



MODEL:

PPC2-Cxxx-ADL Series

Panel PC equips 12th Gen Intel® Core™ i9/i7/i5/i3 or Pentium® Processor, Dual-Channel DDR4 SO-DIMM, One M.2 E Key & One M.2 M Key Expansion Slots, SATA 6Gb/s, IP 65 Compliant Front Panel and RoHS Compliant

User Manual

Revision

Date	Version	Changes
December 28, 2023	1.00	Initial release
August 15, 2023	1.01	Update Spec, add BIOS chapter



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，不要在使用手冊上記載的產品工作溫度範圍之外操作此系統。
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- 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.

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Chapter

1

Introduction

1.1 Overview



Figure 1-1: PPC-Cxxx-ADL Panel PC

The PPC-Cxxx-ADL panel PC is powered by 12th Gen Intel® Core™ i9/i7/i5/i3 and Pentium® Processor.

The PPC-Cxxx-ADL is a heavy industrial panel PC with rugged and trendy design which can be applied in harsh industrial environments and enriches aesthetic experience at the same time.

The major external device connections include USB 3.2 Gen 2 (10Gb/s), USB 2.0, serial port, VGA and HDMI connectors. The PPC-Cxxx-ADL has one PCIe Gen4 x16 slot, one M.2 E-key and one M.2 M-key slots, allowing installation of a wide variety of PCIe card solutions, such as a Wi-Fi module and graphics card.

PPC2-Cxxx-ADL Series Panel PC

1.2 Model Variations

The model variations of the PPC2-Cxxx-ADL Series panel PC series are listed below.

Model	Size	Resolutions	Processor
PPC2-C15-ADL-P/4G-R10	15"	1024x768	Intel® Pentium® Gold G7400
PPC2-C15-ADL-i3/4G-R10	15"	1024x768	Intel® Core™ i3-12100
PPC2-C15-ADL-i5/4G-R10	15"	1024x768	Intel® Core™ i5-12400
PPC2-C15-ADL-i7/4G-R10	15"	1024x768	Intel® Core™ i7-12700
PPC2-C17-ADL-P/4G-R10	17"	1280x1024	Intel® Pentium® Gold G7400
PPC2-C17-ADL-i3/4G-R10	17"	1280x1024	Intel® Core™ i3-12100
PPC2-C17-ADL-i5/4G-R10	17"	1280x1024	Intel® Core™ i5-12400
PPC2-C17-ADL-i7/4G-R10	17"	1280x1024	Intel® Core™ i7-12700
PPC2-CW15-ADL-P/4G-R10	15.6"	1920x1080	Intel® Pentium® Gold G7400
PPC2-CW15-ADL-i3/4G-R10	15.6"	1920x1080	Intel® Core™ i3-12100
PPC2-CW15-ADL-i5/4G-R10	15.6"	1920x1080	Intel® Core™ i5-12400
PPC2-CW15-ADL-i7/4G-R10	15.6"	1920x1080	Intel® Core™ i7-12700
PPC2-C19-ADL-P/4G-R10	19"	1280 x1024	Intel® Pentium® Gold G7400
PPC2-C19-ADL-i3/4G-R10	19"	1280x1024	Intel® Core™ i3-12100
PPC2-C19-ADL-i5/4G-R10	19"	1280x1024	Intel® Core™ i5-12400
PPC2-C19-ADL-i7/4G-R10	19"	1280x1024	Intel® Core™ i7-12700
PPC2-CW19-ADL-P/4G-R10	18.5"	1920x1280	Intel® Pentium® Gold G7400
PPC2-CW19-ADL-i3/4G-R10	18.5"	1920x1280	Intel® Core™ i3-12100
PPC2-CW19-ADL-i5/4G-R10	18.5"	1920x1280	Intel® Core™ i5-12400
PPC2-CW19-ADL-i7/4G-R10	18.5"	1920x1280	Intel® Core™ i7-12700
PPC2-CW22-ADL-P/4G-R10	21.5"	1920x1280	Intel® Pentium® Gold G7400
PPC2-CW22-ADL-i3/4G-R10	21.5"	1920x1280	Intel® Core™ i3-12100
PPC2-CW22-ADL-i5/4G-R10	21.5"	1920x1280	Intel® Core™ i5-12400
PPC2-CW22-ADL-i7/4G-R10	21.5"	1920x1280	Intel® Core™ i7-12700

Table 1-1: Model Variations

1.3 Features

The PPC-Cxxx-ADL has the following features.

- 12th Gen Intel® Core™ i9/i7/i5/i3 or Pentium® Processor
- Two 260-pin 3200 MHz Dual-Channel DDR4 SO-DIMM
- Robust aluminum IP 65 compliant front panel
- One PCIe Gen4 x16 slot, one M.2 E-key and one M.2 M-key slots

- Anti-glare and anti-UV touchscreen
- Support gloved and wet hand operation
- Supports dual 2.5G Ethernet port
- HDMI 2.0 display output
- RoHS compliant design

1.4 Front Panel

The front side of the PPC-Cxxx-ADL (**Figure 1-2**) is a flat panel LCD touchscreen surrounded by an aluminum frame.



Figure 1-2: Front Panel

1.5 Rear Panel

The rear panel has a fan vent, four VESA 100 mounting holes and several retention screws. The VESA 100 mounting holes are circled in **Figure 1-3**.

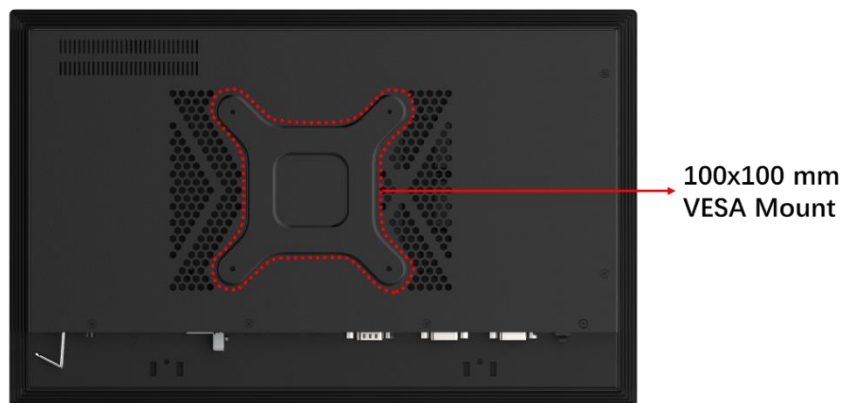


Figure 1-3: Rear View

PPC2-Cxxx-ADL Series Panel PC

1.6 Bottom Panel

An overview of the bottom panel is shown in **Figure 1-4**.

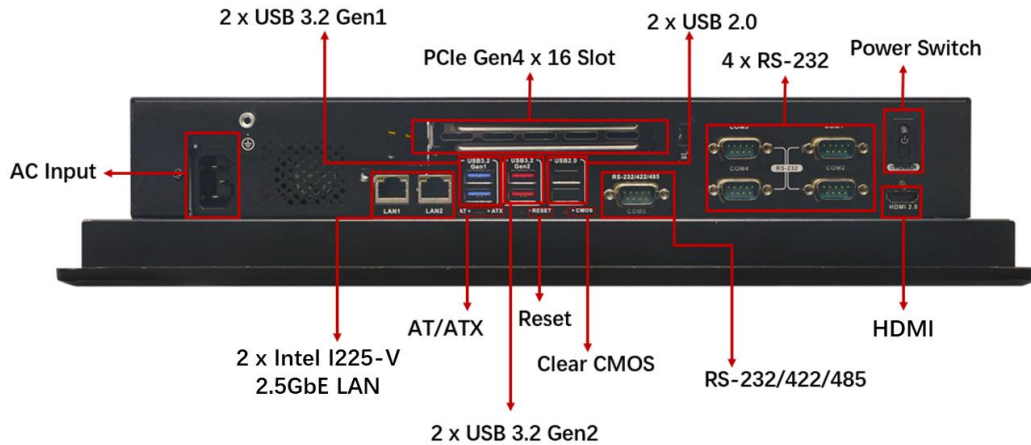


Figure 1-4: Bottom Panel

1.7 Technical Specifications

	PPC2-C15-ADL	PPC2-CW15-ADL	PPC2-C17-ADL
LCD Display	15" (4:3)	15.6" (16:9)	17" (5:4)
Max. Resolution	1024 (W) x 768 (H)	1920 (W) x 1080 (H)	1280 (W) x 1024 (H)
Brightness	450 cd/m ²	400 cd/m ²	350 cd/m ²
Contrast Ratio	800:1	500: 1	800:1
LCD Color	16.2M	16.2M	16.7M
Pixel Pitch (mm)	0.297 x 0.297	0.252 x 0.252	0.26 x 0.26
Viewing Angle (H-V)	160°/150°	170°/160°	170°/160°
Backlight MTBF	70,000 hours	50000 hours	50,000 hours
CPU	12th Gen Intel® Core™ i9/i7/i5/i3 and Pentium® Processor (LGA1700)		
Chipset	Intel® H610		
Graphics Engine	New Intel® Xe Graphics architecture with SRIOV, Genlock		
Display Output	1 x HDMI 2.0		
Memory	Two 260-pin 3200 MHz dual-Channel DDR4 SO-DIMM (Pre-installed 4GB; max. 64GB)		
Touchscreen	Multi-point projected capacitive type		
	Surface hardness: ≥7H		
Touch Controller	Projected capacitive type: EETI 80		
Storage	1 x 2.5" SATA HDD Bay (Height limit: 7.5mm)		

Ethernet	LAN1: Intel® I225 + LAN2: Intel® I225		
Expansion	1 x PCIe Gen4 x16 Slot with x16 Signal <i>(Only support single-slot expansion card, Maximum length: 169mm, power is limited to 70W or less)</i> 1 x M.2 E-Key 2230 (PCIe Gen3 x1 + CNVlo + USB 2.0) 1 x M.2 M Key 2242/2280 NVMe (PCIe Gen3 x4)		
Mounting	VESA 100mm x 100mm		
	Panel, Wall, Rack, Stand and Arm		
Construction Material	Aluminum front cover and sheet metal rear cover		
Enclosure Color	Black C		
I/O Ports, Switches and Buttons	1 x HDMI 2.0 2 x 2.5GbE RJ45 2 x USB 2.0 (Type-A) 2 x USB 3.2 Gen1 (Type-A) (5Gb/s) 2 x USB 3.2 Gen2 (Type-A) (10Gb/s) 1 x RS-232/422/485 (RS-485 support AFC)	4 x RS-232 1 x AC input 1 x Power switch 1 x Clear CMOS button 1 x Reset button 1 x AT/ATX switch	
Power Supply	AC input ATX power supply 250W power supply - Input: 100V~240V AC, 47Hz-63Hz - Output (max.): 3.3V@6A, 5V@12A, 12V@17A, -12V@0.5A, +5Vsb@2A Support AT/ATX mode ErP/EuP Compliant		
Thermal Solution	Smart fan (2 x CPU fan, 2 x System fan)		
TPM	Intel® Platform Trust Technology		
Watchdog Timer	Software Programmable Support 1~255 sec. system reset		
Operating Temperature (with air flow)	-10°C ~ 60°C		
Storage Temperature	-20°C ~ 60°C		
Humidity	10% ~ 95%@40°C, non-condensing		
IP Level	IP 65 compliant front panel		
Operating Vibration	MIL-STD-810F 514.5C-1 (with SSD)		
Operating Shock	Half-sine wave shock 5G; 11ms; 3 shocks per axis		
Safety and EMC	CE, FCC Class A, UKCA		
ErP	ErP 2009/125/EC		
Dimensions (H x W x D) (mm)	378.5 x 303 x 76.16	400.70 x 253.90 x 86.45	408.40 x 341.40 x 84.70
Net Weight	5.715 kg	5.64 kg	5.73 kg

Table 1-2: PPC2-C15/CW15/C17-ADL Specifications

PPC2-Cxxx-ADL Series Panel PC

	PPC2-CW19-ADL	PPC2-C19-ADL	PPC2-CW22-ADL
LCD Display	18.5" (16:9)	19" (5:4)	21.5" (16:9)
Max. Resolution	1920 (W) x 1080 (H)	1280 (W) x 1024 (H)	1920 (W) x 1080 (H)
Brightness	400 cd/m ²	350 cd/m ²	350 cd/m ²
Contrast Ratio	1000:1	41.66736111	1000:1
LCD Color	16.7M	16.7M	16.7M
Pixel Pitch (mm)	0.3 x 0.3	0.294 x 0.294	0.3 x 0.3
Viewing Angle (H-V)	170°/160°	170°/160°	170°/160°
Backlight MTBF	50000 hours	50,000 hours	50000 hours
CPU	12th Gen Intel® Core™ i9/i7/i5/i3 and Pentium® Processor (LGA1700)		
Chipset	Intel® H610		
Graphics Engine	New Intel® Xe Graphics architecture with SRIOV, Genlock		
Display Output	1 x HDMI 2.0		
Memory	Two 260-pin 3200 MHz dual-Channel DDR4 SO-DIMM (Pre-installed 4GB; max. 64GB)		
Touchscreen	Multi-point projected capacitive type Surface hardness: ≥7H		
Touch Controller	Projected capacitive type: EETI 80		
Storage	1 x 2.5" SATA HDD Bay (Height limit: 7.5mm)		
Ethernet	LAN1: Intel® I225 + LAN2: Intel® I225		
Expansion	1 x PCIe Gen4 x16 Slot with x16 Signal (Only support single-slot expansion card, Maximum length: 169mm, power is limited to 70W or less) 1 x M.2 E-Key 2230 (PCIe Gen3 x1 + CNVio + USB 2.0) 1 x M.2 M Key 2242/2280 NVMe (PCIe Gen3 x4)		
Mounting	VESA 100mm x 100mm Panel, Wall, Rack, Stand and Arm		
Construction Material	Aluminum front cover and sheet metal rear cover		
Enclosure Color	Black C		
I/O Ports, Switches and Buttons	1 x HDMI 2.0 2 x 2.5GbE RJ45 2 x USB 2.0 (Type-A) 2 x USB 3.2 Gen1 (Type-A) (5Gb/s) 2 x USB 3.2 Gen2 (Type-A) (10Gb/s) 1 x RS-232/422/485 (RS-485 support AFC)		4 x RS-232 1 x AC input 1 x Power switch 1 x Clear CMOS button 1 x Reset button 1 x AT/ATX switch
Power Supply	AC input ATX power supply 250W power supply - Input: 100V~240V AC, 47Hz-63Hz - Output (max.): 3.3V@6A, 5V@12A, 12V@17A, -12V@0.5A, +5Vsb@2A Support AT/ATX mode ErP/EuP Compliant		

Thermal Solution	Smart fan (2 x CPU fan, 2 x System fan)		
TPM	Intel® Platform Trust Technology		
Watchdog Timer	Software Programmable Support 1~255 sec. system reset		
Operating Temperature (with air flow)	-10°C ~ 60°C	-10°C ~ 50°C	
Storage Temperature	-20°C ~ 60°C		
Humidity	10% ~ 95%@40°C, non-condensing		
IP Level	IP 65 compliant front panel		
Operating Vibration	MIL-STD-810F 514.5C-1 (with SSD)		
Operating Shock	Half-sine wave shock 5G; 11ms; 3 shocks per axis		
Safety and EMC	CE, FCC Class A, UKCA		
ErP	ErP 2009/125/EC		
Dimensions (H x W x D) (mm)	468.80 x 288.20 x 82	447.4 x 372.4 x 82.2	550.40 x 358.40 x 81.66
Net Weight	6.965 kg	7.66 kg	9 kg

Table 1-3: PPC2-CW19/C19/CW22-ADL Specifications

PPC2-Cxxx-ADL Series Panel PC

1.8 Dimensions

1.8.1 PPC2-C15-ADL Dimensions

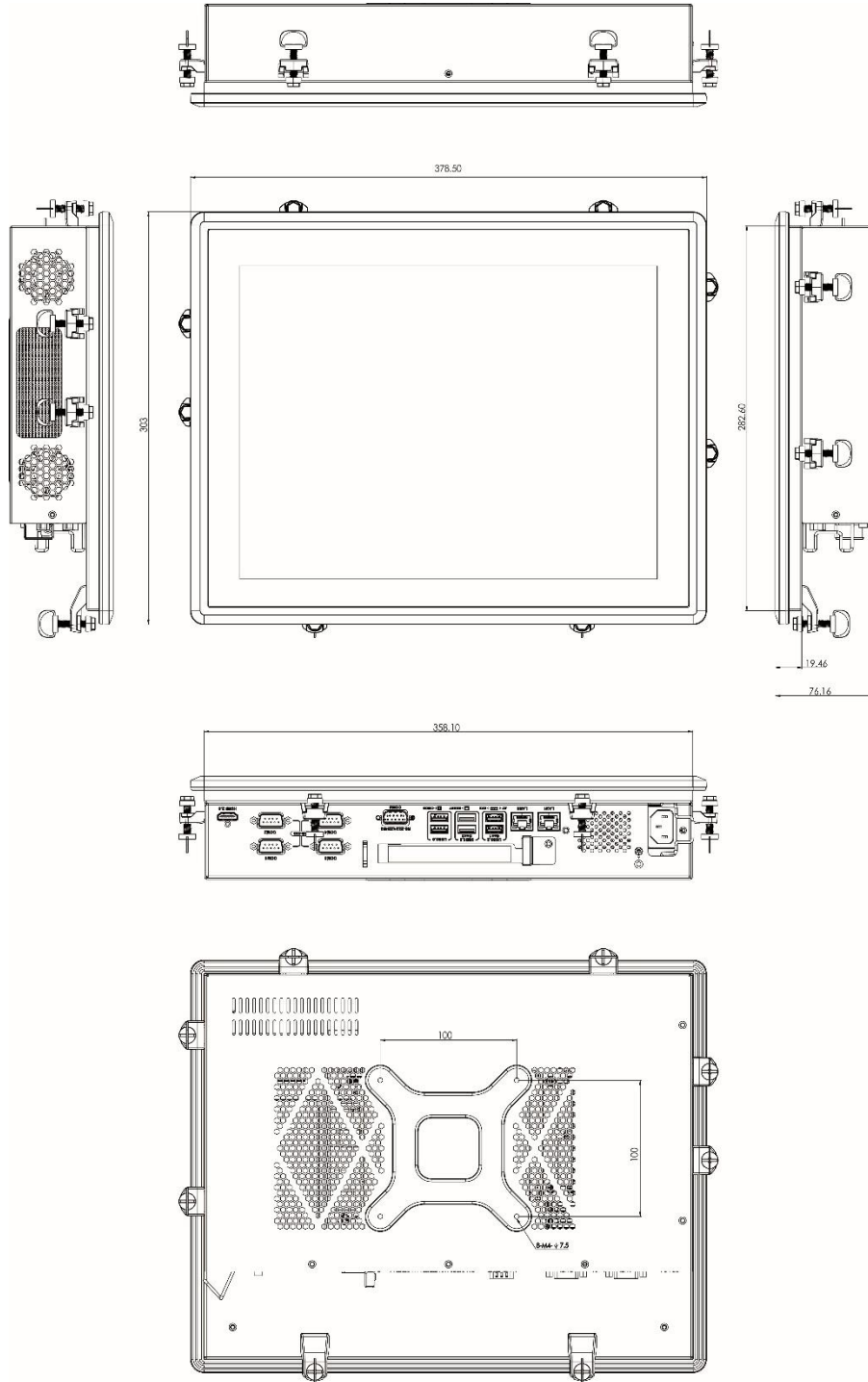


Figure 1-5: PPC2-C15-ADL Dimensions (Unit: mm)

1.8.2 PPC2-CW15-ADL Dimensions

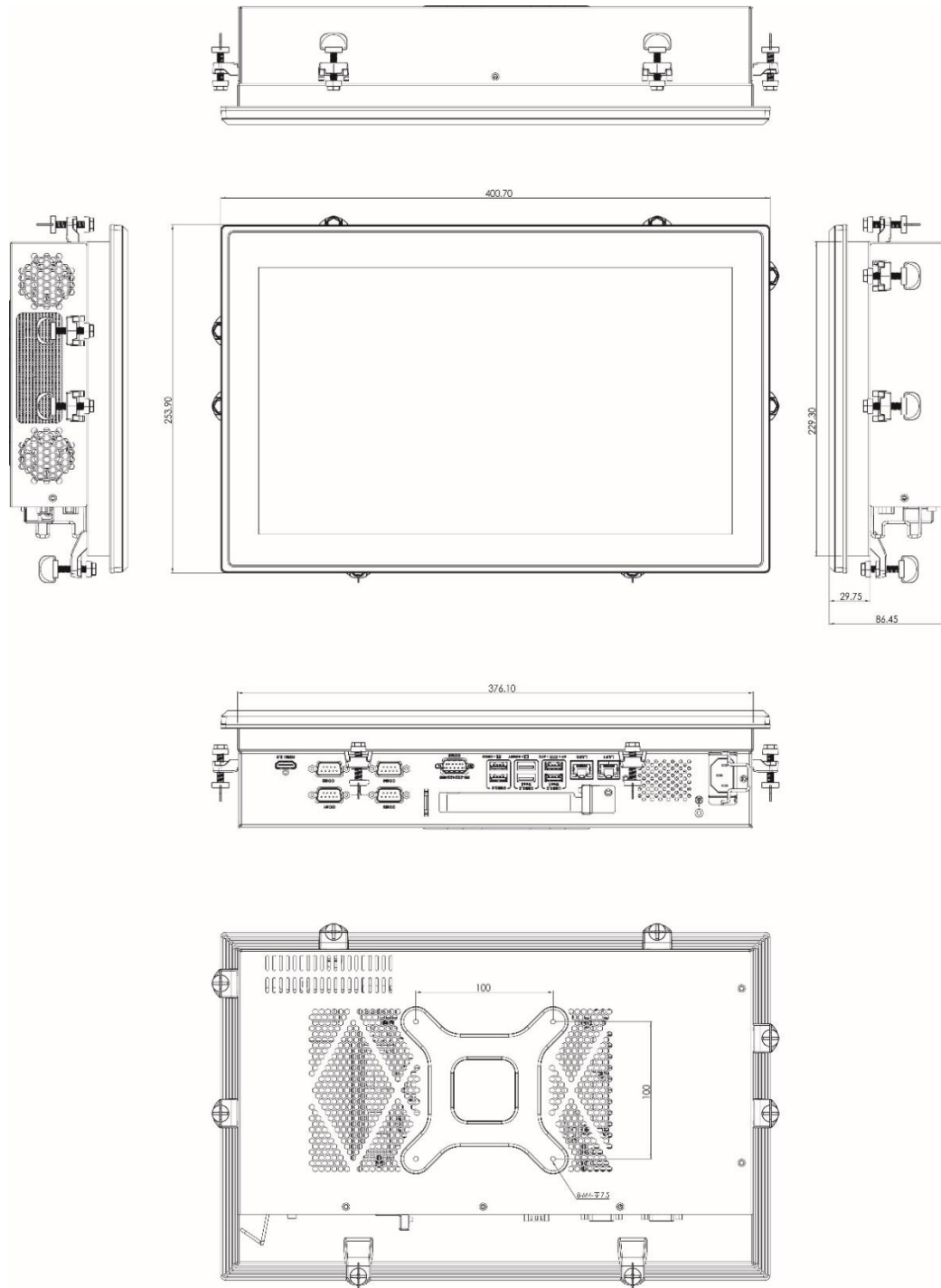


Figure 1-6: PPC2-CW15-ADL Dimensions (Unit: mm)

PPC2-Cxxx-ADL Series Panel PC

1.8.3 PPC2-C17-ADL Dimensions

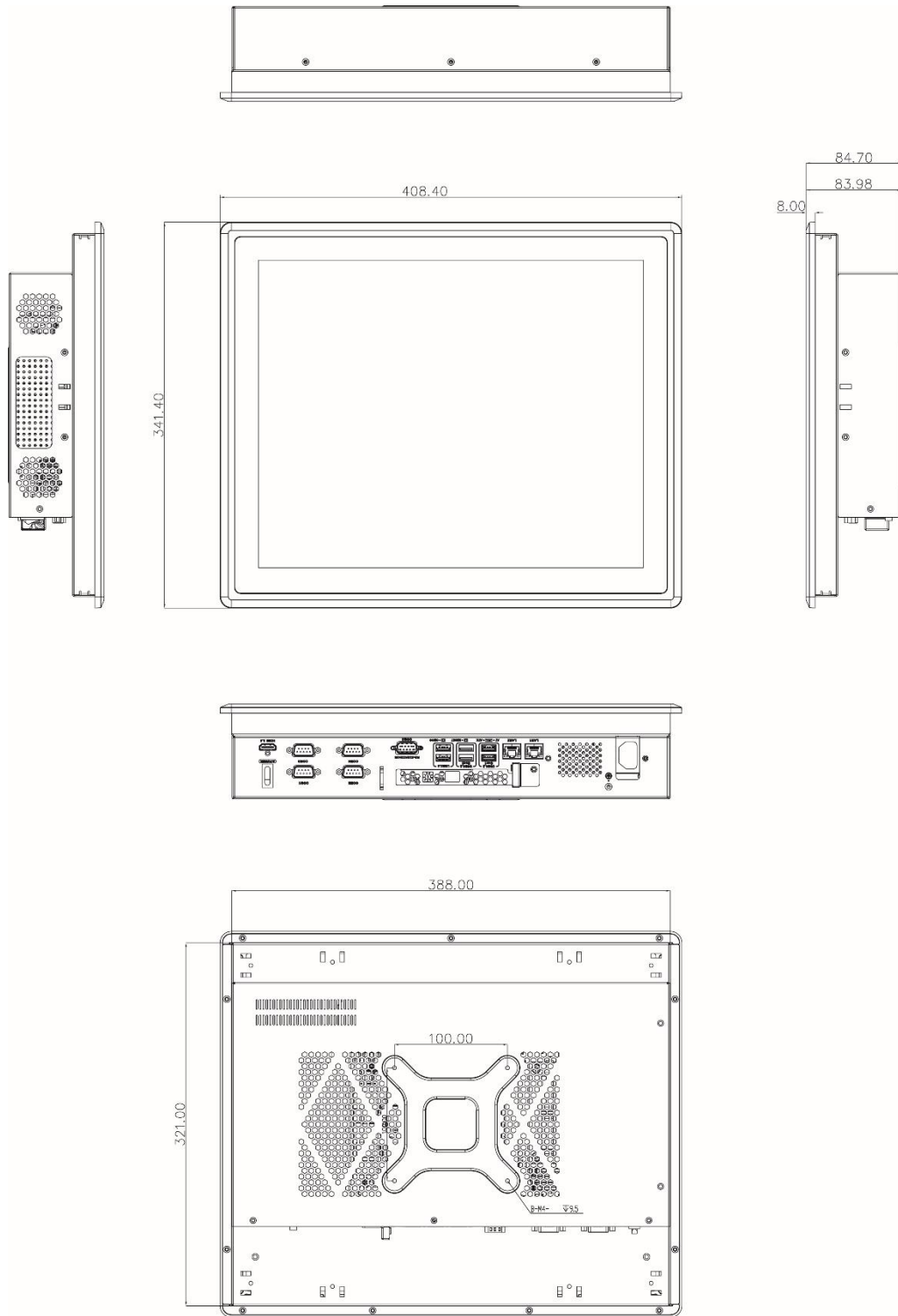


Figure 1-7: PPC2-C17-ADL Dimensions (Unit: mm)

1.8.4 PPC2-C19-ADL Dimensions

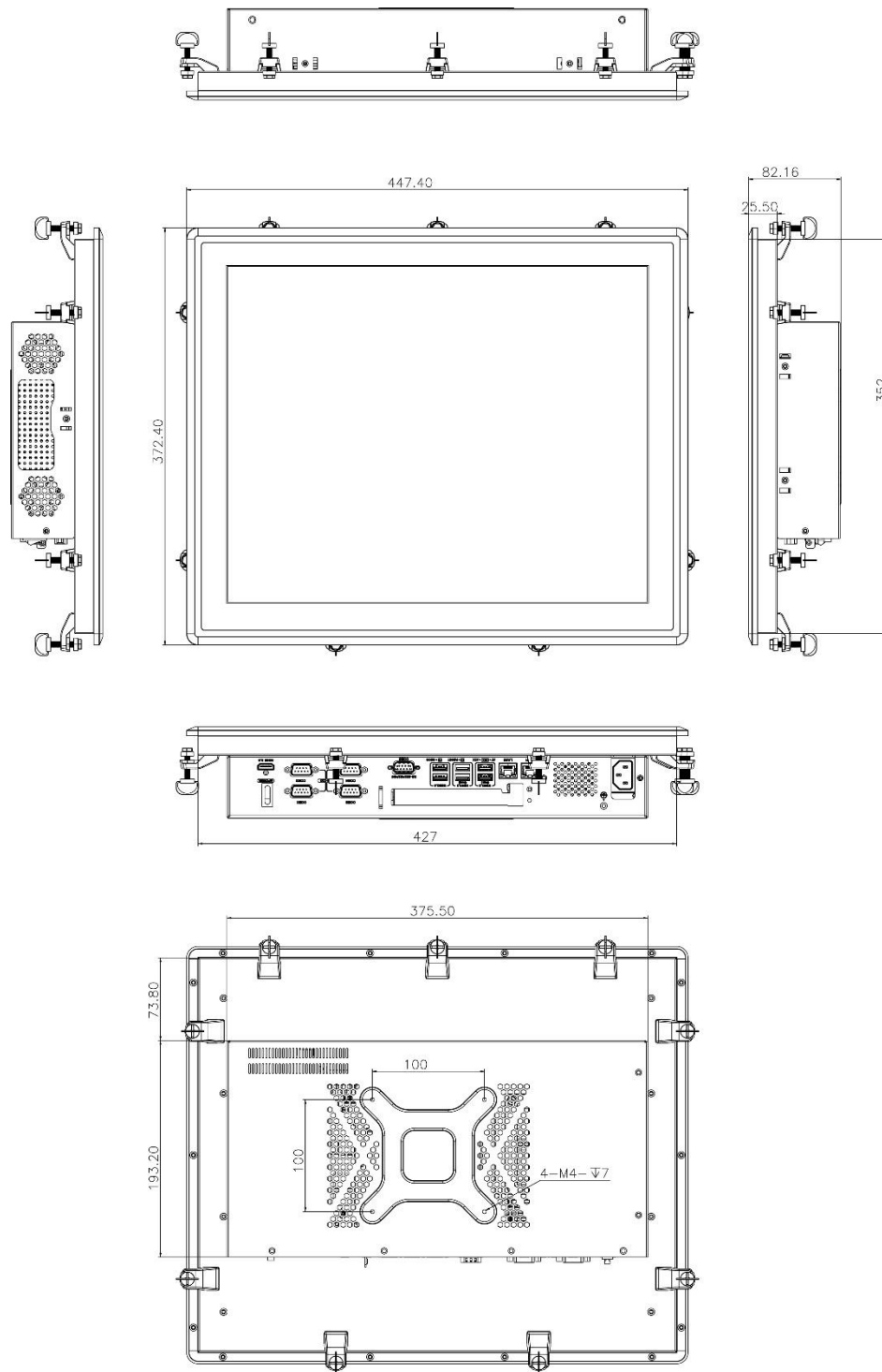


Figure 1-8: PPC2-C19-ADL Dimensions (Unit: mm)

PPC2-Cxxx-ADL Series Panel PC

1.8.5 PPC2-CW19-ADL Dimensions

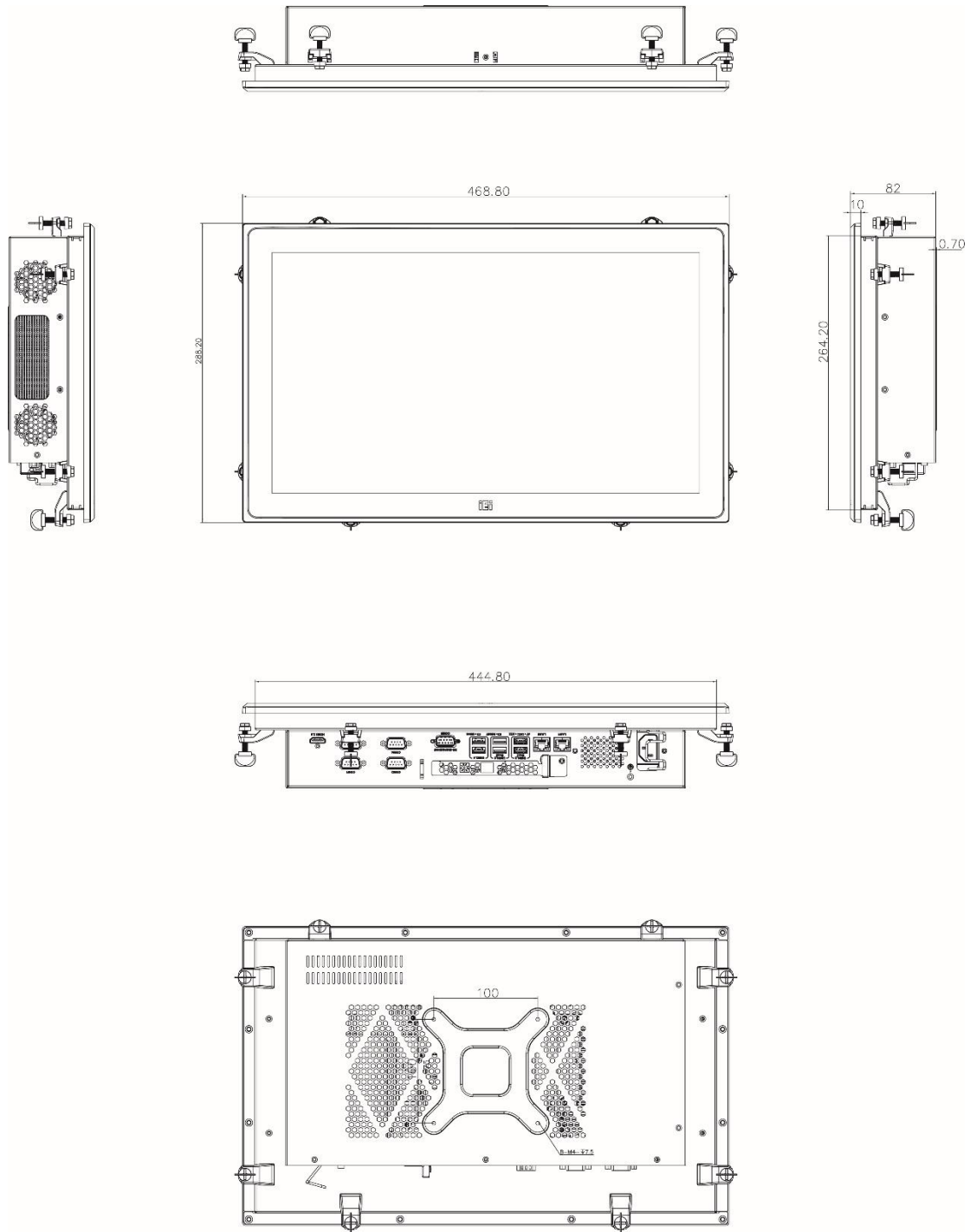


Figure 1-9: PPC2-CW19-ADL Dimensions (Unit: mm)

1.8.6 PPC2-CW22-ADL Dimensions

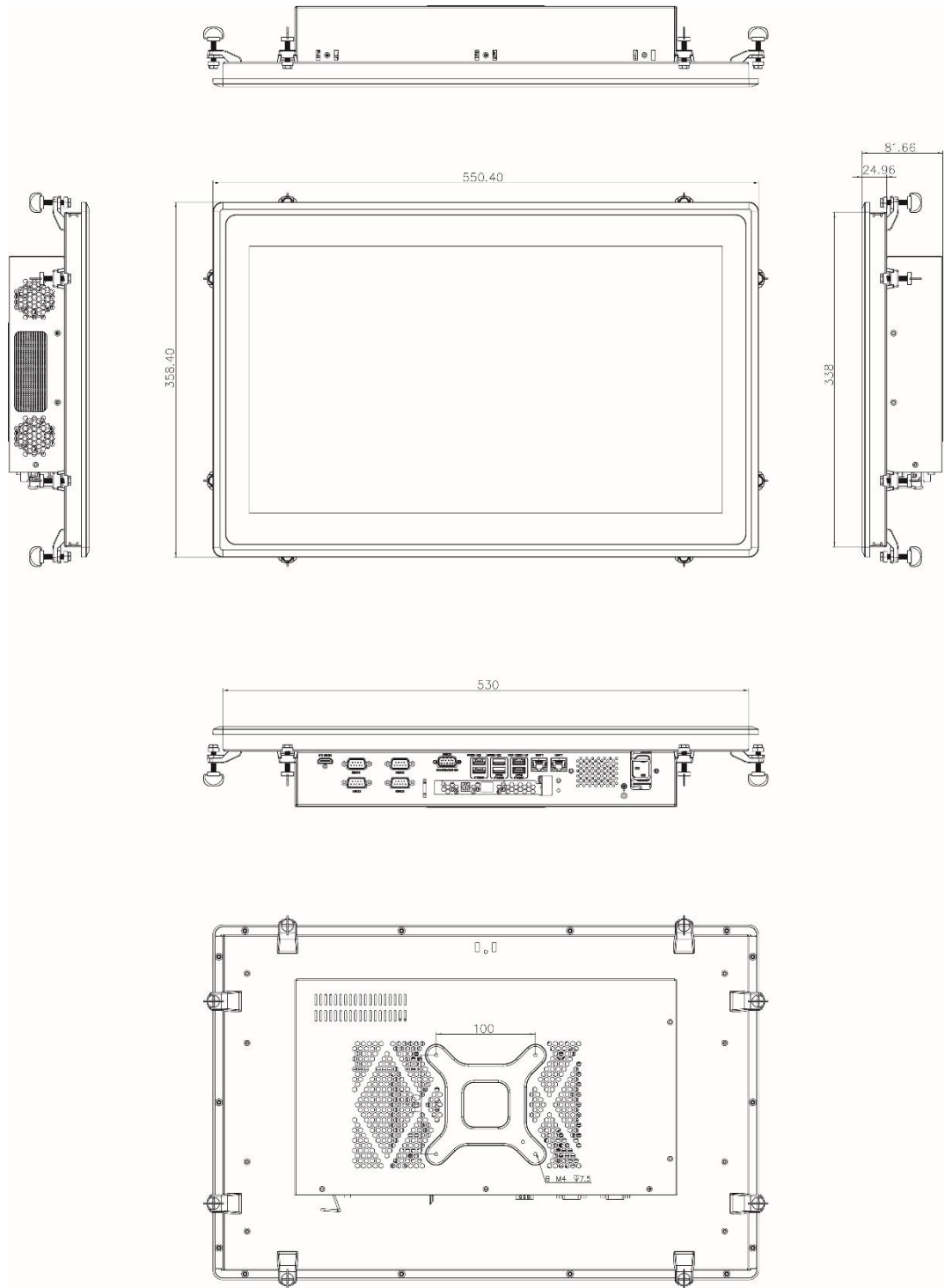


Figure 1-10: PPC2-CW22-ADL Dimensions (Unit: mm)

Chapter

2

Unpacking

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:** Use box cutters, a knife or a sharp pair of scissors that seals the top side of the external (second) box.
- Step 2:** Open the external (second) box.
- Step 3:** Use box cutters, a knife or a sharp pair of scissors that seals the top side of the internal (first) box.
- Step 4:** Lift the panel pc out of the boxes.
- Step 5:** Remove both polystyrene ends, one from each side.
- Step 6:** Pull the plastic cover off the panel PC.
- Step 7:** Make sure all the components listed in the packing list are present.

PPC2-Cxxx-ADL Series Panel PC

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 PPC-Cxxx-ADL was purchased from or contact an IEI sales representative directly by sending an email to sales@ieiworld.com.

The PPC-Cxxx-ADL panel PC is shipped with the following components:





Quantity	Item	Image
1	PPC-Cxxx-ADL Panel PC	
1	Power cord	
1	Panel mount kit	
1	Screw pack	

Table 2-1: Package List

2.3 Optional Items

The following items are optional accessories for the PPC-Cxxx-ADL:

PPC2-C15/CW15/C17/C19/CW19/CW22-ADL		
Item	Part No.	Description
Arm	ARM-31-RS	VESA 75/100 desk arm
Stand	STAND-C19-R10	VESA 75/100 easy stand
Wall	AFLWK-19B	Wall mounting kit
OS	WIN10-IOTE2019-H-RS	Win10 IoT Ent LTSC 2019 MultiLang OEI High End
Wi-Fi Kit	EMB-WIFI-KIT02I3-R10	2T2R M.2 Wi-Fi module, Wi-Fi 6E & Bluetooth 5.2

Table 2-2: Optional Items

Installation

3.1 Anti-static Precautions



WARNING:

Failure to take ESD precautions during the maintenance of the PPC-Cxxx-ADL may result in permanent damage to the PPC-Cxxx-ADL and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the power module. (Dry climates are especially susceptible to ESD.) It is therefore critical that whenever the PPC-Cxxx-ADL is opened and any electrical component 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 PPC-Cxxx-ADL, place it on an anti-static pad. This reduces the possibility of ESD damaging the PPC-Cxxx-ADL.

3.2 Installation Precautions

During installation, be aware of the precautions below:

- **Read the user manual:** The user manual provides a complete description of the PPC-Cxxx-ADL, installation instructions and configuration options.
- **DANGER! Disconnect Power:** Power to the PPC-Cxxx-ADL must be disconnected during the installation process. Failing to disconnect the power may cause severe injury to the body and/or damage to the system.
- **Qualified Personnel:** The PPC-Cxxx-ADL must be installed and operated only by trained and qualified personnel. Maintenance, upgrades, or repairs may only be carried out by qualified personnel who are familiar with the associated dangers.
- **Air Circulation:** Make sure there is sufficient air circulation when installing the PPC-Cxxx-ADL. The PPC-Cxxx-ADL cooling vents must not be obstructed by any objects. Blocking the vents can cause overheating of the PPC-Cxxx-ADL. Leave at least 5 cm of clearance around the PPC-Cxxx-ADL to prevent overheating.
- **Grounding:** The PPC-Cxxx-ADL should be properly grounded. The voltage feeds must not be overloaded. Adjust the cabling and provide external overcharge protection per the electrical values indicated on the label attached to the back of the PPC-Cxxx-ADL.

3.3 Preinstalled Components

The following components are all preinstalled.

- Motherboard
- TFT LCD
- Touchscreen
- CPU
- Memory

Preinstalled OEM customizations may include the following.

- HDD
- OS

PPC2-Cxxx-ADL Series Panel PC

- Wi-Fi Kit

3.4 Installation Procedure

To properly install the PPC-Cxxx-ADL, the following steps must be followed. Detailed descriptions of these instructions are listed in the sections that follow.

Step 1: Unpacking the PPC-Cxxx-ADL panel PC

Step 2: Install an SSD (if necessary).

Step 3: Install expansion cards (optional)

Step 4: Mount the panel PC

Step 5: Connect the peripheral devices

Step 6: Power the system up

3.5 Removing the Rear Cover



WARNING:

Before any internal installation procedures are carried out on the system, make sure the system is turned off and cooled down for 5 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 PPC-Cxxx-ADL internally the rear cover must be removed, remove the back cover retention screws on the back cover, lift the cover up to remove.

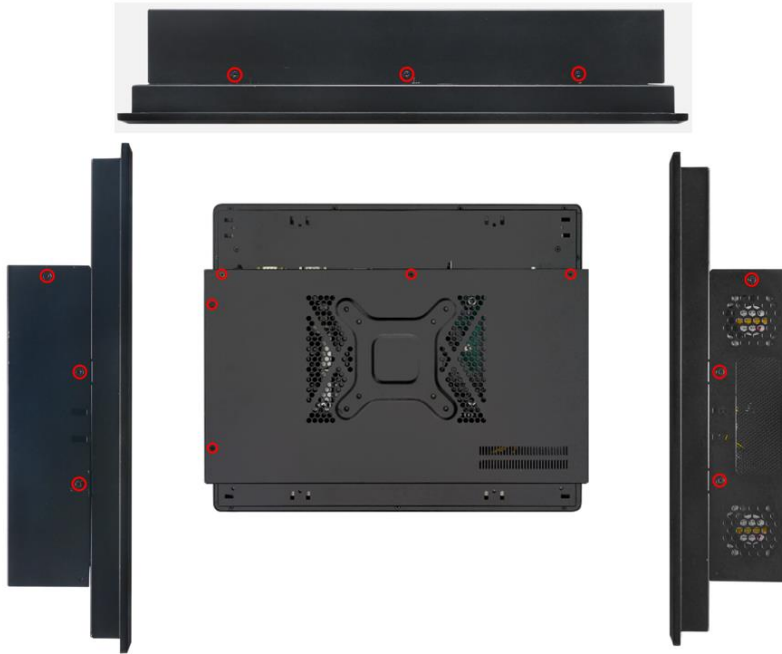


Figure 3-1: PPC2-Cxxx-ADL Series Back Cover Retention Screws

PPC2-Cxxx-ADL Series Panel PC

3.6 Solid-State Drive Installation

One 2.5" SATA HDD drive can be installed in the PPC-Cxxx-ADL. To install the HDD into the system, please follow the steps below.

Step 1: Remove the back cover see **Figure 3-1**.

Step 2: Remove the three screws securing the hard drive bracket to remove the hard drive bracket. See **Figure 3-2**.



Figure 3-2: HDD Bracket Retention Screws

Step 3: Place an HDD onto the drive tray and secure the HDD with the bracket by inserting four retention screws (M3*4) into the bottom of the HDD (**Figure 3-3**).





Figure 3-3: HDD Retention Screws

Step 4: Install the HDD and bracket back into the system. See **Figure 3-4**.



Figure 3-4: Install the HDD and Bracket

Step 5: Connect the SATA cable. See **Figure 3-5**.

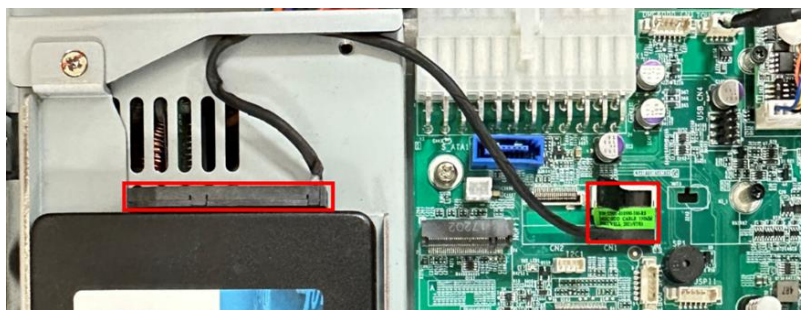


Figure 3-5: SATA Cable

Step 6: Re-install the rear cover and secure it with screws.

PPC2-Cxxx-ADL Series Panel PC

3.7 DIMM Installation (Optional)

To install a DIMM, please follow the steps below and refer to **Figure 3-7**.

Step 1: Remove the rear cover. See Section 3.5 above.

Step 2: Locate the DIMM slots as shown in **Figure 3-6**.

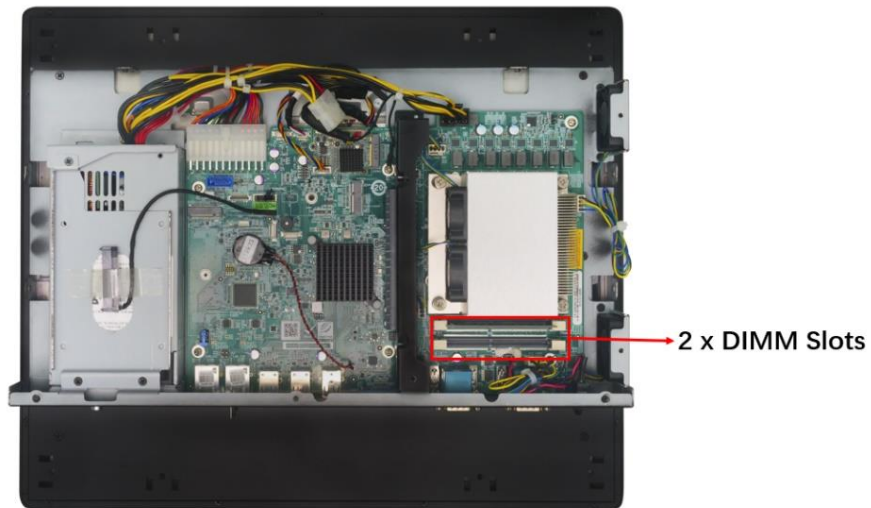


Figure 3-6: DIMM Slot Locations

Step 3: Open the two handles outwards as far as they can. See **Figure 3-7**.

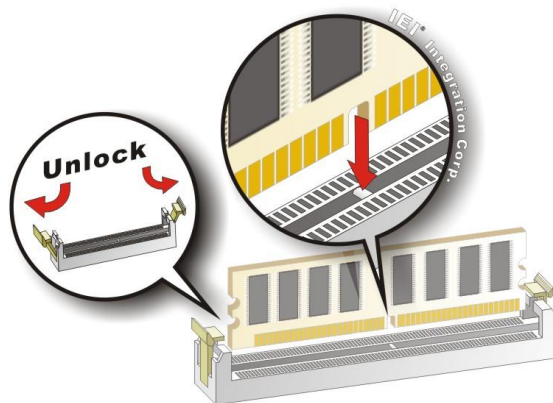


Figure 3-7: DIMM Installation

Step 4: Align the DIMM so the notch on the memory lines up with the notch on the memory socket. See **Figure 3-7**.

Step 5: Once aligned, press down until the DIMM is properly seated. Clip the two handles into place. See **Figure 3-7**.

Step 6: To remove a DIMM, push both handles outward. The memory module is ejected by a mechanism in the socket.

**CAUTION:**

For dual channel configuration, install two identical memory modules that feature the same capacity, timings, voltage, number of ranks and the same brand.

3.8 M.2 Installation (Optional)

To install an M.2 card, please follow the steps below.

Step 1: Remove the rear cover See 3.5.

Step 2: Locate the M.2 slot as shown in **Figure 3-8**.

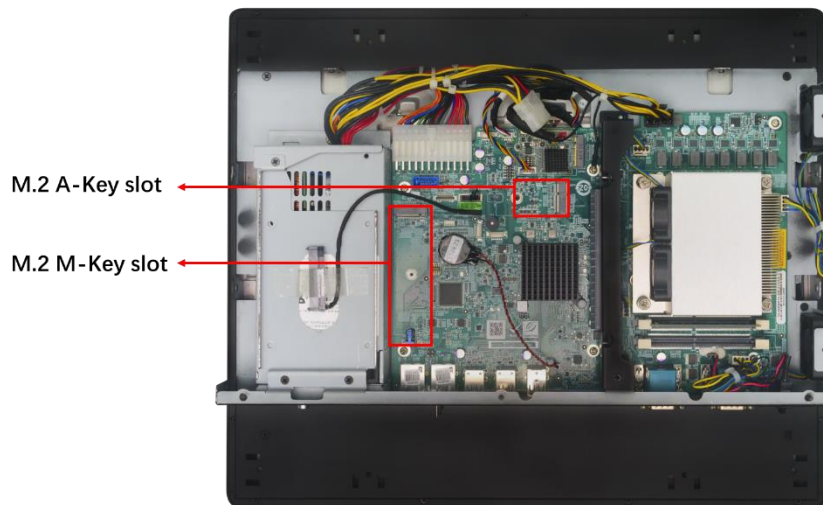


Figure 3-8: M.2 Slot Locations

Step 3: Press the end of the M.2 retaining clip. As shown in **Figure 3-9**.

PPC2-Cxxx-ADL Series Panel PC

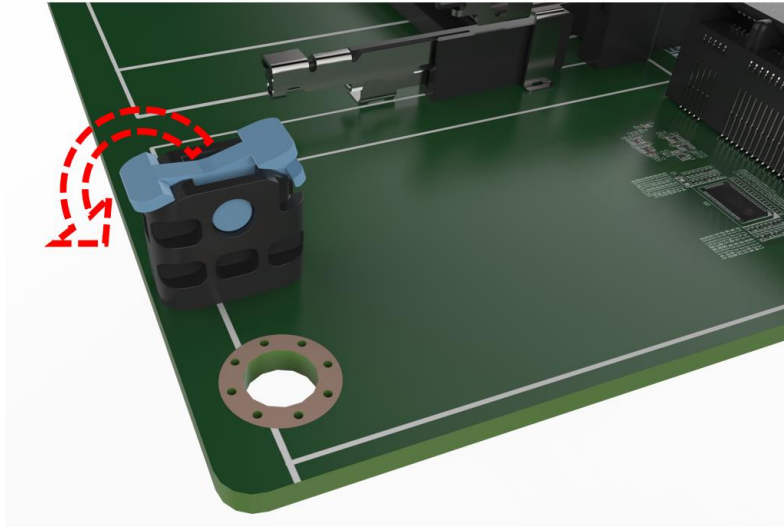


Figure 3-9: Press the End of The M.2 Retaining Clip

Step 4: Insert M.2 card. The notch at the end of the M.2 card needs to be aligned with the notch of the fixed buckle (Figure 3-10).

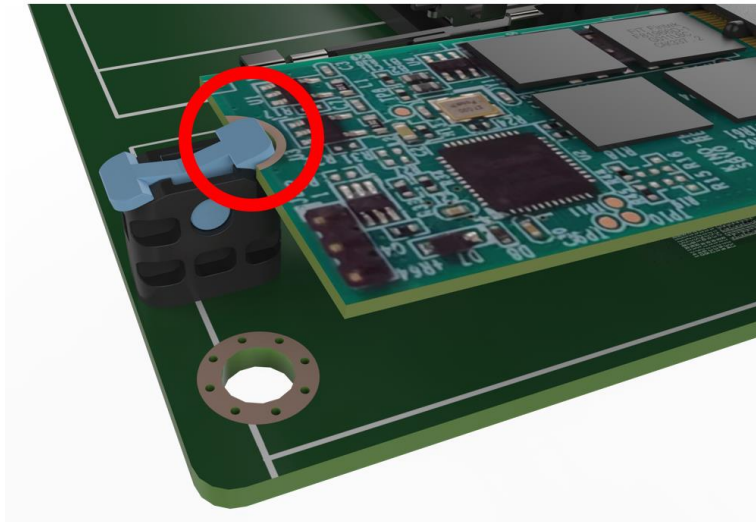


Figure 3-10: Insert M.2 Card

Step 5: Secure the M.2 card. Press down the M.2 card to fix it (Figure 3-11).

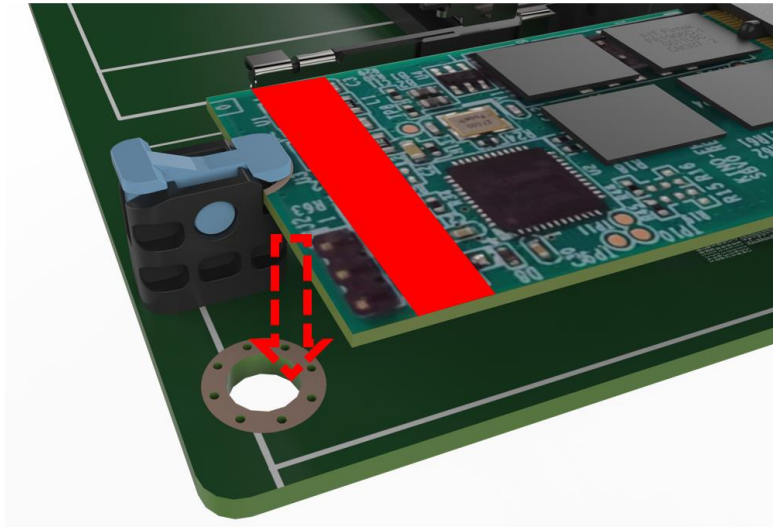


Figure 3-11: Securing the M.2 Card

Step 6: Re-install the rear cover.

PPC2-Cxxx-ADL Series Panel PC

3.9 AT/ATX Mode Selection

AT and ATX power modes can both be used on the PPC-Cxxx-ADL panel PC. The selection is made through an AT/ATX switch on the I/O interface panel. The system is set to ATX mode by default. The switch is shown below.

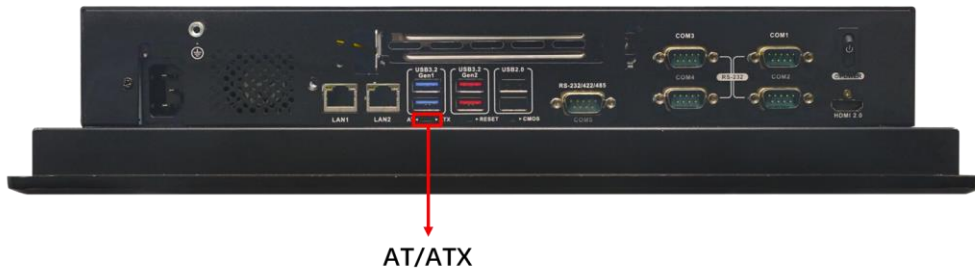


Figure 3-12: AT/ATX Mode Selection

		AT/ATX Switch	
		AT	ATX (Default)
Power Switch Position	Off (O)	The system remains off.	The system remains off.
	On (I)	The system turns on once power is connected.	Depends on the state selected in the Restore AC Power Loss BIOS option.

Table 3-1: AT/ATX Mode Selection

3.10 Mounting the System

The following sections describe the mounting methods supported by the PPC-Cxxx-ADL.



WARNING!

When mounting the PPC-Cxxx-ADL panel PC, it is advisable to have more than one person help with the installation to prevent accidental damage to the panel and avoid personal injury.

The methods of mounting the PPC-Cxxx-ADL are:

- Wall mounting
- Panel mounting
- Rack mounting
- Arm mounting

Stand mounting

The mounting methods are described in the following sections.

3.10.1 Wall Mounting

To mount the PPC-Cxxx-ADL series panel PC onto a 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 bracket screw holes 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 3-13**).

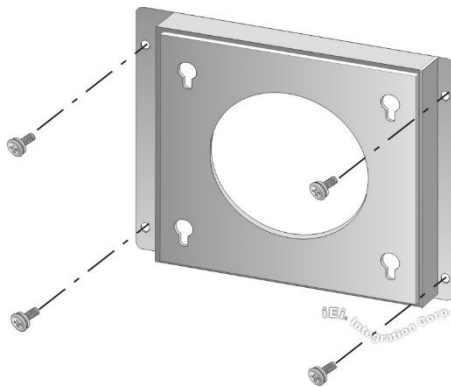


Figure 3-13: Wall-mounting Bracket

- Step 6:** Insert the four monitor mounting screws provided in the wall mounting kit into the four screw holes on the rear panel of the monitor and tighten until the screw shank is secured against the rear panel.
- Step 7:** Align the mounting screws on the monitor rear panel with the mounting holes on the bracket.

PPC2-Cxxx-ADL Series Panel PC

Step 8: Carefully insert the screws through the holes and gently pull the monitor downwards until the monitor rests securely in the slotted holes. Ensure that all four of the mounting screws fit snugly into their respective slotted holes.



NOTE:

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

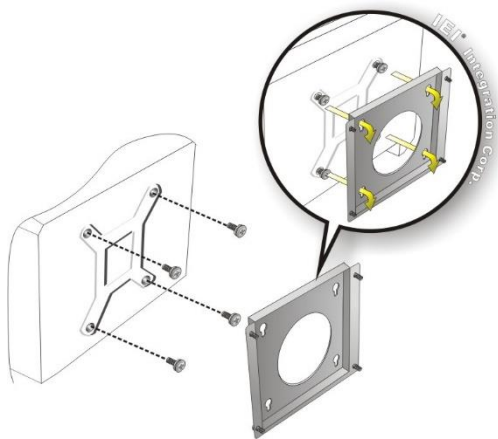


Figure 3-14: Mount the Chassis

Step 9: Secure the panel PC with the wall-mounting kit. To do this, stick the protective cushion to the wall-mounting kit first. Then, put the wall-mounting kit on the top panel of the panel PC. Carefully mark the location of the wall-mounting kit screw holes on the wall. Drill a pilot hole at the marked location on the wall. Secure the wall-mounting kit to the wall by inserting a retention screw into the pilot hole on the wall. This step is to avoid the panel PC being pushed apart from the wall-mounting bracket accidentally.

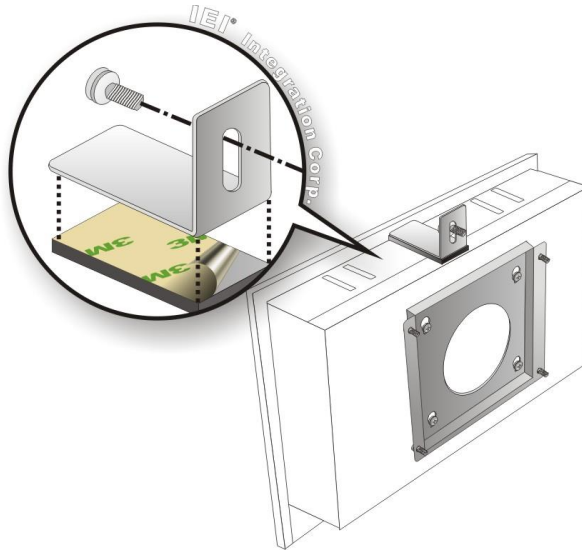


Figure 3-15: Secure the Chassis

3.10.2 Panel and Rack Installation

To mount the PPC-Cxxx-ADL panel PC into a panel, please follow steps 1-5.

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



NOTE:

For the PPC-Cxxx-ADL panel PC, five mounting brackets must be installed (three along the bottom and one along each side).

Step 1: Select the position on the panel to mount the PPC-Cxxx-ADL.

Step 2: Cut out a section of the panel that corresponds to the rear panel dimensions of the PPC-Cxxx-ADL. The recommended cutout sizes are shown below.

PPC2-Cxxx-ADL Series Panel PC

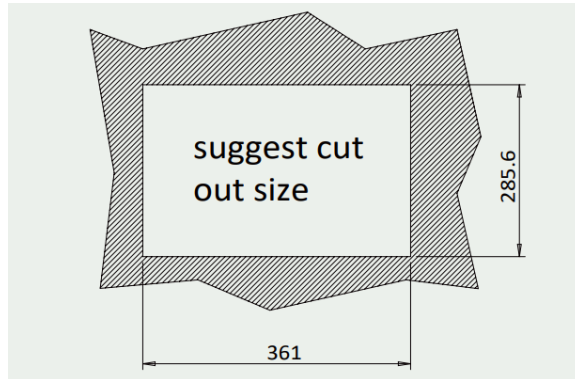


Figure 3-16: PPC2-C15-ADL Panel Cutout Dimensions

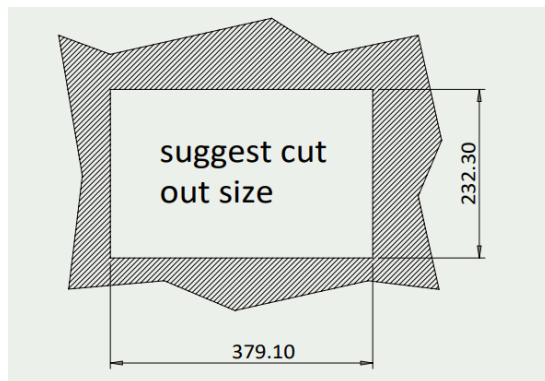


Figure 3-17: PPC2-CW15-ADL Panel Cutout Dimensions

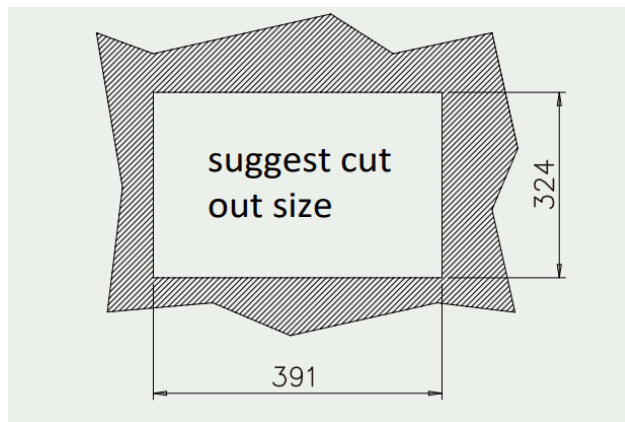


Figure 3-18: PPC2-C17-ADL Panel Cutout Dimensions

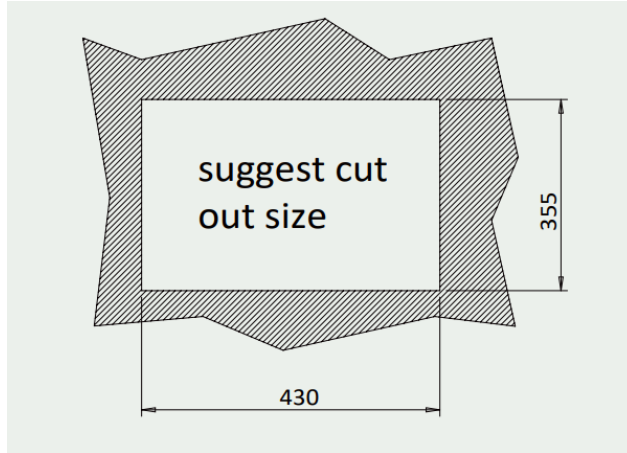


Figure 3-19: PPC2-C19-ADL Panel Cutout Dimensions

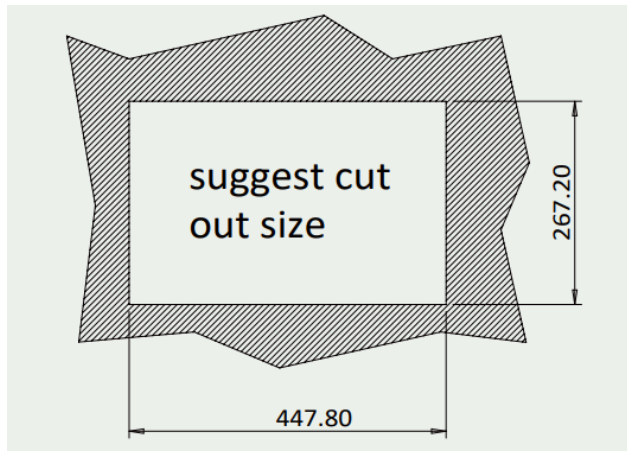


Figure 3-20: PPC2-CW19-ADL Panel Cutout Dimensions

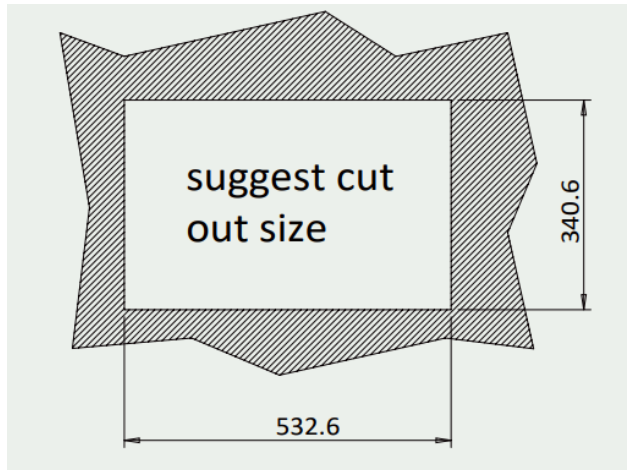


Figure 3-21: PPC2-CW22-ADL Panel Cutout Dimensions

PPC2-Cxxx-ADL Series Panel PC

Step 3: Slide the PPC2-Cxxx-ADL Series through the hole until the aluminum frame is flush against the panel (**Figure 3-22**).

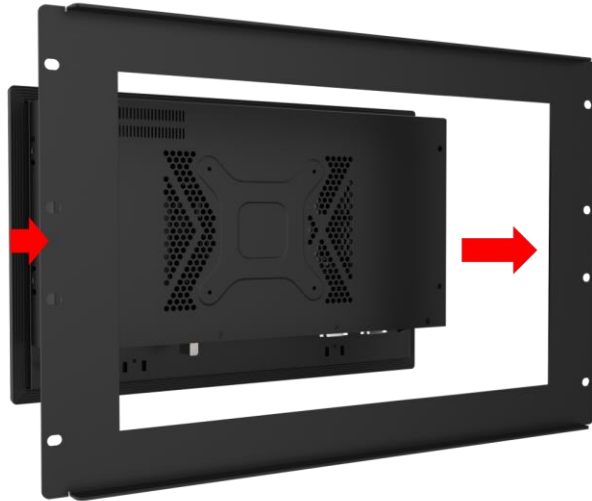


Figure 3-22: Machine mounted to panel

Step 4: Insert the panel mount kit into the prefabricated holes along the rear edge of the PPC2-Cxxx-ADL series (**Figure 3-23**). The required number of mounting clamps may vary by models.



Figure 3-23: Installation Panel Mount Kit

Step 5: 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 3-24**).



Figure 3-24: Tighten the Mounting Screws

Step 6: Slide the PPC2-Cxxx-ADL series with the attached rack/cabinet bracket into a rack or cabinet (**Figure 3-25**).

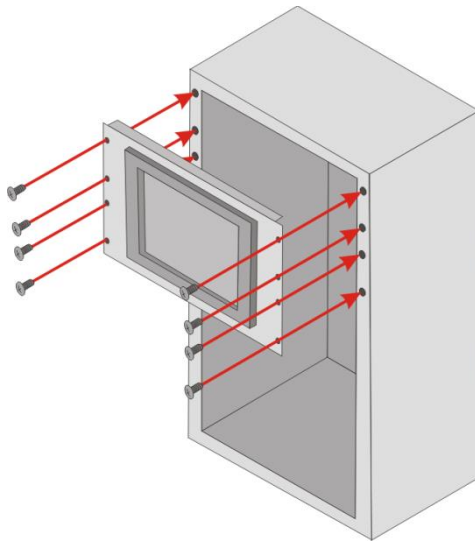


Figure 3-25: Install into a Rack

Step 7: 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 3-25**).

PPC2-Cxxx-ADL Series Panel PC

3.10.3 Arm Mounting

The PPC2-Cxxx-ADL Series is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 100 mm interface pad. To mount the PPC2-Cxxx-ADL Series 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-Cxxx-ADL Series panel PC.

Step 2: Once the mounting arm has been firmly attached to its surface, lift the PPC2-Cxxx-ADL Series 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 PPC2-Cxxx-ADL Series panel PC. The arm mounting retention screw holes of the PPC2-Cxxx-ADL Series panel PC are shown in **Figure 3-26**.

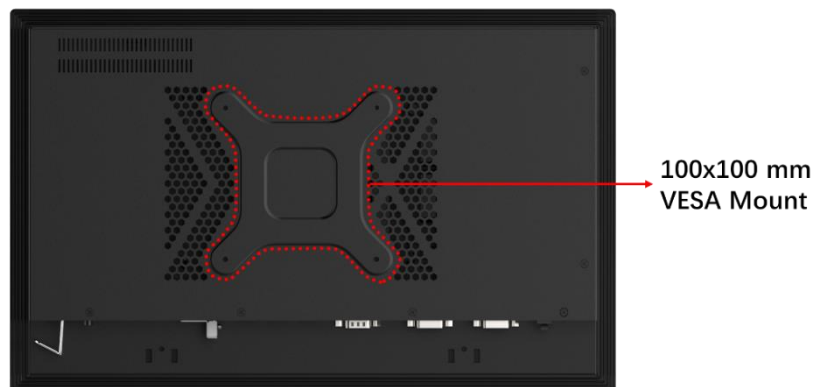


Figure 3-26: Arm Mounting Retention Screw Holes

Step 4: Secure the PPC2-Cxxx-ADL Series to the interface pad by inserting four retention screws through the mounting arm interface pad and into the PPC2-Cxxx-ADL Series panel PC.

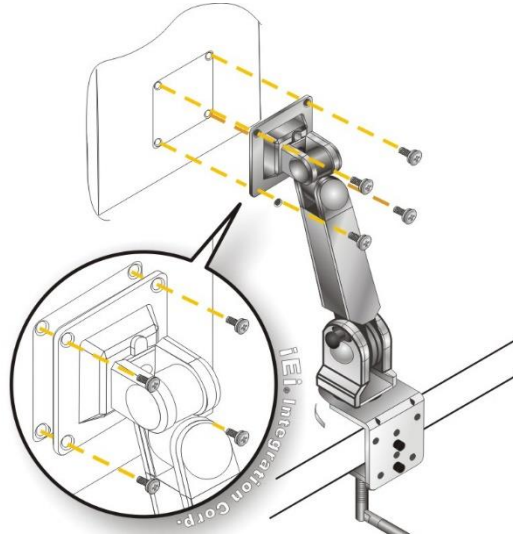


Figure 3-27: Arm Mounting (ARM-11-RS)

3.10.4 Stand Mounting

To mount the PPC2-Cxxx-ADL Series using the stand mounting kit, please follow the steps below.

Step 1: Locate the screw holes on the rear of the PPC2-Cxxx-ADL Series. This is where the bracket will be attached.

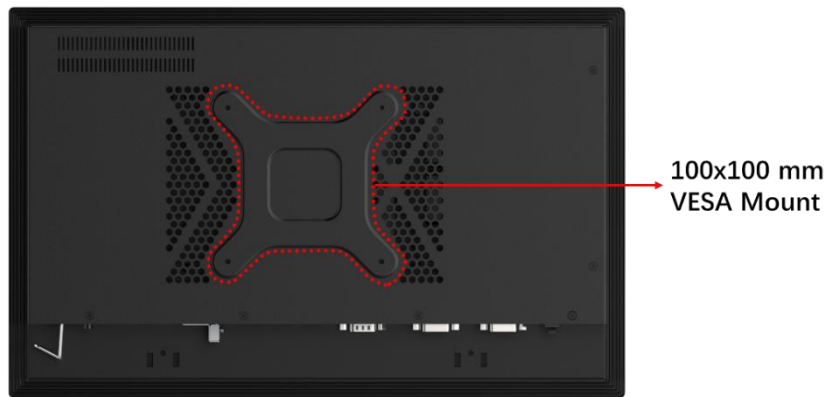


Figure 3-28: Stand Mounting Retention Screw Holes

PPC2-Cxxx-ADL Series Panel PC

Step 2: Align the bracket with the screw holes.

Step 3: To secure the bracket to the PPC2-Cxxx-ADL Series, insert the retention screws into the screw holes and tighten them.

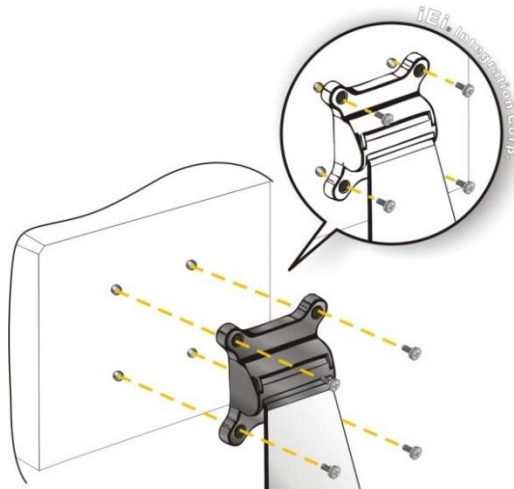


Figure 3-29: Stand Mounting

3.11 Serial Device Connection

The PPC2-Cxxx-ADL Series has RS-232/422/484 and RS-232 ports. The pinouts of the serial ports are listed in the following sections.

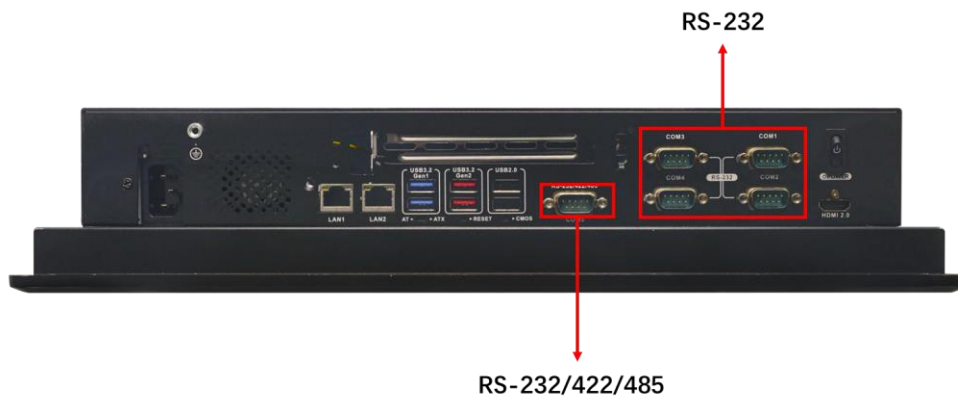


Figure 3-30: Serial Port Locations of PPC2-C15/CW15/C17/C19/CW19/CW22-ADL

3.11.1 RS-232 Serial Ports

The pinouts of the RS-232 serial ports are listed in the following table.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

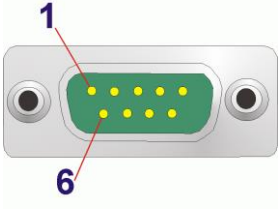


Table 3-2: RS-232 Serial Port Pinouts

3.11.2 RS-232/422/485 Serial Port

The pinouts of the RS-232/422/485 serial ports are listed in the following table.

PIN NO.	RS-232	RS-422	RS-485
1	DCD	TXD422-	TXD485-
2	RXD	TXD422+	TXD485+
3	TXD	RXD422+	--
4	DTR	RXD422-	--
5	GND	--	--
6	DSR	--	--
7	RTS	--	--
8	CTS	--	--
9	RI	--	--

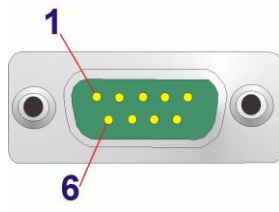


Table 3-3: RS-232/422/485 Serial Port (COM3) Pinouts

3.12 Power-On Procedure

3.12.1 Installation Checklist



WARNING:

Make sure a power supply with the correct input voltage is being fed into the system. Incorrect voltages applied to the system may cause damage to the internal electronic components and may also cause injury to the user.

To power on the panel PC please make sure of the following:

- Memory modules are installed
- The rear cover is installed

PPC2-Cxxx-ADL Series Panel PC

All peripheral devices are connected
The system is securely mounted

3.12.2 Power-on Procedure

To power-on the PPC2-Cxxx-ADL Series please follow the steps below:

Step 1: Connect the power source to the power inlet on the bottom panel.

Step 2: Press the power switch to power up the system.



Figure 3-31: Power Switch

3.13 Reset the System

The reset button enables users to reboot the system when the system is turned on. The reset button location is shown in **Figure 3-32**. Press the reset button to reboot the system.



Figure 3-32: Reset Button Location

3.14 Clear CMOS

If the PPC-Cxxx-ADL fails to boot due to improper BIOS settings, the clear CMOS button clears the CMOS data and resets the system BIOS information. To do this, push the clear CMOS button for three seconds, and then restart the system. The clear CMOS button

location is shown in **Figure 3-33**.

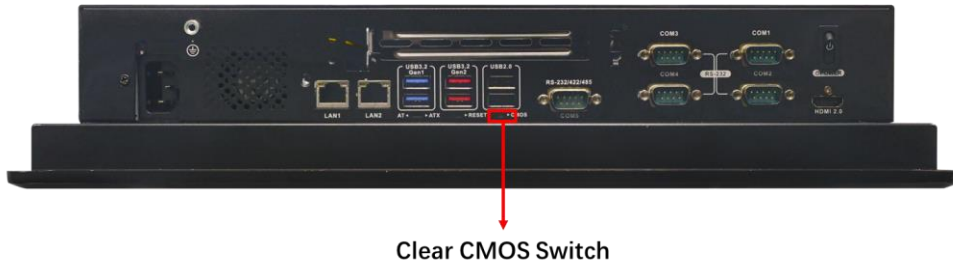


Figure 3-33: Clear CMOS Button Location

3.15 Software Installation

All the drivers for the **PPC2-Cxxx-ADL Series** are available on IEI Resource Download Center (<https://download.ieiworld.com>).

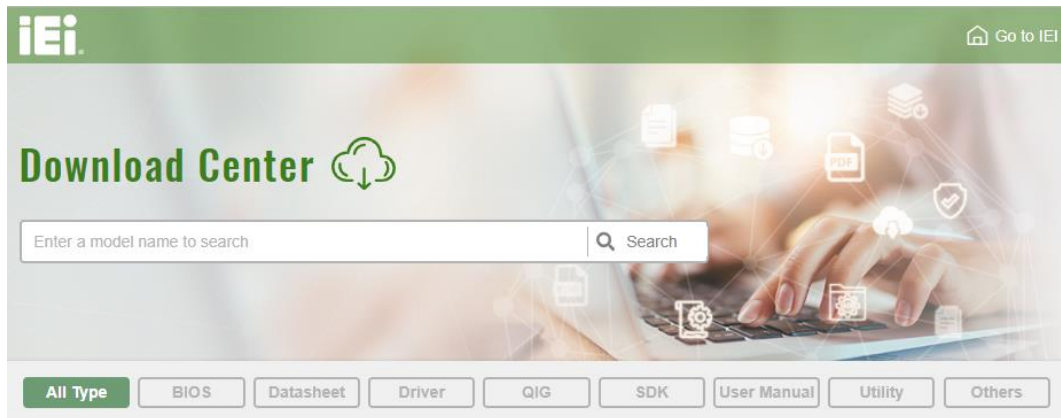


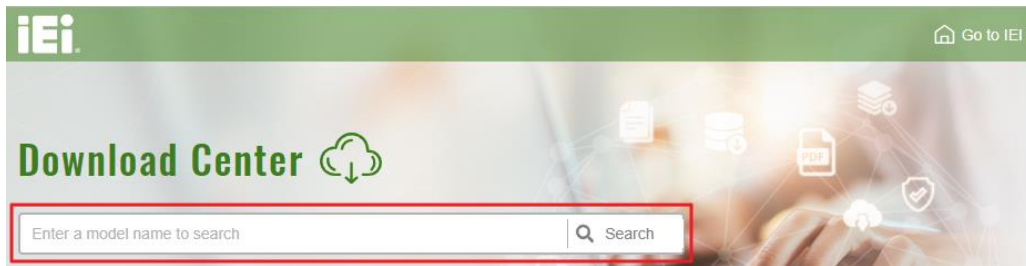
Figure 3-34: IEI Resource Download Center

3.15.1 Driver Download

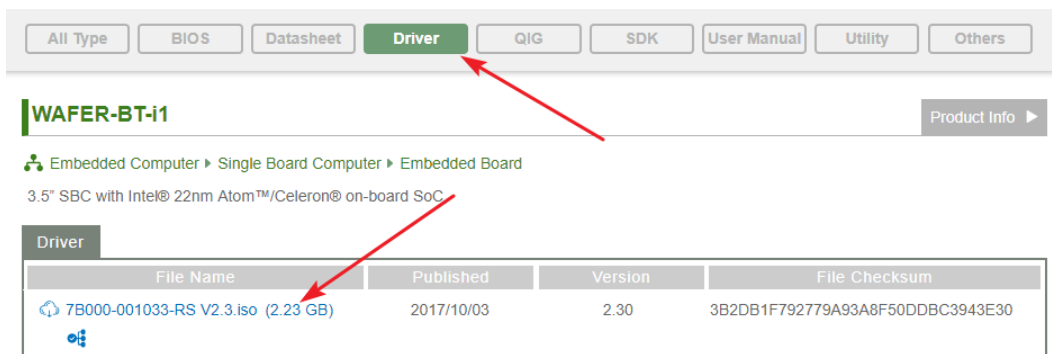
To download drivers from IEI Resource Download Center, follow the steps below.

Step 1: Go to <https://download.ieiworld.com>. Type **PPC2-Cxxx-ADL Series** and press Enter.

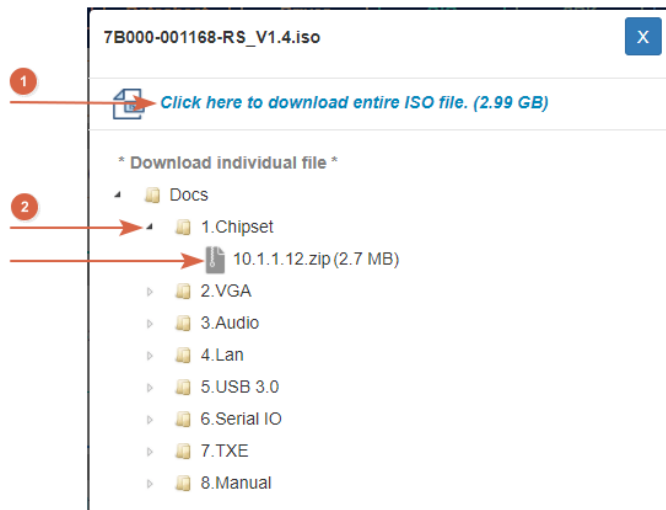
PPC2-Cxxx-ADL Series Panel PC



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 10 or 11, double-click the ISO file to mount it as a virtual drive to view its content.

Chapter

4

System Maintenance

**WARNING:**

Take Anti-Static precautions whenever maintenance is being carried out on the system components. Failure to take anti-static precautions can cause permanent system damage. For more details on anti-static precautions, please refer to **Section 3.1**.

4.1 PPC-Cxxx-ADL System Maintenance Overview

**NOTE:**

When doing maintenance operations on the system, please follow the instructions in this chapter. Failure to follow these instructions may lead to personal injury and system damage.

To preserve the working integrity of the PPC2-Cxxx-ADL Series panel PC, the system must be properly maintained. If panel PC components need replacement, the proper maintenance procedures must be followed to ensure the system can continue to operate normally.

4.2 System Troubleshooting

This section provides some simple troubleshooting suggestions.

4.2.1 The System Doesn't Turn On

If after turning the system on, there is no power please do the following:

- Step 1:** Check that the power cable connector is properly connected to the system rear panel.
- Step 2:** Check that the power cable connector is properly plugged into the power source.
- Step 3:** Make sure the power button is turned on.

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Step 4: Plug the system into a monitor and check to see if anything appears on the screen. If nothing is displayed, contact an IEI sales representative directly.

4.2.2 The System Doesn't Boot Up

If the system doesn't boot up, please do the following:

Step 1: Check the power is turned on.

Step 2: Make sure the SO-DIMM modules are properly installed.

4.2.3 More Troubleshooting

Nothing appears on the monitor after booting up the system: Make sure the monitor is properly connected to the system and the monitor is connected to a power supply and turned on.



WARNING!

If all troubleshooting measures have been taken and the system still fails to start, contact the IEI reseller or vendor you purchased the PPC-Cxxx-ADL from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@ieiworld.com.

4.3 Component Replacement



WARNING!

Users are not advised to attempt to repair or replace any internal or external components of the PPC-Cxxx-ADL panel PC. If any other components fail or need replacement, contact the IEI reseller or vendor you purchased the PPC-Cxxx-ADL from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@ieiworld.com.

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.

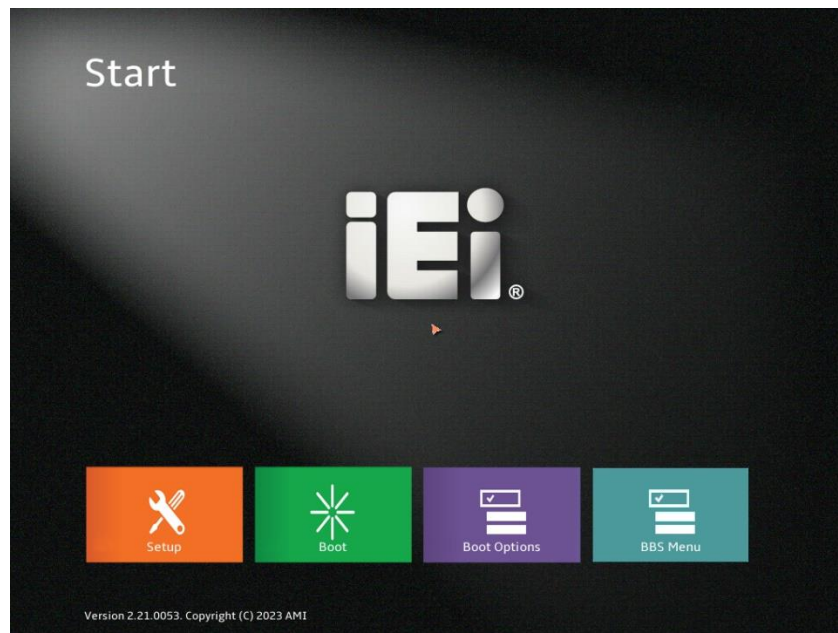


Figure 5-1: BIOS Starting Menu

PPC2-Cxxx-ADL Series 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

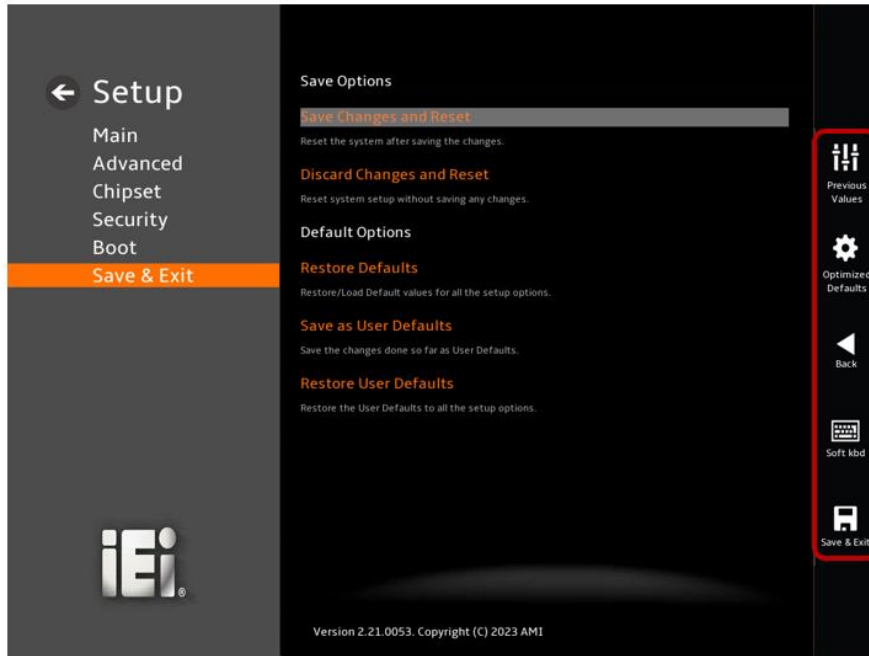
For keyboard navigation, use the navigation keys shown in **Table 5-1**.

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 selection for the highlighted item appears. To exit the Help Window, press the **Esc** key.

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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 **Chapter 3**.

5.1.5 BIOS Menu Bar

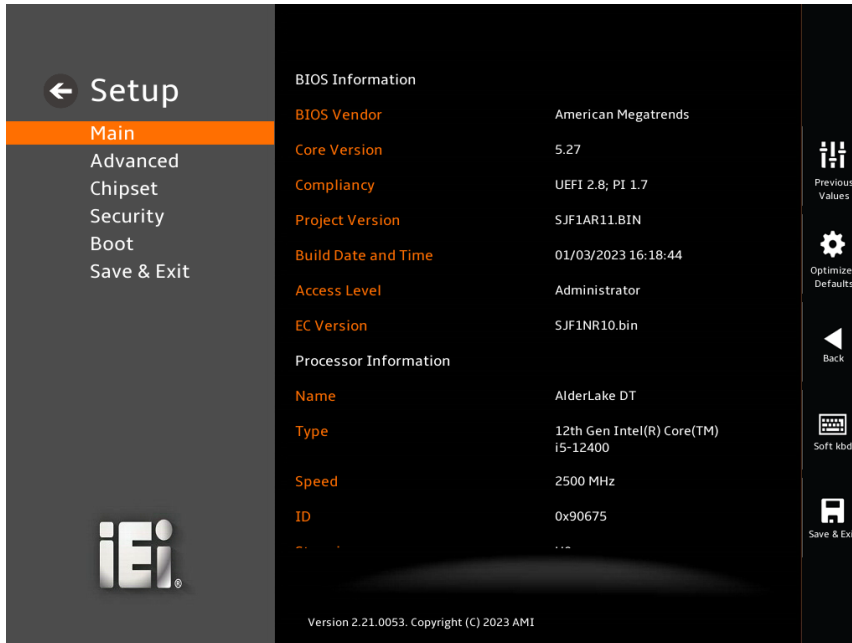
The **menu bar** on top of the BIOS screen has the following main items:

- 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 (**BIOS Menu 1 & BIOS Menu 2 & BIOS Menu 3**) appears when the **BIOS Setup** program is entered. The **Main** menu gives an overview of the basic system information.

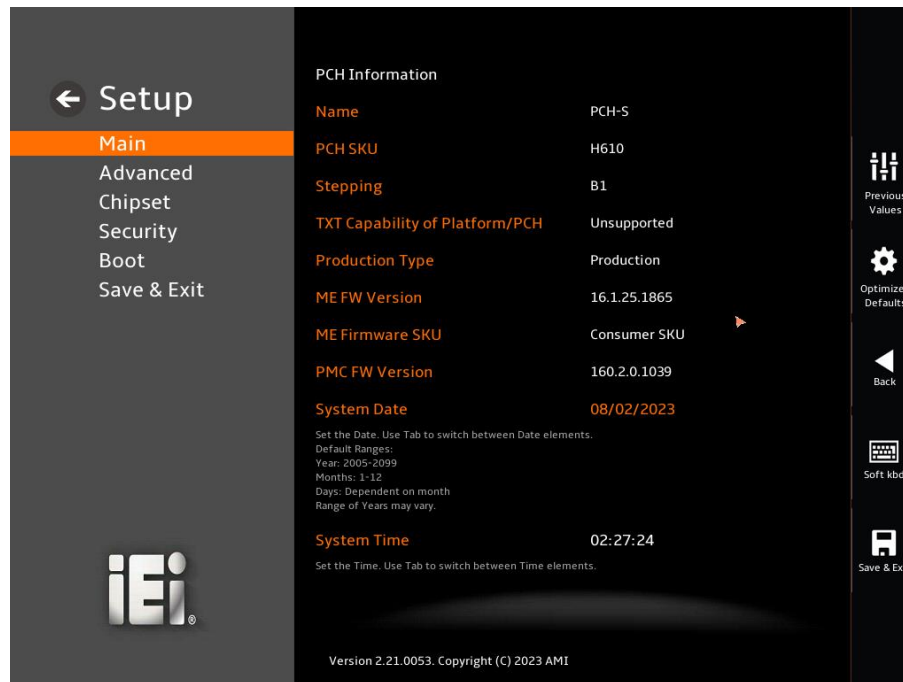


BIOS Menu 1: Main (1/3)



BIOS Menu 2: Main (2/3)

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BIOS Menu 3: Main (3/3)

→ 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: Current BIOS Level**
- **EC Version:** Current EC version
- BIOS Information

→ 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
- **Package:** Displays the Processor Package
- **Number of Efficient-cores:** Displays number of Efficient-cores cores
- **Number of Performance-cores:** Displays number of Performance-cores
- **Microcode Revision:** CPU Microcode Revision
- **IGFX GOP Version:** Displays the IGFX GOP Version
- **Total Memory:** Total Memory in the System
- **Memory Frequency:** Displays the Data Rate 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
- **TXT Capability of Platform/PCH:** Displays the TXT Capability
- **Production Type:** Displays the Production Type
- **ME FW Version:** Displays the ME Firmware Version
- **ME Firmware SKU:** Displays the ME Firmware SKU
- **PMC FW Version:** Displays the PMC Firmware Version

The System Overview field also has two user configurable fields:

→ 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]

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Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

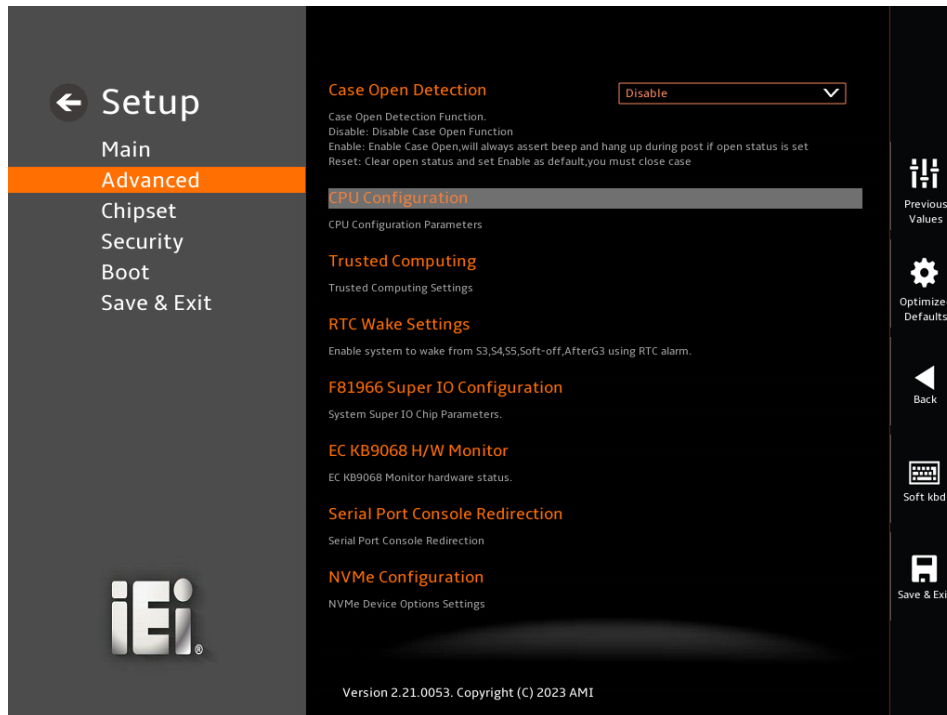
5.3 Advanced

Use the **Advanced** menu (**BIOS Menu 4**) 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 4: Advanced

5.3.1 Case Open Detection

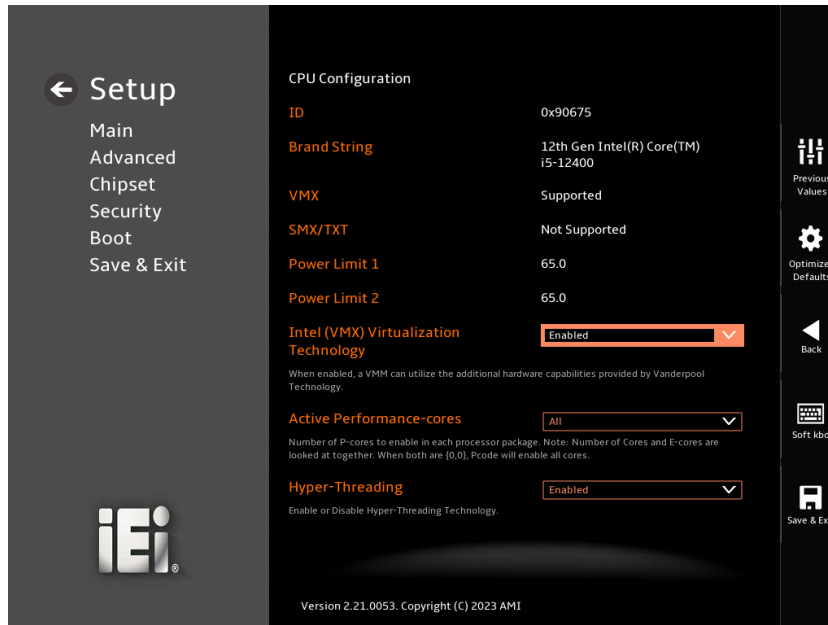
➔ **Case Open Detection [Disabled]**

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** Disable Case Open Function.
- ➔ **Enabled** Enable Case Open Function.
- ➔ **Reset** Clear open status and set enable as default, you must close case.

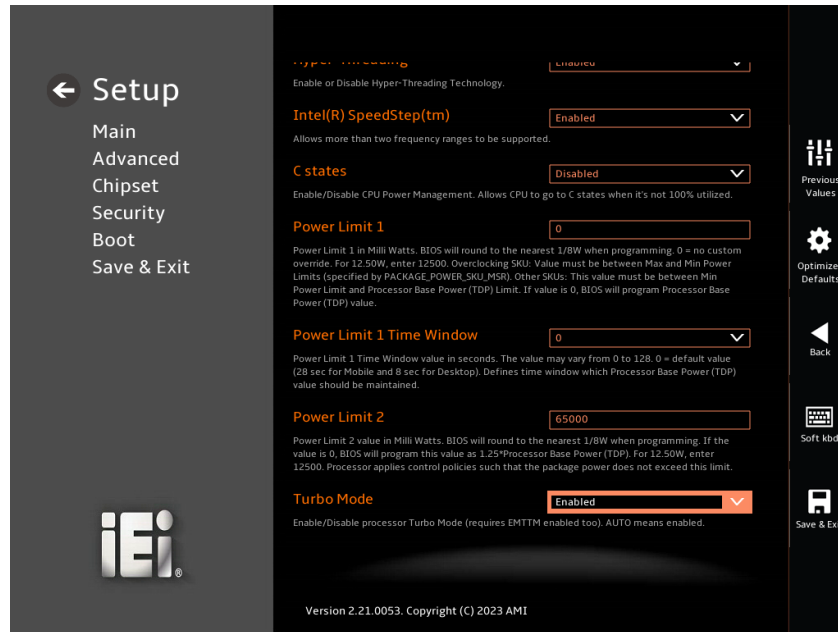
5.3.2 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 5 & BIOS Menu 6**) to view detailed CPU specifications or enable the Intel Virtualization Technology.



BIOS Menu 5: CPU Configuration (1/2)

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BIOS Menu 6: 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 P-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.

→ Active Efficient Cores [All]

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

→ All	DEFAULT	Enable all E-cores in the processor package.
→ 0		Enable zero E-core in the processor package.
→ 1		Enable one E-cores in the processor package.
→ 2		Enable two E-cores in the processor package.
→ 3		Enable three E-cores in the processor package.
→ 4		Enable four E-cores in the processor package.
→ 5		Enable five E-cores in the processor package.
→ 6		Enable six E-cores in the processor package.
→ 7		Enable seven E-cores in the processor package.

→ Hyper-Threading [Enabled]

Use the **Hyper-Threading** enables simultaneous batch processing of multiple tasks, allowing a single processor to use thread-level parallel computing while multitasking, thus making it compatible with multithreaded operating systems and software.

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

→ Intel(R) Trusted Execution Technology [Disabled]

Use the **Intel(R) Trusted Execution Technology** option to enable or disable the utilization of additional hardware capabilities provided by Intel(R)Trusted Execution Technology.

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

→ Intel(R) SpeedStep(tm) [Enabled]

Use the **Intel(R) SpeedStep(tm)** option to enable or disable the Intel® SpeedStep Technology which allows more than two frequency ranges to be supported.

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

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→ C states [Disabled]

Use the **C states** option to enable or disable CPU power management which allows CPU to go to C states when it is not 100% utilized.

- | | | |
|-------------------|----------------|-------------------------------|
| → Disabled | DEFAULT | Disables CPU power management |
| → Enabled | | Enables CPU power management |

→ Power Limit 1 [0]

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 1 Time Window [0]

Use the **Power Limit 1 Time Window** option to select the PL1 time duration. The value may vary from 0 to 128. For 0 is the default value

→ Power Limit 2 [200000]

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 $1.25 * TDP$. For 12.50W, enter 12500. Processor applies control policies such that the package power does not exceed this limit.

→ Turbo Mode [Enabled]

Use the **Turbo Mode** option to enable or disable Turbo Mode which requires Intel Speed Step or Intel Speed Shift to be available and enabled.

- | | | |
|-------------------|----------------|--------------------------------|
| → Disabled | | Disables Turbo Mode Technology |
| → Enabled | DEFAULT | Enables Turbo Mode Technology |

5.3.3 Trusted Computing

Use the **Trusted Computing** menu (**BIOS Menu 7**) to configure settings related to the Trusted Computing Group (TCG) Trusted Platform Module (TPM).



BIOS Menu 7: Trusted Computing Configuration

→ Security Device Support [Enable]

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

- | | | | |
|---|----------------|----------------|--------------------------|
| → | Disable | | TPM support is disabled. |
| → | Enable | DEFAULT | TPM support is enabled. |

→ Pending Operation [None]

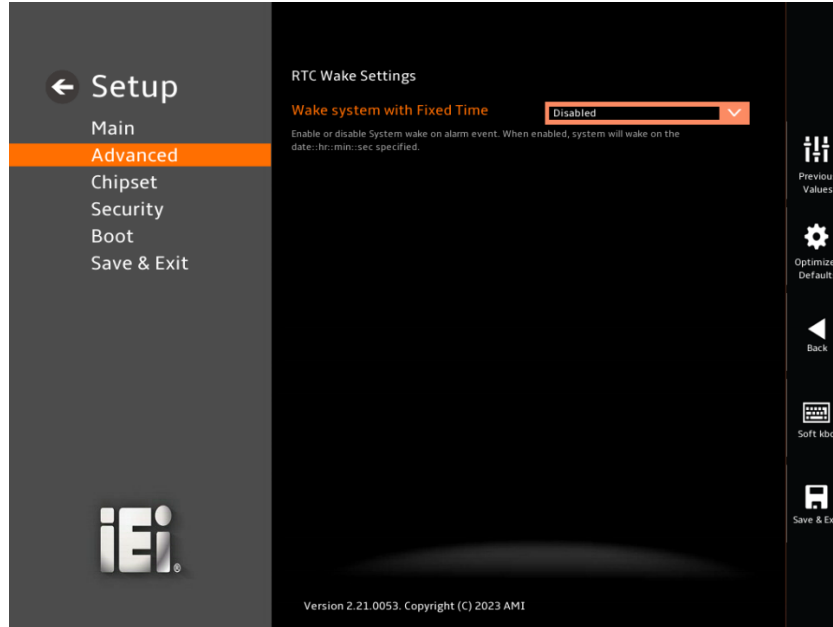
Use the **Pending Operation** option to schedule an operation for the security device.

- | | | | |
|---|------------------|----------------|-------------------------------|
| → | None | DEFAULT | TPM information is previous.S |
| → | TPM Clear | | TPM information is cleared |

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5.3.4 RTC Wake Settings

The **RTC Wake Settings** menu (**BIOS Menu 8**) configures RTC wake event.



BIOS Menu 8: RTC Wake Settings

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

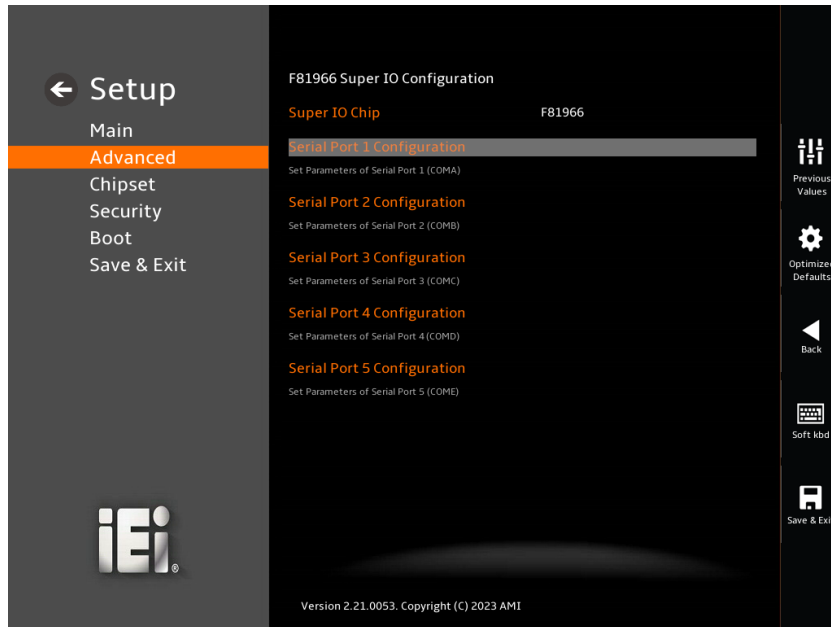
Use the **Wake system with Fixed Time** option to enable or disable the system wake on alarm event.

- | | | | |
|---|-----------------|----------------|---|
| → | Disabled | DEFAULT | The real time clock (RTC) cannot generate a wake event |
| → | Enabled | | 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: <ul style="list-style-type: none"> 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.

5.3.5 F81966 Super IO Configuration

Use the **F81966 Super IO Configuration** menu (**BIOS Menu 9**) to set or change the configurations for serial ports.

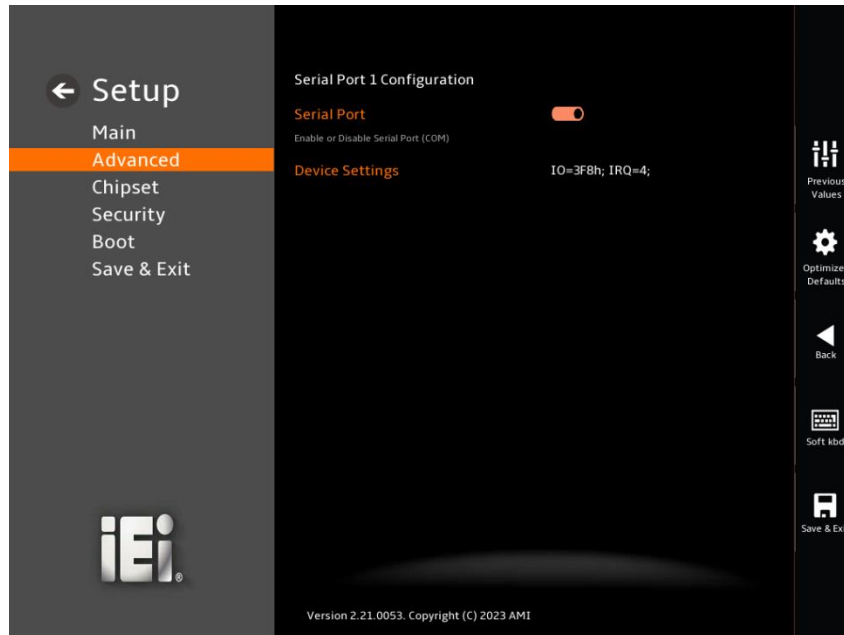


BIOS Menu 9: F81866 Super IO Configuration

PPC2-Cxxx-ADL Series Panel PC

5.3.5.1 Serial Port 1 Configuration

Use the **Serial Port 1 Configuration** menu (**BIOS Menu 10**) to configure the serial port.



BIOS Menu 10: 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

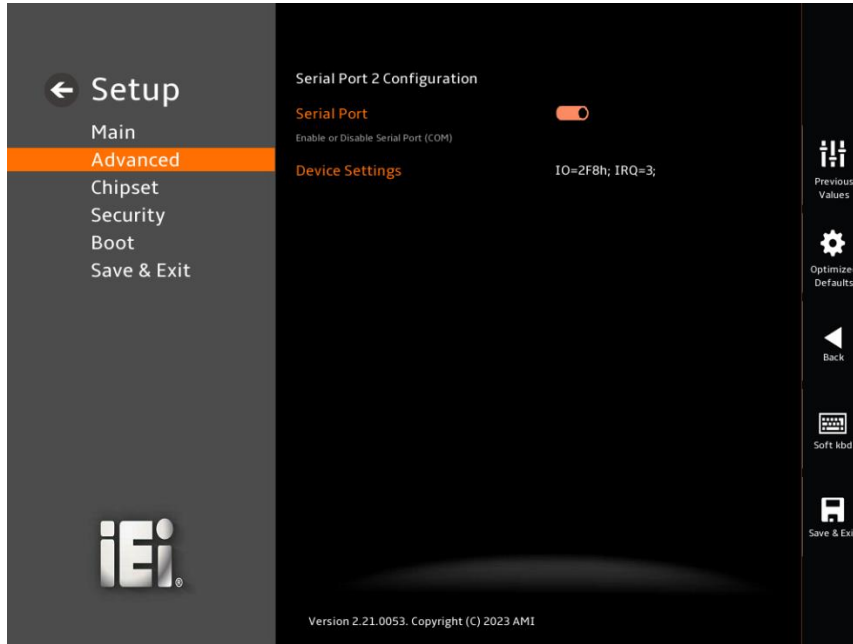
→ Device Settings

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

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

5.3.5.2 Serial Port 2 Configuration

Use the **Serial Port 2 Configuration** menu (**BIOS Menu 11**) to configure the serial port.



BIOS Menu 11: 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**

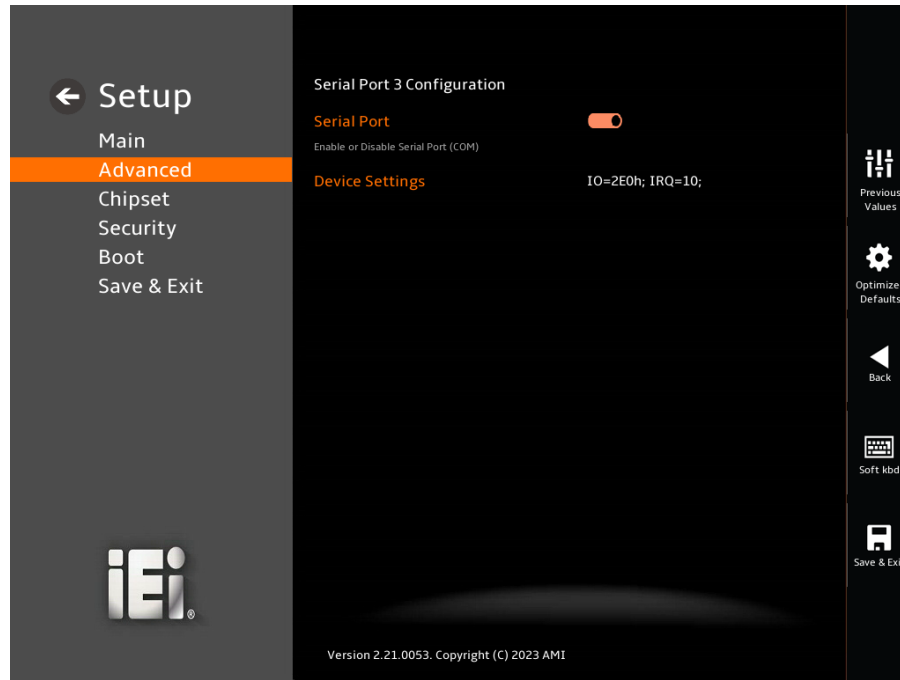
The **Device Settings** option shows the serial port IO port address and interrupt address.

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

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5.3.5.3 Serial Port 3 Configuration

Use the **Serial Port 3 Configuration** menu (**BIOS Menu 12**) to configure the serial port.



BIOS Menu 12: 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

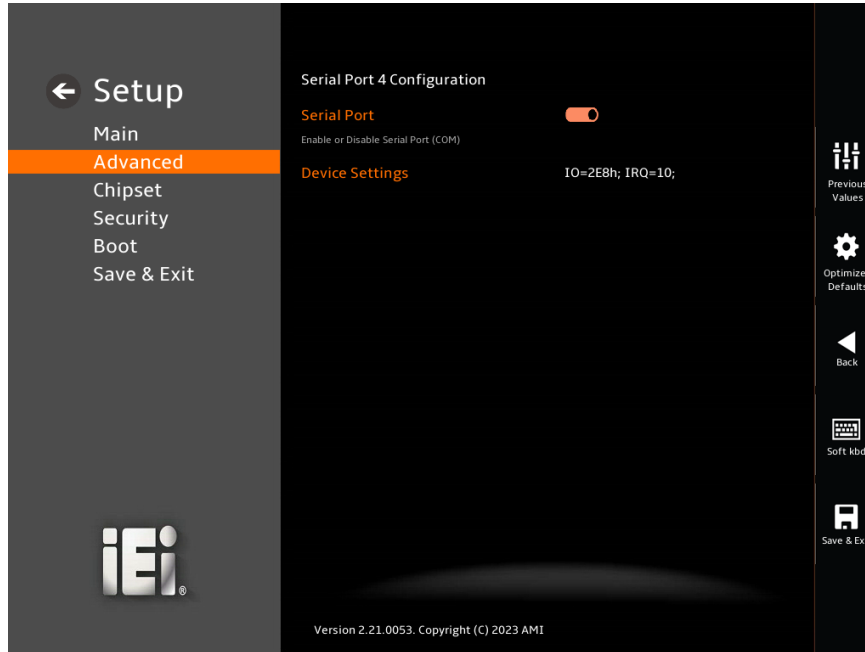
→ Device Settings

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

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

5.3.5.4 Serial Port 4 Configuration

Use the **Serial Port 4 Configuration** menu (**BIOS Menu 13**) to configure the serial port.



BIOS Menu 13: 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

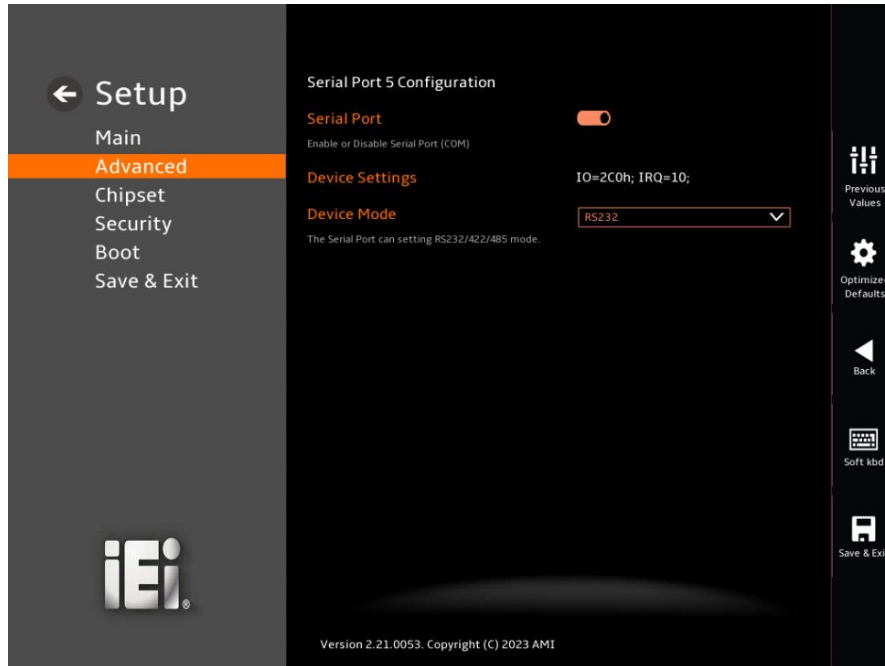
The **Device Settings** option shows the serial port IO port address and interrupt address.

- **IO=2E8h;**
IRQ=10 Serial Port I/O port address is 2E8h and the interrupt address is IRQ10

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5.3.5.5 Serial Port 5 Configuration

Use the **Serial Port 5 Configuration** menu (**BIOS Menu 14**) to configure the serial port.



BIOS Menu 14: Serial Port 5 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=2C0h;**
IRQ=10 Serial Port I/O port address is 2C0h 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

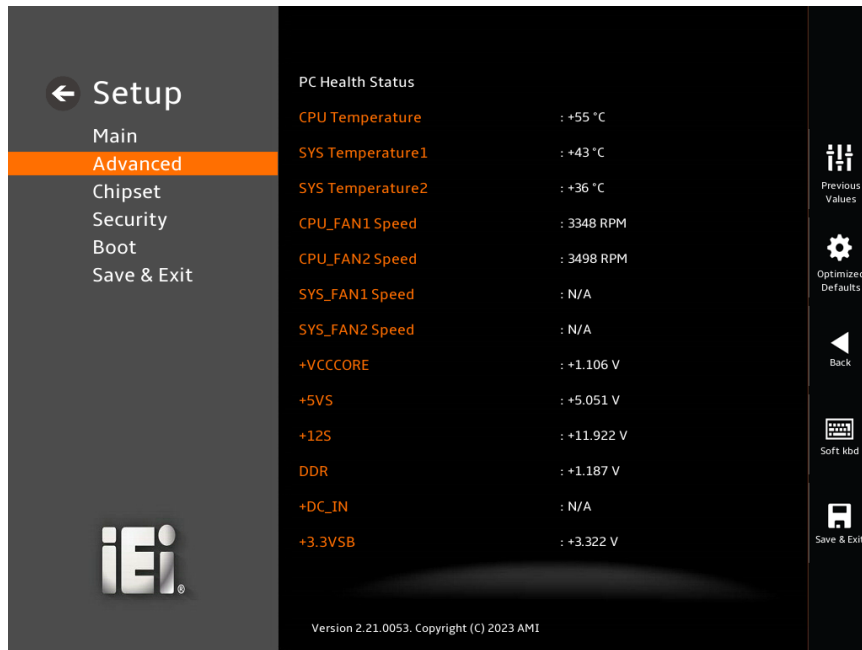
The serial port mode is RS-422

RS485

The serial port mode is RS-485

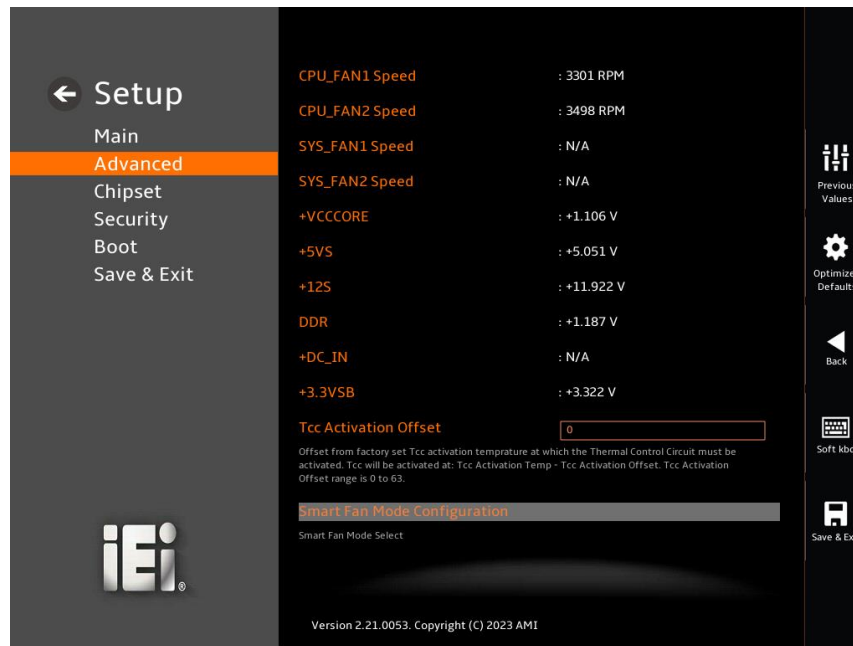
5.3.6 EC KB9068 H/W Monitor

The **EC KB9068 H/W Monitor** menu (**BIOS Menu 15 & BIOS Menu 16**) 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 15: EC KB9068 H/W Monitor (1/2)

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BIOS Menu 16: EC KB9068 H/W Monitor (2/2)

→ 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
- Fan Speeds:
 - CPU_Fan1 Speed
 - CPU_Fan2 Speed
 - SYS_Fan1 Speed
 - SYS_Fan2 Speed
- Voltages:
 - +VCCCORE
 - +5VS
 - +12S
 - DDR

+DC_IN
+3.3VSB

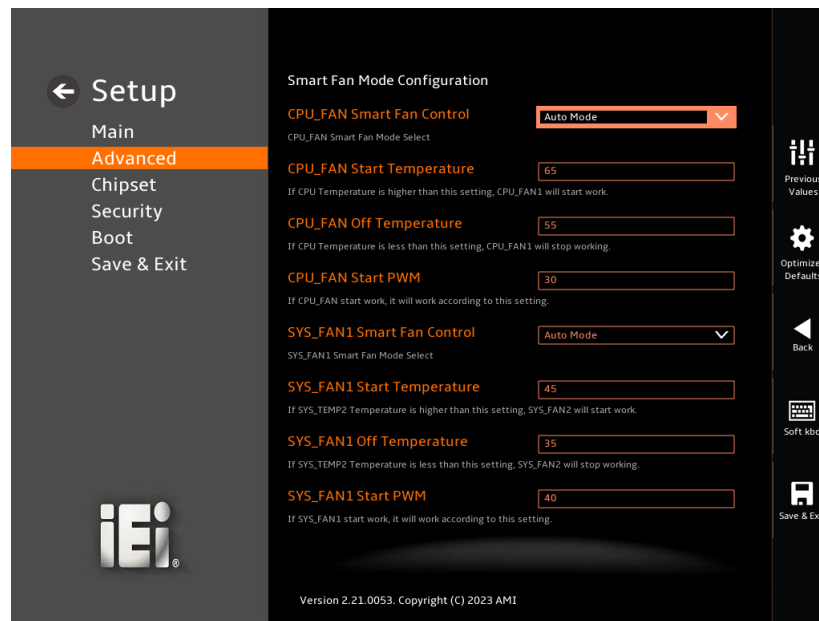
➔ **Tcc Activation Offset [0]**

Offset from factory set Tcc activation temperature at which the Thermal Control Circuit must be activated. Tcc will be activated at: Tcc Activation Temp-Tcc Activation Offset. Tcc Activation Offset range is 0 to 63.

5.3.6.1 Smart Fan Mode Configuration

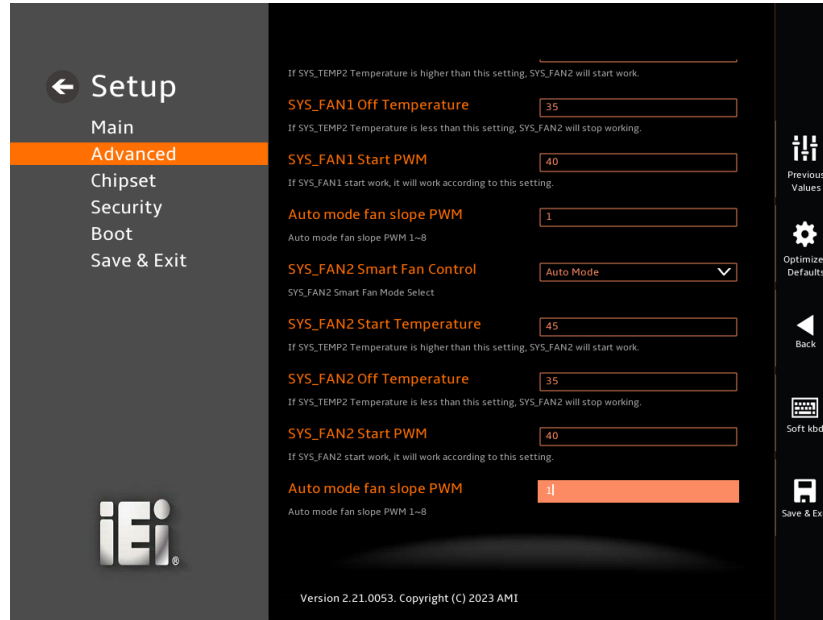
Use the **Smart Fan Mode Configuration** submenu (

BIOS Menu 17 & BIOS Menu 18) to configure the CPU/system fan start/off temperature and control mode.



BIOS Menu 17: Smart Fan Mode Configuration (1/2)

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BIOS Menu 18: Smart Fan Mode Configuration (2/2)

→ CPU_FAN Smart Fan Control [Auto Mode]

Use the **CPU_FAN Smart Fan Control** option to configure the CPU Smart Fan.

- **Manual Mode** The fan spins at the speed set in Manual Mode settings.
- **Auto Mode** **DEFAULT** The fan adjusts its speed using Auto Mode settings.

→ CPU_FAN Start Temperature

If the CPU temperature is between **fan off** and **fan start**, the fan speed change to **fan start PWM**. To set a value, Use the + or – key to change the value or enter a decimal number between 1 and 100.

→ CPU_FAN Off Temperature

If the CPU temperature is lower than the value set this option, the fan speed change to be lowest. To set a value, Use the + or – key to change the value or enter a decimal number between 1 and 100.

→ CPU_FAN Start PWM

Use the **CPU_FAN Start PWM** option to set the PWM start value. Use the + or – key to change the value or enter a decimal number between 1 and 100.

→ SYS_FAN1 Smart Fan Control [Auto Mode]

Use the **SYS_FAN1 Smart Fan Control** option to configure the System Smart Fan.

- Manual Mode** The fan spins at the speed set in Manual Mode settings.
- Auto Mode** **DEFAULT** The fan adjusts its speed using Auto Mode settings.

→ SYS_FAN1 Start Temperature

If the System temperature is between **fan off** and **fan start**, the fan speed change to **fan start PWM**. To set a value, Use the + or – key to change the value or enter a decimal number between 1 and 100.

→ SYS_FAN1 Off Temperature

If the System temperature is lower than the value set this option, the fan speed change to be lowest. To set a value, Use the + or – key to change the value or enter a decimal number between 1 and 100.

→ SYS_FAN Start PWM

Use the **SYS_Fan1 Start PWM** option to set the PWM start value. Use the + or – key to change the value or enter a decimal number between 1 and 100.

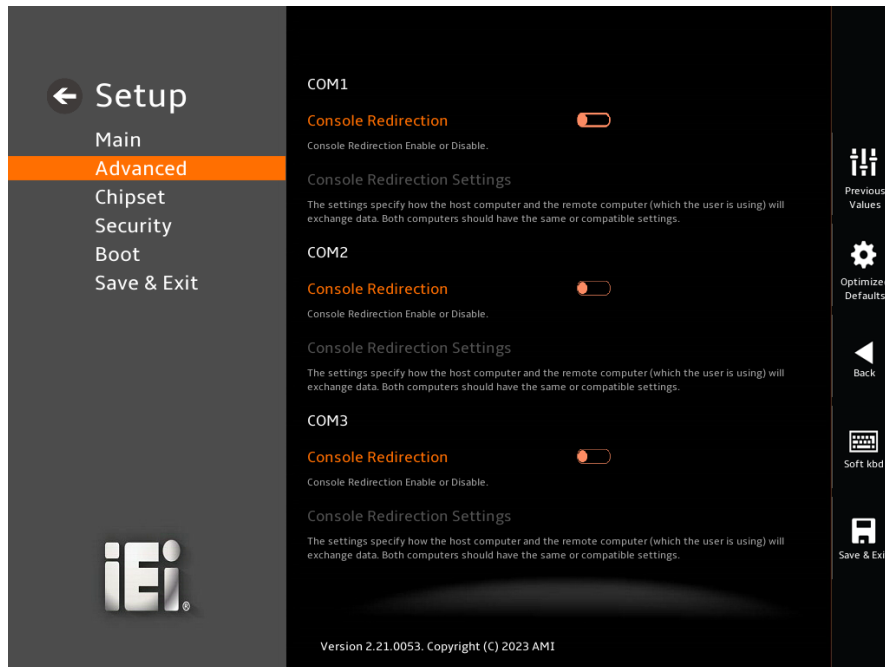
→ Auto mode fan slope PWM

The PWM slope refers to the ratio relationship between the fan speed and the temperature. When the temperature rises or falls by 1°C, the fan speed increases or decreases accordingly. Changing the slope requires entering a number between 1 and 8.

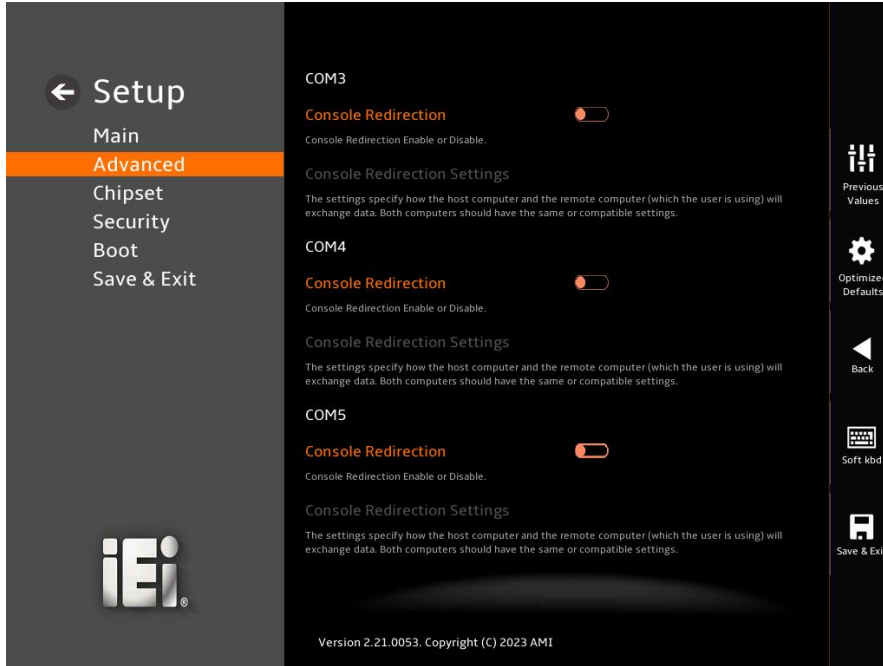
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5.3.7 Serial Port Console Redirection

The **Serial Port Console Redirection** menu (**BIOS Menu 19 & BIOS Menu 20**) 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.



BIOS Menu 19: Serial Port Console Redirection (1/2)



BIOS Menu 20: 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.

5.3.7.1 Console Redirection Settings

The following options are available in the **Console Redirection Settings** submenu (**BIOS Menu 21**) when the **COM Console Redirection** (for COM1 to IAMT SOL COM6) option is enabled.



BIOS Menu 21: 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]

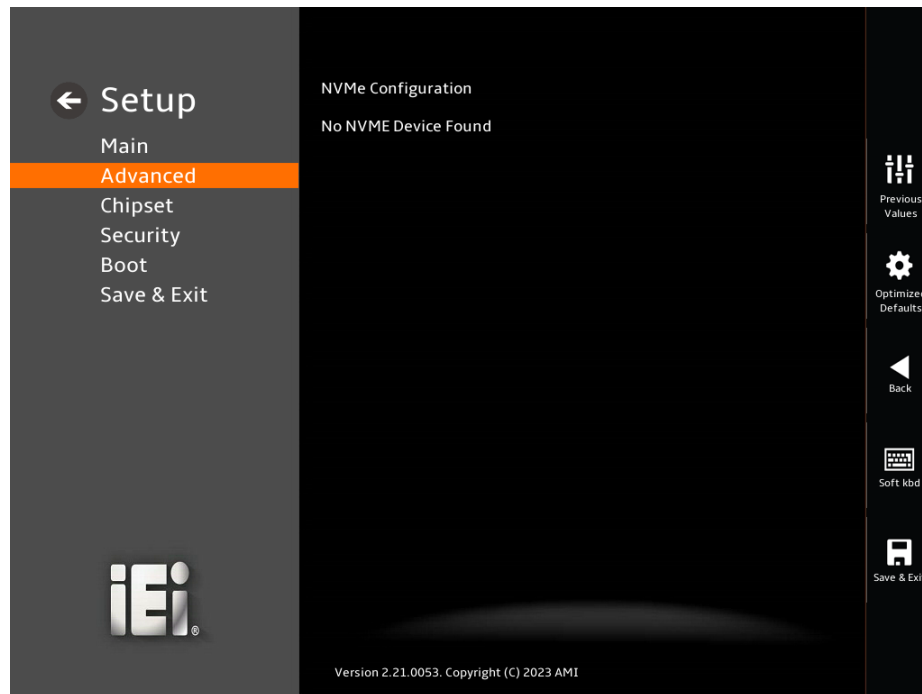
Use the **Stop Bits** option to specify the number of stop bits used to indicate the end of a serial data packet. Communication with slow devices may require more than 1 stop bit.

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

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5.3.8 NVMe Configuration

Use the **NVMe Configuration (BIOS Menu 22)** menu to display the NVMe controller and device information.



BIOS Menu 22: NVMe Configuration

5.4 Chipset

Use the **Chipset** menu (**BIOS Menu 23**) 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.

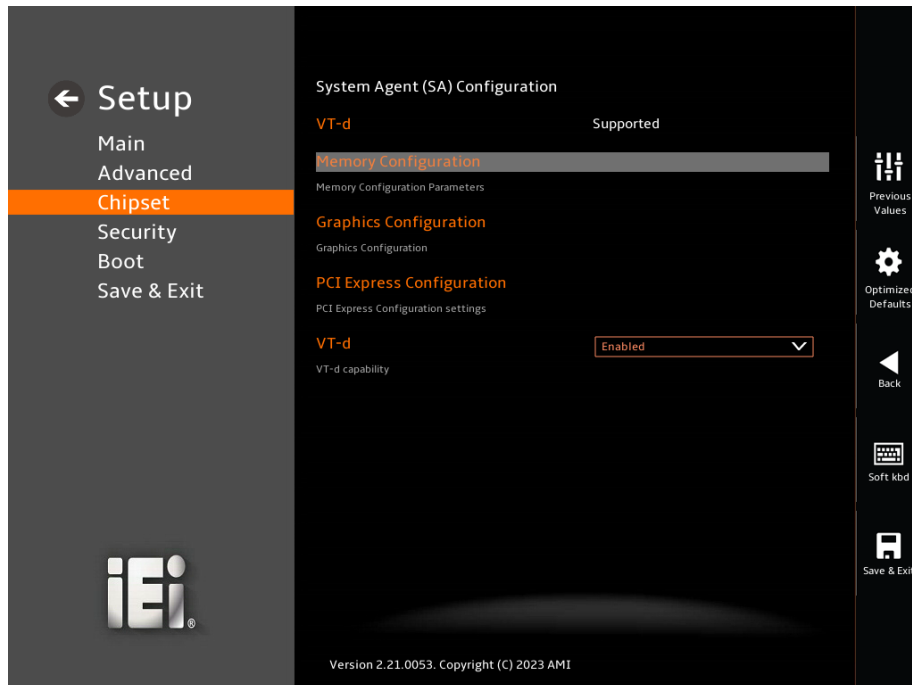


BIOS Menu 23: Chipset

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5.4.1 System Agent (SA) Configuration

Use the **System Agent (SA) Configuration** menu (**BIOS Menu 24**) to configure the System Agent (SA) parameters.



BIOS Menu 24: 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 25**) to view memory information.



BIOS Menu 25: Memory Configuration

5.4.1.2 Graphics Configuration

Use the **Graphics Configuration** (**BIOS Menu 26**) menu to configure the video device connected to the system.

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BIOS Menu 26: Graphics Configuration

→ Primary Display [Auto]

Use the **Primary Display** option to select the primary graphics controller the system uses.

The following options are available:

Auto	Default
IGFX	
PEG	
PCI	
SG	

→ Internal Graphics [Enabled]

Use the **Internal Graphics** option to configure whether to keep IGFX enabled. If user wants to support dual display by internal graphics and external graphics, this Internal Graphics

option should be set to Enabled and the above Primary Display option should be set to IGFX.

- | | | | |
|---|-----------------|----------------|----------------|
| → | Auto | | Auto mode |
| → | Disabled | | Disables IGFX. |
| → | Enabled | Default | Enables IGFX. |

→ **DVMT Pre-Allocated [160M]**

Use the **DVMT Pre-Allocated** option to set the amount of system memory allocated to the integrated graphics processor when the system boots. The system memory allocated can then only be used as graphics memory, and is no longer available to applications or the operating system. Configuration options are listed below:

- | | |
|------|----------------|
| 80M | |
| 160M | Default |

→ **DVMT Total Gfx Mem [MAX]**

Use the **DVMT Total Gfx Mem** option to select DVMT5.0 total graphic memory size used by the internal graphic device. The following options are available:

- | | |
|------|----------------|
| 128M | |
| 256M | |
| MAX | Default |

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5.4.2 PCH-IO Configuration

Use the **PCH-IO Configuration** menu (**BIOS Menu 27**) to configure the PCH parameters.



BIOS Menu 27: PCH-IO Configuration

→ 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.

→ 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(LAN1/LAN2_USB1B) [+5VDUAL]

Use the **USB Power SW1** to enable or disable the USB Power. +5VDUAL means keep USB port's power when S5. +5V means USB Port no power when S5.

- ➔ **+5VDUAL** **DEFAULT** keep USB port's power when S5.
- ➔ **+5V** USB Port no power when S5.

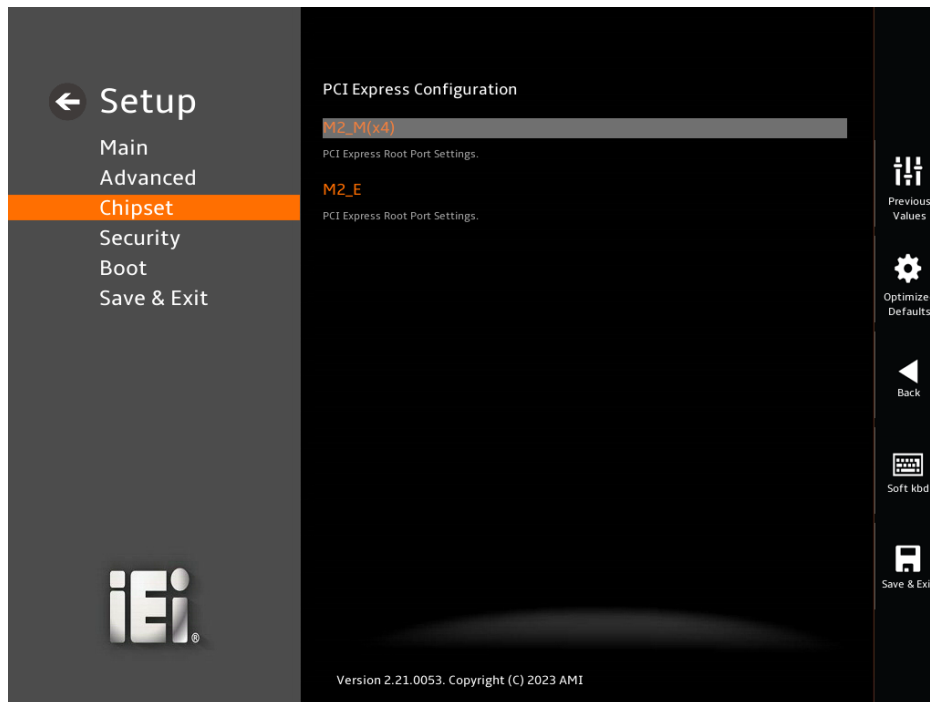
5.4.2.1 PCI Express Configuration

Use the **PCI Express Configuration** submenu (**BIOS Menu 28 & BIOS Menu 29**) to configure the PCI Express slots.



BIOS Menu 28: PCI Express Configuration (1/2)

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BIOS Menu 29: PCI Express Configuration (2/2)

5.4.2.1.1 PCIe Root Port Setting

Use the **M2_M(x4)**, **M2_A** submenu (**BIOS Menu 30**) to configure the PCI Root Port Setting.



BIOS Menu 30: PCIe Slot Configuration Submenu

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. |

Detect Non-Compliance Device [Disabled]

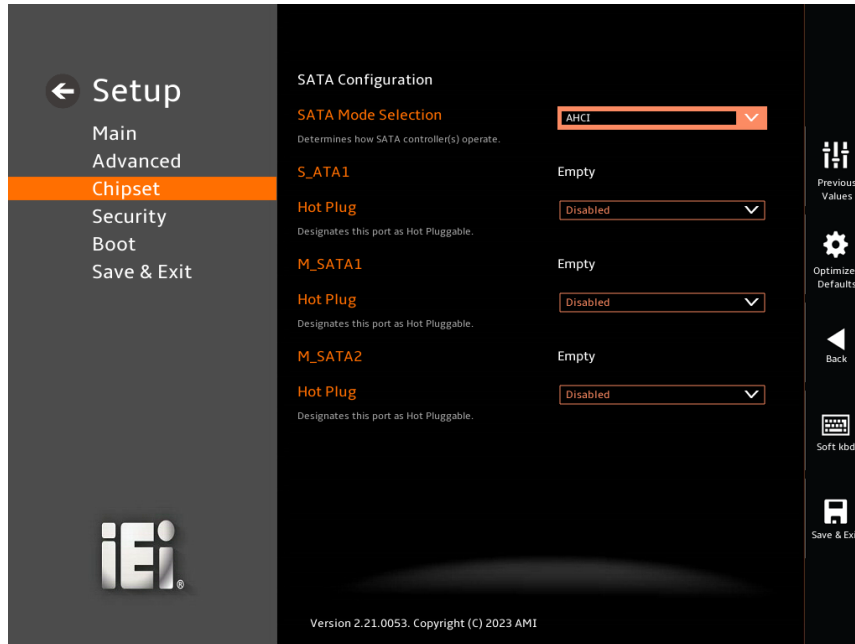
Use the **Detect Non-Compliance Device** option to configure whether to detect if a non-compliance PCI Express device is connected to the PCI Express port.

- | | | | |
|---|-----------------|----------------|--|
| ➔ | 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. |

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5.4.2.2 SATA Configuration

Use the **SATA Configuration** menu (**BIOS Menu 31**) to change and/or set the configuration of the SATA devices installed in the system.



BIOS Menu 31: SATA Configuration

SATA Mode Selection [AHCI]

Use the **SATA Mode Selection** option to determine how the SATA devices operate.

- | | | | |
|---|--|----------------|--|
| ➔ | AHCI | DEFAULT | Configures SATA devices as AHCI device. |
| ➔ | Intel RST Premium With Intel Optane System Acceleration | | Configures SATA devices to the Intel RST Premium With Intel Optane System Acceleration mode. |

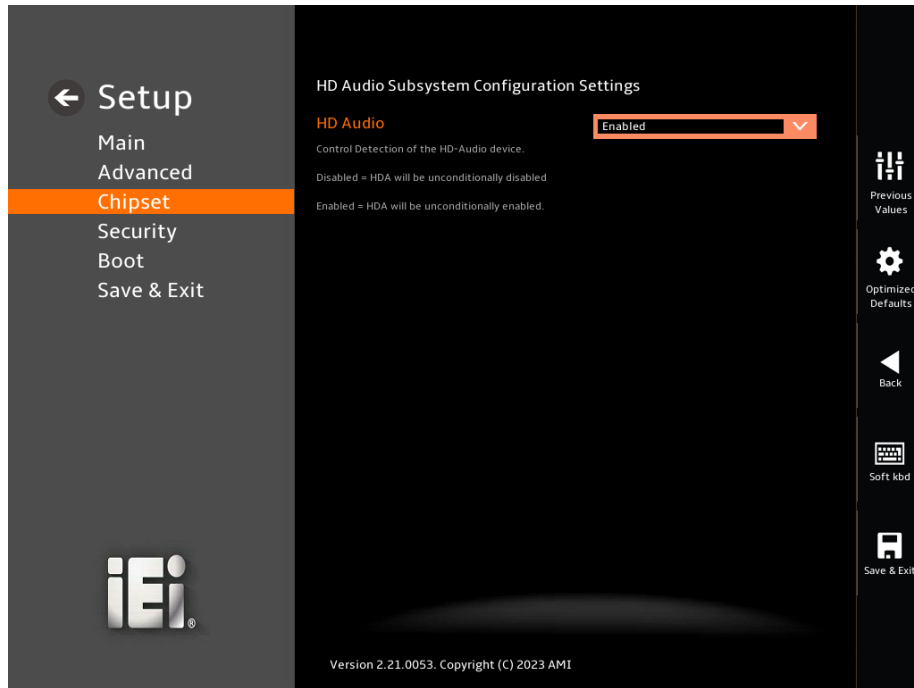
Hot Plug [Disabled]

Use the **Hot Plug** option to designate the correspondent port as hot-pluggable.

- | | | | |
|---|-----------------|----------------|---|
| ➔ | Disabled | DEFAULT | Disables the hot-pluggable function of the SATA port. |
| ➔ | Enabled | | Designates the SATA port as hot-pluggable. |

5.4.2.3 HD Audio Configuration

Use the **HD Audio Configuration** menu (**BIOS Menu 32**) to configure the PCH Azalia settings.



BIOS Menu 32: 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.
- ➔ **Enabled** **DEFAULT** The onboard High Definition Audio controller is enabled.

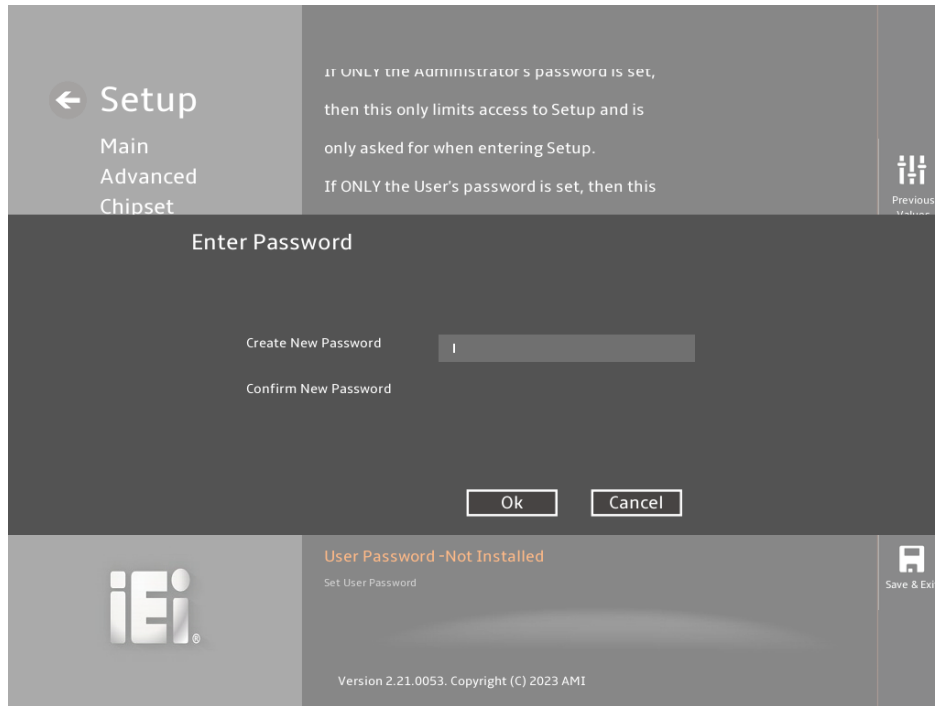
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5.5 Security

Use the **Security** menu (**BIOS Menu 33 & BIOS Menu 34**) to set system and user passwords.



BIOS Menu 33: Security (1/2)



BIOS Menu 34: Security (2/2)

Administrator Password

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

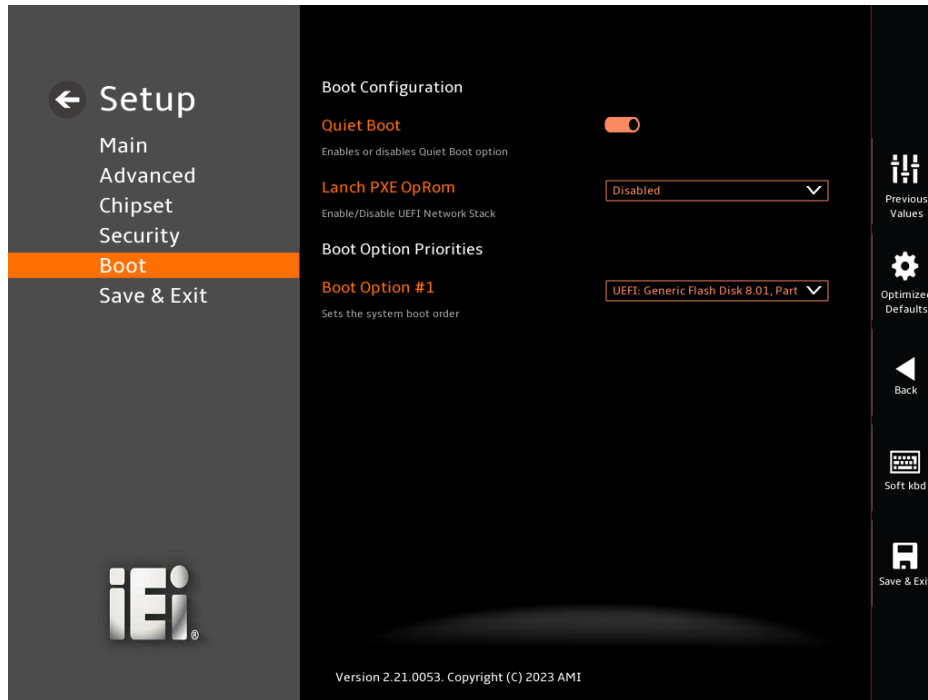
User Password

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

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5.6 Boot

Use the **Boot** menu (**BIOS Menu 35**) to configure system boot options.



BIOS Menu 35: 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

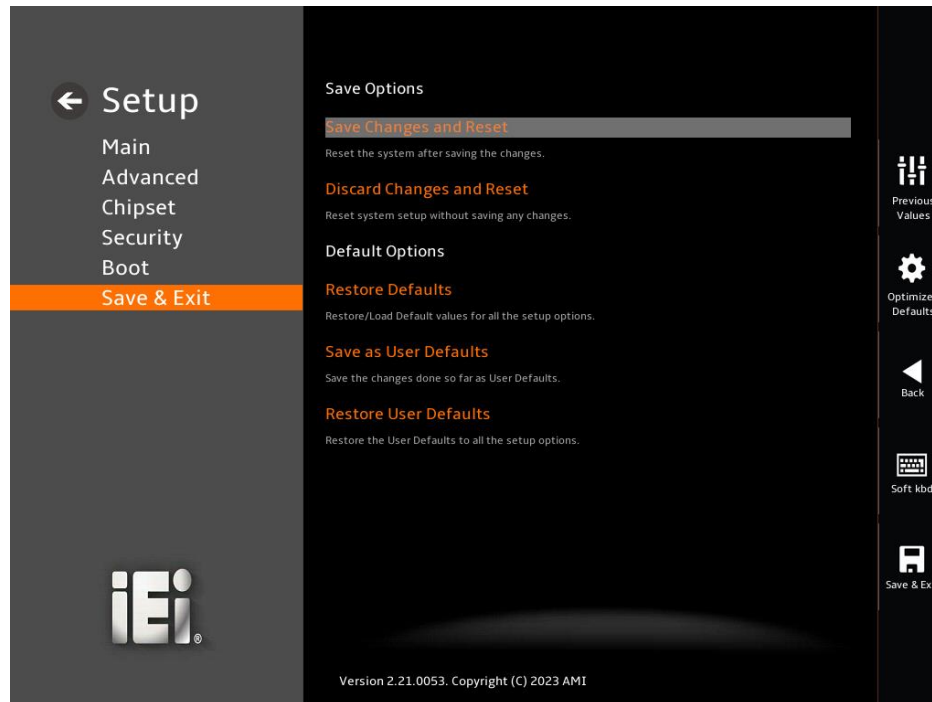
Launch PXE OpROM [Disabled]

Use the **Launch PXE OpROM** option to enable or disable boot option for legacy network devices.

- ➔ **Disabled** **DEFAULT** Ignore all PXE Option ROMs
- ➔ **Enabled** Load PXE Option ROMs.

5.7 Save & Exit

Use the **Save & Exit** menu (**BIOS Menu 36**) to load default BIOS values, optimal failsafe values and to save configuration changes.



BIOS Menu 36: 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.**

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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

PPC2-Cxxx-ADL Series Panel PC

6.1 Peripheral Interface Connectors

The PPC2-Cxxx-ADL Series panel PC motherboard comes with a number of peripheral interface connectors and configuration jumpers. The connector locations are shown in **Figure 6-1** & **Figure 6-2**. The connector pinouts for these connectors are listed in the following sections.

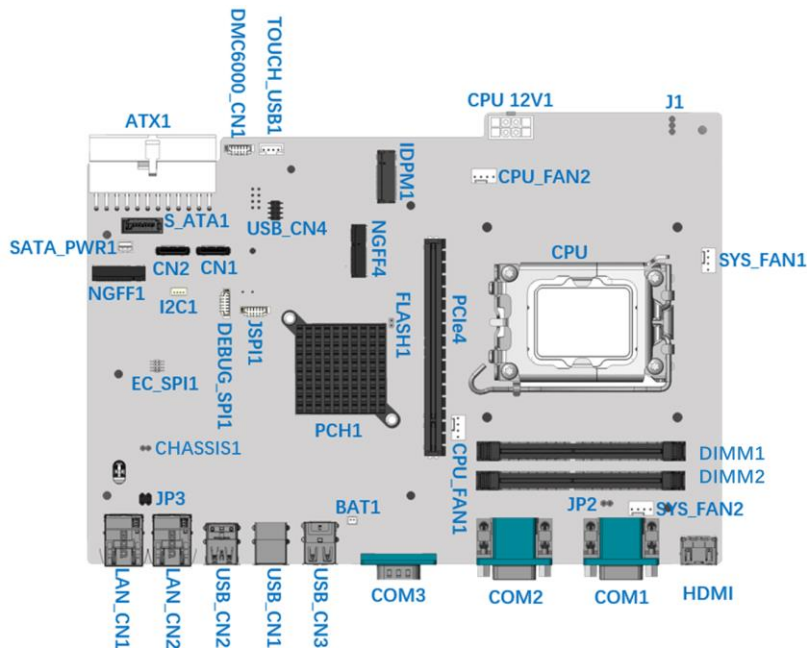


Figure 6-1: Main Board Layout Diagram (Front Side)

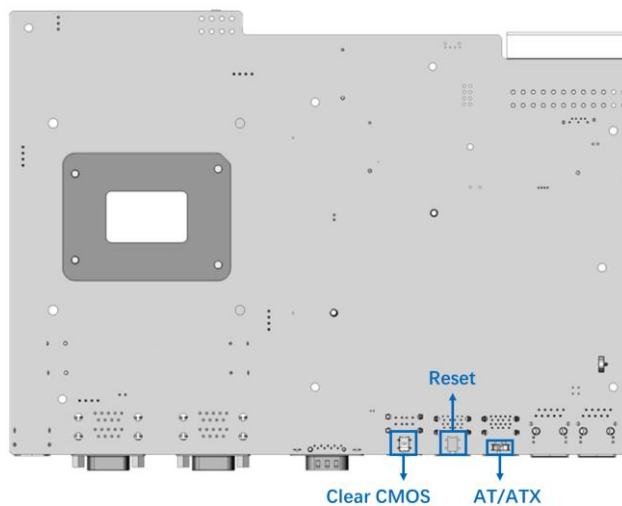


Figure 6-2: Main Board Layout Diagram (Solder Side)

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-Cxx-ADL Panel PC motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
ATX Power Input Connector	24-pin Molex	ATX1
Battery Connector	2-pin wafer	BAT1
Chassis Intrusion Header	2-pin header	CHASSIS1
Mini SATA Connectors	20-pin connector	CN1, CN2
Fan Connectors	4-pin wafer	CPU_FAN1/2, SYS_FAN1/2
CPU Power Connector	8-pin connector	CPU12V1
Debug Connector	6-pin wafer	DEBUG_SPI1
DMC6000 Connector	6-pin wafer	DMC6000_CN1
DIMM Sockets	DDR4 DIMM socket	DIMM1, DIMM2
EC Flash Connector	8-pin header	EC_SPI1
I2C Connector	4-pin wafer	I2C1
IDPM Slot	B-key slot	IDPM1
ME Flash Connector	2-pin header	FLASH1
M.2 M-Key Slot	M-key slot	NGFF1
M.2 A-Key Slot	A-key slot	NGFF4
SATA 6Gb/s Connector	7-pin connector	S_ATA1
SATA Power Connector	2-pin wafer	SATA_PWR1
Touch Panel Connector	4-pin wafer	TOUCH_USB1
USB 2.0 Connector	8-pin header	USB_CN4
SPI Flash Connector	6-pin wafer	JSPI1
VR Power Debug Connector	5-pin header	J1
Power Button Connector	2-pin header	JP2
HDD LED Connector	4-pin header	JP3

Table 6-1: Peripheral Interface Connectors

6.2.1 ATX Power Input Connector (ATX1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND

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PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
4	+5V	16	PS_ON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	PWR_OK	20	-5V
9	SB5V	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND

Table 6-2: ATX Power Source Connector (ATX1) Pinouts

6.2.2 Battery Connector (BAT1)

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

Table 6-3: Battery Connector (BAT1) Pinouts

6.2.3 Chassis Intrusion (CHASSIS1)

PIN NO.	DESCRIPTION
1-2	Open = Chassis Close
1-2	Short = Chassis Open

Table 6-4: Chassis Intrusion (CHASSIS1) Pinouts

6.2.4 Fan Connectors (CPU_FAN1/2, SYS_FAN1/2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	3	FANIO
2	+12V	4	PWM

Table 6-5: Fan Connectors (CPU_FAN1/2, SYS_FAN1/2) Pinouts

6.2.5 Mini SATA Connectors (CN1, CN2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	11	+V5S
2	GND	12	N/C
3	GND	13	N/C

4	GND	14	GND
5	GND	15	SATA_RX5+
6	GND	16	SATA_RX5-
7	+V5S	17	GND
8	+V5S	18	SATA_TX5-
9	+V5S	19	SATA_TX5+
10	+V5S	20	GND

Table 6-6: Mini SATA Connectors (CN1, CN2) Pinouts

6.2.6 CPU Power Connector (CPU12V1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	GND	4	GND
5	+12V	6	+12V
7	+12V	8	+12V

Table 6-7: CPU Power Connector (CPU12V1) Pinouts

6.2.7 Debug Connector (DEBUG_SPI1)

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

Table 6-8: Debug Connector (DEBUG_SPI1) Pinouts

6.2.8 DMC6000 Connector (DMC6000_CN1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+V5S	4	RTS
2	SOUT	5	+V3P3S
3	SIN	6	GND

Table 6-9: DMC6000 Connector (DMC6000_CN1) Pinouts

6.2.9 EC Flash Connector (EC_SPI1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	SPI_CS#	2	+V3.3A_EC

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PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
3	SPI_MISO	4	NC
5	DET_FLASH	6	SPI_CLK
7	GND	8	SPI_MOSI

Table 6-10: EC Flash Connector (EC_SPI1) Pinouts

6.2.10 I2C Connector (I2C1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	3	DAT
2	CLK	4	+V5S

Table 6-11: I2C Connector (I2C1) Pinouts

6.2.11 IDPM Slot (IDPM1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+V3P3A
3	GND	4	+V3P3A
5	GND	6	+V3P3A
7	GND	8	+V3P3A
9	GND	10	+V3P3A
11	+V5A	12	Module Key
13	Module Key	14	Module Key
15	Module Key	16	Module Key
17	Module Key	18	Module Key
19	Module Key	20	+V3P3S
21	Display Detect PIN	22	+V3P3S
23	Display Detect PIN	24	+V3P3S
25	GND	26	+V3P3S
27	GND	28	GND
29	EDP_TX3_DN	30	+V12S
31	EDP_TX3_DP	32	+V12S
33	GND	34	+V12S
35	EDP_TX2_DN	36	+V12S
37	EDP_TX2_DP	38	GND
39	GND	40	SMB_CLK
41	EDP_TX1_DN	42	SMB_DATA
43	EDP_TX1_DP	44	GND
45	GND	46	EC_BKLT_CTRL

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
47	EDP_TX0_DN	48	EDP_BKLT_CTRL
49	EDP_TX0_DP	50	EC_EDP_BKLT_EN
51	GND	52	EC_EDP_VDD_EN
53	EDP_AUX_DN	54	EDP_HPD_R
55	EDP_AUX_DP	56	PLT_RST_N
57	GND	58	LVDS_EN
59	GND	60	+V5S
61	GND	62	+V5S
63	GND	64	+V5S
65	GND	66	+V5S
67	GND	68	+V12S
69	GND	70	+V12S
71	GND	72	+V12S
73	GND	74	+V12S
75	GND		

Table 6-12: IDPM Slot (IDPM1) Pinouts

6.2.12 ME Flash Connector (FLASH1)

PIN NO.	DESCRIPTION
1-2	Open = Disabled (No override) Default
1-2	Short = Enabled (OVERRIDE)

Table 6-13: ME Flash Connector (FLASH1) Pinouts

6.2.13 M.2 M-Key Slot (NGFF1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+V3P3S_SSD
3	GND	4	+V3P3S_SSD
5	PCIE_4_RX_DN	6	NC
7	PCIE_4_RX_DP	8	NC
9	GND	10	NGFF1_ACT_N
11	PCIE_TX_DN4	12	+V3P3S_SSD
13	PCIE_TX_DP4	14	+V3P3S_SSD
15	GND	16	+V3P3S_SSD
17	PCIE_3_RX_DN	18	+V3P3S_SSD
19	PCIE_3_RX_DP	20	NC
21	GND	22	NC

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PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
23	PCIE_TX_DN3	24	NC
25	PCIE_TX_DP3	26	NC
27	GND	28	NC
29	PCIE_2_RX_DN	30	NC
31	PCIE_2_RX_DP	32	NC
33	GND	34	NC
35	PCIE_TX_DN2	36	NC
37	PCIE_TX_DP2	38	M_1_SSD_SLP
39	GND	40	NC
41	PCIE_1_RX_DN	42	NC
43	PCIE_1_RX_DP	44	NC
45	GND	46	NC
47	PCIE_TX_DN1	48	NC
49	PCIE_TX_DP1	50	PLT_RST_N
51	GND	52	SRCCLKREQB_13_N
53	PCIE_CLK_DN13	54	NC
55	PCIE_CLK_DP13	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
69	Module Key	70	+V3P3S_SSD
71	GND	72	+V3P3S_SSD
73	GND	74	+V3P3S_SSD
75	GND		

Table 6-14: M.2 M-KEY Slot (NGFF1) Pinouts

6.2.14 M.2 A-Key Slot (NGFF4)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+V3.3_M2
3	USB2_DP9_L	4	+V3.3_M2
5	USB2_DM9_L	6	WLAN_LED
7	GND	8	NC
9	CNV_RXN1	10	CNV_RF_RESET#
11	CNV_RXP1	12	NC

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
13	GND	14	CLKREQ_CNV#
15	CNV_RXN0	16	BT_LED
17	CNV_RXP0	18	GND
19	GND	20	NC
21	CLK_CNV_RXN	22	CNV_BRI_RX
23	CLK_CNV_RXP	24	NC
25	NC	26	NC
27	NC	28	NC
29	NC	30	NC
31	NC	32	CNV_RGI_TX
33	GND	34	CNV_RGI_RX
35	PCIE_5_RX_DP	36	CNV_BRI_TX
37	PCIE_5_RX_DN	38	CL_RST#
39	GND	40	CL_DATA
41	PCIE_TX_DP5	42	CL_CLK
43	PCIE_TX_DN5	44	NC
45	GND	46	NC
47	PCIE_CLK_DP16	48	NC
49	PCIE_CLK_DN16	50	SUSCLK
51	GND	52	PLT_RST_N
53	SRCCLKREQB_15#	54	BT_ON
55	PCH_WAKE_N	56	WLAN_OFF
57	GND	58	NC
59	CNV_TXN1	60	NC
61	CNV_TXP1	62	NC
63	GND	64	NC
65	CNV_TXN0	66	NC
67	CNV_TXP0	68	NC
69	GND	70	NC
71	CLK_CNV_TXN	72	+V3.3_M2
73	CLK_CNV_TXP	74	+V3.3_M2
75	GND		

Table 6-15: M.2 A-Key Slot (NGFF4) Pinouts

6.2.15 SATA 6Gb/s Connector (S_ATA1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	5	SATA_RX-

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2	SATA_TX+	6	SATA RX+
3	SATA_TX-	7	GND
4	GND		

Table 6-16 : SATA 6Gb/s Connector (S_ATA1) Pinouts

6.2.16 SATA Power Connector (SATA_PWR1)

PIN NO.	DESCRIPTION
1	+5V
2	GND

Table 6-17: SATA Power Connector (SATA_PWR1) Pinouts

6.2.17 Touch Panel Connector (TOUCH_USB1)

PIN NO.	DESCRIPTION
1	+V5S
2	USB2_DM14_L
3	USB2_DP14_L
4	GND

Table 6-18: Touch Panel Connector (TOUCH_USB1) Pinouts

6.2.18 USB 2.0 Connector (USB_CN4)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC_USB3_78	2	GND
3	USB2_DM8_L	4	USB2_DP7_L
5	USB2_DM8_L	6	USB2_DM7_L
7	GND	8	VCC_USB3_78

Table 6-19: USB 2.0 Connector (USB_CN4) Pinouts

6.2.19 SPI Flash Connector (JSPI1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3V	4	SPI_CLK_SW
2	SPI_CS#0_SW	5	SPI_SI_SW
3	SPI_SO_SW	6	GND

Table 6-20: SPI Flash Connector (JSPI1) Pinouts

6.2.20 VR Power Debug Connector (J1)

PIN NO.	DESCRIPTION
1	MP2960_SCL
2	MP2960_SDA
3	GND
4	MP2940_SCL
5	MP2940_SDA

Table 6-21: VR Power IC Debug Connector (J1) Pinouts

6.2.21 Power Button Connector (JP2)

PIN NO.	DESCRIPTION
1	+3V
2	GND

Table 6-22: Power Button Connector (JP2) Pinouts

6.2.22 HDD LED Connector (JP3)

PIN NO.	DESCRIPTION
1	+5VS
2	GND
3	+5VS
4	SATA_LED

Table 6-23: HDD LED Connector (JP3) Pinouts

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 (2011/65/EU, 2015/863/EU)

If the user modifies and/or 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.

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

Česky [Czech]

IEI Integration Corp tímto prohlašuje, že tento zařizení 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.

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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 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 nyilatkozik, 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-Cxxx-ADL Series Panel PC**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.

Federal Communication Commission Interference Statement

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

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

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 PPC-Cxxx-ADL.

B.1.1 Safety Precautions

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

B.1.1.1 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 PPC-Cxxx-ADL 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 power outlet. Refer servicing to qualified service personnel. The power 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 PPC-Cxxx-ADL 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 PPC-Cxxx-ADL.
- ***If considerable amounts of dust, water, or fluids enter the device,*** turn off the power supply immediately, unplug the power cord, and contact the PPC-Cxxx-ADL vendor.

- **DO NOT:**

Drop the device against a hard surface.

In a site where the ambient temperature exceeds the rated temperature

B.1.1.2 Anti-static Precautions



WARNING:

Failure to take ESD precautions during the installation of the PPC-Cxxx-ADL may result in permanent damage to the PPC-Cxxx-ADL and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the PPC-Cxxx-ADL. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the PPC-Cxxx-ADL 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.

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B.1.1.3 Product Disposal



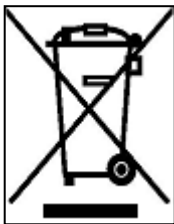
CAUTION:

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 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.1.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the PPC-Cxxx-ADL, 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.1.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the PPC-Cxxx-ADL, 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.1.2.2 Cleaning Tools

Some components in the PPC-Cxxx-ADL 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 PPC-Cxxx-ADL.

- **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.

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- **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 swabs 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 environment. IEI support is contacted or the IEI website visited for specific drivers for more sophisticated operating systems, e.g., Windows and Linux.

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, Watchdog Timer either performs a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

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. While 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.

**NOTE:**

When exiting a program it is necessary to disable the Watchdog Timer, otherwise the system resets.

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

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 (DEHP)	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
<p>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.</p> <p>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.</p>										

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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	○	○	○	○	○	○
印刷电路板	○	○	○	○	○	○
金属螺帽	○	○	○	○	○	○
电缆组装	○	○	○	○	○	○
风扇组装	○	○	○	○	○	○
电力供应组装	○	○	○	○	○	○
电池	○	○	○	○	○	○

○: 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。