

MODEL:
IDS-330-ADL-P Series

**Embedded System with Intel® Core® i5-1235U / i7-1255U,
8GB Memory Pre-installed, Dual 2.5GbE LAN,
Four HDMI, RS-232/422/485, 12V DC and RoHS**

User Manual



Revision

Date	Version	Changes
January 30, 2023	1.00	Initial release



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Manual Conventions



WARNING

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



CAUTION

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



NOTE

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



HOT SURFACE

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

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Chapter

1

Introduction



1.1 Overview



Figure 1-1: IDS-330-ADL-P Series Embedded System

The IDS-330-ADL-P Series is a fanless embedded system for wide range temperature environments. It is powered by Intel® Alder Lake processor and on board 8 GB LPDDR4X memory (up to 16GB). The IDS-330-ADL-P Series includes four HDMI, two 2.5GbE LAN, one RS-232/422/485, four USB 3.2 Gen 2 ports, audio (line-out and mic-in) and one external fan connector.

IDS-330-ADL-P

1.2 Feature

The IDS-330-ADL-P Series features are listed below:

- Fanless design
- Intel® Core® i5-1235U (up to 4.4GHz, 10-core, TDP 15W)
Intel® Core® i7-1255U (up to 4.7GHz, 10-core, TDP 15W)
- Four HDMI displays up to 4K resolution
- 2 x 2.5GbE LAN for high speed network applications
- Four USB 3.2 Gen 2 ports
- One RS-232/422/485 serial port with AFC (DB9)
- Support audio line-out and mic-in
- RoHS compliant design

1.3 Model Variations

The model variations of the IDS-330-ADL-P Series are listed in **Table 1-1**.

Model No.	CPU
IDS-330-ADL-P-i5C-R10	Intel® Alder Lake-P i5-1235U
IDS-330-ADL-P-i7C-R10	Intel® Alder Lake-P i7-1255U

Table 1-1: IDS-330-ADL-P Series Model Variations

1.4 Technical Specifications

The IDS-330-ADL-P Series technical specifications are listed in **Table 1-2**.

Model Name		IDS-330-ADL-P Series	
Chassis	Color	Black	
	Dimensions (WxDxH) (mm)	176x115.6x55.2	
	System Fan	Fanless (Fan optional)	
	Chassis Construction	ABS Plastic + Aluminum	
Motherboard	CPU	Intel® Core® i5-1235U (up to	Intel® Core® i7-1255U (up to



Model Name		IDS-330-ADL-P Series	
		4.4GHz, 10-core, 15W TDP)	4.7GHz, 10-core, 15W TDP)
	Chipset	SOC	
	Memory	Onboard LPDDR4X 8GB (up to 16GB)	
Storage	Storage	1 x M.2 B key 3042/52/80 with SIM slot (PCIex1 / USB2.0 / SATA)	
		1 x M.2 M key 2280 (PCIe Gen4 x4)	
IO Interfaces	USB	4 x USB 3.2 Gen 2	
	LAN	2 x 2.5GbE	
	Display	4 x HDMI 1.4b with CEC (up to 4096 x 2160@30Hz)	
	COM	1 x RS-232/422/485 with AFC (DB9)	
	TPM2.0	Support Intel PTT	
	Others	1 x Power Button, 1 x Reset Button, 1 x AT/ATX switch, 1 x Power LED (green), 1 x HDD LED (yellow)	
Expansions	M.2	1 x M.2 E key 2230 (PCIex1 / USB2.0) Support Vpro	
Power	Power Input	DC jack: 12V DC	
	Power Consumption	12V@4.25A (Intel i7-1255U with 8GB DDR4 Memory)	
Reliability	Mounting	Wall mount, VESA 75/100	
	Operating Temperature	-10°C ~ 40°C with airflow, 10% ~ 95% non-condensing	
	Storage Temperature	-20°C ~ 60°C with airflow, 10% ~ 95% non-condensing	
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis	
	Operating Vibration	10-500 Hz, 1.04 Grms, random, 1 hr/axis	
	Weight (Net/Gross)	0.94 / 1.7 kg	
	Safety/EMC	CE / FCC / CB / BSMI	
	Watchdog Timer	Programmable 1 ~ 255 sec/min	
OS	Supported OS	Microsoft® Windows® 10/11, Linux	

Table 1-2: Technical Specifications



IDS-330-ADL-P

1.5 Front Panel

The front panel of the IDS-330-ADL-P Series is shown below.

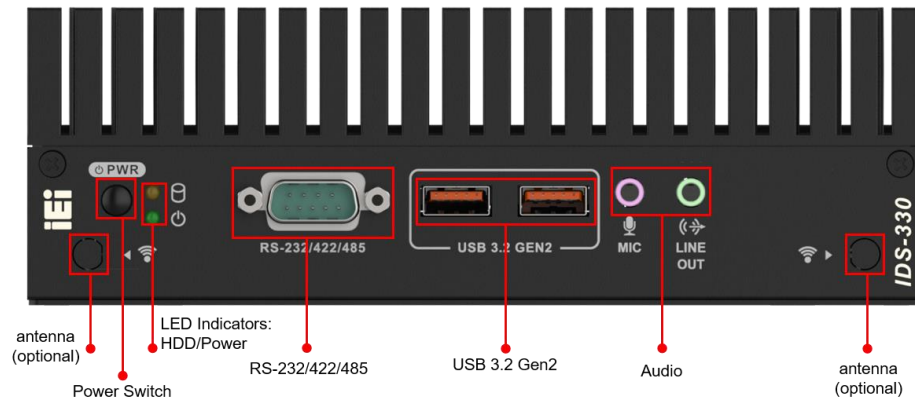


Figure 1-2: Front Panel

1.6 Rear Panel

The rear panel of the IDS-330-ADL-P Series is shown below.

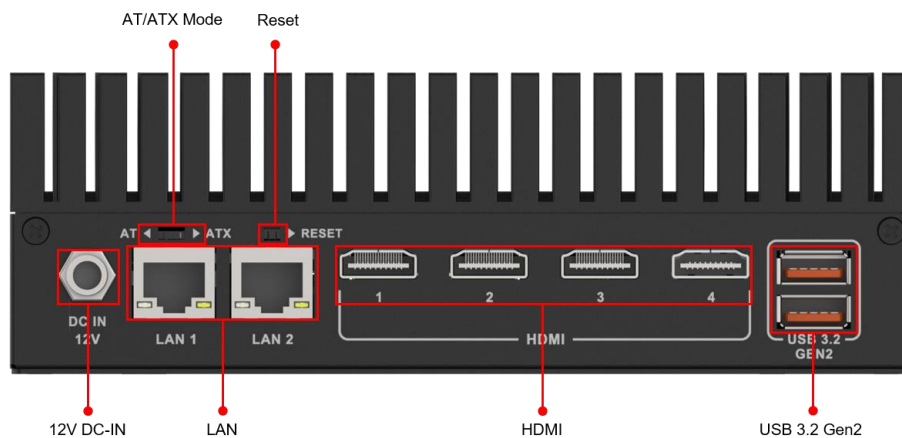


Figure 1-3: Top Panel



1.7 Left Side Panel

The left side panel of the IDS-330-ADL-P Series is shown below.

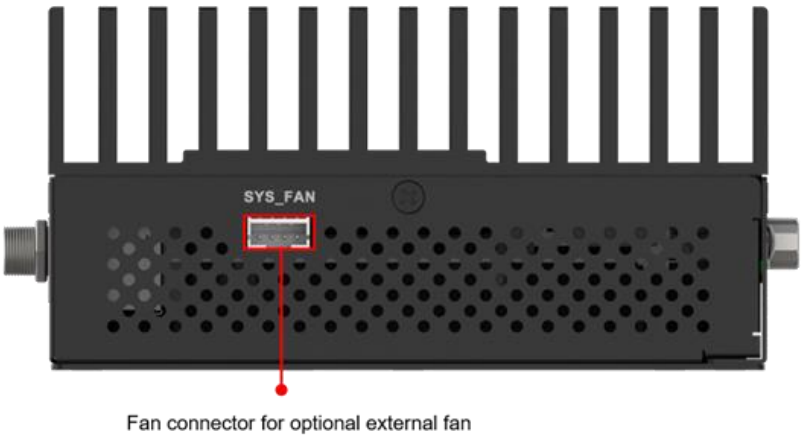


Figure 1-4: Left Side Panel



IDS-330-ADL-P

1.8 Physical Dimensions

The physical dimensions are shown in **Figure 1-5**.

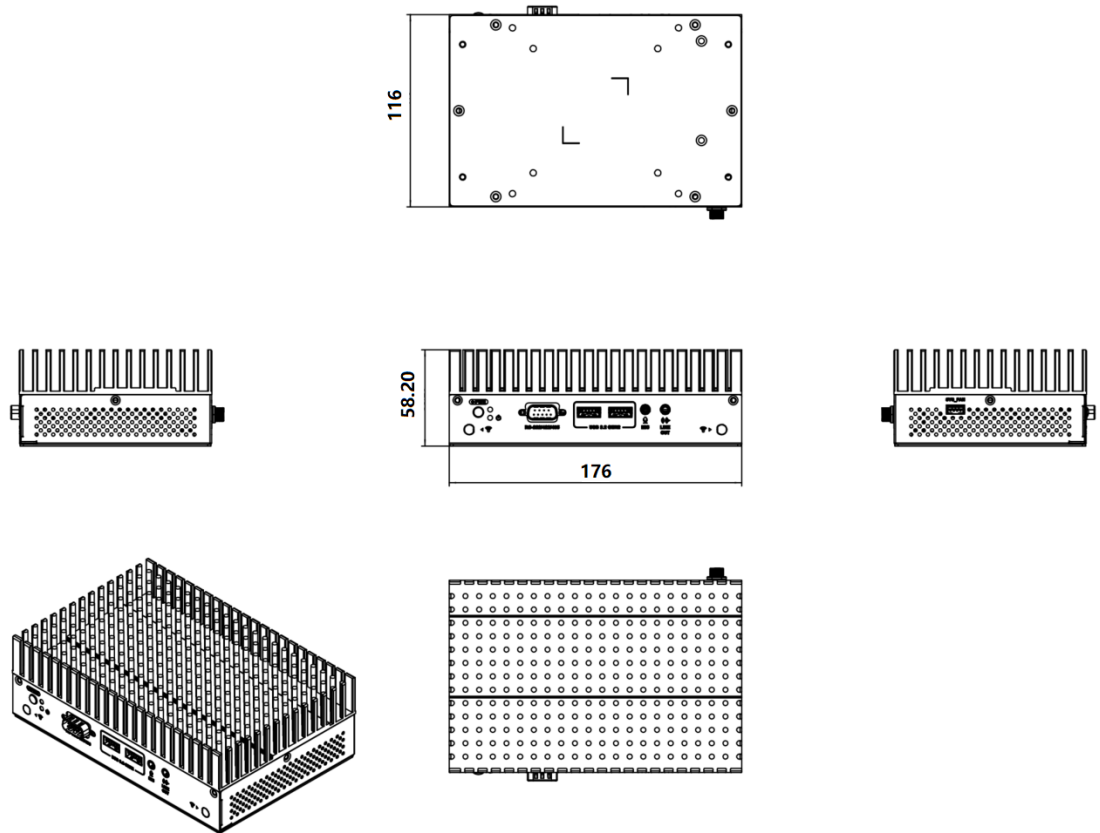


Figure 1-5: Physical Dimensions

Chapter

2

Unpacking

IDS-330-ADL-P

2.1 Anti-static Precautions

**WARNING:**

Failure to take ESD precautions during installation may result in permanent damage to the IDS-330-ADL-P Series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the IDS-330-ADL-P Series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the IDS-330-ADL-P Series 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 IDS-330-ADL-P Series, place it on an anti-static pad. This reduces the possibility of ESD damaging the IDS-330-ADL-P Series.

2.2 Unpacking Precautions

When the IDS-330-ADL-P Series is unpacked, please do the following:

- Follow the anti-static precautions outlined in **Section 2.1**.
- Make sure the packing box is facing upwards so the IDS-330-ADL-P Series does not fall out of the box.
- Make sure all the components shown in **Section 2.2** are present.

2.3 Unpacking Checklist



NOTE:

If some of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the IDS-330-ADL-P Series from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@ieiworld.com.

The IDS-330-ADL-P Series is shipped with the following components:

Quantity	Item and Part Number	Image
Standard		
1	IDS-330-ADL-P Series	
1	Mounting screw pack	
1	Power cord (P/N: 32702-001900-100-RS)	
1	Power adapter (P/N: 63040-430084-000-RS)	

Table 2-1: Packing List

IDS-330-ADL-P

The following table lists the optional items that can be purchased separately.

Optional	
Wi-Fi module (P/N: EMB-WIFI-KIT02I3-R10)	 A photograph showing the components of the Wi-Fi module kit. It includes a small rectangular circuit board (the Wi-Fi module) with two gold-plated SMA connectors. Two black cables are connected to these connectors. One cable is coiled, and the other is straight. To the right of the module are two black, cylindrical antennas.

Table 2-2: Optional Items

Chapter

3

Installation

IDS-330-ADL-P

3.1 Installation Precautions

During installation, be aware of the precautions below:

- **Read the user manual:** The user manual provides a complete description of the IDS-330-ADL-P Series, installation instructions and configuration options.
- **DANGER! Disconnect Power:** Power to the IDS-330-ADL-P Series must be disconnected during the installation process, or before any attempt is made to access the rear panel. Electric shock and personal injury might occur if the rear panel of the IDS-330-ADL-P Series is opened while the power cord is still connected to an electrical outlet.
- **Qualified Personnel:** The IDS-330-ADL-P Series 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 IDS-330-ADL-P Series. The IDS-330-ADL-P Series cooling vents must not be obstructed by any objects. Blocking the vents can cause overheating of the IDS-330-ADL-P Series. Leave at least 5 cm of clearance around the IDS-330-ADL-P Series to prevent overheating.
- **Grounding:** The IDS-330-ADL-P Series 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 IDS-330-ADL-P Series.

3.2 Cover Removal

Before installing or maintaining the internal components, the cover must be removed from the IDS-330-ADL-P Series. Follow the steps below to complete the task.

Step 1: Loosen the 6 screws on the cover.

Step 2: Take off the cover (Figure 3-1).



Figure 3-1: Remove the Cover

3.3 Storage Installation

The IDS-330-ADL-P Series has M.2 Key to support storage. To install an M.2 module, please follow the steps below.

Step 1: Locate the M.2 module slot.

Step 2: Remove the retention screw secured on the motherboard.

Step 3: Line up the notch on the module with the notch on the slot. Slide the M.2 module into the socket at an angle of about 20° (**Figure 3-2**)

IDS-330-ADL-P

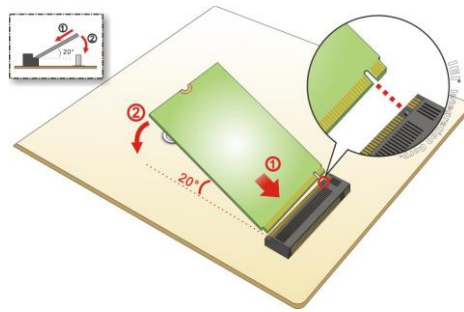


Figure 3-2: Inserting the M.2 Module into the Slot

Step 4: Secure the M.2 module with the previously removed retention screw (Figure 3-3)

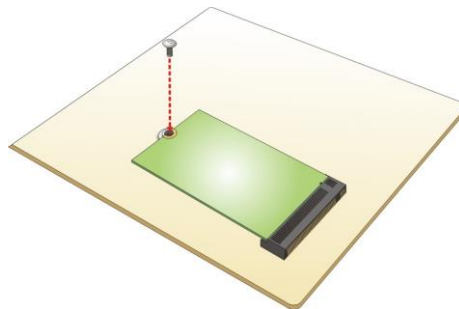


Figure 3-3: Securing the M.2 Module

3.4 Wi-Fi Module Installation (Optional)

The Wi-Fi module is an optional accessory. You can purchase it from IEI or other providers. Note that you have to purchase Wi-Fi module, internal antenna and external antenna. It is suggested to purchase an internal antenna longer than 200mm.

To install the Wi-Fi module, follow the steps below.

Step 1: Locate the M.2 A Key module slot.

Step 2: Remove the retention screw secured on the motherboard.

Step 3: Line up the notch on the WLAN module with the notch on the slot. Slide the WLAN module into the slot at an angle of about 20° (Figure 3-4).

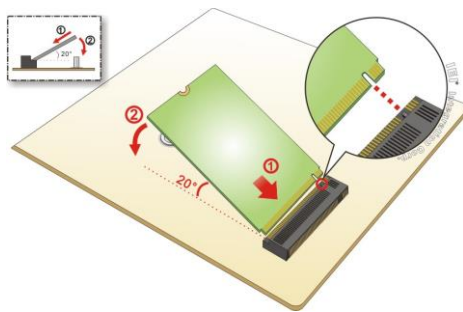


Figure 3-4: Inserting the WLAN Module

Step 4: Secure the WLAN module with the retention screw previously removed (Figure 3-5).

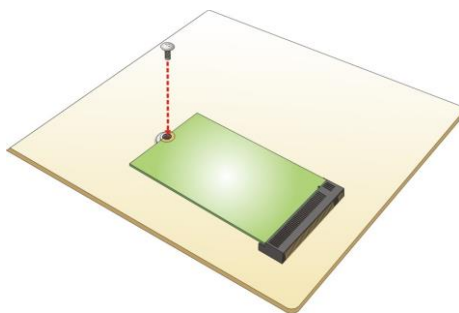


Figure 3-5: Securing the WLAN Module

Step 5: Connect the two RF cables to the antenna connectors on the WLAN module (Figure 3-6).

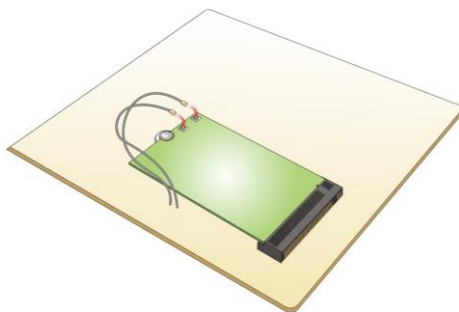


Figure 3-6: Connecting RF Cables

Step 6: Remove the nut and washer from the SMA connector at the other end of the RF cable.

IDS-330-ADL-P

Step 7: Knock out the reserved antenna holes on the chassis. Insert the SMA connector to the antenna connector holes on the rear panel.

Step 8: Secure the SMA connector by inserting the washer and tightening it with nut.

Step 9: Install the external antenna (Figure 3-7).

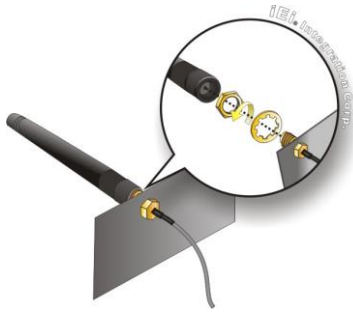


Figure 3-7: Securing SMA Connector and External Antenna Installation

3.5 Cover Installation

Install the cover, and fasten the 6 screws.



Figure 3-8: Install the cover

3.6 System Fan Installation (Optional)

When encountering high performance and high heat, additional cooling was needed. The optional external fan can help the IDS-330-ADL-P Series solve the thermal problem.

To install the optional external fan, follow the steps below.

Step 1: Remove the 4 screws (2 on the front panel, 2 on the rear panel) on the IDS-330-ADL-P Series as shown in the figure below.

Step 2: Install the external fan module to the IDS-330-ADL-P Series, and secure it using the 4 screws removed previously.

Step 3: Connect the fan cable to the fan connector on the side panel.



Figure 3-9: External Fan Module Installation

3.7 External Peripheral Interface Connectors

The IDS-330-ADL-P Series has the following connectors. Detailed descriptions of the connectors can be found in the subsections below.

- Ethernet
- Power button
- Power DC jack
- HDMI
- USB
- RS-232/422/485

IDS-330-ADL-P

3.7.1 HDMI/DP Connector

To connect the HDMI/DP devices, please plug in HDMI/DP connector in the right direction as shown below:



Figure 3-10: HDMI/DP Connection

3.7.2 LAN Connectors

The LAN connectors allow connection to an external network

Step 1: Locate the RJ-45 connectors. The locations of the RJ-45 connectors are shown in **Chapter 1**

Step 2: Align the connectors. Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the IDS-330-ADL-P Series.

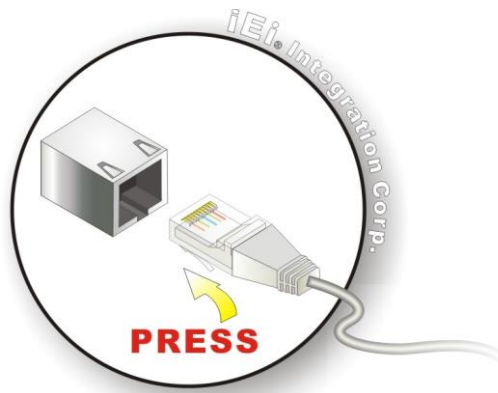


Figure 3-11: LAN Connection

Step 3: Insert the LAN cable RJ-45 connector. Once aligned, gently insert the LAN cable RJ-45 connector into the on-board RJ-45 connector

The RJ-45 Ethernet connector has two status LEDs, one green and one yellow. The green LED indicates activity on the port and the yellow LED indicates the port is linked. See



Figure 3-12: RJ-45 Ethernet Connector

Activity/Link LED		Speed LED	
STATUS	DESCRIPTION	STATUS	DESCRIPTION
Off	No link	Off	10 Mbps connection
Yellow	Linked	Green	1000 Mbps connection
Blinking	TX/RX activity	Orange	2.5 Gbps connection

Table 3-1: RJ-45 Ethernet Connector LEDs

3.7.3 Power Connector

The power connector is a 2-pin DC jack connector on the panel that can directly connect to a power adapter. The supported power input voltage is 12 VDC.

Pin	Description
1	12V
2	GND

Table 3-2: Power Connector Pinouts



Figure 3-13: Power Connector

IDS-330-ADL-P

3.7.4 USB 3.2 Gen 2 (10Gb/s) Connectors

The IDS-330-ADL-P Series have four USB 3.2 ports. To connect a USB device, please follow the instructions below

Step 1: Located the USB connectors. The locations of the USB connectors are shown in Chapter 1

Step 2: Align the connectors. Align the USB device connector with one of the connectors on the I/O panel.

Step 3: Insert the device connector. Once aligned, gently insert the USB device connector into the onboard connector.

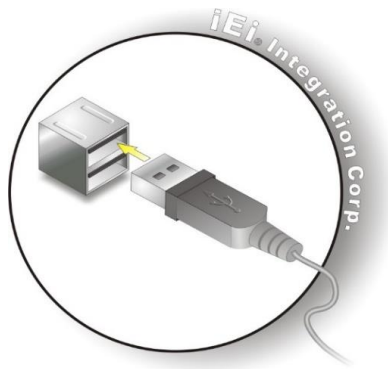


Figure 3-14: USB Connection

3.7.5 RS-232/422/485 Serial Port Connection

The system has one RS-232/422/485 port. The pinouts for the serial ports are listed in the table below (See Table 3-3).

PIN NO.	RS232	RS422	RS485
1	DCD#	TX-	TX-
2	RXD	TX+	TX+
3	TXD	RX+	
4	DTR#	RX-	
5	GND		
6	DSR#		
7	RTS#		
8	CTS#		
9	RI#		

Table 3-3: RS-232/422/485 Connector Pinouts

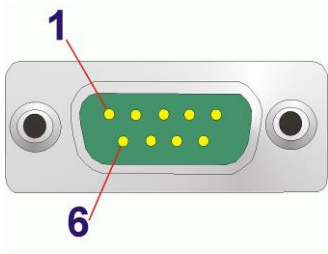


Figure 3-15: DB-9 Serial Port Connector

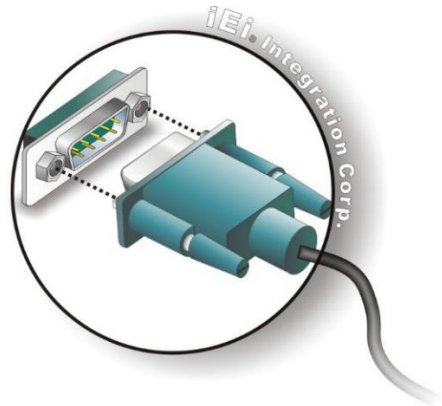


Figure 3-16: Serial Device Connection

IDS-330-ADL-P

3.7.6 ATX/AT Mode Selection

AT and ATX power modes can both be used on the IDS-330-ADL-P Series. The selection is made through an AT/ATX switch on the top panel as shown below (See Figure 3-17).

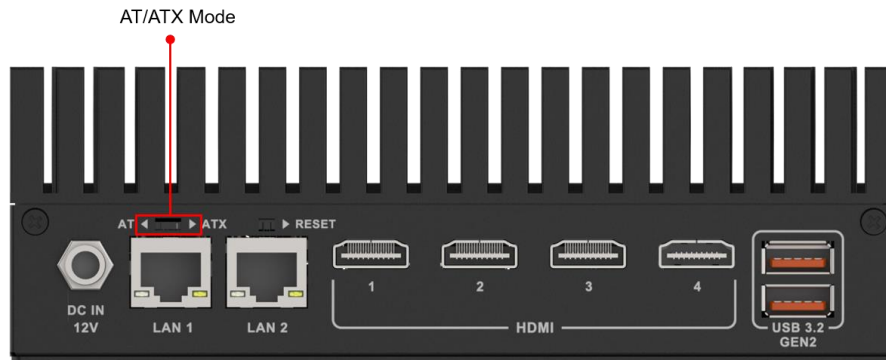


Figure 3-17: ATX/AT Mode Selection

3.8 Powering On/Off the System

3.8.1 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 IDS-330-ADL-P Series please make sure of the following:

- The bottom surface panel is installed
- All peripheral devices (monitor, serial communications devices etc.) are connected
- The power cables are plugged in
- The system is securely mounted

3.8.2 Power-on Procedure

The power of this system can be less than 250w-20A.

To power-on the IDS-330-ADL-P Series, please follow the steps below.

Step 1: Connect the power source to the power input jack.

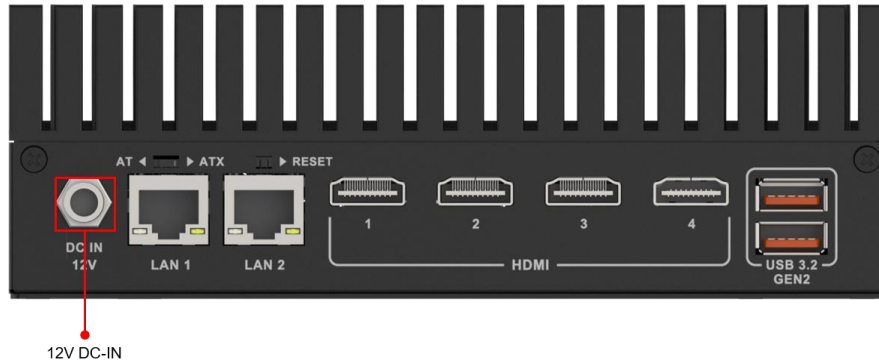


Figure 3-18: Power Connector

Step 2: To power-on the IDS-330-ADL-P Series, press the power button for 3 seconds.

Step 3: The power LED indicator should turn on.



Figure 3-19: Power Button

IDS-330-ADL-P

3.9 Reset the System

The reset button enables user to reboot the system when the system is turned on. The reset button location is shown in. Press the reset button to reboot the system.

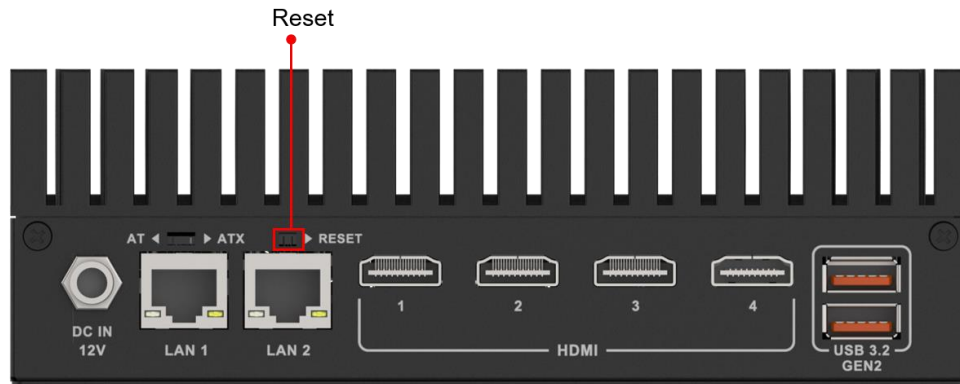


Figure 3-20: Reset Button Location

3.10 Maintenance

To configure the jumper settings, please follow the steps below.

Step 1: Remove the cover. See **Figure 3-1**.

Step 1: Locate the jumper on the embedded motherboard.

Step 2: Make the jumper settings in accordance with the settings described and defined in the following sections.

3.10.1 Flash Descriptor Override Setting Jumper

- CN Label:

ME_FLASH1
- CN Type:

2-pin header
- CN Location:

See Figure 3-21
- CN Pinouts:

See Table 3-4

The ME_FLASH1 connector is used for Flash Descriptor Security Override.



Figure 3-21: Flash Descriptor Override Setting Jumper Location

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

Table 3-4: Flash Descriptor Security Override Jumper Pinouts

To update the ME firmware, please follow the steps below.

- Step 1:

Before turning on the system power, short the Flash Descriptor Security Override jumper.
- Step 2:

Update the BIOS and ME firmware, and then turn off the system power.
- Step 3:

Remove the metal clip on the Flash Descriptor Security Override jumper or return to its default setting.

IDS-330-ADL-P

Step 4: Restart the system. The system will reboot 2 ~ 3 times to complete the ME firmware update.

3.10.2 Clear CMOS Button

CN Label: J_CMOS1

CN Type: Button

CN Location: See **Figure 3-22**

CN Pinouts: See **Table 3-5**

To clear the CMOS Setup (for example if you have forgotten the password, you should clear the CMOS and then reset the password), you should disconnect the RTC battery and press the button for about 3 seconds. This will set back to normal operation mode.

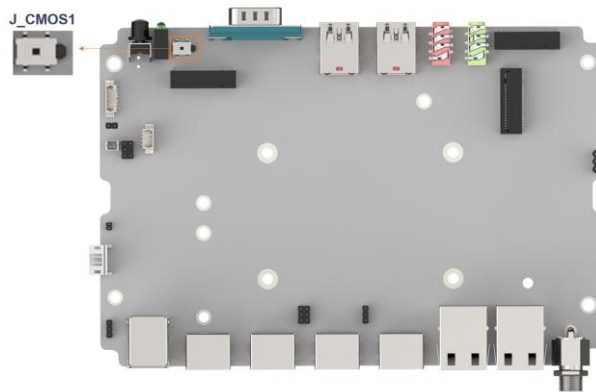


Figure 3-22: Clear CMOS Location

PIN NO.	DESCRIPTION
NC (default)	Keep CMOS Setup (Normal Operation)
Press button	Clear CMOS Setup

Table 3-5: Clear CMOS Pinouts



3.11 Available Drivers

All the drivers for the IDS-330-ADL-P Series are available on IEI Resource Download Center (<https://download.ieiworld.com>). Type IDS-330-ADL-P Series and press Enter to find all the relevant software, utilities, and documentation.

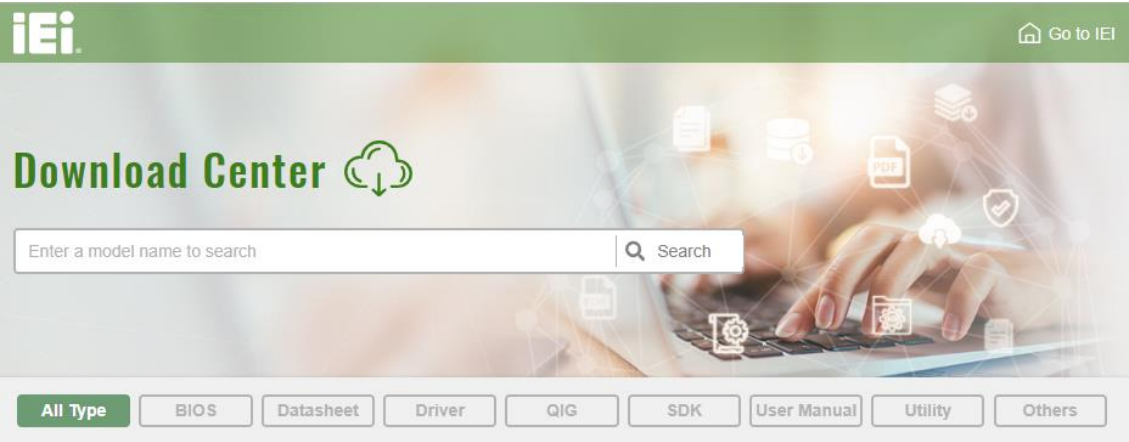
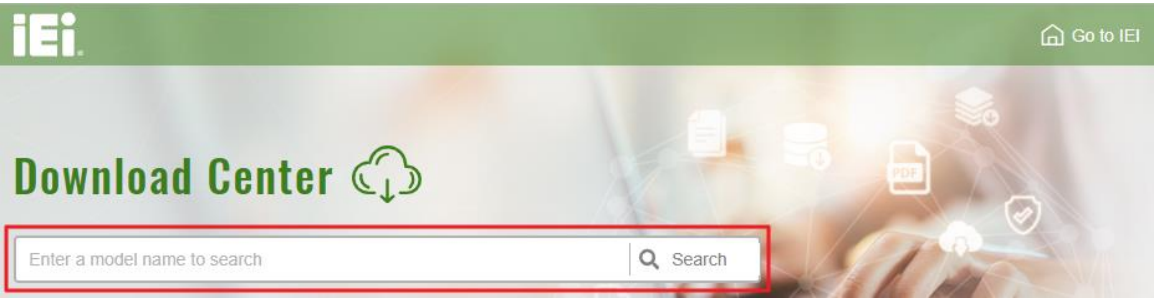


Figure 3-23: IEI Resource Download Center

3.11.1 Driver Download

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

Step 3: Go to <https://download.ieiworld.com>. Type IDS-330-ADL-P Series and press Enter.



Step 4: All product-related software, utilities, and documentation will be listed. You can choose **Driver** to filter the result.



IDS-330-ADL-P

[All Type](#)
[BIOS](#)
[Datasheet](#)
[Driver](#)
[QIG](#)
[SDK](#)
[User Manual](#)
[Utility](#)
[Others](#)

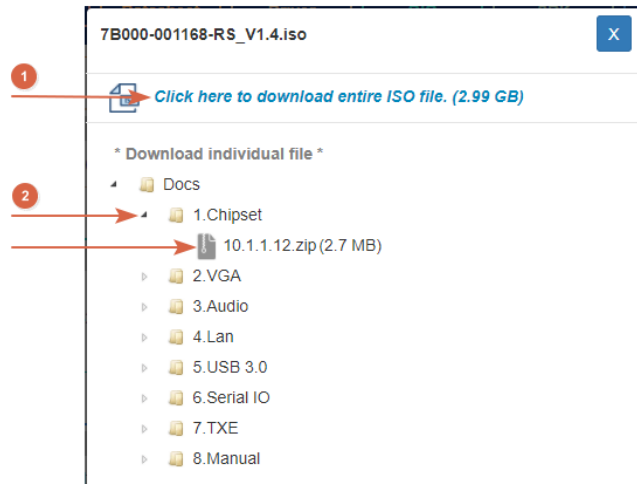
WAFER-BT-i1 [Product Info](#)

[Embedded Computer](#) ▶ [Single Board Computer](#) ▶ [Embedded Board](#)
 3.5" SBC with Intel® 22nm Atom™/Celeron® on-board SoC

Driver

File Name	Published	Version	File Checksum
7B000-001033-RS V2.3.iso (2.23 GB)	2017/10/03	2.30	3B2DB1F792779A93A8F50DDBC3943E30

Step 5: 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 later), double-click the ISO file to mount it as a virtual drive to view its content.

Chapter

4

System Motherboard

IDS-330-ADL-P**4.1 Peripheral Interface Connectors**

The connectors and jumpers of the system motherboard are listed in the following sections.

4.1.1 Layout

The following diagram shows the locations of the internal/external connectors and jumpers on the motherboard.

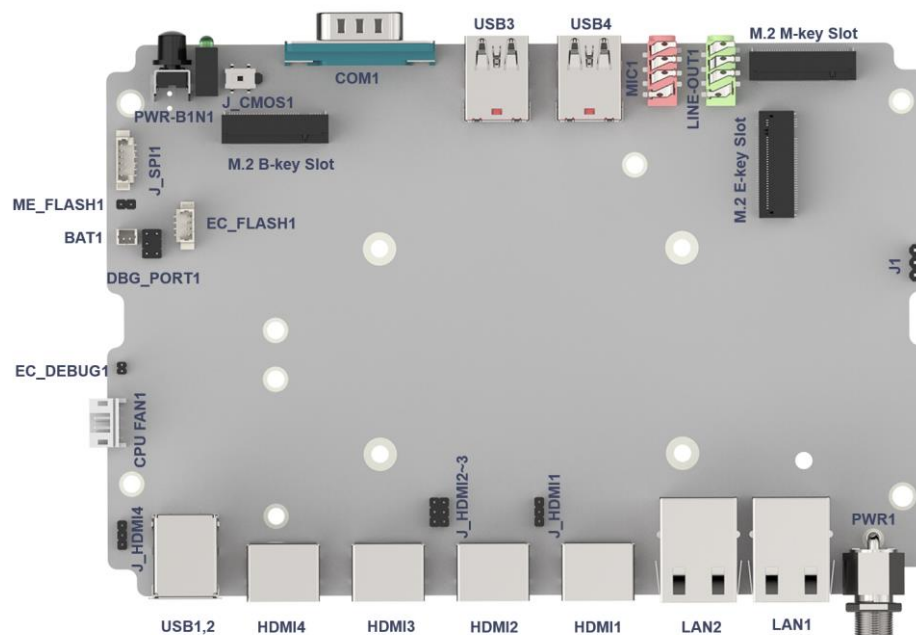


Figure 4-1: System Motherboard



4.2 Peripheral Interface Connectors

The table below lists all the connectors on the board.

Connector	Type	Label
Battery Connector	2-pin wafer	BAT1
CPU Fan Connector	4-pin wafer	CPU_FAN1
Power Button Connector	2-pin wafer	PWR_BTN1
EC Debug Connector	2-pin header	EC_DEBUG1
EC Programmer Connector	4-pin header	EC_FLASH1
MPS PWM IC Programmer Connector	3-pin header	J1
BIOS Programmer Connector	6-pin wafer	J_SPI1
System 80/81 Port Connector	6-pin header	DBG_PORT1
Power Input Connector	DC jack	PWR1
LT86101X IC Programmer Connector	3-pin header	J_HDM1~4
Reset Button Connector	4-pin electronic switch	RST1
M.2 M-key Slot	M.2 M-key	M2_M1
M.2 B-key Slot	M.2 B-key	M2_B1
M.2 E-key Slot	M.2 E-key	M2_E1
Flash Descriptor Security Override	2-pin header	ME_FLASH1
Clear CMOS Button	Push button	J_CMOS1
SIM Card Slot	SIM slot	SIM1

Table 4-1: Peripheral Interface Connectors



IDS-330-ADL-P

4.2.1 Battery Connector

**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.

**NOTE:**

It is recommended to attach the RTC battery onto the system chassis in which the IDS-330-ADL-P Series is installed.

CN Label:	BAT1
CN Type:	2-pin wafer, p=1.25 mm
CN Location:	See Figure 4-2
CN Pinouts:	See Table 4-2

The battery connector is connected to the system battery. The battery provides power to the system clock to retain the time when power is turned off.

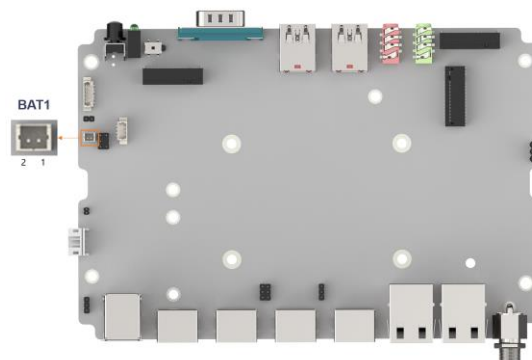


Figure 4-2: Battery Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VBAT+	2	GND

Table 4-2: CMOS Battery Header Pinouts

4.2.2 Fan Connector

- CN Label:CPU_FAN1
- CN Type:4-pin wafer, p=2.54 mm
- CN Location:See Figure 4-3
- CN Pinouts:See Table 4-3

The fan connector attaches to a smart cooling fan.

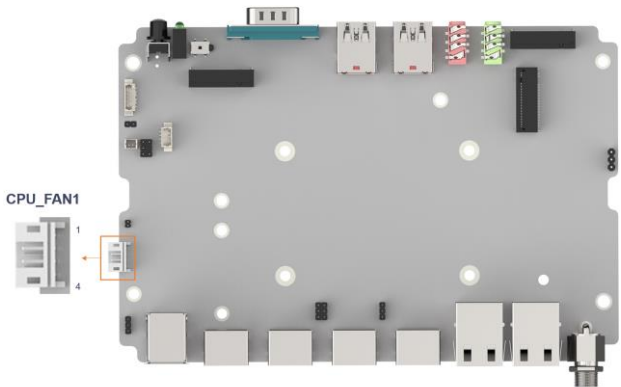


Figure 4-3: Fan Connector Location

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

Table 4-3: CPU Fan Connector Pinouts

IDS-330-ADL-P**4.2.3 Power Button Connector**

- CN Label:** PWR_BTN1
- CN Type:** 2-pin wafer, p=2.00 mm
- CN Location:** See **Figure 4-4**
- CN Pinouts:** See **Table 4-4**

The power button allows users to turn the system on and off.

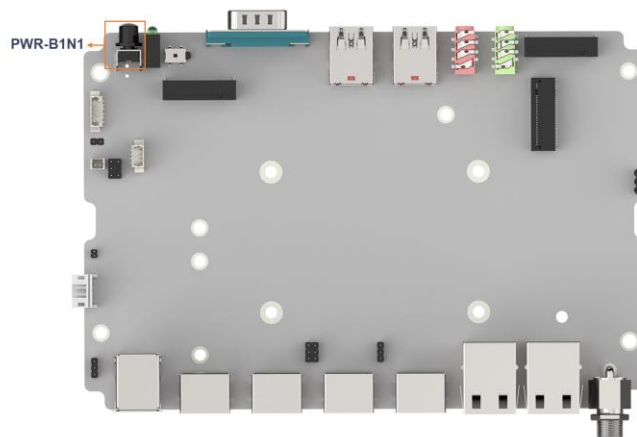


Figure 4-4: Power Button Connector Location

Pin	Description
1	PWR_BTN+
2	PWR_BTN-

Table 4-4: Power Button Connector Pinouts

4.2.4 EC Debug Connector

- CN Label:EC_DEBUG1
- CN Type:2-pin header, p=1.27 mm
- CN Location:See Figure 4-5
- CN Pinouts:See Table 4-5

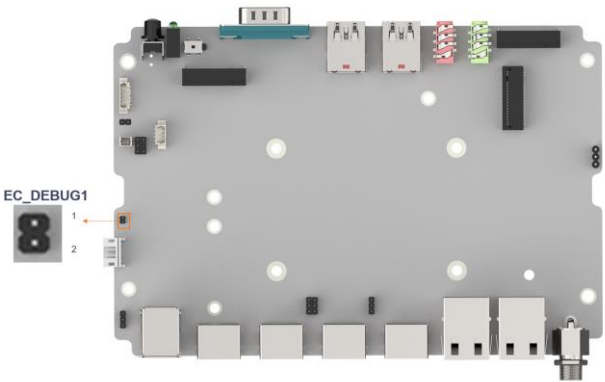


Figure 4-5: EC Debug Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	SCL	2	SDAI

Table 4-5: EC Debug Connector Pinouts

IDS-330-ADL-P

4.2.5 EC Flash Connector

CN Label: EC_FLASH1

CN Type: 4-pin header, p=1.25 mm

CN Location: See Figure 4-6

CN Pinouts: See Table 4-6

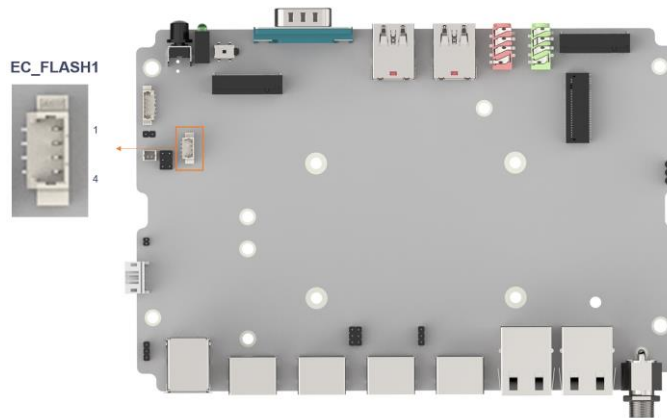


Figure 4-6: EC Flash Connector Location

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

Table 4-6: EC Flash Connector Pinouts

4.2.6 MPS PWM IC Programmer Connector

- CN Label:

J1
- CN Type:

3-pin header, p=2.54 mm
- CN Location:

See Figure 4-7
- CN Pinouts:

See Table 4-7

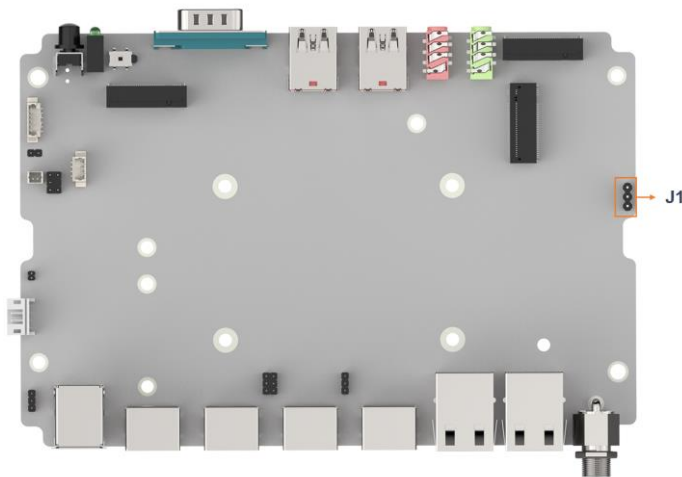


Figure 4-7: MPS PWM IC Programmer Connector Location

PIN NO.	DESCRIPTION
1	SCL
2	SDA
3	GND

Table 4-7: MPS PWM IC Programmer Connector Pinouts

IDS-330-ADL-P

4.2.7 BIOS Programming Connector

CN Label: J_SPI1

CN Type: 6-pin header, p=1.25 mm

CN Location: See Figure 4-8

CN Pinouts: See Table 4-8

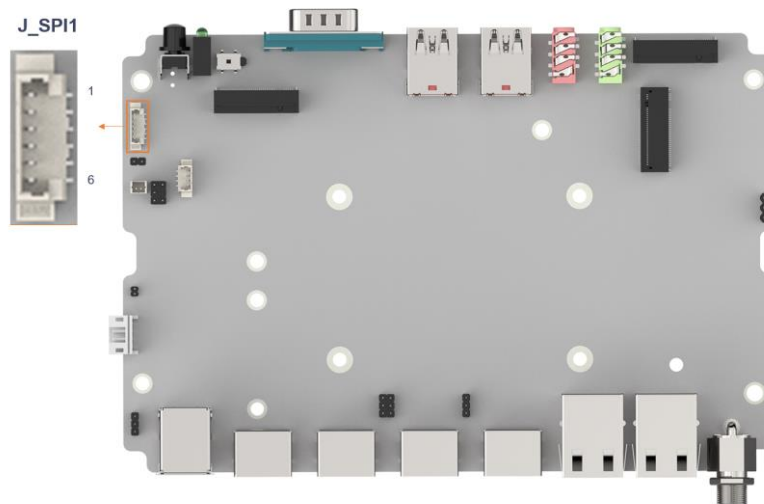


Figure 4-8: BIOS Programming Connector Location

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

Table 4-8: BIOS Programming Connector Pinouts

4.2.8 System 80/81 Port Connector

- CN Label:DBG_PORT1
- CN Type:6-pin header, p=2 mm
- CN Location:See Figure 4-9
- CN Pinouts:See Table 4-9

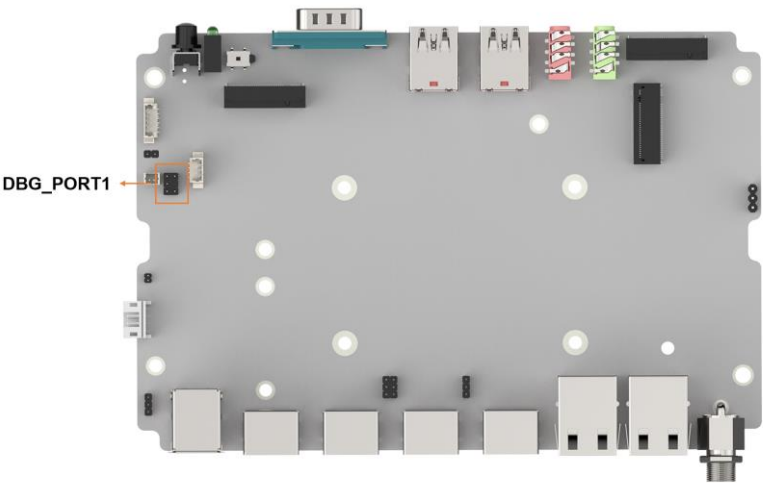


Figure 4-9: System 80/81 Port Connector Location

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

Table 4-9: System 80/81 Port Connector Pinouts

IDS-330-ADL-P

4.2.9 M.2 B-key Slot

CN Label:	M2_B1
CN Type:	M.2 B-key slot
CN Location:	See Figure 4-10
CN Pinouts:	See Table 4-10

The M.2 B key 3042/52/80 slot with PCIe x1, USB 2.0 and SATA signal supports NVMe storage or 5G module with SIM holder

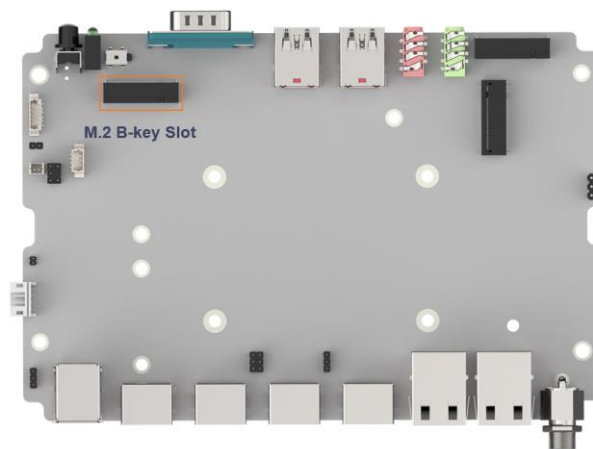


Figure 4-10: M.2 B-key Slot Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	WWAN_CONFIG3	2	+3.3V_WWAN
3	GND	4	+3.3V_WWAN
5	GND	6	WWAN_FCP_OFF
7	USB_D+	8	WWAN_DISABLE
9	USB_D-	10	NC
11	GND	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	PSE_I2S1_SCLK

21	WWAN_CONFIG0	22	PSE_I2S1_TXD
23	PCIE_WAKE#	24	PSE_I2S1_RXD
25	SAR_DPR_WWAN	26	GNSS_DISABLE_N
27	GND	28	NC
29	PCIE_RXN5	30	WWAN_UIM_RST
31	PCIE_RXP5	32	WWAN_UIM_CLK
33	GND	34	WWAN_UIM_DATA
35	PCIE_TXN5	36	UIM_PWR
37	PCIE_TXP5	38	SSD_DEVSLP
39	GND	40	NC
41	PCIE_RXN4	42	NC
43	PCIE_RXP4	44	NC
45	GND	46	NC
47	PCIE_TXN4	48	NC
49	PCIE_TXP4	50	WWAN_PERST#
51	GND	52	N/C
53	CLK_M2_B_N	54	WWAN_WAKE#
55	CLK_M2_B_P	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	WWAN_SIM1_DET
67	WWAN_RST	68	WWAN_SUSCLK
69	DET_OS-PCIE/ GND-SATA	70	+3.3V
71	GND	72	+3.3V
73	GND	74	+3.3V
75	WWAN_CONFIG2		

Table 4-10: M.2 B-key Slot Pinouts

IDS-330-ADL-P

4.2.10 M.2 M-key Slot

CN Label: M2_M1

CN Type: M.2 M-key slot

CN Location: See **Figure 4-11**

CN Pinouts: See **Table 4-11**

The M.2 slot is keyed in the M position and accepts 2280 size of M.2 modules. The M.2 slot supports PCIe x4 signals.

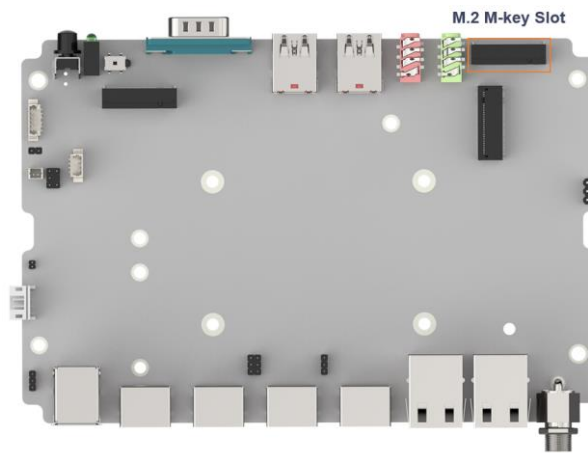


Figure 4-11: M.2 M-key Slot Location

Pin	Description	Pin	Description
1	GND	2	+3.3V
3	GND	4	+3.3V
5	PCIE_RXN3	6	N/C
7	PCIE_RXP3	8	N/C
9	GND	10	DAS/DSS#
11	PCIE_TXN3	12	+3.3V
13	PCIE_TXP3	14	+3.3V
15	GND	16	+3.3V
17	PCIE_RXN2	18	+3.3V
19	PCIE_RXP2	20	N/C
21	GND	22	N/C

Pin	Description	Pin	Description
23	PCIE_TXN2	24	N/C
25	PCIE_TXP2	26	N/C
27	GND	28	N/C
29	PCIE_RXN1	30	N/C
31	PCIE_RXP1	32	N/C
33	GND	34	N/C
35	PCIE_TXN1	36	N/C
37	PCIE_TXP1	38	DEVSLP
39	GND	40	N/C
41	PCIE_RXN0	42	N/C
43	PCIE_RXP0	44	N/C
45	GND	46	N/C
47	PCIE_TXN0	48	N/C
49	PCIE_TXP0	50	PERST#
51	GND	52	CLKREQ#
53	REFCLKN	54	PEWAKE
55	REFCLKP	56	N/C
57	GND	58	N/C
59	Module Key	60	Module Key
61	Module Key	62	Module Key
63	Module Key	64	Module Key
65	Module Key	66	Module Key
67	N/C	68	SUSCLK
69	PEDET	70	+3.3V
71	GND	72	+3.3V
73	GND	74	+3.3V
75	GND		

Table 4-11: M.2 M-Key Slot Pinouts

IDS-330-ADL-P

4.2.11 M.2 E-key Slot

CN Label: M2_E1

CN Type: M.2 E-key slot

CN Location: See **Figure 4-12**

CN Pinouts: See **Table 4-12**

The 2230 M.2 E key slot with PCIe x1 and USB 2.0 supports Vpro.

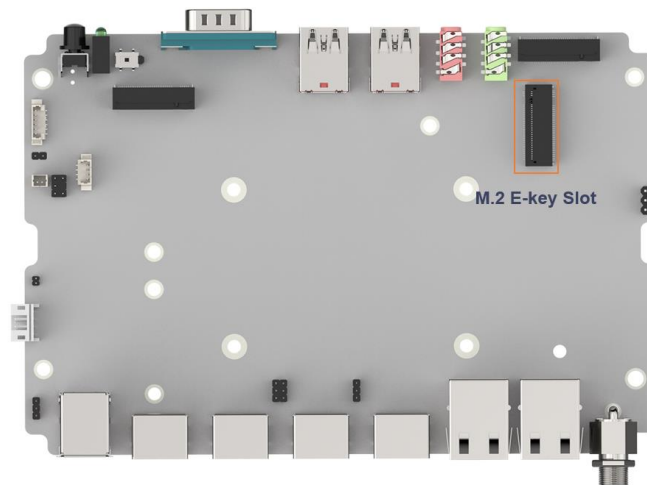


Figure 4-12: M.2 E-key Slot Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+3.3V
3	USB_D+	4	+3.3V
5	USB_D-	6	LED#1
7	GND	8	PCM_CLK
9	WGR_D1N	10	PCM_SYNC/LCP_RSTN
11	WGR_D1P	12	PCM_IN
13	GND	14	PCM_OUT/CLKREQ0
15	WGR_D0N	16	LED#2
17	WGR_D0P	18	GND
19	GND	20	UART_WSKE_N
21	WGR_CLKN	22	UART_RX/BRI_RSP

23	WGR_CLKP	24	NC
25	NC	26	NC
27	NC	28	NC
29	NC	30	NC
31	NC	32	UART_TX/RGI_DT
33	GND	34	UART_CTS/RGI_RSP
35	PCIE_TXP0	36	UART_RTS/BRI_DT
37	PCIE_TXN0	38	CLINK_RESET
39	GND	40	CLINK_DATA
41	PCIE_RXP0	42	CLINK_CLK
43	PCIE_RXN0	44	NC
45	GND	46	NC
47	REFCLKP0	48	NC
49	REFCLKN0	50	SUSCLK
51	GND	52	PERST0#
53	CLKREQ0#	54	W_DISABLE2#
55	PEWAKE0#	56	W_DISABLE1#
57	GND	58	A4WP_I2C_DAT
59	WT_D1N	60	A4WP_I2C_CLK
61	WT_D1P	62	A4WP_IRQ#
63	GND	64	REF
65	WT_D0N	66	REST1#
67	WT_D0P	68	CLKREQ1#
69	GND	70	PEWAKE1#
71	WT_CLKN	72	+3.3V
73	WT_CLKP	74	+3.3V
75	GND		

Table 4-12: M.2 E-Key Slot Pinouts

IDS-330-ADL-P

4.2.12 LT86101X IC Programmer Connector

CN Label: J_HDM1~4

CN Type: 3-pin header, p=2 mm

CN Location: See **Figure 4-13**

CN Pinouts: See **Table 4-13**

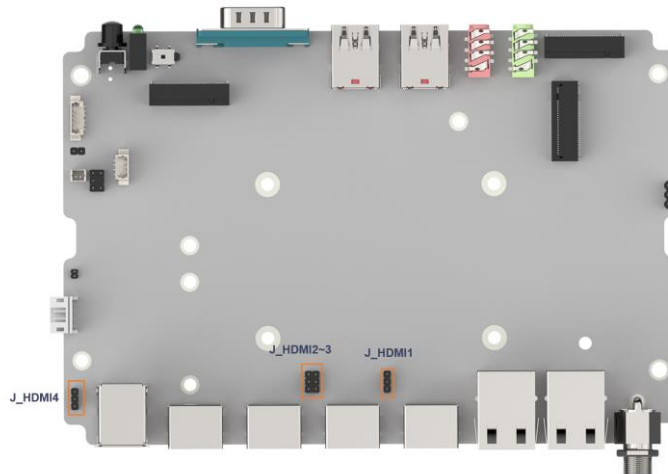


Figure 4-13: LT86101X IC Programmer Connector Location

Pin	Description
1	SDA
2	SCL
3	GND

Table 4-13: LT86101X IC Programmer Connector Pinouts



4.2.13 SIM Card Slot

- CN Label: SIM1
- CN Type: 7-pin SIM holder
- CN Pinouts: See Table 4-14

PIN NO.	DESCRIPTION
C1	SIM_VCC
C2	SIM_RST
C3	SIM_Clock
C5	GND
C6	NC
C7	SIM_DATA

Table 4-14: SIM Card Slot Pinouts



CAUTION:

A WWAN module must be installed in the M.2 B-key slot to provide WWAN communication.



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.

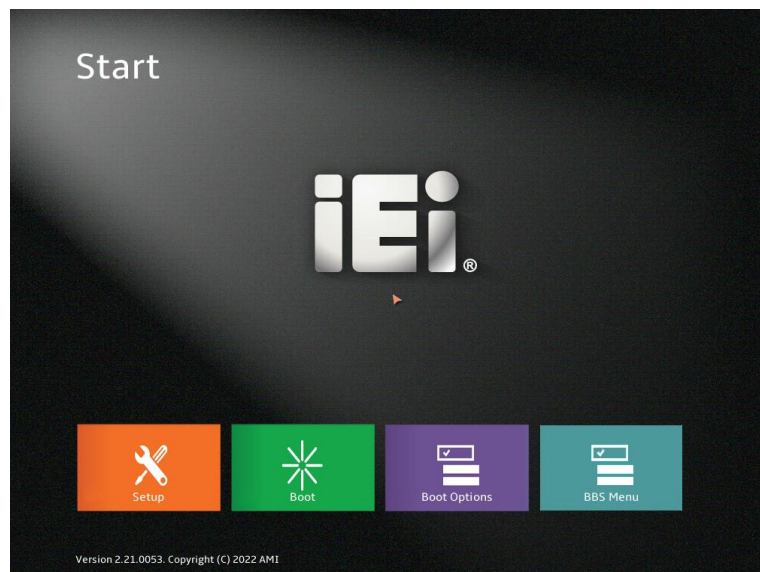


Figure 5-1: BIOS Starting Menu

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

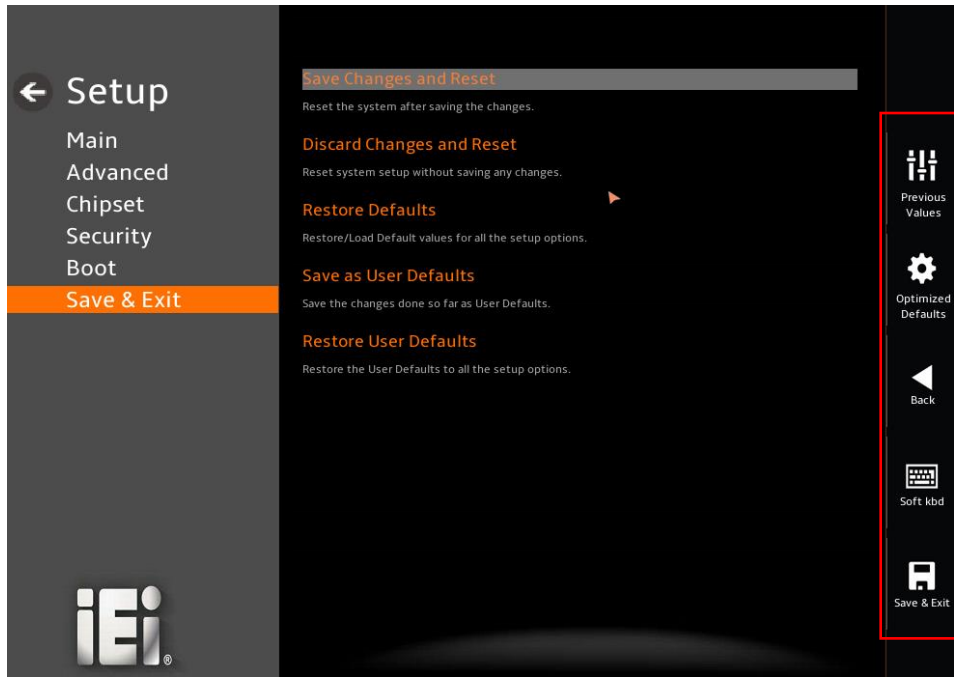
For keyboard navigation, use the navigation keys shown in **Table 5-1**

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.

Figure 5-2: BIOS On-screen Navigation Keys

5.1.3 Getting Help

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

5.1.4 Unable to Reboot after Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the clear CMOS button described in **Chapter 4**.

5.1.5 BIOS Menu Bar

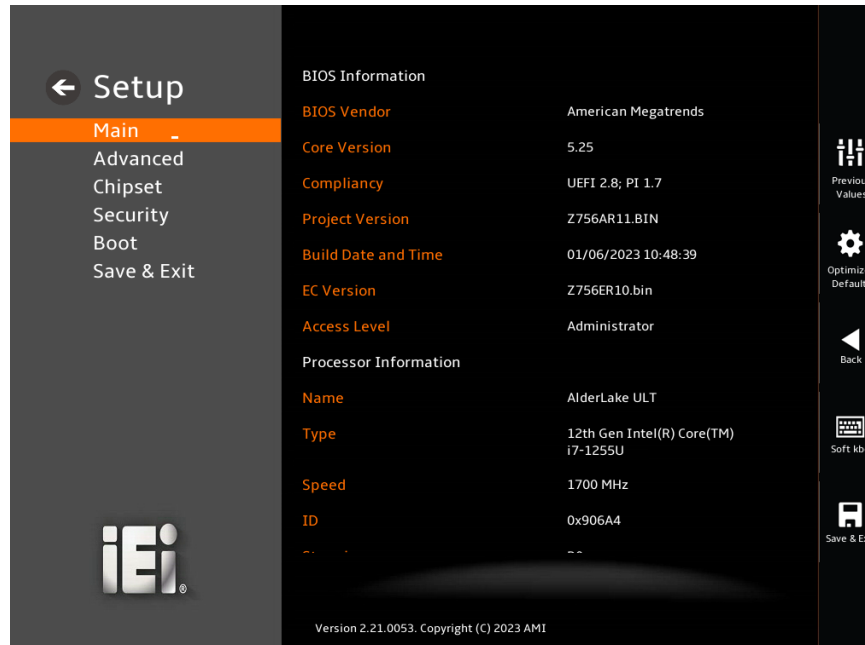
The **menu bar** on top of the BIOS screen has the following main items:

- 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

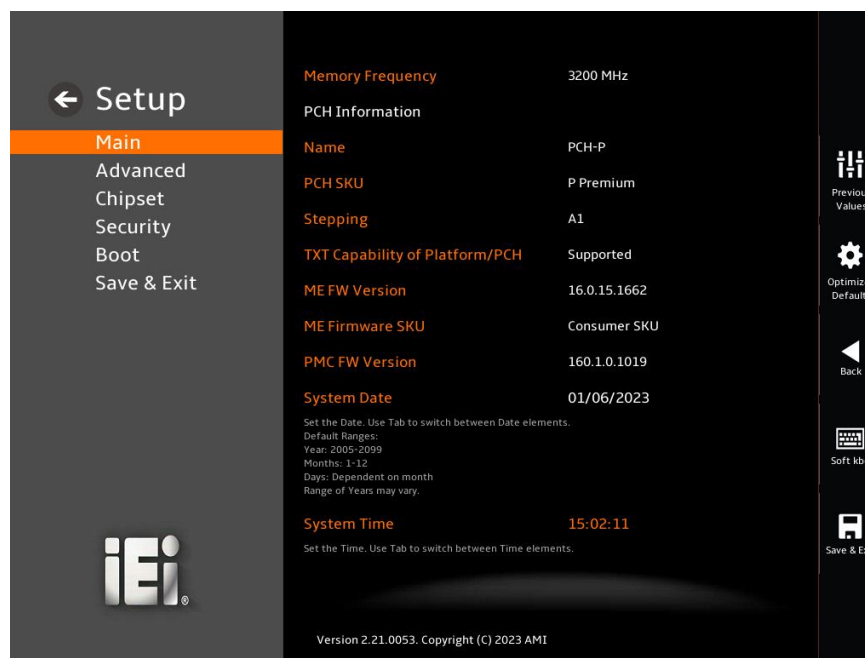
The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.

5.2 Main

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



BIOS Menu 1: Main (1/2)



BIOS Menu 2: Main (2/2)

IDS-330-ADL-P**→ 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:** Date the current BIOS version was made
- **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 Processors:** Displays number of CPU cores
- **Microcode Revision:** CPU Microcode Revision
- **GT Info:** Processor GT Info. Only valid if SNB stepping is D0 or above
- **IGFX GOP Version:** Displays the IGFX GOP Version
- **PCIe GEN4 Dekel FW Version:** Dekel Firmware Version used by PCIe Gen4 PHY
- **SAM Firmware Version:** System Agent Manage ability Engine FW Version
- **Memory RC Version:** Displays the Memory RC Version
- **Total Memory:** Total Memory in the System
- **Memory Frequency:** Displays the Frequency of Memory

➔ PCH Information

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

- **Name:** Displays the PCH Name
- **PCH SKU:** Displays the PCH SKU
- **Stepping:** Displays the PCH Stepping
- **Dual Output Fast Read support:** Displays the Processor Details
- **Read ID/Status Clock Freq:** Displays the Read ID and Read Status Clock Frequency
- **Write and Erase Clock Freq:** Displays the Write and Erase Clock Frequency
- **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]

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

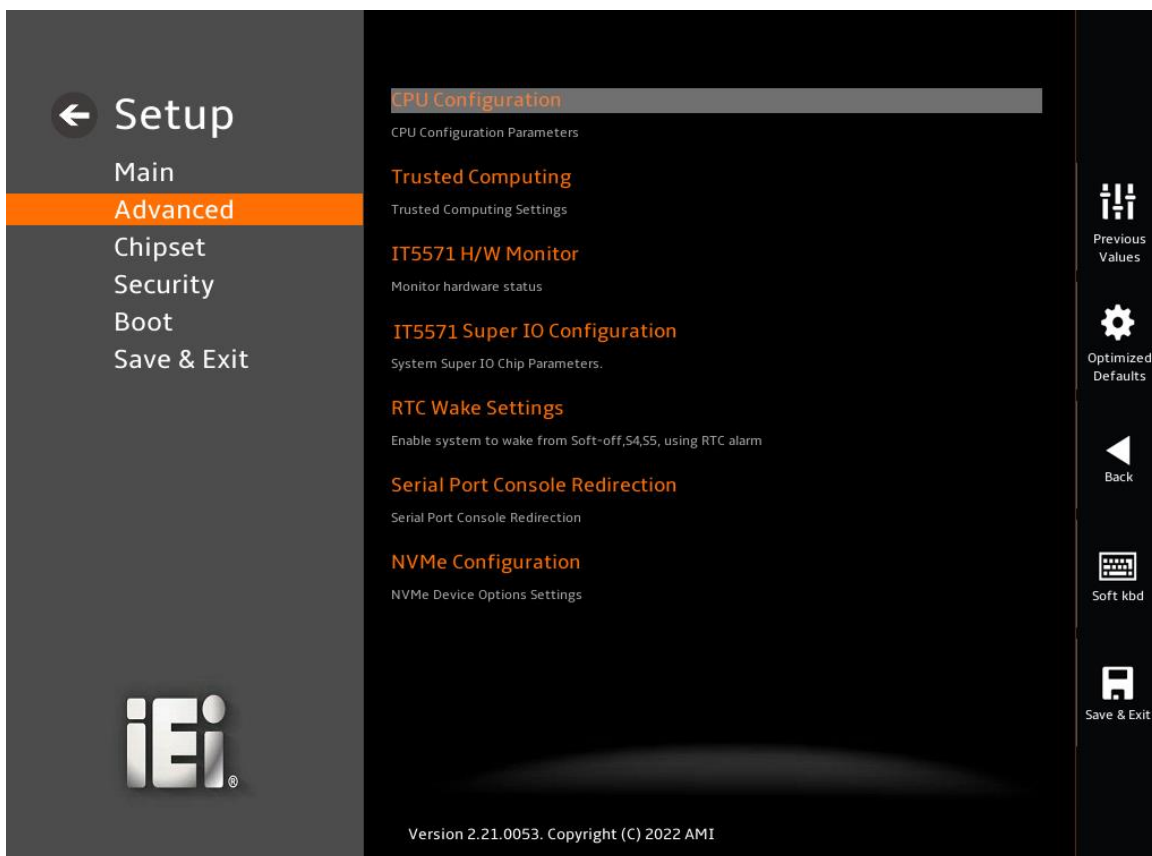
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5.3 Advanced

Use the **Advanced** menu (**BIOS Menu 3**) to configure the CPU and peripheral devices through the following sub-menus:

**WARNING!**

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



BIOS Menu 3: Advanced

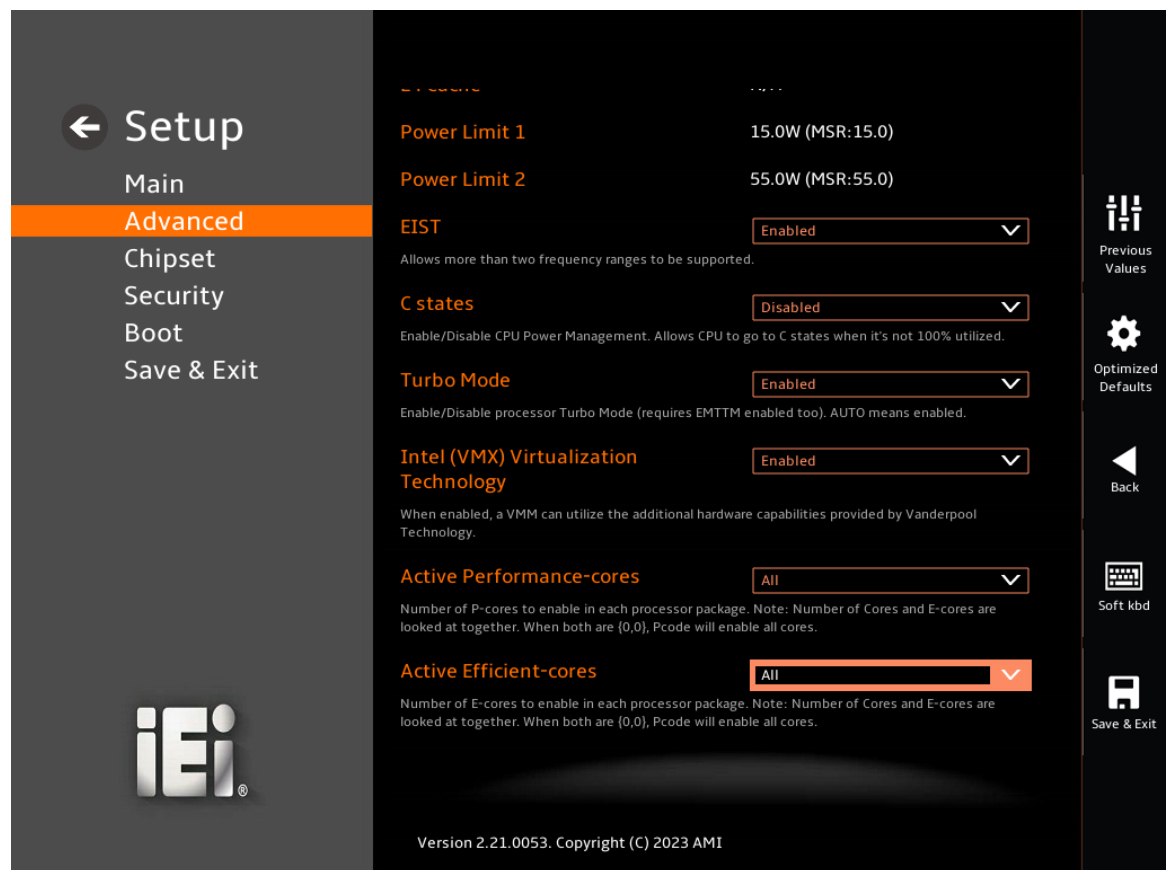
5.3.1 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 4 & BIOS Menu 5 & BIOS Menu 6**) to view detailed CPU specifications or enable the Intel Virtualization Technology.



BIOS Menu 4: CPU Configuration (1/3)

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BIOS Menu 5: CPU Configuration (2/3)



BIOS Menu 6: CPU Configuration (3/3)

→ EIST [Enabled]

Use the **EIST** option to enable or disable the capability that allows more than two frequency ranges to be supported.

- | | | |
|------------|---------|------------------------------|
| → Disabled | | Disables the EIST Technology |
| → Enabled | DEFAULT | Enables the EIST Technology |

→ 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 |
|------------|---------|-------------------------------|

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➔ **Enabled** Enables CPU power management

➔ **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

➔ **Intel (VMX) Virtualization Technology [Disabled]**

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.

➔ **Hyper-Threading [Enabled]**

Use the **Hyper-Threading** option to enable or disable the **Hyper-Threading** Technology.

- ➔ **Disabled** Disables Hyper-Threading Technology
- ➔ **Enabled** **DEFAULT** Enables Hyper-Threading Technology

➔ **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.

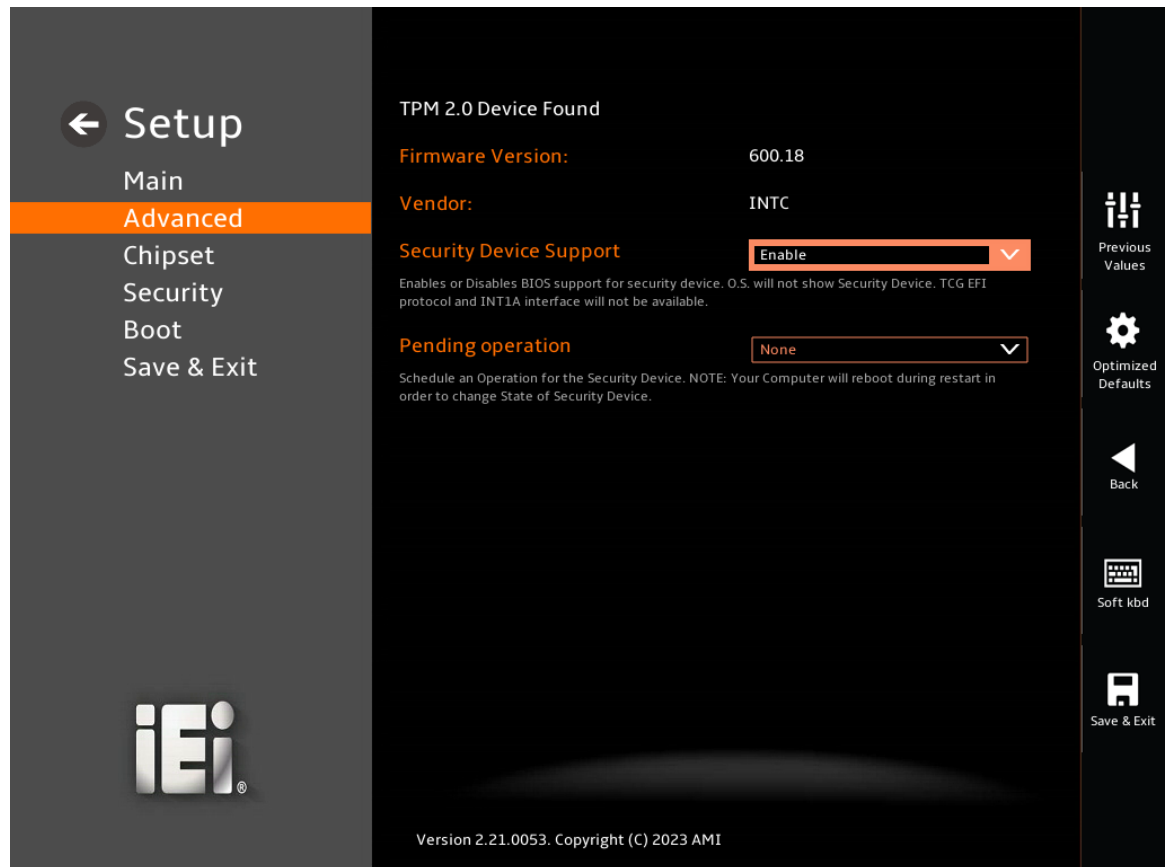
➔ **Power Limit 1 Time Window [0]**

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

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5.3.2 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: PCH-FW Configuration

➔ Security Device Support [Enable]

Use the **Security Device Support** option to configure support for the TPM.

- ➔ 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

5.3.3 IT55771 Super IO Configuration

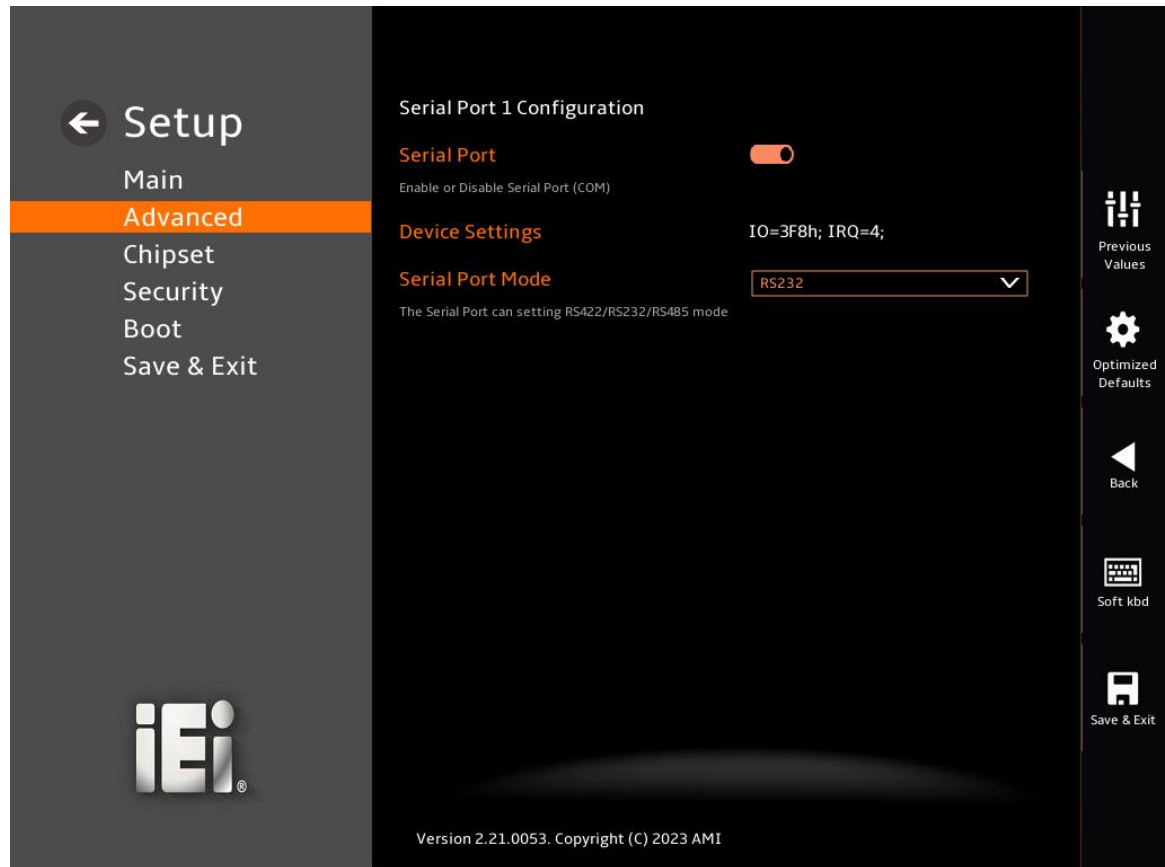
Use the **IT5571 Super IO Configuration** menu (**BIOS Menu 8**) to set or change the configurations for the serial port.



BIOS Menu 8: IT5571 Super IO Configuration

5.3.3.1 Serial Port 1 Configuration

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



BIOS Menu 9: Serial Port 1 Configuration Menu

➔ Serial Port [Enabled]

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

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

➔ Device Settings

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

➔ IO=3F8h;
IRQ=4

Serial Port I/O port address is 3F8h and the interrupt address is IRQ4

5.3.4 IT5571 H/W Monitor

The **IT5571 H/W Monitor** menu (**BIOS Menu 10**) 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 10: IT5571 H/W Monitor

➔ PC Health Status

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

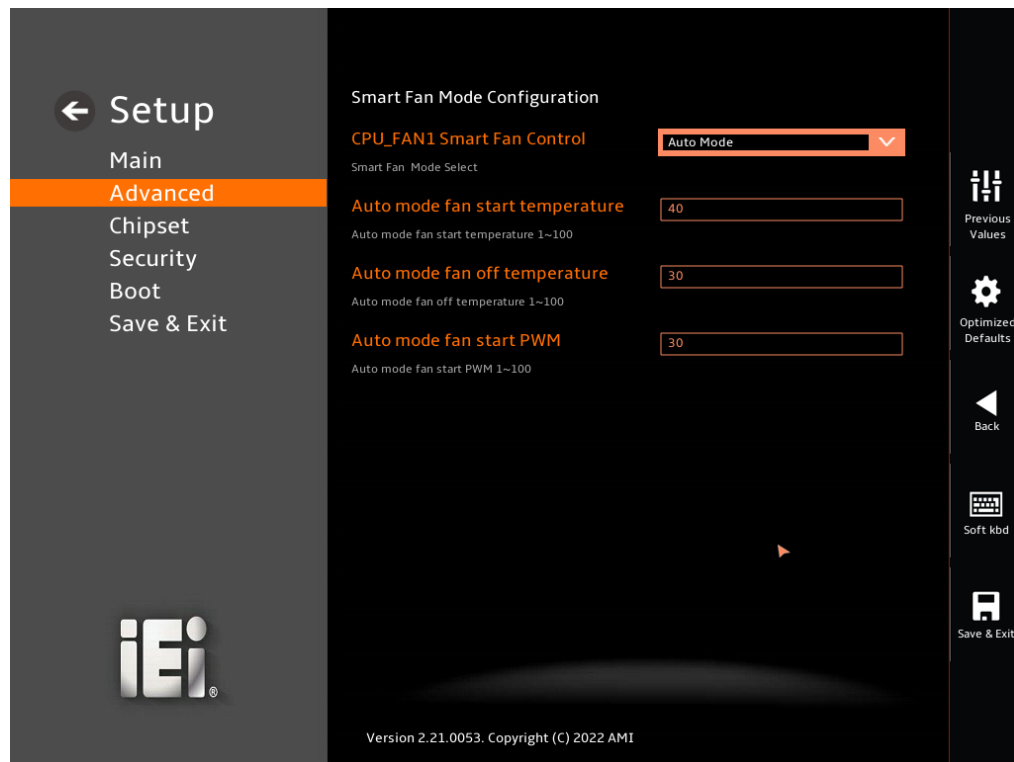
- System Temperatures:
 - CPU Temperature
- Fan Speeds:
 - CPU Fan Speed

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- Voltages:
 - +VCCIN
 - +V5S
 - +V12S
 - +VDDQ
 - +V3.3S

5.3.4.1 Smart Fan Mode Configuration

Use the **Smart Fan Mode Configuration** submenu (**BIOS Menu 11**) to configure the CPU/system fan start/off temperature and control mode.



BIOS Menu 11: Smart Fan Mode Configuration

→ CPU_FAN1 Smart Fan Control [Auto Mode]

Use the **CPU_FAN1 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.

➔ **Auto mode fan start temperature**

Use the + or – key to change the **Auto mode fan start temperature** value. Enter a decimal number between 1 and 100.

➔ **Auto mode fan off temperature**

Use the + or – key to change the **Auto mode fan off temperature** value. Enter a decimal number between 1 and 100.

➔ **Auto mode fan start PWM**

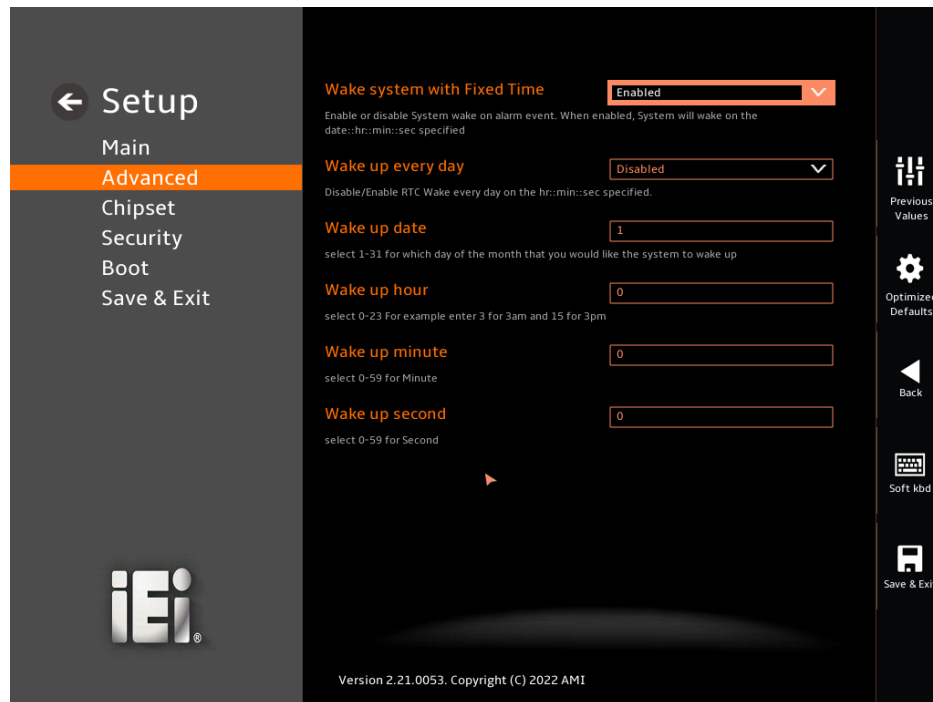
Use the + or – key to change the **Auto mode fan start PWM** value. Enter a decimal number between 1 and 100.

5.3.5 RTC Wake Settings

The **RTC Wake Settings** menu (**BIOS Menu 12**) configures RTC wake event.



BIOS Menu 12: RTC Wake Settings (1/2)



BIOS Menu 13: RTC Wake Settings (2/2)

→ Wake system with Fixed Time [Disabled]

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:

Wake up date

Wake up hour

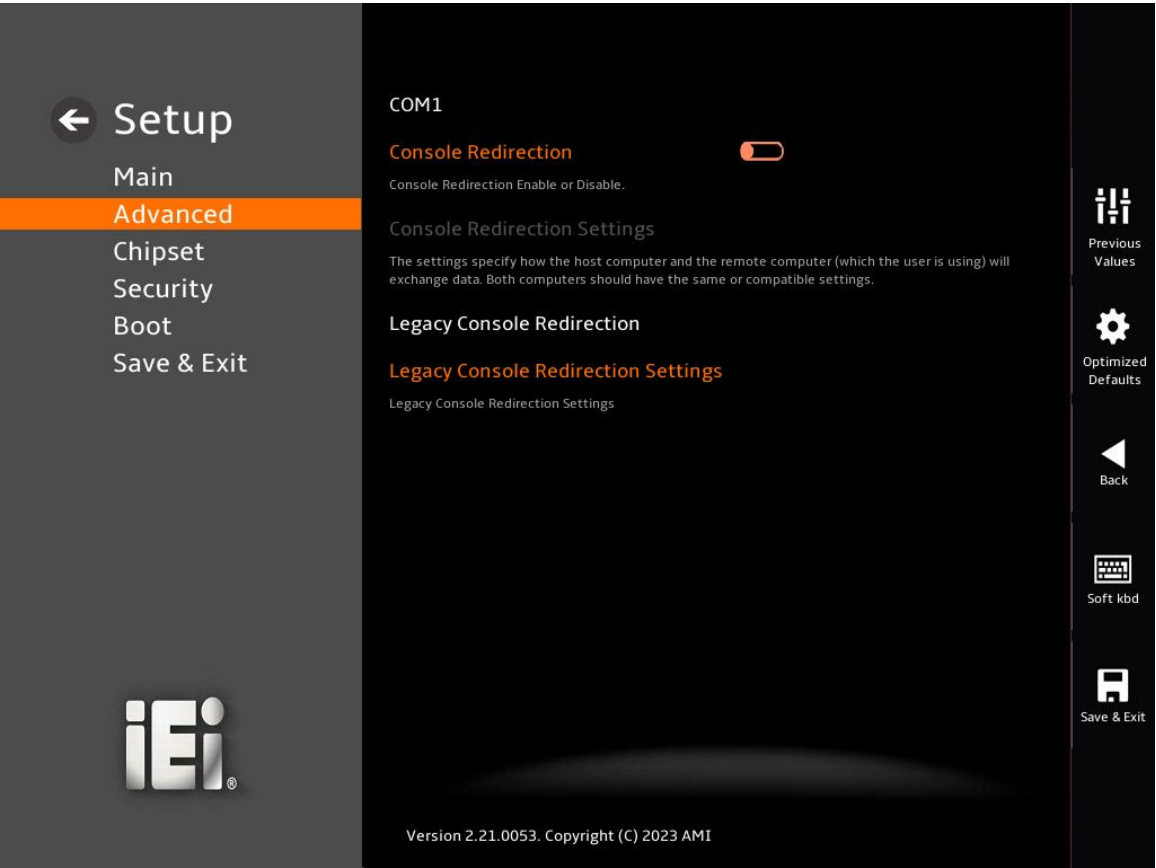
Wake up minute

Wake up second

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

5.3.6 Serial Port Console Redirection

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



BIOS Menu 14: Serial Port Console Redirection

➔ **Console Redirection [Disabled]**

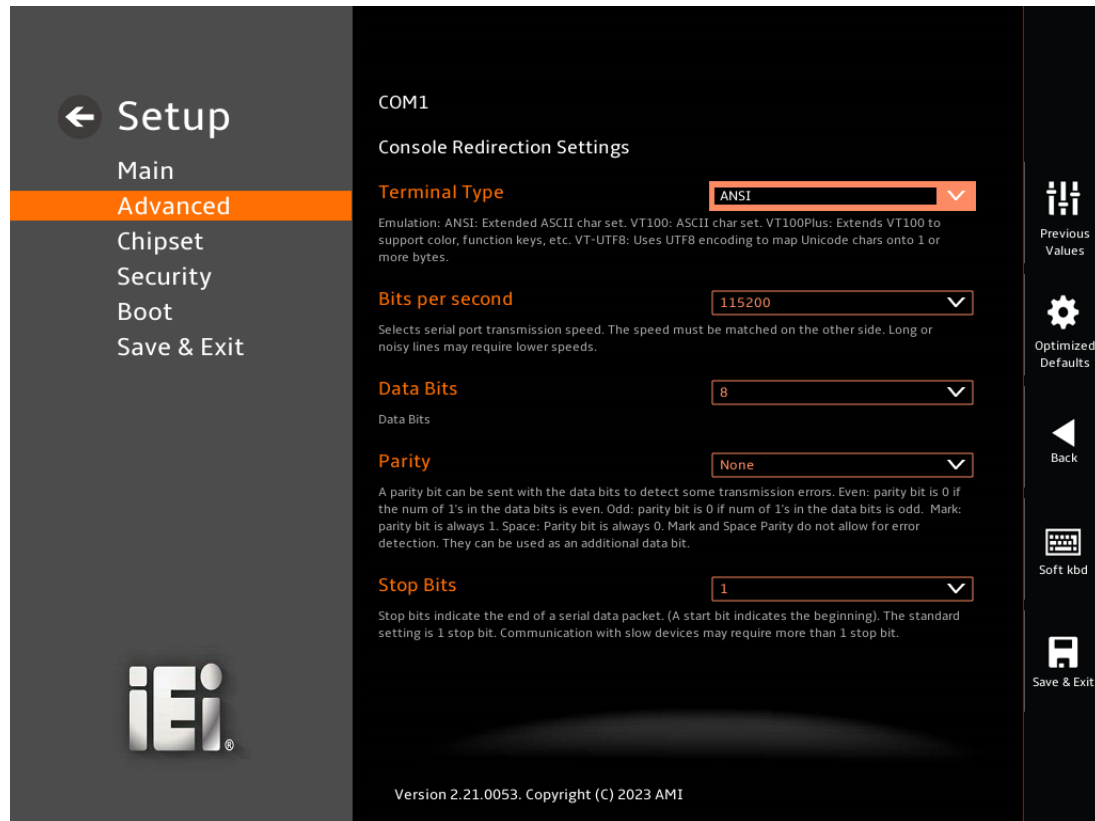
Use **Console Redirection** option to enable or disable the console redirection function.

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

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

5.3.6.1 Console Redirection Settings

The following options are available in the **Console Redirection Settings** submenu (**BIOS Menu 15**) when the **COM Console Redirection** (for COM1 to COM6) option is enabled.



BIOS Menu 15: 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. T This option does not allow for error detection. |

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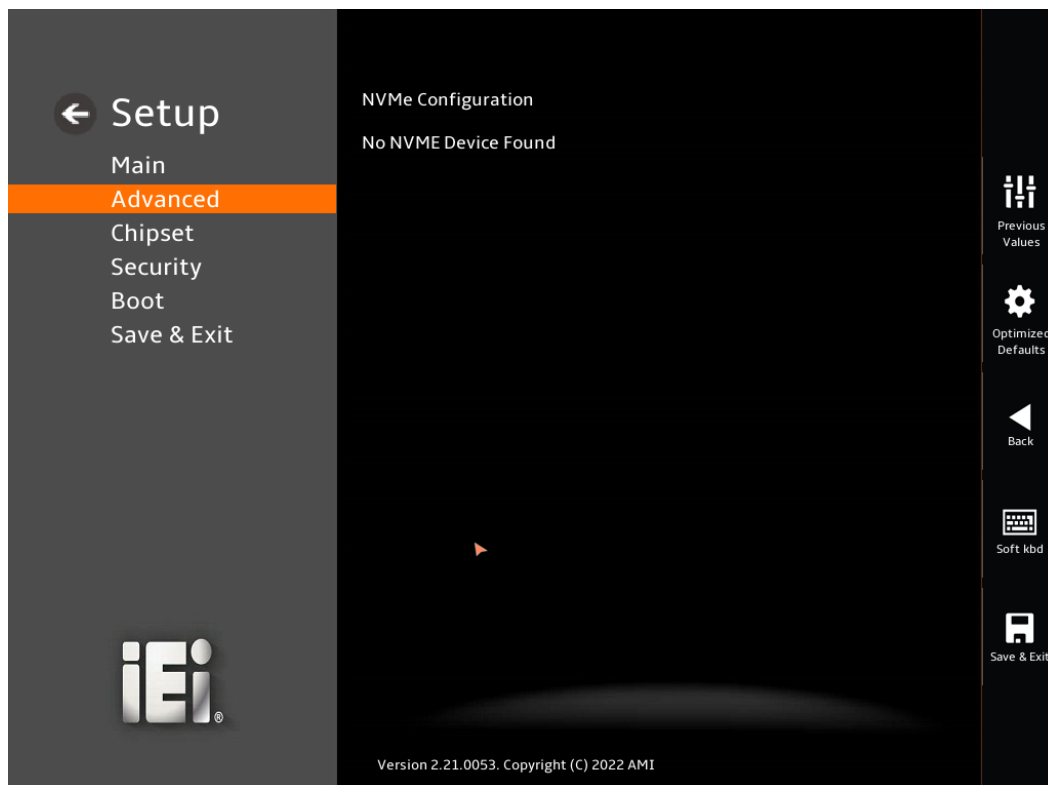
→ Stop Bits [1]

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.

5.3.7 NVMe Configuration

Use the **NVMe Configuration (BIOS Menu 16)** menu to display the NVMe controller and device information.



BIOS Menu 16: NVMe Configuration

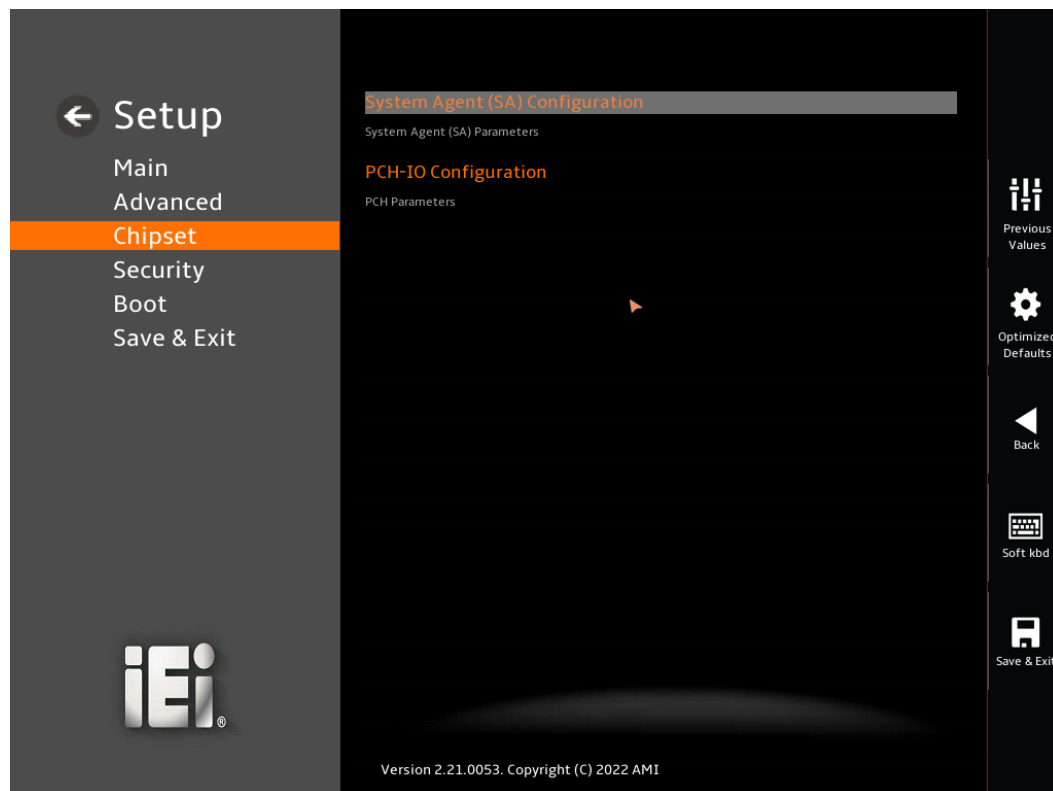
5.4 Chipset

Use the **Chipset** menu (**BIOS Menu 17**) 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.

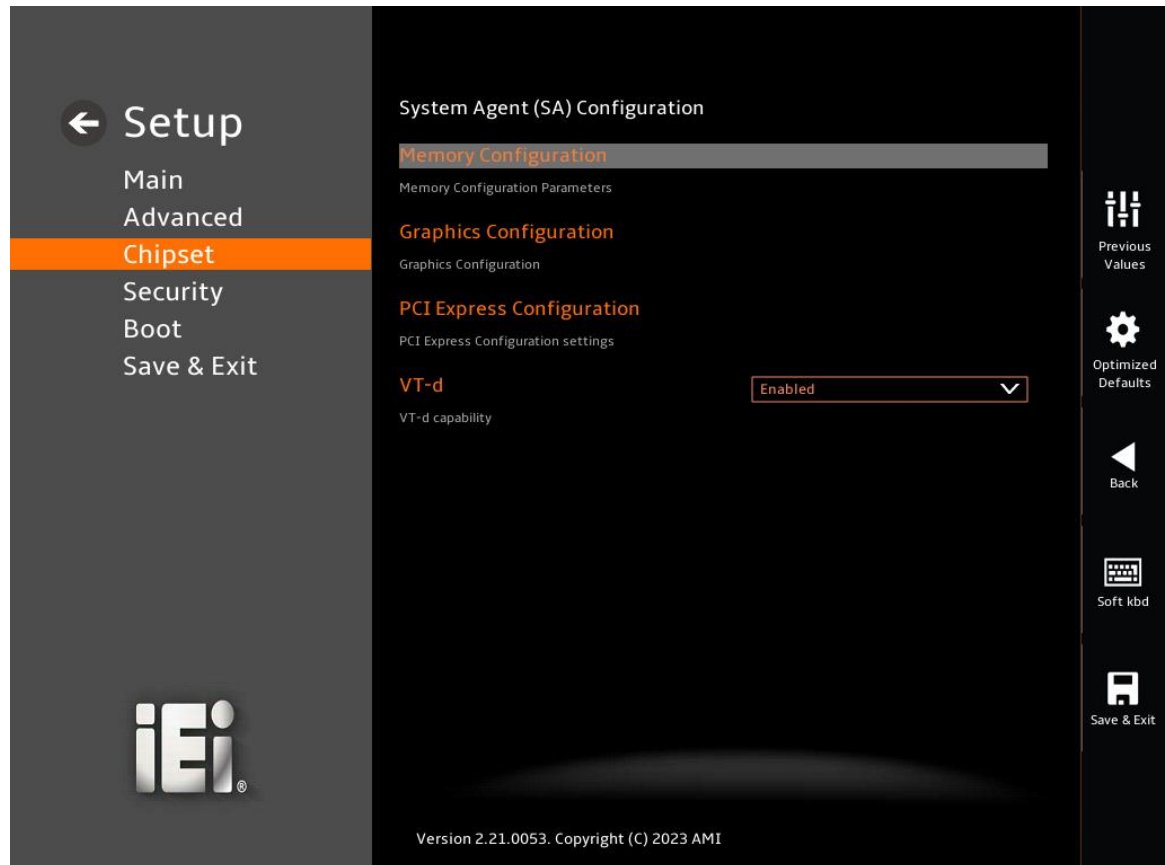


BIOS Menu 17: Chipset

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5.4.1 System Agent (SA) Configuration

Use the **System Agent (SA) Configuration** menu (**BIOS Menu 18**) to configure the System Agent (SA) parameters.



BIOS Menu 18: System Agent (SA) Configuration

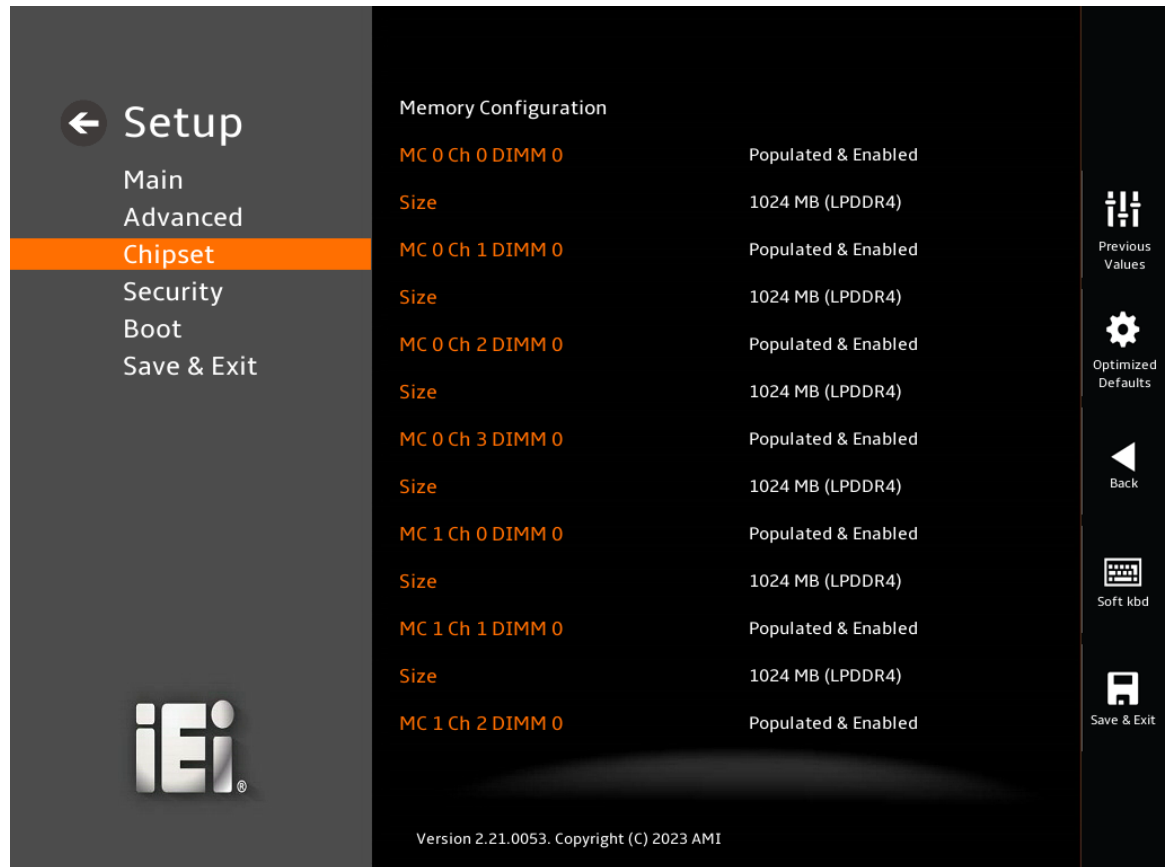
➔ VT-d [Enabled]

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 19**) to view memory information.



BIOS Menu 19: Memory Configuration (1/2)

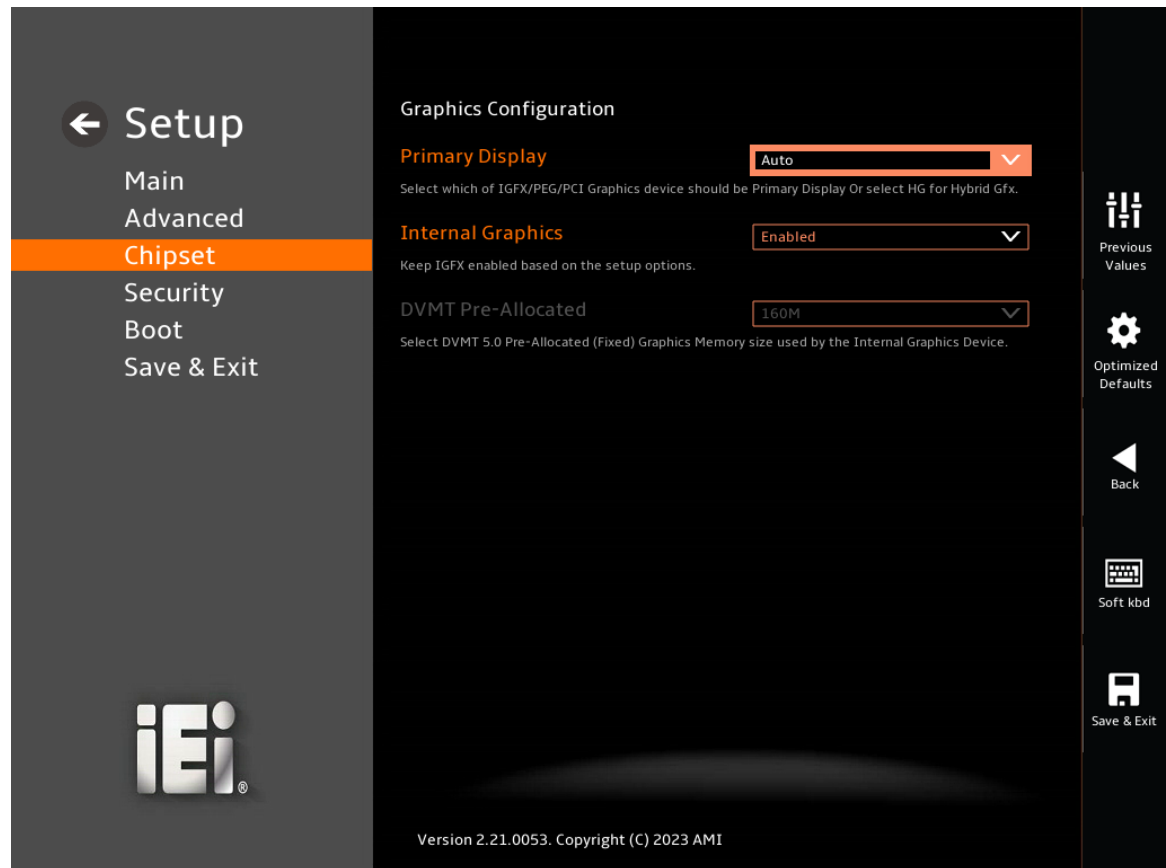
IDS-330-ADL-P



BIOS Menu 20: Memory Configuration (2/2)

5.4.1.2 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

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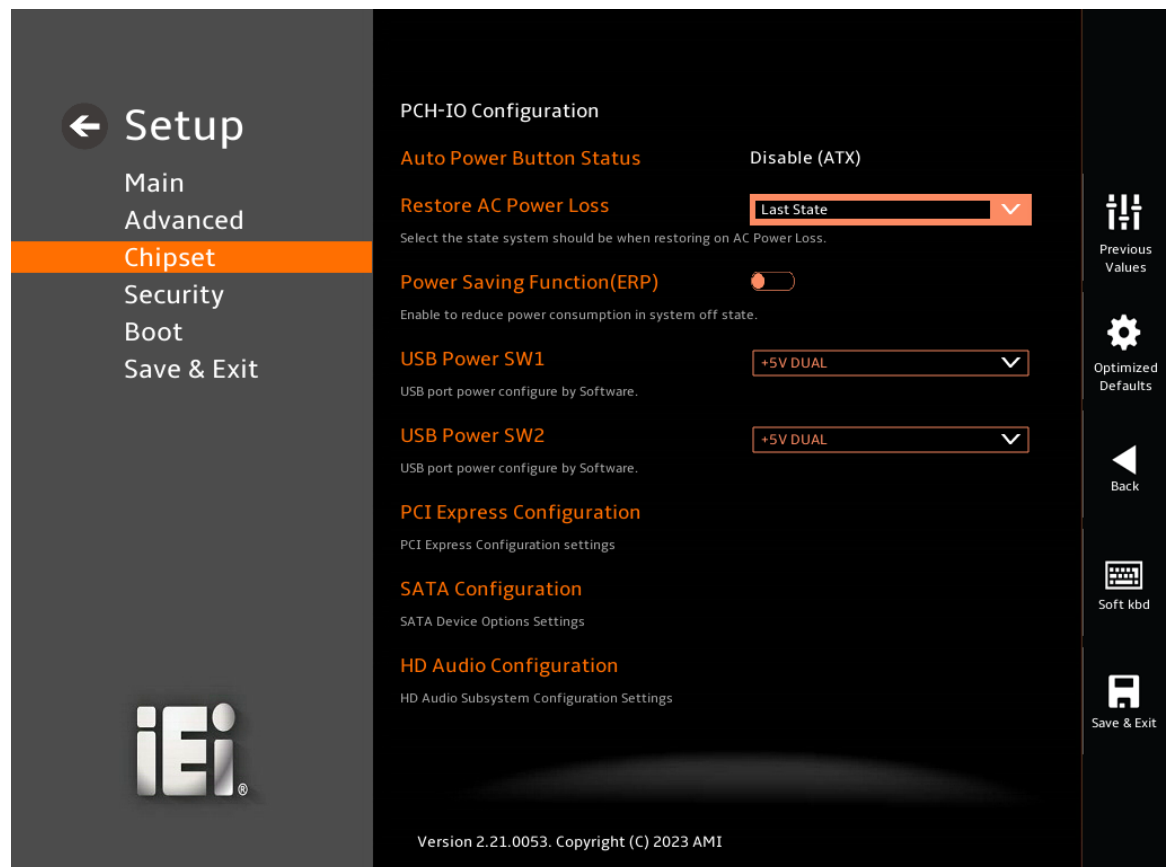
➔ Internal Graphics [Enabled]

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. |

5.4.2 PCH-IO Configuration

Use the **PCH-IO Configuration** menu (**BIOS Menu 22**) to configure the PCH parameters.



BIOS Menu 22: PCH-IO Configuration



➔ **Auto Power Button Status [Disable (ATX)]**

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

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

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

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

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

➔ **Power Saving Function(ERP) [Disabled]**

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

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

➔ **USB Power SW1 [+5V DUAL]**

Use the **USB Power SW1** BIOS option to configure the USB power source for the corresponding USB connectors (Table 5-2).

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



IDS-330-ADL-P**→ USB Power SW2 [+5V DUAL]**

Use the **USB Power SW2** BIOS option to configure the USB power source for the corresponding USB connectors (Table 5-2).

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

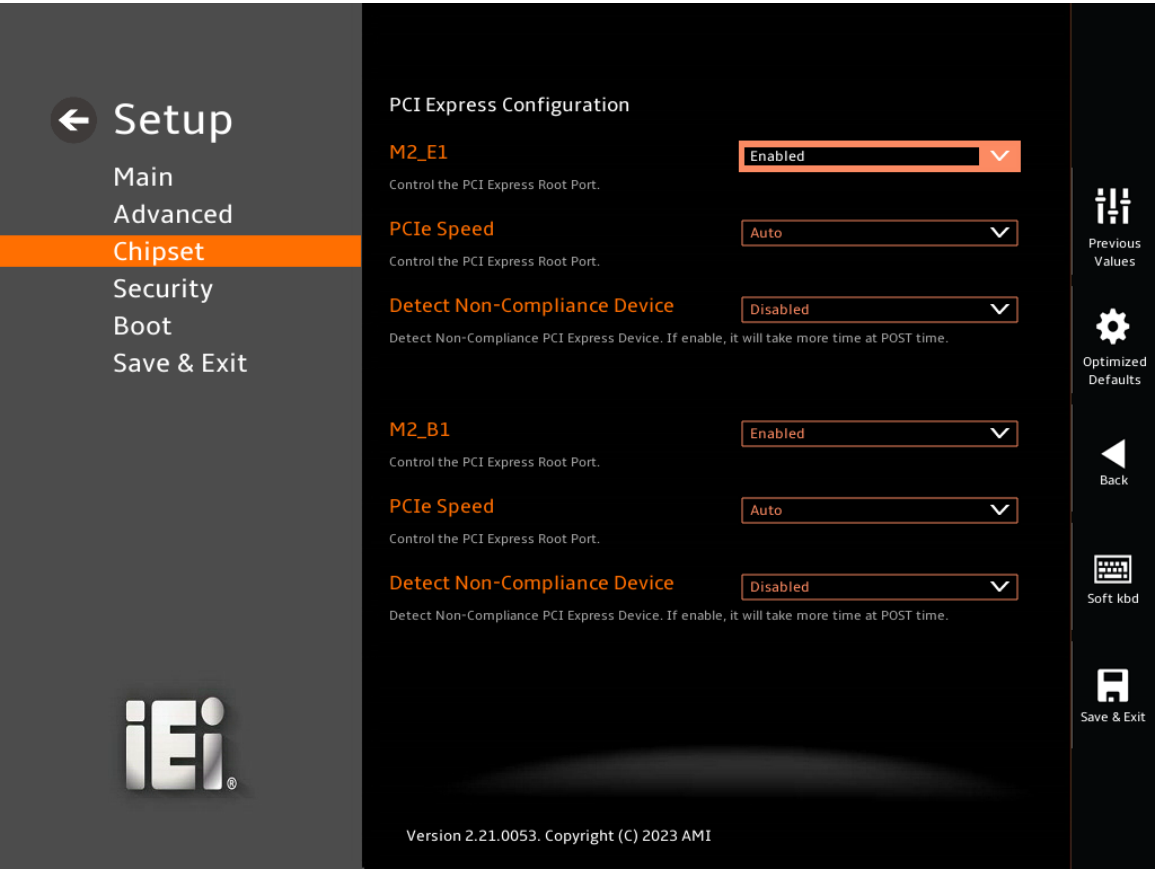
→ **+5V** Sets the USB power source to +5V

BIOS Options	Configured USB Ports
USB Power SW1	USB1 (external USB 3.2 Gen 2 ports)
USB Power SW2	USB2 (external USB 3.2 Gen 2 ports)
	USB3 (external USB 3.2 Gen 2 ports)
	USB4 (external USB 3.2 Gen 2 ports)

Table 5-2: BIOS Options and Configured USB Ports

5.4.2.1 PCI Express Configuration

Use the **PCI Express Configuration** submenu (**BIOS Menu 23**) to configure the PCI Express slots.



BIOS Menu 23: PCI Express Configuration

➔ 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. |

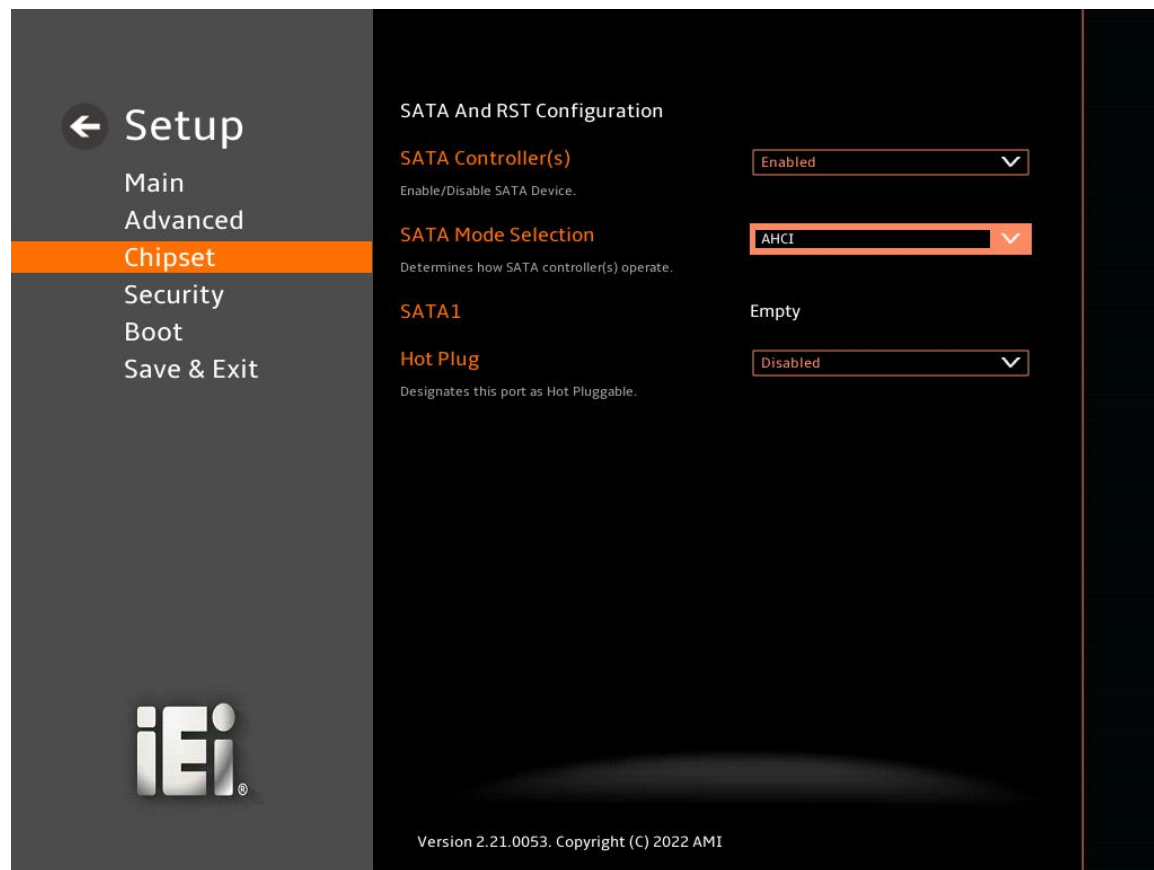
IDS-330-ADL-P**→ Detect Non-Compliance Device [Disabled]**

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

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

5.4.2.2 SATA Configuration

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



BIOS Menu 24: SATA Configuration

→ SATA Controller(s) [Enabled]

Use the **SATA Controller(s)** option to configure the SATA controller(s).

- **Enabled** **DEFAULT** Enables the on-board SATA controller(s).
- **Disabled** Disables the on-board SATA controller(s).

→ SATA Mode Selection [AHCI]

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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. |

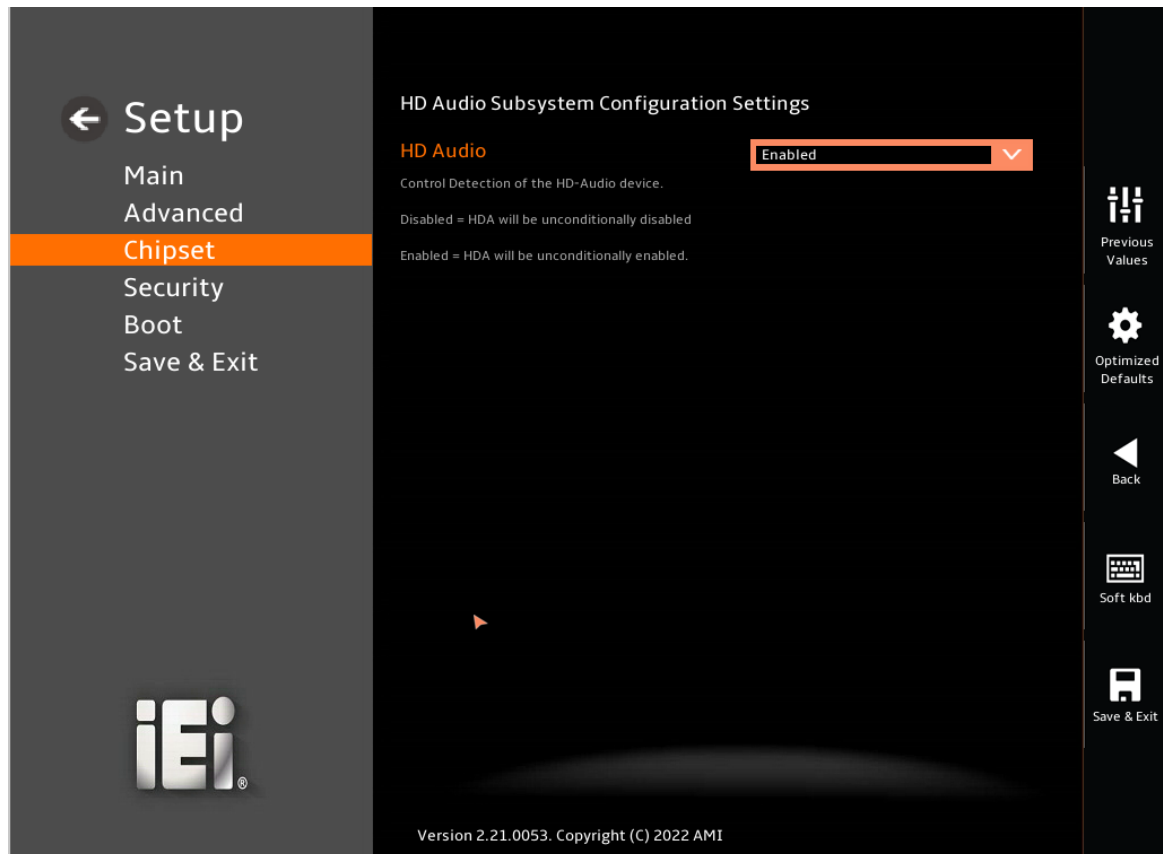
➔ **Hot Plug [Disabled]**

Use the **Hot Plug** option (for S_ATA1 to S_ATA4 and M2_M1) 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 25**) to configure the PCH Azalia settings.



BIOS Menu 25: 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.

5.5 Security

Use the **Security** menu (**BIOS Menu 26**) to set system and user passwords.



BIOS Menu 26: Security (1/2)



BIOS Menu 27: Security (2/2)

→ Administrator Password

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

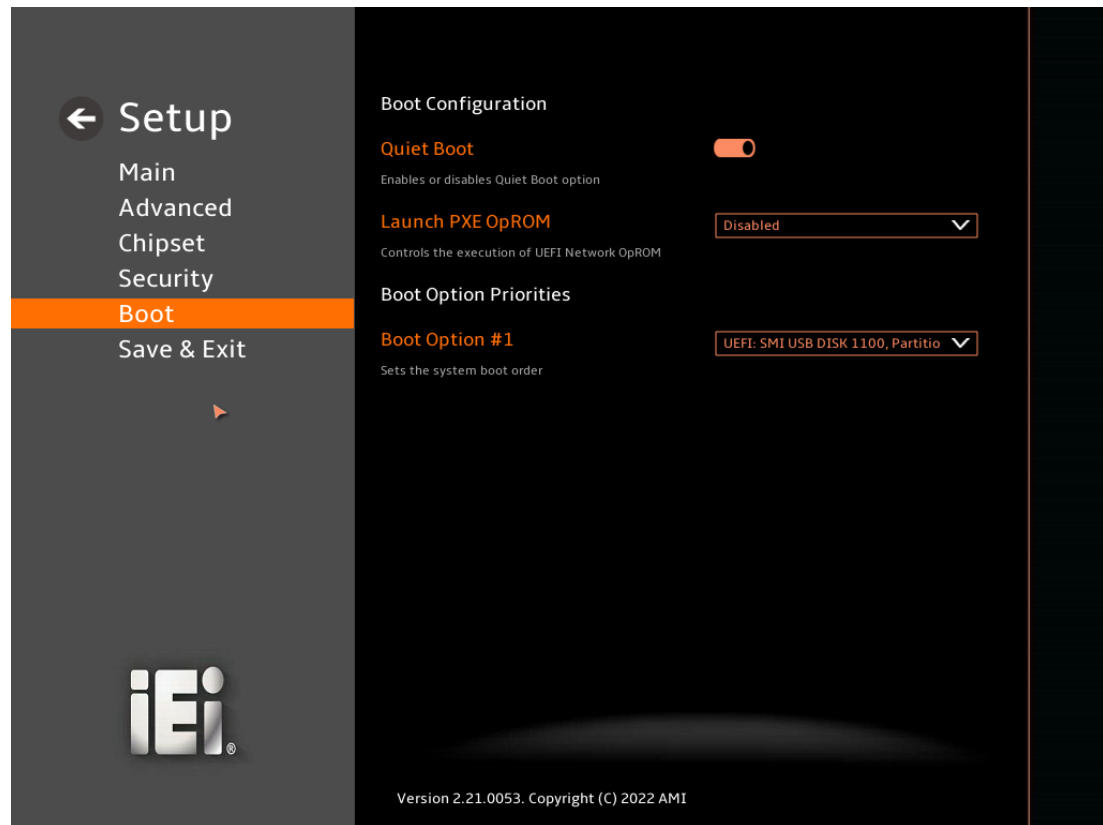
→ User Password

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

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5.6 Boot

Use the **Boot** menu (**BIOS Menu 28**) to configure system boot options.



BIOS Menu 28: 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.

➔ **Option ROM Messages [Force BIOS]**

Use the **Option ROM Messages** option to set the Option ROM display mode.

- ➔ **Force BIOS** **DEFAULT** Sets display mode to force BIOS.
- ➔ **Keep Current** Sets display mode to current.

5.6.2 Boot Option Priorities

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

➔ **Boot Option #1**

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

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

➔ **Boot Option #2**

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

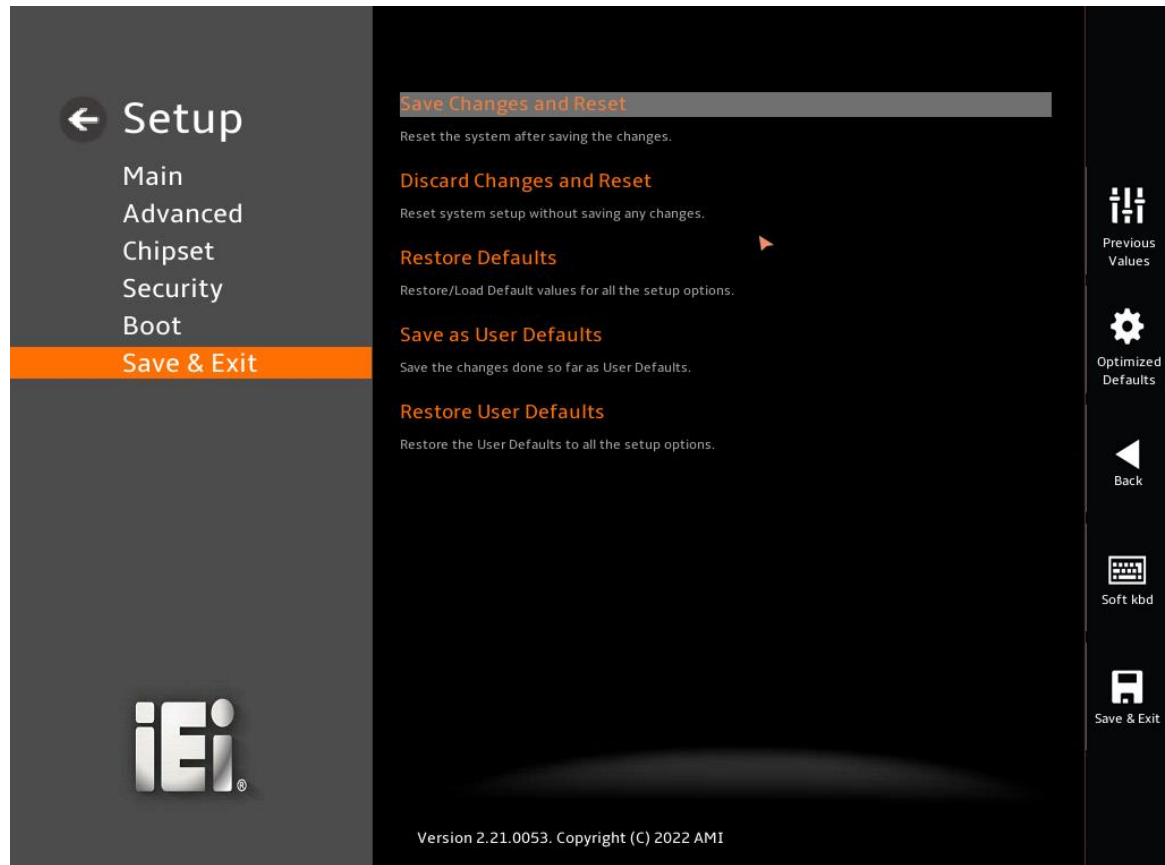
- ➔ **UEFI: USB, Partition 1**
- ➔ **Disabled**



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5.7 Save & Exit

Use the **Save & Exit** menu (**BIOS Menu 29**) to load default BIOS values, optimal failsafe values and to save configuration changes.



BIOS Menu 29: Save & Exit

➔ Save Changes and Reset

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

➔ Discard Changes and Reset

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

➔ **Restore Defaults**

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

➔ **Save as User Defaults**

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

➔ **Restore User Defaults**

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

Appendix

A

Regulatory Compliance

DECLARATION OF CONFORMITY

This equipment has been tested and found to comply with specifications for CE marking. If the user modifies and/or installs other devices in the equipment, the CE conformity declaration may no longer apply.

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.

Appendix

B

Product Disposal

**CAUTION:**

Risk of fire or explosion or defeat the safeguard of equipment if the battery is replaced by an incorrect type. Replace only with the same or equivalent type.

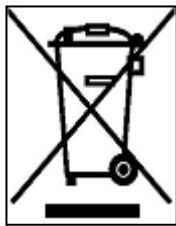
Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery, that can result in an explosion.

High or low extreme temperatures or low air pressure at high altitude that the battery can be subjected to during use, storage or transportation.

Leaving the battery in an extremely high temperature and/or low air pressure surrounding environment that can result in an explosion or the leakage of flammable liquid or gas.

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 device, 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.

Appendix

C

BIOS Options



Below is a list of BIOS configuration options in the BIOS chapter.

- ➔ BIOS Information 55
- ➔ Processor Information.....55
- ➔ PCH Information.....56
- ➔ System Date [xx/xx/xx] 56
- ➔ System Time [xx:xx:xx] 56
- ➔ EIST [Enabled].....60
- ➔ C states [Disabled].....60
- ➔ Turbo Mode [Enabled] 61
- ➔ Intel (VMX) Virtualization Technology [Disabled] 61
- ➔ Active Performance Cores [All].....61
- ➔ Active Efficient Cores [All].....61
- ➔ Hyper-Threading [Enabled].....62
- ➔ Power Limit 1 [0] 62
- ➔ Power Limit 2 [0] 62
- ➔ Power Limit 1 Time Window [0].....62
- ➔ Security Device Support [Enable] 63
- ➔ Pending Operation [None] 63
- ➔ Serial Port [Enabled].....65
- ➔ Device Settings 65
- ➔ PC Health Status 66
- ➔ CPU_FAN1 Smart Fan Control [Auto Mode] 67
- ➔ Auto mode fan start temperature 68
- ➔ Auto mode fan off temperature 68
- ➔ Auto mode fan start PWM 68
- ➔ Wake system with Fixed Time [Disabled].....69
- ➔ Console Redirection [Disabled].....70
- ➔ Terminal Type [ANSI].....71
- ➔ Bits per second [115200].....72
- ➔ Data Bits [8] 72
- ➔ Parity [None].....72
- ➔ Stop Bits [1] 73
- ➔ VT-d [Enabled].....75
- ➔ Primary Display [Auto] 78



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➔ Internal Graphics [Enabled]	79
➔ Auto Power Button Status [Disable (ATX)]	80
➔ Restore AC Power Loss [Last State]	80
➔ Power Saving Function(ERP) [Disabled]	80
➔ USB Power SW1 [+5V DUAL]	80
➔ USB Power SW2 [+5V DUAL]	81
➔ PCIe Speed [Auto]	82
➔ Detect Non-Compliance Device [Disabled]	83
➔ SATA Controller(s) [Enabled]	84
➔ SATA Mode Selection [AHCI]	84
➔ Hot Plug [Disabled]	85
➔ HD Audio [Enabled]	86
➔ Administrator Password	88
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➔ Quiet Boot [Enabled]	89
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➔ Option ROM Messages [Force BIOS]	90
➔ Boot Option #1	90
➔ Boot Option #2	90
➔ Save Changes and Reset	91
➔ Discard Changes and Reset	91
➔ Restore Defaults	92
➔ Save as User Defaults	92
➔ Restore User Defaults	92

Appendix

D

Watchdog Timer

**NOTE:**

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

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 EMIs 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 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:**

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

E

Error Beep Code

E.1 PEI Beep Codes

Number of Beeps	Description
1	Memory not Installed
1	Memory was installed twice (InstallPeiMemory routine in PEI Core called twice)
2	Recovery started
3	DXE IPL was not found
3	DXE Core Firmware Volume was not found
4	Recovery failed
4	S3 Resume failed
7	Reset PPI is not available

E.2 DXE Beep Codes

Number of Beeps	Description
1	Invalid password
4	Some of the Architectural Protocols are not available
5	No Console Output Devices are found
5	No Console Input Devices are found
6	Flash update is failed
7	Reset protocol is not available
8	Platform PCI resource requirements cannot be met



NOTE:

If you have any question, please contact IEI for further assistance.

Appendix

F

Hazardous Materials Disclosure



F.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 (PBBs)	Polybrominated Diphenyl Ethers (PBDEs)	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
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.										



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F.2 China RoHS

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

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

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