

LI1BV Series
User's Manual

NO. G03-LI1BV-F

Revision: 2.0

Release date: March 23, 2023

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.

Environmental Protection Announcement

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



TABLE OF CONTENT

ENVIRONMENTAL SAFETY INSTRUCTION.....	iii
USER'S NOTICE.....	iv
MANUAL REVISION INFORMATION.....	iv
ITEM CHECKLIST.....	iv
CHAPTER 1 INTRODUCTION OF THE MOTHERBOARD	
1-1 FEATURE OF MOTHERBOARD.....	1
1-2 SPECIFICATION.....	2
1-3 LAYOUT DIAGRAM.....	3
CHAPTER 2 HARDWARE INSTALLATION	
2-1 JUMPER SETTING.....	9
2-2 CONNECTORS AND HEADERS.....	16
2-2-1 CONNECTORS.....	16
2-2-2 HEADERS.....	20
CHAPTER 3 INTRODUCING BIOS	
3-1 ENTERING SETUP.....	28
3-2 BIOS MENU SCREEN.....	29
3-3 FUNCTION KEYS.....	30
3-4 GETTING HELP.....	30
3-5 MENU BARS.....	30
3-6 MAIN MENU.....	31
3-7 ADVANCED MENU.....	32
3-8 CHIPSET MENU.....	44
3-9 SECURITY MENU.....	47
3-10 BOOT MENU.....	50
3-11 SAVE & EXIT MENU.....	51



Environmental Safety Instruction

- Avoid the dusty, humidity and temperature extremes. Do not place the product in any area where it may become wet.
- 0 to 40 centigrade is the suitable temperature. (The temperature comes from the request of the chassis and thermal solution)
- 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.
- Attention to the heat sink when you over-clocking. The higher temperature may decrease the life of the device and burned the capacitor.

USER'S NOTICE

COPYRIGHT OF THIS MANUAL BELONGS TO THE MANUFACTURER. NO PART OF THIS MANUAL, INCLUDING THE PRODUCTS AND SOFTWARE DESCRIBED IN IT MAY BE REPRODUCED, TRANSMITTED OR TRANSLATED INTO ANY LANGUAGE IN ANY FORM OR BY ANY MEANS WITHOUT WRITTEN PERMISSION OF THE MANUFACTURER.

THIS MANUAL CONTAINS ALL INFORMATION REQUIRED TO USE THIS MOTHER-BOARD SERIES AND WE DO ASSURE THIS MANUAL MEETS USER'S REQUIREMENT BUT WILL CHANGE, CORRECT ANY TIME WITHOUT NOTICE. MANUFACTURER PROVIDES THIS MANUAL "AS IS" WITHOUT WARRANTY OF ANY KIND, AND WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING DAMAGES FOR LOSS OF PROFIT, LOSS OF BUSINESS, LOSS OF USE OF DATA, INTERRUPTION OF BUSINESS AND THE LIKE).

PRODUCTS AND CORPORATE NAMES APPEARING IN THIS MANUAL MAY OR MAY NOT BE REGISTERED TRADEMARKS OR COPYRIGHTS OF THEIR RESPECTIVE COMPANIES, AND THEY ARE USED ONLY FOR IDENTIFICATION OR EXPLANATION AND TO THE OWNER'S BENEFIT, WITHOUT INTENT TO INFRINGE.

Manual Revision Information

Reversion	Revision History	Date
2.0	Second Edition	March 23, 2023

Item Checklist

- Motherboard
- Cable(s)
- I/O Back panel shield

Chapter 1

Introduction of the Motherboard

1-1 Feature of Motherboard

- Onboard Intel® ElkhartLake series processor
- Support 1* DDR4 3200MHz SO-DIMM up to 32GB and single channel function
- Integrated with Intel i225V 2.5GbE LAN chip (dual-chip optional by order)
- Support 2* USB 3.1(Gen.2) & 7* USB2.0 data transport demand
- Support 1* SATAIII (6Gb/s) Devices & 1* M.2 (M-key)
- Support 1* VGA port & 1* EDP & 1* LVDS Output
- Support 2* COM port (RS232/422/485) & 4* COM port (RS232)
- Onboard 1* M.2 E-key support WIFI/BT Module
- Onboard 1* M.2 B-key support 4G/5G Module
- Support Smart FAN function
- Support ACPI S3 Function
- Support Watchdog Timer Technology

1-2 Specification

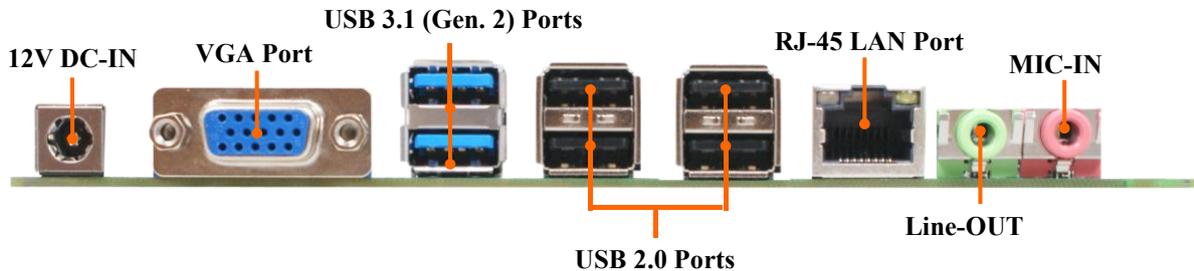
Spec	Description
Design	<ul style="list-style-type: none"> ● Mini-ITX form factor 6 layers; PCB size: 17.0x17.0cm
Embedded CPU	<ul style="list-style-type: none"> ● Integrated Intel® ElkhartLake series CPU <p><i>* for detailed CPU support information please visit our website</i></p>
Memory Slot	<ul style="list-style-type: none"> ● 1*DDR4 SO-DIMM slot support 1* DDR4 3200MHz up to 32GB
Expansion Slot	<ul style="list-style-type: none"> ● 1* M.2 E-key 2230 slot supports WIFI/BT Module (M2E1) ● 1* M.2 B-key 3042/3052 slot supports 4G/5G Module (M2B1) ● 1* SIM card slot function with M.2 B-key, 3042/3052 slot (SIMCARD1)
Storage	<ul style="list-style-type: none"> ● 1* SATA III 6G/s connector ● 1 * M.2 M-key 2242/2280 slot supports SATA or NVMe/ PCIe x2 interface (M2M1)
LAN Chip	<ul style="list-style-type: none"> ● Model LI1BV-00: Integrated with 1* Intel i225-V Ethernet LAN chip ● Model LI1BV-0L: Integrated with 2* Intel i225-V Ethernet LAN chips ● Support up to 2.5Gbps data transfer rate for Fast Ethernet LAN function
BIOS	<ul style="list-style-type: none"> ● AMI 128M Flash ROM
Rear I/O	<ul style="list-style-type: none"> ● 1* 12V DC-in power jack ● 1* VGA port (co-lay HDMI1) ● 2* USB 3.1 (Gen.2) ports ● Model LI1BV-00: 4* USB2.0 & 1* RJ-45 LAN Port ● Model LI1BV-0L: 2* USB2.0 & 2* RJ-45 LAN ports ● 1* Audio Line-out & 1* MIC-in
Internal I/O	<ul style="list-style-type: none"> ● 1* 4-pin internal 12V DC-in power connector ● 1* SATA power-out connector ● 1* Front panel header ● 1* Front audio header ● 1* 3W Speaker header

	<ul style="list-style-type: none"> ● Model LI1BV-00: 1* 9-Pin USB 2.0 header ● Model LI1BV-0L: 2* 9-Pin USB 2.0 headers ● 1* 4-Pin USB 2.0/1.1 wafer for 1* USB 2.0/1.1 port ● 1* SMBUS header ● 1* GPIO header ● 6* Serial port header (<i>COM3/4/5/6 support RS232; COM1/2 support RS232/422/485</i>) ● 1* EDP2 connector (co-lay HDMI2) ● 1* LVDS1 connector (co-lay EDP1) ● 1* Inverter connector
TPM 2.0	<ul style="list-style-type: none"> ● Supported by LI1BV-002/LI1BV-0L2 Series

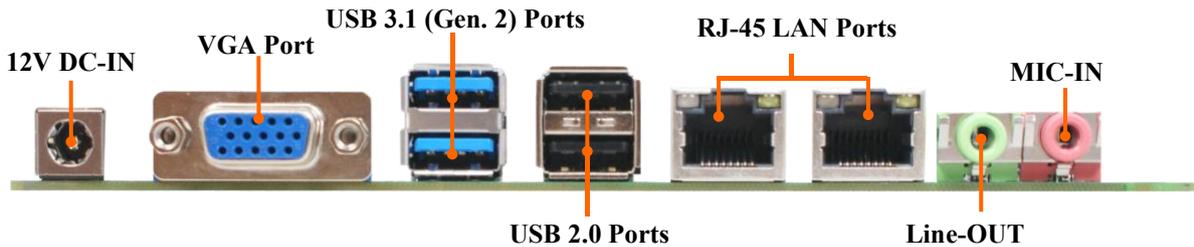
1-3 Layout Diagram

Rear IO Diagram

For LI1BV-00 Series:

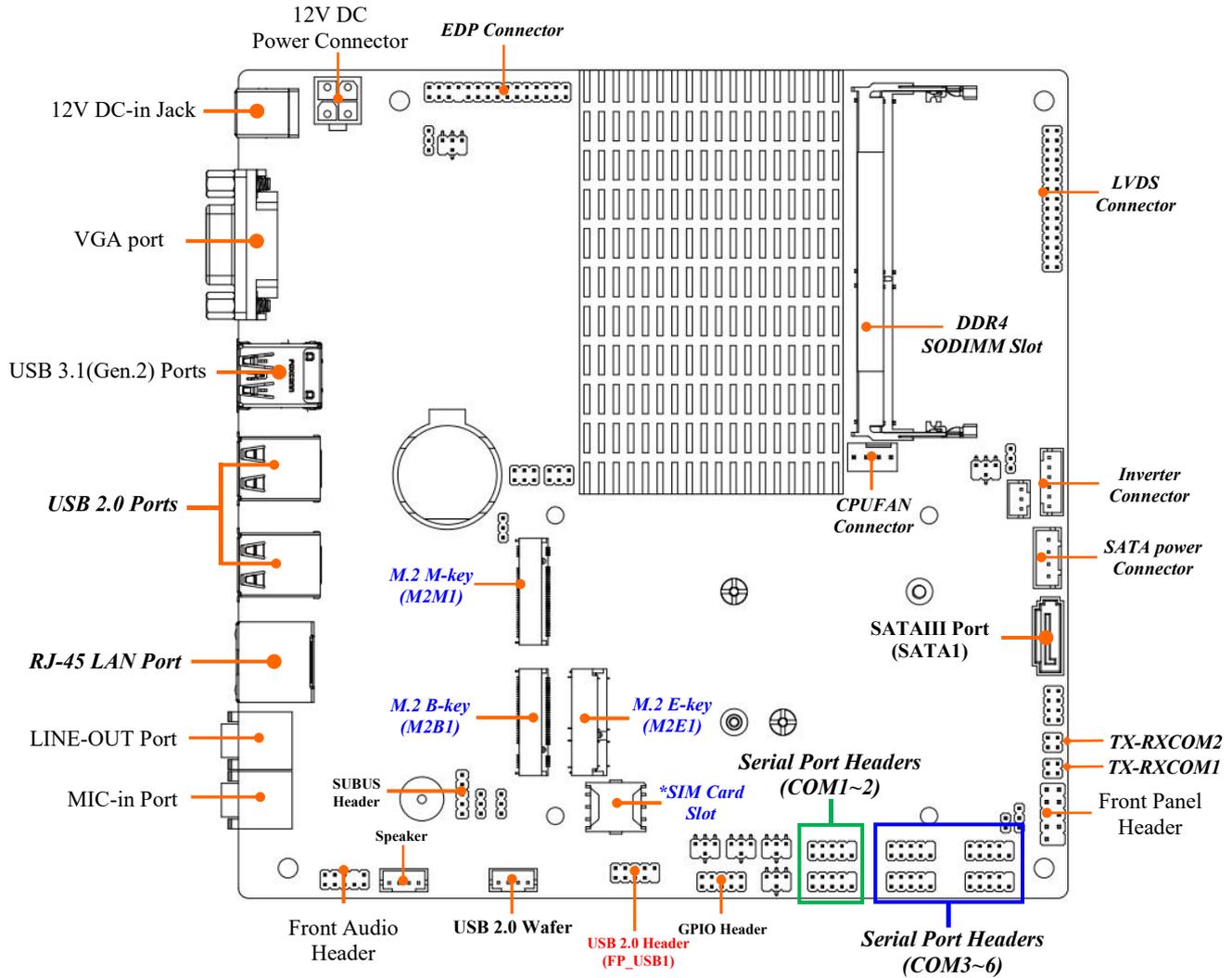


For LI1BV-0L Series:

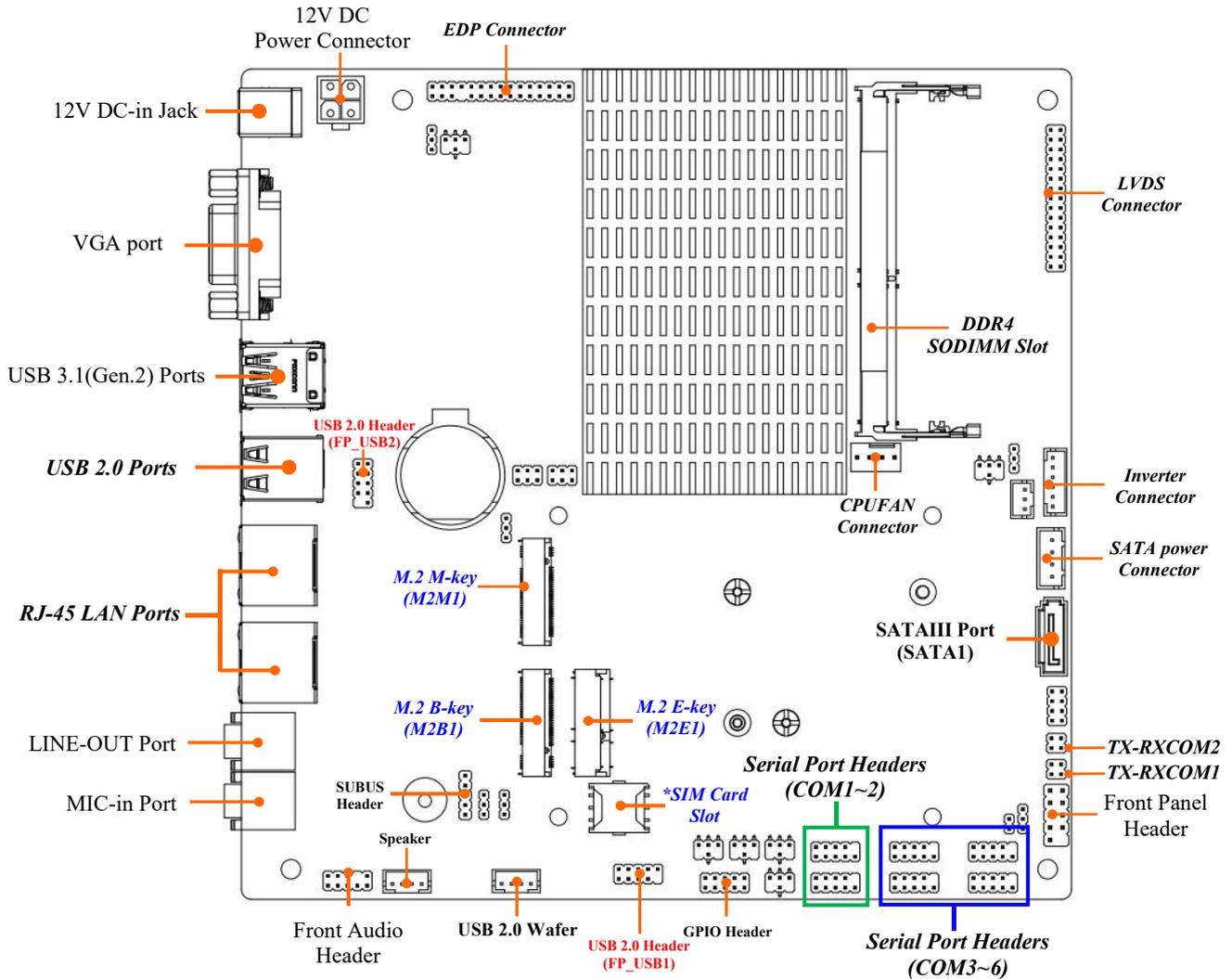


Motherboard Internal Diagram-Front

For LI1BV-00 Series:

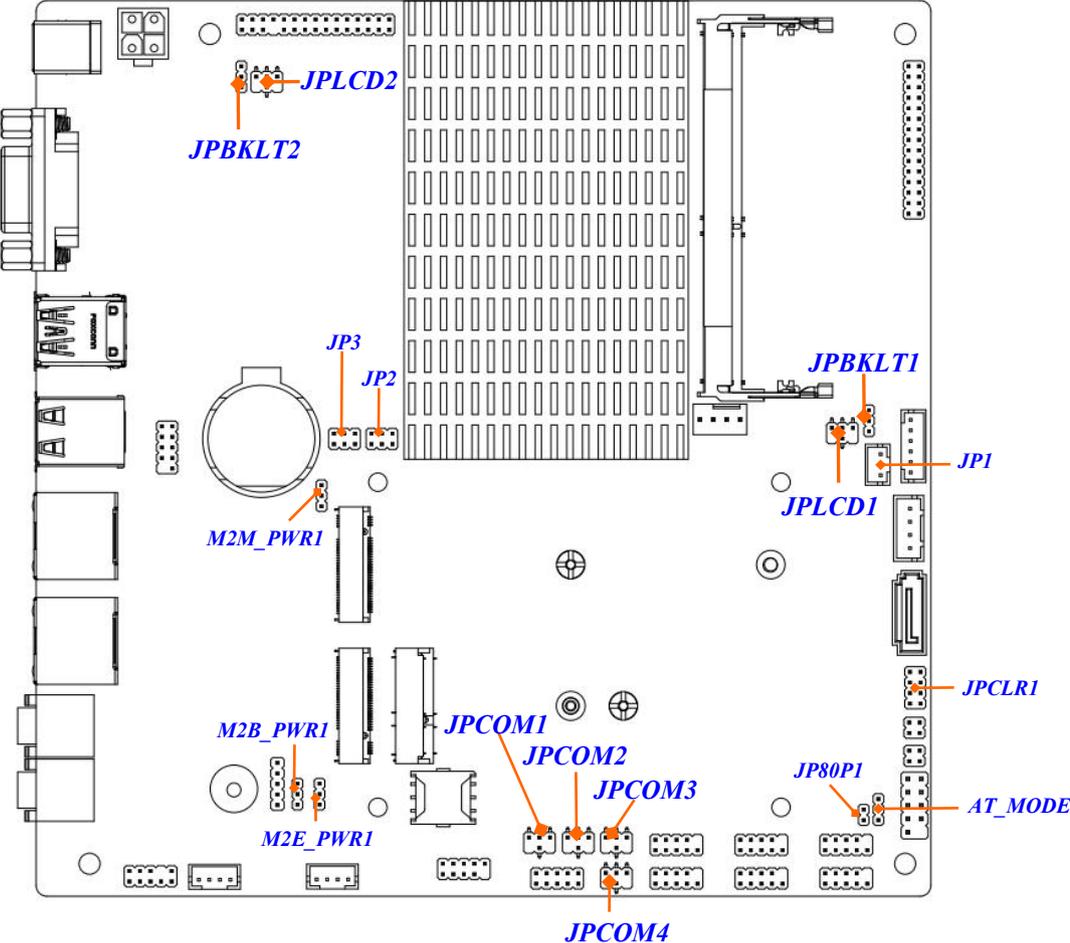


For LI1BV-0L Series:



***Note:** SIM card slot only work when compatible SIM card installed & 4G/5G LAN card installed in M2B1 USB slot.

Motherboard Jumper Position



Jumper

Jumper	Name	Description
JPCOM1	COM1 Header Pin9 Function Select	4-pin Block (2.0 pitch)
JPCOM2	COM2 Header Pin9 Function Select	4-pin Block (2.0 pitch)
JPCOM3	COM3 Header Pin9 Function Select	4-pin Block (2.0 pitch)
JPCOM4	COM4 Header Pin9 Function Select	4-pin Block (2.0 pitch)
JP3 & JP2	M2M1 Connector Function Select	6-pin Block (2.0 pitch)
JPLCD1	LVDS1/EDP1 LCD Panel VCC Select	4-pin Block (2.0 pitch)
JPLCD2	EDP2 LCD Panel VCC Select	4-pin Block (2.0 pitch)
JPBKLT1	LVDS1/EDP1 LCD BACKLIGHT VCC Select	3-pin Block (2.0 pitch)
JPBKLT2	EDP2 LCD BACKLIGHT VCC Select	3-pin Block (2.0 pitch)
JPCLR1	PIN (1-2) = Clear ME_RTC PIN (3-4) = Clear CMOS PIN (5-6) = TXE Override PIN (7-8) = CASE OPEN	8-pin Block (2.0 pitch)
M2M_PWR1	M.2 M-key Power Select	3-pin Block (2.0 pitch)
M2B_PWR1	M.2 B-key Power Select	3-pin Block (2.0 pitch)
M2E_PWR1	M.2 E-key Power Select	3-pin Block (2.0 pitch)
JP80P1	GPIO/80 Port Function Select	2-pin Block (2.0 pitch)
AT_MODE	AT/ATX Mode Select	3-pin Block (2.0 pitch)

Connectors

Connector	Name
DCIN1	12V DC-in Power Jack
ATX12V1	4-Pin 12V Power Connector
VGA	VGA Port Connector
USB1	USB 3.1 (Gen.2) Port Connector X2
USB2	USB 2.0 Port Connector X2
USB3	USB 2.0 Wafer
USB4	USB 2.0 Port Connector X2 *Option for LI1BV-00 Series

	RJ-45 LAN Connector X1 *Option for LI1BV-0L Series
LAN1	RJ-45 LAN Connector
LINE-OUT	Line-out Connector
MIC	MIC Connector
SPEAK_CON1	3W Amplifier Connector
SIMCARD	SIM card slot
SATA1	SATAIII Connector
SATAPWR1	SATA Power out Connector
CPUFAN1	FAN Connector
JP1	Light Control Connector

Headers

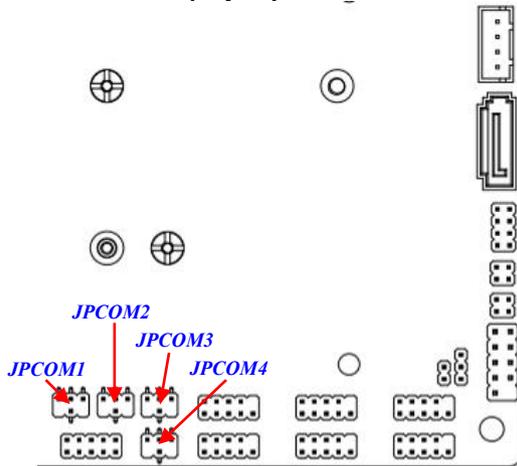
Header	Name	Description
JW_FP1	Front Panel Header (PWR LED/ HD LED/Power Button /Reset)	9-pin Block (2.54 pitch)
FP_AUDIO1	Audio Header X1	9-pin Block (2.0 pitch)
FP_USB1	USB 2.0 Port Header X1	9-pin Block (2.0 pitch)
FP_USB2	USB 2.0 Port Header X1 *Option for LI1BV-0L Series	9-pin Block (2.0 pitch)
SMBUS1	SMBUS Header	5-pin Block (2.0 pitch)
GPIO1	GPIO Header	10-pin Block (2.0 pitch)
COM1/2/3/4/5/6	Serial Port Header	9-pin Block (2.0 pitch)
TX-RXCOM1	COM1 Port RS422/RS485	4-pin Block (2.0 pitch)
TX-RXCOM2	COM2 Port RS422/RS485	4-pin Block (2.0 pitch)
LVDS1	LVDS Inverter	30-pin Block (2.0 pitch)
EDP2	EDP Header	30-pin Block (2.0 pitch)
INVERTER1	Inverter Header	6-pin Block (2.0 pitch)

Chapter 2

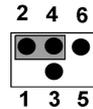
Hardware Installation

2-1 Jumper Setting

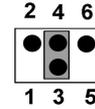
JPCOM1/2/3/4 (4-pin): COM1/2/3/4 Port Pin9 Function Select (2.0 pitch)



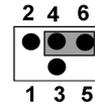
JPCOM1 → COM1 Header Pin-9
JPCOM2 → COM2 Header Pin-9
JPCOM3 → COM3 Header Pin-9
JPCOM4 → COM4 Header Pin-9



2-4 Closed:
PIN9=RS232;

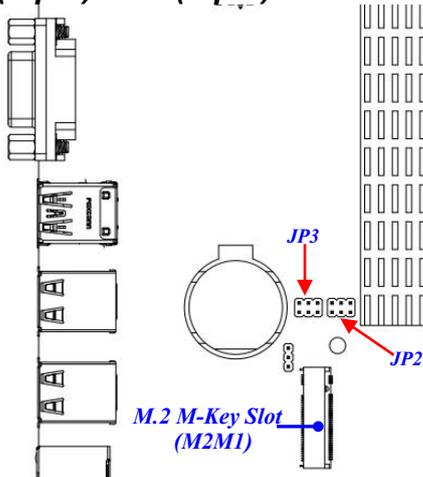


3-4 Closed:
PIN9=+5V;

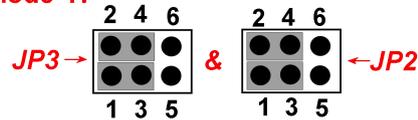


4-6 Closed:
PIN9=+12V

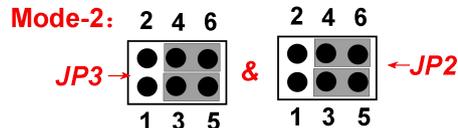
JP3 (6-pin)&JP2(6-pin): M2M1 Connector Function Select (2.0 pitch)



JP3&JP2 → M2M1 Connector Select
Mode-1:

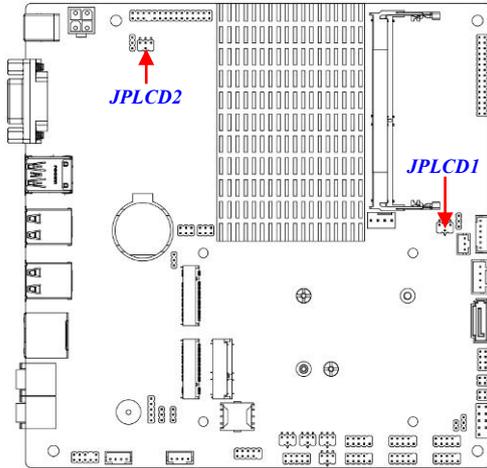


(1-3) & (2-4) Closed:
MSATA select;

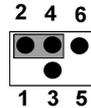


3-5 & 4-6 Closed:
NVME select.

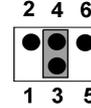
JPLCD1/JPLCD2 (4-pin): LCD Panel VCC Select (2.0 pitch)



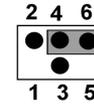
JPLCD1 → LVDS1 LCD Panel VCC Select
JPLCD2 → EDP2 LCD Panel VCC Select



2-4 Closed:
VCC=+12V;

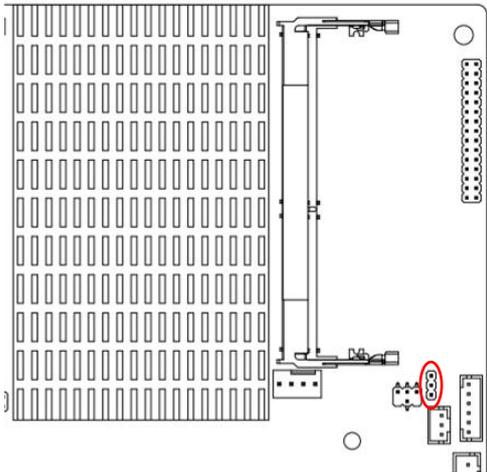


3-4 Closed:
VCC=+5V;

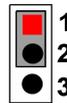


4-6 Closed:
VCC=+3.3V

JPBKLT1 (3-pin): LVDS1/EDP1 LCD BACKLIGHT VCC Select (2.0 pitch)



JPBKLT1 → LVDS1 LCD BACKLIGHT VCC



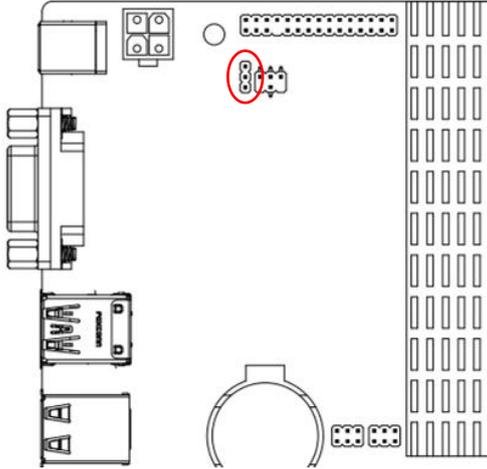
1-2 Closed:
VCC= +5V



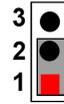
2-3 Closed:
VCC= +12V

***Note:**LI1BV series co-lay LVDS1 and EDP1 (EDP1 is optional by order; please refer to the actual model you purchased).

JPBKLT2 (3-pin): EDP2 LCD BACKLIGHT VCC Select (2.0 pitch)



JPBKLT2 → EDP2 LCD BACKLIGHT VCC

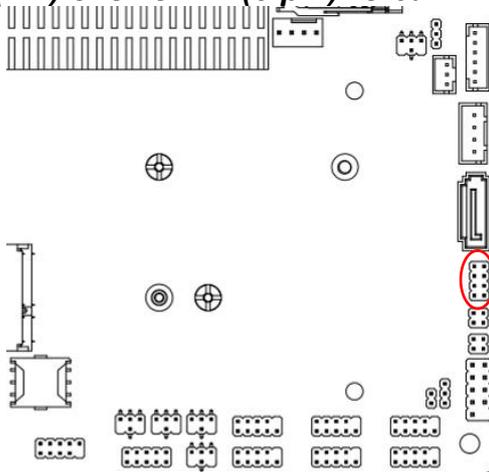


1-2 Closed:
VCC= +5V

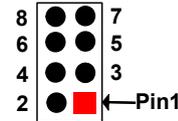


2-3 Closed:
VCC= +12V

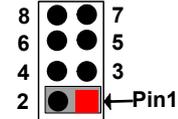
Pin (1-2) of JPCLR1 (8-pin): Clear ME_RTC (2.0 pitch)



PIN(1-2) Clear ME_RTC

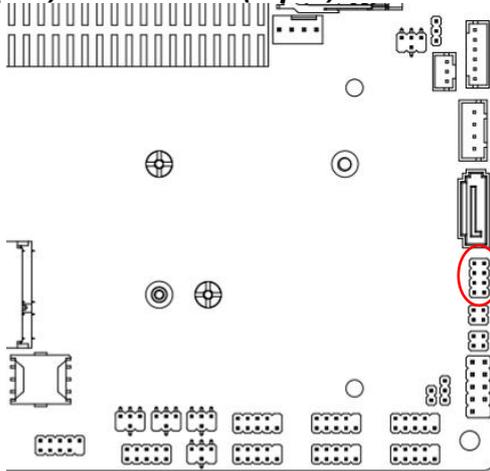


1-2 Open: Normal(Default)

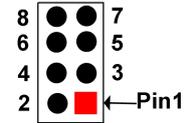


1-2 Closed: Clear ME_RTC

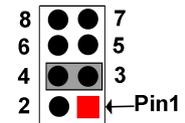
Pin (3-4) of JPCLR1 (8-pin): Clear CMOS (2.0 pitch)



PIN(3-4) Clear CMOS

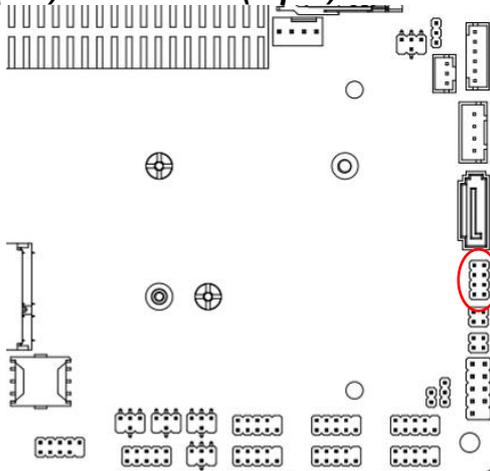


3-4 Open: Normal(Default)

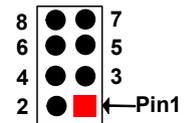


3-4 Closed: Clear CMOS

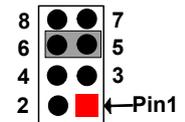
Pin (5-6) of JPCLR1 (8-pin): TXE Override (2.0 pitch)



PIN(5-6) TXE Override

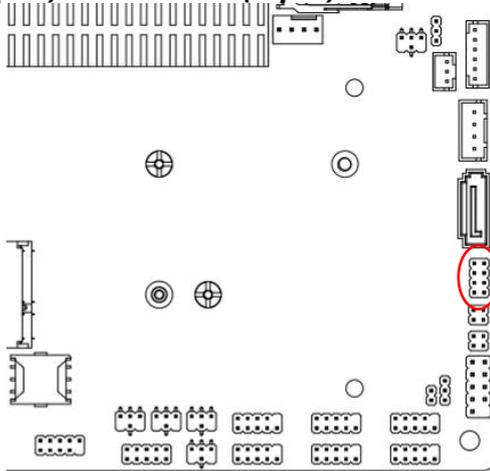


5-6 Open: Normal(Default)

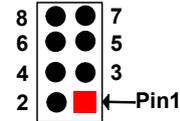


5-6 Closed: TXE Override

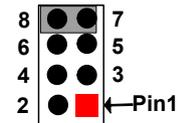
Pin (7-8) of JPCLR1 (8-pin): CASE OPEN (2.0 pitch)



PIN(7-8) CASE OPEN

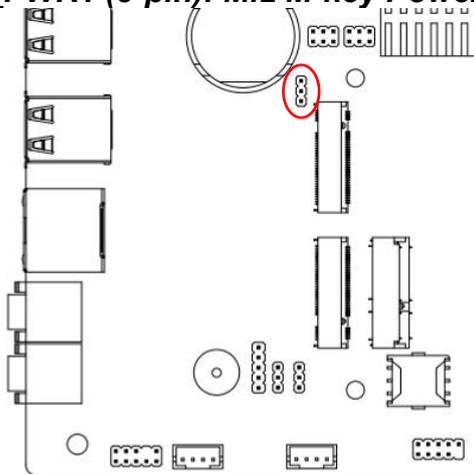


7-8 Open: Normal(Default)

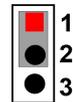


7-8 Closed: CASE OPEN

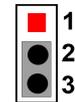
M2M_PWR1 (3-pin): M.2 M-key Power Select (2.0 pitch)



M2M_PWR1 → M.2 M-key Power Select

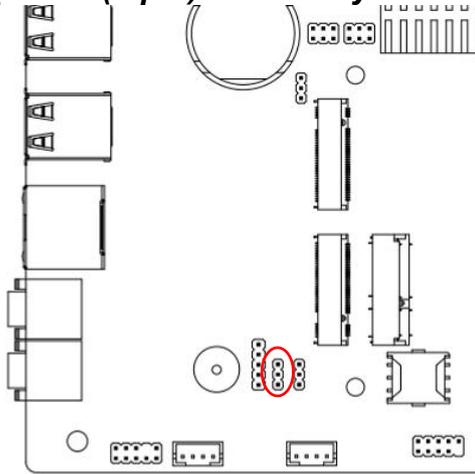


**1-2 Closed:
VCC= VCC3**

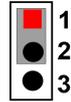


**2-3 Closed:
VCC= 3VSB**

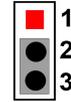
M2B_PWR1 (3-pin): M.2 B-key Power Select (2.0 pitch)



M2B_PWR1 → M.2 B-key Power Select

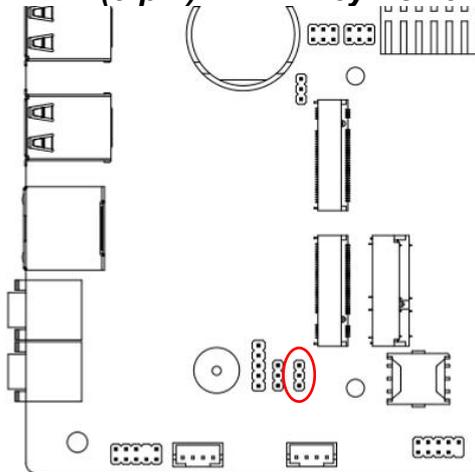


1-2 Closed:
VCC= VCC3

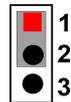


2-3 Closed:
VCC= 3VSB

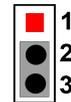
M2E_PWR1 (3-pin): M.2 E-key Power Select (2.0 pitch)



M2E_PWR1 → M.2 E-key Power Select

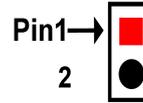
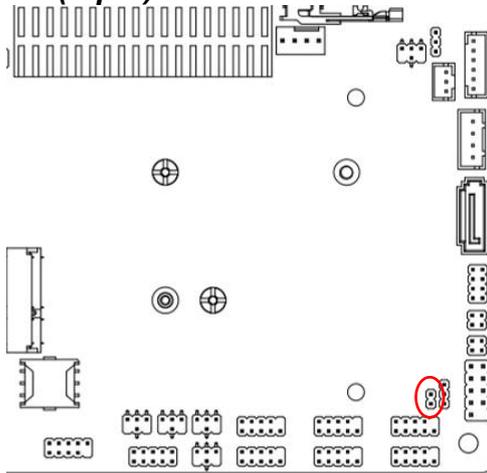


1-2 Closed:
VCC= VCC3

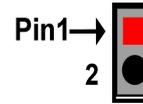


2-3 Closed:
VCC= 3VSB

JP80P1 (2-pin): GPIO/80 Port Function Select (2.0 pitch)

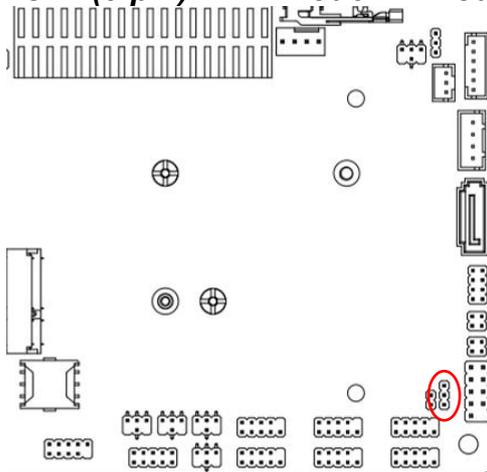


1-2 Open: GPIO1=80 Port



1-2 Closed: GPIO1=GPIO Port

AT_MODE(3-pin): ATX Mode/AT Mode Select (2.0 pitch)



AT_MODE → ATX Mode/AT Mode Select



1-2 Closed:
ATX MODE



2-3 Closed:
AT MODE

***ATX Mode Selected:** Press power button to power on after power input ready;
AT Mode Selected: Directly power on as power input ready.

2-2 Connectors and Headers

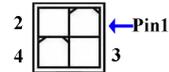
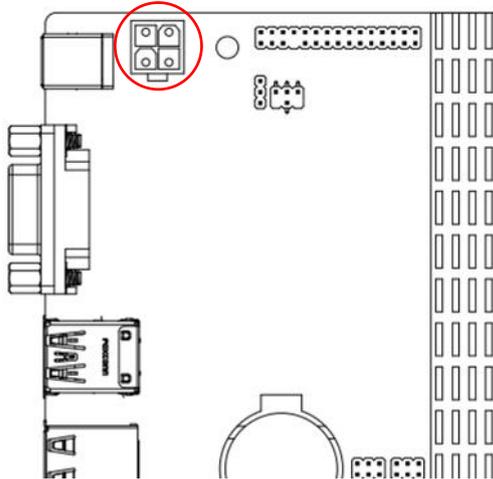
2-2-1 Connectors

(1) Rear Panel Connectors

** Refer to Page-3 Rear IO Diagram.*

Icon	Name	Function
	12V DC-in Power Jack	For user to connect compatible power adapter to provide power supply for the system.
	VGA	To connect display device that support VGA specification.
	RJ-45 LAN Port	This connector is standard RJ-45 LAN jack for Network connection.
	USB 3.1 Ports	To connect USB keyboard, mouse or other devices compatible with USB specification. USB 3.1 ports supports up to 5Gbps data transfer rate.
	USB 2.0 Ports	To connect USB keyboard, mouse or other devices compatible with USB specification.
	Line-Out Connector	For user to connect external speaker, earphones, etc to transfer system audio output.
	Mic-in Connector	For user to connect external microphone, etc to transfer external microphone into system.

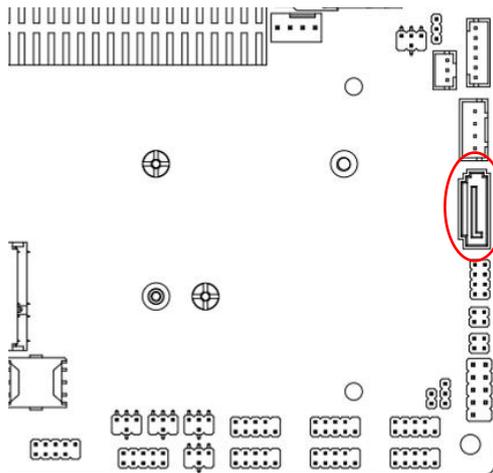
(2) ATX12V1 (4-pin block): ATX12V Type Power Connector



Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

(3) SATA1 (7-pin): SATA III Port connector

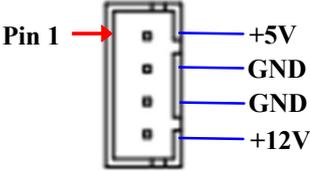
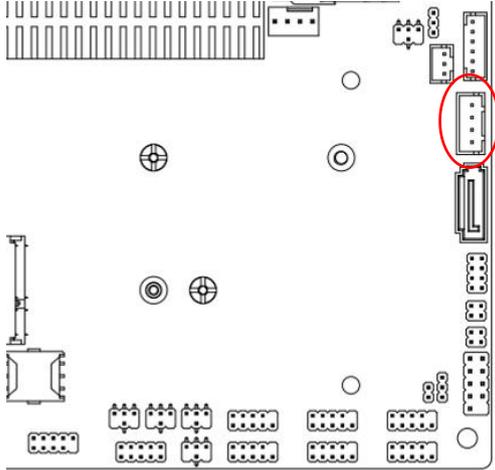
SATA1 are high-speed SATAIII port that supports 6 GB/s transfer rate.



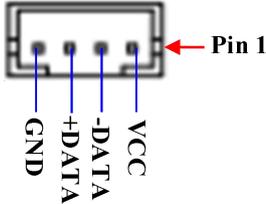
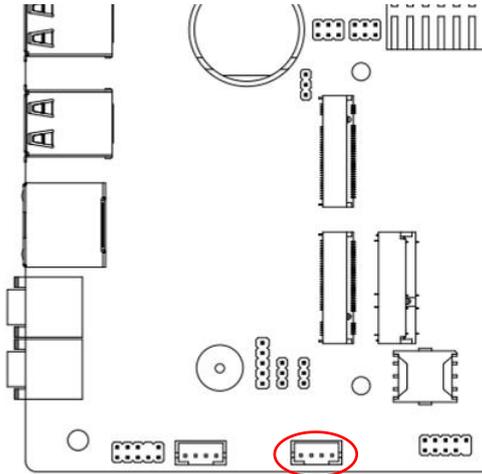
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND



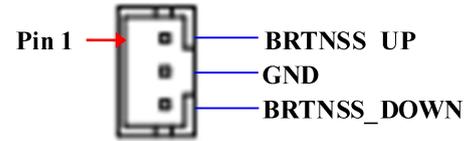
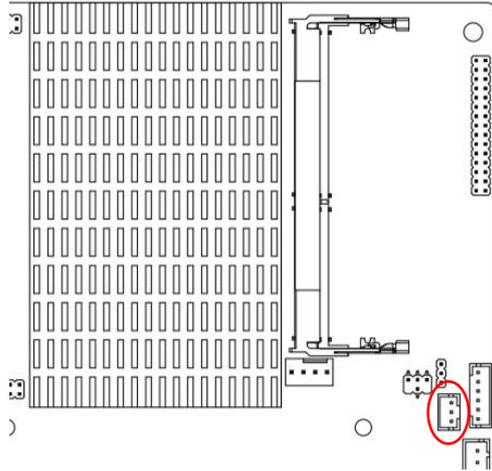
(4) SATAPWR1 (4-pin): SATA HDD Power-Out Connector



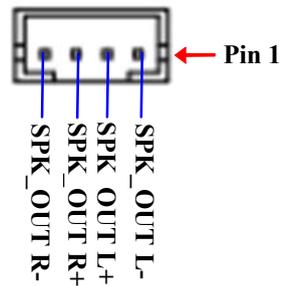
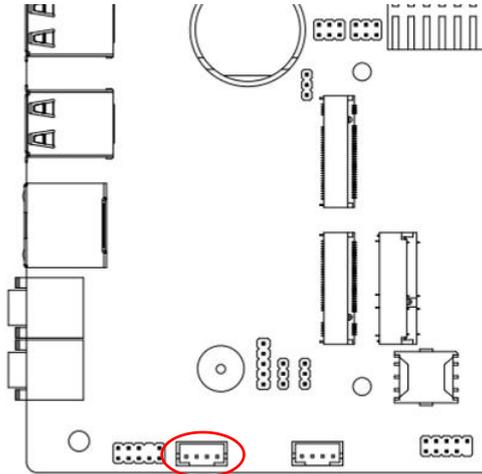
(5) USB3 (4-pin): USB 2.0 Connector



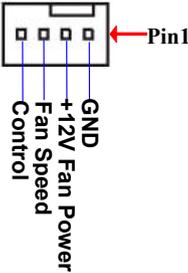
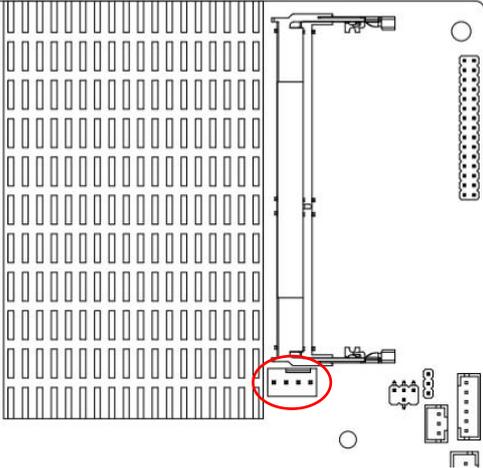
(6) JP1 (3-pin): Light Control Connector



(7) SPEAK_CON1 (4-pin): 3W Amplifier Connector



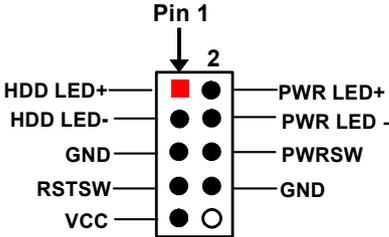
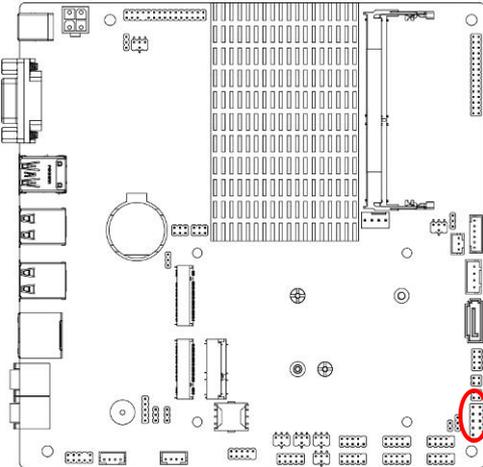
(8) CPUFAN1 (4-pin): Fan Connector (2.54 pitch)



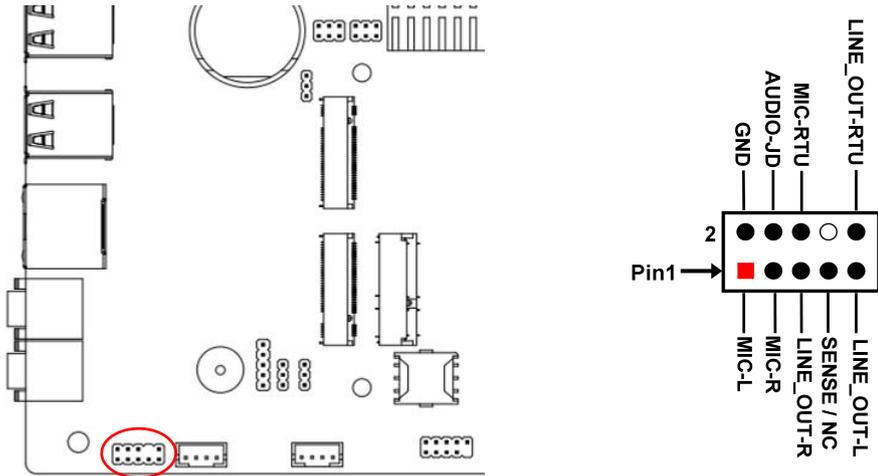
CPUFAN1

2-2-2 Headers

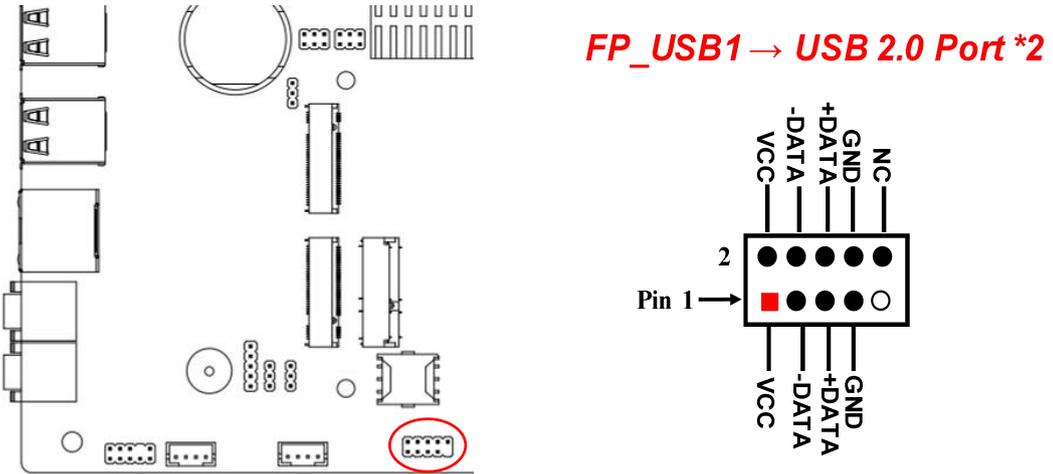
(1) JW_FP1 (9-pin): Front Panel Header (2.54 pitch)



(2) FP_AUDIO1 (9-pin): Line-Out, MIC-In Header (2.0 pitch)

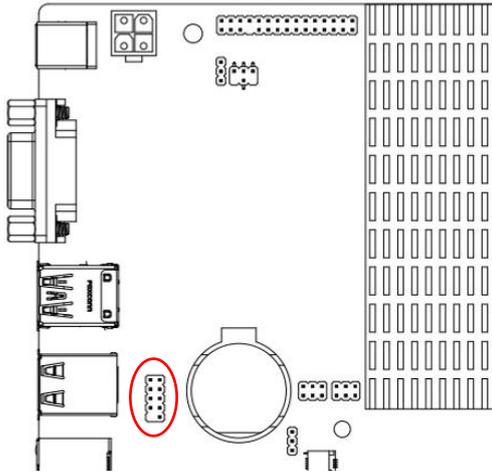


(3) FP_USB1 (9-pin): USB 2.0 Port Header (2.0 pitch)

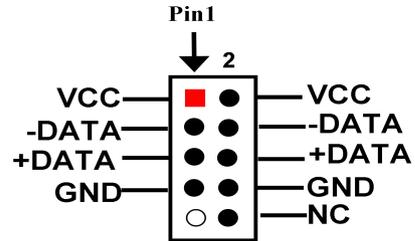


(4) FP_USB2 (9-pin): USB 2.0 Port Header (2.0 pitch)

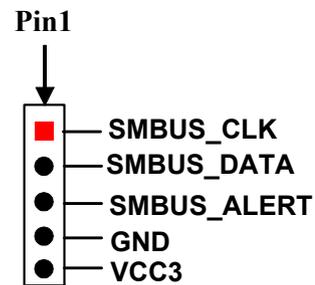
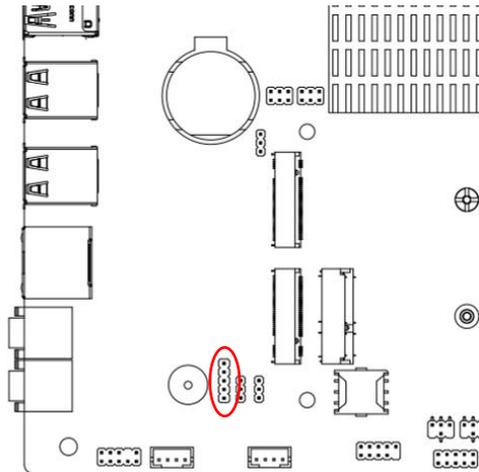
**Option for LI1BV-0L Series*



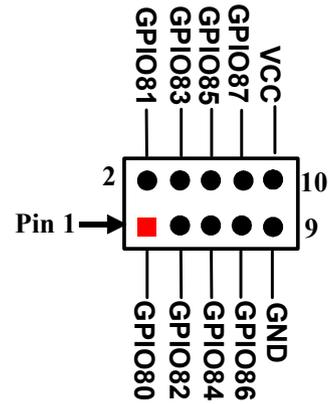
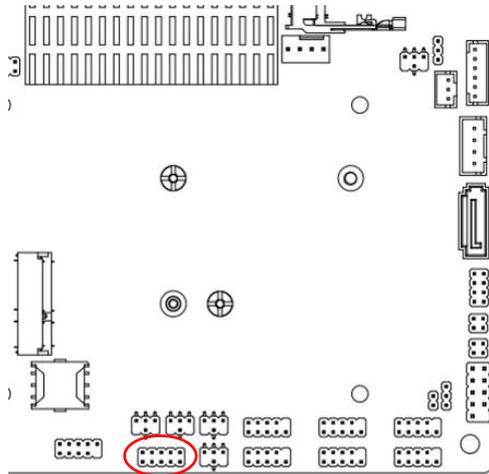
FP_USB2 → USB 2.0 Port *2



(5) SMBUS (5-Pin): SMBUS Header (2.0 pitch)

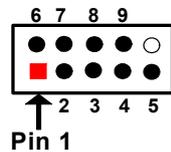
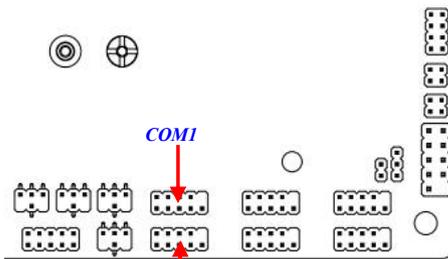


(6) GPIO1(10-pin): GPIO Header (2.0 pitch)



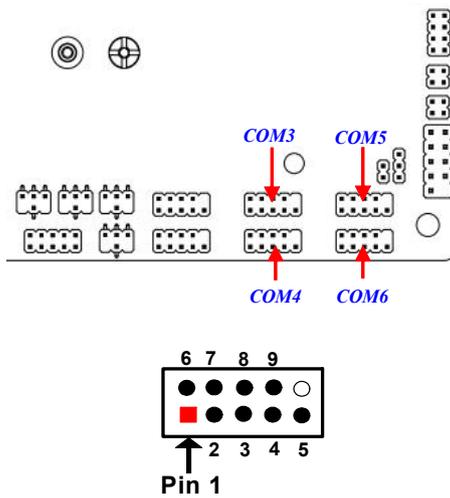
*JP80P1 Open: For 80Port Function;
JP80P1 Closed: Normal 8-bit GPIO.*

(7) COM1/COM2 (9-pin): RS232/422/485 Serial Port Header (2.0 pitch)



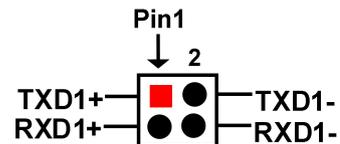
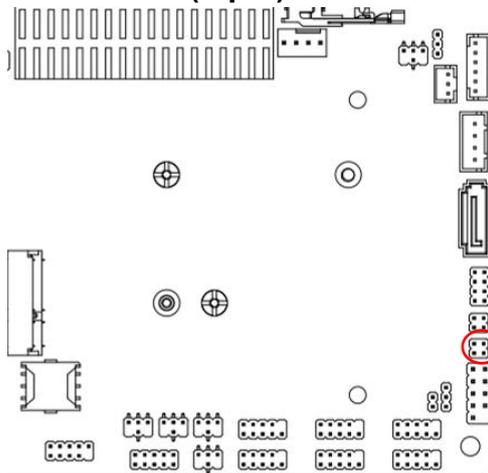
Pin NO.	RS232	*RS422 <i>(optional)</i>	*RS485 <i>(optional)</i>
Pin 1	DCD	TX-	DATA-
Pin 2	RXD	TX+	DATA+
Pin 3	TXD	RX+	NC
Pin 4	DTR	RX-	NC
Pin 5	GND	GND	GND
Pin 6	DSR	NC	NC
Pin 7	RTS	NC	NC
Pin 8	CTS	NC	NC
Pin 9	RI	NC	NC

(8) COM3/COM4/COM5/COM6 (9-pin): RS232 Serial Port Header (2.0 pitch)

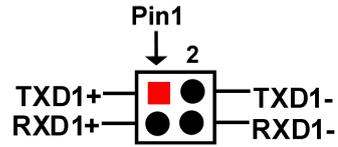
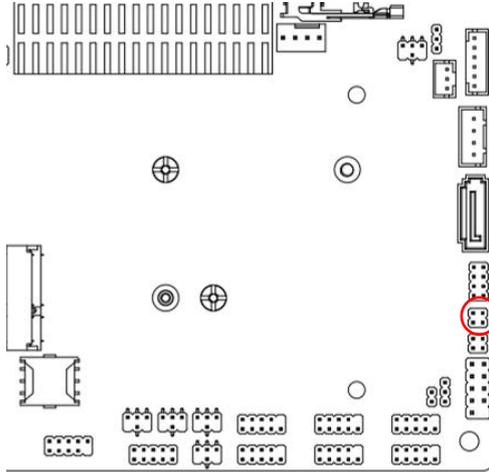


Pin NO.	RS232
Pin 1	DCD
Pin 2	SIN
Pin 3	SOUT
Pin 4	DTR
Pin 5	GND
Pin 6	DSR
Pin 7	RTS
Pin 8	CTS
Pin 9	RI

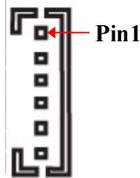
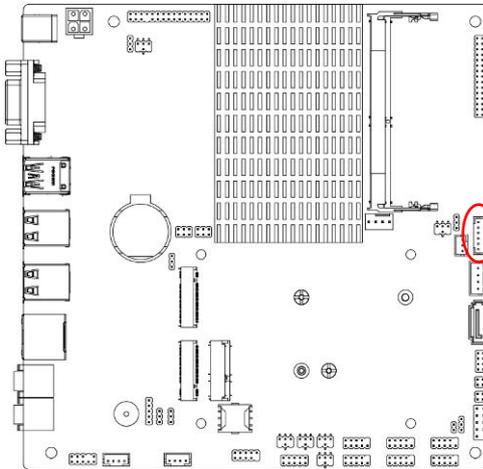
(9) TX-RXCOM1 (4-pin): COM1 Header RS422/RS485 (2.0 pitch)



(10) TX-RXCOM2 (4-pin): COM2 Header RS422/RS485 (2.0 pitch)

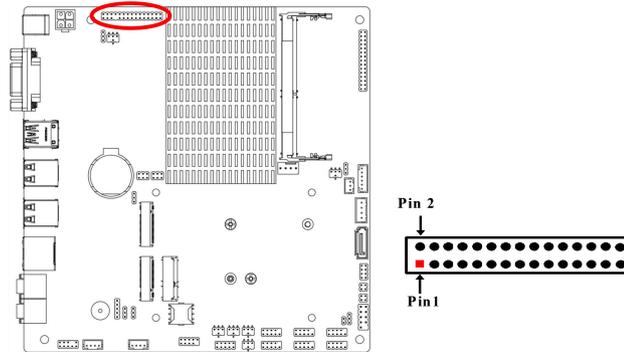


(11) INVERTER1 (6-pin): LVDS Inverter Connector (2.0 pitch)



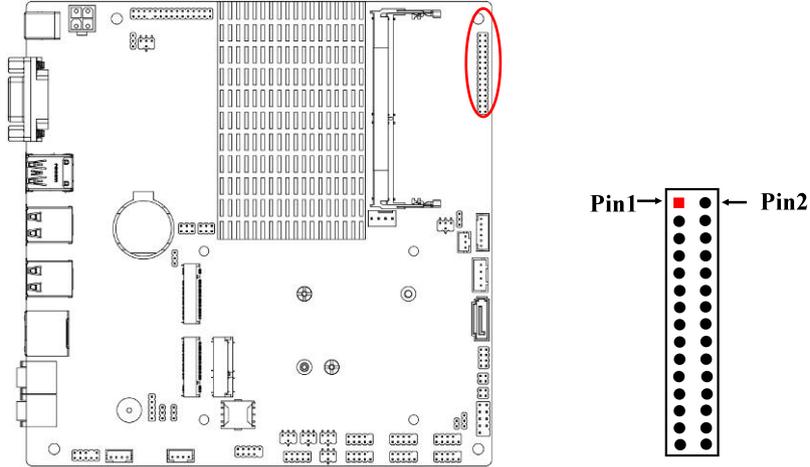
Pin No.	Definition
1	Backlight Power
2	Backlight Power
3	Backlight Enable
4	Backlight PWM
5	GND
6	GND

(12) EDP2(30-pin): EDP Connector (2.0 pitch)



Pin Define	Pin No.	Pin No.	Pin Define
EDP2_DATA0N	Pin 30	Pin 29	EDP2_DATA0P
EDP2_DATA1N	Pin 28	Pin 27	EDP2_DATA1P
GND	Pin 26	Pin 25	GND
EDP2_DATA2N	Pin 24	Pin 23	EDP2_DATA2P
EDP2_DATA3N	Pin 22	Pin 21	EDP2_DATA3P
GND	Pin 20	Pin 19	GND
EDP2_AUXN	Pin 18	Pin 17	EDP2_HPD
EDP2_AUXP	Pin 16	Pin 15	BKLTEN
GND	Pin 14	Pin 13	GND
BKLTCTL	Pin 12	Pin 11	EDP2_VCC
EDP2_SDA	Pin 10	Pin 9	EDP2_VCC
EDP2_SCL	Pin 8	Pin 7	NC
NC	Pin 6	Pin 5	GND
GND	Pin 4	Pin 3	BKLT2_PWR
BKLT2_PWR	Pin 2	Pin 1	BKLT2_PWR

(13) LVDS1 (30-pin): 24-bit Dual Channel LVDS Header (2.0 pitch)



Pin Define	Pin NO.	Pin NO.	Pin Define
LCD_VCC	Pin 1	Pin 2	LCD_VCC
LCD_VCC	Pin 3	Pin 4	GND
GND	Pin 5	Pin 6	GND
LVDSA_DATAN0	Pin 7	Pin 8	LVDSA_DATAP0
LVDSA_DATAN1	Pin 9	Pin 10	LVDSA_DATAP1
LVDSA_DATAN2	Pin 11	Pin 12	LVDSA_DATAP2
GND	Pin 13	Pin 14	GND
LVDS_CLKAN	Pin 15	Pin 16	LVDS_CLKAP
LVDSA_DATAN3	Pin 17	Pin 18	LVDSA_DATAP3
LVDSB_DATAN0	Pin 19	Pin 20	LVDSB_DATAP0
LVDSB_DATAN1	Pin 21	Pin 22	LVDSB_DATAP1
LVDSB_DATAN2	Pin 23	Pin 24	LVDSB_DATAP2
GND	Pin 25	Pin 26	GND
LVDS_CLKBN	Pin 27	Pin 28	LVDS_CLKBP
LVDSB_DATAN3	Pin 29	Pin 30	LVDSB_DATAP3

Chapter 3

Introducing BIOS

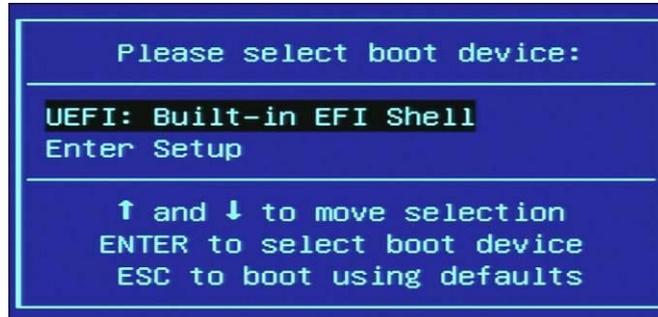
Notice! The BIOS options in this manual are for reference only. Different configurations may lead to difference in BIOS screen and BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard. Users are welcome to download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

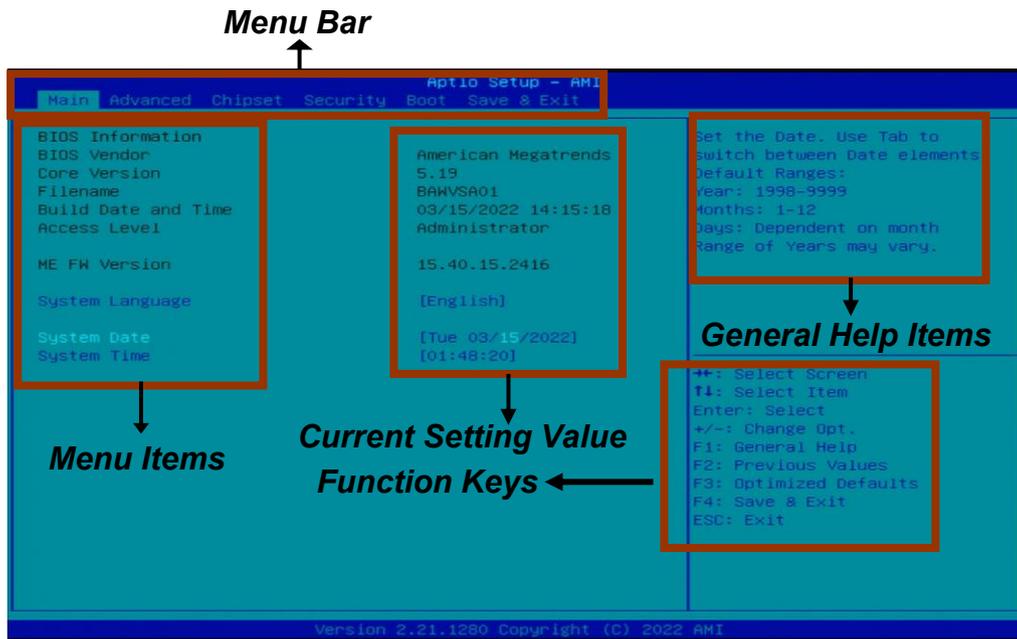
Power on the computer and by pressing immediately allows you to enter Setup. If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously 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 **** to enter Setup; press **< F7>** to enter pop-up Boot menu.



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:

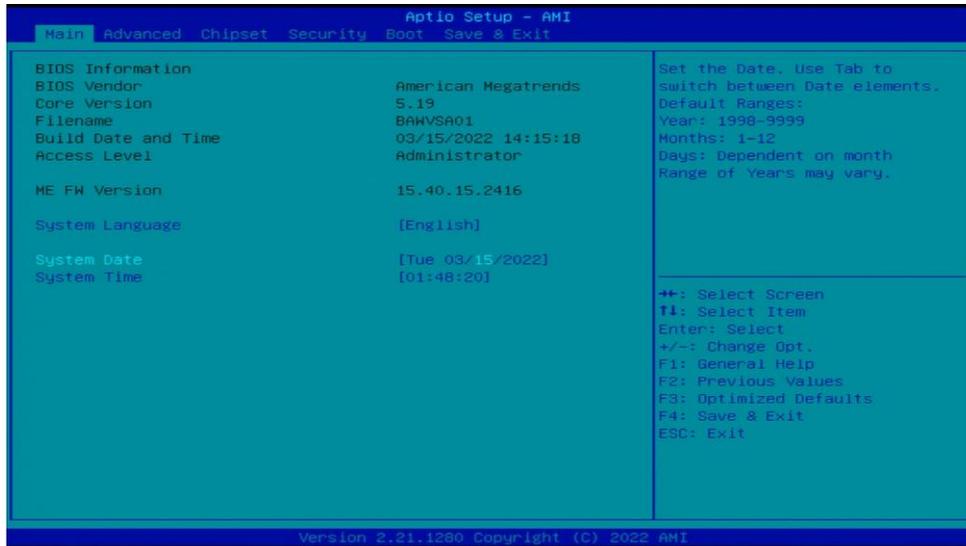
Main	To change system basic configuration
Advanced	To change system advanced configuration

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 Language

Choose the system default language.

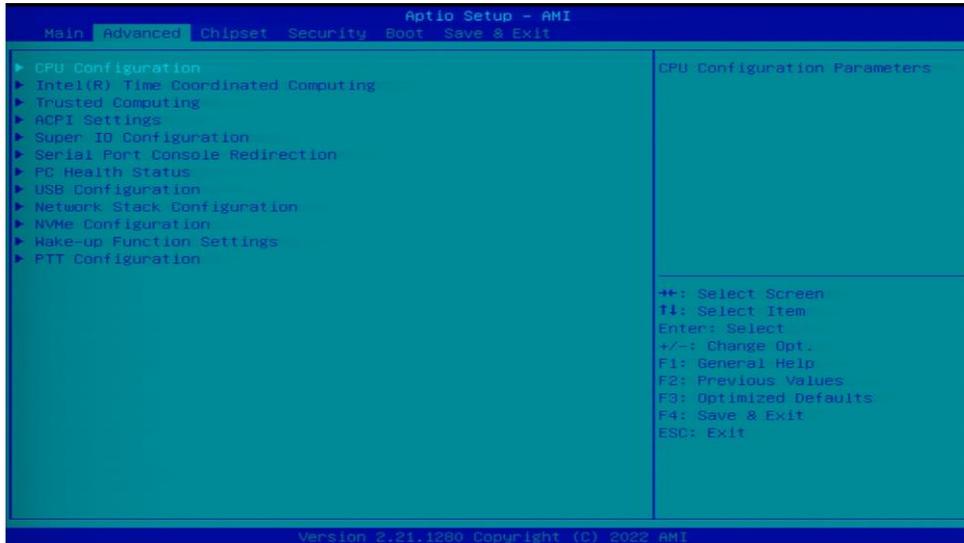
System Date

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

System Time

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

3-7 Advanced Menu



▶ CPU Configuration

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

Intel(R) SpeedStep(tm)

This item allows more than two frequency ranges to be supported.

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

When set as **[Enabled]**, user can make further setting in the following item:

Turbo Mode

Use this item to enable or disable processor Turbo Mode (requires EMTTM enabled too). Auto means enabled.

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

C states

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

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

When set as **[Enabled]**, user can make further setting in the following item:

Enhanced C-states

Use this item to enable or disable C1E. When set as [Enabled], CPU will switch

to minimum speed when all cores enter C-State.

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

Package C State Limit

Use this item to select the Maximum Package C State Limit Setting.

The optional settings are: [C0/C1]; [C2]; [C3]; [C6]; [C7]; [C7S]; [C8]; [C9]; [C10]; [CPU Default]; [Auto].

[CPU Default]: Leaves to Factory default value.

[Auto]: Initializes to deepest available Package C State Limit.

Power Limit 1 Override

Use this item to enable or 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.

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

When set as **[Enabled]**, user can make further setting in the following item:

Power Limit 1

Power Limit 1 in Milli Watts BIOS will round to the nearest 1/8W when programming. 0= no custom override. For 12.50W, enter 12500.

[Overclocking SKU]: Value must be between Max and Min Power Limits (specified by PACKAGE_POWER_SKU_MSR).

[Other SKUs]: This value must be between Min Power Limit and TDP Limit. If value is 0, BIOS will program TDP value

Power Limit 1 Time Window

Power Limit 1 Time Window value in seconds. The value may vary from 0 to 128.0= default value (28 sec for Mobile and 8 sec for Desktop). Defines time window which TDP value should be maintained

The optional settings are: [0]; [1]; [2]; [3]; [4]; [5]; [6]; [7]; [8]; [10]; [12]; [14]; [16]; [20]; [24]; [28]; [32]; [40]; [48]; [56]; [64]; [80]; [96]; [112]; [128].

Power Limit 2 Override

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

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

When set as **[Enabled]**, user can make further setting in the following item:

Power Limit 2

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

▶ **Intel(R) Time Coordinated Computing**

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

Intel(R) Time Coordinated Computing

Intel(R) TCC Mode

Use this item to enable or disable Intel(R) TCC mode. When enabled, this will modify system settings to improve real-time performance. The full list of settings and their current state are displayed below when Intel(R) TCC mode is enabled.

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

When set as **[Enabled]**, user can make further setting in the following item:

Intel(R) TCC Authentication

Use this item to enable or disable authentication of Intel(R) TCC configuration data.

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

IO Fabric Low Latency

Use this item to enable or disable IO Fabric Low Latency. This will turn off some power management in the PCH IO fabrics. This option provides the most aggressive IO Fabric performance setting. S3 state is NOT supported.

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

GT CLOS

Use this item to enable or disable Graphics Technology(GT) Class of Service. Enable will reduce Gfx LLC allocation to minimize impact of Gfx workload on LLC.

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

▶ **Trusted Computing**

Press [Enter] to enable or disable Security Device Support.

TPM 2.0 Device Found

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.

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

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

Active PCR Banks

Available PCR Banks

SHA-1 PCR Bank

Use this item to enable or disable SHA-1 PCR Bank.

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

SHA256 PCR Bank

Use this item to enable or disable SHA256 PCR Bank.

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

SHA384 PCR Bank

Use this item to enable or disable SHA384 PCR Bank.

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

SM3_256 PCR Bank

Use this item to enable or disable SM3_256 PCR Bank.

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

Pending Operation

Use this item to set an operation for the Security Device.

***Note:** *Your Computer will reboot during restart in order to change State of Security Device.*

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

▶ ACPI Settings

Press [Enter] to 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.

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

► **Super I/O Configuration**

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

Super IO Configuration

► **Serial Port 1 Configuration/Serial Port 2 Configuration**

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

Serial Port

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

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

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

Device Settings

Change Settings

Use this item to select an optimal setting for Super IO Device.

The optional settings are: [Auto]; [IO=3F8h; IRQ=4;]; [IO=2F8h; IRQ=3]; [IO=3E8h; IRQ=4]; [IO=2E8h; IRQ=3].

Transmission Mode Select

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

► **Serial Port 3 Configuration/Serial Port 4 Configuration**

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

Serial Port

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

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

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

Device Settings

Change Settings

Use this item to select an optimal setting for Super IO Device.

The optional settings are: [Auto]; [IO=3F8h; IRQ=10;]; [IO=2F8h; IRQ=10]; [IO=3E8h; IRQ=10]; [IO=2E8h; IRQ=10]; [IO=2F0h; IRQ=10]; [IO=2E0h; IRQ=10].

► **Serial Port 5 Configuration/Serial Port 6 Configuration**

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

Serial Port

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

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

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

Device Settings

Change Settings

Use this item to select an optimal setting for Super IO Device.

The optional settings are: [Auto]; [IO=3F8h; IRQ=11;]; [IO=2F8h; IRQ=11]; [IO=3E8h; IRQ=11]; [IO=2E8h; IRQ=11]; [IO=2F0h; IRQ=11]; [IO=2E0h; IRQ=11].

ERP Support

Use this item to set Energy-Related Products function.

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

This item should be set as **[Disabled]** if you wish to have all active wake-up functions.

Case Open Detect

Use this item to detect Case has already open or not. Show message in POST.

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

When set as **[Enabled]**, system will detect if COPEN has been short or not (*refer to JPCLR1 jumper setting for Case Open Detection*); if Pin 7&8 of **JPCLR1** are short, system will show Case Open Message during POST.

WatchDog Reset Timer

Use this item to enable or disable WDT reset function.

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

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

WatchDog Reset Timer Value

User can select a value in the range of [4] to [255] seconds when 'WatchDog Reset Timer Unit' set as [Sec]; or in the range of [4] to [255] minutes when 'WatchDog Reset Timer Unit' set as [Min].

WatchDog Reset Timer Unit

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

WatchDog Wake-up Timer

This item support WDT wake-up while '**ERP Support**' is set as [Auto].

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

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

WatchDog Wake-up Timer Value

User can select a value in the range of [10] to [4095] seconds when 'WatchDog Wake-up Timer Unit' set as [Sec]; or in the range of [1] to [4095] minutes when 'WatchDog Wake-up Timer Unit' set as [Min].

WatchDog Wake-up Timer Unit

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

ATX Power Emulate AT Power

This item support Emulate AT power function, MB power On/Off control by power supply. Use needs to select 'AT or ATX Mode' on MB jumper at first (*refer to AT_MODE Pin 1&2 jumper setting for ATX Mode & Pin 2&3 jumper setting for AT Mode Select*).

▶ **Serial Port Console Redirection**

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

COM1

Console Redirection

Use this item to enable or disable COM1 Console Redirection.

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

When set as [**Enabled**], user can make further settings in the '**Console Redirection Settings**' screen:

▶ **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 make settings for the following sub-items:

Terminal Type

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

[ANSI]: Extended ASCII char set;

[VT100]: ASCII char set;

[VT100+]: Extends VT100 to support color, function keys, etc.;

[VT-UTF8]: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.

Bits per second

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.
The optional settings are: [9600]; [19200]; [38400]; [57600]; [115200].

Data Bits

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

Parity

A parity bit can be sent with the data bits to detect some transmission errors.

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

[Even]: parity bit is 0 if the num of 1's in the data bits is even;

[Odd]: parity bit 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.

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.

The optional settings are: [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.

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

VT-UTF8 Combo Key Support

Use this item to enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals.

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

Recorder Mode

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

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

Resolution 100x31

Use this item to enable or disable extended terminal resolution.

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

Putty KeyPad

Use this item to select FunctionKey and KeyPad on Putty.

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

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

Console Redirection EMS

Use this item to enable or disable Console Redirection.

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

When set as **[Enabled]**, user can make further settings in '**Console Redirection Settings**' screen:

► 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 make settings for the following sub-items.

Out-of-Band Mgmt Port

The default setting is: [COM1].

Terminal Type EMS

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

[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.

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.

The optional settings are: [9600]; [19200]; [57600]; [115200].

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.

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

Data Bits

The default setting is: [8].

**This item may or may not show up, depending on different configuration.*

Parity

The default setting is: [None].

**This item may or may not show up, depending on different configuration.*

Stop Bits

The default setting is: [1].

**This item may or may not show up, depending on different configuration.*

▶ **PC Health Status**

Press [Enter] to view current hardware health status, make further settings in 'SmartFAN Configuration'.

▶ **SmartFAN Configuration**

Press [Enter] to make settings for SmartFan Configuration:

SmartFAN Configuration

CPUFAN Smart Mode

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

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

CPUFAN Full-Speed Temperature

Use this item to set CPUFAN/SYSFAN full speed temperature. Fan will run at full speed when above this pre-set temperature.

CPUFAN Full-Speed Duty

Use this item to set CPUFAN/SYSFAN full-speed duty. Fan will run at full speed when above this pre-set duty.

CPUFAN Idle-Speed Temperature

Use this item to set CPUFAN /SYSFAN idle speed temperature. Fan will run at idle speed when below this pre-set temperature.

CPUFAN Idle-Speed Duty

Use this item to set CPUFAN/SYSFAN idle speed duty. Fan will run at idle speed when below this pre-set duty.

▶ **USB Configuration**

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

USB Configuration

XHCI Hand-off

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

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

USB Mass Storage Driver Support

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

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

USB Hardware Delays and Time-outs

USB Transfer time-out

Use this item to set the time-out value for control, bulk, and interrupt transfers.

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

Device reset time-out

Use this item to set USB mass storage device start unit command time-out.

The optional settings are: [10 sec]; [20 sec]; [30 sec]; [40 sec].

Device power-up delay

Use this item to set 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.

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

Select [**Manual**] you can set value for the following sub-item: '**Device power-up delay in seconds**', the delay range in from 1 to 40 seconds, in one second increments.

▶ **Network Stack Configuration**

Press [Enter] to go to '**Network Stack**' screen to make further settings.

Network Stack

Use this item to enable or disable UEFI Network Stack.

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

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

IPv4 PXE Support

Use this item to enable IPv4 PXE Boot Support. When set as [Disabled], IPv4 PXE boot support will not be available.

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

IPv6 PXE Support

Use this item to enable IPv6 PXE Boot Support. When set as [Disabled], IPv6 PXE boot support will not be available.

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

PXE boot wait time

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

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

Media detect count

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

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

▶ **NVMe Configuration**

Press [Enter] to view current NVMe Configuration.

**Note: options only when NVMe device is available.*

▶ **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.

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

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

Wake-up Hour

Use this item to select 0-23. For example enter 3 for 3am and 15 for 3pm.

Wake-up Minute

Use this item to select 0-59.

Wake-up Second

Use this item to select 0-59.

Wake-up System with Dynamic Time

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

System will wake on the current time + Increase minute(s).

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

When set as **[Enabled]**, system will wake on the current time + increased minute(s).

USB Power Gating S4-S5

USB Wake-up is affected by ERP function in S4. Please disable ERP before activating this function in S4.

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

▶ **PTT Configuration**

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

TPM Device Selection

Use this item to select TPM device.

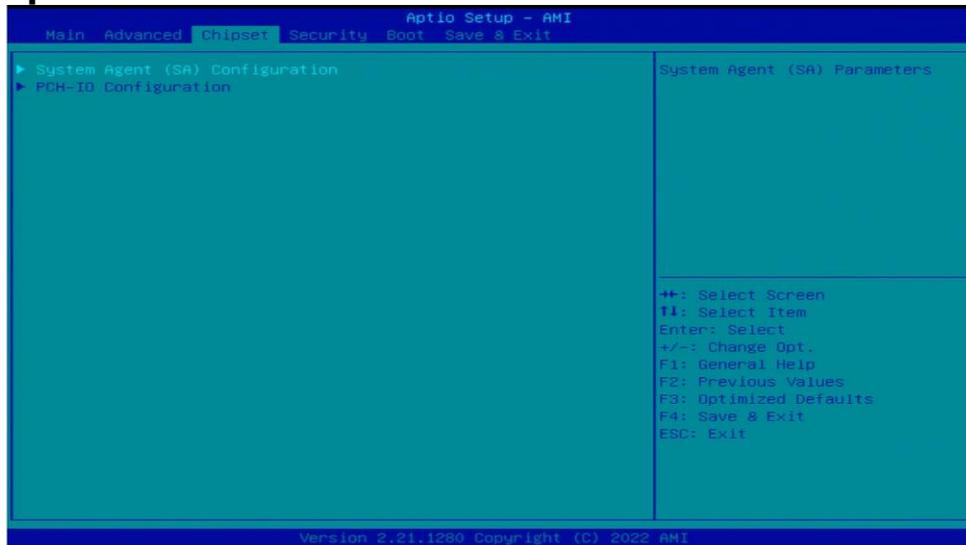
The optional settings are: [dTPM]; [PTT].

[dTPM]: disables PTT in SkuMgr;

[PTT]: enables PTT in Skumgr.

Warning! PTT/dTPM will be disabled and all data saved on it will be lost.

3-8 Chipset Menu



► **System Agent (SA) Configuration**

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

System Agent (SA) Configuration

GTT Size

Use this item to select the GTT Size.

The optional settings are: [2MB]; [4MB]; [8MB].

DVMT Pre-Allocated

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

The optional settings are: [0M]; [4M]; [8M]; [12M]; [16M]; [20M]; [24M]; [28M]; [32M]; [36M]; [40M]; [44M]; [48M]; [52M]; [56M]; [60M]; [64M]; [96M]; [128M]; [160M].

DVMT Total Gfx Mem

Use this item to select DVMT 5.0 Total Graphics Memory size used by the Internal Graphics Device.

The optional settings are: [128M]; [256M]; [MAX].

Active LFP

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

When set as 'Enabled', user can make further settings in 'LVDS Panel Type'.

LVDS Panel Type

The optional settings are: [800x480; 1ch; 18-bit]; [800x600; 1ch; 18-bit]; [800x600; 1ch; 24-bit]; [1024x600; 1ch; 18-bit]; [1024x768; 1ch; 18-bit]; [1024x768; 1ch; 24-bit]; [1280x768; 1ch; 24-bit]; [1280x800; 1ch; 18-bit]; [1280x800; 1ch; 24-bit]; [1366x768; 1ch; 18-bit]; [1366x768; 1ch; 24-bit]; [1440x900; 2ch; 18-bit]; [1440x900; 2ch; 24-bit]; [1280x1024; 2ch; 24-bit]; [1680x1050; 2ch; 24-bit]; [1920x1080; 2ch; 24-bit].

Backlight Control

Use this item for Back Light Control Setting.

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

Total Memort

► PCH-IO Configuration

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

PCH-IO Configuration

PCI Express Configuration

Press [Enter] to make setting for the following item:

Peer Memory Write Enable

Use this item to enable or disable Peer Memory Write.

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

SATA Configuration

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

SATA Configuration

SATA Controller

Use this item to enable or disable SATA device.

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

Press [Enter] to make setting for the following item:

SATA Mode Selection

Use this item to determine how SATA controller(s) operate.

The default setting is: [AHCI].

SATA Port

SATA Port

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

Hot Plug

Use this item to designate this port as Hot Pluggable.

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

M.2

M.2

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

HD-Audio Support

Use this item to control Detection of the HD-Audio device.

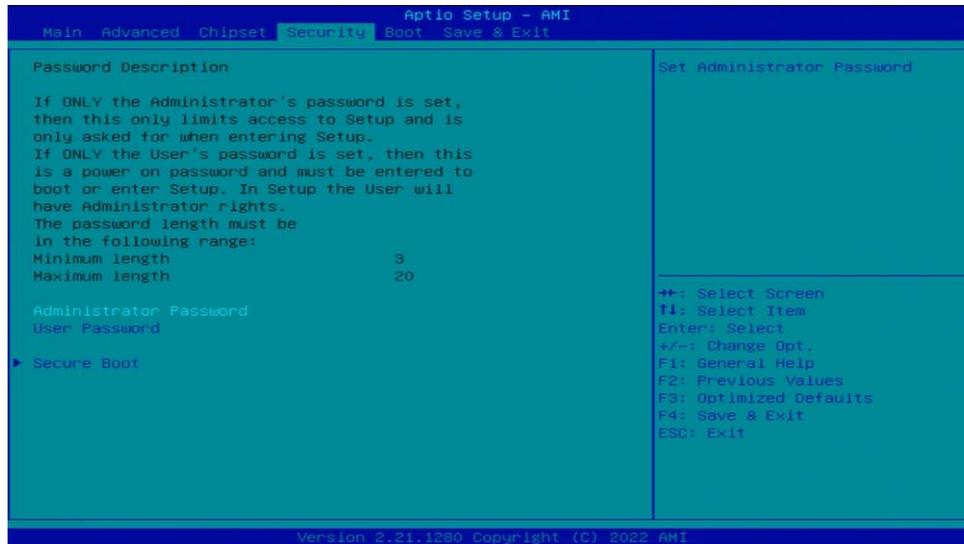
The optional settings: [Disabled]; [Enabled].

System State after Power Failure

Use this item to specify what state to go to when power re-applied after a power failure (G3 state).

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.

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 administrator password.

▶ **Secure Boot**

Press [Enter] to make customized secure settings:

System Mode

Secure Boot

Secure Boot feature is active if secure boot is enabled, Platform Key(PK) is enrolled and the system is in user mode. The mode change requires platform reset.

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

Secure Boot Mode

Use this item to Secure Boot mode to Standard mode or Custom mode. This change is effective after save. After reset, this mode will return to Standard mode. In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication.

The optional settings: [Standard]; [Custom].

When set as [**Custom**], user can make further settings in the following items that show up:

Restore Factory Keys

This item force system to user mode. Install factory default secure boot key databases.

Reset to Setup Mode

Key Management

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

Vendor Keys

Factory Key Provision

This item install factory default Secure Boot keys after the platform reset and while the system is in setup mode.

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

Restore Factory Keys

This item force system to user mode. Install factory default secure boot key databases.

Reset to Setup Mode

Export Secure Boot Variables

Enroll Efi Image

This item allows the image to run in Secure Boot mode.

Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (db).

Device Guard Ready

Remove 'UEFI CA' from DB

Restore DB default

This item restore DB variable to factory defaults.

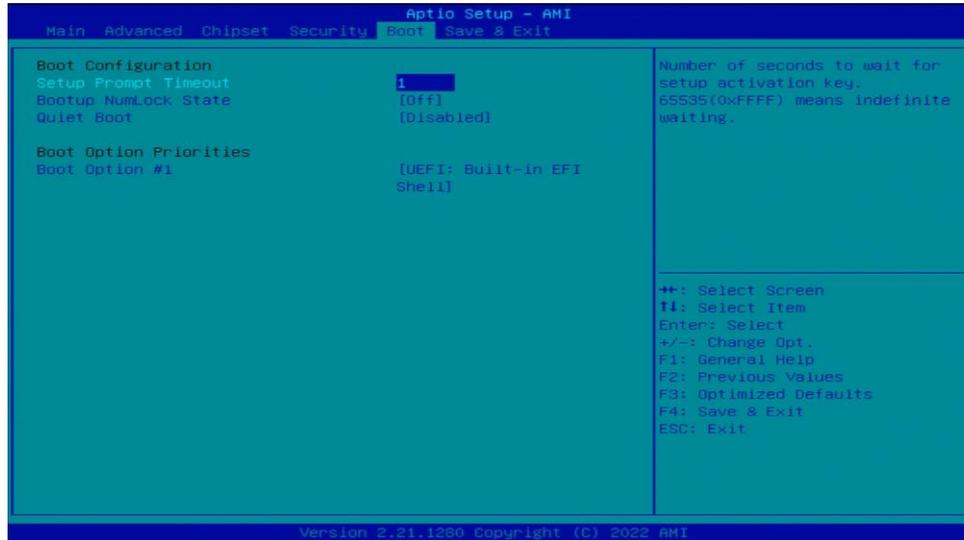
Secure Boot variable/Size/Keys/Key Source

Platform Key(PK)/Key Exchange Keys/Authorized Signatures/Forbidden Signatures/ Authorized TimeStamps/OsRecovery Signatures

Use this item to enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate:
 - a) EFI_SIGNATURE_LIST
 - b) EFI_CERT_X509 (DER)
 - c) EFI_CERT_RSA2048 (bin)
 - d) EFI_CERT_SHAXXX
 2. Authenticated UEFI Variable
 3. EFI PE/COFF Image (SHA256)
- Key Source: Factory, External, Mixed.

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.

Bootup NumLock State

Use this item to select keyboard NumLock state.

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

Quiet Boot

Use this item to enable or disable Quiet Boot option.

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

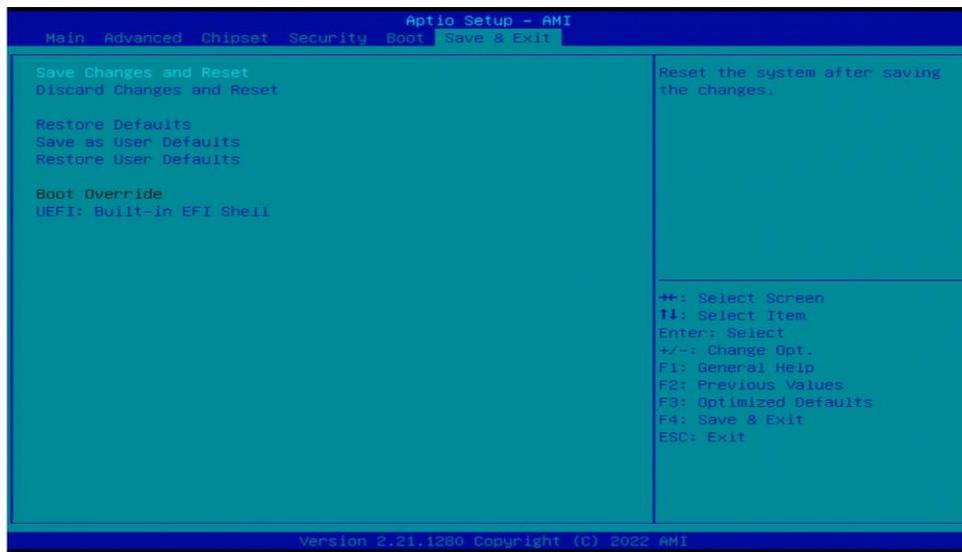
Boot Option Priorities

Boot Option #1

Use this item to decide system boot order.

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

3-11 Save & Exit Menu



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.

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

Press this item to select the device as boot disk after save configuration and reset