

NF731V Series

User's Manual

NO. G03-NF731V-F

Revision: 2.0

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.

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.



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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
2.0	Second Edition	December 12, 2022

Item Checklist

- ☒ Motherboard
- ☒ Cable(s)

Chapter 1

Introduction of the Motherboard

1-1 Feature of Motherboard

- Onboard Intel® Skylake-U/Kabylake-U series processor, TDP 15 W, never denies high performance
- Support 1* DDR4 2133 MHz SO-DIMM, maximum capacity up to 16GB
- Support 1* SATAIII (6Gb/s) Device
- Support 1* Full-size Mini -SATA
- Support 1* Full-size Mini-PCIE connector
- Support 1* Half-size Mini-PCIE connector
- Support 1* SIM Card Holder
- Support 4* RJ-45 LAN port
- Support USB 3.0 data transport demand
- Support CPU Over-Temperature protection
- Support CPU Over-Current/Under Voltage protection
- Support CPU Smart FAN
- Compliance with ErP standard
- Support Watchdog function

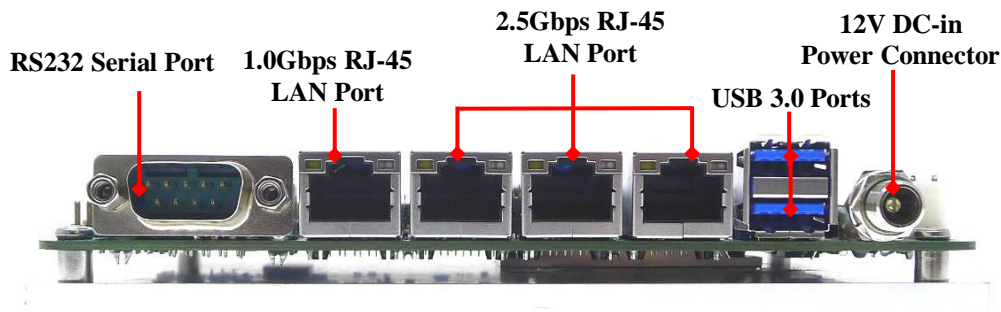
1-2 Specification

Spec	Description
Design	<ul style="list-style-type: none">● 8-layer; PCB size: 3.5", 14.8 x 10.2 cm
Embedded CPU	<ul style="list-style-type: none">● Integrated with Intel® Skylake-U/Kabylake-U series CPU (TDP 15W) <i>*CPU model varies from different IPC options. Please consult your dealer for more information of onboard CPU.</i>
Memory Slot	<ul style="list-style-type: none">● 1* DDR4 SO-DIMM slot for DDR4 2133 MHz SO-DIMM up to 16GB <i>*Memory clock supporting range is decided by specific CPU of the model. For more memory compatibility information please consults your local dealer.</i>
Expansion Slot	<ul style="list-style-type: none">● 1* Full-size Mini-PCIE slot (MPE1)● 1* Half-size Mini-PCIE slot (MPE2)● 1* Full-size MSATA slot (MSATA)● 1* SIM card slot
LAN Chip	<ul style="list-style-type: none">● Integrated with 1* Intel I219-LM 1.0Gigabit LAN chip & 3* Intel I225V 2.5Gigabit LAN chip● Support Fast Ethernet LAN function of providing 10/100/1000/2500Mbps Ethernet data transfer rate
Storage	<ul style="list-style-type: none">● 1* SATAIII 6G/s port● 1* Full-size MSATA slot (MSATA)
BIOS	<ul style="list-style-type: none">● AMI Flash ROM
Rear I/O	<ul style="list-style-type: none">● 1* 12V DC-in power Jack● 2* USB 3.0 port● 4* RJ-45 LAN port 1.0Gb● 1* RS232 serial port (COM1)
Internal I/O	<ul style="list-style-type: none">● 1* 2-Pin internal 12V DC-in power connector● 1* SATA Power-out connector● 1* CPU fan connector

-
-
- | | |
|--|--|
| | <ul style="list-style-type: none">● 1* Front panel header● 1* Speaker & Power LED header● 1* LAN LED activity header● 1* RS232 serial port header (COM2, RS232/RS422/485)● 1* GPIO_CON header● 1* 9-pin USB 2.0 header (Expansible to 2* USB 2.0 ports)● 1* 4-pin USB 2.0 header (Expansible to 1* USB 2.0 port)● 1* SMBUS header● 1* PS/2 keyboard & mouse header● 1* HDMI header |
|--|--|

1-3 Layout Diagram

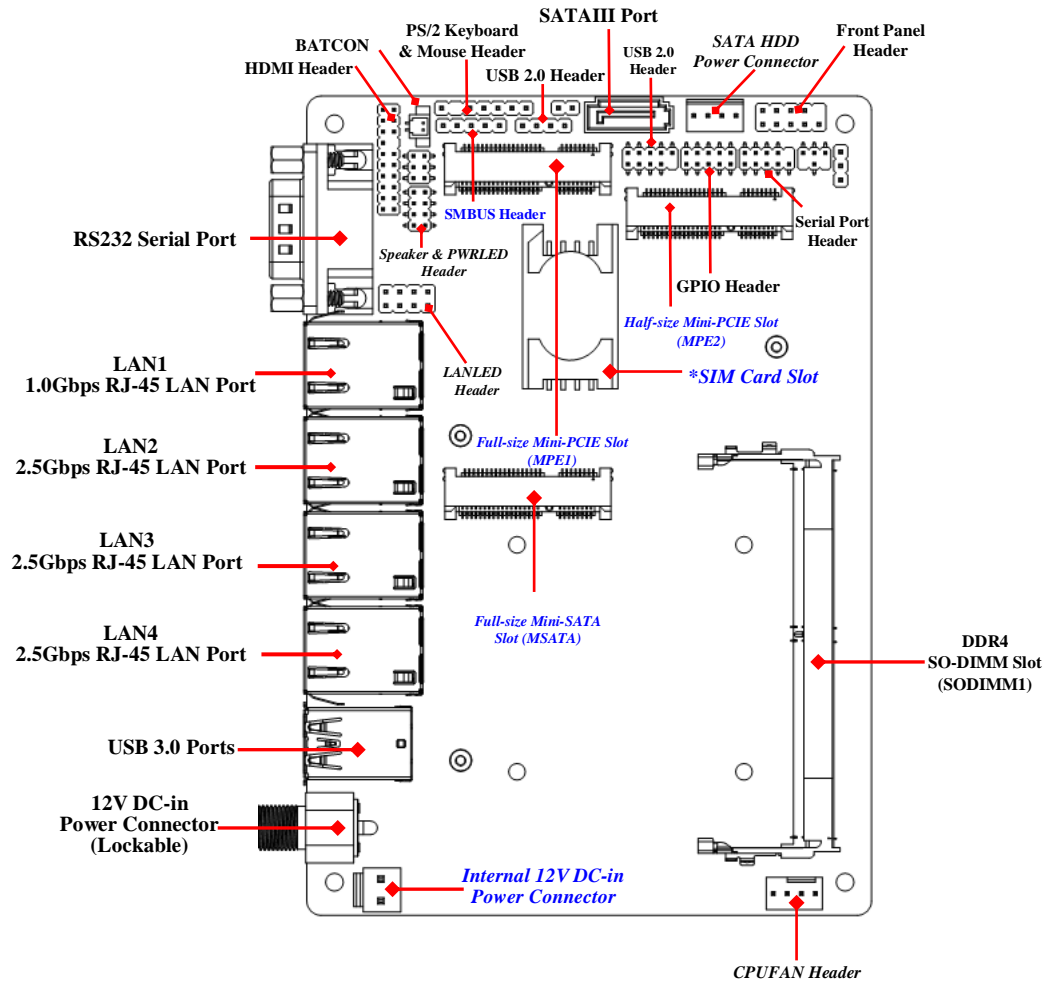
Rear IO Panel Diagram:



Warning!!

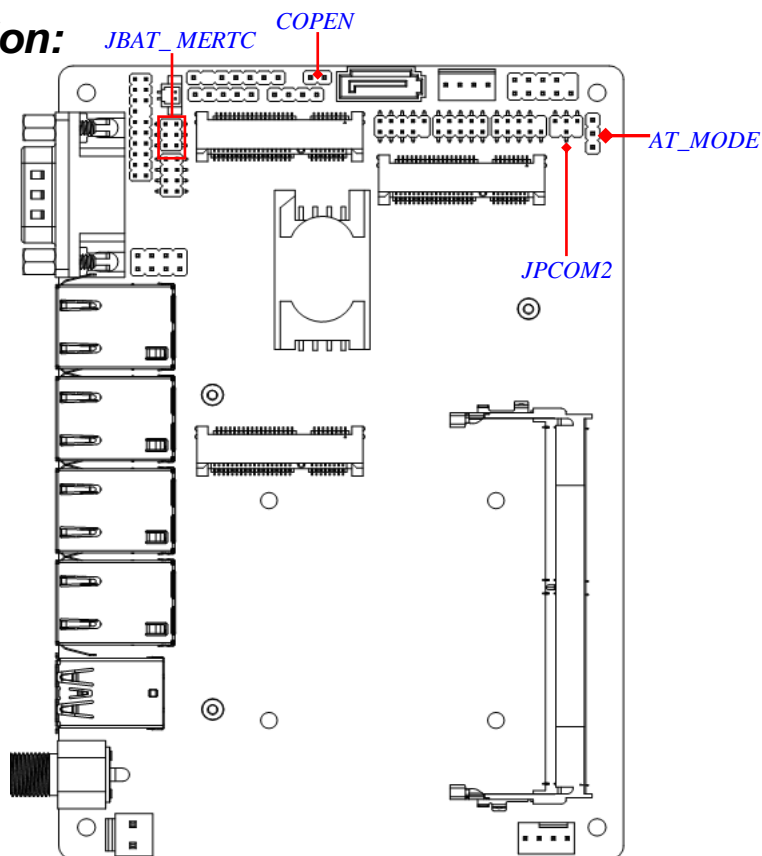
The board has a 12V DC-in power connector (DCIN) in I/O back panel and an internal ATX12V (ATX2P) power connector. User can only connect one type of compatible power supply to one of them to power the system.

Motherboard Internal Diagram-Front Side



Note: SIM card slot only work **when** compatible SIM card installed & 3G LAN card installed in **MPE1** Mini-PCIE slot.

Jumper Position:



Jumper

Jumper	Name	Description	Pitch
JPCOM2	COM2 Header Pin9 Function Select	4-Pin Block	2.0mm
AT_MODE	ATX Mode / AT Mode Select	3-Pin Block	2.54mm
COPEN	Case Open Message Display Function	2-Pin Block	2.54mm
JBAT_MERTC	Pin 1&2: Clear CMOS Pin 3&4: Flash Override Pin 5&6: POK Override	6-Pin Block	2.0mm

Connectors

Connector	Name
DCIN	12V System DC-in Power Jack Connector
USB1	USB 3.0 Port Connector X2
LAN1/2/3/4	RJ-45 LAN Port Connector x 4
COM1	Serial Port Connector
ATX2P	Internal 12V System DC-in Power Connector
CPUFAN	CPU Fan Connector
SATA1	SATAIII Port Connector
STATPWR	SATA Power out Connector

Headers

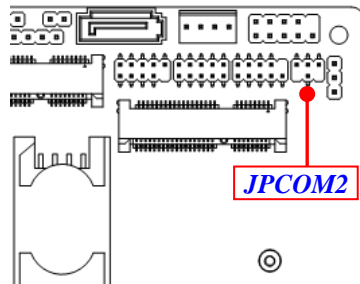
Header	Name	Description	Pitch
JW_FP	Front Panel Header (PWR LED/ HDD LED/Power Button /Reset)	9-pin Block	2.54mm
SPK-LED	Power LED & Speaker Header	8-pin Block	2.0mm
LAN_LED	LAN Activity LED Header	8-pin Block	2.0mm
COM2	Serial Port Header	9-pin Block	2.0mm
GPIO_CON	GPIO Header	10-pin Block	2.0mm
FP_USB1	USB 2.0 Header	9-pin Block	2.0mm
FP_USB2	USB 2.0 Header	4-pin Block	2.54mm
SMBUS	SMBUS Header	5-pin Block	2.54mm
PS2KBMS	PS/2 Keyboard & Mouse Header	6-pin Block	2.54mm
HDMI	HDMI Header	19-pin Block	2.0mm

Chapter 2

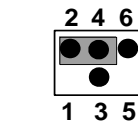
Hardware Installation

2-1 Jumper Setting

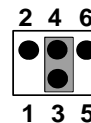
JPCOM2 (4-pin): COM2 Header Pin9 Function Select Pitch=2.0mm



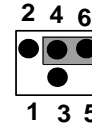
JPCOM2→COM2 Header Pin-9



2-4 Closed:
RING(Default);

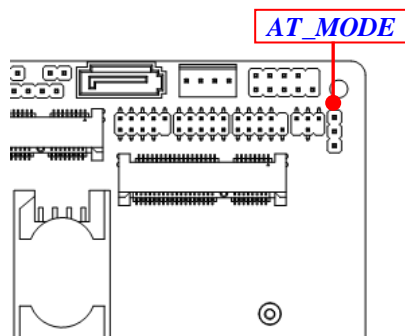


3-4 Closed:
5V;



4-6 Closed:
12V.

AT_MODE (3-pin): ATX Mode/AT Mode Select Pitch=2.54mm



AT_MODE→ATX/AT Mode Select



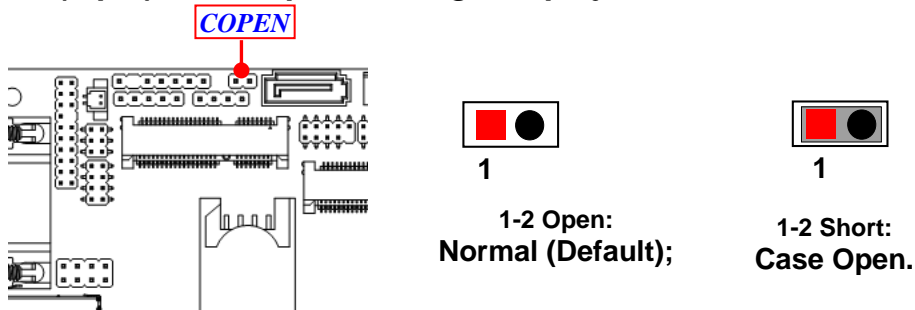
1-2 Close: ATX ModSelected(Default);



2-3 Close: AT ModSelected.

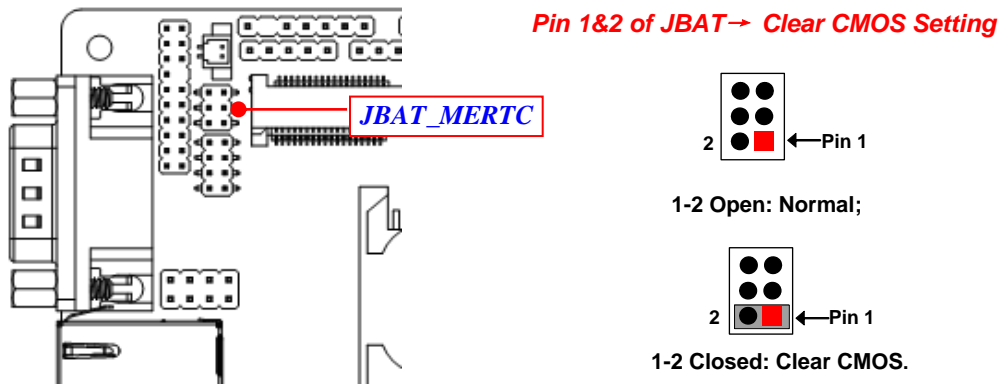
***ATX Mode Selected:** Press power button to power on after power input ready;
AT Mode Selected: Directly power on as power input ready.

COPEN (2-pin): Case Open Message Display Function Select Pitch=2.54mm

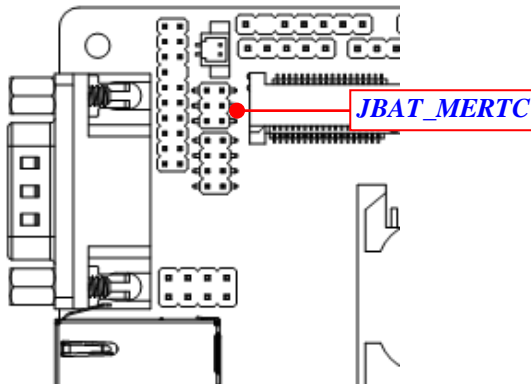


Pin (1-2) Close: When Case Open function pin short to GND, the Case Open function was detected. When Used, needs to enter BIOS and enable 'Case Open Detect' function. In this case if your case is removed, next time when you restart your computer, a message will be displayed on screen to inform you of this.

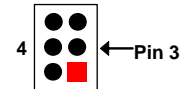
Pin 1&2 of JBAT_MERTC (6-pin): Clear CMOS Setting Pitch=2.0mm



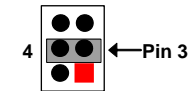
Pin 3&4 of JBAT_MERTC (6-pin): Flash Override Function Slect Pitch=2.0mm



Pin 3&4 of JBAT → Flash Override

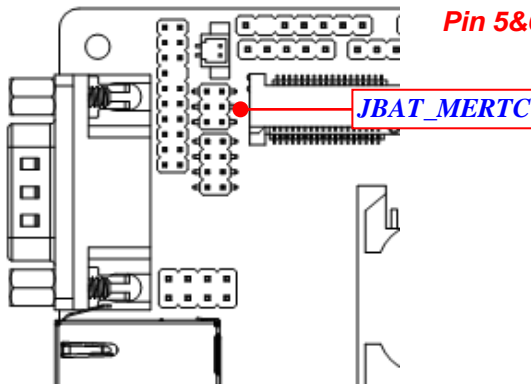


3-4 Open: Enable Security Measures in the Flash Descriptor(Default);

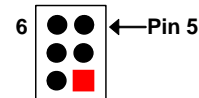


3-4 Closed: Disable Security Measures in the Flash Descriptor(Override).

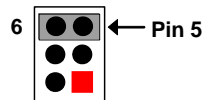
Pin 5&6 of JBAT_MERTC (6-pin): POK Override Function Slect Pitch=2.0mm



Pin 5&6 of JBAT → POK Override



5-6 Open: Normal;

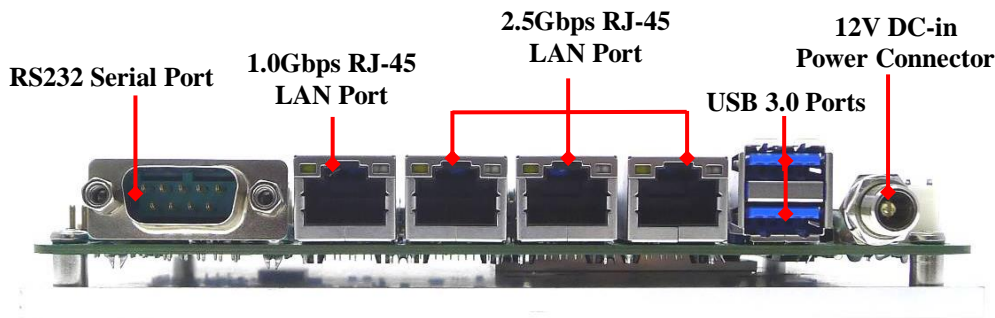






5-6 Closed: POK Override.

2-2 Connectors and Headers

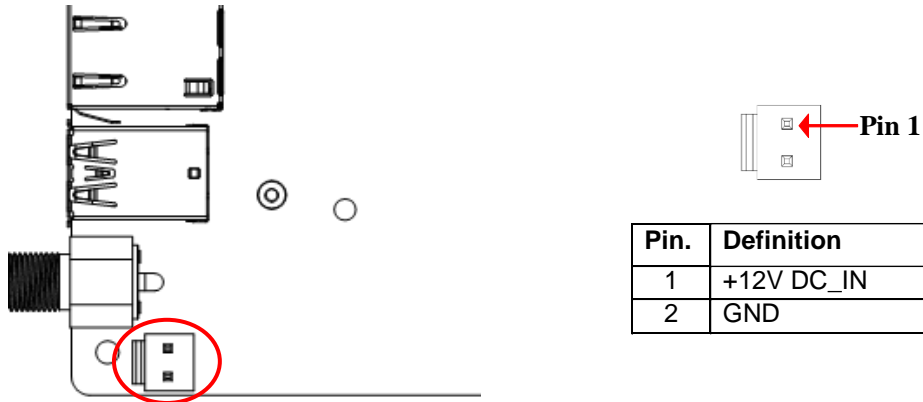
2-2-1 Connectors

(1) Rear I/O Connectors



<i>Icon</i>	<i>Name</i>	<i>Function</i>
	12V DC-in Power Connector	For user to connect compatible power adapter to provide power supply for the system.
	USB 3.0 Ports	To connect USB keyboard, mouse or other devices compatible with USB specification. USB 3.0 ports supports up to 5Gbps data transfer rate.
	RJ-45 LAN Ports	This connector is standard RJ-45 LAN jack for Network connection.
	RS232 Serial Port	Mainly for user to connect external MODEM or other devices that supports Serial Communications Interface.

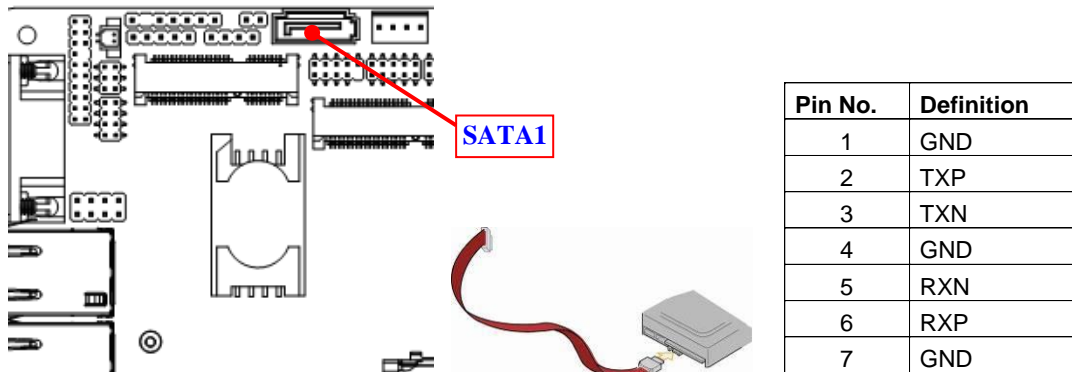
(2) ATX2P (2-pin Block): Internal 12V DC-in Power Connector



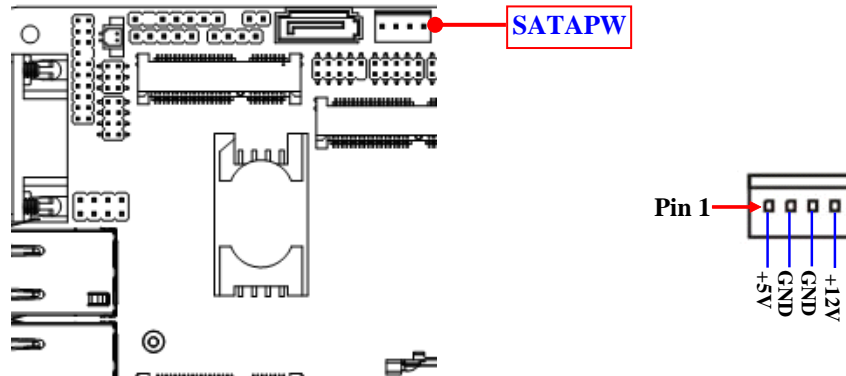
Warning!! The board has a 12V DC-in power connector (DC_IN) in I/O back panel and an internal ATX2P (ATXPWR) power connector. User can only connect one type of compatible power supply to one of them to power the system.

(3) SATA1 (7-pin Block): SATAIII Port connector

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

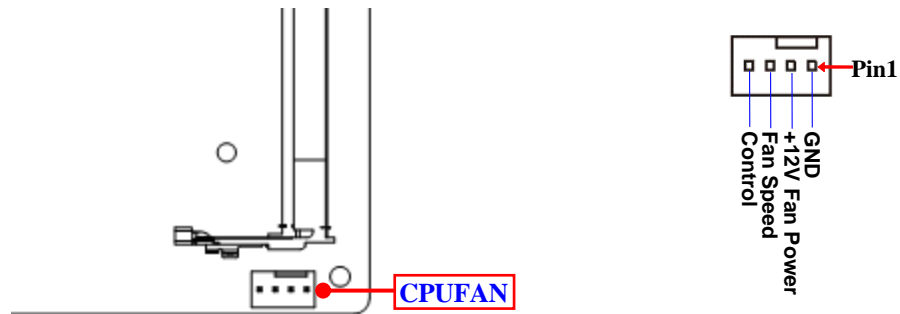


(4) SATAPW (4-pin): SATA Power Out Connector

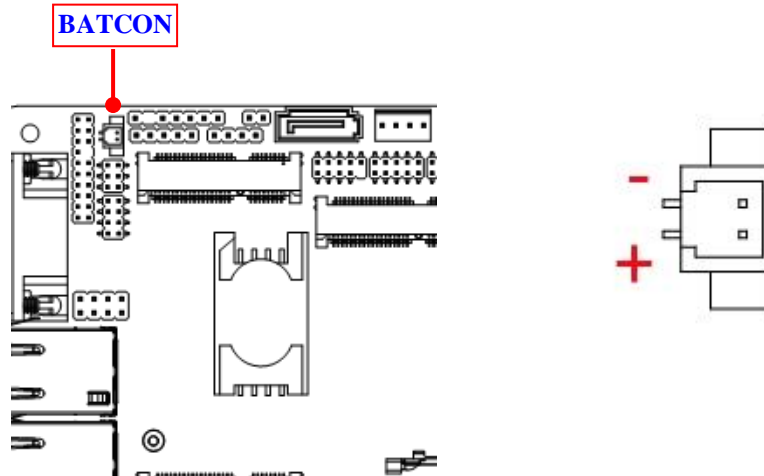


Warning: Make sure that Pin-1 of compatible SATA Power connector is inserted into corresponding Pin-1 of SATAPW to avoid possible damage to the board and hard disk driver!

(5) CPUFAN (4-pin): CPUFAN Connector

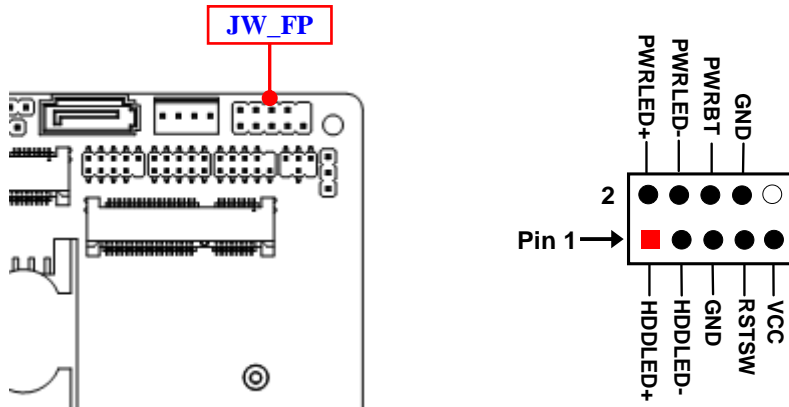


(6) SATAPW (4-pin): SATA Power Out Connector

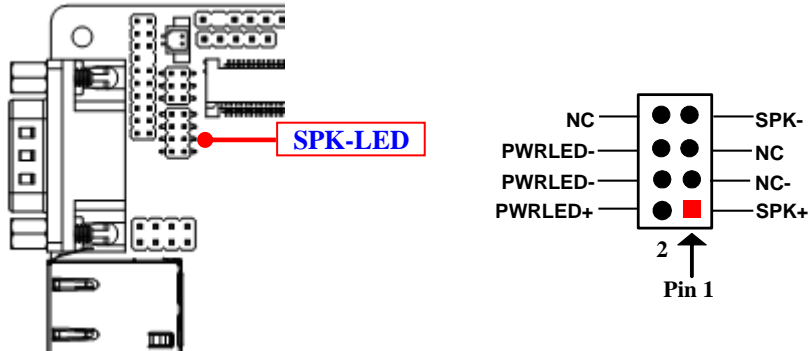


2-2-2 Headers

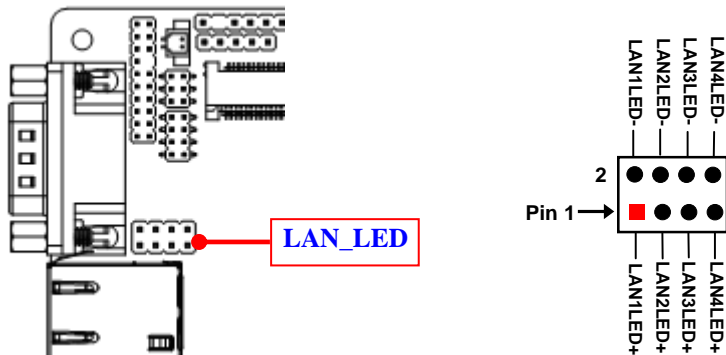
(1) JW_FP (9-pin): Front Panel Header Pitch=2.54mm



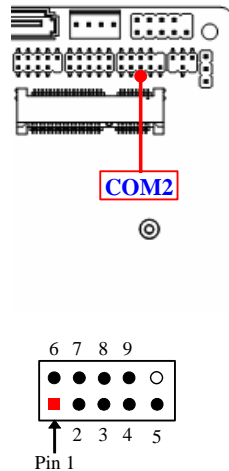
(2) SPK-LED (8-pin): Speaker & Power LED Header Pitch=2.0mm



(3) LAN_LED (8-pin): LAN Activity LED Header Pitch=2.0mm



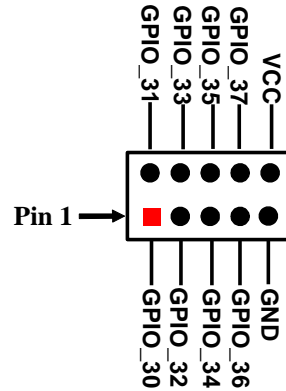
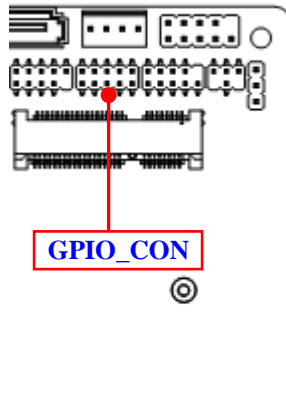
(4) COM2 (9-pin): RS232/422/485 Serial Port Header Pitch=2.0mm



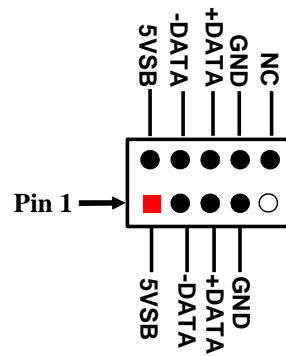
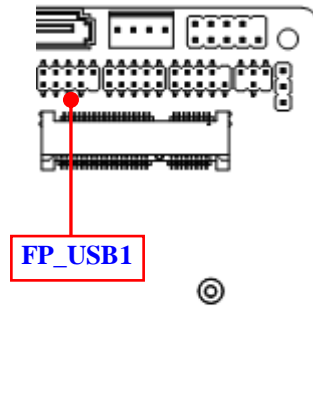
Pin NO.	RS232	RS422	RS485
Pin 1	DCD	TX-	DATA-
Pin 2	RXD	TX+	DATA+
Pin 3	TXD	RX+	NC
Pin 4	DTR	RX-	NC
Pin 5	GND	GND	GND
Pin 6	DSR	NC	NC
Pin 7	RTS	NC	NC
Pin 8	CTS	NC	NC
Pin 9	RI	NC	NC

***Notice:** COM2 serves as RS232 serial port header in most cases. RS422 & RS485 function is only optional to customized models. User also needs to go to BIOS to set '**Transmission Mode Select**' for COM2 as [RS422] or [RS485] for boards that support RS422/485 function before connecting compatible COM cable to COM2 header.

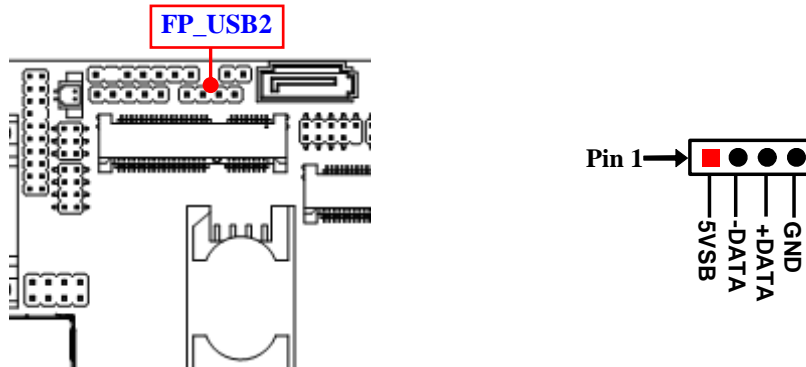
(5) GPIO_CON (10-pin): GPIO Header Pitch=2.0mm



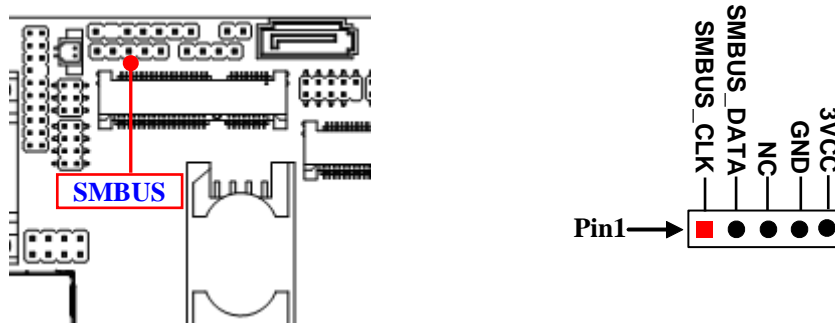
(6) FP_USB1 (9-pin): USB 2.0 Port Header Pitch=2.0mm



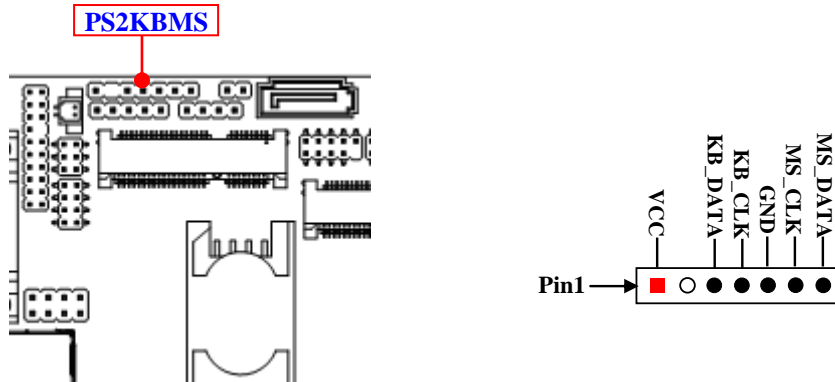
(7) FP_USB2 (4-pin): USB 2.0 Port Header Pitch=2.54mm



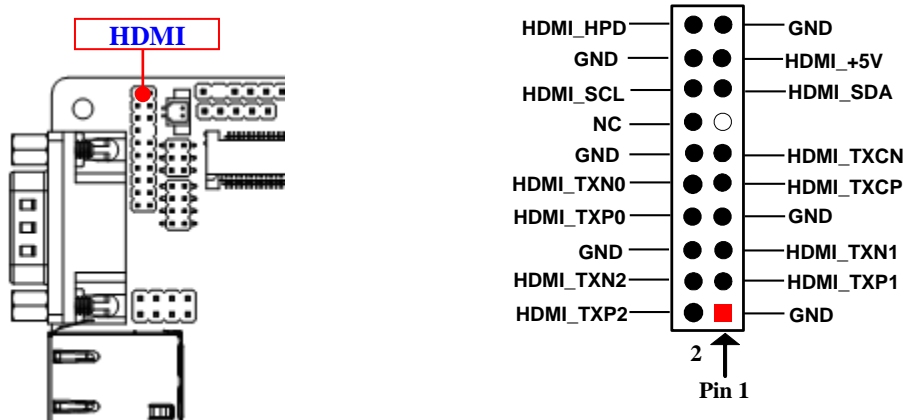
(8) SMBUS (5-Pin): SMBUS Header Pitch=2.54mm



(9) PS2KBMS (6-pin): PS2 Keyboard & Mouse Port Header Pitch=2.54mm



(10) HDMI (19-pin): HDMI Port Header Pitch=2.0mm



Chapter 3

Introducing BIOS

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

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

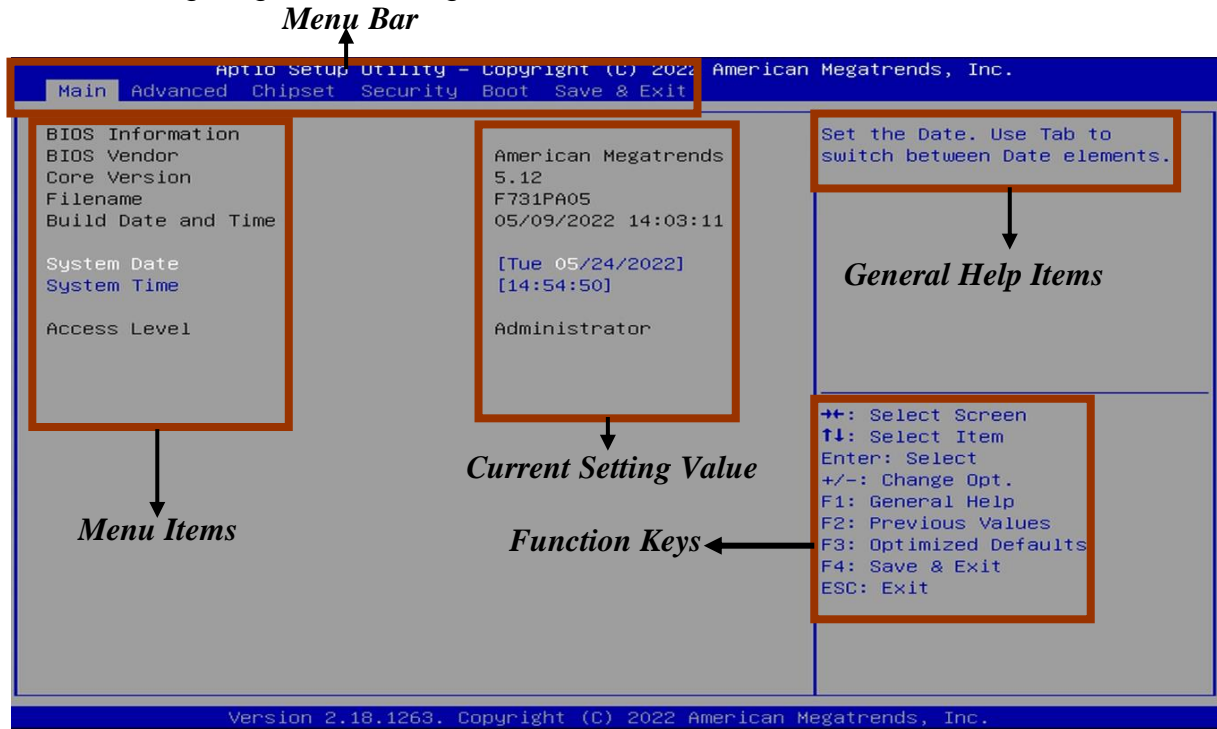
3-1 Entering Setup

Power on the computer and by pressing 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 value.
 - **[F3]**: Optimized defaults.
 - **[F4]**: Save & Exit.
 - **[F7]**: To enter pop-up boot menu to select boot device.
 - Press <Esc> to quit the 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

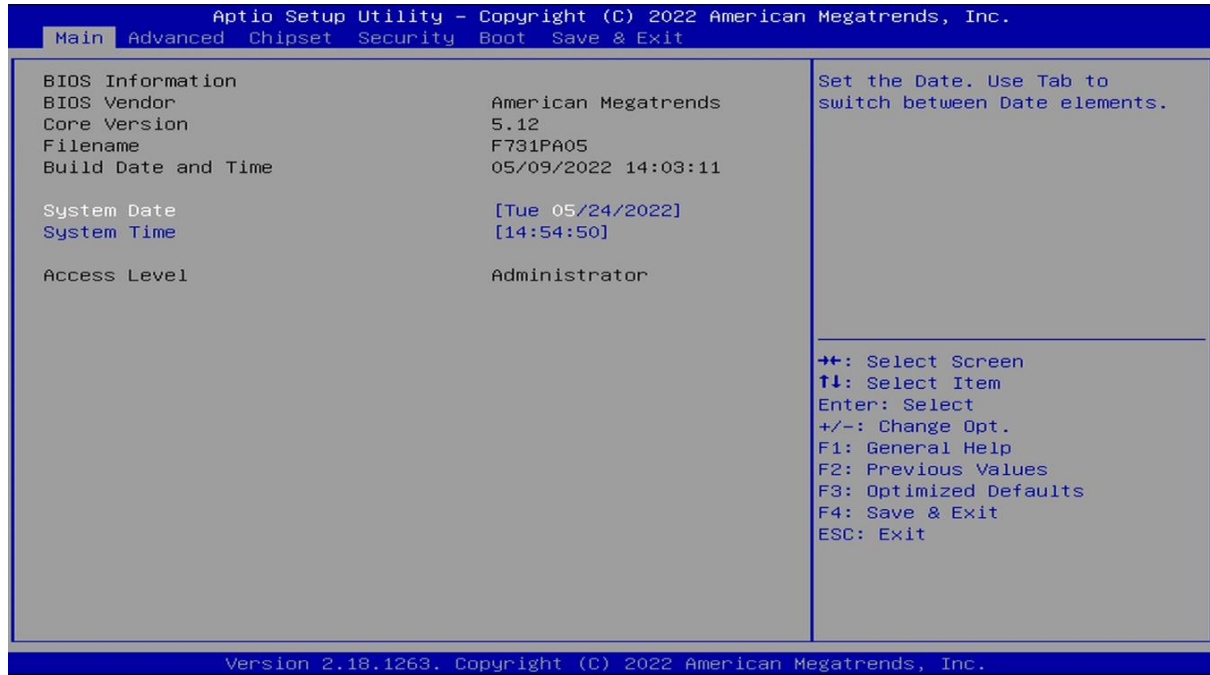
There are six menu bars on top of BIOS screen:

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.



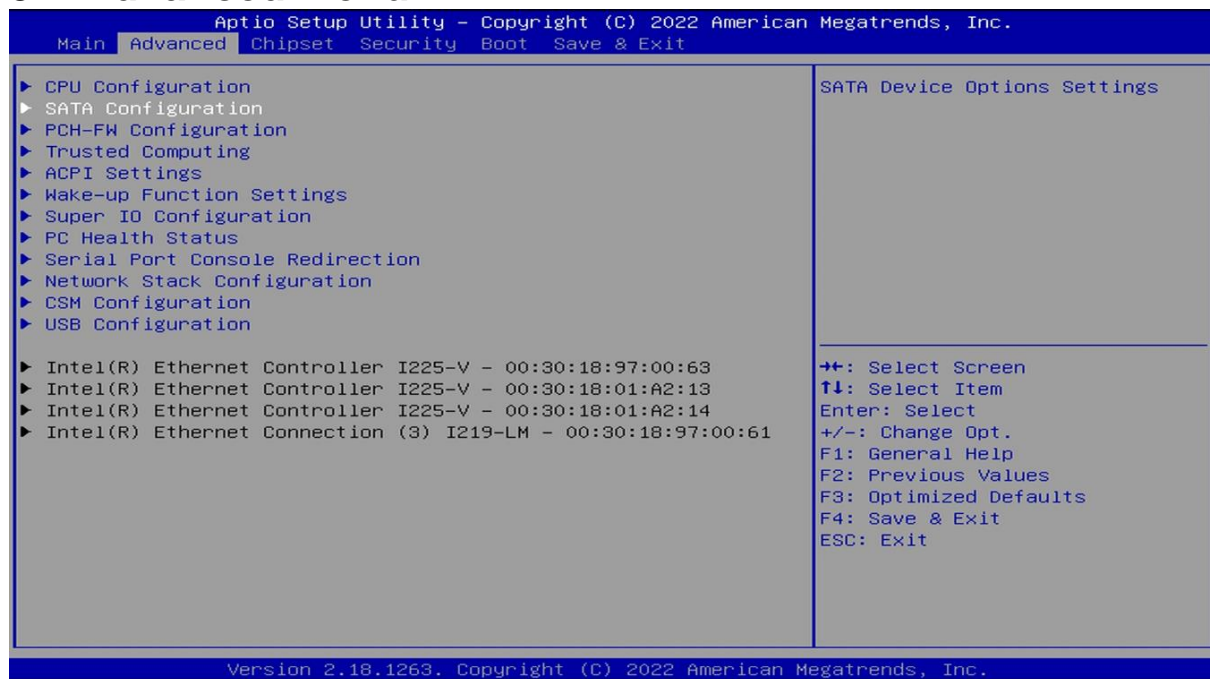
System Date

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

System Time

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

3-7 Advanced Menu



▶ CPU Configuration

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

Intel Virtualization Technology

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

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

Hardware Prefetcher

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

Use this item to turn on/off the Mid Level Cache (L2) streamer prefetcher.

Adjacent Cache Line Prefetch

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

Use this item to turn on/off prefetching of adjacent cache lines.

Intel(R) SpeedStep(tm)

Use this item to Allows more than two frequency ranges to be supported

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

CPU 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].

Package C State Limit

Use this item to select maximum package C State Limit setting.

CPU Default value. Auto: Initializes to deepest available Package C State Limit.

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

► **SATA Configuration**

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

SATA Controller(s)

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

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

SATA Mode Selection

This item determines how SATA controller(s) operate.

The default setting is: [AHCI].

mSATA

Software Preserve

Port

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

SATA

Software Preserve

Port

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

Hot Plug

Use this item to designates this port as Hot Pluggable

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

▶ **PCH-FW Configuration**

Press [Enter] to view ME information and make settings in the following sub-items:

TPM Device Selection

Use this item to select TPM device: PTT or dTPM.

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

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].

** 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 enable or disable '**Security Device Support**'.

Configuration

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].

NO Security Device Found

▶ **ACPI Settings**

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

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)].

► **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], system will wake on the hour/min/sec specified.

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 0-59

Wake-up Second

Use this item to 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 minutes.

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

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

Wake-up Minute Increase

Use this item to 1-60

PS2(S3-S5) / USB(S3-S4)Wake-up

Use this item to PS2(S3/S5)/ USB(S3/S4) Wake-up

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

USB S5 Power

Use this item to enable or disable USB power after power shutdown.

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

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

► **Super I/O Configuration**

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

Super IO Configuration

ERP Support

Use this item to energy-related products function.

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

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

► **Serial Port 1 Configuration**

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

Serial Port

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

Device Settings

Change Settings

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

The optional settings are: [IO=3F8h; IRQ=4]; [IO=3F8h; IRQ=3,4,5,6,7, 9,10,11,12]; [IO=2F8h; IRQ=3,4,5,6,7, 9,10,11,12]; [IO=3E8h; IRQ=3,4,5,6,7, 9,10,11,12]; [IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12].

Serial Port FIFO Mode

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

► **Serial Port 2 Configuration**

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

Serial Port

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

Device Settings

Change Settings

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

The optional settings are: [IO=2F8h; IRQ=3]; [IO=3F8h; IRQ=3,4,5,6,7, 9,10,11,12]; [IO=2F8h; IRQ=3,4,5,6,7, 9,10,11,12]; [IO=3E8h; IRQ=3,4,5,6,7, 9,10,11,12]; [IO=2E8h; IRQ=3,4,5,6,7, 9,10,11,12].

Transmission Mode Select

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

Mode Speed Select

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

Serial Port FIFO Mode

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

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 set a value in the range of [4] to [255].

WatchDog Reset Timer Unit

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

WatchDog Wake-up Timer in ERP

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 Timer Value in ERP

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

WatchDog Reset 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 **Page-7**: AT_MODE jumper for ATX Mode & AT Mode Select).

Case Open Detect

Use this item to detect case has already open or not, show message in POST.

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

When set as [Enabled], system will detect if COPEN has been short or not (refer to Page 8); if Pin 1&2 of COPEN is short, system will show Case Open Message during POST.

▶ **PC Health Status**

Press [Enter] to view current hardware health status, set shutdown temperature, or make further settings in '**SmartFan Configuration**'.

▶ **SmartFan Configuration**

Press [Enter] to make settings for SmartFAN Configuration:

SmartFAN Configuration

CPUFAN Smart Mode

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

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

CPUFAN Full-Speed Temperature

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

CPUFAN Full-Speed Duty

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

CPUFAN Idle-Speed Temperature

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

CPUFAN Idle-Speed Duty

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

Shutdown Temperature

Use this item to select system shutdown temperature.

The optional settings are: [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**

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

[ANSI]: Extended ASCII char set.

[VT100]: ASCII char set

[VT100+]: Extends VT100 to support color, function key, etc

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

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

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.

[Evan]: 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.

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

Stop Bits

Use this item to 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

Use this item to 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 enable VT-UTF8 combination key support for ANSI/VT100 terminals.

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

Recorder Mode

Use this item with this mode enabled only text will be sent. This is to capture Terminal data.

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

Resolution 100x31

Use this item enables or disables extended terminal resolution

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

Legacy OS Redirection Resolution

Use this item on Legacy OS, the number of Rows and Columns supported redirection

The optional settings are: [80x24]; [80x25].

Putty Keypad

Use this item to select functionkey and keypad on putty

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

Redirection After BIOS POST

Use this item to the settings specify if BootLoader is selected then Legacy console redirection is disabled before booting to Legacy OS. Default value is always enable which means legacy console redirection is enabled for legacy OS.

The optional settings are: [Always Enable]; [BootLoader].

Serial Port for Out-of-Band Management/

Windows Emergency Management Services (EMS)

Console Redirection

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

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

► 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

Use this item to Microsoft Windows emergency management services (EMS) allows for remote management of a Windows server OS through a serial port
The optional settings are: [COM1]; [COM1(Pci Bu0, Dev0, Func0) (Disabled)].

Terminal Type

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

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

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]; [57600]; [115200].

Flow Control

Use this item to 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.*

► **Network Stack Configuration**

Press [Enter] to go to '**Network Stack**' screen to enable or disable UEFI Network Stack.

Network Stack

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

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

Ipv4 PXE Support

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

Use this item to enable Ipv4 PXE Boot Support. When set as [Disabled], Ipv4 boot option will not be created.

Ipv4 HTTP Support

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

Use this item to enable Ipv4 HTTP Boot Support. When set as [Disabled], Ipv4

HTTP boot option will not be created.

Ipv6 PXE Support

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

Use this item to enable Ipv6 PXE Boot Support. When set as [Disabled], Ipv6 boot optional will not be created.

Ipv6 HTTP Support

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

Use this item to enable Ipv6 HTTP Boot Support. When set as [Disabled], Ipv6 HTTP boot option will not be created.

PXE boot wait time

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

Media Detect Count

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

The optional settings range from [1] to [50].

▶ **CSM Configuration**

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

Option ROM execution

Network

This item controls the execution of UEFI and Legacy PXE OpROM.

The optional settings are: [Do Not Launch]; [Legacy].

Storage

This option controls the execution of UEFI and Legacy Storage OpROM.

The optional settings are: [Do Not Launch]; [UEFI]; [Legacy].

Other PCI Devices

This item determines OpROM execution policy for devices other than Network, storage or video.

The optional settings are: [Do Not Launch]; [UEFI]; [Legacy].

▶ **USB Configuration**

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

USB Configuration

Legacy USB Support

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

[Enabled]: To enable legacy USB support.

[Disabled]: To keep USB devices available only for EFI specification,

[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 are: [Enabled]; [Disabled].

USB Mass Storage Driver Support

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

USB hardware delay 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: [Auto]; [Manual].

Select [Manual] you can set value for the following sub-item: '**Device Power-up Delay in Seconds**'.

Device Power-up Delay in Seconds

The delay range is from [1] to [40] seconds, in one second increments.

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

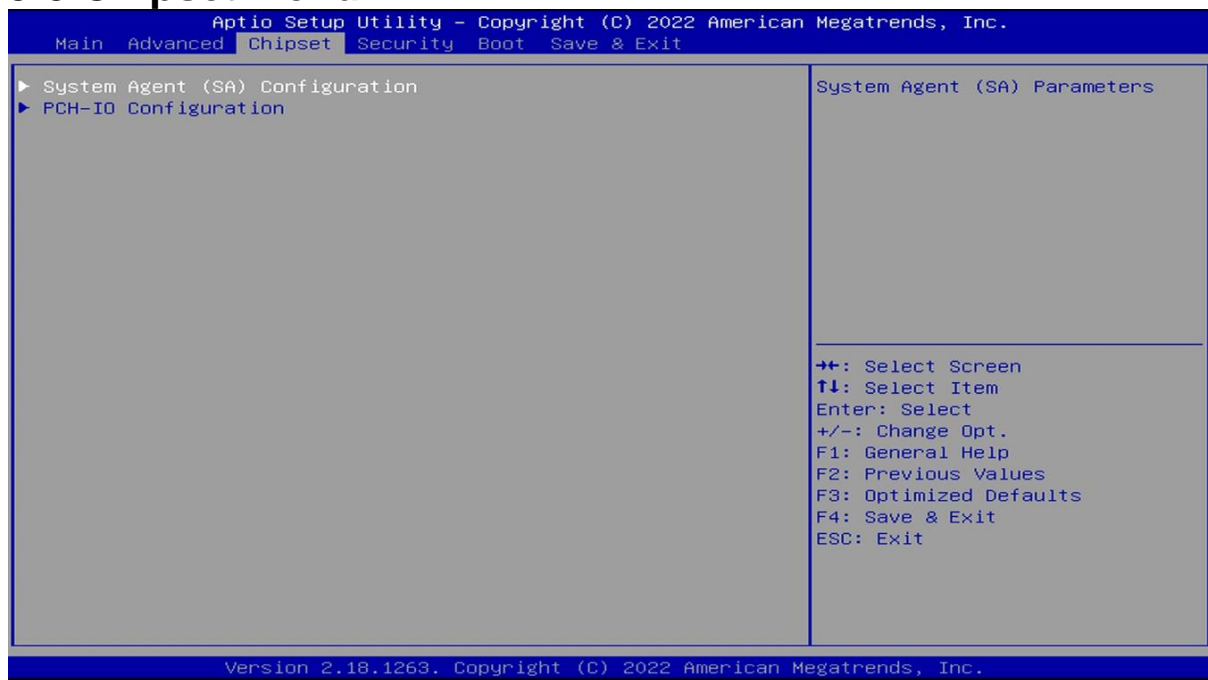
These items show current networks' information.

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

These items show current networks' information

- ▶ **Intel(R) Ethernet Controller I225-V - XX:XX:XX:XX:XX:XX**
These items show current networks' information
- ▶ **Intel(R) Ethernet Connection (3) I219-LM - XX:XX:XX:XX:XX:XX**
These items show current networks' information

3-8 Chipset Menu



- ▶ **System Agent (SA) Configuration**
Press [Enter] to make settings for the following sub-items:
VT-d
Use this item to enable or disable VT-d capability.
The optional settings are: [Enabled]; [Disabled].
** This item might not be available depending on configuration.*

► **Graphics Configuration**

Press [Enter] to for user to view IGFX basic information or make further settings for graphics configuration.

Graphics Configuration

GTT Size

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

Aperture Size

Use this item to select the aperture size

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

**Note: Above 4GB MMIO BIOS assignment is automatically enabled when selecting 2048MB aperture. To use this feature, please disable CSM Support.*

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: [32M]; [64M]; [96M]; [128M]; [160M]; [192M]; [224M]; [256M]; [288M]; [320M]; [352M]; [384M]; [416M]; [448M]; [480M]; [512M]; [1024MB]; [1538MB]; [2048MB]; [4M]; [8M]; [12M]; [16M]; [20M]; [24M]; [28M]; [32M/F7]; [36M]; [40M]; [44M]; [48M]; [52M]; [56M]; [60M].

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].

► **Memory Configuration**

Press [Enter] to view current memory configuration.

► **PCH-IO Configuration**

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

eMMC Controller

Use this item to enable or disable eMMC controller.

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

USB Controller

Use this item to enable or disable this USB physical connector (physical port). Once disabled, any USB devices plugged into this connector will not be detected by BIOS or OS.

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

Onboard Lan1 Controller

Use this item to enable or disable Lan1 onboard NIC.

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

When '**Onboard Lan1 Controller**' set as [Enabled], the following sub-items shall appear:

Wake on LAN

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

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

Onboard Lan2/3/4 Controller

Use this item to enable or disable Lan2/3/4 device or controller.

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

MPE1 Slot

Use this item to enable or disable device or controller.

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

Speed

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

MPE2 Slot

Use this item to enable or disable device or controller.

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

Speed

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

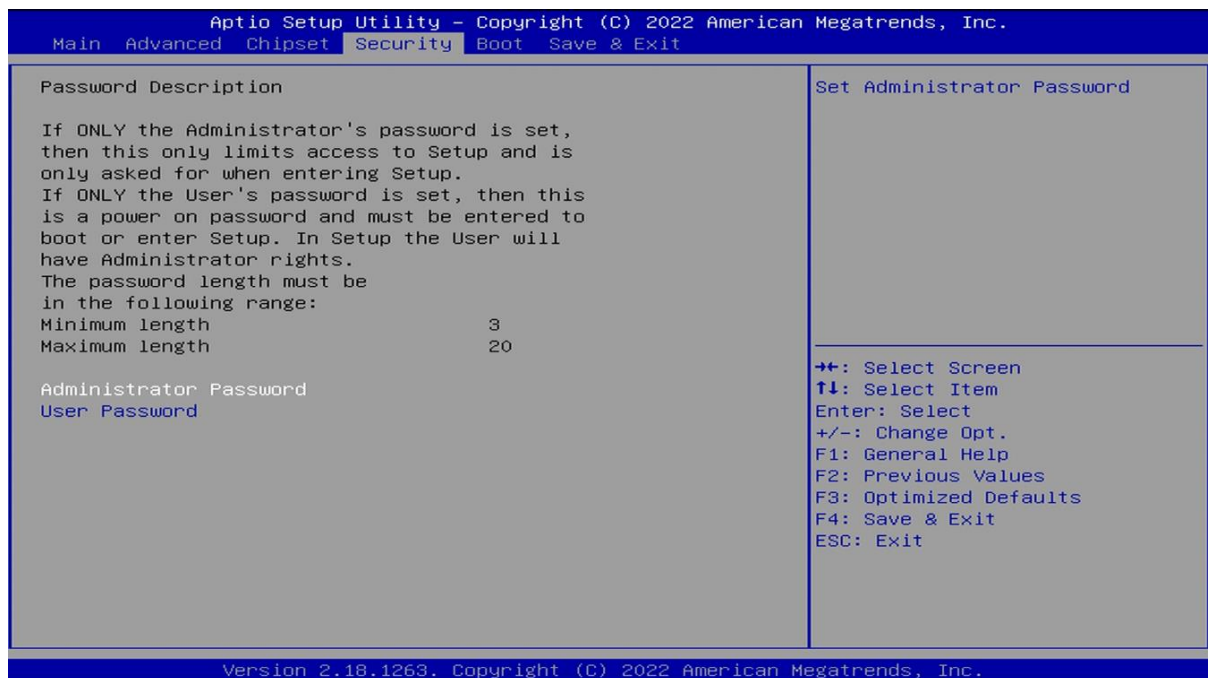
System State After Power Failure

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

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

** The option [Always On] and [Former State] are affected by ERP function. Please disable '**ERP Support**' 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

Press [Enter] to create new administrator password. Press again to confirm the new administrator password.

User Password

Press [Enter] to create new user password. Press again to confirm the new user password.

3-10 Boot Menu



Boot Configuration

Setup Prompt Timeout

Use this item to set number of seconds to wait for setup activation key.

Bootup Numlock State

Use this item to select keyboard numlock state.

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

Quiet Boot

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

Boot Option Priorities

Boot Option #1

Use this item to decide system boot order from available options.

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

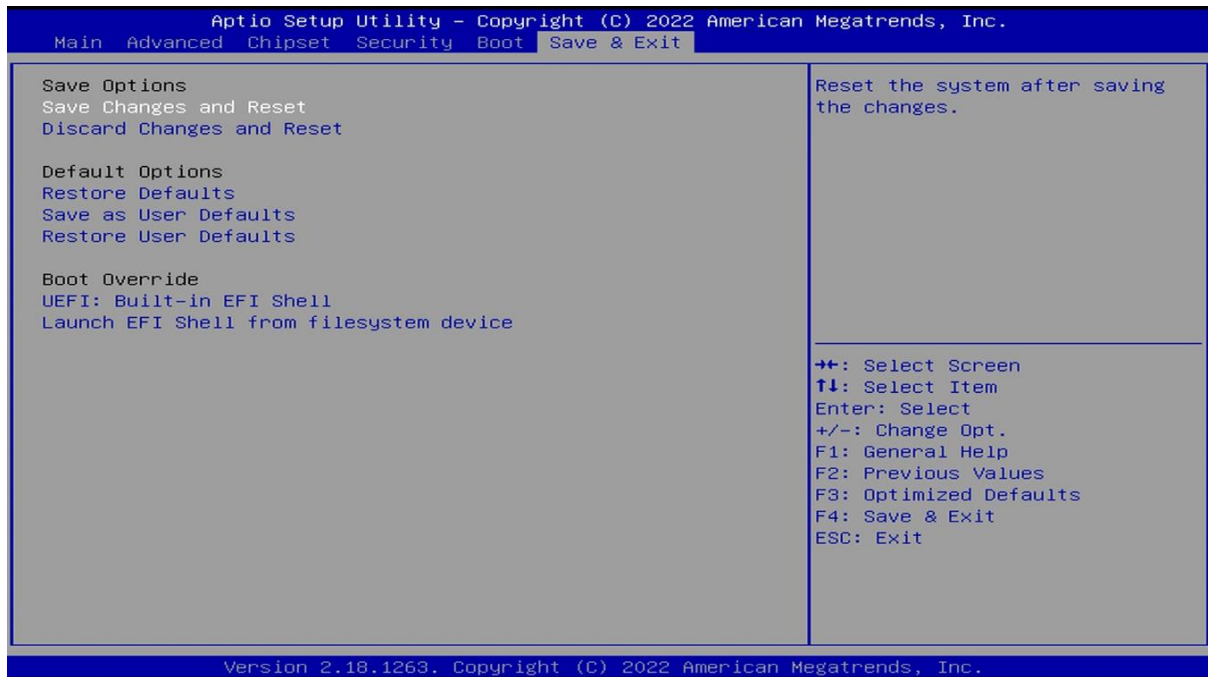
UEFI Boot

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

[Enabled]: To enable all UEFI boot options.

[Disabled]: To disabled all UEFI boot options.

3-11 Save & Exit Menu



Save Options

Save Changes and Reset

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

Discard Changes and Reset

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

Default Options

Restore Defaults

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

Save as User Defaults

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

Restore User Defaults

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

Boot Override

UEFT: Built-in EFI Shell

Launch Internal EFI shell application (shell.efi).

Launch EFI Shell from filesystem device

Use this item to launch EFI shell application (shell.efi) from one of the available filesystem device.