

# ***NF694/NF694L Series***

## ***User's Manual***

**NO. G03-NF694-F**

**Revision: 1.0**

**Release date: March 16, 2018**

### **Trademark:**

**\* Specifications and Information contained in this documentation are furnished for information use only, and are subject to change at any time without notice, and should not be construed as a commitment by manufacturer.**

---

---

## Environmental Protection Announcement

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



---

---

# **TABLE OF CONTENT**

ENVIRONMENTAL SAFETY INSTRUCTION.....	iii
USER'S NOTICE .....	iv
MANUAL REVISION INFORMATION .....	iv
ITEM CHECKLIST .....	iv
<b>CHAPTER 1 INTRODUCTION OF THE MOTHERBOARD</b>	
1-1 FEATURE OF MOTHERBOARD .....	1
1-2 SPECIFICATION .....	2
1-3 LAYOUT DIAGRAM .....	4
<b>CHAPTER 2 HARDWARE INSTALLATION</b>	
2-1 JUMPER SETTING.....	10
2-2 CONNECTORS AND HEADERS .....	15
2-2-1 CONNECTORS .....	15
2-2-2 HEADERS .....	18
<b>CHAPTER 3 INTRODUCING BIOS</b>	
3-1 ENTERING SETUP .....	25
3-2 BIOS MENU SCREEN .....	26
3-3 FUNCTION KEYS.....	26
3-4 GETTING HELP.....	27
3-5 MENU BARS .....	27
3-6 MAIN MENU .....	28
3-7 ADVANCED MENU .....	29
3-8 CHIPSET MENU .....	40
3-9 SECURITY MENU .....	43
3-10 BOOT MENU .....	45
3-11 SAVE & EXIT MENU .....	46



## Environmental Safety Instruction

---

- Avoid the dusty, humidity and temperature extremes. Do not place the product in any area where it may become wet.
- 0 to 40 centigrade is the suitable temperature. (The temperature comes from the request of the chassis and thermal solution)
- Generally speaking, dramatic changes in temperature may lead to contact malfunction and crackles due to constant thermal expansion and contraction from the welding spots' that connect components and PCB. Computer should go through an adaptive phase before it boots when it is moved from a cold environment to a warmer one to avoid condensation phenomenon. These water drops attached on PCB or the surface of the components can bring about phenomena as minor as computer instability resulted from corrosion and oxidation from components and PCB or as major as short circuit that can burn the components. Suggest starting the computer until the temperature goes up.
- The increasing temperature of the capacitor may decrease the life of computer. Using the close case may decrease the life of other device because the higher temperature in the inner of the case.
- Attention to the heat sink when you over-clocking. The higher temperature may decrease the life of the device and burned the capacitor.

---

---

## USER'S NOTICE

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

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

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

## Manual Revision Information

Reversion	Revision History	Date
1.0	First Edition	March 16, 2018

## Item Checklist

- Motherboard
- DVD for motherboard utilities
- User's Manual
- Cable(s)
- I/O Back panel shield

---

---

# Chapter 1

## Introduction of the Motherboard

### 1-1 Feature of Motherboard

- Onboard Intel<sup>®</sup> Apollo Lake Series Processor, with low power consumption and high performance
- Support DDR3L 1866MHz SO-DIMM with maximum memory capacity up to 8GB
- Integrated with Realtek Gigabit Ethernet LAN chip
- Integrated with Realtek 6-channel HD Audio Codec
- Support USB 3.0 data transport demand
- Support 1\* Display port & 1\* HDMI port
- Support 1\* PCIE 2.0 x1slot & 1\* full-size Mini-PCIE slot
- Support 1 \* SATAIII (6Gb) device
- Support 1\* 1\* M.2 Socket 3 slot for M-key type 2242/2260 SATA SSD
- Support Smart FAN function
- Supports ACPI S3 Function
- Compliance with ErP Standard
- Support Watchdog Timer Technology

## 1-2 Specification

Spec	Description
Design	<ul style="list-style-type: none"> <li>● Mini-ITX form factor 6 layers; PCB size: 17.0x17.0cm</li> </ul>
CPU	<ul style="list-style-type: none"> <li>● Intel® Apollo Lake series CPU</li> </ul> <p><i>* for detailed CPU support information please visit our website</i></p>
Memory Slot	<ul style="list-style-type: none"> <li>● <b>NF694 Series:</b> 2*DDR3L SO-DIMM slot</li> <li>● <b>NF694L Series:</b> 1*DDR3L SO-DIMM slot</li> <li>● Support DDR3L 1866 MHz SO-DIMM up to 8GB</li> </ul> <p><i>* NF694 Series Support dual channel function</i></p>
Expansion Slot	<ul style="list-style-type: none"> <li>● 1* PCIE x 1 slot</li> <li>● 1* Full-size Mini-PCIE slot (<b>MPE</b>)</li> <li>● <b>NF694 Series: 1* SIM card slot (SIMCARD)</b></li> </ul>
Storage	<ul style="list-style-type: none"> <li>● 1* SATA III 6G/s connector (<b>SATA1</b>)</li> <li>● 1* M.2 Socket 3 slot (M2, M-key, support type 2242/2260 SATA SSD)</li> </ul>
Gigabit LAN Chip	<ul style="list-style-type: none"> <li>● <b>NF694 Series:</b> 2* Realtek RTL8111H Gigabit PCI-E LAN chip</li> <li>● <b>NF694L Series:</b> 1* Realtek RTL8111H Gigabit PCI-E LAN chip</li> <li>● Support Fast Ethernet LAN function of providing 10/100/1000Mbps Ethernet data transfer rate</li> </ul>
Audio Chip	<ul style="list-style-type: none"> <li>● Realtek ALC662-VD0-GR 5.1 channel Audio Codec</li> <li>● Audio driver and utility included</li> </ul>
BIOS	<ul style="list-style-type: none"> <li>● AMI Flash ROM</li> </ul>
Multi I/O	<p><b>Rear Panel I/O:</b></p> <ul style="list-style-type: none"> <li>● 4* Serial port connector(<b>COM1_COM2/COM3_COM4</b>)</li> <li>● 1* Display port</li> <li>● 1* HDMI port</li> <li>● 4* USB 3.0 port</li> <li>● NF694 Series: 2* RJ-45 LAN port</li> </ul>

	<ul style="list-style-type: none"> <li>● NF694L Series: 1* RJ-45 LAN port</li> <li>● 1*3-jack audio connector (Line-in, Line-out, MIC)</li> </ul> <p><b>Internal I/O Connectors &amp; Headers:</b></p> <ul style="list-style-type: none"> <li>● 1 *24-pin main power connector</li> <li>● 1* CPUFAN connector &amp; 2* SYSFAN connector</li> <li>● 1*Front panel header</li> <li>● 1*Front panel audio header</li> <li>● 1* SPDIF-out header</li> <li>● 1 * 9-Pin USB 2.0 header for 2* USB 2.0/1.1 ports</li> <li>● 1 * 9-Pin USB 2.0 header for 1* USB 2.0/1.1 ports</li> <li>● NF694 Series: 2* Serial port header (<b>COM5/6</b>)</li> <li>● 1 * PS2 Keyboard &amp; Mouse header</li> <li>● 1* SMBUS header</li> <li>● 1* GPIO header</li> <li>● 1*LVDS header</li> <li>● 1* LVDS Inverter header</li> </ul>
--	--

**Note;** 1. Option parts are only available to specific models. 2. This manual serves as a common manual NF694 & NF694L series, which include different models. Their main differences are listed as below:

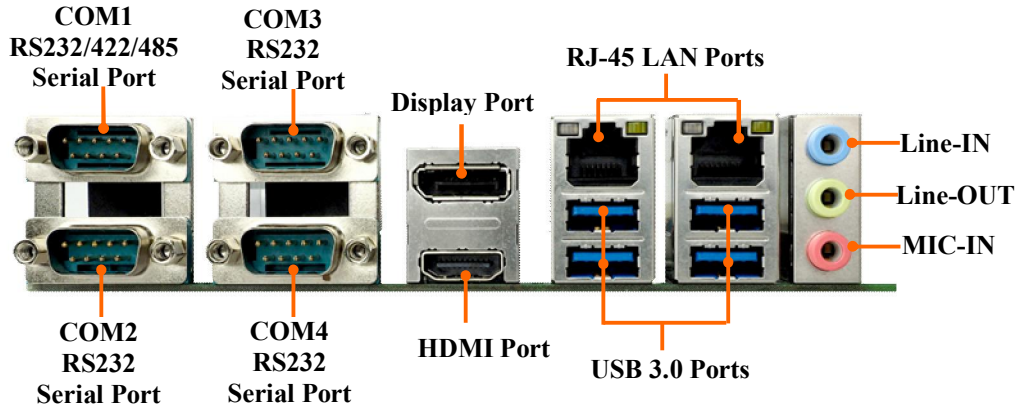
<b>Model</b>	<b>Rear I/O</b>	<b>Other Differences</b>
<b>NF694</b>	2* RJ-45 LAN Port COM1:RS232/422/485 Serial Port	2* DDR3L SO-DIMM Slot 1* COM5 & 1* COM6 header 1* SIM card socket
<b>NF694L</b>	1* RJ-45 LAN Port COM1:RS232 Serial Port	1*DDR3L SO-DIMM Slot COM5 & COM6 header: N/A SIM card socket: N/A



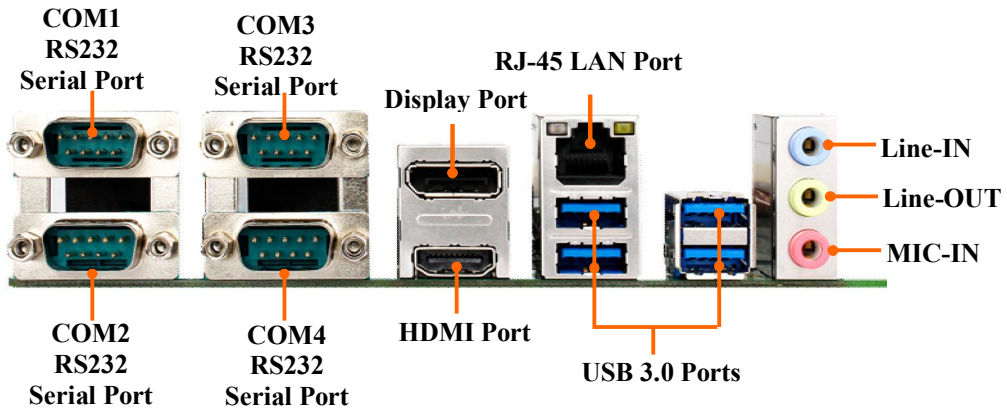
---

## 1-3 Layout Diagram

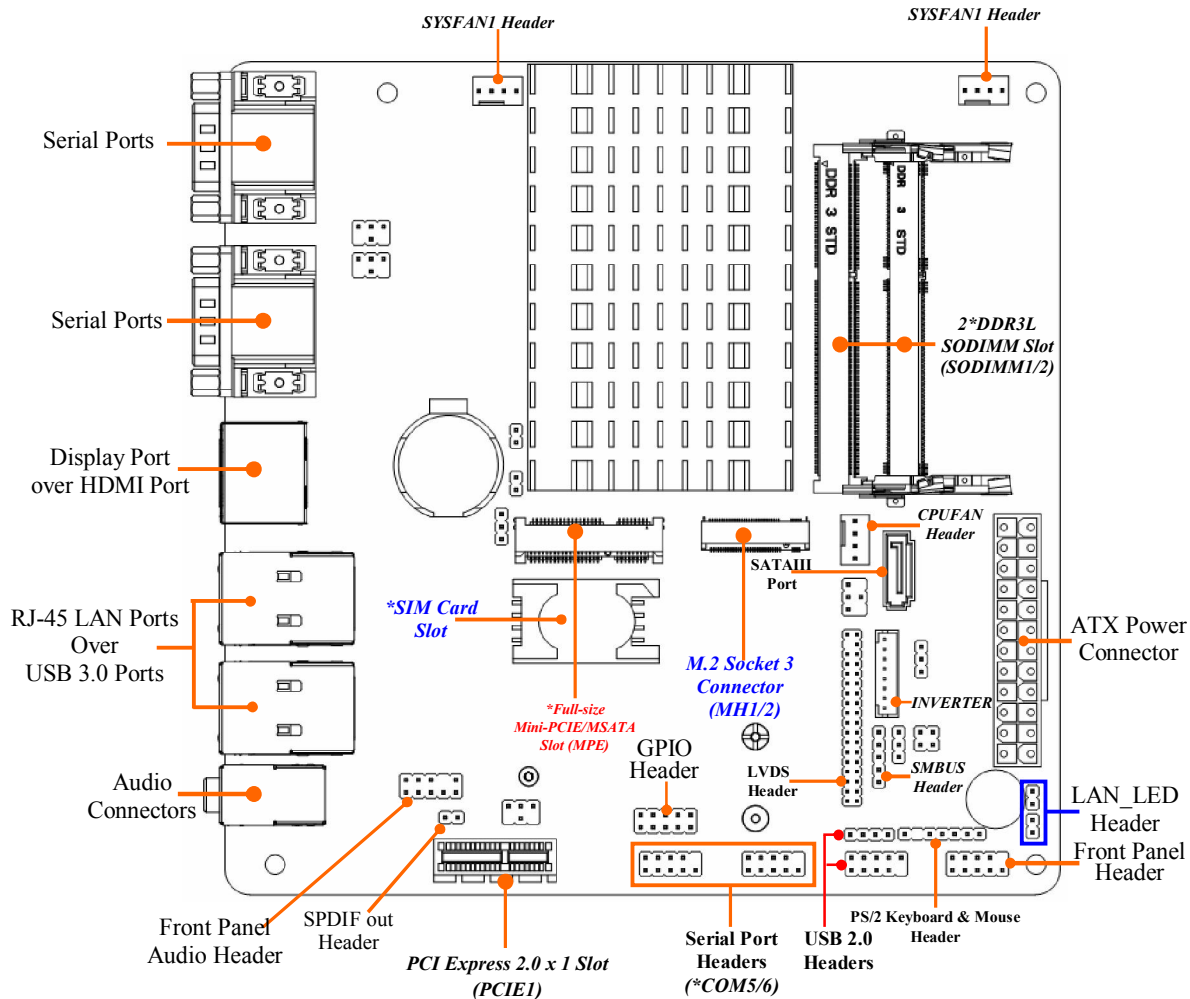
### *Rear IO Diagram For NF694 Series*



### *For NF694L Series*

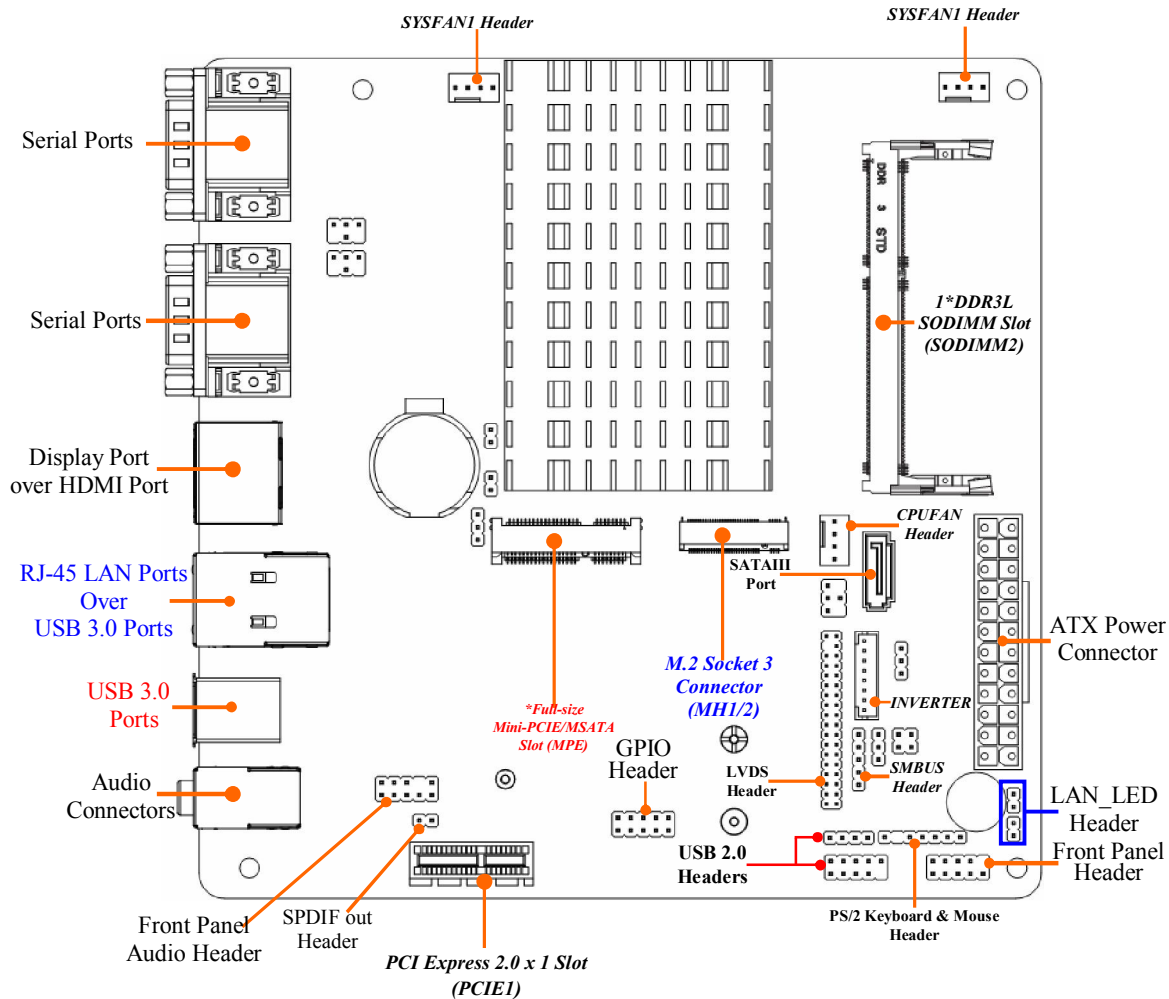


# Motherboard Internal Diagram For NF694 Series

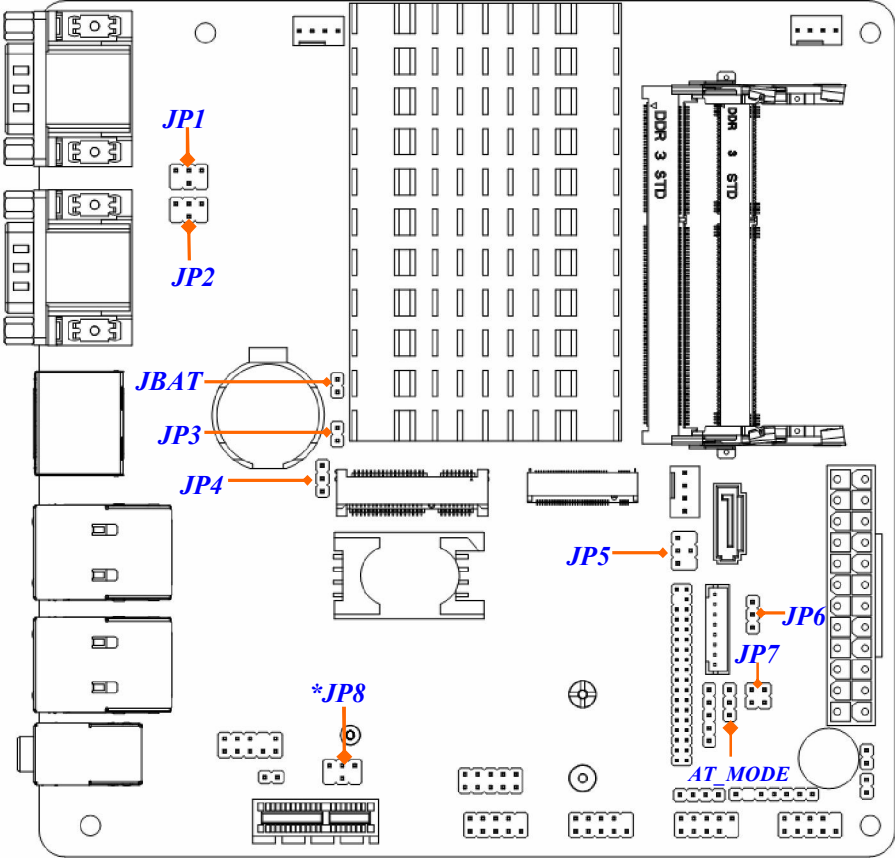


**Note:** The diagrams used for illustration in this manual are from model NF694 series, unless otherwise stated.

# Motherboard Internal Diagram For NF694L Series



# Motherboard Jumper Position



## Connectors

Connector	Name
ATXPWR1	24-Pin ATX Main Power Connector
ATX12V1	4-Pin 12V Power Connector
COM1_COM2 (NF694)	<b>Top:</b> COM1 RS232/422/485 Serial Port Connector <b>Bottom:</b> COM2 RS232 Serial Port Connector
COM1_COM2 (NF694L)	RS232 Serial Port Connector x2
DP_HDMI	<b>Top:</b> Display Port Connector <b>Bottom:</b> HDMI Port Connector
UL1	<b>Top:</b> RJ-45 LAN Connector <b>Middle &amp; Bottom:</b> USB 3.0 Port Connector x2
UL2 (NF694)	<b>Top:</b> RJ-45 LAN Connector <b>Middle &amp; Bottom:</b> USB 3.0 Port Connector x2
UL2 (NF694L)	USB 3.0 Port Connector x2
AUDIO	<b>Top:</b> Line-in Connector <b>Middle:</b> Line-out Connector <b>Bottom:</b> MIC Connector
SATA1	SATAIII Connector
CPUFAN/SYSFAN1 /SYSFAN2	FAN Connector X3

## Headers

Header	Name	Description
FP	Front Panel Header(PWR LED/ HD LED/Power Button /Reset)	9-pin Block
<b>LAN1_LED/ LAN2_LED</b>	LAN Activity LED Header	2-pin Block
FP_AUDIO	Front Panel Audio Header	9-pin Block
SPDIFOUT	HDMI SPDIF Out Header	2-pin Block
USB4	USB2.0 Port Header	9-pin Block
USB5	USB2.0 Port Header	4-pin Block

---

<b>*COM5/6</b>	Serial Port Header	9-pin Block
PS2KBMS	PS2 Keyboard & Mouse Port Header	6-pin Block
SMBUS	SMBUS Header	5-pin Block
GPIO	GPIO Port Header	10-pin Block
LVDS	LVDS Port Header	35-pin Block
INVERTER	LVDS Inverter Header	8-pin Block

### ***Jumper***

<b>Jumper</b>	<b>Name</b>	<b>Description</b>
JP1	COM1 Port Pin9 Function Select	4-pin Block
JP2	COM2 Port Pin9 Function Select	4-pin Block
<b>*JP8</b>	<i>COM5 Header Pin9 Function Select</i>	<i>4-pin Block</i>
JBAT	Clear CMOS RAM Settings	2-pin Block
JP4	MPE Slot Power VCC 3.3V/3.3VSB Select	3-pin Block
JP5	LVDS Panel Power Select	4-pin Block
JP6	LVDS Inverter Power Select	3-pin Block
JP7	<b><i>Pin(1-2):</i></b> Case Open Message Display Function <b><i>Pin(3-4):</i></b> TXE Features Select	4-pin Block
AT_MODE	ATX/AT Mode Select	3-pin Block

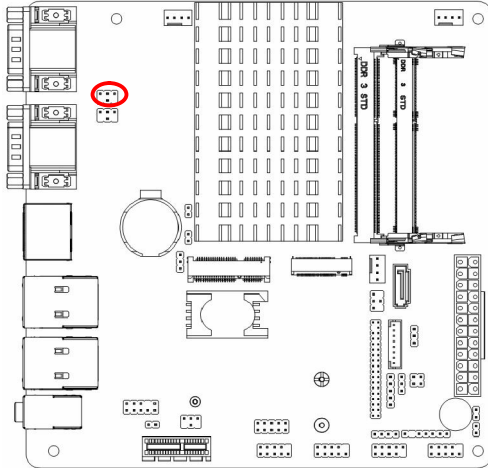
**\*Note:** *JP8, COM5 & COM6 are only optional for NF694 series.*

# Chapter 2

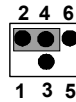
## Hardware Installation

### 2-1 Jumper Setting

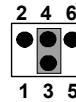
#### JP1 (4-pin): COM1 Port Pin9 Function Select



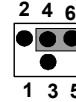
JP1→COM1 Port Pin-9



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

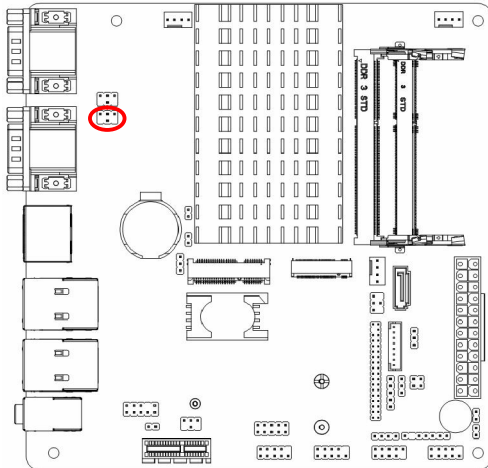


3-4 Closed:  
RI= 5V;

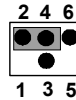


4-6 Closed:  
RI= 12V.

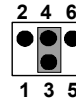
#### JCOMP2 (4-pin): COM2 Port Pin9 Function Select



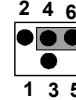
JP2→COM2 Port Pin-9



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

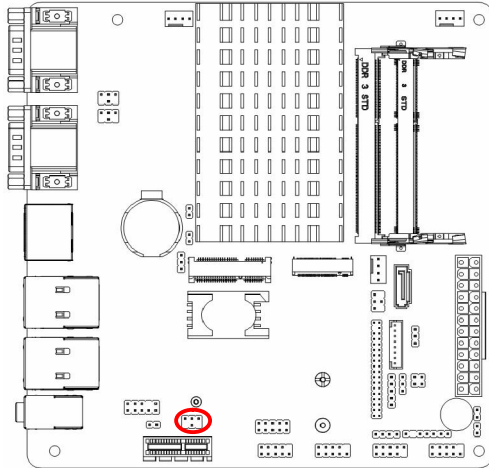


3-4 Closed:  
RI= 5V;

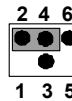


4-6 Closed:  
RI= 12V.

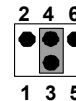
**\*JP8 (4-pin): COM5 Header Pin-9 Function Select**



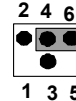
**JP8 → COM 5 Header Pin-9**



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



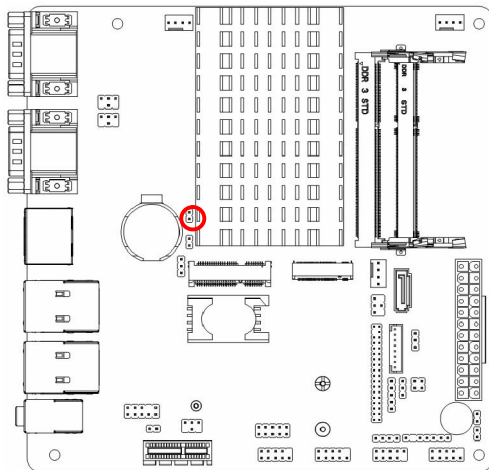
**3-4 Closed:**  
RI= 5V;



**4-6 Closed:**  
RI= 12V.

**\*Note:** JP8 is only optional for NF694 series with COM5 header.

**JBAT (2-pin): Clear CMOS RAM Settings**



**JBAT → Clear CMOS**



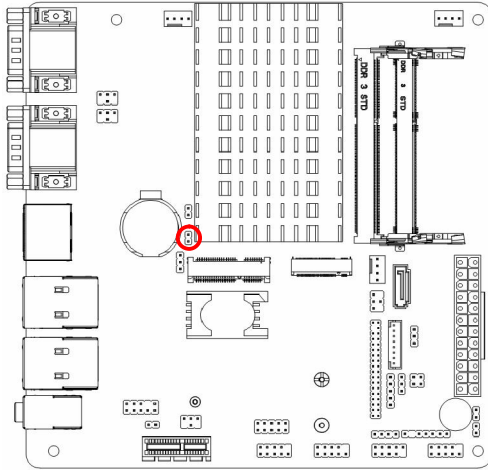
**1-2 Open: Normal (Default);**



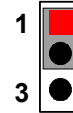
**1-2 Closed: Clear CMOS Settings.**



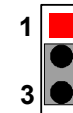
**JP4 (3-pin): MPE Slot VCC 3.3V/3.3VSB Select**



**JP4 → MPE Slot Power VCC Select**

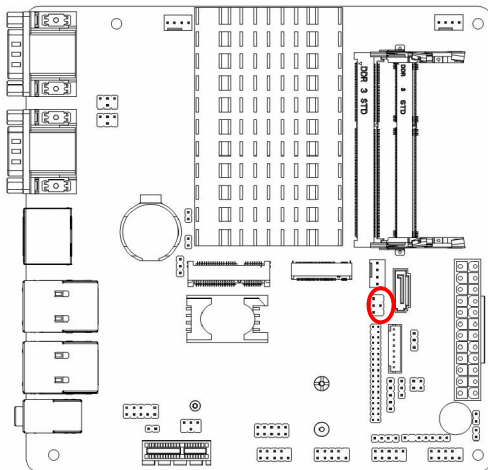


**1-2 Closed: MPE Slot Power VCC= 3.3V;**

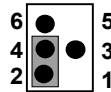


**2-3 Closed: MPE Slot Power VCC= 3.3VSB.**

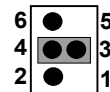
**JP5 (4-pin): LVDS Panel VCC Select**



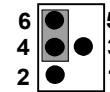
**JP5 → LVDS Panel VCC Select**



**2-4 Closed:  
VCC=3.3V;**

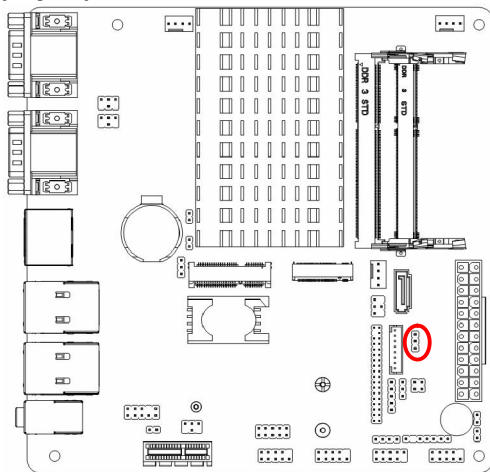


**3-4 Closed:  
VCC= 5V;**

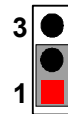


**4-6 Closed:  
VCC= 12V.**

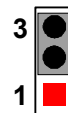
### JP6 (3-pin):LVDS Inverter 5V/12V Select



#### *JP6 → LVDS Inverter VCC Select*

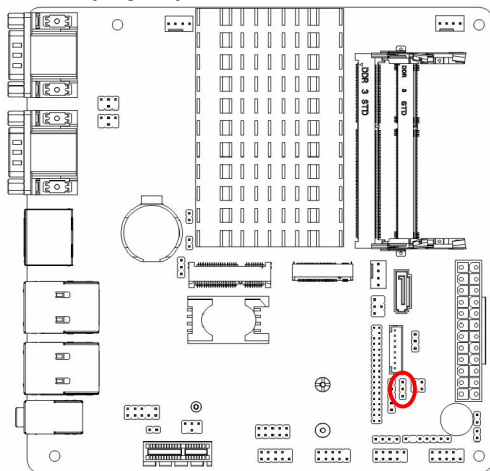


1-2 Closed: Inverter 5V Selected;

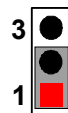


2-3 Closed: Inverter 12V Selected

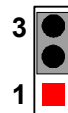
### AT\_MODE(3-pin): ATX Mode/ AT Mode Select



#### *AT\_MODE → ATX/AT Mode Select*



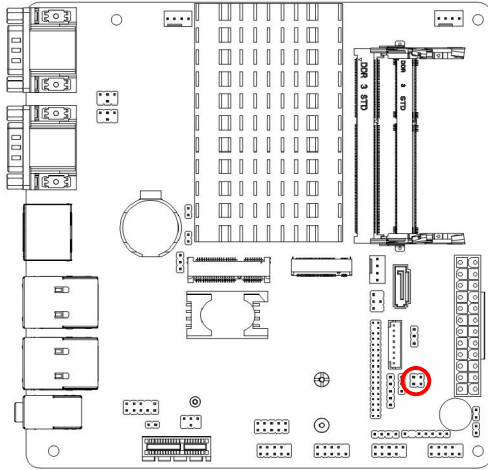
1-2 Closed: ATX Mode Selected;



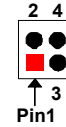
2-3 Closed: AT Mode Selected.

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

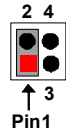
## Pin (1-2) of JP7 (4-pin):Case Open Message Display Function Select



*Pin(1-2) of JP7→Case Open Detect*



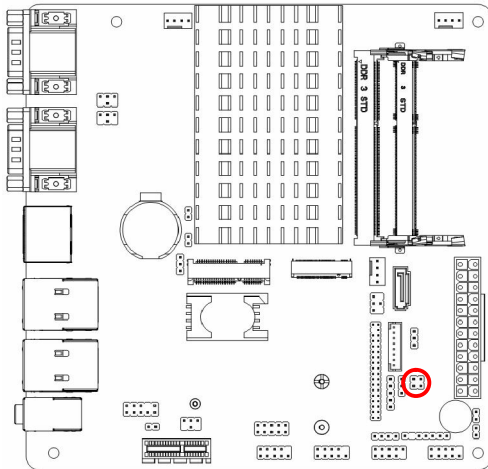
**1-2 Open: Normal (Default);**



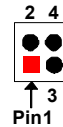
**1-2 Close: Case Open Detect  
Function Selected (One Touch).**

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

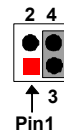
## Pin (3-4) of JP7 (4-pin):TXE Features Select



*Pin(3-4) of JP7→TXE Features Select*



**3-4 Open: Enable TXE Features;**



**3-4 Close: Disable TXE Features.**

---







---

## 2-2 Connectors and Headers

### 2-2-1 Connectors

#### (1) Rear Panel Connectors

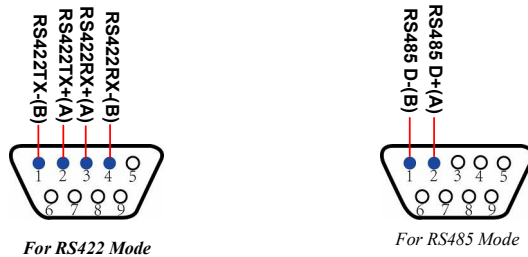
\*refer to Page-4.

<i>Icon</i>	<i>Name</i>	<i>Function</i>
	<b>Serial Port</b>	Mainly for user to connect external MODEM or other devices that supports Serial Communications Interface. <b>*Note:</b> COM1 supports RS232/422/485 function.
	<b>Display Port</b>	To the system to corresponding display device with compatible display port cable.
	<b>HDMI Port</b>	To connect display device that support HDMI specification.
	<b>RJ-45 LAN Port</b>	This connector is standard RJ-45 LAN jack for Network connection.
	<b>USB 3.0 Port</b>	To connect USB keyboard, mouse or other devices compatible with USB specification. USB 3.0 ports supports up to 5Gbps data transfer rate.
	<b>Audio Connectors</b>	<b>BLUE:</b> Line-in Connector <b>GREEN:</b> Line-out Connector <b>PINK :</b> MIC Connector

## (2) COM1/COM2: Serial Port Connector

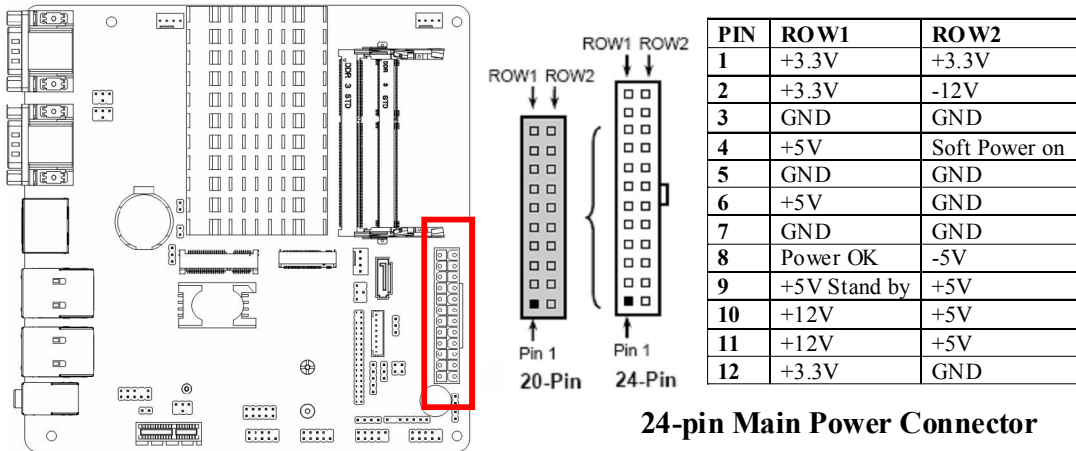
Port	NF694 Series	NF694L Series
COM1	RS232/422/485	RS232
COM2	RS232	RS232

COM1 port from NF694 series can function as RS232/422/485 port. In normal settings COM1 functions as RS232 port. With compatible COM cable COM1 can function as RS422 or RS 485 port. 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.



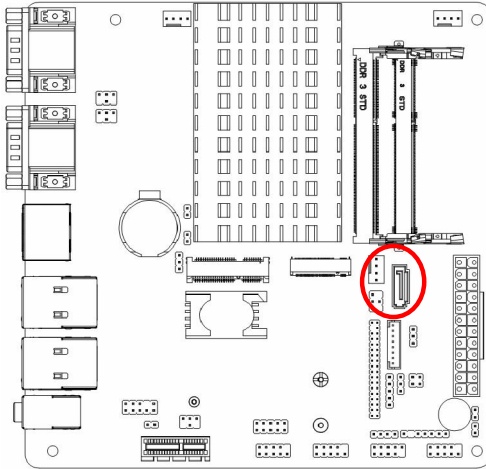
**\*Note:**For NF694 series COM1 supports RS232/422/485 function;COM2 port only supports as RS232 funtion.For NF694L series both COM1 & COM2 function as RS232 serial port only.

## (3) AXPWR1 (24-pin block): Power Connector

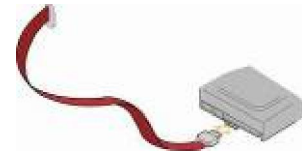


#### (4) SATA (7-pin): SATA III Port connector

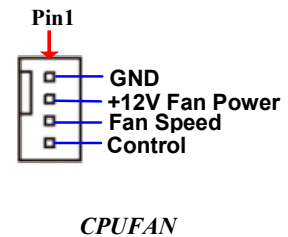
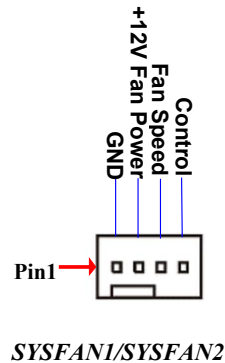
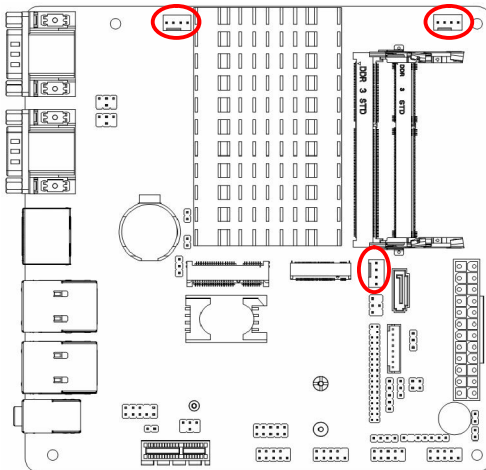
SATA1 port is a high-speed SATAIII port that supports 6 GB/s transfer rate.



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



#### (5) CPUFAN/SYSFAN1/SYSFAN2 (4-pin): Fan Connector

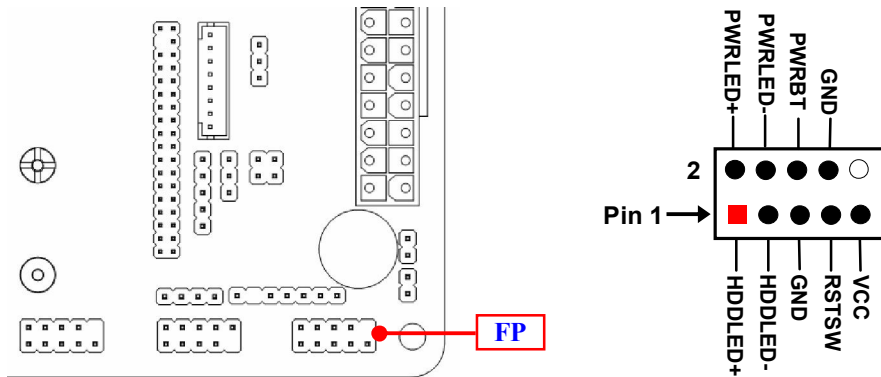


---

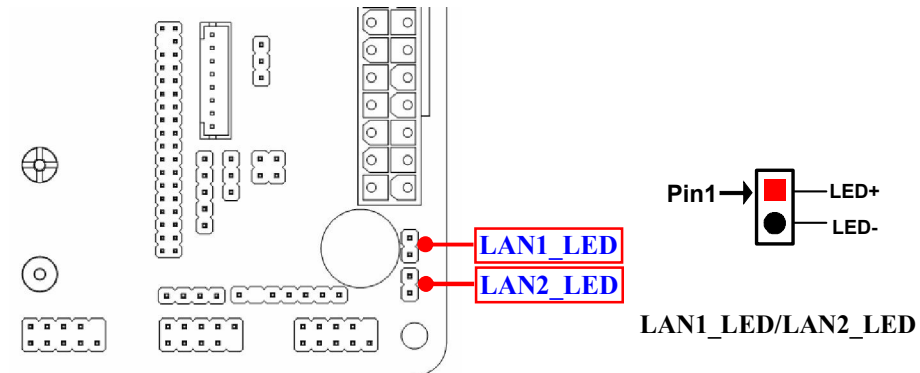
---

## 2-2-2 Headers

### (1) FP (9-pin): Front Panel Header



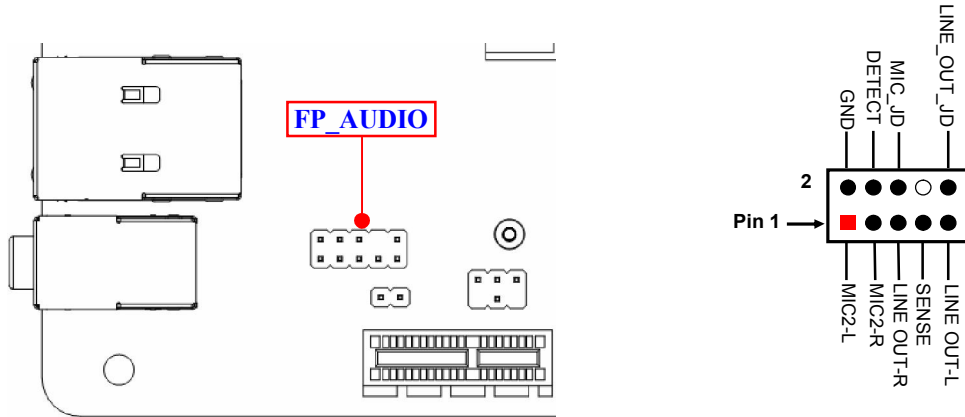
### (2) LAN1\_LED/LAN2\_LED (8-pin): LAN Activity LED Headers



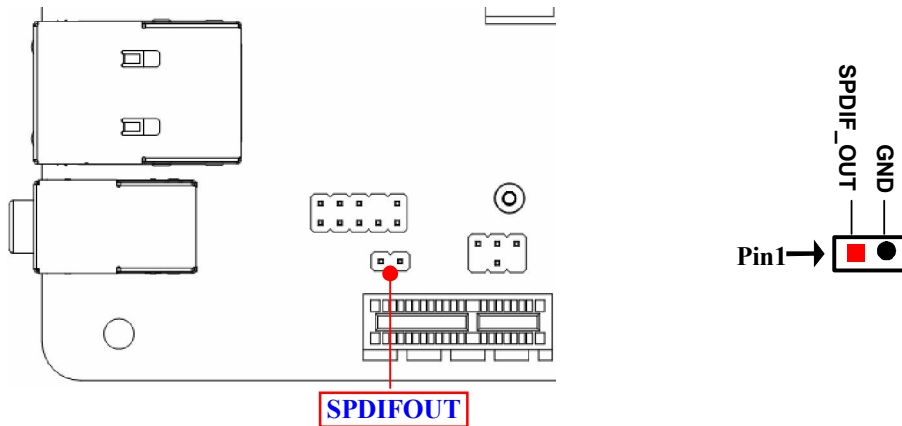
---

### (3) FP\_AUDIO (9-pin): Line-Out, MIC-In Header

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



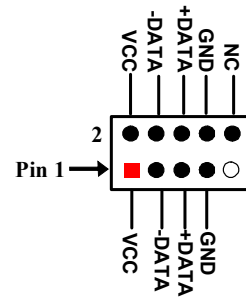
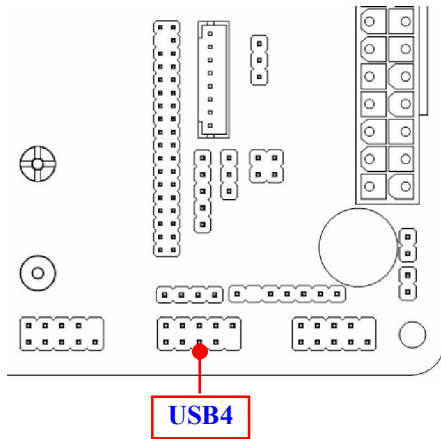
### (4) SPDIFOUT (2-pin): HDMI\_SPDIF Out header



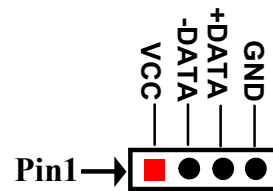
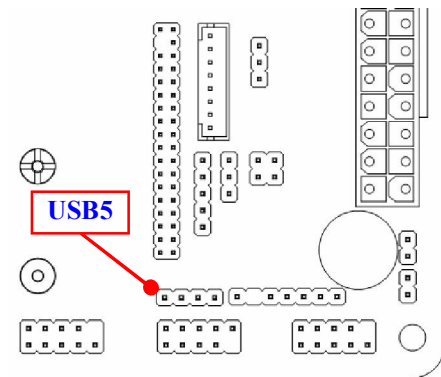


---

**(5) USB4 (9-pin): USB 2.0 Port Header**



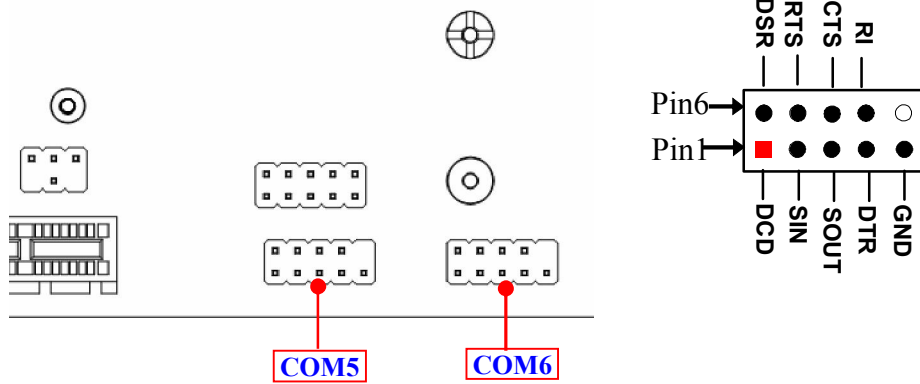
**(6) USB5 (4-pin): USB 2.0 Port Header**



---

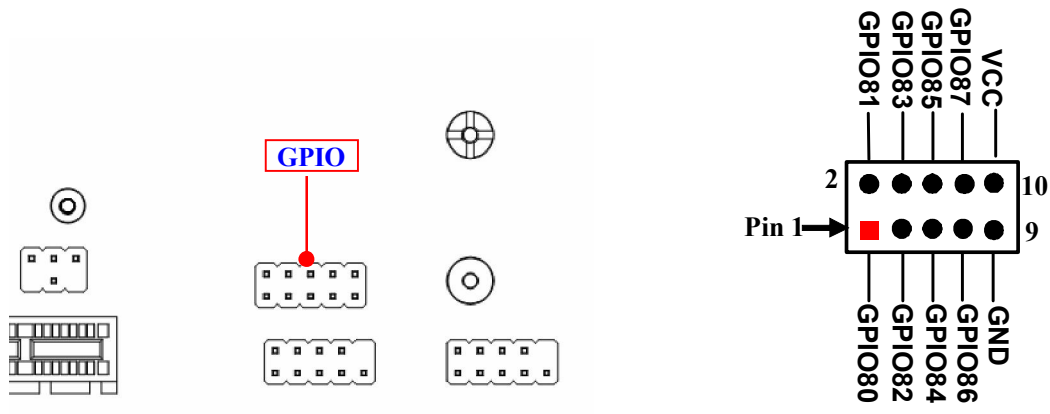
---

**(7) COM5/COM6 (9-pin): RS232 Serial Port Header**



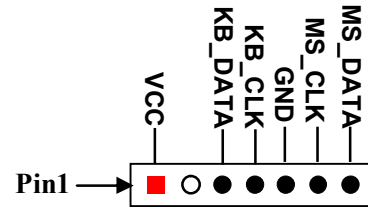
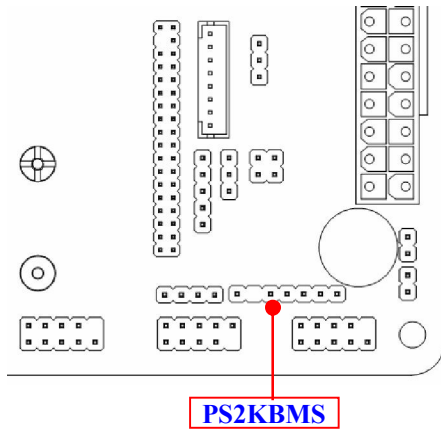
*\*Note: COM5 & COM6 headers are only optional for NF694 series.*

**(8) GPIO(10-pin): GPIO Port Header**

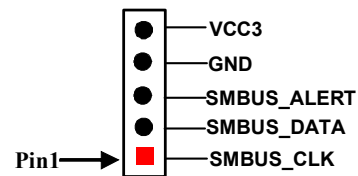
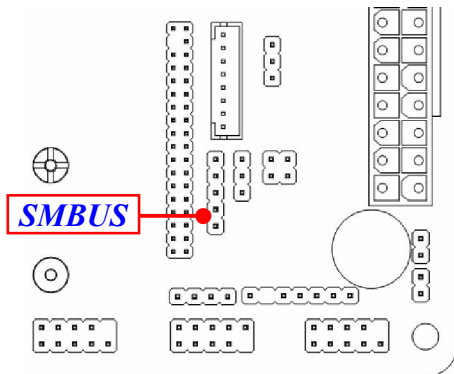


---

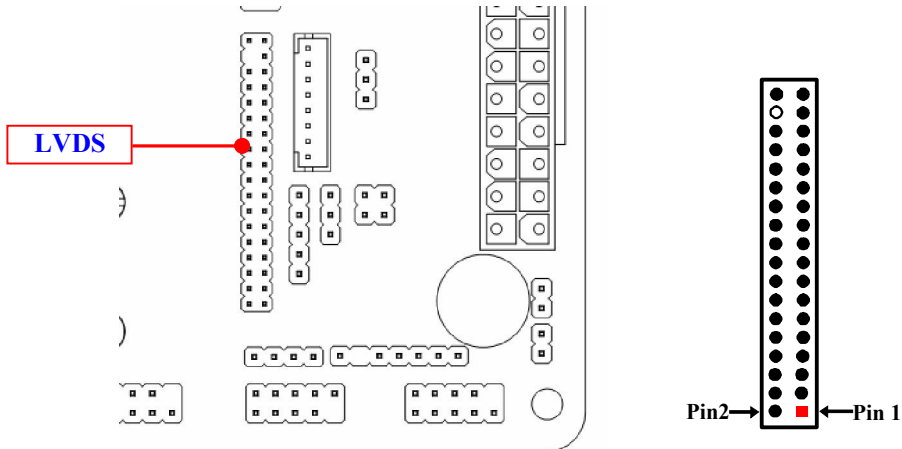
**(9) PS2KBMS (6-pin): PS/2 Keyboard & Mouse Port Header**



**(10) SMBUS (5-Pin): SMBUS Header**



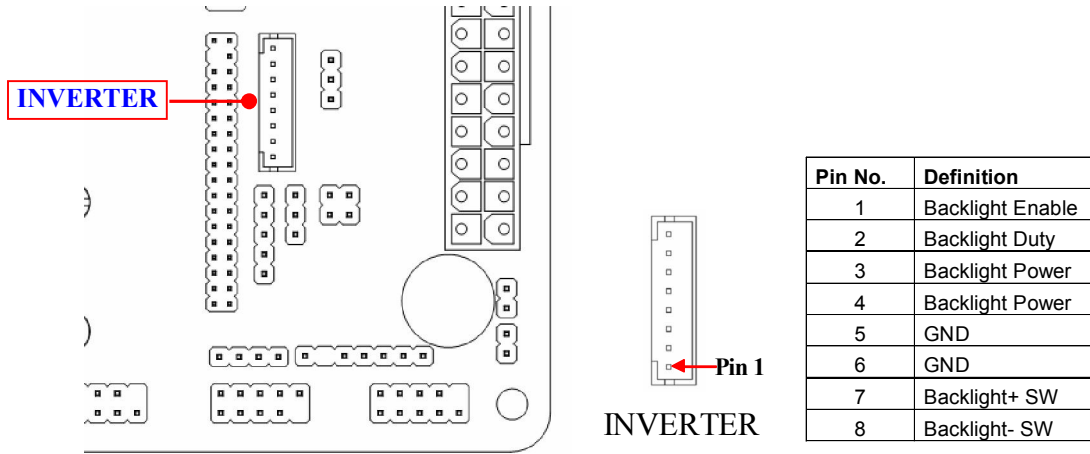
## (8) LVDS (35-pin): 18-bit single channel LVDS Header



Pin NO.	Pin Define	Pin NO.	Pin Define
Pin 1	NC	Pin 2	NC
Pin 3	NC	Pin 4	NC
Pin 5	NC	Pin 6	NC
Pin 7	NC	Pin 8	NC
Pin 9	NC	Pin 10	NC
Pin 11	LVDS_DDC_DATA	Pin 12	LVDS_DDC_CLK
Pin 13	GND	Pin 14	GND
Pin 15	GND	Pin 16	GND
Pin 17	NC	Pin 18	NC
Pin 19	LVDS_CLKAP	Pin 20	LVDS_CLKAN
Pin 21	LVDSA_DATAP2	Pin 22	LVDSA_DATAN2
Pin 23	LVDSA_DATAP1	Pin 24	LVDSA_DATAN1
Pin 25	LVDSA_DATAP0	Pin 26	LVDSA_DATAN0
Pin 27	PVDD	Pin 28	PVDD
Pin 29	PVDD	Pin 30	PVDD
Pin 31	GND	Pin 32	GND
Pin 33	+5V	Pin 34	N/A
Pin 35	+12V (Reserved)	Pin 36	+3V

---

## (8) INVERTER (8-Pin): LVDS Inverter



---

---

# 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

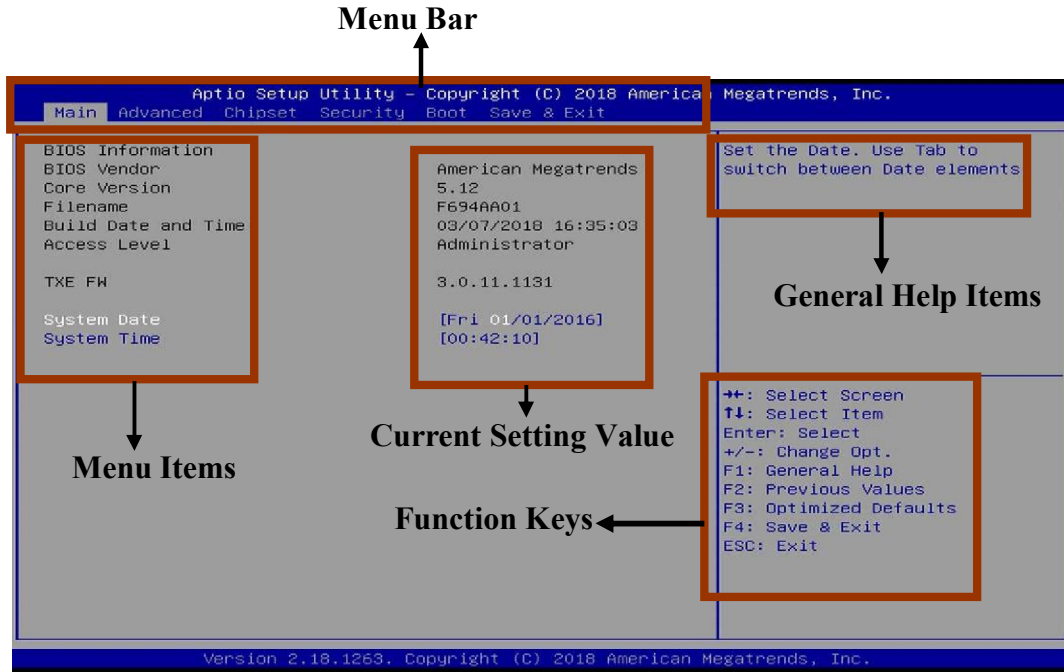
Power on the computer and by pressing <Del> immediately allows you to enter Setup. If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously 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 Popup Menu.

---

## 3-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:



## 3-3 Function Keys

In the above BIOS Setup main menu of, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

- Press ←→ (left, right) to select screen;
- Press ↑↓ (up, down) to choose, in the main menu, the option you want to confirm or to modify.
- Press <Enter> to select.
- Press <+>/<-> keys when you want to modify the BIOS parameters for the active option.

- 
- [F1]: General help.
  - [F2]: Previous value.
  - [F3]: Optimized defaults.
  - [F4]: Save & Exit.
  - 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:

<b>Main</b>	To change system basic configuration
<b>Advanced</b>	To change system advanced configuration
<b>Chipset</b>	To change chipset configuration
<b>Security</b>	Password settings
<b>Boot</b>	To change boot settings
<b>Save &amp; Exit</b>	Save setting, loading and exit options.

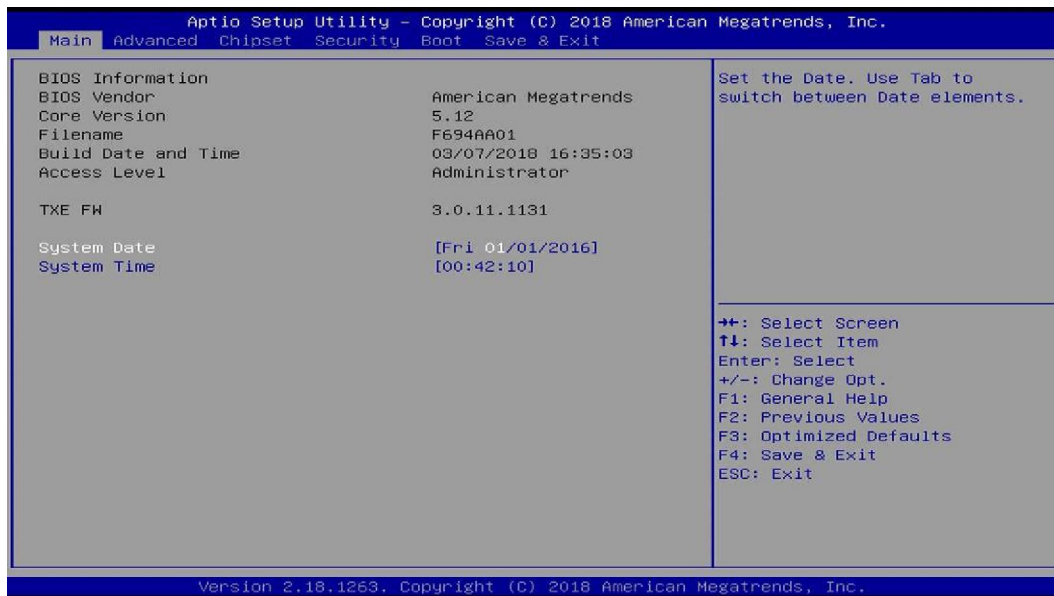
User can press the right or left arrow key on the keyboard to switch from menu bar. The selected one is highlighted.



---

## 3-6 Main Menu

Main menu screen includes some basic system information. Highlight the item and then use the <+> or <-> and numerical keyboard keys to select the value you want in each item.



### System Date

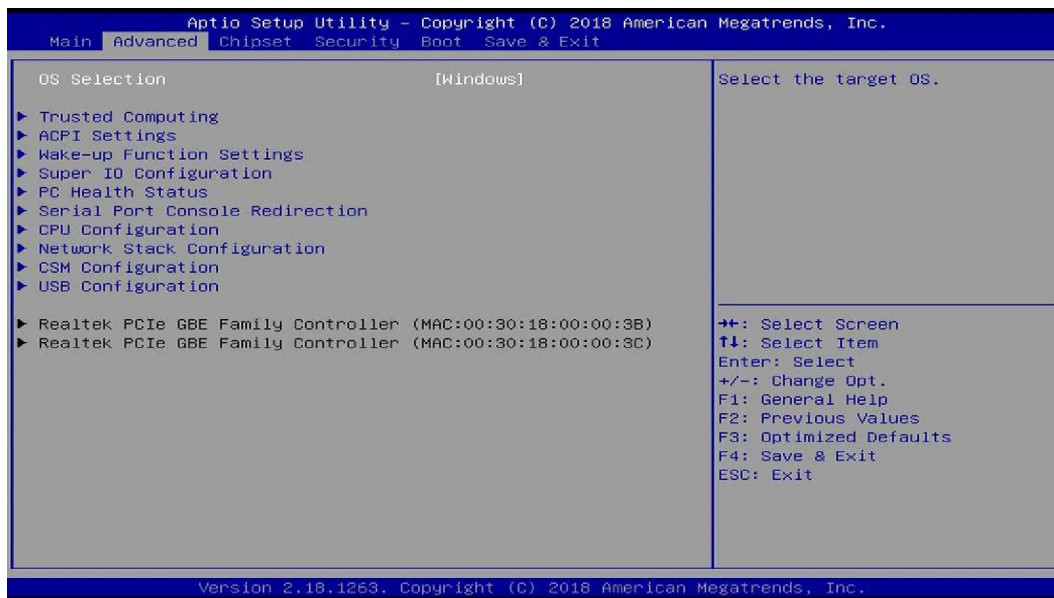
Set the date. Please use [Tab] to switch between data elements.

### System Time

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

---

## 3-7 Advanced Menu



### OS Selection

The optional settings: [Windows]; [Intel Linux]; [MSDOS].

\* **Note:** User need to go to this item to select the OS mode before installing corresponding OS driver, otherwise problems will occur when installing the driver.

#### ▶ **Trusted Computing**

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

#### Configuration

#### **Security Device Support**

Use this item to enable or disable BIOS support for security device.

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

#### ▶ **ACPI Settings**

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

#### ACPI Settings

#### **ACPI Sleep State**

---

---

Use this item to select the highest ACPI sleep state the system will enter when the suspend button is pressed.

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

► **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 minutes.

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: [Enabled]; [Disabled].

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. This function is only supported when ERP function is disabled.

**\*\*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.

**Redirection Port 80h To COM3**

---

---

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

*\*Note: 'Redirection Port 80h To COM3' option is only optional for NF694L series.*

▶ **Serial Port 1 Configuration (NF794 Series)**

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 settings fro Super IO Device.

**Transmission Mode Select**

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

*\*Note: 'Transmission Mode Select' option is only optional for NF694 series.*

**Mode Speed Select**

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

*\*Note: 'Mode Speed Select' option is only optional for NF694 series.*

**Serial Port FIFO Mode**

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

▶ **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 settings fro Super IO Device.

**Serial Port FIFO Mode**

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

*\*Note: 'Serial Port 5 Configuration' & 'Serial Port 6 Configuration' options are only optional for NF694 series.*

**WatchDog Reset Timer**

Use this item to enable or disable WDT reset function. When set as [Enabled], the

---

---

following sub-items shall appear:

**WatchDog Reset Timer Value**

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

**WatchDog Reset Timer Unit**

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

**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 12** , Pin 3&4 of JP1 block for ATX Mode & AT Mode Select).

**Case Open Detect**

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

**PS2 KB/MS Connect**

The optional settings are: [Keyboard First]; [Mouse First].

▶ **PC Health Status**

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

▶ **SmartFAN Configuration**

Press [Enter] to make settings for SmartFan Configuration:

**SmartFAN Configuration**

**CPUFAN Smart Mode**

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

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

**CPUFAN Full-Speed Temperature**

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

**CPUFAN Full-Speed Duty**

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

**CPUFAN Idle-Speed Temperature**

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

---

---

### **CPUFAN Idle-Speed Duty**

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

### ▶ **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: 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.

#### **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 data bits is odd; 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].

### **Legacy OS Redirection Resolution**

On Legacy OS, the Number of Rows and Columns supported redirection.

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

### **Putty KeyPad**

Use this item to select FunctionKey and KeyPad on Putty.

The optional settings: [VT100]; [Intel Linux]; [XTERMR6]; [SCO]; [ESCN]; [VT400].

### **Redirection After BIOS 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 Enable is selected, then Legacy Console is enabled for legacy OS. Default setting for this option is set to Always Enable.

---

---

## **Legacy Console Redirection**

### **▶ Legacy Console Redirection Settings**

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

#### **Legacy Serial Redirection Port**

For user to select a COM port to display redirection of legacy OS and Legacy OPRM messages.

The optional setting is: [COM1].

## **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 setting is: [COM1].

#### **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.*

### ▶ **CPU Configuration**

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

#### **Intel Virtualization Technology**

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

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

#### **VT-d**

Use this item to enable or disable CPU VT-d.

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

#### **EIST**

Use this item to enable or disable Intel SpeedStep.

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

#### **C-States**

Use this item to enable or disable C-State.

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

#### **Enhanced C-states**

Use this item to enable or disable C1E. When enabled, CPU will switch to minimum speed when all cores enter C-state.

---

---

### **Max Core CStates**

Use this option to controls the max Core C state that cores will support.

The optional settings are: [Fused value]; [Core C10]; [Core C9]; [Core C8]; [Core C7]; [Core C6]; [Core C1]; [Unlimited].

### ▶ **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 boot optional will not be created.

#### **Ipv4 HTTP Support**

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

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

#### **Ipv6 PXE Support**

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

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

#### **Ipv6 HTTP Support**

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

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

#### **PXE Boot Wait Time**

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

#### **Media Detect Count**

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

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

### ▶ **CSM Configuration**

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

---

---

## **Compatibility Support Module Configuraton**

### **Boot option filter**

This item controls Legacy/UEFI ROMs priority.

The optional settings are: [UEFI and Legacy]; [Legacy only]; [UEFI only].

### **Network**

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

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

### **Storage**

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

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

### **Video**

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

The optional settings are: [UEFI]; [Legacy].

### **Other PCI devices**

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

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

## ▶ **USB Configuration**

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

### **USB Configuration**

#### **Legacy USB Support**

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

**[Enabled]:** To enable legacy USB support.

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

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

#### **XHCI Hand-off**

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

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

#### **USB Mass Storage Driver Support**

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

### **USB Hardware 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**

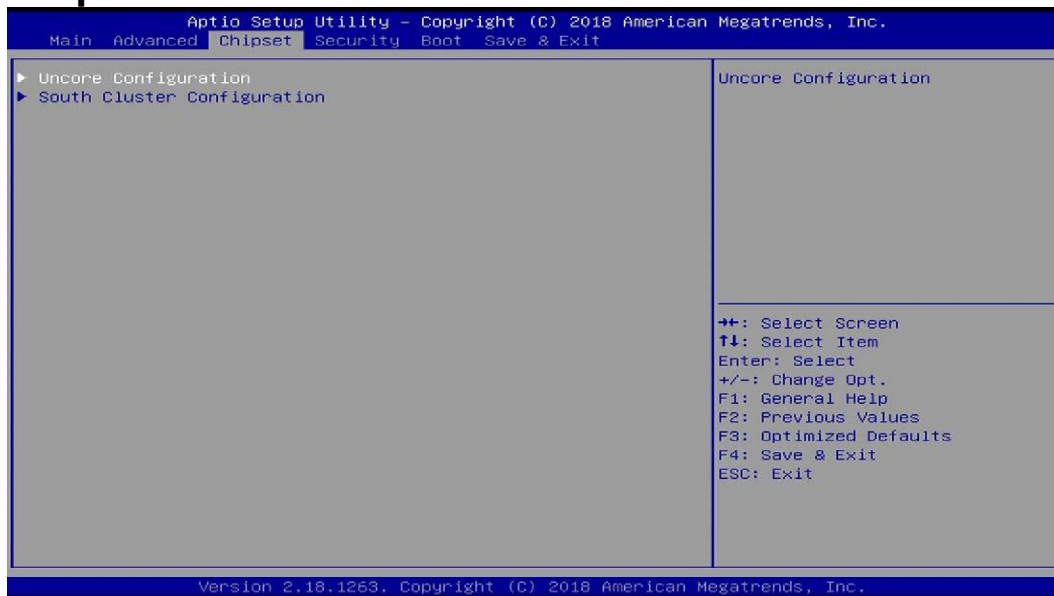
The delay range is from [1] to [40] seconds, in one second increments.

- ▶ **Realtek PCIe GBE Family Controller(MAC:XX:XX:XX:XX:XX:XX)/ Realtek PCIe GBE Family Controller(MAC:XX:XX:XX:XX:XX:XX)**

These items show current network brief information.

---

## 3-8 Chipset Menu



► **Uncore Configuration**

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

**GOP Configuration**

**GTT Size**

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

**DVMT Pre-Allocated**

Use this item to select DVMT 5.0 pre-allocated (fixed) graphics memory size used by the internal graphics device.

The optional settings are: [64M]; [96M]; [128M]; [160M]; [192M]; [224M]; [256M]; [288M]; [320M]; [352M]; [384M]; [416M]; [448M]; [480M]; [512M].

**DVMT Total Gfx Mem**

Use this item to select DVMT 5.0 total graphics memory size used by the internal graphics device.

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

**Active LVDS**

---

---

Use this item to select the active configuration.  
The optional settings are: [Disabled]; [Enabled].

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

### **LVDS Panel Type**

Use this item to select LVDS panel resolution.

The optional settings are: [800 x 480 18bit Single]; [800 x 600 18bit Single]; [800 x 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].

### **Memory Configuration**

The working memory information will be on display.

## ▶ **South Cluster Configuration**

### ▶ **SATA Configuration**

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

#### **SATA Controller(s)**

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

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

#### **SATA Port**

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

Use this item to enable or disable each SATA port.

#### **Hot Plug**

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

#### **Device Type**

The optional settings: [HDD]; [SSD].

#### **M.2 Port**

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

Use this item to enable or disable M2 SATA port.

---

---

▶ **USB Configuration**

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

**XHCI Mode**

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

Once disabled, XHCI controller would be function disabled. None of the USB devices are detectable and usable during boot in OS.

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

**HD-Audio Support**

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

**Onboard Lan1 Controller**

Use this item to control the PCI Express root port.

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

**Onboard Lan2 Controller**

Use this item to control the PCI Express root port.

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

*\*Note: 'Onboard Lan2 Controller' options are only optional for NF694 series.*

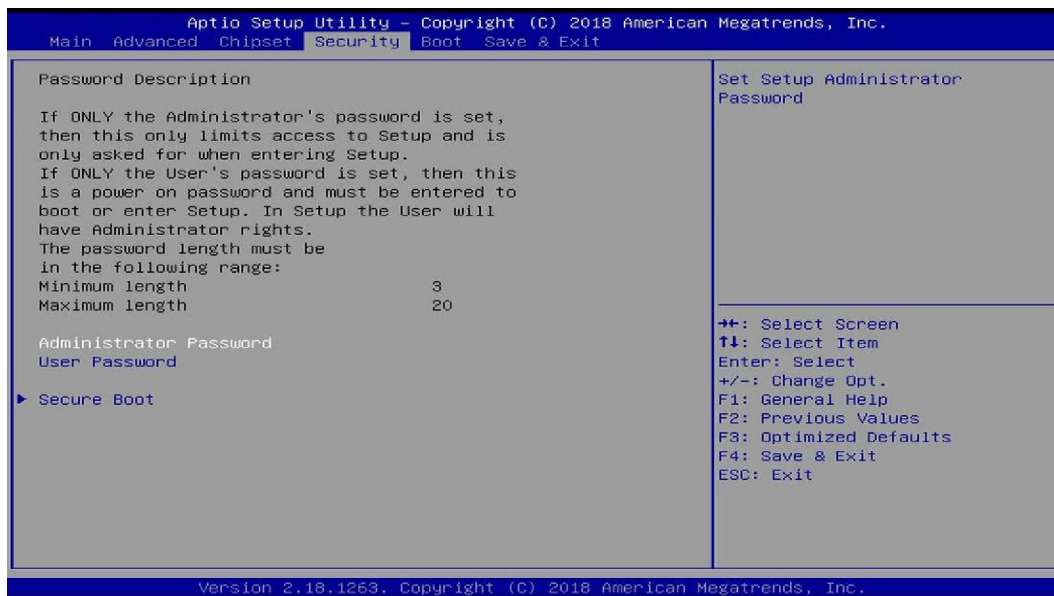
**System State after Power Failure**

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



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

### Administrator Password

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

### User Password

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

#### ▶ Secure Boot

Press [Enter] to make customized secure settings:

#### Secure Boot Control



---

---

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

Secure Boot can be enabled if 1. System running in user mode with enrolled Platform Key (PK); 2. CSM function is disabled.

### **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.

*\*When set as [Custom], user can make further settings in 'Key Management'.*

#### ▶ **Key Management**

This item enables experienced users to modify Secure Boot variables, which includes the following items:

#### **Provision Factory Default Keys**

This item is for user to install factory default secure boot keys when system is in Setup Mode.

##### ▶ **Enroll all Factory Default Keys**

This item forces system to User Mode-install all Factory Default keys.

##### ▶ **Save all Secure Boot Variables**

This item will save all secure boot variables made by user.

##### ▶ **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:

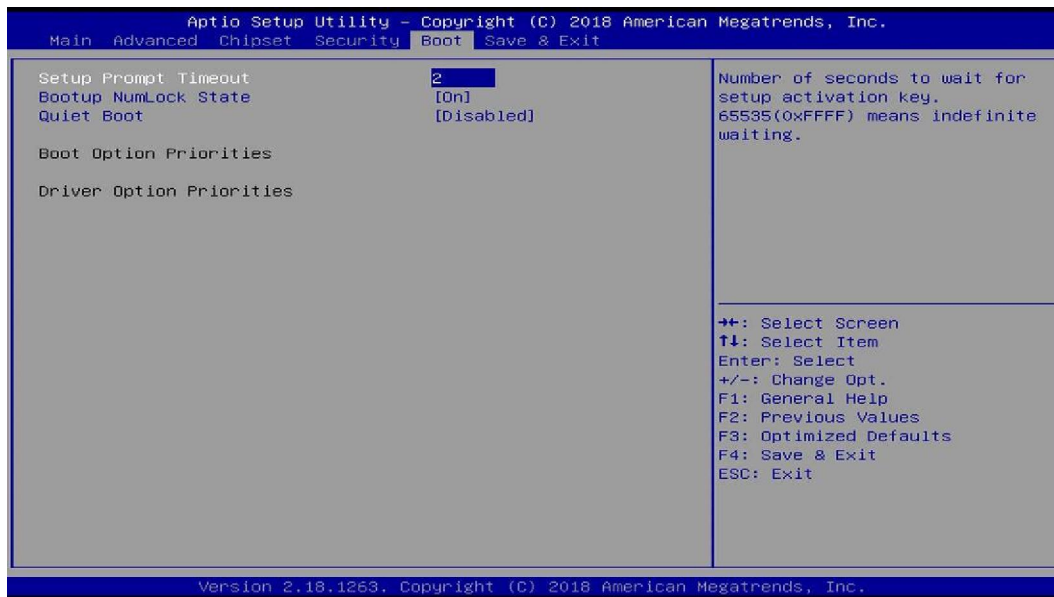
1. Public Key Certificate in:

- a) EFI\_SIGNATURE\_LIST
- b) EFI\_CERT\_X509 (DER encoded)
- c) EFI\_CERT\_RSA2048 (bin)
- d) EFI\_CERT\_SHA256 (bin)

2. Authenticated UEFI Variable

---

## 3-10 Boot Menu



### **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].

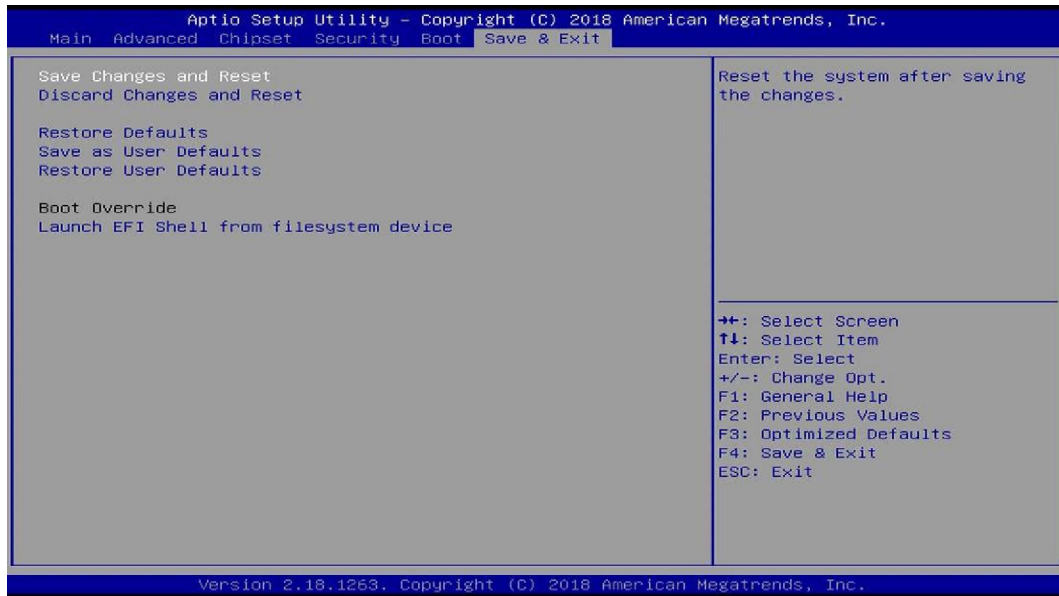
### **Boot Option Priorities**

#### **Boot Option #1/ Boot Option #2...**

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

---

## 3-11 Save & Exit Menu



### **Save Changes and Reset**

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

### **Discard Changes and Reset**

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

### **Restore Defaults**

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

### **Save as User Defaults**

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

### **Restore User Defaults**

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

### **Boot Override**

The available options here are dynamically updated and make system boot to any boot option selected.

### **Launch EFI Shell from filesystem device**

---

---

---

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