IEI Integration Corp.

MODEL:

UPC-F12M1-ADLP

12.1" Fanless Panel PC with Intel® Core™ i5-1250PE / Celeron® 7305E CPU, 8GB LPDDR4x RAM, 802.11a/b/g/n/ac/ax Wi-Fi module

User Manual

Rev. 1.00 - August 28, 2023

RoHS Lead Free

Revision

Date	Version	Changes
August 28, 2023	1.00	Initial release

⚠ Safety Instructions

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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！在将系统连接到电源之前，请仔细阅读使用手册。

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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！为防止系统过热，不要在使用手册上记载的产品工作温度范围之外操作此系统。

---

en Warning! Use only the adapter and power cord approved for this system. Use of another type of adapter may risk fire or explosion. Please refer to the user manual for the power adapter specifications.

de Vorsicht! Nur zugelassene Netzteile und Netzkabel dürfen verwendet werden. Die Benutzung von anderen Netzteilen kann einen Brand oder eine Explosion zur Folge haben. Prüfen Sie die jeweiligen Spezifikationen in der Bedienungsanleitung.

fr Attention! Utilisez exclusivement le câble d'alimentation et l'adaptateur homologués pour ce système. L'utilisation d'un autre type d'adaptateur risquerait de provoquer un incendie ou une explosion. Veuillez référer au mode d'emploi pour les spécifications de l'adaptateur d'alimentation.

it Avvertenza! Utilizzare solo l'adattatore e il cavo di alimentazione approvati per questo sistema. L'uso di un altro tipo di adattatore può causare rischio d'incendio o esplosione. Si prega di fare riferimento al manuale utente per le specifiche sull'alimentazione.

es Atención! Utilice solamente el adaptador de corriente alterna (CA) con Marcas Conformidad otorgadas. Cualquier otro adaptador no otorgado aumenta el riesgo de explosión o incendio. Por favor consulte el manual del usuario para las especificaciones del adaptador de alimentación.

zh 警告！只能使用經過認證、適用於本系統的電源變壓器與電源線。使用不適用的電源變壓器將可能導致火災或爆炸。電源變壓器規格請參考使用手冊。

cn 警告！只能使用经过认证，适用于本系统的电源适配器与电源线。使用不适用的电源适配器将可能导致火灾或爆炸。电源适配器规格请参考使用手册。

en Warning! Ultimate disposal of this product should be handled according to all national laws and regulations.

de Vorsicht! Die Entsorgung dieses Produkts sollte gemäß allen Bestimmungen und Gesetzen des Landes erfolgen.

fr Attention! La mise au rebut ou le recyclage de ce produit sont généralement soumis aux lois et/ou directives de respect de l'environnement. Renseignez-vous auprès de l'organisme compétent.

it Avvertenza! Lo smaltimento di questo prodotto deve essere eseguito secondo le leggi e i regolamenti locali.

es Atención! La disposición final de residuos de este producto se debe cumplir con las normativas y leyes del país.

zh 警告！本產品的廢棄處理應根據該國家的法律和規章進行。

cn 警告！本产品的废弃处理应根据该国家的法律和规章进行。

en Warning! Operation of this equipment in a residential environment could cause radio interference.

de Vorsicht! Der Betrieb dieses Geräts in einer Wohnumgebung kann zu Funkstörungen führen.

fr Warning! L'utilisation de cet équipement dans un environnement résidentiel peut provoquer des interférences radio.

it Avvertenza! Il funzionamento di questa apparecchiatura in un ambiente residenziale potrebbe causare interferenze radio.

es Atención! El funcionamiento de este equipo en un entorno residencial podría causar interferencias de radio.

zh 警告！在住宅環境中操作該設備可能會造成無線電干擾。

cn 警告！在住宅环境中操作该设备可能会造成无线电干扰。

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Manual Conventions

WARNING

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

CAUTION

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

NOTE

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

HOT SURFACE

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

RISK OF ELECTRIC SHOCK

This symbol is to identify equipment, for example, the welding power source, that has risk of electric shock.

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Chapter

1

Introduction

1.1 Overview

Figure 1-1: UPC-F12M1-ADLP Panel PC

The UPC-F12M1-ADLP series is a quad-core Intel® Alder Lake-P powered panel PC with a rich variety of functions and peripherals.

The aluminum die-casting design and the IP66 enclosure make the UPC-F12M1-ADLP an ideal system for use in harsh environment.

The Intel® Alder Lake-P Core™ i5-1250PE / Celeron® 7305E is a System-on-Chip (SoC) that ensures optimal memory, graphics, and peripheral I/O support. The system comes with 8.0 GB of LPDDR4 onboard memory ensuring smooth data throughputs with reduced bottlenecks and fast system access.

Multiple connectors ensure simplified connectivity to a variety of external peripheral devices, including GbE LAN, RS-232/422/485 and USB ports.

1.2 Model Variations

There are several models in the UPC-F12M1-ADLP series. The model numbers and model variations are listed below.

Model	Processor	Touchscreen
UPC-F12M1-ADLP-i5/PC/8G-R10	Intel® Alder Lake-P Core™ i5-1250PE	Projected capacitive
UPC-F12M1-ADLP-C/PC/8G-R10	Intel® Alder Lake-P Celeron® 7305E	Projected capacitive

Table 1-1: Model Variations

1.3 Features

The UPC-F12M1-ADLP features are listed below:

- 12.1" LCD with LED backlight
- Flat display screen made of toughened glass with 6H hardness
- Projected capacitive type touchscreen
- Intel® Alder Lake-P Core™ i5-1250PE or Intel® Alder Lake-P Celeron® 7305E processor
- Preinstalled with dual channel 8GB LPDDR4x on board
- Built-in Wi-Fi 802.11a/b/g/n/ax and Bluetooth v5.2
- Fanless design
- 6-sides IP66 protection
- 9V–36V wide range DC power input

1.4 Front Panel

The front side of the UPC-F12M1-ADLP is a panel with a TFT LCD touchscreen surrounded by an aluminum die-casting frame (**Figure 1-2**).
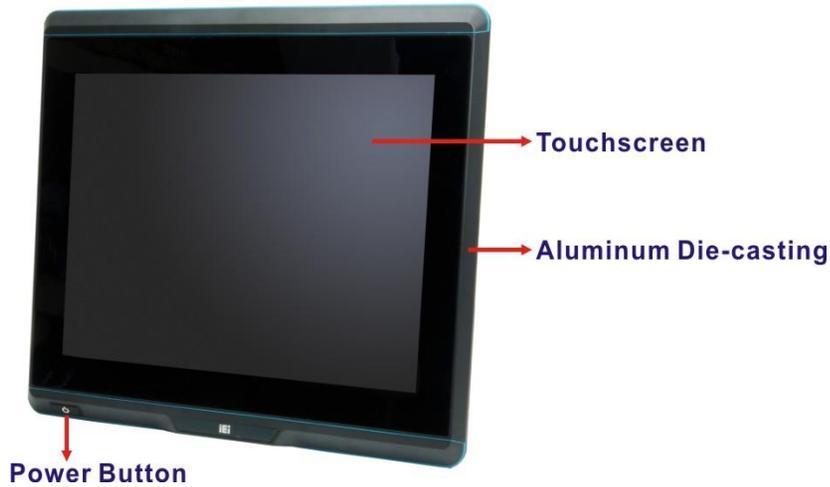
Figure 1-2: Front View

1.5 Rear Panel

The rear panel of the UPC-F12M1-ADLP contains VESA mount screw holes. The rear panel also provides access for installing M.2 SSD.
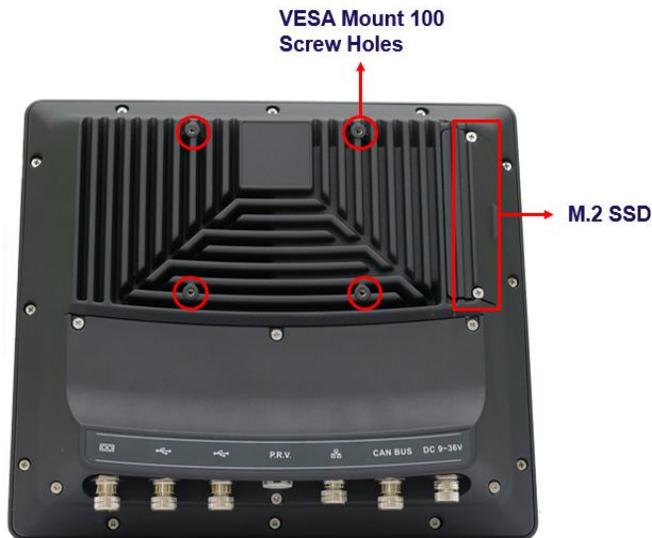
Figure 1-3: Rear Panel

1.6 Bottom Panel

The bottom panel of the UPC-F12M1-ADLP has several I/O interfaces. The I/O cover must be removed to access the I/O interfaces.
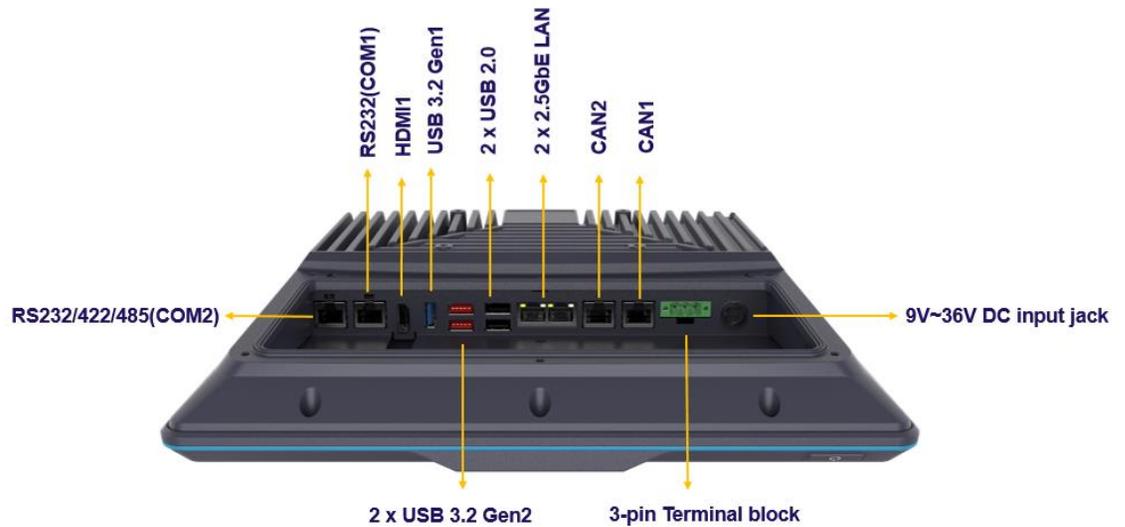
Figure 1-4: Bottom Panel

1.7 System Specifications

The technical specifications for the UPC-F12M1-ADLP systems are listed in **Table 1-2**.

Specification	UPC-F12M1-ADLP
LCD Size	12.1"
Max. Resolution	1024 (W) x 768 (H)
Brightness (cd/m²)	600
Contrast Ratio	700:1
LCD Color	16.7M
Pixel Pitch (H x V) (mm)	0.24 x 0.24
Viewing Angle (H-V)	160° / 140°
Backlight MTBF	50,000 hours
Backlight	LED
Touchscreen	PCAP with USB interface (anti-UV/AG coating)
CPU (SoC)	Intel® Alder Lake-P Core™ i5-1250PE or Intel® Alder Lake-P Celeron® 7305E
Memory	Dual channel 8GB LPDDR4x on board
Ethernet	LAN1: Intel® I225LM 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller
Wi-Fi & Bluetooth	IEEE 802.11 a/b/g/n/ax + Bluetooth V5.2
RFID (Optional)	Reserved RFID antenna area
Storage	1 x M.2 M key 2280 (PCIe Gen3 x4)
Expansions	1 x M.2 B key 3042/3052/3080 (SATA & PCIe Gen3 x1 & USB 3.0) 1 x M.2 M key 2280 (PCIe Gen3 x4)
Construction Material	Aluminum die-casting
Thermal Design	Fanless
VESA Mount	100 mm x 100 mm

Net Weight	5.02 kg
Dimensions (W x H x D)	316.0 mm x 279.0 mm x 67.0 mm
Operating Temperature	-20ºC ~ 60ºC
Storage Temperature	-20ºC ~ 70ºC
Humidity	10% to 95%@40°C (non-condensing)
IP Level	Full IP66
Safety/EMC	CE/FCC/UKCA
Power Input	9 ~ 36 V
I/O Ports and Switches	1 x 9V ~ 36 V DC input jack 1 x 3-pin Terminal block 2 x CANBUS 2 x 2.5GbE LAN 1 x USB 3.2 Gen1 2 x USB 3.2 Gen2 2 x USB 2.0 1 x HDMI 1x RJ45 with RS232 1x RJ45 with RS232/422/485

Table 1-2: System Specifications

1.7.1 WLAN/Bluetooth Frequency Range and Power

Technology	Frequency range/MHz	Max.E.I.R.P/dBm
WLAN 2.4GHz	2400-2483.5	20
WLAN 5GHz	5150–5250	23
WLAN 5GHz	5250–5350	23
WLAN 5GHz	5470–5725	23
WLAN 5GHz	5725–5850	13.98
WLAN 6GHz	5945–6425	14
Bluetooth BR/EDR	2402-2480	10
Bluetooth LE	2402-2480	10

Table 1-3: WLAN/Bluetooth Frequency Range and Power

WARNING!

This equipment complies with CE radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

5G WiFi alerts and restricted country codes
The device is restricted to indoor use only when operating in the 5150 to 5350 MHz frequency range.

1.8 Dimensions

The dimensions of the UPC-F12M1-ADLP are shown below.
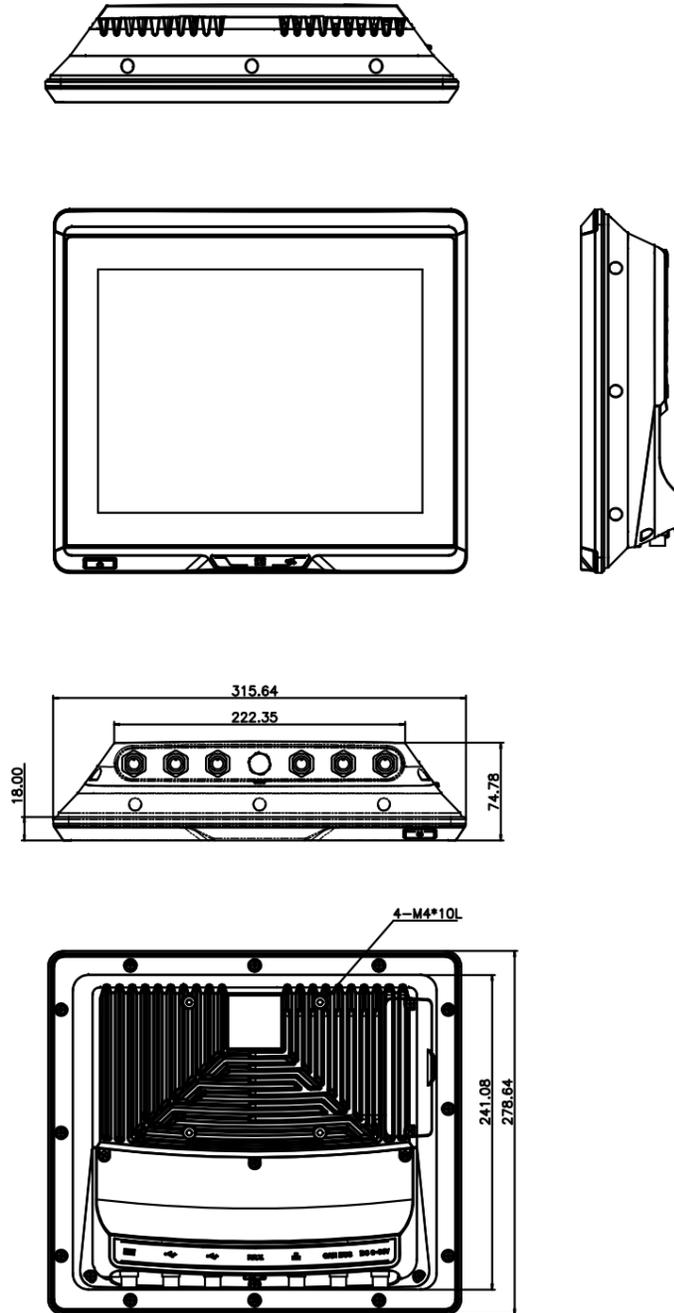
Figure 1-5: Dimensions (mm)

Chapter

2

Unpacking

2.1 Unpacking

To unpack the panel PC, follow the steps below:

![WARNING icon] **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: Carefully cut the tape sealing the box. Only cut deep enough to break the tape.

Step 2: Open the outside box.

Step 3: Carefully cut the tape sealing the box. Only cut deep enough to break the tape.

Step 4: Open the inside box.

Step 5: Lift the panel PC out of the boxes.

Step 6: Remove the peripheral parts box from the main box.

2.2 Packing List

![NOTE icon] **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 UPC-F12M1-ADLP was purchased from or contact an IEI sales representative directly by sending an email to sales@ieiworld.com.

The UPC-F12M1-ADLP panel PC is shipped with the following components:

Quantity	Item	Image
1	UPC-F12M1-ADLP panel PC	
1	M12 to USB cable	
1	3-pin Terminal Block	
2	Ferrite core	
1	Screw Pack	

2.3 Optional Items

The following are optional components which may be separately purchased:

Item and Part Number	Image
Arm (**P/N**: ARM-11-RS)	
Wall Mount Kit (**P/N**: AFLWK-19B)	
Stand for VESA 75/VESA 100 (**P/N**: STAND-C12-R10)	

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

Chapter

3

Installation

3.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the maintenance of the UPC-F12M1-ADLP may result in permanent damage to the UPC-F12M1-ADLP and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the UPC-F12M1-ADLP. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the UPC-F12M1-ADLP is accessed internally, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- **Wear an anti-static wristband**: Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- **Self-grounding**: Before handling the board, touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- **Use an anti-static pad**: When configuring the UPC-F12M1-ADLP, place it on an anti-static pad. This reduces the possibility of ESD damaging the UPC-F12M1-ADLP.
- **Only handle the edges of the PCB**: When handling the PCB, hold the PCB by the edges.

3.2 Installation Precautions

⚠️ **CAUTION:**

The UPC-F12M1-ADLP series has more than one power supply connection point.

To reduce the risk of electric shock, disconnect all power sources before installing or servicing the UPC-F12M1-ADLP series.

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

- **Power turned off**: When installing the panel PC, make sure the power is off. Failing to turn off the power may cause severe injury to the body and/or damage to the system.
- **Certified Engineers**: Only certified engineers should install and modify onboard functionalities.
- **Anti-static Discharge**: If a user open the rear panel of the panel PC, to configure the jumpers or plug in added peripheral devices, ground themselves first and wear an anti-static wristband.

3.3 SSD Installation

To install the SSD into the system, please follow the steps below:

Step 1: Remove the SSD slot cover located on the rear panel by removing the two retention screws.

Figure 3-1: SSD Slot Cover Retention Screws

Step 2: Pull out the SSD bracket from the system for installing SSD.

Figure 3-2: Remove SSD Bracket

Step 3: Remove the M.2 retention screw.Slide the M.2 module into the socket at an

angle of about 20°. Push the M.2 module down and secure it with a screw.

(**Figure 3-3**).
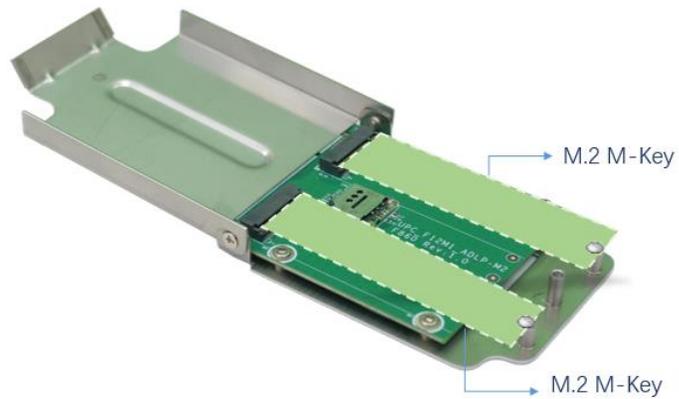
Figure 3-3: Secure the M.2 Module

Step 4: Insert the SSD bracket into the slot carefully until the bracket reach the end of

the slot.

Step 5: Re-install the SSD slot cover and secure it with two retention screws.

3.4 External I/O Connectors

The UPC-F12M1-ADLP series is equipped with several I/O connectors for peripheral device connection. The pinouts of some of the external connectors are listed below. The pinouts of other external connectors are described in **Section 5.3**.

3.4.1 External RS-232 Connector (COM1)

The pinouts for the RS-232 connector (COM1) are listed in the figure and table below.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION	
1	-NDCD	5	NSOUT	
2	-NDSR	6	-NCTS	
3	NSIN	7	-NDTR	
4	-NRTS	8	-XRI	Pin 1
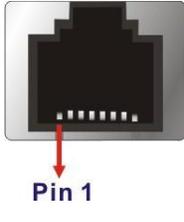
Table 3-1: External RS-232 Connector (COM1) Pinouts

3.4.2 External RS-232/422/485 Connector (COM2)

The pinouts for the RS-232/422/485 connector (COM2) are listed in the figure and table below. The RS-232/422/485 mode can be configured through BIOS; the default setting is RS-232 mode (refer to **Section 4.3.3**).

Pin	RS-232	RS-422	RS-485	
1	-NDCD	TX-	D-	
2	-NDSR			
3	NSIN	TX+	D+	
4	-NRTS			
5	NSOUT	RX+		
6	-NCTS			
7	-NDTR	RX-		Pin 1
8	-XRI			
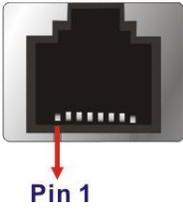
Table 3-2: External RS-232/422/485 Connector (COM2) Pinouts

Use the RJ-45 to DB-9 serial port cable shipped with the UPC-F12M1-ADLP to connect to a serial device. The pinouts of the RJ-45 to DB-9 serial port cable are listed below.

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	--	--	
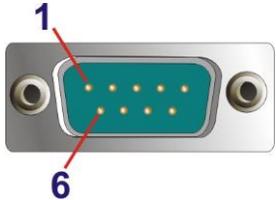
Table 3-3: DB-9 RS-232/422/485 Pinouts

3.4.3 AT/ATX Mode Selection

AT or ATX power mode can be used on the UPC-F12M1-ADLP. The selection is made through an AT/ATX switch located on the bottom panel (**Figure 3-4**). The I/O cover must be removed to be able to access the AT/ATX switch.

Figure 3-4: AT/ATX Switch Location

3.5 Ferrite Core Installation

The cables to be connected with the UPC-F12M1-ADLP should be installed with a ferrite core to reduce EMI. To install the ferrite core, follow the steps below.

Step 1: Open the ferrite core by unsnapping the latch.
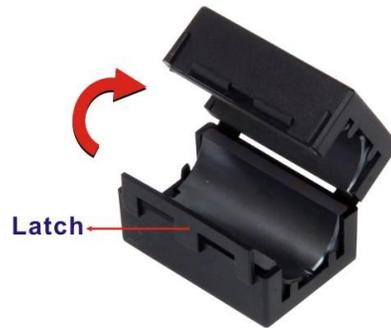
Figure 3-5: Open Ferrite Core

Step 2: Gently wrap the cable around the ferrite core. The cable should pass through the core twice as shown below. The ferrite core must be installed as close to the connector as possible.

Figure 3-6: Wrapping Cable around the Core

Step 3: Close the ferrite core and snap the latch back together. Then, pull both ends of the cable in opposite direction to tighten the loop.

Figure 3-7: Cable Installed with Ferrite Core

3.6 Mounting the System

The UPC-F12M1-ADLP is VESA (Video Electronics Standards Association) compliant and can be mounted on a mounting device with a 100 mm interface pad. The UPC-F12M1-ADLP VESA mount retention screw holes are shown in **Figure 3-8**. Refer to the installation guide that came with the mounting device to mount the UPC-F12M1-ADLP.
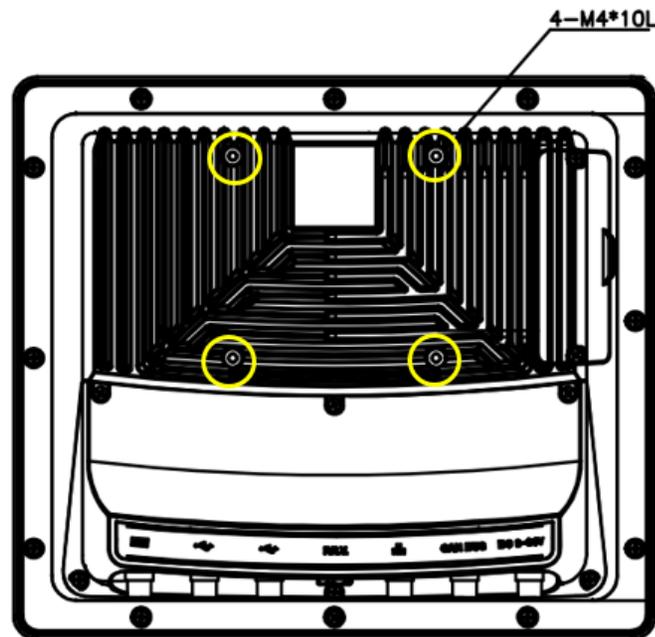
Figure 3-8: VESA Mounting Retention Screw Holes

  NOTE:

When purchasing the mounting device, please ensure that it is VESA compliant and that the device has a 100 mm interface pad. If the mounting device is not VESA compliant, it cannot be used to support the UPC-F12M1-ADLP panel PC.

3.7 Powering On the System

To power on the UPC-F12M1-ADLP panel PC, follow the steps below:

Step 1:   Connect either the DC jack or the terminal block of the system to a power source. The two power connector pinouts are shown below.
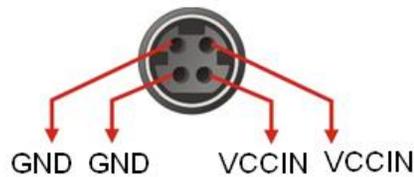
Figure 3-9: Power Input Jack Pinouts
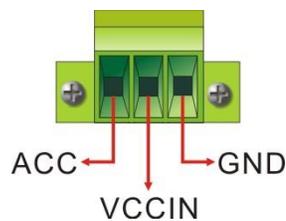
Figure 3-10: Power Input Terminal Block Pinouts

Step 2:   In ATX mode, long press the power button on the front panel for around five seconds until the LED lights up in green to power up the system. In AT mode, the UPC-F12M1-ADLP will turn on automatically once power is connected to the power connector; short press the power button to turn off/on the system.

NOTE:

> The UPC-F12M1-ADLP has the capability to support ACC power mode. For more details about this function, please contact an IEI sales representative directly by sending an email to sales@ieiworld.com.

3.8 Available Drivers

All the drivers for the UPC-F12M1-ADLP are available on IEI Resource Download Center (https://download.ieiworld.com). Type UPC-F12M1-ADLP and press Enter to find all the relevant software, utilities, and documentation.
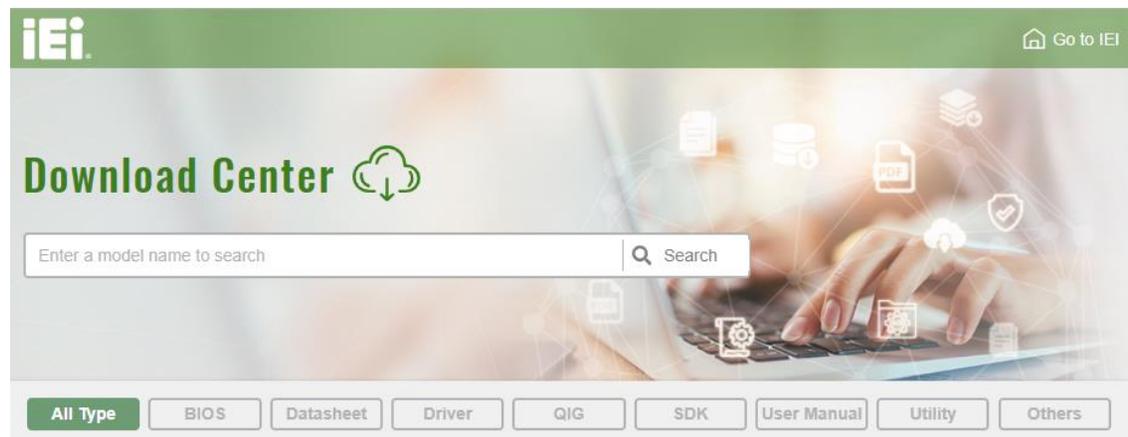
Figure 3-11: IEI Resource Download Center

3.8.1 Driver Download

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

Step 1: Go to https://download.ieiworld.com. Type UPC-F12M1-ADLP and press Enter.
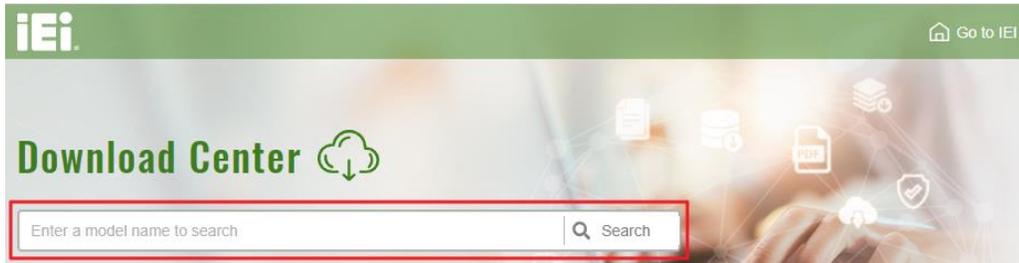
Step 2: All product-related software, utilities, and documentation will be listed. You can choose **Driver** to filter the result.

Step 3: Click the driver file name on the page and you will be prompted with the following window. You can download the entire ISO file (❶), or double click an individual item to find its driver file and click the file name to download (❷).
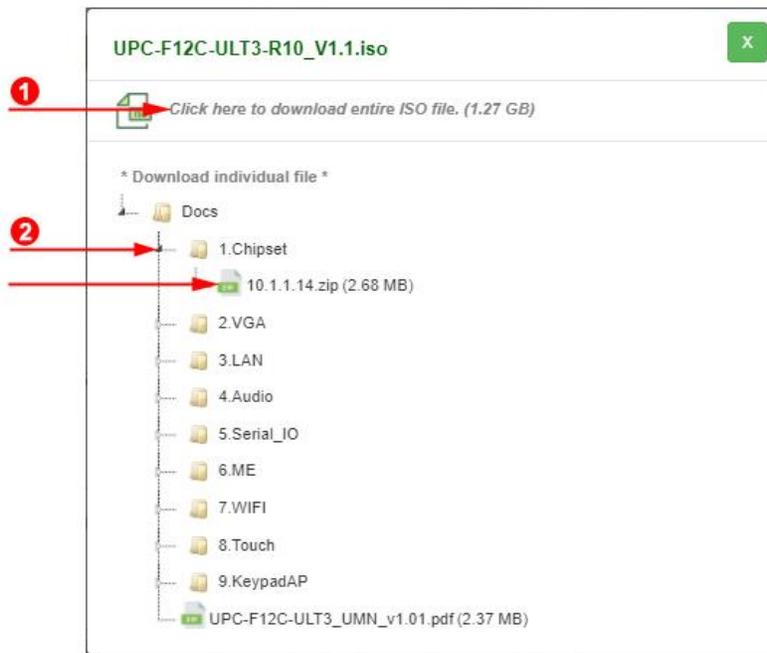
![NOTE icon] **NOTE:**

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

Chapter

4

BIOS Setup

4.1 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.

4.1.1 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. Press the DELETE or **F2** key as soon as the system is turned on or
2. Press the DELETE or **F2** key when the "**Press Del to enter SETUP**" message appears on the screen.

If the message disappears before the DELETE or **F2** key is pressed, restart the computer and try again.
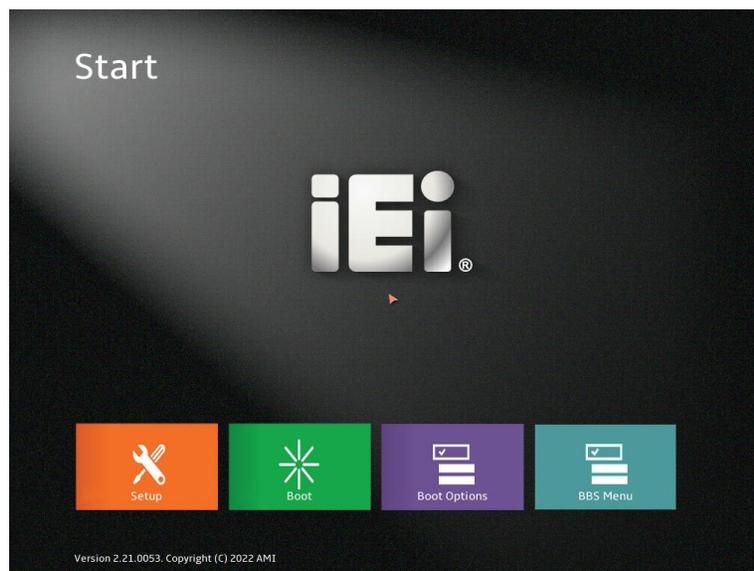
BIOS Menu 1: BIOS Starting Menu

4.1.2 Using Setup

Use the arrow keys to highlight items, press ENTER to select, use the PageUp and PageDown keys to change entries, press **F1** for help and press ESC to quit. Navigation keys are shown in.

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
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Load previous values.
F3 key	Load optimized defaults
F4 key	Save changes and Exit BIOS
Esc key	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

4.1.3 Getting Help

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

4.1.4 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.

4.2 Main

The **Main** BIOS menu (**BIOS Menu 2**) appears when the **BIOS Setup** program is entered.

BIOS Menu 2: Main (1/3)

BIOS Menu 3: Main (2/3)

BIOS Menu 4: 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
- **Compliancy:** Current UEFI & PI version
- **Project Version:** the board version
- **Build Date and Time:** Date the current BIOS version was made
- **EC Version:** Current EC version

➔ **Processor Information**

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

- **Name:** Displays the Processor Details
- **Type:** Displays the Processor Type
- **Speed:** Displays the Processor Speed
- **ID:** Displays the Processor ID

➔ **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

➔ **System Date [xx/xx/xx]**

Use the **System Date** option to set the system date. Manually enter the day, month and year.

➔ **System Time [xx:xx:xx]**

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

4.3 Advanced

Use the **Advanced** menu (**BIOS Menu 5**) to configure the CPU and peripheral devices through the following sub-menus:

![WARNING icon]

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.
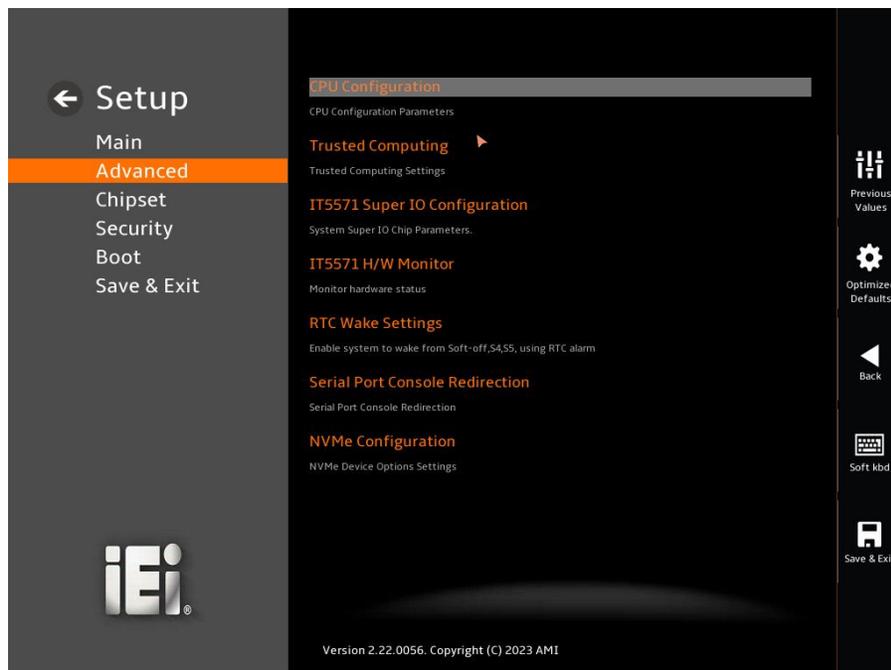
BIOS Menu 5: Advanced

4.3.1 CPU Configuration

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

BIOS Menu 6: CPU Configuration (1/4)

BIOS Menu 7: CPU Configuration (2/4)

BIOS Menu 8: CPU Configuration (3/4)

BIOS Menu 9: CPU Configuration (4/4)

➔ **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 P-cores in the processor package.

➔ **1**   Enable one P-core 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.

➔ **Power Limit 1 [0]**

Use the + or – key to change the **Power Limit 1** value. BIOS will program the default values for Limit 1 and Power Limit 1 Time Window. For 12.50W, enter 12500.

➔ **Power Limit 2 [0]**

Use the + or – key to change the **Power Limit 2** value. BIOS will round to the nearest 1/8W when programming. 0 = no custom override. For 12.50W, enter 12500.

➔ **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

4.3.2 Trusted Computing

Use the **Trusted Computing** menu (**BIOS Menu 10**) to configure settings related to the Trusted Computing Group (TCG) Trusted Platform Module (TPM).
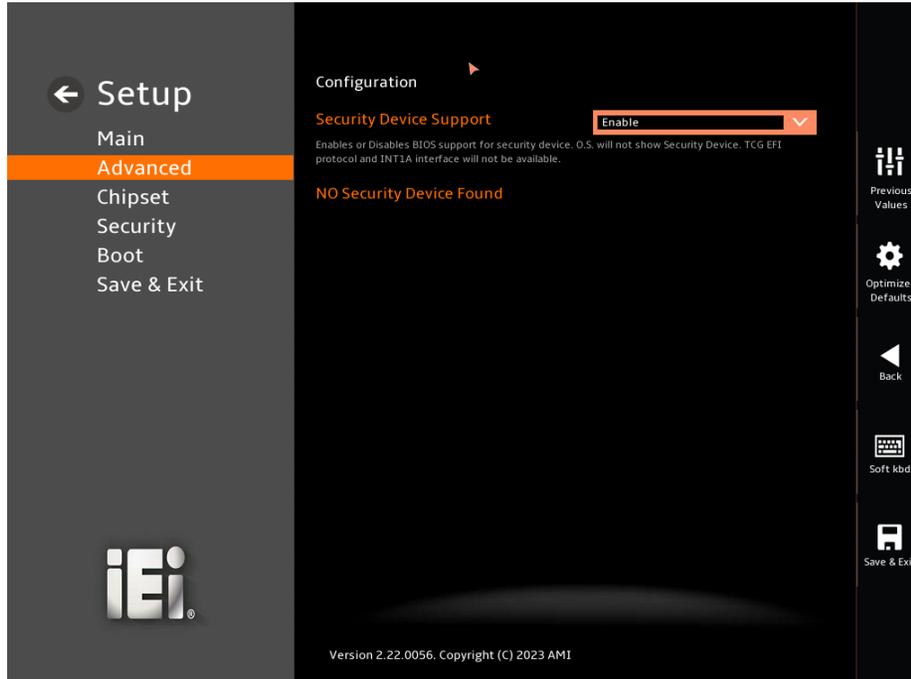
BIOS Menu 10: Trusting Computing

➔ **Security Device Support [Enable]**

Use the **Security Device Support** option to configure support for the TCG EFI Protocol and INT1A.

➔ **Disable**　　　　　　　　Security Device support is disabled.

➔ **Enable**　　**DEFAULT**　　Security Device support is enabled.

4.3.3 IT5571 Super IO Configuration

Use the **IT5571 Super IO Configuration** menu (**BIOS Menu 11**) to set or change the configurations for the serial ports.
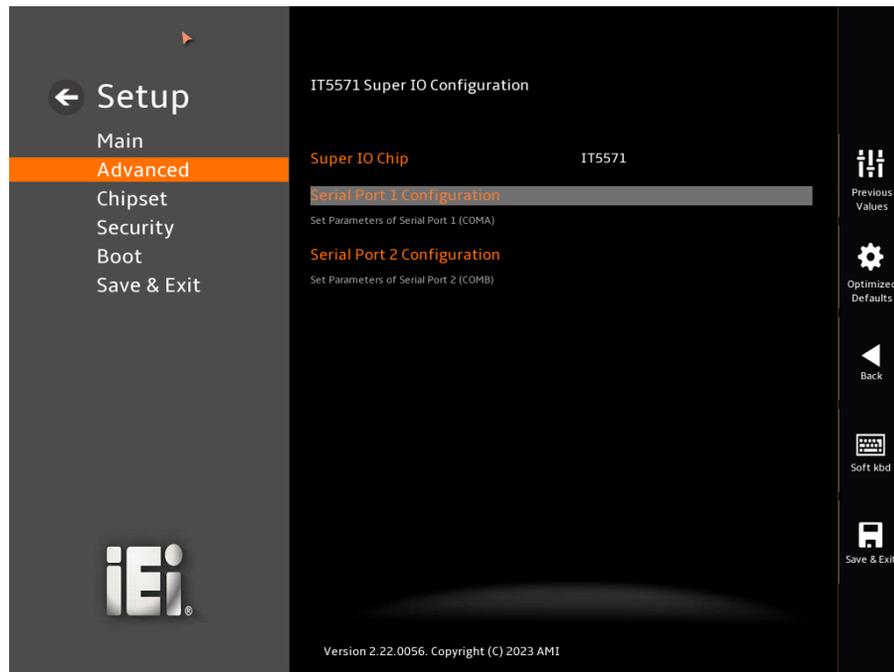
BIOS Menu 11: IT5571 Super IO Configuration

➔ **IT5571 Super IO Configuration**

The **IT5571 Super IO Configuration** lists a brief summary of the Super IO Chip information. The items shown in the system overview include:

- **Serial Port 1 Configuration: Set Parameters of Serial Port 1 (COMA)**
- **Serial Port 2 Configuration: Set Parameters of Serial Port 2 (COMB)**

4.3.3.1 Serial Port 1 Configuration

Use the **Serial Port 1 Configuration** submenu (**BIOS Menu 12**) to configure serial port 1.

BIOS Menu 12: Serial Port 1 Configuration

➔ **Serial Port [Enabled]**

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

➔ **Disabled**   Disable the serial port

➔ **Enabled**   DEFAULT   Enable the serial port

➔ **Device Settings**

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

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

4.3.3.2 Serial Port 2 Configuration

Use the **Serial Port 2 Configuration** submenu (**BIOS Menu 13**) to configure serial port 2.
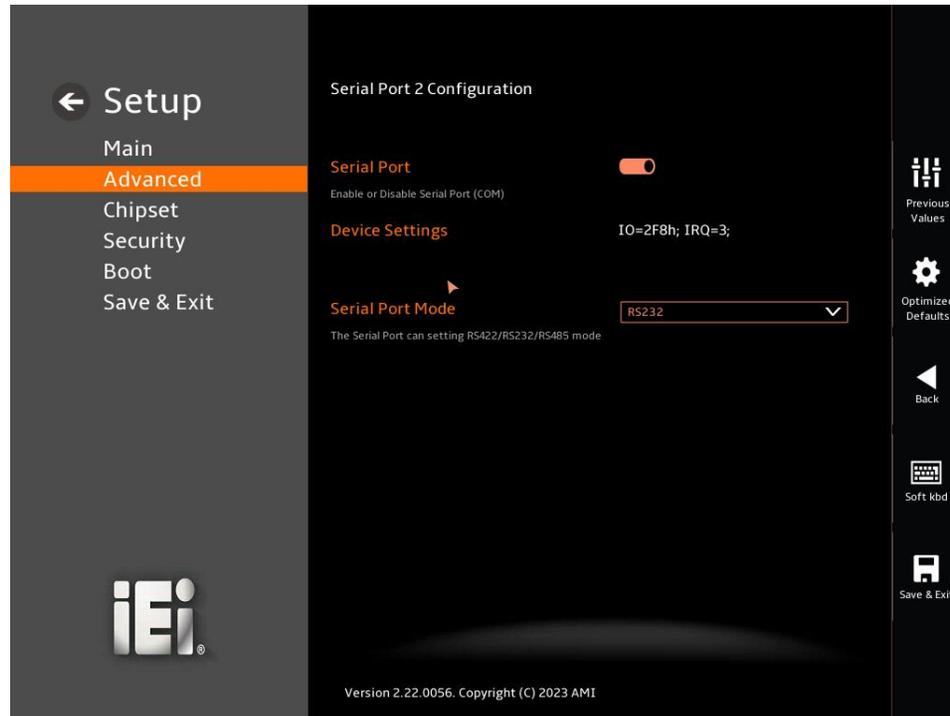
BIOS Menu 13: Serial Port 2 Configuration

➔ **Serial Port [Enabled]**

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

➔ **Disabled**   Disable the serial port

➔ **Enabled**   DEFAULT   Enable the serial port

➔ **Device Settings**

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

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

➔ **Serial Port Mode [RS232]**

Use the **Serial Port Mode** option to select the Serial Port 2 signaling mode.

➔ **RS422**   Serial Port 2 signaling mode is RS-422

➔ **RS232**   DEFAULT   Serial Port 2 signaling mode is RS-232

➔ **RS485**   Serial Port 2 signaling mode is RS-485

4.3.4 IT5571 H/W Monitor

The **IT5571 H/W Monitor** menu (**BIOS Menu 14**) displays the system temperature and system voltages.

BIOS Menu 14: IT5571 H/W Monitor

➔ **PC Health Status**

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

- System Temperatures:
  - CPU Temperature

○ System Temperature

▪ Voltages:

○ +VCCCORE

○ +V5S

○ +V12S

○ +VDDQ

○ +V3.3S

4.3.5 RTC Wake Settings

The **RTC Wake Settings** menu (**BIOS Menu 15**) configures RTC wake event.

BIOS Menu 15: RTC Wake Settings

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

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

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

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

   Wake up date

   Wake up hour

   Wake up minute

   Wake up second

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

4.3.6 Serial Port Console Redirection

The **Serial Port Console Redirection** menu (**BIOS Menu 16**) 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.
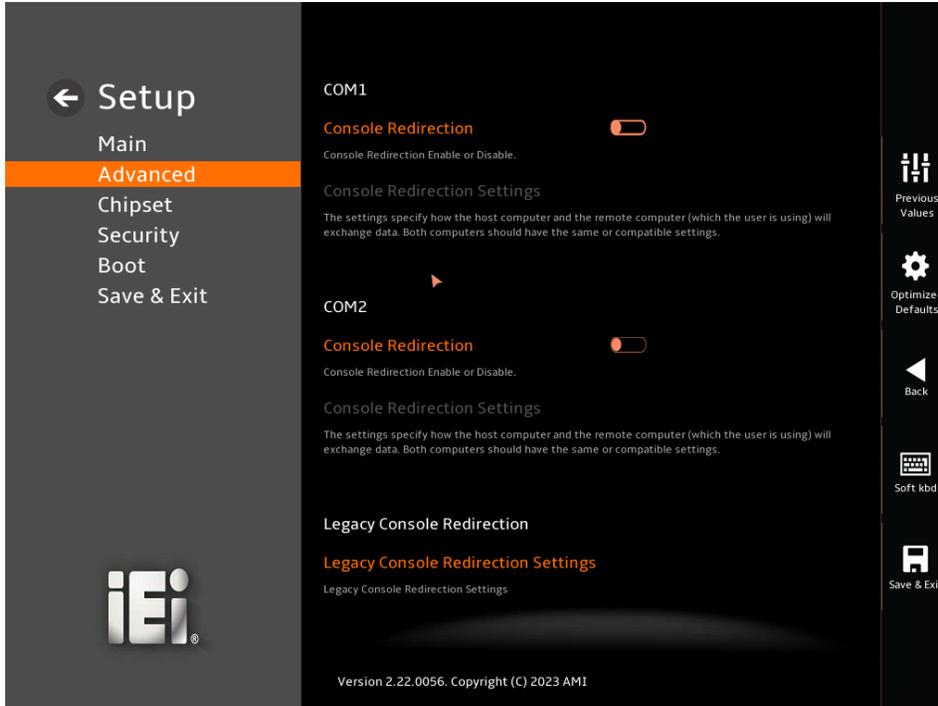
BIOS Menu 16: Serial Port Console Redirection

➔ **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

4.3.7 NVMe Configuration

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

BIOS Menu 17: NVMe Configuration

➔ **Hyper Threading Function [Enabled]**

Use the Hyper Threading function to enable or disable the CPU hyper threading function.

➔ **Disabled** Disables the use of hyper threading technology

➔ **Enabled** **DEFAULT** Enables the use of hyper threading technology

➔ **Active Processor Cores [All]**

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

➔ **All** **DEFAULT** Enable all cores in the processor package.

➔ **1** Enable one core in the processor package.

➔ **Intel Virtualization Technology [Disabled]**

Use the **Intel 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** DEFAULT Disables Intel® Virtualization Technology.

➔ **Enabled** Enables Intel® Virtualization Technology.

➔ **Intel® SpeedStep™ [Enabled]**

Use the **Intel® SpeedStep™** option to enable or disable the Intel® SpeedStep™ Technology.

➔ **Disabled** Disables the Intel® SpeedStep™ Technology.

➔ **Enabled** DEFAULT Enables the Intel® SpeedStep™ Technology.

➔ **CPU C State [Disabled]**

Use the **CPU C State** option to enable or disable CPU C state.

➔ **Disabled** DEFAULT Disables CPU C state.

➔ **Enabled** Enables CPU C state.

4.4 Chipset

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

WARNING!

Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.
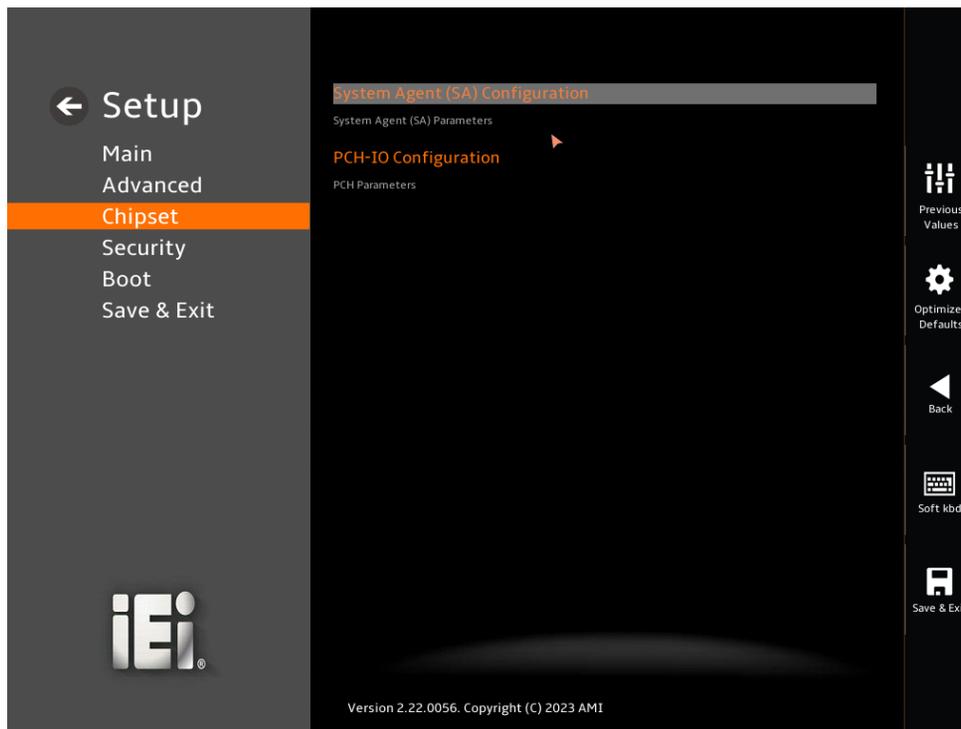
BIOS Menu 18: Chipset

4.4.1 System Agent (SA) Configuration

Use the **System Agent (SA) Configuration** menu (**BIOS Menu 19**) to configure the System Agent (SA) parameters.
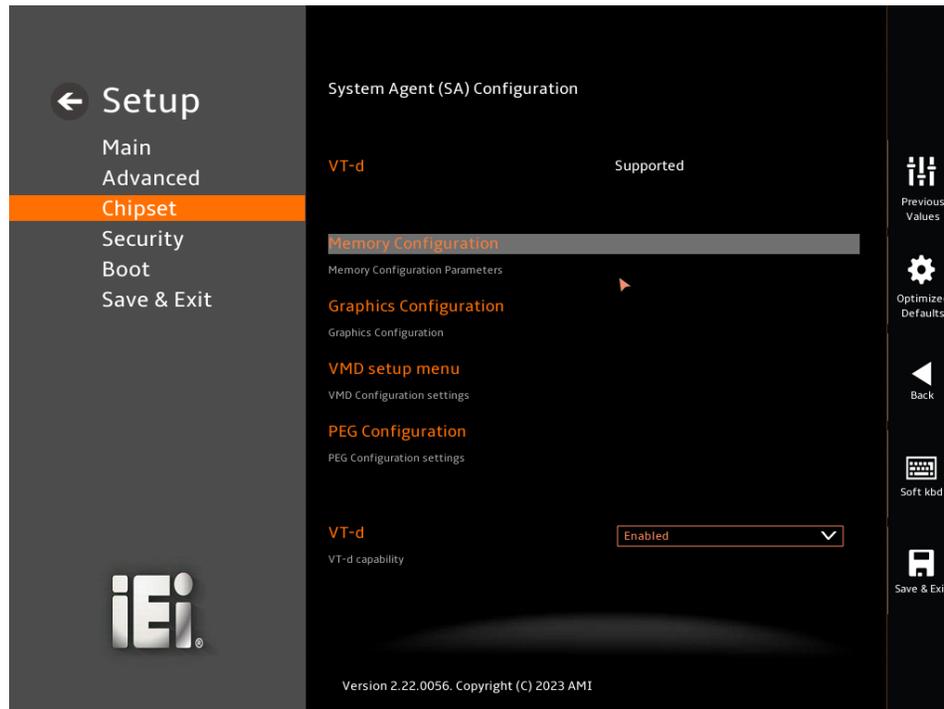
➔ **VT-d [Disabled]**

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

➔ **Disabled**   DEFAULT   Disable VT-d support.
➔ **Enabled**   Enable VT-d support.

4.4.1.1 Memory Configuration

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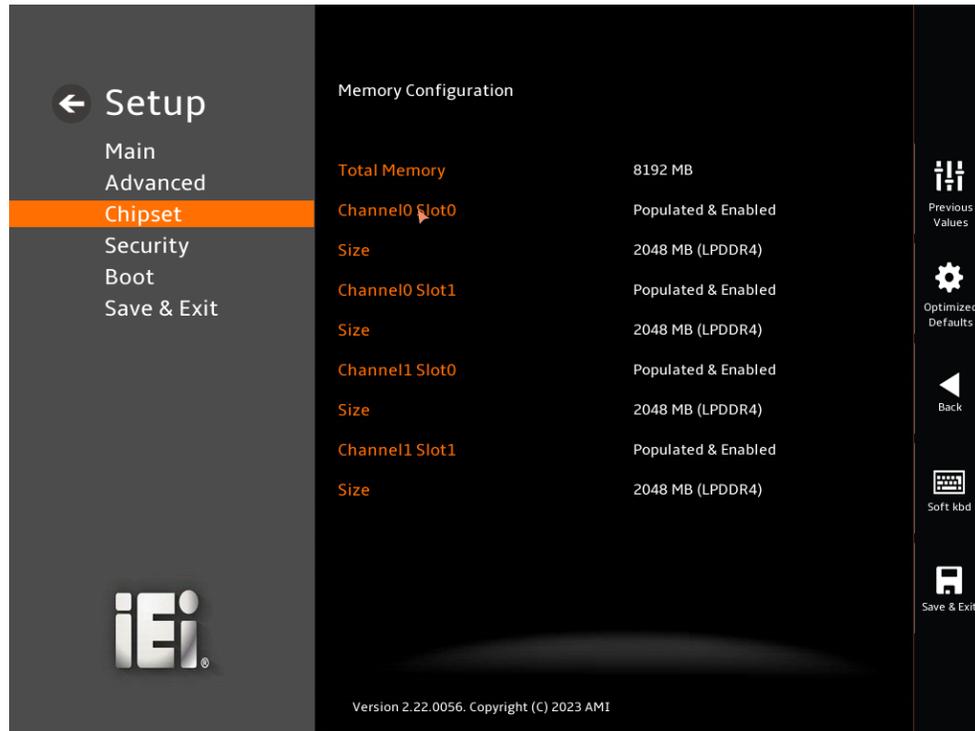
BIOS Menu 20: Memory Configuration

4.4.1.2 Graphics Configuration

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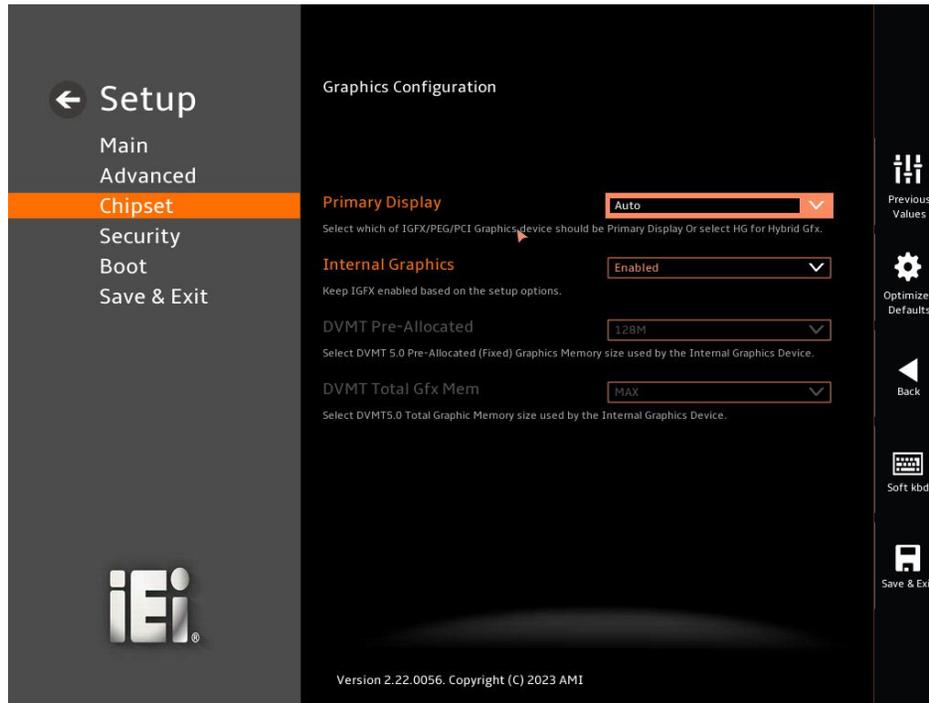
BIOS Menu 21: Graphics Configuration

➔ **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.

4.4.1.3 VMD setup menu
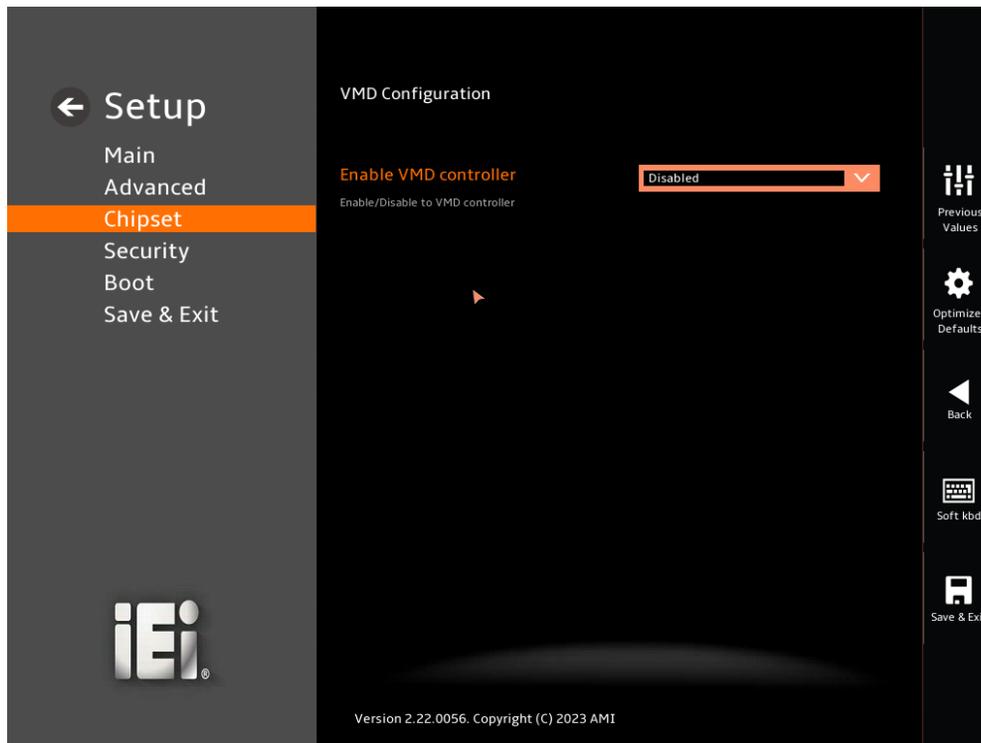
BIOS Menu 22: VMD setup menu

➔ **Enable VMD Controller [Enabled]**

Enable/Disable to VMD controller.

➔ **Disabled**   Disable the VMD controller

➔ **Enabled**   **DISABLED**   Enable the VMD controller

4.4.1.4 PEG Configuration

BIOS Menu 23: PEG Configuration

➔ **M2_M1 [Enabled]**

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

➔ **Disabled**   Disable the M2_M1

➔ **Enabled**   DEFAULT   Enable the M2_M1

PCIe Speed [Auto]

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

➔ **Auto**   DEFAULT   Auto mode.

➔ **Gen1**   Configure PCIe Speed to Gen1.

➔ **Gen2**   Configure PCIe Speed to Gen2.

- **Gen3**   Configure PCIe Speed to Gen3.
- **Gen4**   Configure PCIe Speed to Gen4.
- **Gen5**   Configure PCIe Speed to Gen5.

M2_M2 [Enabled]

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

- **Disabled**   Disable the M2_M2
- **Enabled**   **DEFAULT**   Enable the M2_M2

PCIe Speed [Auto]

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

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

4.4.2 PCH-IO Configuration

Use the **PCH-IO Configuration** menu (**BIOS Menu 24**) to configure the PCH chipset.

BIOS Menu 24: PCH-IO Configuration(1/2)
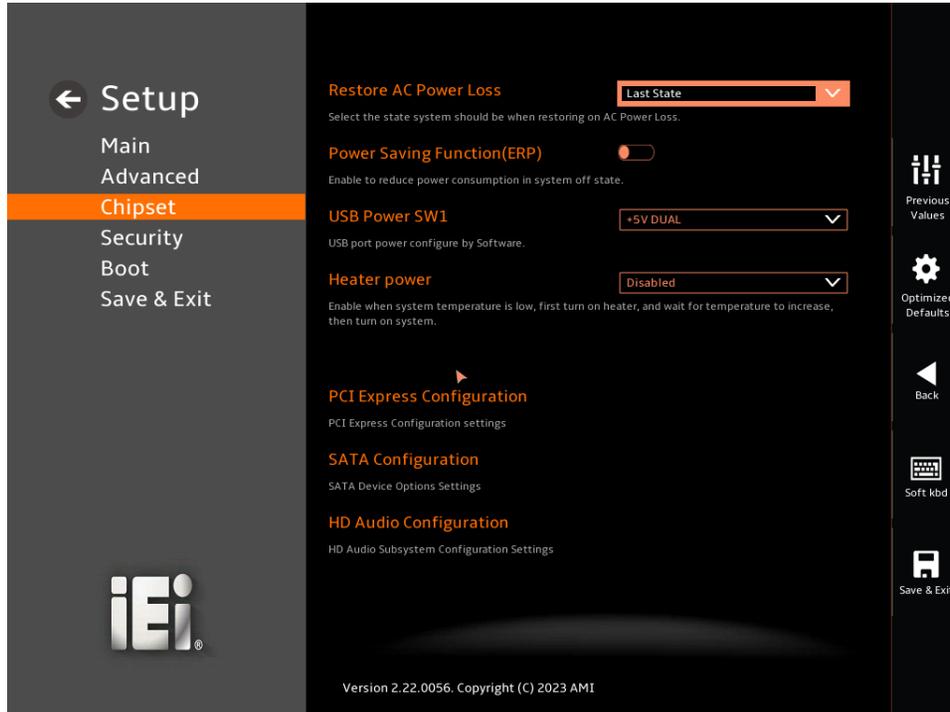
BIOS Menu 25: PCH-IO Configuration(2/2)

➔ **Restore AC Power Loss [Last State]**

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

➔ **Power Off**   The system remains turned off

➔ **Power On**   The system turns on

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

➔ **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**   D<small>EFAULT</small>   keep USB port's power when S5.

➔ **+5V**   USB Port no power when S5.

➔ **Heater power [Disabled]**

Use the **Heater power** option to enable when system temperature is low, and wait for temperature to increase, then turn on system.

➔ **Disabled**   D<small>EFAULT</small>   The heater power option turned off

➔ **Enabled**   The heater power option turns on

4.4.2.1 PCI Express Configuration

Use the **PCI Express Configuration** submenu (**BIOS Menu 26**) to configure the PCI Express slots.

  BIOS Menu 26: PCI Express Configuration

➔ **M2_E1 [Enabled]**

Use the **M2_E1** to Control the PCI Express Configuration.

➔ **Disabled**   Disable the M2_E1

➔ **Enabled**   DEFAULT   Enable the M2_E1

➔ **PCIe Speed [Auto]**

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

➔ **Auto**   DEFAULT   Auto mode.

➔ **Gen1** Configure PCIe Speed to Gen1.

➔ **Gen2** Configure PCIe Speed to Gen2.

➔ **Gen3** Configure PCIe Speed to Gen3.

➔ **Gen4** Configure PCIe Speed to Gen4.

Use the **M2_B1** menu to change and/or set the configuration of the M2_B1 devices installed in the system.

➔ **M2_B1 [Enabled]**

Use the **M2_B1** to Control the PCI Express Configuration.

➔ **Disabled** Disable the M2_B1

➔ **Enabled** DEFAULT Enable the M2_B1

➔ **PCIe Speed [Auto]**

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

➔ **Auto** DEFAULT Auto mode.

➔ **Gen1** Configure PCIe Speed to Gen1.

➔ **Gen2** Configure PCIe Speed to Gen2.

➔ **Gen3** Configure PCIe Speed to Gen3.

➔ **Gen4** Configure PCIe Speed to Gen4.

➔ **Gen5** Configure PCIe Speed to Gen5.

4.4.2.2 SATA Configuration

Use the **SATA Configuration** menu (**BIOS Menu 27**) to change and/or set the configuration of the SATA devices installed in the system.
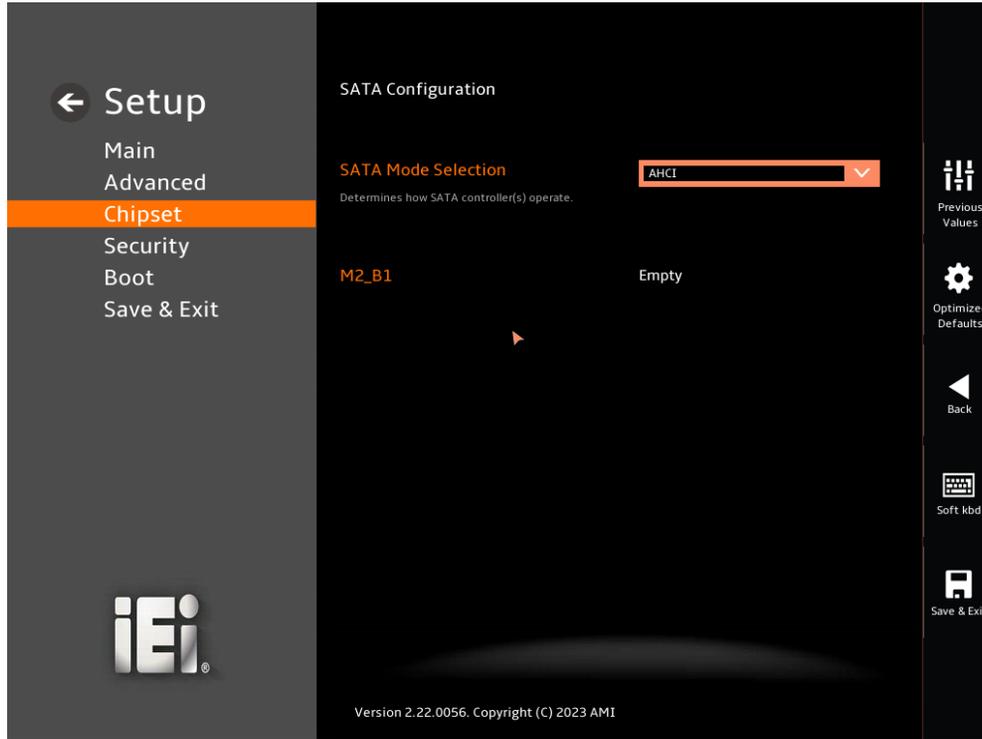
BIOS Menu 27: SATA Configuration

➔ **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   Configures SATA devices to the Intel RST
   With Intel Optane   Premium With Intel Optane System Acceleration
   System Acceleration   mode.**

4.4.2.3 HD Audio Configuration

Use the **HD Audio Configuration** submenu (**BIOS Menu 28**) to configure the High Definition Audio codec.
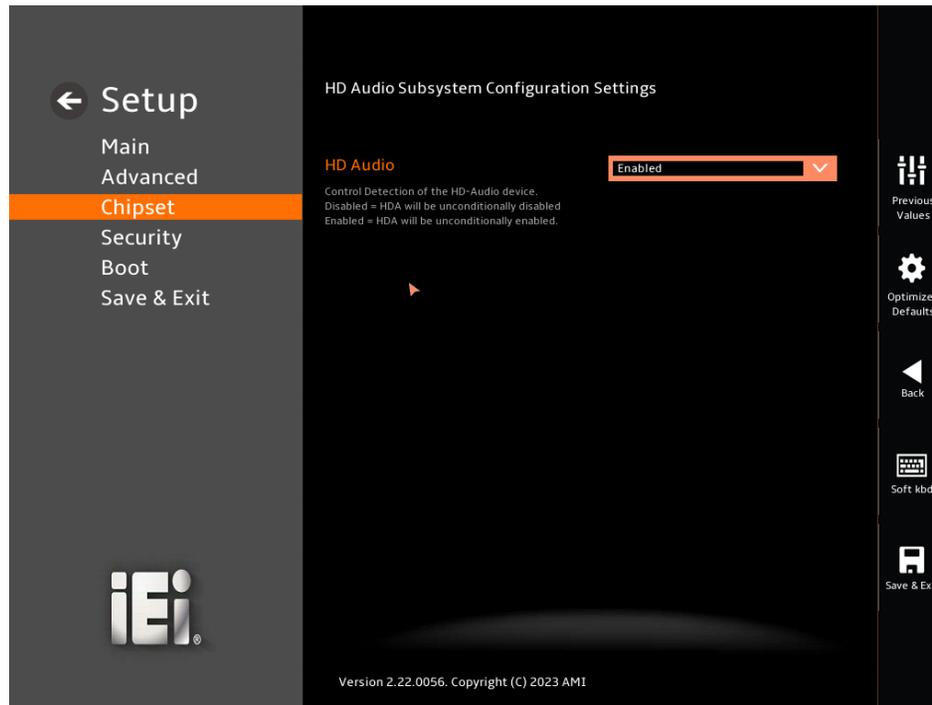
BIOS Menu 28: HD Audio Configuration

➔ **HD Audio [Enabled]**

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

➔ **Disabled**   The High Definition Audio controller is disabled.

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

4.5 Security

Use the **Security** menu (**BIOS Menu 29**) to set system and user passwords.
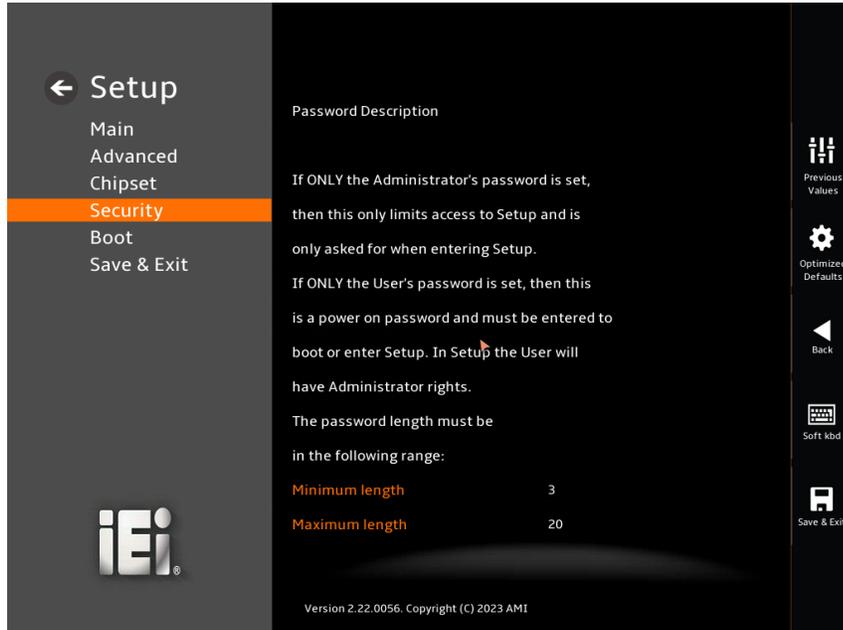
BIOS Menu 29: Security (1/2)
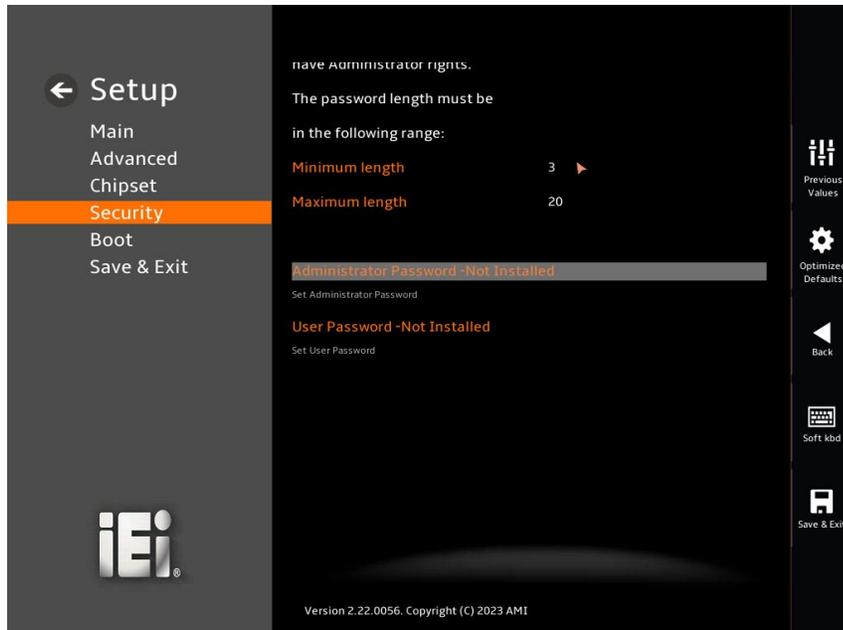
BIOS Menu 30: Security (2/2)

➔ **Administrator Password**

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

➔ **User Password**

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

4.6 Boot

Use the **Boot** menu (**BIOS Menu 31**) to configure system boot options.
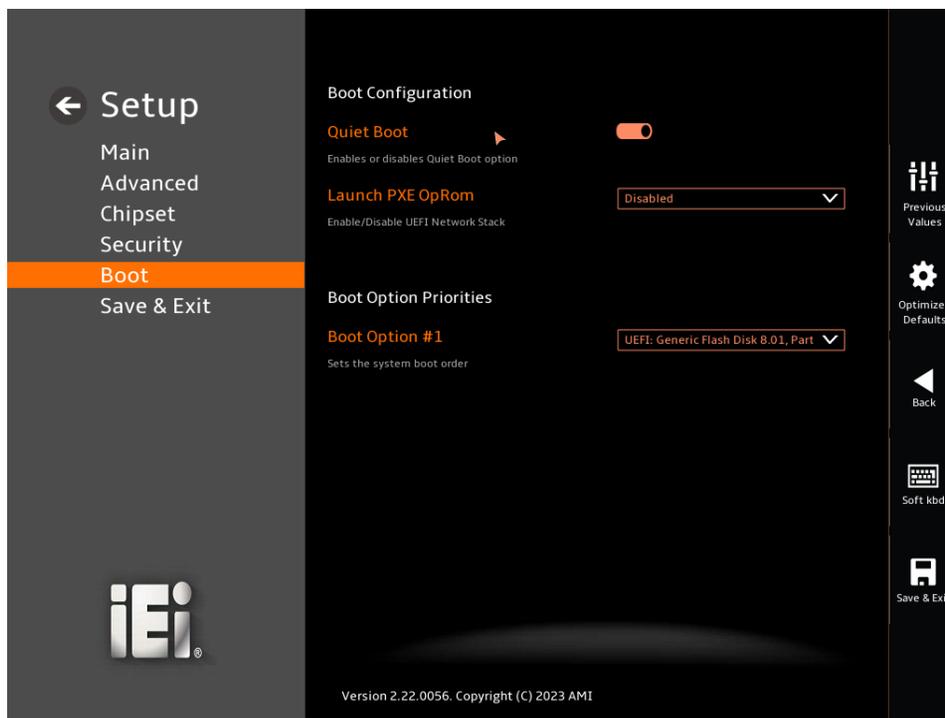
   BIOS Menu 31: Boot

➔ **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.

➔ **Boot Option Priority**

Use the **Boot Option Priority** function to set the system boot sequence from the available devices. The drive sequence also depends on the boot sequence in the individual device section.

4.6.1 Boot Option Priorities

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

➔ **Boot Option #1**

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

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

➔ **Disabled**

➔ **Boot Option #2**

Sets the system boot order **USB Partition 1** as the second priority.

➔ **UEFI: USB, Partition 1**

➔ **Disabled**

4.7 Save & Exit

Use the **Save & Exit** menu (**BIOS Menu 32**) to load default BIOS values, optimal failsafe values and to save configuration changes.
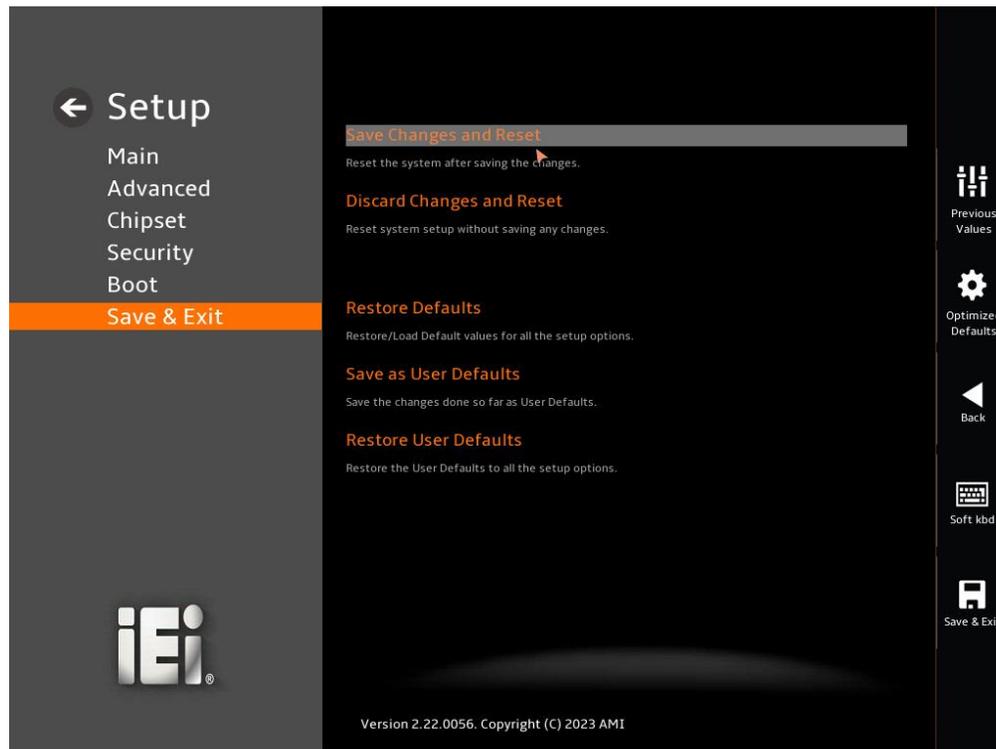
BIOS Menu 32: Save & Exit

➔ **Save Changes and Reset**

Use the **Save Changes and Reset** option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

➔ **Discard Changes and Reset**

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

➔ **Restore Defaults**

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

➔ **Save as User Defaults**

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

➔ **Restore User Defaults**

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

Chapter

5

Interface Connectors

5.1 Peripheral Interface Connectors

The UPC-F12M1-ADLP medical box PC motherboard comes with a number of peripheral interface connectors and configuration jumpers. The connector locations are shown in **Figure 5-1**. The Pin 1 locations of the on-board connectors are also indicated in the diagram below. The connector pinouts for these connectors are listed in the following sections.
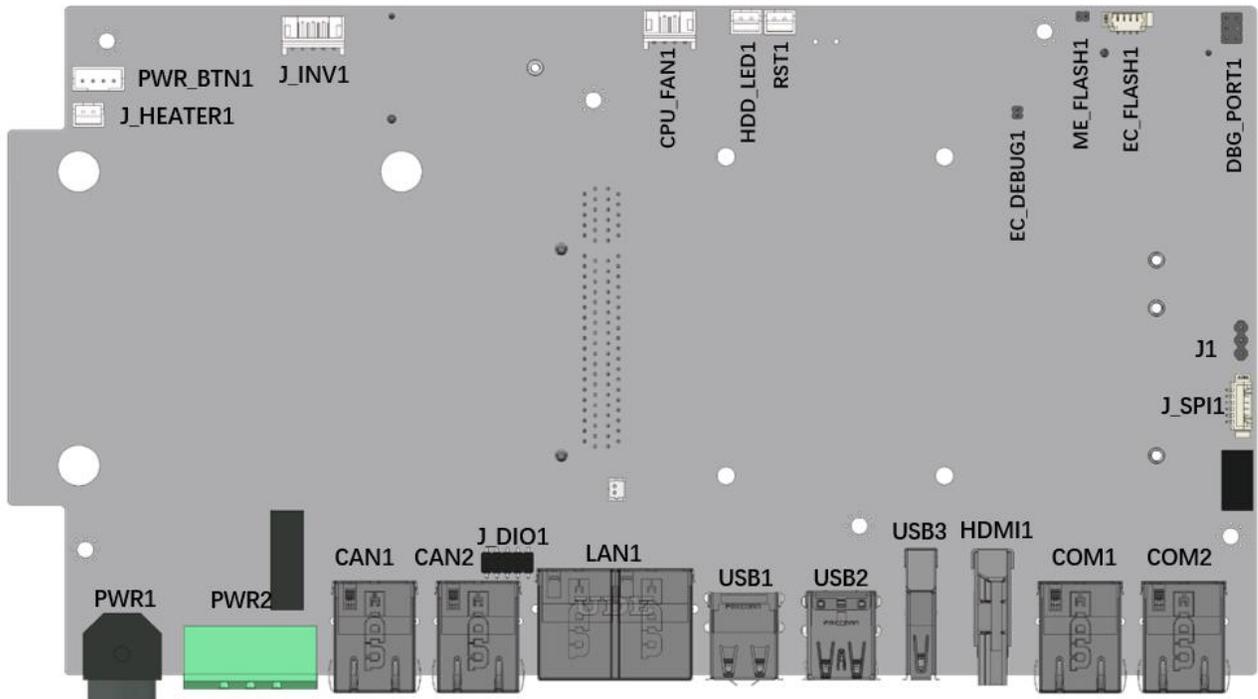
Figure 5-1: Jumper and Connector Locations (Front Side)
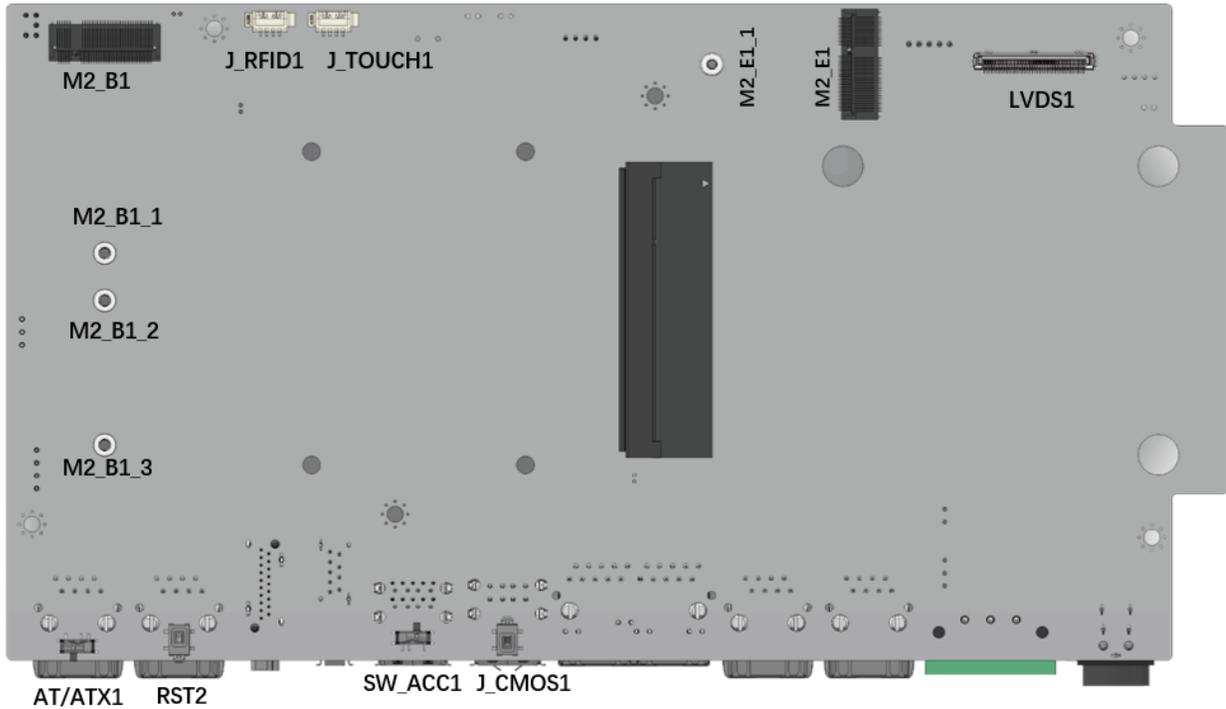
Figure 5-2: Jumper and Connector Locations (Solder Side)

5.2 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 UPC-F12M1-ADLP's motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
BIOS Programmer Connector	6-pin wafer	J_SPI1
Debug Connector	6-pin header	DBG_PORT1
Flash SPI ROM	4-pin wafer	EC_FLASH1
Flash Descriptor Security Override	2-pin header	ME_FLASH1
EC Debug Connector	2-pin header	EC_DEBUG1

Reset BTN Connector	2-pin wafer	RST1
HDD LED Connector	2-pin wafer	HDD_LED1
CPU FAN Connector	4-pin wafer	CPU_FAN1
Panel Inverter Connector	5-pin wafer	J_INV1
Power LED / Power BTN Connector	5-pin wafer	PWR_BTN1
Heater Power Connector	2-pin wafer	J_HEATER1
B Key Connector	75-pin wafer	M2_B1
RFID Connector	4-pin wafer	J_RFID1
Touch Panel Connector	4-pin wafer	J_TOUCH1
E Key Connector	75-pin wafer	M2_E1
LVDS Panel Connector	40-pin wafer	LVDS1

Table 5-1: Peripheral Interface Connectors

5.2.1 BIOS Programmer Connector (J_SPI1)

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

Table 5-2: BIOS Programmer Connector (J_SPI1)

5.2.2 Debug Connector (DBG_PORT1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC5V	2	SMCLK_EC

3	NC	4	SMDAT_EC
5	GND	6	RST#

Table 5-3: Debug Connector (DBG_PORT1)

5.2.3 EC Programmer Connector (EC_FLASH1)

PIN NO.	DESCRIPTION
1	GND
2	EC_FLASH_DAT
3	EC_FLASH_CLK
4	NC

Table 5-4: EC Programmer Connector (EC_FLASH1)

5.2.4 Flash Descriptor Security Override (ME_FLASH1)

PIN NO.	DESCRIPTION
Open	No override (Default)
Short	Override

Table 5-5: Flash Descriptor Security Override (ME_FLASH1)

5.2.5 EC Debug Connector (EC_DEBUG1)

PIN NO.	DESCRIPTION
1	SCL
2	SDA

Table 5-6: EC Debug Connector (EC_DEBUG1)

5.2.6 Reset BTN Connector (RST1)

PIN NO.	DESCRIPTION
1	RST+
2	GND

Table 5-7: Reset BTN Connector (RST1)

5.2.7 HDD LED Connector (HDD_LED11)

PIN NO.	DESCRIPTION
1	HDD_LED+
2	HDD_LED-

Table 5-8: HDD LED Connector (HDD_LED11)

5.2.8 CPU FAN Connector (CPU_FAN1)

PIN NO.	DESCRIPTION
1	GND
2	VCC12V
3	FANIO
4	PWM

Table 5-9: CPU FAN Connector (CPU_FAN1)

5.2.9 Panel Inverter Connector (J_INV1)

PIN NO.	DESCRIPTION
1	PWM
2	GND
3	VCC12V
4	GND
5	ENABLE

Table 5-10: Panel Inverter Connector (J_INV1)

5.2.10 Power LED / Power BTN Connector (PWR_BTN1)

PIN NO.	DESCRIPTION
1	PW_LED+
2	GND
3	PWR_BTN
4	GND

Table 5-11: Power LED / Power BTN Connector (PWR_BTN1)

5.2.11 Heater Power Connector Connector (J_HEATER1)

PIN NO.	DESCRIPTION
1	VCC
2	GND

Table 5-12: Heater Power Connector Connector (J_HEATER1)

5.2.12 B Key Connector (M2_B1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	CONFIG_3	2	VCC3.3V
3	GND	4	VCC3.3V
5	GND	6	NC
7	USB_D+	8	NC
9	USB_D-	10	DAS/DSS
11	GND	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	NC
19	NC	20	NC
21	NC	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	USB3_RX_N	30	UIM_RESET
31	USB3_RX_P	32	UIM_CLK
33	GND	34	UIM_DATA
35	USB3_TX_N	36	UIM_PWR
37	USB3_TX_P	38	NC
39	GND	40	SMB_CLK
41	PER_N0/SATA_B+	42	SMB_DATA
43	PER_P0/SATA_B-	44	NC
45	GND	46	NC
47	PET_N0/SATA_A-	48	NC

49	PET_P0/SATA_A+	50	PERST
51	GND	52	NC
53	CLKN	54	PWEAKE
55	CLKP	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	SIM_DET
67	PESET_N	68	NC
69	PEDET	70	VCC3.3V
71	GND	72	VCC3.3V
73	GND	74	VCC3.3V
75	GND		

Table 5-13: B Key Connector (M2_B1)

5.2.13 RFID Connector (J_RFID1)

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

Table 5-14: RFID Connector (J_RFID1)

5.2.14 Touch Panel Connector (J_TOUCH1)

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

Table 5-15: Touch Panel Connector (J_TOUCH1)

5.2.15 E Key Connector (M2_E1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC3.3V
3	USB_D+	4	VCC3.3V
5	USB_D-	6	NC
7	GND	8	NC
9	WGR_D1N	10	LCP_RSTN
11	WGR_D1P	12	NC
13	GND	14	CLKREQ
15	WGR_D0N	16	NC
17	WGR_D0P	18	GND
19	GND	20	UART_WAKE
21	WGR_CLKN	22	BRI_RSP
23	WGR_CLKP	24	NC
25	NC	26	NC
27	NC	28	NC
29	NC	30	NC
31	NC	32	RGI_DT
33	GND	34	RGI_RSP
35	PET_P0	36	BRI_DT
37	PET_N0	38	CLINK_RST
39	GND	40	CLINK_DATA
41	PER_P0	42	CLINK_CLK
43	PER_N0	44	NC
45	GND	46	NC
47	CLKP	48	NC
49	CLKN	50	SUSCLK
51	GND	52	PERST
53	NC	54	W_DISABLE2
55	PEWAKE	56	W_DISABLE1
57	GND	58	NC
59	WT_D1N	60	NC

61	WT_D1P	62	NC
63	GND	64	NC
65	WT_D0N	66	NC
67	WT_D0P	68	NC
69	GND	70	NC
71	WT_CLKN	72	VCC3.3V
73	WT_CLKP	74	VCC3.3V
75	GND		

Table 5-16: E Key Connector (M2_E1)

5.2.16 LVDS Panel Connector (LVDS1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC_LCD	2	VCC_LCD
3	VCC_LCD	4	VCC_LCD
5	VCC_LCD	6	NC
7	GND	8	GND
9	GND	10	GND
11	GND	12	CLK2_P
13	CLK2_N	14	GND
15	A7P	16	A7N
17	GNDI	18	A6P
19	A6N	20	GND
21	A5P	22	A5N
23	GND	24	A4P
25	A4N	26	GND
27	A3P	28	A3N
29	GND	30	CLK1_P
31	CLK1_N	32	GND
33	A2P	34	A2N
35	GND	36	A1P
37	A1N	38	GND
39	A0P	40	A0N

Table 5-17: LVDS Panel Connector (LVDS1)

5.3 External Interface Panel Connectors

The table below lists the rear panel connectors on the motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
Power input Connector	DC Jack	PWR1
Power input Connector	3-pin Terminal block	PWR2
CAN BUS Connector (RJ45)	8-pin RJ45	CAN1
CAN BUS Connector (RJ45)	8-pin RJ45	CAN2
2.5GbE connector	RJ-45	LAN1/LAN2
Dual USB2.0 Connector	USB 2.0 port	USB1
Dual USB3.2 Connector	USB 3.2 gen2 port	USB2
Single USB3.2Connector	USB 3.2 gen1 port	USB3
HDMI Connector	HDMI	HDMI1
RS232 Connector	RJ45	COM1
RS232/422/485 Connector	RJ45	COM2

Table 5-18: Peripheral Interface Connectors

5.3.1 Power input Connector (PWR1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	3	GND
2	VCC	4	GND

Table 5-19: PWR Connector (PWR1) Pinouts

5.3.2 Power input Connectors (PWR2)

PIN NO.	DESCRIPTION
1	ACC_ON
2	VCC
3	GND

Table 5-20: Power input Connectors (PWR2) Pinouts

5.3.3 CAN BUS Connector RJ45(CAN1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC5V	5	CAN_H
2	DIO OUT5	6	CAN_L
3	NC	7	GND
4	GND	8	NC

Table 5-21:CAN BUS Connector RJ45(CAN1)

5.3.4 CAN BUS Connector RJ45(CAN2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DIO_IN5	2	DIO_IN6
3	NC	4	GND
5	CAN_H	6	CAN_L
7	GND	8	NC

Table 5-22:5.3.4 CAN BUS Connector RJ45(CAN2)

5.3.5 LAN Connector (LAN1/LAN2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MDI0+	2	MDI0-
3	MDI1+	4	MDI1-
5	N/A	6	N/A
7	MDI2+	8	MDI2-
9	MDI3+	10	MDI3-

11	+3.3V sus	12	ACT-1
13	LINK 1000 +3.3V sus	14	LINK 1000 +3.3V sus
15	GND	16	GND
17	N/A	18	N/A

Table 5-23:RJ45 LAN Connector (LAN1/LAN2)

5.3.6 Dual USB2.0 Connector (USB1)

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

Table 5-24: USB 2.0 Connector(USB 2.0)

5.3.7 Dual USB 3.2 gen2 Connector (USB2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	10	VCC
2	USB_DATA-	11	USB_DATA-
3	USB_DATA+	12	USB_DATA+
4	GND	13	GND
5	USB3_RX-	14	USB3_RX-
6	USB3_RX+	15	USB3_RX+
7	GND	16	GND
8	USB3_TX-	17	USB3_TX-
9	USB3_TX+	18	USB3_TX+

Table 5-25: USB 3.2 gen2 Connector (USB2)

5.3.8 Single USB 3.2 gen1 Connector (USB 3)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	10	VCC
2	USB_DATA-	11	USB_DATA-

3	USB_DATA+	12	USB_DATA+
4	GND	13	GND
5	USB3_RX-	14	USB3_RX-
6	USB3_RX+	15	USB3_RX+
7	GND	16	GND
8	USB3_TX-	17	USB3_TX-
9	USB3_TX+	18	USB3_TX+

Table 5-26: Single USB 3.2 gen1 Connector (USB 3)

5.3.9 HDMI Connector (HDMI1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	HDMI_DATA2	13	N/C
2	GND	14	N/C
3	HDMI_DATA2#	15	HDMI_SCL
4	HDMI_DATA1	16	HDMI_SDA
5	GND	17	GND
6	HDMI_DATA1#	18	+5V
7	HDMI_DATA0	19	HDMI_HPD
8	GND	G1	HDMI_GND
9	HDMI_DATA0#	G2	HDMI_GND
10	HDMI_CLK	G3	HDMI_GND
11	GND	G4	HDMI_GND
12	HDMI_CLK#	G5	HDMI_GND

Table 5-27: HDMI Connector (HDMI1)

5.3.10 RS232 Connector (RJ45 COM1)

PIN NO.	DESCRIPTION
1	RI
2	DTR
3	CTS
4	TX
5	RTS

6	RX
7	DSR
8	DCD

Table 5-28: RS232 Connector (RJ45 COM1)

5.3.11 RS232/422/485 Connector (RJ45 COM2)

PIN NO.	DESCRIPTION
1	RI
2	DTR
3	CTS
4	TX
5	RTS
6	RX
7	DSR
8	DCD

Table 5-29: RS232/422/485 Connector (RJ45 COM2)

5.4 Preconfigured Jumper Settings

![CAUTION icon] **CAUTION:**

The following jumpers are preconfigured for the UPC-F12M1-ADLP. Users should not change these jumpers (**Table 5-30**).

Jumper Name	Type	Label
LVDS voltage selection	6-pin header	JLCD_PWR1
LVDS panel resolution selection	Switch	SW1

Table 5-30: Preconfigured Jumpers

5.4.1 LVDS Panel Voltage Selection Jumper (JLCD_PWR1)

Setting	Description
Short 1-2	+3.3 V (Default)
Short 3-4	+5 V
Short 5-6	+12 V

Table 5-31: LVDS Voltage Selection Jumper (JLCD_PWR1) Settings

5.4.2 LVDS Panel Resolution Selection Jumper (SW1)

* ON=0, OFF=1; Single=S, Dual=D

SW1 (4-3-2-1)	Description
0000	800x600 18bit S
0001	1024x768 18bit S
0010	1024x768 24bit S (Default)
0011	1280x768 18bit S
0100	1280x800 18bit S
0101	1280x960 18bit S
0110	1280x1024 24bit D
0111	1366x768 18bit S
1000	1366x768 24bit S
1001	1440x960 24bit D
1010	1400x1050 24bit D
1011	1600x900 24bit D
1100	1680x1050 24bit D
1101	1600x1200 24bit D
1110	1920x1080 24bit D
1111	1920x1200 24bit D

Table 5-32: LVDS Resolution Selection Jumper (SW1) Settings

Appendix

A

Regulatory Compliance

DECLARATION OF CONFORMITY $C\epsilon$

This equipment is in conformity with the following EU directives:

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

If the user modifies and/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 R&TTE Directive 1999/5/EC.

Hereby, IEI INTEGRATION CORP declares that the radio equipment type AFL4-W10-EHL、AFL4-W12-EHL、AFL4-12-EHL、AFL4-W13-EHL are in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internetaddress:

https://www.ieiworld.com

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

English
IEI Integration Corp declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Български [Bulgarian]
IEI Integration Corp. декларира, че този оборудване е в съответст☐ие със съществените изисквания и другите приложими правила на Директива 1999/5/ЕС.
Česky [Czech]
IEI Integration Corp tímto prohlašuje, že tento zařízení je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ S.

Dansk [Danish]

IEI Integration Corp erklærer herved, at følgende udstyr overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.

Deutsch [German]

IEI Integration Corp, erklärt dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprechenden Vorgaben der Richtlinie 1999/5/EU.

Eesti [Estonian]

IEI Integration Corp deklareerib seadme seadme vastavust direktiivi 1999/5/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 1999/5/CE.

Ελληνική [Greek]

IEI Integration Corp ΔΗΛΩΝΕΙ ΟΤΙ ΕΞΟΠΛΙΣΜΟΣ ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.

Français [French]

IEI Integration Corp déclare que l'appareil est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5   CE.

Italiano [Italian]

IEI Integration Corp dichiara che questo apparecchio è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.

Latviski [Latvian]

IEI Integration Corp deklarē, ka iekārta atbilst būtiskajām prasībām un citiem ar to saistītajiem noteikumiem Direktīvas 1999/5/EK.

Lietuvių [Lithuanian]

IEI Integration Corp deklaruoja, kad šis įranga atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.

Nederlands [Dutch]

IEI In   egration Corp dat het toestel toestel in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.

Malti [Maltese]

IEI Integration Corp jiddikjara li dan prodott jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.

Magyar [Hungarian]
IEI Integration Corp nyilatkozom, hogy a berendezés megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EC irányelv egyéb elõírásainak.
Polski [Polish]
IEI Integration Corp oświadcza, że wyrobu jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
Português [Portuguese]
IEI Integration Corp declara que este equipamento está conforme com os requisitos essenciais e outras   disposições da Directiva 1999/5/CE.
Româna [Romanian]
IEI Integration Corp declară că acest echipament este in conformitate cu cerinţele esenţiale şi cu celelalte prevederi relevante ale Directivei 1999/5/CE.
Slovensko [Slovenian]
IEI Integration Corp izjavlja, da je ta opreme v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]
IEI Integration Corp týmto vyhlasuje, že zariadenia spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 199   /5/ES.
Suomi [Finnish]
IEI Integration Corp vakuuttaa täten että laitteet on direktiivin 1999/5/EY 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 1999/5/EG.

ROHS STATEMENT

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

FCC WARNING

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

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

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

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

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

CHINA ROHS

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

Appendix

B

Safety Precautions

WARNING:

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the UPC-F12M1-ADLP.

B.1 Safety Precautions

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

B.1.1 General Safety Precautions

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

- **Follow the electrostatic precautions** outlined below whenever the device is opened.
- **Make sure the power is turned off and the power cord is disconnected** whenever the UPC-F12M1-ADLP is being installed, moved or modified.
- **To prevent the risk of electric shock, make sure power cord is unplugged from wall socket.** To fully disengage the power to the unit, please disconnect the power cord from the AC outlet. Refer servicing to qualified service personnel. The AC outlet shall be readily available and accessible.
- **Do not apply voltage levels that exceed the specified voltage range**. Doing so may cause fire and/or an electrical shock. Use a power cord that matches the voltage of the power outlet, which has been approved and complies with the safety standard of your particular country.
- **Electric shocks can occur** if the UPC-F12M1-ADLP chassis is opened when it is running. To avoid risk of electric shock, this device must only be connected to a supply mains with protective earth.
- **Do not drop or insert any objects** into the ventilation openings of the UPC-F12M1-ADLP.

- *If considerable amounts of dust, water, or fluids enter the* device, turn off the power supply immediately, unplug the power cord, and contact the UPC-F12M1-ADLP vendor.
- **DO NOT**:
  ○ Drop the device against a hard surface.
  ○ Strike or exert excessive force onto the LCD panel.
  ○ Touch any of the LCD panels with a sharp object
  ○ In a site where the ambient temperature exceeds the rated temperature

B.1.2 Anti-static Precautions

_____

WARNING:

Failure to take ESD precautions during the installation of the UPC-F12M1-ADLP may result in permanent damage to the UPC-F12M1-ADLP and severe injury to the user.

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Electrostatic discharge (ESD) can cause serious damage to electronic components, including the UPC-F12M1-ADLP. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the UPC-F12M1-ADLP is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

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

B.1.3 Product Disposal

⚠️ **CAUTION:**

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

Dispose of used batteries according to instructions and local regulations.

- Outside the European Union–If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union–The device that produces less waste and is easier to recycle is classified as electronic device in terms of the European Directive 2012/19/EU (WEEE), and must not be disposed of as domestic garbage.
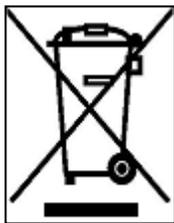
EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

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

B.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the UPC-F12M1-ADLP, please follow the guidelines below.

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

B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the UPC-F12M1-ADLP, please read the details below.

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

B.2.2 Cleaning Tools

Some components in the UPC-F12M1-ADLP may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the UPC-F12M1-ADLP.

- ***Cloth***– Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the device.

- **Water or rubbing alcohol**–A cloth moistened with water or rubbing alcohol can be used to clean the device.

- **Using solvents**–The use of solvents is not recommended when cleaning the device as they may damage the plastic parts.

- **Vacuum cleaner**–Using a vacuum specifically designed for computers is one of the best methods of cleaning the device. Dust and dirt can restrict the airflow in the device and cause its circuitry to corrode.

- **Cotton swabs**–Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.

- **Foam swabs**–Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

C

BIOS Menu Options

Appendix

D

Watchdog Timer

NOTE:

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

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

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

INT 15H:

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

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

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

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

  NOTE:

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

EXAMPLE PROGRAM:

; INITIAL TIMER PERIOD COUNTER

;

W_LOOP:

;

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

;

; ADD THE APPLICATION PROGRAM HERE

;

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

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

;

; EXIT ;

Appendix

E

Hazardous Materials Disclosure

E.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
Display	O	O	O	O	O	O	O	O	O	O
Printed Circuit Board	O	O	O	O	O	O	O	O	O	O
Metal Fasteners	O	O	O	O	O	O	O	O	O	O
Cable Assembly	O	O	O	O	O	O	O	O	O	O
Fan Assembly	O	O	O	O	O	O	O	O	O	O
Power Supply Assemblies	O	O	O	O	O	O	O	O	O	O
Battery	O	O	O	O	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in Directive (EU) 2015/863.

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in Directive (EU) 2015/863.

E.2 China RoHS

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

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

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	O	O	O	O	O	O
显示	O	O	O	O	O	O
印刷电路板	O	O	O	O	O	O
金属螺帽	O	O	O	O	O	O
电缆组装	O	O	O	O	O	O
风扇组装	O	O	O	O	O	O
电力供应组装	O	O	O	O	O	O
电池	O	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11364-2014 與 GB/T26572-2011 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11364-2014 與 GB/T26572-2011 标准规定的限量要求。