# NF835 Series

# User's Manual

**NO.: G03-NF835-F**

**Revision: 3.0**

**Release date: October 1, 2019**

**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.

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

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

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

- Attention to the heat sink when you over-clocking. The higher temperature may decrease the life of the device and burned the capacitor.

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## Manual Revision Information

| Reversion | Revision History | Date |
|-----------|-----------------|------|
| 3.0 | Third Edition | October 1, 2019 |

## Item Checklist

☑ Motherboard
☑ Cable(s)

# Chapter 1
# Introduction of the Motherboard

## 1-1   Feature of Motherboard

- Onboard Intel® Whiskey Lake-U series processor, TDP 15 W, never denies high performance

- Support 2* DDR4 2400MHz SO-DIMM, maximum capacity up to 32GB

- Onboard 2 * RJ-45 gigabit Ethernet LAN port

- 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-2242/2260/2280,PCIe x4(NVMe) and SATA interface are selectable

- Onboard 1 *M.2 E-key slot,type-2230,support Wi-Fi / Bluetooth with Intel 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
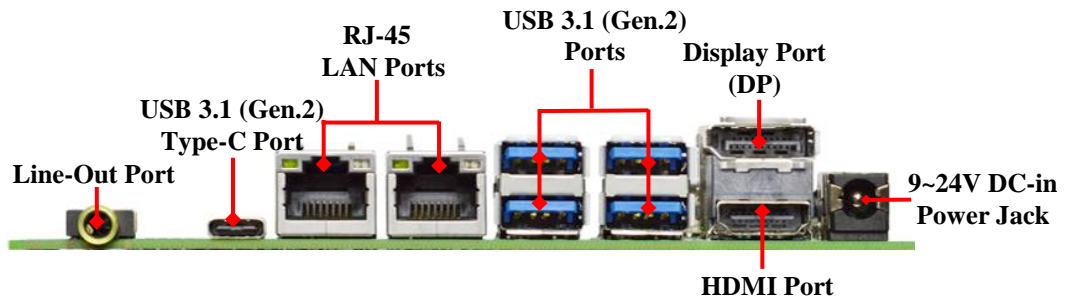
# 1-2 Specification

| Spec | Description |
|---|---|
| **Design** | ● 3.5"SBC; 8-Layers; PCB size: 14.8x 10.2 cm |
| **Embedded CPU** | ● Integrated with Intel® Whiskey Lake-U series CPU (TDP 15W)<br>* **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 32GB<br>● Support dual channel function<br>* **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-2242/2260/2280, PCIe x4(NVMe) and SATA interface are selectable (**M2M**)<br>● M.2 E-key slot,type-2230, support Wi-Fi / Bluetooth with Intel CNVi interface (**M2E**) |
| **Storage** | ● 1* SATAIII 6Gb/s port |
| **LAN Chip** | ● Integrated with 1*Intel i211AT & 1*Intel i219LM Gigabit LAN chip<br>● Support Fast Ethernet LAN function of providing 10/100/1000Mbps Ethernet data transfer rate |
| **Audio Chip** | ● Realtek ALC662VD 6-CH HD audio chip |
| **BIOS** | ● AMI Flash ROM |
| **Rear I/O** | ● 1* 9~24V DC-in power Jack<br>● 1* display port (DP)<br>● 1* HDMI port<br>● 4* USB 3.1 (Gen.2) port<br>● 1* USB 3.1 (Gen.2) Type-C port<br>● 2* RJ-45 LAN port<br>● 1* Audio Line Out port |
| **Internal I/O** | ● 1* 2-pin internal 9~24V DC-in power connector<br>● 1* Internal vertical USB 3.1 (Gen.2) port connector<br>● 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
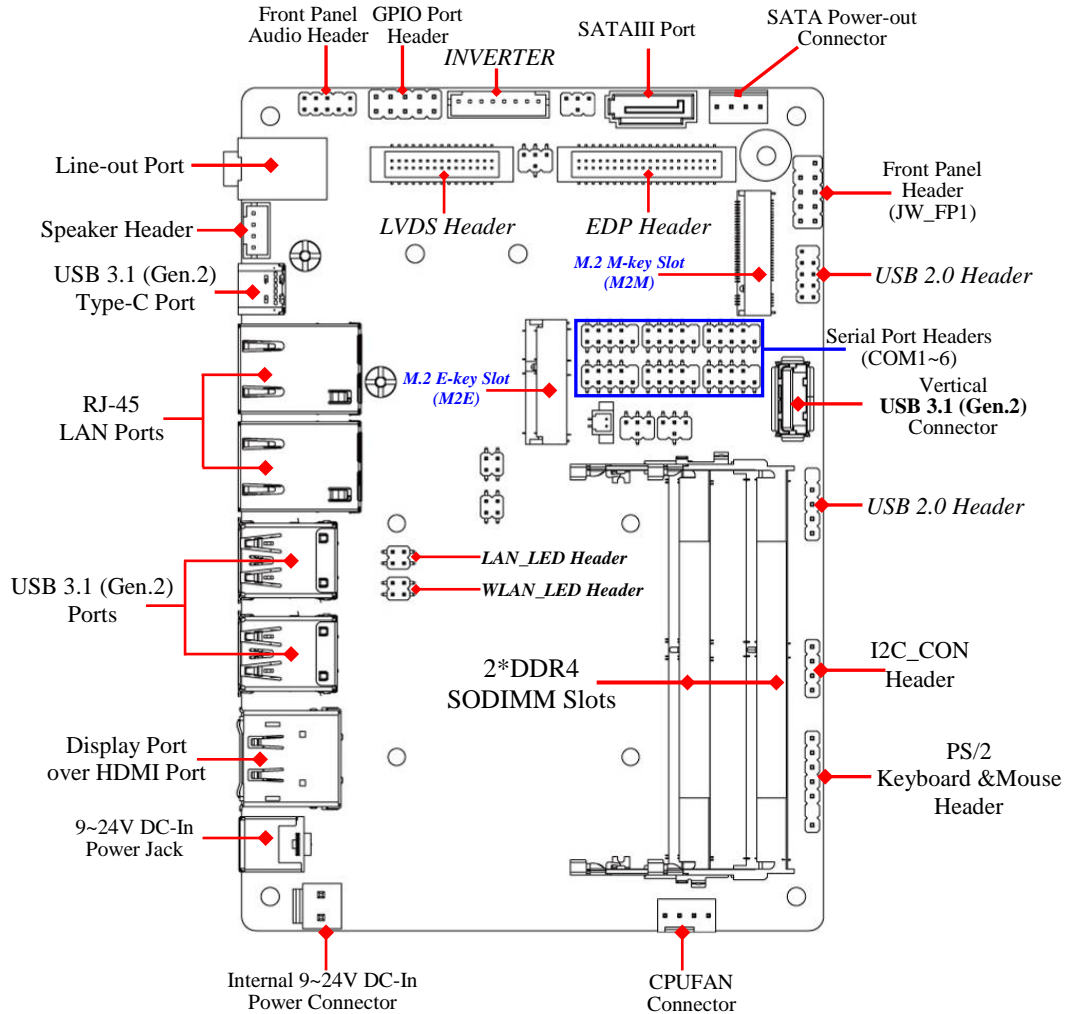- 1* LAN LED activity LED header+1* Wi-Fi/BT activity LED header

# 1-3 Layout Diagram

*Rear IO Diagram:*



**RJ-45 LAN Ports**

**USB 3.1 (Gen.2) Ports**

**Display Port (DP)**

**USB 3.1 (Gen.2) Type-C Port**

**Line-Out Port**

**9~24V DC-in Power Jack**

**HDMI Port**

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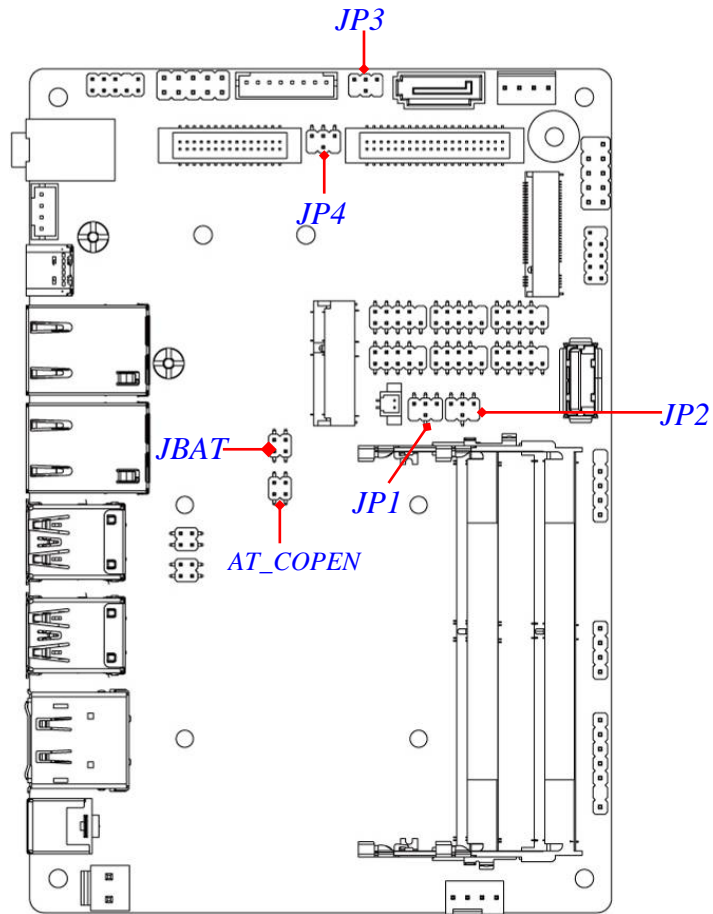> The board has a 9~24V DC-in power connector **(DC_IN)** in I/O back panel and an internal 9~24V power connector **(DC2P).** User can only connect one type of compatible power supply to one of them to power the system.

## Diagram-Front Side:



Front Panel Audio Header
GPIO Port Header
INVERTER
SATAIII Port
SATA Power-out Connector
Line-out Port
Speaker Header
USB 3.1 (Gen.2) Type-C Port
RJ-45 LAN Ports
USB 3.1 (Gen.2) Ports
Display Port over HDMI Port
9~24V DC-In Power Jack
Internal 9~24V DC-In Power Connector
LVDS Header
EDP Header
M.2 M-key Slot (M2M)
M.2 E-key Slot (M2E)
LAN_LED Header
WLAN_LED Header
2*DDR4 SODIMM Slots
CPUFAN Connector
Front Panel Header (JW_FP1)
USB 2.0 Header
Serial Port Headers (COM1~6)
Vertical USB 3.1 (Gen.2) Connector
USB 2.0 Header
I2C_CON Header
PS/2 Keyboard &Mouse Header

*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<br>*Pin (3-4):* Flash Override | 4-Pin Block |
| AT_COPEN | *Pin (1-2):* AT Mode Select<br>*Pin (3-4):* Case Open Display Select | 4-Pin Block |

## Connectors

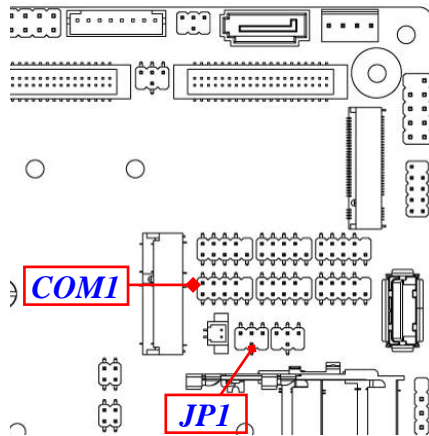| Connector | Name |
|-----------|------|
| DC_IN | 9~24V DC–in Power Jack |
| DP_HDMI | **Top:** Display Port (DP) Connector<br>**Bottom:** HDMI Port Connector |
| USB31/USB32 | USB 3.1 (Gen.2) Port Connector X4 |
| LAN1/LAN2 | RJ-45 LAN Port Connector X2 |
| USBC | USB 3.1 (Gen.2) Type-C Port Connector |
| 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

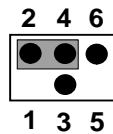| Header | Name | Description |
|--------|------|-------------|
| JW_FP | Front Panel Header(PWR LED/ HDD LED/Power Button /Reset) | 9-pin Block |
| FP_USB22 | USB 2.0 Header | 9-pin Block |
| FP_USB21 | USB 2.0 Header | 4-pin Block |
| FP_AUDIO | Front Panel Audio Header | 9-pin Block |
| SPK_CON | 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
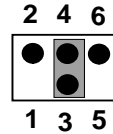# Hardware Installation

## 2-1 Jumper Settings
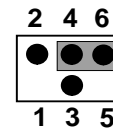
*JP1 (4-pin): COM1 Header Pin-9 Function Select*

*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. |

COM1

JP1

*JP2 (4-pin): COM2 Header Pin-9 Function Select*

*JP2→COM2 Header*

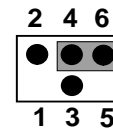| 2 4 6 | 2 4 6 | 2 4 6 |
|-------|-------|-------|
| 1 3 5 | 1 3 5 | 1 3 5 |
| 2-4 Closed: RI=RS232; | 3-4 Closed: RI= +5V; | 4-6 Closed: RI= +12V. |

COM2

JP2
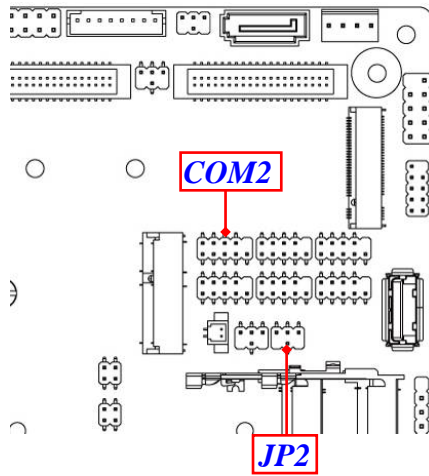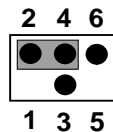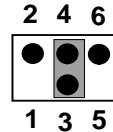
## JP3 (4-pin): LVDS/EDP LCD_BACKLIGHT Voltage Select
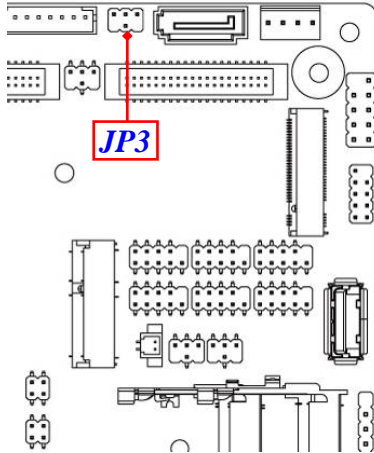


### JP3→LCD_BACKLIGHT VCC Select
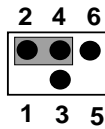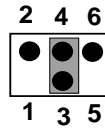
| | | |
|---|---|---|
| 2  4  6 | 2  4  6 | 2  4  6 |
| 1  3  5 | 1  3  5 | 1  3  5 |
| **2-4 Closed:** **VCC= +5V;** | **3-4 Closed:** **VCC= +12V;** | **4-6 Closed:** **VCC= DCIN.** |
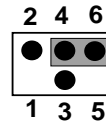
## JP4 (4-pin): LVDS/EDP LCD Panel VCC Select
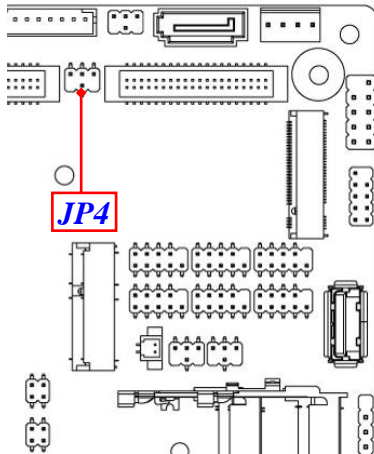


### JP4→LCD Panel VCC Select
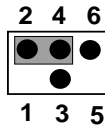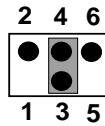
| | | |
|---|---|---|
| 2  4  6 | 2  4  6 | 2  4  6 |
| 1  3  5 | 1  3  5 | 1  3  5 |
| **2-4 Closed:** **VCC= 3.3V;** | **3-4 Closed:** **VCC= +5V;** | **4-6 Closed:** **VCC= +12V.** |
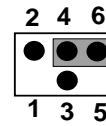
## Pin (1-2) of JBAT (4-pin): Clear CMOS Settings
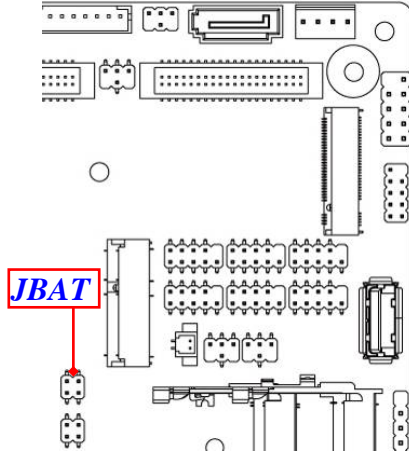


**Pin 1&2 of JBAT→Clear CMOS**
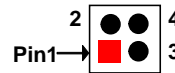


**1-2 Open: Normal(Default);**
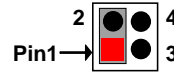


**1-2 Closed: Clear CMOS(One Touch).**

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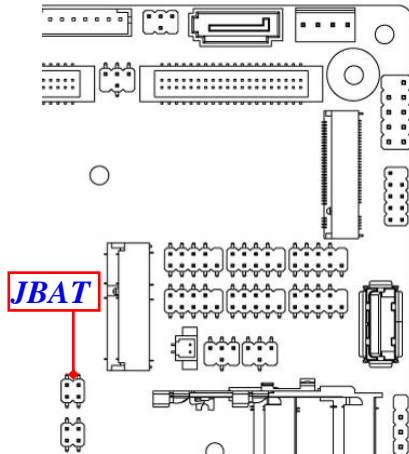


**Pin 3&4 of JBAT→ME Flash Override**
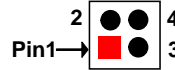


**3-4 Open: Normal(Default);**
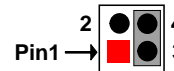


**3-4 Closed: ME Flash Override.**

### Pin (1-2) of AT_COPEN (4-pin): ATX Mode/AT Mode Select
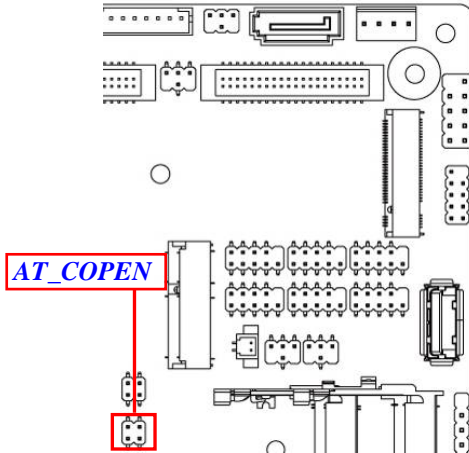


**Pin 1&2 of AT_COPEN**
→ **ATX/AT Mode Select**

2 ● ● 4
Pin1→ ■ ● 3
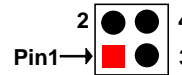
**1-2 Open: ATX Mode Selected(Default);**

2 ● ● 4
Pin1→ ■ ● 3
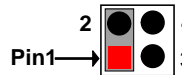
**1-2 Closed: AT Mode Selected.**

*\*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
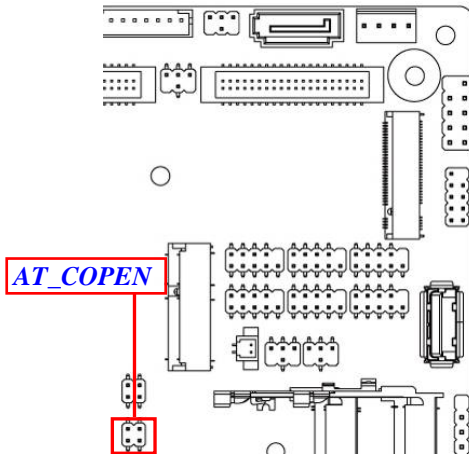


**Pin 3&4 of AT_COPEN**
→ **Case Open Detection**

GND

2 ● ● 4
Pin1→ ■ ● 3
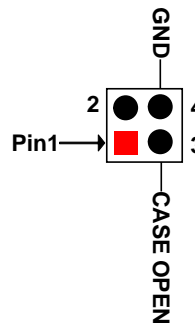
CASE OPEN

**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*
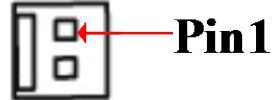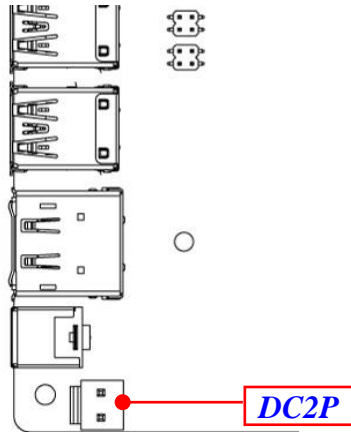


**Pin1**

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

**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.
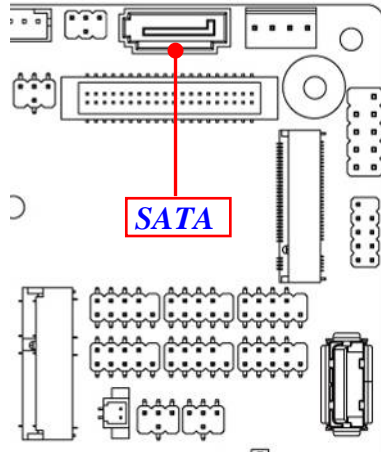


| Pin No. | Definition |
|---------|------------|
| 1 | GND |
| 2 | TXP |
| 3 | TXN |
| 4 | GND |
| 5 | RXN |
| 6 | RXP |
| 7 | GND |

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

**SATAPWR**

Pin1 →

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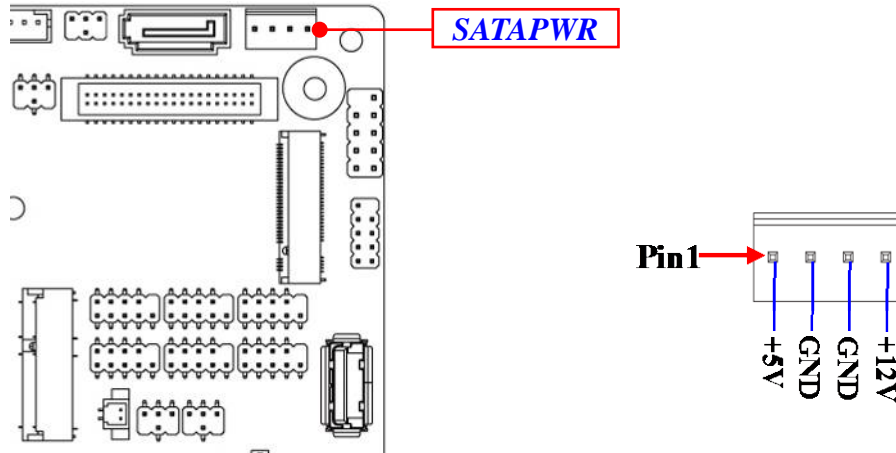
*Warning:* *Make sure that Pin-1 of compatible SATA Power out connector is inserted into corresponding Pin-1 of SATAPWR connector to avoid possible damage to the board and hard disk driver!*

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

**CPUFAN**

+12V Fan Power
Fan Speed
Control
GND

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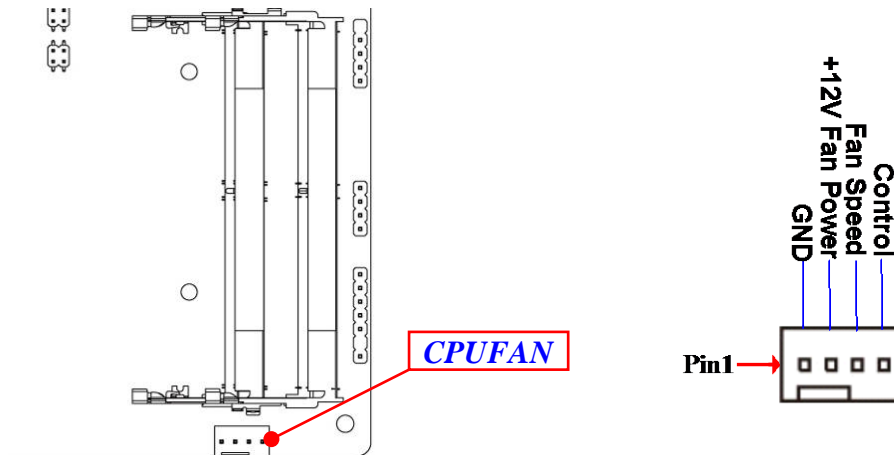
## *(6)* **M2M: M.2 M-key Slot**

M2M M.2 M-Key slot supports compatible type 2242/2260/2280 SATA module.

**M2M Slot:**
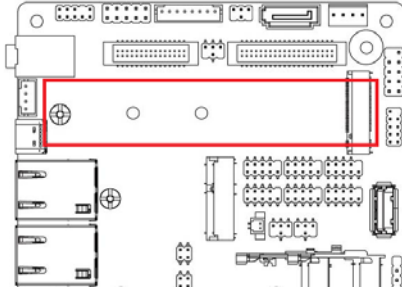
**M.2 Module Installation Guide**

| Nut Location | MH1 | MH2 | MH3 |
|---|---|---|---|
| Card Length | 4.2 cm | 6 cm | 8 cm |
| Module Type | Type- 2242 | Type- 2260 | Type- 2280 |
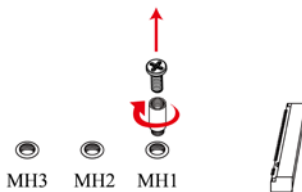
a) Remove the screw post and nut fixed at location **MH1** by default (Skip step 2 & 3 and go straight to Step 4 if you are going to use the default nut).

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

MH3   MH2   MH1



MH3   MH2   MH1
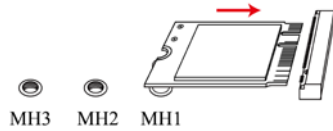
c)  Align and insert corresponding M.2 module, as the photo shows.
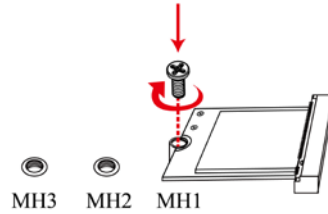
d)  Tighten up the screw to secure the module into the M.2 connector. Make sure not overtighten the screw to avoid possible damage to the module.

# 2-2-2 Headers

**JW_FP (9-pin): Front Panel Header**



*JW_FP*

| | |
|---|---|
| | VCC |
| GND | RSTSW |
| PWRBTN | GND |
| PWR LED- | HDD LED- |
| PWR LED+ | HDD LED+ |

2

Pin 1
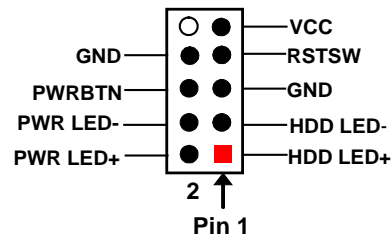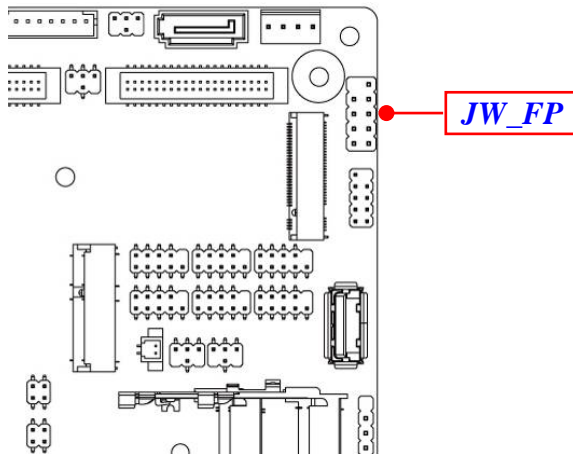
## FP_USB22 (9-pin): USB 2.0 Port Header
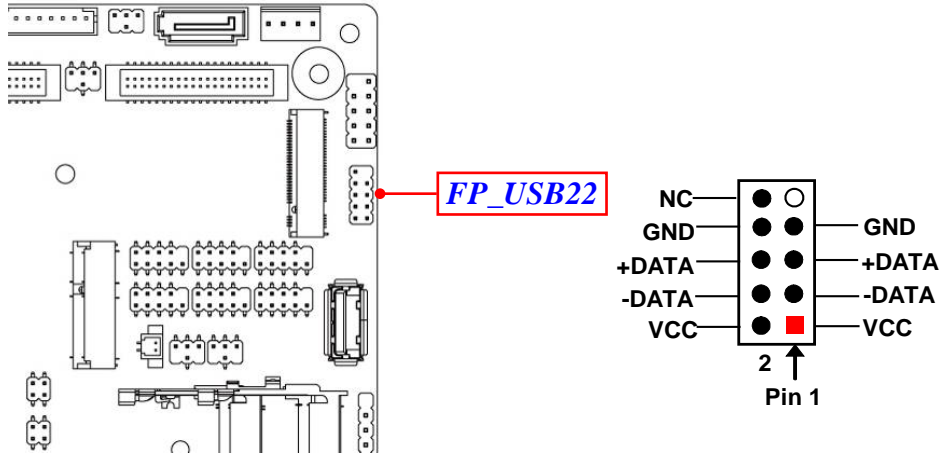


## FP_USB21 (4-pin): USB2.0 Header
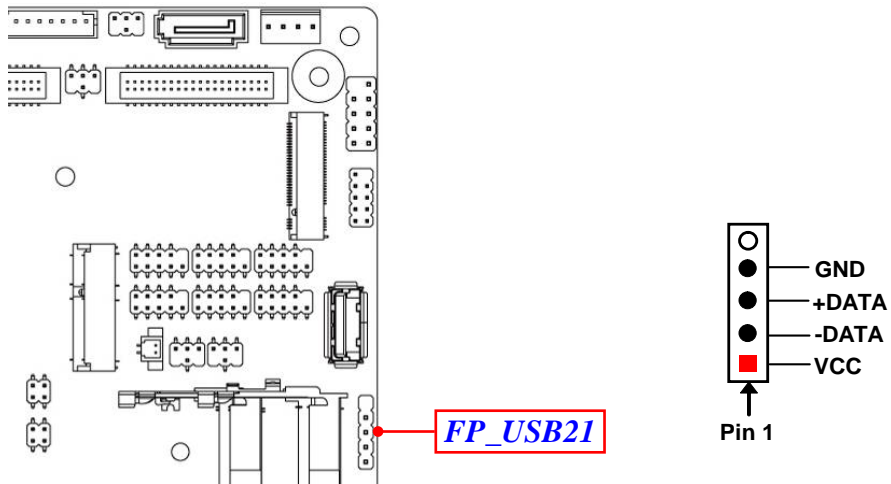
## FP_AUDIO (9-pin): Line-Out, MIC-In Header

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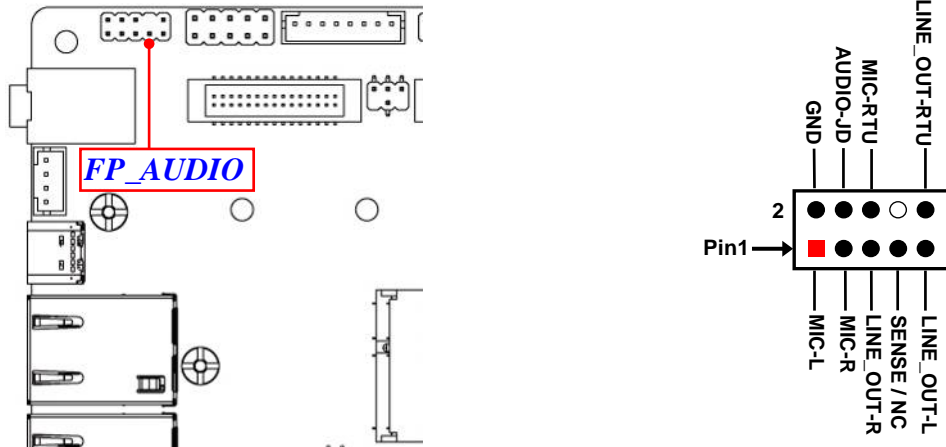


## SPK_CON (4-pin): 3W Amplifier Header
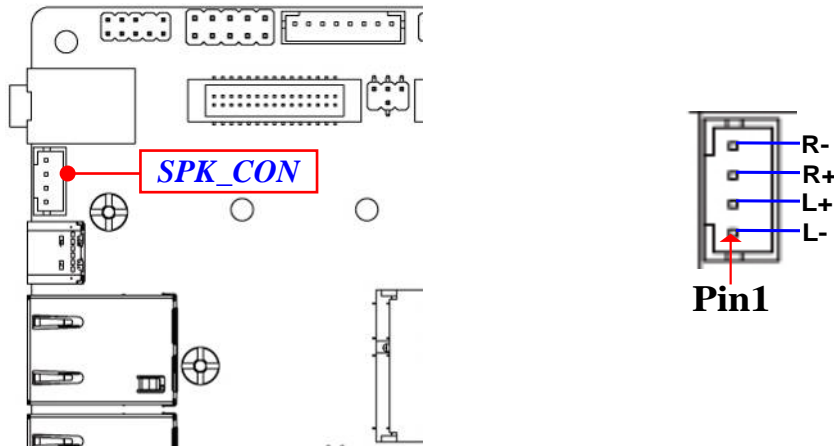
## GPIO (10-pin): GPIO Header
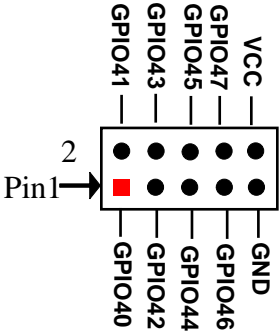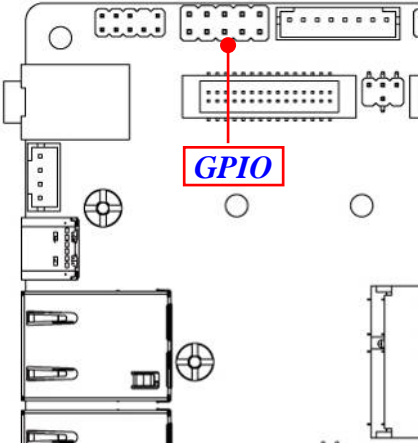
## COM1/2/3/4/5/6(9-pin): Serial Port Headers

*COM1: RS232/422/485 Serial Port Header.*
*COM2/3/4/5/6: RS232 Serial Port Header.*
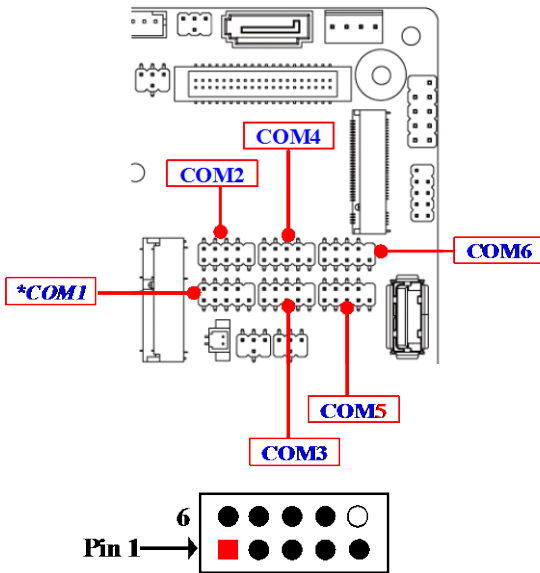


| Pin NO. | RS232 | *RS422 (optional) | *RS485 (optional) |
|---------|-------|-------------------|-------------------|
| Pin 1 | DCD | TX- | DATA- |
| Pin 2 | RXD | TX+ | DATA+ |
| Pin 3 | TXD | RX+ | NC |
| Pin 4 | DTR | RX- | NC |
| Pin 5 | GND | GND | GND |
| Pin 6 | DSR | NC | NC |
| Pin 7 | RTS | 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 (refer to Page-34) at first, before using specialized cable to connect different pins of this port.*

## EDP (40-pin): 4-lane eDP Header
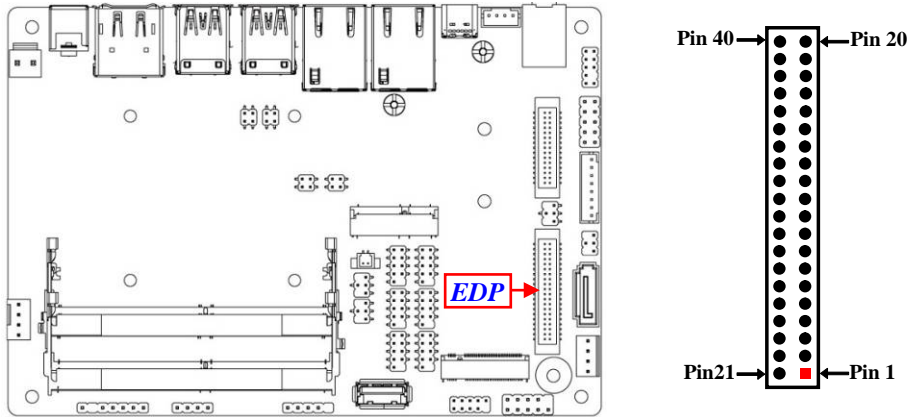


| Pin Define | Pin NO. | Pin NO. | Pin Define |
|---|---|---|---|
| NC | Pin 40 | Pin 20 | LCD_VCC |
| BL_PWR | Pin 39 | Pin 19 | LCD_VCC |
| BL_PWR | Pin 38 | Pin 18 | LCD_VCC |
| BL_PWR | Pin 37 | Pin 17 | GND |
| BL_PWR | Pin 36 | Pin 16 | AUX_CH_N |
| NC | Pin 35 | Pin 15 | AUX_CH_P |
| NC | Pin 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
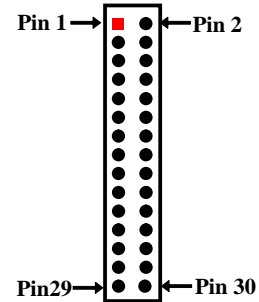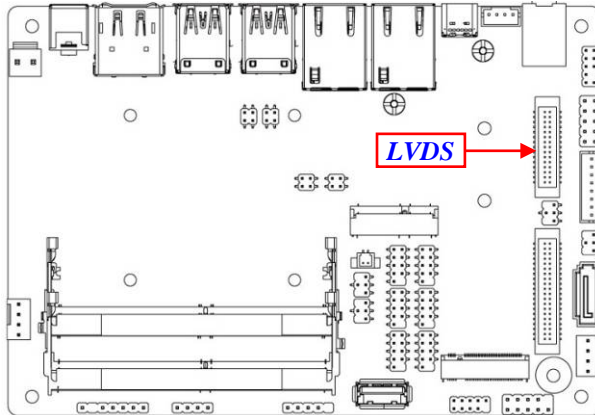


| Pin Define | Pin NO. | Pin NO. | Pin Define |
|---:|:---:|:---:|:---|
| LVDSB_DATAN3 | Pin 1 | Pin 2 | LVDSB_DATAP3 |
| LVDS_CLKBN | Pin 3 | Pin 4 | LVDS_CLKBP |
| LVDSB_DATAN2 | Pin 5 | Pin 6 | LVDSB_DATAP2 |
| LVDSB_DATAN1 | Pin 7 | Pin 8 | LVDSB_DATAP1 |
| LVDSB_DATAN0 | Pin 9 | Pin 10 | LVDSB_DATAP0 |
| 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
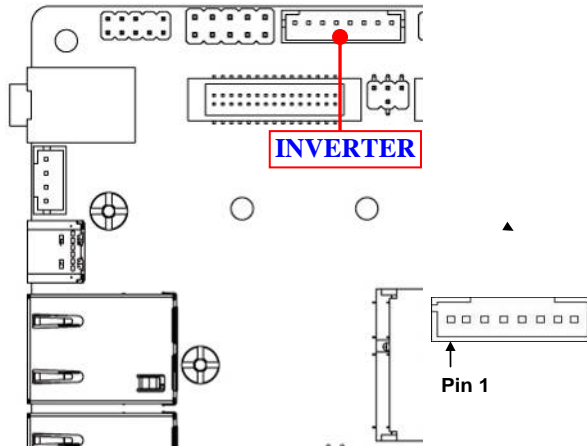


| Pin No. | Definition |
|---------|------------------|
| 1 | Backlight Enable |
| 2 | Backlight PWM |
| 3 | PVCC |
| 4 | PVCC |
| 5 | GND |
| 6 | GND |
| 7 | Backlight Up SW |
| 8 | Backlight Down SW |

*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



I2C_SDA
GND
I2C_SCL
NC

Pin1
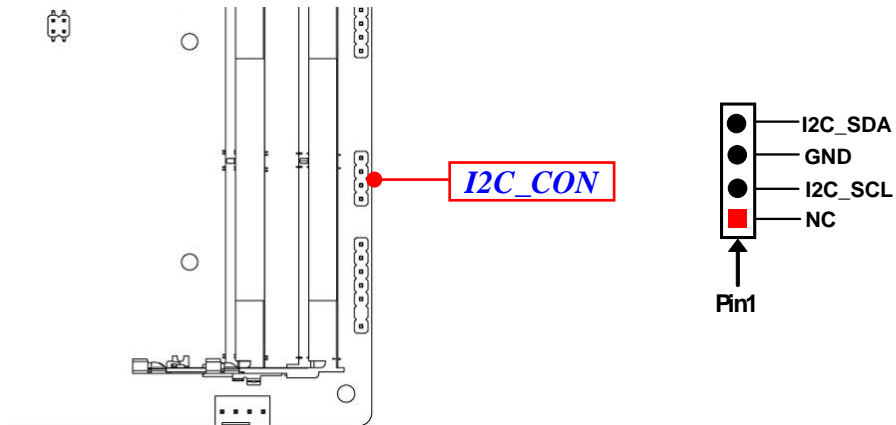
## PS2KBMS (6-pin): PS/2 Keyboard & Mouse Header



MS_DATA
MS_CLK
GND
KB_CLK
KB_DATA

**Pin1** → VCC
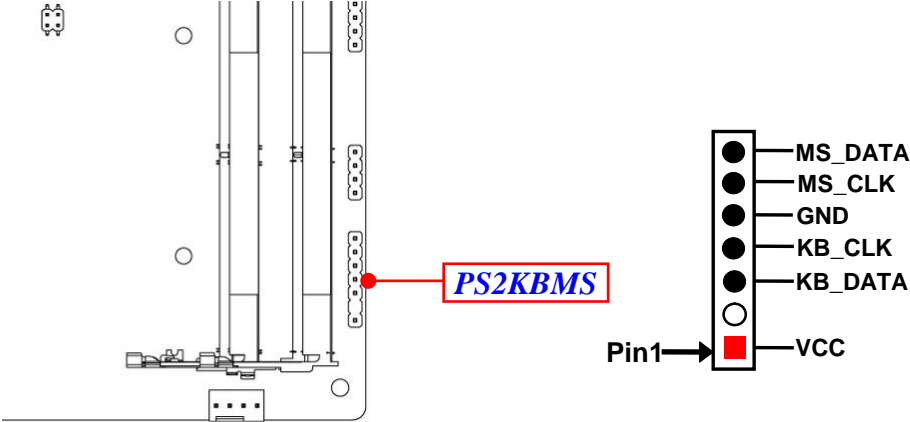
## LAN_LED (4-pin): LAN Activity LED Header



LAN_LED

**Pin1**

2

LAN1LED+ — LAN1LED-
LAN2LED+ — LAN2LED-

3 4
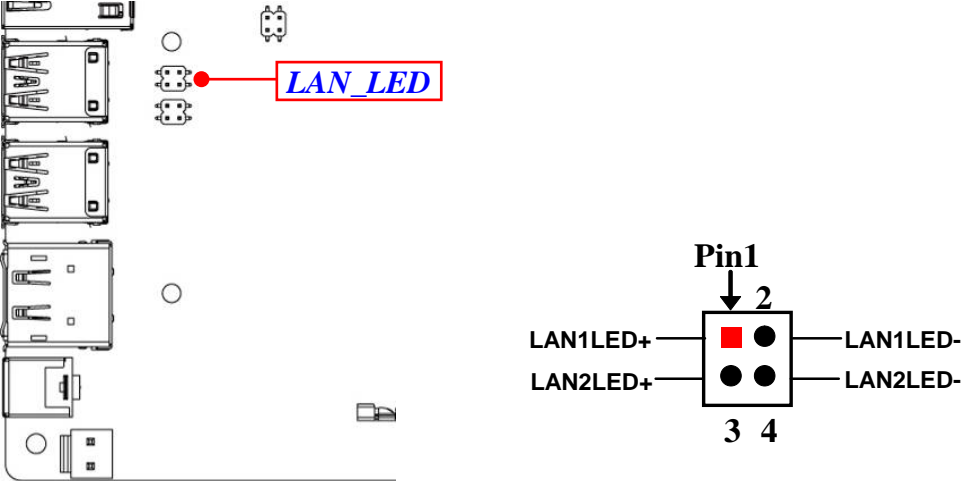
## WLAN_LED (4-pin): Wi-Fi & Bluetooth Activity LED Header



```
                        Pin1
                         ↓ 2
           WIFI_LED+ ──[■ ●]── WIFI_LED-
             BT_LED+ ──[● ●]── BT_LED-
                         3 4
```
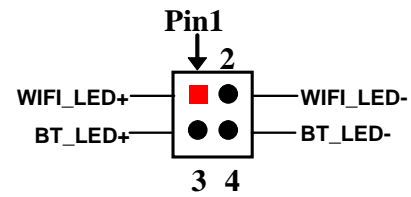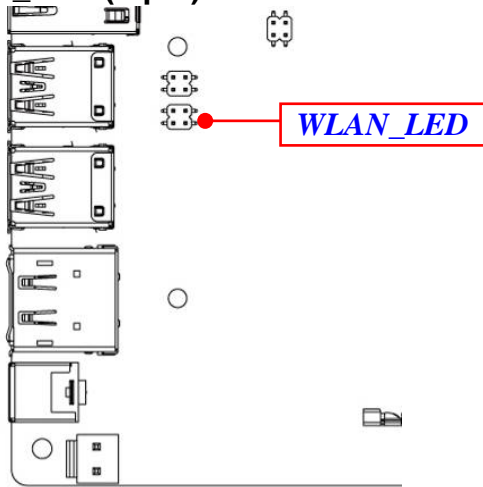
# Chapter 3
# Introducing BIOS

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

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

## 3-1 Entering Setup

Power on the computer and by pressing <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.

## 3-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:

**Menu Bar**



| Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc. |
| Main  Advanced  Chipset  Security  Boot  Save & Exit |

**General Help Items**

**Current Setting Value**

**Menu Items**
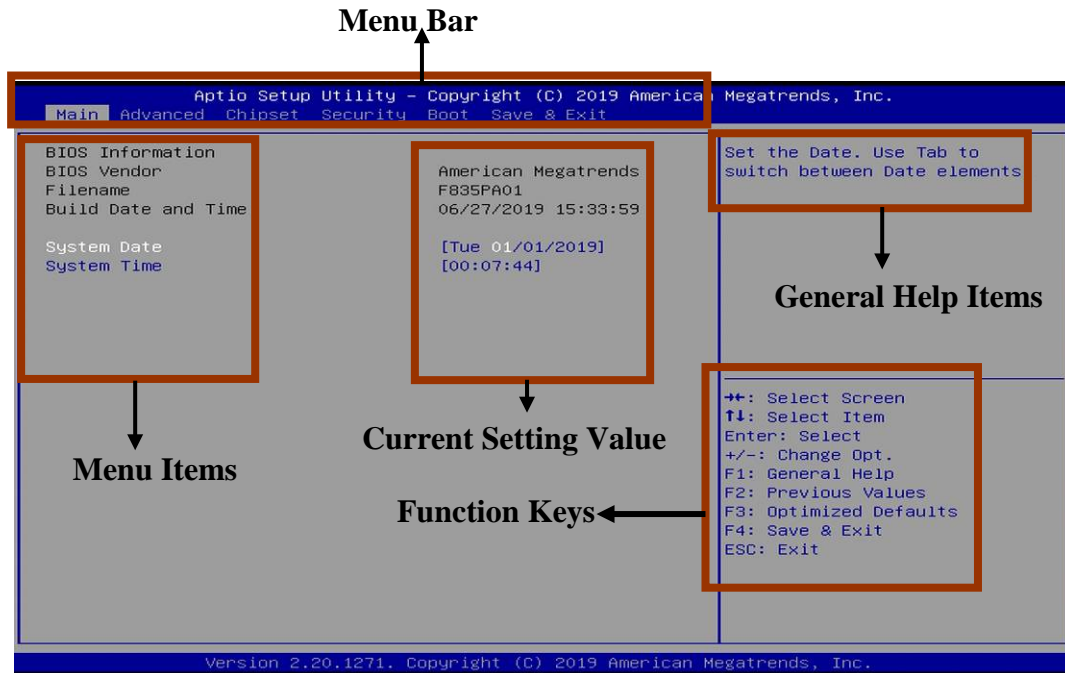
**Function Keys**

## 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) 2019 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                       F835PA01
   Build Date and Time            06/27/2019 15:33:59

   System Date                    [Tue 01/01/2019]
   System Time                    [00:07:44]




                                                               →←: 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) 2019 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
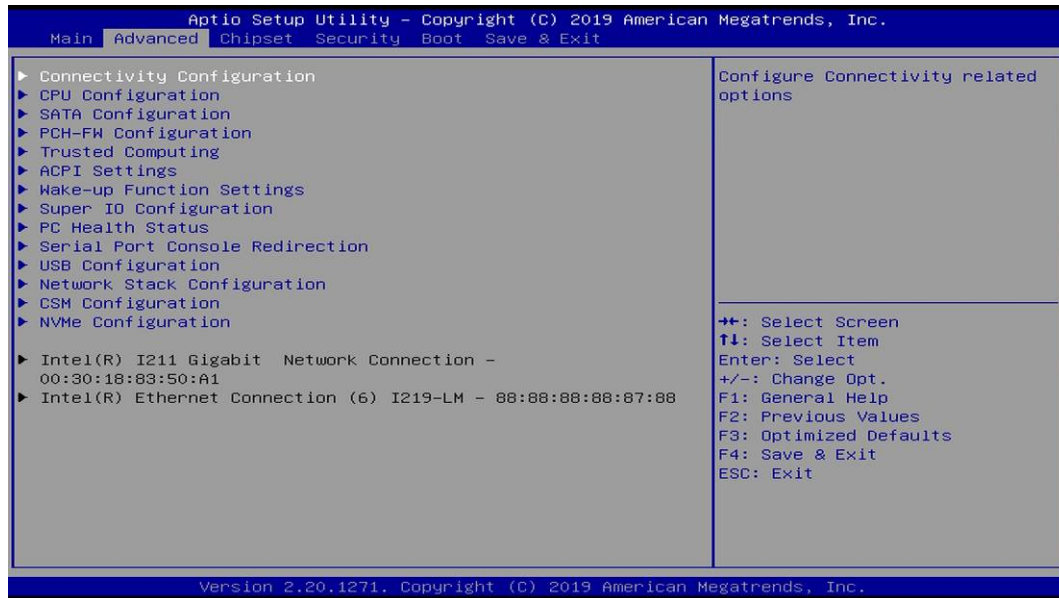


▸ **Connectivity Configuration**
Press [Enter] to view current Connectivity related options:
*CNVi Configuration*
**CNVi Mode**
This option configures connectivity options.
The optional settings are: [Disable Integrated]; [Auto Detection].
[**Auto Detection**] means that if Discrete solution is discovered 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)**

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

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

**SATA Mode Selection**

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**
The optional settings: [Disabled]; [Enabled].
*M.2*
**Port**
The optional settings: [Disabled]; [Enabled].
Use this item to enable or disable device connected to M.2 SATA slot.

▶ **PCH-FW Configuration**
Press [Enter] to view ME information and make settings in the following sub-items:

 ▶ **Firmware Update Configuration**
Press [Enter] to make settings for '**ME FW Image RE-Flash**'.
**ME FW Image Re-Flash**
Use this item to enable or disable ME FW Image Re-Flash function.
The optional settings: [Disabled]; [Enabled].

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

▶ **Trusted Computing**
Press [Enter] to enable or disable '**Security Device Support**'.
**Security Device Support**
Use this item to enable or disable BIOS support for security device. TCG EFI protocol and INT1A interface will not be available.
The optional settings: [Disabled]; [Enabled].
**Pending Operation**
Use this item to schedule an operation for the Security Device.
The optional settings: [None]; [TPM Clear].

*__Note__: Your computer will reboot to change State or Security Device.*
**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], system will wake on the hour/min/sec specified.
**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).

**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**
Use this item to enable or disable serial port (COM).
**Change Settings**
Use this item to select an optimal setting for super IO device. **Changing setting may conflict with system resources.**
**Transmission Mode Select**
The optional settings are: [RS422]; [RS232]; [RS485].
**Mode Speed Select**
The optional settings are: [RS232/RS422/RS485=250kbps]; [RS232=1Mbps, RS422/RS485=10Mbps].

► **Serial Port 2 Configuration/ Serial Port 3 Configuration/Serial Port 4 Configuration/ Serial Port 5 Configuration/ Serial Port 6 Configuration**
Press [Enter] to make settings for the following sub-items:
**Serial Port**
Use this item to enable or disable serial port (COM).

**Change Settings**
Use this item to select an optimal setting for super IO device. **Changing setting may conflict with system resources.**

**WatchDog Reset Timer**
Use this item to enable or disable WDT reset function.
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], the following sub-items shall appear:
**WatchDog Reset Timer Value**
User can set a value in the range of [4] to [255].
**WatchDog Reset Timer Unit**
The optional settings are: [Sec.]; [Min.].
**ATX Power Emulate AT Power**
This item support Emulate AT power function, MB power On/Off control by power supply. Use needs to select AT or ATX Mode on MB jumper at first (refer to *Page 11*, **Pin (1-2) of AT_COPEN** jumper for ATX Mode / AT Mode Select).

**Case Open Detect**
Use this item to detect case has already open or not, show message in POST.
When set as [Enabled], system will detect if COPEN has been short or not (refer to Page 11); if **Pin (3-4) of AT_COPEN** is short, system will show Case Open Message during POST.

▸ **PC Health Status**
Press [Enter] to view current hardware health status, set shutdown temperature, or make further settings in '**SmartFAN Configuration**'.

   ▸ **SmartFAN Configuration**
Press [Enter] to make settings for '**SmartFAN Configuration**':
*Super IO 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 are: [Disabled]; [$70^{\circ}$C/$158^{\circ}$F]; [$75^{\circ}$C/$167^{\circ}$F]; [$80^{\circ}$C/$176^{\circ}$F]; [$85^{\circ}$C/$185^{\circ}$F]; [$90^{\circ}$C/$194^{\circ}$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 are: [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 are: [80x24]; [80x25].
**Redirect After POST**
The optional settings are: [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**

The optional settings are: [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 are: [Enabled]; [Disabled]; [Auto].
**[Enabled]:** To enable legacy USB support.
**[Disabled]**: To keep USB devices available only for EFI specification,
**[Auto]:** To disable legacy support if no USB devices are connected.
**XHCI Hand-off**
This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
The optional settings are: [Enabled]; [Disabled].
**USB Mass Storage Driver Support**
The optional settings are: [Disabled]; [Enabled].
**PS2 KB/MS Enable**
Use this item to enable or disable PS/2 keyboard/mouse function.
The optional settings are: [Disabled]; [Enabled].
*USB Hardware Delays and Time-outs:*
**USB Transfer Time-out**
Use this item to set the time-out value for control, bulk, and interrupt transfers.
The optional settings are: [1 sec]; [5 sec]; [10 sec]; [20 sec].
**Device Reset Time-out**
Use this item to set USB mass storage device start unit command time-out.
The optional settings are: [10 sec]; [20 sec]; [30 sec]; [40 sec].
**Device Power-up Delay**
Use this item to set maximum time the device will take before it properly reports itself to the host controller.
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**

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

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

**Ipv4 PXE Support**

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

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

**Ipv6 PXE Support**

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

Use this item to enable Ipv6 PXE Boot Support. When set as [Disabled], Ipv6 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:

**CSM Support**

Use this item to enable or disable CSM Support

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

***Option ROM execution***

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

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

‣ **Intel(R) I211 Gigabit Network Connection -XX:XX:XX:XX:XX:XX/ Intel(R)**
   **Ethernet Connection (6) I219-LM -XX:XX:XX:XX:XX:XX**
   This item gives Intel gigabit ethernet controller basic driver information.

## 3-8 Chipset Menu



```
Aptio Setup Utility - Copyright (C) 2019 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:
**VT-d**
The optional settings are: [Enabled]; [Disabled].
  ▸ **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.
The optional settings are: [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 are: [Disabled]; [DP]; [HDMI].

**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 are: [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 are: [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 are: [128M]; [256M]; [MAX].

**Active LFP**
Use this item to select the Active LFP configuration.
The optional settings are: [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 are: [PWM Inverted]; [PWM Normal].

**Panel Type**
Use this item to manually select LCD panel type.
The optional setting are: [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 are: [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 are: [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 are: [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 are: [Disabled]; [Enabled].

**Onboard Lan2 Controller**

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

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

**M2E Slot**

Use this item to enable or disable M2E slot PCI Express root port function.

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

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

**Speed**

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

**M2M Slot**

Use this item to enable or disable M2M slot PCI Express root port function.

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

*\*When set as [Enabled], user can make further settings in 'Speed':*

**Speed**

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

# 3-9 Security Menu

```
            Aptio Setup Utility – Copyright (C) 2019 American Megatrends, Inc.
     Main  Advanced  Chipset  Security  Boot  Save & Exit

   Password Description                            Secure Boot configuration

   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
                                                  ↑↓: Select Item
   Administrator Password                         Enter: Select
   User Password                                  +/-: 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:

**Secure Boot**

The optional settings are: [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 are: [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:

**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 are: [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**

Device Guard ready system must not list 'Microsoft EFI CA' Certificate in Authorized Signature database (db).

  ▸ **Restore DB defaults**

Use this item to restore DB variable to factory defaults.
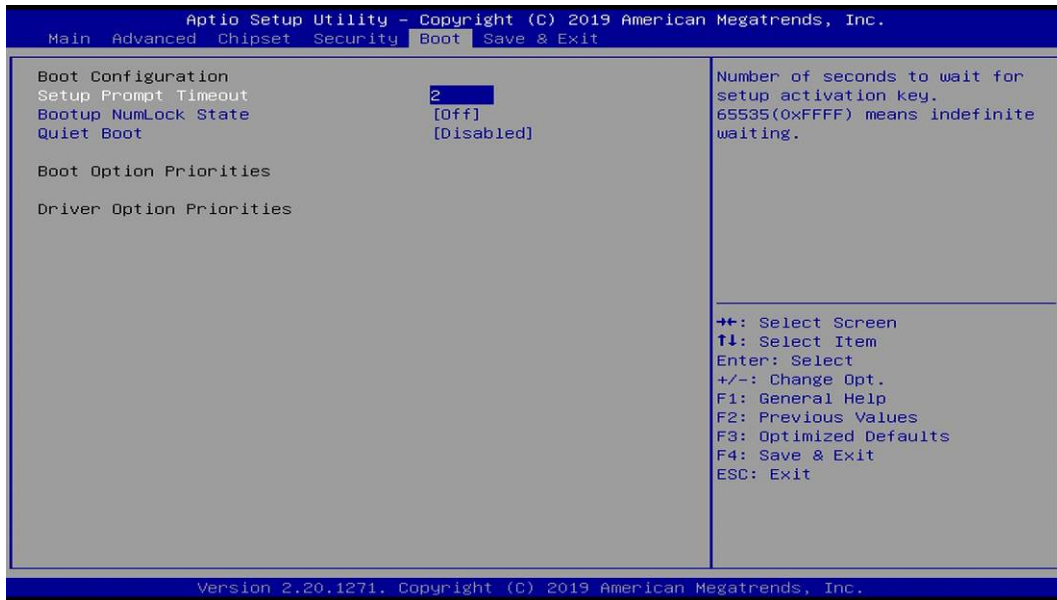
*Secure Boot Variable/Size/Keys/Key Source*

  ▸ **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) 2019 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.
### Bootup Numlock State
Use this item to select keyboard numlock state.

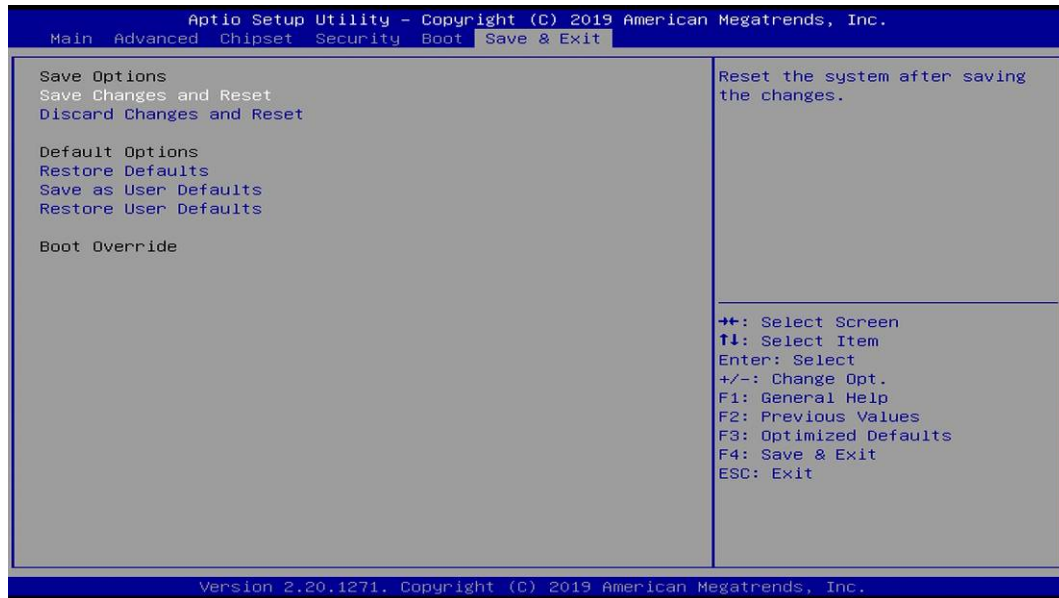The optional settings are: [On]; [Off].

**Quiet Boot**

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

*Boot Option Priorities*

**Boot Option #1/ Boot Option #2…**

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

# 3-11 Save & Exit Menu



*Save Options*

**Save Changes and Reset**

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

**Discard Changes and Reset**

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

*Default Options*

**Restore Defaults**
Use this item to restore /load default values for all the setup options.
**Save as User Defaults**
Use this item to save the changes done so far as user defaults.
**Restore User Defaults**
Use this item to restore the user defaults to all the setup options.
*<u>Boot Override</u>*

**UEFI: Built-in EFI Shell**
Press this item and a dialogue box shall appear to ask if user wish to save configuration and reset.