	Mounting the System	18
2.3.1	Panel Mounting	18
	Figure 2.17 Hook Brackets for Panel Mounting	19
	Figure 2.18 Hook Bracket Locations.....	19
	Figure 2.19 Fasten the Hook Brackets	20
	Figure 2.20 Panel Mount Rear View	20
2.3.2	Cabinet Installation and Grounding.....	21
	Figure 2.21 Install the PPC into the Cabinet.....	21
	Figure 2.22 System Wiring Cabinet	21

Chapter 3 Jumper Settings 23

3.1	Motherboard Jumpers and Connectors	24
	Figure 3.1 Motherboard	24
	Table 3.1: Motherboard Connectors.....	24
3.1.1	COM1 Pin 9 Power Select	25
	Table 3.2: Pin 9 Power Select	25
3.1.2	RTC Select	25
	Table 3.3: RTC Select	25
3.1.3	ATX/AT Select	25
	Table 3.4: ATX/AT Select.....	25
3.1.4	Touch Power Select.....	25
	Table 3.5: Touch Power Select	25
3.1.5	LVDS SW1 and Jumper Setting	26
	Table 3.6: PPC-315W(EAMB-7707).....	26
	Table 3.7: PPC-318W(EAMB-7707).....	26
	Table 3.8: PPC-321W(EAMB-7707).....	27
	Table 3.9: PPC-324W(EAMB-7707).....	27
3.2	External COM Ports and Pin Definitions	28
	Figure 3.2 Locations of COM1 and COM2 Ports.....	28
	Table 3.10: COM Pin Definitions	29

Chapter 4 Software Setup..... 31

4.1	Driver Installation	32
4.2	BIOS Setup Utility	32
4.2.1	Main Setup.....	32
4.2.2	Advanced BIOS Features Setup.....	33
4.2.3	Chipset Configuration	38
4.2.4	Security.....	47
4.2.5	Boot	48
4.2.6	Save and Exit.....	49

Appendix A BSMI RoHS 51

A.1	BSMI RoHS.....	52
-----	----------------	----

Appendix B BSMI Series Models 53

B.1	BSMI Series Models	54
-----	--------------------------	----

Chapter 1

General Information

This chapter details general information regarding PPC-315W/318W/321W/324W TGL.

- Introduction
- Specifications
- Dimensions

1.1 Introduction

Advantech's PPC-315W/318W/321W/324W TGL is an all-in-one, lightweight panel PC with a wide-format 15.6" / 18.5" / 21.5" / 23.8" Full HD LCD display. It is powered by an 11th Gen Intel® Core™ i processor to deliver high performance, enhanced memory, graphics, and peripheral I/O support in a compact, fanless embedded system. With a highly durable design, the PPC-315W/318W/321W/324W TGL features a flat touchscreen and an IP66-rated front panel housed in a die-cast aluminum alloy enclosure. It is an ideal choice for integration into various industrial applications.

1.2 Key Features

- Robust IP66-rated true-flat color TFT LCD
- Ultra-thin fanless design with solid aluminum alloy enclosure
- 11th Gen Intel® Core™ i CPU with a fanless design
- Dual-channel memory slots, max 64GB
- Supports dual displays (1 x external HDMI)
- 1 x M.2 bay (2242/2280 NVME or SATA Interface) for storage with support for SATA RAID 0, 1
- 1 x 2500BASE-T Ethernet supports Time-Sensitive Network (TSN) technology
- Supports TPM 2.0 hardware security
- Supports Type-C (USB only)

1.3 Front Panel

The PPC-315W/318W/321W/324W TGL 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-315W TGL model.



Figure 1.1 Front Panel

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

1.4 Rear Panel

The PPC-315W/318W/321W/324W TGL rear panel features four VESA mount (100 x 100 mm /3.93 x 3.93 in) holes located on its bottom side, as demonstrated below:

VESA mount screws: 4 x M4 screws, screw depth: 12 mm (max.)

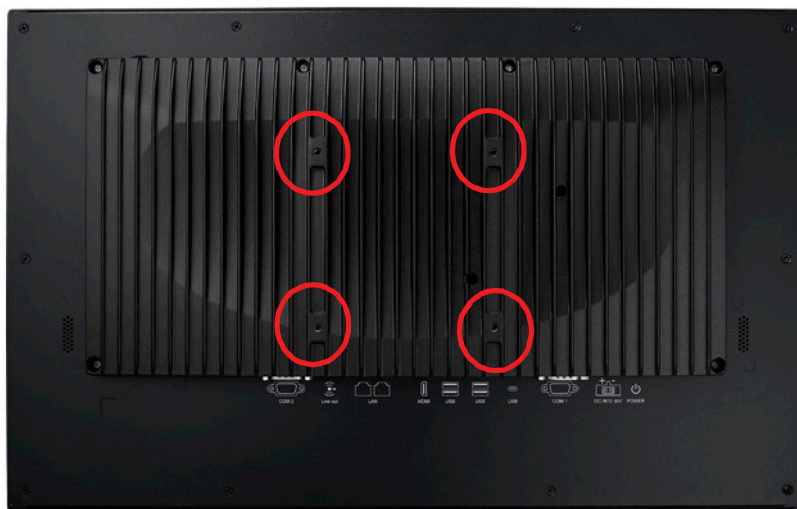


Figure 1.2 Rear Panel

1.5 Panel Bottom

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

- Pre-cut hole for power button cable extend
- 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
- 3 x USB 3.2
- 1 x USB 2.0
- 1 x Type-C (USB only)
- 1 x HDMI
- 1 x Line-out



Figure 1.3 Panel PC Bottom

1.6 Dimensions

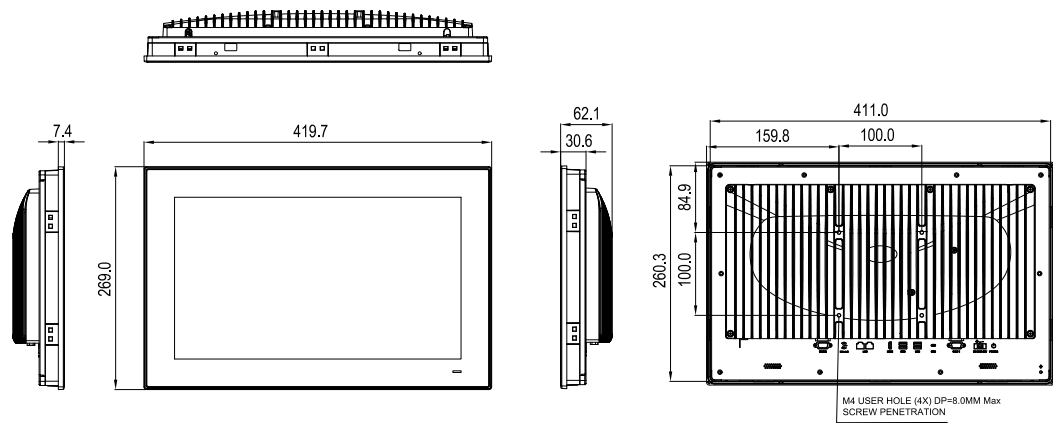


Figure 1.4 PPC-315W TGL Dimensions

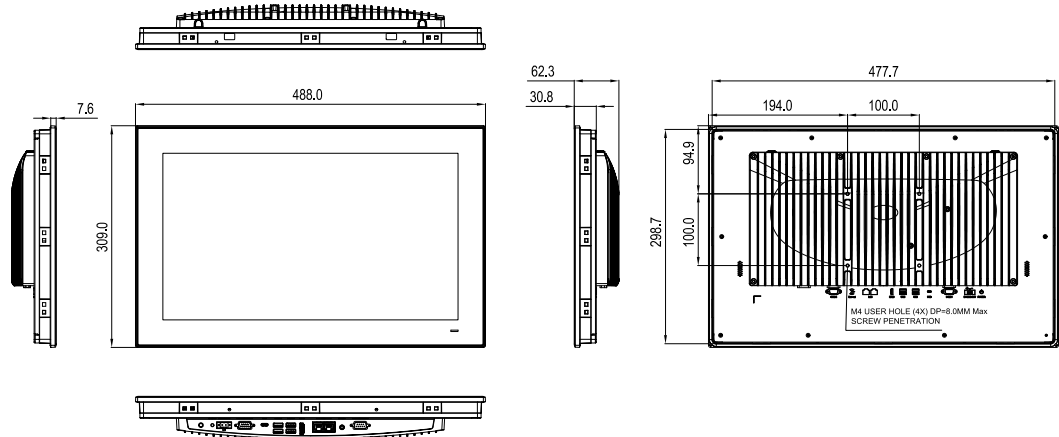


Figure 1.5 PPC-318W TGL Dimensions

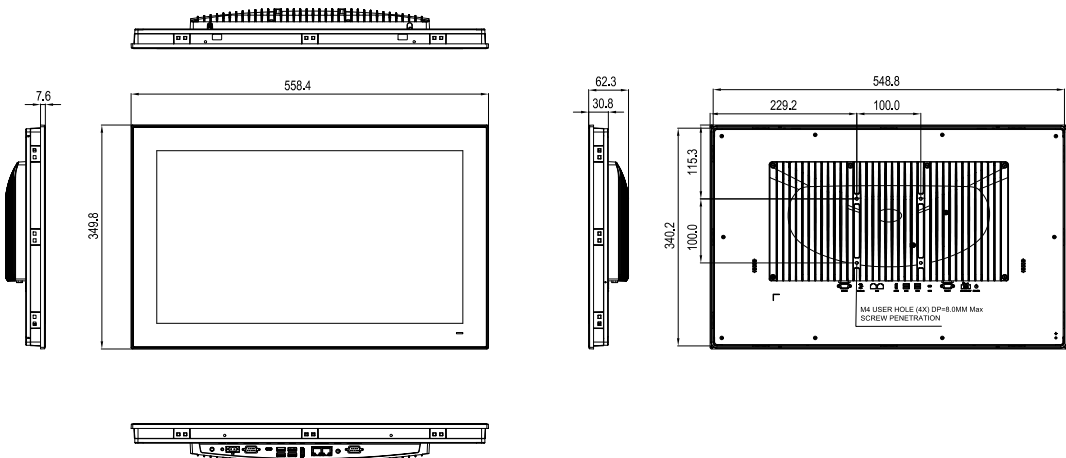


Figure 1.6 PPC-321W TGL Dimensions

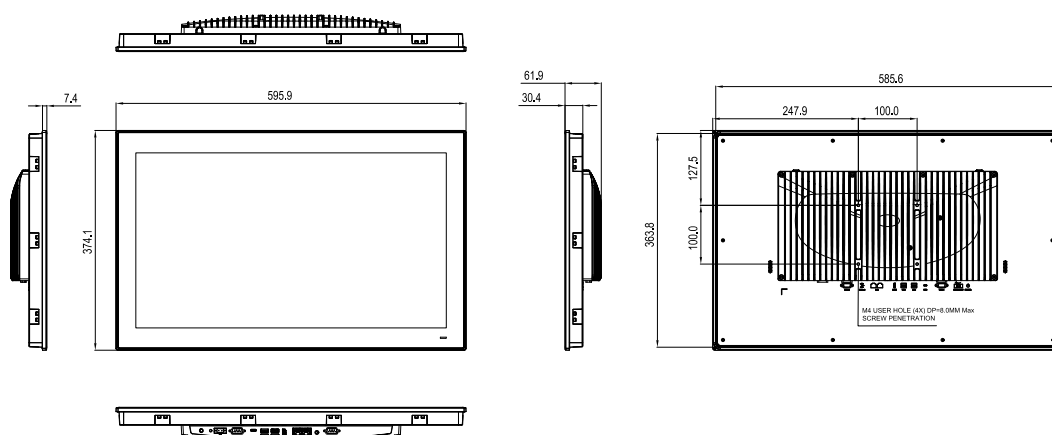


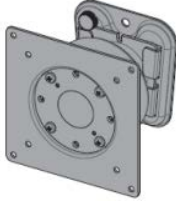
Figure 1.7 PPC-324W TGL Dimensions

1.7 Specifications

Table 1.1: Specifications				
	PPC-315W	PPC-318W	PPC-321W	PPC-324W
LCD Panel	15.6"	18.5"	21.5"	23.8"
Display Type	TFT LCD (with LED backlight)	TFT LCD (with LED backlight)	TFT LCD (with LED backlight)	TFT LCD (with LED backlight)
Max. Resolution	1920 x 1080	1366 x 768	1920 x 1080	1920 x 1080
Brightness	450 cd/m ²	450 cd/m ²	250 cd/m ²	350 cd/m ²
Viewing Angle	89 (left), 89 (right), 89 (up), 89 (down)	85 (left), 85 (right), 80 (up), 80 (down)	89 (left), 89 (right), 89 (up), 89 (down)	89 (left), 89 (right), 89 (up), 89 (down)
Contrast	800	1000	1000	1000
Backlight Lifetime	50,000 hr (min.)	50,000 hr (min.)	50,000 hr (min.)	30,000 hr (min.)
Touchscreen Type	Projected capacitive	Projected capacitive	Projected capacitive	Projected capacitive
Light Transmission	≥88%	≥88%	≥88%	≥88%
Controller	USB interface			
Durability (Touches)	Greater than 35 million touches in one location without failure			
Enclosure	Aluminum			
Processor	11th gen Intel® Core™ i processor			
Memory	2 x SODIMM DDR4 3200, Max 32GB x 2			
Storage	1 x 2.5" SATA bay; 1 x M.2 2280 bay, (Co-lay SATA, for storage only) support RAID 0,1, support NVME			
Network (LAN)	1 x Intel I219LM controller; Speed: 10M / 100M / 1000M 1 x Intel I226LM controller; Speed: 10M / 100M / 1000M / 2500M			
I/O Ports	1 x RS-232, 1 x RS-232/422/485 (adjustable through BIOS) 3 x USB 3.2, 1 x USB 2.0, 2 x USB 2.0 (internal) 1 x Type C (USB3 only) 1 x HDMI1.4 1 x Line out			
Expansion	1 x M.2 2230 E-key for wireless card			

Table 1.1: Specifications				
Watchdog Timer	255 timer levels, setup via software			
Speaker	2 x 1W			
OS Support	Microsoft® Win 10 IOT LTSC (64-bit), Win11, Linux			
Power Supply	12 ~ 30 VDC			
Power Consumption	70W	70W	75W	80W
Operating Temperature	-10 ~ 50°C (14 ~ 122°F)			
Storage Temperature	-20 ~ 60°C (-4 ~ 140°F)			
Relative Humidity	95% @ 40°C/104°F (non-condensing)			
Shock Tolerance	Operating 10G peak acceleration (11 ms duration), following IEC 60068-2-27			
Vibration Tolerance	Operating random vibration test, 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	419.7 x 269 x 62.1 mm/16.52 x 10.59 x 2.44 in	488 x 309 x 61.7 mm /19.2 x 12.1 x 2.4 in	558.4 x 349.8 x 62.2 mm/21.9 x 13.7 x 2.4 in	595.9 x 347.1 x 61.5 mm (23.5" x 14.7" x 2.4")
Weight	4.84 kg/10.67 lb	5.7 kg (12.56 lb)	6.6 kg (14.6 lb)	8.6kg (18.96lb)

1.8 Ordering Information

Part Number	Description	Image
PPC-315W-PB50A PPC-315W-PB30A PPC-315W-PB70A PPC-321W-PB50A PPC-321W-PB30A PPC-321W-PB70A PPC-318W-PB3A PPC-318W-PB5A PPC-318W-PB7A PPC-324W-PB3A PPC-324W-PB5A PPC-324W-PB7A	Panel PC with 11th Gen Intel® Core™ i processor	
96PSA-A120W24T2-4	Power adapter 100-240V 120W 24V	
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
- SSD 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-315W/318W/321W/324W TGL front panel should appear as shown in Figure 2.1. Since PPC-315W/318W/321W/324W TGL are series models, the following photos in the manual are PPC-315W examples.

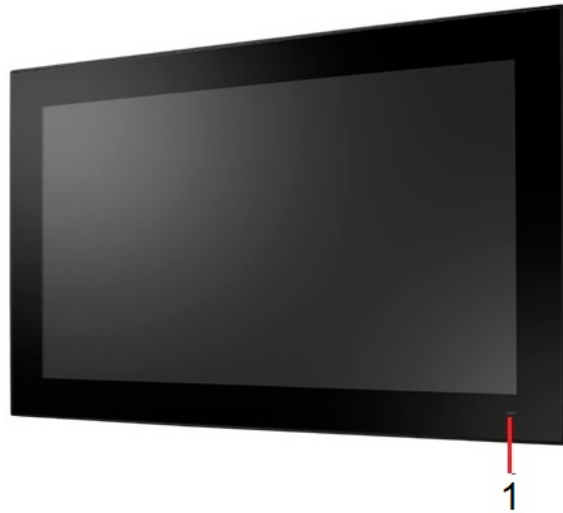


Figure 2.1 Panel PC Front View

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



Figure 2.2 Panel PC Rear View

1. Speaker
2. GND screw

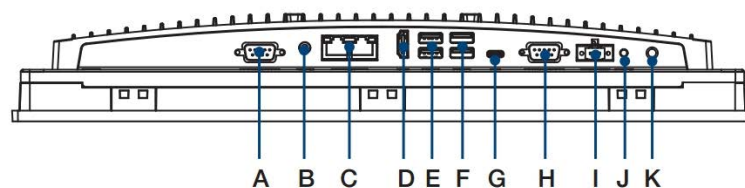


Figure 2.3 Panel PC Bottom with I/O

- | | |
|---|-----------------|
| A. COM2: RS-232/422/485 | B. 1 x Line-out |
| C. 2 x LAN | D. 1 x HDMI 1.4 |
| E. 1 x USB 2.0 / 1 x USB 3.2 | F. 2 x USB 3.2 |
| G. 1 x Type-C (USB only) | H. COM1: RS-232 |
| I. DC in | J. Power button |
| K. Pre cut hole for power button cable extend | |

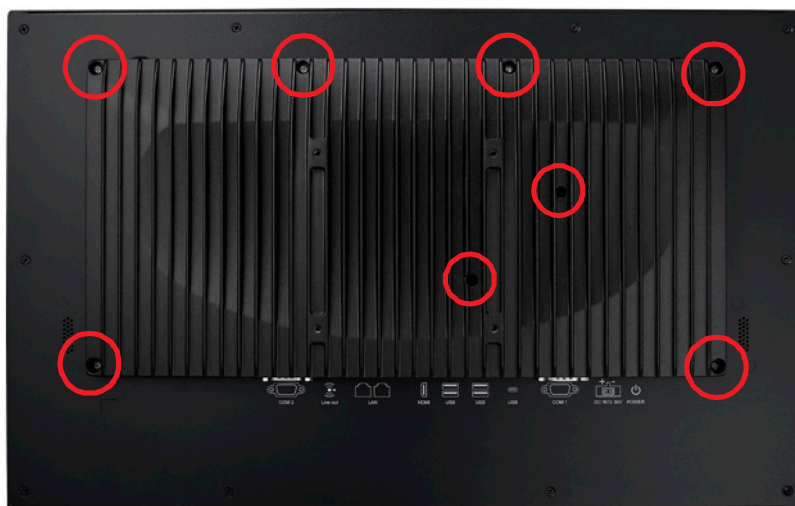
2.2 Installation Procedures

When installing system hardware, adhere to the following order:

1. Install the memory card.
2. Install SATA SSD 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 from the rear cover.



2. Install the memory.

- a. If installing two memory modules, attach three thermal pads as shown in the figure below.

Note 1: The thermal pad closest to the motherboard (bottom) must be 1.5mm thick, while the middle and top pads should be 1.0mm thick.

Note 2: Remember to remove the protective film before applying the thermal pad.

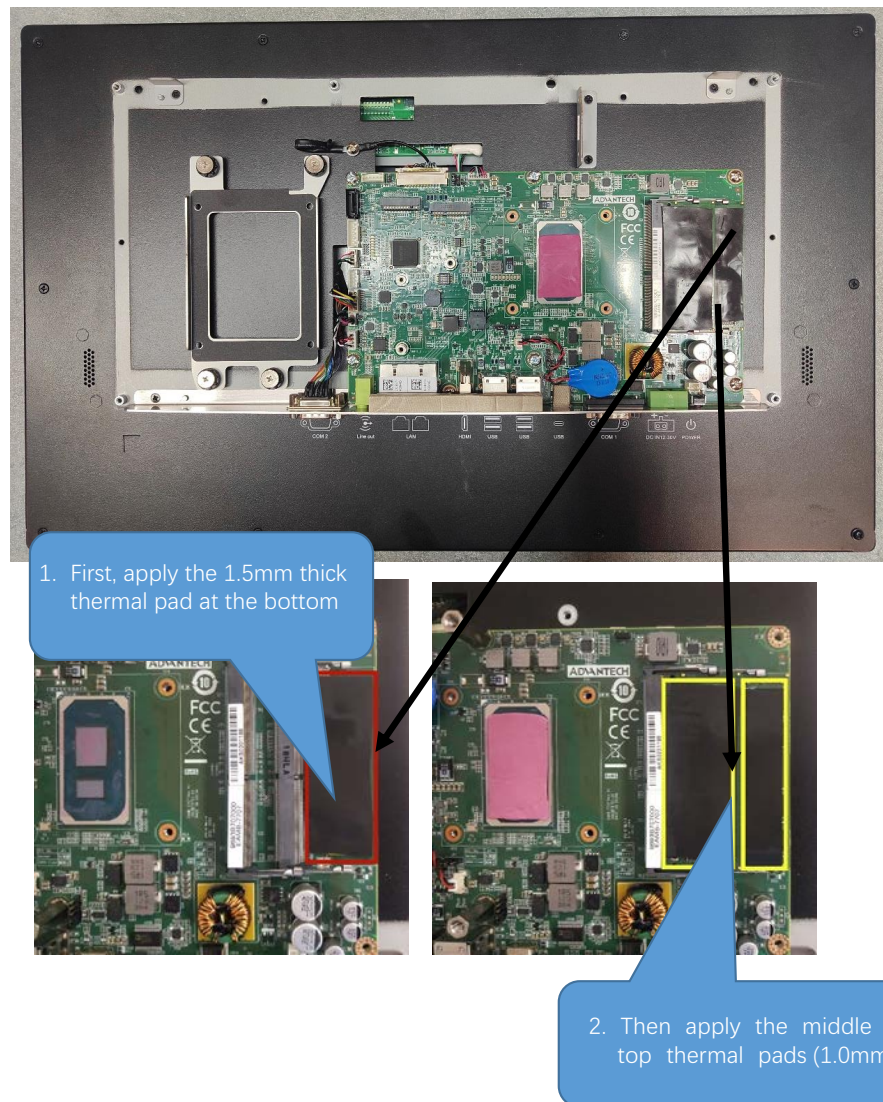


Figure 2.4 Memory Card Installation

3. b. Remember to apply the CPU thermal pad.

Note: Remove the protective film before applying the thermal pad.

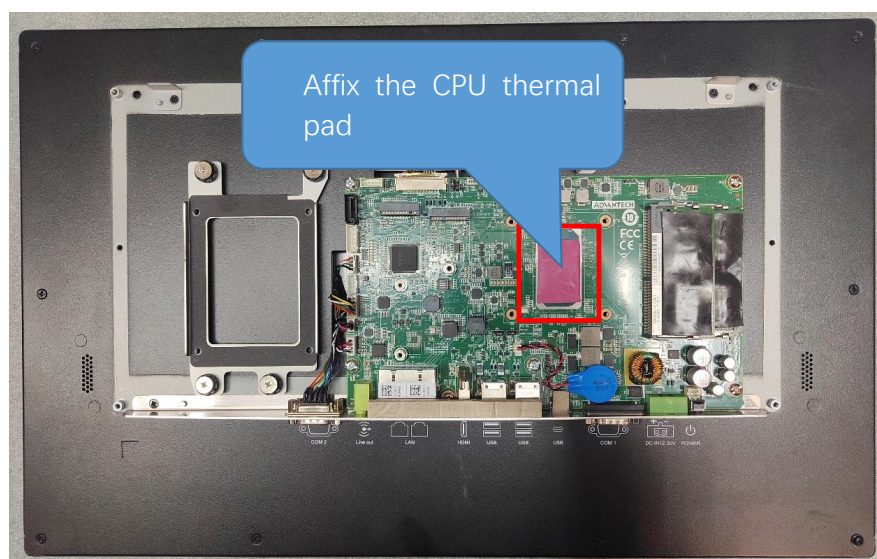


Figure 2.5 Affix the CPU Thermal Pad

Warning! Ensure that the thermal pad (provided in the accessory box) is placed on top of the CPU & memory card, as shown in Figure 2.6.



Assurez-vous que le tampon thermique (fourni dans la boîte d'accessoires) est placé sur la carte mémoire, comme illustré à la Figure 2.6.

2.2.2 Install the SSD

1. Remove the rear cover.
2. Remove the 4 screws on the SSD bracket.

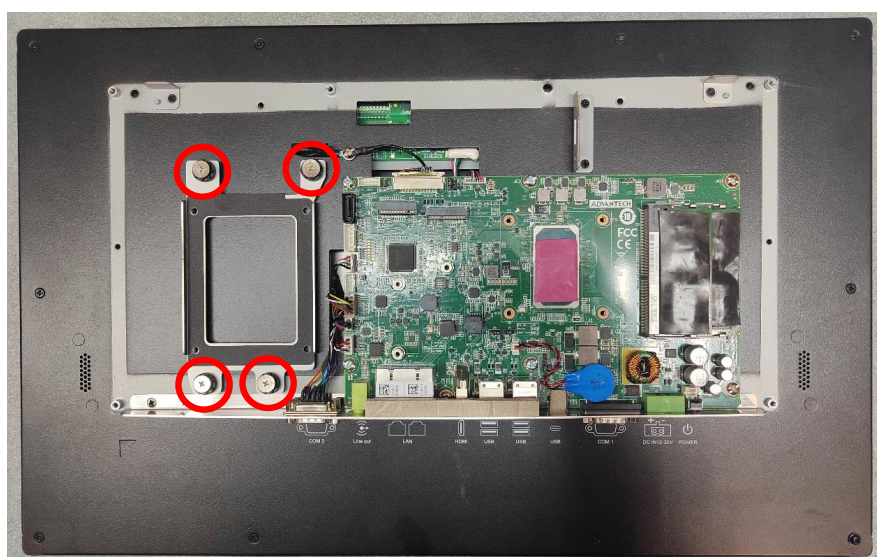


Figure 2.6 Retention Screws on the SSD Bracket

3. Take out the screws and cable from the accessory box.

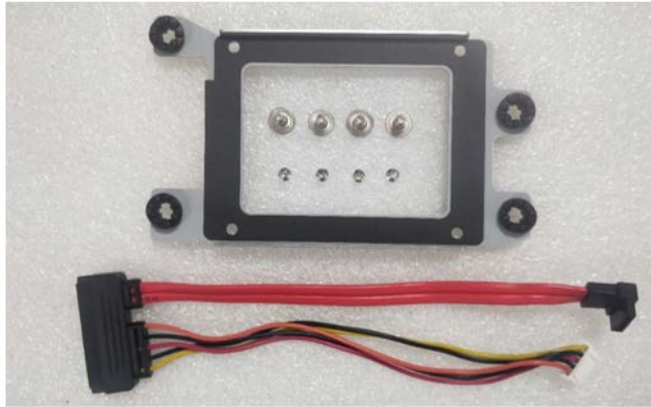


Figure 2.7 SSD Module Bracket

4. Insert the cable into the SSD.

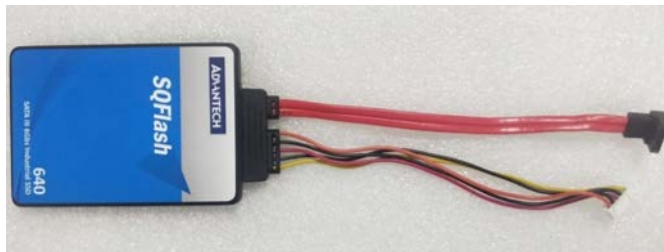


Figure 2.8 SATA Cable Connected to the SATA SSD

5. Assemble the SSD on the bracket.



Figure 2.9 Secure the SATA SSD with Screws

6. Install the SSD kit in the machine.



Figure 2.10 SATA SSD Connected to the Motherboard

2.2.3 Install M.2 Devices

1. Remove the rear cover.
2. Install the M.2 on the motherboard as shown.

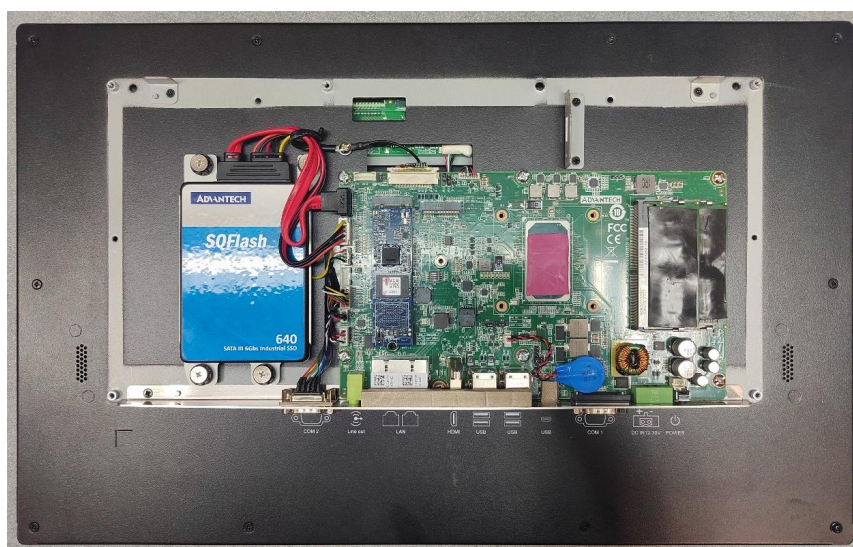


Figure 2.11 M.2 Installation

3. Take out the thermal pad from the accessory box, and affix it to the M.2.
Note: Remove the protective film before applying the thermal pad.

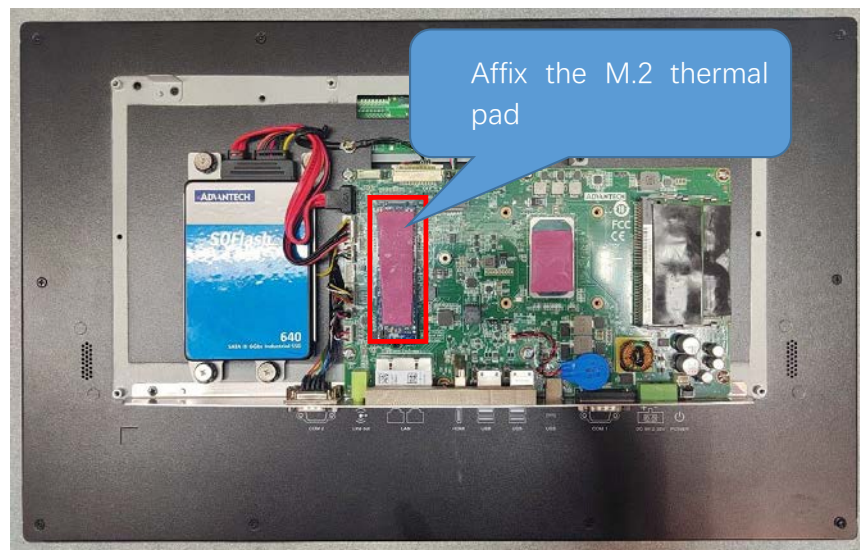


Figure 2.12 Affix the Thermal Pad to the M.2

2.2.4 Install the Wi-Fi Module

1. Remove the rear cover.
2. Assemble the antenna brackets to the antenna cables.



Figure 2.13 Assemble the Brackets to the Antenna Cables

3. Assemble the Wi-Fi card.



Figure 2.14 Assemble the Wi-Fi Card

4. Assemble the rear cover, and attach the antennae.



Figure 2.15 Attach the Wi-Fi Antennae

2.2.5 System Power On

A 2-pin power connector is included in the accessory box. Connect the power connector to the 12-30 VDC power lines, then plug the power lines into the system's power connector. The DC power source should comply with ES1 requirements. The output rating is 12-30 VDC, 8-4 A, with a maximum operating temperature of 50 °C. The unit has been evaluated in accordance with IEC/UL 60950-1 and IEC/UL 62368-1 standards.



Figure 2.16 Terminal Block

The terminal block is suitable for 16 AWG min. torque value of 4.5 lb-in min. Use copper conductors only. It must be installed by a 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.

- Panel mounting
- VESA mounting
- Cabinet mounting

2.3.1 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-315W: 413 x 262 mm / 16.26 x 10.31 in.
 - PPC-318W: 479.3 x 300.3 mm / 18.87 x 11.82 in.
 - PPC-321W: 550.30 x 341.80 mm / 21.66 x 13.45 in.
 - PPC-324W: 586.5 x 364.8 mm / 23.09 x 14.36 in.

2. Insert the panel PC into the cutout. Retrieve the hook brackets and M6 x 21L screws from the accessory box (10 for PPC-315W TGL; 12 for PPC-318W/321W; 14 for PPC-324W TGL).
Veillez installer le panneau PC dans la découpe. Récupérez les crochets et les vis M6 x 21L de la boîte à accessoires.

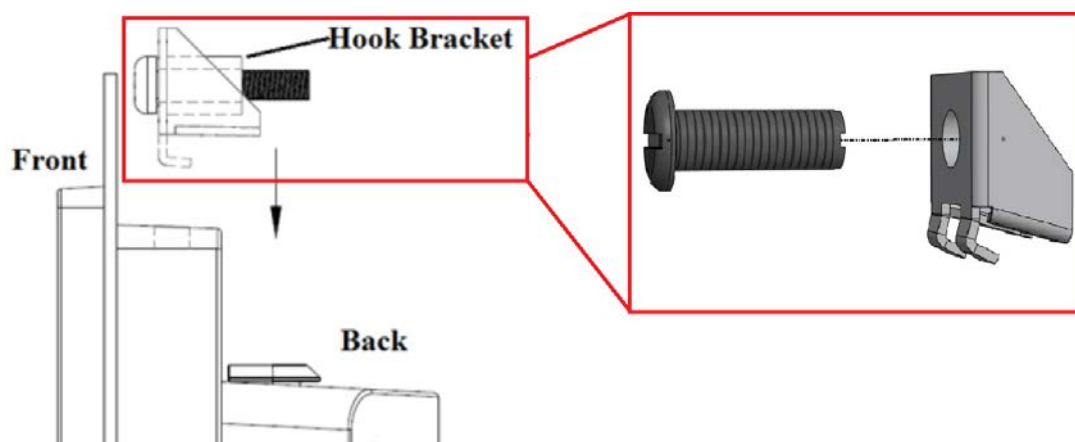


Figure 2.17 Hook Brackets for Panel Mounting

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

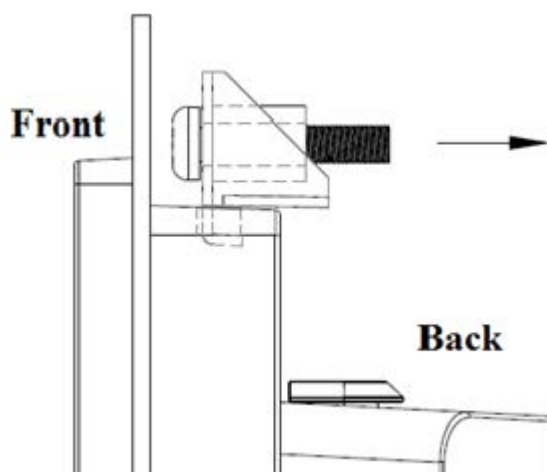


Figure 2.18 Hook Bracket Locations

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

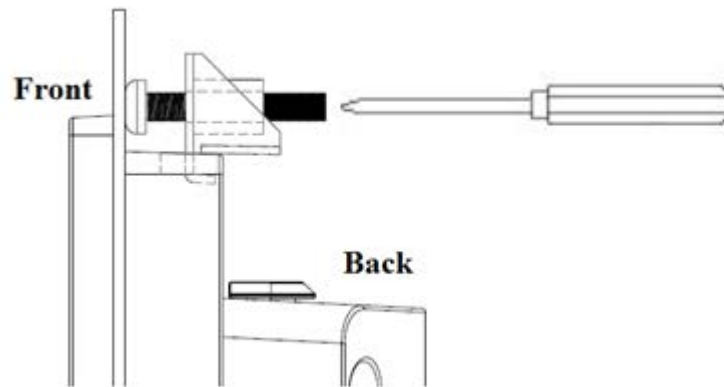


Figure 2.19 Fasten the Hook Brackets

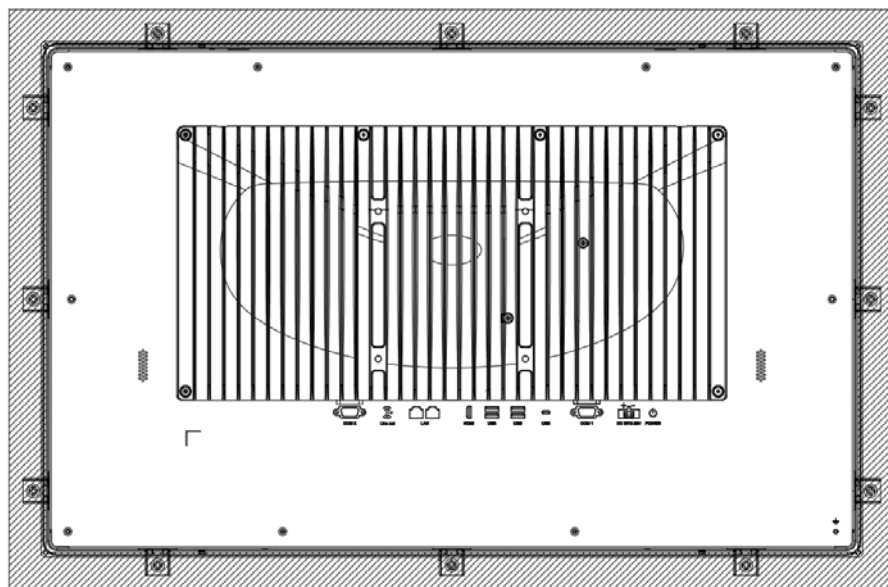


Figure 2.20 Panel Mount Rear View
(Using PPC-315W as an example)

2.3.2 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 optimum EMI immunity, ESD immunity, surge immunity, and system isolation. If the PPC system is embedded in the cabinet, the PPC system ground, cabinet ground, and earth/ground should be connected together.

1. Install the PPC system into the cabinet.

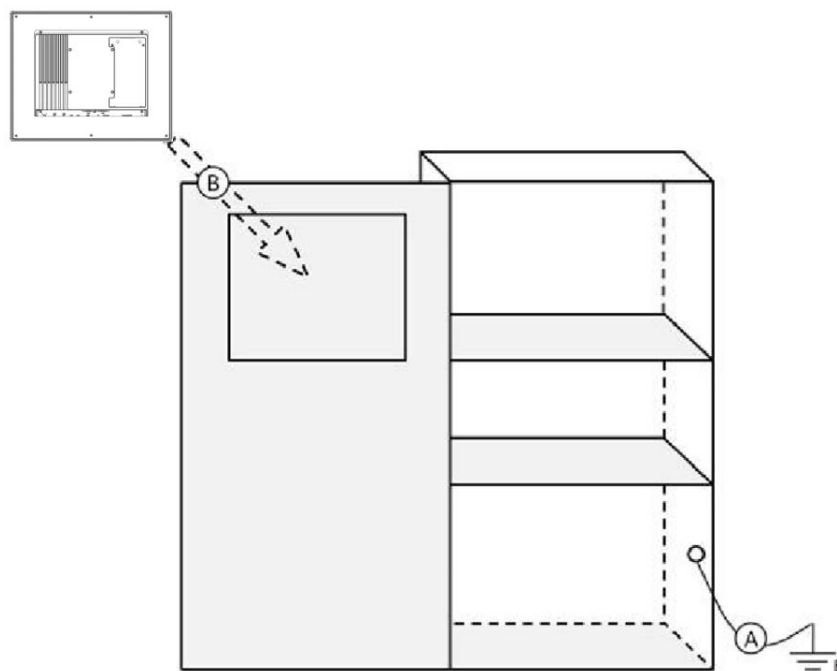


Figure 2.21 Install the PPC into the Cabinet

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.

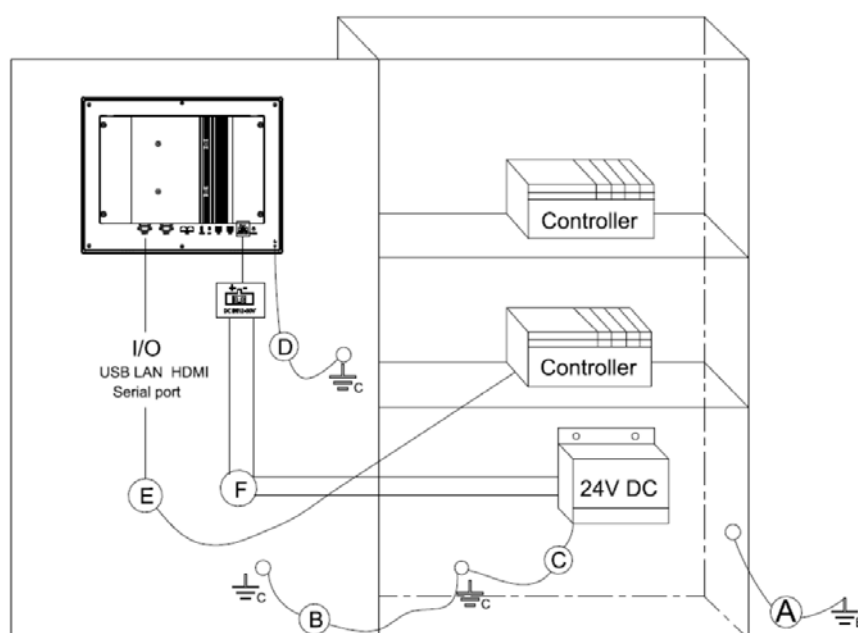


Figure 2.22 System Wiring Cabinet

-
- 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 should be green-and-yellow, xx AWG 0.75mm² 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. It should be done by means of a power cord connected to a socket outlet with an earth 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.

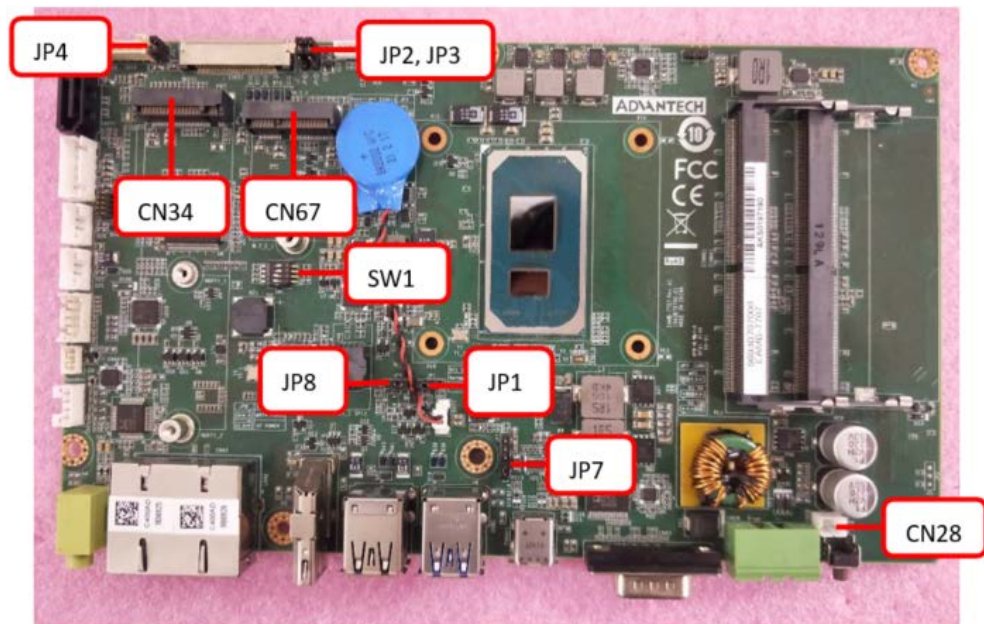


Figure 3.1 Motherboard

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

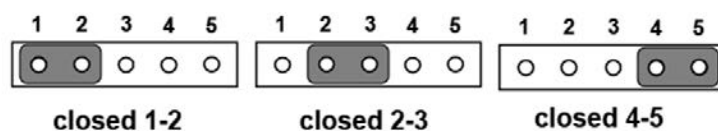
Table 3.1: Motherboard Connectors

Connector	Function
CN34	M.2 M-Key 2280/2242
CN67	M.2 E-Key 2230
JP1	RTC Select
JP4	Resistance Touch Power Select
JP7	COM1 Pin 9 Power Select
JP8	ATX/AT Select
CN28	Power button connection
SW1	Resolution setting
JP2, JP3	Backlight enable level, Brightness PWM level

3.1.1 COM1 Pin 9 Power Select

Table 3.2: Pin 9 Power Select

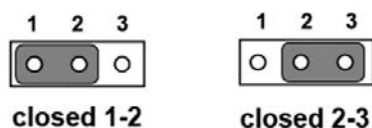
JP7	Function
1-2pin	COM1 RI (Default*)
2-3pin	COM1 Pin 9 5V
4-5pin	COM1 Pin 9 12V



3.1.2 RTC Select

Table 3.3: RTC Select

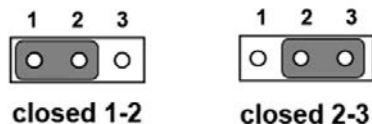
JP1	Function
1-2pin	Normal (Default*)
2-3pin	Clear CMOS



3.1.3 ATX/AT Select

Table 3.4: ATX/AT Select

JP8	Function
2-3pin	ATX power (Default*)
1-2pin	AT power



3.1.4 Touch Power Select

Table 3.5: Touch Power Select

JP4	Function
Open	PCT
Closed	RES



Note! For the resistive touch model, JP4 needs to have a jumper added. For the projected capacitive touch model, JP4 needs the jumper pulled off.

3.1.5 LVDS SW1 and Jumper Setting

Table 3.6: PPC-315W(EAMB-7707)

Resolution	1920 x 1080
SW1	SW1=1100, 1,2=on, 3,4=off
Backlight enable level	JP2(2-3), +3.3V
Brightness PWM level	JP3(2-3), +3.3V

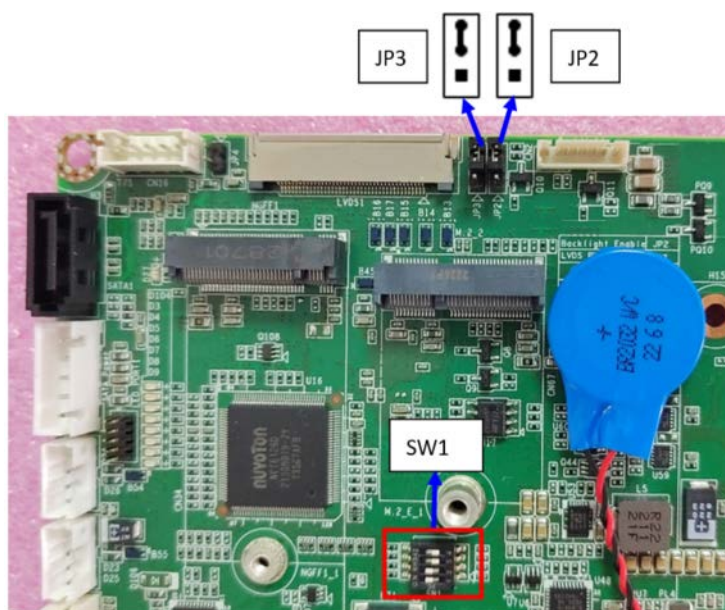
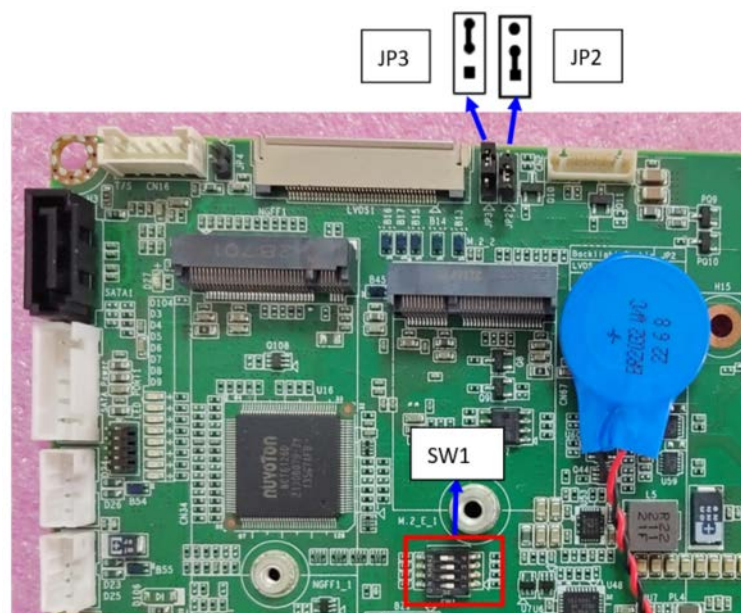
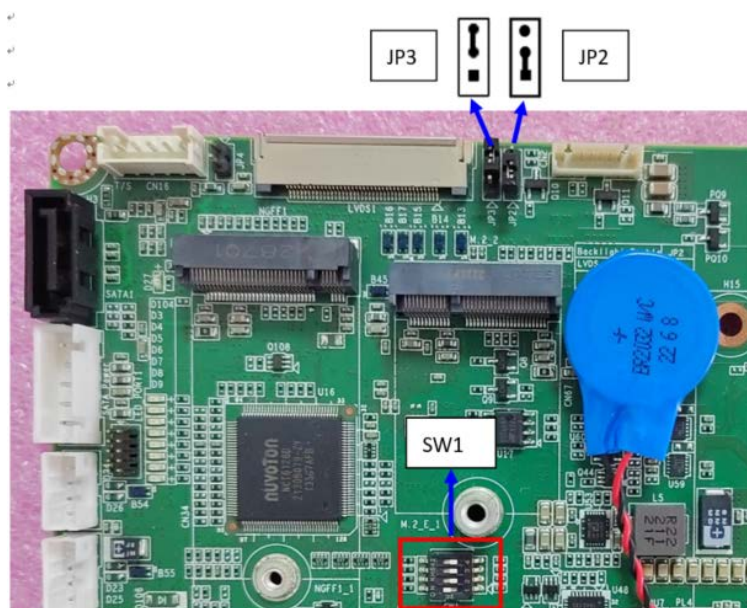


Table 3.7: PPC-318W(EAMB-7707)

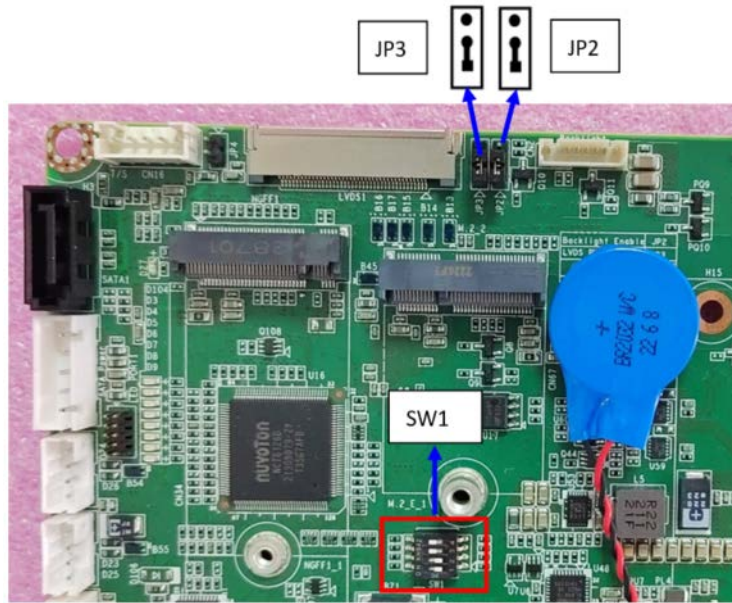
Resolution	1920 x 1080
SW1	SW1=0111, 1,2,3=off, 4=on
Backlight enable level	JP2(1-2), +5V
Brightness PWM level	JP3(2-3), +3.3V

**Table 3.8: PPC-321W(EAMB-7707)**

Resolution	1920 x 1080
SW1	SW1=1110, 1=on, 2,3,4=off
Backlight enable level	JP2(1-2), +5V
Brightness PWM level	JP3(2-3), +3.3V

**Table 3.9: PPC-324W(EAMB-7707)**

Resolution	1920 x 1080
SW1	SW1=0011, 1,2=off, 3,4=on
Backlight enable level	JP2(1-2), +5V
Brightness PWM level	JP3(1-2), +5V



3.2 External COM Ports and Pin Definitions

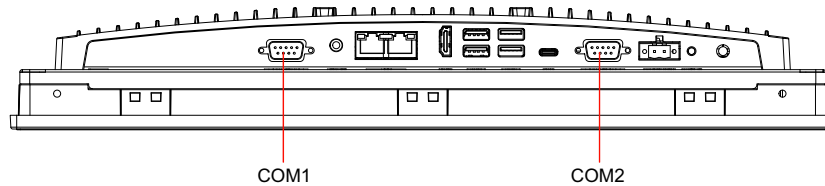


Figure 3.2 Locations of COM1 and COM2 Ports

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.

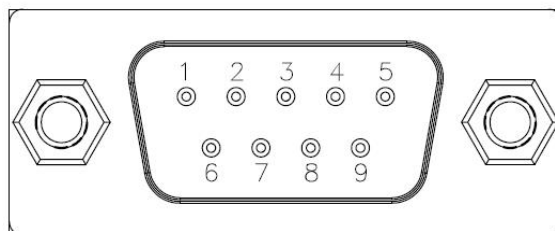
COM2: RS-232/422/485

Note! COM2 does not support the ring function.



Table 3.10: COM 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.

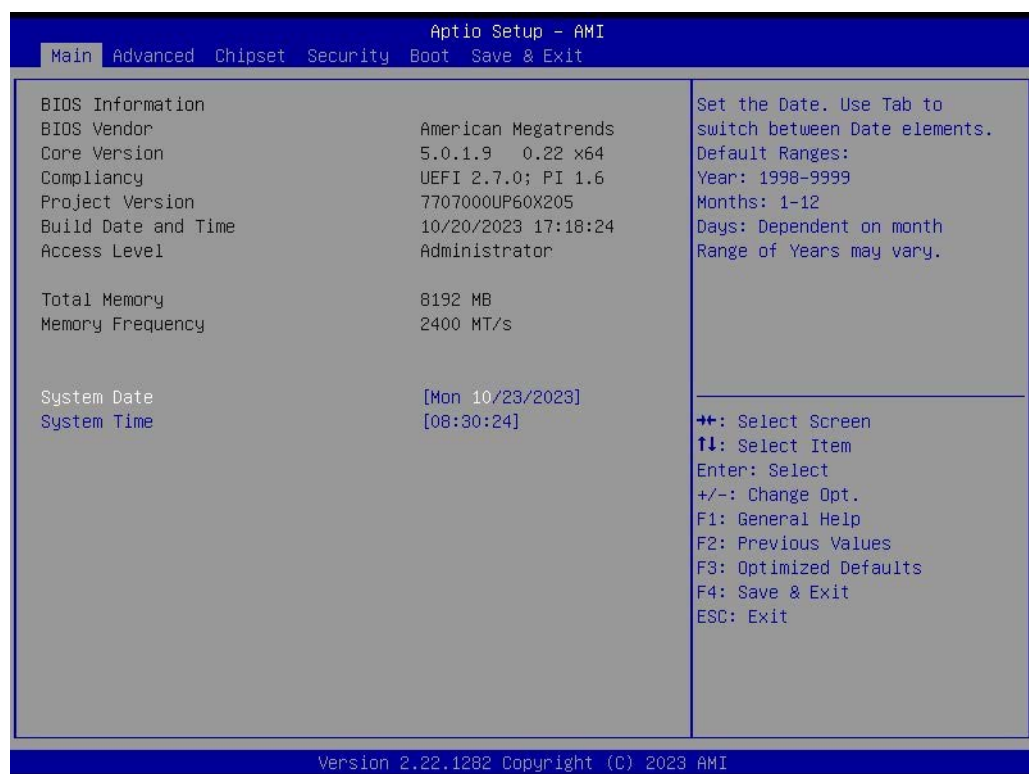
All drivers can be downloaded from the Advantech website:

<http://www.advantech.com>

4.2 BIOS Setup Utility

You can enter the BIOS setup utility by pressing “Delete” during startup. 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 the BIOS.

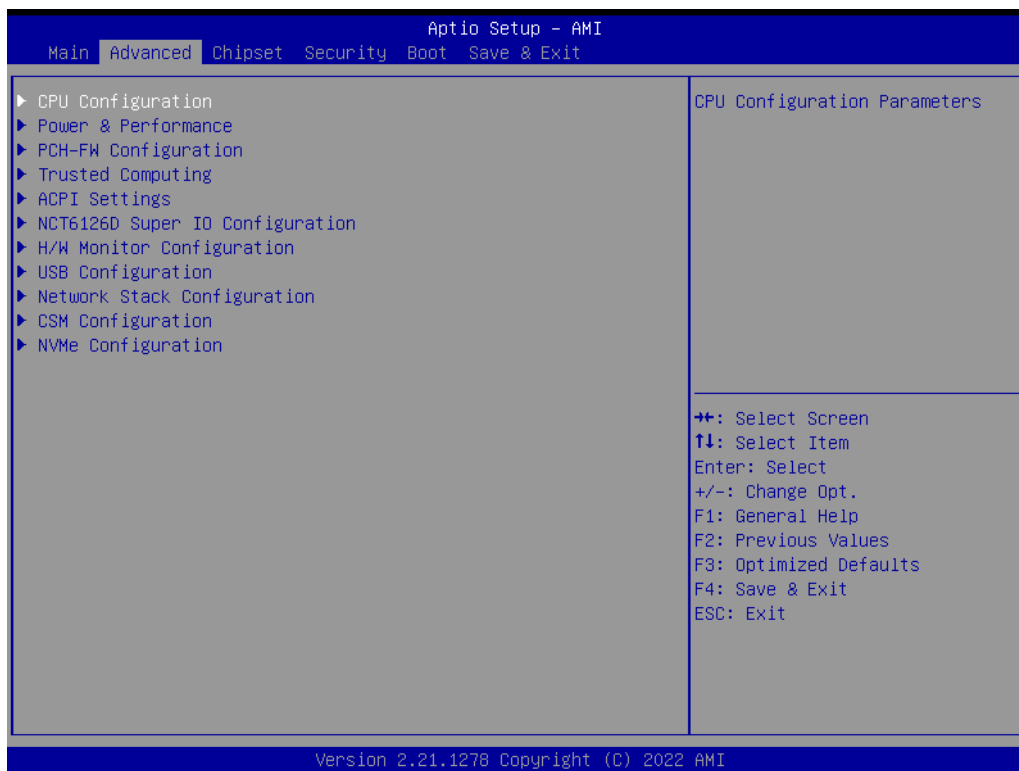
4.2.1 Main Setup



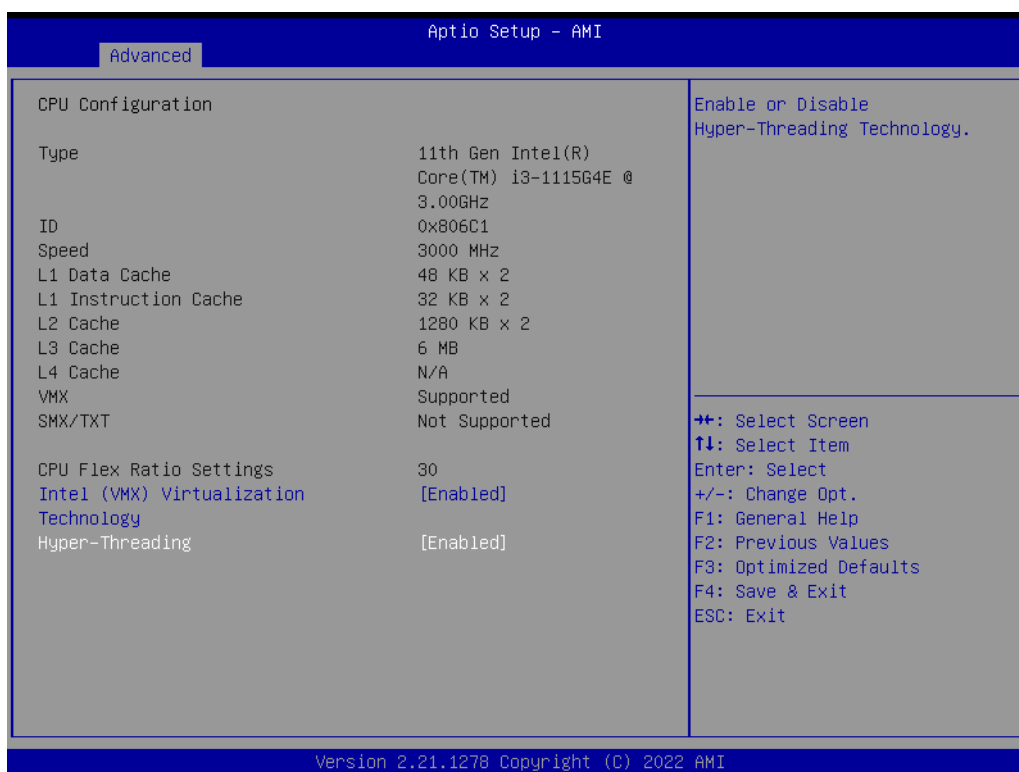
4.2.2 Advanced BIOS Features Setup

4.2.2.1 CPU information

1. Select CPU Configuration option in the Advanced tab.



2. Check CPU information.



4.2.2.2 NCT6126D Super IO Configuration

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

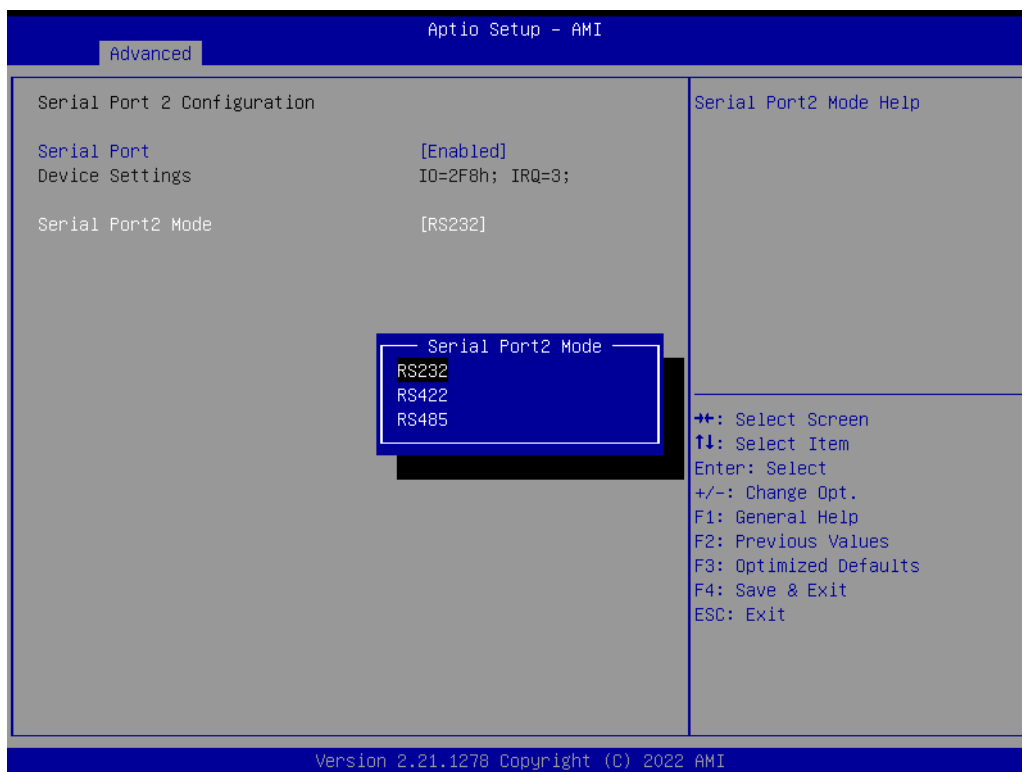
1. Select **NCT6126D Super IO Configuration** in the **Advanced** tab.



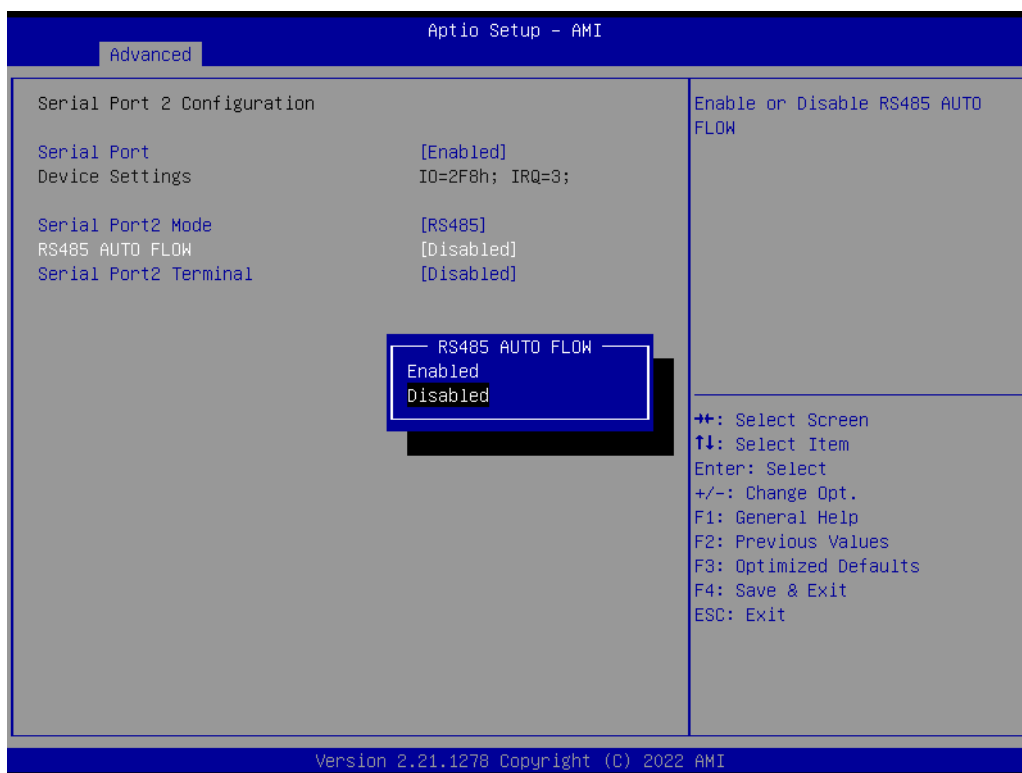
2. Select the **Serial Port 2 Configuration** option.



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

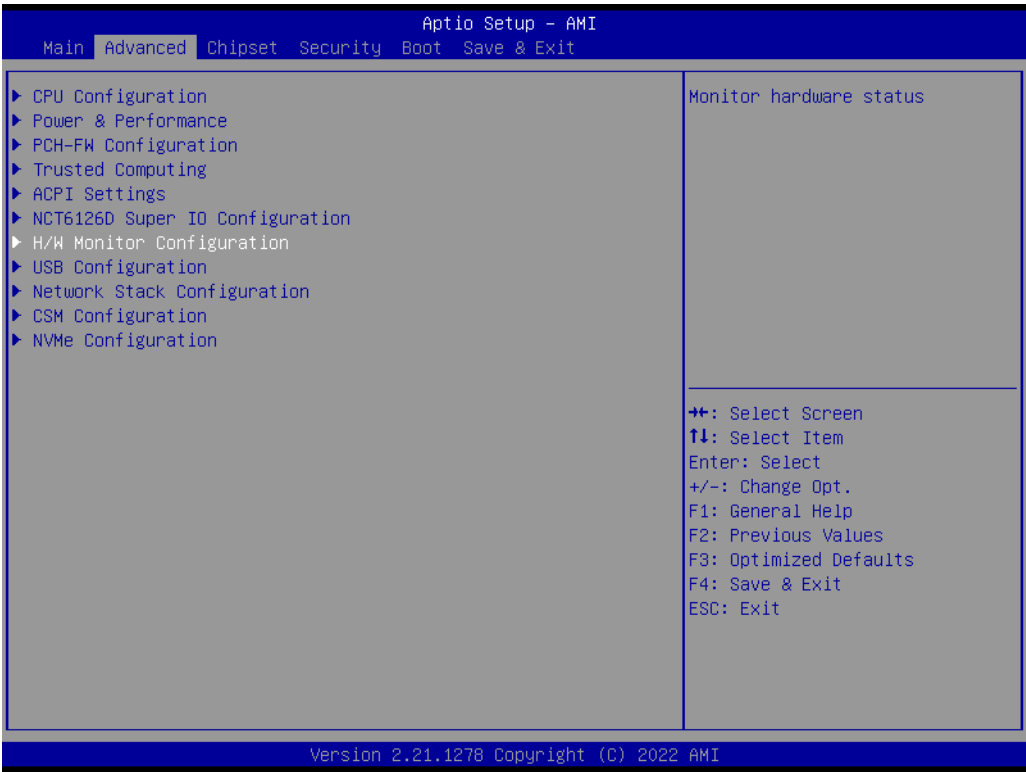


4. If COM2 mode is set as RS485, the **RS485 Auto Flow** control option can be Enabled or Disabled.

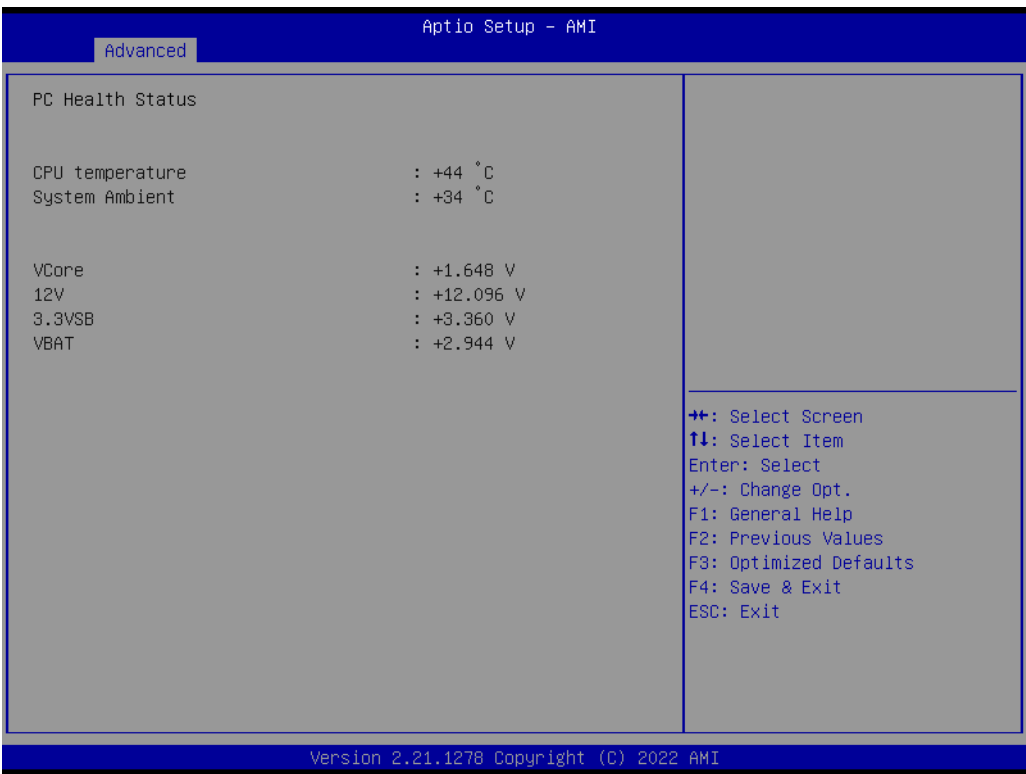


4.2.2.3 Hardware Monitor

1. Select H/W Monitor Configuration in the Advanced tab.

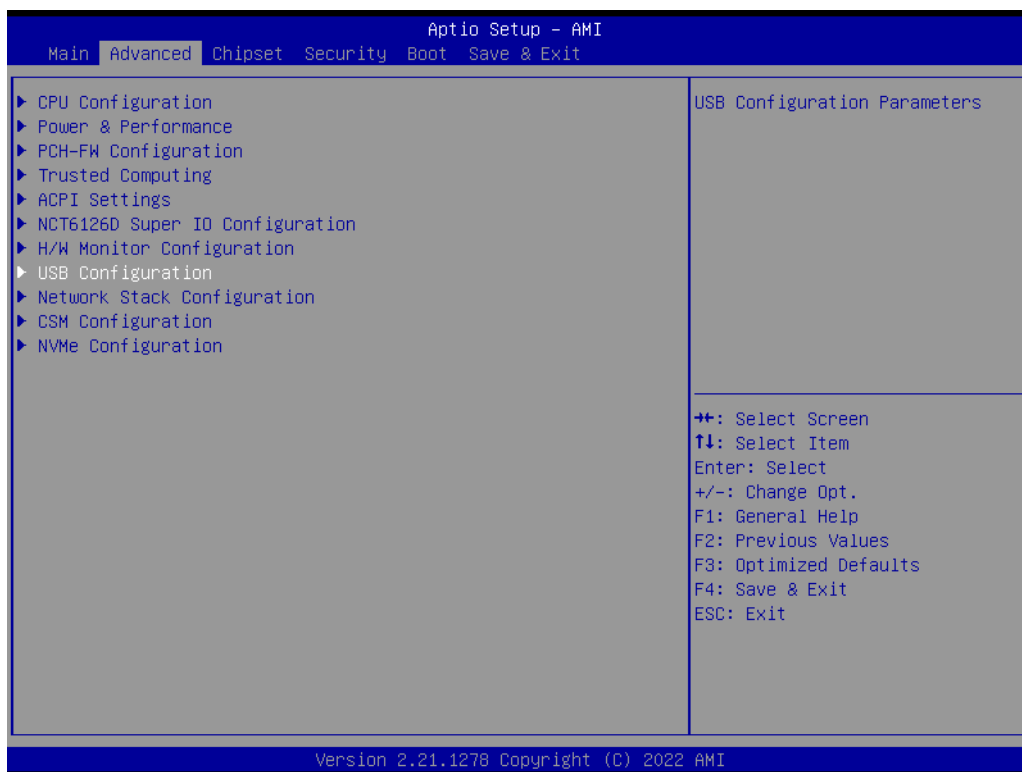


2. This page displays all information about system Temperature/Voltage/Current.

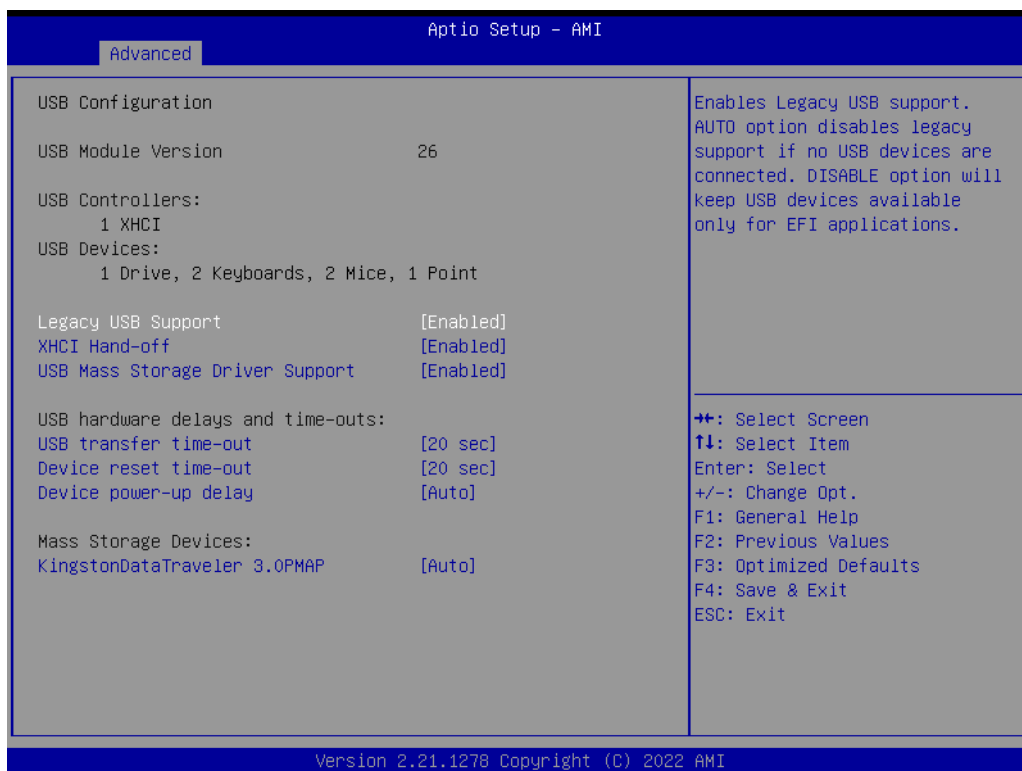


4.2.2.4 USB Configuration

1. Select USB Configuration in the Advanced tab.



2. Enable/Disable USB Mass Storage Driver Support



4.2.3 Chipset Configuration

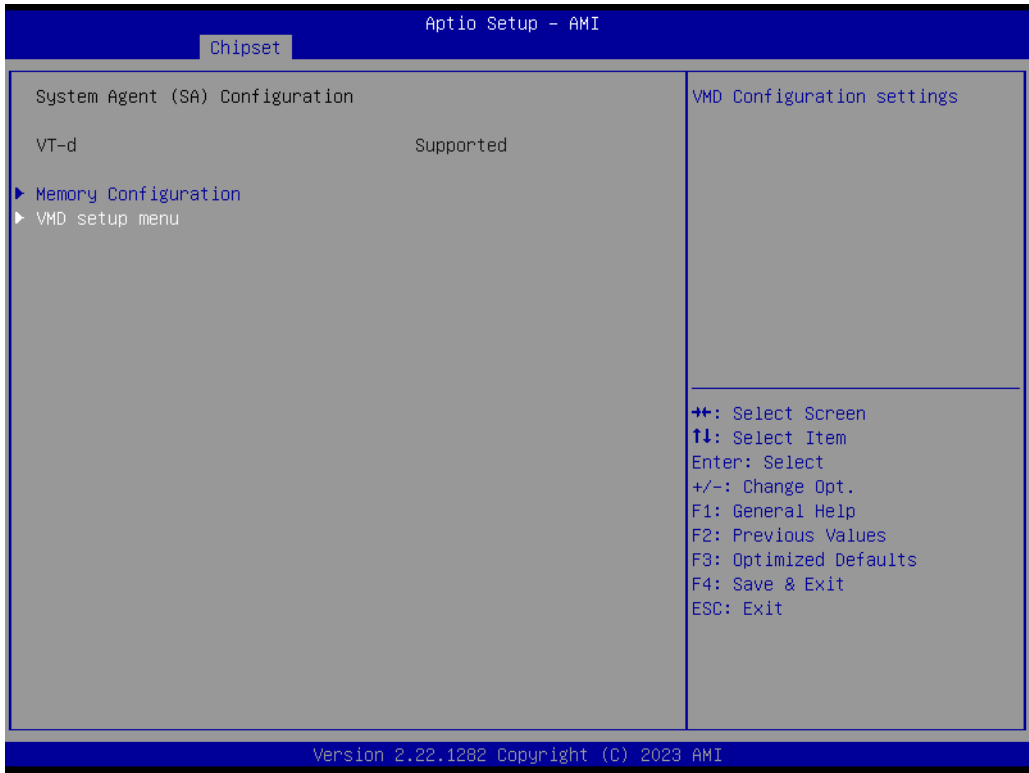
4.2.3.1 Storage RAID Configuration (VMD Setup)

Please refer to the below configuration instructions:

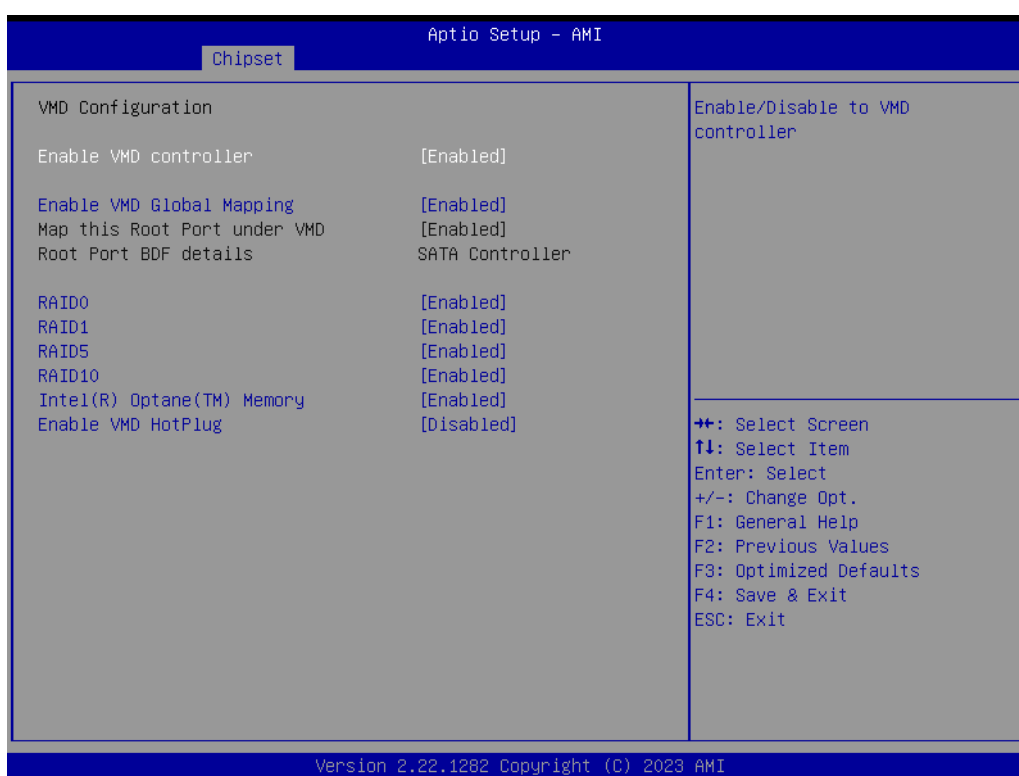
1. Select Chipset → System Agent (SA) Configuration



2. Select VMD setup menu



3. Enable VMD controller and Enable VMD Global Mapping and Map this Root Port under VMD setting [Enable]



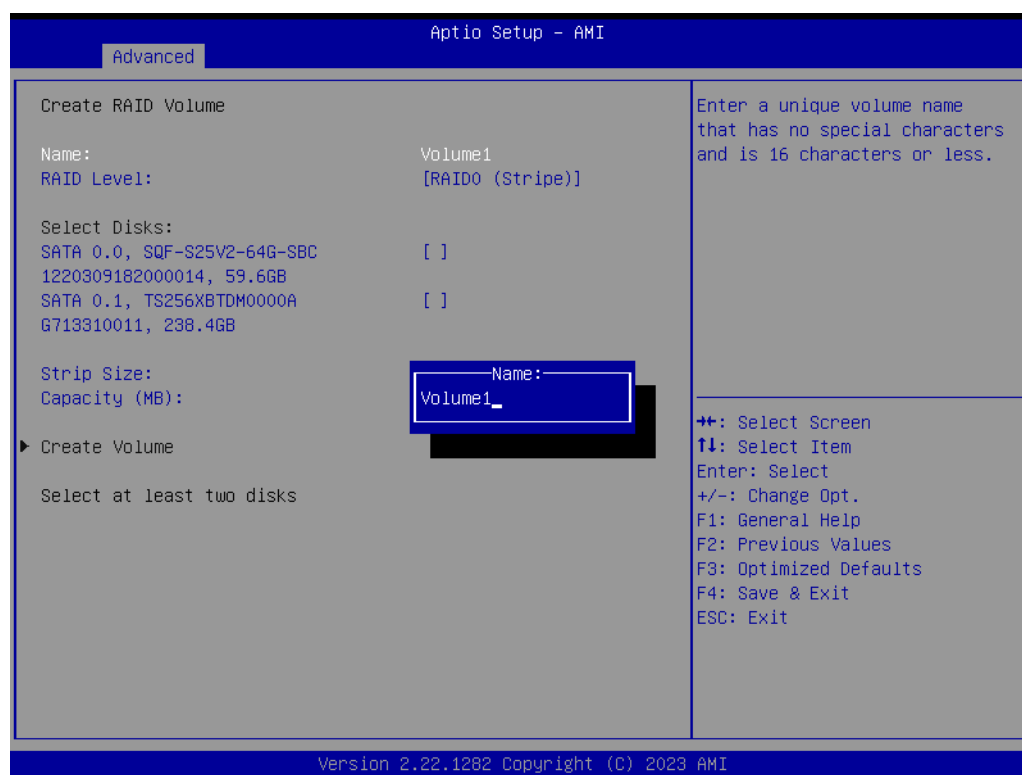
4. Press F4 to save and exit, press del to enter the BIOS, and select Advanced → Intel (R) Rapid Storage Technology.



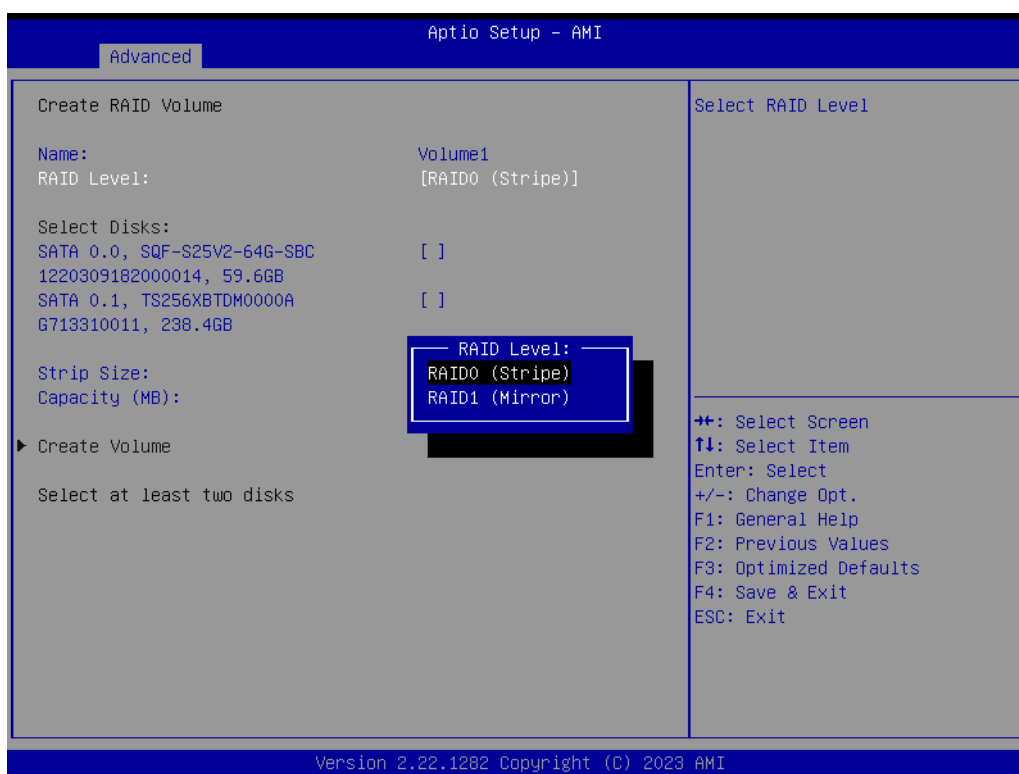
5. Select Create RAID Volume.



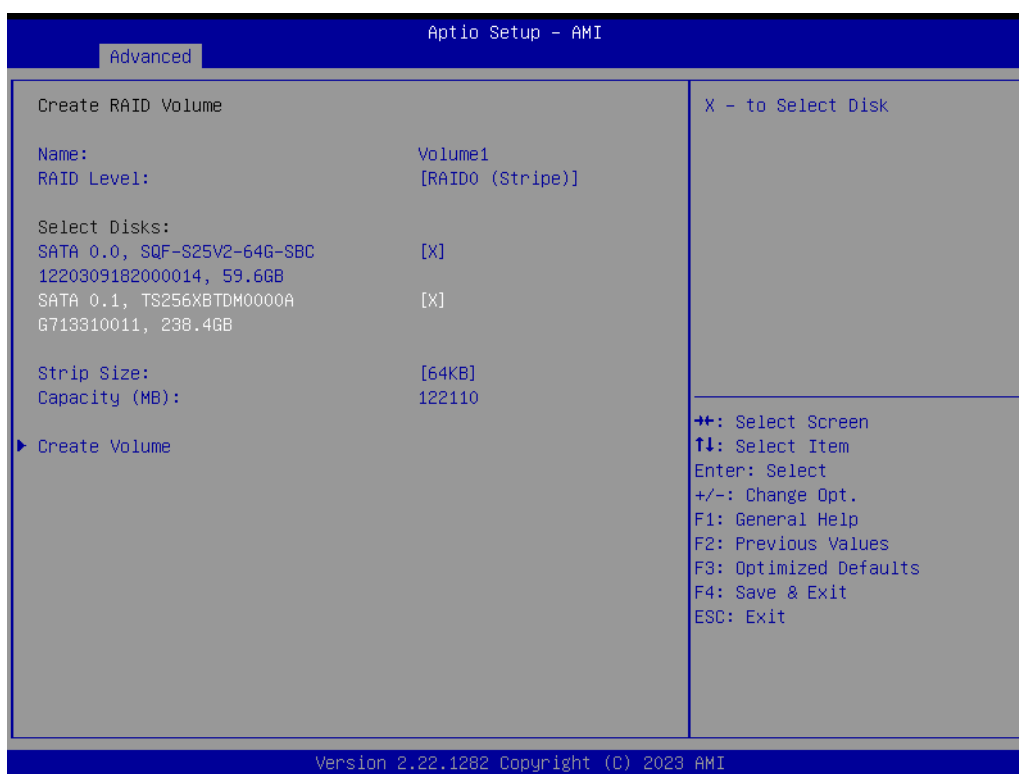
6. Define the label by yourself



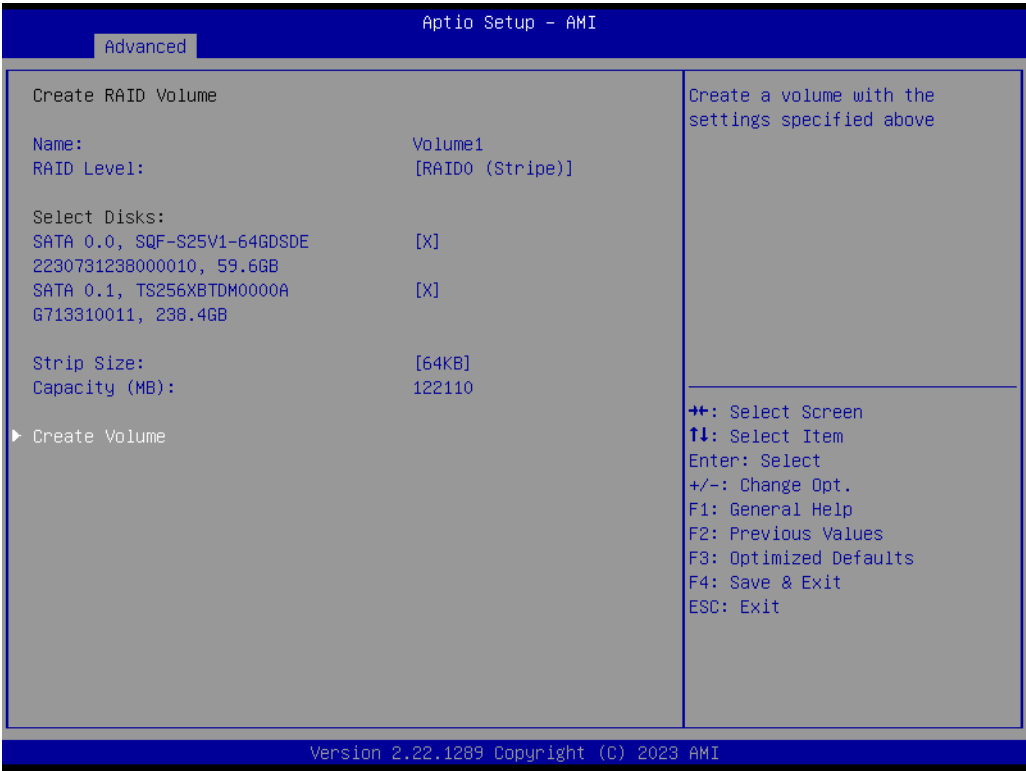
7. Select RAID Level, you can choose RAID0 or RAID1 (the steps of the two modes are similar).



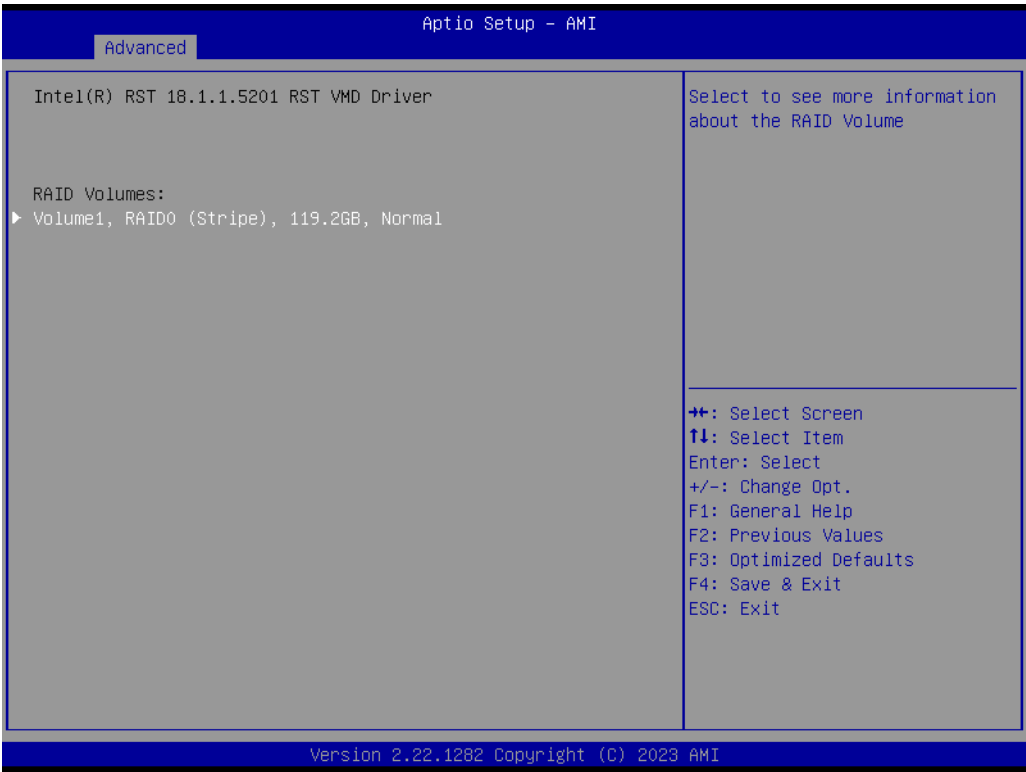
8. If you select RAID0, then select Select Disks: [X].



9. Select Create Volume.



10. Group RAID is complete

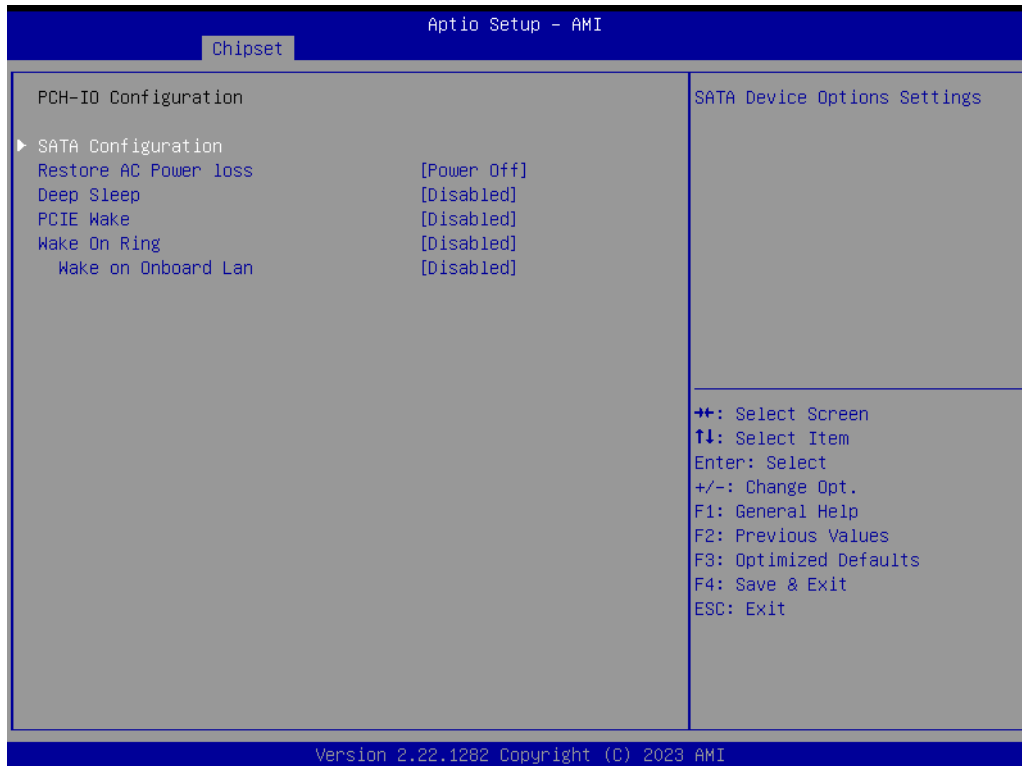


11. To remove RAID, click Delete.

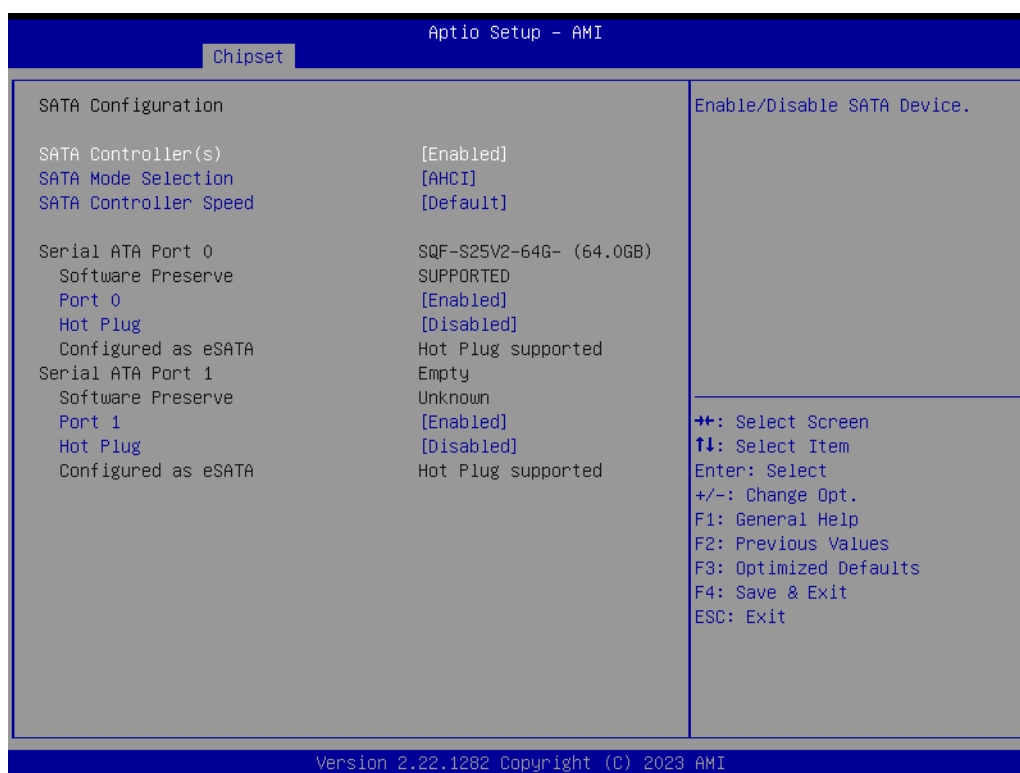


4.2.3.2 SATA Configuration

1. Select SATA Configuration option in the Chipset tab.



2. Check SATA information.

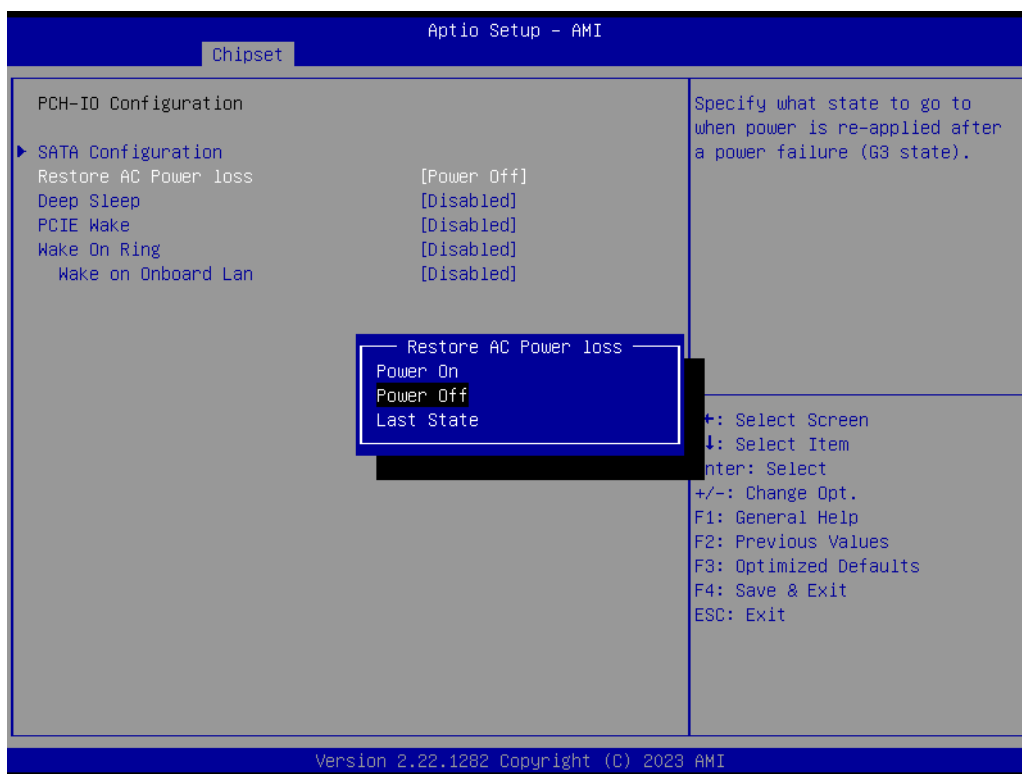


4.2.3.3 BIOS AT and ATX Setup

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



2. Select Restore AC Power loss and set the Power On or Power off

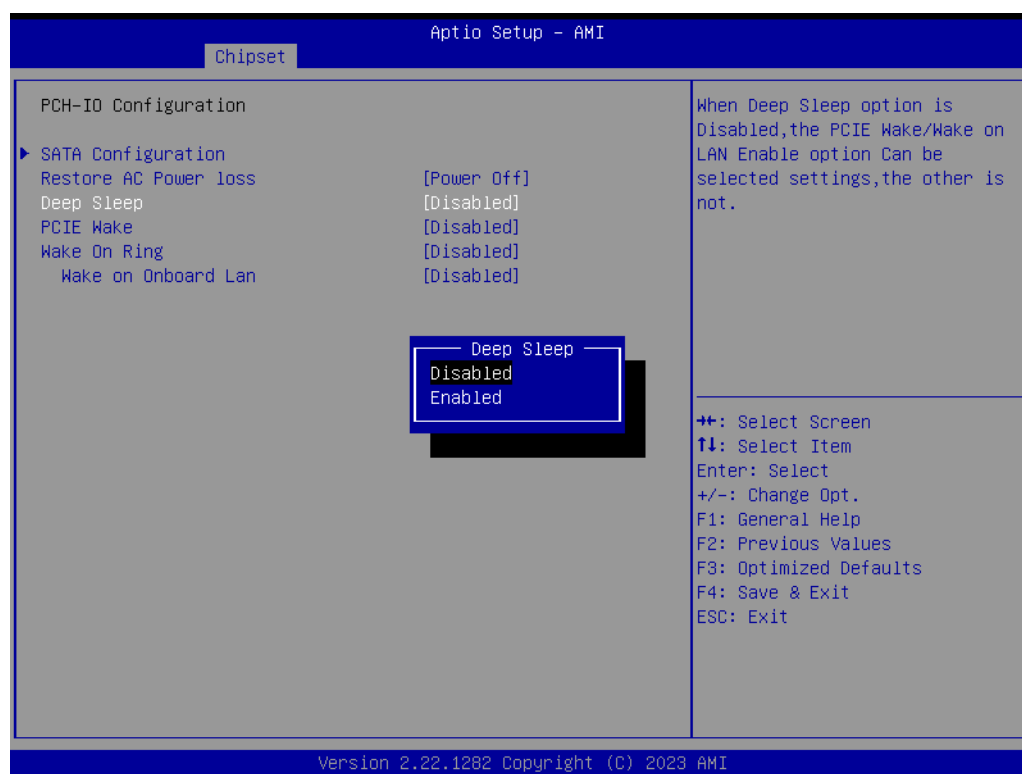


4.2.3.4 Deep Sleep

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



2. Set the Deep Sleep by option to Enabled/Disabled for ERP.

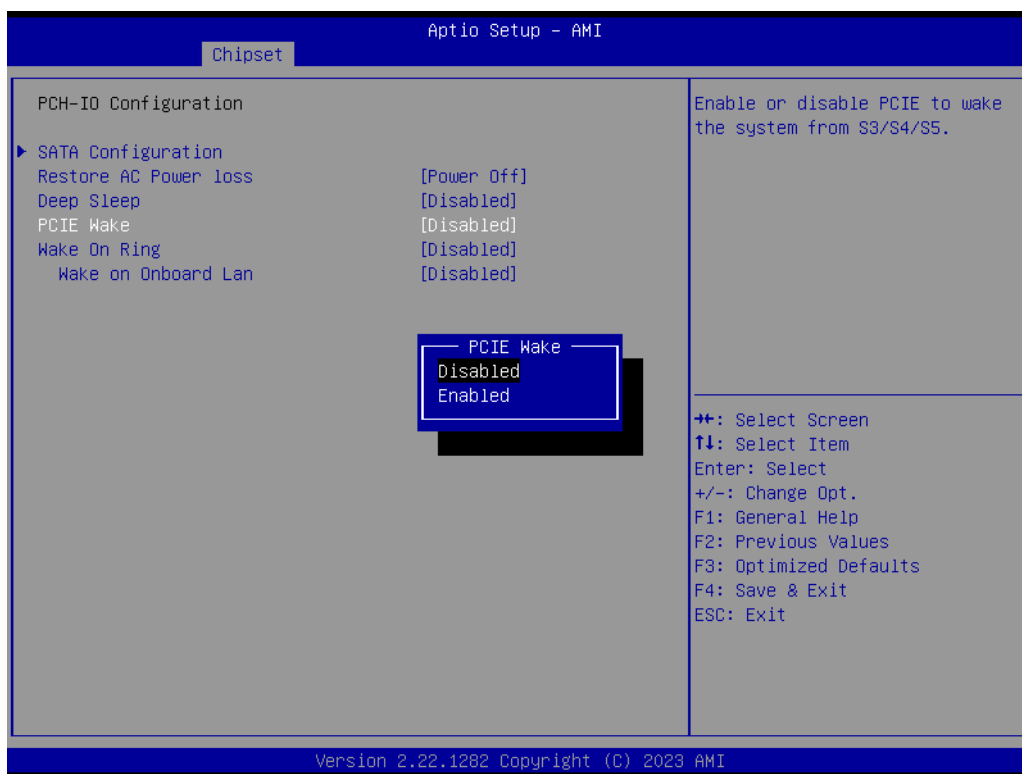


4.2.3.5 Wake-on-LAN

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



2. Set the PCIE Wake and Wake on Onboard LAN option to Enable.



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 (0xFFFF) 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 and 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-315W/318W/321W/324W TGL 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

B.1 BSMI Series Models

PPC-315W 產品附錄型號

PPC-315W-PB50A	PPC-315W-PB50AU	PPC-315W-PB30A
PPC-315W-PB30AU	PPC-315W-PB70A	PPC-315W-PB70AU
PPC-315W-PB50B	PPC-315W-PB30B	PPC-315W-PB70B
PPC-315W-PB50BU	PPC-315W-PB30BU	PPC-315W-PB70BU
PPC-315W-PB50C	PPC-315W-PB30C	PPC-315W-PB70C
PPC-315W-PB50CU	PPC-315W-PB30CU	PPC-315W-PB70CU
PPC315WPB2201-T	PPC315WPB2202-T	PPC315WPB2203-T
PPC315WPB2301-T	PPC315WPB2302-T	PPC315WPB2303-T
PPC315WPB2304-T	PPC315WPB2305-T	PPC315WPB2306-T
PPC315WPB2401-T	PPC315WPB2402-T	PPC315WPB2403-T
PPC315WPB2404-T	PPC315WPB2405-T	PPC315WPB2406-T
PPC315WPB2501-T	PPC315WPB2502-T	PPC315WPB2503-T
PPC315WPB2504-T	PPC315WPB2505-T	PPC315WPB2506-T
PPC315WPB2601-T	PPC315WPB2602-T	PPC315WPB2603-T
PPC315WPB2604-T	PPC315WPB2605-T	PPC315WPB2606-T
PPC315WPB2701-T	PPC315WPB2702-T	PPC315WPB2703-T
PPC315WPB2704-T	PPC315WPB2705-T	PPC315WPB2706-T
PPC315WPB2801-T	PPC315WPB2802-T	PPC315WPB2803-T
PPC315WPB2804-T	PPC315WPB2805-T	PPC315WPB2806-T

PPC-321W-PB 產品附錄型號

PPC-321W-PB50A	PPC-321W-PB50AU	PPC-321W-PB30A
PPC-321W-PB30AU	PPC-321W-PB70A	PPC-321W-PB70AU
PPC-321W-PB50B	PPC-321W-PB30B	PPC-321W-PB70B
PPC-321W-PB50BU	PPC-321W-PB30BU	PPC-321W-PB70BU
PPC-321W-PB50C	PPC-321W-PB30C	PPC-321W-PB70C
PPC-321W-PB50CU	PPC-321W-PB30CU	PPC-321W-PB70CU
PPC321WPB2201-T	PPC321WPB2202-T	PPC321WPB2203-T
PPC321WPB2301-T	PPC321WPB2302-T	PPC321WPB2303-T
PPC321WPB2304-T	PPC321WPB2305-T	PPC321WPB2306-T
PPC321WPB2401-T	PPC321WPB2402-T	PPC321WPB2403-T
PPC321WPB2404-T	PPC321WPB2405-T	PPC321WPB2406-T
PPC321WPB2501-T	PPC321WPB2502-T	PPC321WPB2503-T
PPC321WPB2504-T	PPC321WPB2505-T	PPC321WPB2506-T
PPC321WPB2601-T	PPC321WPB2602-T	PPC321WPB2603-T
PPC321WPB2604-T	PPC321WPB2605-T	PPC321WPB2606-T
PPC321WPB2701-T	PPC321WPB2702-T	PPC321WPB2703-T
PPC321WPB2704-T	PPC321WPB2705-T	PPC321WPB2706-T
PPC321WPB2801-T	PPC321WPB2802-T	PPC321WPB2803-T
PPC321WPB2804-T	PPC321WPB2805-T	PPC321WPB2806-T

PPC-318W-PB 產品附錄型號

PPC-318W-PB5A	PPC-318W-PB5AU	PPC-318W-PB3A;
PPC-318W-PB3AU	PPC-318W-PB7A	PPC-318W-PB7AU
PPC-318W-PB5B	PPC-318W-PB3B	PPC-318W-PB7B
PPC-318W-PB5BU	PPC-318W-PB3BU	PPC-318W-PB7BU
PPC-318W-PB5C	PPC-318W-PB3C	PPC-318W-PB7C
PPC-318W-PB5CU	PPC-318W-PB3CU	PPC-318W-PB7CU
PPC-318W-MART	PPC-318W-KIOT	PPC-318W-OMR
PPC-318W-EMKS	PPC318WPB2203-T	PPC318WPB2301-T
PPC318WPB2302-T	PPC318WPB2303-T	PPC318WPB2304-T
PPC318WPB2305-T	PPC318WPB2306-T	PPC318WPB2401-T
PPC318WPB2402-T	PPC318WPB2403-T	PPC318WPB2404-T
PPC318WPB2405-T	PPC318WPB2406-T	PPC318WPB2501-T
PPC318WPB2502-T	PPC318WPB2503-T	PPC318WPB2504-T
PPC318WPB2505-T	PPC318WPB2506-T	PPC318WPB2601-T
PPC318WPB2602-T	PPC318WPB2603-T	PPC318WPB2604-T
PPC318WPB2605-T	PPC318WPB2606-T,	PPC318WPB2701-T
PPC318WPB2702-T	PPC318WPB2703-T	PPC318WPB2704-T
PPC318WPB2705-T	PPC318WPB2706-T	PPC318WPB2801-T
PPC318WPB2802-T	PPC318WPB2803-T	PPC318WPB2804-T
PPC318WPB2805-T	PPC318WPB2806-T	PPC318WPB2901-T
PPC318WPB2902-T	PPC318WPB2903-T	PPC318WPB2904-T
PPC318WPB2905-T	PPC318WPB2906-T	

PPC-324W-PB 產品附錄型號

PPC-324W-PB5A	PPC-324W-PB5AU	PPC-324W-PB3A
PPC-324W-PB3AU	PPC-324W-PB7A	PPC-324W-PB7AU
PPC-324W-PB5B	PPC-324W-PB3B	PPC-324W-PB7B
PPC-324W-PB5BU	PPC-324W-PB3BU	PPC-324W-PB7BU
PPC-324W-PB5C	PPC-324W-PB3C	PPC-324W-PB7C
PPC-324W-PB5CU	PPC-324W-PB3CU	PPC-324W-PB7CU
PPC-324W-MART	PPC-324W-KIOT	PC-324W-OMR
PPC-324W-EMKS	PPC324WPB2203-T	PPC324WPB2301-T
PPC324WPB2302-T	PPC324WPB2303-T	PPC324WPB2304-T
PPC324WPB2305-T	PPC324WPB2306-T	PPC324WPB2401-T
PPC324WPB2402-T	PPC324WPB2403-T	PPC324WPB2404-T
PPC324WPB2405-T	PPC324WPB2406-T	PPC324WPB2501-T
PPC324WPB2502-T	PPC324WPB2503-T	PPC324WPB2504-T
PPC324WPB2505-T	PPC324WPB2506-T	PPC324WPB2601-T
PPC324WPB2602-T	PPC324WPB2603-T	PPC324WPB2604-T
PPC324WPB2605-T	PPC324WPB2606-T	PPC324WPB2701-T
PPC324WPB2702-T	PPC324WPB2703-T	PPC324WPB2704-T
PPC324WPB2705-T	PPC324WPB2706-T	PPC324WPB2801-T
PPC324WPB2802-T	PPC324WPB2803-T	PPC324WPB2804-T
PPC324WPB2805-T	PPC324WPB2806-T	PPC324WPB2901-T
PPC324WPB2902-T	PPC324WPB2903-T	PPC324WPB2904-T
PPC324WPB2905-T	PPC324WPB2906-T	

www.advantech.com

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

All product specifications are subject to change without notice.

No part of this publication may be reproduced in any form or by any means, such as electronically, by photocopying, recording, or otherwise, without prior written permission from the publisher.

All brand and product names are trademarks or registered trademarks of their respective companies.

© Advantech Co., Ltd. 2025