



MODEL:

PPC2-xxx-ADLP Series

Panel PC powered by 12th/13th Generation Intel® Core™ Processors (Alder Lake-P & Raptor Lake-P), 8GB LPDDR4X on-board, one M.2 M key 2242 slot, one M.2 M key 2280 slot

User Manual



Revision

Date	Version	Changes
September 22, 2023	1.00	Initial release
August 25, 2025	1.01	Modified Section 1.2: Model Variations; 1.7: System Specifications; 6.4: External Interface Panel Connectors.



Safety Instructions

- en** Warning! Read the user manual before connecting the system to the power source.
- de** Vorsicht! Bitte lesen Sie die Bedienungsanleitung, bevor Sie das System an eine Stromquelle anschließen.
- fr** Attention! Avant de brancher le système à la source d'alimentation, consultez le mode d'emploi.
- it** Avvertenza! Consultare il manuale utente prima di collegare il sistema all'alimentatore.
- es** Atención! Lea atentamente este manual del usuario antes de operar la fuente de alimentación.
- zh** 警告! 在將系統連接到電源之前, 請仔細閱讀使用手冊。
- cn** 警告! 在將系統連接到電源之前, 請仔細閱讀使用手冊。
-

- en** Warning! To prevent the system from overheating, do not operate it in an area that exceeds the maximum operating temperature described in the user manual.
- de** Vorsicht! Um eine Überhitzung des Systems zu vermeiden, betreiben Sie es ausschließlich im zulässigen Betriebstemperaturbereich. Dieser ist in der Bedienungsanleitung vermerkt.
- fr** Attention! Pour éviter la surchauffe du système, ne l'utilisez pas dans une zone dont la température dépasse les limites décrits dans le mode d'emploi.
- it** Avvertenza! Per evitare che il sistema si surriscaldi, non utilizzarlo in aree che superino la temperatura massima d'esercizio descritta nel manuale utente.
- es** Atención! Para evitar el excesivo calentamiento del sistema, no opere en las condiciones de temperatura superior a lo recomendado en este manual del usuario.
- zh** 警告! 為防止系統過熱, 不要在超過使用手冊上記載的產品工作溫度範圍之外操作此系統。
- cn** 警告! 為防止系統過熱, 不要在超過使用手冊上記載的產品工作溫度範圍之外操作此系統。
-

- en** Warning! Use only the adapter and power cord approved for this system. Use of another type of adapter may risk fire or explosion. Please refer to the user manual for the power adapter specifications.
- de** Vorsicht! Nur zugelassene Netzteile und Netzkabel dürfen verwendet werden. Die Benutzung von anderen Netzteilen kann einen Brand oder eine Explosion zur Folge haben. Prüfen Sie die jeweiligen Spezifikationen in der Bedienungsanleitung.
- fr** Attention! Utilisez exclusivement le câble d'alimentation et l'adaptateur homologués pour ce système. L'utilisation d'un autre type d'adaptateur risquerait de provoquer un incendie ou une explosion. Veuillez référer au mode d'emploi pour les spécifications de l'adaptateur d'alimentation.
- it** Avvertenza! Utilizzare solo l'adattatore e il cavo di alimentazione approvati per questo sistema. L'uso di un altro tipo di adattatore può causare rischio d'incendio o esplosione. Si prega di fare riferimento al manuale utente per le specifiche sull'alimentazione.
- es** Atención! Utilice solamente el adaptador de corriente alterna (CA) con Marcas Conformidad otorgadas. Cualquier otro adaptador no otorgado aumenta el riesgo de explosión o incendio. Por favor consulte el manual del usuario para las especificaciones del adaptador de alimentación.
- zh** 警告！只能使用經過認證、適用於本系統的電源變壓器與電源線。使用不適用的電源變壓器將可能導致火災或爆炸。電源變壓器規格請參考使用手冊。
- cn** 警告！只能使用经过认证，适用于本系统的电源适配器与电源线。使用不适用的电源适配器将可能导致火灾或爆炸。电源适配器规格请参考使用手册。

-
- en** Warning! Ultimate disposal of this product should be handled according to all national laws and regulations.
- de** Vorsicht! Die Entsorgung dieses Produkts sollte gemäß allen Bestimmungen und Gesetzen des Landes erfolgen.
- fr** Attention! La mise au rebut ou le recyclage de ce produit sont généralement soumis aux lois et/ou directives de respect de l'environnement. Renseignez-vous auprès de l'organisme compétent.
- it** Avvertenza! Lo smaltimento di questo prodotto deve essere eseguito secondo le leggi e i regolamenti locali.
- es** Atención! La disposición final de residuos de este producto se debe cumplir con las normativas y leyes del país.
- zh** 警告！本產品的廢棄處理應根據該國家的法律和規章進行。
- cn** 警告！本产品的废弃处理应根据该国家的法律和规章进行。
-

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Manual Conventions



WARNING

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously.



CAUTION

Cautionary messages should be heeded to help reduce the chance of losing data or damaging the product.



NOTE

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes.



HOT SURFACE

This symbol indicates a hot surface that should not be touched without taking care.

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Chapter

1

Introduction



1.1 Overview



Figure 1-1: PPC2-xxx-ADLP Series Panel PC

PPC2-xxx-ADLP series is a panel PC that can be powered by either the 12th Generation Intel® Alder Lake-P or the 13th Generation Intel® Raptor Lake-P Core™ i7/i5/i3 processors, offering a rich variety of functions and peripherals.

These Intel® processors are SoCs (Systems-on-Chip) designed to deliver optimal memory performance, graphics handling, and peripheral I/O support. The system comes with 8GB of dual-channel LPDDR4X RAM onboard, ensuring smooth data throughput, reduced bottlenecks, and fast system access.

For expanded connectivity, it includes four serial ports, two external USB 3.2 Gen 1 ports, and two external USB 3.2 Gen 2 ports, enabling simple and reliable connections to a wide range of external peripherals.



PPC2-xxx-ADLP Panel PC

1.2 Model Variations

The model number and model variation are listed below.

Model	Size	Resolution	Processor
PPC2-C104-ADLP-i3/8G	10.4"	1024x 768	i3-1220P
PPC2-C104-ADLP-i5/8G			i5-1240P
PPC2-C104-ADLP-i7/8G			i7-1260P
PPC2-C104-ADLP-Ri3EC			i3-1320PE
PPC2-C104-ADLP-Ri5EC			i5-1340PE
PPC2-C104-ADLP-Ri7ED			i7-1370PE
PPC2-C121-ADLP-i3/8G	12.1"	1024 x 768	i3-1220P
PPC2-C121-ADLP-i5/8G			i5-1240P
PPC2-C121-ADLP-i7/8G			i7-1260P
PPC2-C121-ADLP-Ri3EC			i3-1320PE
PPC2-C121-ADLP-Ri5EC			i5-1340PE
PPC2-C121-ADLP-Ri7ED			i7-1370PE
PPC2-CW133-ADLP-i3/8G	13.3"	1920 x 1080	i3-1220P
PPC2-CW133-ADLP-i5/8G			i5-1240P
PPC2-CW133-ADLP-i7/8G			i7-1260P
PPC2-CW133-ADLP-Ri3EC			i3-1320PE
PPC2-CW133-ADLP-Ri5EC			i5-1340PE
PPC2-CW133-ADLP-Ri7ED			i7-1370PE
PPC2-C150-ADLP-i3/8G	15.0"	1024 x 768	i3-1220P
PPC2-C150-ADLP-i5/8G			i5-1240P
PPC2-C150-ADLP-i7/8G			i7-1260P



PPC2-xxx-ADLP Panel PC

PPC2-C150-ADLP-Ri3EC			i3-1320PE
PPC2-C150-ADLP-Ri5EC			i5-1340PE
PPC2-C150-ADLP-Ri7ED			i7-1370PE
PPC2-CW156-ADLP-i3/8G	15.6"	1920 x 1080	i3-1220P
PPC2-CW156-ADLP-i5/8G			i5-1240P
PPC2-CW156-ADLP-i7/8G			i7-1260P
PPC2-CW156-ADLP-Ri3EC			i3-1320PE
PPC2-CW156-ADLP-Ri5EC			i5-1340PE
PPC2-CW156-ADLP-Ri7ED			i7-1370PE
PPC2-C170-ADLP-i3/8G	17.0"	1280 x 1024	i3-1220P
PPC2-C170-ADLP-i5/8G			i5-1240P
PPC2-C170-ADLP-i7/8G			i7-1260P
PPC2-C170-ADLP-Ri3EC			i3-1320PE
PPC2-C170-ADLP-Ri5EC			i5-1340PE
PPC2-C170-ADLP-Ri7ED			i7-1370PE
PPC2-CW185-ADLP-i3/8G	18.5"	1920 x 1080	i3-1220P
PPC2-CW185-ADLP-i5/8G			i5-1240P
PPC2-CW185-ADLP-i7/8G			i7-1260P
PPC2-CW185-ADLP-Ri3EC			i3-1320PE
PPC2-CW185-ADLP-Ri5EC			i5-1340PE
PPC2-CW185-ADLP-Ri7ED			i7-1370PE
PPC2-C190-ADLP-i3/8G	19.0"	1280 x 1024	i3-1220P
PPC2-C190-ADLP-i5/8G			i5-1240P
PPC2-C190-ADLP-i7/8G			i7-1260P



PPC2-xxx-ADLP Panel PC

PPC2-C190-ADLP-Ri3EC			i3-1320PE
PPC2-C190-ADLP-Ri5EC			i5-1340PE
PPC2-C190-ADLP-Ri7ED			i7-1370PE
PPC2-CW215-ADLP-i3/8G	21.5"	1920 x 1080	i3-1220P
PPC2-CW215-ADLP-i5/8G			i5-1240P
PPC2-CW215-ADLP-i7/8G			i7-1260P
PPC2-CW215-ADLP-Ri3EC			i3-1320PE
PPC2-CW215-ADLP-Ri5EC			i5-1340PE
PPC2-CW215-ADLP-Ri7ED			i7-1370PE

Table 1-1: Model Variation

1.3 Features

The PPC2-xxx-ADLP Series Panel PC features are listed below:

- 12/13th Generation Intel® Alder Lake-P & Raptor Lake-P Core™ i7/i5/i3/Celeron® processors
- Preinstalled with 8GB dual-channel LPDDR4X RAM
- PCAP with USB interface (anti-UV/AG coating)
- FHD touch display with optical bonding
- IP 65 compliant front panel
- 1 x M.2 M key 2280 & 1 x M.2 M key 2242
- Two 2.5 GbE Ethernet port
- Two USB 3.2 Gen 1 & two USB 3.2 Gen 2
- Two RS-232 by DB9 & two RS-232/422/485 by DB9

1.4 Front Panel

The front side of the PPC2-xxx-ADLP Series (**Figure 1-2**) is a flat panel LCD touchscreen surrounded by an aluminum frame.



Figure 1-2: Front View

1.5 Rear Panel

The rear panel provides access to retention screw holes that support VESA mounting. See **Figure 1-3**.

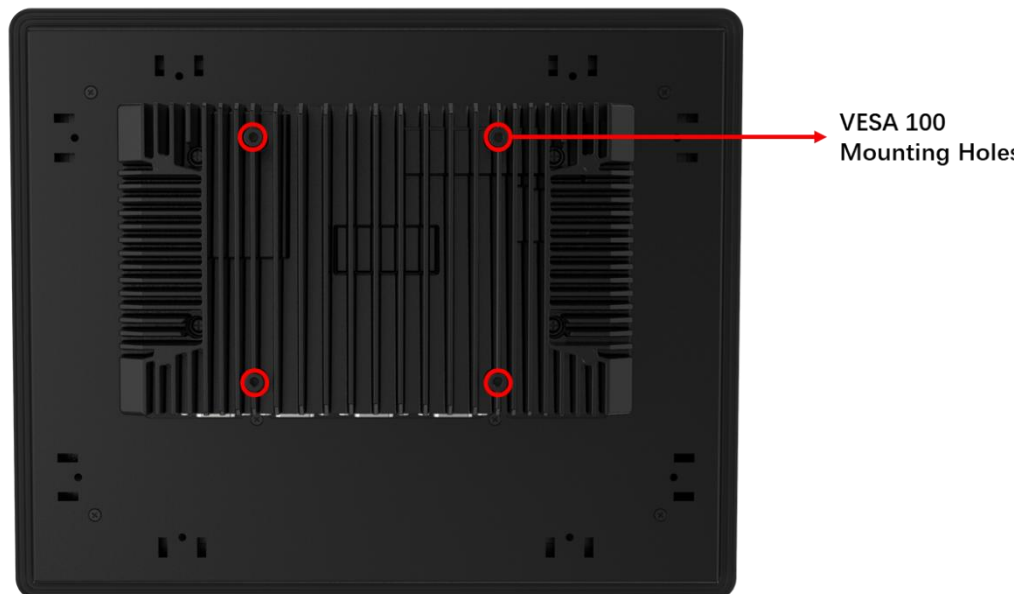


Figure 1-3: Rear View

PPC2-xxx-ADLP Panel PC

1.6 I/O Panels

The I/O Panels of the PPC2-xxx-ADLP Series Panel PC have the following connectors and switches.

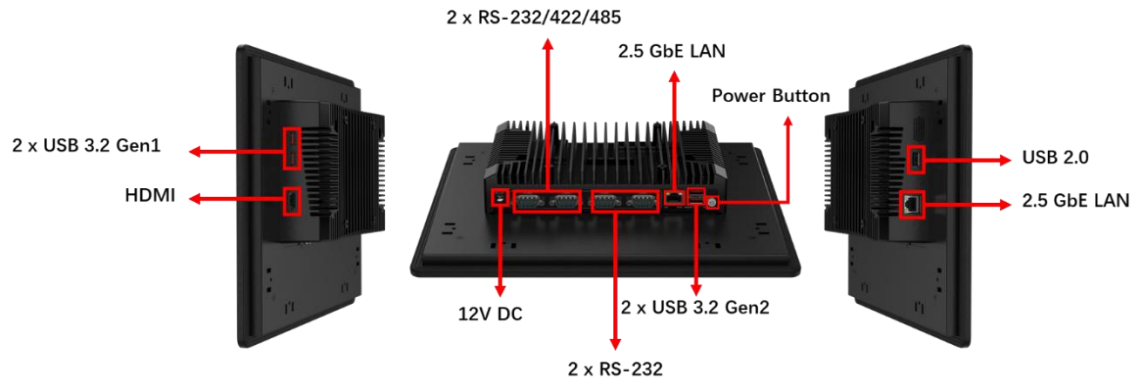


Figure 1-4: Bottom Panel

1.7 System Specifications

The technical specifications for the PPC2-xxx-ADLP Series Panel PC systems are listed in **Table 1-2**.

Model	PPC2-C104-ADLP	PPC2-C121-ADLP	PPC2-CW133-ADLP
LCD Size	10.4" (4:3)	12" (4:3)	13.3"
Resolution	1024 (W) x 768 (H)	1024 (W) x 768 (H)	1920(W) x1080(H)
Brightness	350 cd/m ²	500 cd/m ²	350 cd/m ²
LCD Color	16.7M	16.2M	16.7M
Contrast Ratio	1000:1	1000:1	1000:1
Viewing Angle (H-V)	176°/176°	178°/178°	176°/176°
Backlight MTBF	50,000 hours	30,000 hours	30,000 hours
Touchscreen	PCAP with USB interface (anti-UV/AG coating)		
Touch Controller	EETI EXC 81 Series		
CPU (SoC)	12/13th Generation Intel® Alder Lake-P & Raptor Lake-P Core™ i7/i5/i3 Processors		



RAM	8GB on-board dual-channel LPDDR4x RAM
Ethernet	LAN1: Intel® I226V 2.5GbE controller LAN2: Intel® I226-LM 2.5GbE controller (support Intel® AMT)
Expansion	1 x M.2 M key 2242 (PCIe Gen4x4) 1 x M.2 M key 2280 (PCIe Gen4x4) 1 x M.2 E key 2230 (PCIe + USB signal)
I/O Ports and Switches	2 x 2.5GbE LAN 2 x RS-232/422/485 by DB9 2 x RS-232 by DB9 1 x USB 2.0 2 x USB 3.2 Gen 1 2 x USB 3.2 Gen 2 1 x HDMI output 1 x Power button 1 x AT/ATX switch 1 x Reset button 1 x 12V DC input jack
Audio	Realtek ALC888S
Construction	Aluminum front cover and sheet metal rear cover
Mounting	VESA 100, Panel, Wall, Rack, Stand and Arm
Color	Black
Operating Temperature (Ambient with air flow)	-10 ~ 50 °C
Storage Temperature	-20°C ~ 60 °C
Humidity	10% ~ 95%@40 °C (non-condensing)



PPC2-xxx-ADLP Panel PC

IP Level	IP 65 compliant front panel
Safety/EMC	CE/ EMC, FCC, UKCA
Power Requirement	12V DC
Thermal Solution	Fanless
OS	Windows10/11, Linux
ErP	ErP 2009/125/EC

Table 1-2: System Specifications

Model	PPC2-C150-ADLP	PPC2-CW156-ADLP	PPC2-C170-ADLP
LCD Size	15" (4:3)	15.6" (16:9)	17" (5:4)
Resolution	1024 (W) x 768 (H)	1920 (W) x 1080 (H)	1280 (W) x 1024 (H)
Brightness	400 cd/m ²	450 cd/m ²	350 cd/m ²
LCD Color	16.2M	16.2M	16.7M
Contrast Ratio	800:1	800:1	800:1
Viewing Angle (H-V)	176°/176°	178°/178°	170°/160°
Backlight MTBF	70,000 hours	50,000 hours	50,000 hours
Touchscreen	PCAP with USB interface (anti-UV/AG coating)		
Touch Controller	EETI EXC 81 Series		
CPU (SoC)	12/13th Generation Intel® Alder Lake-P Core™ & Raptor Lake-P i7/i5/i3 Processors		
RAM	8GB on-board dual-channel LPDDR4x RAM		
Ethernet	LAN1: Intel® I226V 2.5GbE controller LAN2: Intel® I226-LM 2.5GbE controller (support Intel® AMT)		
Expansion	1 x M.2 M key 2242 (PCIe Gen4x4)		



	1 x M.2 M key 2280 (PCIe Gen4x4) 1 x M.2 E key 2230 (PCIe + USB signal)
I/O Ports and Switches	2 x 2.5GbE LAN 2 x RS-232/422/485 by DB9 2 x RS-232 by DB9 1 x USB 2.0 2 x USB 3.2 Gen 1 2 x USB 3.2 Gen 2 1 x HDMI output 1 x Power button 1 x AT/ATX switch 1 x Reset button 1 x 12V DC input jack
Audio	Realtek ALC888S
Construction	Aluminum front cover and sheet metal rear cover
Mounting	VESA 100, Panel, Wall, Rack, Stand and Arm
Color	Black
Operating Temperature (Ambient with air flow)	-10 ~ 50 °C
Storage Temperature	-20°C ~ 60 °C
Humidity	10% ~ 95%@40 °C (non-condensing)
IP Level	IP 65 compliant front panel
Safety/EMC	CE/ EMC, FCC, UKCA
Power Requirement	12V DC
Thermal Solution	Fanless



PPC2-xxx-ADLP Panel PC

OS	Windows10/11, Linux
ErP	ErP 2009/125/EC

Table 1-3: System Specifications

Model	PPC2-CW185-ADLP	PPC2-C190-ADLP	PPC2-CW215-ADLP
LCD Size	18.5" (16:9)	19" (5:4)	21.5" (16:9)
Resolution	1920 (W) x 1080 (H)	1280 (W) x 1024 (H)	1920 (W) x 1080 (H)
Brightness	350 cd/m ²	450 cd/m ²	350 cd/m ²
LCD Color	16.7M	16.7M	16.7M
Contrast Ratio	1000:1	1000:1	1000:1
Viewing Angle (H-V)	170°/170°	178°/178°	178°/178°
Backlight MTBF	50,000 hours	50,000 hours	50,000 hours
Touchscreen	PCAP with USB interface (anti-UV/AG coating)		
Touch Controller	EETI EXC 81 Series		
CPU (SoC)	12/13th Generation Intel® Alder Lake-P & Raptor Lake-P Core™ i7/i5/i3 Processors		
RAM	8GB on-board dual-channel LPDDR4x RAM		
Ethernet	LAN1: Intel® I226V 2.5GbE controller LAN2: Intel® I226-LM 2.5GbE controller (support Intel® AMT)		
Expansion	1 x M.2 M key 2242 (PCIe Gen4x4) 1 x M.2 M key 2280 (PCIe Gen4x4) 1 x M.2 E key 2230 (PCIe + USB signal)		
Audio	Realtek ALC888S		
Construction	Aluminum front cover and sheet metal rear cover		



Mounting	VESA 100, Panel, Wall, Rack, Stand and Arm
Color	Black
Operating Temperature (Ambient with air flow)	-10 ~ 50 °C
Storage Temperature	-20°C ~ 60 °C
Humidity	10% ~ 95%@40 °C (non-condensing)
IP Level	IP 65 compliant front panel
Safety/EMC	CE/ EMC, FCC, UKCA
Power Requirement	12V DC
Thermal Solution	Fanless
OS	Windows10/11, Linux
ErP	ErP 2009/125/EC
I/O Ports and Switches	2 x 2.5GbE LAN 2 x RS-232/422/485 by DB9 2 x RS-232 by DB9 1 x USB 2.0 2 x USB 3.2 Gen 1 2 x USB 3.2 Gen 2 1 x HDMI output 1 x Power button 1 x AT/ATX switch 1 x Reset button 1 x 12V DC input jack

Table 1-4: System Specifications



PPC2-xxx-ADLP Panel PC

1.8 Dimensions

The PPC2-xxx-ADLP Series Panel PC dimensions are shown below.

1.8.1 PPC2-C104-ADLP Dimensions

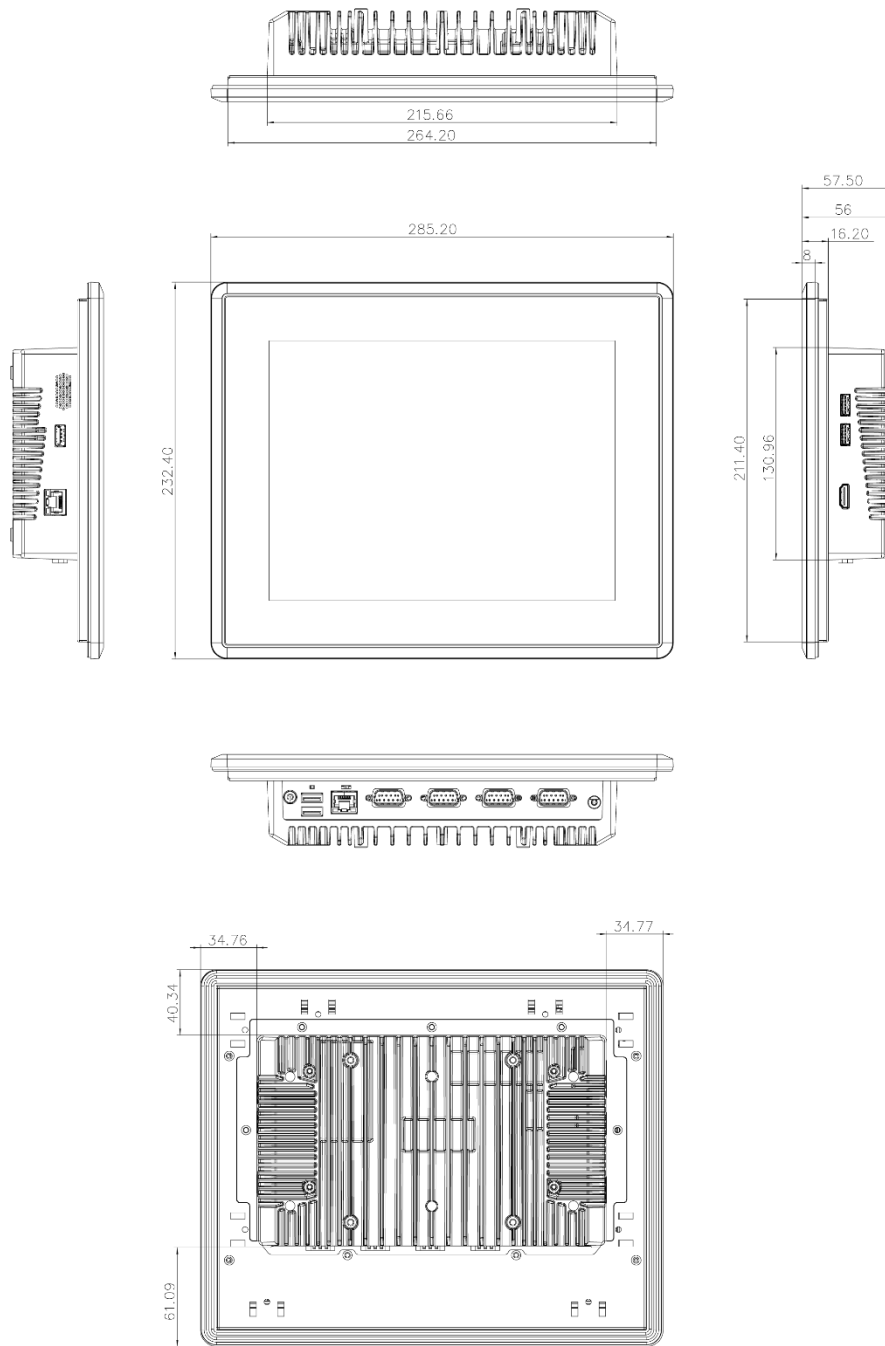


Figure 1-5: PPC2-C104-ADLP Dimensions (mm)

1.8.2 PPC2-C121-ADLP Dimensions

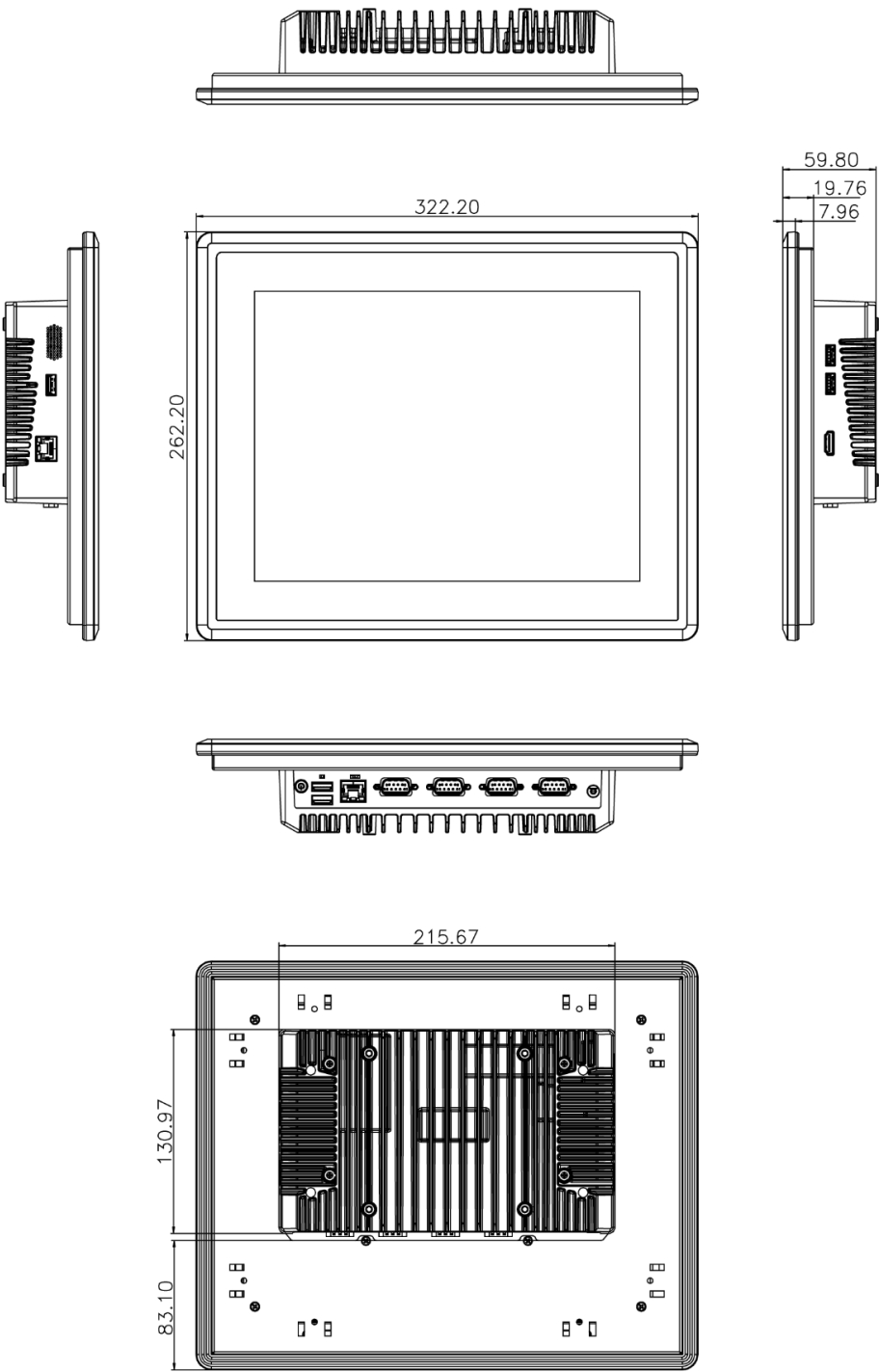
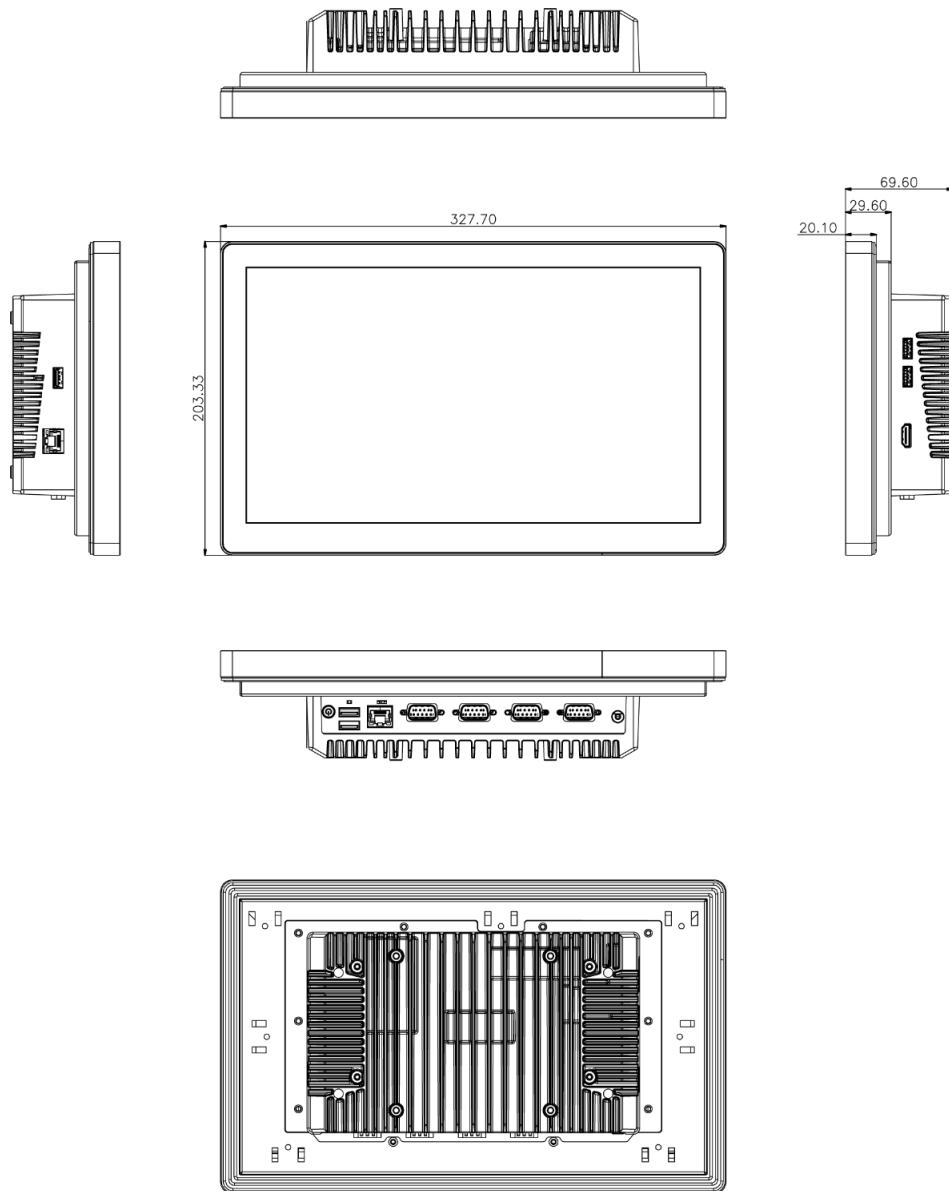


Figure 1-6: PPC2-C121-ADLP Dimensions (mm)

PPC2-xxx-ADLP Panel PC**1.8.3 PPC2-CW133-ADLP Dimensions****Figure 1-7: PPC2-CW133-ADLP Dimensions (mm)**



1.8.4 PPC2-C150-ADLP Dimensions

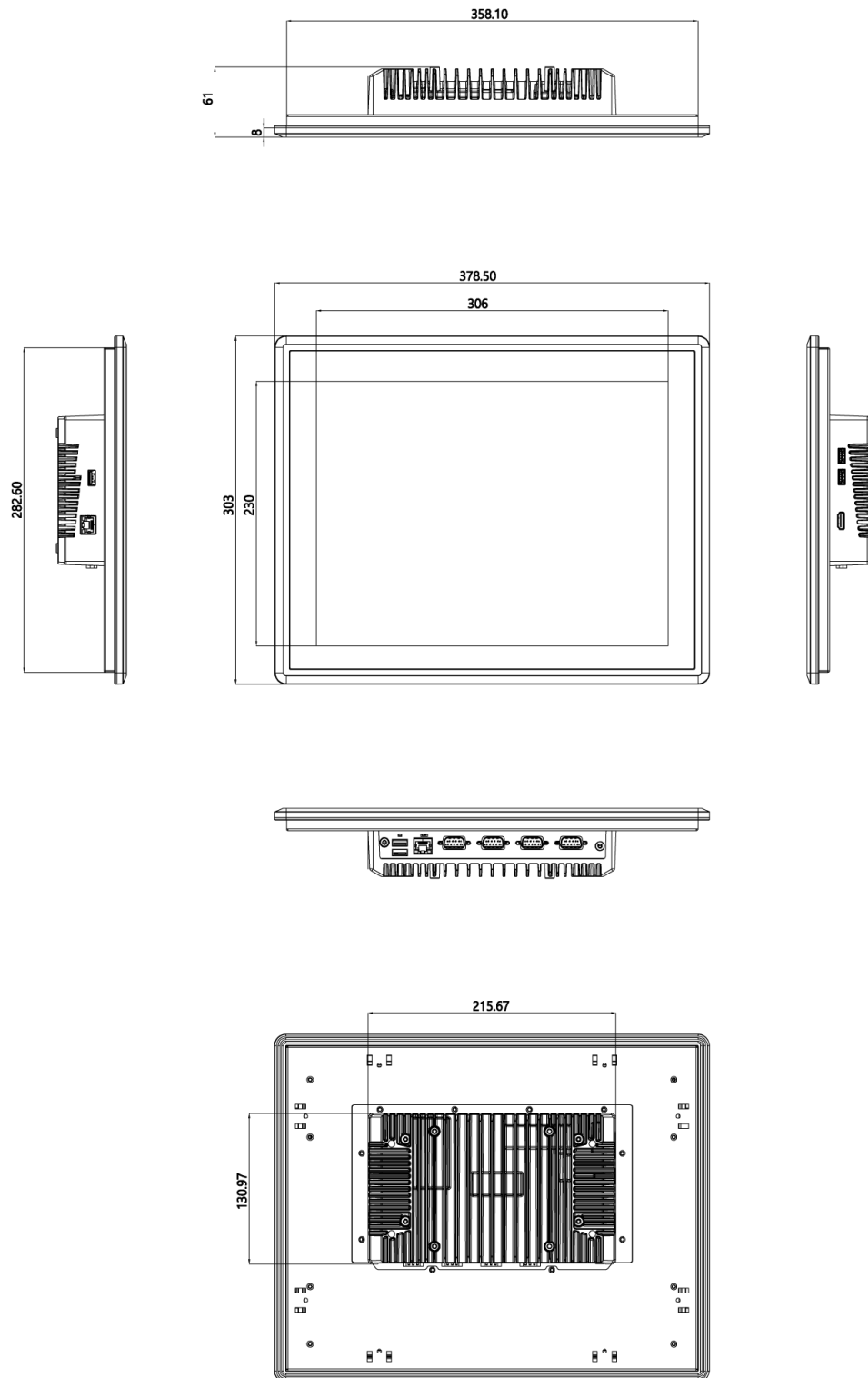


Figure 1-8: PPC2-C150-ADLP Dimensions (mm)

PPC2-xxx-ADLP Panel PC

1.8.5 PPC2-CW156-ADLP Dimensions

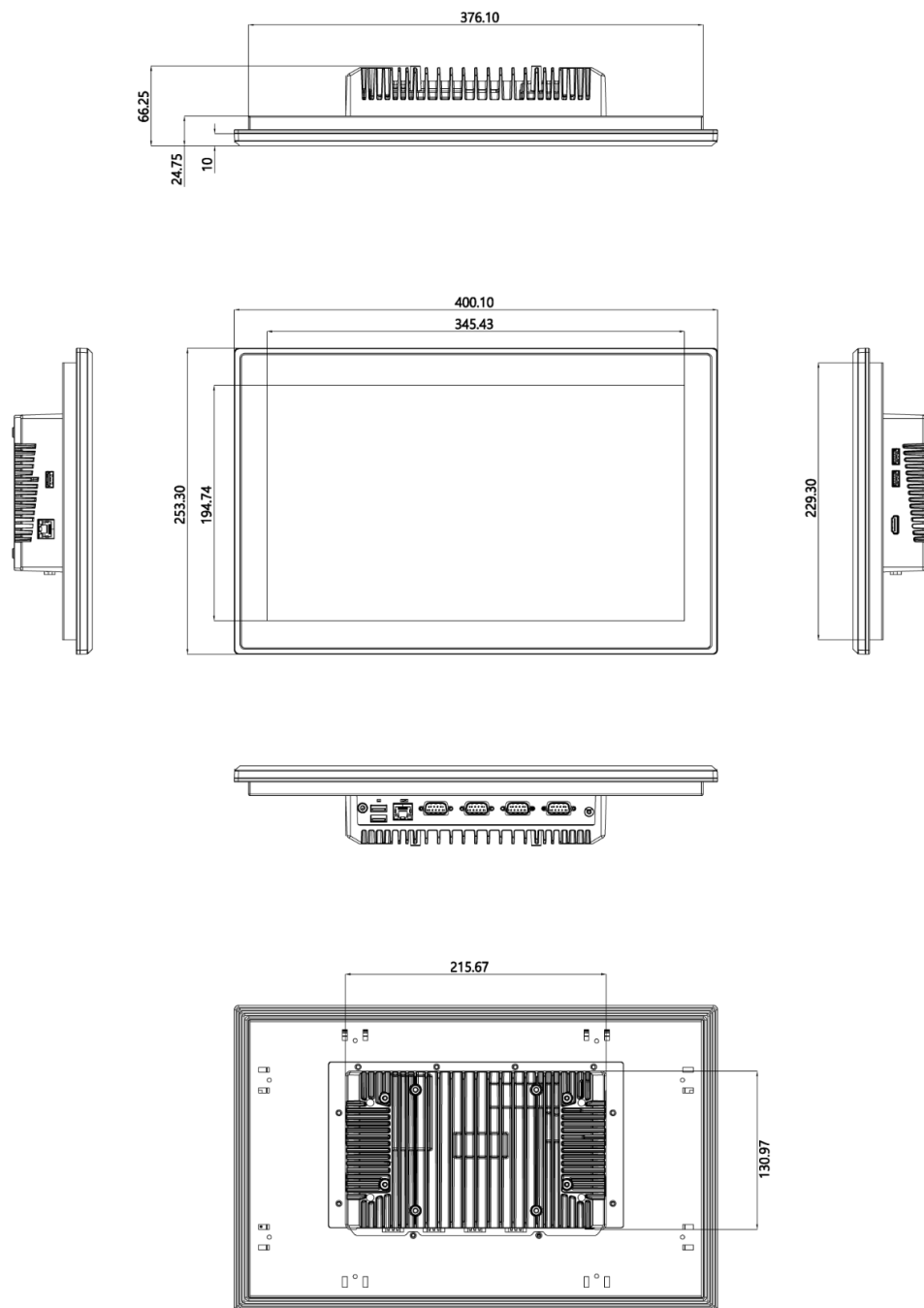


Figure 1-9: PPC2-CW156-ADLP Dimensions (mm)



1.8.6 PPC2-C170-ADLP Dimensions

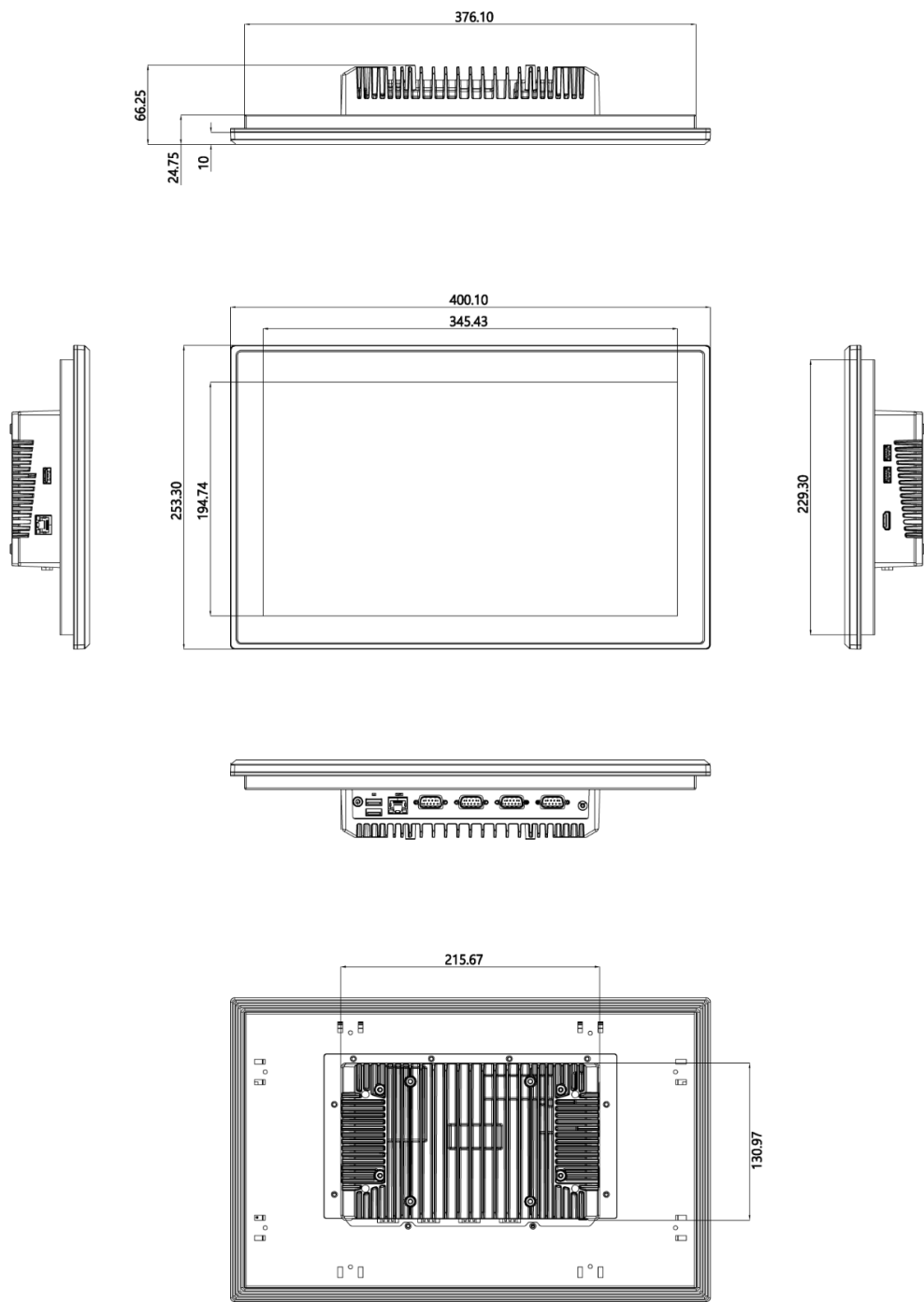


Figure 1-10: PPC2-C170-ADLP Dimensions (mm)

PPC2-xxx-ADLP Panel PC

1.8.7 PPC2-CW185-ADLP Dimensions

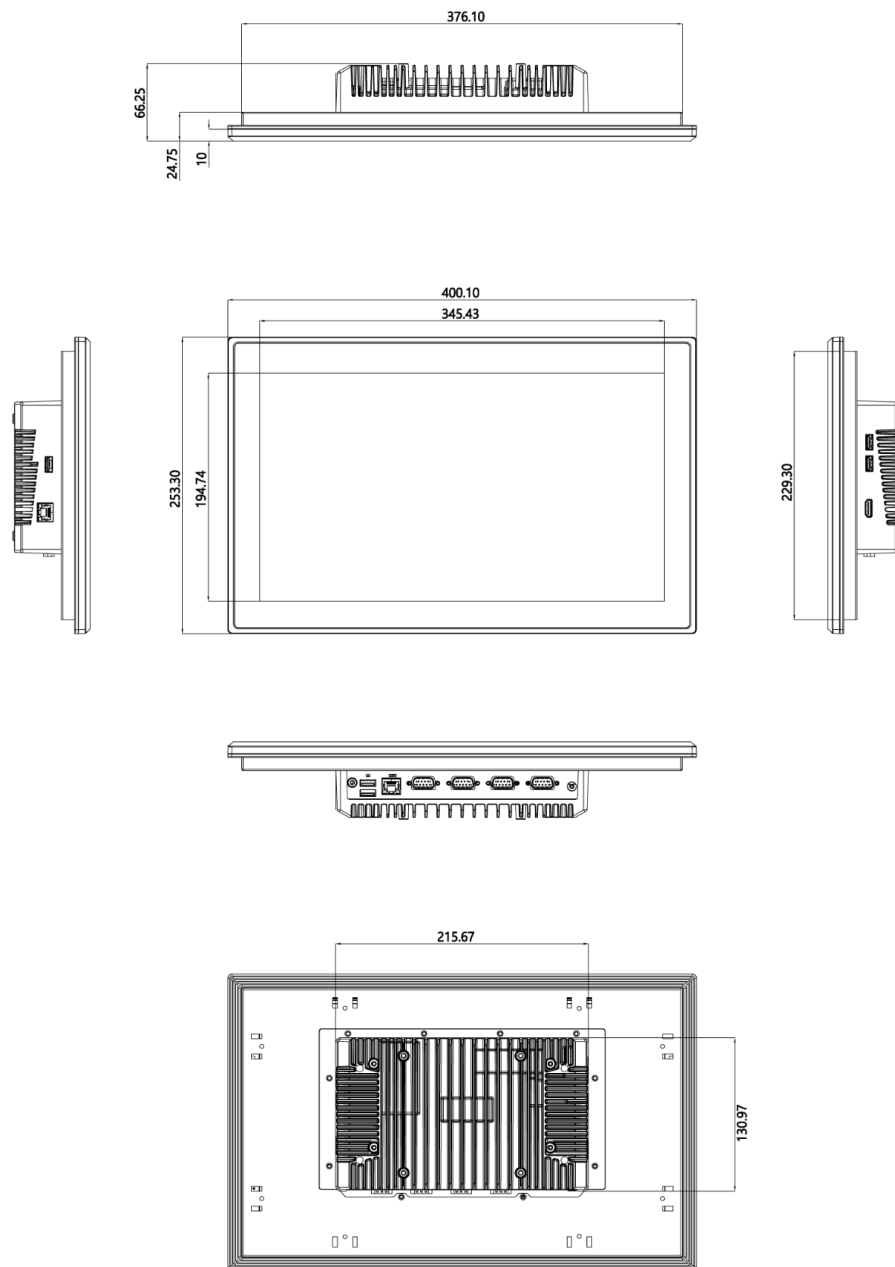


Figure 1-11: PPC2-CW185-ADLP Dimensions (mm)



1.8.8 PPC2-C190-ADLP Dimensions

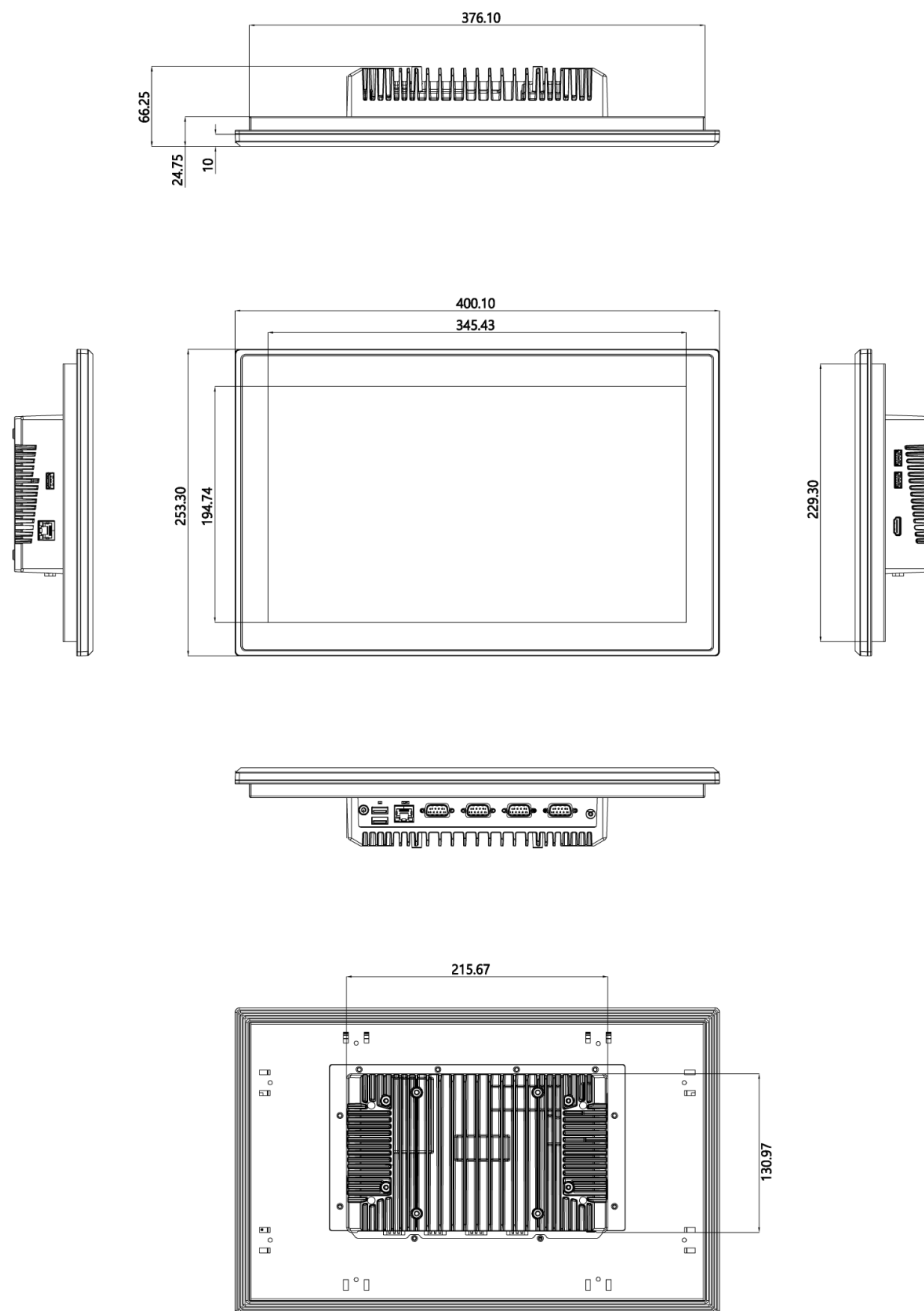


Figure 1-12: PPC2-C190-ADLP Dimensions (mm)

PPC2-xxx-ADLP Panel PC

1.8.9 PPC2-CW215-ADLP Dimensions

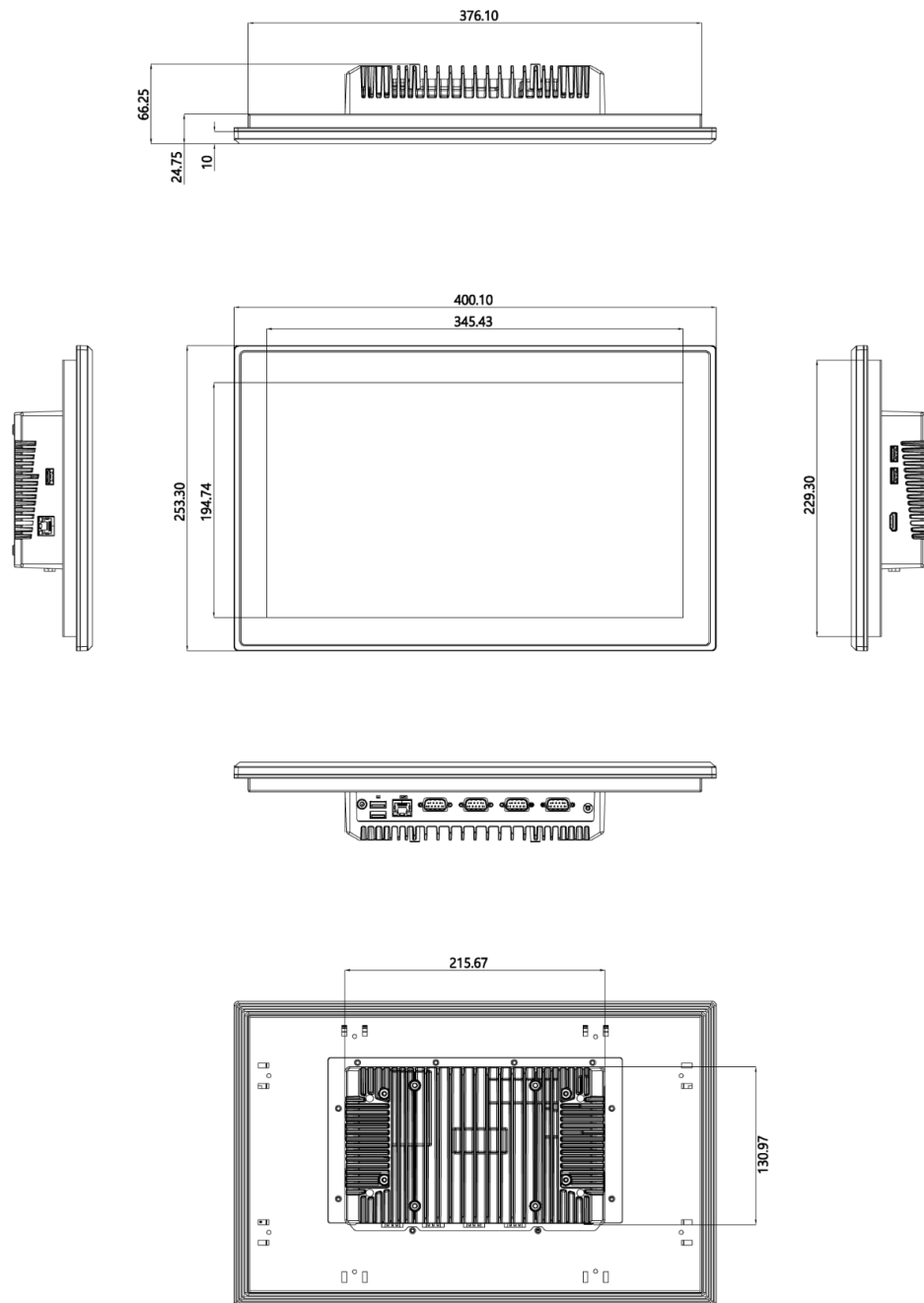


Figure 1-13: PPC2-CW215-ADLP Dimensions (mm)

Chapter

2

Unpacking

PPC2-xxx-ADLP Panel PC

2.1 Unpacking

To unpack the panel PC, follow the steps below:



WARNING!

The front side LCD screen has a protective plastic cover stuck to the screen. Only remove the plastic cover after the panel PC has been properly installed. This ensures the screen is protected during the installation process.

- Step 1:** Open the box.
- Step 2:** Lift the monitor out of the boxes.
- Step 3:** Remove both polystyrene ends, one from each side.
- Step 4:** Pull the plastic cover off the panel PC.
- Step 5:** Make sure all the components listed in the packing list are present.

2.2 Packing List



NOTE:

If any of the components listed in the checklist below are missing, do not proceed with the installation. Contact the IEI reseller or vendor the PPC2-xxx-ADLP was purchased from or contact an IEI sales representative directly by sending an email to sales@ieiworld.com.

The PPC2-xxx-ADLP Series Panel PC panel PC is shipped with the following components:

Quantity	Item	Image
1	PPC2-ADLP SERIES PANEL PC	
1	84W power adapter	
1	Power cord	

Table 2-1: Packing List

PPC2-xxx-ADLP Panel PC**2.3 Optional Items**

The following are optional components which may be separately purchased:

Item and Part Number	Image
VESA 75/100 wall mount kit (P/N: AFLWK-19B)	
Arm (P/N: ARM-11-RS)	
Stand for VESA 75/100 (P/N: STAND-C12-R10)	
LCD monitor stand with adjustable hinge (P/N: VSTAND-A10-R11)	

Table 2-2: Optional Items

If any of these items are missing or damaged, contact the distributor or sales representative immediately.

Chapter

3

Installation

PPC2-xxx-ADLP Panel PC

3.1 Anti-static Precautions



WARNING:

Failure to take ESD precautions during the maintenance of the PPC2-xxx-ADLP may result in permanent damage to the PPC2-xxx-ADLP and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the PPC2-xxx-ADLP Series Panel PC. Dry climates are especially susceptible to ESD. It is therefore critical that whenever PPC2-xxx-ADLP Series Panel PC is accessed internally, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband:*** Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding:*** Before handling the board, touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad:*** When configuring the PPC2-xxx-ADLP Series Panel PC, place it on an anti-static pad. This reduces the possibility of ESD damaging the PPC2-xxx-ADLP Series Panel PC.
- ***Only handle the edges of the PCB:*** When handling the PCB, hold the PCB by the edges.

3.2 Installation Precautions

When installing the panel PC, please follow the precautions listed below:

- **Power turned off:** When installing the panel PC, make sure the power is off. Failing to turn off the power may cause severe injury to the body and/or damage to the system.
- **Certified Engineers:** Never open the equipment. For safety reasons, the equipment should be opened only by qualified skilled person. Only certified engineers should install and modify onboard functionalities.

- **Anti-static Discharge:** If a user opens the rear panel of the panel PC, to configure the jumpers or plug in added peripheral devices, ground themselves first and wear an anti-static wristband.

3.3 Installation and Configuration Steps

The following installation steps must be followed.

Step 1: Unpack the panel PC.

Step 2: Install a M.2 module.

Step 3: Configure the system.

Step 4: Connect peripheral devices to the panel PC.

Step 5: Mount the panel PC.

3.4 Removing the Back Cover



WARNING:

Before any internal installation procedures are carried out on the system, make sure the system is turned off and cooled down for 15 minutes. Failing to turn off the system before opening it can cause permanent damage to the system and serious or fatal injury to the user.

To access the PPC2-xxx-ADLP Series Panel PC internally the back cover must be removed.

To remove the back cover, please follow the steps below.

Step 1: Remove the retention screws from the back cover (**Figure 3-1**).

PPC2-xxx-ADLP Panel PC

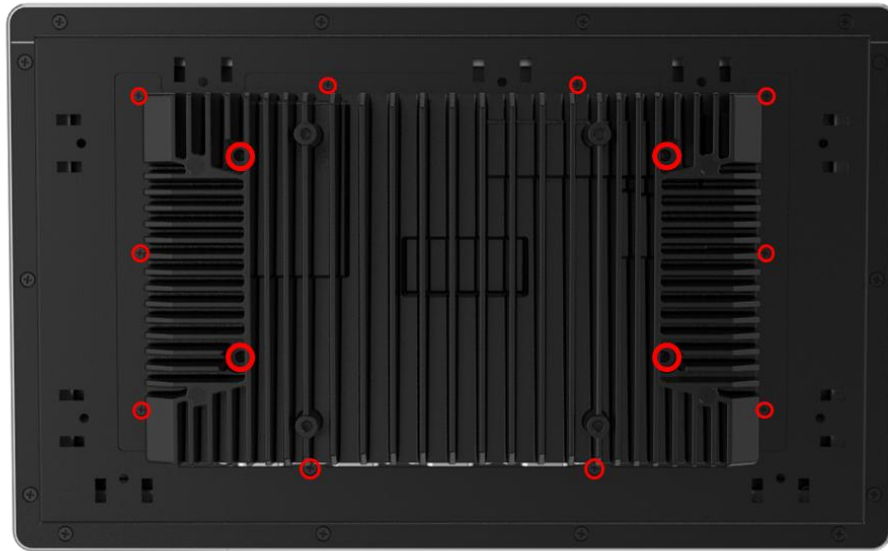


Figure 3-1: Back Cover Retention Screws

Step 2: Slide the back cover toward the I/O panel until it is disengaged from the locking mechanism. Then, lift the back cover off the chassis. See **Figure 3-2**.

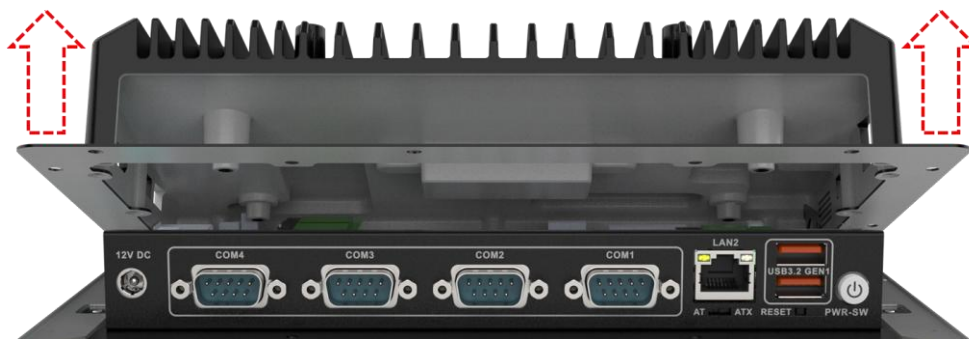


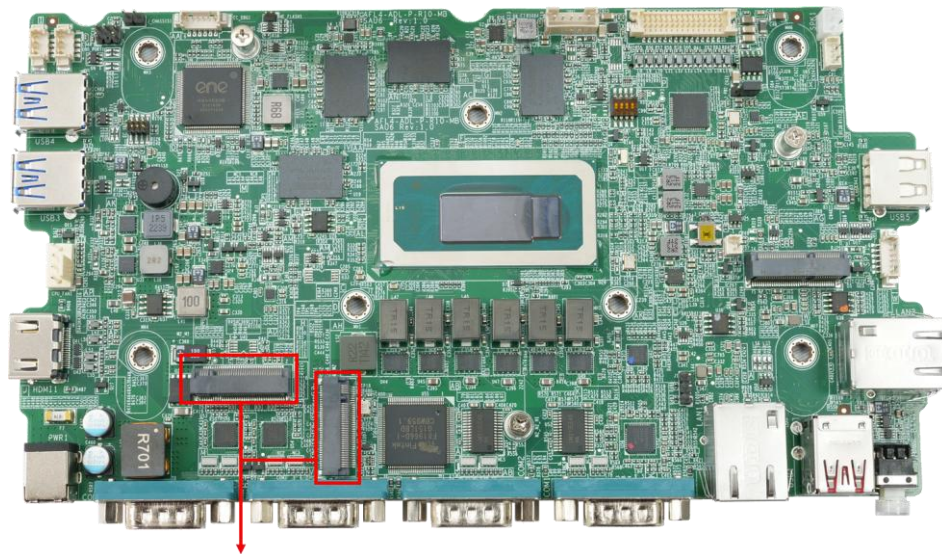
Figure 3-2: Remove the Back Cover

3.5 M.2 Module Installation

To install a M.2 module into the PPC2-xxx-ADLP, please follow the steps below:

Step 1: Remove the back cover. See **Section 3.4** above.

Step 2: Locate the M.2 card slot. Remove the preinstalled retention screw on the standoff of the M.2 card slot as shown in **Figure 3-3**.



2 x M.2 Module Slot

Figure 3-3: M.2 Module Slot Location

Step 3: Line up the notch on the M.2 module with the notch on the connector. Slide the M.2 module into the socket at an angle of about 20°.

Step 4: Secure the M.2 module with the retention screw. Push the other end of the M.2 module down and secure the module with the previously removed retention screw (**Figure 3-4**).

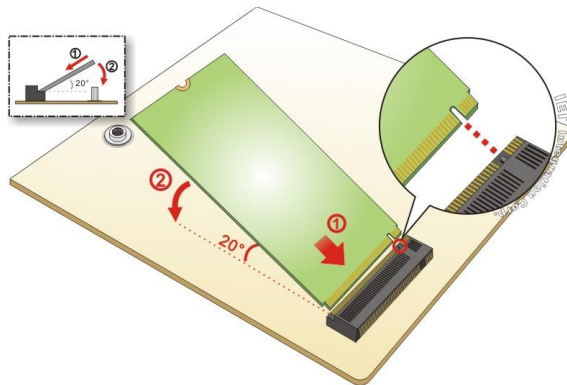


Figure 3-4: M.2 Module Installation

Step 5: Replace the back cover and secure it using retention screws.

PPC2-xxx-ADLP Panel PC

3.6 Clear CMOS

If the PPC2-xxx-ADLP fails to boot due to improper BIOS settings, the clear CMOS jumper clears the CMOS data and resets the system BIOS information. To do this, push the clear CMOS button for three seconds, then restart the system. The clear CMOS button location is shown in **Figure 3-5**.

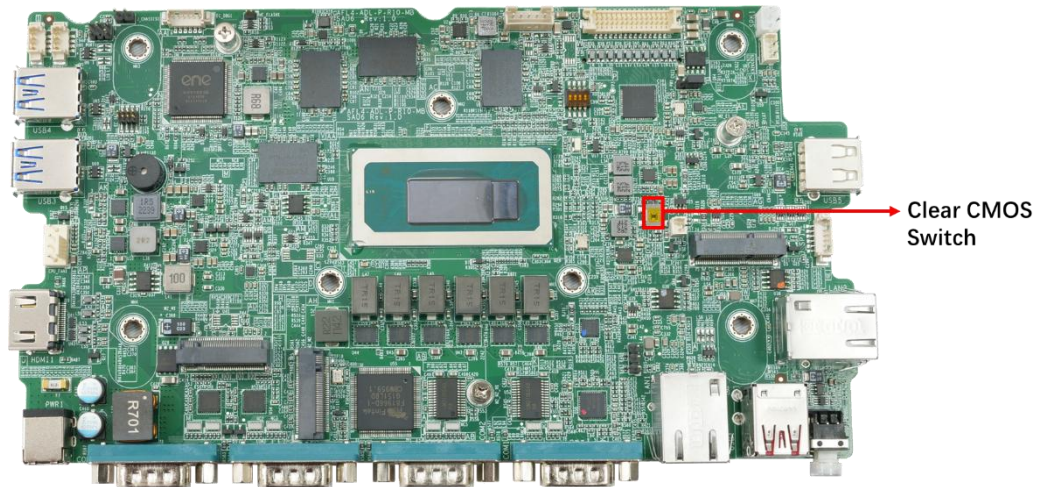


Figure 3-5: Clear CMOS Button Location

3.7 AT/ATX Mode Selection

AT or ATX power mode can be used on the PPC2-xxx-ADLP. The selection is made through an AT/ATX switch located on the bottom panel (**Figure 3-6**).

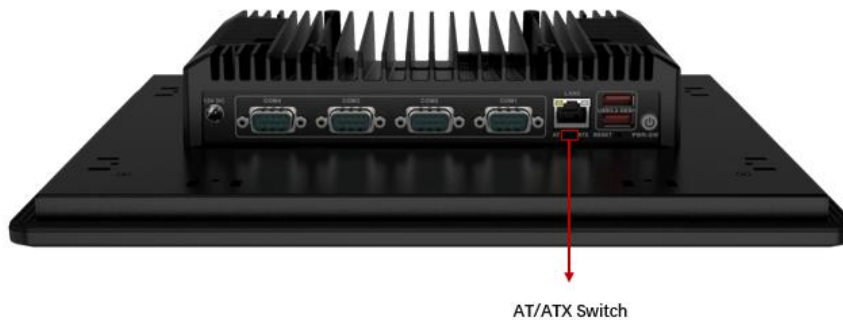


Figure 3-6: AT/ATX Switch Location

3.7.1 AT Power Mode

With the AT mode selected, the power is controlled by a central power unit rather than a power switch. The PPC2-xxx-ADLP panel PC turns on automatically when the power is connected. The AT mode benefits a production line to control multiple panel PCs from a central management center and other applications including:

- ATM
- Self-service kiosk
- Plant environment monitoring system
- Factory automation platform
- Manufacturing shop flow

3.7.2 ATX Power Mode

With the ATX mode selected, the PPC2-xxx-ADLP panel PC goes in a standby mode when it is turned off. The panel PC can be easily turned on via network or a power switch in standby mode. Remote power control is perfect for advertising applications since the broadcasting time for each panel PC can be set individually and controlled remotely. Other possible application includes:

- Security surveillance
- Point-of-Sale (POS)
- Advertising terminal

3.8 Mounting the System

The methods of mounting the PPC2-xxx-ADLP are listed below.

- Wall mounting
- Arm mounting
- Stand mounting
- V-Stand mounting

The mounting methods are described below.

PPC2-xxx-ADLP Panel PC

3.8.1 Wall Mounting

To mount the panel PC onto the wall, please follow the steps below.

- Step 1:** Select the location on the wall for the wall-mounting bracket.
- Step 2:** Carefully mark the locations of the four screw holes in the bracket on the wall.
- Step 3:** Drill four pilot holes at the marked locations on the wall for the bracket retention screws.
- Step 4:** Align the wall-mounting bracket screw holes with the pilot holes.
- Step 5:** Secure the mounting-bracket to the wall by inserting the retention screws into the four pilot holes and tightening them (**Figure 3-7**).

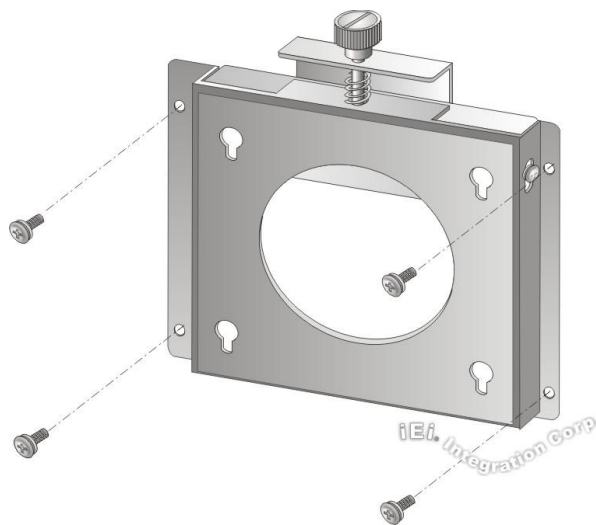
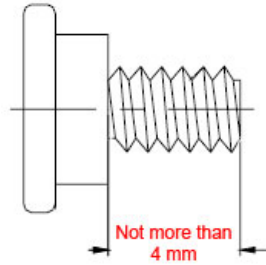


Figure 3-7: Wall-mounting Bracket

- Step 6:** Insert the four monitor mounting screws provided in the wall mount kit into the four screw holes on the rear panel of the panel PC and tighten until the screw shank is secured against the rear panel (**Figure 3-8**).

**WARNING:**

Please use the M4 screws provided in the wall mount kit for the rear panel. If the screw is missing, the thread depth of the replacement screw should be not more than 4 mm.



Step 7: Align the mounting screws on the monitor rear panel with the mounting holes on the bracket.

Step 8: Carefully insert the screws through the holes and gently pull the monitor downwards until the monitor rests securely in the slotted holes (**Figure 3-8**). Ensure that all four of the mounting screws fit snugly into their respective slotted holes. Always keep the PPC2-xxx-ADLP in landscape orientation when mounting on the wall.

**NOTE:**

In the diagram below the bracket is already installed on the wall.

PPC2-xxx-ADLP Panel PC

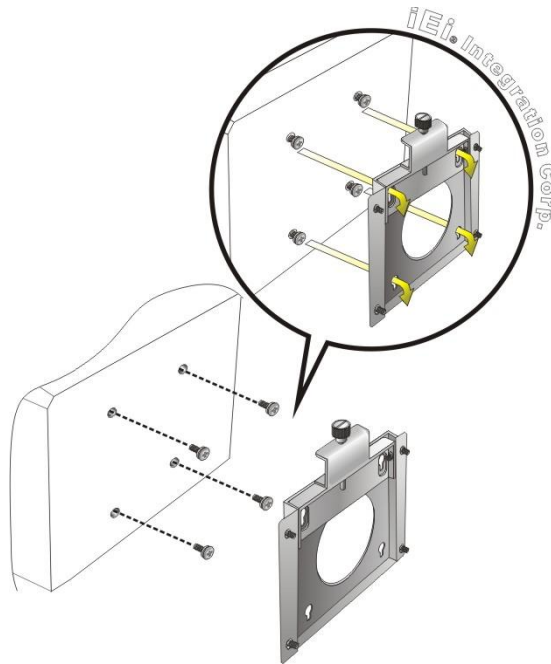


Figure 3-8: Chassis Support Screws

Step 9: Secure the panel PC by fastening the retention screw of the wall-mounting bracket (**Figure 3-9: Secure the Panel PC**).

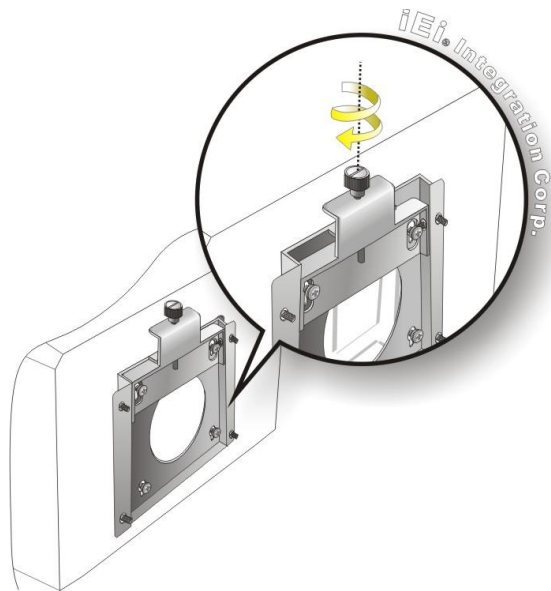


Figure 3-9: Secure the Panel PC

3.8.2 Arm Mounting

The PPC2-xxx-ADLP is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 100 mm interface pad. To mount the PPC2-xxx-ADLP on an arm, please follow the steps below.

Step 1: The arm is a separately purchased item. Please correctly mount the arm onto the surface it uses as a base. To do this, refer to the installation documentation that came with the mounting arm.

**NOTE:**

When purchasing the arm please ensure that it is VESA compliant and that the arm has a 100 mm interface pad. If the mounting arm is not VESA compliant it cannot be used to support the PPC2-xxx-ADLP panel PC.

Step 2: Once the mounting arm has been firmly attached to the surface, lift the panel PC onto the interface pad of the mounting arm.

Step 3: Align the retention screw holes on the mounting arm interface with those in the panel PC (**Figure 3-10**).

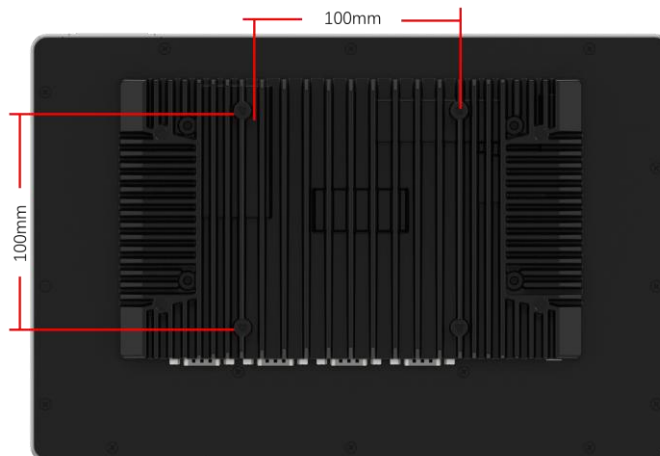


Figure 3-10: Arm Mounting Retention Screw Holes

PPC2-xxx-ADLP Panel PC

- Step 4:** Secure the PPC2-xxx-ADLP to the interface pad by inserting four retention screws through the mounting arm interface pad and into the PPC2-xxx-ADLP.

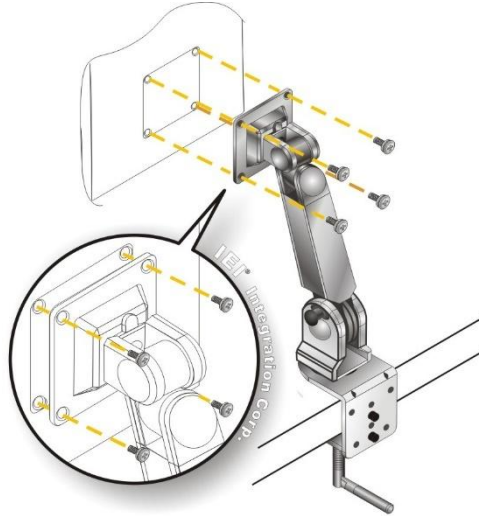


Figure 3-11: Arm Mounting

3.8.3 Stand Mounting

To mount the PPC2-xxx-ADLP using the stand mounting kit, please follow the steps below.

- Step 1:** Locate the screw holes on the rear of the PPC2-xxx-ADLP. This is where the bracket will be attached.
- Step 2:** Align the bracket with the screw holes.
- Step 3:** To secure the bracket to the PPC2-xxx-ADLP insert the retention screws into the screw holes and tighten them.

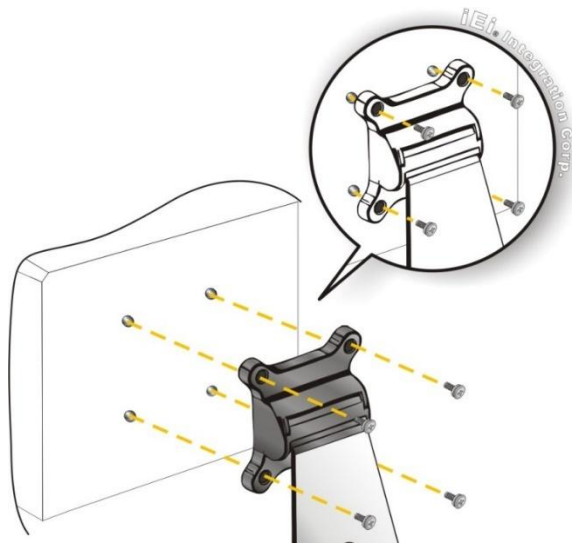


Figure 3-12: Stand Mounting (Stand-Cxx)

3.8.4 V-Stand Mounting

To mount the PPC2-xxx-ADLP using the optional V-Stand mounting kit, please follow the steps below.

Step 1: Carefully mark the locations of the four V-Stand screw holes on the mounting area. Drill four pilot holes at the marked locations for the V-Stand retention screws.

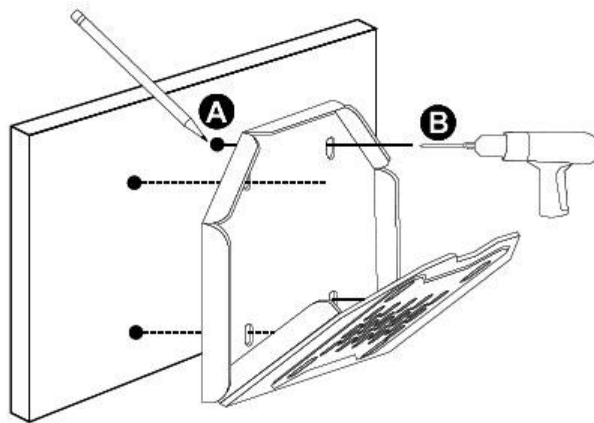


Figure 3-13: Drill Pilot Holes for V-Stand



PPC2-xxx-ADLP Panel PC

- Step 2:** Align the screw holes on the V-Stand with the VESA mount screw holes on the system rear panel.
- Step 3:** Insert the four VESA mount screws into the four screw holes on the system rear panel. Adjust the V-Stand to a proper position.
- Step 4:** Tighten until the screw shank is secured against the rear panel.

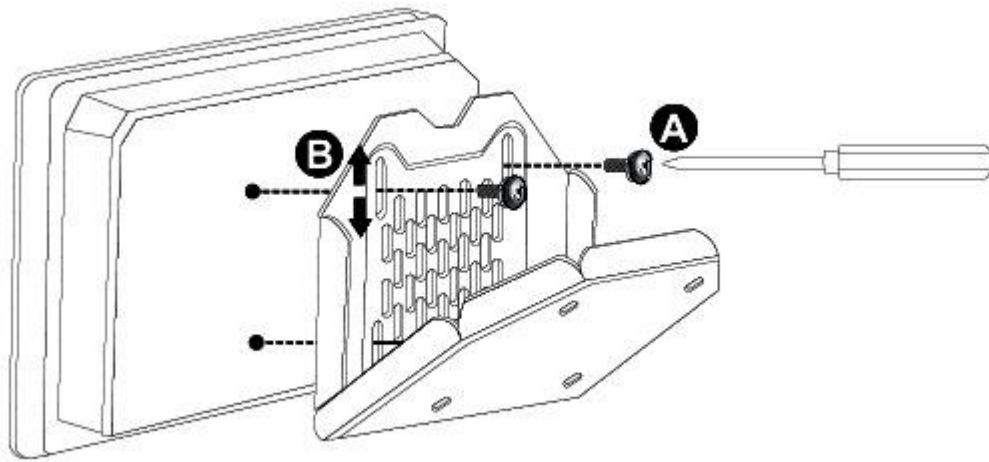


Figure 3-14: Secure V-Stand to System

- Step 5:** Align the V-Stand screw holes with the pilot holes on the mounting area. Mount the V-Stand by inserting the retention screws into the four pilot holes and tightening them.
- Step 6:** Adjust the V-Stand to have a best viewing angle to operate the system.

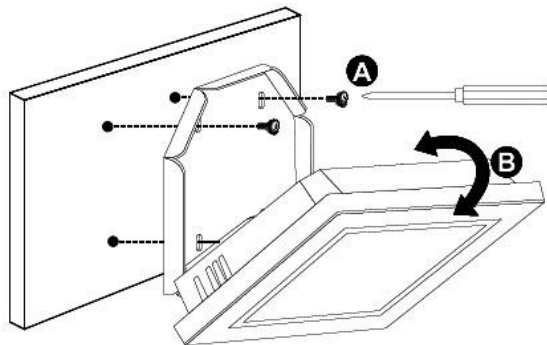


Figure 3-15: Secure V-Stand to Mounting Area

3.8.5 Panel, Rack and Cabinet Installation

To mount the PPC2-xxx-ADLP panel PC into a panel, please follow steps 1-5.

For rack and cabinet installation, please follow Steps 1-7.



NOTE:

For the PPC-XXX-ADLP Series panel PC, all mounting kit must be installed (**Figure 3-16**).



Figure 3-16: PPC2-xxx-ADLP Panel Mount Kit Installation

Step 5: Select the position on the panel to mount the PPC2-xxx-ADLP.

Step 6: Cut out a section of the panel that corresponds to the rear panel dimensions of the PPC2-xxx-ADLP. The recommended cutout sizes are shown below (**Figure 3-17** , **Figure 3-18** ,**Figure 3-19** **Figure 3-20** , **Figure 3-21**, **Figure 3-22** , **Figure 3-23** , **Figure 3-24** , **Figure 3-25**).

PPC2-xxx-ADLP Panel PC

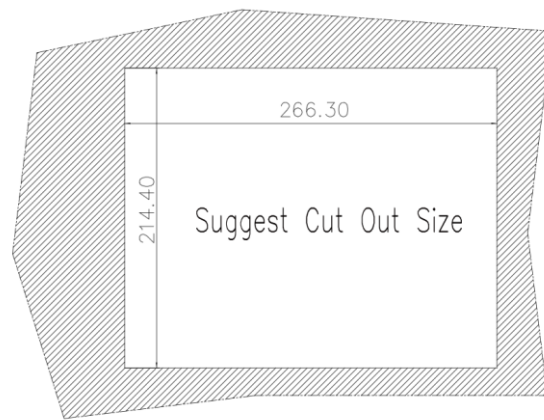


Figure 3-17: PPC2-C104-ADLP Panel Cutout Dimensions

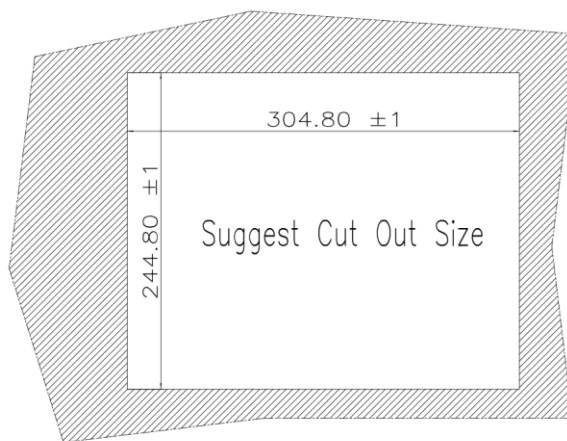


Figure 3-18: PPC2-C121-ADLP Panel Cutout Dimensions

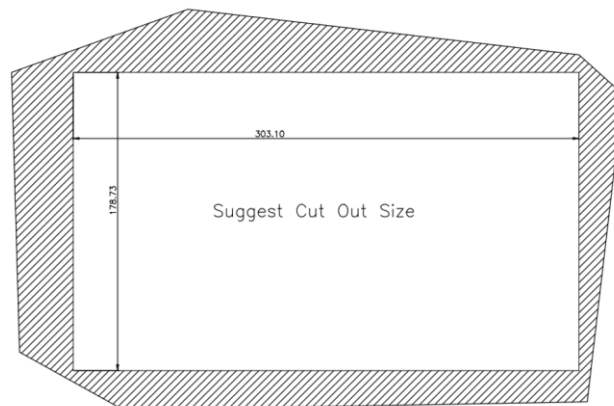


Figure 3-19: PPC2-CW133-ADLP Panel Cutout Dimensions

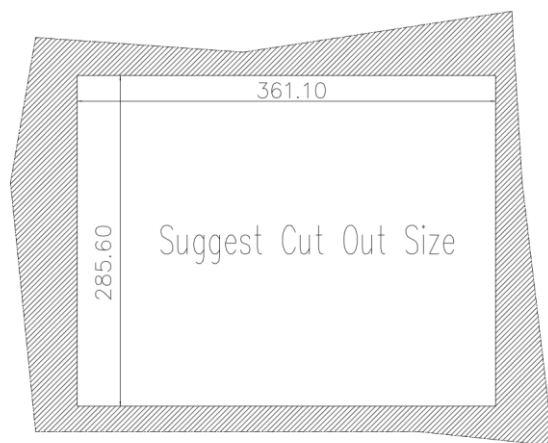


Figure 3-20: PPC2-C150-ADLP Panel Cutout Dimensions

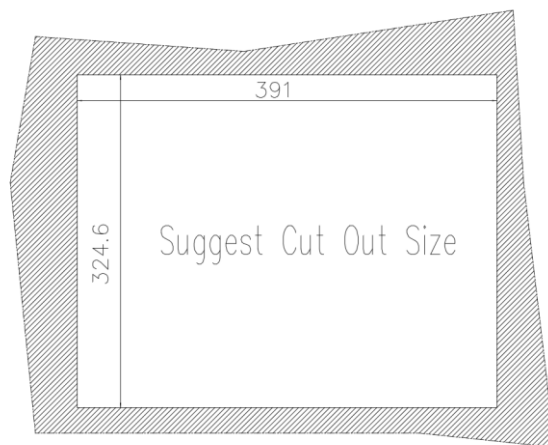


Figure 3-21: PPC2-C170-ADLP Panel Cutout Dimensions

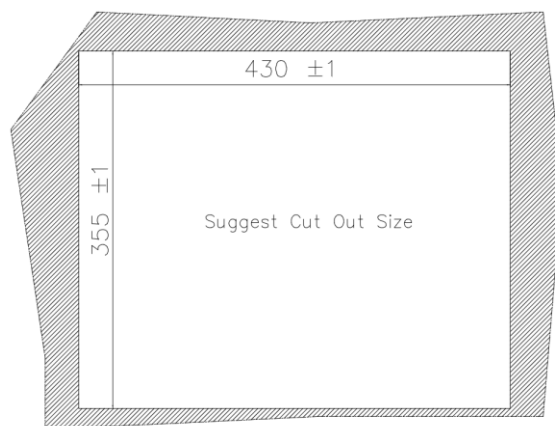


Figure 3-22: PPC2-C190-ADLP Panel Cutout Dimensions

PPC2-xxx-ADLP Panel PC

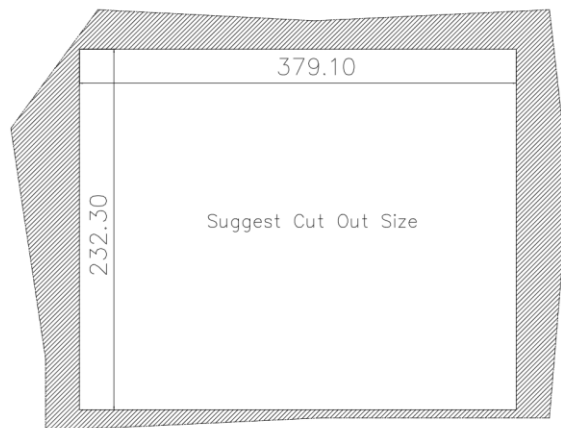


Figure 3-23: PPC2-CW156-ADLP Panel Cutout Dimensions

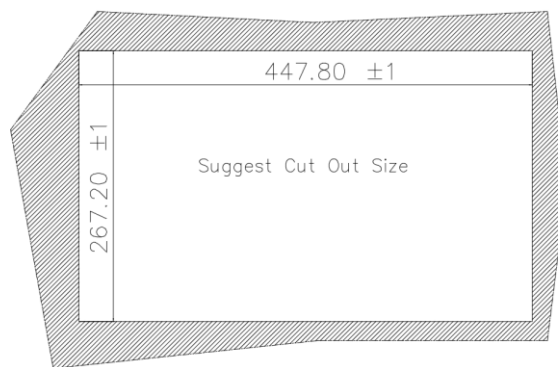


Figure 3-24: PPC2-CW185-ADLP Panel Cutout Dimensions

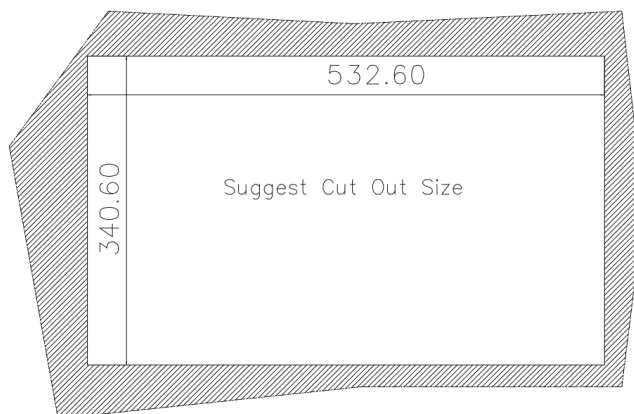


Figure 3-25: PPC2-CW215-ADLP Panel Cutout Dimensions

Step 7: Slide the PPC2-xxx-ADLP through the hole until the aluminum frame is flush against the panel (**Figure 3-26**).

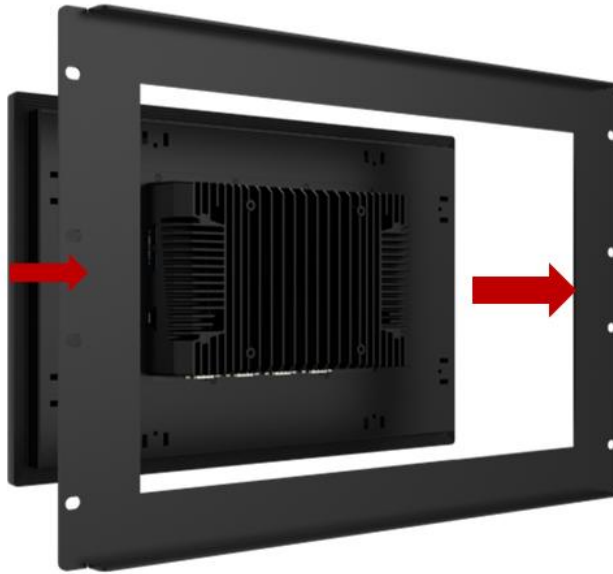


Figure 3-26: Machine mounted to panel

Step 8: Insert the panel mount kit into the prefabricated holes along the rear edge of the PPC2-xxx-ADLP Series (**Figure 3-27**). The required number of mounting clamps may vary by models.

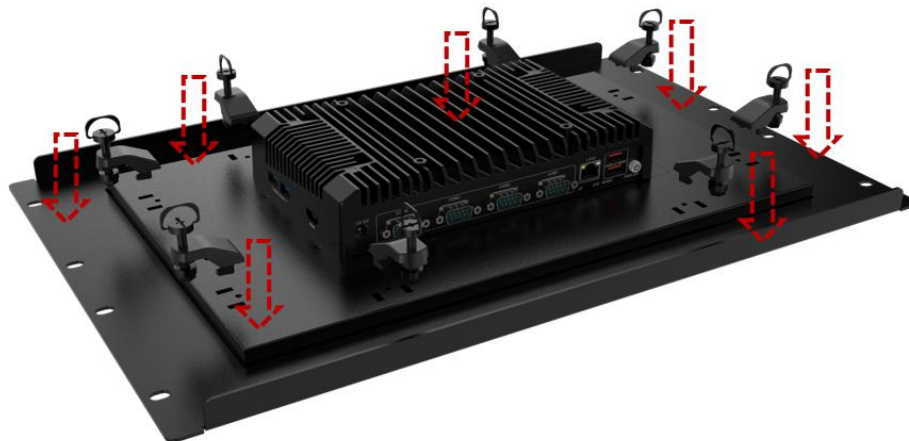


Figure 3-27: Installation Panel Mount Kit

PPC2-xxx-ADLP Panel PC

Step 9: Tighten the screws that pass through the mounting clamps until the plastic caps at the front of all the screws are firmly secured to the panel (**Figure 3-28**).

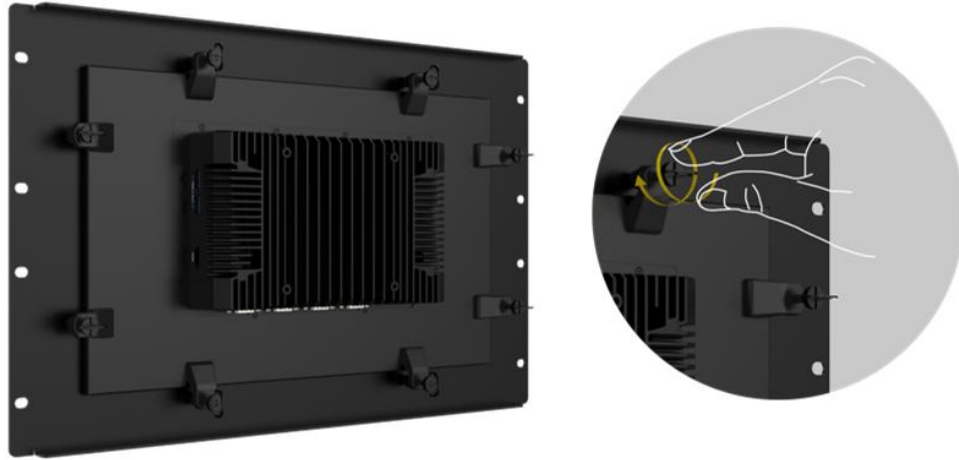


Figure 3-28: Tighten the Mounting Screws

Step 10: Slide the PPC2-xxx-ADLP Series with the attached rack/cabinet bracket into a rack or cabinet (**Figure 3-29**).

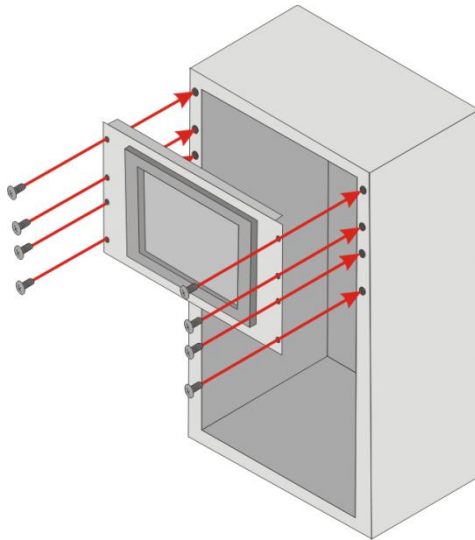


Figure 3-29: Install into a Rack/Cabinet

Step 11: Once the flat panel PC with the attached rack/cabinet bracket has been properly inserted into the rack or cabinet, secure the front of the rack/cabinet bracket to the front of the rack or cabinet (**Figure 3-29**).

3.9 Powering on the System



WARNING:

To reduce potential safety issues, only the power adapter provided with the product, a replacement power adapter provided by IEI, or a power adapter purchased as an accessory from IEI should be used with the product.

To power on the system, follow the steps below:

- Step 1:** Connect the power cord to the power adapter. Connect the other end of the power cord to a power source. Ensure to connect the power cord to a socket-outlet with earthing connection.
- Step 2:** Connect the power adapter to the power connector of the PPC2-xxx-ADLP. The power LED turns on in amber.
- Step 3:** Locate the power button on the I/O panel.
- Step 4:** Hold down the power button.



Figure 3-30: Power Button

PPC2-xxx-ADLP Panel PC

3.10 Reset the System

The reset button enables user to reboot the system when the system is turned on. The reset button location is shown in **Figure 3-31**. Press the reset button to reboot the system.



Figure 3-31: Reset Button Location

3.11 Software Installation

All the drivers for the PPC2-xxx-ADLP are available on IEI Resource Download Center (<https://download.ieiworld.com>). Type PPC2-xxx-ADLP and press Enter to find all the relevant software, utilities, and documentation.

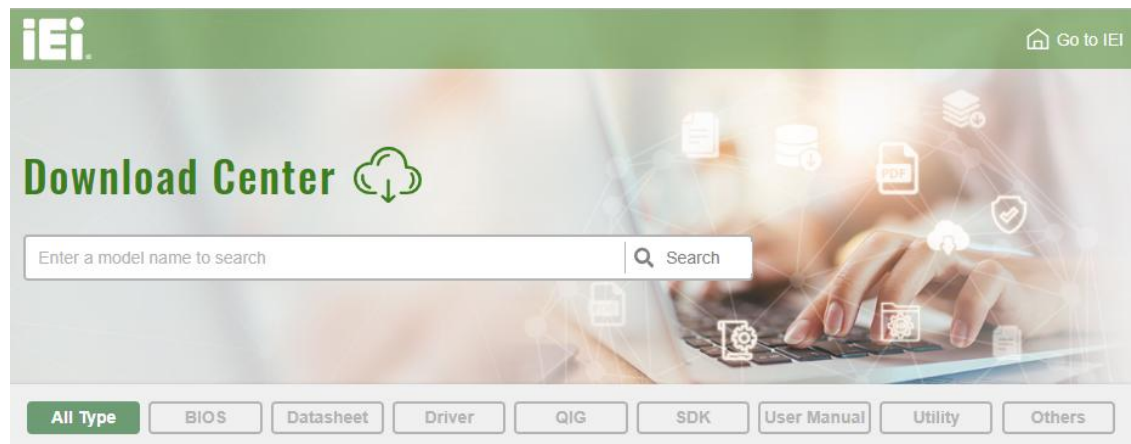


Figure 3-32: IEI Resource Download Center

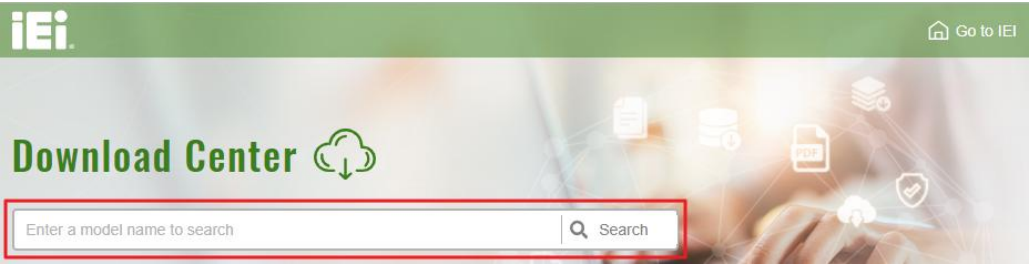
3.11.1 Driver Download

To download drivers from IEI Resource Download Center, follow the steps below.

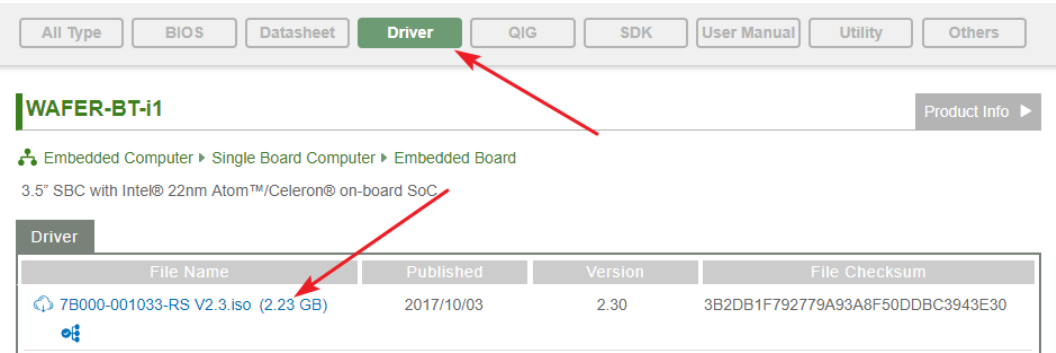


PPC2-xxx-ADLP Panel PC

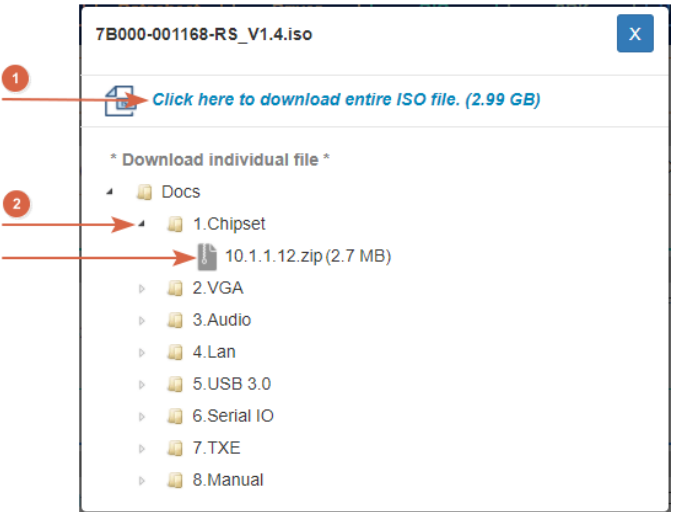
Step 1: Go to <https://download.ieiworld.com>. Type PPC2-xxx-ADLP and press Enter.



Step 2: All product-related software, utilities, and documentation will be listed. You can choose **Driver** to filter the result.



Step 3: Click the driver file name on the page and you will be prompted with the following window. You can download the entire ISO file (❶), or click the small arrow to find an individual driver and click the file name to download (❷).



**NOTE:**

To install software from the downloaded ISO image file in Windows 8, 8.1 or 10, double-click the ISO file to mount it as a virtual drive to view its content. On Windows 7 system, an additional tool (such as Virtual CD-ROM Control Panel from Microsoft) is needed to mount the file.

3.11.2 Adjust Brightlight

PPC2-xxx-ADLP products can use the "Adjust Brightlight" software to adjust the brightness. Users can download the software from the IEI official website or contact IEI sales to obtain the software. After the installation, the Adjust Brightlight can be accessed by clicking the  icon on the notification area. It allows users to control screen brightness.

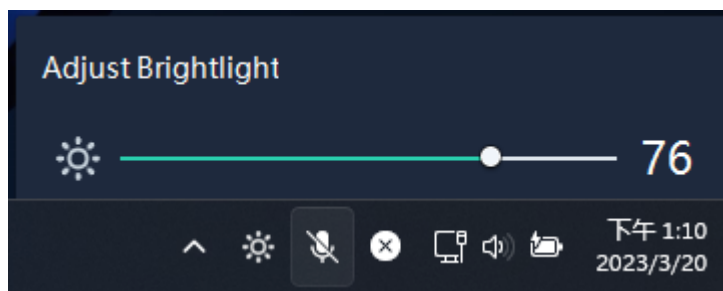


Figure 3-33: Keypad AP

Chapter

4

System Maintenance

PPC2-xxx-ADLP Panel PC

4.1 System Maintenance Introduction

If the components of the PPC2-xxx-ADLP fail they must be replaced. Please contact the system reseller or vendor to purchase the replacement parts. Back cover removal instructions for the PPC2-xxx-ADLP are described below.

4.2 Anti-static Precautions



WARNING:

Failure to take ESD precautions during the maintenance of the PPC2-xxx-ADLP may result in permanent damage to the PPC2-xxx-ADLP and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the PPC2-xxx-ADLP. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the PPC2-xxx-ADLP is accessed internally, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband:*** - Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding:*** - Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad:*** - When configuring the PPC2-xxx-ADLP, place it on an anti-static pad. This reduces the possibility of ESD damaging the PPC2-xxx-ADLP.
- ***Only handle the edges of the PCB:*** - When handling the PCB, hold the PCB by the edges.

4.3 Turn off the Power

**WARNING:**

Failing to turn off the system before opening it can cause permanent damage to the system and serious or fatal injury to the user.

Before any maintenance procedures are carried out on the system, make sure the system is turned off.

4.4 Reinstalling the Cover

**WARNING:**

Failing to reinstall the cover may result in permanent damage to the system. Please make sure all coverings are properly installed.

When maintenance procedures are complete, please make sure the back cover is replaced.

Chapter

5

BIOS

5.1 Introduction

The BIOS is programmed onto the BIOS chip. The BIOS setup program allows changes to certain system settings. This chapter outlines the options that can be changed.



NOTE:

Some of the BIOS options may vary throughout the life cycle of the product and are subject to change without prior notice.

5.1.1 Starting Setup

The UEFI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. **Using keyboard:** Press the **DEL** or **F2** as soon as the system is turned on.
2. **Using touchscreen:** Press the **Setup** button on the upper right corner of the BIOS Starting Menu.

If the message disappears before the **DEL** or **F2** key is pressed, restart the computer and try again, then the BIOS Starting Menu will appear. Select "Setup" and press Enter to get into the BIOS Setup.

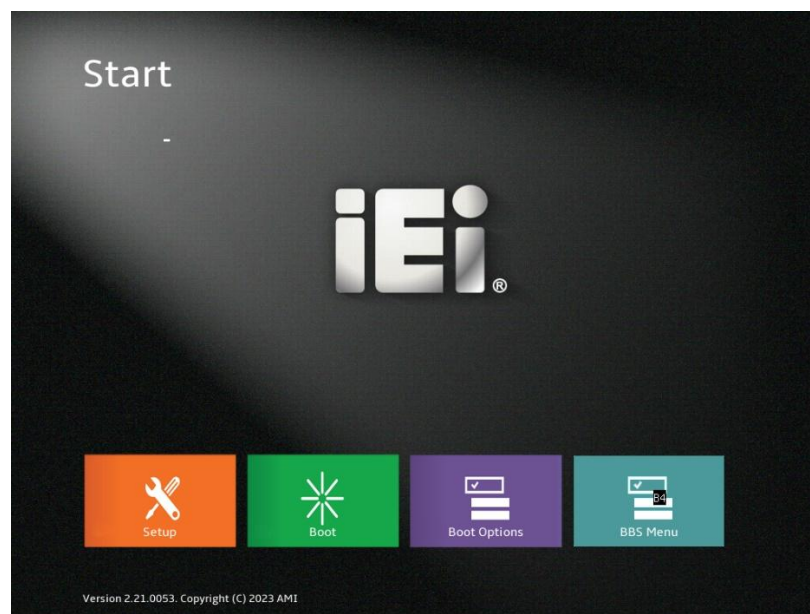


Figure 5-1: BIOS Starting Menu

PPC2-xxx-ADLP Panel PC

5.1.2 Using Setup

The BIOS Setup menu can be navigated by using a keyboard or a touchscreen.

5.1.2.1 Keyboard Navigation

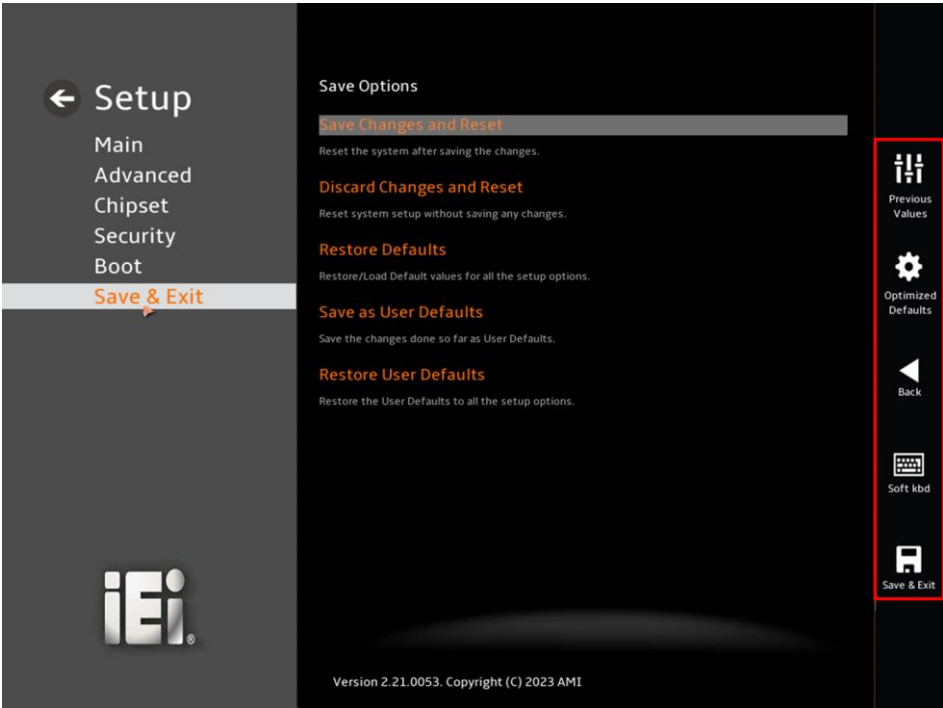
For keyboard navigation, use the navigation keys shown in **Table 5-1**.

Key	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
+	Increase the numeric value or make changes
-	Decrease the numeric value or make changes
Page Up	Move to the previous page
Page Dn	Move to the next page
Esc	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2	Load previous values
F3	Load optimized defaults
F4	Save changes and Exit BIOS
<K>	Scroll help area upwards
<M>	Scroll help area downwards

Table 5-1: BIOS Navigation Keys

5.1.2.2 Touch Navigation

For touchscreen navigation, use the on-screen navigation keys shown below.



On-screen Button	Function
Previous Values	Load the last value you set.
Optimized Defaults	Load the factory default values in order to achieve the best performance.
Back	Return to the previous menu.
Soft kbd	Display the on-screen keyboard.
Save & Exit	Save the changes made to the BIOS options and reset the system.

Table 5-2: BIOS On-screen Navigation Keys

5.1.3 Getting Help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window, press the **Esc** key.

5.1.4 Unable to Reboot after Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the clear CMOS button described in **3.6**

5.1.5 BIOS Menu Bar

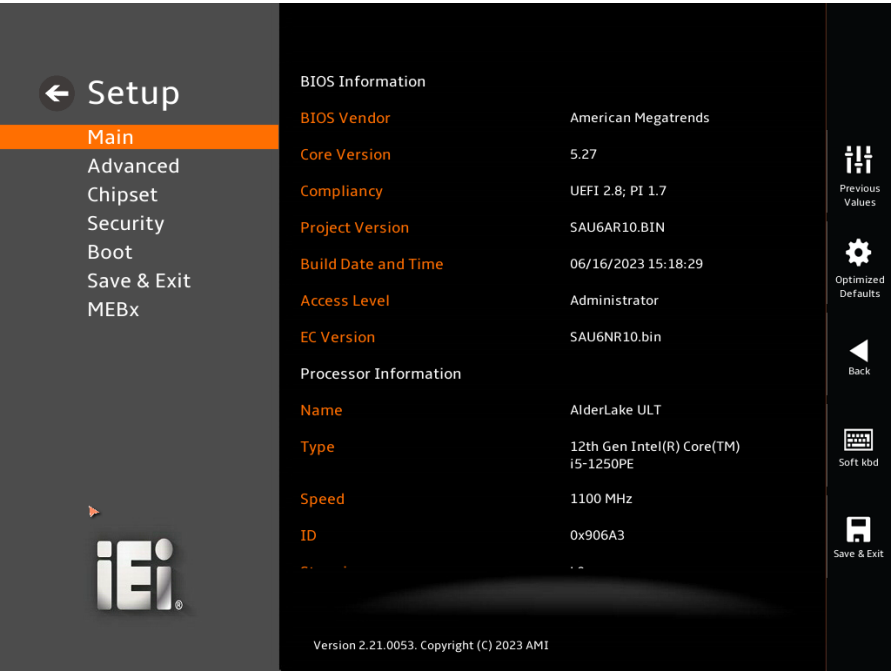
The **menu bar** on top of the BIOS screen has the following main items:

- Main – Changes the basic system configuration.
- Advanced – Changes the advanced system settings.
- Chipset – Changes the chipset settings.
- Security – Sets User and Supervisor Passwords.
- Boot – Changes the system boot configuration.
- Save & Exit – Selects exit options and loads default settings

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.

5.2 Main

The **Main** BIOS menu appears when the **BIOS Setup** program is entered. The **Main** menu gives an overview of the basic system information.



BIOS Menu 1: Main (1/2)



BIOS Menu 2: Main (2/2)

PPC2-xxx-ADLP Panel PC

➔ BIOS Information

The **BIOS Information** lists a brief summary of the BIOS. The fields in **BIOS Information** cannot be changed. The items shown in the system overview include:

- **BIOS Vendor:** Installed BIOS vendor
- **Core Version:** Current BIOS version
- **Compliance:** Current UEFI & PI version
- **Project Version:** the board version
- **Build Date and Time:** Date the current BIOS version was made
- **Access Level:** Administrator
- **EC Version:** Current EC version

➔ Processor Information

The **Processor Information** lists a brief summary of the Processor. The fields in **Processor Information** cannot be changed. The items shown in the system overview include:

Name: Displays the Processor Details
Type: Displays the Processor Type
Speed: Displays the Processor Speed
ID: Displays the Processor ID
Stepping: Displays the Processor Stepping
Microcode Revision: CPU Microcode Revision
Total Memory: Total Memory in the System
Memory Frequency: Displays the Frequency of Memory

➔ PCH Information

The **PCH Information** lists a brief summary of the PCH. The fields in **PCH Information** cannot be changed. The items shown in the system overview include:

- **Name:** Displays the PCH Name
- **PCH SKU:** Displays the PCH SKU
- **Stepping:** Displays the PCH Stepping
- **ME FW Version:** Displays the ME Firmware Version
- **ME Firmware SKU:** Displays the ME Firmware SKU

- **System Date [xx/xx/xx]:** Use the **System Date** option to set the system date. Manually enter the day, month and year.
- **System Time [xx:xx:xx]:** Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

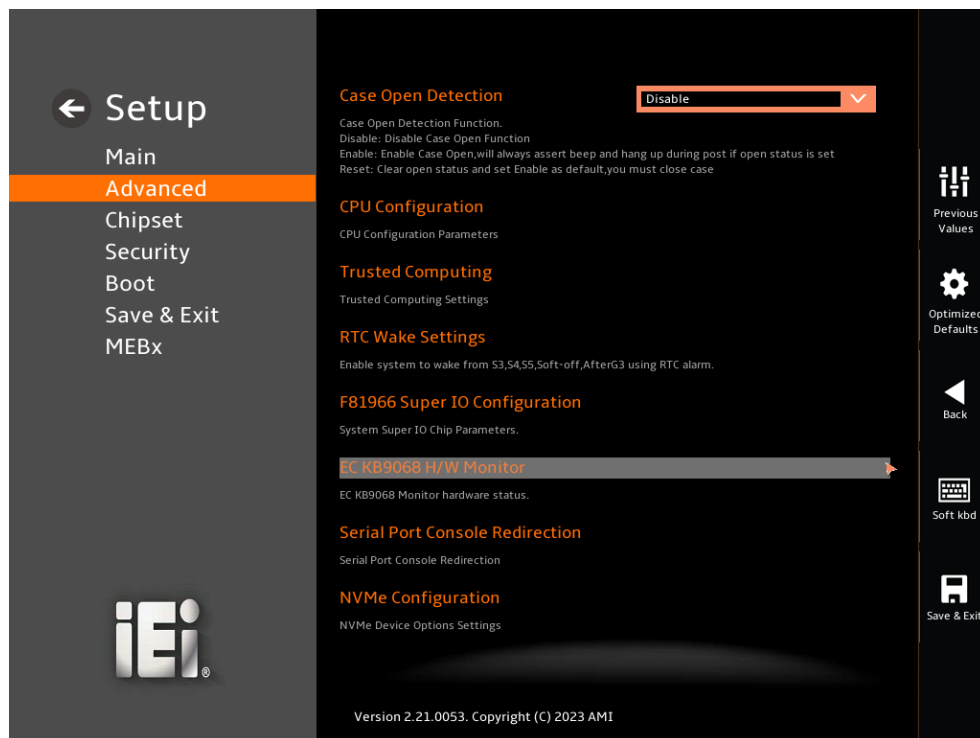
5.3 Advanced

Use the **Advanced** menu to configure the CPU and peripheral devices through the following sub-menus:



WARNING!

Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.



BIOS Menu 3: Advanced

PPC2-xxx-ADLP Panel PC

→ Case Open Detection [Disabled]

When the **Case Open Detection** is enabled, if anyone opens the computer's chassis, or case, Windows will notify the user with a pop-up message the next time he turns on his computer.

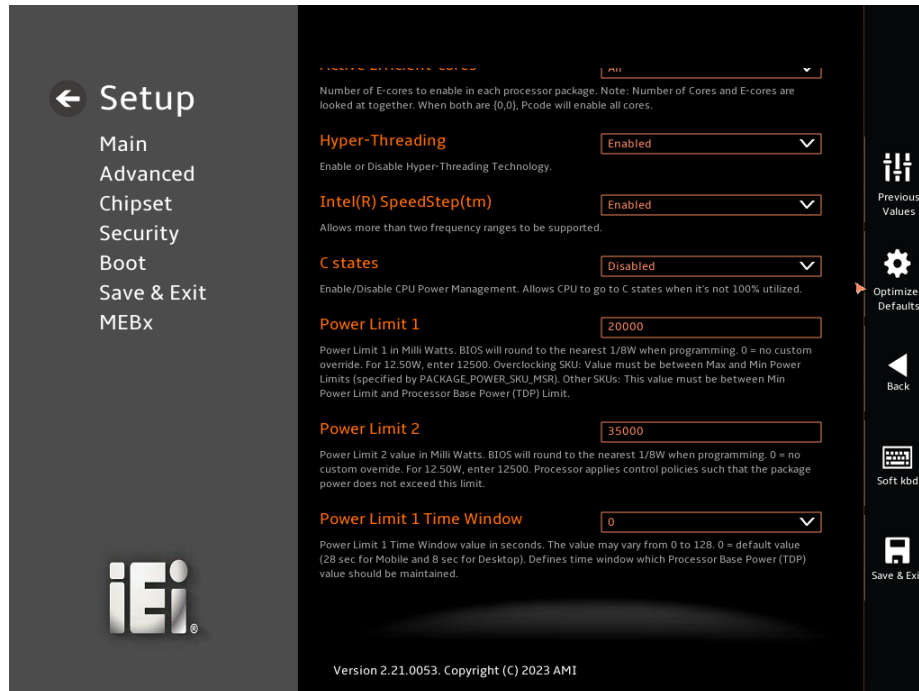
- | | | |
|-------------------|----------------|-------------------------------|
| → Disabled | DEFAULT | Disables Case Open Detection. |
| → Enabled | | Enables Case Open Detection. |

5.3.1 CPU Configuration

Use the **CPU Configuration** menu to view detailed CPU specifications or enable the Intel Virtualization Technology.



BIOS Menu 4: CPU Configuration (1/2)



BIOS Menu 5: CPU Configuration (2/2)

→ Intel (VMX) Virtualization Technology [Enabled]

Use the **Intel (VMX) Virtualization Technology** option to enable or disable virtualization on the system. When combined with third party software, Intel® Virtualization technology allows several OSs to run on the same system at the same time.

- | | | | |
|---|-----------------|----------------|---|
| → | Disabled | | Disables Intel Virtualization Technology. |
| → | Enabled | DEFAULT | Enables Intel Virtualization Technology. |

→ Active Performance-cores [All]

Use the **Active Performance-cores** BIOS option to enable numbers of Performance-cores in the processor package.

- | | | | |
|---|------------|----------------|--|
| → | All | DEFAULT | Enable all cores in the processor package. |
| → | 1 | | Enable one core in the processor package. |
| → | 2 | | Enable two cores in the processor package. |
| → | 3 | | Enable three cores in the processor package. |

PPC2-xxx-ADLP Panel PC

→ **Active Efficient-cores [All]**

Use the **Active Efficient-cores** BIOS option to enable numbers of Efficient-cores in the processor package.

→	All	DEFAULT	Enable all cores in the processor package.
→	1		Enable one core in the processor package.
→	2		Enable two cores in the processor package.
→	3		Enable three cores in the processor package.
→	4		Enable four cores in the processor package.
→	5		Enable five cores in the processor package.
→	6		Enable six cores in the processor package.
→	7		Enable seven cores in the processor package.

→ **Hyper-Threading [Enable]**

Enable or Disable Hyper-Threading Technology.

→	Disabled		Disables Hyper-Threading Technology
→	Enabled	DEFAULT	Enables Hyper-Threading Technology

→ **Intel® SpeedStep™ [Enable]**

Allows more than two frequency ranges to be supported.

→	Disabled		Disables Intel® SpeedStep™
→	Enabled	DEFAULT	Enables Intel® SpeedStep™

→ **C states [Disabled]**

Use the **C states** option to enable or disable the CPU Power Management.

→	Disabled	DEFAULT	Disables CPU to go to C states when it's not 100% utilized.
---	-----------------	----------------	---

➔ **Enabled**

Enables CPU to go to C states when it's not 100% utilized.

➔ **Power Limit 1**

Use the **Power Limit 1** to set Power Limit in Milli Watts. BIOS will round to the nearest 1/8W when programming. 0 = no custom override. For 12.50W, enter 12500. Overclocking SKU: Value must be between Max and Min Power Limits. Other SKUs: This value must be between Min Power limit and TDP Limit. If value is 0, BIOS will program TDP value.

➔ **Power Limit 2**

Use the **Power Limit 2** to set Power Limit in Milli Watts. BIOS will round to the nearest 1/8W when programming. If the value is 0, BIOS will program this value as $1.25 \times \text{TDP}$. For 12.50W, enter 12500. Processor applies control policies such that the package power does not exceed this limit.

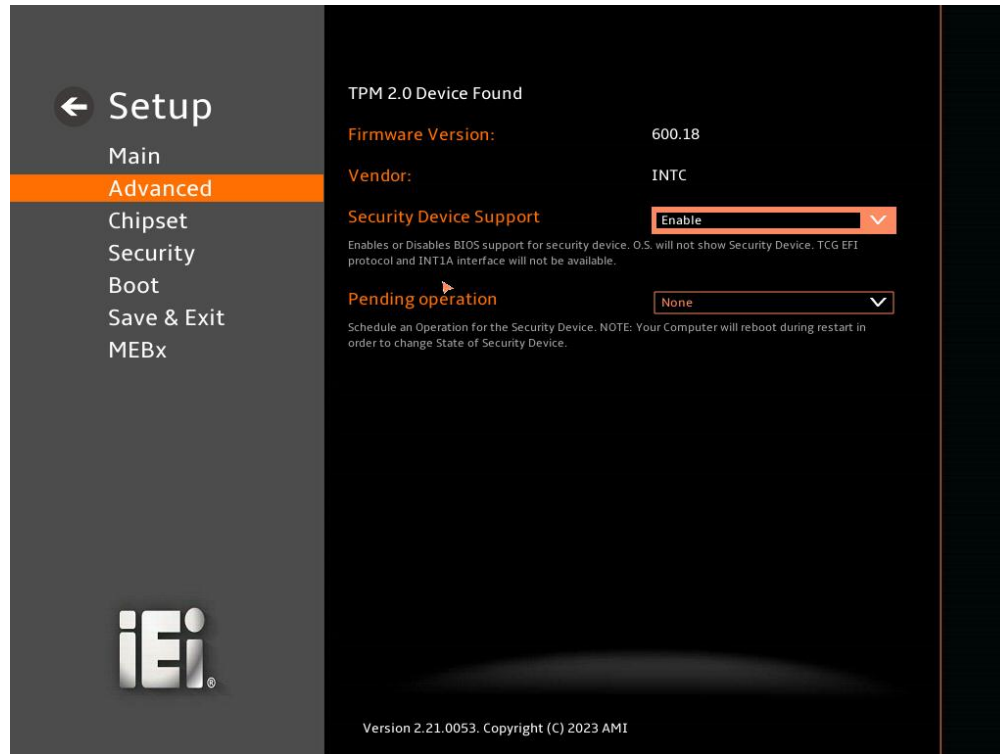
➔ **Power Limit 1 Time Window**

Power Limit 1 Time Window value in second. The value may vary from 0 to 128.0, 0 = default value (28 sec for mobile and 8 sec for desktop). Defines time window which TDP value should be maintained.

PPC2-xxx-ADLP Panel PC

5.3.2 Trusted Computing

Use the **Trusted Computing** menu (**BIOS Menu 6**) to configure settings related to the Trusted Computing Group (TCG) Trusted Platform Module (TPM).



BIOS Menu 6: Trusted Computing

➔ Security Device Support [Enable]

Use the **Security Device Support** option to enable or disable BIOS support for security device.

- ➔ **Disable** Security Device Support is disabled.
- ➔ **Enable** **DEFAULT** Security Device Support is enabled.

➔ Pending Operation [None]

Use the **Pending Operation** option to schedule an operation for the security device.

- ➔ **None** **DEFAULT** TPM information is previous.S
- ➔ **TPM Clear** TPM information is cleared



5.3.3 RTC Wake Setting

The **RTC Wake Settings** menu (**BIOS Menu 7**) configures RTC wake event.



BIOS Menu 7: RTC Wake Settings

➔ **Wake system with Fixed Time [Enabled]**

Use the **Wake system with Fixed Time** option to enable or disable the system wake on alarm event.

➔ **Disabled**

The real time clock (RTC) cannot generate a wake event



PPC2-xxx-ADLP Panel PC

➔ **Enabled** **DEFAULT**

If selected, the **Wake up every day** option appears allowing you to enable to disable the system to wake every day at the specified time. Besides, the following options appear with values that can be selected:

Wake up date

Wake up hour

Wake up minute

Wake up second

After setting the alarm, the computer turns itself on from a suspend state when the alarm goes off.



5.3.4 F81966 Super IO Configuration

Use the **F81966 Super IO Configuration** menu (**BIOS Menu 8**) to set or change the configurations for serial ports.



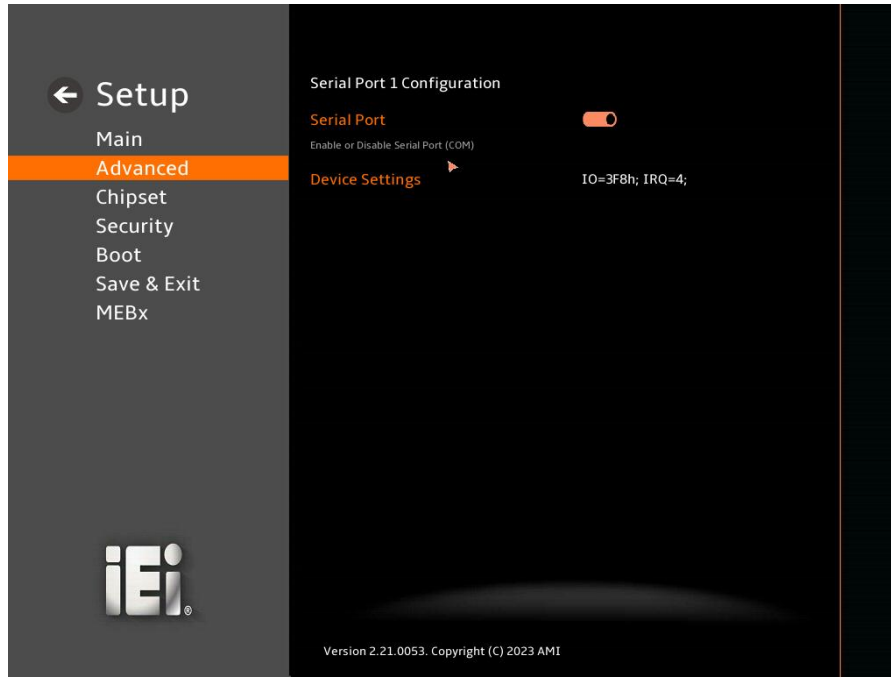
BIOS Menu 8: F81966 Super IO Configuration



PPC2-xxx-ADLP Panel PC

5.3.4.1 Serial Port 1 Configuration

Use the **Serial Port 1 Configuration** menu (**BIOS Menu 9**) to configure the serial port.



BIOS Menu 9: Serial Port 1 Configuration Menu

➔ Serial Port [Enabled]

Use the **Serial Port** option to enable or disable the serial port.

- ➔ **Disabled** Disable the serial port
- ➔ **Enabled** **DEFAULT** Enable the serial port

➔ Device Settings

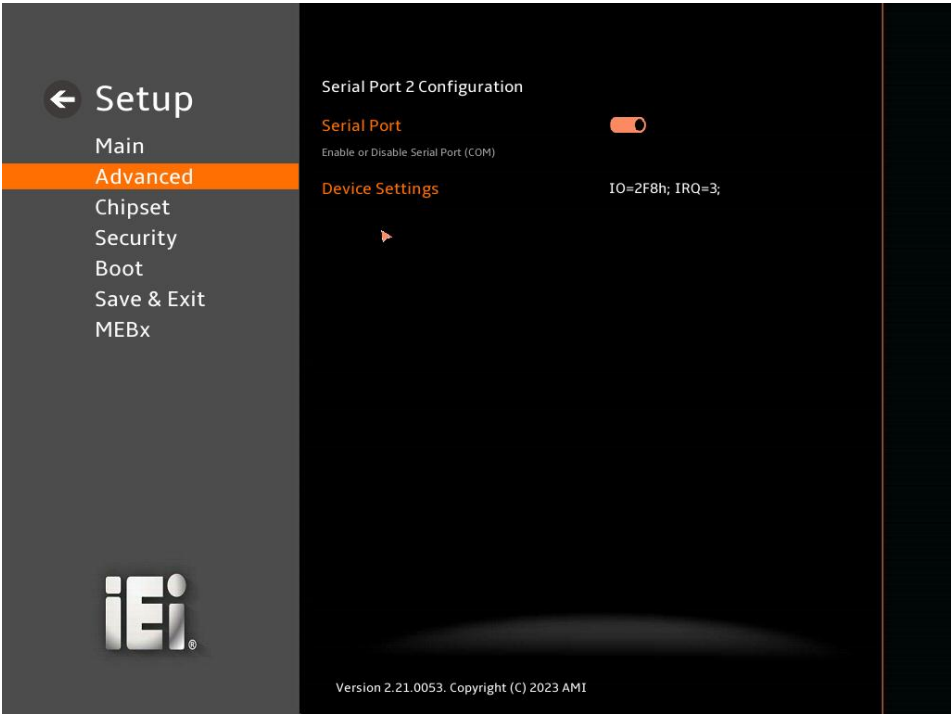
The **Device Settings** option shows the serial port IO port address and interrupt address.

- ➔ **IO=3F8h;** Serial Port I/O port address is 3F8h and the interrupt
IRQ=4 address is IRQ4



5.3.4.2 Serial Port 2 Configuration

Use the **Serial Port 2 Configuration** menu (**BIOS Menu 10**) to configure the serial port.



BIOS Menu 10: Serial Port 2 Configuration Menu

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

- ➔ **Disabled** Disable the serial port
- ➔ **Enabled DEFAULT** Enable the serial port

➔ **Device Settings**

The **Device Settings** option shows the serial port IO port address and interrupt address.

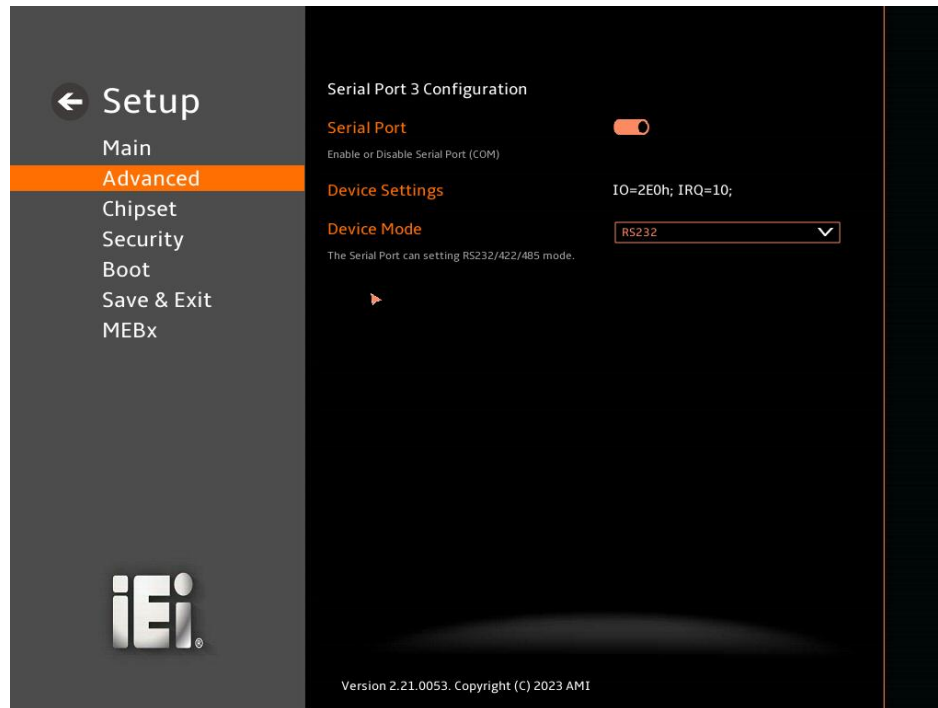
- ➔ **IO=2F8h;** Serial Port I/O port address is 2F8h and the interrupt
IRQ=3 address is IRQ3



PPC2-xxx-ADLP Panel PC

5.3.4.3 Serial Port 3 Configuration

Use the **Serial Port 3 Configuration** menu (**BIOS Menu 11**) to configure the serial port.



BIOS Menu 11: Serial Port 3 Configuration Menu

➔ Serial Port [Enabled]

Use the **Serial Port** option to enable or disable the serial port.

- ➔ **Disabled** Disable the serial port
- ➔ **Enabled** **DEFAULT** Enable the serial port

➔ Device Settings

The **Device Settings** option shows the serial port IO port address and interrupt address.

- ➔ **IO=2E0h;** Serial Port I/O port address is 2E0h and the interrupt
IRQ=10 address is IRQ10

➔ Device Mode [RS232]

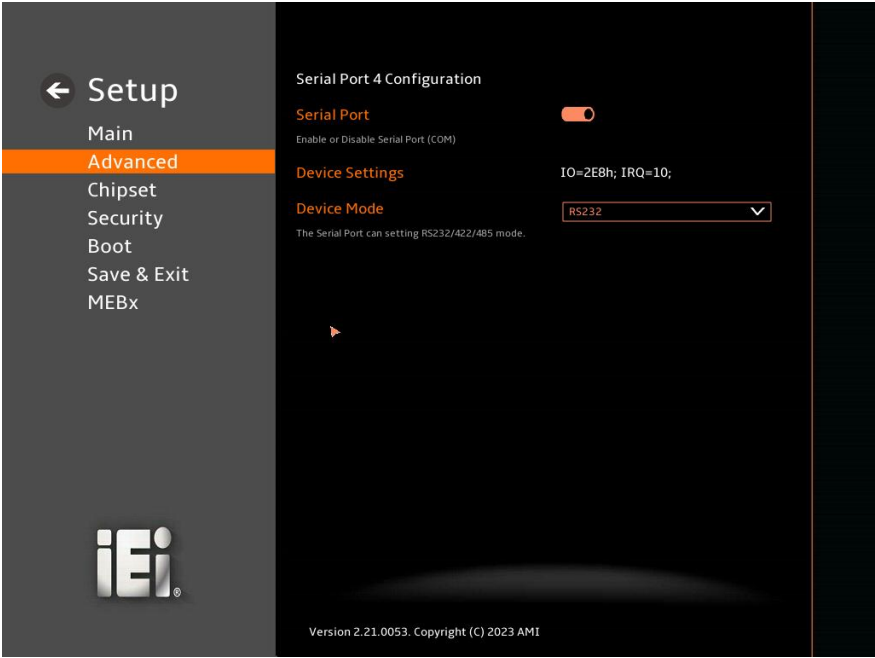
Use the **Device Mode** option to change the serial port mode.



- | | | | |
|---|---------------------|---------|--------------------------------|
| ➔ | RS232 | DEFAULT | The serial port mode is RS-232 |
| | RS422 with Register | | The serial port mode is RS-422 |
| | RS485 with Register | | The serial port mode is RS-485 |

5.3.4.4 Serial Port 4 Configuration

Use the **Serial Port 4 Configuration** menu (**BIOS Menu 11**) to configure the serial port.



BIOS Menu 12: Serial Port 4 Configuration Menu

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

- | | | | |
|---|----------|---------|-------------------------|
| ➔ | Disabled | | Disable the serial port |
| ➔ | Enabled | DEFAULT | Enable the serial port |

➔ **Device Settings**

The **Device Settings** option shows the serial port IO port address and interrupt address.



PPC2-xxx-ADLP Panel PC

➔ **IO=2E8h;**
IRQ=10

Serial Port I/O port address is 2E8h and the interrupt address is IRQ10

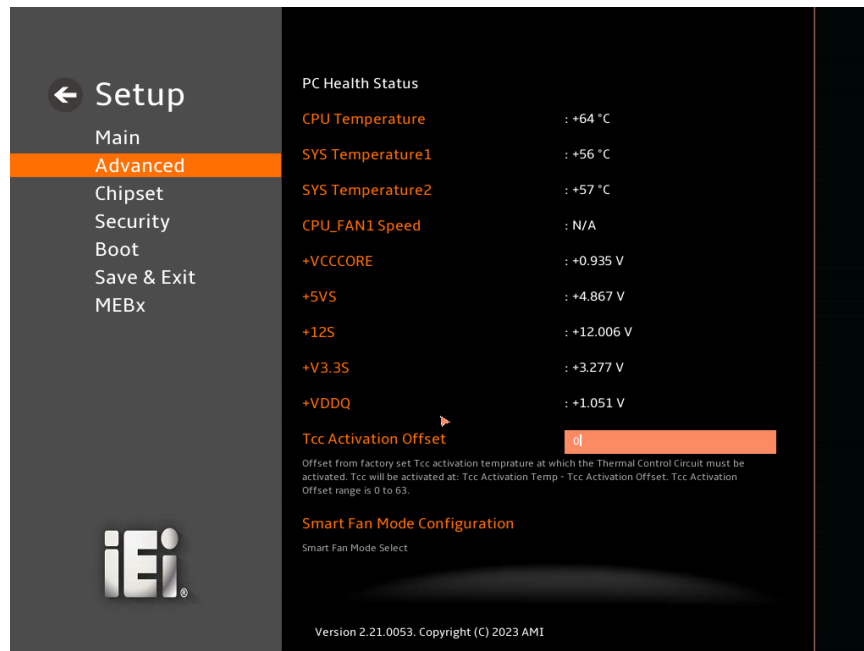
➔ Device Mode [RS232]

Use the **Device Mode** option to change the serial port mode.

➔ RS232	DEFAULT	The serial port mode is RS-232
RS422 with Register		The serial port mode is RS-422
RS485 with Register		The serial port mode is RS-485

5.3.5 H/W Monitor

The **H/W Monitor** menu (**BIOS Menu 13**) contains the smart fan mode configuration submenu and shows the state of H/W real-time operating temperature, fan speeds and system voltages.



BIOS Menu 13: H/W Monitor

→ PC Health Status

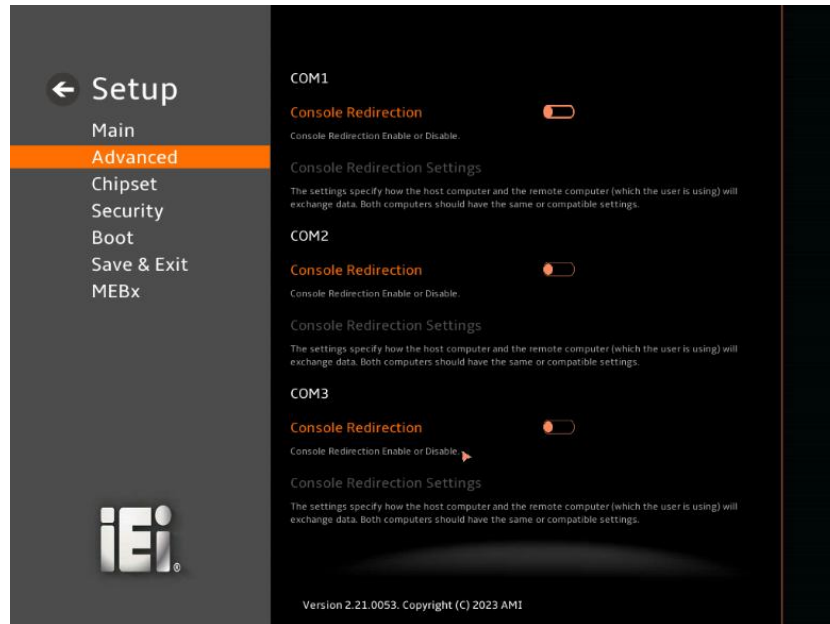
The following system parameters and values are shown. The system parameters that are monitored are:

- System Temperatures:
 - CPU Temperature
 - System Temperature1
 - System Temperature2
- CPU_FAN1 Speed:
 - CPU_FAN1 Speed
- Voltages:
 - +VCCCORE
 - +5VS
 - +12S
 - +V3.3S
 - +VDDQ

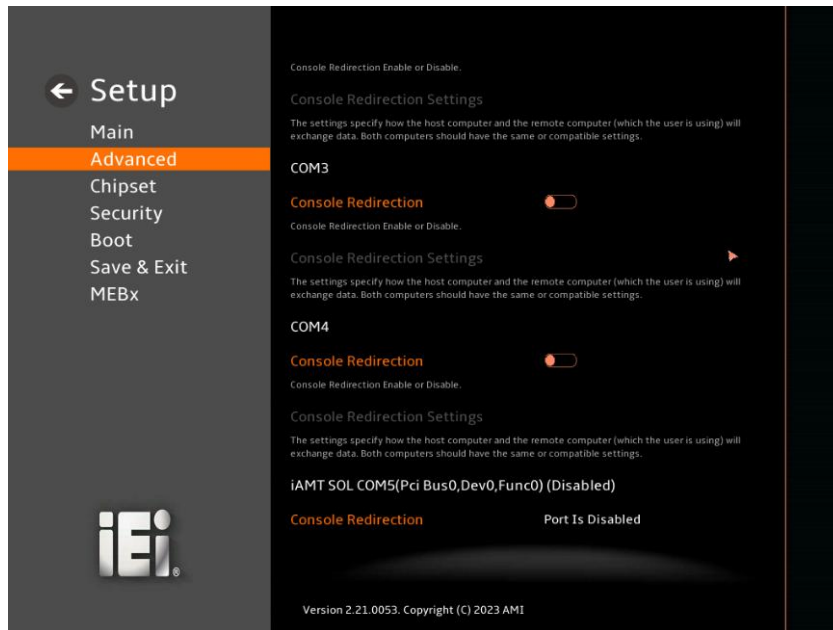
5.3.6 Serial Port Console Redirection

The **Serial Port Console Redirection** menu (**BIOS Menu 14**) allows the console redirection options to be configured. Console Redirection allows users to maintain a system remotely by re-directing keyboard input and text output through the serial port.

PPC2-xxx-ADLP Panel PC



BIOS Menu 14: Serial Port Console Redirection (1/2)



BIOS Menu 15: Serial Port Console Redirection (2/2)

→ Console Redirection [Disabled]

Use **Console Redirection** option to enable or disable the console redirection function.

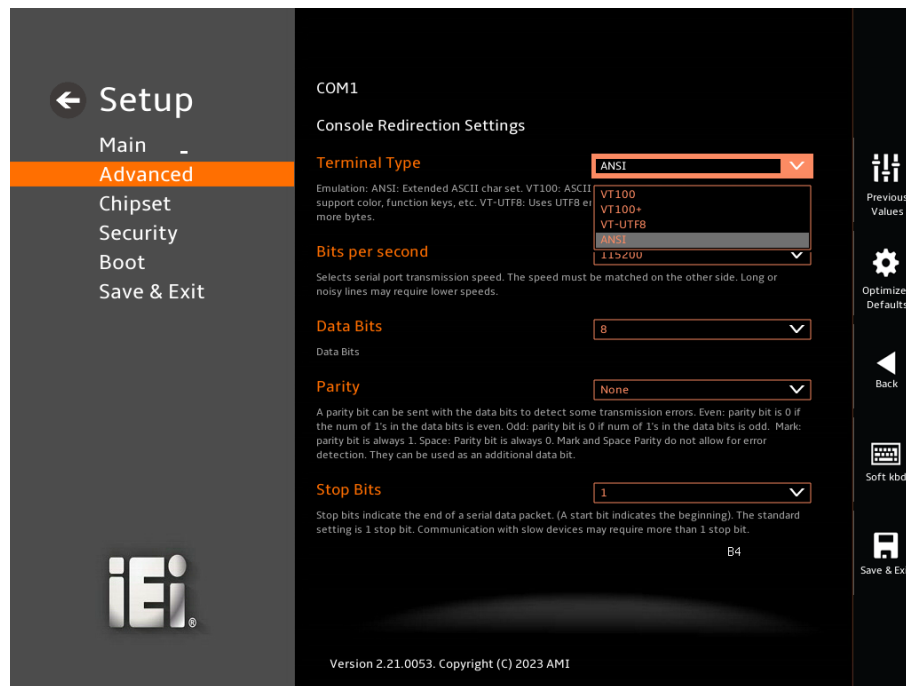
- **Disabled** **DEFAULT** Disabled the console redirection function
- **Enabled** Enabled the console redirection function

The **Console Redirection Settings** submenu will be available when the **Console Redirection** option is enabled.

5.3.6.1 Console Redirection Settings

The following options are available in the **Console Redirection Settings** submenu (**BIOS Menu 16**) when the **COM Console Redirection** (for COM1 to COM4) option is enabled.

PPC2-xxx-ADLP Panel PC



BIOS Menu 16: COM Console Redirection Settings

➔ Terminal Type [ANSI]

Use the **Terminal Type** option to specify the remote terminal type.

- ➔ **VT100** The target terminal type is VT100
- ➔ **VT100+** The target terminal type is VT100+
- ➔ **VT-UTF8** The target terminal type is VT-UTF8
- ➔ **ANSI** **DEFAULT** The target terminal type is ANSI

➔ Bits per second [115200]

Use the **Bits per second** option to specify the serial port transmission speed. The speed must match on the other side. Long or noisy lines may require lower speeds.

- ➔ **9600** Sets the serial port transmission speed at 9600.
- ➔ **19200** Sets the serial port transmission speed at 19200.
- ➔ **38400** Sets the serial port transmission speed at 38400.

- ➔ **57600** Sets the serial port transmission speed at 57600.
- ➔ **115200** **DEFAULT** Sets the serial port transmission speed at 115200.

➔ Data Bits [8]

Use the **Data Bits** option to specify the number of data bits.

- ➔ **7** Sets the data bits at 7.
- ➔ **8** **DEFAULT** Sets the data bits at 8.

➔ Parity [None]

Use the **Parity** option to specify the parity bit that can be sent with the data bits for detecting the transmission errors.

- ➔ **None** **DEFAULT** No parity bit is sent with the data bits.
- ➔ **Even** The parity bit is 0 if the number of ones in the data bits is even.
- ➔ **Odd** The parity bit is 0 if the number of ones in the data bits is odd.
- ➔ **Mark** The parity bit is always 1. This option does not allow for error detection.
- ➔ **Space** The parity bit is always 0. This option does not allow for error detection.

➔ Stop Bits [1]

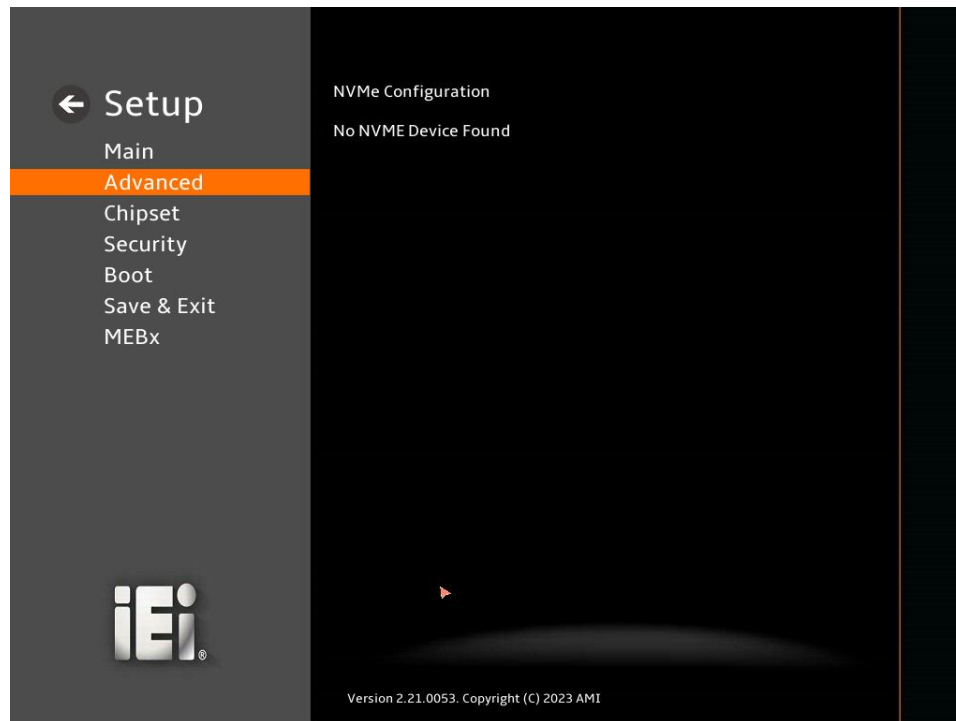
Use the **Stop Bits** option to specify the number of stop bits used to indicate the end of a serial data packet. Communication with slow devices may require more than 1 stop bit.

- ➔ **1** **DEFAULT** Sets the number of stop bits at 1.
- ➔ **2** Sets the number of stop bits at 2.

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5.3.7 NVMe Configuration

Use the **NVMe Configuration (BIOS Menu 17)** menu to display the NVMe controller and device information.



BIOS Menu 17: NVMe Configuration

5.4 Chipset

Use the **Chipset** menu (**BIOS Menu 18**) to access the PCH IO and System Agent (SA) configuration menus.



WARNING!

Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.

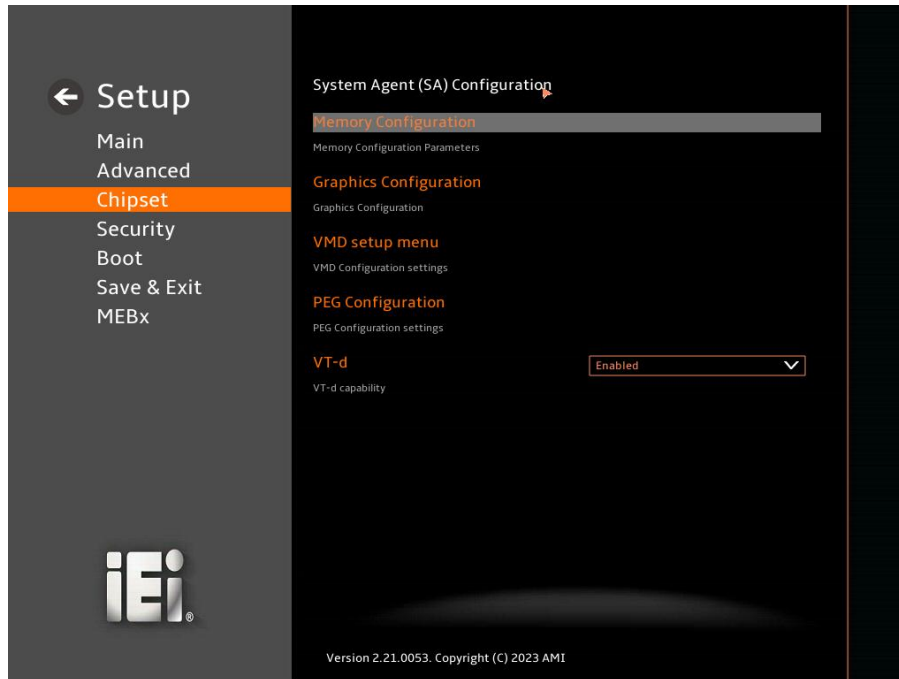


BIOS Menu 18: Chipset

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5.4.1 System Agent (SA) Configuration

Use the **System Agent (SA) Configuration** menu to configure the System Agent (SA) parameters.



BIOS Menu 19: System Agent (SA) Configuration

➔ VT-d [Enabled]

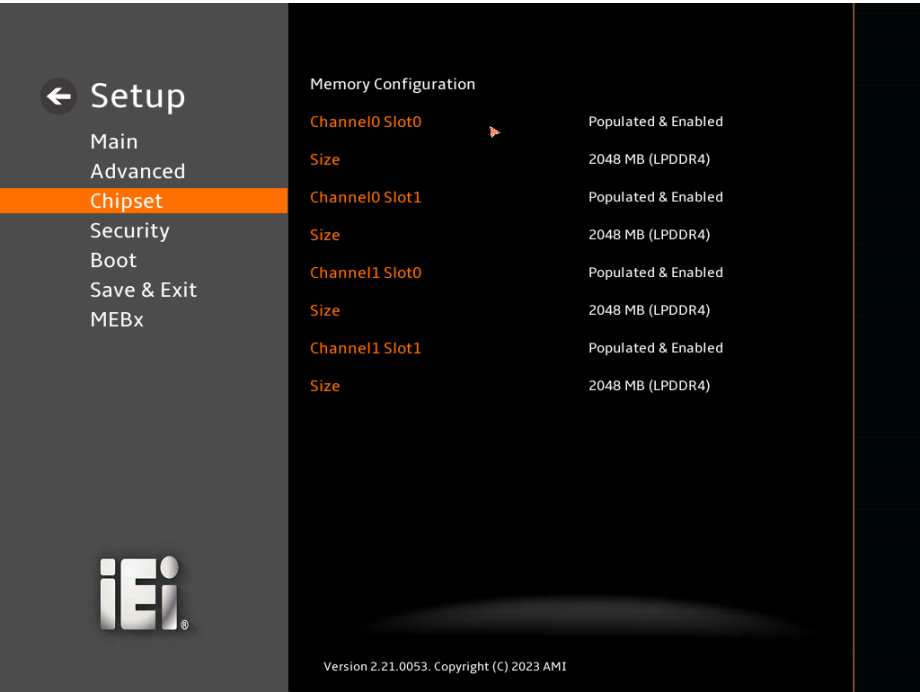
Use the **VT-d** option to enable or disable the VT-d capability.

- | | | | |
|---|-----------------|----------------|-----------------------------|
| ➔ | Disabled | | Disable the VT-d capability |
| ➔ | Enabled | DEFAULT | Enable the VT-d capability |



5.4.1.1 Memory Configuration

Use the **Memory Configuration** submenu (**BIOS Menu 20**) to view memory information.



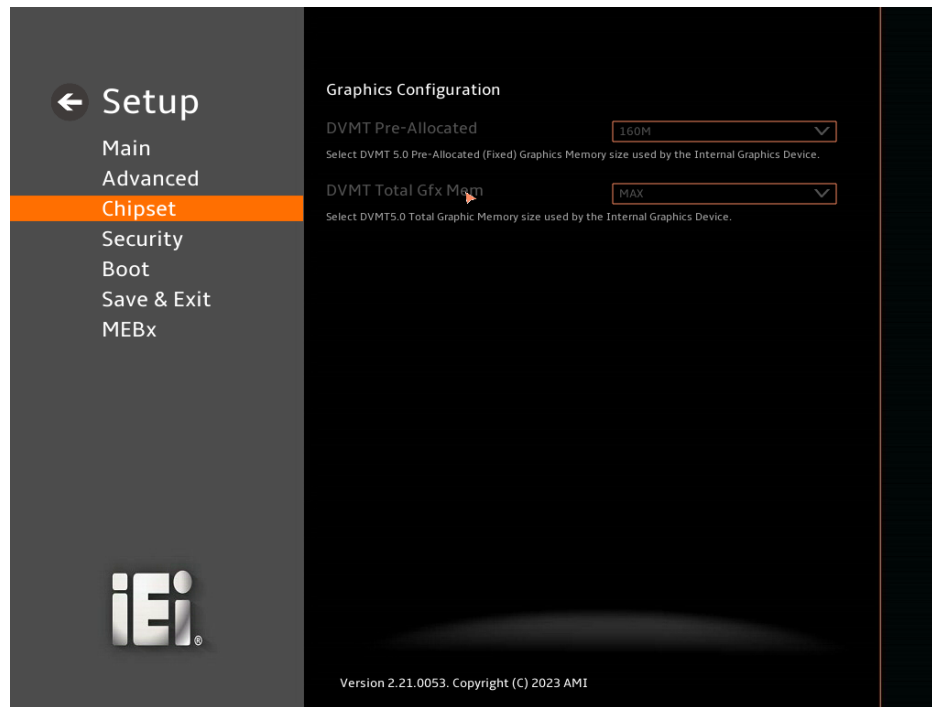
BIOS Menu 20: Memory Configuration

5.4.1.2 Graphics Configuration



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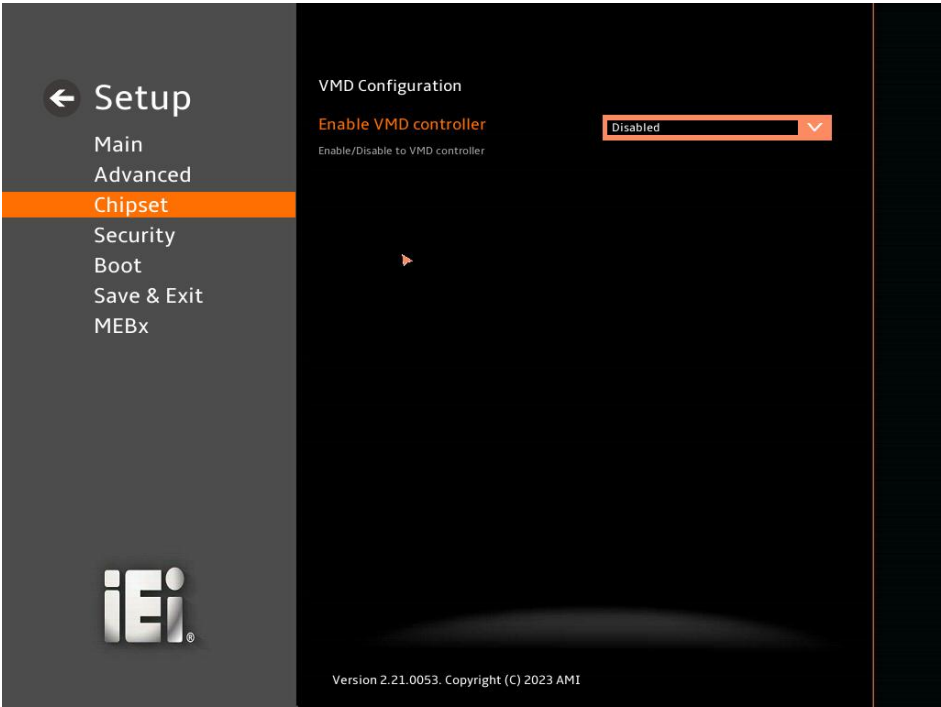
Use the **Graphics Configuration (BIOS Menu 21)** menu to configure the video device connected to the system.



BIOS Menu 21: Graphics Configuration



5.4.1.3 VMD Configuration



BIOS Menu 22: VMD Configuration

➔ Enable VMD Controller [Enabled]

Enable/Disable to VMD controller.

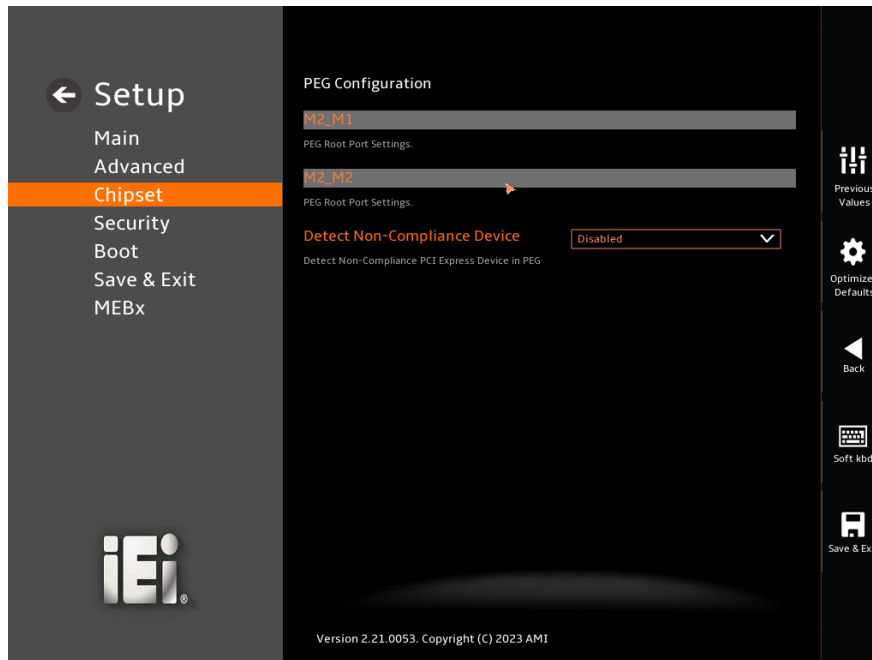
- | | | | |
|---|-----------------|----------------|----------------------------|
| ➔ | Disabled | | Disable the VMD controller |
| ➔ | Enabled | DEFAULT | Enable the VMD controller |

5.4.1.4 PEG Configuration

Use the **PEG Configuration (BIOS Menu 23)** menu to configure the M2_M1 slot and the M2_M2 slot.



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BIOS Menu 23: PEG Configuration

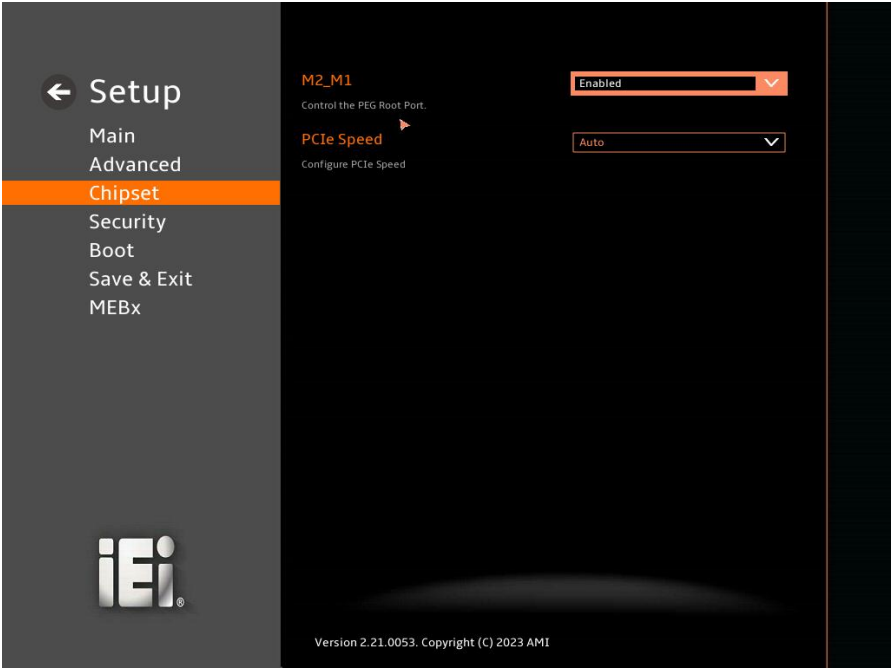
→ Detect Non-Compliance Device [Disabled]

Use the **Detect Non-Compliance Device** option to configure whether to detect if a non-compliance PCI Express device is connected to the PCI Express port.

- | | | | |
|---|-----------------|----------------|--|
| → | Disabled | DEFAULT | Do not detect if a non-compliance PCI Express device is connected to the PCI Express port. |
| → | Enabled | | Detect if a non-compliance PCI Express device is connected to the PCI Express port. |

5.4.1.4.1 M2_M1

Use the **M2_M1** menu (**BIOS Menu 24**) to change and/or set the configuration of the M2_M1 devices installed in the system.



BIOS Menu 24: M2_M1

➔ M2_M1 [Enabled]

Use the **M2_M1** to Control the PEG Root Port.

- | | | | |
|---|----------|---------|-------------------|
| ➔ | Disabled | | Disable the M2_M1 |
| ➔ | Enabled | DEFAULT | Enable the M2_M1 |

➔ PCIe Speed [Auto]

Use the **PCIe Speed** option to specify the PCI Express port speed. Configuration options are listed below.

- | | | | |
|---|------|---------|-------------------------------|
| ➔ | Auto | DEFAULT | Auto mode. |
| ➔ | Gen1 | | Configure PCIe Speed to Gen1. |
| ➔ | Gen2 | | Configure PCIe Speed to Gen2. |
| ➔ | Gen3 | | Configure PCIe Speed to Gen3. |
| ➔ | Gen4 | | Configure PCIe Speed to Gen4. |
| ➔ | Gen5 | | Configure PCIe Speed to Gen5. |



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5.4.1.4.2 M2_M2

Use the **M2_M2** menu (**BIOS Menu 25**) to change and/or set the configuration of the M2_M2 devices installed in the system.



BIOS Menu 25: M2_M2

➔ M2_M2 [Enabled]

Use the **M2_M2** to Control the PEG Root Port.

- | | | | |
|---|-----------------|----------------|-------------------|
| ➔ | Disabled | | Disable the M2_M2 |
| ➔ | Enabled | DEFAULT | Enable the M2_M2 |

➔ PCIe Speed [Auto]

Use the **PCIe Speed** option to specify the PCI Express port speed. Configuration options are listed below.

- | | | | |
|---|-------------|----------------|-------------------------------|
| ➔ | Auto | DEFAULT | Auto mode. |
| ➔ | Gen1 | | Configure PCIe Speed to Gen1. |
| ➔ | Gen2 | | Configure PCIe Speed to Gen2. |

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- ➔ Gen3
- ➔ Gen4
- ➔ Gen5

Configure PCIe Speed to Gen3.

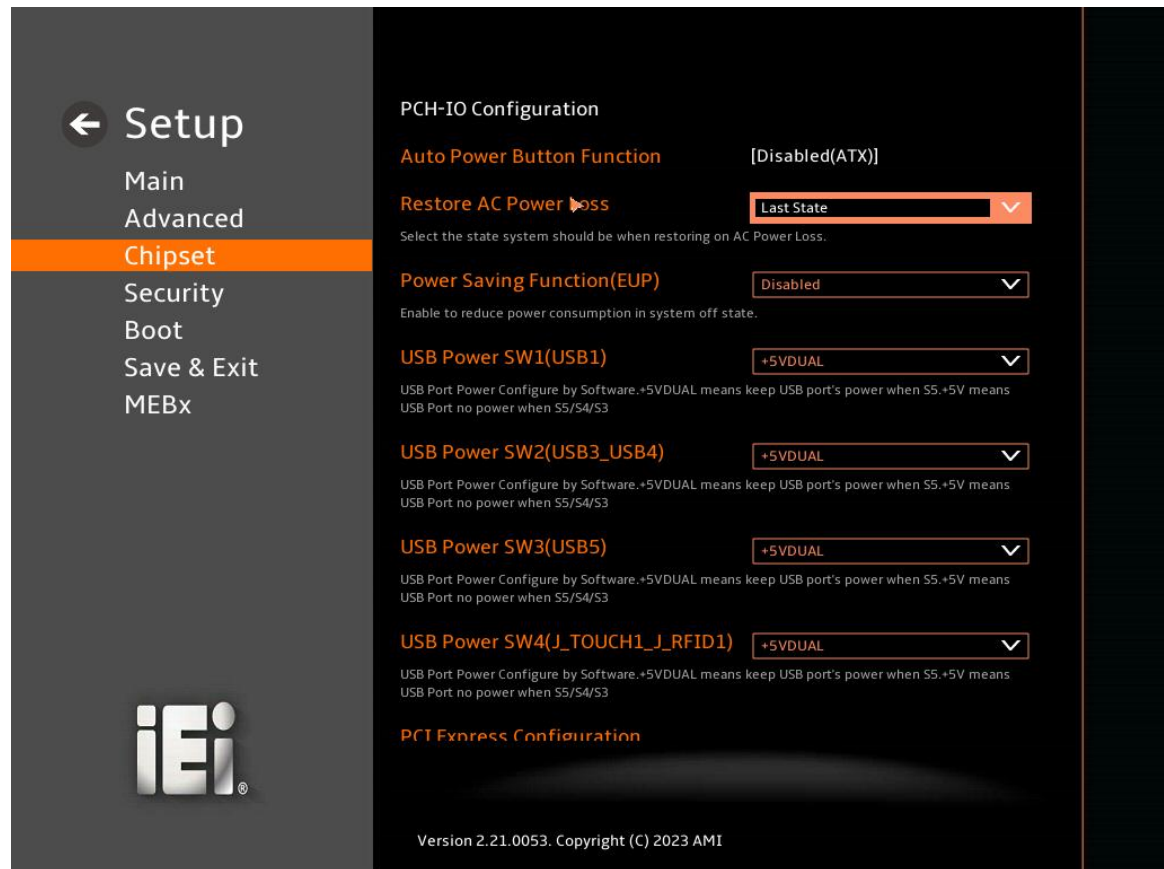
Configure PCIe Speed to Gen4.

Configure PCIe Speed to Gen5.

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5.4.2 PCH-IO Configuration

Use the **PCH-IO Configuration** menu (**BIOS Menu 26**) to configure the PCH parameters.



BIOS Menu 26: PCH-IO Configuration(1/2)



BIOS Menu 27: PCH-IO Configuration (2/2)

➔ Auto Power Button Function [Disabled (AT)]

Use the **Auto Power Button Function** BIOS option to show the power mode state. Use the **J_ATX_AT1** to switch the AT/ATX power mode.

- ➔ **Enabled (AT)** **DEFAULT** The system power mode is AT.
- ➔ **Disabled (ATX)** The system power mode is ATX.

➔ Restore AC Power Loss [Last State]

Use the **Restore AC Power Loss** BIOS option to specify what state the system returns to if there is a sudden loss of power to the system when the power mode is ATX.

- ➔ **Power Off** The system remains turned off
- ➔ **Power On** The system turns on
- ➔ **Last State** **DEFAULT** The system returns to its previous state. If it was on, it turns itself on. If it was off, it remains off.



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→ Power Saving Function (EUP) [Disabled]

Use the **Power Saving Function (EUP)** BIOS option to enable or disable the power saving function.

- **Disabled** **DEFAULT** Power saving function is disabled.
- **Enabled** Power saving function is enabled. It will reduce power consumption when the system is off.

→ USB Power SW1 [+5V DUAL]

Use the **USB Power SW1** BIOS option to configure the USB power source for the corresponding USB connectors.

- **+5V DUAL** **DEFAULT** Sets the USB power source to +5V dual
- **+5V** Sets the USB power source to +5V

→ USB Power SW2 [+5V DUAL]

Use the **USB Power SW2** BIOS option to configure the USB power source for the corresponding USB connectors.

- **+5V DUAL** **DEFAULT** Sets the USB power source to +5V dual
- **+5V** Sets the USB power source to +5V

→ USB Power SW3 [+5V DUAL]

Use the **USB Power SW3** BIOS option to configure the USB power source for the corresponding USB connectors.

- **+5V DUAL** **DEFAULT** Sets the USB power source to +5V dual
- **+5V** Sets the USB power source to +5V

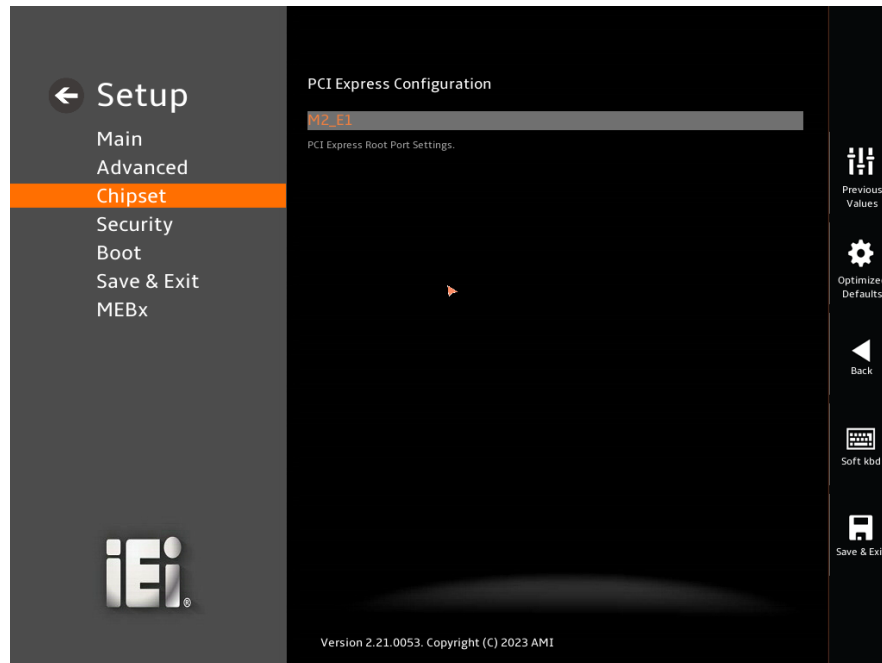
→ USB Power SW4 [+5V DUAL]

Use the **USB Power SW4** BIOS option to configure the USB power source for the corresponding USB connectors.

- ➔ **+5V DUAL** **DEFAULT** Sets the USB power source to +5V dual
- ➔ **+5V** Sets the USB power source to +5V

5.4.2.1 PCI Express Configuration

Use the **PCI Express Configuration** submenu (**BIOS Menu 28**) to configure the PCI Express slots.



BIOS Menu 28: PCI Express Configuration

5.4.2.1.1 M2_E1

Use the **M2_E1** submenu (**BIOS Menu 29**) to configure the PCIe Root Port Setting.

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BIOS Menu 29: M2_E1

→ PCIe Speed [Auto]

Use the **PCIe Speed** option to specify the PCI Express port speed. Configuration options are listed below.

- | | | | |
|---|-------------|----------------|-------------------------------|
| → | Auto | DEFAULT | Auto mode. |
| → | Gen1 | | Configure PCIe Speed to Gen1. |
| → | Gen2 | | Configure PCIe Speed to Gen2. |
| → | Gen3 | | Configure PCIe Speed to Gen3. |

→ Detect Non-Compliance Device [Disabled]

Use the **Detect Non-Compliance Device** option to configure whether to detect if a non-compliance PCI Express device is connected to the PCI Express port.

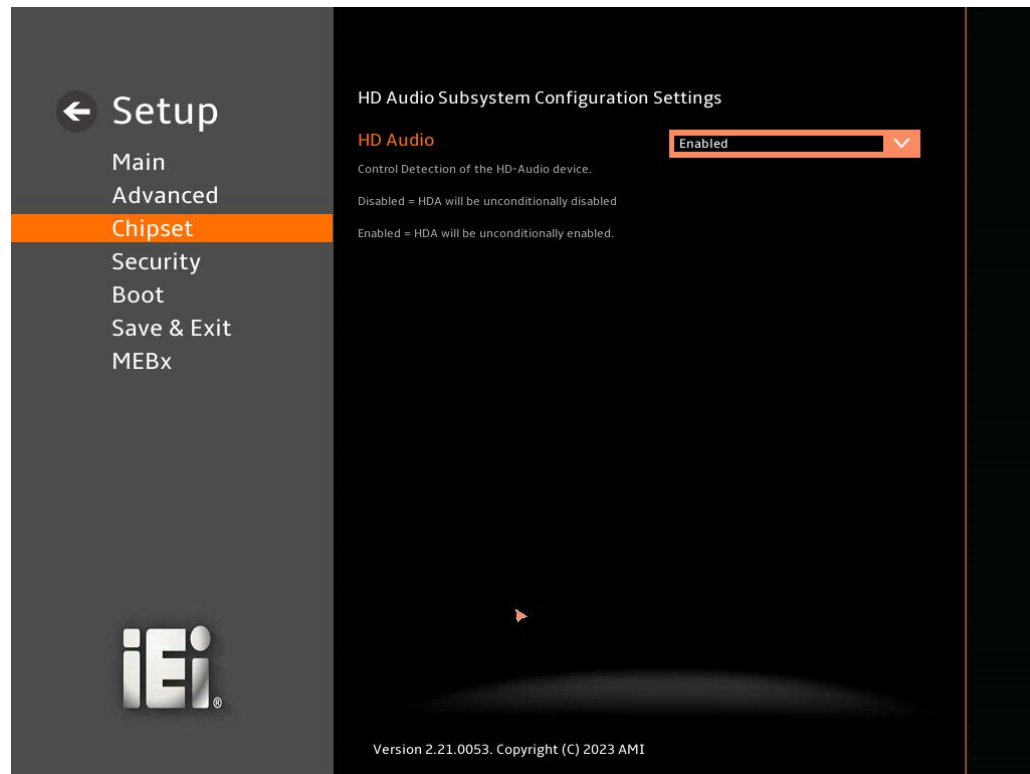
- | | | | |
|---|-----------------|----------------|--|
| → | Disabled | DEFAULT | Do not detect if a non-compliance PCI Express device is connected to the PCI Express port. |
|---|-----------------|----------------|--|

➔ **Enabled**

Detect if a non-compliance PCI Express device is connected to the PCI Express port.

5.4.2.2 HD Audio Configuration

Use the **HD Audio Configuration** menu (**BIOS Menu 30**) to configure the PCH Azalia settings.



BIOS Menu 30: HD Audio Configuration

➔ **HD Audio [Enabled]**

Use the **HD Audio** option to enable or disable the High Definition Audio controller.

➔ **Disabled**

The onboard High Definition Audio controller is disabled.

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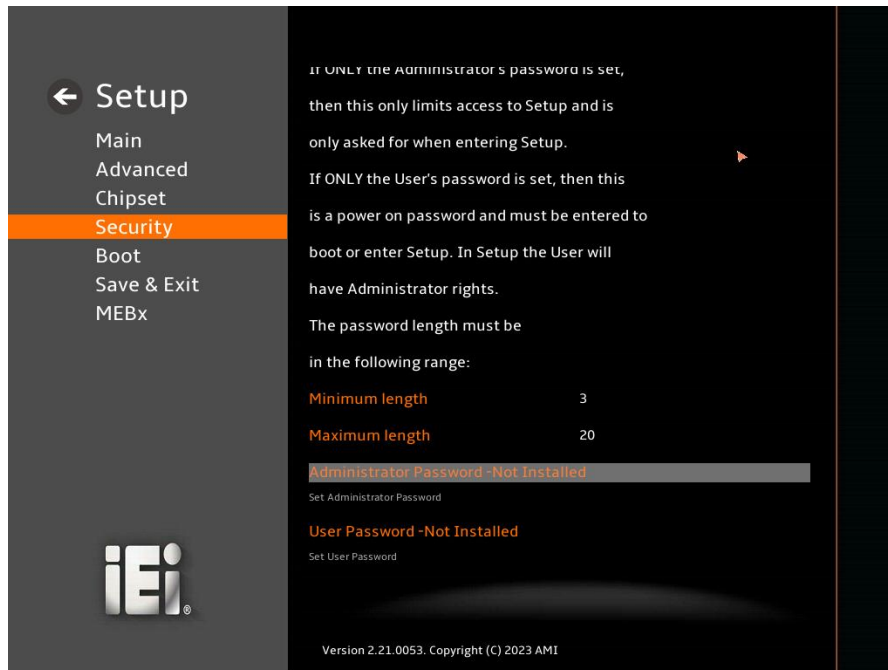
➔ **Enabled** **DEFAULT** The onboard High Definition Audio controller is enabled.

5.5 Security

Use the **Security** menu (**BIOS Menu 31**) to set system and user passwords.



BIOS Menu 31: Security (1/2)



BIOS Menu 32: Security (2/2)

➔ Administrator Password

Use the **Administrator Password** to set or change an administrator password.

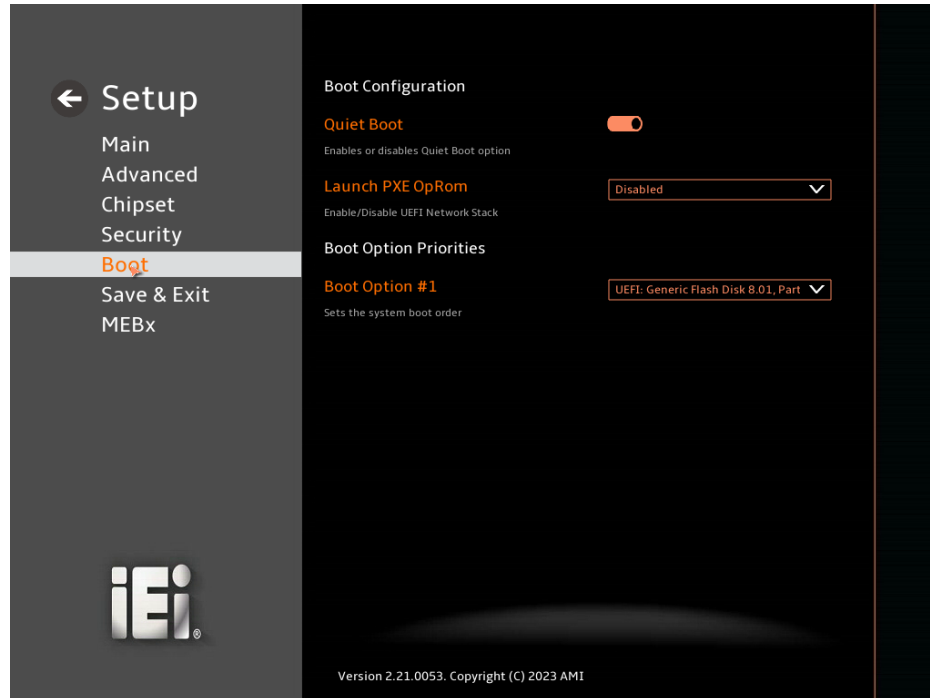
➔ User Password

Use the **User Password** to set or change a user password.

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5.6 Boot

Use the **Boot** menu (**BIOS Menu 33**) to configure system boot options.



BIOS Menu 33: Boot

5.6.1 Boot Configuration

➔ Quiet Boot [Enabled]

Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

- ➔ **Disabled** Normal POST messages displayed
- ➔ **Enabled** **DEFAULT** OEM Logo displayed instead of POST messages

➔ UEFI LAN PXE Boot [Disabled]

Use the **UEFI LAN PXE Boot** option to enable or disable boot option for legacy network devices.

- ➔ **Disabled** **DEFAULT** Disabled the lan pxe

➔ **Enabled**

Enable the lan pxe

5.6.2 Boot Option Priorities

Use the Boot Option # N to choose the system boots from the peripherals you selected.
The following Boot Options are listed as an example.

➔ **Boot Option #1**

Sets the system boot order **ADATA SP580** as the first priority.

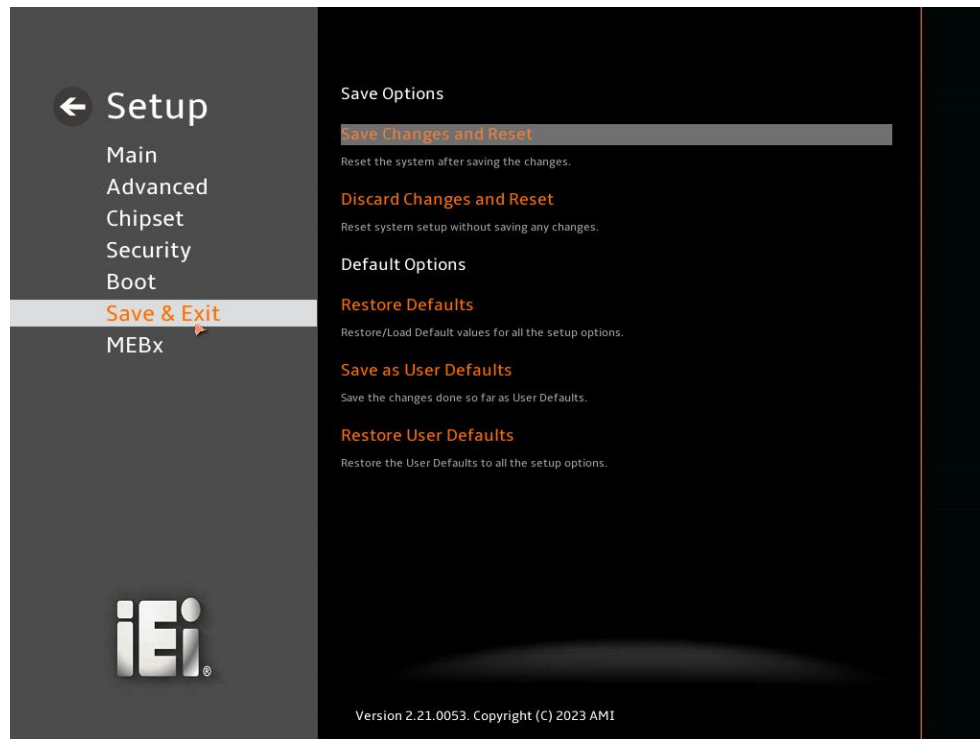
➔ **Windows Boot Manager (P1: ADATA SSD SP580 240GB)**

➔ **Disabled**

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5.7 Save & Exit

Use the **Save & Exit** menu (**BIOS Menu 34**) to load default BIOS values, optimal failsafe values and to save configuration changes.



BIOS Menu 34: Save & Exit

➔ Save Changes and Reset

Use the **Save Changes and Reset** option to save the changes made to the BIOS options and reset the system.

➔ Discard Changes and Reset

Use the **Discard Changes and Reset** option to exit the system without saving the changes made to the BIOS configuration setup program.

➔ Restore Defaults

Use the **Restore Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F3 key can be used for this operation.**

➔ **Save as User Defaults**

Use the **Save as User Defaults** option to save the changes done so far as user defaults.

➔ **Restore User Defaults**

Use the **Restore User Defaults** option to restore the user defaults to all the setup options.

Chapter

6

Interface Connectors

6.1 Peripheral Interface Connectors

The PPC2-xxx-ADLP panel PC motherboard comes with a number of peripheral interface connectors and configuration jumpers. The connector locations are shown in **Figure 6-1** and **Figure 6-2**. The Pin 1 locations of the on-board connectors are also indicated in the diagram below. The connector pinouts for these connectors are listed in the following sections.

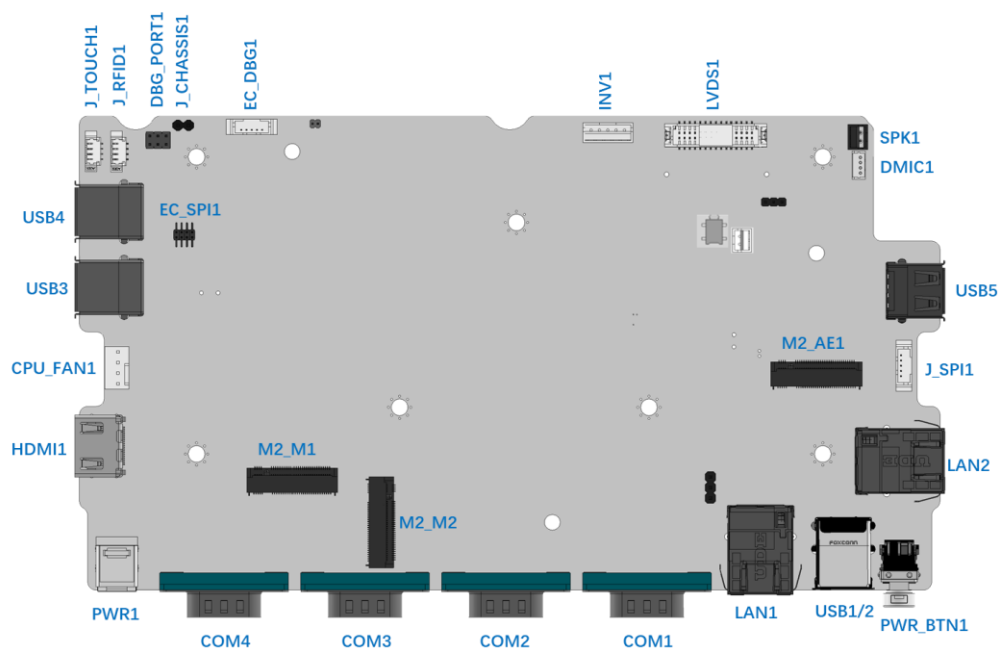


Figure 6-1: Main Board Layout Diagram (Front Side)

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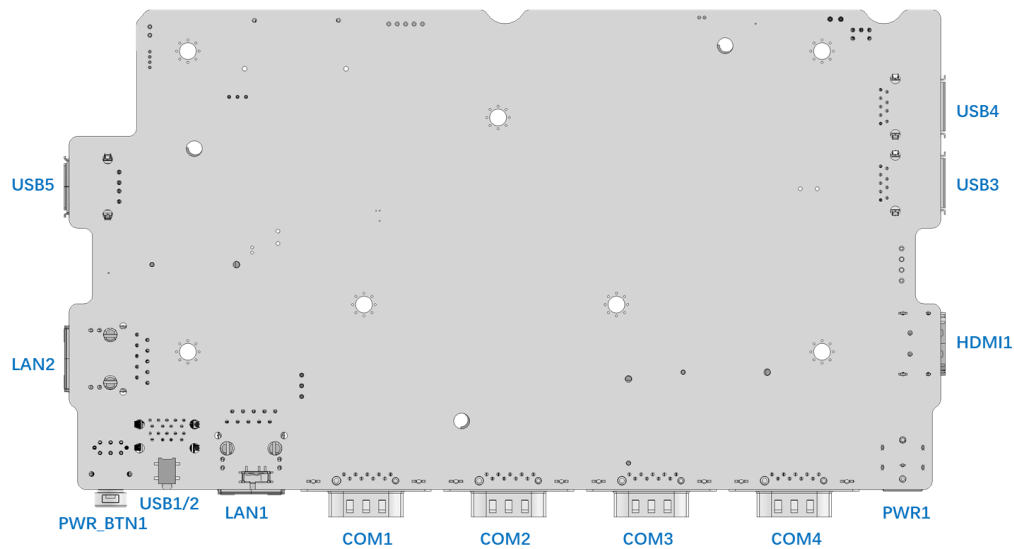


Figure 6-2: Main Board Layout Diagram (Solder Side)

6.2 Internal Peripheral Connectors

Internal peripheral connectors are found on the motherboard and are only accessible when the motherboard is outside of the chassis. The table below shows a list of the peripheral interface connectors on the PPC2-xxx-ADLP Series Panel PC motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
Touch Panel Connector	4-pin wafer	J_TOUCH1
BIOS Programmer Connector	6-pin wafer	J_SPI1
For EC Debug Connector	6-pin wafer	EC_DBG1
EC Programmer Connector	8-pin header	EC_SPI1
Speaker Connector	2-pin wafer	SPK1
RFID Connector	4-pin wafer	J_RFID1
Digital MIC Connector	4-pin wafer	DMIC1
CMOS Battery Header	2-pin wafer	BAT1
M.2 A-Key Slot	A-key slot	M2_AE1
M.2 M-Key Slot	M-key slot	M2_M1



Connector	Type	Label
M.2 M-Key Slot	M-key slot	M2_M2
eDP Connector	40-pin connector	EDP1
LVDS Panel Connector	30-pin connector	LVDS1
LVDS Backlight Power	5-pin connector	INV1
CPU Fan Connector	4-pin wafer	CPU_FAN1
MPS PWM IC Programmer Connector	3-pin header	J1
Flash Descriptor Security Override	2-pin header	ME_FLASH1
Chassis Pin Header	2-pin header	J_CHASSIS1
System 80/81 Port Connector	6-pin header	DBG_PORT1

Table 6-1: Peripheral Interface Connectors

6.2.1 Touch Panel Connector (J_TOUCH1)

PIN NO.	DESCRIPTION
1	VCC5V
2	DATA-
3	DATA+
4	GND

Table 6-2: Touch Panel Connector (J_TOUCH1) Pinouts

6.2.2 BIOS Programmer Connector (J_SPI1)

PIN NO.	DESCRIPTION
1	VCC3.3V
2	CS
3	MISO
4	CLK
5	MOSI
6	GND

Table 6-3: BIOS Programmer Connector (J_SPI1) Pinouts



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6.2.3 For EC Debug Connector (EC_DBG1)

PIN NO.	DESCRIPTION
1	NC
2	EDICS
3	EDIDO
4	EDICLK
5	EDIDI
6	GND

Table 6-4: For EC Debug Connector (EC_DBG1) Pinouts

6.2.4 EC Programmer Connector (EC_SPI1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	CS	2	VCC3.3V
3	MISO	4	HOLD
5	DET#	6	CLK
7	GND	8	MOSI

Table 6-5: EC Programmer Connector (EC_SPI1) Pinouts

6.2.5 Speaker Connector (SPK1)

PIN NO.	DESCRIPTION
1	SPK-
2	SPK+

Table 6-6: Speaker Connector (SPK1) Pinouts

6.2.6 RFID Connector (J_RFID1)

PIN NO.	DESCRIPTION
1	VCC5V
2	DATA-
3	DATA+
4	GND

Table 6-7: RFID Connector (J_RFID1) Pinouts



6.2.7 Digital MIC Connector (DMIC1)

	DESCRIPTION
1	DMIC_CLK
2	DMIC_DATA
3	VCC3.3V
4	GND

Table 6-8: Digital MIC Connector (DMIC1) Pinouts

6.2.8 CMOS Battery Header (BAT1)

PIN NO.	DESCRIPTION
1	VBAT+
2	GND

Table 6-9: CMOS Battery Header (BAT1)
Pinouts

6.2.9 M.2 A-Key Slot (M2_AE1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+3.3V
3	USB2_DP	4	+3.3V
5	USB2_DN	6	NC
7	GND	8	NC
9	NC	10	NC
11	NC	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	GND
19	NC	20	NC
21	NC	22	NC
23	GND	24	GND
25	NC	26	NC



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PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
27	NC	28	NC
29	GND	30	GND
31	NC	32	NC
33	GND	34	NC
35	PETP0	36	GND
37	PETN0	38	NC
39	GND	40	NC
41	PERP0	42	NC
43	PERN0	44	NC
45	GND	46	NC
47	PCIE_CLK+	48	NC
49	PCIE_CLK-	50	NC
51	GND	52	PLT_RST
53	CLKREQ0#	54	Pull up
55	PCIE_WAKE	56	W_DIS
57	GND	58	I2C_DAT
59	NC	60	I2C_CLK
61	NC	62	NC
63	GND	64	NC
65	NC	66	NC
67	NC	68	NC
69	GND	70	+3.3V
71	NC	72	+3.3V
73	NC	74	+3.3V
75	GND		

Table 6-10: M.2 A-Key Slot (M2_AE1) Pinouts

6.2.10 M.2 M-Key Slot (M2_M1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+3.3V
3	GND	4	+3.3V



PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
5	PERN3	6	NC
7	PERP3	8	NC
9	GND	10	DAS/DSS#
11	PETN3	12	+3.3V
13	PETP3	14	+3.3V
15	GND	16	+3.3V
17	PERN2	18	+3.3V
19	PERP2	20	NC
21	GND	22	NC
23	PETN2	24	NC
25	PETP2	26	NC
27	GND	28	NC
29	PERN1	30	NC
31	PERP1	32	NC
33	GND	34	NC
35	PETN1	36	NC
37	PETP1	38	DEVSLP
39	GND	40	NC
41	PERN0	42	NC
43	PERP0	44	NC
45	GND	46	NC
47	PETN0	48	NC
49	PETP0	50	PERST#
51	GND	52	CLKREQ
53	PCIECLKN	54	PEWAKE
55	PCIECLKP	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	NC	68	NC



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PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
69	PEDET	70	+3.3V
71	GND	72	+3.3V
73	GND	74	+3.3V
75	GND		+3.3V

Table 6-11: M.2 M-Key Slot (M2_M1) Pinouts

6.2.11 M.2 M-Key Slot (M2_M2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+3.3V
3	GND	4	+3.3V
5	PERN3	6	NC
7	PERP3	8	NC
9	GND	10	DAS/DSS#
11	PETN3	12	+3.3V
13	PETP3	14	+3.3V
15	GND	16	+3.3V
17	PERN2	18	+3.3V
19	PERP2	20	NC
21	GND	22	NC
23	PETN2	24	NC
25	PETP2	26	NC
27	GND	28	NC
29	PERN1	30	NC
31	PERP1	32	NC
33	GND	34	NC
35	PETN1	36	NC
37	PETP1	38	DEVSLP
39	GND	40	NC
41	PERN0	42	NC
43	PERP0	44	NC
45	GND	46	NC
47	PETN0	48	NC



PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
49	PETP0	50	PERST#
51	GND	52	CLKREQ
53	PCIECLKN	54	PEWAKE
55	PCIECLKP	56	NC

Table 6-12: M.2 M-Key Slot (M2_M2) Pinouts

6.2.12 eDP Connector (EDP1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NC	21	+VCC_LCD
2	GND	22	NC
3	LANE3_N	23	DET_N
4	LANE3_P	24	GND
5	GND	25	GND
6	LANE2_N	26	GND
7	LANE2_P	27	HPD
8	GND	28	GND
9	LANE1_N	29	GND
10	LANE1_P	30	GND
11	GND	31	GND
12	LANE0_N	32	BKLT_EN
13	LANE0_P	33	BKLT_PWM
14	GND	34	NC
15	AUX_P	35	NC
16	AUX_N	36	VCC12V
17	GND	37	VCC12V
18	+VCC_LCD	38	VCC12V
19	+VCC_LCD	39	VCC12V
20	+VCC_LCD	40	NC

Table 6-13: eDP Connector (EDP1) Pinouts



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6.2.13 LVDS Panel Connector (LVDS1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	A0P	4	A0N
5	A1P	6	A1N
7	A2P	8	A2N
9	CLK1P	10	CLK1N
11	A3P	12	A3N
13	GND	14	GND
15	A4P	16	A4N
17	A5P	18	A5N
19	A6P	20	A6N
21	CLK2P	22	CLK2N
23	A7P	24	A7N
25	DET_N (GND)	26	GND
27	+VCC_LCD	28	+VCC_LCD
29	+VCC_LCD	30	+VCC_LCD

Table 6-14: LVDS Panel Connector (LVDS1) Pinouts

6.2.14 LVDS Backlight Power (INV1)

PIN NO.	DESCRIPTION
1	BKLT_PWM
2	GND
3	VCC12V
4	GND
5	ON/OFF

Table 6-15: LVDS Backlight Power (INV1) Pinouts

6.2.15 CPU Fan Connector (CPU_FAN1)

PIN NO.	DESCRIPTION
1	GND



2	VCC12V
3	FANIO
4	PWM

Table 6-16: CPU Fan Connector (CPU_FAN1) Pinouts

6.2.16 MPS PWM IC Programmer Connector (J1)

PIN NO.	DESCRIPTION
1	SCL
2	SDA
3	GND

Table 6-17: MPS PWM IC Programmer Connector (J1)

6.2.17 Flash Descriptor Security Override (ME_FLASH1)

PIN NO.	DESCRIPTION
1	SCL
2	SDA

Table 6-18: Flash Descriptor Security Override (ME_FLASH1)

6.2.18 Chassis Pin Header (J_CHASSIS1)

PIN NO.	DESCRIPTION
1	CHASSIE
2	GND

Table 6-19: Chassis Pin Header (J_CHASSIS1)

6.2.19 System 80/81 Port Connector (DBG_PORT1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC5V	2	SMCLK_EC
3	NC	4	SMDAT_EC
5	GND	6	RST#

Table 6-20: System 80/81 Port Connector (DBG_PORT1)



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6.3 Jumper less Setting

Jumper	Type	LABEL
PWM Power Selection	3-pin header	J_PWM1
Backlight Enable Power Selection	3-pin header	J_BL_EN
Backlight VCC Selection	3-pin header	J_BL_VCC
LVDS Power Selection	3-pin header	J_VLVDS
Flash Mode Header	3-pin header	J_FLASH1

Table 6-21: Jumper less Setting

6.3.1 Panel +VCC_LCD Power Setting (J_PW1)

J_PWM1	DESCRIPTION
1-2	VCC3.3V
2-3	VCC5V

Table 6-22: Panel +VCC_LCD Power Setting (J_PW1)

6.3.2 Backlight Enable Power Selection (J_BL_EN)

J_BL_EN	DESCRIPTION
1-2	+3.3V(Default)
2-3	+5V

Table 6-23: Backlight Enable Power Selection (J_BL_EN)

6.3.3 Backlight VCC Selection (J_BL_VCC)

J_BL_VCC	DESCRIPTION
1-2	+3.3V(Default)
2-3	+5V

Table 6-24: Backlight VCC Selection (J_BL_VCC)



6.3.4 LVDS Power Selection (J_VLVDS1)

J_VLVDS1	DESCRIPTION
1-2	+3.3V(Default)
2-3	+5V

Table 6-25: LVDS Power Selection (J_VLVDS1)

6.3.5 Flash Descriptor Security Override

J_FLASH1	DESCRIPTION
1-2(default)*	Disabled-Default
Short 2-3	Enabled

Table 6-26: Flash Descriptor Security Override

6.4 External Interface Panel Connectors

This chapter describes how to connect peripherals, switches and indicators to the AFL4-W101/W121/12/W133-ADLP-MB V1.00 board.

Connector	Type	Label
RS-232 Connectors	DB-9	COM1/2
RS-232/422/485 Serial ports	DB-9	COM3/4
RJ45 LAN Connector	RJ45	LAN1/2
HDMI Connector	HDMI	HDMI1
USB 2.0 Connectors	USB 2.0 port	USB5
USB 3.2 Gen 1 Connectors	USB 3.2 Gen 1 port	USB3/4
USB 3.2 Gen 2 Connectors	USB 3.2 Gen 2 port	USB1
Power Button	Push button	PWR_SW1
DC Jack	DC Jack	PWR1



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6.4.1 RS-232 Connectors (COM1/2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NDCD	2	NDSR
3	NRX	4	NRTS
5	NTX	6	NCTS
7	NDTR	8	NRI
9	GND	10	GND

Table 6-27: RS-232 Connector Pinouts

6.4.2 RS-232/422/485 Serial Ports (COM3/4)

Mode	RS-232	RS-422	RS-485
PIN NO.	DESCRIPTION	DESCRIPTION	DESCRIPTION
1	DCD#	TX-	TX-
2	RXD	TX+	TX+
3	TXD	RX+	
4	DTR#	RX-	
5	GND		
6	DSR#		
7	RTS#		
8	CTS#		
9	RI#		

Table 6-28: RS-232/422/485 Serial Port Connector Pinouts

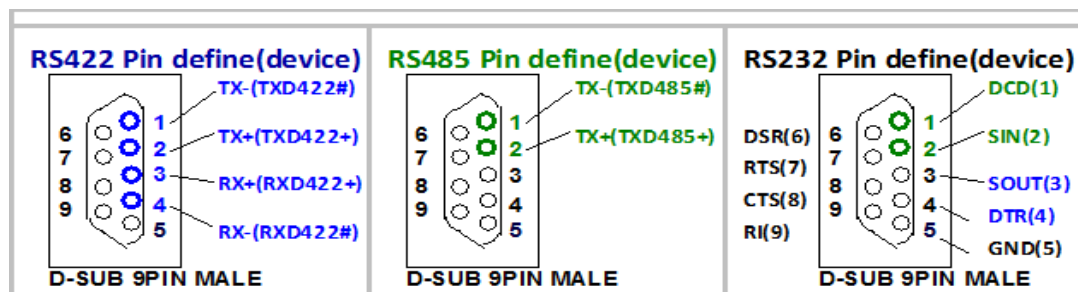


Figure 6-3: RS-232/422/485 Serial Port Connectors

6.4.3 LAN Connector (LAN1/2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MDIA3-	5	MDIA1+
2	MDIA3+	6	MDIA2+-
3	MDIA2-	7	MDIA0-
4	MDIA1-	8	MDIA0+

Table 6-29: LAN Connector Pinouts

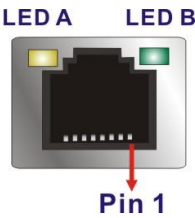


Figure 6-4: Ethernet Connector

LED	Description	LED	Description
A	on: linked blinking: data is being sent/received	B	off: 10 Mb/s green: 100 Mb/s orange: 1000 Mb/s

Table 6-30: Connector LEDs

6.4.4 HDMI Connector (HDMI1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	HDMI_DATA2	13	N/C
2	GND	14	N/C
3	HDMI_DATA2#	15	HDMI_SCL
4	HDMI_DATA1	16	HDMI_SDA
5	GND	17	GND
6	HDMI_DATA1#	18	+5V
7	HDMI_DATA0	19	HDMI_HPD
8	GND	G1	HDMI_GND
9	HDMI_DATA0#	G2	HDMI_GND
10	HDMI_CLK	G3	HDMI_GND

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PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
11	GND	G4	HDMI_GND
12	HDMI_CLK#		

Table 6-31: HDMI1 Connector (HDMI1) Pinouts

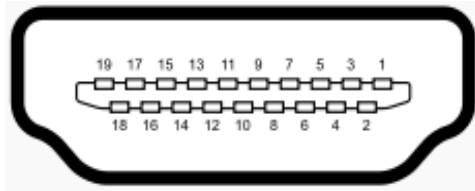


Figure 6-5: HDMI Connector

6.4.5 USB 2.0 Connectors (USB5)

PIN NO.	DESCRIPTION
1	+5V
2	USB_PN-
3	USB_PP+
4	GND

Table 6-32: USB 2.0 Connectors (USB5) Pinouts

6.4.6 USB 3.2 Gen 1 Connectors (USB3/4)

PIN NO.	DESCRIPTION
1	+5V
2	USB_PN-
3	USB_PP+
4	GND
5	USB3_RX_N
6	USB3_RX_P
7	GND
8	USB3_TX_N
9	USB3_TX_P

Table 6-33: USB 3.2 Gen 1 Connectors (USB3/4) Pinouts



6.4.7 USB 3.2 Gen 2 Connectors (USB1)

PIN NO.	DESCRIPTION
1	+5V
2	USB_PN-
3	USB_PP+
4	GND
5	USB3_RX_N
6	USB3_RX_P
7	GND
8	USB3_TX_N
9	USB3_TX_P

Table 6-34: USB 3.2 Gen 2 Connectors (USB1) Pinouts

6.4.8 Power Button (PWR_SW1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3V	2	GND

Table 6-35: Power Button (PWR_SW1) Pinouts

6.4.9 DC Jack

PIN NO.	DESCRIPTION
1	GND
2	12V

Table 6-36: DC Jack Connector



Appendix

A

Regulatory Compliance



DECLARATION OF CONFORMITY



This equipment is in conformity with the following EU directives:

- EMC Directive (2014/30/EU)
- Low-Voltage Directive (2014/35/EU)
- RoHS II Directive (2015/863/EU)

If the user modifies and install other devices in the equipment, the CE conformity declaration may no longer apply.

If this equipment has telecommunications functionality, it also complies with the requirements of the Radio Equipment Directive 2014/53/EU.

Hereby, IEI INTEGRATION CORP declares that the radio equipment type AFL4-W101-ADLP、AFL4-W121-ADLP、AFL4-12-ADLP、AFL4-W133-ADLP are in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internetaddress:

<https://www.ieiworld.com>

	AT	BE	BG	CH	CY	CZ	DE	DK	EE	EL	ES
	FI	FR	HR	HU	IE	IS	IT	LI	LT	LU	LV
	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK (NI)

English

IEI Integration Corp declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

Български [Bulgarian]

IEI Integration Corp. декларира, че този оборудване е в съответствие със съществените изисквания и другите приложими правила на Директива 2014/53/EU.



PPC2-xxx-ADLP Panel PC

Česky [Czech]

IEI Integration Corp tímto prohlašuje, že tento zařízení je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 2014/53/EU.

Dansk [Danish]

IEI Integration Corp erklærer herved, at følgende udstyr overholder de væsentlige krav og øvrige relevante krav i direktiv 2014/53/EU.

Deutsch [German]

IEI Integration Corp, erklärt dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprechenden Vorgaben der Richtlinie 2014/53/EU.

Eesti [Estonian]

IEI Integration Corp deklareerib seadme seadme vastavust direktiivi 2014/53/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.

Español [Spanish]

IEI Integration Corp declara que el equipo cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 2014/53/EU.

Ελληνική [Greek]

IEI Integration Corp ΔΗΛΩΝΕΙ ΟΤΙ ΕΞΟΠΛΙΣΜΟΣ ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 2014/53/EU.

Français [French]

IEI Integration Corp déclare que l'appareil est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 2014/53/EU.

Italiano [Italian]

IEI Integration Corp dichiara che questo apparecchio è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2014/53/EU.

Latviski [Latvian]

IEI Integration Corp deklarē, ka iekārta atbilst būtiskajām prasībām un citiem ar to saistītajiem noteikumiem Direktīvas 2014/53/EU.

Lietuvių [Lithuanian]

IEI Integration Corp deklaruoja, kad šis įranga atitinka esminius reikalavimus ir kitas 2014/53/EU Direktyvos nuostatas.

Nederlands [Dutch]

IEI Integration Corp dat het toestel in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2014/53/EU.

Malti [Maltese]

IEI Integration Corp jiddikjara li dan prodott jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn rilevanti li hemm fid-Dirrettiva 2014/53/EU.

Magyar [Hungarian]

IEI Integration Corp nyilatkozom, hogy a berendezés megfelel a vonatkozó alapvető követelményeknek és az 2014/53/EU irányelv egyéb előírásainak.

Polski [Polish]

IEI Integration Corp oświadcza, że wyrobu jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 2014/53/EU.

Português [Portuguese]

IEI Integration Corp declara que este equipamento está conforme com os requisitos essenciais e outras disposições da Directiva 2014/53/EU.

Româna [Romanian]

IEI Integration Corp declară că acest echipament este în conformitate cu cerințele esențiale și cu celelalte prevederi relevante ale Directivei 2014/53/EU.

Slovensko [Slovenian]

IEI Integration Corp izjavlja, da je ta opreme v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 2014/53/EU.

Slovensky [Slovak]

IEI Integration Corp týmto vyhlasuje, že zariadenia spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 2014/53/EU.

Suomi [Finnish]

IEI Integration Corp vakuuttaa täten että laitteet on direktiivin 2014/53/EU oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.

Svenska [Swedish]

IEI Integration Corp förklarar att denna utrustningstyp står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 2014/53/EU.

PPC2-xxx-ADLP Panel PC**ROHS STATEMENT**

The label on the product indicates this product conforms to European (EU) Restriction of Hazardous Substances (RoHS) that set maximum concentration limits on hazardous materials used in electrical and electronic equipment.

**UKCA WARNING**

Hereby, IEI INTEGRATION CORP declares that the radio equipment type AFL4-W101-ADLP、AFL4-W121-ADLP、AFL4-12-ADLP、AFL4-W133-ADLP are in compliance with the Radio Equipment Regulations 2017(S.I. 2017/1206).

The full text of the system UK declaration of conformity is available at :

<https://www.ieiworld.com>



FCC WARNING

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body.

CHINA ROHS

The label on the product indicates the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Appendix

B

Safety Precautions

**WARNING:**

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the PPC2-xxx-ADLP.

B.1 Safety Precautions

Please follow the safety precautions outlined in the sections that follow:

B.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- ***Follow the electrostatic precautions*** outlined below whenever the device is opened.
- ***Make sure the power is turned off and the power cord is disconnected*** whenever the PPC2-xxx-ADLP is being installed, moved or modified.
- ***To prevent the risk of electric shock, make sure power cord is unplugged from wall socket.*** To fully disengage the power to the unit, please disconnect the power cord from the AC outlet. Refer servicing to qualified service personnel. The AC outlet shall be readily available and accessible.
- ***Do not apply voltage levels that exceed the specified voltage range.*** Doing so may cause fire and/or an electrical shock. Use a power cord that matches the voltage of the power outlet, which has been approved and complies with the safety standard of your particular country.
- ***Electric shocks can occur*** if the PPC2-xxx-ADLP chassis is opened when it is running. To avoid risk of electric shock, this device must only be connected to a supply mains with protective earth.
- ***Do not drop or insert any objects*** into the ventilation openings of the PPC2-xxx-ADLP.

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- ***If considerable amounts of dust, water, or fluids enter the device***, turn off the power supply immediately, unplug the power cord, and contact the PPC2-xxx-ADLP vendor.
- **RTC battery safety precautions:**
 - RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE
 - Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery, that can result in an explosion
 - Leaving a battery in an extremely high temperature surrounding environment that can result in an explosion or the leakage of flammable liquid or gas
 - A battery subjected to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas
- **DO NOT:**
 - Drop the device against a hard surface.
 - Strike or exert excessive force onto the LCD panel.
 - Touch any of the LCD panels with a sharp object
 - In a site where the ambient temperature exceeds the rated temperature

B.1.2 Anti-static Precautions



WARNING:

Failure to take ESD precautions during the installation of the PPC2-xxx-ADLP may result in permanent damage to the PPC2-xxx-ADLP and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the PPC2-xxx-ADLP. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the PPC2-xxx-ADLP is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband:*** Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.

- **Self-grounding:** Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- **Use an anti-static pad:** When configuring or working with an electrical component, place it on an anti-static pad. This reduces the possibility of ESD damage.
- **Only handle the edges of the electrical component:** When handling the electrical component, hold the electrical component by its edges.

B.1.3 Product Disposal

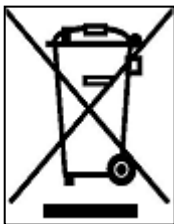


CAUTION:

Risk of explosion if battery is replaced by an incorrect type. Only certified engineers should replace the on-board battery.

Dispose of used batteries according to instructions and local regulations.

- Outside the European Union—If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union—The device that produces less waste and is easier to recycle is classified as electronic device in terms of the European Directive 2012/19/EU (WEEE), and must not be disposed of as domestic garbage.



EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask

PPC2-xxx-ADLP Panel PC

the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

Please follow the national guidelines for electrical and electronic product disposal.

B.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the PPC2-xxx-ADLP, please follow the guidelines below.



WARNING:

- For safety reasons, turn-off the power and unplug the panel PC before cleaning.
 - If you dropped any material or liquid such as water onto the panel PC when cleaning, unplug the power cable immediately and contact your dealer or the nearest service center. Always make sure your hands are dry when unplugging the power cable.
-

B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the PPC2-xxx-ADLP, please read the details below.

- Except for the LCD panel, never spray or squirt liquids directly onto any other components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.
- The interior of the device does not require cleaning. Keep fluids away from the device interior.
- Be cautious of all small removable components when vacuuming the device.
- Never drop any objects or liquids through the openings of the device.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the device.
- Avoid eating, drinking and smoking within vicinity of the device.

B.2.2 Cleaning Tools

Some components in the PPC2-xxx-ADLP may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the PPC2-xxx-ADLP.

- ***Cloth***— Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the device.
- ***Water or rubbing alcohol***—A cloth moistened with water or rubbing alcohol can be used to clean the device.
- ***Using solvents***—The use of solvents is not recommended when cleaning the device as they may damage the plastic parts.
- ***Vacuum cleaner***—Using a vacuum specifically designed for computers is one of the best methods of cleaning the device. Dust and dirt can restrict the airflow in the device and cause its circuitry to corrode.
- ***Cotton swabs***—Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- ***Foam swabs***—Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

C

Watchdog Timer



NOTE:

The following discussion applies to DOS. Contact IEI support or visit the IEI website for drivers for other operating systems.

The Watchdog Timer is a hardware-based timer that attempts to restart the system when it stops working. The system may stop working because of external EMI or software bugs. The Watchdog Timer ensures that standalone systems like ATMs will automatically attempt to restart in the case of system problems.

A BIOS function call (INT 15H) is used to control the Watchdog Timer.

INT 15H:

AH – 6FH Sub-function:	
AL – 2:	Sets the Watchdog Timer’s period.
BL:	Time-out value (Its unit-second is dependent on the item “Watchdog Timer unit select” in CMOS setup).

Table C-1: AH-6FH Sub-function

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. When the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

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**NOTE:**

The Watchdog Timer is activated through software. The software application that activates the Watchdog Timer must also deactivate it when closed. If the Watchdog Timer is not deactivated, the system will automatically restart after the Timer has finished its countdown.

EXAMPLE PROGRAM:

; INITIAL TIMER PERIOD COUNTER

;

W_LOOP:

;

```

MOV      AX, 6F02H      ;setting the time-out value
MOV      BL, 30          ;time-out value is 48 seconds
INT      15H

```

;

; ADD THE APPLICATION PROGRAM HERE

;

```

CMP      EXIT_AP, 1      ;is the application over?
JNE      W_LOOP          ;No, restart the application

MOV      AX, 6F02H      ;disable Watchdog Timer
MOV      BL, 0           ;
INT      15H

```

;

; EXIT ;

Appendix

D

Hazardous Materials Disclosure

PPC2-xxx-ADLP Panel PC

D.1.1 RoHS II Directive (2015/863/EU)

The details provided in this appendix are to ensure that the product is compliant with the RoHS II Directive (2015/863/EU). The table below acknowledges the presences of small quantities of certain substances in the product, and is applicable to RoHS II Directive (2015/863/EU).

Please refer to the following table.

Part Name	Toxic or Hazardous Substances and Elements									
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate (BBP)	Dibutyl phthalate (DBP)	Diisobutyl phthalate (DIBP)
Housing	O	O	O	O	O	O	O	O	O	O
Printed Circuit Board	O	O	O	O	O	O	O	O	O	O
Metal Fasteners	O	O	O	O	O	O	O	O	O	O
Cable Assembly	O	O	O	O	O	O	O	O	O	O
Fan Assembly	O	O	O	O	O	O	O	O	O	O
Power Supply Assemblies	O	O	O	O	O	O	O	O	O	O
Battery	O	O	O	O	O	O	O	O	O	O
O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in Directive (EU) 2015/863. X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in Directive (EU) 2015/863.										



D.1.2 China RoHS

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有“环境友好使用期限”的标签，此期限是估算这些物质“不会有泄漏或突变”的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	O	O	O	O	O	O
印刷电路板	O	O	O	O	O	O
金属螺帽	O	O	O	O	O	O
电缆组装	O	O	O	O	O	O
风扇组装	O	O	O	O	O	O
电力供应组装	O	O	O	O	O	O
电池	O	O	O	O	O	O
O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11364-2014 與 GB/T26572-2011 标准规定的限量要求以下。						
X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11364-2014 與 GB/T26572-2011 标准规定的限量要求。						

