ATX-ARL1
User's Manual

Revision: 2.0
Release Date: July 31, 2026

Trademark:

*** Specifications and Information contained in this documentation are furnished for information use only, and are subject to change at any time without notice, and should not be construed as a commitment by manufacturer.**

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Environmental Protection and Safety Announcement

- Do not dispose this electronic device into the trash while discarding. To minimize pollution and ensure environment protection of mother earth, please recycle.

- Avoid the dusty, humidity and temperature extremes. Do not place the product in any area where it may become wet.

- Generally speaking, dramatic changes in temperature may lead to contact malfunction and crackles due to constant thermal expansion and contraction from the welding spots' that connect components and PCB. Computer should go through an adaptive phase before it boots when it is moved from a cold environment to a warmer one to avoid condensation phenomenon. These water drops attached on PCB or the surface of the components can bring about phenomena as minor as computer instability resulted from corrosion and oxidation from components and PCB or as major as short circuit that can burn the components. Suggest starting the computer until the temperature goes up.

- The increasing temperature of the capacitor may decrease the life of computer. Using the close case may decrease the life of other device because the higher temperature in the inner of the case.

China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

Main Board/ Daughter Board/ Backplane

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)
印刷电路板及其电子组件	X	X	O	O	O	O
外部信号连接器及线材	X	X	O	O	O	O

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在

SJ/T11363-2006 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/T 11363-2006 标准规定的限量要求。

备注: 此产品所标示之环保使用期限,系指在一般正常使用状况下。

China RoHS Requirements (EN)

Poisonous or Hazardous Substances or Elements in Products

Main Board/ Daughter Board/ Backplane

Component	Poisonous or Hazardous Substances or Elements					
	Lead (Pb)	**Mercury (Hg)**	**Cadmium (Cd)**	**Hexavalent Chromium (Cr(VI))**	**Polybrominated Biphenyls (PBB)**	**Polybrominated Diphenyl Ethers (PBDE)**
PCB & Other Components	X	X	O	O	O	O
Wires & Connectors for External Connections	X	X	O	O	O	O

O: The quantity of poisonous or hazardous substances or elements found in each of the component's parts is below the SJ/T 11363-2006-stipulated requirement.

X: The quantity of poisonous or hazardous substances or elements found in at least one of the component's parts is beyond the SJ/T 11363-2006-stipulated requirement.

Note: The Environment Friendly Use Period as labeled on this product is applicable under normal usage only

User's Notice

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Manual Revision Information

Reversion	Revision History	Date
2.0	Second Edition	July 31st , 2026

Packing List

Part Number	Description	QTY per Board
	ATX-ARL1 MB	1
F04-MB-060-1F	LA31 2U/PS2+2COM+HDMI+HDMI/VGA+UL+UL+3JK	1
G01-SATA3-BL-1F	CABLE for SATA3 50cm Blue w/LOCK	2
G01-COM9X2-30A-1F	CABLE +COM9x2 K=10 30cm No bends + metal sheet	1

Chapter 1 Introduction of the Motherboard

1-1 Specifications

ATX-ARL1-B860

SYSTEM	
MB FORM FACTOR	ATX
CPU	Intel® LGA1851 Socket Ultra 9/7/5th Gen Processor (Max. TDP 125W)
CHIPSET	Intel® Arrow lake-S B860
MEMORY	2 x DDR5 6400MT/s, Dual Channel U-DIMM, up to 96GB
BIOS	UEFI
WAKE ON LAN	Yes
WATCHDOG TIMER	255 Levels
SECURITY	Intel® PTT (Integrated fTPM) & TPM 2.0 (dTPM)
RTC BATTERY	Lithium Battery
DIMENSION (W X D)	305.0 (W) x 220.0 (D) mm (12" x 8.7")
OS SUPPORT	Windows® 11 (64bit), Windows® 10 (64bit), Linux
POWER	
POWER REQUIREMENT	ATX Power Supply
POWER ON MODE	AT / ATX (Default) Mode
CONNECTOR	24+8-pin ATX PWR
DISPLAY	
GPU	Intel® HD Graphics
DP	1 x DP2.1 (Max Resolution: 7680x4320@60Hz)
HDMI®	1 x HDMI® 2.0 (Max Resolution: 4096 x 2304@60Hz)
VGA	1 x VGA (Max Resolution: 1920 x 1080 @60Hz)
MULTIPLE DISPLAY	Support 4 Displays
AUDIO	
CODEC	Realtek ALC897
Line-in	1 x Audio Jack for Line-in
Line-out	1 x Audio Jack for Line-out
MIC-in	1 x Audio Jack for MIC-in
LAN	
ETHERNET	1 x RJ45 for Intel® I226-V 2.5GbE 1 x RJ45 for Intel® I219-V GbE
USB PORT	
USB	4 x USB 3.2 Gen 1

	2 x USB 2.0 Internal Header for 2 x USB 3.2 Gen 1 Internal Header for 4 x USB 2.0 Internal USB Type A (Vertical) for 2 x USB 2.0
SERIAL PORT	
COM	2 x DB-9 for RS-232/422/485 Internal Header for 4 x RS-232
INTERNAL I/O	
GPIO	16 bit GPIO (5V) Co-lay LPT
SMBUS	Yes
FAN	1 x CPU Fan Header 2 x System Fan Header
FRONT PANEL	HDD Active LED Power LED Power On/Off Reset
ADDITIONAL	1 x Chassis intrusion 1 x AT/ATX Mode Selection
STORAGE	
SATA	4 x SATA III
EXPANSION	
M.2	1 x M-key 2242/2280 (SATA interface, Co-lay SATA4) 1 x M-key 2242/2280 (PCIe Gen5x4) Support NVMe 1 x E-Key 2230 (USB 2.0/PCIe x1) Support CNVio for Wi-Fi
PCIE	1 x PCI-Ex16 (Gen.4) slot 4 x PCI-Ex4 (Gen.4, PCIE2/PCIE3 Interface: PCI-Ex1) slots 2 x PCI
OTHERS	
OTHER	1 x PS/2
ENVIRONMENT & CERTIFICATION	
OPERATING TEMPERATURE	0°C ~ 60°C (32°F ~ 140°F)
STORAGE TEMPERATURE	-20°C ~ 70°C (-4°F ~ 158°F)
OPERATING HUMIDITY	10 ~ 90% relative humidity, non-condensing
CERTIFICATION	CE/FCC Class A, LVD
ESG DECLARATION	EU RoHS, REACH

ATX-ARL1-H810

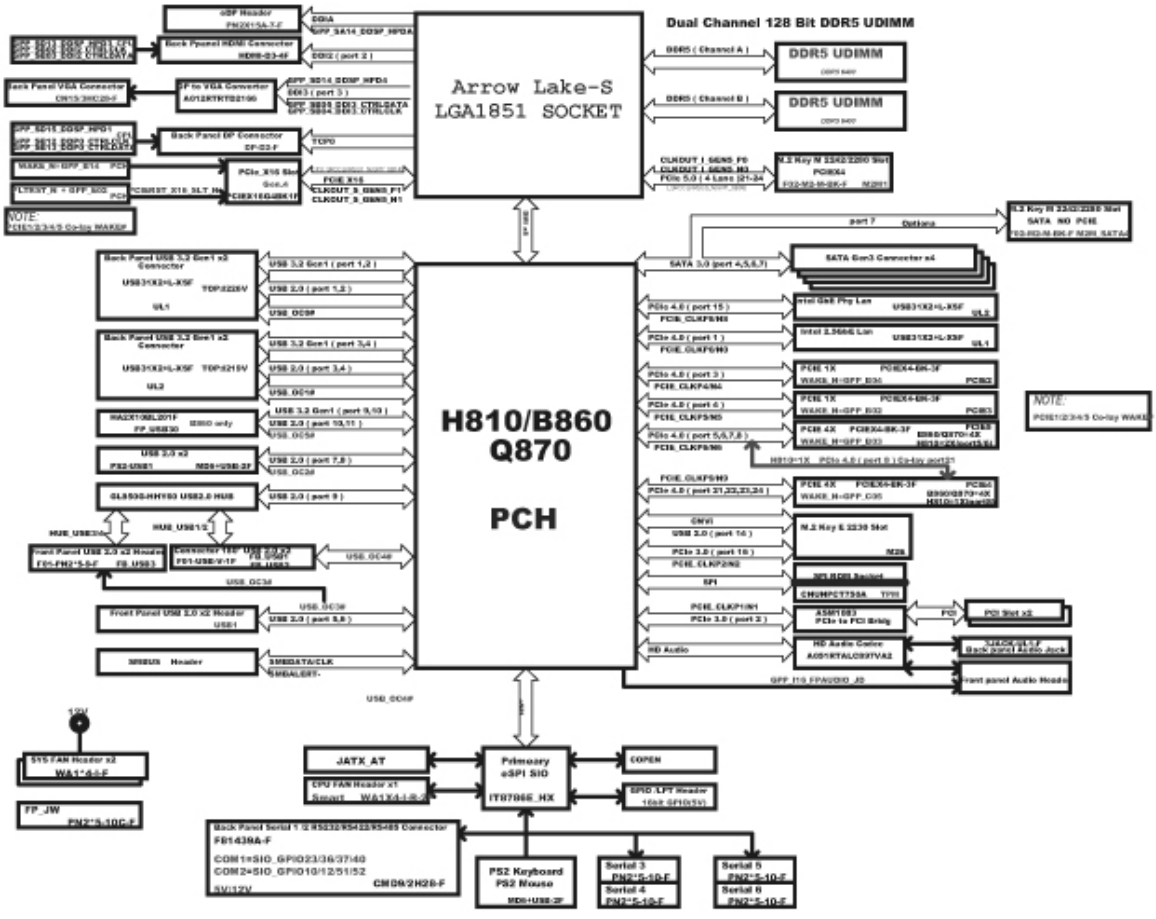
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MB FORM FACTOR	ATX
CPU	Intel® LGA1851 Socket Ultra 9/7/5th Gen Processor (Max. TDP 125W)
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MEMORY	2 x DDR5 6400MT/s, Dual Channel U-DIMM, up to 96GB
BIOS	UEFI
WAKE ON LAN	Yes
WATCHDOG TIMER	255 Levels
SECURITY	Intel® PTT (Integrated fTPM) & TPM 2.0 (dTPM)
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USB PORT	
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SERIAL PORT	

COM	Internal Header for 4 x RS-232 2 x DB-9 for RS-232/422/485
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GPIO	16 bit GPIO (5V) Co-lay LPT
SMBUS	Yes
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FRONT PANEL	HDD Active LED Power LED Power On/Off Reset
ADDITIONAL	1 x Chassis intrusion 1 x AT/ATX Mode Selection
STORAGE	
SATA	4 x SATA III
EXPANSION	
M.2	1 x M-key 2242/2280 (SATA interface, Co-lay SATA4) 1 x E-Key 2230 (USB2.0 + CNVi interface)
PCIE	1 x PCIe x16 (Gen.4) 4 x PCI-Ex4 slots (Gen.4, PCIE2/PCIE3: PCI-Ex1, PCIE5 : PCI-Ex4 or PCIE2/PCIE3/PCIE4: PCI-Ex1, PCIE5 : PCI-Ex2) 2 x PCI
OTHERS	
OTHER	1 x PS/2
ENVIRONMENT & CERTIFICATION	
OPERATING TEMPERATURE	0°C ~ 60°C (32°F ~ 140°F)
STORAGE TEMPERATURE	-20°C ~ 70°C (-4°F ~ 158°F)
OPERATING HUMIDITY	10 ~ 90% relative humidity, non-condensing
CERTIFICATION	CE/FCC Class A, LVD
ESG DECLARATION	EU RoHS, REACH

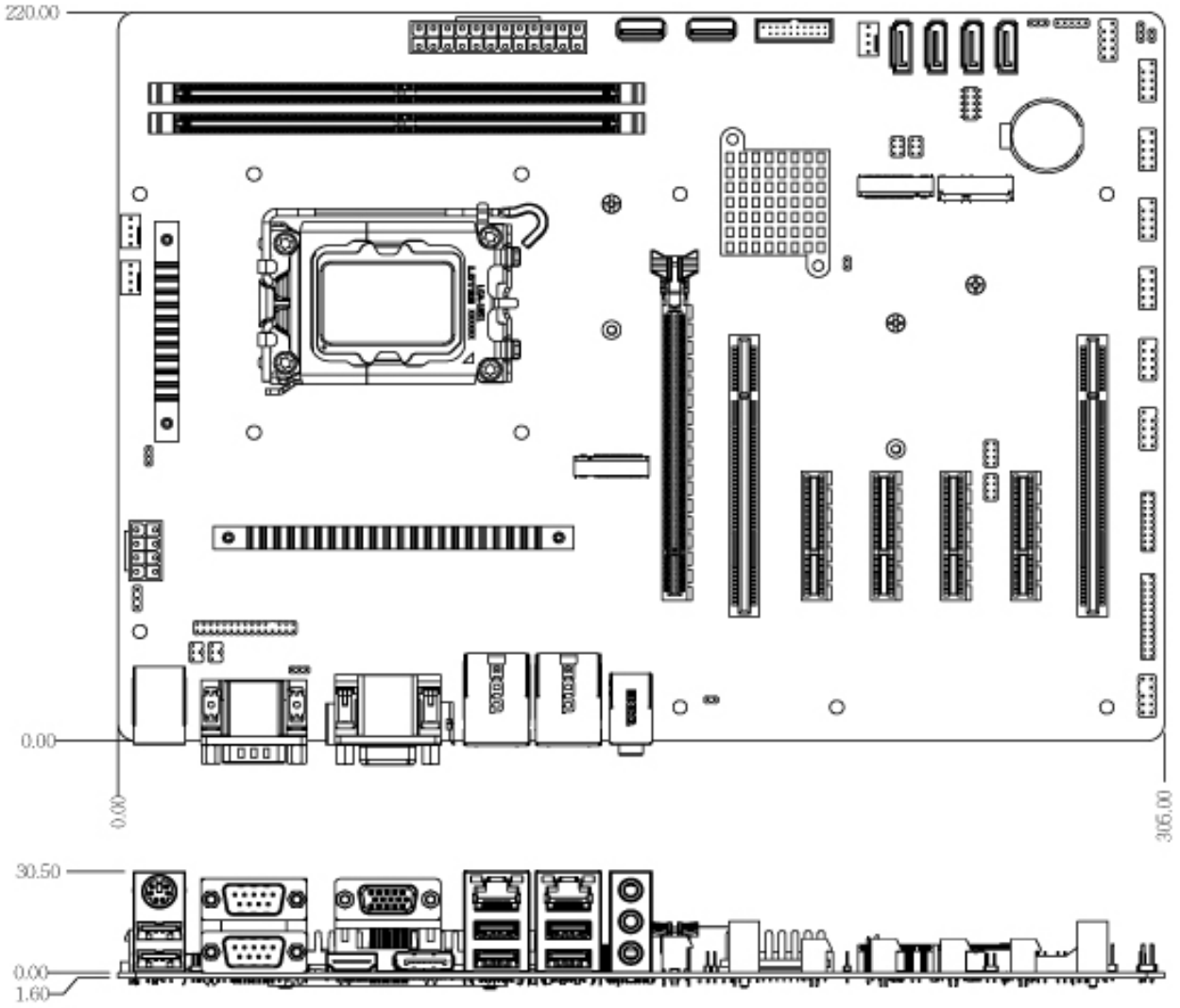
Ordering Information

Item	ATX-ARL1-B86000A1	ATX-ARL1-B86002A1	ATX-ARL1-H81000A1	ATX-ARL1-H81002A1
CPU	Intel® Arrow Lake-S B860 Chip	Intel® Arrow Lake-S B860 Chip	Intel® Arrow lake-S H810 Chip	Intel® Arrow lake-S H810 Chip
SECURITY	Intel® PTT (fTPM)	Intel® PTT (fTPM) & TPM 2.0 (dTPM)	Intel® PTT (fTPM)	Intel® PTT (fTPM) & TPM 2.0 (dTPM)

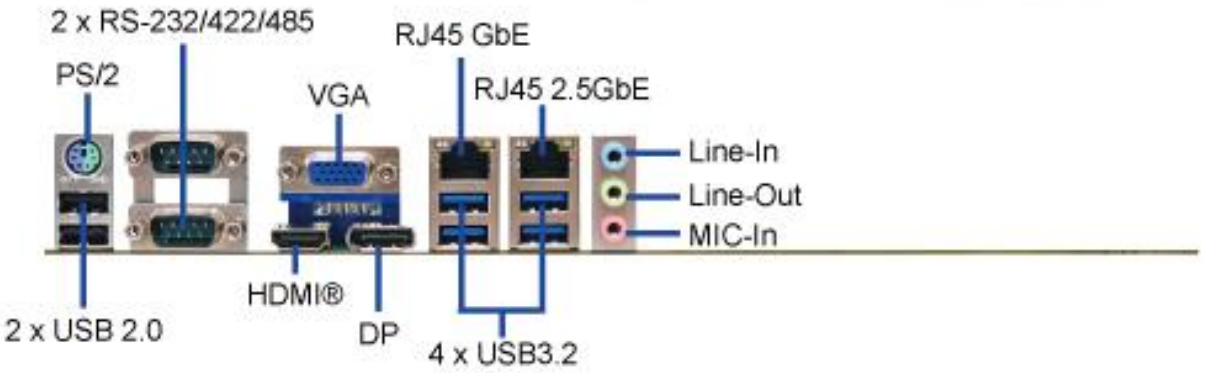
1-2 Block Diagram



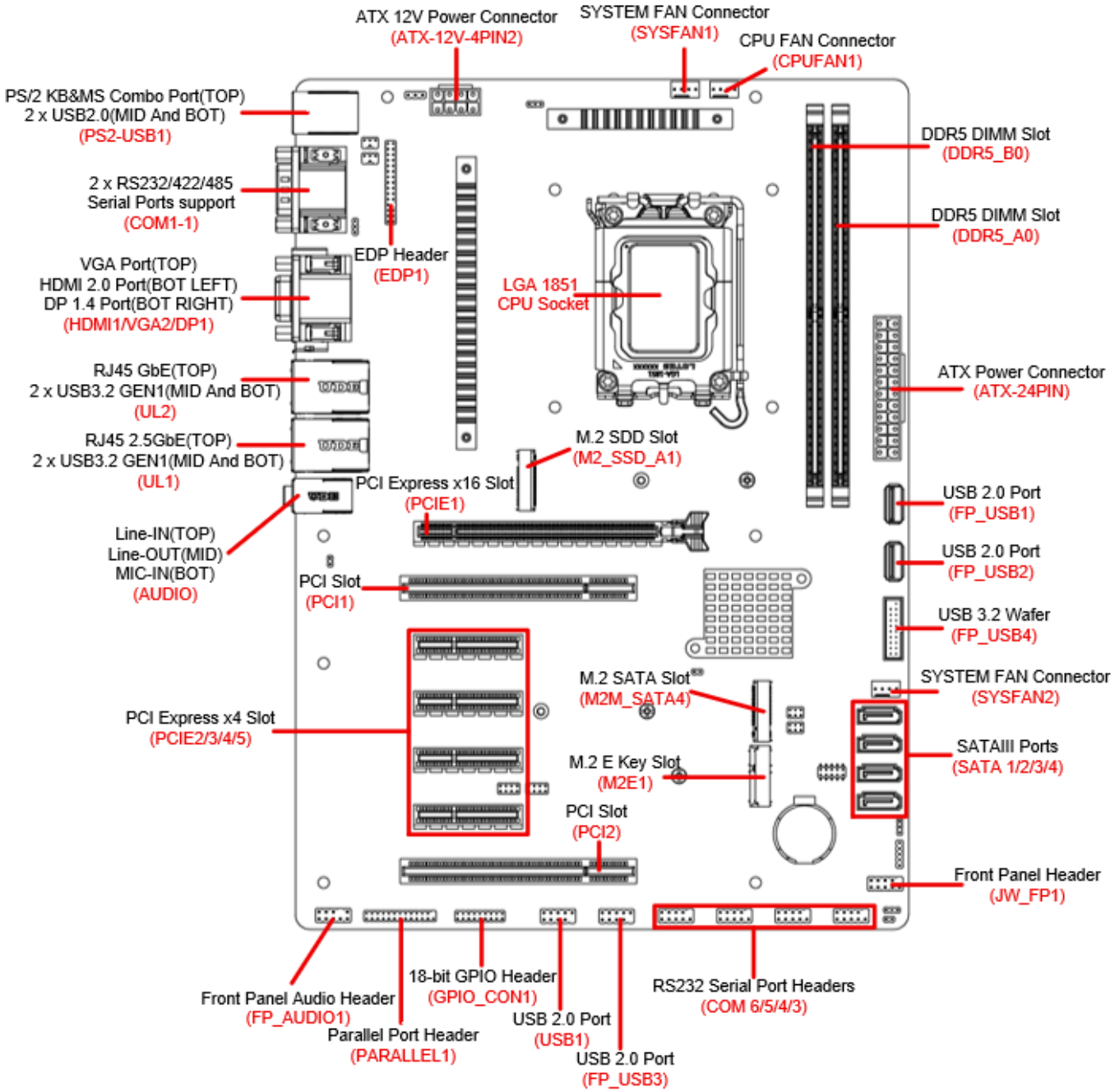
1-3 Dimension



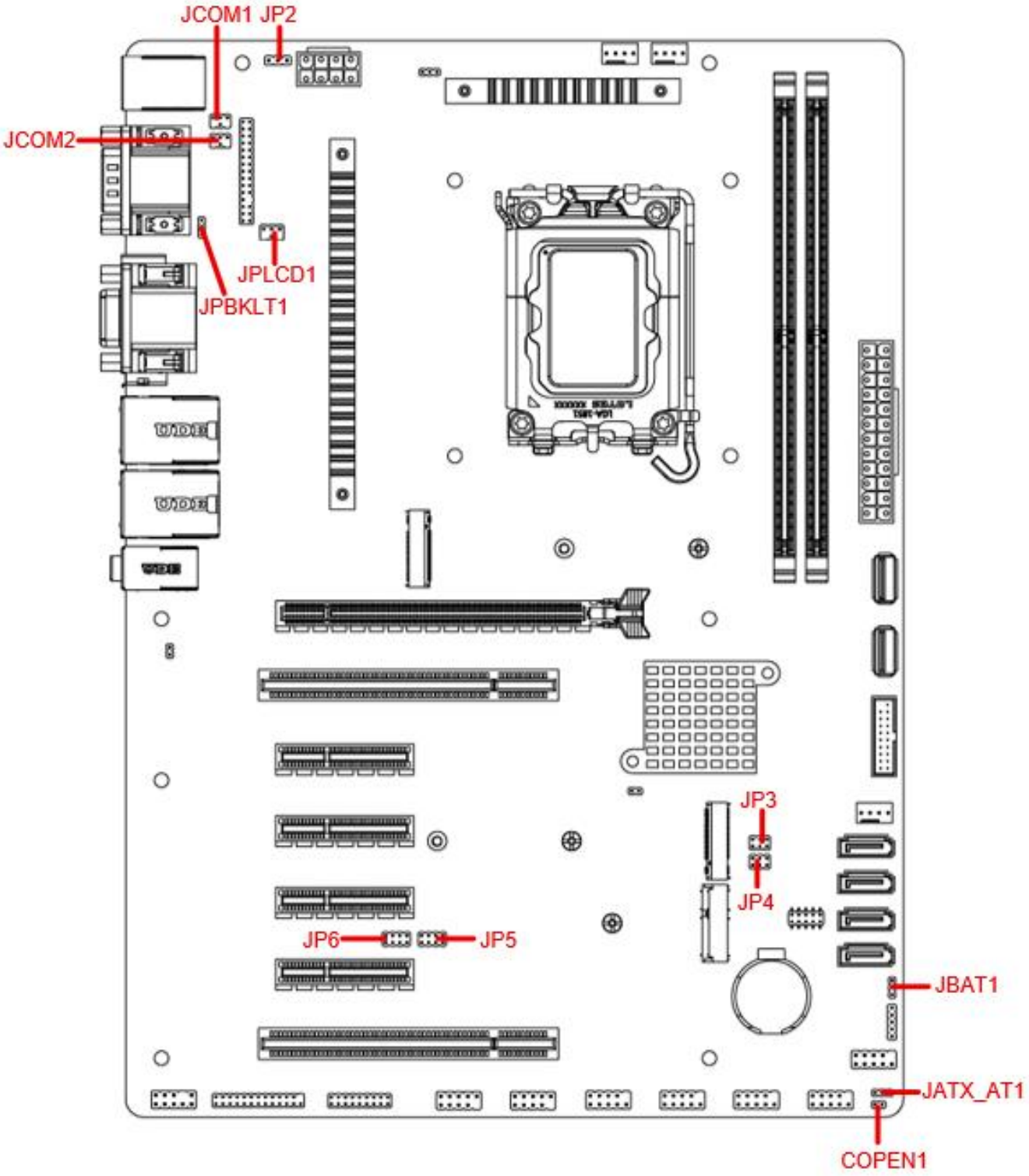
1-4 I/O Placement



1-5 Motherboard Placement



1-6 Jumper Positions



Chapter 2 Hardware Information

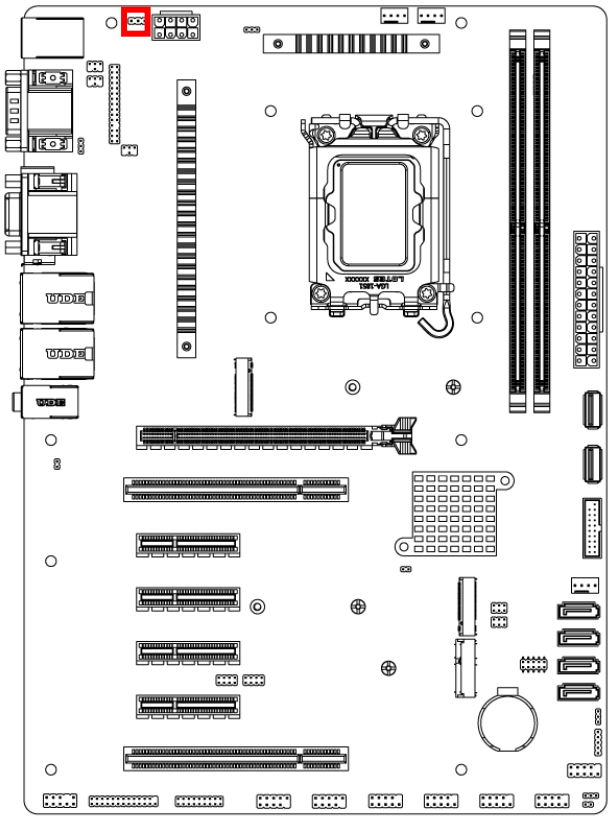
2-1 List of Jumpers

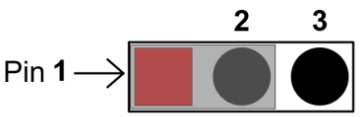
Please refer to the table below for all of the board's jumpers that you can configure for your application.

Location Printing	Function
JP2	PS/2 VCC Select
JP3	SATA4 And M2M_SATA4 Port Function Select
JP4	SATA4 And M2M_SATA4 Port Function Select
JP5	PCIE4 And PCIE5 Mode Select
JP6	PCIE4 And PCIE5 Mode Select
JCOM1	COM1 Mode Select
JCOM2	COM2 Mode Select
JPLCD1	EDP Power Select
JPBKLT1	EDP Backlight Power Select
JBAT1	Clear CMOS RAM Settings
JATX_AT1	AT/ATX Mode Select
COPEN1	CASE OPEN

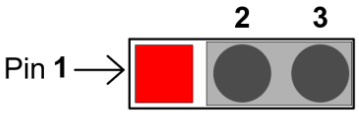
2-2 Jumper Settings

(1) JP2(3-Pin): PS/2 VCC Select



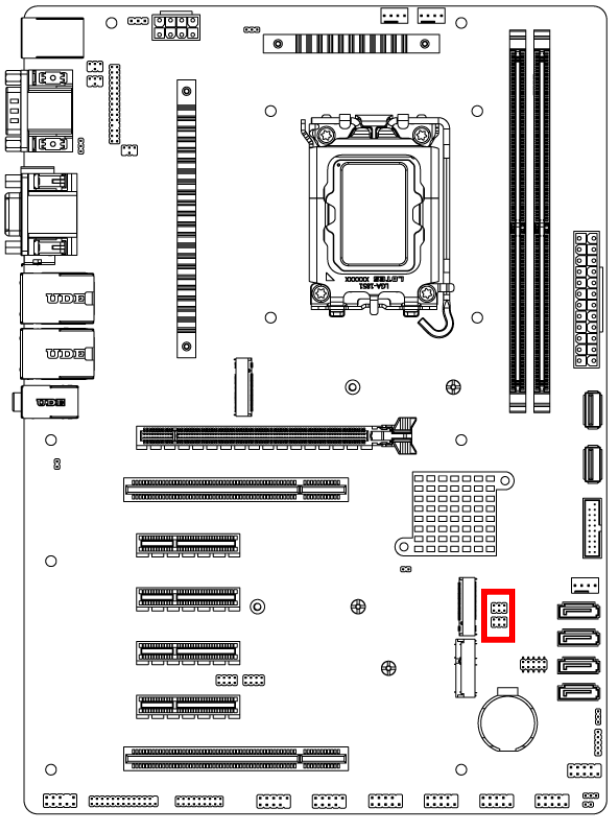


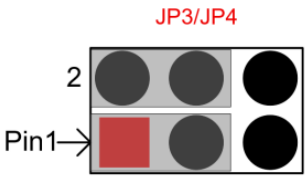
1-2 Closed:
VCC = 5VSB



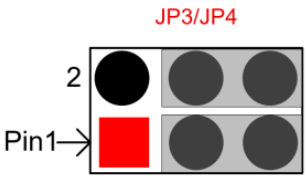
2-3 Closed:
VCC = 5V

(2) JP3/JP4 (6-Pin): SATA4 And M2M_SATA4 Port Function Select



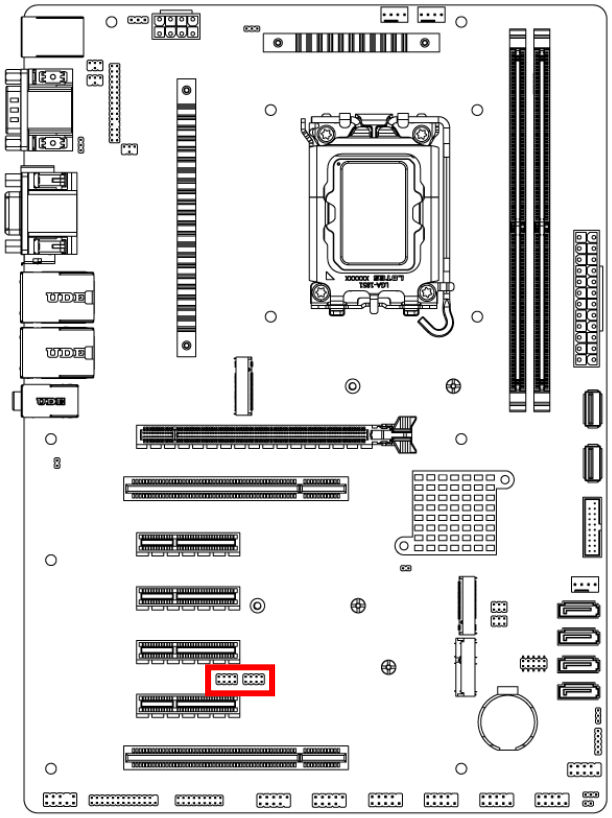


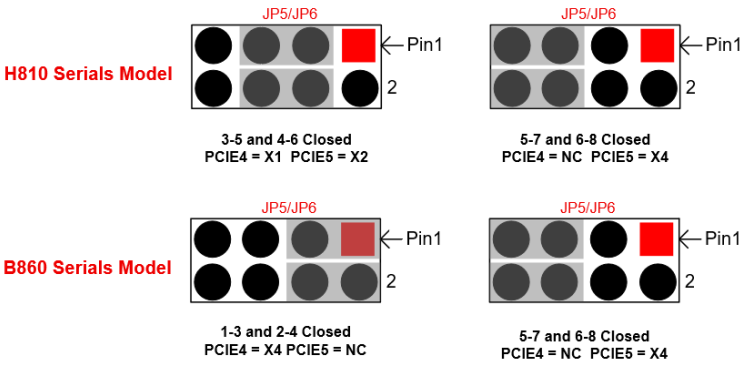
1-3 and 2-4 Closed
M2M_SATA4 Enabled
SATA4 Disabled



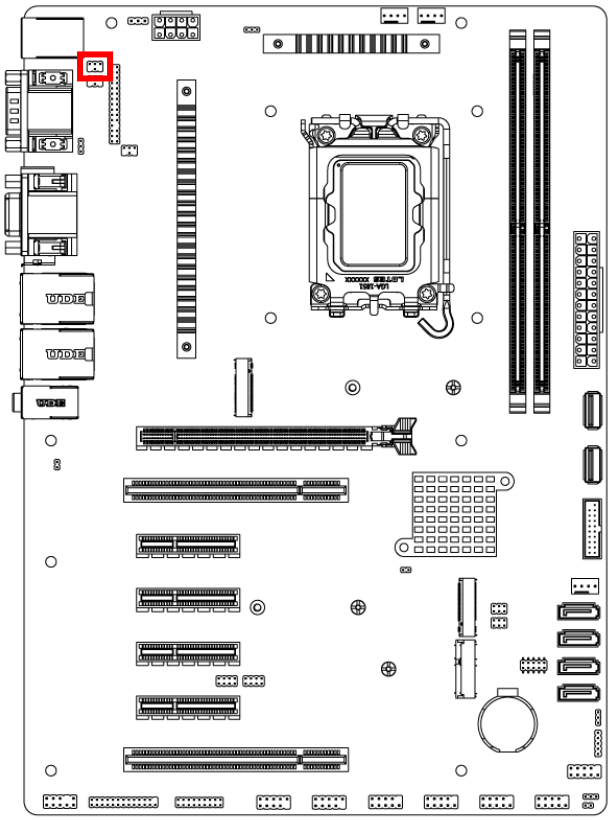
3-5 and 4-6 Closed
M2M_SATA4 Disabled
SATA4 Enabled

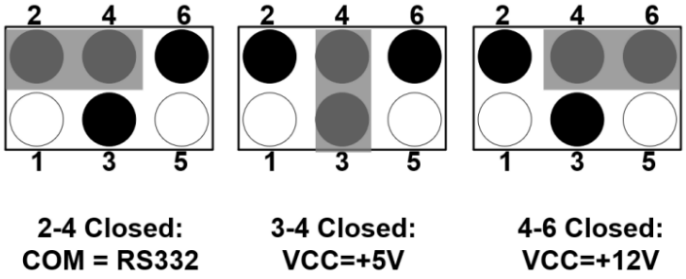
(3) JP5/6(8-Pin): PCIE4 And PCIE5 Mode Select



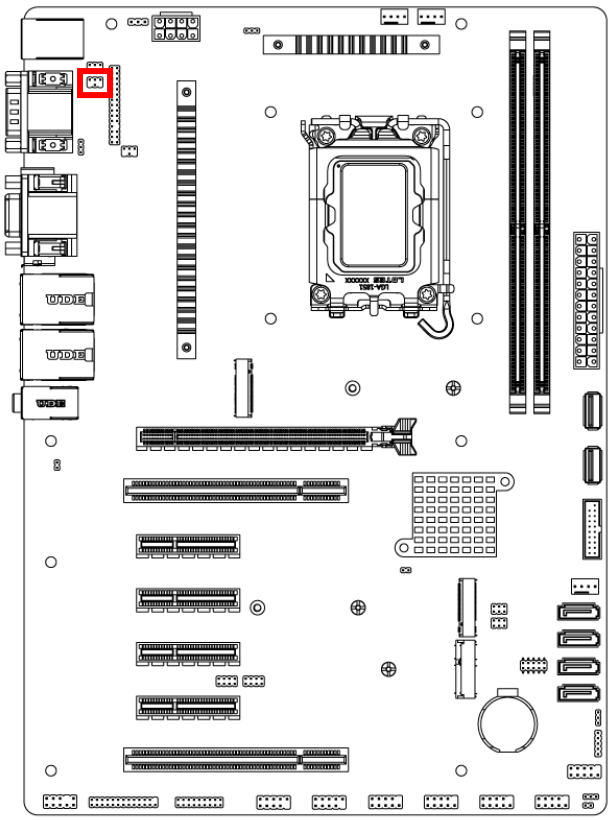


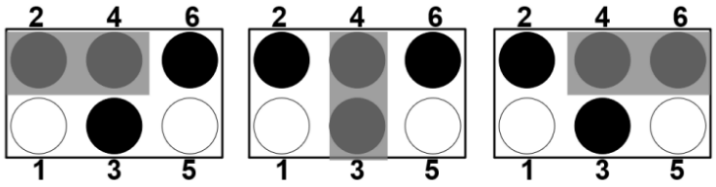
(4) JCOM1(4-Pin): COM1 Mode Select





(5) JCOM2(4-Pin): COM2 Mode Select



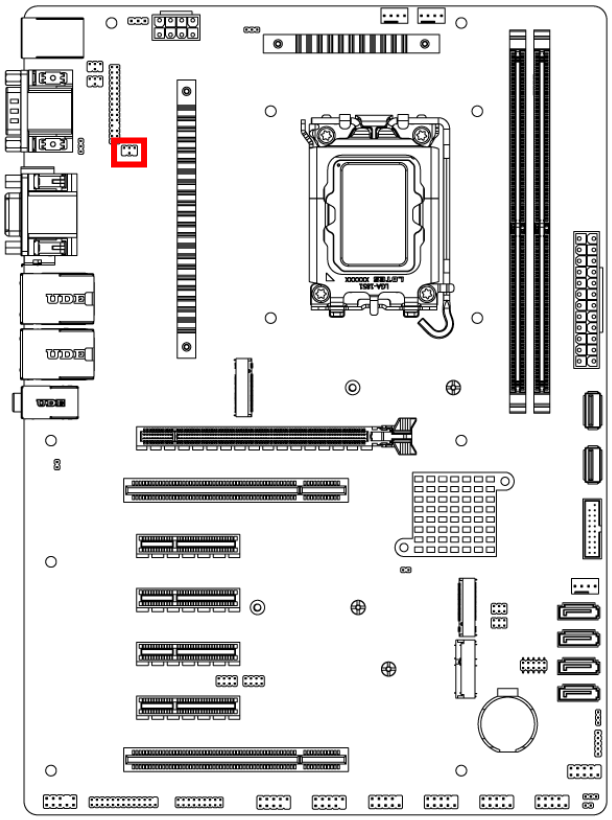


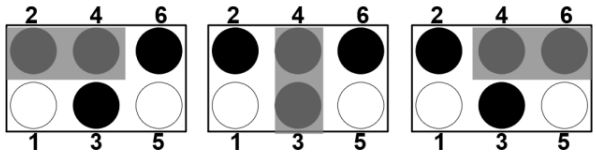
2-4 Closed:
COM = RS332

3-4 Closed:
VCC=+5V

4-6 Closed:
VCC=+12V

(6) JPLCD1(4-Pin): EDP Power Select



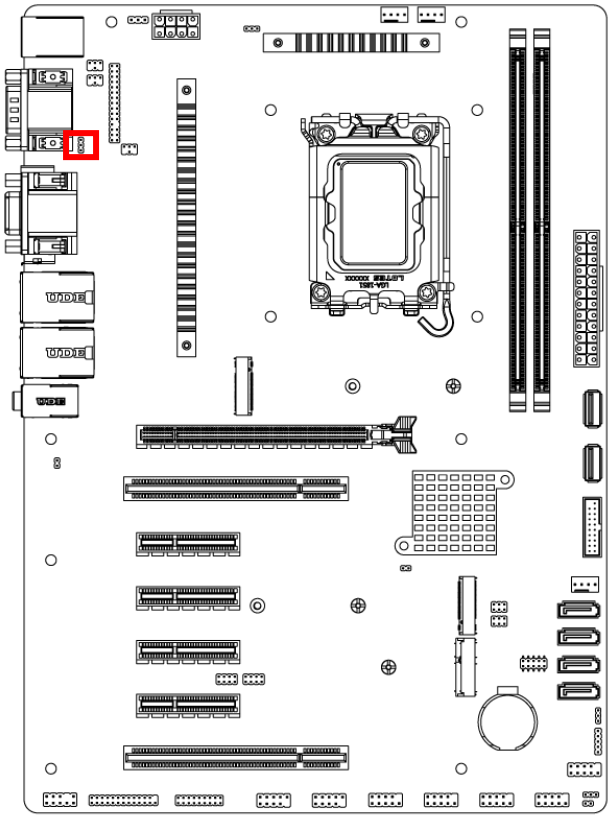


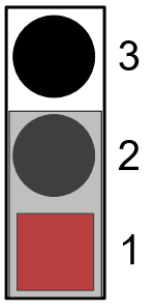
2-4 Closed:
EDP Power = +12V

3-4 Closed:
EDP Power = +5V

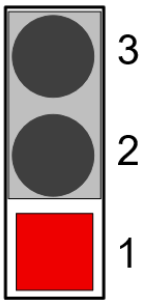
4-6 Closed:
EDP Power = +3.3V

(7) JPBKLT1(3-Pin): EDP Backlight Power Select



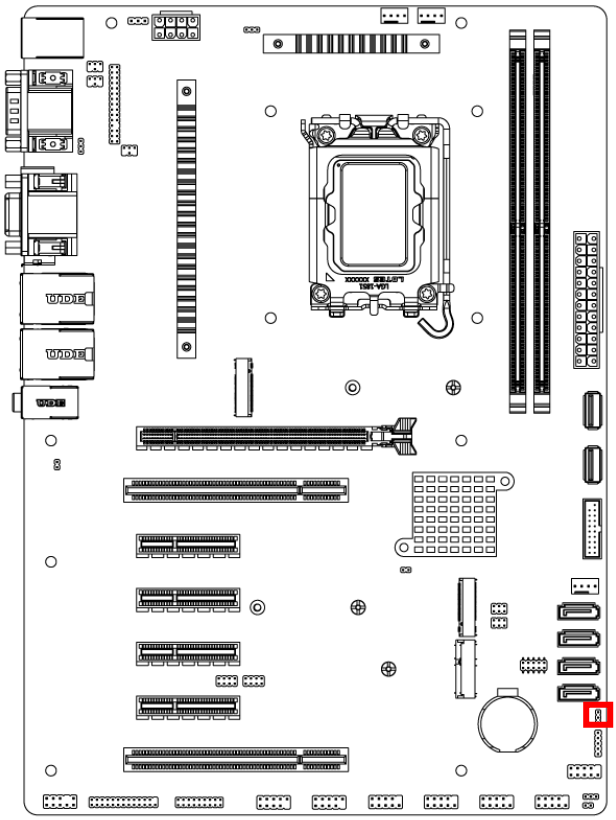


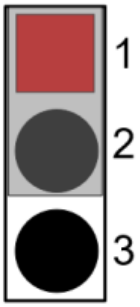
1-2 Closed:
EDP Backlight VCC = +5V



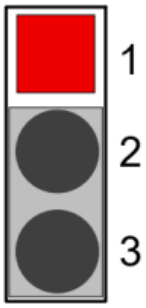
2-3 Closed:
EDP Backlight VCC = +12V

(8) JBAT1(3-Pin): Clear CMOS RAM Setting



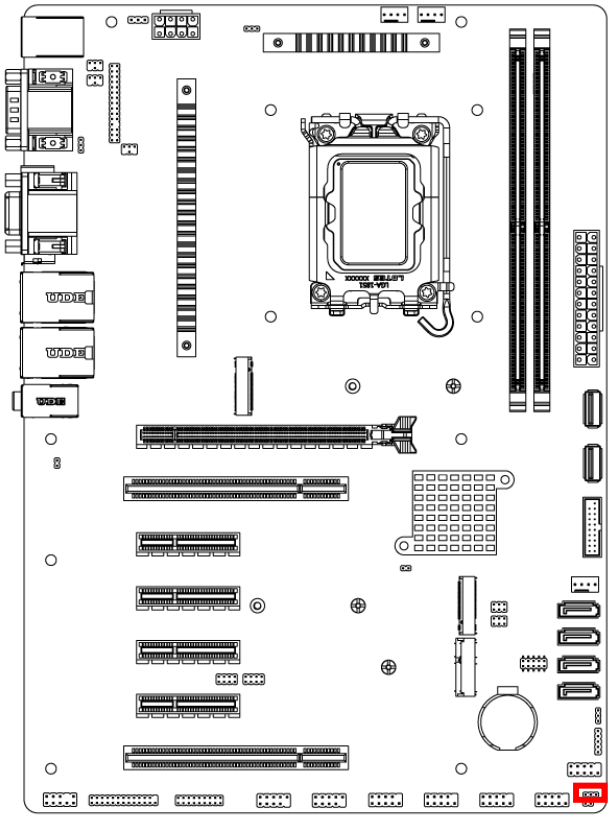


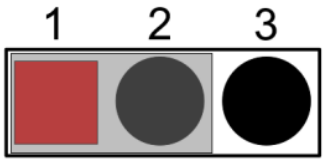
1-2 Closed:
Normal



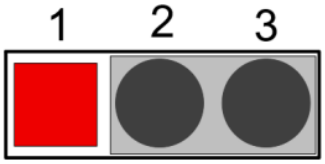
2-3 Closed:
Clear CMOS

(9) JBAT1(3-Pin): Clear CMOS RAM Setting



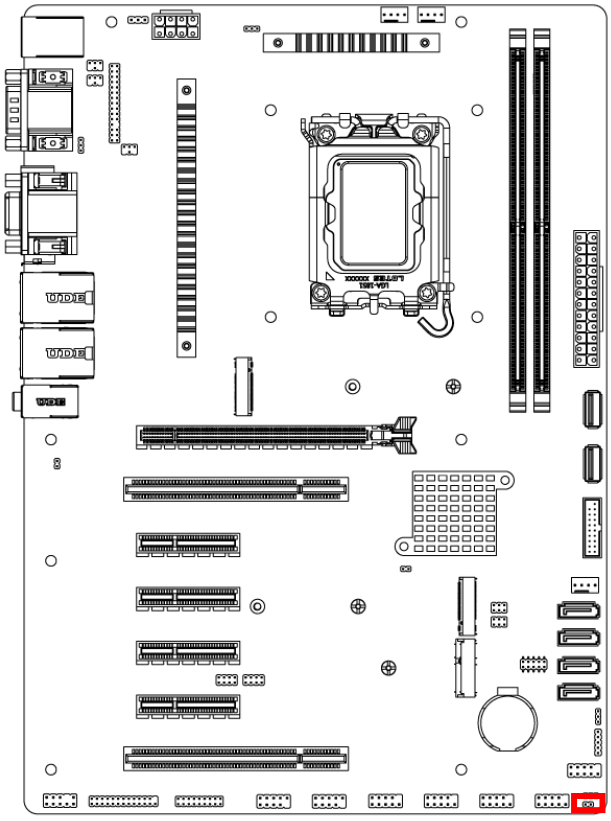


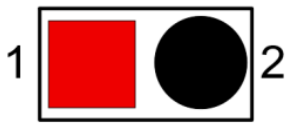
1-2 Closed:
ATX Mode Selected



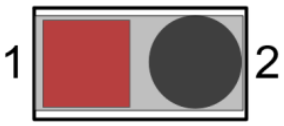
2-3 Closed:
AT Mode Selected

(10) COPEN1(3-Pin) : CASE OPEN





1-2 Open:
Normal(Default)



1-2 Closed:
Case Open Function Selected

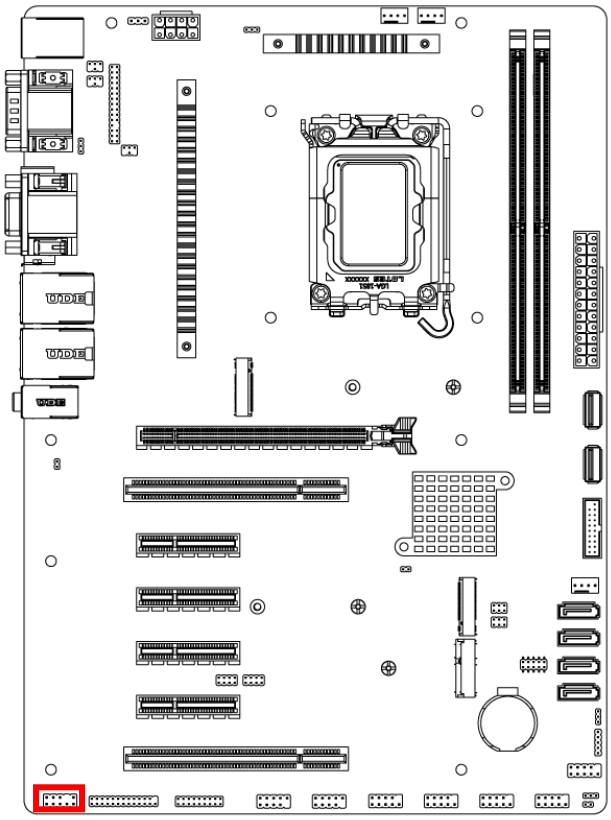
2-3 List of Connectors

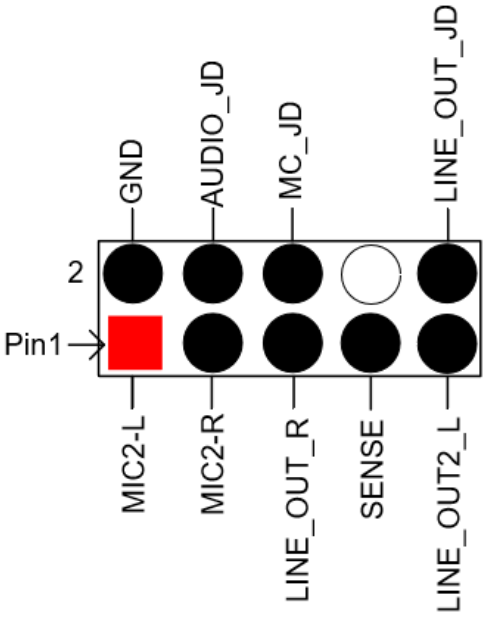
Please refer to the table below for all of the board's jumpers that you can configure for your application.

Location Printing	Function
PS2-USB1	PS/2 KB&MS Combo Port(TOP) + 2xUsb2.0
COM1-1	2 x RS232/422/485 Serial Ports support
HDMI1	HDMI2.0 Port
VGA2	VGA Port
DP1	DP 1.4 Port
UL1	RJ45 2.5GbE(TOP) + 2 x USB3.2 GEN1
UL2	RJ45 GbE(TOP) + 2 x USB3.2 GEN1
AUDIO	Line-IN(TOP) + Line-OUT(MID) + MIC-OUT(BOT)
PCIE2/3/4/5	PCI Express x4 Slot
ATX-12V-4PIN2	ATX 12V Power Connector
M2E1	M.2 E Key Slot
M2M_SATA4	M.2 SATA Slot
SATA 1/2/3/4	SATAIII Ports
FP_USB1	USB 2.0 Port
FP_USB2	USB 2.0 Port
PCI1	PCI Slot
PCI2	PCI Slot
PCIE1	PCI Express x16 Slot
M2_SSD_A1	M.2 SDD Slot
DDR5_A0	DDR5 DIMM Slot
DDR5_B0	DDR5 DIMM Slot
ATX-24 PIN	ATX Power Connector
FP_AUDIO1	Front Panel Audio Header
PARALLEL1	Parallel Port Header
GPIO_CON1	16-bit GPIO Header
USB1	USB 2.0 Port
FP_USB3	USB 2.0 Port
COM 6/5/4/3	RS232 Serial Port Headers
JW_FP1	Front Panel Header
FP_USB4	USB 3.2 Wafer
EDP1	EDP Header
SYSFAN1	SYSTEM FAN Connector
SYSFAN2	SYSTEM FAN Connector
CPUFAN1	CPU FAN Connector

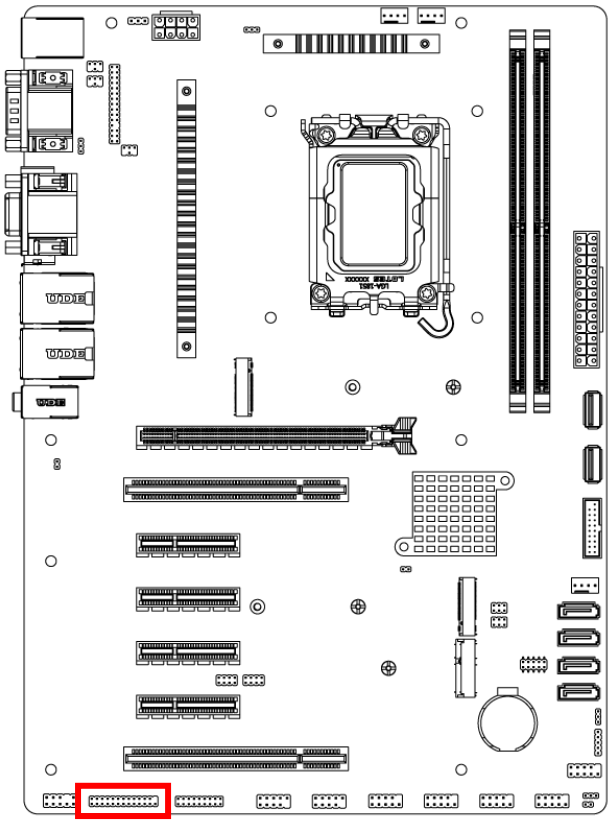
2-4 Connector Settings

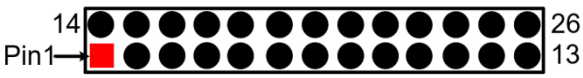
(1) FP_AUDIO1(9-Pin): Front Panel Audio Header





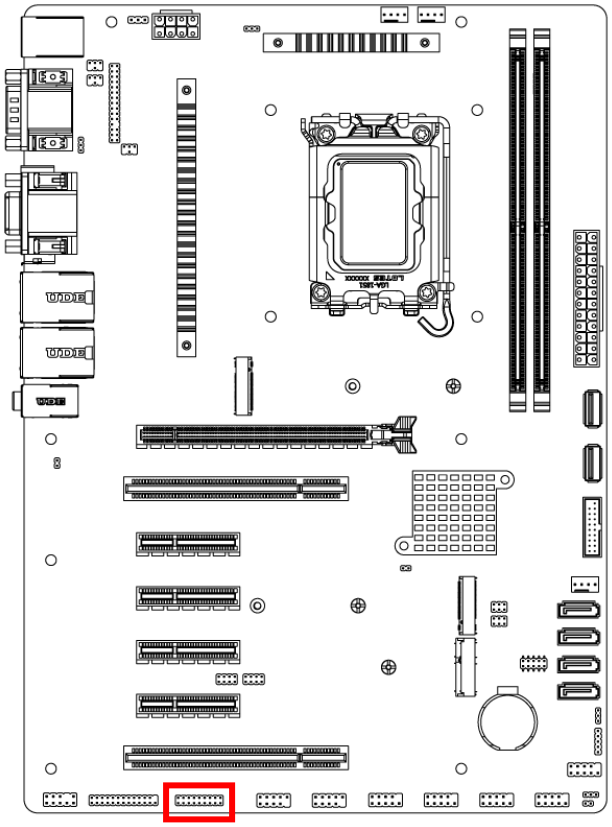
(2) FP_AUDIO1(9-Pin): Front Panel Audio Header

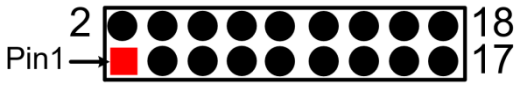




Pin	Pin	Pin	Pin
Pin 1	P_STB-	Pin 14	P_AFD-
Pin 2	P_PRD0	Pin 15	P_ERR-
Pin 3	P_PRD1	Pin 16	R_INIT-
Pin 4	P_PRD2	Pin 17	P_SLIN-
Pin 5	P_PRD3	Pin 18	GND
Pin 6	P_PRD4	Pin 19	GND
Pin 7	P_PRD5	Pin 20	GND
Pin 8	P_PRD6	Pin 21	GND
Pin 9	P_PRD7	Pin 22	GND
Pin 10	P_ACK-	Pin 23	GND
Pin 11	P_BUSY	Pin 24	GND
Pin 12	P_PE	Pin 25	GND
Pin 13	P_SLCT		

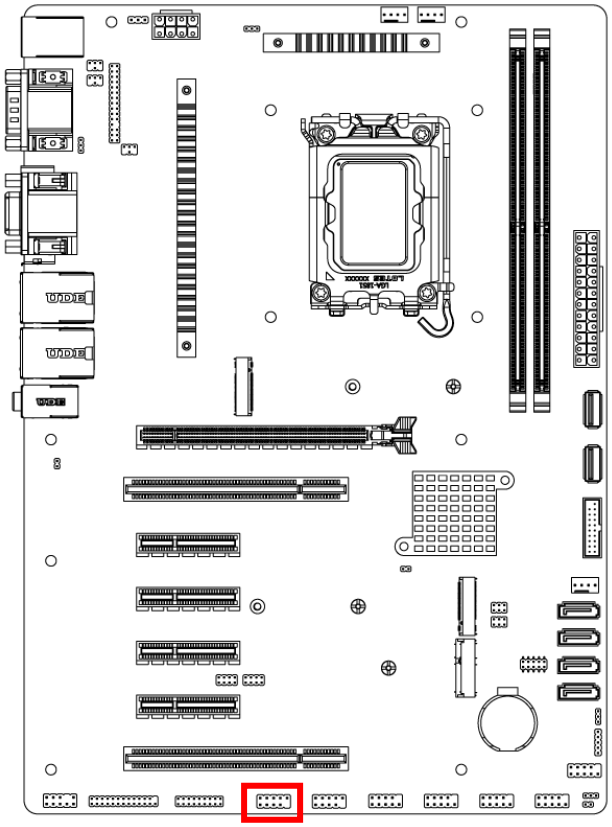
(3) GPIO_CON1(18-Pin): 16-bit GPIO Header

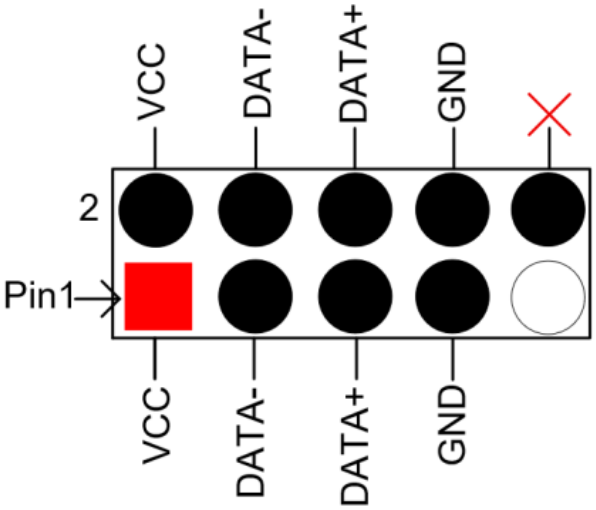




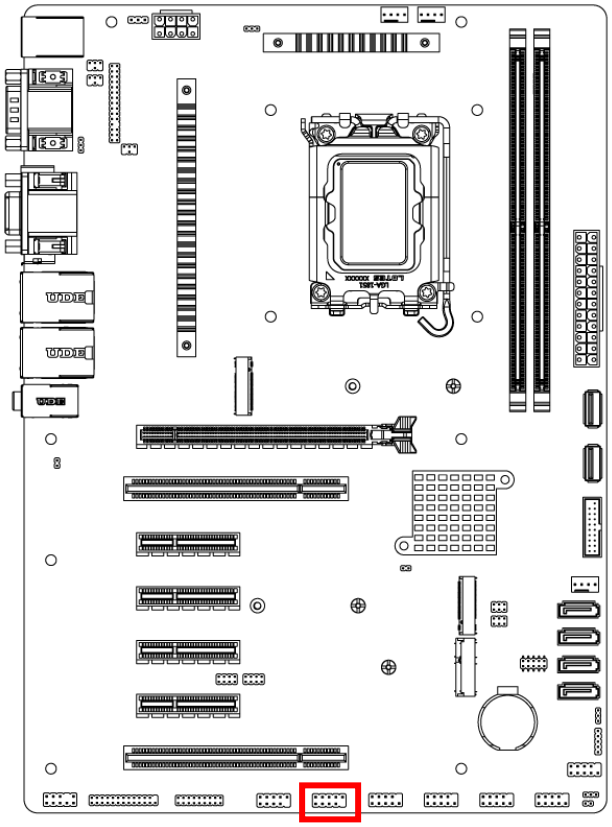
Pin NO.	Pin Define	Pin NO.	Pin Define
Pin 1	GPIO70	Pin 2	GPIO71
Pin 3	GPIO72	Pin 4	GPIO73
Pin 5	GPIO74	Pin 6	GPIO75
Pin 7	GPIO76	Pin 8	GPIO77
Pin 9	GPIO80	Pin 10	GPIO81
Pin 11	GPIO82	Pin 12	GPIO83
Pin 13	GPIO84	Pin 14	GPIO85
Pin 15	GPIO86	Pin 16	GPIO87
Pin 17	GND	Pin 18	5V_RUN

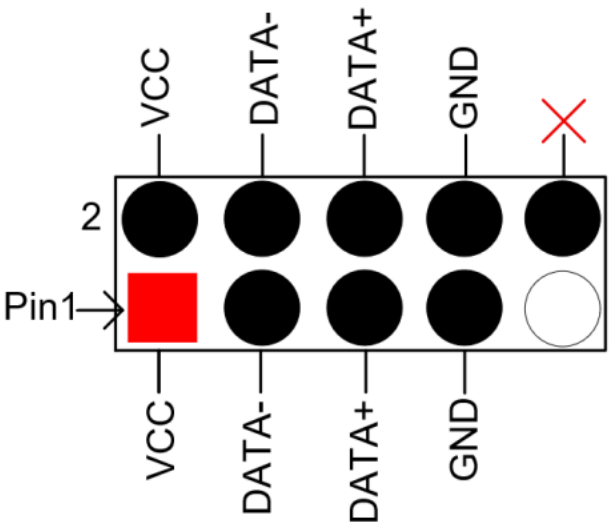
(4) USB1(9-Pin): USB 2.0 Port



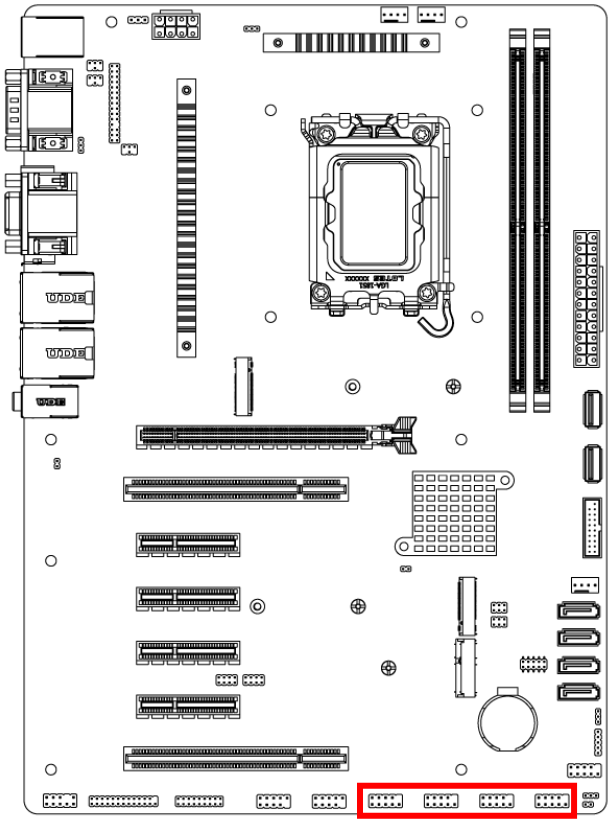


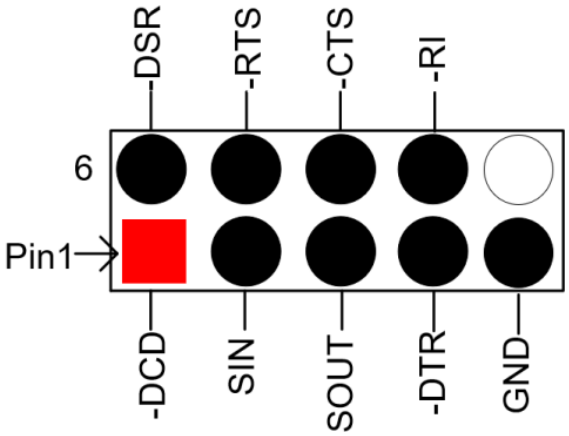
(5) FP_USB3(9-Pin): USB 2.0 Port



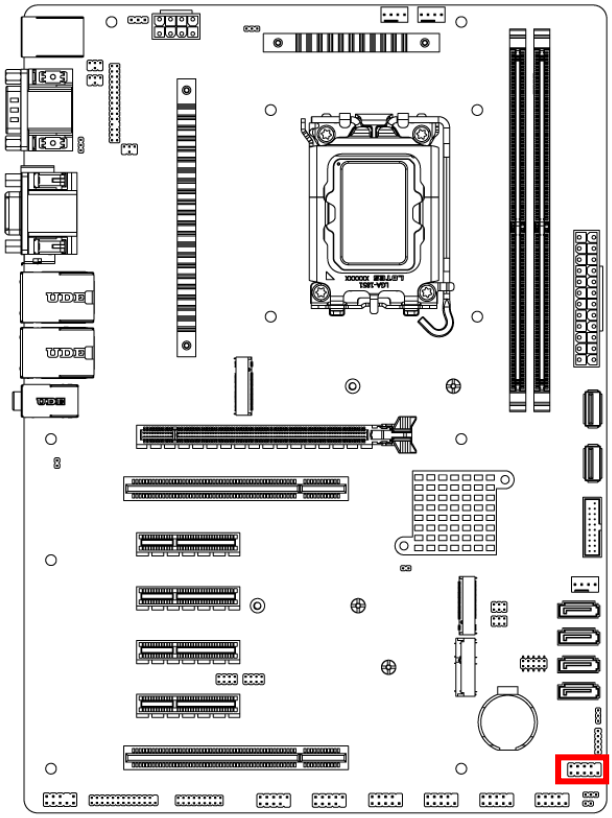


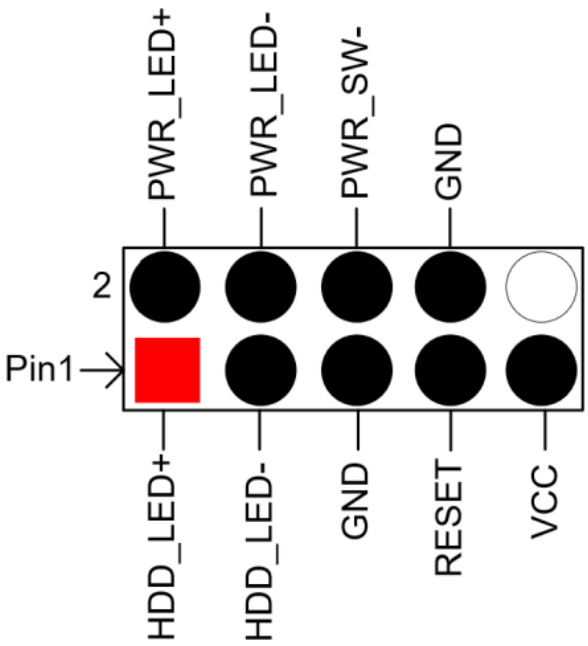
(6) COM 6/5/4/3(9-Pin): RS232 Serial Port Headers



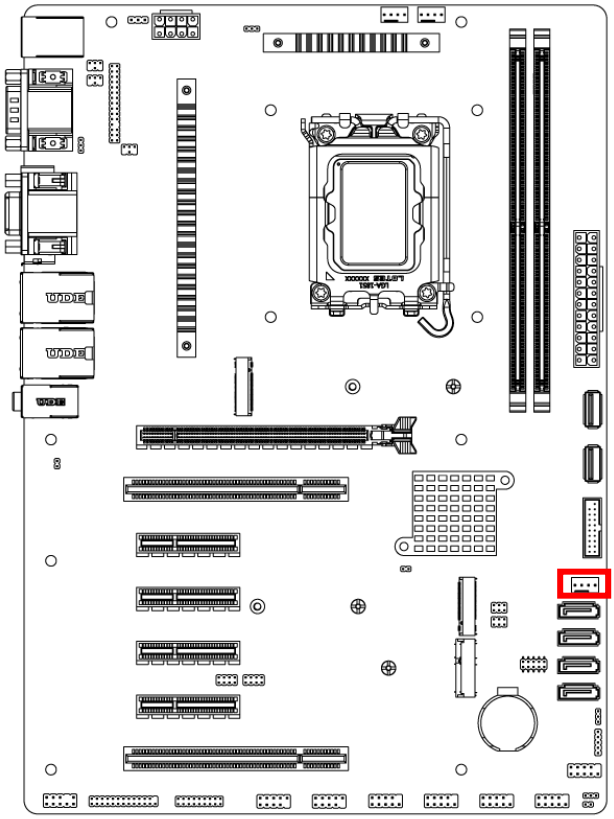


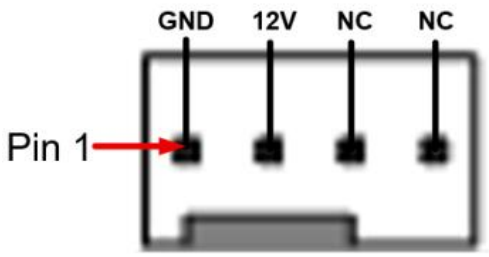
(7) JW_FP1(9-Pin): Front Panel Header



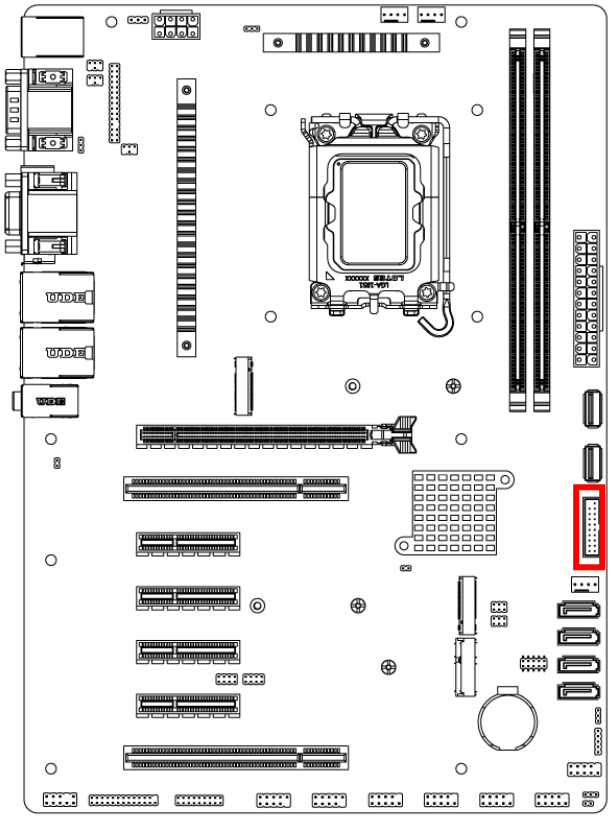


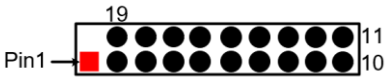
(8) SYSFAN2(4-Pin): SYSTEM FAN Connector





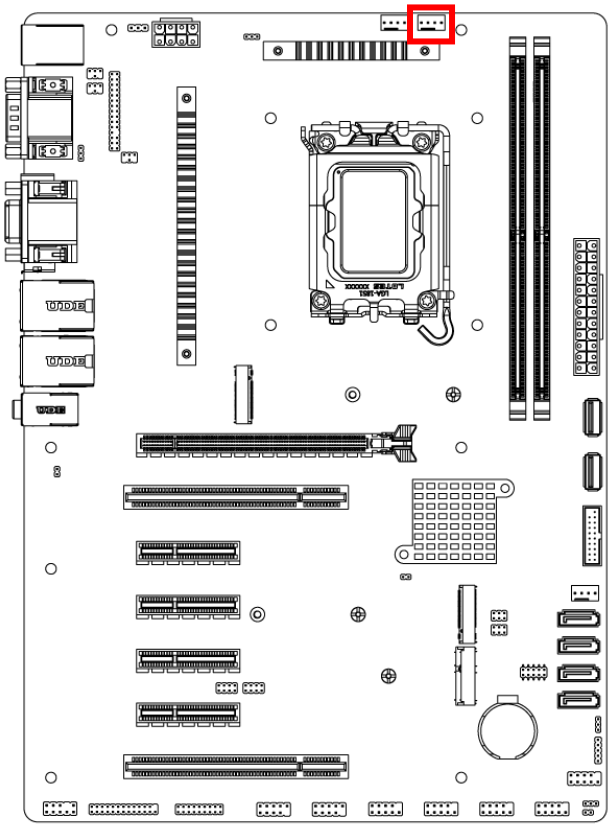
(9) FP_USB4(19-Pin): USB 3.2 Wafer

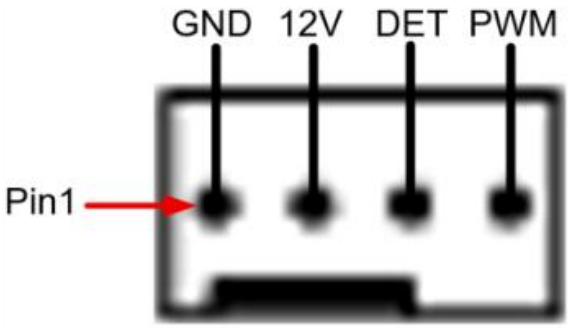




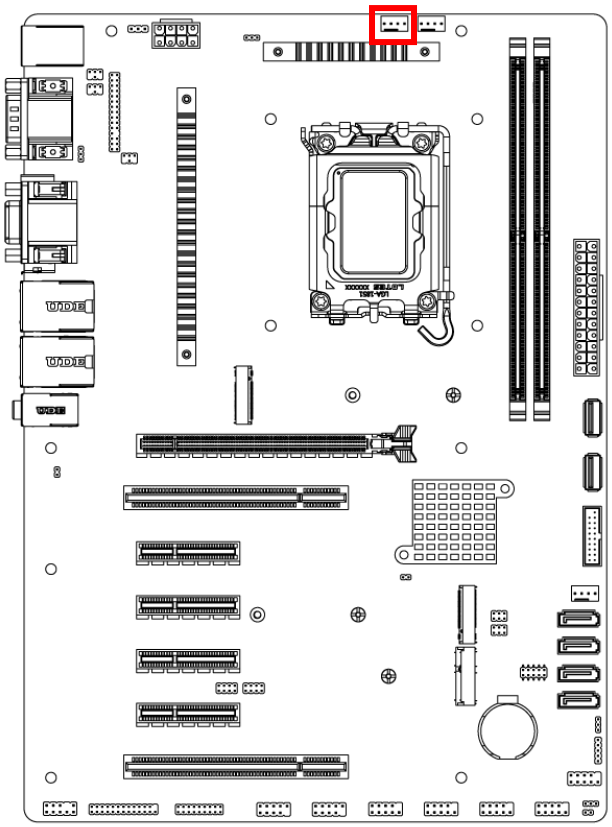
Pin NO.	Pin Define	Pin NO.	Pin Define
Pin 1	VCC	Pin 11	D2+
Pin 2	RX1-	Pin 12	D2-
Pin 3	RX1+	Pin 13	GND
Pin 4	GND	Pin 14	TX2+
Pin 5	TX1-	Pin 15	TX2-
Pin 6	TX1+	Pin 16	GND
Pin 7	GND	Pin 17	RX2+
Pin 8	D-	Pin 18	RX2-
Pin 9	D+	Pin 19	VCC
Pin 10	NC		

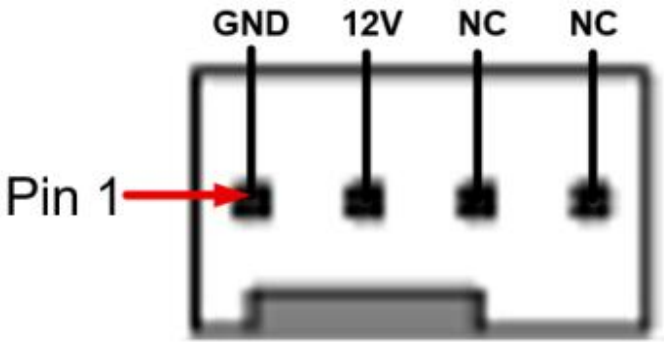
(10) CPUFAN1 (4-Pin): CPU FAN Connector



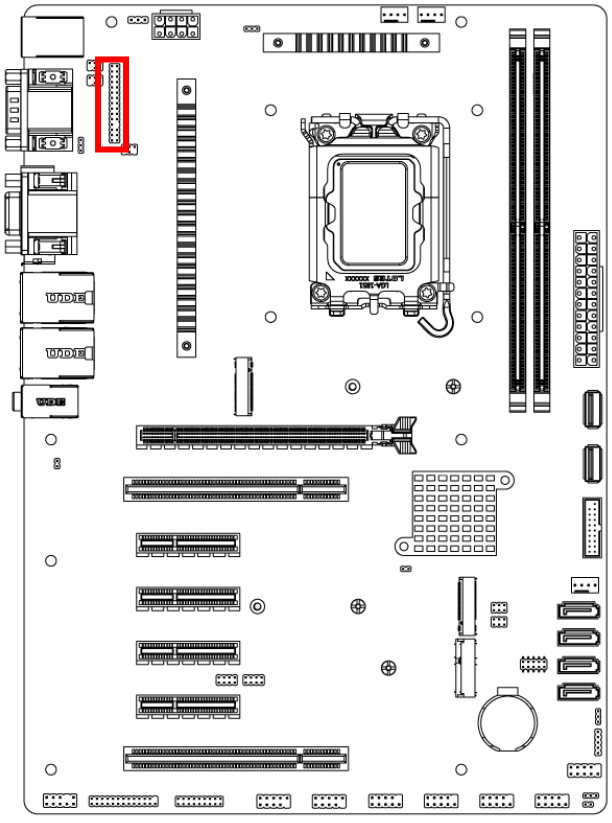


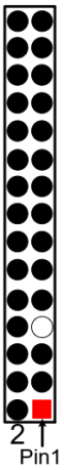
(11) SYSFAN1(4-Pin): SYSTEM FAN Connector





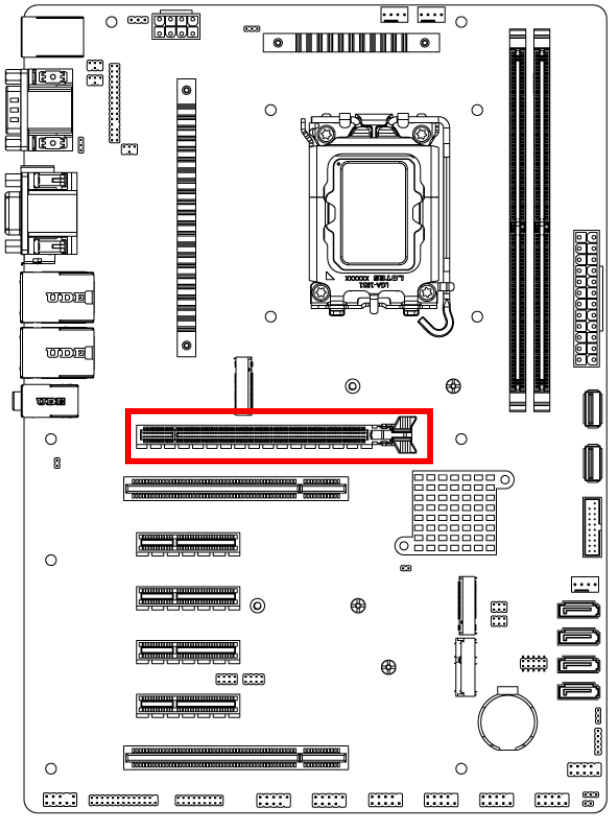
(12) EDP1(29-Pin): EDP Header





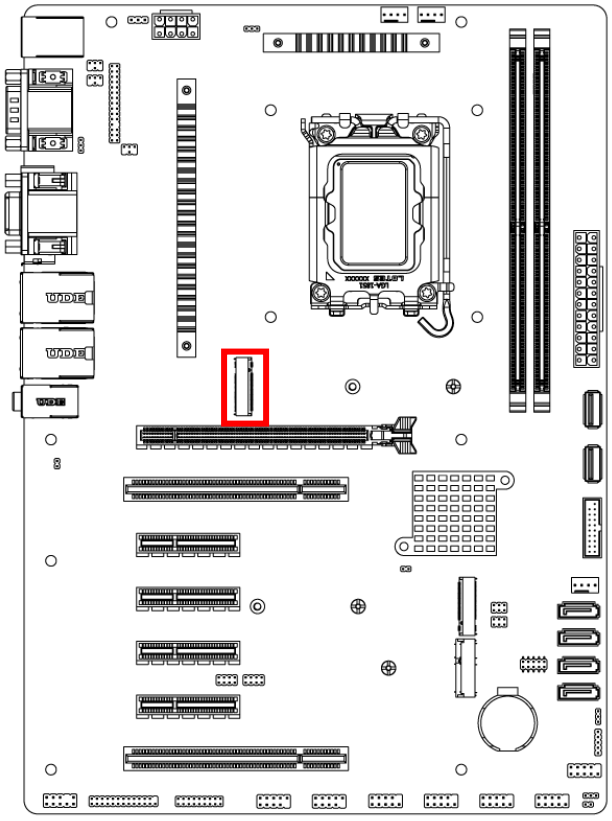
Pin NO.	Pin Define	Pin NO.	Pin Define
Pin 1	Backlight Power	Pin 2	Backlight Power
Pin 3	Backlight Power	Pin 4	GND
Pin 5	GND	Pin 6	NC
		Pin 8	NC
Pin 9	EDP_VCC	Pin 10	NC
Pin 11	EDP_VCC	Pin 12	Backlight PWM
Pin 13	GND	Pin 14	GND
Pin 15	Backlight Power Enabled	Pin 16	EDP_AUXP_C
Pin 17	EDP_HPD	Pin 18	EDP_AUXN_C
Pin 19	GND	Pin 20	GND
Pin 21	EDP_LANE+3	Pin 22	EDP_LANE-3
Pin 23	EDP_LANE+2	Pin 24	GND
Pin 25	GND	Pin26	EDP_LANE-2
Pin27	EDP_LANE+1	Pin28	EDP_LANE-1
Pin29	EDP_LANE+0	Pin30	EDP_LANE-0

(13) PCIE1: PCI Express X16 Slot



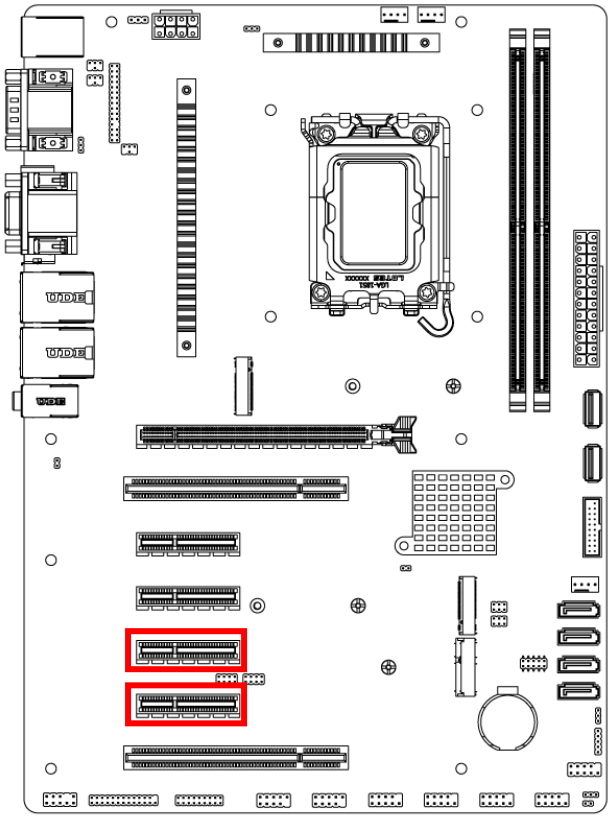
***Note: ATX-ARL1-B860'S PCI-Ex16 Slot can be divided into double PCI-Ex8**

(14) M2_SSD_A1: M.2 SDD Slot



***Note: ATX-ARL1-H810'S PCI-Ex16 doesn't support M2_SSD_A1's function**

(15) PCIE4/5: PCI Express x4 Slot



***Note: ATX-ARL1-H810'S PCIE4 can be set to X1,X2 or X4, ATX-ARL1-B860's PCIE5 sets default to X4**

2-5 Maximum Voltage & Current Limit

Below is a list of maximum voltage & Current Limit specification for motherboard interface (including but not limited to slots, connectors and headers) for setup reference:

Parts		Working Voltage	Current Support
USB Port From	USB1	5V	1.5A
	UL1	5V	2.5A
	UL2	5V	2.5A
	FP_USB1	5V	0.75A
	FP_USB2	5V	0.75A
	FP_USB3	5V	1.5A
	FP_USB4	5V	2.5A
GPIO_CON1		5V	1A
COM 1-1		5V/12V	0.5A
COM 3/4/5/6		5V/12V	0.5A
SMBUS		5V	0.5A
EDP1		12V/5V/3.3V	2A
M2E1		3.3V	2A
M2M_SATA4		3.3V	2A
M.2 SDD Slot		3.3V	2A
CPUFAN		12V	1.5A
SYSFAN1		12V	1.5A
SYSFAN2		12V	1.5A
JW_FP		5V	1A

Chapter 3 Introducing BIOS

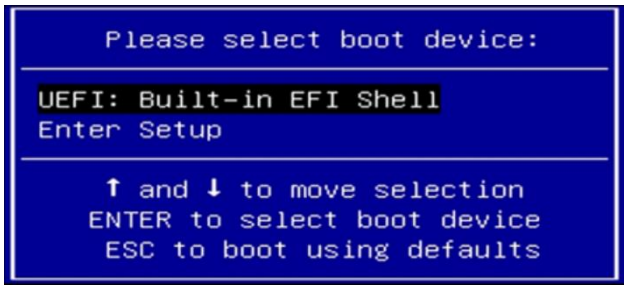
Notice!	The BIOS options in this manual are for reference only. Different configurations may lead to difference in BIOS screen and BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard. Users are welcome to download the latest BIOS version from our official website.

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program will gain control. The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization. Only when these tasks are completed done it gives up control of the computer to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

3-1 Entering Setup

Power on the computer and by pressing <Del> immediately allows you to enter Setup.
If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to

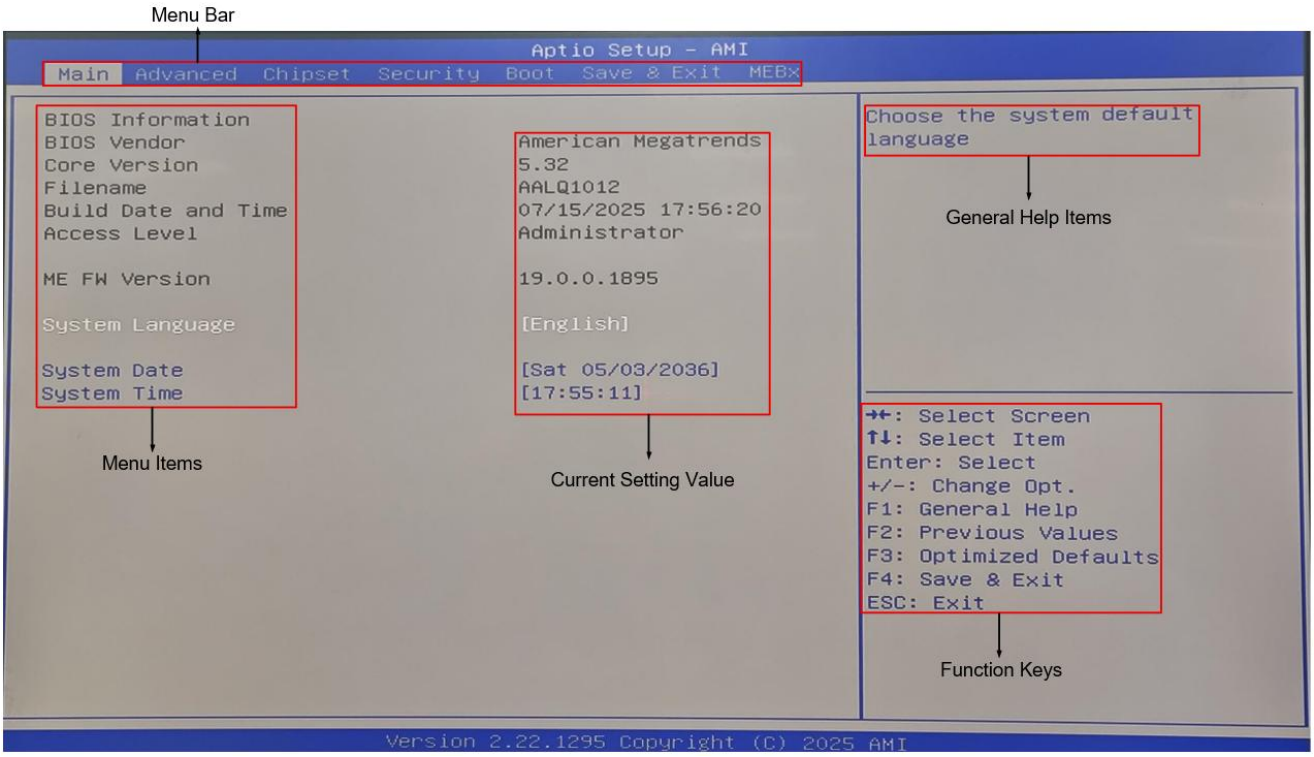
Press **<Del>** to enter Setup; press < **F7**> to enter pop-up Boot menu.



BIOS Boot Menu Screen (boot device options please refer to actual configuration)

3-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:



3-3 Function Keys

In the above BIOS Setup main menu of, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

- Press←→ (left, right) to select screen.
- Press ↑↓ (up, down) to choose, in the main menu, the option you want to confirm or to modify.
- Press <Enter> to select.
- Press <+>/<–> keys when you want to modify the BIOS parameters for the active option.
- [F1]: General help.
- [F2]: Previous values.
- [F3]: Optimized defaults.
- [F4]: Save & Exit.
- Press <Esc> to exit from BIOS Setup.

3-4 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the top right corner the screen.

Status Page Setup Menu/Option Page Setup Menu

Press 【F1】 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <**Esc**>.

3-5 Menu Bars

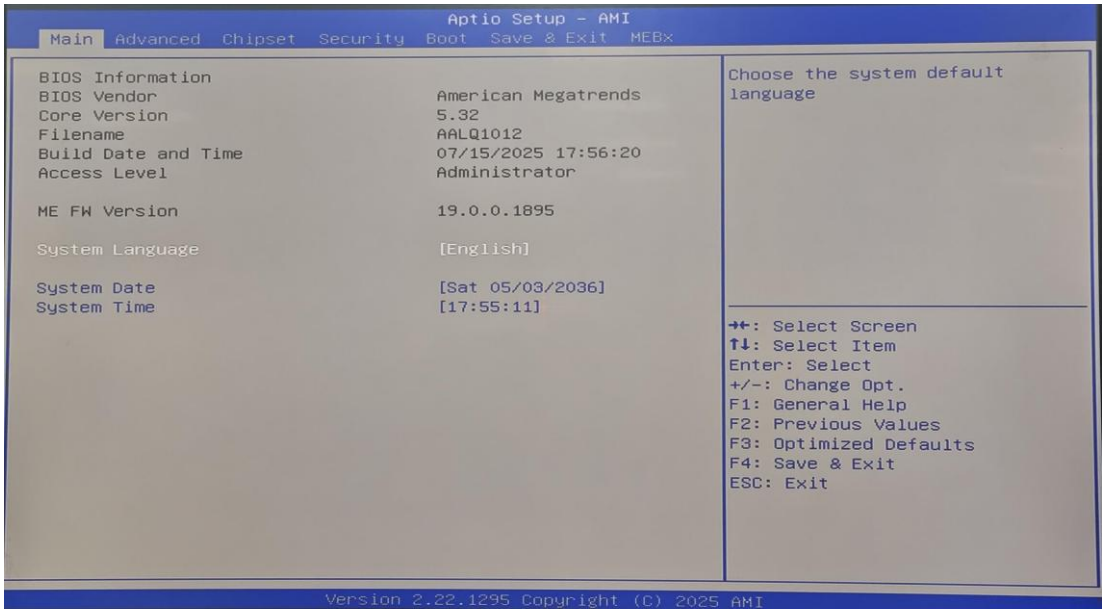
There are six menu bars on top of BIOS screen:

Main	To change system basic configuration
Advanced	To change system advanced configuration
Chipset	To change chipset configuration
Security	Password settings
Boot	To change boot settings
Save & Exit	Save setting, loading and exit options.

User can press the right or left arrow key on the keyboard to switch from menu bar. The selected one is highlighted.

3-6 Main Menu

Main menu screen includes some basic system information. Highlight the item and then use the <+> or <-> and numerical keyboard keys to select the value you want in each item.



System Date

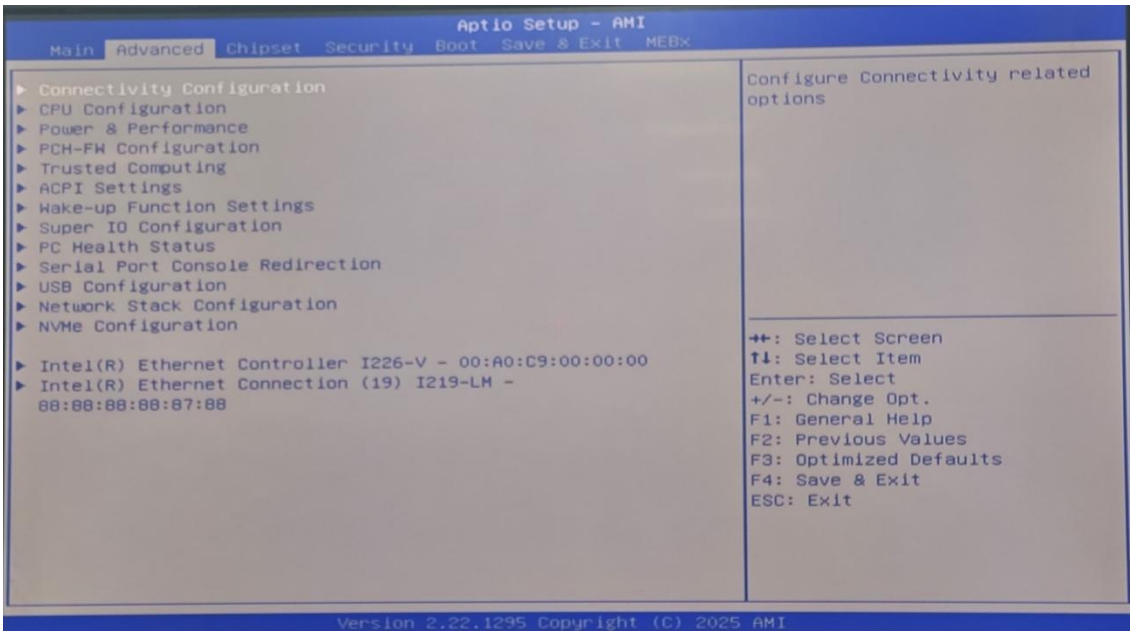
Set the date. Please use [Tab] to switch between date elements.

System Time

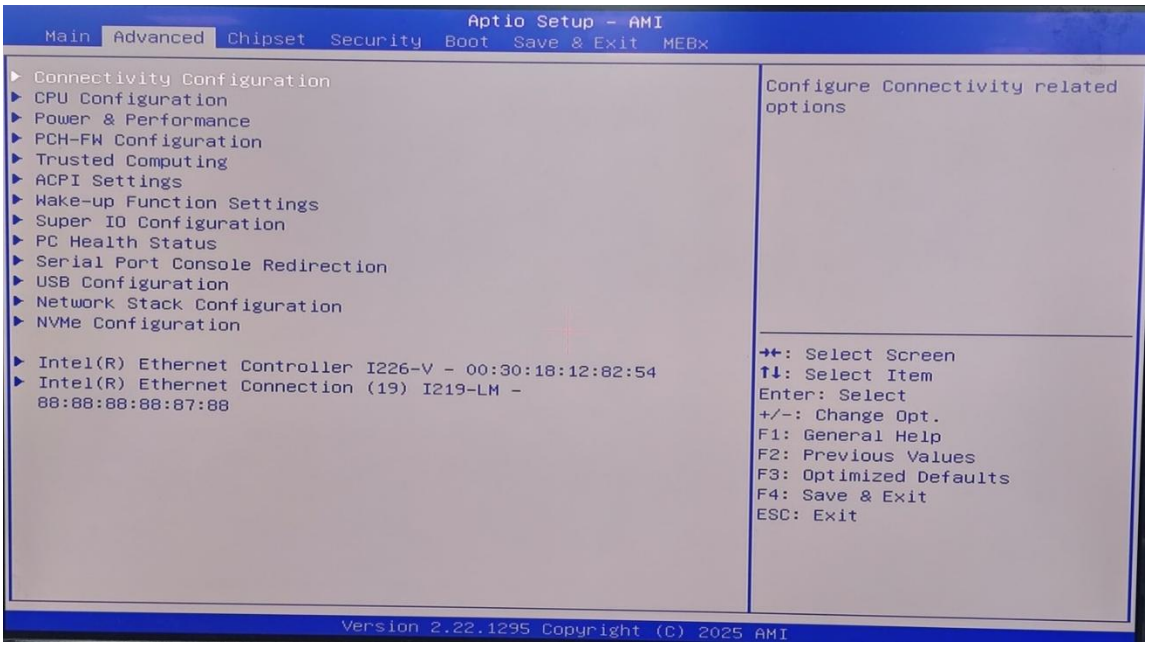
Set the time. Please use [Tab] to switch between time elements.

3-7 Advanced Menu

H810



B860



- **CPU Configuration**

  Press [Enter] to view current CPU configuration and make settings for the following sub-items:

  Brand String

  ID

  Microcode Revision

  VMX

  SMX/TXT

- **Intel® SpeedStep™**

  Use this item to allow more than two frequency ranges to be supported.

  Intel® SpeedStep™ set the default value to: [Enabled]

  The optional settings: [Disabled]; [Enabled].

  Turbo Mode

  Use this item to enable/disable processor Turbo Mode.

  Turbo Mode set the default value to: [Enabled]

  The optional settings: [Disabled]; [Enabled].

  C states

  Use this item to enable/disable CPU Power Management. Allows CPU to go to C states when it's not 100% utilized.

  C states set the default value to: [Disabled]

  The optional settings: [Disabled]; [Enabled].

- **Power & Performance**

  Use this item to power & performance options.

  Press [Enter] to view current Power & Performance and make settings for the following sub-items:

  - **CPU – Power Management Control**

    Press [Enter] to view current CPU – Power Management Control and make settings for the following sub-items:

    Race To Halt (RTH)

    Use this item to enable/disable Race To Halt feature. RTH will dynamically increase CPU frequency in order to enter pkg C-State faster to reduce overall power. (RTH is controlled through MSR 1FC bit 20)

    Race To Halt(RTH) set the default value to: [Enabled]

    The optional settings: [Disabled]; [Enabled].

    Intel® Speed Shift Technology

    Use this item to enable/disable Intel® Speed Shift Technology support. Enabling will expose the CPPC v2 interface to allow for hardware controlled P-states.

    Intel® Speed Shift Technology set the default value to: [Enabled]

    The optional settings: [Disabled]; [Enabled].

    Per Core P State OS control mode

    Use this item to enable/disable Per Core P state OS control mode. Disabling will set Bit

31 = 1 command 0x06. When set, the highest core request is used for all other core requests.

Per Core P State OS control mode set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

HwP Autonomous Per Core P State

Disable Autonomous PCPS(Bit 30 = 1, command 0x11)

Autonomous will request the same value for all cores all the time . Enable PCPS (default Bit 30 = 0, command 0x11)

Hwp Autonomous Per Core P State set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

Hwp Autonomous EPP Grouping

Enable EPP grouping (default Bit 29 = 0, command 0x11) Autonomous will request the same values for all cores with same EPP. Disable EPP grouping (Bit 29 = 1 ,command 0x11) autonomous will not necessarily request same values for all cores with same EPP.

Hwp Autonomous EPP Grouping set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

EPB override over PECI

Use this item to enable/disable EPB override over PECI. Enable by sending pcode command 0x3 to 1. This will allow OOB EPB PECI override control

EPB override over PECI set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

Hwp Lock

Use this item to enable/disable HWP Lock support in Misc Power Management MSR.

Hwp Lock set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

HDC Control

This option allows HDC configuration.

Disabled: Disable HDC

Enabled: Can be enabled by OS if OS native support is available.

HDC Control set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

- **View/Configure Turbo Options**

  View/Configure Turbo Options

  Press [Enter] to view current CPU – Power Management Control and make settings for the following sub-items:

  Max Turbo Power Limit

  Min Turbo Power Limit

  Package TDP Limit

  Power Limit 1

  Power Limit 2

- **Turbo Ratio Limit Options**

  Use this item to view/configure Turbo Ratio Limit Options

  Press [Enter] to make settings for the following sub-items:

  E-core Turbo Ratio Limit Numcore0 1

  E-core Turbo Ratio Limit Numcore1 2

  E-core Turbo Ratio Limit Numcore2 3

  E-core Turbo Ratio Limit Numcore3 4

  E-core Turbo Ratio Limit Numcore4 5

  E-core Turbo Ratio Limit Numcore5 6

  E-core Turbo Ratio Limit Numcore6 7

  E-core Turbo Ratio Limit Numcore7 8

  E-core Turbo Ratio Limit Ratio0 36

  E-core Turbo Ratio Limit Ratio1 35

  E-core Turbo Ratio Limit Ratio2 29

  E-core Turbo Ratio Limit Ratio3 29

  E-core Turbo Ratio Limit Ratio4 29

  E-core Turbo Ratio Limit Ratio5 29

  E-core Turbo Ratio Limit Ratio6 29

  E-core Turbo Ratio Limit Ratio7 29

Energy Efficient P-state

Use this item to enable/disable Energy Efficient P-state feature. When set to 0, will disable access to

ENERGY_PERFORMANCE_BIAS MSR and CPUID Function 6 ECX[3] will read 0 indicating no support for Energy Efficient policy setting . When set to will enable access to ENERGY_PERFORMANCE_BIAS MSR

Energy Efficient P-state set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

Package Power Limit MSR Lock

Use this item to enable/disable locking of Package Power Limit settings When enabled.

PACKAGE_POWER_LIMIT MSR will be locked and a reset will be required to unlock the register.

Package Power Limit MSR Lock set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

Power Limit 1 Override

Use this item to enable/disable Power Limit 1 override. If this option is disabled, BIOS will program the default values for Power Limit 1 and Power Limit 1 Time Window.

Power Limit 1 Override set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

Power Limit 2 Override

Use this item to enable/disable Power Limit 2 override. If this option is disabled, BIOS will program the default values for Power Limit 2.

Power Limit 2 Override set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

Power Limit 2

Power Limit 2 Value in Milli Watts. BIOS will round to the nearest 1/8W when programming. If the value is 0, BIOS will program this value as 1.25* Processor Base Power (TDP). For 12.50W, enter 12500. Processor applies control policies such that the package power does not exceed this limit.

Power Limit 2 set the default value to: 0

Energy Efficient Turbo

Use this item to enable/disable Energy Efficient Turbo Feature. This feature will opportunistically lower the turbo frequency to increase efficiency.

Recommended only to disable in overclocking situations where turbo frequency must remain constant. Otherwise, leave enabled.

Energy Efficient Turbo set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

- **CPU VR Settings**

  Press [Enter] to view current CPU VR Settings and make settings for the following sub-items:

  Current VccIn Aux Icc Max

  PSYS Slope

  PSYS Slope defined in 1/100 increments. Range is 0-200. For a 1.25 slope, enter 125. 0 = AUTO . Uses BIOS VR mailbox command 0x9.

  PSYS Slope set the default value to: 0

  PSYS Offset

  PSYS Offset defined in 1/1000 increments. Range is 0-63999. For an offset of 25.348, enter 25348. PSYS Uses BIOS VR mailbox command 0x4.

  PSYS Offset set the default value to: 0

  PSYS Prefix

  PSYS Prefix sets the offset value as positive or negative.

  PSYS Prefix set the default value to: [+]

  The optional settings: [+]; [-].

  PSYS PMax Power

  PSYS PMax power , defined in 1/8 Watt or Percent increments. For Watts, Range is 0-8191 (ex. For 125W, enter 1000). For ATX12V0 Percent, Range is 0-1600 (ex. for 200%, enter 1600).Uses BIOS VR mailbox command 0xB.

  PSYS PMax Power set the default value to: 0

  Min Voltage Override

Min Voltage Override. Enable to override minimum voltage for runtime and for C8.
Min Voltage Override set the default value to: [Disabled]
The optional settings: [Disabled]; [Enabled].

VccIn Aux Icc Max

VccIn AUX Icc Max sets the Max Icc VccIn Aux value defined in 1/4A increments. Range is 0-512. For an IccMax 32A, enter 128(32*4).
VccIn AUX Icc Max set the default value to: 0

VccIn Aux IMON Slope

VccIN Aux IMON Slope defined in 1/100 increments. Range is 0-200. For a 1.25 slope, enter 125.0 = AUTO. Uses BIOS VR mailbox command 0x18.

VccIn Aux IMON Prefix

- **GT/Media – Power Management Control**

Press [Enter] to view current GT/Media – Power Management Control and make settings for the following sub-items:

RC6(Render Standby)

Use this item to check to enable render standby support.
RC6(Render Standby) set the default value to: [Enabled]
The optional settings: [Disabled]; [Enabled].

MC6(Media Standby)

Use this item to check to enable Media standby support
MC6(Media Standby) set the default value to: [Enabled]
The optional settings: [Disabled]; [Enabled].

Maximum GT frequency

Maximum GT frequency limited by the user. Choose between 1650MHz (RPN) and 5400Mhz (RPO). Value beyond the range will be clipped to min/max supported by SKU.
Maximum GT frequency set the default value to: [Default Max Frequency]
The optional settings: [Default Max Frequency]; [100Mhz]; [150Mhz]; [200Mhz]; [250Mhz]; [300Mhz]; [350Mhz]; [400Mhz]; [450Mhz]; [500Mhz]; [550Mhz]; [600Mhz]; [650Mhz]; [700Mhz]; [750Mhz]; [800Mhz]; [850Mhz]; [900Mhz]; [950Mhz]; [1000Mhz]; [1050Mhz]; [1100Mhz]; [1150Mhz].

Disable Turbo GT frequency

Enabled: Disables Turbo GT frequency. Disabled: GT frequency is not limited.
Disable Turbo GT frequency set the default value to: [Disabled]
The optional settings: [Enabled]; [Disabled].

- **PCH-FW Configuration**

Press [Enter] to view current PCH-FW Configuration and make settings for the following sub-items:

ME Firmware Version

ME Firmware Mode

TPM Device Selection

Selects TPM device: PTT or dTPM. PTT – Enables PTT in SkuMGR dTPM 1.2 – Disables PTT in SkuMgr Warning! PTT/dTPM will be disabled and all data saved on it will be lost.

TPM Device Selection set the default value to: [PTT]

The optional settings: [dTPM]; [PTT].

- **Trusted Computing**

Use this item to configure Management Engine Technology Parameters

Press [Enter] to view current Trusted Computing and make settings for the following sub-items:

TPM 2.0 Device Found

Firmware Version:

Vendor:

Security Device Support

Use this item to enable or disable BIOS support for security device.O.S. will not show Security Device.TCG EFI protocol and INT1A interface will not be available.

Security Device Support set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

Active PCR banks

Available PCR banks

.

SHA256 PCR Bank

Use this item to enable or disable SHA256 PCR Bank

SHA256 PCR Bank set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

SHA384 PCR Bank

Use this item to enable or disable SHA384 PCR Bank

SHA384 PCR Bank set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

SM3_256 PCR Bank

Use this item to enable or disable SHA384 PCR Bank

SM3_256 PCR Bank set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

Pending operation

Schedule an Operation for the Security Device.NOTE: Your Computer will reboot during restart in order to change state of Security Device.

Pending operation set the default value to: [None]

The optional settings: [None]; [TPM Clear].

- **ACPI Settings**

Press [Enter] to view current ACPI Settings and make settings for the following sub-items:

ACPI Settings

ACPI Sleep State

Use this item to select the highest ACPI sleep state the system will enter when the suspend button is pressed.

ACPI Sleep State set the default value to: [S3 (Suspend to RAM)]

The optional settings are: [Suspend Disabled]; [S3 (Suspend to RAM)].

- **Wake-up Function Settings**

Press [Enter] to make settings for the following sub-items:

Wake-up System With Fixed Time

Use this item to enable or disable System wake on alarm event.

Wake-up System With Fixed Time set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

When set as [Enabled], the following items shall appear:

Wake-up System With Dynamic Time

Use this item to enable or disable System wake on alarm event. When enabled, System will wake on the current time + Increase minute(s)

Wake-up System With Dynamic Time set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

PS2 KB/MS Wake-up

Use this item to enable or disable PS2 KB/MS Wake-up from (S3/S4/S5) Support Only Disable ERP Function.

PS2 KB/MS Wake-up set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

PCIE Wake-up from S3-S5

PCIE Wake-up from S3-S5 set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

USB S3/S4 Wake-up

Use this item to enable or disable USB S3/S4 Wake-up. Support Only Disable ERP Function.

USB S3/S4 Wake-up set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

USB S5 Power

USB Power after System Shutdown Support Only Disable ERP Function

USB S5 Power set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

- **Super IO Configuration**

Press [Enter] to view current System Super IO Chip Parameters and make settings for the

following sub-items:

Super IO Configuration

ERP Support

Energy-Related Products function. Disable ERP to active all wake-up function.

ERP Support set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

- **Super IO Configuration**

Press [Enter] to make settings for the following sub-items:

Super IO Configuration

ERP Support

- **Serial Port 1 Configuration**

Press [Enter] to make settings for the following sub-items:

Serial Port

Device Settings

Use this item to enable or disable serial port (COM).

Serial Port set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled]

When set as [Enabled], user can make further settings in the following items:

Change Settings

Use this item to select an optimal setting for super IO device.

Change Settings set the default value to: [IO=3F8h; IRQ=4;]

The optional settings are: [IO=3F8h; IRQ=4;]; [IO=3F8h; IRQ=3,4,5,7,10,11;]; [IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;];
[IO=2E8h; IRQ=3,4,5,7,10,11;].

Transmission Mode Select

Transmission Mode Select set the default value to: [RS232]

The optional settings are: [RS422]; [RS232];[RS485].

Mode Speed Select

Transmission Mode Select set the default value to:
[RS232=1Mbps,RS422/RS485=10Mbps].

The optional settings are: [RS232/RS422/RS485=250Kbps];
[RS232=1Mbps,RS422/RS485=10Mbps].

- **Serial Port 2 Configuration**

Press [Enter] to make settings for the following sub-items:

Serial Port

Device Settings

Use this item to enable or disable serial port (COM).

Serial Port set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].
When set as [Enabled], user can make further settings in the following items:

Change Settings
Use this item to select an optimal setting for super IO device.
Change Settings set the default value to: [IO=2F8h;IRQ=3;]
The optional settings are: [IO=2F8h; IRQ=3;]; [IO=3F8h; IRQ=3,4,5,7,10,11;];
[IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;];
[IO=2E8h; IRQ=3,4,5,7,10,11;];
Transmission Mode Select
Transmission Mode Select set the default value to: [RS232]
The optional settings: [RS422]; [RS232];[RS485].
Mode Speed Select
RS232/RS422/RS485 Speed Select
Mode Speed Select set the default value to: [RS232=1Mbps.RS422/RS485=10Mbps]
The optional settings: [RS232/RS422/RS485=250Kbps];
[RS232=1Mbps,RS422/RS485=10Mbps].

- **Serial Port 3 Configuration**

Press [Enter] to make settings for the following sub-items:
Serial Port
Device Settings
Use this item to enable or disable serial port (COM).
The optional settings: [Disabled]; [Enabled]. Serial Port set the default value to: [Enabled]
When set as [Enabled], user can make further settings in the following items:

Change Settings
Use this item to select an optimal setting for super IO device. Change Settings set the default value to: [IO=3E8h; IRQ=10;]
The optional settings are: [IO=3E8h; IRQ=10]; [IO=3F8h; IRQ=3,4,5,7,10,11;];
[IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;];
[IO=2E8h; IRQ=3,4,5,7,10,11;]; [IO=3E0h; IRQ=3,4,5,7,10,11;];
[IO=2E0h; IRQ=3,4,5,7,10,11;];
Transmission Mode Select
Transmission Mode Select set the default value to: [RS232]
The optional settings are: [RS422]; [RS232];[RS485].
Mode Speed Select
Transmission Mode Select set the default value to: [RS232=1Mbps,RS422,
RS485=10Mbps].
The optional settings are: [RS232/RS422/RS485=250Kbps];

[RS232=1Mbps,RS422,RS485=10Mbps].

Serial Port FIFO Mode

Use this item to configure the buffer size (16/32/64/128 bytes) for serial port data queuing during transmission/reception.

Serial Port FIFO Mode set the default value to: [128-Byre FIFO]

The optional settings are: [16-Byte FIFO]; [32-Byte FIFO]; [64-Byte FIFO]; [128-Byte FIFO];

- **Serial Port 4 Configuration**

Press [Enter] to make settings for the following sub-items:

Serial Port

Device Settings

Use this item to enable or disable serial port (COM).

Serial Port set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

When set as [Enabled], user can make further settings in the following items:

Change Settings

Use this item to select an optimal setting for super IO device.

Change Settings set the default value to: [IO=2E8h;IRQ=10]

The optional settings are: [IO=2F8h; IRQ=10]; [IO=3F8h; IRQ=3,4,5,7,10,11;];
[IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;];
[IO=2E8h; IRQ=3,4,5,7,10,11;]; [IO=3E0h; IRQ=3,4,5,7,10,11;];
[IO=2E0h; IRQ=3,4,5,7,10,11;];

- **Serial Port 5 Configuration**

Serial Port

Use this item to enable or disable Serial Port(COM)

Serial Port set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

When set as [Enabled], user can make further settings in the following items:

Change Settings

Use this item to select an optimal setting for super IO device.

Change Settings set the default value to: [IO=3E0h;IRQ=11]

The optional settings are: [IO=3E0h; IRQ=11]; [IO=3F8h; IRQ=3,4,5,7,10,11;];
[IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;];
[IO=2E8h; IRQ=3,4,5,7,10,11;]; [IO=3E0h; IRQ=3,4,5,7,10,11;];
[IO=2E0h; IRQ=3,4,5,7,10,11;];

- **Serial Port 6 Configuration**

Serial Port

Use this item to enable or disable Serial Port(COM)

Serial Port set the default value to: [Enabled]
The optional settings: [Disabled]; [Enabled].

When set as [Enabled], user can make further settings in the following items:

Change Settings
Use this item to select an optimal setting for super IO device.
Change Settings set the default value to: [IO=2E0h; IRQ=11]
The optional settings are: [IO=2E0h; IRQ=11]; [IO=3F8h; IRQ=3,4,5,7,10,11;];
[IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;];
[IO=2E8h; IRQ=3,4,5,7,10,11;]; [IO=3E0h; IRQ=3,4,5,7,10,11;];
[IO=2E0h; IRQ=3,4,5,7,10,11;];

- **Printer/GPIO Select**
  Use this item to select Use Printer or GPIO Function. Can't Use Simultaneously
  Printer/GPIO Select set the default value to: [GPIO]
  The optional settings: [GPIO]; [Printer].
  When set as [Printer], the following items shall appear:
- **Parallel Port Configuration**
  Press [Enter] to view current Parallel Port Configuration and make settings for the following sub-items:
  Parallel Port
  Use this item to enable or disable Parallel Port(LPT/LPTE)
  Parallel Port set the default value to: [Enabled]
  The optional settings: [Disabled]; [Enabled].
  Device Settings

  Change Settings
  Use this item to select an optimal settings for Super IO Device.
  Change Settings set the default value to: [Auto]
  The optional settings: [Auto]; [IO=378h;IRQ=7]; [IO=378h;IRQ=5,7,10,11;]; [IO=278h; IRQ=5,7,10,11;]; [IO=3BCh; IRQ=5,7,10,11;]; [IO=378h]; [IO=278h]; [IO=3BCh];
  Device Mode
  Use this item to change the printer port mode.
  Device Mode set the default value to: [STD Printer Mode]
  The optional settings: [STD Printer Mode]; [SPP Mode]; [EPP-1.9 and SPP Mode]; [EPP-1.7 and SPP Mode]; [ECP Mode]; [ECP and EPP 1.9 Mode];
  [ECP and EPP 1.7 Mode].

- **WatchDog Reset Timer**

Support WDT reset function.

WatchDog Reset Timer set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

When set as [Enabled], the following items shall appear:

WatchDog Reset Timer Value

WatchDog Reset Timer Value set the default value to: 10

WatchDog Reset Timer Unit

WatchDog Reset Timer Unit set the default value to:[Sec,]

The optional settings: [Sec.]; [Min.].

Case Open Detect

Detect Case has already open or not. Show message in POST.

Case Open Detect set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

- **PC Health Status**

  Press [Enter] to view current PC Health Status and make settings for the following sub-items:

  - **SmartFAN Configuration**

    Press [Enter] to view SmartFAN Configuration and make settings for the following sub-items:

    CPUFAN Smart Mode

    SmartFAN Configuration set the default value to: [Enabled]

    The optional settings: [Disabled]; [Enabled].

    CPUFAN Full-Speed Temperature

    CPUFAN Full-Speed Temperature set the default value to: 60

    CPUFAN Full-Speed Duty

    CPUFAN Full-Speed Duty set the default value to: 100

    CPUFAN Idle-Speed Temperature

    CPUFAN Idle-Speed Temperature set the default value to 40

    CPU Idle-Speed Duty

    CPU Idle-Speed Duty set the default value to: 40

    CPU Temperature

    System Temperature

    CPUFAN Speed

    CPU_VCC

    VCCMEM

    +12V

    +5V

    VCCHSIO

    VSB3V

VBAT

- **Serial Port Console Redirection**

COM1

Console Redirection

Console Redirection Enable or Disable

Console Redirection set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

When set as [Enabled], the following items shall appear:

- **Console Redirection Settings**

Terminal Type

Emulation: ANSI: Extended ASCII char set. VT100Plus: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.

Terminal Type set the default value to: [ANSI]

The optional settings: [VT100]; [VT100Plus]; [VT-UTF8]; [ANSI]

Bits per second

Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.

Bits per second set the default value to: [115200]

The optional settings: [9600]; [19200]; [38400]; [57600]; [115200]; [230400]; [460800]; [921600].

Data Bits

Data Bits set the default value to: [8]

The optional settings: [7]; [8].

Parity

A parity bit can be sent with the data bits to detect some transmission errors. Even: Parity bit is 0 if the num of 1's in the data bits is even. Odd: parity bit is even. Odd: parity bits is 0 if num of 1's in the data bits is odd. Mark: parity bit is always 1.

Space: Parity bit is always 0. Mark and Space Parity do not allow for error detection.

Parity set the default value to: [None]

The optional settings: [None]; [Even]; [Odd]; [Mark]; [Space].

Stop Bits

Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.

Stop Bits set the default value to: [1]

The optional settings: [1];[2].

Flow Control

Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the

buffers are empty, a ‘start’ signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.

Flow Control set the default value to: [None]

The optional settings: [None]; [Hardware RTS/CTS].

VT-UTF8 Combo Key Support

Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals.

VT-UTF8 Combo Key Support set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

Recorder Mode

With this mode enabled only text will be sent. This is to capture Terminal data.

Recorder Mode set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

Resolution 100x31

Use this item to enable or disable extended terminal resolution.

Resolution 100x31 set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

Putty KeyPad

Use this item to select FunctionKey and KeyPad on Putty.

Putty KeyPad set the default value to: [VT100]

The optional settings: [VT100]; [LINUX]; [XTERMR6]; [SCO]; [ESCN]; [VT400].

Serial Port for Out-of-Band Management/
Windows Emergency Management Services (EMS)

Console Redirection EMS

Console Redirection Enable or Disable.

Console Redirection EMS set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

When set as [Enabled], the following items shall appear:

Console Redirection Settings

The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

Press [Enter] to view current Console Redirection Settings and make settings for the following sub-items:

Out-of-Band Mgmt Port

Terminal Type EMS

VT-UTF8 is the preferred terminal type for out-of-band management. The next best choice is VT100+ and then VT100. See above, in Console Redirection Settings page, for more Help with Terminal Type/Emulation.

Terminal Type EMS set the default value to: [VT-URF8]

The optional settings: [VT100]; [VT100Plus]; [VT-UTF8]; [ANSI].

Bits per second EMS

Use this item to select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.

Flow Control EMS

Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' Signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.

Flow Control EMS set the default value to: [None]

The optional settings: [None]; [Hardware RTS/CTS]; [Software Xon/Xoff].

Data Bits EMS

Parity EMS

Stop Bits EMS

- **USB Configuration**

XHCI Hand-off

This is a workaround for 0Ses without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.

XHCI Hand-off set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

USB Mass Storage Driver Support

Use this item to enable/disable USB Mass Storage Driver Support.

USB Mass Storage Driver Support set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

USB hardware delays and time-outs:

USB transfer time-out

The time-out value for Control, Bulk, and Interrupt transfers.

USB hardware delays and time-outs set the default value to: [20 sec]

The optional settings: [1 sec]; [5 sec]; [10 sec]; [20 sec].

Device reset time-out

USB mass storage device Start Unit command time-out

Device reset time-out set the default value to: [20 sec]

The optional settings: [1 sec]; [5 sec]; [10 sec]; [20 sec].

Device power-up delay

Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value; for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.

Device power-up delay set the default value to: [Auto]

The optional settings: [Auto]; [Manual].

- **Network Stack Configuration**

Network Stack

Use this item to enable/disable UEFI Network Stack

Network Stack set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

When set as [Enabled], the following items shall appear:

Network Stack

Use this item to enable/disable UEFI Netowrk Stack

Network Stack set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

IPv4 PXE Support

Use this item to enable/disable IPv4 PXE boot support. If disabled , IPv4 PXE boot support will not be available.

IPv4 PXE Support set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

IPv6 PXE Support

Use this item to enable/disable IPv6 PXE boot support. If disabled, IPv6 PXE boot support will not be available.

IPv6 PXE Support set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

PXE Boot Wait Time

Use this item to set wait time to press [ESC] key to abort the PXE boot.

Use either [+] / [-] or numeric keys to set the value.

PXE Boot Wait Time set the default value to:5

Media Detect Count

Use this item to set number of times presence of media will be checked.

Use either [+] / [-] or numeric keys to set the value.

Media Detect Count set the default value to:5

- **NVMe Configuration**

No NVME Device Found

Intel® Ethernet Controller I226-V – 00:A0:C9:00:00:00

Press [Enter] to view current Intel® Ethernet Controller i226-V following sub-items:

UEFI Driver

Device Name

Link Status

MAC Address

Intel® Ethernet Connection (19) I219-LM – 88:88:88:88:87:88

Press [Enter] to view current Ethernet Connection and make settings for the following sub-items:

Autonegotiation Timeout

Use this item to set how long the UEFI PXE driver should wait for link.

Autonegotiation Timeout set the default value to: 8

PORT CONFIGURATION INFORMATION

UEFI Driver:

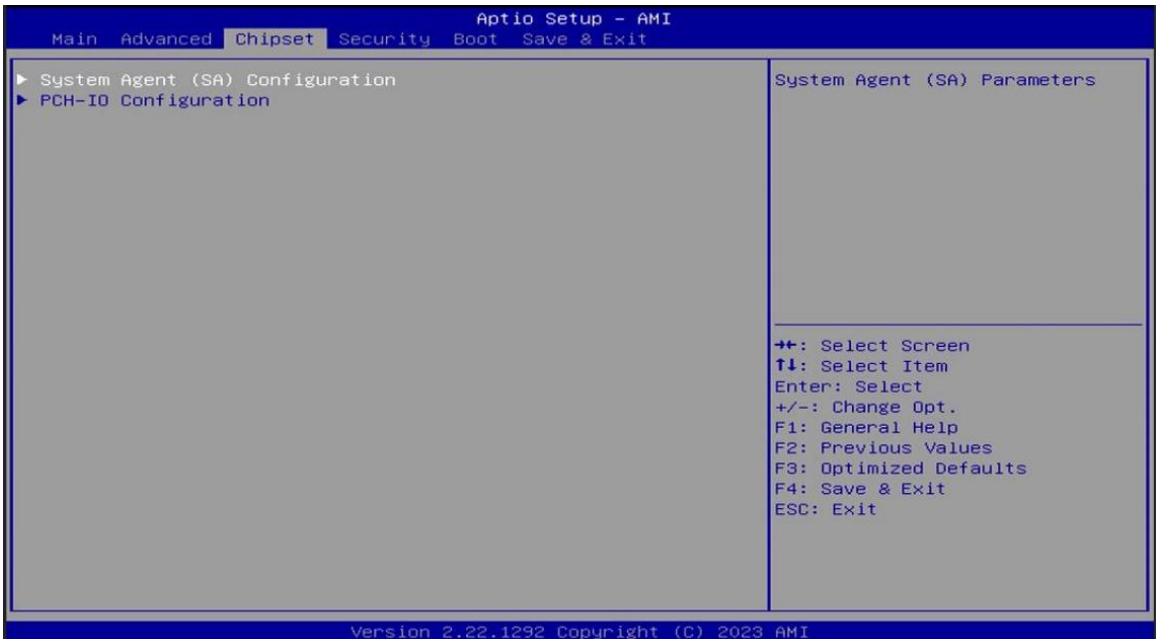
Adapter PBA:

PCI Device ID

PCI Address

MAC Address

3-8 Chipset Menu



- **System Agent (SA) Configuration**

  Press [Enter] to make settings for the following sub-items:

  System Agent (SA) Configuration

  Memory Frequency

  DDR5_A1

  DDR5_B1

  DIMM3

  DIMM4

Maximum Memory Frequency

- **Graphics Configuration**

  PCIE1 Slot

  Use this item to control the PCI Express Root Port.

  PCIE1 Slot set the default value to: [Enabled]

  The optional settings: [Disabled]; [Enabled].

  PCIe Speed

  Use this item to configure PCIe Speed

  PCIe Speed set the default value to: [Gen4]

  The optional settings: [Auto]; [Gen1];[Gen2];[Gen3];[Gen4];[Gen5].

  Primary Display

  Use this item to select which Graphics device should be Primary Display.

  Primary Display set the default value to: [Auto]

  The optional settings: [Auto]; [IGFX].

  Internal Graphics

  Use this item to keep IGFX enabled based on the setup options

  Internal Graphics set the default value to: [Auto]

  The optional settings: [Auto]; [Disabled];[Enabled].

  DVMT Pre-Allocated

  Use this item to select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device..

  DVMT Pre-Allocated set the default value to: [128M]

  The optional settings: [32M]; [64M]; [96M]; [128M].

  Active LFP

  Use this item to select the active configuration.

  Active LFP set the default value to: [Enabled]

  The optional settings: [Disabled]; [Enabled].

  Backlight Control

  Back Light Control Setting.

  Backlight Control set the default value to: [PWM Inverted]

  The optional settings: [PWM Inverted]; [PWM Normal].

- **VMD setup menu**

  Press [Enter] to view current VMD setup menu and make settings for the following sub-items:

  Enable VMD controller

  Use this item to enable/disable to VMD controller

  Enable VMD controller set the default value to: [Disabled]

  The optional settings: [Disabled]; [Enabled].

When set as [Enabled], the following items shall appear:

Enable VMD Global Mapping

Use this item to enable/disable to VMD Global Mapping

Enable VMD Global Mapping set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

When set as [Disabled], the following items shall appear:

Map PCH SATA Controller Under VMD

Map/UnMap this Root Port to VMD

set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

- **PCH-IO Configuration**

  Press [Enter] to make settings for the following sub-items:

  - **SATA Configuration**

    SATA Device Options Settings

    Press [Enter] to make settings for the following sub-items:

    SATA Controller(s)

    Use this item to enable/disable SATA Device

    SATA Controller(s) set the default value to: [Enabled]

    The optional settings: [Disabled]; [Enabled].

    When set as [Enabled], the following items shall appear:

    SATA1

    Port

    Use this item to enable or disable SATA Port

    Port set the default value to: [Enabled]

    The optional settings: [Disabled]; [Enabled].

    SATA2

    Port

    Use this item to enable or disable SATA Port

    Port set the default value to: [Enabled]

    The optional settings: [Disabled]; [Enabled].

    SATA3

    Port

    Use this item to enable or disable SATA Port

    Port set the default value to: [Enabled]

    The optional settings: [Disabled]; [Enabled].

    SATA4/M2M_SATA4

    Port

    Use this item to enable or disable SATA Port

Port set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

HD Audio

Use this item to control Detection of the HD-Audio device. Disabled = HAD will be unconditionally disabled Enabled = HAD will be unconditionally enabled.

HD Audio set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

PCH LAN Controller

Use this item to enable/disable onboard NIC.

PCH LAN Controller set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

When set as [Enabled], the following items shall appear:

Wake on LAN Enable

Use this item to enable/disable integrated LAN to wake the system.

Wake on LAN Enable set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

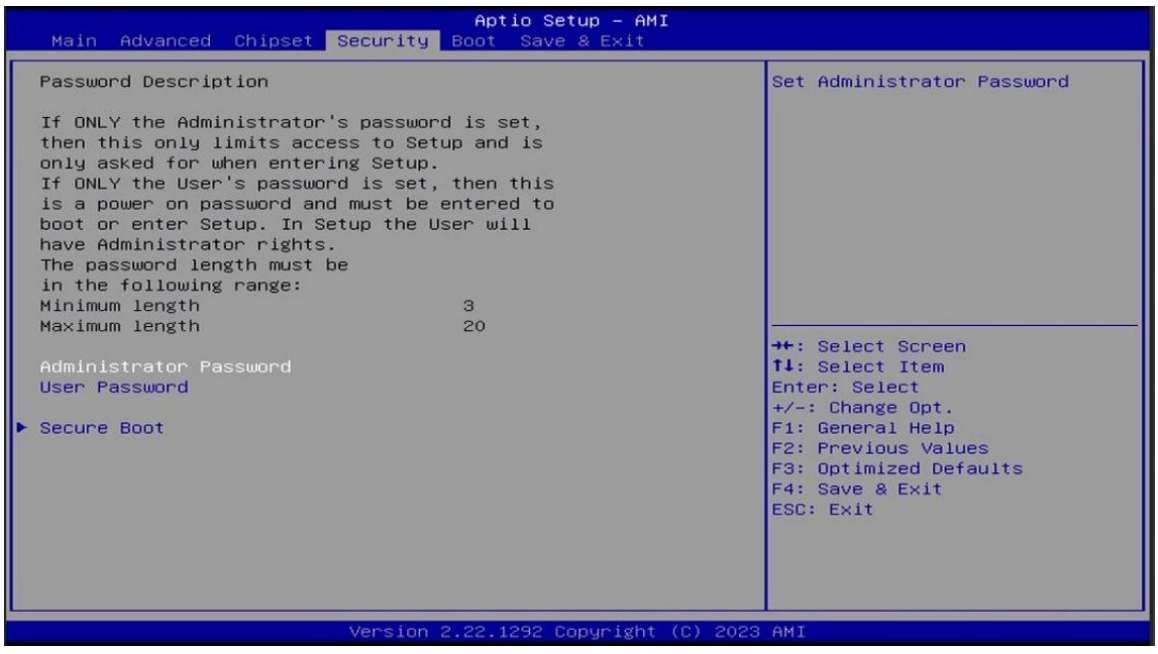
System State After Power Failure

Specify what state to go to when power is re-applied after a power failure (G3 state).

System State After Power Failure set the default value to: [Always Off]

The optional settings: [Always On]; [Always Off]; [Former State].

3-9 Security Menu



Security menu allow users to change administrator password and user password settings.

Password Description

If ONLY the Administrator's password is set, then this only limits access to Setup and is only asker for when entering Setup.
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have administrator rights.
The password length must be in following range:
Minimum length 3
Maximum length 20

Administrator Password

If there is no password present on system, please press [Enter] to create new administrator password. If password is present on system, please press [Enter] to verify old password then to clear/change password. Press again to confirm the new administrator password.

User Password

If there is no password present on system, please press [Enter] to create new user password. If password is present on system, please press [Enter] to verify old password then to clear/change password. Press again to confirm the new user password.

- **Secure Boot**

  Press [Enter] to view current Secure Boot and make settings for the following sub-items:

  Secure Boot

  Secure Boot feature is Active if Secure Boot is Enabled, Platform Key(PK) is in User mode. The mode change requires platform reset
  Secure Boot set the default value to: [Disabled]
  The optional settings: [Disabled]; [Enabled].

  Secure Boot Mode

  Secure Boot mode options: Standard or Custion. In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication.
  Secure BootMode set the default value to: [Custom]
  The optional settings: [Standard]; [Custom].
  When set as [Custom], the following items shall appear:

  - **Restore Factory Keys**

    Force System to User Mode. Install factory default Secure Boot key databases

  - **Reset TO Setup Mode**

    Delete all Secure Boot key databases from NVRAM

    Expert Key Management

    Use this item to enable expert users to modify Secure Boot Policy variables without variable authentication.
    Press [Enter] to make settings for the following sub-items:
    Vendor Keys

Factory Key Provision

Install factory default Secure Boot keys after the platform reset and while the System is in Setup mode.

Factory set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

- **Restore Factory Keys**
  Force System to User Mode. Install factory default Secure Boot key databases
- **Reset To Setup Mode**
  Delete all secure Boot key databases from NVRAM
- **Enroll Efi Image**
  Allow Efi image to run in Secure Boot mode.
  Enroll SHA256 Hash certificate of a PE image Authorized Signature Database (db)
- **Export Secure Boot variables**
  Save NVRAM content of Secure Boot variable to a file

Secure Boot variable

- **Platform Key (PK)**
- **Key Exchange Keys (KEK)**
- **Authorized Signatures (db)**
- **Forbidden Signatures (dbx)**
- **Authorized TimeStamps (dbt)**
- **0sRecovery Signatures (dbr)**

3-10 Boot Menu

Boot Configuration

Setup Prompt Timeout

Use this item to set number of seconds to wait for setup activation key. 65535(0Xffff) means indefinite waiting

Setup Prompt Timeout set the default value to: [2]

Bootup Numlock State

Use this item to select keyboard numlock state.

Bootup Numlock State set the default value to: [Off]

The optional settings are: [On]; [Off].

Quiet Boot

Quiet Boot set the default value to: [Disabled]

The optional settings are: [Disabled]; [Enabled].

FIXED BOOR ORDER Priorities

Boot Option #1

Boot Option #1 set the default value to: [NVME]

The optional settings are: [NVME]; [Hard Disk]; [USB Device]; [Network]; [Other Device: UEFI: Built –in EFI Shell]; [Disabled].

Boot Option #2

Boot Option #1 set the default value to: [Hard Disk]

The optional settings are: [NVME]; [Hard Disk]; [USB Device]; [Network]; [Other Device: UEFI: Built –in EFI Shell]; [Disabled].

Boot Option #3

Boot Option #1 set the default value to: [USB Device]

The optional settings are: [NVME]; [Hard Disk]; [USB Device]; [Network]; [Other Device: UEFI: Built –in EFI Shell]; [Disabled].

Boot Option #4

Boot Option #1 set the default value to: [Network]

The optional settings are: [NVME]; [Hard Disk]; [USB Device]; [Network]; [Other Device: UEFI: Built –in EFI Shell]; [Disabled].

Boot Option #5

Boot Option #1 set the default value to: [Other Device: UEFI: Built-in EFI Shell]

The optional settings are: [NVME]; [Hard Disk]; [USB Device]; [Network]; [Other Device: UEFI: Built –in EFI Shell]; [Disabled].

- **UEFI Other Driver BBS Priorities**

  Specifies the Boot Device Priority sequence from available UEFI Other Drives.

  Press [Enter] to make settings for the following sub-items:

  Boot Option #1

  Boor Option#1 set the default value to: [UEFI: Built-in EFI Shell]

  The optional settings: [UEFI: Built-in EFI Shell]; [Disable].

3-11 Save & Exit Men

Save Options

Save Changes and Reset

This item allows user to reset the system after saving the changes.

Discard Changes and Reset

This item allows user to reset the system without saving any changes.

Default Options

Restore Defaults

Use this item to restore /load default values for all the setup options.

Save as User Defaults

Use this item to save the changes done so far as user defaults.

Restore User Defaults

Use this item to restore defaults to all the setup options.

Boot Override

UEFI: Built – in EFI Shell

Use this item to save configuration and reset.

Launch EFI Shell from filesystem device

Use this item to attempt to Launch EFI Shell application (Shell.efi) from one of the available filesystem devices.