

Smart T6011

Based Mini-ITX M/B

User's Manual

Revision: 3.0

Release date: December 12, 2022

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.

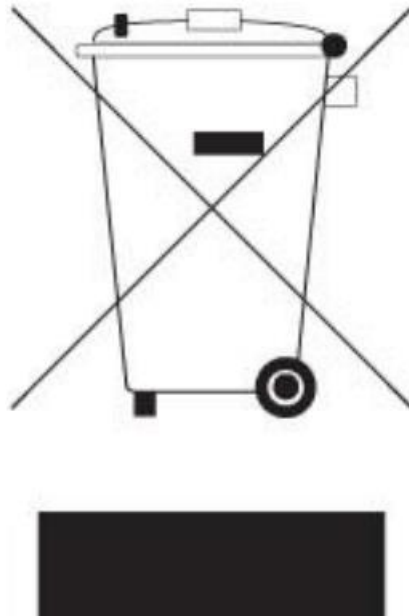
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Environmental Protection Announcement

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



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 60 centigrade is the suitable temperature. (The figure comes from the request of the main chipset)
- 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

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Manual Revision Information

Reversion	Revision History	Date
3.0	Third Edition	December 12, 2022

Item Checklist

- ☒ Motherboard
- ☒ Cable(s)

Chapter 1 Introduction of the Motherboard

1-1 Feature of Motherboard

- Onboard Intel® 8th Gen. Whiskey Lake MCP Processor
- Low power consumption never denies high performance
- Support 2×DDR4 2400MHz SO-DIMM, maximum capacity up to 64GB
- Integrated with 1×Intel® i219LM GbE & 1×Intel® i225V 2.5GbE LAN chips
- Support 1×DP/HDMI & 1×EDP output
- Support 3 independent displays
- Support 1×SATAIII device
- Onboard 1×M.2 M-key slot, type-2242/2280, SATA interface or PCIe4 (NVMe) selectable
- Onboard 1×M.2 E-key slot, type-2230, support Wi-Fi / Bluetooth with Intel CNVi interface
- Onboard 1×M.2 B-key slot, type-3042/3052, support 4G/5G module +1× Nano SIM holder
- Support 2×USB 3.0 & 3×USB 2.0
- Support 2×COM (*COM1/2 supports RS232/422/485)
- Support 12~36V DC-in with OCP/OVP
- Compliance with ErP standard
- Support Watchdog function

1-2 Specification

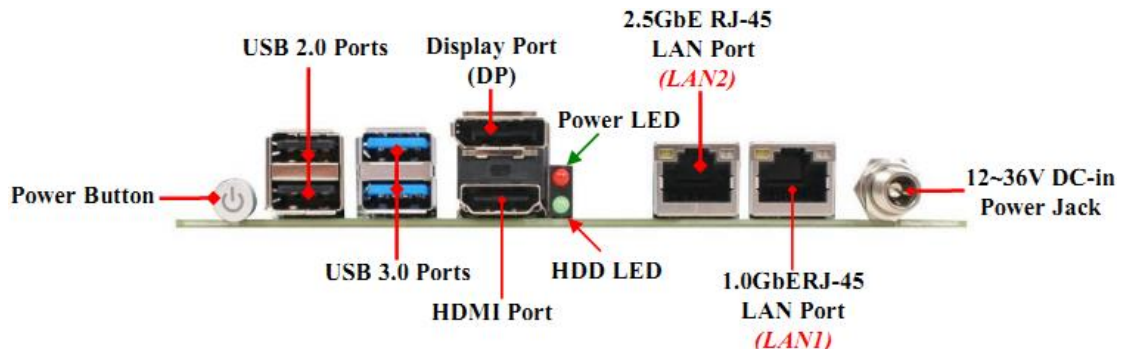
Spec	Description
Design	● 3.5" SBC; 10-Layers; PCB size: 14.8x 10.2 cm
MCP	● Intel® 8 th Gen Whiskey lake-U quad cord MCP ● Processor (Included with the barebone system, not sold separately) * Note: CPU model varies from different IPC options. Please consult your dealer for more information of onboard CPU.
Memory Slot	● 2×DDR4 SO-DIMM slot support 2×DDR4 2400MHz

Chapter 1 Introduction of the Motherboard

	<p>non-ECCSO-DIMM up to 64GB</p> <ul style="list-style-type: none"> ● Support dual channel function <p>* Note: Memory clock supporting range is decided by specific CPU of the model. For more memory compatibility information please consults your local dealer.</p>
Expansion Slot	<ul style="list-style-type: none"> ● 1×M.2 M-key slot, type-2242/2280, PCIe x4(NVMe) or SATA interfaceselectable (M2M) ● M.2 E-key slot,type-2230, support Wi-Fi / Bluetooth with Intel CNViinterface (M2E)
Storage	<ul style="list-style-type: none"> ● 1×SATAIII 6Gb/s port
LAN Chips	<ul style="list-style-type: none"> ● Integrated with: ● 1×Intel i225V 2.5GbE PCI-E LAN chip of providing 10/100/1000/2500Mbps Ethernet data transfer rate ● 1×Intel i219-LM Gigabit PHY LAN chip of providing 10/100/1000MbpsEthernet data transfer rate ● Support Fast Ethernet LAN function
Audio Chip	<ul style="list-style-type: none"> ● C-Media USB Audio HS-100B for 3W speaker support
BIOS	<ul style="list-style-type: none"> ● AMI Flash ROM
Rear I/O	<ul style="list-style-type: none"> ● 1×12~36V DC-in power Jack ● 1×1.0GbE RJ-45 LAN port & 2.5GbE RJ-45 LAN port ● 1×Power LED +1×HDD LED ● 1×display port (DP) +1×HDMI port ● 2×USB 3.0 port +2×USB 2.0 port ● 1×Power Button
Internal I/O	<ul style="list-style-type: none"> ● 1×3-pin internal 12~36V DC-in power connector ● 1×SATA Power-out connector ● 1×CPU FAN connector ● 1×eDP connector ● 1×Front panel header ● 1×GPIO header ● 2×RS232/422/485 serial port header (COM1/COM2) ● 1×Front panel audio header ● 1×3W amplifier wafer ● 1×I2C_CON header ● 1×4-pin USB 2.0 wafer

1-3 Layout Diagram

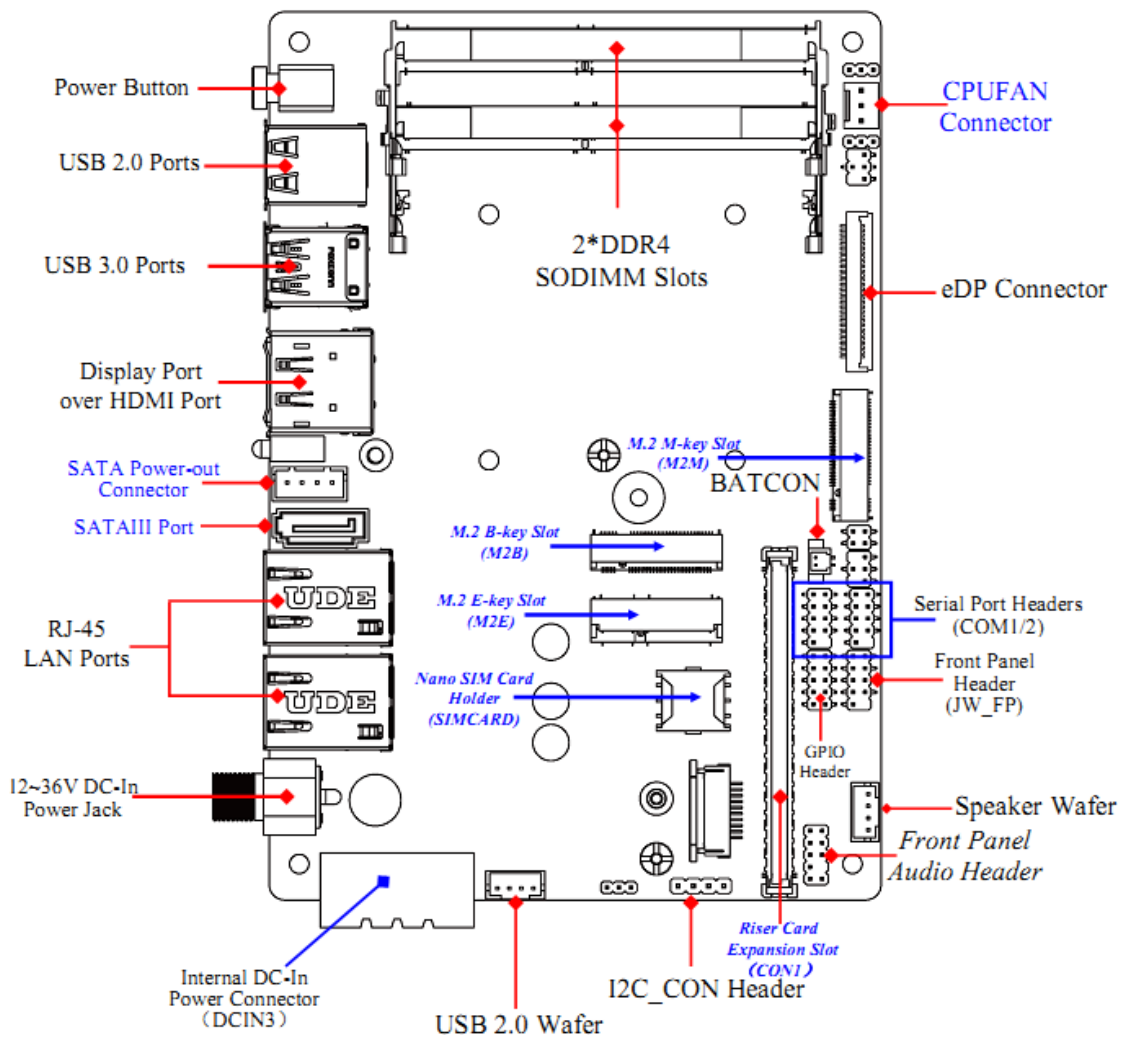
Rear IO Diagram:



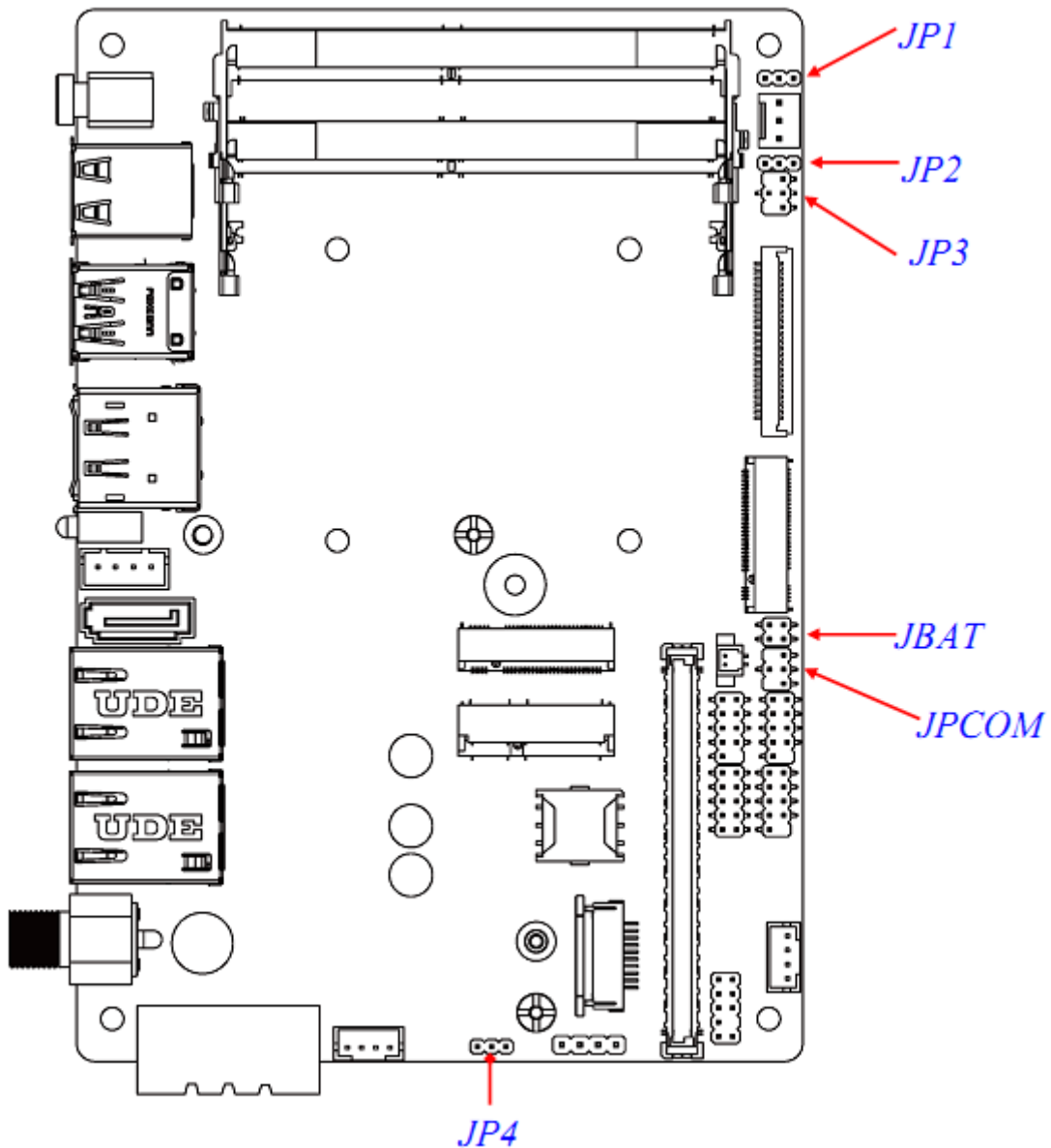
Warning!!

The board has a 12~36V DC-in power connector (**DCIN2**) in I/O back panel and an internal 12~36V power connector (**DCIN3**). User can only connect one type of compatible power supply to one of them to power the system.

Diagram-Front Side:



Jumper Positions:



Jumpers

Jumper	Name	Description
JBAT	Pin (1-2): Clear CMOS Pin (3-4): Flash Override	4-Pin Block
JPCOM	COM1 Header Pin-9 Function Select	4-Pin Block
JP1	ATX/AT Mode Select	3-Pin Block
JP2	EDP BACKLIGHT VCC Select	3-Pin Block
JP3	EDP VCC Select	4-Pin Block
JP4	F_USB1 Wafer VCC Select	3-Pin Block

Connectors

Chapter 1 Introduction of the Motherboard

Connector	Name
DCIN2	12~36V DC-in Power Jack
LAN1	1.0GbE RJ-45 LAN Port Connector
LAN2	2.5GbE RJ-45 LAN Port Connector
DP_HDMI	Top: Display Port (DP) Connector Bottom: HDMI Port Connector
USB30	USB 3.0 Port Connector X2
USB	USB 2.0 Port Connector X2
DCIN3	Internal 3-Pin 12V~36V DC-in Power Connector
SATA	SATAIII Port Connector
SATAPWR	SATA Power out Connector
CPUFAN	CPUFAN Connector
EDP	EDP Port Connector

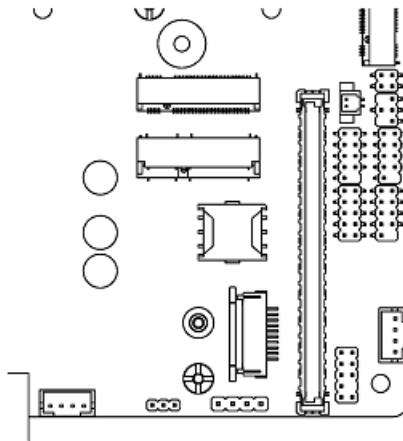
Headers & Wafers

Header	Name	Description
JW_FP	Front Panel Header(PWR LED/HDD LED/Power Button /Reset)	9-pin Block
GPIO	GPIO Port Header	10-pin Block
SPEAK_CON	3W Amplifier Wafer	4-pin Block
FP_AUDIO	Front Panel Audio Header	9-pin Block
COM1/COM2	Serial Port Header	9-pin Block
I2C_CON	I2C_CON Header	4-pin Block
F_USB1	Internal USB 2.0 Wafer	4-pin Block

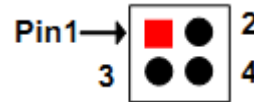
Chapter 2 Hardware Installation

2-1 Jumper Settings

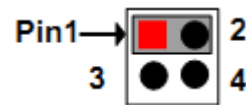
Pin (1-2) of JBAT (4-pin): Clear CMOS Settings



Pin 1&2 of JBAT→Clear CMOS

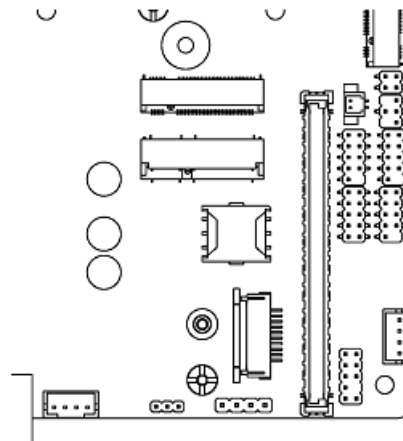


1-2 Open: Normal(Default);

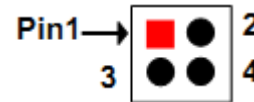


1-2 Closed: Clear CMOS(One Touch).

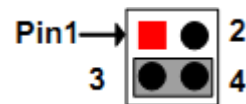
Pin (3-4) of JBAT (4-pin): ME Flash Override Select



Pin 3&4 of JBAT→ME Flash Override

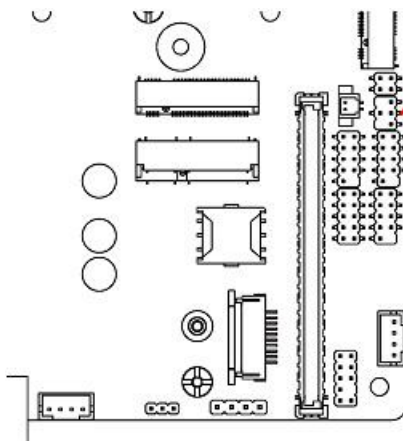


3-4 Open: Normal(Default);

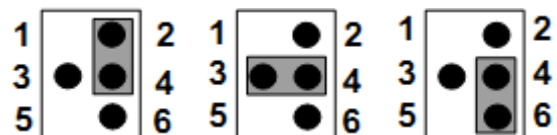


3-4 Closed: ME Flash Override.

JPCOM (4-pin): COM1 Header Pin-9 Function Select



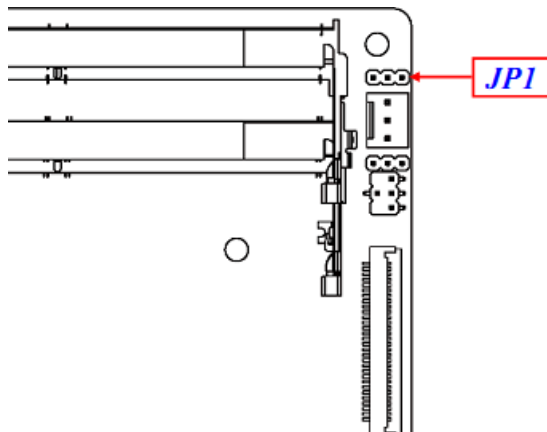
JPCOM1→COM1 Header Pin-9 Function Select



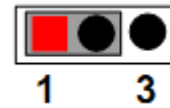
2-4 Closed:
RI=RS232
(Default);

3-4 Closed: RI=+5V;
4-6 Closed: RI=+12V.

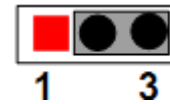
JP1 (3-pin): AT Mode/ATX Mode Select



JP1→ATX/AT Mode Select



1-2 Closed: ATX Mode Selected (Default);

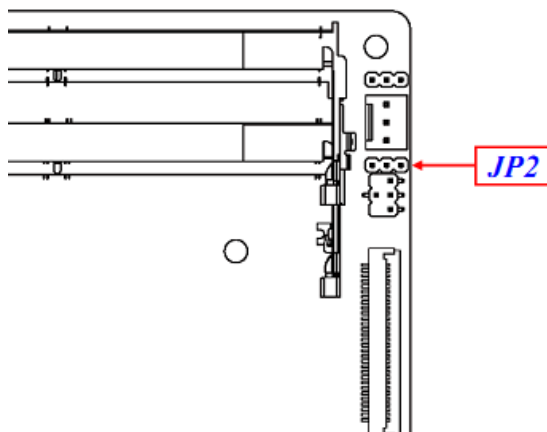


2-3 Closed: AT Mode Selected.

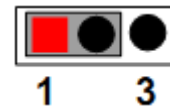
***ATX Mode Selected:** Press power button to power on after power input ready;

AT Mode Selected: Directly power on as power input ready.

JP2 (3-pin): EDP LCD_BACKLIGHT Voltage Select



JP2→EDP Backlight VCC Select

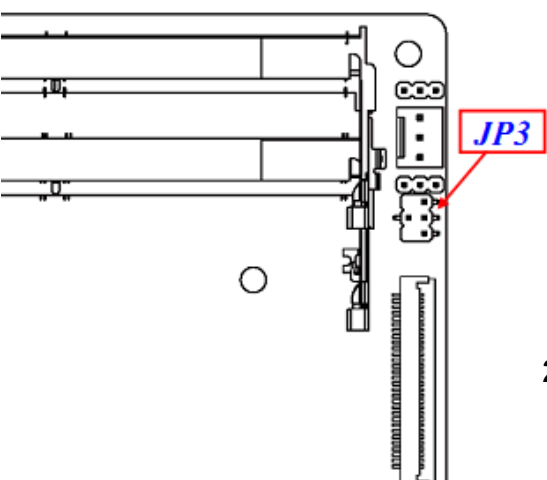


1-2 Closed: VCC= +5V;

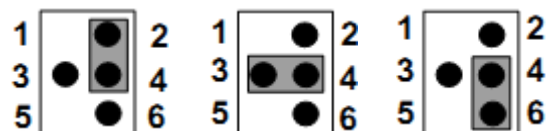


2-3 Closed: VCC= +12V.

JP3 (4-pin): EDP LCD Panel VCC Select



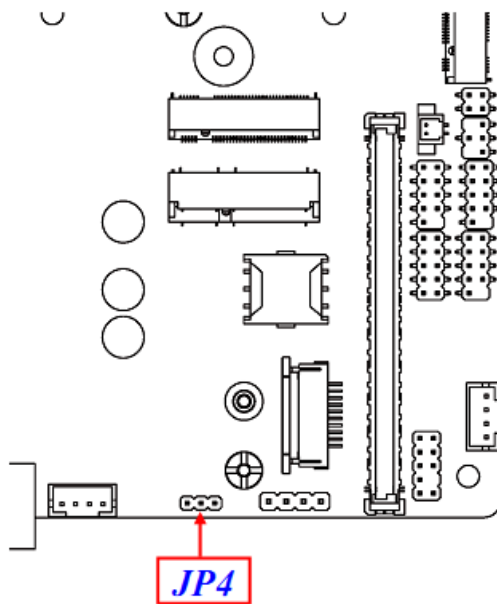
JP3→EDP LCD Panel Select VCC Select



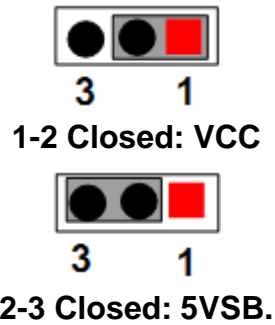
2-4 Closed:
VCC=3.3V
(Default);

3-4 Closed: VCC=+5V;
4-6 Closed: VCC=+12V.

JP4 (3-pin): F_USB1 Wafer VCC Select



JP4 → F_USB1 Wafer VCC Select










2-2 Connectors and Headers

2-2-1 Connectors

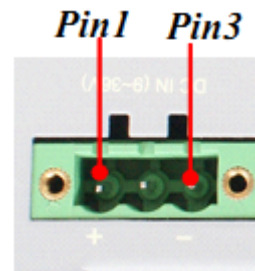
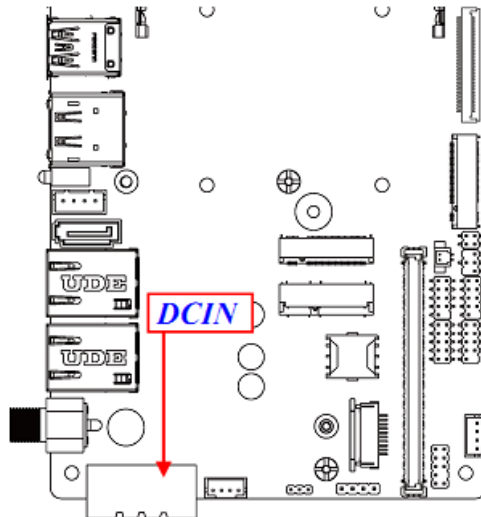
(1) Rear I/O Connectors

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

Icon	Name	Function
	12~36V DC-in Power Jack	For user to connect compatible power adapter to provide power supply for the system.
	RJ-45 LAN Port	This connector is standard RJ-45 LAN jack for Network connection.
	Top: Display Port Bottom: HDMI Port	Display port: to the system to corresponding display device with compatible DP cable. HDMI port: to connect display device that support HDMI specification.
	LED Indicator	Red: Power LED indicator Green: HDD LED indicator
	USB 3.0 Port	To connect USB keyboard, mouse or other devices compatible with USB 3.0 specification. Ports support up to 5Gbps data transfer rate.

	USB 2.0 Port	To connect USB keyboard, mouse or other devices compatible with USB 2.0 specification.
	Power Button	For user to turn on/off the system.

(2) DCIN3(3-pin) : Internal 12~36V DC-in Power Connector

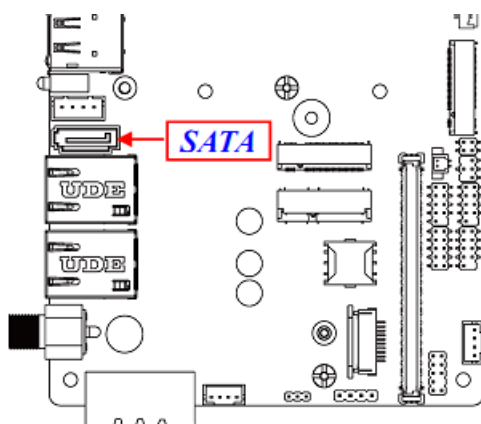


Pin No.	Definition
1	+VCC
2	GND
3	GND

Warning: Find Pin-1 position before connecting power cable to this 3-pin power connector. **WRONG INSTALLATION DIRECTION WILL DAMAGE THE BOARD!!**

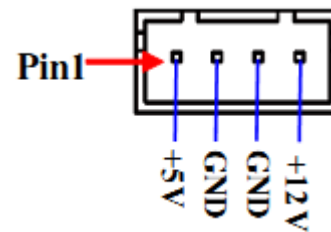
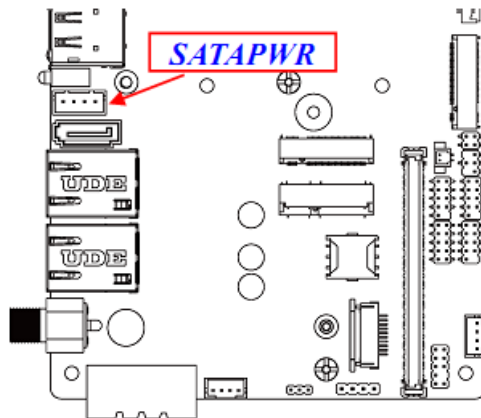
(3) SATA(7-pin): SATAIII Port connector

This is a high-speed SATAIII port that supports 6GB/s transfer rate.



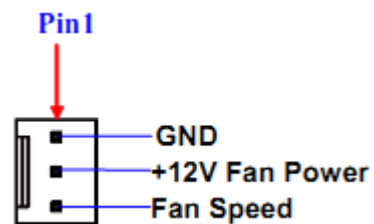
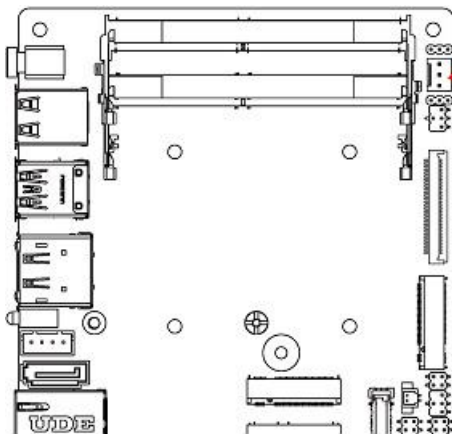
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

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

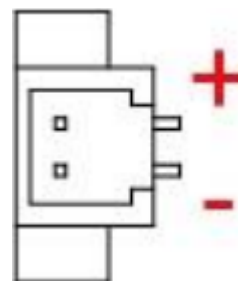
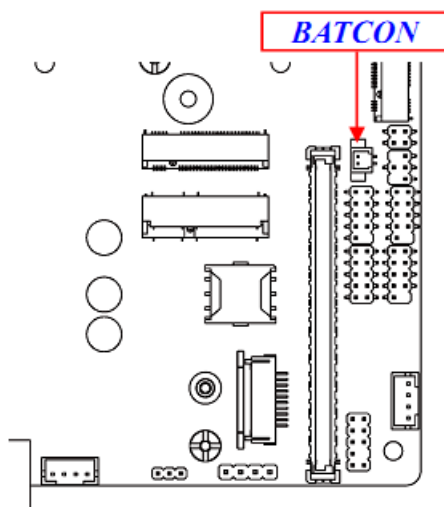


Warning: Make sure that Pin-1 of ompatible SATA Power out connector is inserted into corresponding Pin-1 of **SATAPWR** connector to avoid possible damage to the board and hard disk driver!

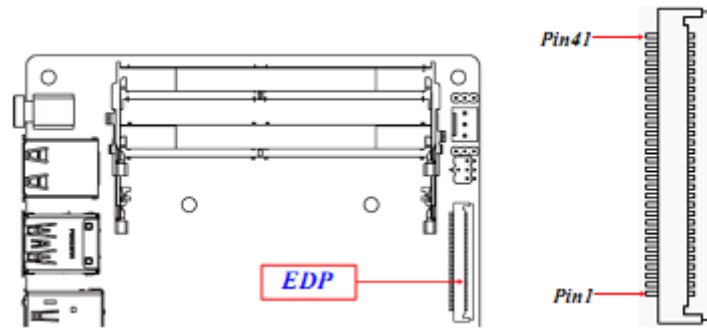
(5) CPUFAN (3-pin): CPU FAN Connector



(6) BATCON (2-pin): Battery Connector



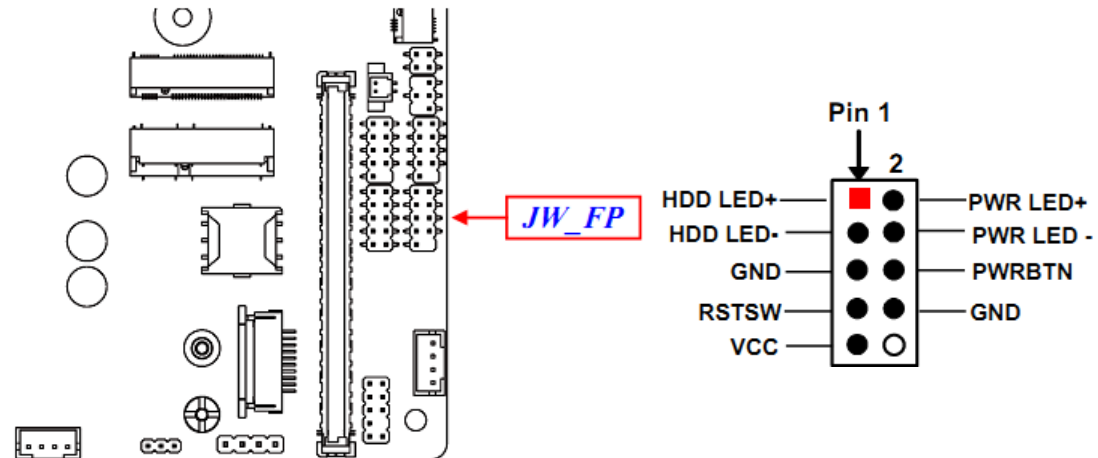
(7) EDP(41-pin): EDP Connector



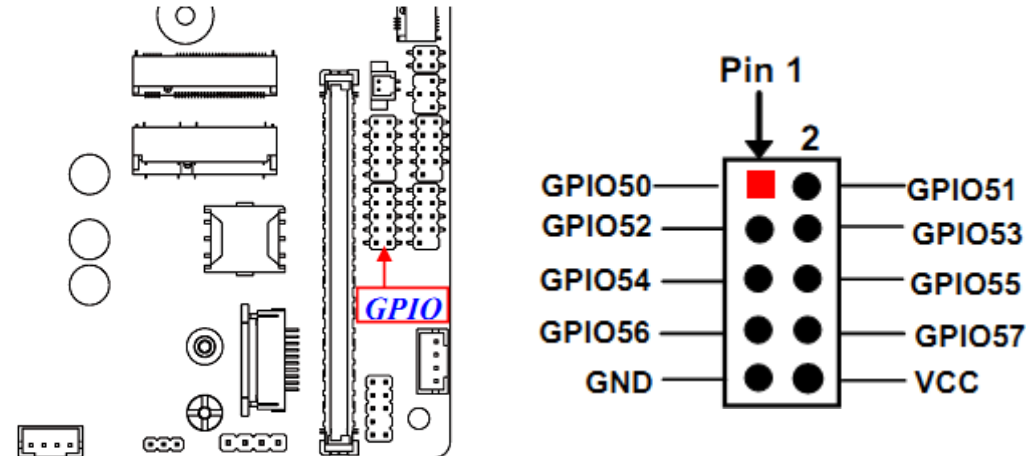
Pin No.	Pin Define	Pin No.	Pin Define
Pin 1	NC	Pin 21	LCD_VCC
Pin 2	GND	Pin 22	NC
Pin 3	EDP_LANE3N	Pin 23	GND
Pin 4	EDP_LANE3P	Pin 24	GND
Pin 5	GND	Pin 25	GND
Pin 6	EDP_LANE2N	Pin 26	GND
Pin 7	EDP_LANE2P	Pin 27	EDP_HPD
Pin 8	GND	Pin 28	GND
Pin 9	EDP_LANE1N	Pin 29	GND
Pin 10	EDP_LANE1P	Pin 30	GND
Pin 11	GND	Pin 31	GND
Pin 12	EDP_LANE0N	Pin 32	EDP_BKLT_EN
Pin 13	EDP_LANE0P	Pin 33	EDP_BKLT_CTL
Pin 14	GND	Pin 34	NC
Pin 15	EDP_AUXP	Pin 35	NC
Pin 16	EDP_AUXN	Pin 36	LCD_BKLT_PWR VCC
Pin 17	GND	Pin 37	LCD_BKLT_PWR VCC
Pin 18	LCD_VCC	Pin 38	LCD_BKLT_PWR VCC
Pin 19	LCD_VCC	Pin 39	LCD_BKLT_PWR VCC
Pin 20	LCD_VCC	Pin 40	NC
		Pin 41	NC

2-2-2 Headers & Wafer

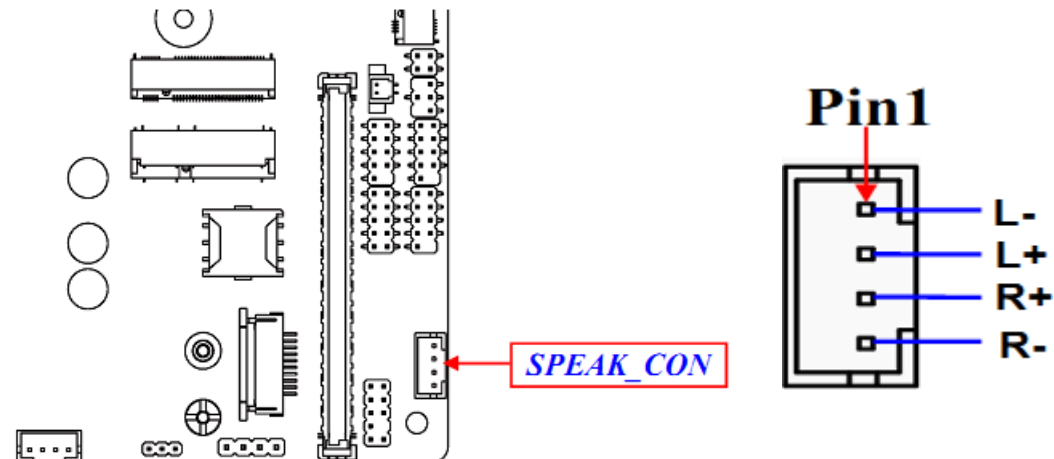
JW_FP (9-pin): Front Panel Header



GPIO (10-pin): GPIO Header

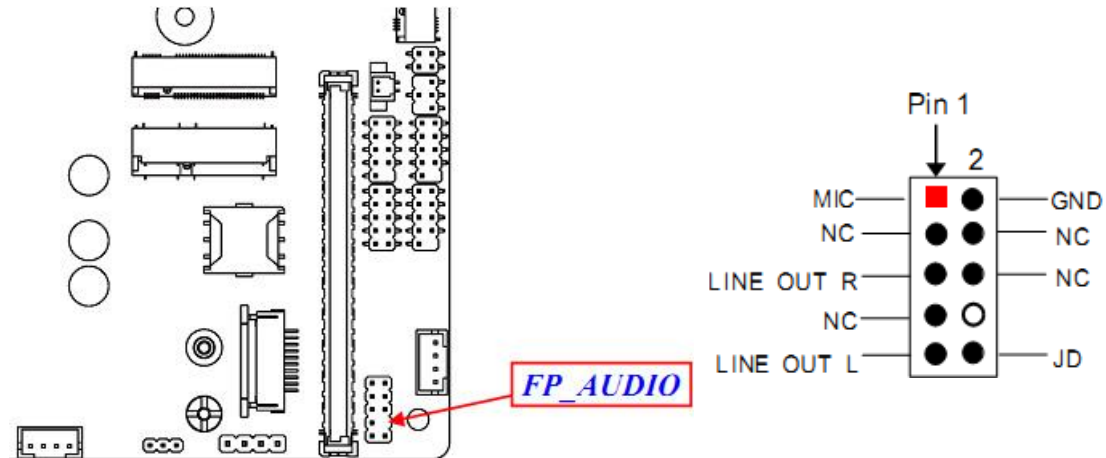


SPEAK_CON (4-pin): 3W Amplifier Wafer



FP_AUDIO (9-pin): Line-Out, MIC-In Header

This header connects to Front Panel Line-out, MIC-In connector with cable.



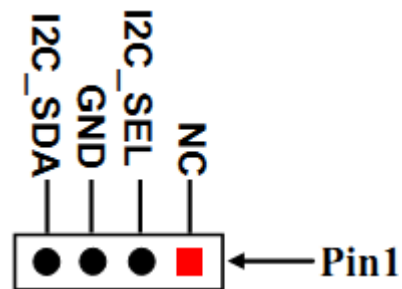
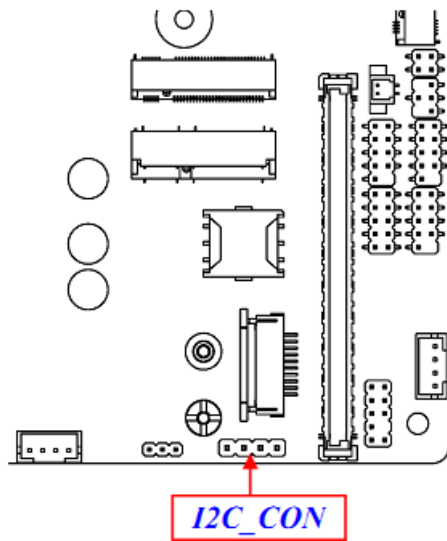
COM1/2 (9-pin): RS232/422/485 Serial Port Headers

The diagram shows the COM1 and COM2 headers on a motherboard. A red box labeled '*COM1' points to the header, and a red box labeled 'COM2' points to the header. To the right, a detailed pin configuration diagram shows a 9-pin header with the following connections:

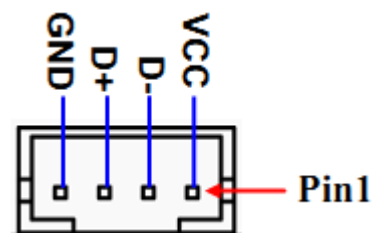
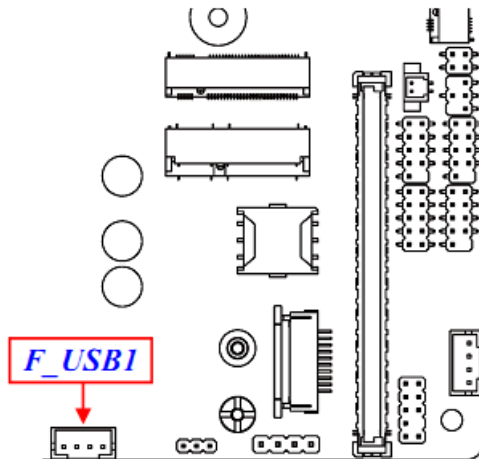
Pin NO.	RS232	*RS422	*RS485
Pin 1	DCD	TX-	DATA-
Pin 2	RXD	TX+	DATA+
Pin 3	TXD	RX+	NC
Pin 4	DTR	RX-	NC
Pin 5	GND	GND	GND
Pin 6	DSR	NC	NC
Pin 7	RTS	NC	NC
Pin 8	CTS	NC	NC
Pin 9	RI	NC	NC

***Note: COM1/2 header can function as RS232/422/485 port header. In normal settings COM1/2 functions as RS232 header. With compatible COM cable COM1/2 can function as RS422 or RS 485 header. User also needs to go to BIOS to set 'Transmission Mode Select' for COM1/2 (refer to Page-30/31) at first, before using specialized cable to connect different pins of this port.**

I2C_CON (4-pin): I2C Header



I2C_CON F_USB1 (4-in): SB2.0 Wafer



Chapter 3 Introducing BIOS

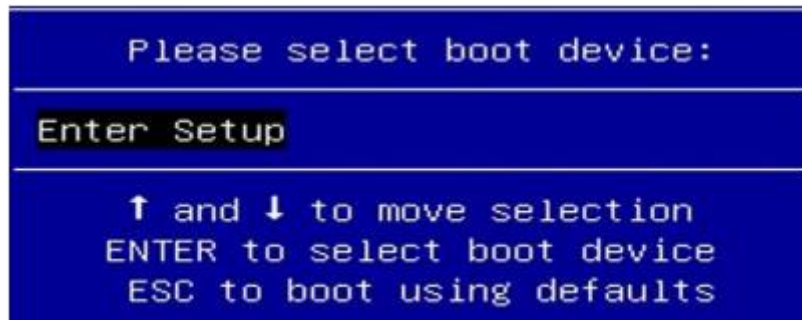
Notice! The BIOS options in this manual are for reference only. Different configurations may lead to difference in BIOS screen and BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard.

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

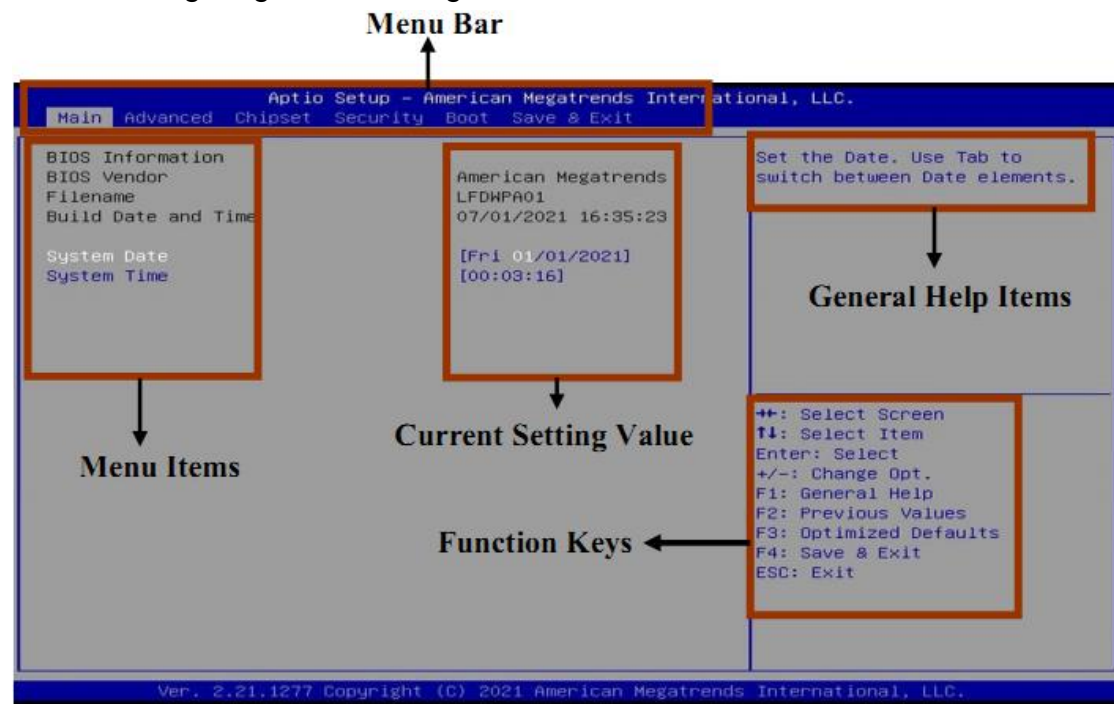
Press to enter Setup; press <F7> to enter pop-up Boot menu.



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.

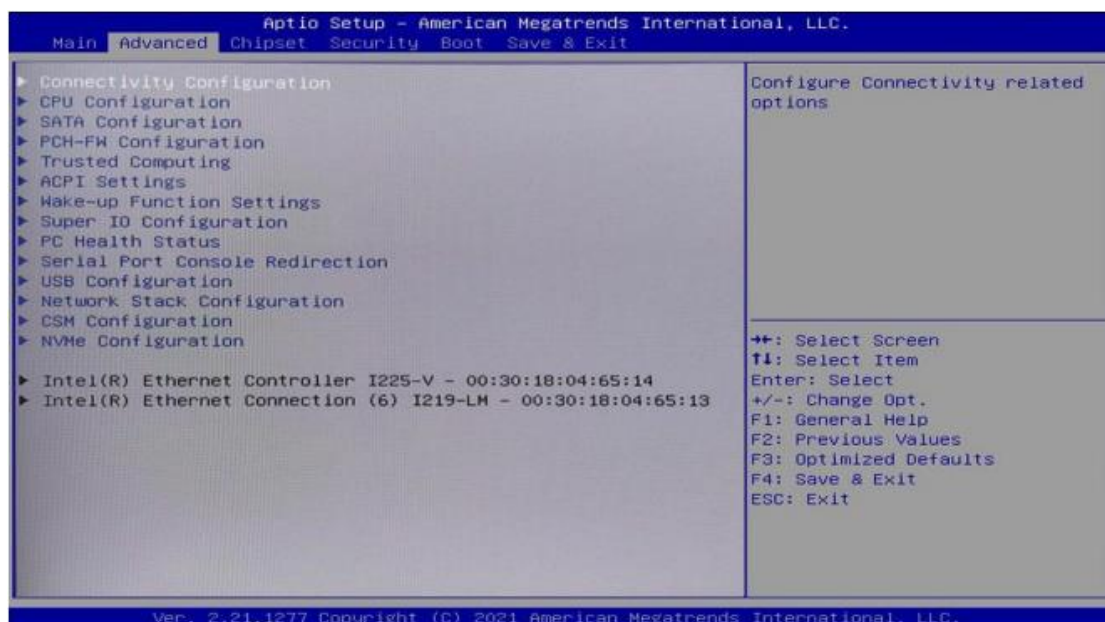


System Date

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



➔ Connectivity Configuration

Use this item to configure Connectivity related options. Press [Enter] to make settings for the following sub-items:

CNVi present

CNVi Configuration

CNVi Mode

This option configures Connectivity.

The optional settings: [Disabled Integrated]; [Auto Detection].

[Auto Detection] means that if Discrete solution is discovered it will be enabled by default. Otherwise Integrated solution (CNVi) will be enabled;

[Disabled Integrated] disables Integrated Solution

➔ CPU Configuration

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

Hyper-Threading

Use this item to enable or disable Hyper-Threading Technology.

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

Intel (VMX) Virtualization Technology

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

When set as [Enabled], a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Intel(R) SpeedStep(tm)

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

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

C states

Use this item to enable or disable CPU Power Management. When set as [Enabled], it allows CPU to go to C states when it's not 100% utilized.

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

Turbo Mode

Use this item to enable or disable processor Turbo Mode (requires Intel Speed Step or Intel Speed Shift to be available and enabled).

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

➔ SATA Configuration

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

SATA Configuration

SATA Controller(s)

Use this item to enable or disable SATA Device.

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

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

SATA Mode Selection

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

The optional settings: [AHCI]; [RAID].

SATA

Port

Use this item to enable or disable SATA Port.

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

Hot Plug

Use this item to designate this port as Hot Pluggable.

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

M.2

Port

Use this item to enable or disable SATA Port.

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

➔ PCH-FW Configuration

Press [Enter] to view Management Engine Technology Parameters and make settings in the following sub-item:

ME Firmware Version

ME Firmware Mode

TPM Device Selection

Use this item to select TPM device.

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

[dTPM]: Disable PTT in SkuMgr.

[PTT]: Enable PTT in SkuMgr.

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

➔ Firmware Update Configuration

Press [Enter] to make settings for 'Me FW Image Re-Flash'.

Me FW Image Re-Flash

Use this item to enable or disable Me FW Image Re-Flash function.

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

** **Note:** In the case that user needs to update Me firmware, user should set 'Me FW Image Re-Flash' as **[Enabled]**, save the settings and exit. The system will turn off and reboot after 4 seconds. If the user goes to BIOS screen again will find this item is set again as **[Disabled]**, but user can still re-flash to update firmware next time.*

➔ Trusted Computing

Press [Enter] to view current status information, or make further settings in the following sub-items:

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: [Disabled]; [Enabled].

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

Pending operation

Use this item to schedule an Operation for the Security Device.

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

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

TPM 2.0 UEFI Spec Version

Use this item to select the TCG2 Spec Version Support.

The optional settings: [TCG_1_2]; [TCG_2].

[TCG_1_2]: The Compatible mode for Win8/Win10.

[TCG_2]: Support new TCG2 protocol and event format for Win10 or later.

➔ **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: [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.

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

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

USB S3/S4 Wake-up

Use this item to enable or disable USB wake-up from S3/S4 state.

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

***Note:** This function is supported when '**ERP Support**' is set as [Disabled]. **USB S5 Power**

Use this item to enable or disable USB Power after System Shutdown. The optional settings: [Disabled]; [Enabled].

***Note:** This function is supported when '**ERP Support**' is set as [Disabled].

➔ **Super IO Configuration**

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

Super IO Configuration

ERP Support

Use this item to select Energy-Related Products function. This item should be set as [Disabled] if you wish to have all active wake-up functions.

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

➔ **Serial Port 1 Configuration**

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

Serial Port 1 Configuration

Serial Port

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

The optional settings: [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: [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

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

Mode Speed Select

Use this item to select RS232/RS422/RS485 Speed.

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

➔ **Serial Port 2 Configuration**

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

Serial Port 2 Configuration

Serial Port

Use this item to enable or disable Serial Port (COM). The optional settings: [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: [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

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

Mode Speed Select

Use this item to select RS232/RS422/RS485 Speed.

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

WatchDog Reset Timer

Use this item to enable or disable WDT reset function. 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.].

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 **JP1** jumper setting for ATX Mode & AT Mode Select*).

➔ **PC Health Status**

Press [Enter] to view current hardware health status, make further settings in '**Shutdown Temperature**'.

Shutdown Temperature

Use this item to select system shutdown temperature.

The optional settings: [Disabled]; [70°C/158°F]; [75°C/167°F]; [80°C/176°F]; [85°C/185°F]; [90°C/194°F].

➔ **Serial Port Console Redirection**

COM1

Console Redirection

Use this item to enable or disable Console Redirection.

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

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

➔ **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.

COM1

Console Redirection Settings

Terminal Type

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

Emulation: **[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: [9600]; [19200]; [38400]; [57600]; [115200].

Data Bits

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

Parity

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

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

Recorder Mode

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

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

Resolution 100x31

Use this item to enable or disable extended terminal resolution.

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

Putty KeyPad

Use this item to select FunctionKey and KeyPad on Putty.

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

When set as **[Enabled]**, the following sub-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 make settings for the following items:

Out-of-Band Mgmt Port

Terminal Type EMS

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

Data Bits EMS

The default setting is: [8].

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

Parity EMS

The default setting is: [None].

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

Stop Bits EMS

The default setting is: [1].

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

➔ USB Configuration

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

USB Configuration

Legacy USB Support

Use this item to enable or disable Legacy USB support. The optional settings: [Enabled]; [Disabled]; [Auto].

[Enabled]: To enable Legacy USB support.

[Disabled]: To keep USB devices available only for EFI specifications.

[Auto]: To disable legacy support if no USB devices are connected.

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: [Enabled]; [Disabled].

USB Mass Storage Driver Support

Use this item to enable or disable USB mass storage driver support. The optional settings: [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: [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: [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: [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: [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 boot support will not be available.

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

IPv6 PXE Support

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

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.

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.

➔ **CSM Configuration**

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

Compatibility Support Module Configuration

CSM Support

Use this item to enable or disable CSM Support

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

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

Option ROM execution

Network

Use this item to control the execution of Network OpROM.

The optional settings: [Do not launch]; [UEFI]; [Legacy].

Storage

Use this item to control the execution of UEFI and Legacy Storage OpROM.

The optional settings: [Do not launch]; [UEFI]; [Legacy].

Other PCI devices

Use this item to determine OpROM execution policy for devices other than Network, Storage, or Video.

The optional settings: [Do not launch]; [UEFI]; [Legacy].

➔ **NVMe Configuration**

Press [Enter] to view current NVMe Configuration.

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

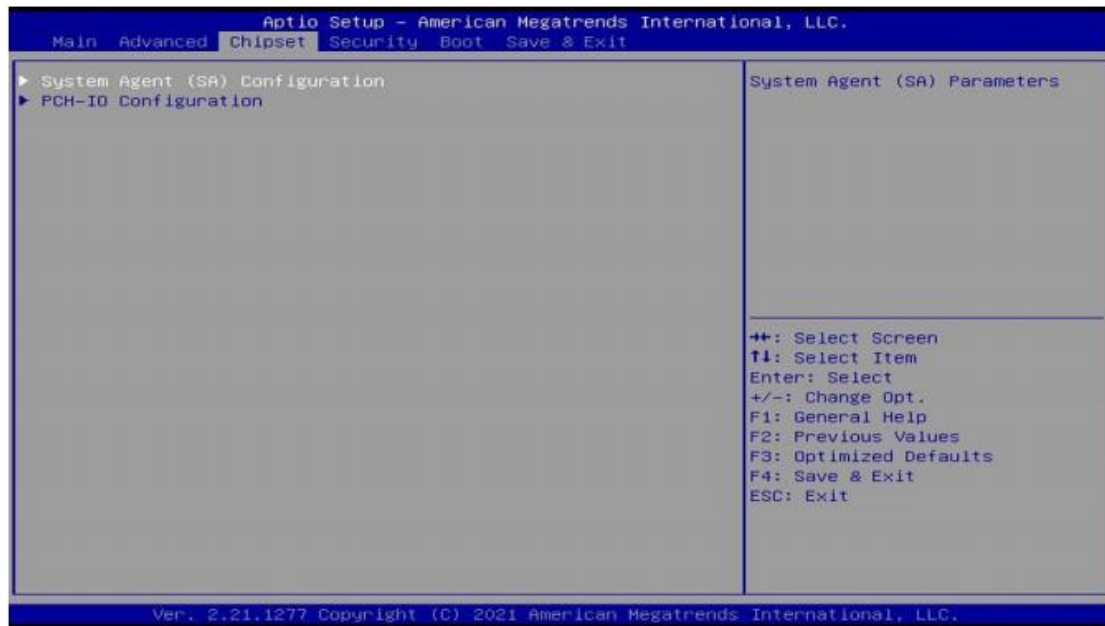
➔ **Intel(R) Ethernet Controller I225-V - XX:XX:XX:XX:XX:XX**

This item shows current network brief information.

➔ **Intel(R) Ethernet Connection (6) I219-LM - XX:XX:XX:XX:XX:XX**

This item shows current network brief information.

3-8 Chipset Menu



➔ System Agent (SA) Configuration

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

System Agent (SA) Configuration

VT-d

➔ Memory Configuration

Press [Enter] to view brief information for the working memory module.

➔ Graphics Configuration

Press [Enter] to make further settings for Graphics Configuration.

Graphics Configuration

Primary IGFX Boot Display

Use this item to select the Video Device which will be activated during POST. This has no effect if external graphics present.

Secondary boot display selection will appear based on your selection.

VGA modes will be supported only on primary display.

The optional settings: [VBIOS Default]; [DP]; [HDMI]; [eDP].

***Note:** In the case that the '**Primary IGFX Boot Display**' is select as [DP], [HDMI] or [eDP], user can make further settings in '**Secondary IGFX Boot Display**':

Secondary IGFX Boot Display

Use this item to select Secondary Display Device.

The optional settings: [Disabled]; [DP]; [HDMI].

Aperture Size

Use this item to select the Aperture Size.

***Note:** Above 4GB MMIO BIOS assignment is automatically enabled

when selecting 2048MB aperture. To use this feature, please disable CSM Support.

The optional settings: [128MB]; [256MB]; [512MB]; [1024MB]; [2048MB].

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: [32M]; [64M].

DVMT Total Gfx Mem

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

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

➔ **PCH-IO Configuration**

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

PCH-IO Configuration

Onboard Lan1 Controller

Use this item to enable or disable onboard NIC.

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

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

Wake on LAN Enable

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

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

Onboard Lan2 Controller

Use this item to control the PCI Express Root Port.

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

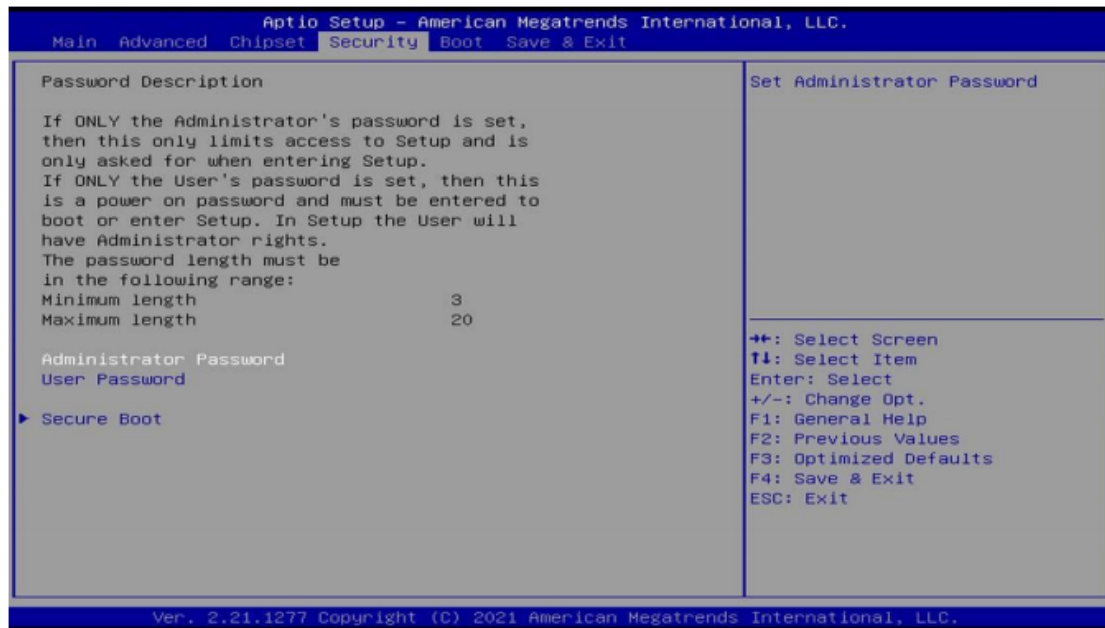
System State After Power Failure

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

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

***Note:** The option [Always On] and [Former State] are affected by ‘**ERP Support**’ function. Please disable ERP to support [Always On] and [Former State] function.

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 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 user 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: [Disabled]; [Enabled].

Secure Boot Mode

Set UEFI 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**

Use this item to force system to User Mode, to install factory default Secure Boot key databases.

➔ **Reset To Setup Mode**

➔ **Key Management**

This item enables expert users to modify Secure Boot Policy variables without full authentication, which includes the following items:

Vendor Keys

Factory Key Provision

This item is for user to install factory default Secure Boot keys after the platform reset and while the System is in Setup mode.

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

➔ **Restore Factory Keys**

Use this item to force system into 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 defaults**

Use this item to 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.

3-10Boot 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

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

Boot Option Priorities

