NF835V Series

User's Manual

NO.: G03-NF835V-F

Revision: 3.0

Release date: October 8, 2024

Trademark:

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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.

TABLE OF CONTENT

⚠️ CAUTION Environmental Safety Instruction

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

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

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

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Manual Revision Information

Reversion	Revision History	Date
3.0	Third Edition	October 8, 2024

Item Checklist

☑ Motherboard
☑ Cable(s)

Chapter 1
Introduction of the Motherboard

1-1 Feature of Motherboard

■ **NF835V-8365U Series**: Onboard Intel® Whiskey Lake-U series i5-8365UE processor, TDP 15W, never denies high performance

■ **NF835V-10210U Series**: Onboard Intel® Comet Lake-U series processor, TDP 15W, 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 chip

■ Support 1* DP,1* HDMI, 1* EDP, 1* LVDS (*EDP and LVDS are selectable)

■ Support 3 independent displays

■ Onboard 1* M.2 M-key slot, type-2242/2280,PCIe x4 (NVMe) and SATA interface are selectable

■ Onboard 1* M.2 E-key slot,type-2230,support Wi-Fi / Bluetooth with Intel PCIe/CNVi interface

■ Support 1 * SATAIII device

■ Support 4* USB 3.1 Gen.2 + 2* USB 3.1 Gen.2 (Type-C & Vertical type) + 3* USB 2.0

■ Support 6* COM (***COM1** supports RS232/422/485)

■ Support CPU Smart FAN

■ Compliance with ErP standard

■ Support Watchdog function

■ Solution for Digital Signage / Industrial PCs / Factory Automation / IoT Solution

1-2 Specification

Spec	Description
Design	● 3.5"SBC; 8-Layers; PCB size: 14.8x 10.2 cm
Embedded CPU	● Integrated with Intel® Whiskey Lake-U series **or I**ntel® Comet Lake-U CPU **By order** (TDP 15W) * **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 non-ECC SO-DIMM up to 64GB ● Support dual channel function * **Note:** *Memory clock supporting range is decided by specific CPU of the model. For more memory compatibility information please consults your local dealer.*
Expansion Slot	● 1* M.2 M-key slot, type-2242/2280, PCIe x4 (NVMe) and SATA interface are selectable (**M2M**) ● M.2 E-key slot,type-2230, support Wi-Fi / Bluetooth with Intel PCIe/CNVi interface (**M2E**)
Storage	● 1* SATAIII 6Gb/s port
LAN Chip	*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 10/100/1000Mbps ● Ethernet data transfer rate ● Support Fast Ethernet LAN function
Audio Chip	● Integrated with HD audio chip
BIOS	● AMI Flash ROM
Rear I/O	● 1* 9~24V DC-in power Jack ● 1* display port (DP) ● 1* HDMI port ● 4* USB 3.1 (Gen.2) port ● 1* USB 3.1 (Gen.2) Type-C port ● 2* RJ-45 LAN port

	● 1* Audio Line Out port (with SPDIF)
Internal I/O	● 1* 2-pin internal 9~24V DC-in power connector ● 1* Internal vertical USB 3.1 (Gen.2) port connector ● 1* SATA Power-out connector ● 1* CPU FAN header ● 1* Front panel 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) ● 6* Serial port header (**COM1~COM6**;**COM1** supports RS232/422/485) ● 1* Front panel audio header ● 1* 3W amplifier header ● 1* GPIO header ● 1* EDP header (selection with LVDS) ● 1* LVDS header(selection with eDP) ● 1* LVDS inverter header ● 1* I2C_CON header ● 1*PS/2 keyboard & mouse header ● 1* LAN LED activity LED header+1* Wi-Fi/BT activity LED header

1-3 Layout Diagram

Rear IO Diagram:
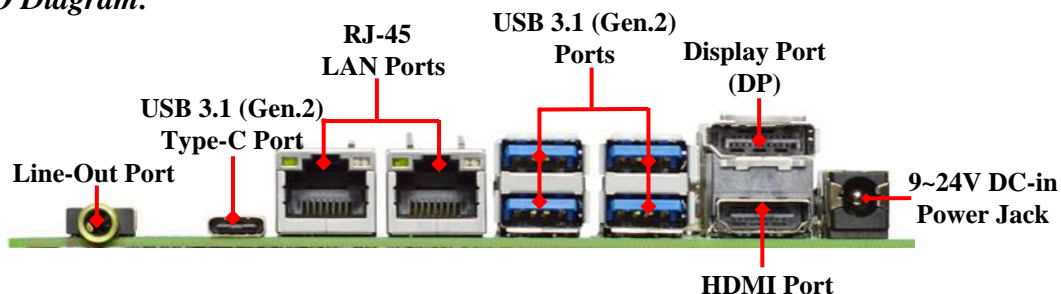
Warning!!

The board has a 9~24V DC-in power connector **(DC_IN)** in I/O back panel and an internal 9~24V power connector **(DC2P).** User can only connect one type of compatible power supply to one of them to power the system.

Diagram-Front Side:

Front Panel Audio Header
GPIO Port Header
INVERTER
SATAIII Port
SATA Power-out Connector

Line-out Port

LVDS Header

EDP Header

Front Panel Header (JW_FP1)

Speaker Header

M.2 M-key Slot (M2M)

USB 2.0 Header

USB 3.1 (Gen.2) Type-C Port

Serial Port Headers (COM1~6)

RJ-45 LAN Ports

M.2 E-key Slot (M2E)

BATCON

Vertical USB 3.1 (Gen.2) Connector

USB 2.0 Header

LAN_LED Header

WLAN_LED Header

USB 3.1 (Gen.2) Ports

2*DDR4 SODIMM Slots

I2C_CON Header

Display Port over HDMI Port

PS/2 Keyboard &Mouse Header

9~24V DC-In Power Jack

Internal 9~24V DC-In Power Connector

CPUFAN Connector

Jumper Positions:

Jumpers

Jumper	Name	Description
JP1	*COM1 Header Pin-9 Function Select*	4-Pin Block
JP2	*COM2 Header Pin-9 Function Select*	4-Pin Block
JP3	LCD_ BACKLIGHT VCC Select	4-Pin Block
JP4	LCD Panel VCC Select	4-Pin Block
JBAT	*Pin (1-2):* Clear CMOS *Pin (3-4):* Flash Override	4-Pin Block
AT_COPEN	*Pin (1-2):* AT Mode Select *Pin (3-4):* Case Open Display Select	4-Pin Block

Connectors

Connector	Name
DC_IN	9~24V DC–in Power Jack
DP_HDMI	**Top:** Display Port (DP) Connector **Bottom:** HDMI Port Connector
USB31/USB32	USB 3.1 (Gen.2) Port Connector X4
LAN1/LAN2	RJ-45 LAN Port Connector X2
USBC	USB 3.1 (Gen.2) Type-C Port Connector
LINE_OUT	Audio Line Out Connector
FP_USB3	Internal Vertical USB 3.1 (Gen.2) Port Connector
DC2P	Internal 2-Pin 9~24V DC-in Power Connector
SATA	SATAIII Port Connector
SATAPWR	SATA Power out Connector
CPUFAN	CPUFAN Connector

Headers

Header	Name	Description
JW_FP	Front Panel Header(PWR LED/ HDD LED/Power Button /Reset)	9-pin Block
FP_USB22	USB 2.0 Header	9-pin Block
FP_USB21	USB 2.0 Header	4-pin Block
FP_AUDIO	Front Panel Audio Header	9-pin Block
SPK_CON	3W Amplifier Header	4-pin Block
GPIO	GPIO Port Header	10-pin Block
COM1~COM6	Serial Port Header	9-pin Block
EDP	EDP Port Header	40-pin Block
LVDS	LVDS Port Header	30-pin Block
INVERTER	LVDS Inverter	8-pin Block
I2C_CON	I2C_CON Header	4-pin Block
PS2KBMS	PS/2 Keyboard & Mouse Header	6-pin Block
LAN_LED	LAN Activity LED Header	4-pin Block
WLAN_LED	Wi-Fi & BT Activity LED Header	4-pin Block

Chapter 2
Hardware Installation

2-1 Jumper Settings

JP1 (4-pin): COM1 Header Pin-9 Function Select (pitch 2.0mm)

JP1→COM1 Header

2 4 6	2 4 6	2 4 6
1 3 5	1 3 5	1 3 5
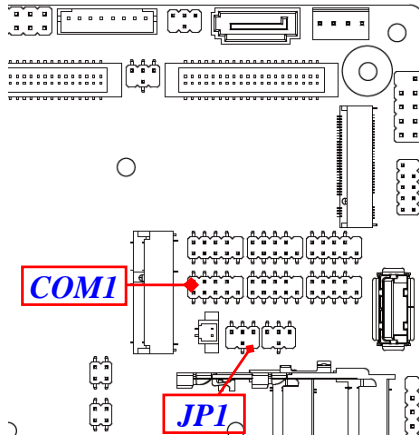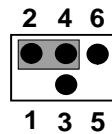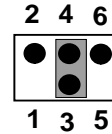
2-4 Closed:
RI=RS232;
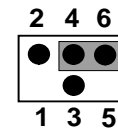
3-4 Closed:
RI= +5V;

4-6 Closed:
RI= +12V.

JP2 (4-pin): COM2 Header Pin-9 Function Select (pitch 2.0mm)

JP2→COM2 Header

2 4 6	2 4 6	2 4 6
1 3 5	1 3 5	1 3 5
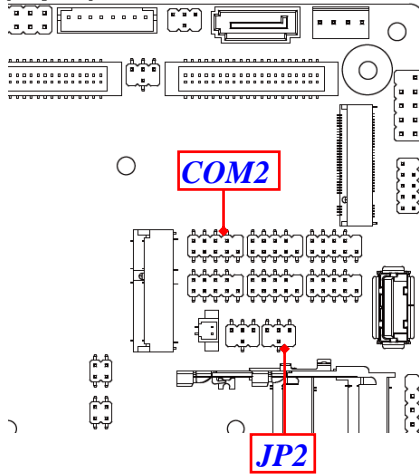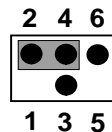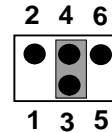
2-4 Closed:
RI=RS232;
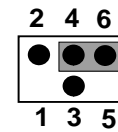
3-4 Closed:
RI= +5V;

4-6 Closed:
RI= +12V.

JP3 (4-pin): LVDS/EDP LCD_BACKLIGHT Voltage Select *(pitch 2.0mm)*
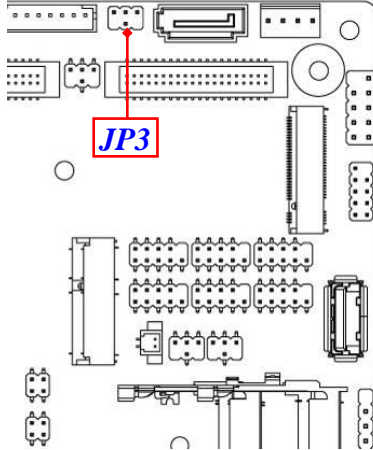
JP3→LCD_BACKLIGHT VCC Select
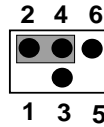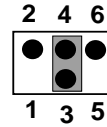
2 4 6	2 4 6	2 4 6
1 3 5	1 3 5	1 3 5
2-4 Closed: **VCC= +5V;**	**3-4 Closed:** **VCC= +12V;**	**4-6 Closed:** **VCC= DCIN.**
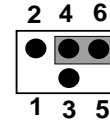
JP4 (4-pin): LVDS/EDP LCD Panel VCC Select *(pitch 2.0mm)*
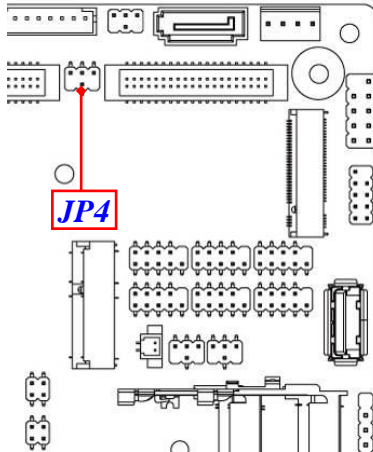
JP4→LCD Panel VCC Select
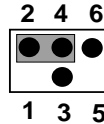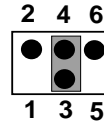
2 4 6	2 4 6	2 4 6
1 3 5	1 3 5	1 3 5
2-4 Closed: **VCC= 3.3V;**	**3-4 Closed:** **VCC= +5V;**	**4-6 Closed:** **VCC= +12V.**
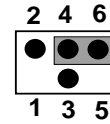
Pin (1-2) of JBAT (4-pin): Clear CMOS Settings *(pitch 2.0mm)*
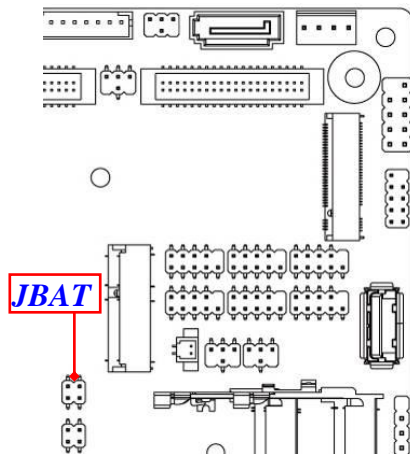
Pin 1&2 of JBAT→Clear CMOS

```
 2  ● ●  4
Pin1→ ■ ●  3
```
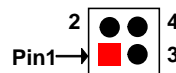
1-2 Open: Normal(Default);

```
 2  ● ●  4
Pin1→ ■ ●  3
```
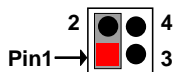
1-2 Closed: Clear CMOS(One Touch).

Pin (3-4) of JBAT (4-pin): ME Flash Override Select *(pitch 2.0mm)*
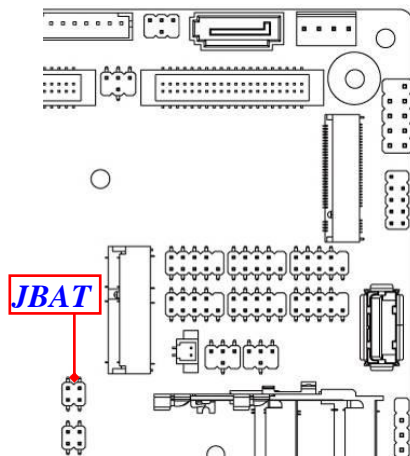
Pin 3&4 of JBAT→ME Flash Override

```
 2  ● ●  4
Pin1→ ■ ●  3
```
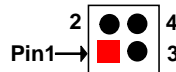
3-4 Open: Normal(Default);

```
 2  ● ●  4
Pin1→ ■ ●  3
```
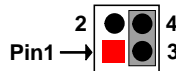
3-4 Closed: ME Flash Override.

Pin (1-2) of AT_COPEN (4-pin): ATX Mode/AT Mode Select *(pitch 2.0mm)*
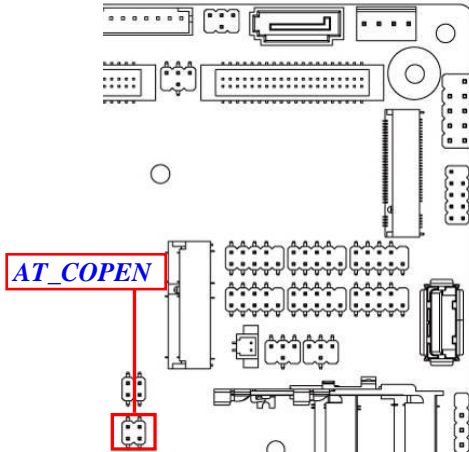
Pin 1&2 of AT_COPEN
→ *ATX/AT Mode Select*
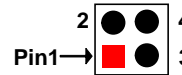
1-2 Open: ATX Mode Selected(Default);
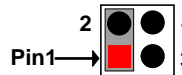
1-2 Closed: AT Mode Selected.

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

Pin (3-4) of AT_COPEN (4-pin): Case Open Message Display Function Select
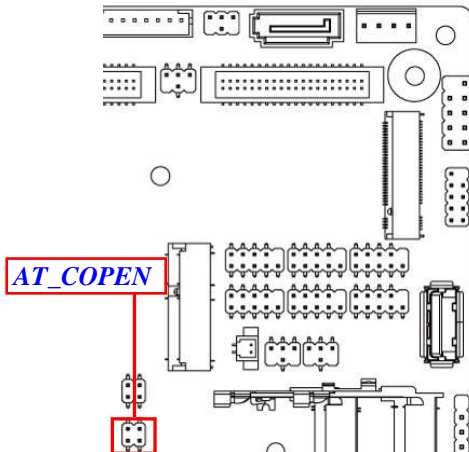
Pin 3&4 of AT_COPEN
→ *Case Open Detection*
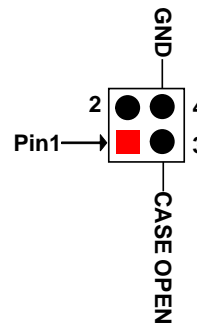
Pin (3-4) Closed: *When Case open function pin short to GND, the Case open function was detected. When used, needs to enter BIOS and enable '**Case Open Detect**'*

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.

2-2   Connectors and Headers
2-2-1 Connectors

(1) Rear I/O Connectors

* Refer to Page-3 Rear IO Diagram.

Icon	*Name*	*Function*
	9~24V DC-in Power Jack	For user to connect compatible power adapter to provide power supply for the system.
	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.
	USB 3.1 (Gen.2) Port	To connect USB keyboard, mouse or other devices compatible with USB 3.1 (Gen.2) specification. Ports support up to 10Gbps data transfer rate.
	USB 3.1 (Gen.2) Type-C Port	To connect USB keyboard, mouse or other devices compatible with USB 3.1 (Gen.2) specification with Type-C cable. Ports support up to 10Gbps data transfer rate.
	RJ-45 LAN Port	This connector is standard RJ-45 LAN jack for Network connection.
	Line-Out Connector	For user to connect external speaker, earphones, etc to transfer system audio output.

(2) DC2P(2-pin) : Internal 9~24V DC-in Power Connector
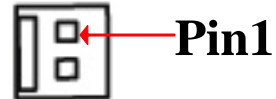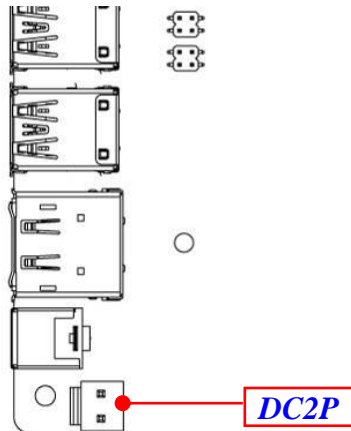
Pin1

Pin No.	Definition
1	+9V~24VC DC-In
2	GND

DC2P

Warning: *Find Pin-1 position before connecting power cable to this 2-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.
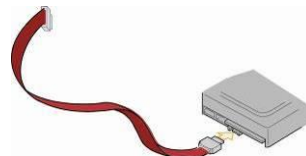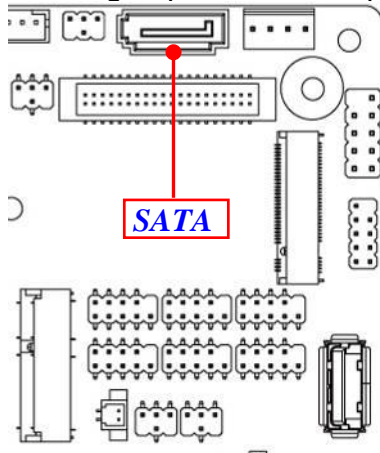
SATA

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

SATAPWR

Pin1

+5V GND GND +12V
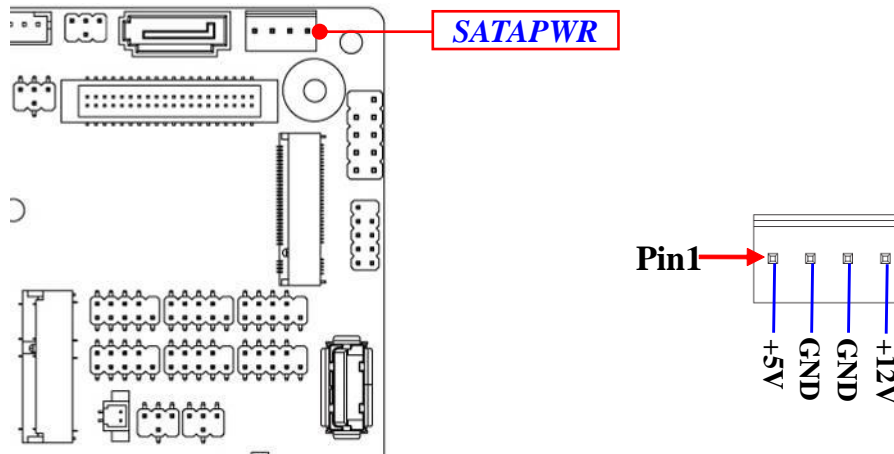
Warning: *Make sure that Pin-1 of compatible SATA Power out connector is inserted into corresponding Pin-1 of **SATAPWR** connector to avoid possible damage to the board and hard disk driver!*

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

CPUFAN

Control
Fan Speed
+12V Fan Power
GND

Pin1
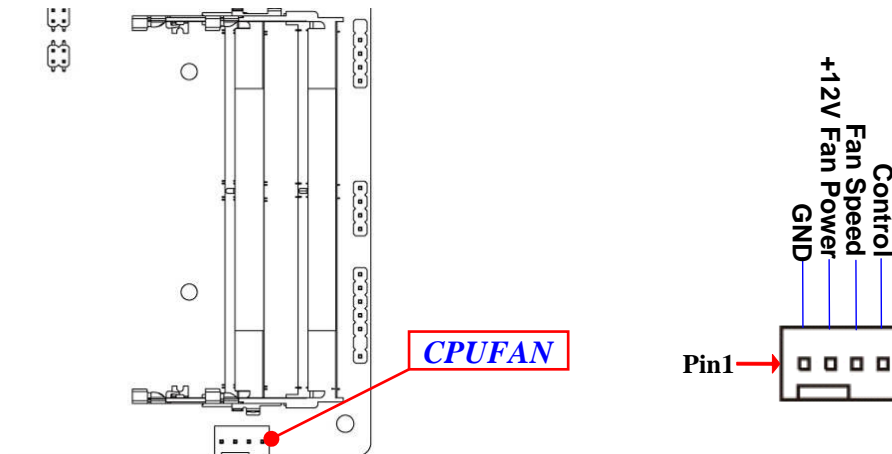
(6) M2M: M.2 M-key Slot

M2M M.2 M-Key slot supports compatible type 2242/2280 PCIe x4(NVMe) and SATA module.

M2M Slot:
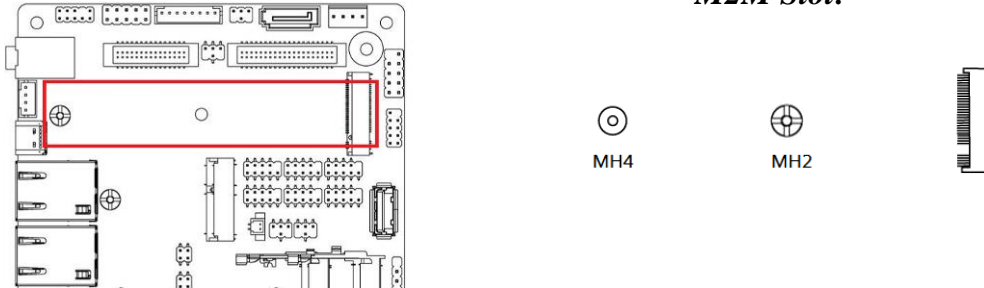
M.2 Module Installation Guide

Nut Location	MH2	MH4
Card Length	4.2 cm	8 cm
Module Type	Type- 2242	Type- 2280

1. Remove the screw post and nut fixed at location MH4 by default (Skip Step-1 & Step-2 and refer to Step-3 if you are going to use the default nut to install type-2280 card).

2. Lock the screw post into the location corresponding to the length of the module.

MH4　　　MH2
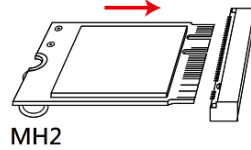
3. Align and insert corresponding M.2 module, as the photo shows.

MH4　　　MH2
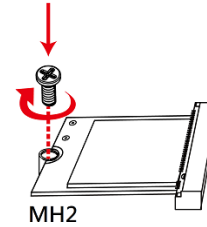
4. Tighten up the screw to secure the module into the M.2 connector. Make sure not over tighten the screw to avoid possible damage to the module.

(7) ***BATCON (2-pin): Battery Connector***

BATCON
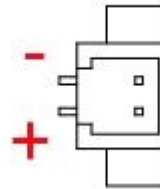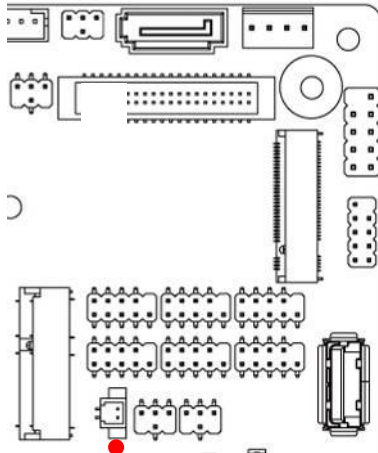
2-2-2 Headers

JW_FP (9-pin): Front Panel Header *(pitch 2.54mm)*

JW_FP

```
          ○  ●  —— VCC
GND ——    ●  ●  —— RSTSW
PWRBTN —— ●  ●  —— GND
PWR LED- — ●  ●  —— HDD LED-
PWR LED+ — ●  ■  —— HDD LED+
          2
          ↑
        Pin 1
```
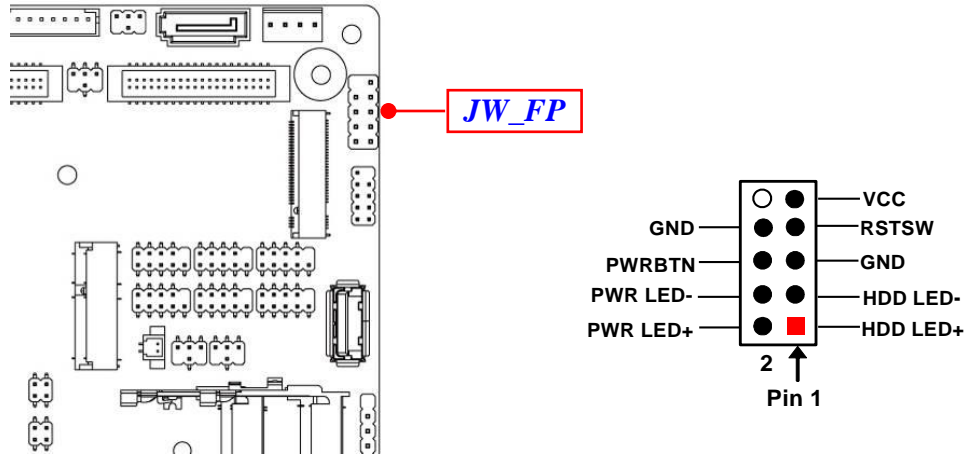
FP_USB22 (9-pin): USB 2.0 Port Header *(pitch 2.0mm)*

FP_USB22

```
NC ——   ●  ○
GND ——  ●  ●  —— GND
+DATA — ●  ●  —— +DATA
-DATA — ●  ●  —— -DATA
VCC ——  ●  ■  —— VCC
        2
        ↑
      Pin 1
```
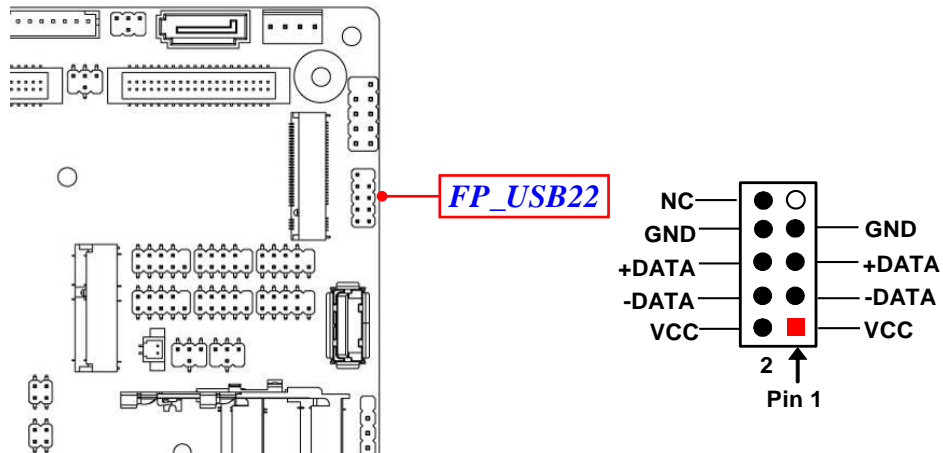
FP_USB21 (4-pin): USB2.0 Header *(pitch 2.54mm)*

GND
+DATA
-DATA
VCC

Pin 1

FP_USB21
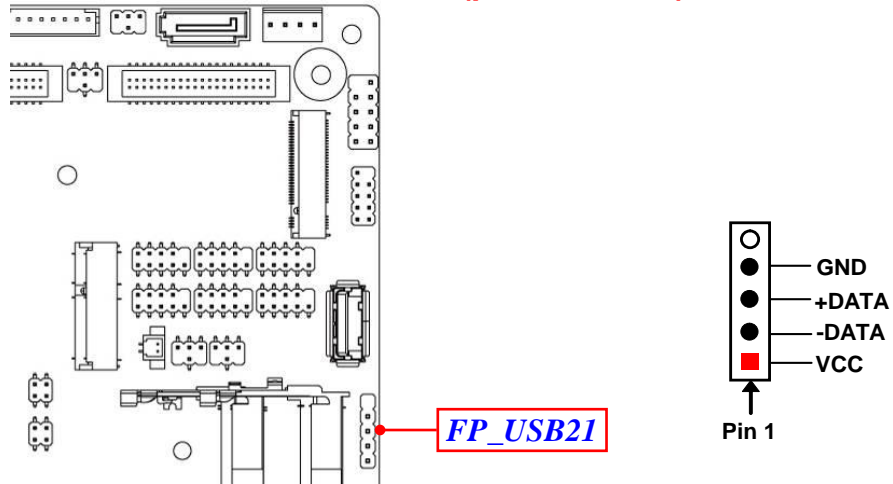
FP_AUDIO (9-pin): Line-Out, MIC-In Header *(pitch 2.0mm)*
This header connects to Front Panel Line-out, MIC-In connector with cable.

FP_AUDIO

LINE_OUT-RTU
MIC-RTU
AUDIO-JD
GND

2
Pin1

MIC-L
MIC-R
LINE_OUT-R
SENSE / NC
LINE_OUT-L
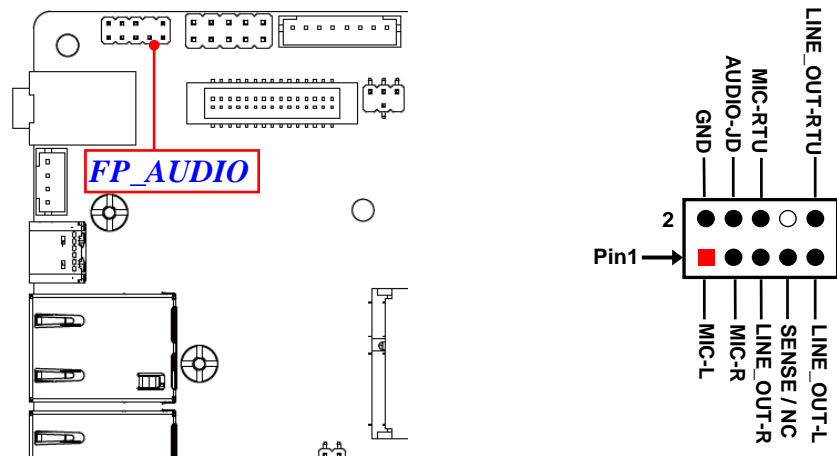
SPK_CON (4-pin): 3W Amplifier Header

R-
R+
L+
L-
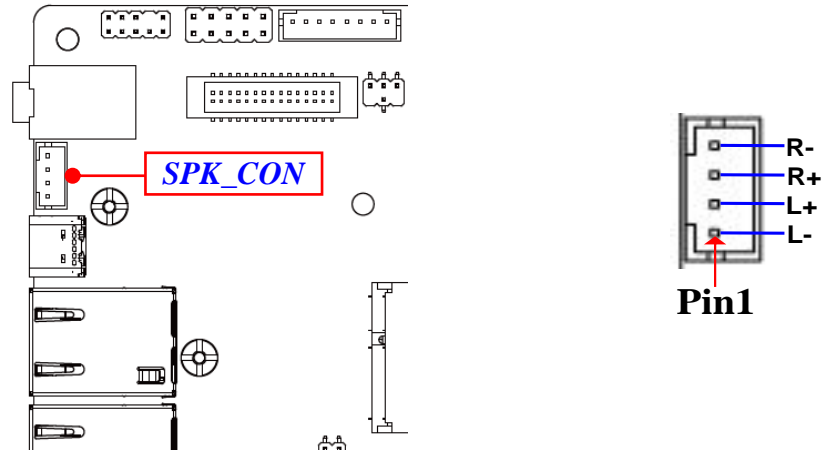
Pin1

GPIO (10-pin): GPIO Header *(pitch 2.54mm)*

GPIO81
GPIO83
GPIO85
GPIO87
VCC

2
Pin1

GPIO80
GPIO82
GPIO84
GPIO86
GND
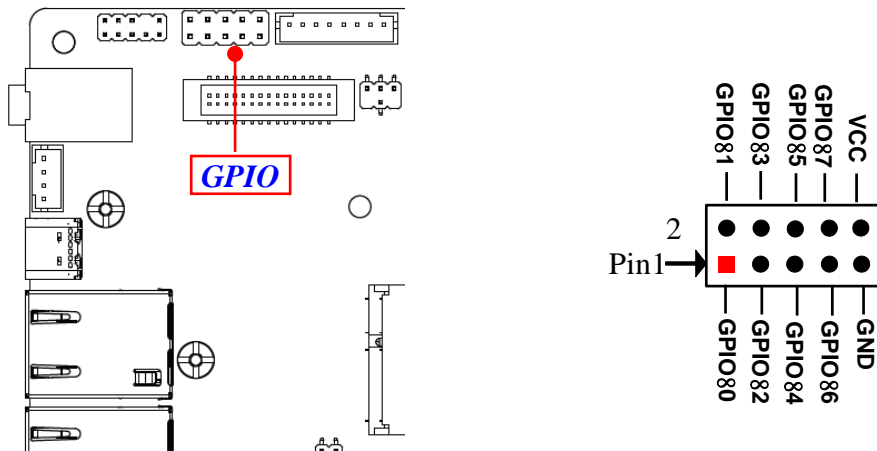
COM1/2/3/4/5/6(9-pin): Serial Port Headers *(pitch 2.0mm)*

COM1: RS232/422/485 Serial Port Header.
COM2/3/4/5/6: RS232 Serial Port Header.
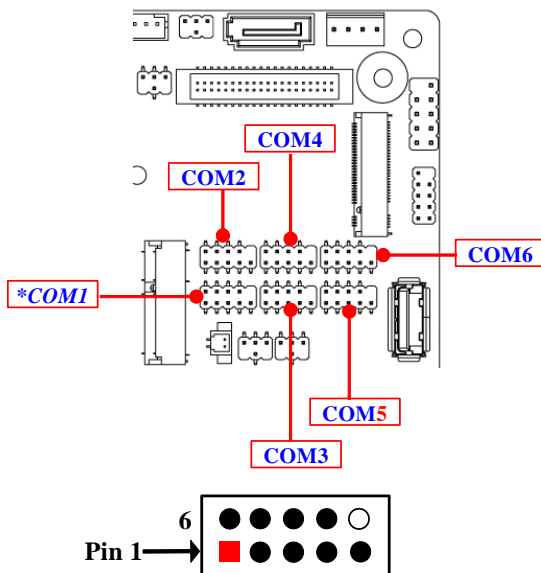
Pin NO.	RS232	*RS422 (optional)	*RS485 (optional)
Pin 1	DCD	TX-	DATA-
Pin 2	RXD	TX+	DATA+
Pin 3	TXD	RX+	NC
Pin 4	DTR	RX-	NC
Pin 5	GND	GND	GND
Pin 6	DSR	NC	NC
Pin 7	RTS	NC	NC
Pin 8	CTS	NC	NC
Pin 9	RI	NC	NC

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

EDP (40-pin): 4-Iane eDP Header
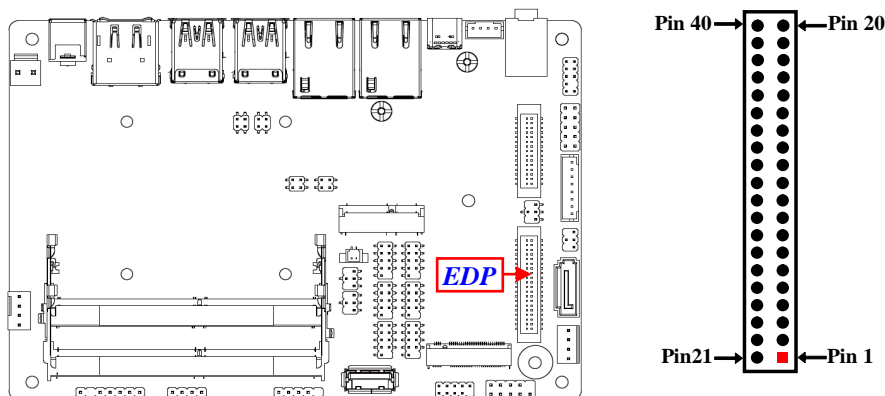
Pin Define	Pin NO.	Pin NO.	Pin Define
NC	Pin 40	Pin 20	LCD_VCC
BL_PWR	Pin 39	Pin 19	LCD_VCC
BL_PWR	Pin 38	Pin 18	LCD_VCC
BL_PWR	Pin 37	Pin 17	GND
BL_PWR	Pin 36	Pin 16	AUX_CH_N
NC	Pin 35	Pin 15	AUX_CH_P
NC	Pin 34	Pin 14	GND
BL_PWM_DIM	Pin 33	Pin 13	Lane0_P
BL_ENABLE	Pin 32	Pin 12	Lane0_N
GND	Pin 31	Pin 11	GND
GND	Pin 30	Pin 10	Lane1_P
GND	Pin 29	Pin 9	Lane1_N
GND	Pin 28	Pin 8	GND
HPD	Pin 27	Pin 7	Lane2_P
GND	Pin 26	Pin 6	Lane2_N
GND	Pin 25	Pin 5	GND
GND	Pin 24	Pin 4	Lane3_P
GND	Pin 23	Pin 3	Lane3_N
NC	Pin 22	Pin 2	GND
NC	Pin 21	Pin 1	NC

LVDS (30-pin): 24-bit Dual Channel LVDS Header
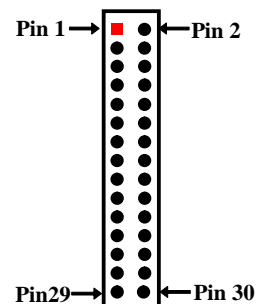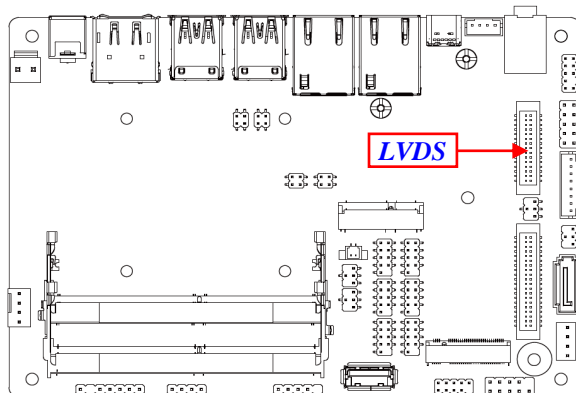
Pin Define	Pin NO.	Pin NO.	Pin Define
LVDSB_DATAN3	Pin 1	Pin 2	LVDSB_DATAP3
LVDS_CLKBN	Pin 3	Pin 4	LVDS_CLKBP
LVDSB_DATAN2	Pin 5	Pin 6	LVDSB_DATAP2
LVDSB_DATAN1	Pin 7	Pin 8	LVDSB_DATAP1
LVDSB_DATAN0	Pin 9	Pin 10	LVDSB_DATAP0
NC/DDC_DATA	Pin 11	Pin 12	NC/DDC_CLK
GND	Pin 13	Pin 14	GND
GND	Pin 15	Pin 16	GND
LVDSA_DATAP3	Pin 17	Pin 18	LVDSA_DATAN3
LVDS_CLKAP	Pin 19	Pin 20	LVDS_CLKAN
LVDSA_DATAP2	Pin 21	Pin 22	LVDSA_DATAN2
LVDSA_DATAP1	Pin 23	Pin 24	LVDSA_DATAN1
LVDSA_DATAP0	Pin 25	Pin 26	LVDSA_DATAN0
LCD VCC	Pin 27	Pin 28	LCD VCC
LCD VCC	Pin 29	Pin 30	LCD VCC

INVERTER (8-pin): LVDS Inverter Connector
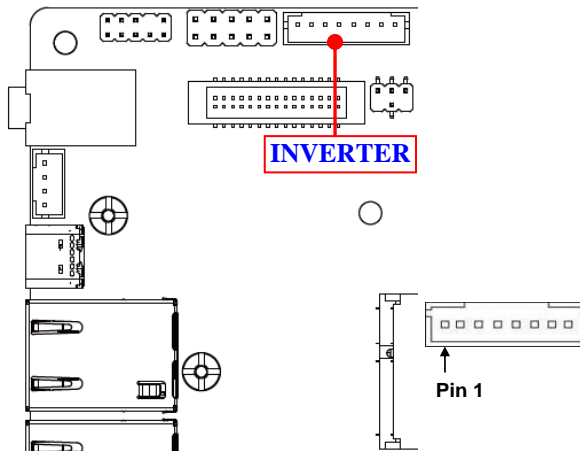
Pin No.	Definition
1	Backlight Enable
2	Backlight PWM
3	PVCC
4	PVCC
5	GND
6	GND
7	Backlight Up SW
8	Backlight Down SW

*Warning! Find **Pin-1** location of the inverter and make sure that the installation direction is correct! Otherwise serious harm will occur to the board/display panel!!*

I2C_CON (4-pin): I2C Header *(pitch 2.54mm)*
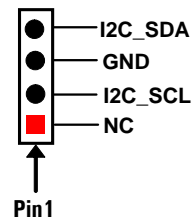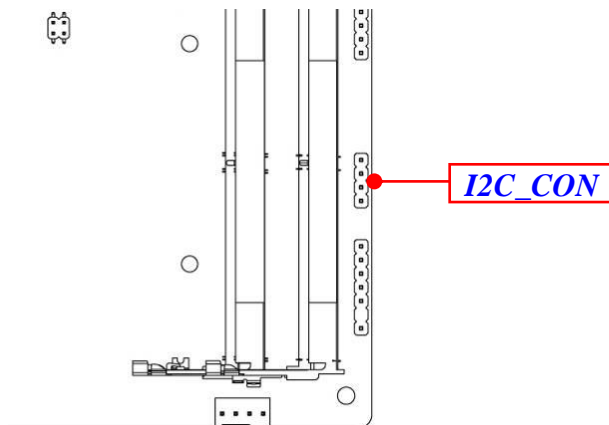
PS2KBMS (6-pin): PS/2 Keyboard & Mouse Header *(pitch 2.0mm)*

PS2KBMS

- MS_DATA
- MS_CLK
- GND
- KB_CLK
- KB_DATA

Pin1 → VCC
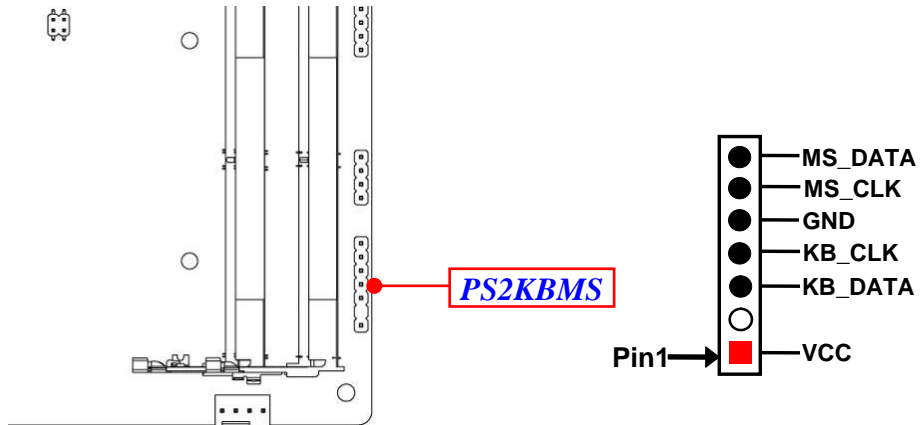
LAN_LED (4-pin): LAN Activity LED Header *(pitch 2.0mm)*

LAN_LED

Pin1

2

LAN1LED+ — LAN1LED-
LAN2LED+ — LAN2LED-

3 4
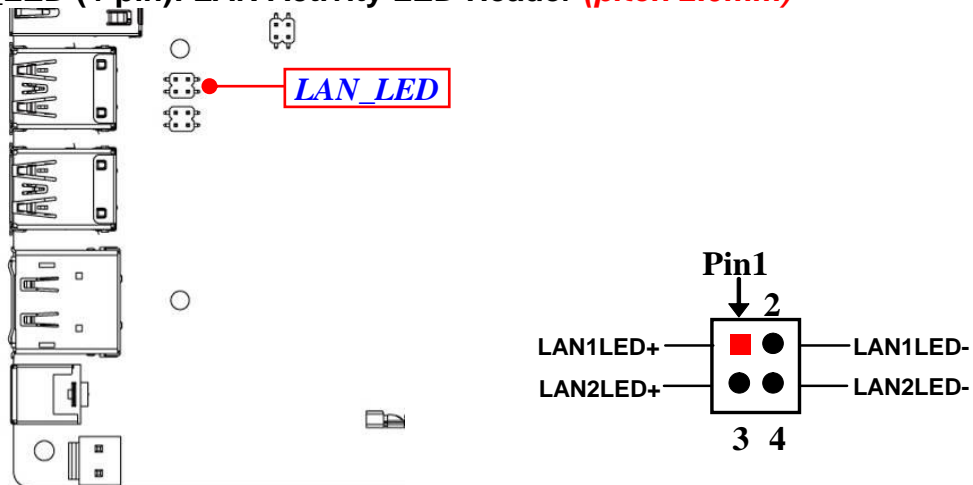
WLAN_LED (4-pin): Wi-Fi & Bluetooth Activity LED Header *(pitch 2.0mm)*

WLAN_LED

Pin1

WIFI_LED+ ▪ ● WIFI_LED-
BT_LED+ ● ● BT_LED-

2

3 4
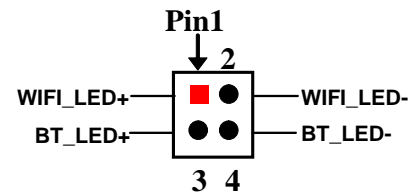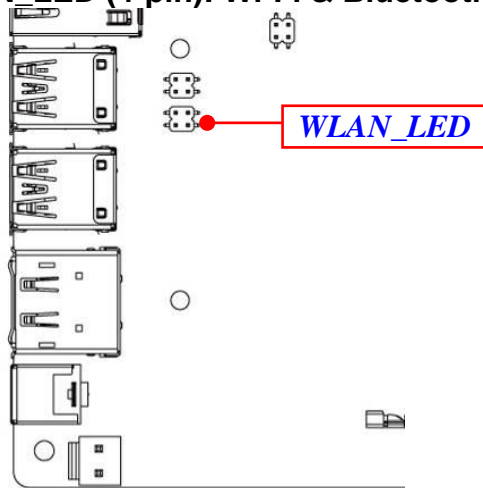
Chapter 3
Introducing BIOS for NF835V-8365U

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

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

3-1 Entering Setup

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

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

```
        Please select boot device:

 Enter Setup

    ↑ and ↓ to move selection
    ENTER to select boot device
    ESC to boot using defaults
```

3-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:

Menu Bar

```
         Aptio Setup Utility - Copyright (C) 2022 American Megatrends, Inc.
  Main  Advanced  Chipset  Security  Boot  Save & Exit

  BIOS Information                                        Set the Date. Use Tab to
  BIOS Vendor              American Megatrends            switch between Date elements.
  Filename                 F83FPA02
  Build Date and Time      05/12/2022 14:29:01

  System Date              [Thu 06/09/2022]
  System Time              [14:16:57]

                                                          →←: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit

         Version 2.20.1271. Copyright (C) 2022 American Megatrends, Inc.
```

General Help Items

Current Setting Value

Menu Items
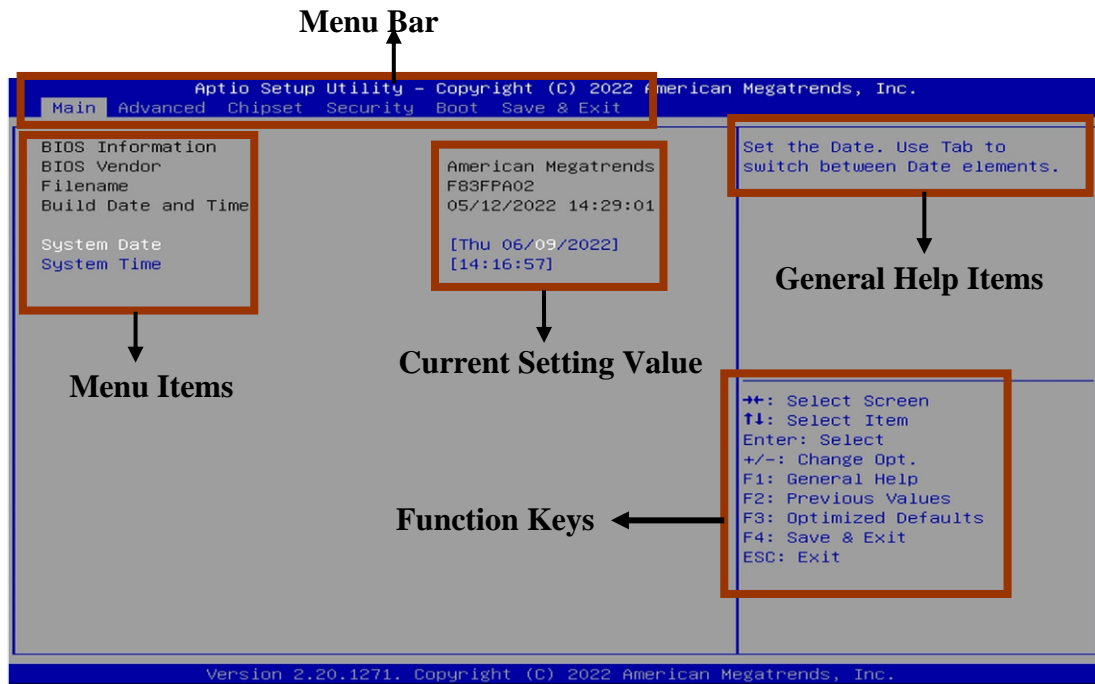
Function Keys

BIOS Setup 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.
● 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.

```
            Aptio Setup Utility - Copyright (C) 2022 American Megatrends, Inc.
     Main  Advanced  Chipset  Security  Boot  Save & Exit

      BIOS Information                                        Set the Date. Use Tab to
      BIOS Vendor                  American Megatrends        switch between Date elements.
      Filename                     F83FPA02
      Build Date and Time          05/12/2022 14:29:01

      System Date                  [Thu 06/09/2022]
      System Time                  [14:16:57]




                                                             →←: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F2: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Exit
                                                             ESC: Exit



            Version 2.20.1271. Copyright (C) 2022 American Megatrends, Inc.
```
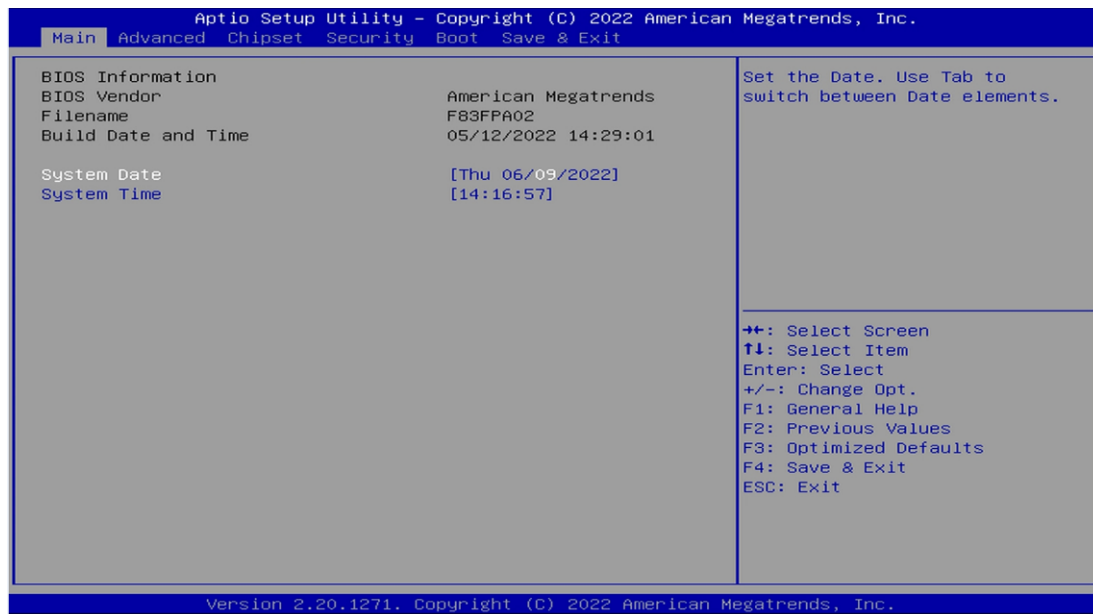
System Date
Set the date. Please use [Tab] to switch between date elements.
System Time
Set the time. Please use [Tab] to switch between time elements.

3-7 Advanced Menu


```
Aptio Setup Utility - Copyright (C) 2022 American Megatrends, Inc.
 Main  Advanced  Chipset  Security  Boot  Save & Exit

▶ Connectivity Configuration              Configure Connectivity related
▶ CPU Configuration                       options
▶ SATA Configuration
▶ PCH-FW Configuration
▶ Trusted Computing
▶ ACPI Settings
▶ Wake-up Function Settings
▶ Super IO Configuration
▶ PC Health Status
▶ Serial Port Console Redirection
▶ USB Configuration
▶ Network Stack Configuration             →←: Select Screen
▶ CSM Configuration                       ↑↓: Select Item
▶ NVMe Configuration                      Enter: Select
                                          +/-: Change Opt.
▶ Intel(R) Ethernet Controller I225-V - 00:30:18:97:00:65    F1: General Help
▶ Intel(R) Ethernet Connection (6) I219-LM - 88:88:88:88:87:88  F2: Previous Values
                                          F3: Optimized Defaults
                                          F4: Save & Exit
                                          ESC: Exit

       Version 2.20.1271. Copyright (C) 2022 American Megatrends, Inc.
```

▶ **Connectivity Configuration**
Press [Enter] to view current Connectivity related options:
CNVi Configuration
CNVi Mode
This option configures connectivity options.
The optional settings are: [Disable 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;
[**Disable Integrated**] disables Integrated Solution.

▶ **CPU Configuration**
Press [Enter] to view current CPU configuration and make settings for the following sub-items:
Hyper-Threading

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

When set as **[Disabled]** only one thread per enabled core is enabled.

[Enabled]: for Windows and Linux (OS optimized for Hyper-Threading Technology).

[Disabled]: for other OS (OS optimized not for Hyper-Threading Technology).

***Note**: '**Hyper-Threading**' item may or may not show up, depending on different CPU.

Intel (VMX) Virtualization Technology

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

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. This item 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/ disable SATA Device

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

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

SATA Mode Selection

Use this item to determines how SATA controller(s) operate

The default setting is: [AHCI].
The optional settings are: [AHCI]; [RAID].

SATA
  Port
  The optional settings: [Disabled]; [Enabled].
  Use this item to enable or disable each SATA port.
  Hot Plug
  Use this item to Designates this port as Hot pluggable.
  The optional settings: [Disabled]; [Enabled].
M.2
  Port
  The optional settings: [Disabled]; [Enabled].
  Use this item to enable or disable SATA Port.

▸ **PCH-FW Configuration**

 Use this item to configure management engine technology parameters
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.
PTT – Enables PTT in SkuMgr.
dTPM 1.2 – Disables PTT.
The optional settings: [dTPM]; [PTT].
Warnning! PTT/dTPM will be disabled and all data saved on it will be lost.

▸ **Firmware Update Configuration**

 Use this item to configure management engine technology parameters
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 enable or disable '**Security Device Support**'.
TPM20 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]**, the following items shall appear:
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].
TPM2.0 UEFI Spec Version
Use this item to select the TCG2 Spec version support
The optional settings: [TCG_1_2]; [TCG_2].

▸ **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]**, 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).

Wake-up Minute Increase
Use this item to select 1-60.

PS2 KB/MS Wake-up
The optional settings: [Disabled]; [Enabled].
Use this item to enable or disable PS2 KB/MS wake-up from S3/S4/S5.
***Note**: This function is supported when 'ERP Support' is set as [Disabled].

USB S3/S4 Wake-up
Use this item to enable or disable USB S3/S4 wakeup.
*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 power shutdown.
***Note**: This function is supported when '**ERP Support'** is set as [Disabled].

Internal USB Port S5 Power
Use this item to enable or disable USB power after power shutdown.

***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
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 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:

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

▸ **Serial Port 2 Configuration**
Press [Enter] to make settings for the following sub-items:
Serial Port 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:
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;].
► **Serial Port 3 Configuration**
Press [Enter] to make settings for the following sub-items:
Serial Port 3 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:
Change Settings
Use this item to select an optimal setting for Super IO Device.
The optional settings: [IO=3E8h; IRQ=10;]; [IO=3F8h; IRQ=3,4,5,7,10,11;];
[IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;]; [IO=2E8h;
IRQ=3,4,5,7,10,11;]; [IO=3E0h; IRQ=3,4,5,7,10,11;]; [IO=2E0h;
IRQ=3,4,5,7,10,11;].
► **Serial Port 4 Configuration**
Press [Enter] to make settings for the following sub-items:
Serial Port 4 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:
Change Settings
Use this item to select an optimal setting for Super IO Device.

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

► **Serial Port 5 Configuration**
Press [Enter] to make settings for the following sub-items:
Serial Port 5 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:

Change Settings
Use this item to select an optimal setting for Super IO Device.
The optional settings: [IO=3E0h; IRQ=11;]; [IO=3F8h; IRQ=3,4,5,7,10,11;]; [IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;]; [IO=2E8h; IRQ=3,4,5,7,10,11;]; [IO=3E0h; IRQ=3,4,5,7,10,11;]; [IO=2E0h; IRQ=3,4,5,7,10,11;].

► **Serial Port 6 Configuration**
Press [Enter] to make settings for the following sub-items:
Serial Port 6 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:
Change Settings
Use this item to select an optimal setting for Super IO Device.
The optional settings: [IO=2E0h; IRQ=11;]; [IO=3F8h; IRQ=3,4,5,7,10,11;]; [IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;]; [IO=2E8h; IRQ=3,4,5,7,10,11;]; [IO=3E0h; IRQ=3,4,5,7,10,11;]; [IO=2E0h; IRQ=3,4,5,7,10,11;].

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.].
WatchDog Wake-up Timer in ERP
This item supports WDT Wake-up while ERP function is set as **[Auto]**.
The optional settings: [Enabled]; [Disabled].
When set as **[Enabled]**, the following sub-items shall appear:
WatchDog Timer Value in ERP
User can set a value in the range of [10] to [4095] seconds, or 1~4095 minutes
WatchDog 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 AT_COPEN jumper setting Pin 1&2 of AT Mode Select).

Case Open Detect
Use this item to detect case has already open or not, show message in POST.
When set as [Enabled], system will detect if COPEN has been short or not (refer to *AT_COPEN* jumper setting for Case Open Detection; if **Pin 3&4** of jumper *AT_COPEN* are 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**'.
PC Health Status

▶   **SmartFAN Configuration**
Press [Enter] to make settings for '**SmartFAN Configuration**':
SmartFAN Configuration

CPUFAN Smart Mode
The optional settings: [Disabled]; [Enabled].
When set as **[Enabled]**, the following sub-items shall appear:
CPUFAN Full-Speed Temperature
Use this item to set CPUFAN full speed temperature. Fan will run at full speed when above the preset 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 Configuration
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
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:

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].

Legacy Console Redirection

▸ **Legacy Console Redirection Settings**
Press [Enter] to make settings for the following item:
Legacy Console Redirection Settings

Redirection COM Port
For user to select a COM port to display redirection of legacy OS and Legacy OPROM messages.
The optional settings: [COM1]; [COM1(Pci Bus0, Dev0, Func0) (Disabled)].

Resolution
This item is for user to select the number of Rows and Columns supported redirection.
The optional settings: [80x24]; [80x25].

Redirect After POST
The optional settings: [Always Enable]; [BootLoader].
When [**Bootloader**] is selected, then Legacy Console Redirection is disabled before booting to legacy OS.

When [**Always Enabled**] is selected, then Legacy Console Redirection is enabled for legacy OS.

Default setting for this option is set to [**Always Enabled**].

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

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

Use this item to Microsoft Windows Emergency Management Service (EMS) allows for remote management of a Windows Server OS through a serial port

The optional settings: [COM1]; [COM1(Pci Bus0, Dev0, Func0) (Disabled)].

Terminal Type

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

Emulation: **[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; **[ANSI]**: Extended ASCII char set.

[VT-UTF8] is the preferred terminal type for out-of-band management. The next best choice is **[VT100+]** and then **[VT100]**.

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]; [57600]; [115200].

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]; [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.

▸ **USB Configuration**

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

USB Configuration

Legacy USB Support

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

USB Mass Storage Driver Support

Use this item to enable/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.

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

'Auto' uses default value: for a root port it is 100 ms, for a hub port the delay is taken from hub descriptor.

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.

‣ **Network Stack Configuration**

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

Network Stack

Use this item to enable/disable WEFI Network stack

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

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

Ipv4 PXE Support

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

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

Ipv6 PXE Support

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

Use this item to enable Ipv6 PXE Boot Support. When set as [Disabled], Ipv6 PXE 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. 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.
The optional settings range is from [1] to [50].

▸ **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
This option controls the execution of Network OpROM.
The optional settings: [Do not launch]; [UEFI]; [Legacy].
Storage
This option controls the execution of UEFI and Legacy Storage OpROM.
The optional settings: [Do not launch]; [UEFI]; [Legacy].
Other PCI devices
This item determines OpROM execution policy is for devices other than Network, storage or video.
The optional settings: [Do not launch]; [UEFI]; [Legacy].

▸ **NVMe Configuration**
Press [Enter] to check NVMe controller and driver information.

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

▸ **Intel(R) Ethernet Connection (6) I219-LM -XX:XX:XX:XX:XX:XX**
These items give Intel gigabit ethernet controller basic driver information.

3-8 Chipset Menu
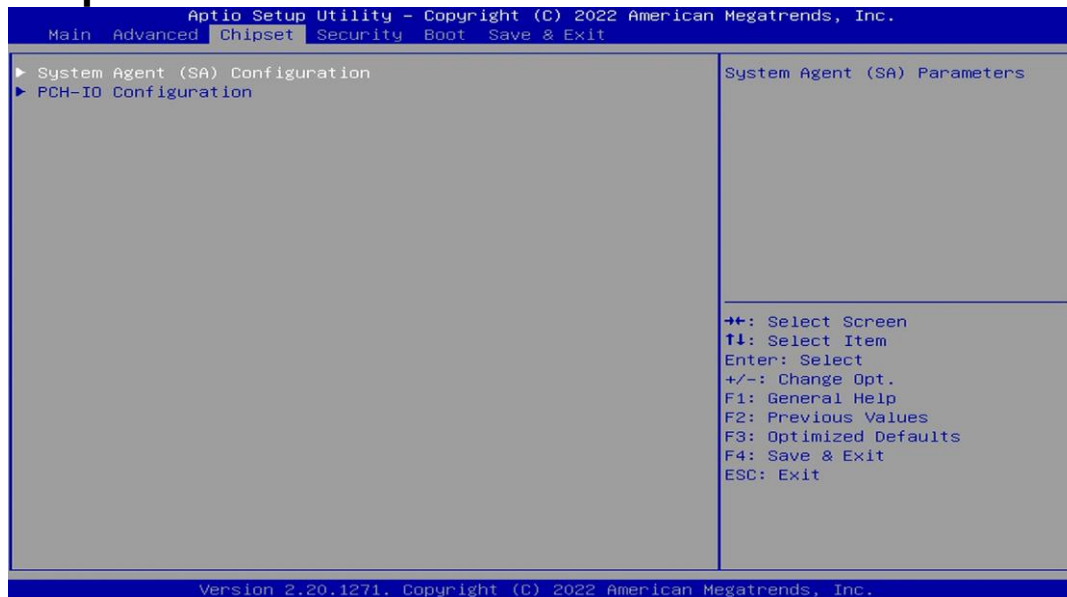
```
              Aptio Setup Utility - Copyright (C) 2022 American Megatrends, Inc.
    Main   Advanced   Chipset   Security   Boot   Save & Exit

  ▶ System Agent (SA) Configuration                          System Agent (SA) Parameters
  ▶ PCH-IO Configuration




                                                           →←: Select Screen
                                                           ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F2: Previous Values
                                                           F3: Optimized Defaults
                                                           F4: Save & Exit
                                                           ESC: Exit




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```

▸ **System Agent (SA) Configuration**
Press [Enter] to make settings for the following sub-items:
System Agent (SA) Configuration
<u>VT-d</u>
VT-d
The optional settings: [Disabled]; [Enabled].
► **Memory Configuration**
Press [Enter] to view brief information for the working memory module.
► **Graphics Configuration**
Press [Enter] to make further settings for Graphics Configuration.
<u>Graphics Configuration</u>

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]; [HDMI]; [DP]; [eDP/LVDS].

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

Secondary IGFX Boot Display
Use this item to select the secondary Display device.
The optional settings: [Disabled]; [HDMI]; [DP].

Aperture Size
Use this item to select the Aperture Size. 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].

Active LFP
Use this item to select the Active LFP configuration.
The optional settings: [eDP]; [LVDS].
*Note: When '**Active LFP'** is set as [**LVDS**], user can make further settings in '**Panel Type**' and '**LVDS FW Write Protect**'.

Backlight Control
Use this item to select Back Light Control settings.
The optional settings: [PWM Inverted]; [PWM Normal].

Panel Type

Use this item to manually select LCD panel type.

The optional setting: [800x 480 18bit Single]; [800x 600 18bit Single]; [800x 600 24bit Single]; [1024 x 600 18bit Single]; [1024 x 768 18bit Single]; [1024 x 768 24bit Single]; [1280 x 768 24bit Single]; [1280 x 800 18bit Single]; [1280 x 800 24bit Single]; [1366 x 768 18bit Single]; [1366 x 768 24bit Single]; [1440 x 900 18bit Dual]; [1440 x 900 24bit Dual]; [1280 x 1024 24bit Dual]; [1680 x 1050 24bit Dual]; [1920 x 1080 24bit Dual].

***Note:** This function is supported when '**Active LFP**' is set as [**LVDS**].

LVDS FW Write Protect

Use this item to enable or disable support LVDS FW update/Protect.

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

***Note:** This function is supported when '**Active LFP**' is set as [**LVDS**].

‣ **PCH-IO Configuration**

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

PCH-IO Configuration

HD Audio

This item controls detection of the HD-Audio device.

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

[**Disabled**]: HDA will be unconditionally disabled.

[**Enabled**]: HAD will be unconditionally enabled.

Onboard Lan1 Controller

Use this item to enable or disable corresponding onboard NIC device or controller.

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 enable or disable corresponding onboard NIC device or controller.

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

M2E Slot
Use this item to enable or disable M2E slot PCI Express root port function.
The optional settings: [Disabled]; [Enabled].
When set as **[Enabled]**, user can make further settings in '**Speed**':
   Speed
   The optional settings: [Auto]; [Gen1]; [Gen2].

M2M Slot
Use this item to enable or disable M2M slot PCI Express root port function.
The optional settings: [Disabled]; [Enabled].
When set as **[Enabled]**, user can make further settings in '**Speed**':
   Speed
   The optional settings: [Auto]; [Gen1]; [Gen2].

System State after Power Failure
Use this item to specify what state to go to when power re-applied after a power failure (G3 state).
The optional settings: [Always On]; [Always Off]; [Former State].

3-9 Security Menu


```
                    Aptio Setup Utility - Copyright (C) 2022 American Megatrends, Inc.
       Main  Advanced  Chipset  Security  Boot  Save & Exit

      Password Description                                              Set Administrator Password

      If ONLY the Administrator's password is set,
      then this only limits access to Setup and is
      only asked for when entering Setup.
      If ONLY the User's password is set, then this
      is a power on password and must be entered to
      boot or enter Setup. In Setup the User will
      have Administrator rights.
      The password length must be
      in the following range:
      Minimum length                           3
      Maximum length                          20
                                                                  →←: Select Screen
      Administrator Password                                      ↑↓: Select Item
      User Password                                               Enter: Select
                                                                  +/-: Change Opt.
    ▶ Secure Boot                                                 F1: General Help
                                                                  F2: Previous Values
                                                                  F3: Optimized Defaults
                                                                  F4: Save & Exit
                                                                  ESC: Exit


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```

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

Administrator Password

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

User Password

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

‣ **Secure Boot**
Press [Enter] to make customized secure settings:
System Mode
Secure Boot
The optional settings: [Disabled]; [Enabled].
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.
Secure Boot Mode
The optional settings: [Standard]; [Custom].
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.
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**
Use this item to Delete all secure boot key databases from NVRAM

‣ **Key Management**
This item enables experienced users to modify Secure Boot variables, 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**

Use this item to Delete all secure boot key databases from NVRAM

▸ **Export Secure Boot variables**

Use this item to copy NVRAM content of secure boot variables to files in a root folder on a file system device.

▸ **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**

Use this item to device guard ready system must not list 'Microsoft UEFI CA' Certificate in authorized signature database (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 Signature/Forbidden Signature/ Authorized TimeStamps/OS Recovery Signatures**

Use this item to enroll Factory Defaults or load the keys from a file with:

1. Public Key Certificate in:
 a) EFI_SIGNATURE_LIST
 b) EFI_ CERT_X509 (DER)
 c) EFI_ CERT_RSA2048 (bin)
 d) EFI_ CERT_SHAXXX
2. Authenticated UEFI Variable
3. EFI PE/COFF Image (SHA256)
Key Source: Factory, External, Mixed.

3-10 Boot Menu
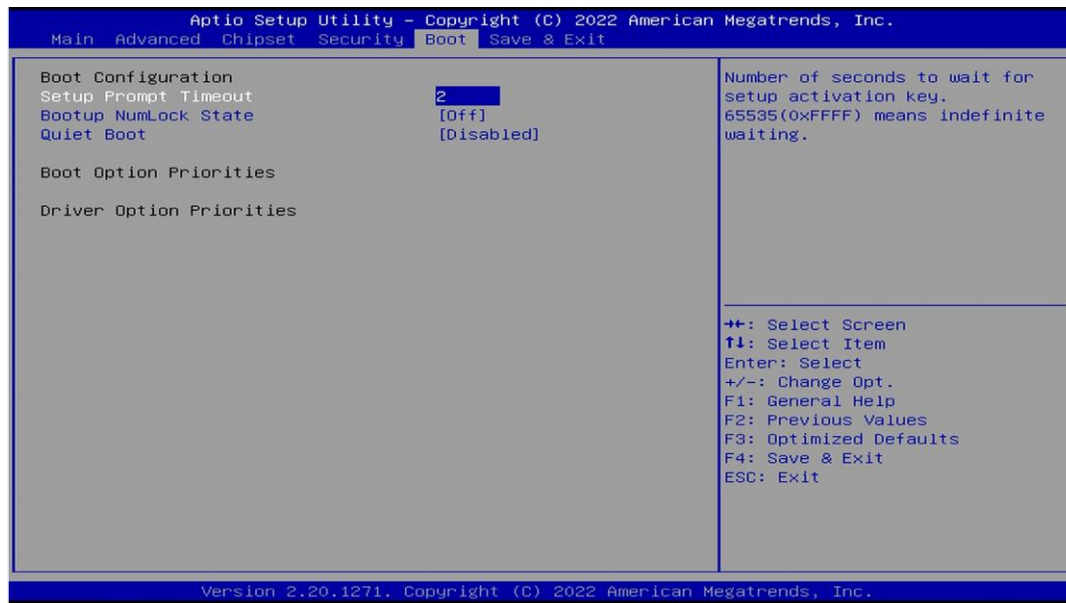

```
         Aptio Setup Utility – Copyright (C) 2022 American Megatrends, Inc.
  Main  Advanced  Chipset  Security  Boot  Save & Exit

  Boot Configuration                                      Number of seconds to wait for
  Setup Prompt Timeout              2                     setup activation key.
  Bootup NumLock State             [Off]                  65535(0xFFFF) means indefinite
  Quiet Boot                       [Disabled]             waiting.

  Boot Option Priorities

  Driver Option Priorities


                                                          →←: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/−: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit



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```

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

Driver Option Priorities

3-11 Save & Exit Menu
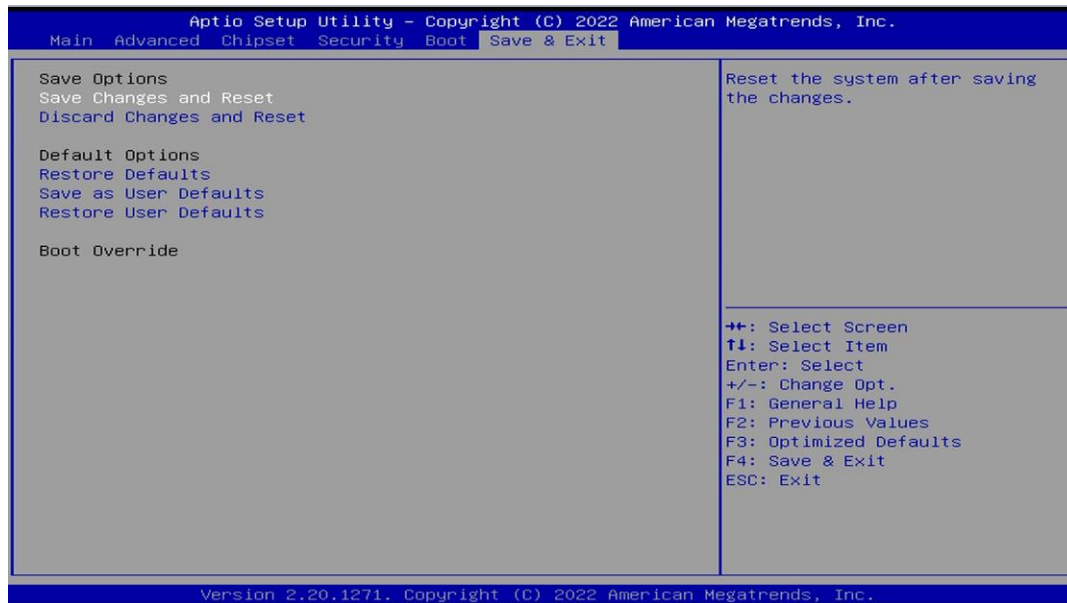
```
          Aptio Setup Utility - Copyright (C) 2022 American Megatrends, Inc.
   Main  Advanced  Chipset  Security  Boot  Save & Exit

 Save Options                                            Reset the system after saving
 Save Changes and Reset                                  the changes.
 Discard Changes and Reset

 Default Options
 Restore Defaults
 Save as User Defaults
 Restore User Defaults

 Boot Override

                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit


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```

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 the user defaults to all the setup options.
Boot Override

Chapter 4
Introducing BIOS for NF835V-10210U

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

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

4-1 Entering Setup

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

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

```
        Please select boot device:

 Enter Setup

      ↑ and ↓ to move selection
    ENTER to select boot device
     ESC to boot using defaults
```

4-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:

Menu Bar

```
            Aptio Setup – American Megatrends International, LLC.
    Main  Advanced  Chipset  Security  Boot  Save & Exit

 BIOS Information                                            Set the Time. Use Tab to
 BIOS Vendor              American Megatrends                switch between Time elements.
 Filename                 N3FCPA01
 Build Date and Time      11/25/2022 17:29:05

 System Date              [Thu 12/08/2022]
 System Time              [16:08:31]
                                                            →←: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Exit
                                                            ESC: Exit

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```

General Help Items

Menu Items

Current Setting Value
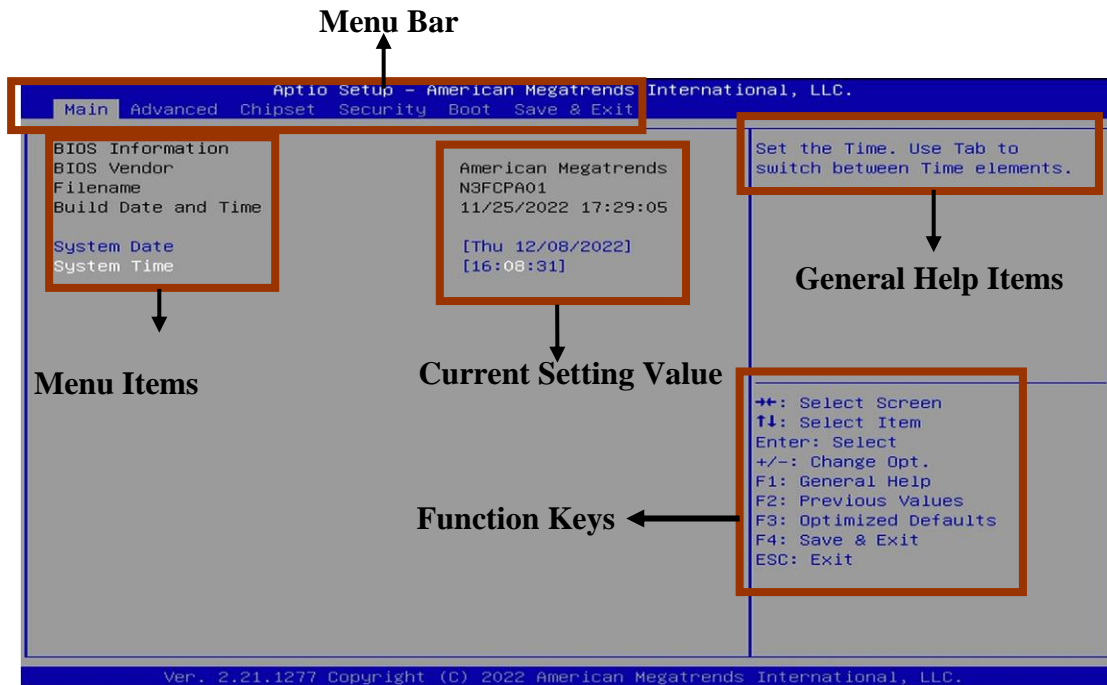
Function Keys

BIOS Setup Menu Screen

4-3 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.
● Press **<Esc>** to quit the BIOS Setup.

4-4 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**>.

4-5 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.

4-6 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.

```
                Aptio Setup - American Megatrends International, LLC.
      Main  Advanced  Chipset  Security  Boot  Save & Exit

      BIOS Information                                      Set the Time. Use Tab to
      BIOS Vendor                 American Megatrends       switch between Time elements.
      Filename                    N3FCPA01
      Build Date and Time         11/25/2022 17:29:05

      System Date                 [Thu 12/08/2022]
      System Time                 [16:08:31]




                                                            →←: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Exit
                                                            ESC: Exit



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```
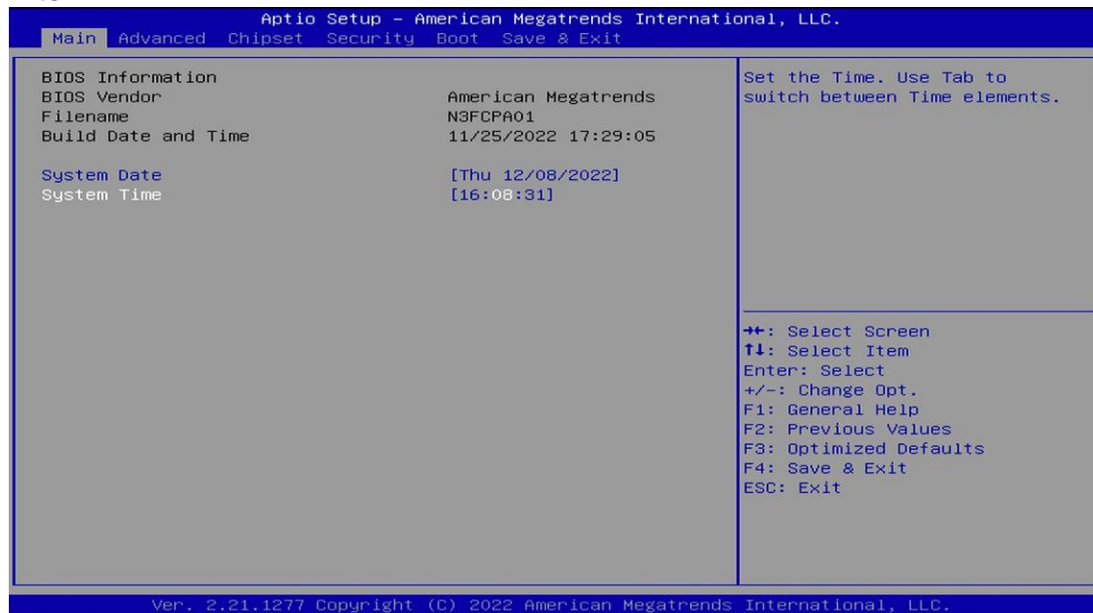
System Date
Set the date. Please use [Tab] to switch between date elements.
System Time
Set the time. Please use [Tab] to switch between time elements.

4-7 Advanced Menu


```
              Aptio Setup - American Megatrends International, LLC.
   Main  Advanced  Chipset  Security  Boot  Save & Exit

 ▶ Connectivity Configuration                          Configure Connectivity related
 ▶ CPU Configuration                                   options
 ▶ SATA Configuration
 ▶ PCH-FW Configuration
 ▶ Trusted Computing
 ▶ ACPI Settings
 ▶ Wake-up Function Settings
 ▶ Super IO Configuration
 ▶ PC Health Status
 ▶ Serial Port Console Redirection
 ▶ USB Configuration
 ▶ Network Stack Configuration
 ▶ CSM Configuration
 ▶ NVMe Configuration                                  →←: Select Screen
                                                       ↑↓: Select Item
 ▶ Intel(R) Ethernet Controller I225-V - 00:30:18:97:00:74   Enter: Select
 ▶ Intel(R) Ethernet Connection (6) I219-LM - 00:30:18:83:50:D3   +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit



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```
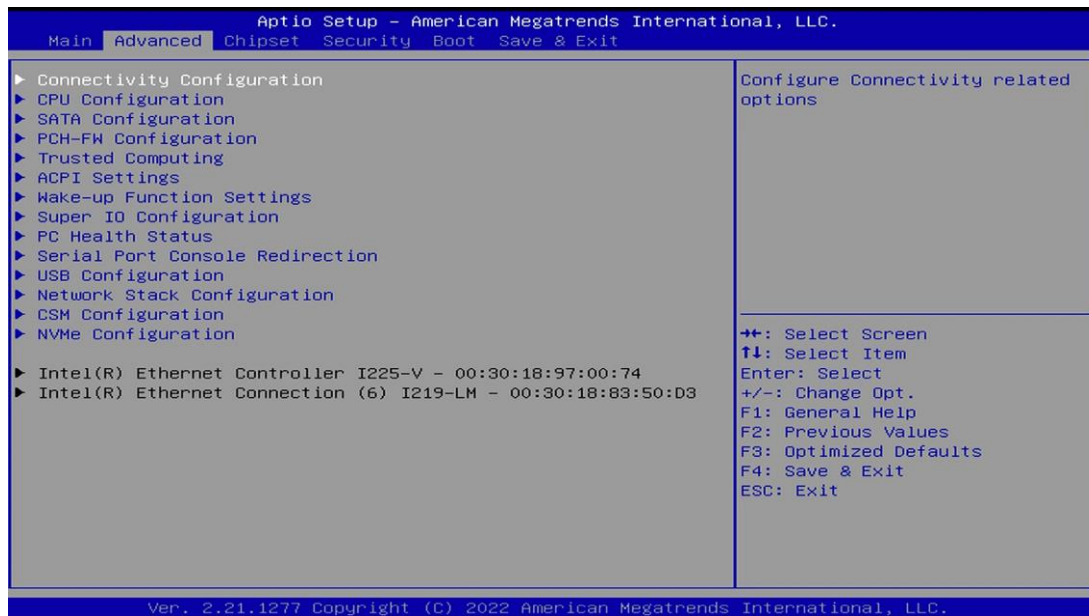
▶ **Connectivity Configuration**
Press [Enter] to view current Connectivity related options:
CNVi Configuration
CNVi Mode
This option configures connectivity.
[Auto Detection]: means that if Discrete solution is discovered it will be enabled by default. Otherwise Integrated solution (CNVi) will be enabled.
[**Disable Integrated**] disables Integrated Solution
The optional settings are: [Disable Integrated]; [Auto Detection].

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

Hyper-Threading

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

When set as **[Disabled]** only one thread per enabled core is enabled.

[Enabled]: for Windows and Linux (OS optimized for Hyper-Threading Technology).

[Disabled]: for other OS (OS optimized not for Hyper-Threading Technology).

***Note**: '**Hyper-Threading**' item may or may not show up, depending on different CPU.

Intel (VMX) Virtualization Technology

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

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. 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:

<u>SATA Configuration</u>

SATA Controller(s)

Use this item to enable/ disable SATA Device

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

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

SATA Mode Selection
Use this item to determines how SATA controller(s) operate
The default setting is: [AHCI].
The optional settings are: [AHCI]; [RAID].
SATA
  Port
  The optional settings: [Disabled]; [Enabled].
  Use this item to enable or disable each SATA port.
  Hot Plug
  Use this item to Designates this port as Hot pluggable.
  The optional settings: [Disabled]; [Enabled].
M.2
  Port
  The optional settings: [Disabled]; [Enabled].
  Use this item to enable or disable SATA Port.

▸ **PCH-FW Configuration**

Use this item to configure management engine technology parameters
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.
PTT – Enables PTT in SkuMgr.
dTPM 1.2 – Disables PTT.
The optional settings: [dTPM]; [PTT].
Warnning! PTT/dTPM will be disabled and all data saved on it will be lost.

  ▸ **Firmware Update Configuration**

Use this item to configure management engine technology parameters
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 enable or disable '**Security Device Support**'.
TPM2.0 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]**, the following items shall appear:
    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].
    TPM2.0 UEFI Spec Version
    Use this item to select the TCG2 Spec version support
    [TCG_1_2]: The Compatible mode for Win8/Win10
    [TCG_2]: Support new TCG2 protocol and event format for Win10 or later
    The optional settings: [TCG_1_2]; [TCG_2].

▸ **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]**, 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).

Wake-up Minute Increase
Use this item to select 1-60.

PS2 KB/MS Wake-up
The optional settings: [Disabled]; [Enabled].
Use this item to enable or disable PS2 KB/MS wake-up from S3/S4/S5.
*Note: This function is supported when 'ERP Support' is set as [Disabled].
USB S3/S4 Wake-up
Use this item to enable or disable USB S3/S4 wakeup.
*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 power shutdown.

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

Internal USB Port S5 Power
Use this item to enable or disable USB power after power shutdown.
***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
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 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
The optional settings: [RS232/RS422/RS485=250kbps]; [RS232=1Mbps,
RS422/RS485=10Mbps].

► **Serial Port 2 Configuration**
Press [Enter] to make settings for the following sub-items:
Serial Port 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;].

► **Serial Port 3 Configuration**
Press [Enter] to make settings for the following sub-items:
Serial Port 3 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=3E8h; IRQ=10;]; [IO=3F8h; IRQ=3,4,5,7,10,11;];
[IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;]; [IO=2E8h;
IRQ=3,4,5,7,10,11;]; [IO=3E0h; IRQ=3,4,5,7,10,11;]; [IO=2E0h;
IRQ=3,4,5,7,10,11;].

► **Serial Port 4 Configuration**
Press [Enter] to make settings for the following sub-items:
Serial Port 4 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=2E8h; IRQ=10;]; [IO=3F8h; IRQ=3,4,5,7,10,11;];
[IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;]; [IO=2E8h;
IRQ=3,4,5,7,10,11;]; [IO=3E0h; IRQ=3,4,5,7,10,11;]; [IO=2E0h;
IRQ=3,4,5,7,10,11;].

► **Serial Port 5 Configuration**
Press [Enter] to make settings for the following sub-items:
Serial Port 5 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=3E0h; IRQ=11;]; [IO=3F8h; IRQ=3,4,5,7,10,11;];
[IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;]; [IO=2E8h;
IRQ=3,4,5,7,10,11;]; [IO=3E0h; IRQ=3,4,5,7,10,11;]; [IO=2E0h;
IRQ=3,4,5,7,10,11;].

► **Serial Port 6 Configuration**
Press [Enter] to make settings for the following sub-items:
Serial Port 6 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=2E0h; IRQ=11;]; [IO=3F8h; IRQ=3,4,5,7,10,11;];
[IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;]; [IO=2E8h;
IRQ=3,4,5,7,10,11;]; [IO=3E0h; IRQ=3,4,5,7,10,11;]; [IO=2E0h;
IRQ=3,4,5,7,10,11;].
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.].
WatchDog Wake-up Timer in ERP
This item supports WDT Wake-up while ERP function is set as **[Auto]**.
The optional settings: [Enabled]; [Disabled].
When set as **[Enabled]**, the following sub-items shall appear:
WatchDog Timer Value in ERP
User can set a value in the range of [10] to [4095] seconds, or 1~4095 minutes
WatchDog Timer Unit in ERP
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
AT_COPEN jumper setting Pin 1&2 of AT Mode Select).

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

When set as [Enabled], system will detect if COPEN has been short or not (refer to *AT_COPEN* jumper setting for Case Open Detection; if **Pin 3&4** of jumper *AT_COPEN* are 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**'.
PC Health Status

‣ **SmartFAN Configuration**
Press [Enter] to make settings for '**SmartFAN Configuration**':
SmartFAN Configuration
CPUFAN Smart Mode
The optional settings: [Disabled]; [Enabled].
When set as **[Enabled]**, the following sub-items shall appear:
CPUFAN Full-Speed Temperature
Use this item to set CPUFAN full speed temperature. Fan will run at full speed when above the preset 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 Configuration
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
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:
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
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:

Terminal Type

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

Emulation: **[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; **[ANSI]**: Extended ASCII char set.

[VT-UTF8] is the preferred terminal type for out-of-band management. The next best choice is **[VT100+]** and then **[VT100]**.

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]; [57600]; [115200].

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]; [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

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

USB Mass Storage Driver Support

Use this item to enable/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.

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

'Auto' uses default value: for a root port it is 100 ms, for a hub port the delay is taken from hub descriptor.

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.

▸ **Network Stack Configuration**

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

Network Stack

Use this item to enable/disable WEFI Network stack
The optional settings: [Enabled]; [Disabled].
When set as **[Enabled]**, the following sub-items shall appear:
Ipv4 PXE Support
The optional settings: [Disabled]; [Enabled].
Use this item to enable Ipv4 PXE Boot Support. When set as [Disabled], Ipv4 PXE boot option will not be created.
Ipv6 PXE Support
The optional settings: [Disabled]; [Enabled].
Use this item to enable Ipv6 PXE Boot Support. When set as [Disabled], Ipv6 PXE 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. 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.
The optional settings range is from [1] to [50].

‣ **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
This option controls the execution of Network OpROM.
The optional settings: [Do not launch]; [UEFI]; [Legacy].
Storage
This option controls the execution of UEFI and Legacy Storage OpROM.

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

Other PCI devices

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

The optional settings: [Do not launch]; [UEFI]; [Legacy].
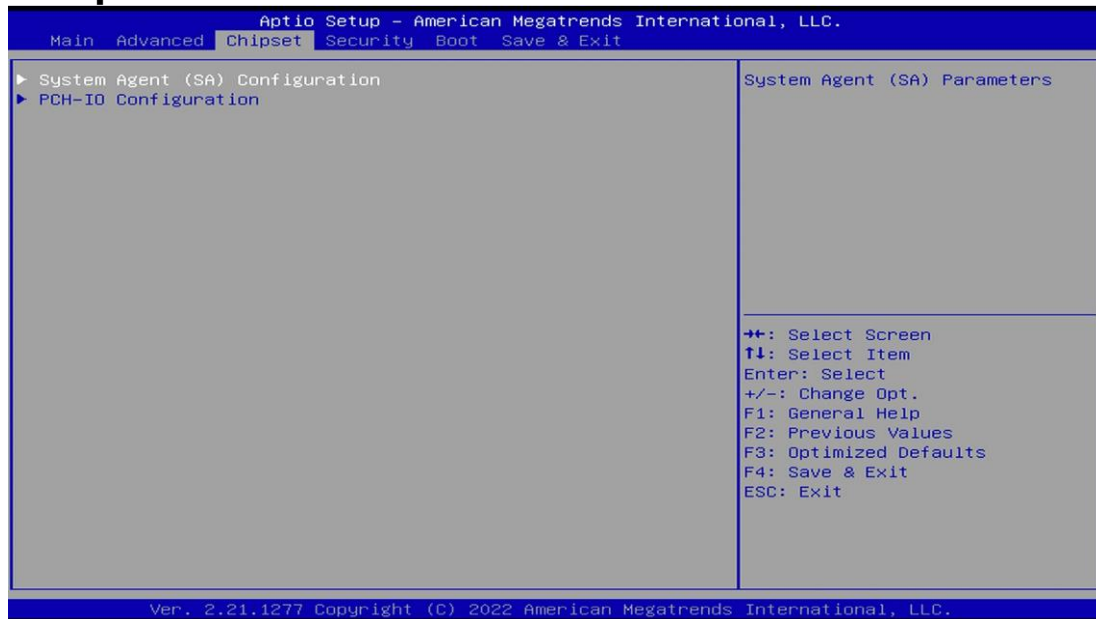
▸ **NVMe Configuration**

Press [Enter] to check NVMe controller and driver information.

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

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

These items give Intel gigabit ethernet controller basic driver information.

4-8 Chipset Menu

```
                 Aptio Setup – American Megatrends International, LLC.
        Main  Advanced  Chipset  Security  Boot  Save & Exit

    ▶ System Agent (SA) Configuration              System Agent (SA) Parameters
    ▶ PCH-IO Configuration




                                                  →←: Select Screen
                                                  ↑↓: Select Item
                                                  Enter: Select
                                                  +/-: Change Opt.
                                                  F1: General Help
                                                  F2: Previous Values
                                                  F3: Optimized Defaults
                                                  F4: Save & Exit
                                                  ESC: Exit



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```

▸ **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]; [HDMI]; [DP]; [eDP/LVDS].

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

Secondary IGFX Boot Display
Use this item to select the secondary Display device.

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

Aperture Size
Use this item to select the Aperture Size. 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].

Active LFP

Use this item to select the Active LFP configuration.

The optional settings: [eDP]; [LVDS].

***Note:** When '**Active LFP'** is set as [**LVDS**], user can make further settings in '**Panel Type**' and '**LVDS FW Write Protect**'.

Backlight Control

Use this item to select Back Light Control settings.

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

Panel Type

Use this item to manually select LCD panel type.

The optional setting: [800x 480 18bit Single]; [800x 600 18bit Single]; [800x 600 24bit Single]; [1024 x 600 18bit Single]; [1024 x 768 18bit Single]; [1024 x 768 24bit Single]; [1280 x 768 24bit Single]; [1280 x 800 18bit Single]; [1280 x 800 24bit Single]; [1366 x 768 18bit Single]; [1366 x 768 24bit Single]; [1440 x 900 18bit Dual]; [1440 x 900 24bit Dual]; [1280 x 1024 24bit Dual]; [1680 x 1050 24bit Dual]; [1920 x 1080 24bit Dual].

***Note:** This function is supported when '**Active LFP**' is set as [**LVDS**].

LVDS FW Write Protect

Use this item to enable or disable support LVDS FW update/Protect.

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

***Note:** This function is supported when '**Active LFP**' is set as [**LVDS**].

▸ **PCH-IO Configuration**

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

PCH-IO Configuration

HD Audio

This item controls detection of the HD-Audio device.

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

[**Disabled**]: HDA will be unconditionally disabled.

[**Enabled**]: HAD will be unconditionally enabled.

Onboard Lan1 Controller
Use this item to enable or disable corresponding onboard NIC device or controller.
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].
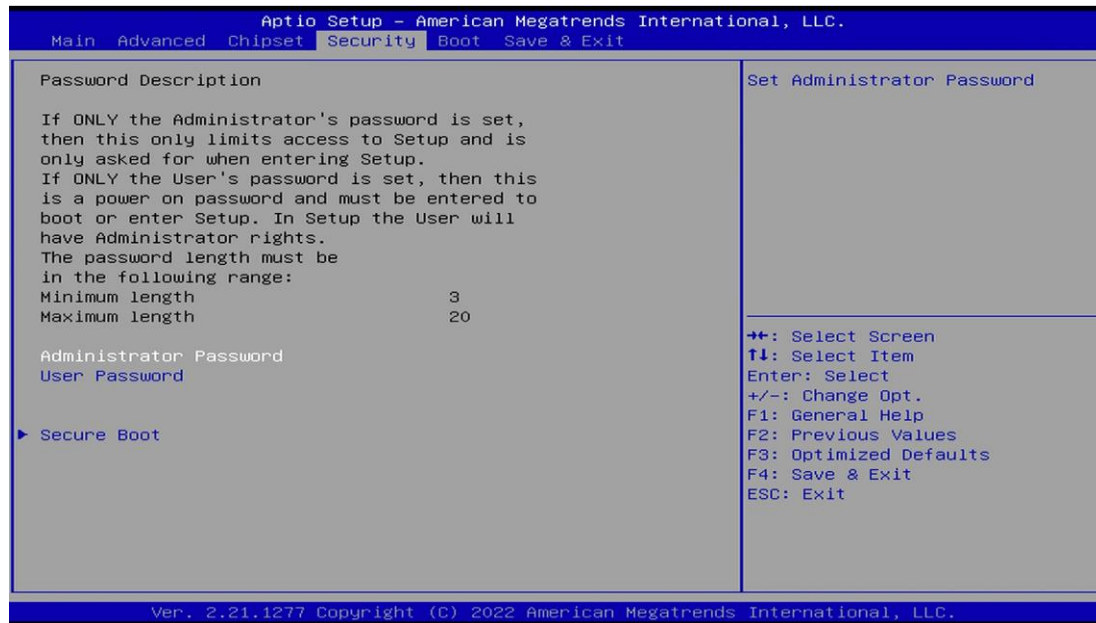
Onboard Lan2 Controller
Use this item to enable or disable corresponding onboard NIC device or controller.
The optional settings: [Disabled]; [Enabled].

System State after Power Failure
Use this item to specify what state to go to when power re-applied after a power failure (G3 state).
The optional settings: [Always On]; [Always Off]; [Former State].

4-9 Security Menu

```
                Aptio Setup - American Megatrends International, LLC.
   Main  Advanced  Chipset  Security  Boot  Save & Exit

   Password Description                              Set Administrator Password

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

                                                    →←: Select Screen
   Administrator Password                           ↑↓: Select Item
   User Password                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
   ► Secure Boot                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit



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```

Security menu allow users to change administrator password and user password settings.
Administrator Password
If there is no password present on system, please press [Enter] to create new administrator password. If password is present on system, please press [Enter] to verify old password then to clear/change password. Press again to confirm the new administrator password.
User Password
If there is no password present on system, please press [Enter] to create new user password. If password is present on system, please press [Enter] to verify old password then to clear/change password. Press again to confirm the new user password.

‣ **Secure Boot**
Press [Enter] to make customized secure settings:
System Mode
Secure Boot
The optional settings: [Disabled]; [Enabled].
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.
Secure Boot Mode
The optional settings: [Standard]; [Custom].
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.
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**
Use this item to Delete all secure boot key databases from NVRAM

‣ **Key Management**
This item enables experienced users to modify Secure Boot variables, 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**

Use this item to Delete all secure boot key databases from NVRAM

▸ **Export Secure Boot variables**

Use this item to copy NVRAM content of secure boot variables to files in a root folder on a file system device.

▸ **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**

Use this item to device guard ready system must not list 'Microsoft UEFI CA' Certificate in authorized signature database (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 Signature/Forbidden Signature/ Authorized TimeStamps/OS Recovery Signatures**

Use this item to enroll Factory Defaults or load the keys from a file with:
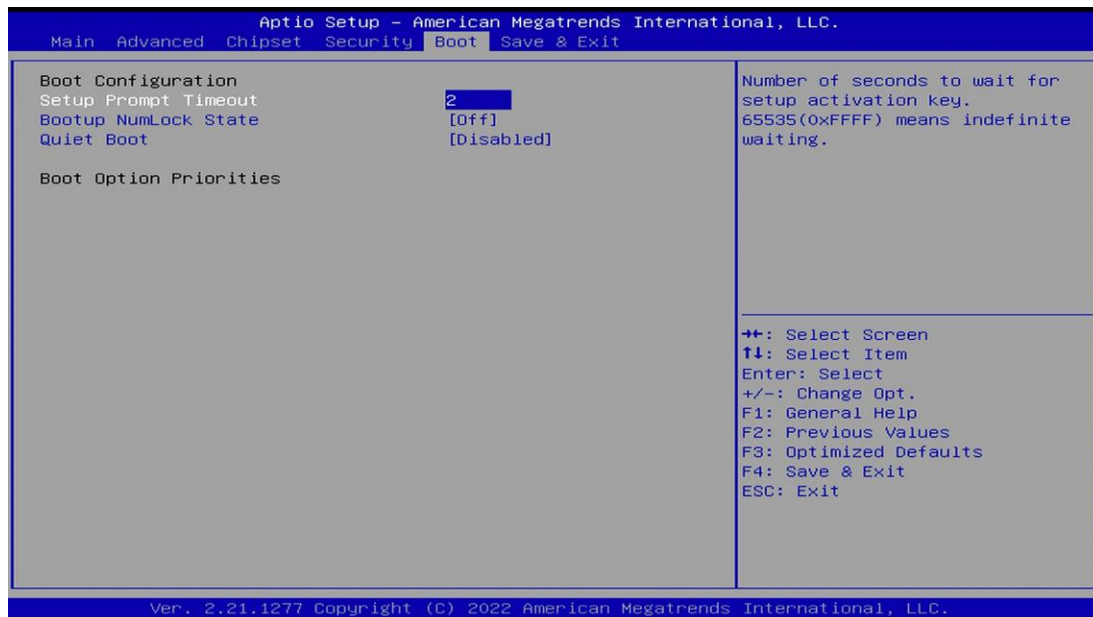
1. Public Key Certificate in:
  a) EFI_SIGNATURE_LIST
  b) EFI_ CERT_X509 (DER)
  c) EFI_ CERT_RSA2048 (bin)
  d) EFI_ CERT_SHAXXX
2. Authenticated UEFI Variable
3. EFI PE/COFF Image (SHA256)
Key Source: Factory, External, Mixed.

4-10 Boot Menu

Boot Configuration

Setup Prompt Timeout

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

Bootup Numlock State
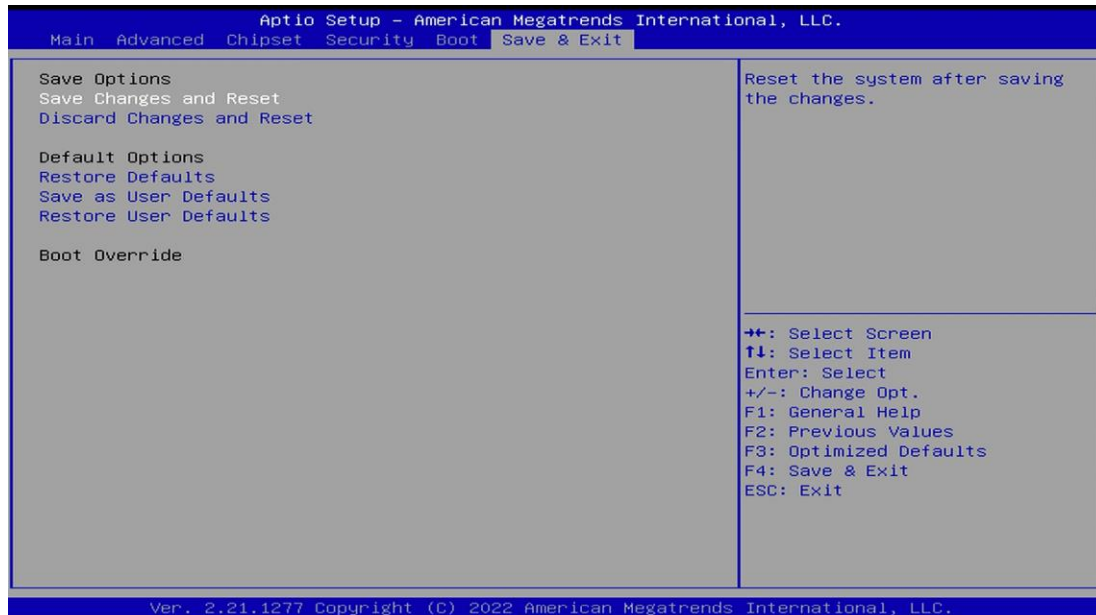
Use this item to select keyboard Numlock state.

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

Quiet Boot

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

Boot Option Priorities

4-11 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 the user defaults to all the setup options.

Boot Override