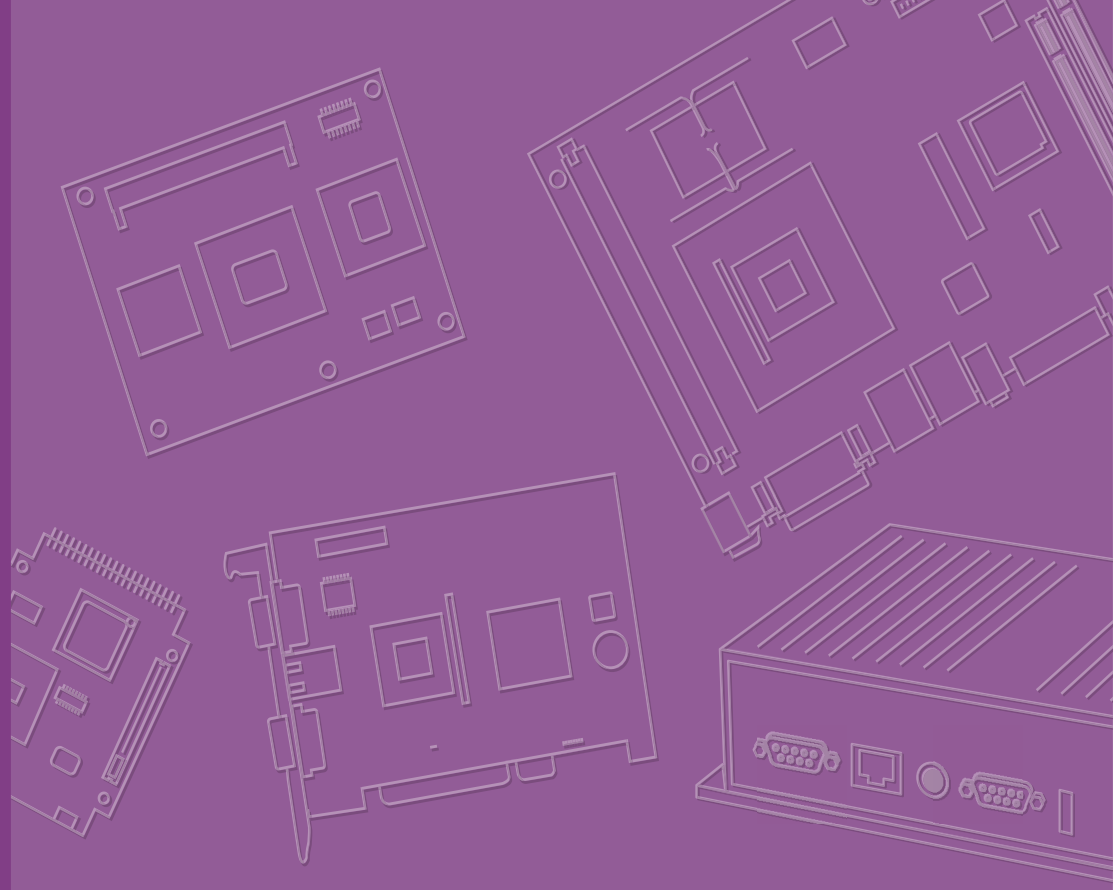




AIMB-2210

**Mini-ITX Motherboard with AMD
Ryzen™ Embedded 8000 Series
Processor**

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FCC Class B

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

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

Memory Compatibility

Category	Speed	Capacity	Vendor	ADVANTECH P/N	ECC
DDR5	5600	8GB	Advantech	SQR-SD5N8G5K6HNGAG	N
DDR5	5600	16GB	Advantech	SQR-SD5N16G5K6HNAG	N
DDR5	5600	32GB	Advantech	SQR-SD5N32G5K6HNAG	N
DDR5	4800	32GB	Advantech	SQR-SD5N32G4K8HNAG	N
DDR5	4800	32GB	Advantech	AQD-SD5V32GN48-SB	N
DDR5	4800	16GB	Advantech	AQD-SD5V16GN48-SB	N
DDR5	5600	16GB	Advantech	AQD-SD5V16GN56-SB	N
DDR5	5600	32GB	Advantech	AQD-SD5V32GN56-SB	N
DDR5	5600	48GB	Advantech	SQR-SD5N48G5K6M	N
DDR5	4800	32GB	Advantech	SQR-SD5N32G4K8SEBB	ECC
DDR5	4800	16GB	Advantech	SQR-SD5N16G4K8SEBB	ECC
DDR5	5600	32GB	Advantech	SQR-SD5N32G5K6SEPB	ECC
DDR5	4800	16GB	Advantech	AQD-SD5V16GE48-SB	ECC
DDR5	4800	32GB	Advantech	AQD-SD5V32GE48-SB	ECC
DDR5	5600	16GB	Advantech	AQD-SD5V16GE56-SB	ECC
DDR5	5600	32GB	Advantech	AQD-SD5V32GE56-SB	ECC

Ordering Information

P/N	CPU	TDP	LVDS/ eDP	DP	DDR5	GbE	COM	SATAIII	USB 3.2	USB 2.0	M.2 E-Key	M.2 M-Key	PCIe x16	TPM	AMP
AIMB-2210R-00A1	8845HS	45W	(1)/(1)	4*	2	2**	6	2	4	4	1	2	1	1	(1)
AIMB-2210R-01A1	8840U	28W	(1)/(1)	4*	2	2**	6	2	4	4	1	2	1	1	(1)
AIMB-2210R-02A1	8645HS	45W	(1)/(1)	4*	2	2**	6	2	4	4	1	2	1	1	(1)
AIMB-2210R-03A1	8640U	28W	(1)/(1)	4*	2	2**	6	2	2+(2)	4***	1	2	1	1	(1)

() Supported by BOM option

*DP1 colay with eDP/LVDS, 4 independent displays, LVDS or eDP or DP1 + DP2/DP3/DP4

**LAN default 1 x GbE x2; supports 2.5 GbE by option

***AIMB-2210R-03A1:

Default (rear) 2 x USB 3.2 Gen2x1 + 2 x USB 2.0 & (internal) 2 x USB 2.0

Optional (rear) 4 x USB 3.2 Gen2x1 + (internal) 4 x USB 2.0

Initial Inspection

Before you begin installing your motherboard, please make sure that the following materials have been shipped:

- 1 x AIMB-2210 Motherboard
- 1 x SATA HDD cable
- 1 x SATA power cable
- 1 x serial port cable
- 1 x I/O port bracket
- 1 x Startup Manual
- 1 x Warranty Card
- 3 x screws (M3x4L)

If any of these items are missing or damaged, contact your distributor or sales representative immediately. We have carefully inspected the AIMB-2210 mechanically and electrically before shipment. It should be free of marks and scratches and in perfect working order upon receipt. As you unpack the AIMB-2210, check it for signs of shipping damage. (For example, damaged box, scratches, dents, etc.) If it is damaged or it fails to meet the specifications, notify our service department or your local sales representative immediately. Also notify the carrier. Retain the shipping carton and packing material for inspection by the carrier. After inspection, we will make arrangements to repair or replace the unit.

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Chapter 1

General Introduction

1.1 Introduction

The AIMB-2210 Mini-ITX motherboard is powered by the AMD Ryzen™ Embedded 8000 Series Processor, delivering high-performance computing and energy efficiency for industrial applications. It supports Ryzen 7 Pro and Ryzen 5 Pro CPUs, and up to 96GB of single-channel DDR5 5600MT/s ECC memory via two SODIMM slots.

For connectivity, the AIMB-2210 includes 6 COM ports, 4 USB 3.2 Gen2x1 ports, 4 USB 2.0 ports, and dual Ethernet ports with support for 1 GbE and optional 2.5 GbE.

Storage and expansion options include 2 SATA III ports and 3 M.2 slots—two M-Key slots for NVMe SSDs or Hailo AI modules, and one E-Key slot for wireless modules such as Wi-Fi or Bluetooth.

Graphics are powered by integrated AMD RDNA 3 Radeon Graphics, supporting up to four independent displays through 4 DisplayPort++ outputs. It also supports mixed configurations with DP and LVDS or eDP, with resolutions up to 4K.

1.2 Features

- **I/O Expansion:** 6 x serial ports, 4 x USB 3.2 Gen2x1 ports, 4 x USB 2.0 ports, 2 x SATA III connectors, 2 x M.2 M-Key slots, 1 x M.2 E-Key, and 2 x 1 GbE LAN ports.
- **Mini-ITX Form Factor:** AIMB-2210 is a Mini-ITX motherboard.
- **Wide selection of storage devices:** SATA HDD, dual M-Key slots for NVMe SSDs or Hailo AI modules and an E-Key slot for wireless connectivity such as Wi-Fi or Bluetooth.
- **Optimized Integrated Graphics:** AMD RDNA 3 Radeon Graphics.

1.3 Specifications

1.3.1 System

- **CPU:** Supports AMD Ryzen™ Embedded 8000 Series Processor
- **BIOS:** AMI EFI 256 Mbit SPI BIOS.
- **SATA hard disk drive interface:**
 - 2 x on-board SATA connectors with data transmission rates up to 6 GB/s
 - 2 x M.2 M-Key slots (2242/2280), supporting NVMe SSDs or Hailo AI modules
 - 1 x M.2 E-Key slot (2230), supporting Wi-Fi/BT

1.3.2 Memory

- **RAM:** 2 x 262-pin SODIMM sockets supporting dual-channel DDR5 5600MT/s SDRAM, up to 96GB Max.

1.3.3 Input/Output

- **Serial ports:** 6 serial ports
 - COM1: Support RS-232 (RI Power 5V/12V)
 - COM2 and 5: Support RS-232/422/485, by BOM option
 - COM3: Support RS-232 (CCTalk by BOM option)
 - COM4: Support RS-232 (TTL, RI Power 5V/12V by BOM option)
 - COM6: Support RS-232
- **USB ports:** Supports up to 4 x USB 3.2 Gen2x1 and 4 x USB 2.0

- **GPIO connector:** 16-bit general purpose Input/Output.

1.3.4 Graphics

- **Controller:** AMD RDNA 3 Radeon Graphics
- **LVDS or eDP:** Supports 1 x LVDS maximum resolution up to 1920 x 1080 @60Hz, colay with DP1 or 1 x eDP maximum resolution up to 3840 x 2160 @120Hz 8bpc.
- **DP:** Supports 4 x DP++ maximum resolution up to 3840 x 2160 @120Hz.

1.3.5 Ethernet LAN

- Supports dual 10/100/1000/2500 Mbps Ethernet ports
- **Controller:**
 - GbE LAN1: RTL8111K 1GbE (co-design RTL8125BG 2.5 GbE)
 - GbE LAN2: RTL8111K 1GbE (co-design RTL8125BG 2.5 GbE)

1.3.6 Industrial Features

- **Watchdog timer:** The watchdog timer can generate a system reset. It is programmable, with each unit equal to one second or one minute (255 levels).

1.3.7 Mechanical and Environmental Specifications

- **Operating temperature:** 0 ~ 60°C (32 ~ 140°F), depends on CPU speed and cooler solution.
- **Storage temperature:** -40 ~ 85°C (-40 ~ 185°F).
- **Humidity:** 5 ~ 95% non-condensing.
- **Power supply voltage:** 12-24V (tolerance: -10%/+ 20%)
- **Power consumption:** Boost 86.9W; Typical 73.9W (configuration: AMD Ryzen™ 7 Pro 8845HS, 2pcs 48 GB DDR5 5600 MT/s)
- **Board size:** 170 x 230 mm (6.69" x 9.06")
- **Board weight:** 1.0 kg

1.4 Jumpers and Connectors

Connectors on the AIMB-2210 motherboard link it to devices such as hard disk drives and a keyboard. In addition, the board has a number of jumpers used to configure the system for your application.

The tables below list the function of each of the board jumpers and connectors. Later sections in this chapter give instructions on setting jumpers. Chapter 2 gives instructions for connecting external devices to your motherboard.

Table 1.1: I/O Connector

	Description	Part Reference
1	DUAL DisplayPort	DP12
2	DUAL DisplayPort	DP34
3	USB 3.1 stack connector * 2 ports	USB_12
4	USB 3.1 stack connector * 2 ports	USB_34
5	RJ-45 Single LAN port	LAN1
6	RJ-45 Single LAN port	LAN2
7	M.2 E-Key Connector	M2_E1
8	M.2 M-Key Connector	M2_M1
9	M.2 M-Key Connector	M2_M2
10	12V ~ 24V Power Supply Connector	DCIN1
11	SATA Connector	SATA1
12	SATA Connector	SATA2
13	PCIe x16 Connector	PCIEX16_1
14	HD Analog Audio Interface Line-Out	AUDIO1
15	HD Analog Audio Interface Mic-In	AUDIO2
16	DDR5 SODIMM Socket A1	DIMMA1
17	DDR5 SODIMM Socket B1	DIMMB1

Table 1.2: Box Header

	Description	Part Reference
1	EDP Connector / LVDS Connector	EDP1_LVDS1
2	Internal USB 2.0 Connector * 2 ports	USB56
3	Internal USB 2.0 Connector * 2 ports	USB78
4	COM1 Connector	COM1
5	COM2 Connector	COM2
6	COM3 Connector	COM3
7	COM4 Connector	COM4
8	COM5 Connector	COM5
9	COM6 Connector	COM6
10	CMOS battery Connector	BAT1
11	EDP/LVDS Backlight Inverter Power Connector	INV1
12	ATX 4-Pin Power Connector (180D)	ATX12V1
13	ATX 5V/PSON Connector	ATX_5VSB1
14	SATA Power Connector	SATA_PWR1
15	SATA Power Connector	SATA_PWR2

Table 1.3: Pin Header

	Description	Part Reference
1	Power LED pin header	JFP2
2	SPI BIOS flash socket	SPI1
3	SPI BIOS Debug header	SPI_CN1
4	8-bit General Purpose I/O pin header	GPIO1
5	8-bit General Purpose I/O pin header	GPIO2
6	CPU FAN Connector	CPUFAN1
7	System Fan Connector	SYSFAN1
8	Case Open Connector	JCASE1
9	VCORE Programming Header	VR_PMB1
10	HD Digital Audio Interface S/PDIF Out	SPDIF1
11	Audio Amplifier output pin header	AMP1
12	HD Analog Audio Interface Front Panel	FPAUD1
13	LED port 80 connector	LED_P80

Table 1.4: Jumper Settings

	Description	Part Reference
1	COM1 RI# selection pin header	JSETCOM1_V1
2	COM4 RI# selection pin header	JSETCOM4_V1
3	COM3 CCTALK Voltage select Header	JCCT_VCON1
4	EDP Panel/LVDS Panel Voltage Selection	JEDP1_LVDS1
5	PWRBTN# / RESET# / HDD LED / Serial bus from HW monitor IC / Internal Buzzer / External Speaker header	JFP1
6	Case Open signal reverse header	JCASEOP_SW1
7	CMOS reset header	JCMOS1
8	AT/ATX Mode selection	PSON1
9	VESA & JEIDA support select	JLVDS_VCON1

1.5 Board Layout: Jumper and Connector Locations

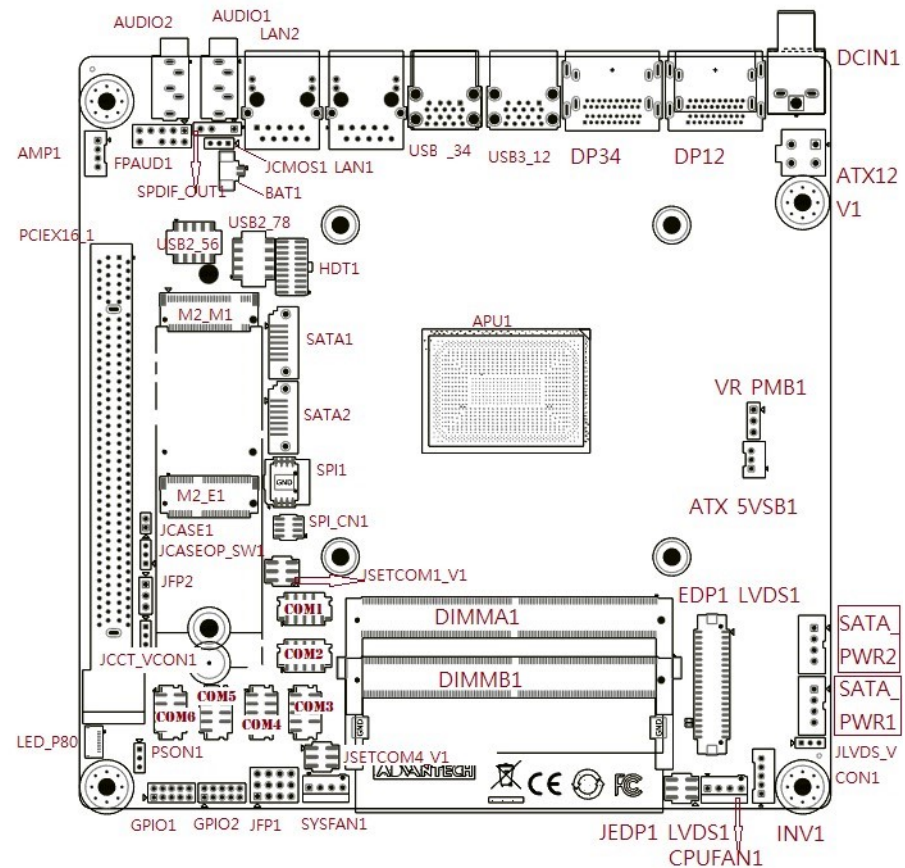


Figure 1.1 Jumper and Connector Locations (Top Side)

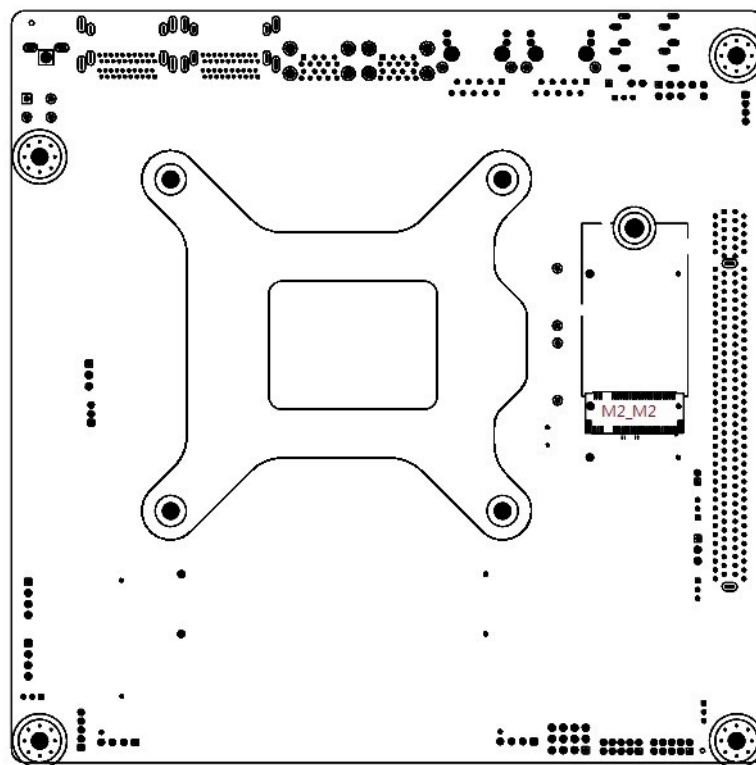


Figure 1.2 Jumper and Connector Locations (Bottom Side)

1.6 AIMB-2210 Board Diagram

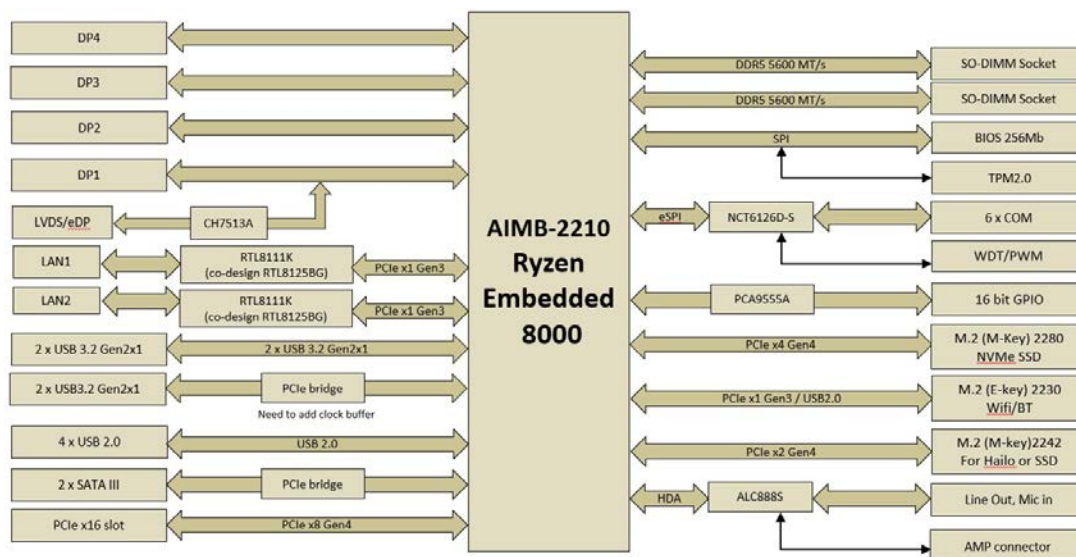


Figure 1.3 AIMB-2210 Board Diagram

1.7 Safety Precautions

Warning! *Always completely disconnect the power cord from the chassis before performing any hardware work. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.*



Caution! *Always ground yourself to remove any static charge before touching the motherboard. Modern electronic devices are very sensitive to electrostatic discharges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis.*



Caution! *The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.*



Caution! *There is danger of a new battery exploding if it is incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.*



1.8 Jumper Settings

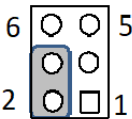
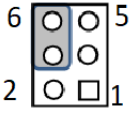
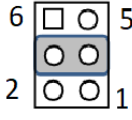
This section provides instructions on how to configure your motherboard by setting the jumpers. It also includes the motherboard's default settings and your options for each jumper.

1.8.1 How to Set Jumpers

You can configure your motherboard to match the needs of your application by setting the jumpers. A jumper is a metal bridge that closes an electrical circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” (or turn ON) a jumper, you connect the pins with the clip. To “open” (or turn OFF) a jumper, you remove the clip. Sometimes a jumper consists of a set of three pins, labeled 1, 2, and 3. In this case you connect either pins 1 and 2, or 2 and 3. A pair of needle-nose pliers may be useful when setting jumpers.

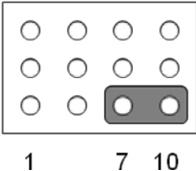
1.8.2 EDP Panel / LVDS Panel Voltage Selection (JEDP1_LVDS1)

Table 1.5: JEDP1_LVDS1

Function	Jumper Settings
Jumper position for 5V	
Jumper position for 3.3V (Default)	
Jumper position for 12V	

1.8.3 PWRBTN#/RESET# / HDD LED / Internal Buzzer / External Speaker Header (JFP1)

Table 1.6: JFP1

Function	Jumper Settings
Internal Buzzer (Default)	

1.8.4 COM1_RI# Pin RI#/5V/12V Selection (JSETCOM1_V1)

Table 1.7: JSETCOM1_V1

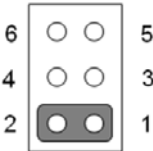
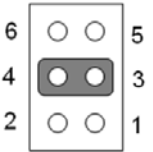
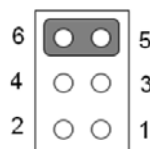
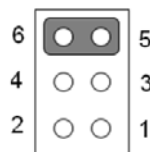
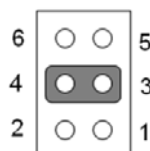
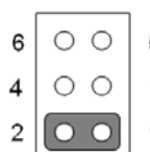
Function	Jumper Settings
Jumper position for RI# (Default)	
Jumper position for +5V	

Table 1.7: JSETCOM1_V1

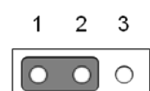
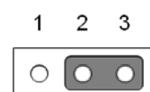
Jumper position for +12V

**1.8.5 COM4_RI# Pin RI#/5V/12V Selection (JSETCOM4_V1)****Table 1.8: JSETCOM4_V1**

Function	Jumper Settings
Jumper position for RI# (Default)	
Jumper position for +5V	
Jumper position for +12V	

**1.8.6 AT/ATX Mode Selection (PSON1)****Table 1.9: PSON1**

Function	Jumper Settings
ATX Mode (Default) PSON1(2-3)	
AT Mode PSON1(1-2)	

**1.8.7 Case Open State (NC/NO) Setting Pin Header (JCASEOP_SW1)****Table 1.10: JCASEOP_SW1**

Function	Jumper Settings
N.C. (Normal Close) [Default] JCASEOP_SW1(2-3)	



1.8.8 MOS Clear Jumper (JCMOS1)

Table 1.11: JCMOS1

Function	Jumper Setting
Normal (Default) JCOMS1(1-2)	1 2 3 
Clear CMOS JCOMS(2-3)	1 2 3 

1.8.9 COM3 CCTALK Voltage Selection Header (JCCT_VCON1)

Table 1.12: JCCT_VCON1

Function	Jumper Setting
+V12 (Default) JCCT_VCON1 (1-2)	1 2 3 
+V5 JCCT_VCON1 (2-3)	1 2 3 

1.8.10 VESA & JEIDA Support Selection (JLVDS_VCON1)

Table 1.13: JLVDS_VCON1

Function	Jumper Setting
100 OHM TO +V3.3 JLVDS_VCON1 (1-2)	1 2 3 
GND (Default) JLVDS_VCON1 (2-3)	1 2 3 

1.9 System Memory

The AIMB-2210 has two sockets for 262-pin DDR5 SODIMMs. These sockets use a 1.2V unbuffered double data rate synchronous DRAM (DDR SDRAM). DRAM is available in capacities of 8GB, 16GB, 32GB and 48GB. The sockets can take any combination with SODIMMs of any size, giving a total memory size between 8GB, 16GB, 64GB and up to max of 96GB. The AIMB-2210 supports error checking and correction (ECC).

1.10 Memory Installation Procedures

To install SODIMMs, first make sure the two handles of the SODIMM socket are in the “open” position, i.e., the handles lean outward. Slowly slide the SODIMM module along the plastic guides on both ends of the socket. Then firmly but gently (avoid pushing down too hard) press the SODIMM module well down into the socket, until you hear a click when the two handles have automatically locked the memory module into the correct position of the SODIMM socket. To remove the memory module, just push both handles outward, and the memory module will be ejected by the mechanism.

Chapter 2

Connecting
Peripherals

2.1 Introduction

You can access most of the connectors from the top of the board as it is being installed in the chassis. If you have a number of cards installed or have a packed chassis, you may need to partially remove the card to make all the connections.

2.2 I/O Connector

2.2.1 Dual DisplayPort (DP12)

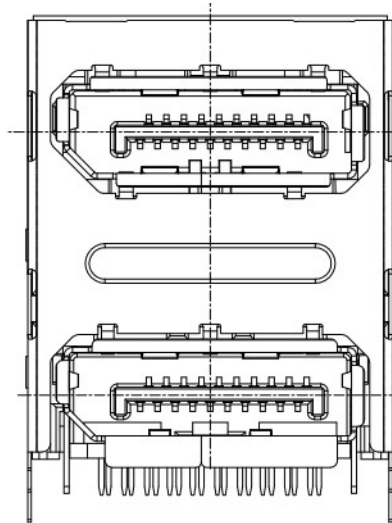


Table 2.1: Dual DisplayPort (DP12)

Pin	Signal	Pin	Signal
P1	DP3_0+	P21	DP2_0+
P2	GND	P22	GND
P3	DP3_0-	P23	DP2_0-
P4	DP3_1+	P24	DP2_1+
P5	GND	P25	GND
P6	DP3_1-	P26	DP2_1-
P7	DP3_2+	P27	DP2_2+
P8	GND	P28	GND
P9	DP3_2-	P29	DP2_2-
P10	DP3_3+	P30	DP2_3+
P11	GND	P31	GND
P12	DP3_3-	P32	DP2_3-
P13	DP3_HDMI_DNG_DET	P33	DP2_HDMI_DNG_DET
P14	GND	P34	GND
P15	DP3_AUX+	P35	DP2_AUX+
P16	GND	P36	GND
P17	DP3_AUX-	P37	DP2_AUX-
P18	DP3_HPD	P38	DP2_HPD
P19	GND	P39	GND
P20	+3.3V_DP3	P40	+3.3V_DP

2.2.2 Dual DisplayPort (DP34)

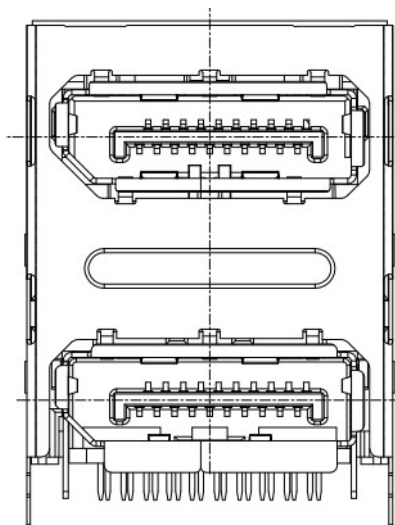


Table 2.2: Dual DisplayPort (DP34)

Pin	Signal	Pin	Signal
P1	DP3_0+	P21	DP2_0+
P2	GND	P22	GND
P3	DP3_0-	P23	DP2_0-
P4	DP3_1+	P24	DP2_1+
P5	GND	P25	GND
P6	DP3_1-	P26	DP2_1-
P7	DP3_2+	P27	DP2_2+
P8	GND	P28	GND
P9	DP3_2-	P29	DP2_2-
P10	DP3_3+	P30	DP2_3+
P11	GND	P31	GND
P12	DP3_3-	P32	DP2_3-
P13	DP3_HDMI_DNG_DET	P33	DP2_HDMI_DNG_DET
P14	GND	P34	GND
P15	DP3_AUX+	P35	DP2_AUX+
P16	GND	P36	GND
P17	DP3_AUX-	P37	DP2_AUX-
P18	DP3_HPD	P38	DP2_HPD
P19	GND	P39	GND
P20	+3.3V_DP3	P40	+3.3V_DP

2.2.3 USB 3.1 Stack Connector * 2 Ports (USB3_12)

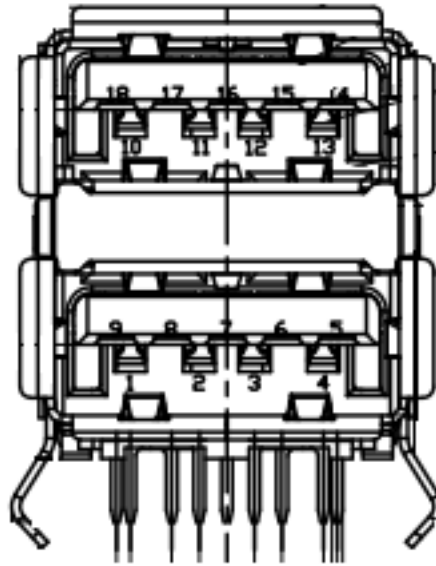


Table 2.3: USB 3.1 Stack Connector * 2 Ports (USB3_12)

Pin	Signal Pin Definition	Pin	Signal Pin Definition
1	+5V	10	+5V
2	USB2_D0-	11	USB2_D1-
3	USB2_D0+	12	USB2_D1+
4	GND	13	GND
5	USB31_P0_z_RX-	14	USB31_P1_z_RX-
6	USB31_P0_z_RX+	15	USB31_P1_z_RX+
7	GND	16	GND
8	USB31_P0_z_TX-	17	USB31_P1_z_TX-
9	USB31_P0_z_TX+	18	USB31_P1_z_TX+

2.2.4 USB 3.1 Stack Connector * 2 Ports (USB_34)

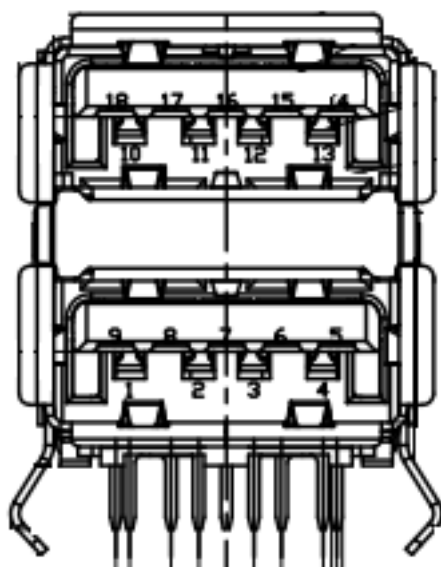


Table 2.4: USB 3.1 Stack Connector * 2 Ports (USB_34)

Pin	Signal Pin Definition	Pin	Signal Pin Definition
1	+5V	10	+5V
2	USB2_D0-	11	USB2_D1-
3	USB2_D0+	12	USB2_D1+
4	GND	13	GND
5	USB31_P0_z_RX-	14	USB31_P1_z_RX-
6	USB31_P0_z_RX+	15	USB31_P1_z_RX+
7	GND	16	GND
8	USB31_P0_z_TX-	17	USB31_P1_z_TX-
9	USB31_P0_z_TX+	18	USB31_P1_z_TX+

2.2.5 RJ-45 Single LAN Port (LAN1)

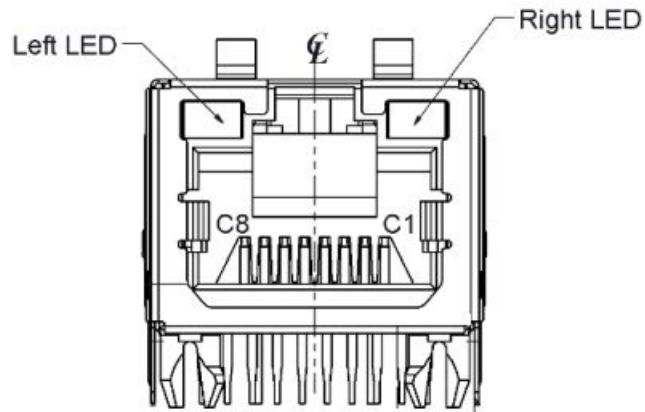


Table 2.5: RJ-45 Single LAN Port (LAN1)

Pin	Signal
L1	LAN1_LED1_ACT#_R
L2	+V3.3_DUAL
L3	LAN1_LED2_1G#_R
L4	LAN1_LED0_100M#_R
R1	LAN1_MDI0+
R2	LAN1_MDI0-
R3	LAN1_MDI1+
R4	LAN1_MDI1-
R5	LAN1_CONN
R6	LAN1_CT
R7	LAN1_MDI2+
R8	LAN1_MDI2-
R0	LAN1_MDI3+
R10	LAN1_MDI3-
H1	NC
H2	NC
H3	GND
H4	GND

2.2.6 RJ-45 Single LAN Port (LAN2)

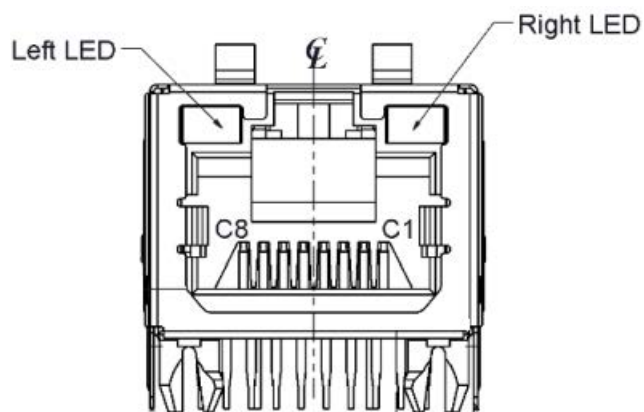


Table 2.6: RJ-45 Single LAN Port (LAN2)

Pin	Signal
L1	LAN1_LED1_ACT#_R
L2	+V3.3_DUAL
L3	LAN1_LED2_1G#_R
L4	LAN1_LED0_100M#_R
R1	LAN1_MDIO+
R2	LAN1_MDIO-
R3	LAN1_MDII+
R4	LAN1_MDI1-
R5	LAN1_CONN
R6	LAN1_CT
R7	LAN1_MDI2+
R8	LAN1_MDI2-
R0	LAN1_MDI3+
R10	LAN1_MDI3-
H1	NC
H2	NC
H3	GND
H4	GND

2.2.7 M.2 E-Key Connector (M2_E1)

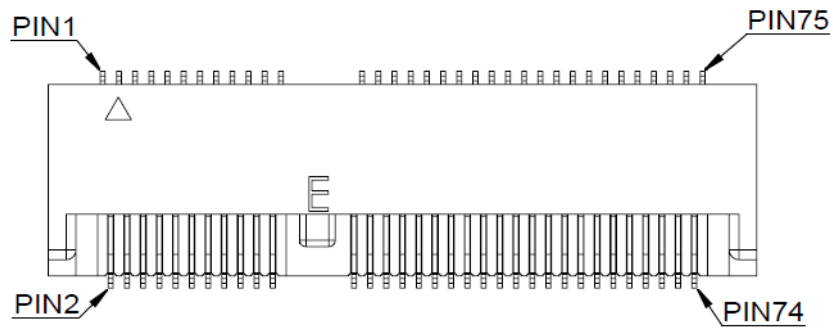


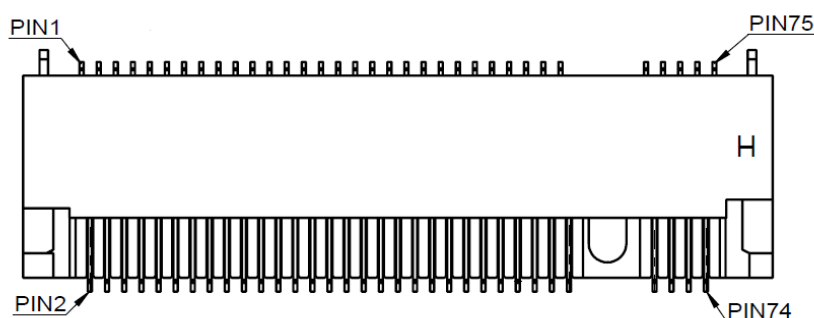
Table 2.7: M.2 E-Key Connector (M2_E1)

Pin	Signal	Pin	Signal
1	GND	2	+3.3V
3	USB_D+	4	+3.3V
5	USB_D-	6	WLAN_LED1#
7	GND	8	BT_PCMCLK
9	NC	10	BT_PCMFRM
11	NC	12	BT_PCMin
13	GND	14	BT_PCMOUT
15	NC	16	BT_LED#
17	NC	18	GND
19	GND	20	UART_WAKE#
21	NC	22	UART_TXD
23	NC	24	Connector Key
25	Connector Key	26	Connector Key
27	Connector Key	28	Connector Key
29	Connector Key	30	Connector Key
31	Connector Key	32	UART_RXD
33	GND	34	UART_RTS
Pin	Signal	Pin	Signal
35	PETp0	36	UART_CTS
37	PETn0	38	NC
39	GND	40	NC
41	PERp0	42	NC
43	PERn0	44	NC
45	GND	46	NC
47	REFCLKp0	48	NC
49	REFCLKn0	50	SUSCLK
51	GND	52	WLAN_RST#
53	CLKREQ0#	54	BT_RF_KILL#
55	PEWAKE0#	56	WIFI_RF_KILL#
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	GND	64	NC
65	NC	66	NC

Table 2.7: M.2 E-Key Connector (M2_E1)

67	NC	68	NC
69	GND	70	NC
71	NC	72	+3.3V
73	NC	74	+3.3V
75	GND		

2.2.8 M.2 M-Key Connector (M2_M1)

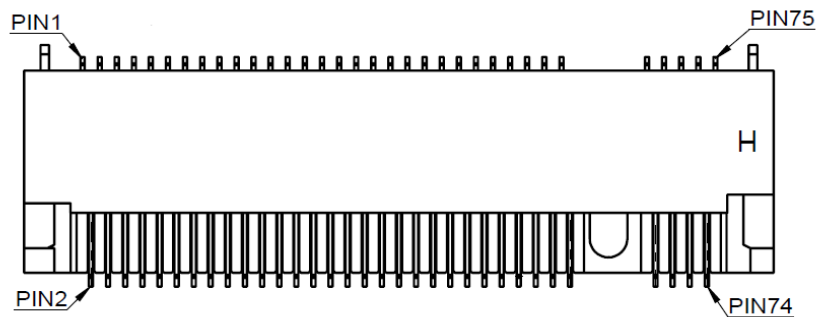
**Table 2.8: M.2 M-Key Connector (M2_M1)**

Pin	Signal	Pin	Signal
1	GND	2	3.3V
3	GND	4	3.3V
5	PERn3	6	N/C
7	PERp3	8	N/C
9	GND	10	DAS/DSS# (I/O)/LED1# (I)(0/3.3V)
11	PETn3	12	3.3V
13	PETp3	14	3.3V
15	GND	16	3.3V
17	PERn2	18	3.3V
19	PERp2	20	N/C
21	GND	22	N/C
23	PETn2	24	N/C
25	PETp2	26	N/C
27	GND	28	N/C
29	PERn1	30	N/C
31	PERp1	32	N/C
Pin	Signal	Pin	Signal
33	GND	34	N/C
35	PETn1	36	N/C
37	PETp1	38	DEVSLP (O)
39	GND	40	N/C
41	PERn0/SATA-B+	42	N/C
43	PERp0/SATA-B-	44	N/C
45	GND	46	N/C
47	PETn0/SATA-A-	48	N/C
49	PETp0/SATA-A+	50	PERST# (O)(0/3.3V) or N/C
51	GND	52	CLKREQ# (I/O)(0/3.3V) or N/C

Table 2.8: M.2 M-Key Connector (M2_M1)

53	REFCLKn	54	PEWAKE# (I/O)(0/3.3V) or N/C
55	REFCLKp	56	N/C
57	GND	58	N/C
59	Connector Key	60	Connector Key
61	Connector Key	62	Connector Key
63	Connector Key	64	Connector Key
65	Connector Key	66	Connector Key
67	N/C	68	SUSCLK(32kHz) (O)(0/3.3V)
69	PEDET (NC-PCIe/GND-SATA)	70	3.3V
71	GND	72	3.3V
73	GND	74	3.3V
75	GND		

2.2.9 M.2 M-Key Connector (M2_M2)

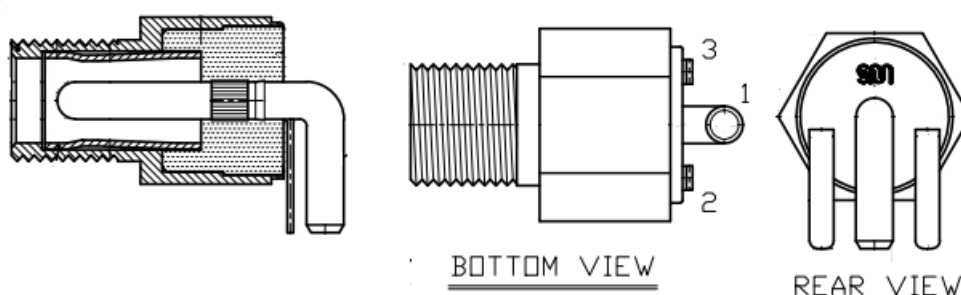
**Table 2.9: M.2 M-Key Connector (M2_M2)**

Pin	Signal	Pin	Signal
1	GND	2	3.3V
3	GND	4	3.3V
5	PERn3	6	N/C
7	PERp3	8	N/C
9	GND	10	DAS/DSS# (I/O)/LED1# (I)(0/3.3V)
11	PETn3	12	3.3V
13	PETp3	14	3.3V
15	GND	16	3.3V
17	PERn2	18	3.3V
19	PERp2	20	N/C
21	GND	22	N/C
23	PETn2	24	N/C
25	PETp2	26	N/C
27	GND	28	N/C
29	PERn1	30	N/C
31	PERp1	32	N/C
Pin	Signal	Pin	Signal
33	GND	34	N/C
35	PETn1	36	N/C
37	PETp1	38	DEVSLP (O)

Table 2.9: M.2 M-Key Connector (M2_M2)

39	GND	40	N/C
41	PERn0/SATA-B+	42	N/C
43	PERp0/SATA-B-	44	N/C
45	GND	46	N/C
47	PETn0/SATA-A-	48	N/C
49	PETp0/SATA-A+	50	PERST# (O)(0/3.3V) or N/C
51	GND	52	CLKREQ# (I/O)(0/3.3V) or N/C
53	REFCLKn	54	PEWAKE# (I/O)(0/3.3V) or N/C
55	REFCLKp	56	N/C
57	GND	58	N/C
59	Connector Key	60	Connector Key
61	Connector Key	62	Connector Key
63	Connector Key	64	Connector Key
65	Connector Key	66	Connector Key
67	N/C	68	SUSCLK(32kHz) (O)(0/3.3V)
69	PEDET (NC-PCIe/GND-SATA)	70	3.3V
71	GND	72	3.3V
73	GND	74	3.3V
75	GND		

2.2.10 12V Power Supply Connector (DCIN1)

**Table 2.10: 12V Power Supply Connector (DCIN1)**

Pin	Signal
1	+12V ~ +24V
2	GND
3	GND

2.2.11 SATA Connector (SATA1)

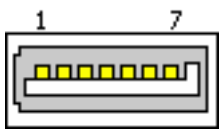


Table 2.11: SATA Connector (SATA1)

Pin	Signal
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

2.2.12 SATA Connector (SATA2)

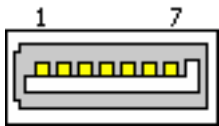


Table 2.12: SATA Connector (SATA2)

Pin	Signal
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

2.2.13 PCIe x16 Connector (PCIEX16_1)

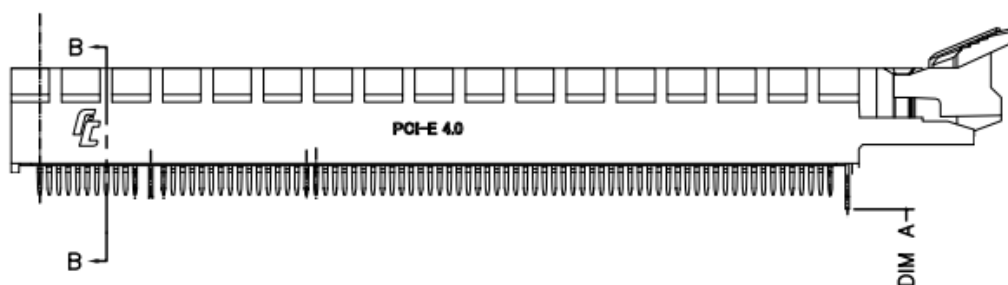


Table 2.13: PCIe x16 Connector (PCIEX16_1)

Pin	Signal Pin Definition	Pin	Signal Pin Definition
B1	12V_1	A1	PRSNT1
B2	12V_2	A2	12V_4
B3	12V_3	A3	12V_5
B4	GND_1	A4	GND_3
B5	SMCLK	A5	JTAG2
B6	SMDAT	A6	JTAG3
B7	GND_2	A7	JTAG4
B8	3_3V_1	A8	JTAG5
B9	JTAG1	A9	3_3V_2
B10	3_3VAUX	A10	3_3V_3
B11	WAKE	A11	PWRGD
B12	RSVD_1	A12	GND_7
B13	GND_4	A13	REFCLK+
B14	HSOP0	A14	REFCLK
B15	HSO0	A15	GND_8
B16	GND_5	A16	HSIP0
B17	PRSNT2_1	A17	HSIN0
B18	GND_6	A18	GND_9
B19	HSOP1	A19	RSVD_3
B20	HSO1	A20	GND_16
B21	GND_10	A21	HSIP1
B22	GND_11	A22	HSIN1
B23	HSOP2	A23	GND_17
B24	HSO2	A24	GND_18
B25	GND_12	A25	HSIP2
B26	GND_13	A26	HSIN2
B27	HSOP3	A27	GND_19
B28	HSO3	A28	GND_20
B29	GND_14	A29	HSIP3
B30	RSVD_2	A30	HSIN3
B31	PRSNT2_2	A31	GND_21
B32	GND_15	A32	RSVD_4
B33	HSOP4	A33	RSVD_5
B34	HSO4	A34	GND_30
B35	GND_22	A35	HSIP4

Table 2.13: PCIe x16 Connector (PCIEX16_1)

B36	GND_23	A36	HSIN4
B37	HSOP5	A37	GND_31
B38	HSOP5	A38	GND_32
B39	GND_24	A39	HSIP5
B40	GND_25	A40	HSIN5
B41	HSOP6	A41	GND_33
B42	HSOP6	A42	GND_34
B43	GND_26	A43	HSIP6
B44	GND_27	A44	HSIN6
B44	GND_27	A45	GND_35
B46	HSOP7	A46	GND_36
B47	GND_28	A47	HSIP7
B48	PRSENT2_3	A48	HSIN7
B49	GND_29	A49	GND_37
B50	HSOP8	A50	RSVD_7
B51	HSOP8	A51	GND_53
B52	GND_38	A52	HSIP8
B53	GND_39	A53	HSIN8
B54	HSOP9	A54	GND_54
B55	HSOP9	A55	GND_55
B56	GND_40	A56	HSIP9
B57	GND_41	A57	HSIN9
B58	HSOP10	A58	GND_56
B59	HSOP10	A59	GND_57
B60	GND_42	A60	HSIP10
B61	GND_43	A61	HSIN10
B62	HSOP11	A62	GND_58
B63	HSOP11	A63	GND_59
B64	GND_44	A64	HSIP11
B65	GND_45	A65	HSIN11
B66	HSOP12	A66	GND_60
B67	HSOP12	A67	GND_61
B68	GND_46	A68	HSIP12
B69	GND_47	A69	HSIN12
B70	HSOP13	A70	GND_62
B71	HSOP13	A71	GND_63
B72	GND_48	A72	HSIP13
B73	GND_49	A73	HSIN13
B74	HSOP14	A74	GND_64
B75	HSOP14	A75	GND_65
B76	GND_50	A76	HSIP14
B77	GND_51	A77	HSIN14
B78	HSOP15	A78	GND_66
B79	HSOP15	A79	GND_67
B80	GND_52	A80	HSIP15
B81	PRSENT2_4	A81	HSIN15
B82	RSVD_6	A82	GND_68

2.2.14 HD Analog Audio Interface Line-Out (AUDIO1)

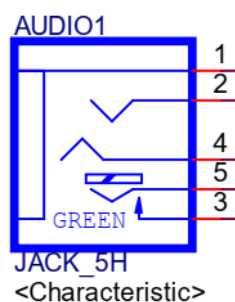


Table 2.14: HD Analog Audio Interface Line-Out (AUDIO1)

Pin	Signal Pin Definition
1	GND_A
2	A_Z_LINEO-L
3	GND_A
4	A_Z_LINEO-R
5	A_FRONT-JD

2.2.15 HD Analog Audio Interface Mic-In (AUDIO2)

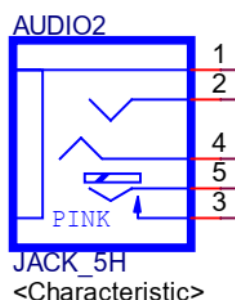


Table 2.15: HD Analog Audio Interface Mic-In (AUDIO2)

Pin	Signal Pin Definition
1	GND_A
2	A_Z_MIC1-L
3	GND_A
4	A_Z_MIC1-R
5	A_MIC1-JD

2.2.16 DDR5 SODIMM Socket A1 (DIMMA1)

Please refer to the JEDEC standard.

2.2.17 DDR5 SODIMM Socket B1 (DIMMB1)

Please refer to the JEDEC standard.

2.3 Box Header

2.3.1 EDP Connector / LVDS Connector (EDP1_LVDS1)

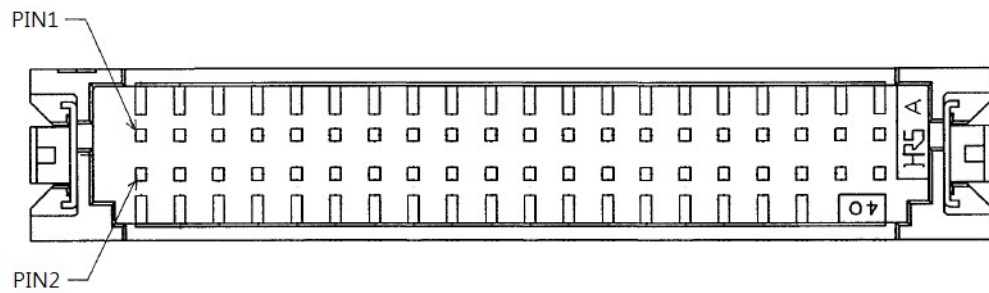


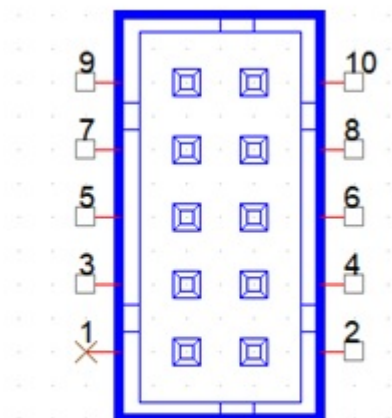
Table 2.16: LVDS1

Pin	Signal	Pin	Signal
1	VDD	2	VDD
3	LVDS_DETECT#	4	GND
5	VDD	6	VDD
7	LVDS_OD0-	8	LVDS_ED0-
9	LVDS_OD0+	10	LVDS_ED0+
11	GND	12	GND
13	LVDS_OD1-	14	LVDS_ED1-
15	LVDS_OD1+	16	LVDS_ED1+
17	GND	18	GND
19	LVDS_OD2-	20	LVDS_ED2-
21	LVDS_OD2+	22	LVDS_ED2+
23	GND	24	GND
25	LVDS_OCK-	26	LVDS_ECK-
27	LVDS_OCK+	28	LVDS_ECK+
29	GND	30	GND
31	N.C	32	N.C
33	GND	34	GND
35	LVDS_OD3-	36	LVDS_ED3-
37	LVDS_OD3+	38	LVDS_ED3+
39	N.C	40	LVDS_VCON

Table 2.17: EDP1

Pin	Signal	Pin	Signal
1	VDD	2	VDD
3	LVDS DETECT#	4	GND
5	VDD	6	VDD
7	EDP_TX2-	8	N.C
9	EDP_TX2+	10	N.C
11	GND	12	GND
13	EDP_TX1-	14	N.C
15	EDP_TX1+	16	N.C
17	GND	18	GND
19	EDP_TX0-	20	N.C
21	EDP_TX0+	22	N.C
23	GND	24	GND
25	EDP_TX3-	26	N.C
27	EDP_TX3+	28	N.C
29	GND	30	GND
31	EDP_AUX+	32	EDP_AUX-
33	GND	34	EDP_HPD
35	N.C	36	N.C
37	N.C	38	N.C
39	N.C	40	GND

2.3.2 Internal USB 2.0 Connector * 2 Ports (USB56)

**Table 2.18: Internal USB 2.0 Connector * 2 Ports (USB56)**

Pin	Signal	Pin	Signal
1	N.C	2	GND
3	GND	4	GND
5	D+	6	D+
7	D-	8	D-
9	VBUS	10	VBUS

2.3.3 Internal USB 2.0 Connector * 2 Ports (USB78)

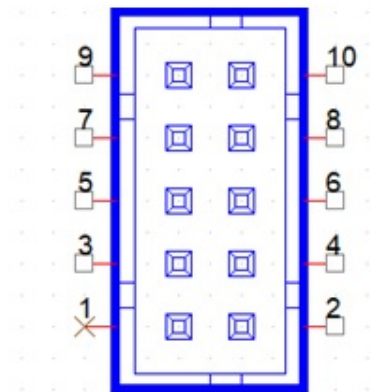


Table 2.19: Internal USB 2.0 Connector * 2 Ports (USB78)

Pin	Signal	Pin	Signal
1	N.C	2	GND
3	GND	4	GND
5	D+	6	D+
7	D-	8	D-
9	VBUS	10	VBUS

2.3.4 COM1 Connector (COM1)

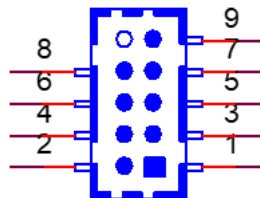


Table 2.20: COM1 Connector (COM1)

Pin	Signal	Pin	Signal
1	DCD#	2	SIN
3	SOUT	4	DTR
5	GND	6	DSR#
7	RTS#	8	CTS#
9	RI		

2.3.5 COM2 Connector (COM2)

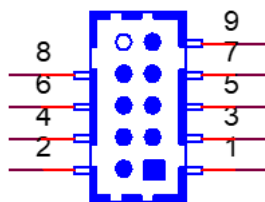


Table 2.21: COM2 Connector (COM2)

Pin	Signal	Pin	Signal
1	DCD#	2	SIN
3	SOUT	4	DTR
5	GND	6	DSR#
7	RTS#	8	CTS#
9	RI		

2.3.6 COM3 Connector (COM3)

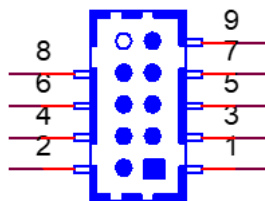


Table 2.22: COM3 Connector (COM3)

Pin	Signal	Pin	Signal
1	DCD#	2	SIN
3	SOUT	4	DTR
5	GND	6	DSR#
7	RTS#	8	CTS#
9	RI		

2.3.7 COM4 Connector (COM4)

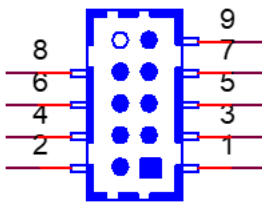


Table 2.23: COM4 Connector (COM4)

Pin	Signal	Pin	Signal
1	DCD#	2	SIN
3	SOUT	4	DTR
5	GND	6	DSR#
7	RTS#	8	CTS#
9	RI		

2.3.8 COM4 Connector (COM5)

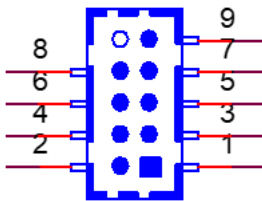


Table 2.24: COM4 Connector (COM5)

Pin	Signal	Pin	Signal
1	DCD#	2	SIN
3	SOUT	4	DTR
5	GND	6	DSR#
7	RTS#	8	CTS#
9	RI		

2.3.9 COM4 Connector (COM6)

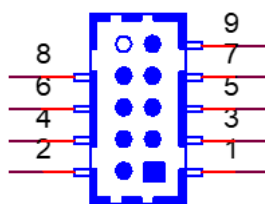


Table 2.25: COM4 Connector (COM6)

Pin	Signal	Pin	Signal
1	DCD#	2	SIN
3	SOUT	4	DTR
5	GND	6	DSR#
7	RTS#	8	CTS#
9	RI		

2.3.10 CMOS Battery Connector (BAT1)

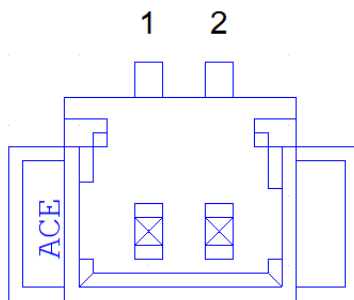


Table 2.26: CMOS Battery Connector (BAT1)

Pin	Signal
1	+VBAT
2	GND

2.3.11 EDP/LVDS Backlight Inverter Power Connector (INV1)

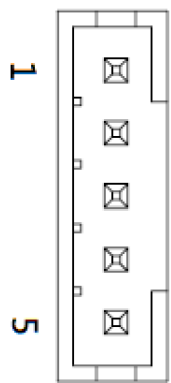


Table 2.27: EDP/LVDS Backlight Inverter Power Connector (INV1)

Pin	Signal
1	+12V
2	GND
3	BKL EN
4	BKL CTRL
5	+5V

2.3.12 ATX 4-Pin Power Connector (ATX12V1)

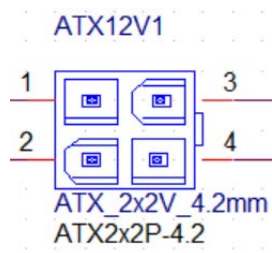


Table 2.28: ATX 4-Pin Power Connector (ATX12V1)

Pin	Signal	Pin	Signal
1	GND	2	GND
3	+12V	4	+12V

2.3.13 ATX 5V/PSON Connector (ATX_5VSB1)

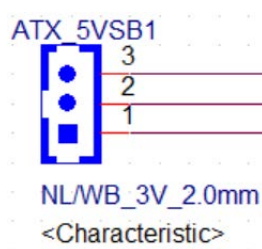


Table 2.29: ATX 5V/PSON Connector (ATX_5VSB1)

Pin	Signal
1	ATX_5V
2	GND
3	PS_ON#

2.3.14 SATA Power Connector (SATA_PWR1)

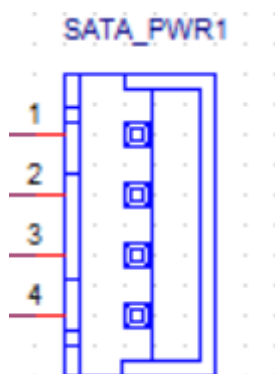


Table 2.30: SATA Power Connector (SATA_PWR1)

Pin	Signal
1	+V5
2	GND
3	GND
4	+V12

2.3.15 SATA Power Connector (SATA_PWR2)

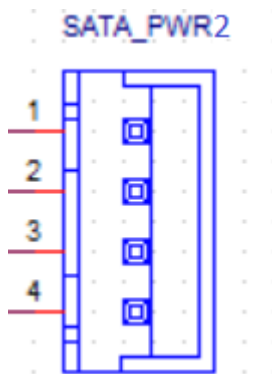


Table 2.31: SATA Power Connector (SATA_PWR2)

Pin	Signal
1	+V5
2	GND
3	GND
4	+V12

2.4 Pin Header

2.4.1 Power LED Pin Header (JFP2)

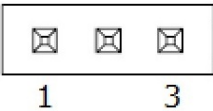


Table 2.32: Power LED Pin Header (JFP2)

Pin	Signal
1	Power LED+
2	NC
3	Power LED-

2.4.2 SPI BIOS Flash Socket1 (SPI1)

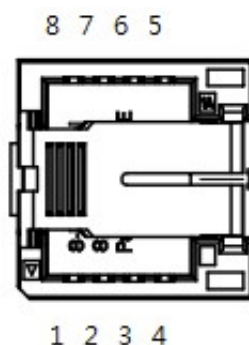


Table 2.33: SPI BIOS Flash Socket1 (SPI1)

Pin	Signal	Pin	Signal
1	CS#	5	MOSI
2	MISO	6	SCLK
3	WP# / IO2	7	HOLD# / IO3
4	GND	8	+V1.8_SPI

2.4.3 SPI BIOS Debug Header (SPI_CN1)

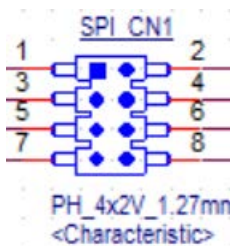


Table 2.34: SPI BIOS Debug Header (SPI_CN1)

Pin	Signal	Pin	Signal
1	CS#	5	WP
2	+V1.8_SPI	6	CLK
3	MISO	7	GND
4	HOLD	8	MOSI

2.4.4 8-Bit General Purpose I/O Pin Header (GPIO1)

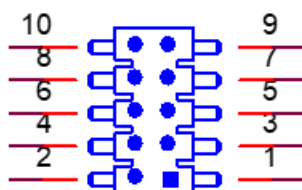


Table 2.35: 8-Bit General Purpose I/O Pin Header (GPIO1)

Pin	Signal	Pin	Signal
1	GPIO0	2	GPIO4
3	GPIO1	4	GPIO5
5	GPIO2	6	GPIO6
7	GPIO3	8	GPIO7
9	VCC_GPIO	10	GND

2.4.5 8-Bit General Purpose I/O Pin Header (GPIO2)

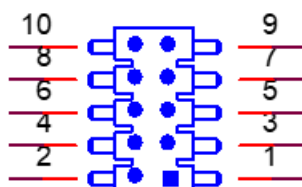


Table 2.36: 8-Bit General Purpose I/O Pin Header (GPIO2)

Pin	Signal	Pin	Signal
1	GPIO8	2	GPIO12
3	GPIO9	4	GPIO13
5	GPIO10	6	GPIO14
7	GPIO11	8	GPIO15
9	VCC_GPIO	10	GND

2.4.6 CPU FAN Connector (CPUFAN1)

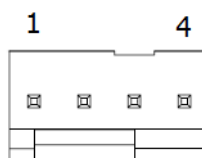


Table 2.37: CPU FAN Connector (CPUFAN1)

Pin	Signal
1	GND
2	CPU FAN VCC
3	CPU FAN SPEED
4	CPU FAN PWM

2.4.7 System Fan Connector (SYSFAN1)

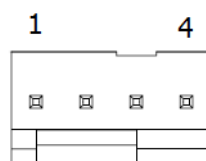


Table 2.38: System Fan Connector (SYSFAN1)

Pin	Signal
1	GND
2	CPU FAN VCC
3	CPU FAN SPEED
4	CPU FAN PWM

2.4.8 Case Open Connector (JCASE1)



Table 2.39: Case Open Connector (JCASE1)

Pin	Signal
1	CASEOP
2	GND

2.4.9 VCORE Programming Header (VR_PMB1)

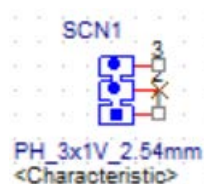


Table 2.40: VCORE Programming Header (VR_PMB1)

Pin	Signal
1	VR_SDATA
2	GND
3	VR_SCLK

2.4.10 HD Digital Audio Interface S/PDIF Out (SPDIF1)

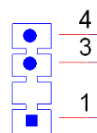


Table 2.41: HD Digital Audio Interface S/PDIF Out (SPDIF1)

Pin	Signal Pin Definition
1	+5V
2	NA
3	SPDIF OUT
4	GND

2.4.11 Audio Amplifier Output Pin Header (AMP1)

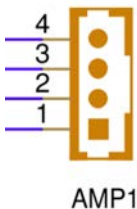


Table 2.42: Audio Amplifier Output Pin Header (AMP1)

Pin	Signal
1	AMP OUT – R+
2	AMP OUT – R-
3	AMP OUT – L-
4	AMP OUT – L+

2.4.12 HD Analog Audio Interface Front Panel (FPAUD1)

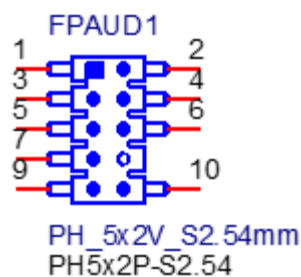


Table 2.43: HD Analog Audio Interface Front Panel (FPAUD1)

Pin	Signal	Pin	Signal
1	A_z_MIC2-L	2	GND_A
3	A_z_MIC2-R	4	AFP_PRESEN#
5	A_z_LINE2-R	6	A_MIC2-JD
7	A_FIO_SENSE	8	NA
9	A_z_LINE2-L	10	A_LINE2-JD

2.4.13 LED Port 80 Connector (LED_P80)

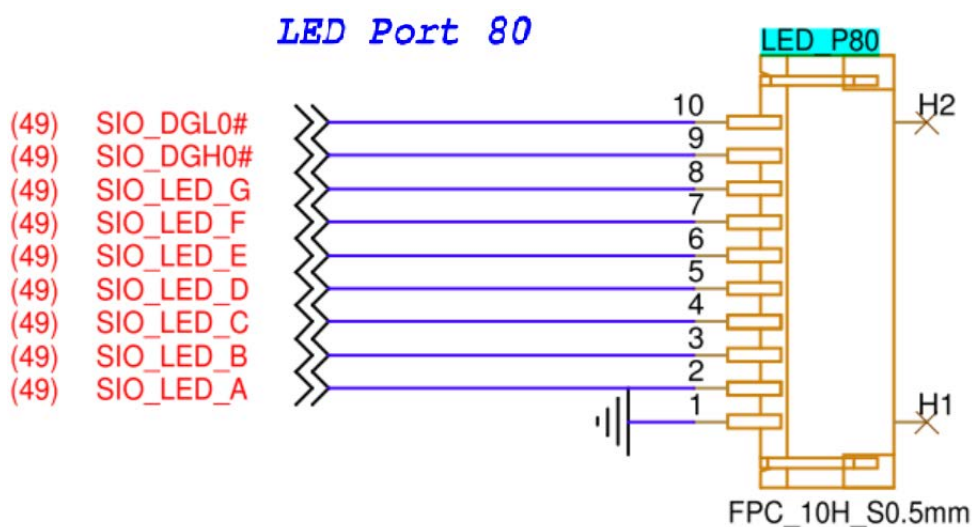


Table 2.44: LED Port 80 Connector (LED_P80)

Pin	Signal
1	GND
2	LED_A
3	LED_B
4	LED_C
5	LED_D
6	LED_E
7	LED_F
8	LED_G
9	DGH0#
10	DGL0#

2.5 Jumper Settings

2.5.1 COM1 RI# Selection Pin Header (JSETCOM1_V1)

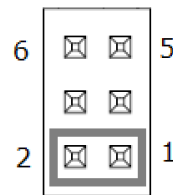


Table 2.45: COM1 RI# Selection Pin Header (JSETCOM1_V1)

Pin	Signal	Pin	Signal
1	RI# [1]	2	Advantech define
3	Advantech define	4	+5V
5	+12V	6	Advantech define

2.5.2 COM4 RI# Selection Pin Header (JSETCOM4_V1)

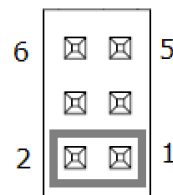


Table 2.46: COM4 RI# Selection Pin Header (JSETCOM4_V1)

Pin	Signal	Pin	Signal
1	RI# [1]	2	Advantech define
3	Advantech define	4	+5V
5	+12V	6	Advantech define

2.5.3 COM3 CCTALK Voltage Select Header (JCCT_VCON1)

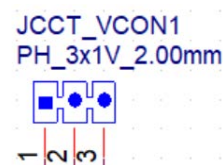


Table 2.47: COM3 CCTALK Voltage Select Header (JCCT_VCON1)

Pin	Signal
1	+12V
2	COM3_SOUT
3	+5V

2.5.4 EDP Panel / LVDS Panel Voltage Selection (JEDP1_LVDS1)

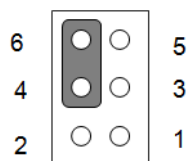


Table 2.48: EDP Panel / LVDS Panel Voltage Selection (JEDP1_LVDS1)

Pin	Signal	Pin	Signal
1	NC	2	+5V
3	+12V	4	VDD
5	NC	6	+3.3V

2.5.5 PWRBTN# / RESET# / HDD LED / Serial Bus from HW Monitor IC / Internal Buzzer / External Speaker Header (JFP1)

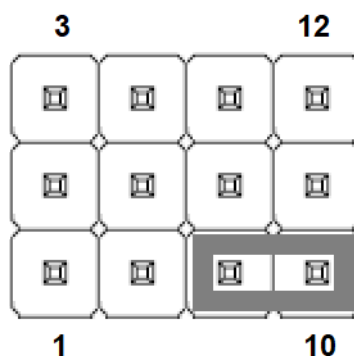


Table 2.49: PWRBTN# / RESET#/HDD LED / Serial Bus from HW Monitor IC / Internal Buzzer / External Speaker Header (JFP1)

Pin	Signal	Pin	Signal
1	+5V	2	HDD LED+
3	Power Button+	4	SPK_P2
5	HDD LED-	6	Power Button-
7	SPK_P3	8	SMB_DATA
9	System Reset+	10	SPK_P4
11	SMB_CLK	12	System Reset-

2.5.6 Case Open Signal Reverse Header (JCASEOP_SW1)



Table 2.50: Case Open Signal Reverse Header (JCASEOP_SW1)

Pin	Signal
1	CASEOP#
2	HWM_CASEOP#
3	CASEOP

2.5.7 CMOS Reset Header (JCMOS1)

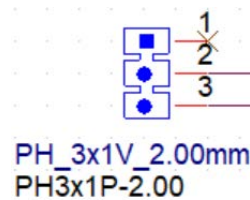


Table 2.51: CMOS Reset Header (JCMOS1)

Pin	Signal
1	NC
2	RTCRST#
3	RTCRST#_PD

2.5.8 AT/ATX Mode Selection (PSON1)

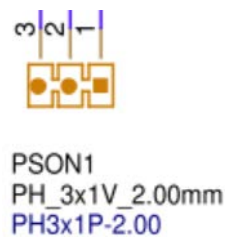


Table 2.52: AT/ATX Mode Selection (PSON1)

Pin	Signal
1	VCCAT
2	+V3_Pull High
3	VCCATX

2.5.9 VESA & JEIDA Support Select (JLVDS_VCON1)

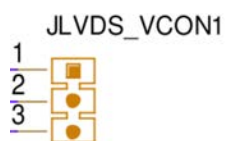


Table 2.53: VESA & JEIDA Support Select (JLVDS_VCON1)

Pin	Signal
1	100 ohm to +V3.3
2	LVDS1_VCON
3	GND

Chapter 3

BIOS Operation

3.1 Introduction

With the AMI BIOS Setup program, you can modify BIOS settings and control the special features of your computer. The Setup program uses a number of menus for making changes and turning special features on or off. This chapter describes the basic navigation of the AIMB-2210 setup screens.

3.2 BIOS Setup

The AIMB-2210 Series system has AMI BIOS built in, with a CMOS SETUP utility that allows users to configure required settings or to activate certain system features. The CMOS SETUP saves the configuration in the CMOS RAM of the motherboard. When the power is turned off, the battery on the board supplies the necessary power to preserve the CMOS RAM.

When the power is turned on, press the button during the BIOS POST (Power-On Self-Test) to access the CMOS SETUP screen.

Table 3.1: Control Keys

< ↑ > < ↓ > < ← > < → >	Move to select item
<Enter>	Select item
<ESC>	Main Menu - Quit and do not save changes into CMOS Sub-Menu - Exit the current page and return to the Main Menu
<Page Up/>	Increase the numeric value or make changes
<Page Down/.>	Decrease the numeric value or make changes
<F1>	General help, for the Setup Sub-Menu
<F2>	Item Help
<F5>	Load Previous Values
<F7>	Load Setup Defaults
<F10>	Save all CMOS changes

3.2.1 Main Menu

Press to enter the AMI BIOS CMOS Setup Utility. The Main Menu will appear on the screen. Use the arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.



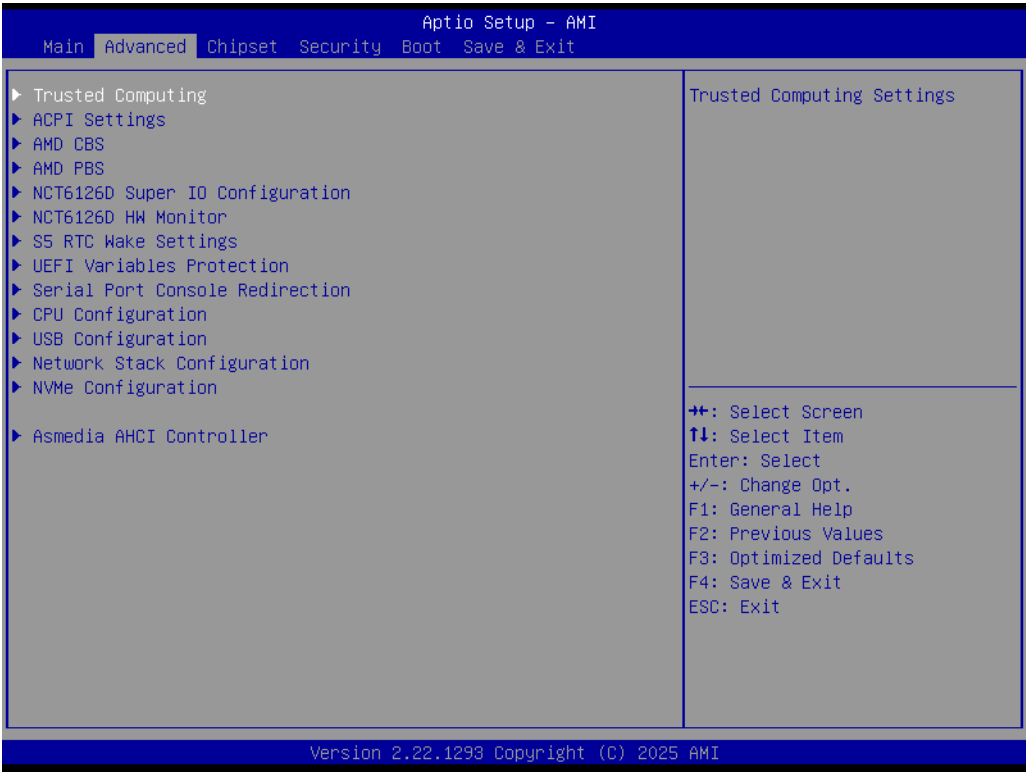
The Main BIOS setup screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured; options in blue can. The right frame displays the legend. Above the legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

■ System Time / System Data

Use this option to change the system time and date. Highlight the System Time or System Date using the keys. Enter new values via the keyboard. Press the <arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time must be entered in HH:MM:SS format.

3.2.2 Advanced BIOS Features

Select the Advanced tab from the AIMB-2210 setup menu to enter the Advanced BIOS setup page. Users can select any item in the left frame of the screen, such as CPU configuration. Select an Advanced BIOS setup option by highlighting the text using the keys. All Advanced BIOS setup options are described in this section. The Advanced BIOS setup menu screen is shown below. The sub-menus are described on the following pages.



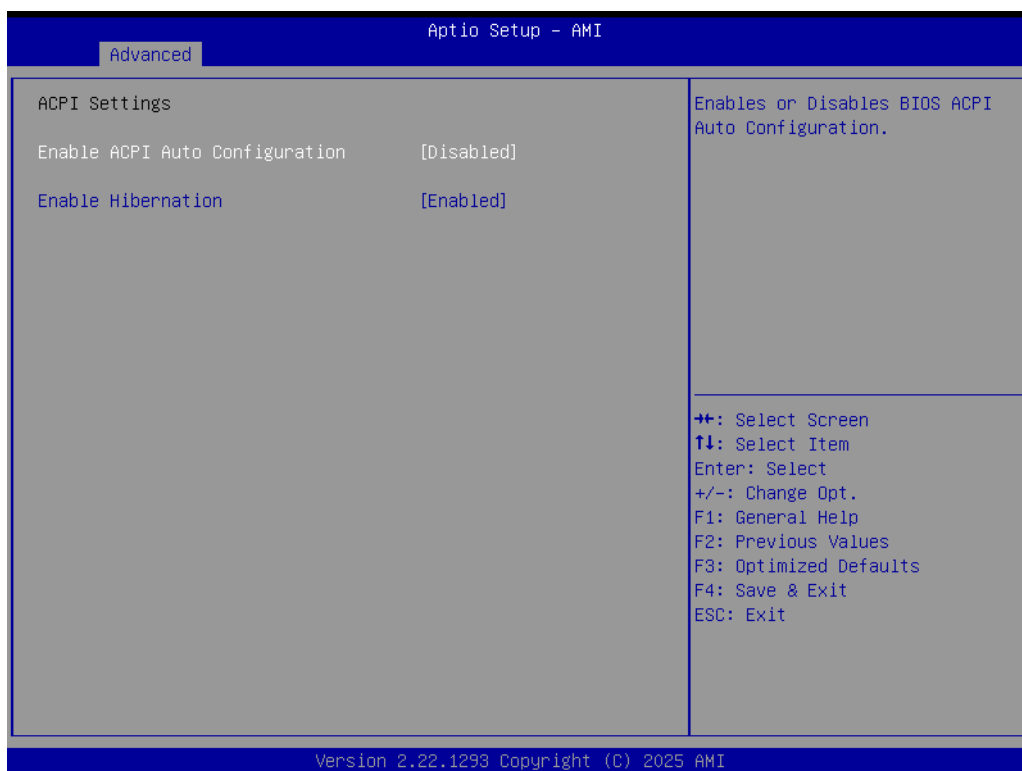
3.2.2.1 Trust Computing

Advanced → Trust Computing

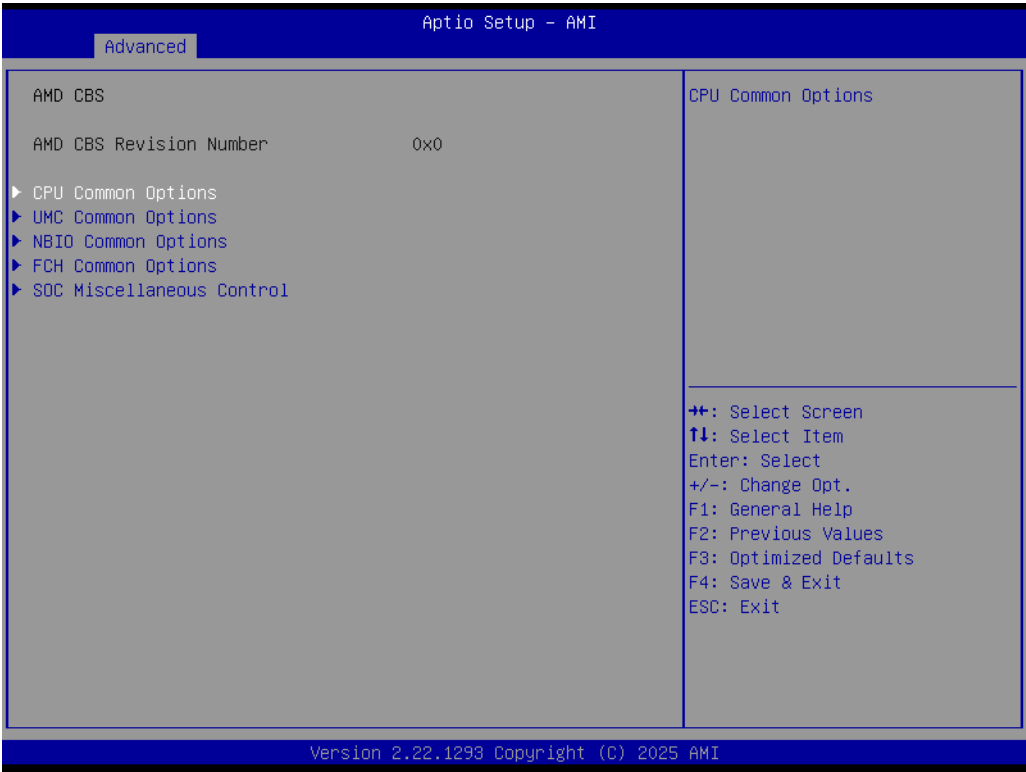


3.2.2.2 ACPI settings

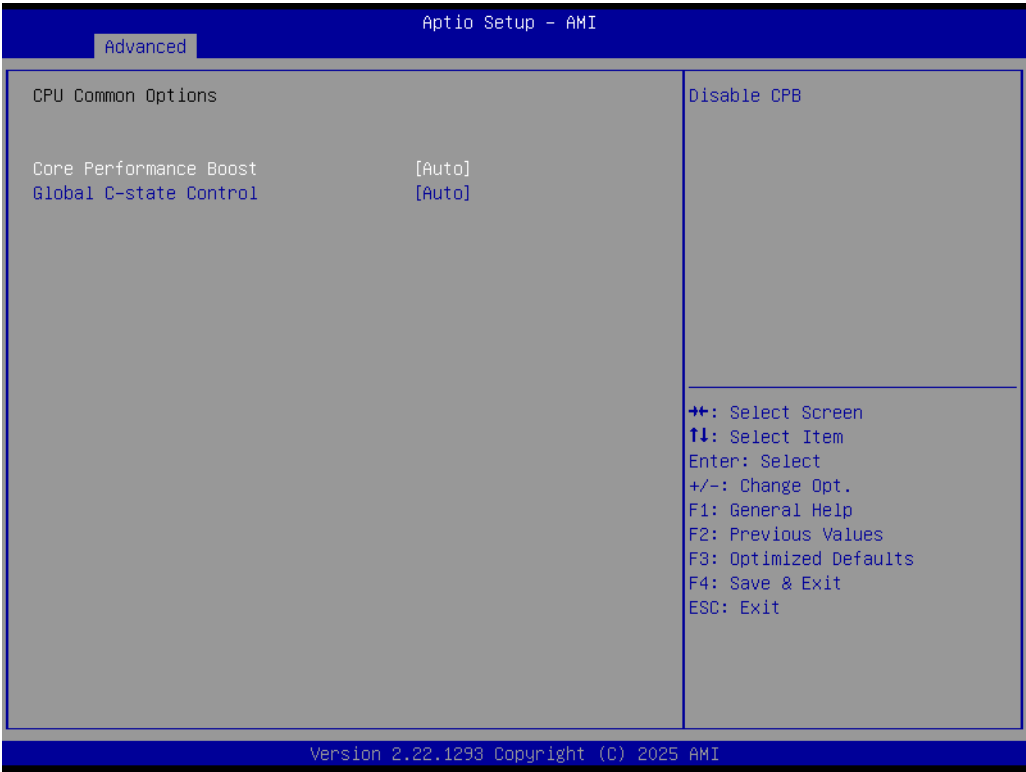
Advanced → ACPI settings



3.2.2.3 **AMD CBS**
Advanced → AMD CBS

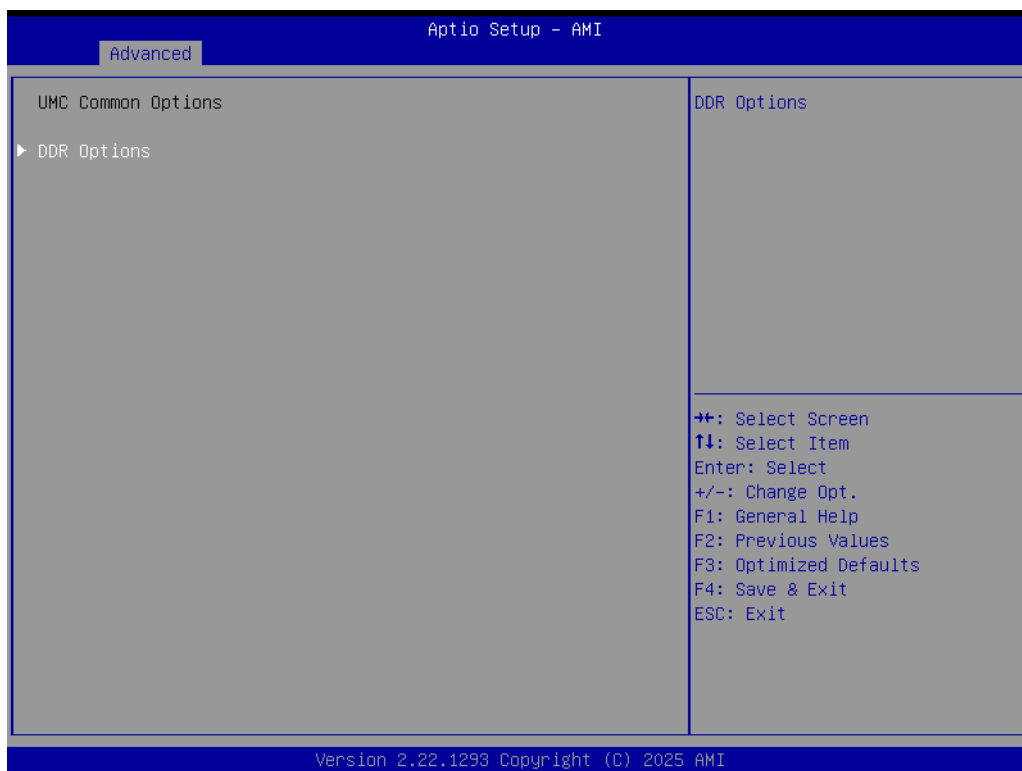


CPU Common Options
Advanced → AMD CBS → CPU Common Options



UMC Common Options

Advanced → AMD CBS → UMC Common Options



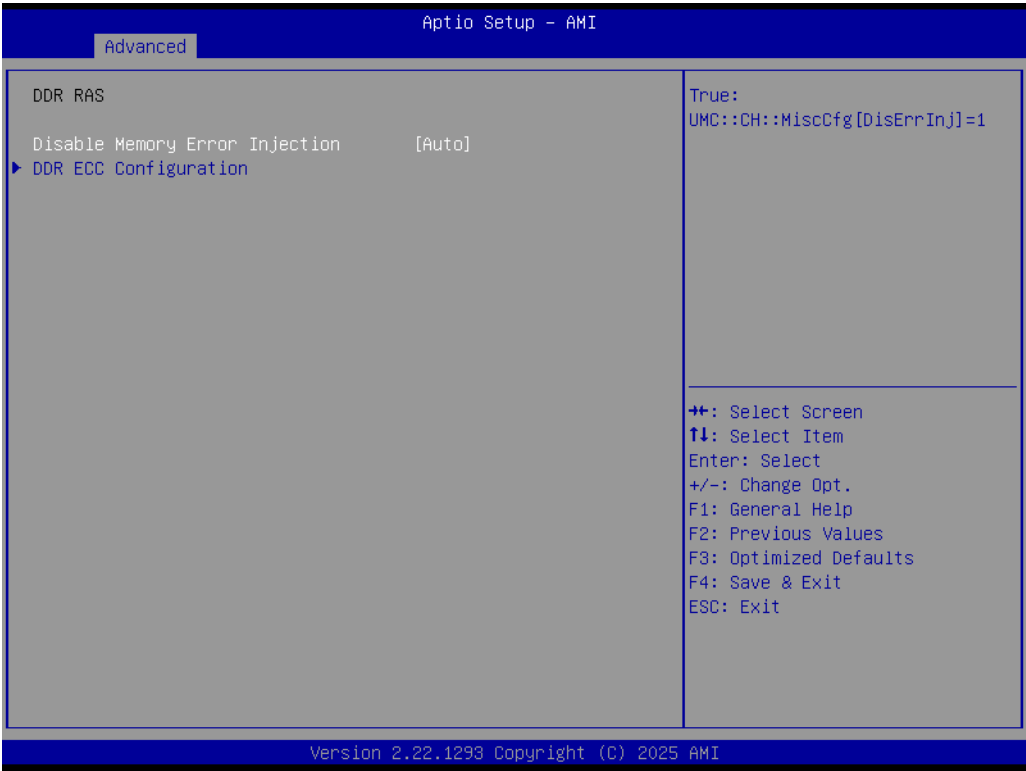
DDR Options

Advanced → AMD CBS → UMC Common Options → DDR Options



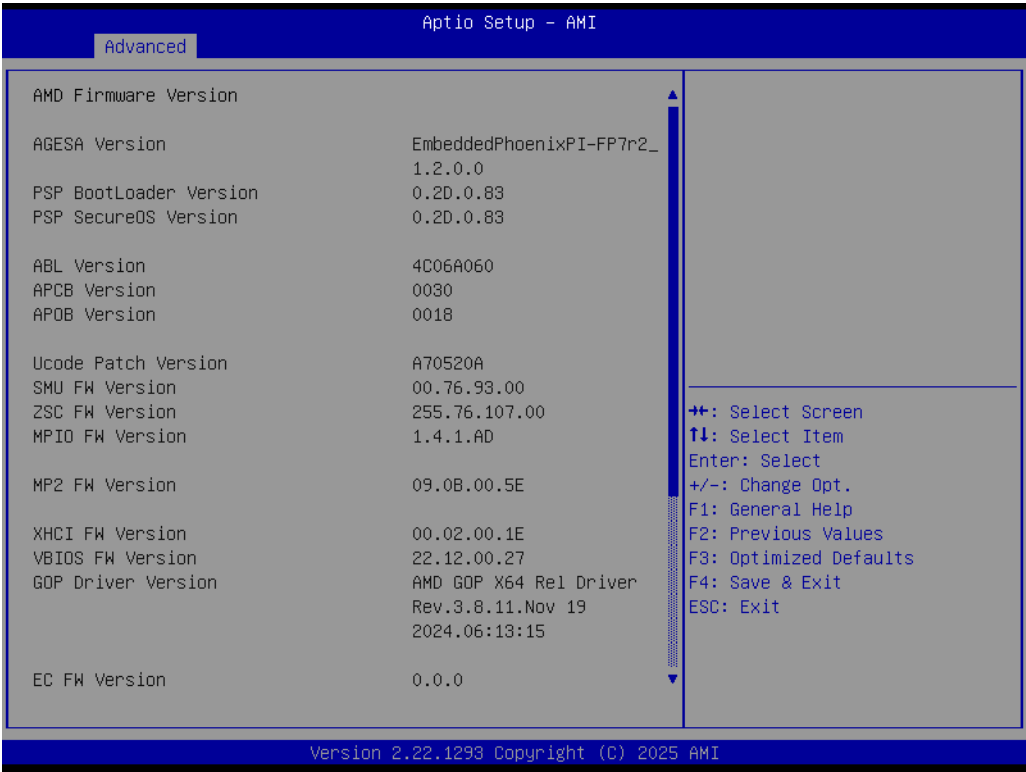
DDR RAS

Advanced → AMD CBS → UMC Common Options→ DDR Options → DDR RAS



DDR ECC Configuration

Advanced → AMD CBS → UMC Common Options→ DDR Options → DDR RAS → DDR ECC configuration



NBIO Common Options

Advanced → AMD CBS → NBIO Common Options



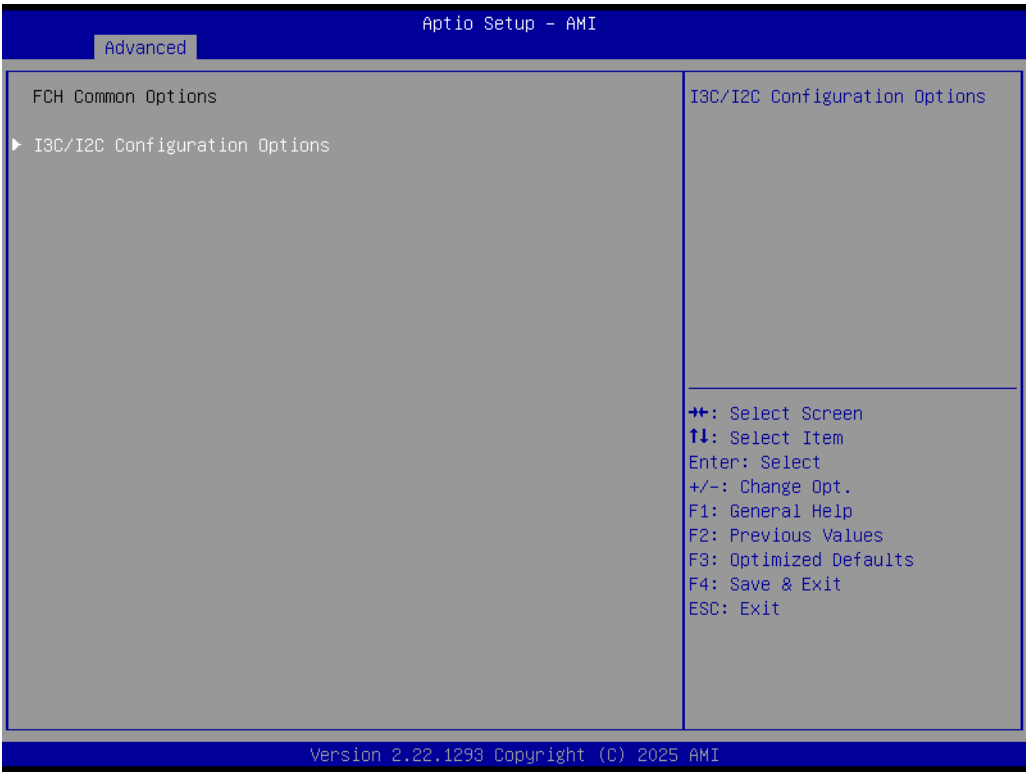
Audio Configuration

Advanced → AMD CBS → NBIO Common Options → Audio Configuration



FCH Common Options

Advanced → AMD CBS → FCH Common Options



I3C/I2C Configuration Options

Advanced → AMD CBS → FCH Common Options → I3C/I2C Configuration Options



SOC Miscellaneous Control

Advanced → AMD CBS → SOC Miscellaneous Control



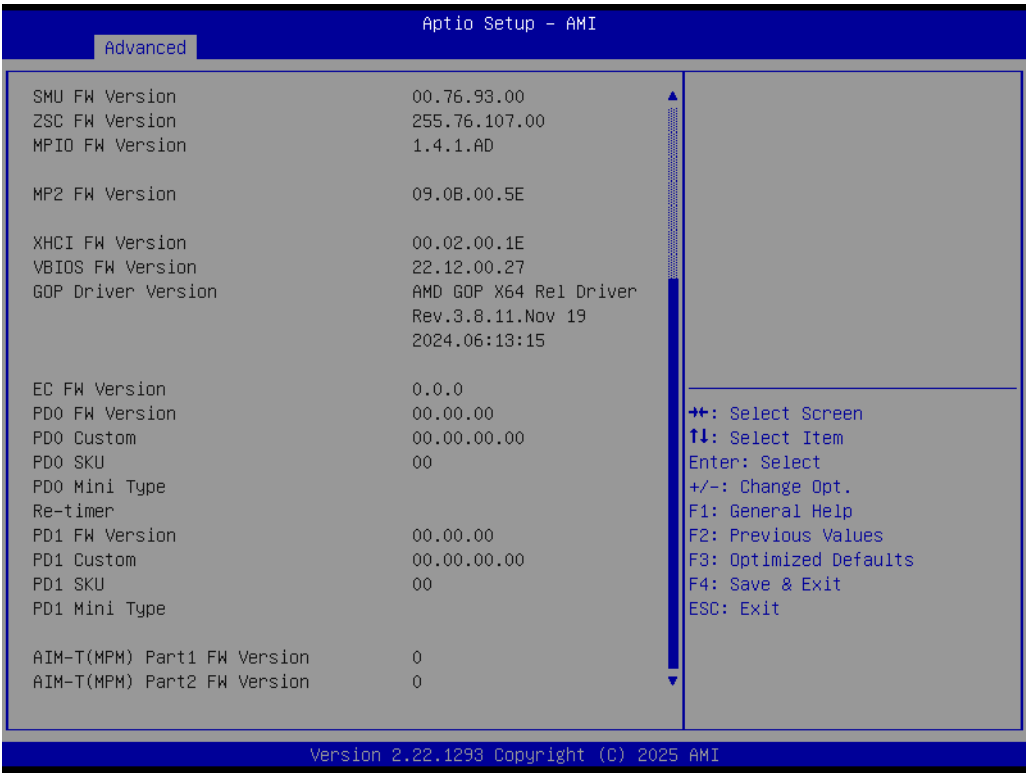
3.2.2.4 AMD PBS

Advanced → AMD PBS



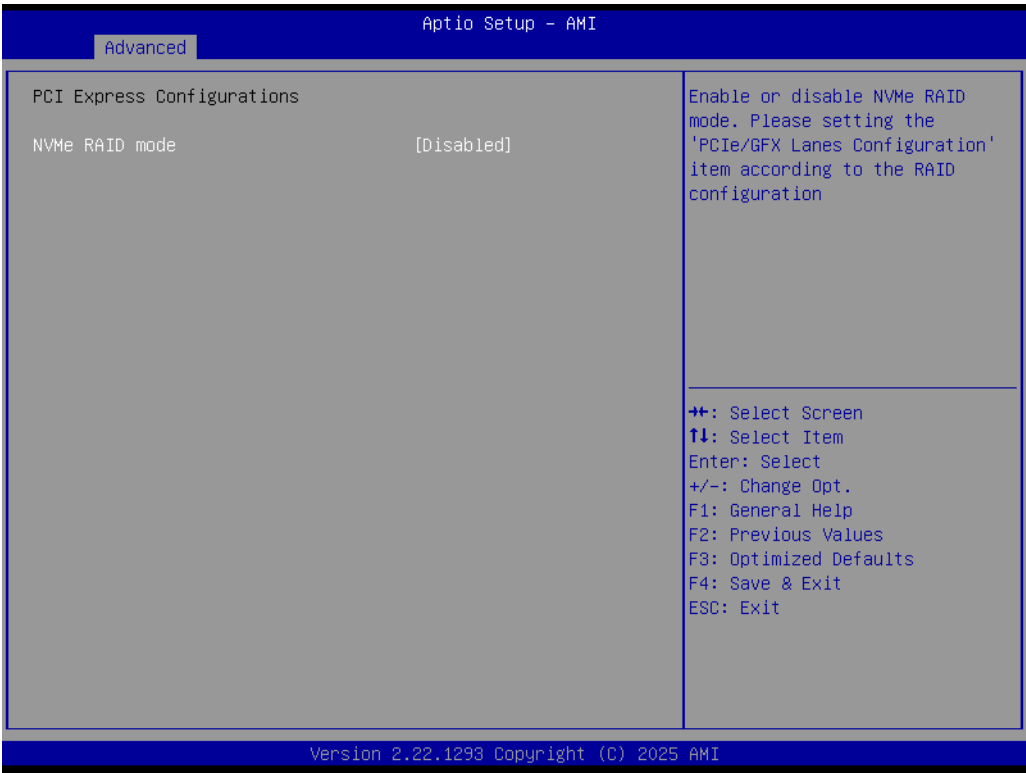
AMD Firmware Version

Advanced → AMD PBS → AMD Firmware Version



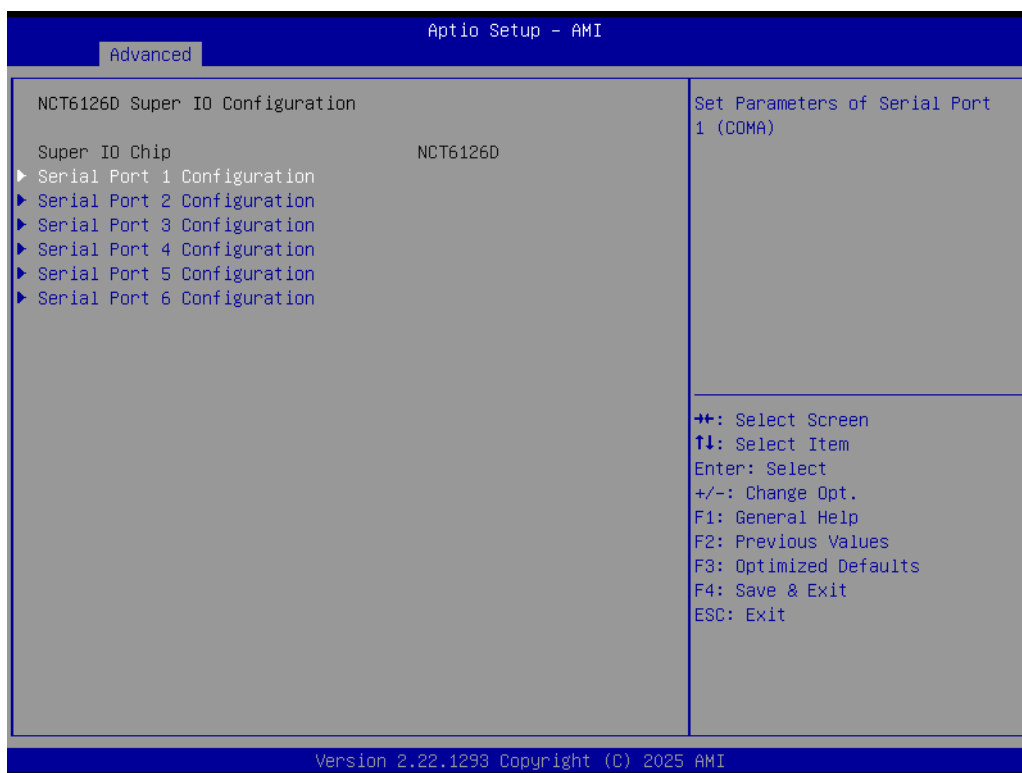
PCI Express Configurations

Advanced → AMD PBS → AMD Firmware Version → PCI Express Configurations



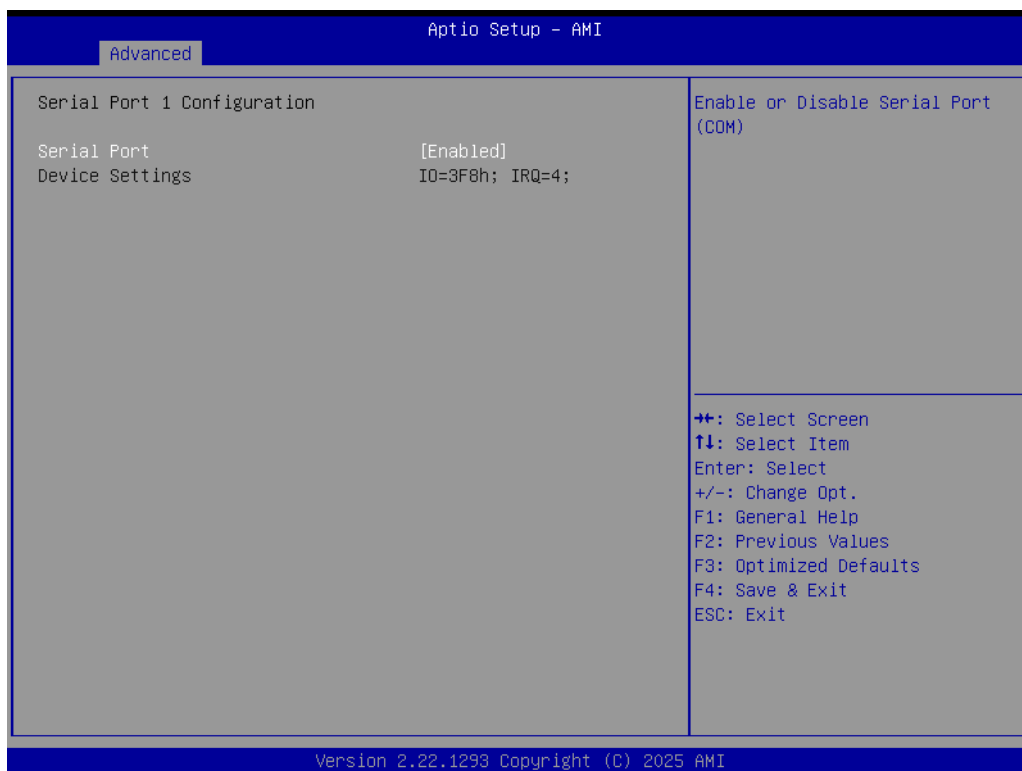
3.2.2.5 NCT6126D Super IO Configuration

Advanced → NCT6126D Super IO Configuration



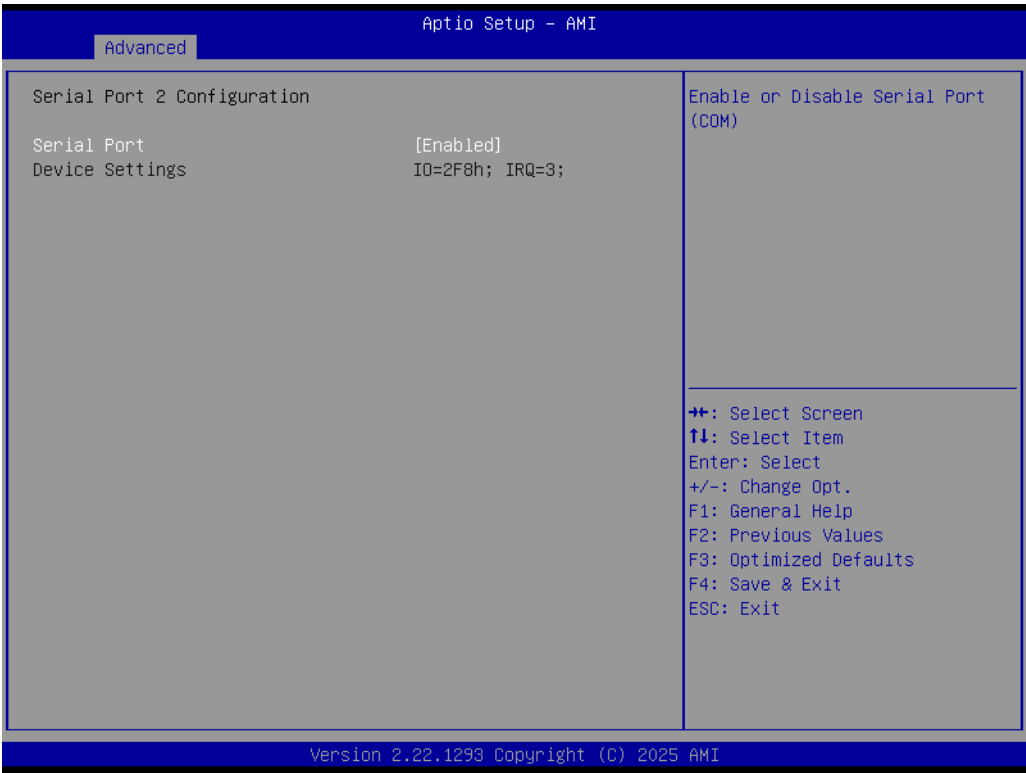
Serial Port 1 Configuration

Advanced → NCT6126D Super IO Configuration → Serial Port 1 Configuration



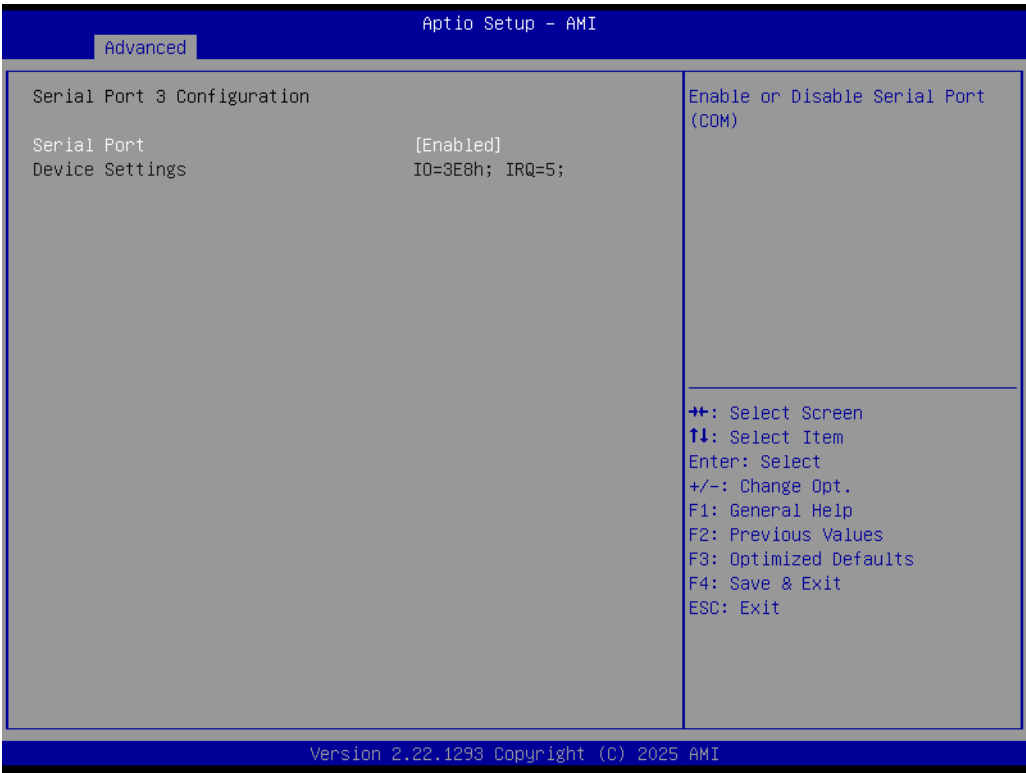
Serial Port 2 Configuration

Advanced → NCT6126D Super IO Configuration → Serial Port 2 Configuration



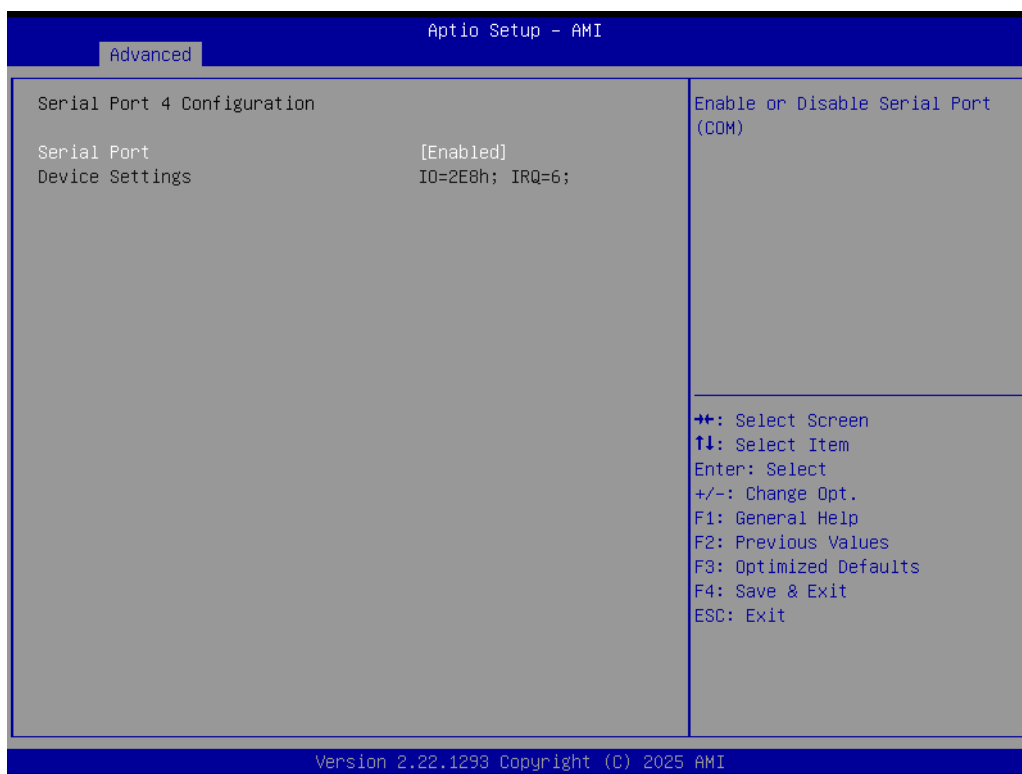
Serial Port 3 Configuration

Advanced → NCT6126D Super IO Configuration → Serial Port 3 Configuration



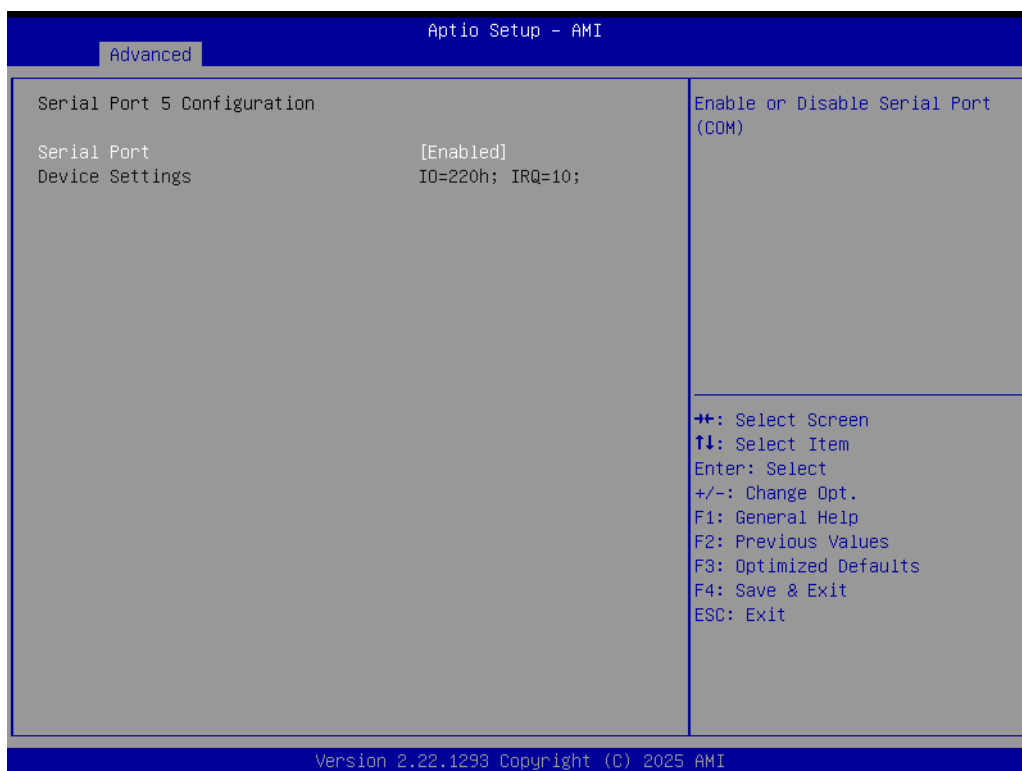
Serial Port 4 Configuration

Advanced → NCT6126D Super IO Configuration → Serial Port 4 Configuration



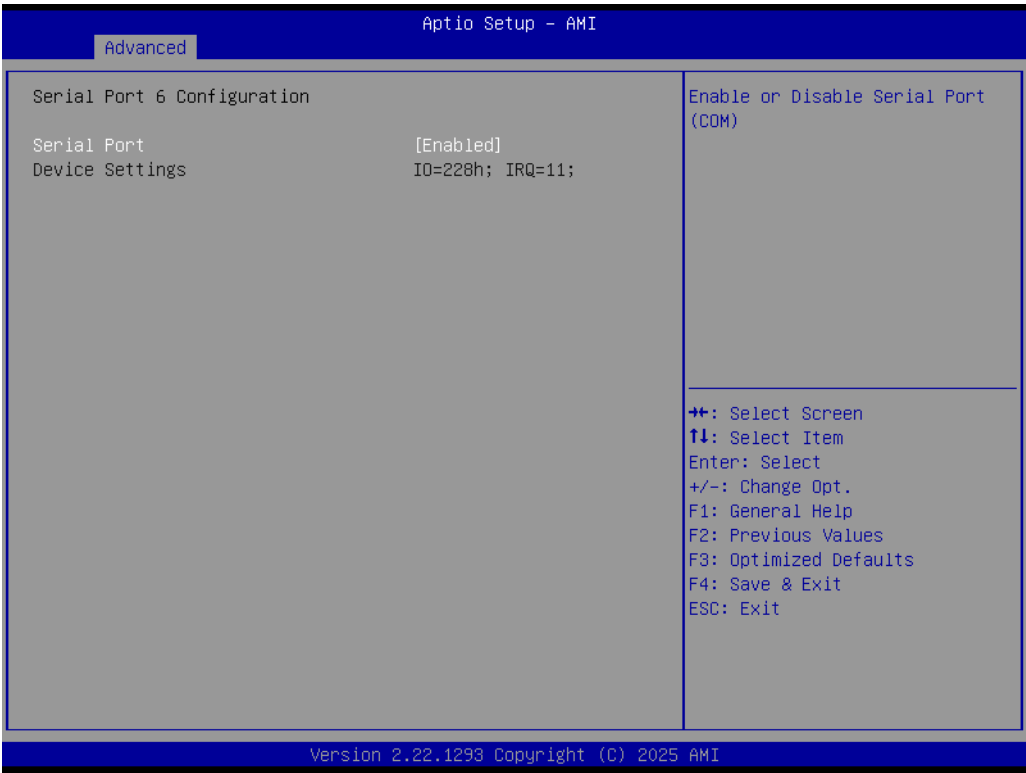
Serial Port 5 Configuration

Advanced → NCT6126D Super IO Configuration → Serial Port 5 Configuration



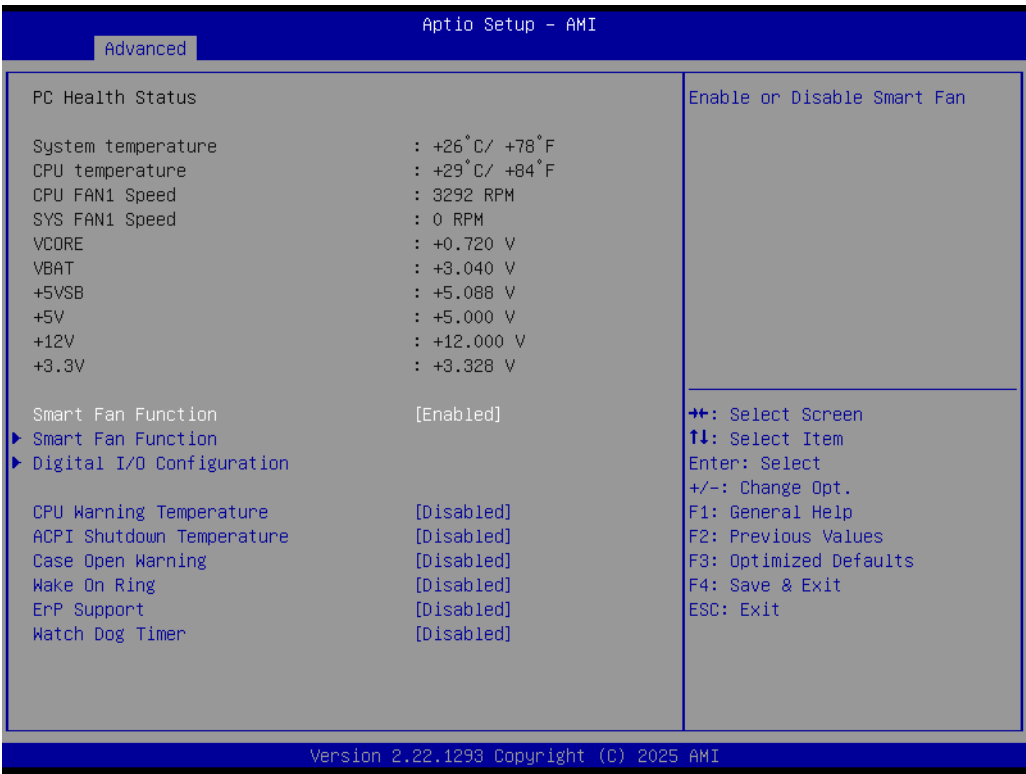
Serial Port 6 Configuration

Advanced → NCT6126D Super IO Configuration → Serial Port 6 Configuration



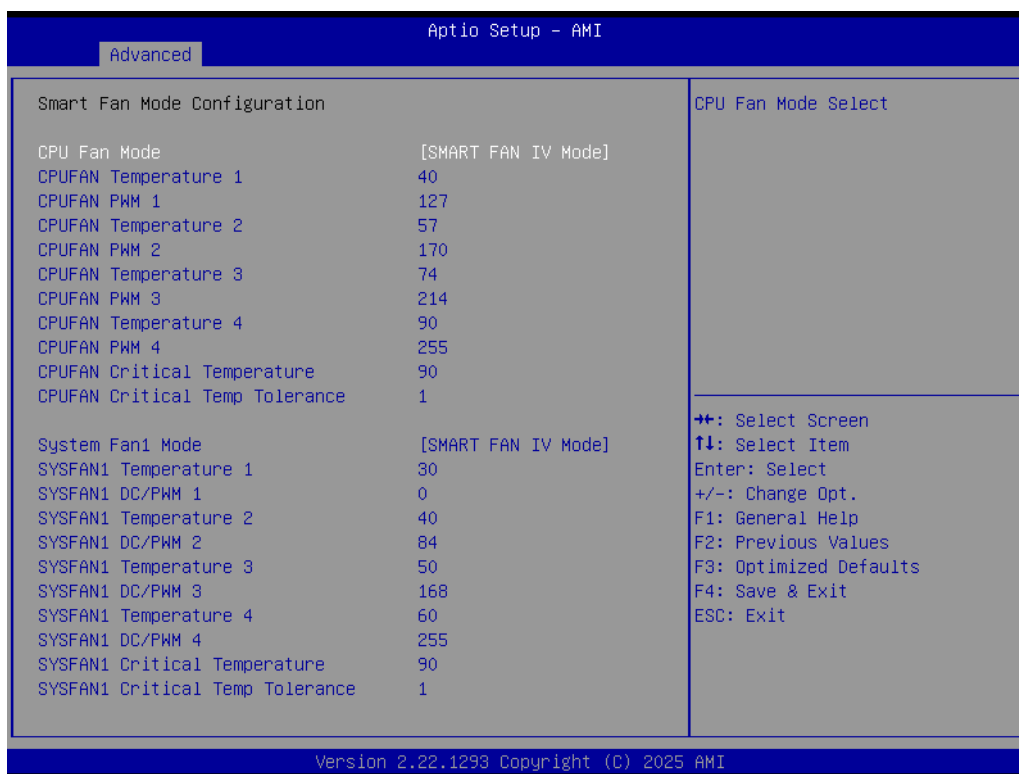
3.2.2.6 NCT6126D HW Monitor

Advanced → NCT6126D HW Monitor



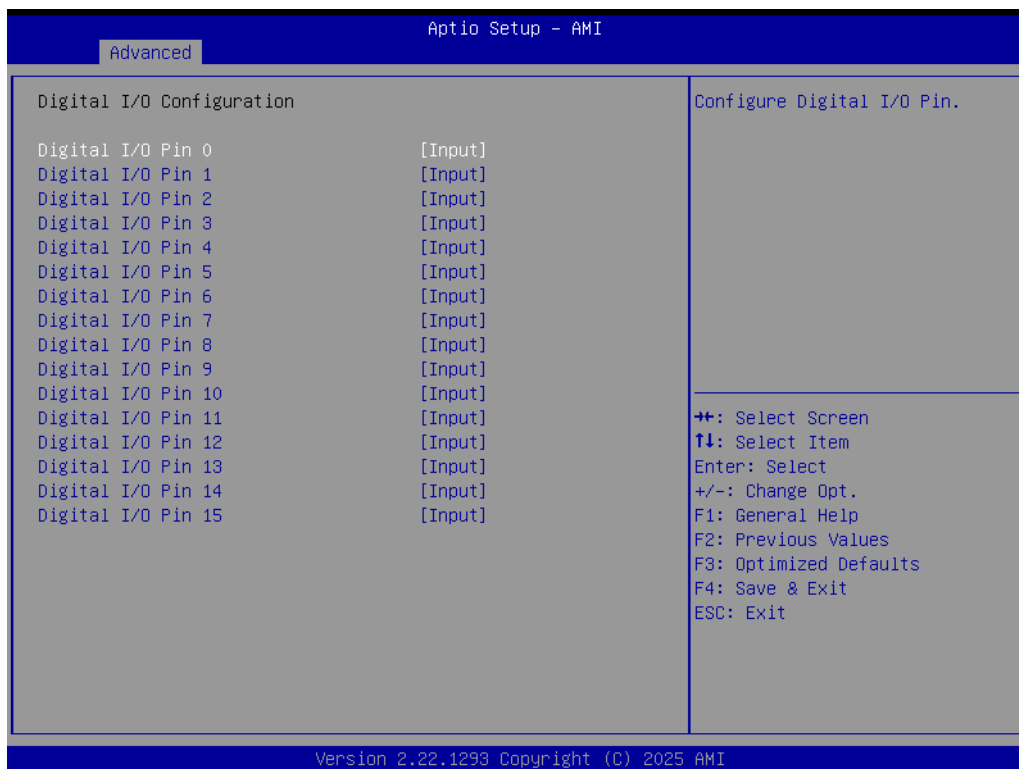
Smart Fan Function

Advanced → NCT6126D HW Monitor → Smart Fan Function

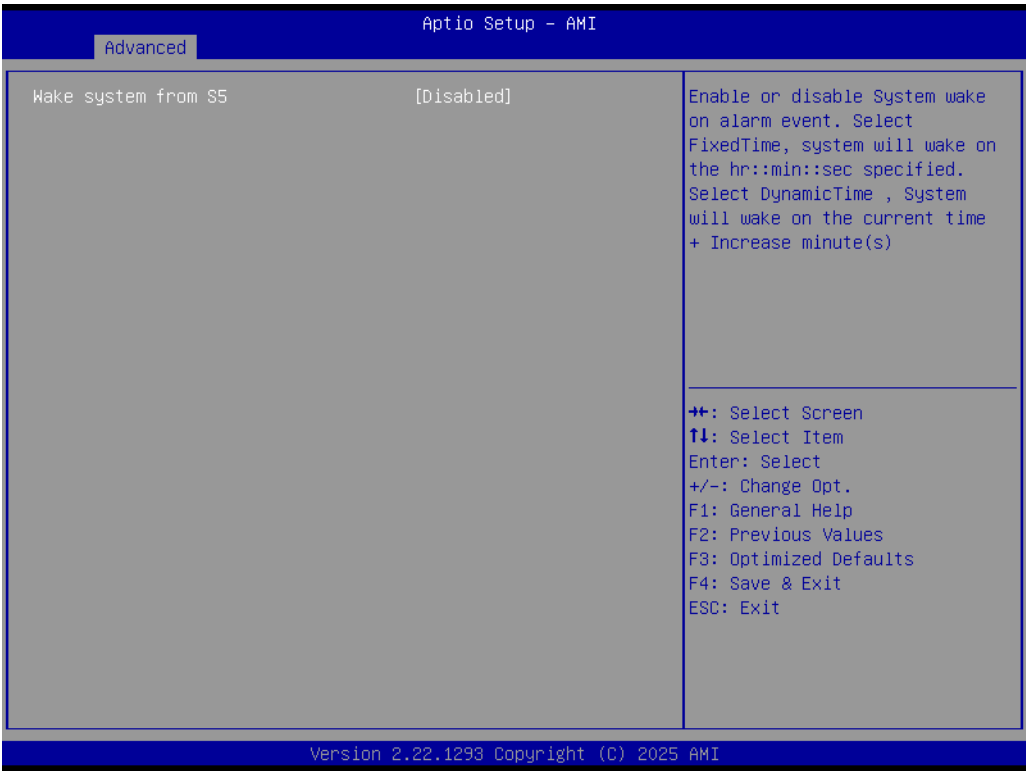


Digital I/O Configuration

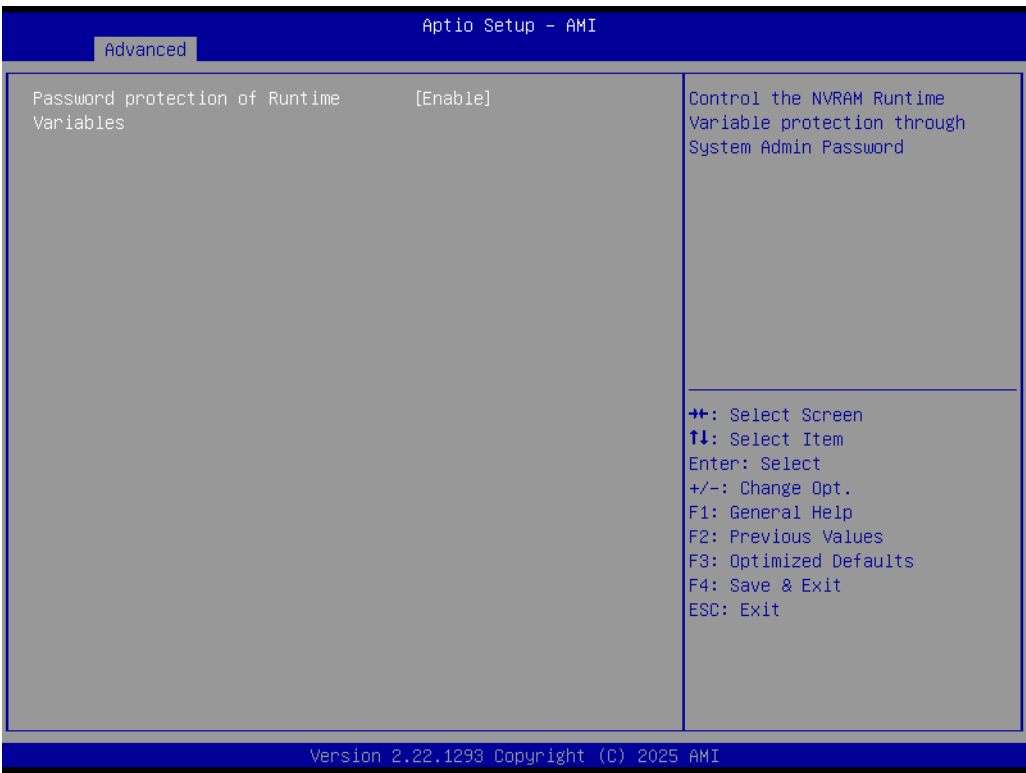
Advanced → NCT6126D HW Monitor → Digital I/O Configuration



3.2.2.7 S5 RTC Wake Settings
Advanced → S5 RTC Wake Settings



3.2.2.8 UEFI Variables Protection
Advanced → UEFI Variables Protection



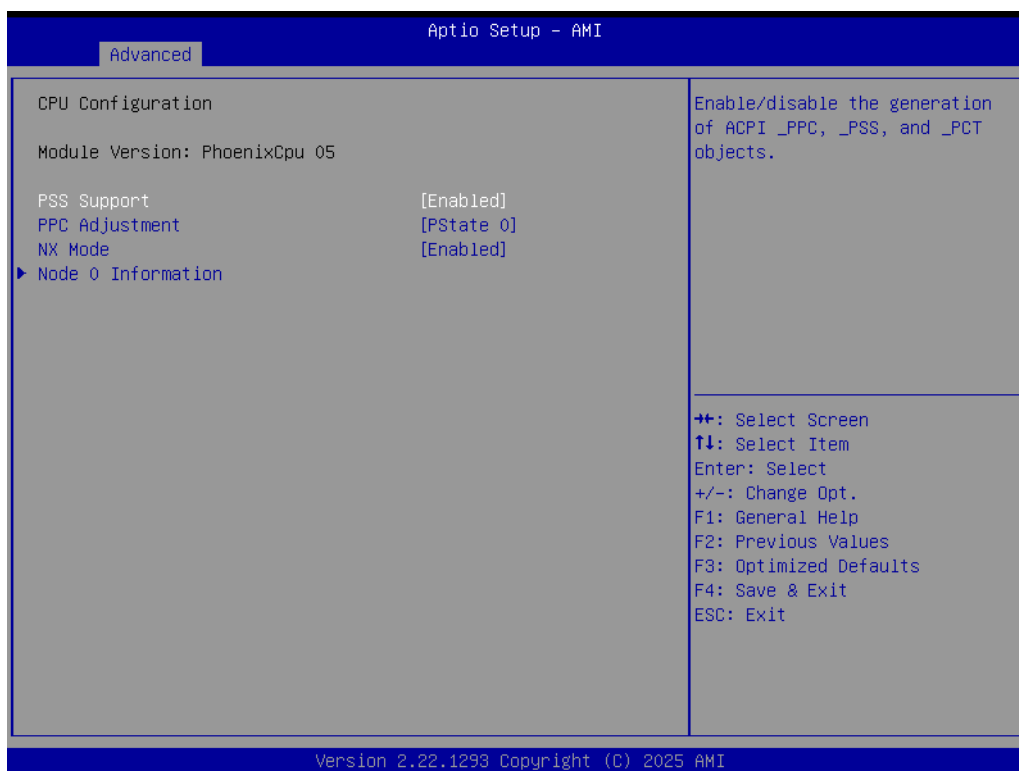
3.2.2.9 Serial Port Console Redirection

Advanced → Serial Port Console Redirection



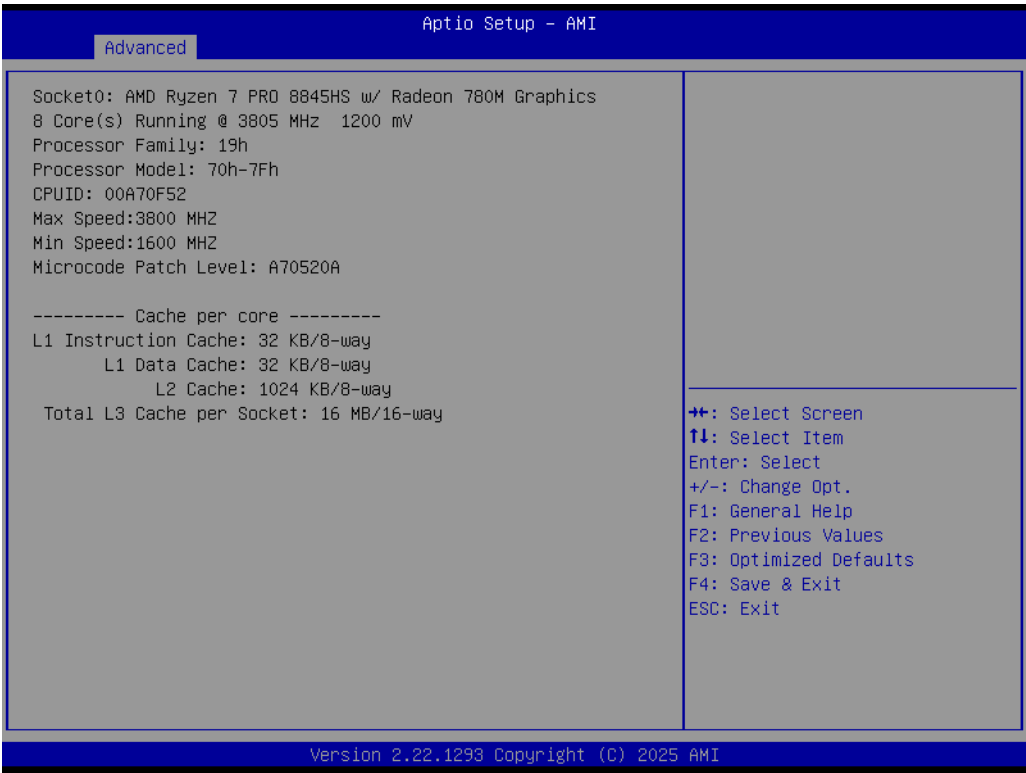
3.2.2.10 CPU Configuration

Advanced → CPU Configuration



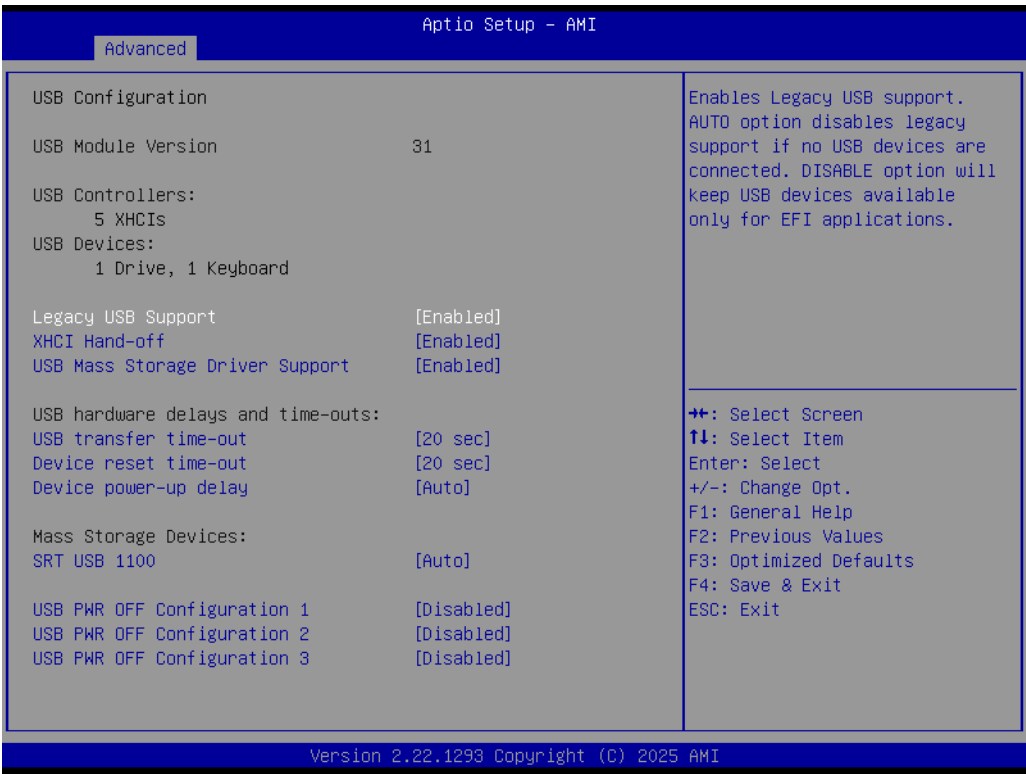
Node 0 Information

Advanced → CPU Configuration → Node 0 Information



3.2.2.11 USB Configuration

Advanced → USB Configuration



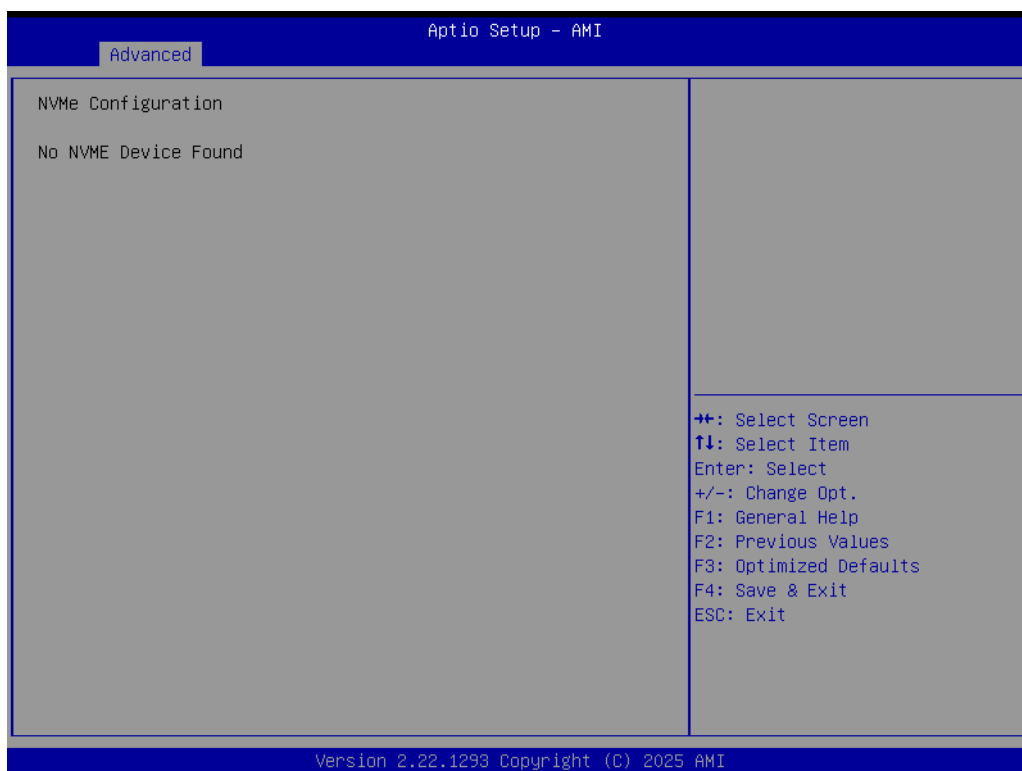
3.2.2.12 Network Stack Configuration

Advanced → Network Stack Configuration

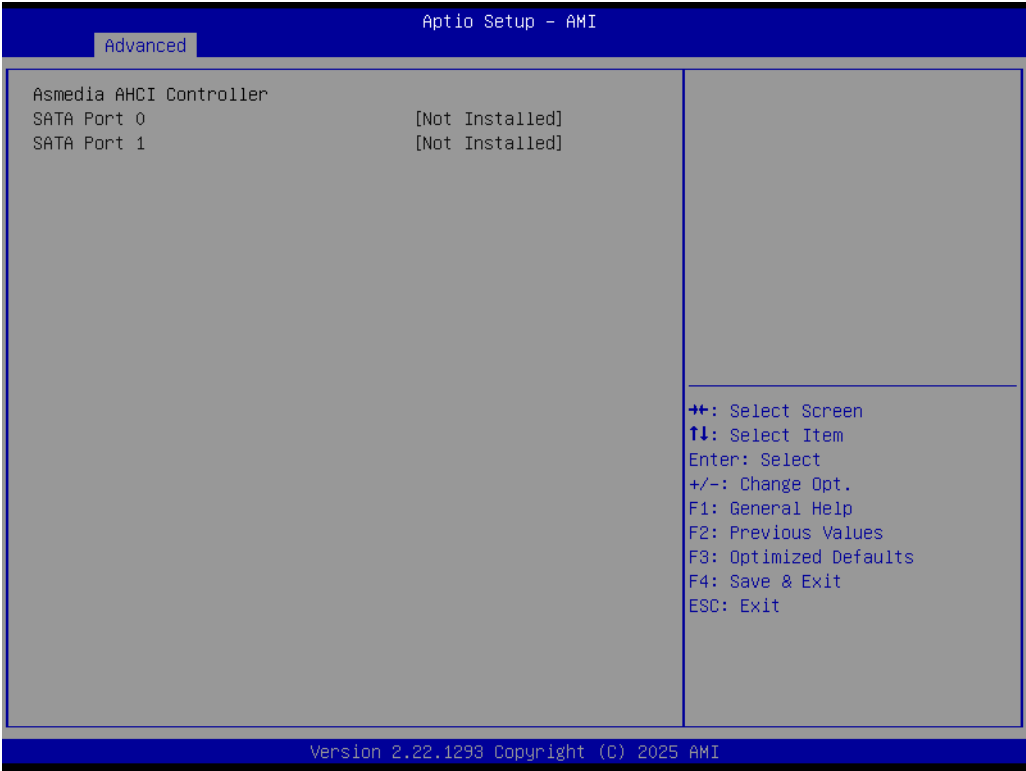


3.2.2.13 NVMe Configuration

Advanced → NVMe Configuration



3.2.2.14 Asmedia AHCI Controller
Advanced → Asmedia AHCI Controller



3.2.3 Chipset Configuration Setting

Select the chipset tab from the BIOS setup screen to enter the Chipset Setup screen. Users can select any item in the left frame of the screen, such as PCI Express Configuration, to go to the sub-menu for that item. Users can display a Chipset Setup option by highlighting it using the <Arrow> keys. All Chipset Setup options are described in this section. The Chipset Setup screens are shown below. The sub-menus are described on the following pages.

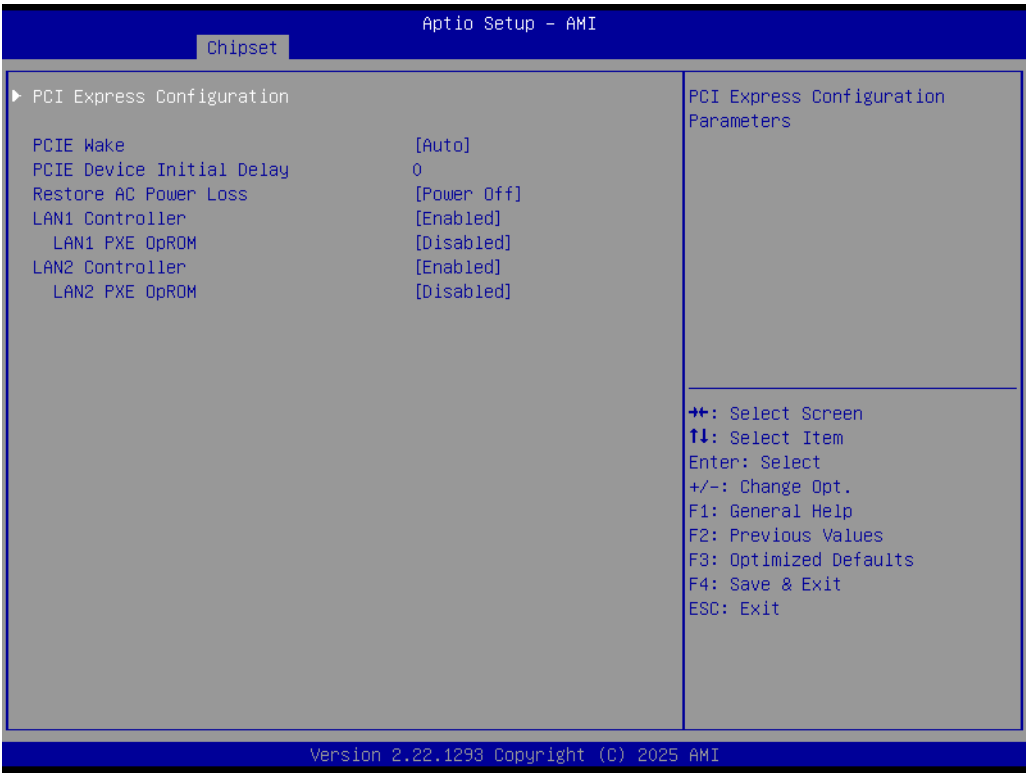
3.2.3.1 South Bridge

Chipset → South Bridge



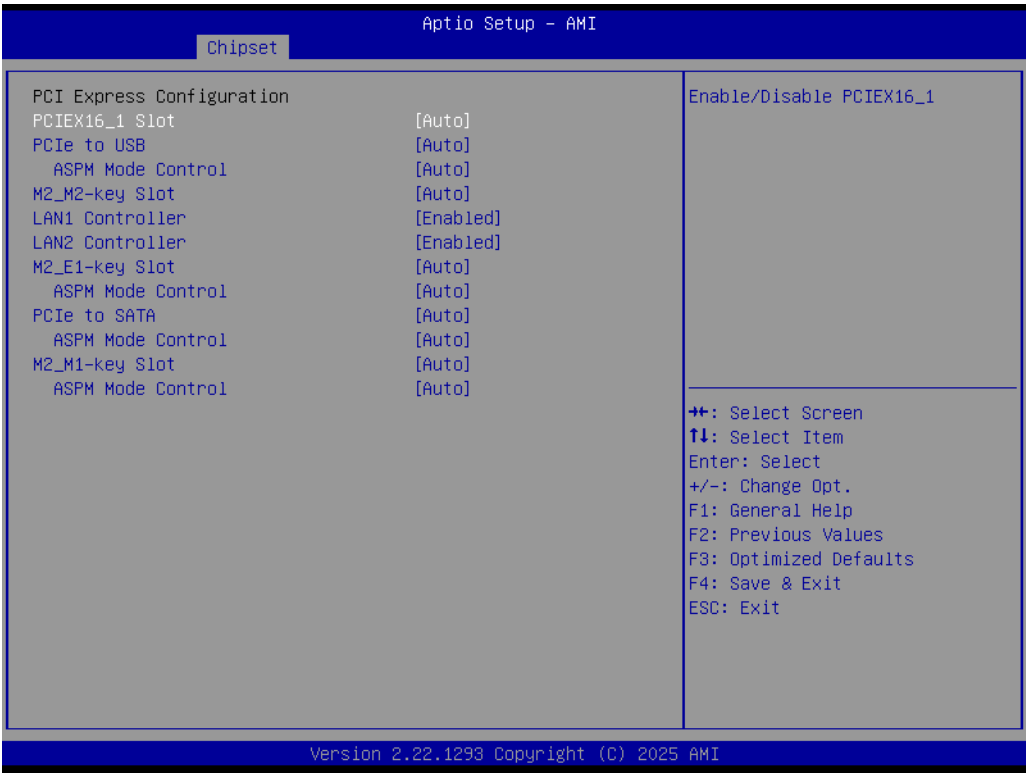
PCI Express Configuration

Chipset → South Bridge → PCI Express Configuration



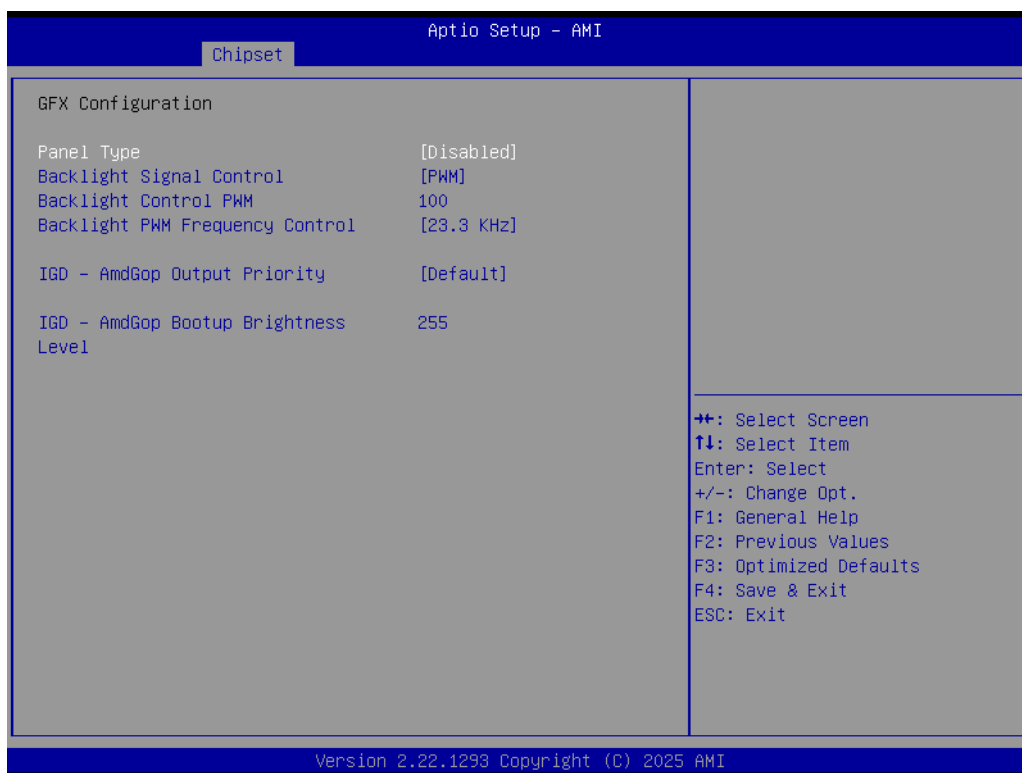
PCIEX16_1 Slot

Chipset → South Bridge → PCI Express Configuration → PCIEX16_1 Slot



3.2.3.2 GFX Configuration

Chipset → GFX Configuration

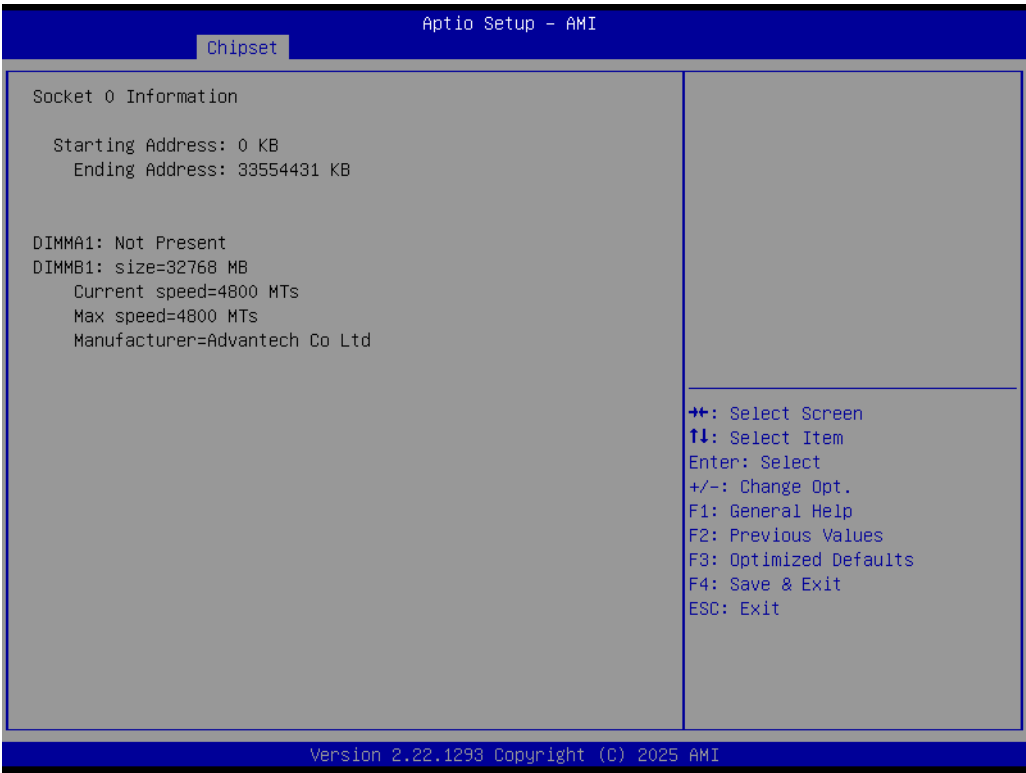


3.2.3.3 North Bridge

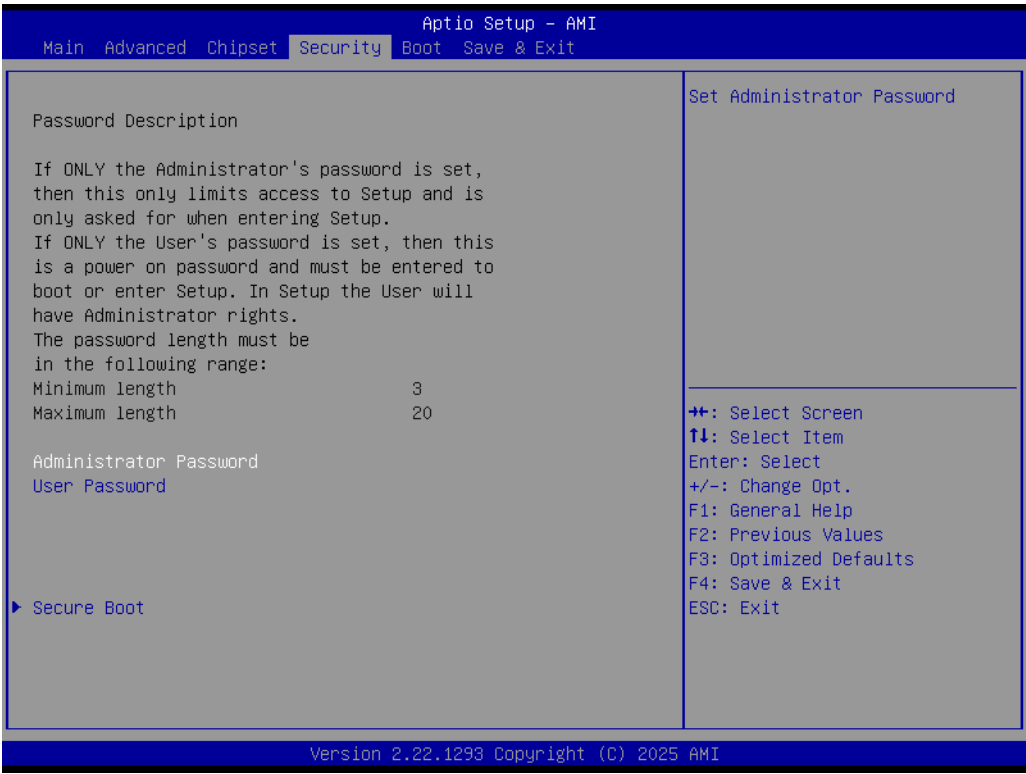
Chipset → North Bridge



Socket 0 Information
Chipset → North Bridge → Socket 0 Information



3.2.4 Security

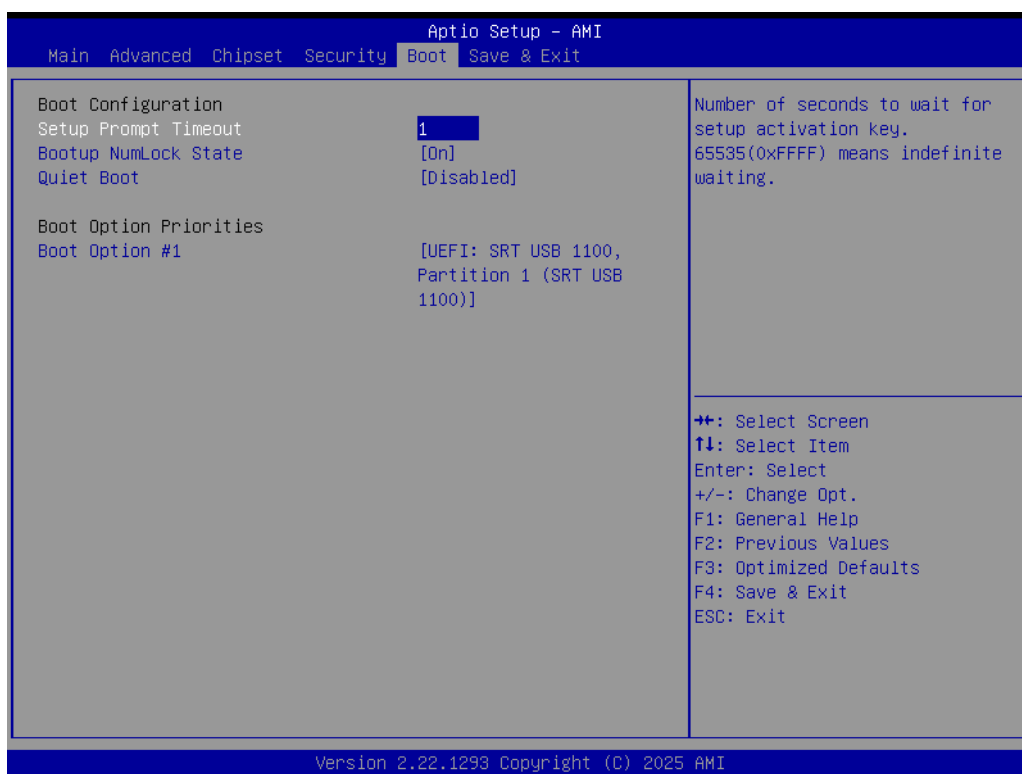


3.2.4.1 Secure Boot

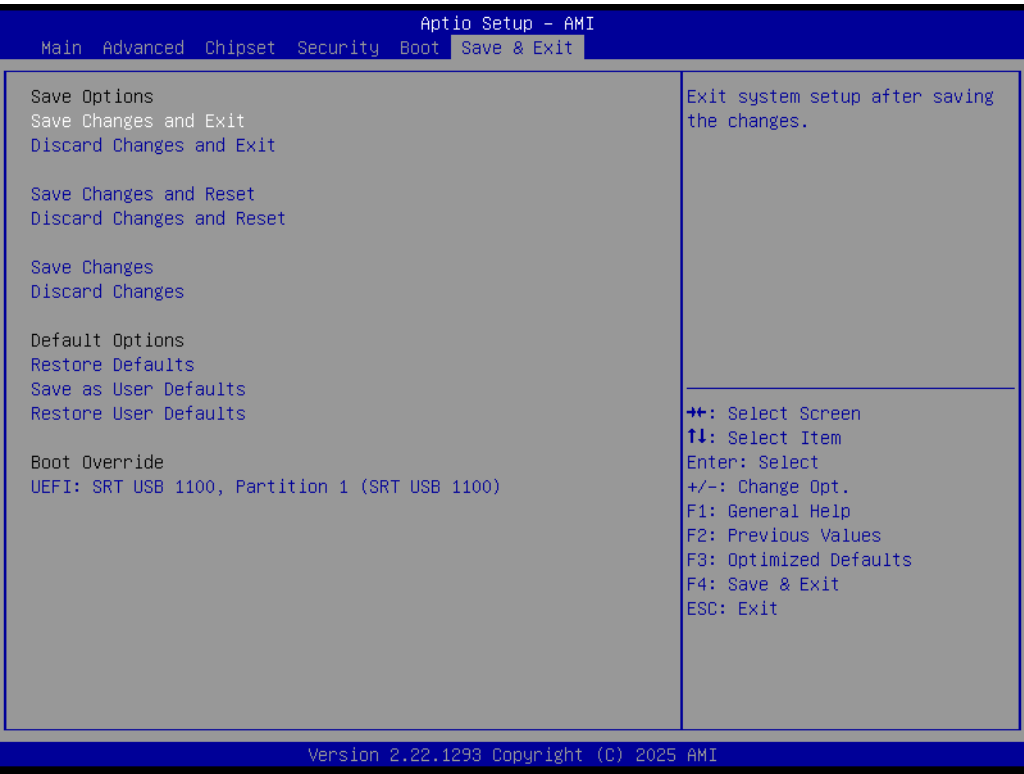
Security → Secure Boot



3.2.5 Boot Settings



3.2.6 Save & Exit Configuration



Chapter 4

Software Introduction
& Service

4.1 Introduction

The mission of Advantech Embedded Software Services is to "Enhance quality of life with Advantech platforms and Microsoft® Windows® embedded technology." We enable Windows® Embedded software products on Advantech platforms to more effectively support the embedded computing community. Customers are freed from the hassle of dealing with multiple vendors (hardware suppliers, system integrators, embedded OS distributors) for projects. Our goal is to make Windows® Embedded Software solutions easily and widely available to the embedded computing community.

4.2 Value-Added Software Services

Software API: An interface that defines the ways by which an application program may request services from libraries and/or operating systems. It provides not only the underlying drivers required but also a rich set of user-friendly, intelligent and integrated interfaces, which speeds development, enhances security, and offers add-on value for Advantech platforms. It plays the role of catalyst between developer and solution, and makes Advantech embedded platforms easier and simpler to adopt and operate with customer applications.

4.2.1 Software API

4.2.1.1 Control

GP I/O



General Purpose Input/Output is a flexible parallel interface that allows a variety of custom connections. It allows users to monitor the level of signal input or set the output status to switch on/off the device. Our API also provides Programmable GPIO, which allows developers to dynamically set the GPIO input or output status.

SMBus



SMBus is the System Management Bus defined by Intel Corporation in 1995. It is used in personal computers and servers for low-speed system management communications. The SMBus API allows a developer to interface with an embedded system environment and transfer serial messages using the SMBus protocols, allowing multiple simultaneous device control.

4.2.1.2 Display

Brightness Control



The Brightness Control API allows a developer to access embedded devices and easily control brightness.

Backlight



The Backlight API allows a developer to control the backlight (screen) on/off in embedded devices.

4.2.1.3 Monitor

Watchdog



A watchdog timer (WDT) is a device that performs a specific operation after a certain period of time if something goes wrong and the system does not recover on its own. A watchdog timer can be programmed to perform a warm boot (restarting the system) after a certain number of seconds.

Hardware Monitor



The Hardware Monitor (HWM) API is a system health supervision API that inspects certain condition indexes, such as fan speed, temperature, and voltage.

4.2.1.4 Power Saving

CPU Speed



Intel® SpeedStep® BIOS technology is utilized to save power. The system will automatically adjust the CPU speed depending on the system loading.

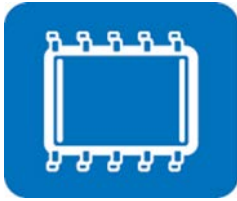
System Throttling



This refers to a series of methods for reducing power consumption in computers by lowering the clock frequency. This API allows the user to adjust the clock from 87.5% to 12.5%.

4.2.2 Software Utility

BIOS Flash



The BIOS Flash utility allows customers to update the flash ROM BIOS version, or use it to back up the current BIOS by copying it from the flash chip to a file on customers' disk. The BIOS Flash utility also provides a command line version and an API for fast implementation into customized applications.

Embedded Security ID



The embedded application is the most important property of a system integrator. It contains valuable intellectual property, design knowledge and innovation, but this makes it vulnerable! The Embedded Security ID utility provides reliable security functions for customers to secure their application data within the embedded BIOS.

Monitoring



Monitoring is a utility for customers to monitor aspects of system health, such as voltage, CPU and system temperature, and fan speed. These metrics are important to a device; if critical errors occur and are not solved immediately, permanent damage may be caused.

Chapter 5

Chipset Software
Installation Utility

5.1 Before You Begin

To facilitate the installation of the enhanced display drivers and utility software, read the instructions in this chapter carefully. The drivers for the AIMB-2210 are located on the Advantech support website: <http://support.advantech.com/Support/>. The drivers on the support website will guide and link you to the utilities and drivers under a Windows system. Updates are provided via Service Packs from Microsoft*.

Note! *The driver files on the website are compressed. Do not attempt to install the drivers by copying the files manually. You must download the files and decompress them first. Please use the supplied Setup program to install the drivers.*



Before you begin, it is important to note that most display drivers need to have the relevant software application already installed in the system prior to installing the enhanced display drivers. In addition, many of the installation procedures assume that you are familiar with both the relevant software applications and operating system commands. Review the relevant operating system commands and the pertinent sections of your application software user manual before performing the installation.

5.2 Introduction

The Intel® Chipset Software Installation (CSI) utility installs the Windows INF files that outline to the operating system how the chipset components will be configured. This is needed for the proper functioning of the following features:

- Core PCI PnP services
- Serial ATA interface support
- USB support
- Identification of Intel® chipset components in the Device Manager

Note! *This utility is used for the following versions of Windows, and it has to be installed before installing all the other drivers:*



- Windows 10 (64-bit)

Chapter 6

LAN Configuration

6.1 Introduction

The AIMB-2210 system features dual Gigabit Ethernet LANs via dedicated PCI Express x1 lanes (RTL8111K (LAN1) and RTL8111K (LAN2)) that offer a bandwidth of up to 500 MB/sec, eliminating bottlenecks in the flow of network data by incorporating Gigabit Ethernet at 1000 Mbps. RTL8125BG (2.5GbE) is available by option.

6.2 Features

- Integrated 10/100/1000/2500 Mbps transceiver
- 10/100/1000/2500 Mbps triple-speed MAC
- High-speed RISC core with 24-KB cache
- On-chip voltage regulation
- Wake-on-LAN (WOL) support
- PCI Express x1 host interface

6.3 Installation

Note! Before installing this driver, make sure the CSI utility has been installed in your system. See Chapter 5 for information on installing the CSI utility.



The RTL8111K (LAN1) and RTL8111K (LAN2) Gigabit integrated controllers support all major network operating systems. However, the installation procedure varies between systems. Please follow the driver setup procedure instructions specific to the operating system installed.

6.4 Windows® 11 Driver Setup (Realtek 8111G)

Download the driver from the support website on your computer and decompress the file. Select “Autorun”, then navigate to the directory for your OS.

Note! Before installing this driver, make sure the CSI utility has been installed in your system. See Chapter 5 for information on installing the CSI utility.





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