



研域  
YENTEK

# 用户手册

## User Manual

**C6850Z-D6(1135G7)**

Applicable to all C6850Z-D6 series



物联网解决方案领航者  
Internet of Things (IoT) Solution Leader

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# Chapter 1 Product Introduction

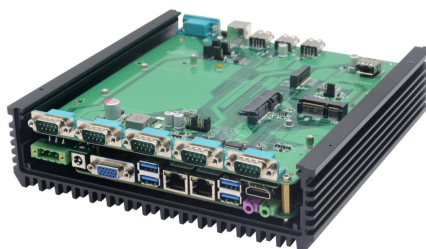
## 1.1 Product photo



1: C6850Z-D6 Front IO

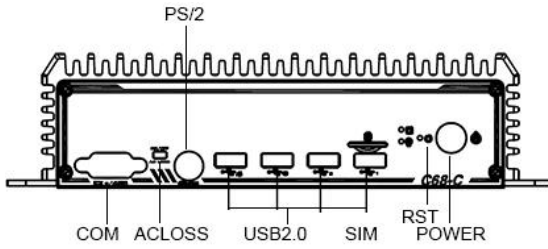


2: C6850Z-D6 Raer IO

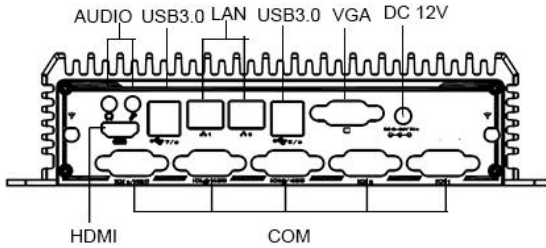


3: C6850Z-D6 Internal

1.2 IO interface introduce

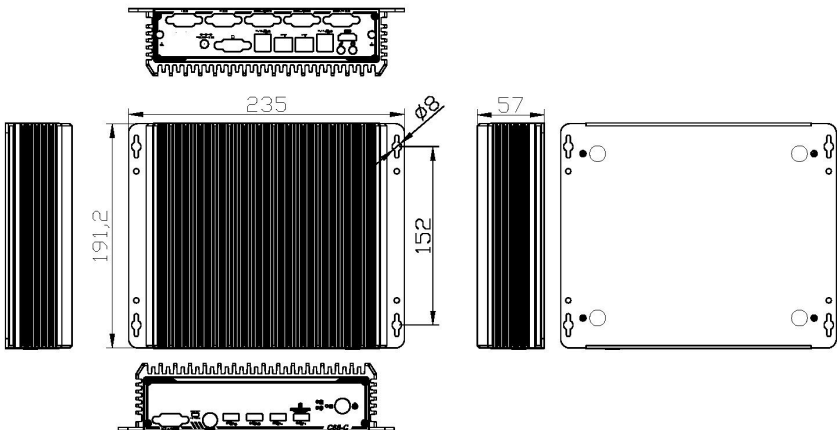


1: Front IO interface



2: Rear IO interface

1.3 Dimension Drawing



## 1.4 Product Specification

### ➤ Process

Integrated Intel®I5-1135G7/1.60GHz quad-core eight-thread processor

### ➤ Chipset

Intel®SOC

### ➤ Memory

2\*DDR4 3200MHz SODIMM, Max to 64GB

### ➤ Display

1\*VGA

1\*HDMI

Dual display: HDMI + VGA

### ➤ Network

2\*Intel I211AT Gigabit network, Support wake on LAN

### ➤ Audio

1\*Mic, 1\*Line out

### ➤ COM

6\*RS232 DB9 Connector: COM1~2 Support 9pin charged(5V/12V); COM5~6

Support RS232/485

### ➤ Extended interface

1\*MiniPCIE slot, support WiFi/4G

1\*M.2 slot, Key-E, 2230, support WiFi/BT

### ➤ Storage

1\*2.5" HDD Connector

1\*MSATA slot, the transmission speed can reach 6Gbp

### ➤ Front IO interface

1\*Power button, 1\*Reset button, 1\*ACLOSS(Power self-start switch)

1\*Power LED, 1\*HDD LED

4\*USB2.0

1\*SIM card slot

1\*PS2 Connector

1\*RS232 DB9 Connector, support RS232/485

➤ Rear IO interface

1\*VGA Connector

1\*HDMI Connector

4\*USB3.0 Connector

1\*Mic Connector, 1\*Line out Connector

5\*RS232 DB9 Connector; COM1~2 Support 9pin charged(5V/12V); COM5~6

Support RS232/485

2\*Intel I211AT ,Support wake on LAN

1\*DC Jack (DC 12V)

➤ Cooling system

FAN free cooling design

➤ Watchdog

Support the hardware reset function(256级, 0~255秒)

➤ Power interface

1\*DC JACK (DC 12V)  $\phi$  5.5\*2.5

➤ Case

Case size: 205mm x219mm x 57mm

Installation: desktop / wall-mounted type

➤ Environment

Working temperature: -10℃~50℃

Working humidity: 5~90%Relative humidity, no condensation

storage temperature : -20℃~60℃

## 1.5 Packaging information

➤ package size: 300mm x 30mm x 135mm



- N.W.:
- G.W.:
- List of accessories:

| Type  | Qty  |
|-------|------|
| Screw | 4pcs |

## 1.6 Order information

### Order information

| No. | Model                  | CPU              | Memory     | M.2 | HDMI | VGA | LAN | COM | USB | power  |
|-----|------------------------|------------------|------------|-----|------|-----|-----|-----|-----|--------|
| 1   | C6850Z-D6V1.0(J1900)   | J1900/2.0GHz     | 1*SODDDR3L | 1   | 1    | 1   | 2   | 6   | 8   | DC 12V |
| 2   | C6850Z-D6 V1.0(3865U)  | 3865U/1.8GHz     | 2*SODDDR4  | 1   | 1    | 1   | 2   | 6   | 8   | DC 12V |
| 3   | C6850Z-D6 V1.0(5205U)  | 5205U/1.9GHz     | 2*SODDDR4  | 1   | 1    | 1   | 2   | 6   | 8   | DC 12V |
| 4   | C6850Z-D6 V1.0(4300U)  | i5-4300U/1.9GHz  | 2*SODDDR4  | 1   | 1    | 1   | 2   | 6   | 8   | DC 12V |
| 5   | C6850Z-D6 V1.0(5020U)  | i3-5020U/2.2GHz  | 1*SODDDR3L | 1   | 1    | 1   | 2   | 6   | 8   | DC 12V |
| 6   | C6850Z-D6 V1.0(6650U)  | i7-6650U/2.2GHz  | 2*SODDDR4  | 1   | 1    | 1   | 2   | 6   | 8   | DC 12V |
| 7   | C6850Z-D6 V1.0(7200U)  | i5-7200U/2.5GHz  | 2*SODDDR4  | 1   | 1    | 1   | 2   | 6   | 8   | DC 12V |
| 8   | C6850Z-D6 V1.0(7360U)  | i5-7360U/2.3GHz  | 2*SODDDR4  | 1   | 1    | 1   | 2   | 6   | 8   | DC 12V |
| 9   | C6850Z-D6 V1.0(8145U)  | i3-8145U/2.1GHz  | 2*SODDDR4  | 1   | 1    | 1   | 2   | 6   | 8   | DC 12V |
| 10  | C6850Z-D6 V1.0(8265U)  | i5-8265U/1.6GHz  | 2*SODDDR4  | 1   | 1    | 1   | 2   | 6   | 8   | DC 12V |
| 11  | C6850Z-D6 V1.0(8565U)  | i7-8565U/1.8GHz  | 2*SODDDR4  | 1   | 1    | 1   | 2   | 6   | 8   | DC 12V |
| 12  | C6850Z-D6 V1.0(10210U) | i5-10210U/1.6GHz | 2*SODDDR4  | 1   | 1    | 1   | 2   | 6   | 8   | DC 12V |
| 13  | C6850Z-D6 V1.0(1135G7) | i5-1135G7/2.4GHz | 2*SODDDR4  | 1   | 1    | 1   | 2   | 6   | 8   | DC 12V |

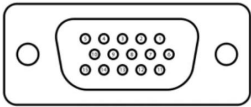
Refer to above the order information, More product information please contact sale manger.

# Chapter II Operation Guide

## 2.1 Assembly Steps

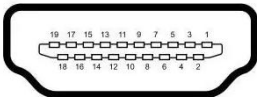
### 2.1.1 Display (VGA/HDMI)

1\*VGA and 1\*HDMI, support VGA+HDMI Dual display.



**VGA Signal definition**

| PIN | Signal | PIN | Signal |
|-----|--------|-----|--------|
| 1   | RED    | 2   | GREEN  |
| 3   | BLUE   | 4   | ID2    |
| 5   | GND    | 6   | RGND   |
| 7   | GGND   | 8   | BGND   |
| 9   | KEY    | 10  | GND    |
| 11  | ID0    | 11  | ID1    |
| 13  | HSYNC  | 14  | VSYNC  |
| 15  | ID3    |     |        |

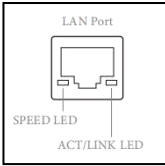


**HDMI Signal definition**

| PIN | Signal            | PIN | Signal            |
|-----|-------------------|-----|-------------------|
| 1   | TMDS Data2+       | 2   | TMDS Data2 Shield |
| 3   | TMDS Data2-       | 4   | TMDS Data1+       |
| 5   | TMDS Data1 Shield | 6   | TMDS Data1-       |
| 7   | TMDS Data0+       | 8   | TMDS Data0 Shield |
| 9   | TMDS Data0-       | 10  | TMDS Clock+       |
| 11  | TMDS Clock Shield | 12  | TMDS Clock-       |
| 13  | CEC               | 14  | HRC Data-         |
| 15  | SCL               | 16  | SDA               |
| 17  | GND               | 18  | +5V               |
| 19  | Hot Plug Detect   |     |                   |

2.1.2 Network(LAN1-2)

2\*Intel I211ATGigabit Network



Network light signal definition

| Active/Link LED |               | SPEED LED |                    |
|-----------------|---------------|-----------|--------------------|
| Status          | Description   | Status    | Description        |
| Off             | No Link       | Off       | 10Mbps Connection  |
| Blinking        | Data Activity | Orange    | 100Mbps Connection |
| On              | Link          | Green     | 1Gbps Connection   |

2.1.3 Audio interface

1\*Line-out headphone interface and 1\*MIC interface.

2.1.4 Power button/Reset button/ACLOSS

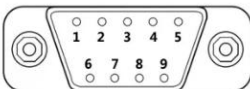
1\*PWR button, 1\*RST button,

1\*ACLOSS Switch(ON: Automatic power on after turn on electricity , OFF:

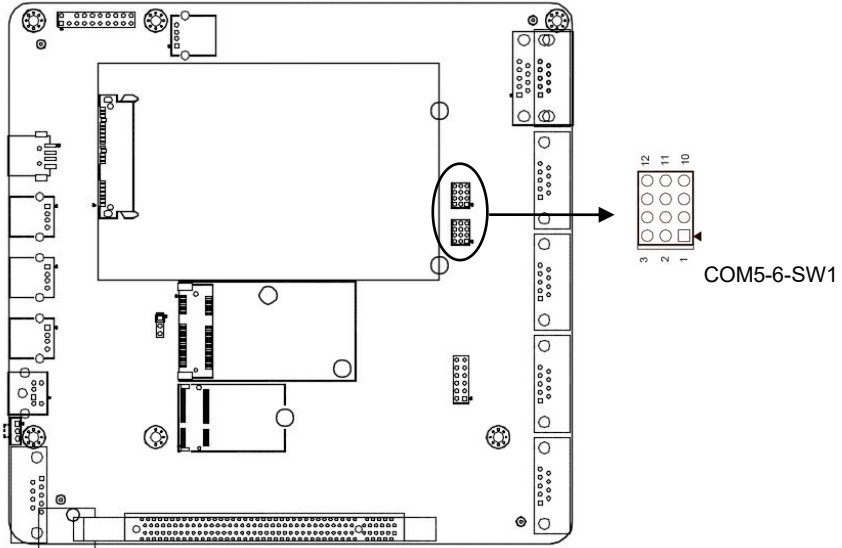
Don't automatic power on after turn on electricity ).

2.1.5 COM(COM1-6)

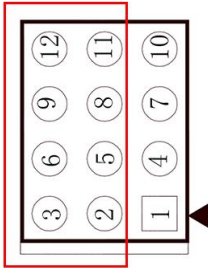
COM1~6 support RS232, COM1-2 support 9pin charged(This is achieved with the JP1 jumper on the C69-D6 IO board); COM5~6 support RS232/485(This is achieved with the COM-SW jumper on the C69-D6 IO board)



(COM definition)

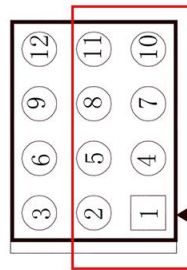


(C69-D6 Jumper postion)



RS232 COM-SW跳帽示意图

RS232 Jumper setting



RS485 COM-SW跳帽示意图

RS485 Jumper setting

COM 1~6 Signal definition

| PIN | Signal   | PIN | Signal   |
|-----|----------|-----|----------|
| 1   | 485P/DCD | 2   | 485N/RXD |
| 3   | TXD      | 4   | DTR      |
| 5   | GND      | 6   | DSR      |
| 7   | RTS      | 8   | CTS      |
| 9   | RI       | 10  | NC       |

**COM-SW (COM 5~6 RS232/485) Setting**

| Signal | COM3/4/5/6-SW1              |
|--------|-----------------------------|
| RS232  | Short 2-3,5-6,8-9,11-12 pin |
| RS485  | Short 1-2,4-5,7-8,10-11 pin |

**COM3~COM6 RS485 Definition**

| Pin | Signal Name | Pin | Signal Name |
|-----|-------------|-----|-------------|
| 1   | NC          | 2   | DATA-       |
| 3   | DATA+       | 4   | NC          |
| 5   | GND         | 6   | NC          |
| 7   | NC          | 8   | NC          |
| 9   | NC          | 10  | NC          |

**JP1 (COM1~2 5V/12V) Setting**

| Setting         | Function(JP1) |      |
|-----------------|---------------|------|
| Short 1-2 pin   | RS232         | COM1 |
| Short 3-4 pin   | +5V           |      |
| Short 5-6 pin   | +12V          |      |
| Short 7-8 pin   | RS232         | COM2 |
| Short 9-10 pin  | +5V           |      |
| Short 11-12 pin | +12V          |      |

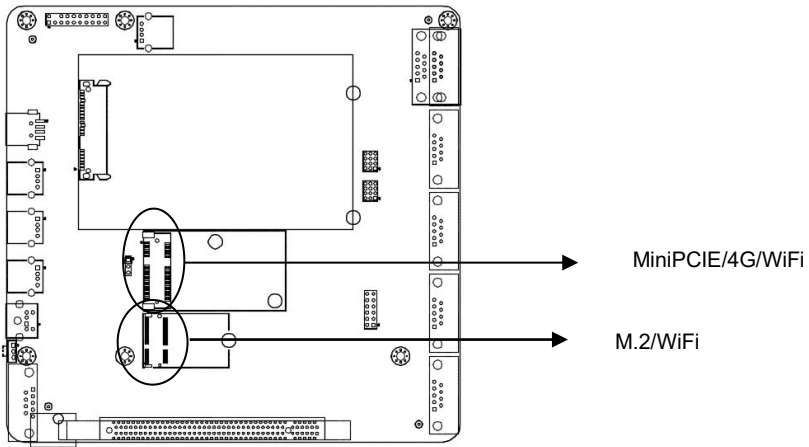
**2.1.6 Power supply(DC12V)**

1\* DC Jack(DC 12V)  $\phi$  5.5\*2.5

**2.1.7 Extended interface(M.2/MiniPCIE)**

1\*M.2 slot,support WiFi/BT, 1\*MINIPCIEslot,support 4G/WiFi

Note:M.2 Bluetooth or 4G is a choice,default is 4G



**(C69-D6 M.2 and MINIPCIE slot position)**

## Chapter III: The BIOS Program Setting

### 3.1. BIOS Description

BIOS (Basic Input and Output System), via CMOS chip on motherboard, it recorded parameter settings of each hardware of the system. BIOS contains the BIOS setup program, for users to set system parameters according to their own needs, to make the motherboard work normal or execute specific function.

Through BIOS setup program to modify the settings (except date and time), which are stored in the flash memory of system, the power required to memorize CMOS data are supplied by the battery on board, so when the system power off, the data will not lost, when next time re-open the power, system will read the set data. If needed to restore factory setting at the circumstance when can not enter the Setup interface due to misconduct, please short circuit JBA12,3 pin to clear CMOS data.

Note! BIOS settings directly affect the performance of the computer, wrong set parameters will cause damage to the computer, or even can not boot, please use the BIOS built-in default values to restore the normal operation of the system.

Due to the company's different product, the interface will be slightly different, the following image for reference only, it may be not exactly the same with your current using BIOS setup program.

### 3.2 BIOS Basic function settings

#### 3.2.1 Enter into BIOS interface

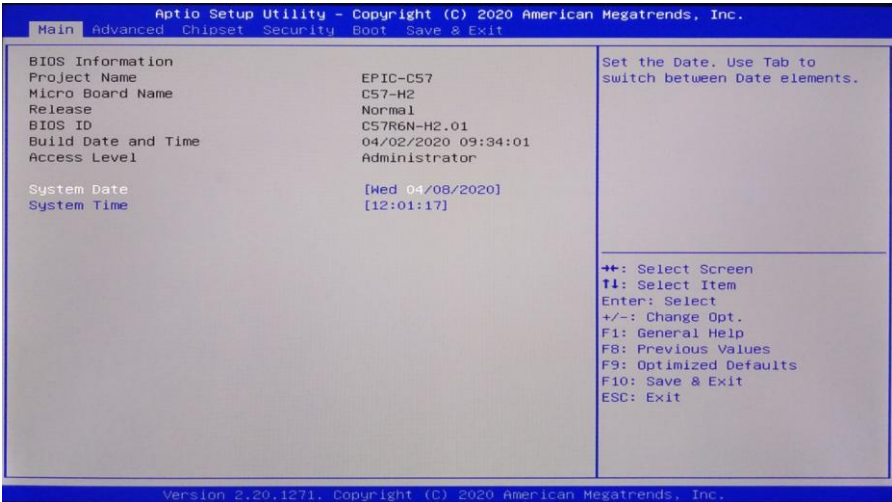
Following below steps to enter into BIOS interface

- 1、 Power on, the display screen will appear POST interface.
- 2、 When the screen appears "click <DEL>or<ESC> to enter setup", please click <DEL>or <ESC>, and you can enter the BIOS setup program
- 3、 Move the arrow key < ↑ >< ↓ >< ← >< → > to the options which you want to modify, click <Enter>, and you can enter the sub-screen of the option
- 4、 Use the arrow keys and the <Enter> key to modify the value of the selected items, click the Enter key to select BIOS option and modify.
- 5、 Use the <ESC> key to return to the last picture
- 6、 <Page Up/+> Add numeric value or change  
<Page Down/-> Reduce numeric value or change  
<F1> Set sub menu help

<F9> Set default values (optimize to factory settings)

<F10> Save BIOS settings

### 3.2.2 Main Menu (BIOS Information and Time / Date)



Bios ID : BIOS Version

Build Date and Time :

Access Level:

System Date :

Set the current date. In the form of month / day / year. The setting range is::

Month/月(Jan.-Dec.), Date(01-31), Year(Max to 2099), Week(Mon.~Sun.)。

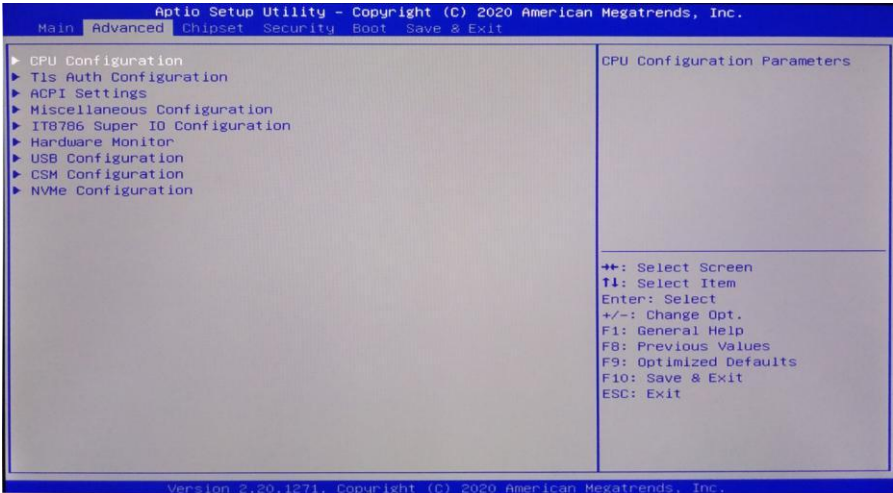
System Time :

Set the current time, In the form of time/minute/second, The setting range is:

Hour(00-23), Minute(00-59), Second00-59)。



3.2.3 Advance



ACPI Settings : Advanced configuration and power management interface settings.

IT8786 Super IO Configuration: include COM port interrupt number and address settings

Hardware Monitor: system monitoring, hardware monitoring, hardware monitor

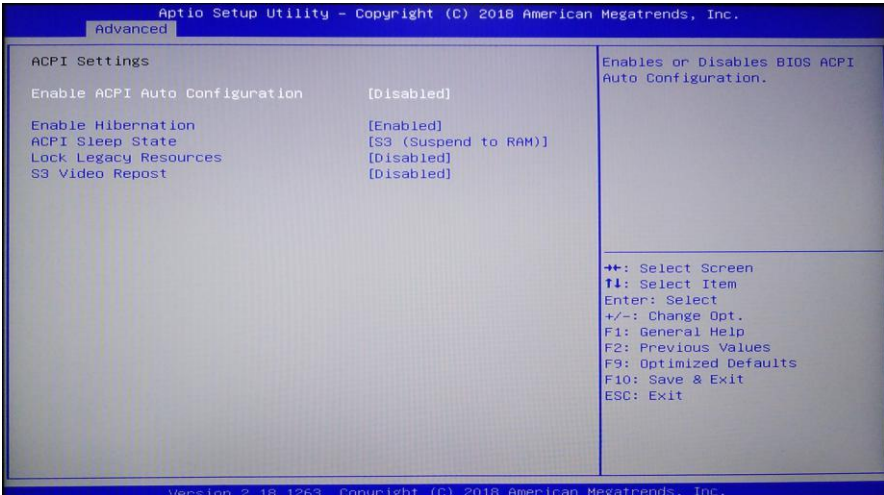
Miscellaneous Configuration : include timing start up, power on auto start-up, watchdog, etc.

CPU Configuration:

CSM Configuration:

USB Configuration:

### 3.2.4 ACPI Setting



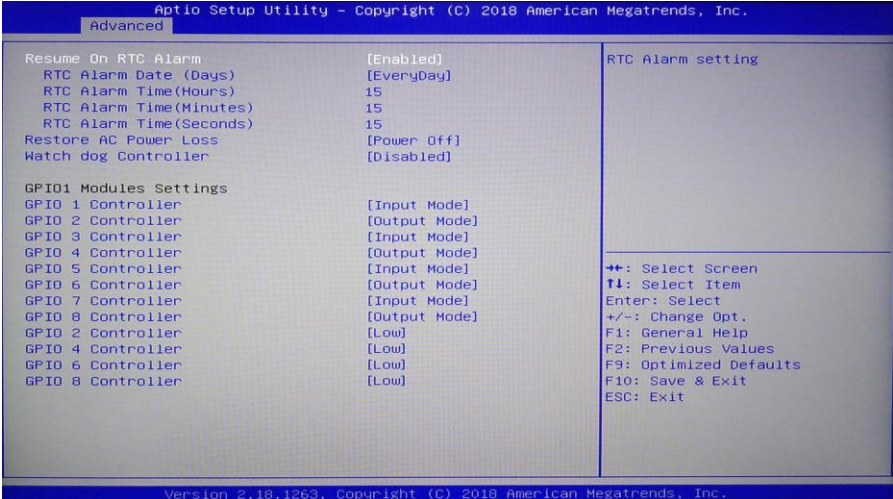
Enable ACPI Auto Configuration : This item is automatically configured for the ACPI, Allow (Enabled) or close (Disabled) BIOS ACPI automatic configuration, default is close (disabled).

Enable Hibernation : Enabled or Disabled system sleep function ( OS/S4 sleep state). This option does not take effect under some OS. Default is Enabled.

ACPI Sleep State : This is used to select the system to enter the power system sleep mode, the pattern is not the same, the system power consumption is not the same degree, Suspend Disabled; close the sleep mode, S1(CPU Stop Clock): CPU stops working, other devices are still normal power supply; S3(Suspend to Ram): Hang up to memory.

Lock Legacy Resources : Resource latch, (Enabled) or (Disabled) resource latch function.

3.2.5 Miscellaneous Configuration



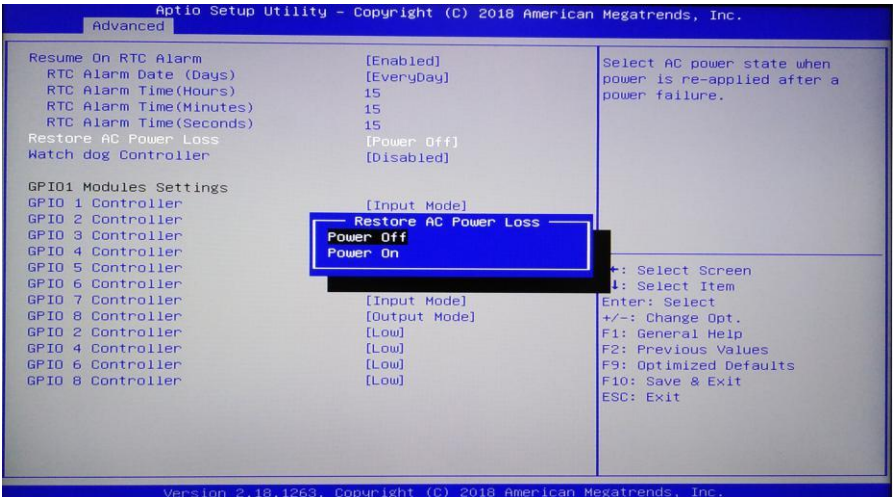
Resume On RTC Alarm :

RTC Alarm Date(Days) :

RTC Alarm Time(Hours):

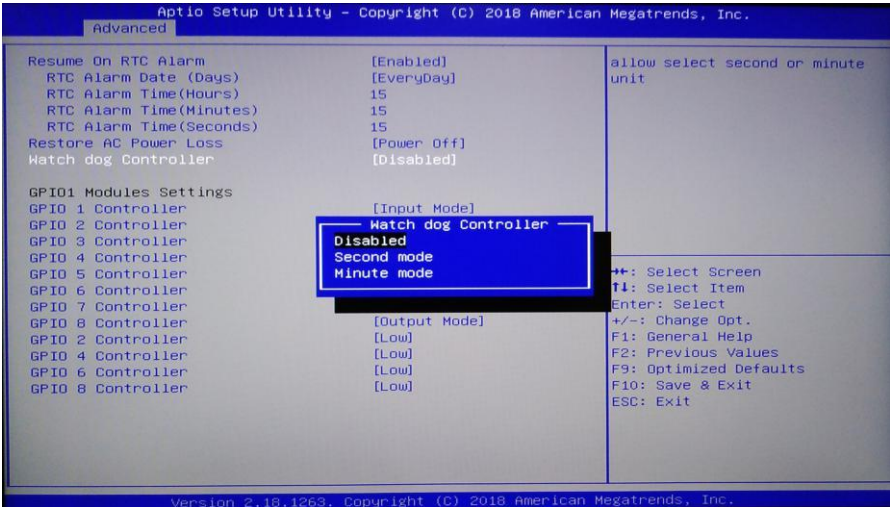
RTC Alarm Time(Minutes):

RTC Alarm Time(Seconds):



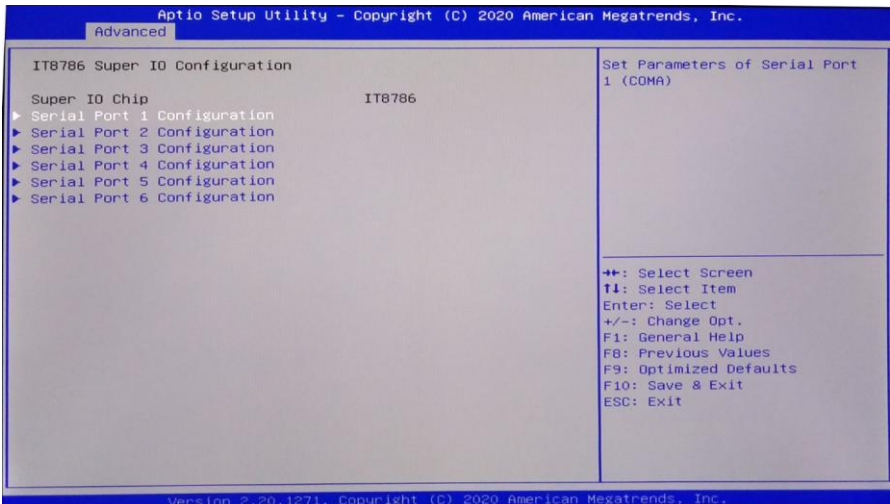
Restore AC Power Loss: this option is used to set the power on condition after

connecting to electric. Power Off: need to press power button to power on; Power On: Power on directly after connecting to electric;



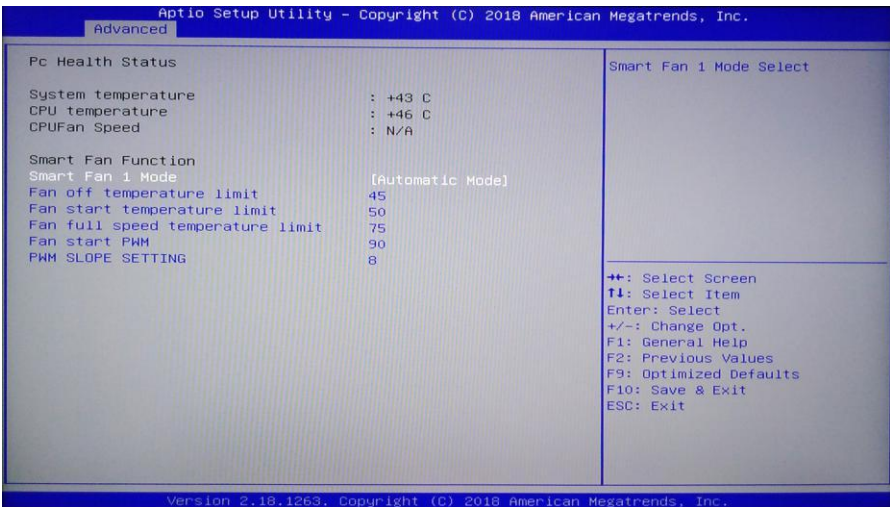
Watch dog controller: [Disabled] disable watchdog, [Second mode] set the watchdog to seconds mode, [Minute Mode], set the watchdog to minute mode.

### 3.2.6 Super IO Configuration



- Serial Port 1 Configuration:
- Serial Port 2 Configuration:
- Serial Port 3 Configuration:
- Serial Port 4 Configuration:
- Serial Port 5 Configuration:
- Serial Port 6 Configuration:

3.2.7 PC Health Status



PC Health Status: shows the current system temperature, CPU temperature, fan speed, and other relevant voltage value. The above parameters have a certain range, system cannot operate beyond the scope.

Smart Fan 1 Mode: This option is whether or not open the CPU automatic fan control function, used to adjust CPU fan speed automatically according to the real-time detected CPU temperature, to achieve the purpose of saving energy.

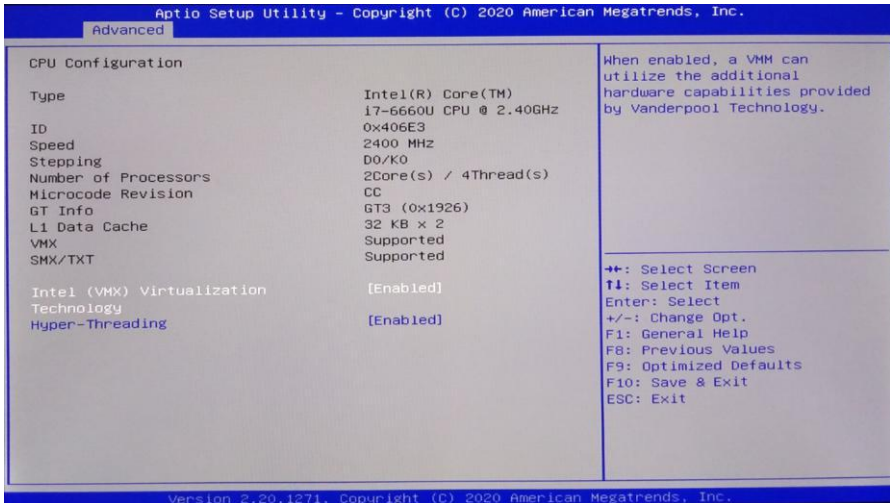
Fan off temperature limit: Fan stop minimum temperature setting.

Fan start temperature limit: Fan start minimum temperature setting.

Fan start PWM: Fan start PWM value setting.

PWM slope setting:

3.2.8 CPU Configuration

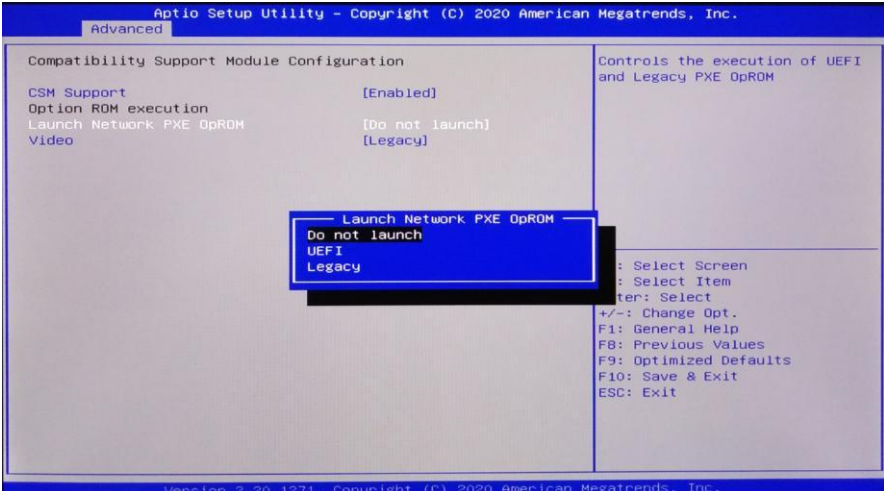


Read only items contain details of the CPU, including the CPU manufacturers, models, frequency, the first level cache size, the second level cache size and other information.

Intel Virtualization Technology :

Intel Virtualization Technology Is Intel's CPU in the system of virtual technology. It makes it possible to enable a PC running a plurality of OS, VT technology is in various types of processors, including dual core processor play very important role, this technique allows the processor with and / or virtualization technology, using Vanderpool technology, we can run two operating systems simultaneously on the same machine. In which a processor running an operating system, another processor running another operating system.

### 3.2.9 CSM Configuration



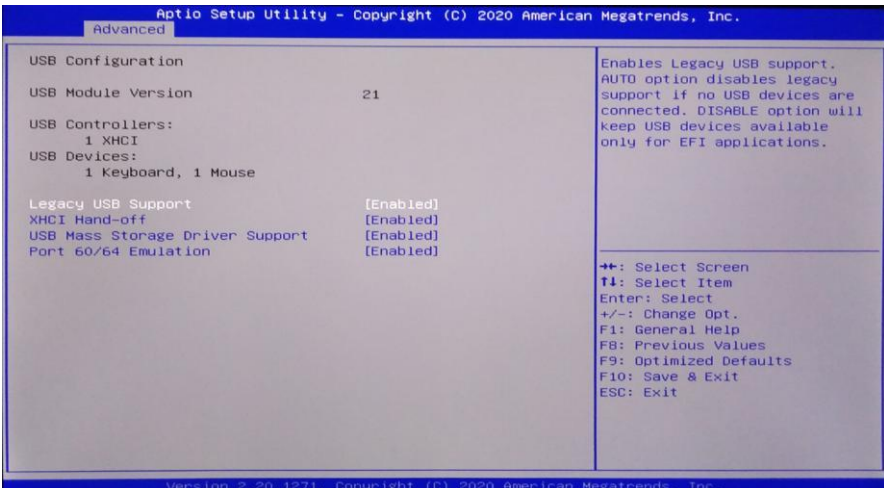
Launch Network PXE OpRom :Set None-Disk boot

Do not launch:Close None-disk boot

UEFI;Set None-Disk boot as UEFI mode

Legacy:Set None-Disk boot as Legacy mode

### 3.2.10 USB Configuration



Legacy USB Support :

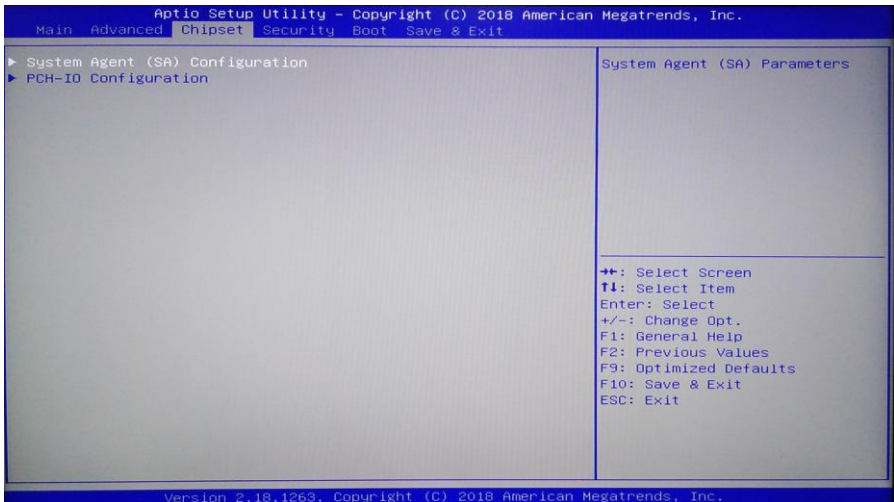
This is used for old version USB setting, if need to support USB devices in DOS,

such as U disk, USB keyboard, etc., choose the option [Enabled] or [Auto]. on the contrary, choose [Disabled].

XHCI Hand-off : When operating system does not support XHCI, whether to allow BIOS to take over XHCI control

USB Mass Storage Driver Support : USB large capacity storage device support switch

### 3.2.11 Chipset



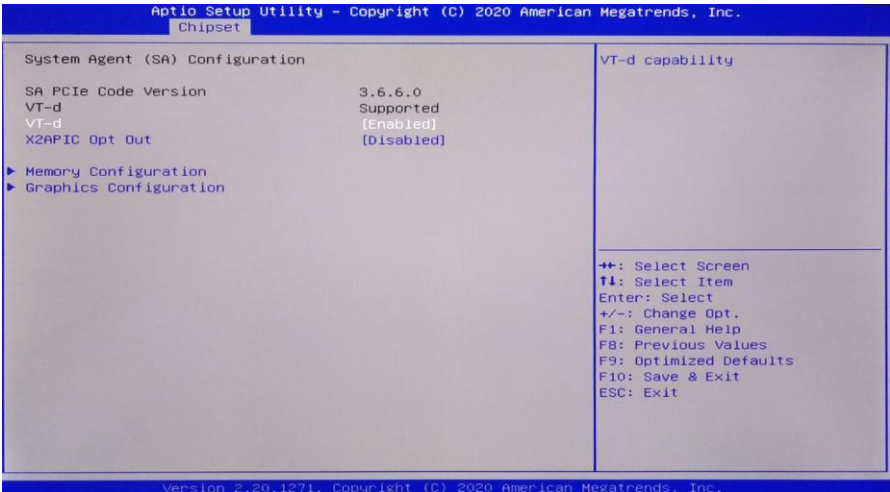
PCH-IO Configuration :

South bridge configuration, Include audio card, LAN card, auto power on, etc.

System Agent (SA) Configuration :

North bridge configuration, include video memory, LVDS, etc.

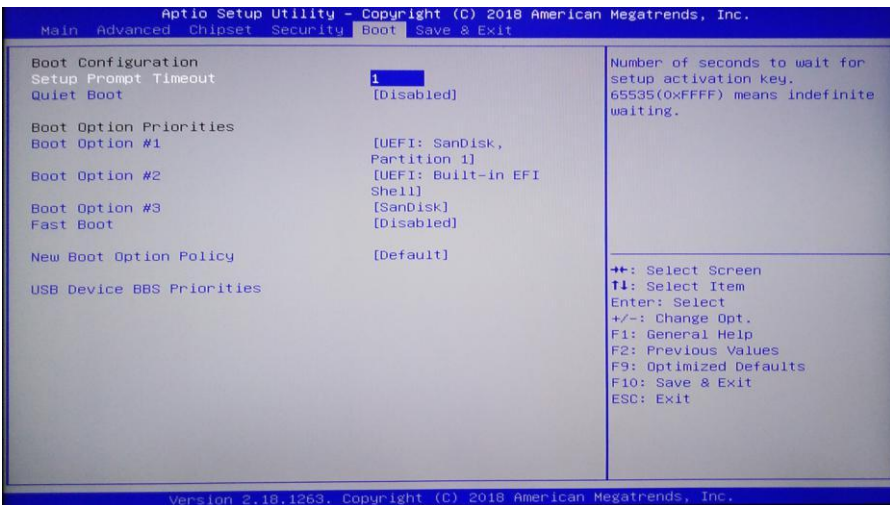




VT-d :

Intel's I/O virtualization technology. It needs chipset support, some chipset support, and some don't. The BIOS will show or hide this option according to different chipset. Please enable it when installing the virtual machine.

### 3.2.12 Boot



Setup Prompt Timeout: click the Setup shortcut key to wait time. If have not click the setup shortcut key in the setup time it will continue to boot.

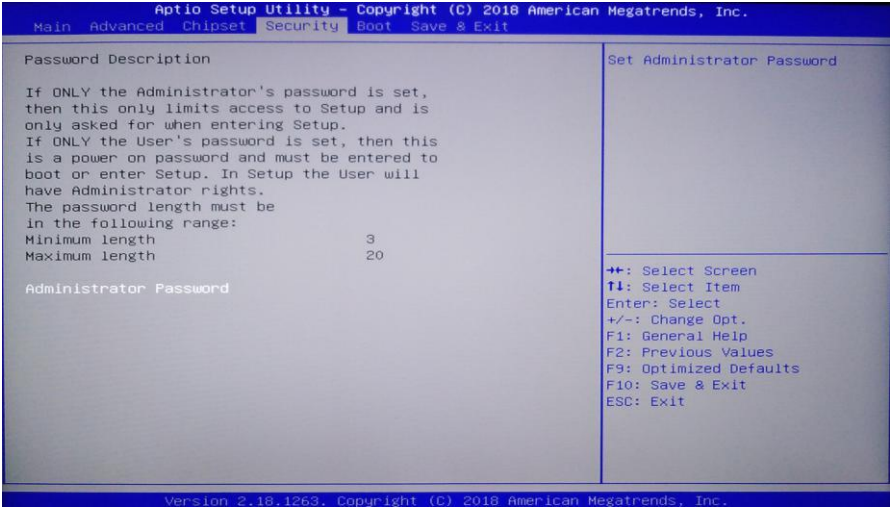
Quiet Boot: ( Closed or enable )

Fast Boot : (Disabled or enable)

Boot Option Priorities : system will inspect device in accordance with the set procedure, until find a device that can be boot, and then boot from this device.

Boot option #1 is the most preferred boot device.

### 3.2.13 Security

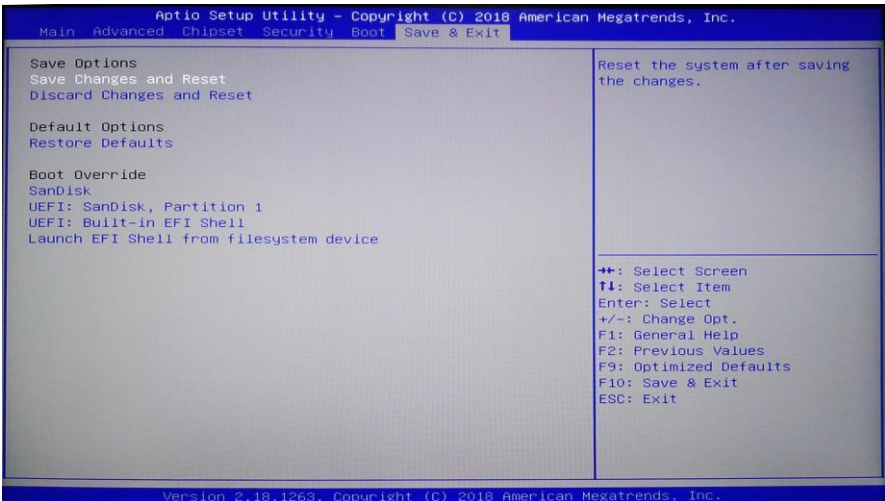


Password character length hint: the minimum length is 3, the maximum length is 20.

Administrator Password :

The option is used to set the super user password

3.2.14 Save&Exit



Save Changes and Reset : Save the BIOS settings, and exit the settings interface, continue to start the computer.

Discard Changes and Reset : Discard changes and exit setup interface, restart the computer.

Restore Defaults: Load optimization settings, if choose this, the system will be set according to the factory's optimal value.

Boot Override : Select the specified Boot devices, such as SATA hard disk, U disk, Shell EFI, PXE and so on, direct Boot, do not save and exit, press F11 to select the specified device Boot.

# Appendix

## Appendix one: Glossary of terms

### **ACPI**

Advanced configuration and power management. The ACPI specification allows the operating system to control most of the power of the computer and its additional equipment.

### **BIOS**

Basic input / output system. It's a software that contains all the input/output control code interface in PC. When the system starts, it carries out the hardware detection., began to the operation of the operating system, between the operating system and hardware to provide an interface. BIOS is stored in a read-only memory chip.

### **BUS**

in a computer system, the exchange of data between the different parts of the channel, is a set of hardware lines. We refer to the BUS is usually CPU and main memory components within the local circuit.

### **Chipset**

Chipset Is designed to perform one or more functions integrated chip. We refer to is composed of South Bridge and North Bridge System on chip group, It determines the structure and main function of the motherboard.

### **CMOS**

Complementary metal oxide semiconductor. Is a widely used semiconductor type. It has the characteristics of high-speed, low power consumption. We refer to CMOS is on the motherboard CMOS ram reserved space, used to save the date, time, system information and system parameter setting information.

### **COM**

Serial port, a universal serial communication interface, generally use the standard DB9 male interface connection mode.

## **DIMM**

Dual in-line memory module. A memory chip group of small circuit board. The memory bus width of 64bit.

## **DRAM**

Dynamic random access memory. A normal computer general memory types. A transistor and a capacitor is usually used to store a single bit. With the development of technology, type and specification of DRAM has in computer application becomes more and more diverse. For example, are now commonly used are: SDRAM, DDR SDRAM and RDRAM.

## **LAN**

Local area network interface. A small region mutual association of computer is composed of a computer network is generally in a business unit or building. LAN is generally by the server, workstations, some communication links, a terminal can anywhere through the wire access to data and equipment. Many users can be expensive equipment and resource sharing.

## **LED**

Light emitting diode, a semiconductor device, when the current flows through it will be lit, usually used to represent the information very intuitive, such as the power supply has been turned on or the hard drive is working.

## **PnP**

Plug and play. Allows the PC external devices to be automatically configured, users can not manually operate the system can work on their own specifications. To achieve this feature, BIOS support PnP and a PnP expansion cards are required.

## **POST**

During the start up system, BIOS will perform a continuous testing on the system,

including the detection of RAM, keyboard, hard drives, etc., to see whether they are properly connected and whether the normal work.

**PS/2**

The IBM development of a keyboard and mouse interface specification. PS/2 is a DIN only 6PIN interface can also be used to connect to other devices such as a modem.

**USB**

Universal serial bus. A suitable for low-speed peripherals hardware interface, typically used to connect the keyboard, mouse, and so on. A PC up to 127 USB devices connected to provide a 12mbit / s transmission bandwidth; USB support hot swap and multiple data stream function, namely in the system can plug in a USB device, the system can automatically identify and allow the insertion of the device normal.

**Appendix Two: Common issue analysis and solution**

| Common Faults                              | Check Points   |
|--|--|
| No start up after connecting power         | <ol style="list-style-type: none"><li>1. Make sure the power cable is connected properly</li><li>2. Please confirm all the power supply can meet the requirements of the motherboard</li><li>3. Try to re-plug the memory</li><li>4. Try to change the memory</li><li>5. Try to clear the CMOS according to motherboard manual</li><li>6. Please confirm whether there is an external card, remove the card and check again</li></ol>  |
| VGA no display after powr on               | <ol style="list-style-type: none"><li>1 To check whether the monitor is open</li><li>2 Check whether the power cable is properly connected to the monitor and system unit</li><li>3 Check whether the display cable is properly connected to the system unit and the display</li><li>4 Check whether the display brightness control is set to the dark state, can improve brightness through the brightness control.</li><li>5 Display in the "power save" mode, press any key on the keyboard</li></ol> |
| BIOS Setup can not be saved                | <ol style="list-style-type: none"><li>1. Please check whether the CMOS battery voltage is lower than 2.8V, if so, please replace a new battery, set again and save</li><li>2. BIOS settings are not correct, according to the boot screen prompt button (DEL), adjust the time and date in the Setup BIOS</li></ol>  |
| Prompt message cannot find bootable device | <ol style="list-style-type: none"><li>1. Please check whether the hard drive power cord, data cable is connected normally</li><li>2. Please check whether the hard disk has physical damage</li><li>3. Please check whether the operating system is normally installed on the hard disk</li></ol>  |
| Blue screen or crash when enter into OS    | <ol style="list-style-type: none"><li>1. Please check whether the memory card and the card is loose</li><li>2. Try to remove the newly installed hardware, uninstall the driver or software</li><li>3. Try to replace the memory</li></ol>   |
| Slow speed to enter into OS                | <ol style="list-style-type: none"><li>1. Try to use third party software to check whether the hard disk has bad sectors</li></ol>  |

|                              |  |
|------------------------------|--|
|                              | <p>2. Please check whether the hard disk remaining space is too small for operating system.</p> <p>3. Please check whether the CPU cooling fan is rotating normally</p>  |
| System restart automatically | <p>1. Please check whether the CPU cooling fan is rotating normally</p> <p>2. Please check whether triggered reset button wrongly</p> <p>3. Please use anti-virus software to confirm whether the system is infected with the virus</p> <p>4. Please check whether the memory card and the card is loose</p> <p>5. Please confirm that the power capacity is sufficient, can try to replace the power supply</p> |
| Can not detect USB device    | <p>1. Please check whether the USB device needs separate power supply</p> <p>2. Please check whether the USB interface has bad contact</p> <p>3. Please check whether the USB controller is open in BIOS Setup</p>   |