

***TECHNICAL MANUAL***

***Of***

***Intel Q170 Express Chipset***

***Based Mini-ITX M/B***

**NO. G03-NF592-F**

**Revision: 1.0**

**Release date: February 23, 2016**

**Trademark:**

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

## Environmental Protection Announcement

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



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## Environmental Safety Instruction

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- 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.

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## Manual Revision Information

Reversion	Revision History	Date
1.0	First Edition	February 23, 2016

## 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

- Intel® Q170 express chipset
- Support LGA 1151 CPU socket Intel® Core™ i7 processors / Intel® Core™ i5 processors / Intel® Core™ i3 processors / Intel® Pentium™ processors , Intel® Celeron™ processors (TDP ≤65 W).
- Support 2\* DDR3L 1600MHz SO-DIMM up to 16GB and dual channel function
- Integrated with 7\*Intel i211AT & 1\* i219LM Gigabit Ethernet LAN chip
- Support USB 3.0 data transport demand
- Support 6 \* SATAIII (6Gb/s) Devices & RAID 0, 1, 5, 10 mode
- Support 1\* side PCIE 2.0 x4 slot and 1\* full-size Mini-PCIE slot
- Support 3G module with SIM card slot
- 1 \* internal HDMI port
- Support Smart FAN function
- Supports ACPI S3 Function
- Compliance with ErP Standard
- Support Watchdog Timer Technology

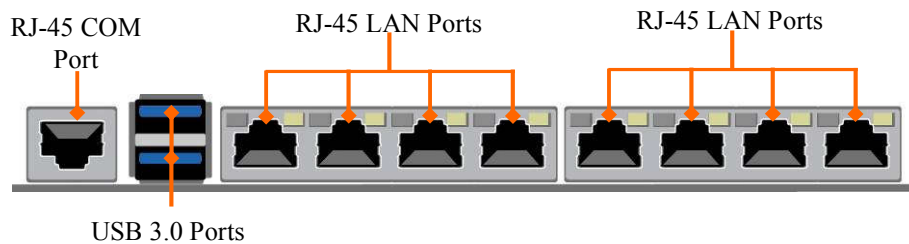
## 1-2 Specification

Spec	Description
Design	● Thin mini-ITX form factor 6 layers ; PCB size: 17.0x17.0cm
Chipset	● Intel Q170 Express Chipset
CPU Socket	<ul style="list-style-type: none"> <li>● Support Intel® LGA 1151 Socket Core™ i7 processors, Intel® Core™ i5 processors, Intel® Core™ i3 processors, Intel® Pentium™ processors, Intel® Celeron™ processors</li> </ul> <p><i>* for detailed CPU support information please visit our website</i></p>
Memory Slot	<ul style="list-style-type: none"> <li>● 2*DDR3L SO-DIMM slot</li> <li>● Support DDR3L 1600 MHz SO-DIMM up to 16GB</li> <li>● Support dual channel function</li> </ul>
Expansion Slot	<ul style="list-style-type: none"> <li>● 1* Full-size Mini-PCIE slot (<b>MPE</b>)</li> <li>● 1* PCIE x4 slot by sideways(<b>PCIE1</b>)</li> </ul>
Storage	● 6* SATAIII 6G/s ports with support for RAID 0/1/5/10 mode
Gigabit LAN Chip	<ul style="list-style-type: none"> <li>● Integrated with 7* Intel I211AT Gigabit PCI-E LAN chip &amp; 1* Intel I219LM Gigabit PHY LAN chip</li> <li>● Support Fast Ethernet LAN function of providing 10/100/1000Mbps Ethernet data transfer rate</li> </ul>
BIOS	● 128M AMI Flash ROM
Multi I/O	<p><b>Rear Panel I/O:</b></p> <ul style="list-style-type: none"> <li>● 1* RJ-45 COM port</li> <li>● 2* USB 3.0 port</li> <li>● 8* RJ-45 port</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 *4-pin 12V power connector</li> <li>● 1* Front panel header</li> <li>● 1* Speaker header &amp; POWER LED header</li> <li>● 2 * 9-Pin USB 2.0/1.1 header for 4* USB 2.0/1.1 ports</li> <li>● 1 * PS2 Keyboard &amp; Mouse header</li> </ul>

	<ul style="list-style-type: none"> <li>● 1* GPIO header</li> <li>● 2* LAN Status LED header</li> <li>● 1* HDMI header</li> <li>● 1* CPUFAN header &amp; 2* SYSFAN header</li> </ul>
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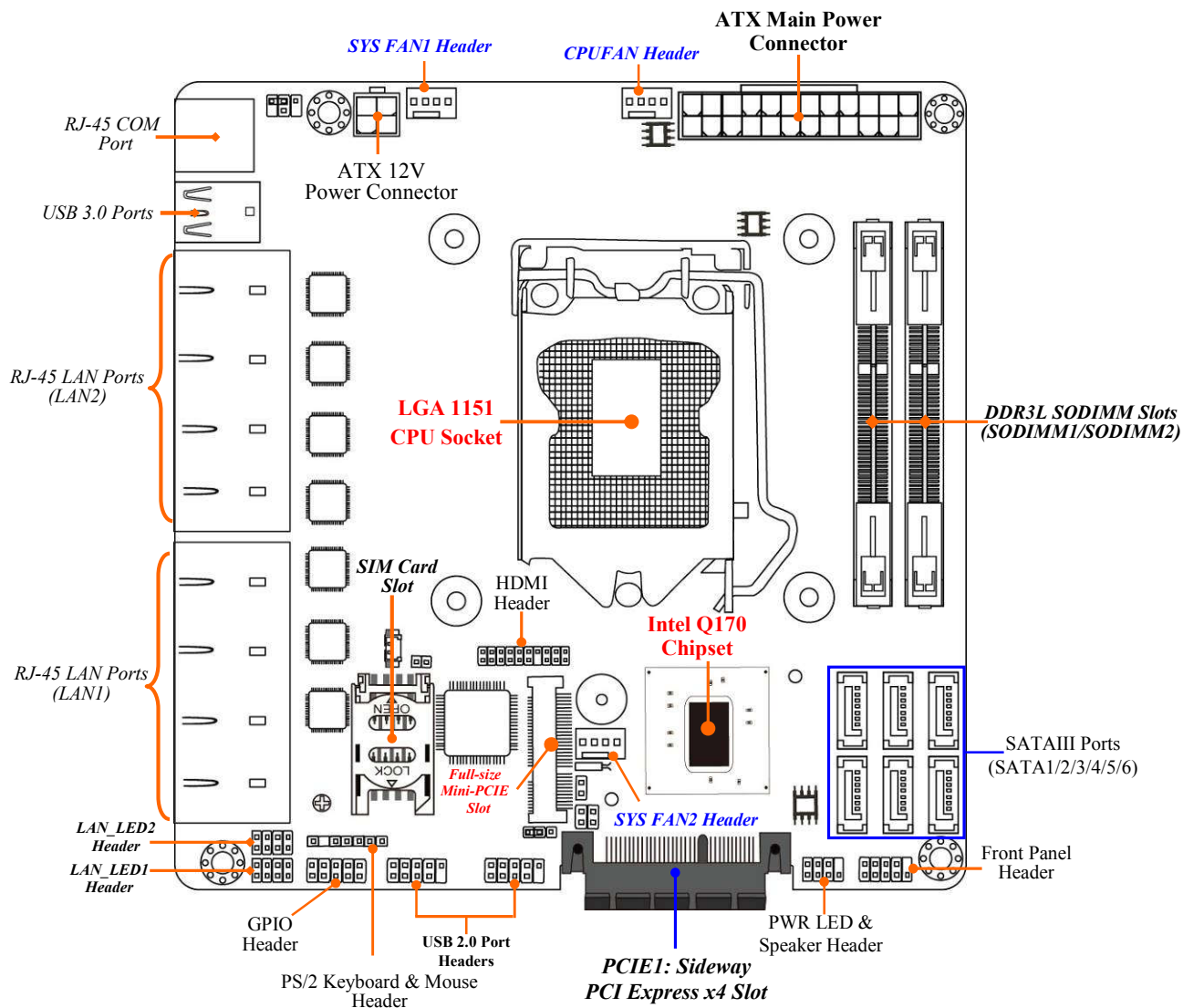
## 1-3 Layout Diagram

### *Rear IO Diagram*

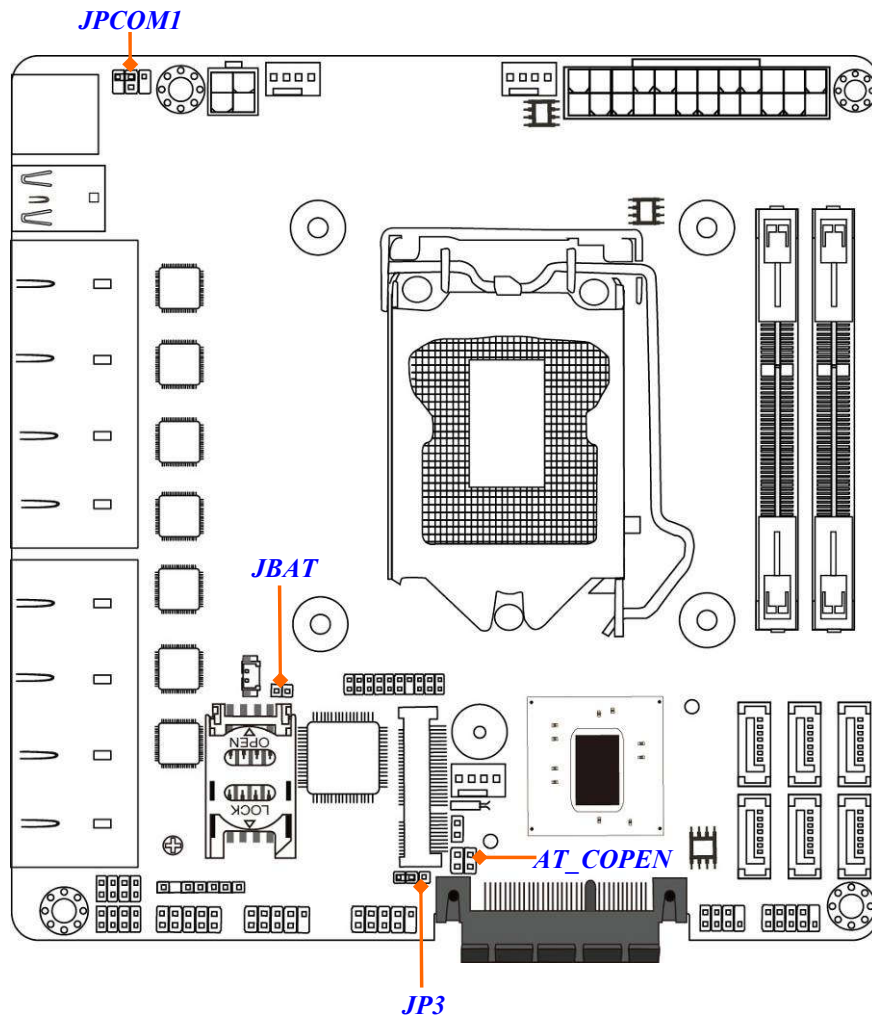




# Motherboard Internal Diagram-Front



## Motherboard Jumper Position



## Connectors

Connector	Name
ATXPWR	Main Power Connector
ATX12V	Internal 12V Power Connector
SATA1/2/3/4/5/6	SATAIII Connector
RJ45_COM1	RJ-45 COM Port Connector for Console
USB1	USB 3.0 Port Connector X2
LAN1/LAN2	RJ-45 LAN Connector
MPE	Full-size Mini-PCIE Connector

## Headers

Header	Name	Description
JW_FP	Front Panel Header(PWR LED/ HD LED/Power Button /Reset)	9-pin Block
SPEAK	Power LED &Speaker Header	7-pin Block
FP_USB1/FP_USB2	USB Header X2	9-pin Block
PS2KBMS	PS2 Keyboard & Mouse Header	6-pin Block
GPIO_CON	GPIO Header	10-pin Block
LAN_LED1/LAN_LED2	LAN Status LED Header	8-pin Block
HDMI	HDMI Port Header	19-pin Block
CPUFAN/SYSFAN1/SYSFAN2	Fan Header X3	4-pin Block

## Jumper

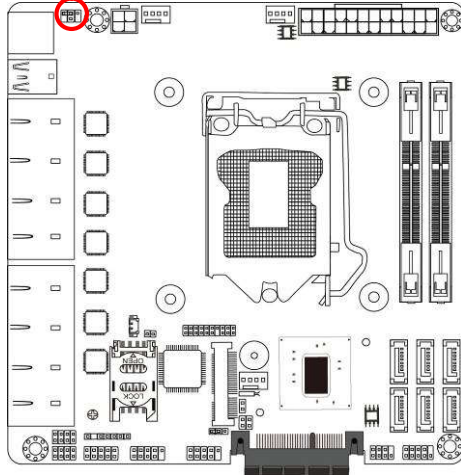
Jumper	Name	Description
JCOMP1	RJ45_COM1 Port Pin 5 VCC Select	4-pin Block
JBAT	Clear ME Function Setting	2-pin Block
JP3	Mini PCI-E Slot (MPE)VCC3.3V/3.3VSB Select	3-pin Block
AT_COEPN	<b>Pin (1-2):</b> ATX Mode / AT Mode Select <b>Pin (3-4):</b> Case Open Message Display Function	4-pin Block

# Chapter 2

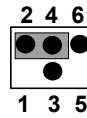
## Hardware Installation

### 2-1 Jumper Setting

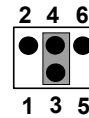
**JPCOM1 (4-pin): RJ45\_COM1 Port Pin5 VCC Select**



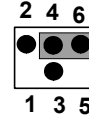
**JCOMP1 → RJ45\_COM1 Pin5 VCC Select**



2-4 Closed:  
Pin5=NC;

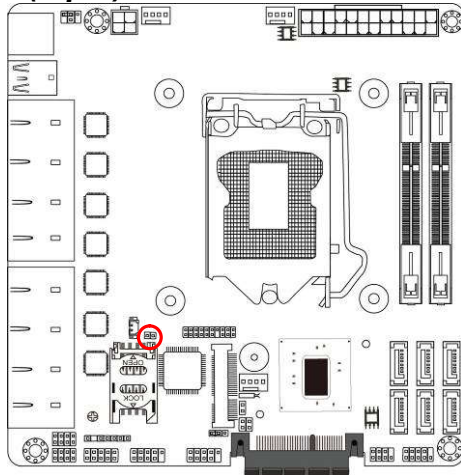


3-4 Closed:  
Pin5=+5V;



4-6 Closed:  
Pin5=+12V.

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



**JBAT → Clear CMOS**



Pin1

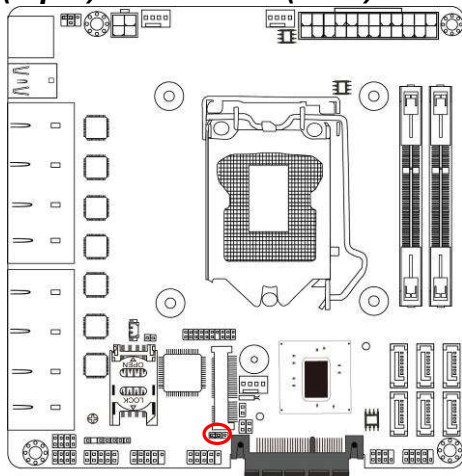
1-2 Open: Normal;



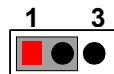
Pin1

1-2 Closed: Clear CMOS.

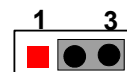
### ***JP3 (3-pin): Mini PCI-E (MPE) Slot VCC 3.3V/3.3 VSB Select***



***JP3→MPE Slot***

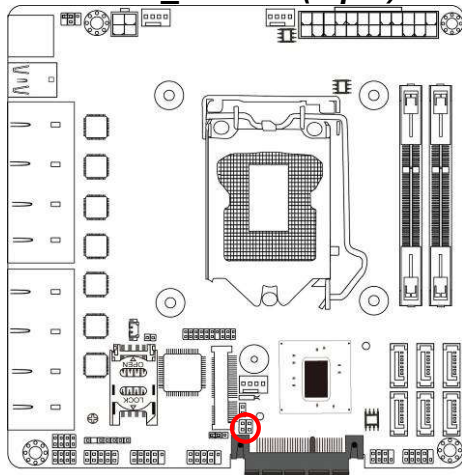


**1-2 Closed: MINI PCI-E VCC= 3.3V;**

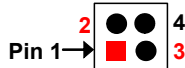


**2-3 Closed: MINI PCI-E VCC= 3.3VSB.**

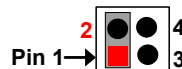
### ***Pin 1 & 2 of AT\_COPEN (4-pin): AT Mode Function Select***



***AT\_COPEN(Pin 1&2)→AT Mode Select***



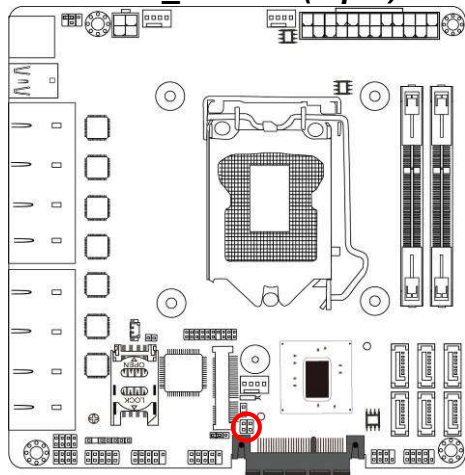
**1-2 Open: ATX Mode Selected(Default);**



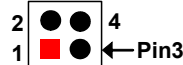
**1-2 Close: AT Mode Selected.**

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

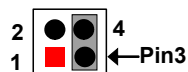
## ***Pin 3 & 4 of AT\_COPEN (4-pin): Case Open Message Display Function Select***



***AT\_COPEN(Pin 3&4) → Case Open Function Select***



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



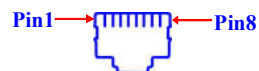
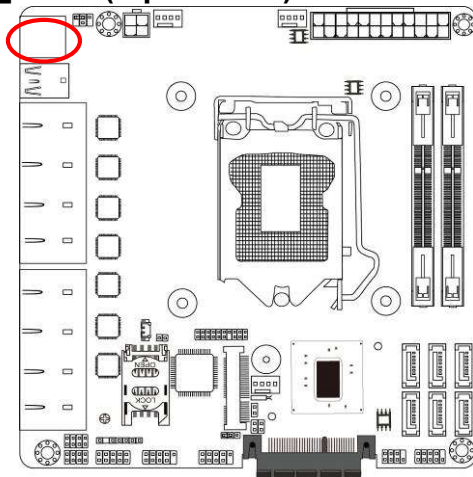
**3-4 Close: Case Open Function Selected (One Touch).**

**Pin 3-4 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.

## 2-2 Connectors and Headers

### 2-2-1 Connectors

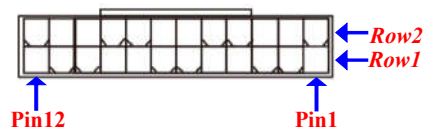
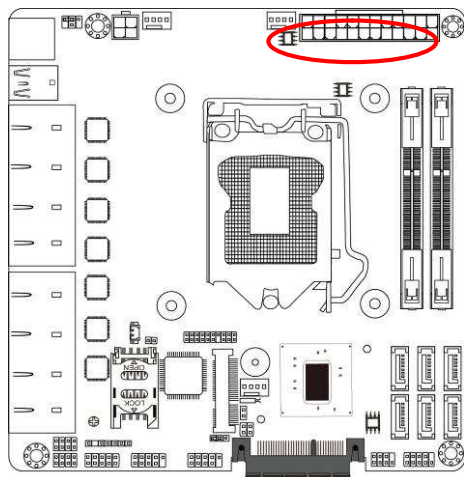
(1) RJ45\_COM1(8-pin block): RJ-45 COM Port Connector for Console



RJ45\_COM1

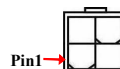
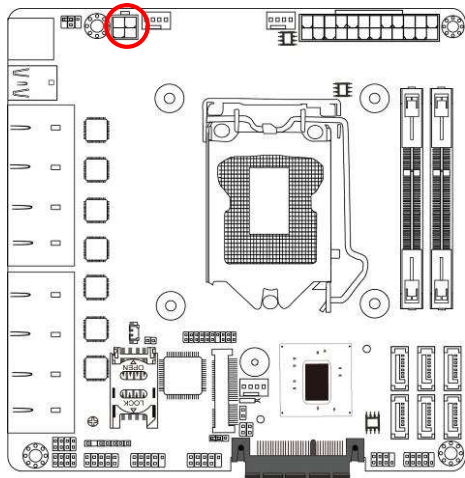
Pin No.	Definition
1	RTS
2	DTR
3	TXD
4	GND
5	GND/VCC/+12V
6	RXD
7	DSR
8	CTS

(2) ATXPWR(24-pin block): Main Power Connector



PIN	ROW1	ROW2
1	+3.3V	+3.3V
2	+3.3V	-12V
3	GND	GND
4	+5V	Soft Power on
5	GND	GND
6	+5V	GND
7	GND	GND
8	Power OK	-5V
9	+5V Stand by	+5V
10	+12V	+5V
11	+12V	+5V
12	+3.3V	GND

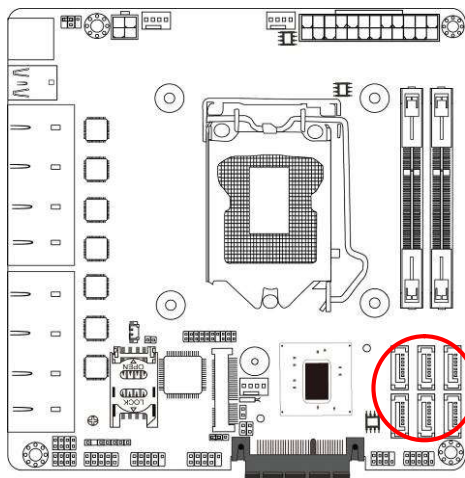
### (3) ATX12V (4-pin block): 12V Internal Power Connector



Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

### (4) SATA1/2/3/4/5/6 (7-pin): SATA III Port connector

These are high-speed SATAIII port that supports 6 GB/s transfer rate.



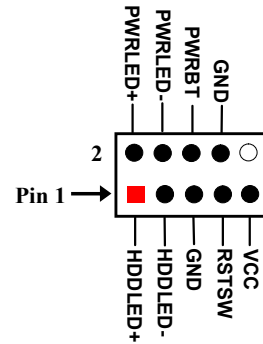
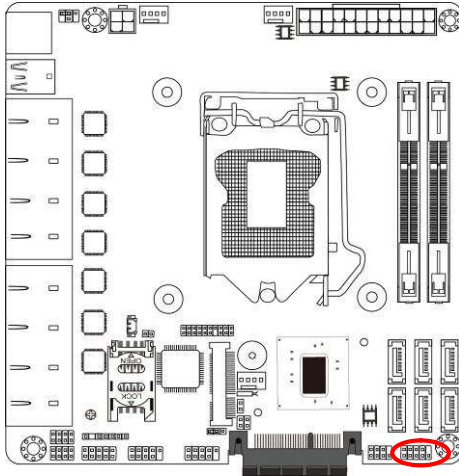
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND



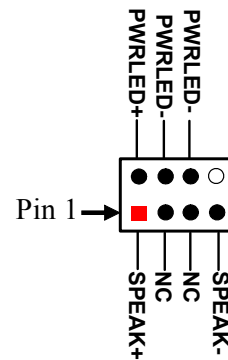
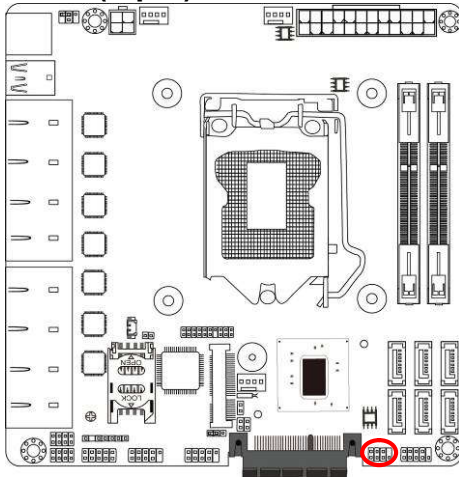


## 2-2-2 Headers

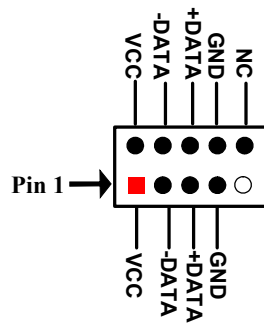
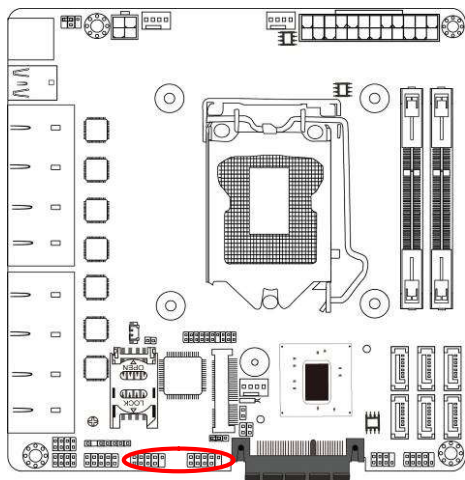
### (1) JW-FP (9-pin): Front Panel Header



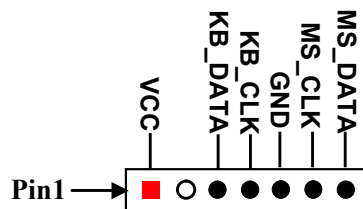
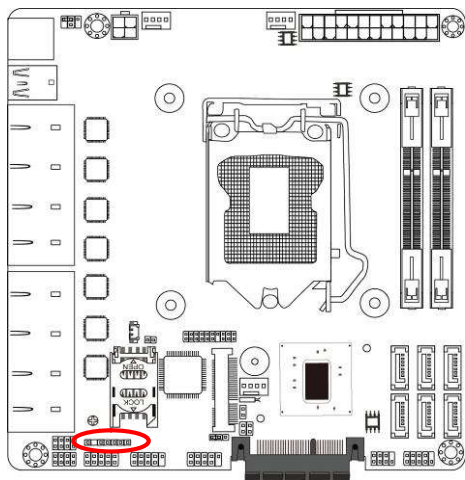
### (2) SPEAK (7-pin): PWR LED Header & Speaker Header



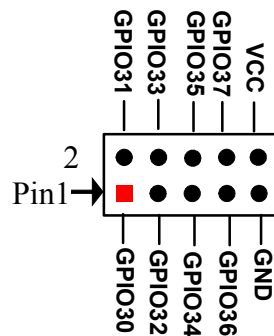
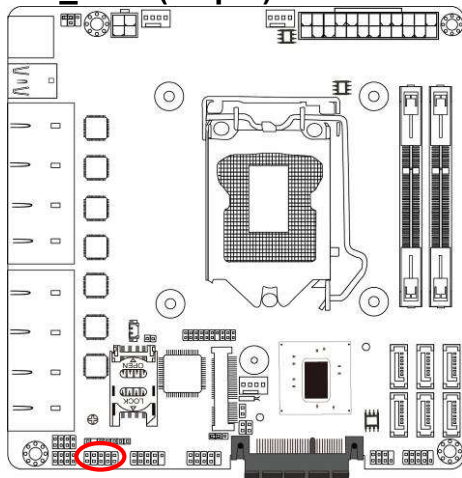
### (3) FP\_USB1/FP\_USB2 (9-pin): USB 2.0 Port Headers



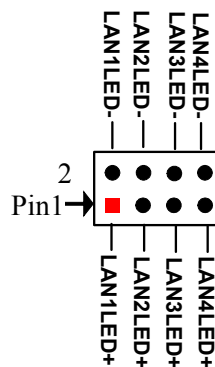
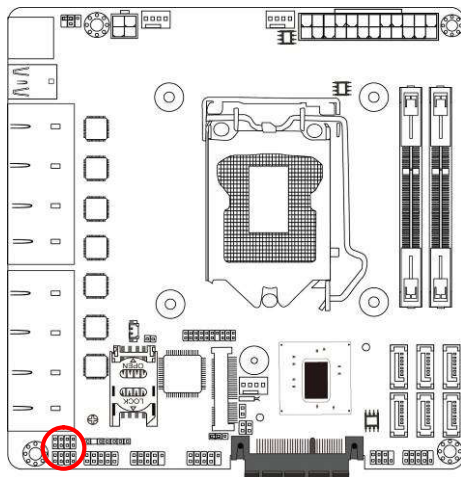
### (4) PS2KBMS (6-pin): PS/2 Keyboard & Mouse Header



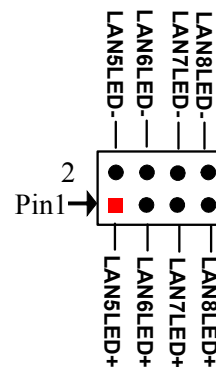
### (5) GPIO\_CON (10-pin): GPIO Header



### (6) LAN\_LED1/LAN\_LED2 (8-pin): LANLED Header

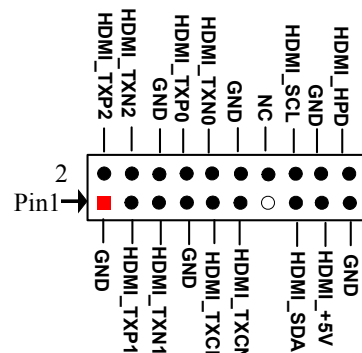
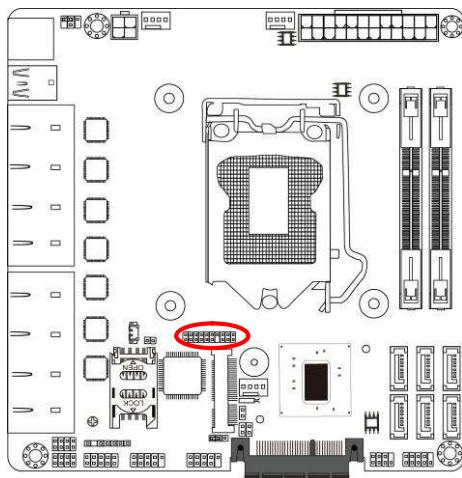


*LAN\_LED1 Header*

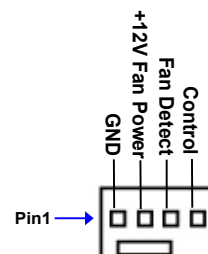
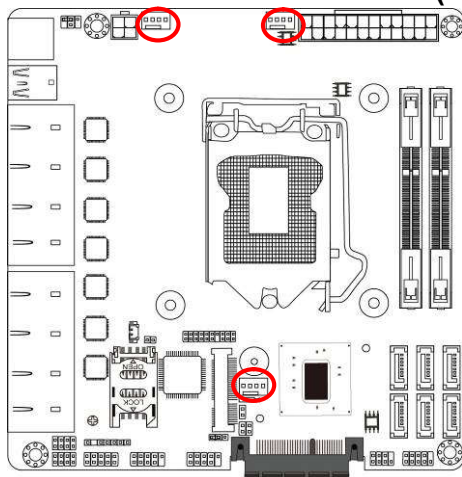


*LAN\_LED2 Header*

## (7) HDMI (19-pin): HDMI Port Header



## (8) SYSFAN1/CPUFAN/SYSFAN2 (4-pin): FAN Headers



# 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.

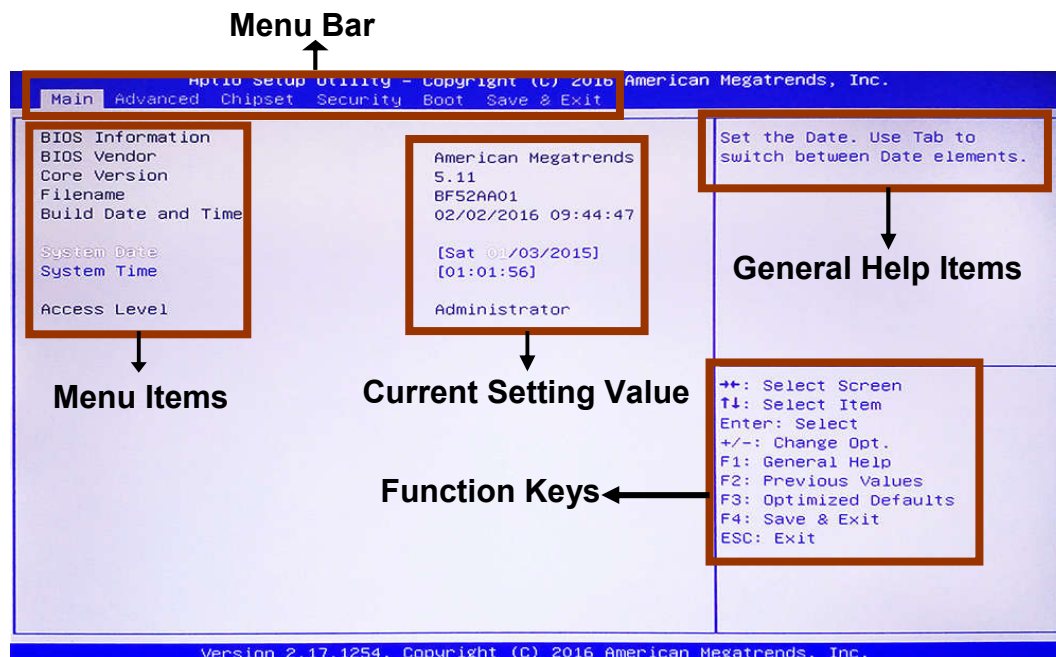
### 3-1 Entering Setup

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

## 3-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:



BIOS Menu Screen

## 3-3 Function Keys

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

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

- Press <+>/<-> keys when you want to modify the BIOS parameters for the active option.
- [F1]: General help.
- [F2]: Previous values.
- [F3]: Optimized defaults.
- [F4]: Save & Exit.
- Press <Esc> to exit from BIOS Setup.

## 3-4 Getting Help

### Main Menu

The on-line description of the highlighted setup function is displayed at the top right corner the screen.

### Status Page Setup Menu/Option Page Setup Menu

Press **【F1】** to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press **<Esc>**.

## 3-5 Menu Bars

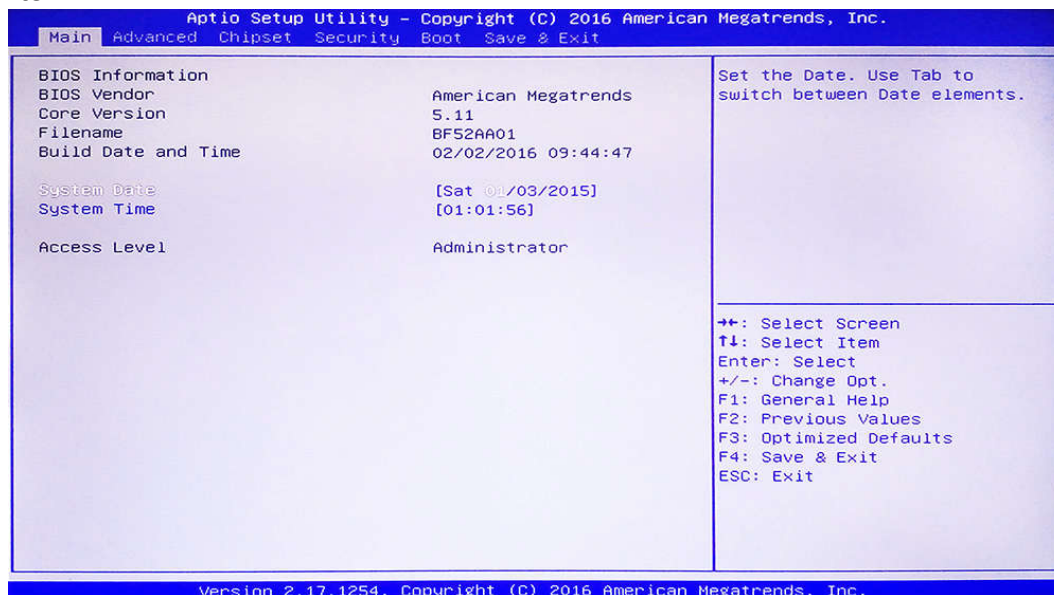
**There are six menu bars on top of BIOS screen:**

<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

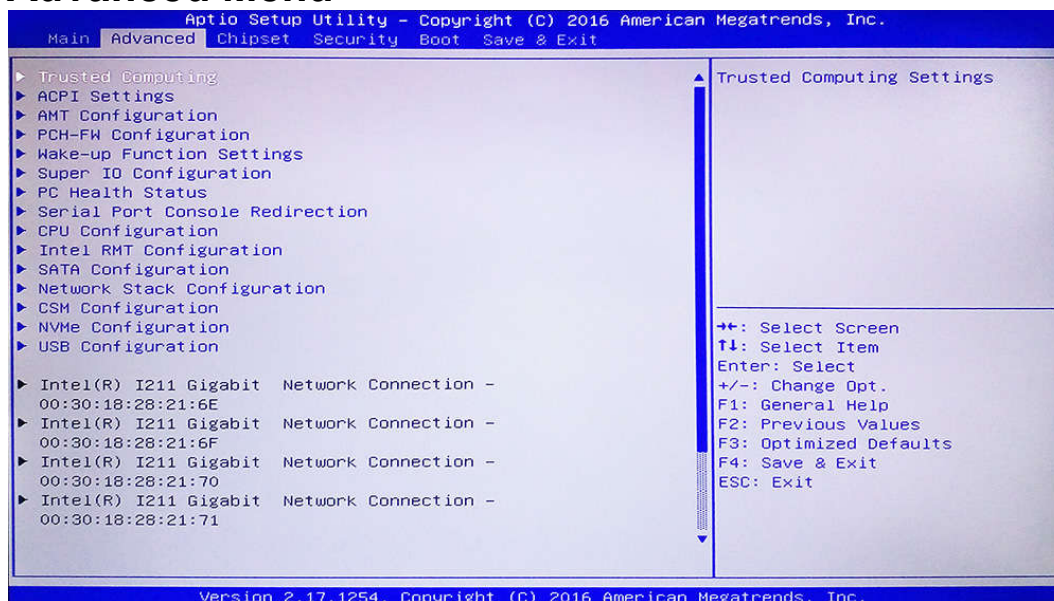
Set the date. Please use [Tab] to switch between data elements.

### System Time

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



## 3-7 Advanced Menu



### ► 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. O.S. will not show security device. TGG EFI protocol and INT1A interface will not be available. The optional settings: [Disabled]; [Enabled].

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

#### TPM State

Use this item to enable or disable security device. Your computer will reboot during restart to change state of device.

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

#### Pending Operation

Use this item to schedule an operation for the security device. Your computer will reboot during restart to change state of device.

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

► **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)].

► **AMT Configuration**

Use this item to configure Active Management Technology parameters.

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

**Intel AMT**

Use this item to enable or disable Intel Active Management Technology BIOS extension.

**Hide Un-Configure ME Confirmation Prompt**

Use this function to enable or disable Hide Un-Configure ME without password Configuration Prompt function.

**MEBx Debug Message Output**

Use this function to enable or disable MEBx Debug Message Output function.

**Un-Configure ME**

Use this function to enable or disable Un-Configure ME without password function.

**Amt Wait Timer**

Use this item to set time to wait before sending ASF\_GET\_BOOT\_OPTIONS.

**ASF**

Use this item to enable or disable Alert Specification Format.

**Activate Remote Assistance Process**

Use this item to enable or disable Trigger CIRA boot function.

**USB Configure**

Use this item to enable or disable USB configure function.

**PET Progress**

Use this item to enable or disable PET events progress to receive PET events or not.

## **WatchDog**

Use this item to enable or disable WatchDog Timer. When set as [Enabled], the following sub-items shall appear:

### **OS Timer**

Use this item to set OS watch dog timer.

### **BIOS Timer**

Use this item to set BIOS watch dog timer.

## ► **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].

*\* 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.*

## ► **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 (S3~S5)/USB(S3~S4) Wake-up**

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

Use this item to enable or disable PS2 KB/MS wake-up from S3/S4/S5 or USB from S3/S4 state.

*\*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.

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

## ► **Super IO Configuration**

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

### **Super IO Configuration**

#### **ERP Support**

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.

### **Serial Port FIFO Mode**

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

### **WatchDog Timer**

Use this item to enable or disable WDT reset function. When set as [Enabled], the following sub-items shall appear:

#### **WatchDog Timer Value**

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

#### **WatchDog Timer Unit**

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

#### **WatchDog Wake-up Timer in ERP**

This item support WDT wake-up while '**ERP Support**' is set as [Auto].

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

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

#### **WatchDog Timer Value in ERP**

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

#### **WatchDog Timer Unit in ERP**

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 8**, AT\_MODE jumper for ATX Mode & AT Mode Select).

#### **Case Open Detect**

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

#### **PS2 KB/MS Connect**

Use this item to select PS2 connect primary device.

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**' and set value in '**Shutdown Temperature**'.

#### ► **SmartFAN Configuration**

Press [Enter] to make settings for SmartFan Configuration:

#### **SmartFAN Configuration**

#### **CPUFAN / SYSFAN1/ SYSFAN2 Smart Mode**

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

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

#### **CPUFAN / SYSFAN1/ SYSFAN2 Full-Speed Temperature**

Use this item to set CPUFAN (/SYSFAN1/SYSFAN2) full speed temperature. Fan will run at full speed when above this pre-set temperature.

#### **CPUFAN / SYSFAN1/ SYSFAN2 Full-Speed Duty**

Use this item to set CPUFAN (/SYSFAN1/SYSFAN2) full-speed duty. Fan will run at full speed when above this pre-set duty.

**CPUFAN / SYSFAN1/ SYSFAN2 Idle-Speed Temperature**

Use this item to set CPUFAN (/SYSFAN1/SYSFAN2) idle speed temperature. Fan will run at idle speed when below this pre-set temperature.

**CPUFAN / SYSFAN1/ SYSFAN2 Idle-Speed Duty**

Use this item to set CPUFAN (/SYSFAN1/SYSFAN2) idle speed duty. Fan will run at idle speed when below this pre-set duty.

**Shutdown Temperature**

Use this item to select system shutdown temperature.

The optional settings are: [Disabled]; [70°C/156°F]; [75°C/164°F]; [80°C/172°F]; [85°C/180°F]; [90°C/188°F].

► **Serial Port Console Redirection**

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

**COM1**

**Console Redirection**

Use this item to enable or disable COM1 Console Redirection.

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

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

► **Console Redirection Settings**

The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

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

**Terminal Type**

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

**Bits per second**

The optional settings are: [9600]; [19200]; [38400]; [57600]; [115200].

**Data Bits**

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

**Parity**

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

### **Stop Bits**

The optional settings are: [1]; [2].

### **Flow Control**

The optional settings are: [None]; [Hardware RTS/CTS].

### **VT-UTF8 Combo Key Support**

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

### **Recorder Mode**

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

### **Resolution 100x31**

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

### **Legacy OS Redirection Resolution**

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

### **Putty Keypad**

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

### **Redirection After BIOS POST**

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

### **Serial Port for Out-of-Band Management/**

### **Windows Emergency Management Services (EMS)**

### **Console Redirection**

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

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

#### **► Console Redirection Settings**

The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

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

#### **Out-of-Band Mgmt Port**

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

#### **Terminal Type**

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

**Bits per second**

The optional settings are: [9600]; [19200]; [57600]; [115200].

**Flow Control**

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

**Data Bits**

The default setting is: [8].

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

**Parity**

The default setting is: [None].

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

**Stop Bits**

The default setting is: [1].

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

► **CPU Configuration**

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

**Intel Virtualization Technology**

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

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

**Hardware Prefetcher**

Use this item to turn on/off the MLC streamer prefetcher.

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

**Adjacent Cache Line Prefetch**

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

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

**Intel(R) SpeedStep(tm)**

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

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

**CPU C Status**

Use this item to enable or disable CPU C status.



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

### **Package C State Limit**

The optional settings are: [C0/C1]; [C2]; [C3]; [C6]; [C7]; [C7s]; [C8]; [AUTO].

#### ► **Intel RMT Configuration**

Press [Enter] to go to next screen to enable or disable '**Intel Ready Mode Technology**'.

### **Intel Ready Mode Technology**

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

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

#### **Intel RMT State**

Use this item to enable or disable Intel RMT enabling status in BIOS.

#### ► **SATA Configuration**

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

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

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

### **SATA Mode Selection**

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

### **SATA 1/ 2/ 3 /4/ 5/ 6**

#### **Port**

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

Use this item to enable or disable each SATA port.

### **Hot Plug**

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

#### ► **Network Stack Configuration**

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

### **Network Stack**

Use this item to enable or disable UEFI Network Stack.

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

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

### **Ipv4 PXE Support**

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

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

### **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.

### **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.

## ► **CSM Configuration**

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

### **Option ROM execution**

#### **Network**

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

The optional settings are: [Do not launch]; [UEFI]; [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 is for PCI devices other than Network, Mass storage or video defines which OpROM to launch.

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

## ► **NVMe Configuration**

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

## ► **USB Configuration**

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

### **USB Configuration**

#### **Legacy USB Support**

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

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

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

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

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

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

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

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

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

#### **USB hardware delay and time-out**

##### **USB Transfer time-out**

Use this item to set the time-out value for control, bulk, and interrupt transfers.

The optional settings are: [1 sec]; [5 sec]; [10 sec]; [20 sec].

##### **Device reset time-out**

Use this item to set USB mass storage device start unit command time-out.

The optional settings are: [10 sec]; [20 sec]; [30 sec]; [40 sec].

##### **Device power-up delay**

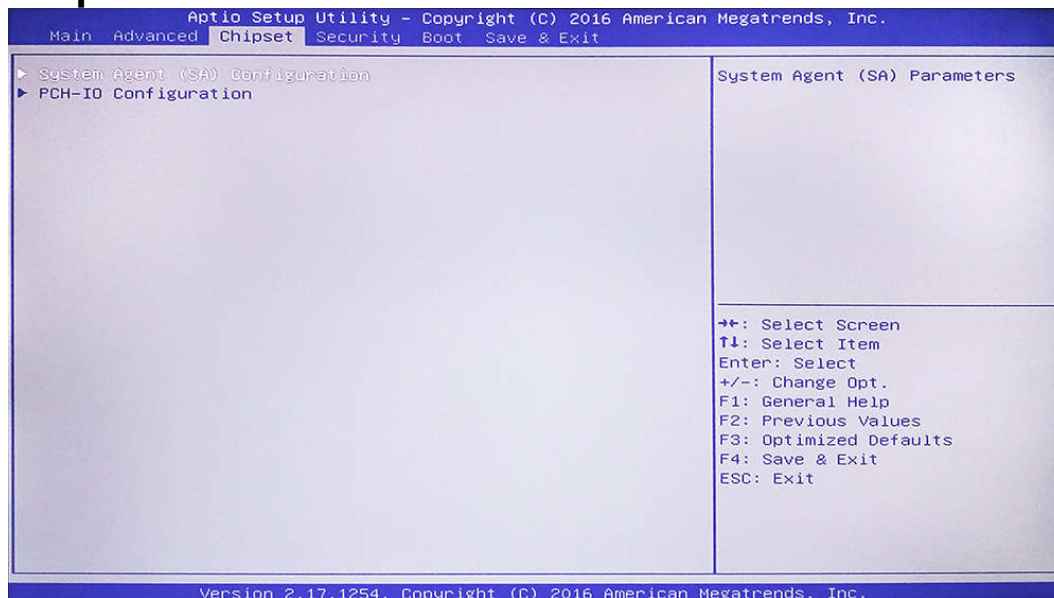
Use this item to set maximum time the device will take before it properly reports itself to the host controller. 'Auto' uses default value: for a root port it is 100 ms, for a hub port the delay is taken from hub descriptor. The optional settings: [Auto]; [Manual]. Select [Manual] you can set value for the following sub-item: **Device Power-up delay in seconds**, the delay range in from 1 to 40 seconds, in one second increments.

- ▶ **Intel(R) I211 Gigabit Network Connection- XX:XX:XX:XX:XX:XX / Intel(R) Ethernet Connection (H) I219-LM- XX:XX:XX:XX:XX:XX**

This item shows current network brief information.

**Note:** *Use should slide down to the bottom of the screen to view information for 'Intel(R) Ethernet Connection (H) I219-LM- XX:XX:XX:XX:XX:XX'*

## 3-8 Chipset Menu



### ► **System Agent (SA) Configuration**

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

#### **VT-d**

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

### ► **Graphics Configuration**

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

#### **Graphics Configuration**

##### **GTT Size**

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

##### **Aperture Size**

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

##### **DVMT Pre-Allocated**

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

The optional settings are: [32M]; [64M]; [96M]; [128M]; [160M]; [192M]; [224M];

[256M]; [288M]; [320M]; [352M]; [384M]; [416M]; [448M]; [480M]; [512M]; [1024M] ;  
[1536M] ; [2048M] ; [4M] ; [8M] ; [12M] ; [16M] ; [20M]; [24M] ; [28M] ; [32M/F7] ;  
[36M]; [40M]; [44M]; [48M]; [52M]; [56M]; [60M].

#### **DVMT Total Gfx Mem**

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

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

#### ► **Memory Configuration**

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

#### ► **PCH-IO Configuration**

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

##### **USB Controller**

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

##### **Onboard Lan1 Controller**

Use this item to enable or disable onboard NIC

##### **Wake on LAN**

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

Wake on LAN can not be disabled if ME is on at Sx state.

##### **Onboard Lan2 Controller/ Onboard Lan3 Controller/ Onboard Lan4 Controller/Onboard Lan5 Controller/Onboard Lan6 Controller/Onboard Lan7Controller/ Onboard Lan8 Controller**

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

##### **MPE Slot**

Use this item to enable or disable the PCI Express root port.

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

##### **Speed**

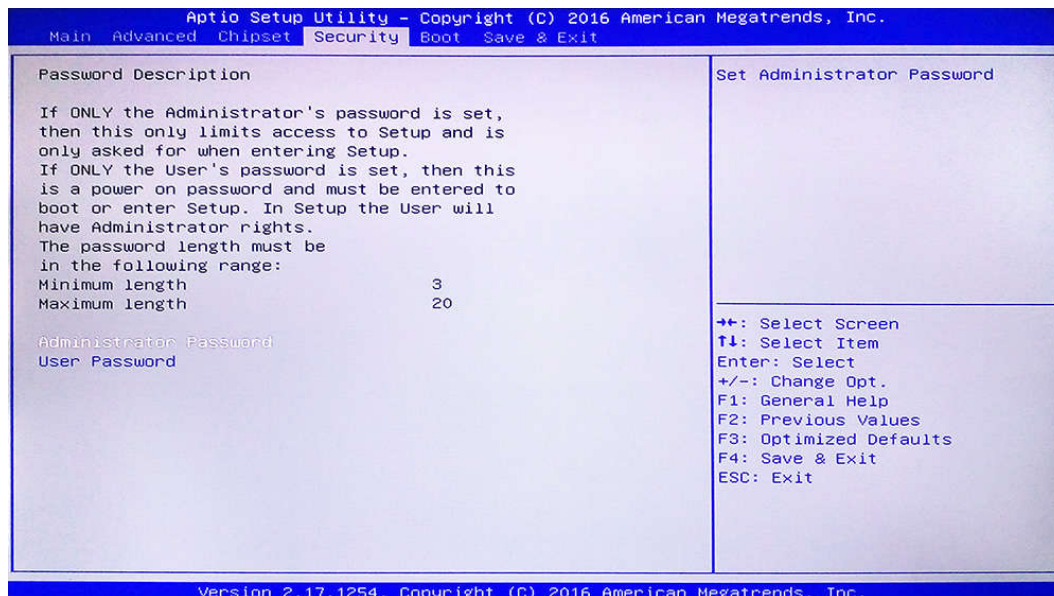
The optional settings are: [Auto]; [Gen1]; [Gen2]; [Gen3].

##### **System State after Power Failure**

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

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

## 3-9 Security Menu



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

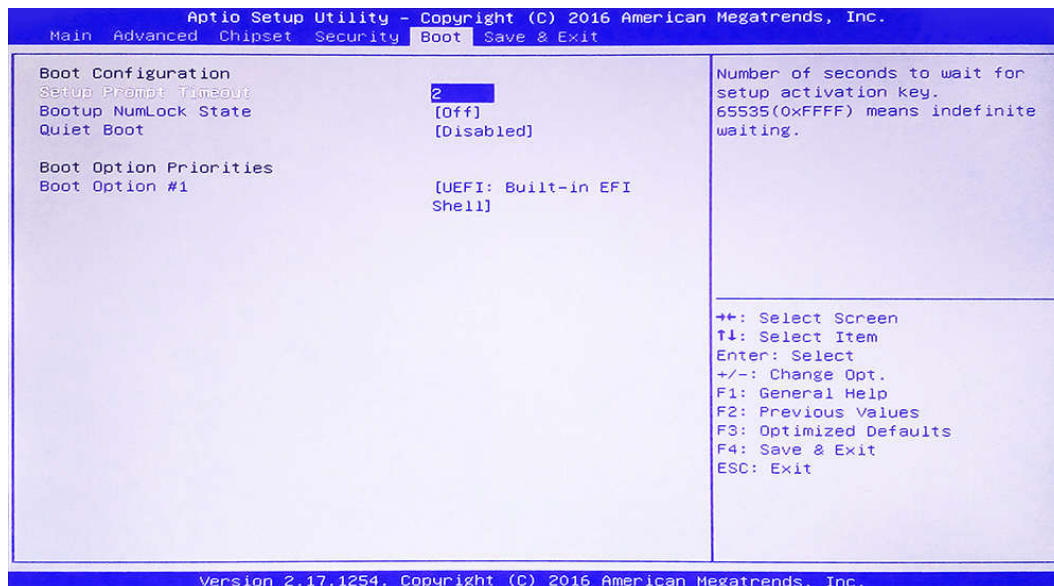
### **Administrator Password**

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

### **User Password**

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

## 3-10 Boot Menu



### **Boot Configuration**

#### **Setup Prompt Timeout**

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

#### **Bootup Numlock State**

Use this item to select keyboard numlock state.

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

#### **Quiet Boot**

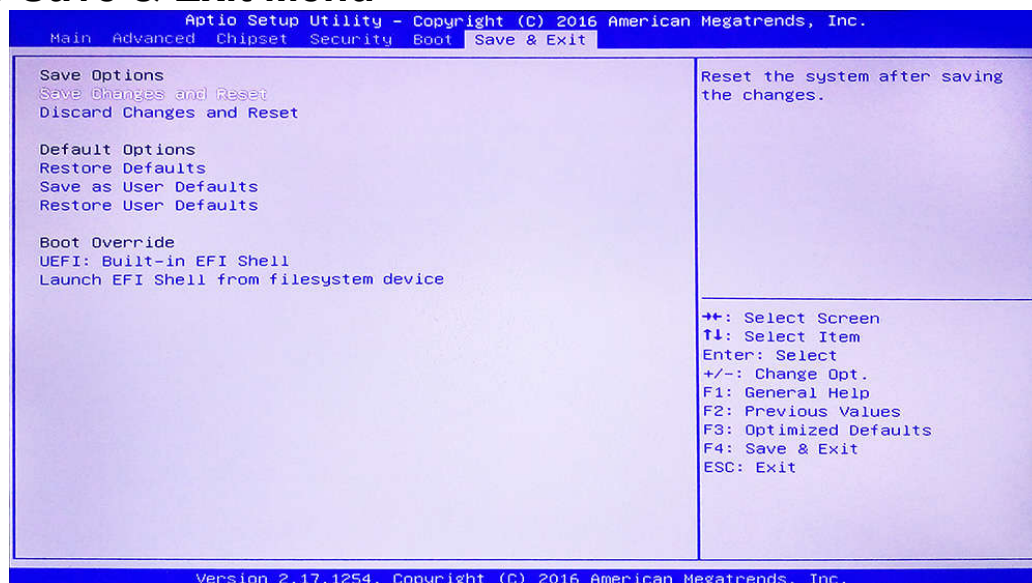
The optional settings are: [Disabled]; [Enabled].

### **Boot Option Priorities**

#### **Boot Option #1/ 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**

#### **UEFI:xx/...**

Press this item to select the device as boot disk after save configuration and reset

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

Press this item to launch EFI Shell application (Shell.efi) from one of the available file system device.