

N-BOX-J1 (BT19NA)

(REV; 1.30)

Product Description & Manual



	深 圳 市 派 勤 电 子 技 术 有 限 公 司 Shenzhen Piesia Electronic technology Co., Ltd			名称 MODEL
Manual Version:1.1				N-BOX-J1 (BT19NA)
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			20191206	

Description

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Ordering information; the following ordering information is for reference, please contact our sales staff for details.

Model	Description	CPU Optional
BT19NA-J1900	Onboard integrated Baytrail-D/I/M J1900 Quad core 2.0Ghz up to2.4Ghz DDR3 SODIMM 204 Socket Ram socket max supports 8G Onboard 32G/64/128G EMMC chipset(optional)	J1900,N2900(quad core)
BT19NA-j1800	Onboard integrated Baytrail-D/I/M J1900 Quad core 2.0Ghz up to2.4Ghz DDR3 SODIMM 204 Socket Ram socket max supports 8G Onboard 32G/64/128G EMMC chipset(optional))	J1800,N2806 (dual core)

Tips;

1. For motherboards that are not ready to be installed, they should be stored in anti-static protective bags.
 2. Before removing the motherboard from the packaging bag, place your hand on a grounded metal object for a while to release static electricity from your body and hands.
 3. Prior to use, the motherboard should be placed on a stable surface.
 4. Please keep the motherboard dry. The open slots of the heat sink are used for ventilation to avoid overheating of the components inside the chassis. Do not cover or block such openings.
 5. Before connecting the motherboard to the power supply, please confirm the power supply voltage value.
 6. Please place the power cord in a place where it will not be trampled, and do not stack anything on the power cord.
 7. Before you connect or disconnect any equipment, make sure that all power cords have been unplugged beforehand.
 8. In order to avoid electric shock or product damage to the human body, the AC power supply must be turned off or the AC power cord must be unplugged from the power outlet each time the whole machine or board is unplugged or reconfigured.
 9. Please pay attention to all cautions and warnings mentioned in the manual.
 10. In order to avoid unnecessary damage to the product caused by frequent power on / off, you should wait at least 30 seconds before turning on the machine after shutdown.
 11. An abnormal situation occurs during the use of the equipment, please find a professional to deal with it.
 12. Please do not operate the equipment at an ambient temperature higher than 70 ° C, otherwise it will cause damage to the equipment.
- Caution; danger of explosion if battery is incorrectly replaced. Be sure to use the same type or equivalent type of battery recommended by the manufacturer.

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Chapter 1: Product Introduction

1.1 Product Introduction

N-BOX-J1 is a thin passenger plane with our BT19NA standard low-power Nano-ITX (12 * 12) industrial motherboard, which uses Baytrail-D / I / M series processors. The main features are as follows;

On-board CPU, supporting Baytrail-I / D / M series processors.

1 DDR3 SODIMM 204 Socket, supporting up to 8GB DDR3L memory.

On-board 32/64 / 128G EMMC high-performance flash memory chip (optional).

Onboard 2 Intel I211AT Gigabit network cards.

On-board HDA ALC662, providing MIC / LINE-OUT and AUDIO pin headers.

Support SPDIF digital audio interface.

1* RJ45 COM interface

1* Mini-PCIE card connector (only supports PCIE signal equipment).

1* Mini-SATA card slot.

1* SATA 2.0 hard disk interface.

1* USB 3.0 interface, 3* USB 2.0 interfaces

Supports HDMI output.

Support DP output.

Two 3-Pin FAN interfaces.

1* boot button with power indicator, 1* reset button, 1 power indicator, 1 hard disk indicator.

1* IR infrared receiving port.

Single input DC power supply, DC12-19V, +/- 5% (If you do not use 12V to power the hard disk, +/- 10%).

Support AT / ATX power on mode selection.

The machine can work stably in a wide temperature range of -20-60 °C, 0% ~ 90% relative humidity, non-condensing, and humidity, meeting industrial grade

Various application needs of the product.

This product combines the advantages of stable and reliable industrial-grade product performance and intelligent digital multimedia players, which can be widely used in digital



Signage, education, media playback, advertising, large LCD screens, traffic control, information systems, financial equipment, automotive, military and other industries. Platform functions can be easily extended and customized to meet customer-specific application needs and future-oriented solutions。

1.2 Pictures



1.3 Hardware Mainfeatures

1. Mini PC

Case	Model	N-BOX-J1
	size	134*126*40.6 mm
	Color	Grey
	Material	Aluminum
	Fornt panel IO	4 * USB, 1 * quick boot button with indicator light, 1 * restart button, 1 * Line_out 1 * MIC, 1 * power indicator light, 1 * hard disk indicator light
	Backpanel IO	1*DC,1*DP,1*HDMI ,2*LAN,1*RS232 RJ45 Port,

2. Motherboard

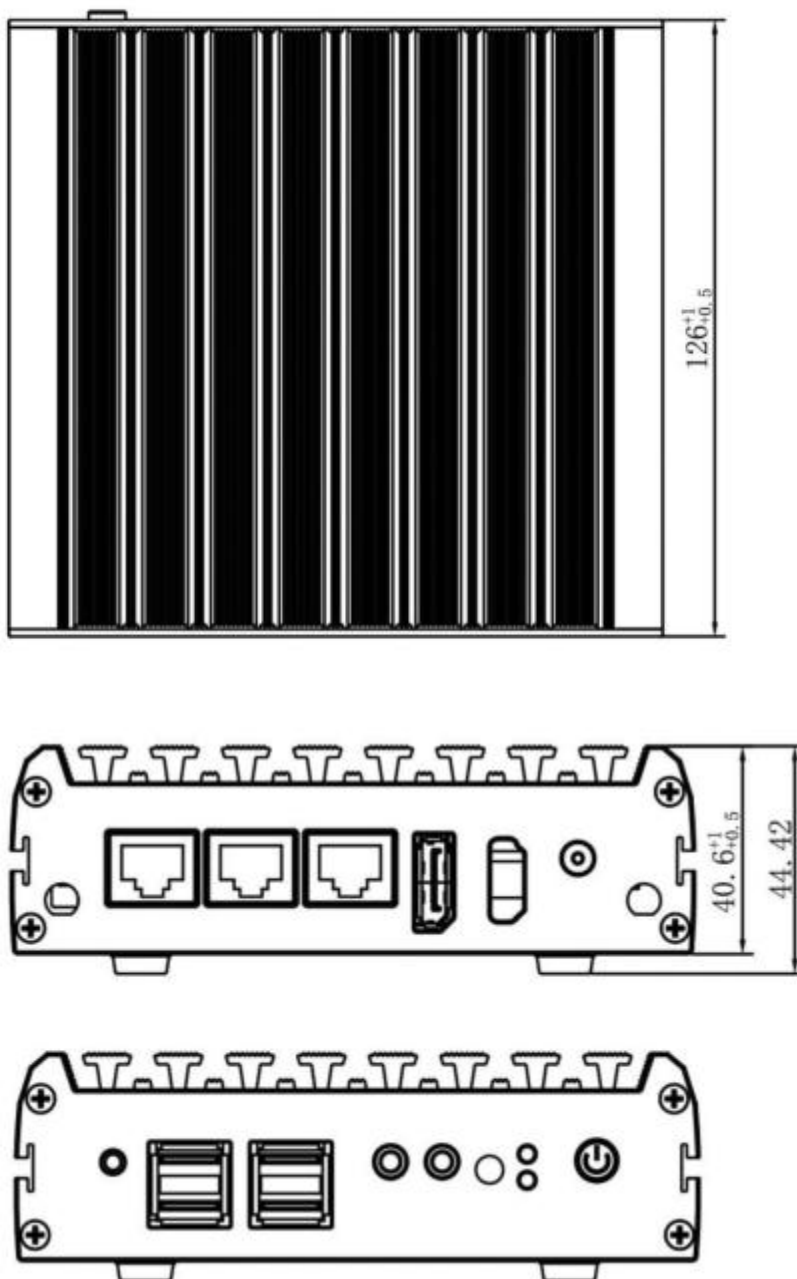
Processor	CPU	Support Baytrail-I/D/M serial Processor (J1900 N2900 J1800 N2806 e3845)
	CPU Package	BGA
	Chipset	Support Baytrail-I/D/M serial Processor
	BIOS	EFI BIOS
Memory	Technology framework	Single channel DDR3L 1066/1333MHz
	Capacity	Max support 8GB Ram
	Socket	DDR3L 1.35v SODIMM 204 Socket
Video	Graphic controller	Intel HD Graphics
	DP	DPsupport max resolution 2560*1600
	HDMI	HDMI max support resolution 1920x1080
	Dual display	HDMI+DP sync or asynchronous display
I/O panel	Port	1*DP 1*HDMI 1*USB3.0 3*USB2.0 2*LAN 1*Quick Power On button with indicator 1 * Restart button

network	controller	2*Intel I211AT high performance Gigabit Ethernet Port, RJ45 Port
	Cooler	Aluminum alloy heat sink with fanless
Input/Output Interface	USB	3*USB2.0 1*USB3.0 Max support +5V/1A
	Com	1*RJ45 Port 1* RS-232
	IR	1*IR Infrared receive port
	audio	1*LINE OUT 1*MIC
	Digital audio	1*3pin Pin
	PS/2	without
Extended bus	Mini-PCle	1*Mini-PCle slot ,support PCIe signal equipment
storage	SATA	1*SATAII connector, Maximum transmission rate 3Gb/s
	M-SATA	1*Mini-PCle M-SATA Scket,support SANDISK Protocol,Maximum transmission rate 3Gb/s
	EMMC	Support 32/64/128G(optional)
power	Power Type	Single-input DC power supply, DC12V power supply
	Power consumption	20W
Working environment	Working temperature	-20℃ ~ +60℃
	Storage temperature	-40℃ ~ +85℃
	Working humidity	0% ~ 90%(non-condensing)
	Storage humidity	0% ~ 90%(non-condensing)
Size	size	120 x 120 mm
Certifications		CE,ROHS,FCC

Chapter2: Installing Instruction

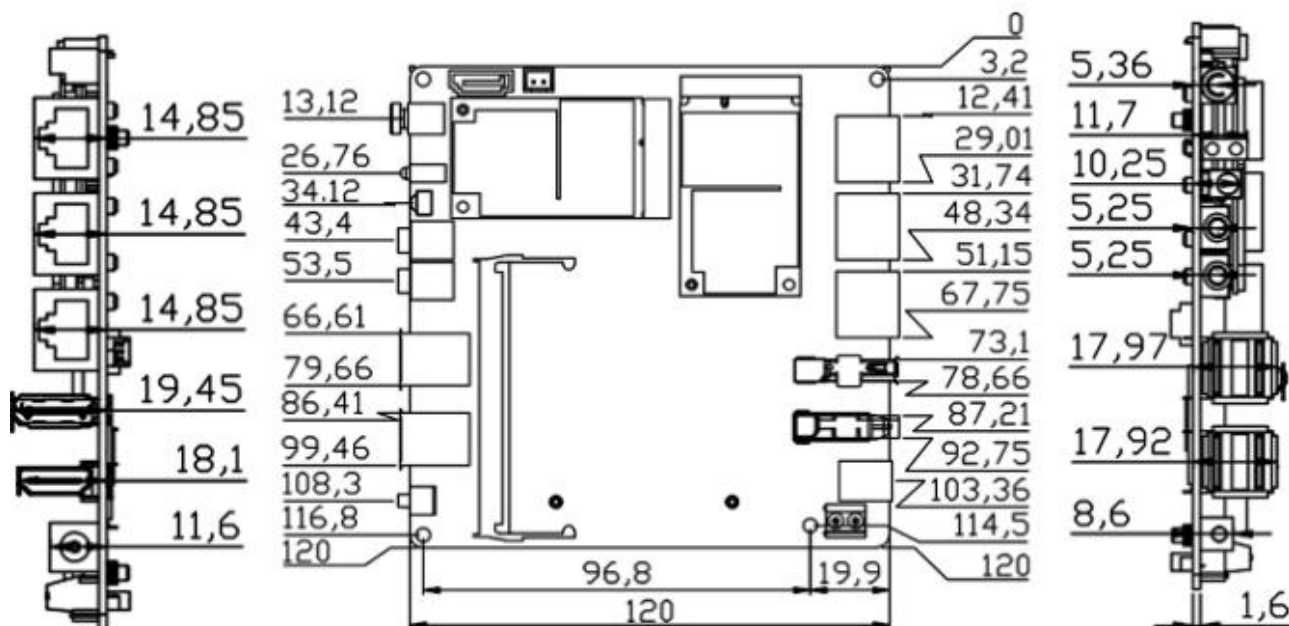
2.1 Mini PC Layout

The following figure is the location and size of the interface of the machine. Care must be taken during the installation of the device. For some components, the chassis may be damaged if not installed properly.。



2.2 Motherboard Layout

The following figure shows the front interface location and size of the machine. Care must be taken during the installation of the device. For some parts, if the installation is not correct, the motherboard will not work properly.



2.3 Installation instructions

prompt;

Be sure to select the appropriate screws and use the correct installation method, otherwise the motherboard may be damaged.

2.3.1 Installation steps

1. Refer to the user manual to adjust all Jumpers on the motherboard correctly.
2. Install other expansion cards.
3. Connect all signal wires, cables, panel control lines, and power supplies.
4. Start the computer and complete the BIOS setup.

Note: The key components of this motherboard are integrated circuits, and these components are easily damaged by static electricity.

Therefore, please make the following preparations before the official installation of the motherboard;

1. When holding the motherboard, hold the edge of the board so as not to touch the components and the pins of the plug socket.
2. When touching integrated circuit components (such as CPU, RAM, etc.), it is best to wear an anti-static bracelet / glove.
3. Before the integrated circuit components are installed, the components need to be placed in an antistatic pad or an antistatic bag.
4. After confirming that the power switch is in the off position, plug it in again.

2.3.2 Memory installation

Please pay attention to the following two points when installing a memory module;

1. When installing, align the notch of the memory module with the notch of the slot and insert it firmly.
2. When selecting a memory module, you must select a memory module that supports the specifications of this motherboard.

2.3.3 Jumper Function Setting

Before installing the hardware device, please set the corresponding jumper according to your needs.

Tip: How to identify the jumper and pin 1 of the interface. Please observe the text mark next to the plug socket.

Thick line or triangle symbol indicates; look at the pad on the back, the square pad is the first pin; there is a pin 1 next to all jumpers

1 triangle symbol.

2.3.4 CMOS Clear / Hold

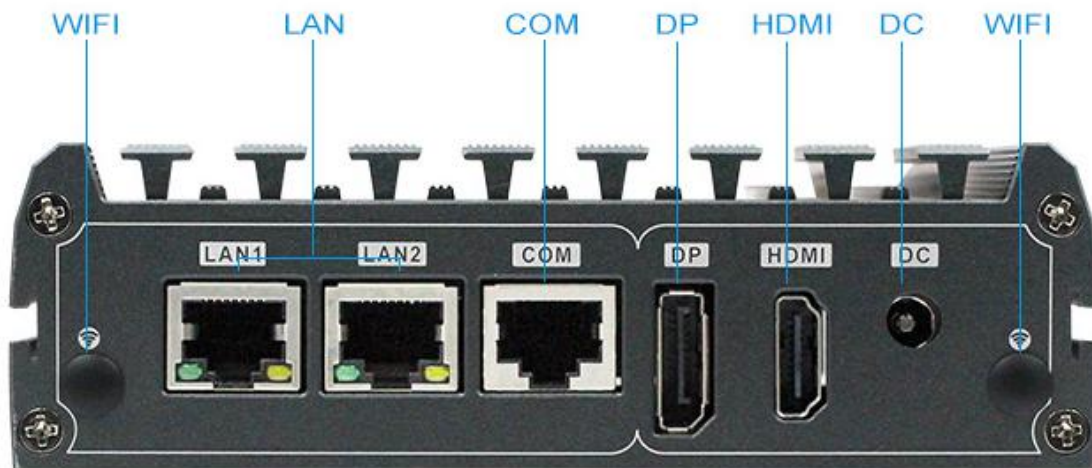
CMOS is powered by a button battery on the board. Clearing the CMOS will cause the previous system settings to be permanently erased and set to the original (factory-set) system settings. The method is as follows;

1. Shut down the computer, disconnect the power, and short the RTC1 pin.

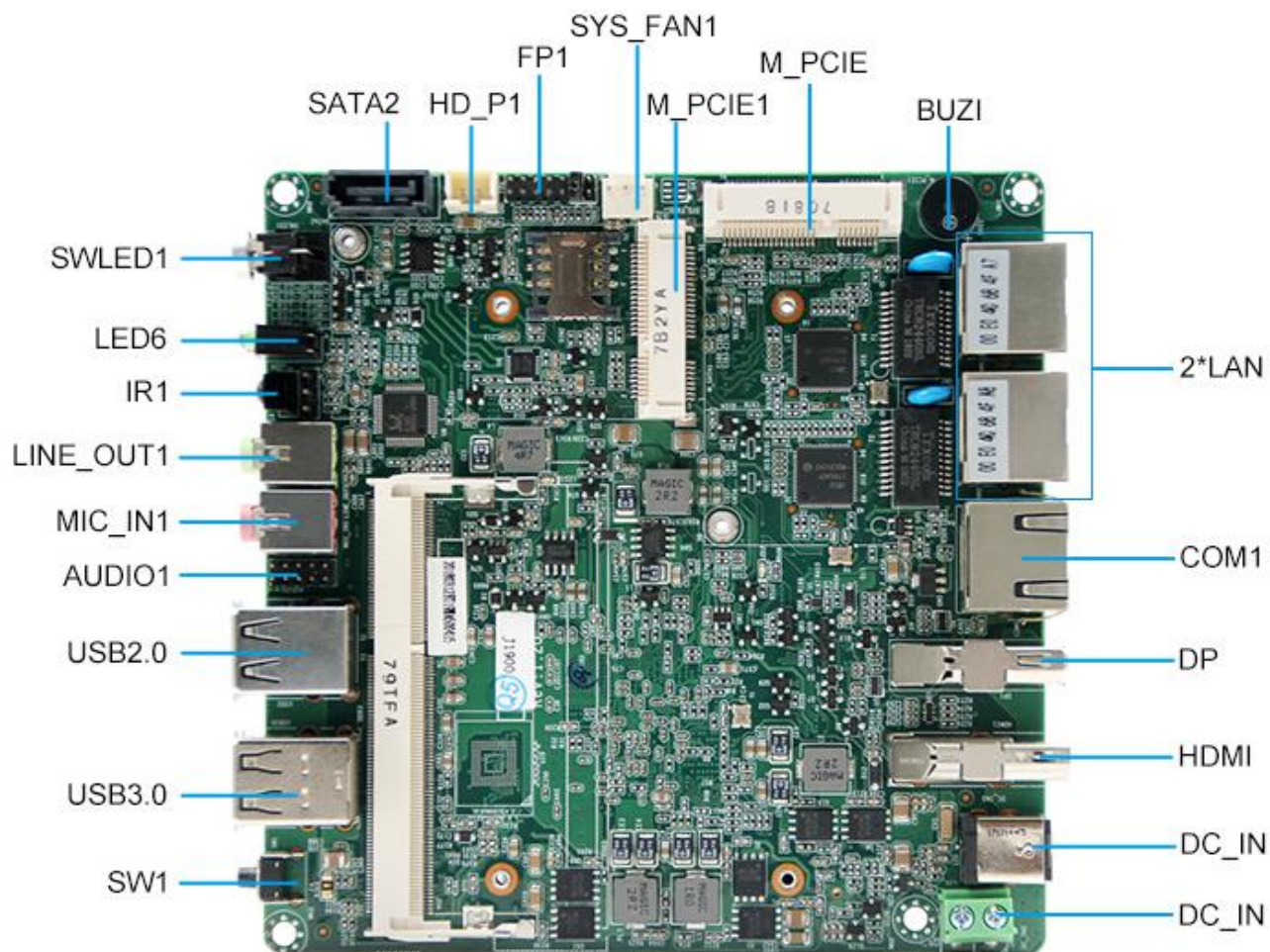
2. Shut down the computer, disconnect the power source, use a jumper cap to short BAT1 pins 1 and 2 for 5 to 6 seconds, and then restore the factory settings.
3. Power on and press the "Delete" key in the keyboard to enter the BIOS interface, enter the BIOS interface and press the "F9" key-"Enter" to restore Factory setting, press "F10" key-"Enter" to save and exit settings。

Chapter3: PIN、IO Ports

3.1 Mini PC interface layout



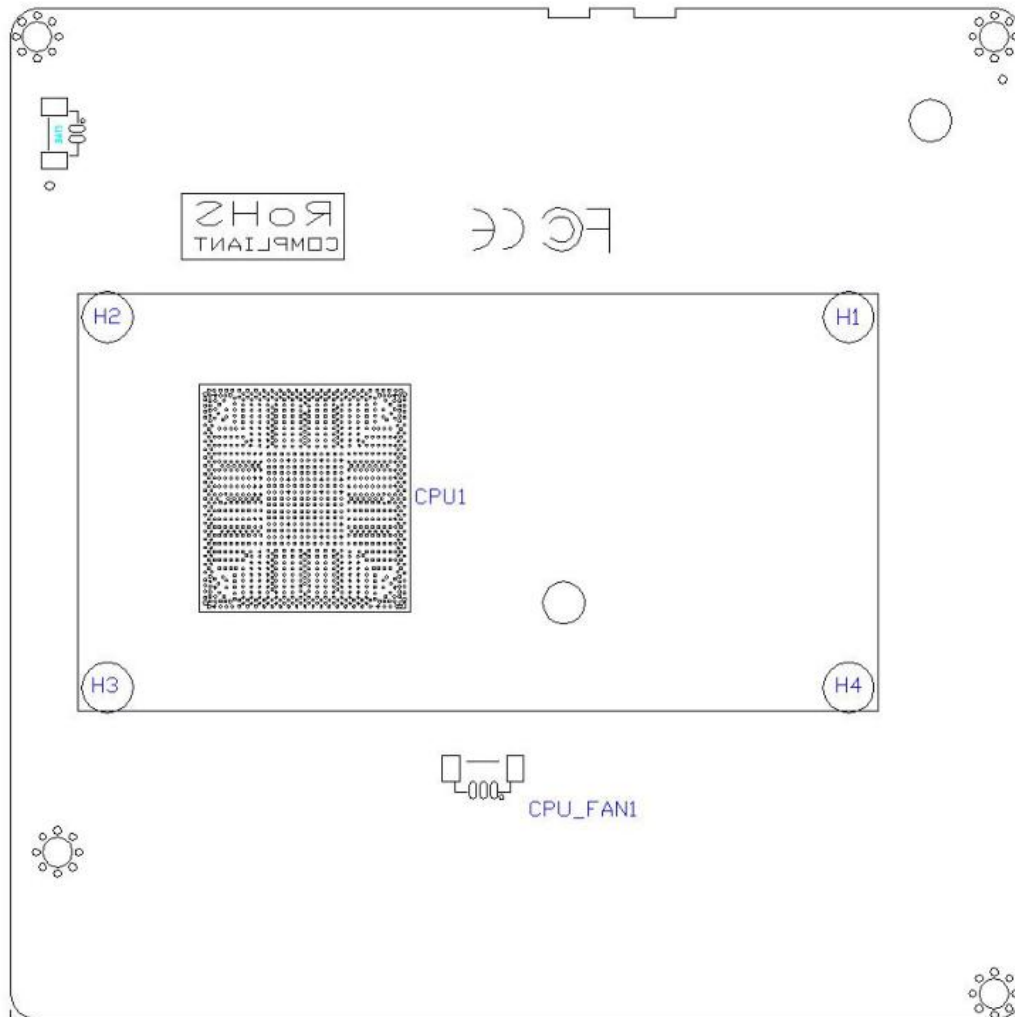
3.2 Motherboard front panelPorts Layout



TIPS;

1. How to identify the first pin of the jumper and interface, observe the text mark next to the plug and socket, will use a triangle symbol or "1"
Or bold line indicates; look at the pad on the back, the square pad is the first pin, pay attention to distinguish the first pin when inserting the device and the connection line, otherwise it will damage the motherboard.
2. How to identify the alarm sound: (long beep is a system memory error; short "beeps" sound is the startup sound)

3.3 Motherboard Back panel Ports Layout



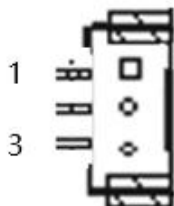
prompt;

1. DDR3 memory socket, standard DDR3L SODIMM 204 memory socket, supports 1066 / 1333MHz.
2. M_SATA supports Mini-SATA memory card. As the industry standard is not clear, this motherboard supports the definition of some large companies MINI-SATA card, please consult our company's business and technical support personnel for specific models.

3.4 PIN

3.4.1 CPU_FAN1

The CPU_FAN1 interface supports a maximum current of 0.3A, and the CPU_FAN1 is 12V. The pin definition is as follows;



Pin	Signal Name	Pin	Signal Name
1	GND	2	VCC
3	FANTACH		

3.4.2 SYS_FAN1

SYS_FAN1 为 12V , definition as follow;



Pin	Signal Name	Pin	Signal Name
1	GND	2	VCC
3	FANTACH		

Tip: CPU fan interface, support automatic speed adjustment. The maximum fan voltage is equal to the input power voltage. When the input power voltage is high, pay attention to selecting a suitable fan. The SYS fan does not support automatic speed adjustment.

3.4.3 SPDIF1

SPDIF1 optical fiber audio pin interface, using 1x3, 2.54mm pin, optional interface, defined as follows



Pin	Signal Name	Pin	Signal Name
1	5V	2	SPDIF
3	GND		

3.4.4 FP1

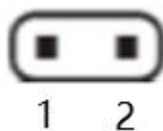
FP1 control panel interface, using 2x5, 2mm pin headers, integrated HDD_LED, PWR_LED, boot switch, reset switch, SPEAKER function. Defined as;



F_PANEL1	Pin definition
1, 3	Hard disk read and write indicator positive and negative signal pins.
2, 4	Main power indicator positive and negative signal pins.
5, 7	Mainboard reset signal positive and negative signal pins.
6, 8	Positive and negative signal pins of the main board switch signal.
9, 10	Spare buzzer interface.

3.4.5 RTC1

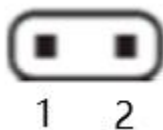
RTC1 is the RTC clearing jumper, which uses 1x2 and 2mm pin headers, as defined below;



RTC1	Function Description
Close	Clear RTC CMOS
Open	Noram1

3.4.6 JP2

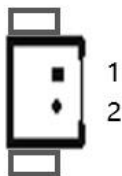
JP2Select the jumper for the power-on mode. When Close is selected, the DC power is turned on and the motherboard is powered on.。



PS_ON	Boot mode selection
Close	AT power on mode
Open	ATX Power On Mode

3.4.7 BAT1

BAT1 is a battery interface. It uses A1251WV-2P interface or other compatible interfaces. The pin definition is as follows;



Pin	Signal Name	Pin	Signal Name
1	VCC	2	GND

Tips: Please make sure the CMOS battery voltage is not lower than 2.8V. If it is lower than 2.8V, you cannot save the BIOS settings.

3.4.8 AUDIO1

AUDIO1 is a 2x5, 2mm pin header, defined as follows;



Pin	Signal Name	Pin	Signal Name
1	MIC_IN_R	2	GND_AUD
3	5V_AUD	4	5V_AUD
5	OUT_R	6	LINE_OUT_R
7	NC	8	NC
9	PUT_L	10	LINE_OUT_L

3.5 Interface Introduction

Please read this manual carefully before connecting external connectors to avoid damage to the motherboard!

3.5.1 DC_IN3, DC_IN1, DC_IN2

DC_IN3 is a standard DC-JACK interface. DC_IN1 and DC_IN2 use Huilin, WF11C-5.0-2P, 2Pin, green interface. Pay special attention to the positive and negative poles of the power supply, and the positive and negative marks on the reverse side of the motherboard.

Note: When assembling, testing, and using, the equipment and cables must be installed before power can be applied.

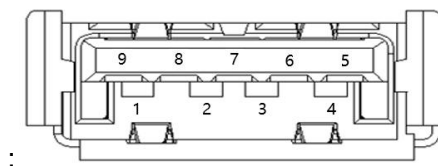
3.5.2 DDR3

Standard DDR3L memory socket, supports up to 8GB DDR3L (1066 / 1333MHz)。



3.5.3 USB

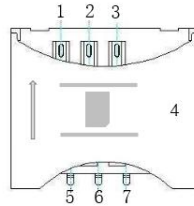
The USB interface supports plug-and-play and hot-swap functions, allowing users to connect or disconnect devices without turning off the computer. The pin definitions are as follows



Pin	USB 3.0	USB 2.0
1	+5V_USB	+5V_USB
2	USB_DATA-	USB_DATA-
3	USB_DATA+	USB_DATA+
4	GND	GND
5	USB_SSRX-	
6	USB_SSRX+	
7	GND	
8	USB_SSTX-	
9	USB_SSTX+	

3.5.4 SIM2

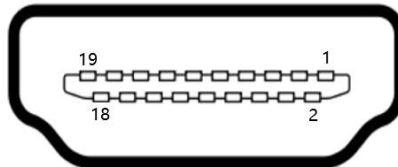
SIM2 is a SIM card attached to MINI-PCIE. This machine adopts Micro, SIM drawer-type six-pin card holder from csconn. The pin definition is as follows;



Pin	Signal Name	Pin	Signal Name
1	VCC	2	RST
3	CLK	4	GND1
5	GND0	6	VPP
7	I_O		

3.5.5 HDMI1

This machine uses Foxconn and QJ11191-WFB3-4F connectors. The most common type A HDMI interface is 14mm wide and 4.5mm high. The HDMI interface is a high-definition multimedia interface. It is a digital video / audio interface technology. It is a dedicated digital interface suitable for image transmission. It can simultaneously transmit audio and video signals. The pin definition is as follows

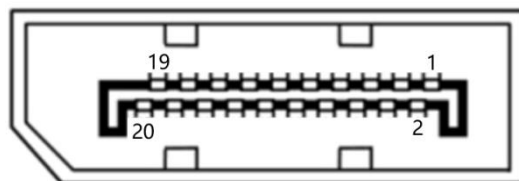


Pin	Signal Name	Pin	Signal Name
1	TX2_DP	2	GND
3	TX2_DN	4	TX1_DP
5	GND	6	TX1_DN
7	TX0_DP	8	GND
9	TX0_DN	10	CLK_DP
11	GND	12	CLK_DN
13	NC	14	NC
15	SC_DDC	16	SD-DDC
17	GND	18	DVI_5V

19	DVI_DET		
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3.5.6 DP1

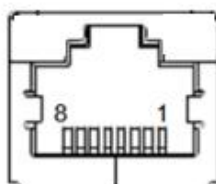
DP transmits video signals while adding support for high-definition audio signal transmission, while supporting higher resolutions and refresh rates. Able to support single-channel, unidirectional, four-line connections, the data transmission rate of 10.8Gbps is defined as follows



1	ML_Lane 0 (p)	2	GND
3	ML_Lane 0 (n)	4	ML_Lane 1 (p)
5	GND	6	ML_Lane 1 (n)
7	ML_Lane 2 (p)	8	GND
9	ML_Lane2 (2)	10	ML_Lane 3 (p)
11	GND	12	ML_Lane 3 (n)
13	CONFIG1	14	CONFIG2
15	AUX CH (p)	16	GND
17	AUX CH (n)	18	Hot plug
19	Return	20	DP_PWR

3.5.7 COM1

COM1 uses RJ45 interface, which is RS-232. The pin definition is as follows;

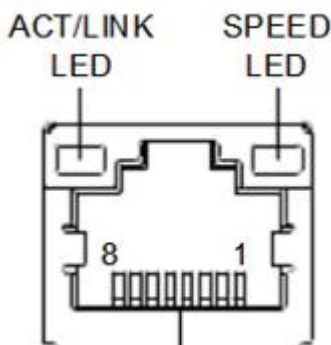


Pin	Signal Name	Pin	Signal Name
1	RTS1-	2	DTR1-
3	TXD1	4	GND

5	GND	6	RXD1
7	DSR1-	8	CTS1-

3.5.8 LAN1、LAN2

10/100/1000 M LAN standard RJ45 interface, the main control chip is Intel I211AT, as defined below;



Signal	Signal Name
1	TX_0+
2	TX_0-
3	TX_1+
4	TX_2+
5	TX_2-
6	TX_1-
7	TX_3+
8	TX_3-

Right LED	Left LED	
10、100、1000 Link	10、100、1000 Link	Active
Orange	Green	Green

3.5.9 SATA2

;

Standard SATA device interface, support SATA2.0 and below, as defined below



SATA

Pin	Signal Name	Pin	Signal Name
1	GND	2	SATA_TX+
3	SATA_TX-	4	GND
5	SATA_RX-	6	SATA_RX+
7	GND		

3.5.10 HD_P1

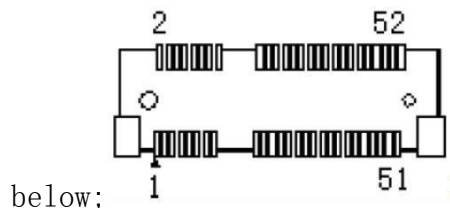
1 SATA device power interface, using CJT company A2501WV-2P device or other compatible devices. Defined as;



Pin	Signal Name	Pin	Signal Name
1	VCC	2	GND

3.5.11 M_PCIE1

M_PCIE1 is a standard Mini-PCIE card socket that can be inserted into a full-length card. The half-length card Mini-PCIE card must be fixed with an extension card, as defined

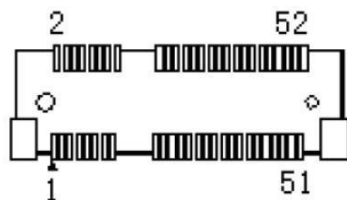


Pin	Signal Name	Pin	Signal Name
52	3.3V	51	NC
50	GND	49	NC
48	1.5V	47	NC
46	LED_WPAN#	45	NC
44	LED_WLAN#	43	GND
42	LED_WWAN#	41	3.3V
40	GND	39	3.3V
38	USB_D+	37	GND
36	USB_D-	35	GND
34	GND	33	PETXP__SATXP
32	SMB_DATA	31	PETXN__SATXN
30	SMB_CLK	29	GND
28	1.5V	27	GND
26	GND	25	PERXP__SARXN
24	3.3V_SB	23	PERXN__SARXP
22	PERST#	21	GND
20	W_DISABLE#	19	NC
18	GND	17	NC
16	RSV_LAD0	15	GND
14	SIMRST#__LAD1	13	REFCLK+
12	SIMCLK__LAD2	11	REFCLK-
10	SIMIO__LAD3	9	GND

8	SIMVCC__LFRM#	7	CLKREQ#
6	1.5V	5	NC
4	GND	3	NC
2	3.3V	1	WAKE#

3.5.12 M_SATA1

Supports Mini-SATA memory cards. As industry standards are unclear, please consult our company's business and technical support personnel for specific models. Defined as follows



Pin	Signal	Pin	Signal
52	3.3V	51	NC
50	GND	49	NC
48	NC	47	NC
46	NC	45	NC
44	NC	43	GND
42	NC	41	3.3V
40	GND	39	3.3V
38	NC	37	GND
36	NC	35	GND
34	GND	33	PETXP__SATXP
32	NC	31	PETXN__SATXN
30	NC	29	GND
28	NC	27	GND
26	GND	25	PERXP__SARXN
24	3.3V_SB	23	PERXN__SARXP
22	PERST#	21	GND
20	W_DISABLE#	19	RSV__LCLKRSV__LCLK
18	GND	17	RSV__LRST#
16	RSV_LAD0	15	GND
14	SIMRST#__LAD1	13	NC
12	SIMCLK__LAD2	11	NC
10	SIMIO__LAD3	9	GND
8	SIMVCC__LFRM#	7	NC
6	NC	5	NC
4	GND	3	NC
2	3.3V	1	NC

Chapter4: BIOS

4.1 BIOS Introduction

4.1.1 BIOS description

- The BIOS (Basic Input and Output System) records the setting parameters of various hardware devices of the system through the CMOS chip on the motherboard. The BIOS contains a BIOS setup program for users to set system parameters according to their needs, so that the motherboard can work normally or perform specific functions. The relevant settings (except the date and time) modified through the BIOS Setup program are stored in the flash memory in the system. The power required to store CMOS data is supplied by the battery on the motherboard. Therefore, when the system power is turned off, these data will not be stored. Lost, the next time you turn on the power, the system can read these set data.
- Since the setting interface of different products of our company will be slightly different, it may not be exactly the same as the BIOS setting program you are currently using. The contents mentioned below are for your reference only.
- 4.1.2 How to enter BIOS
 - 1. Power on the system or restart the system,
 - 2. After booting up, when the self-test message appears on the screen, when the "Press to enter setup" prompt appears in the middle of the screen, press the <Delete> key to enter the BIOS
- 4.1.3 Function of each key under BIOS
 - → ←: Select menu
 - ↑ ↓: Selection

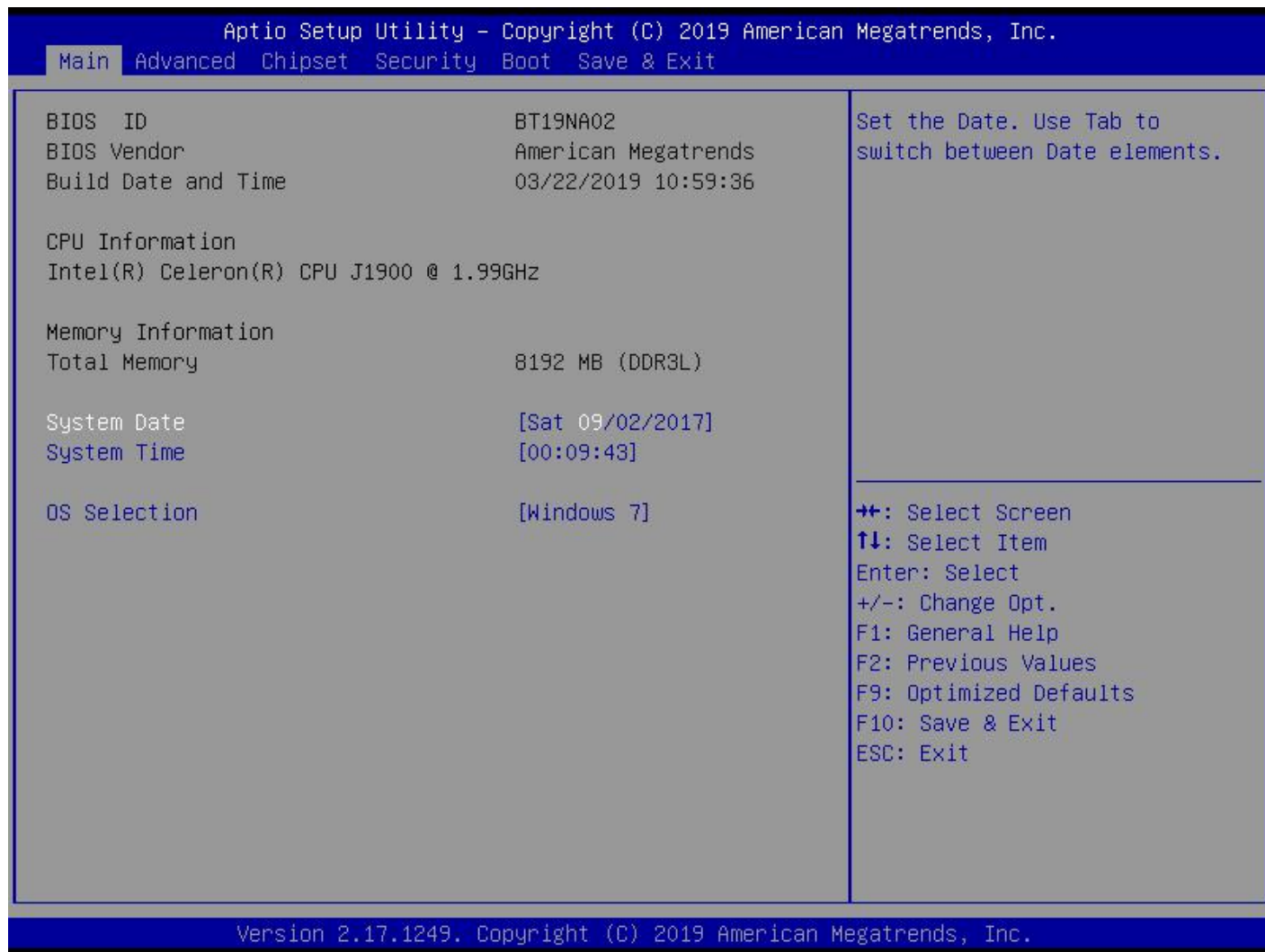
- -Enter: Confirm selection
- -+ /-: Change value
- -F1: help
- -F2: Abandon the modification and return to the last setting value.
- -F9: restore factory defaults
- -F10: save changes and exitESC : 回到上一画面

4.1.4 Notes

1. BIOS settings directly affect the performance and function of the computer.
2. Setting the wrong parameters will cause the computer to malfunction, damage, or even fail to boot.
3. If you cannot turn on the device due to incorrect settings, please restore the factory mode.

4.2 BIOS basic function settings

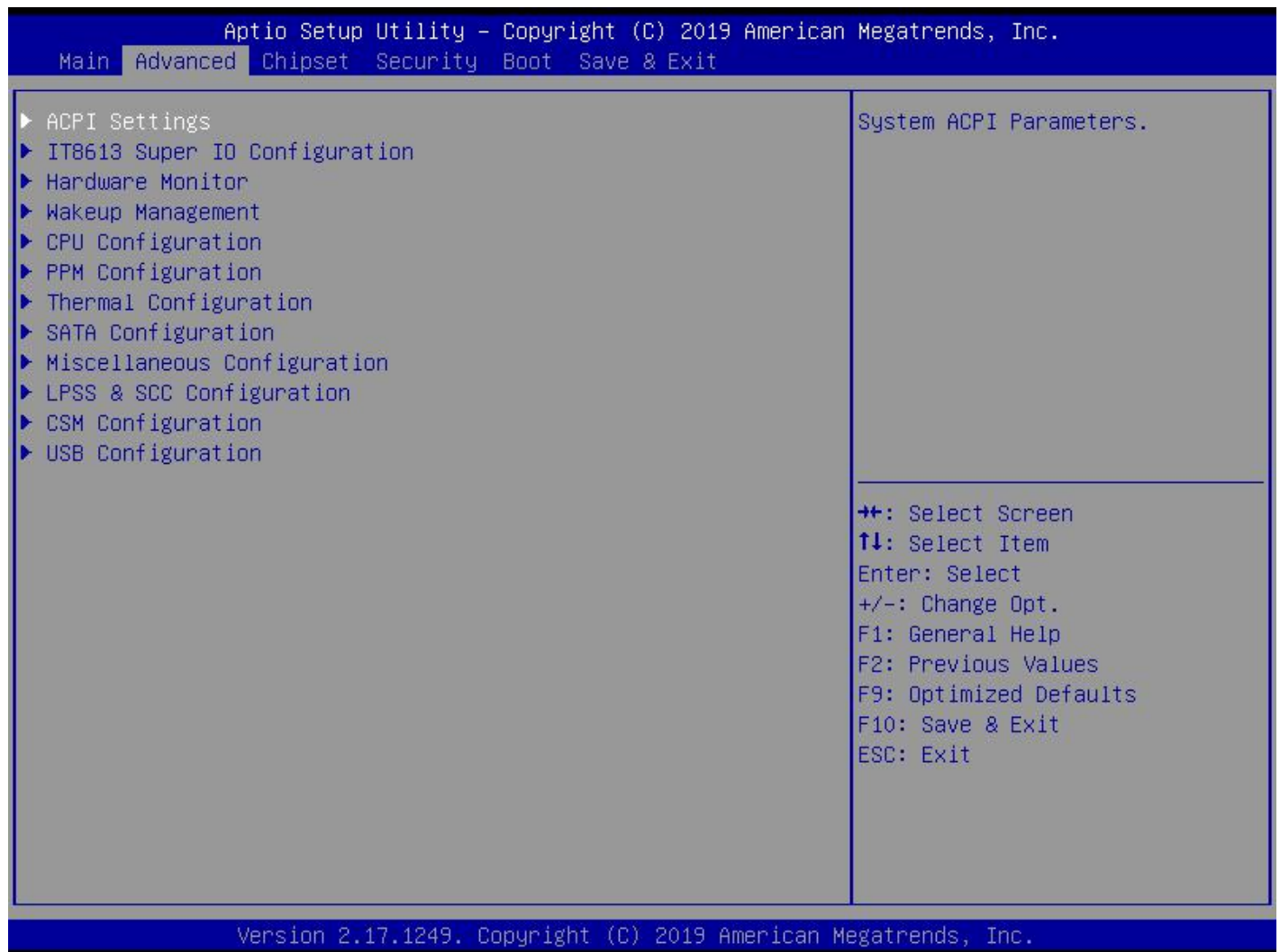
4.2.1 Main



- 1.System Date; Set the system date. Expressed in the format month / day / year. The setting range is: Mon month (Jan.-Dec.), Date / day (01-31), Year / year (up to 2099).
- 2.System Time; Set the system time. Expressed in hours / minutes / seconds format. The setting range is: Hou hour (00-23), Minute / minute (00-59), Second / second (00-59).
- 3.System Language; System selection.

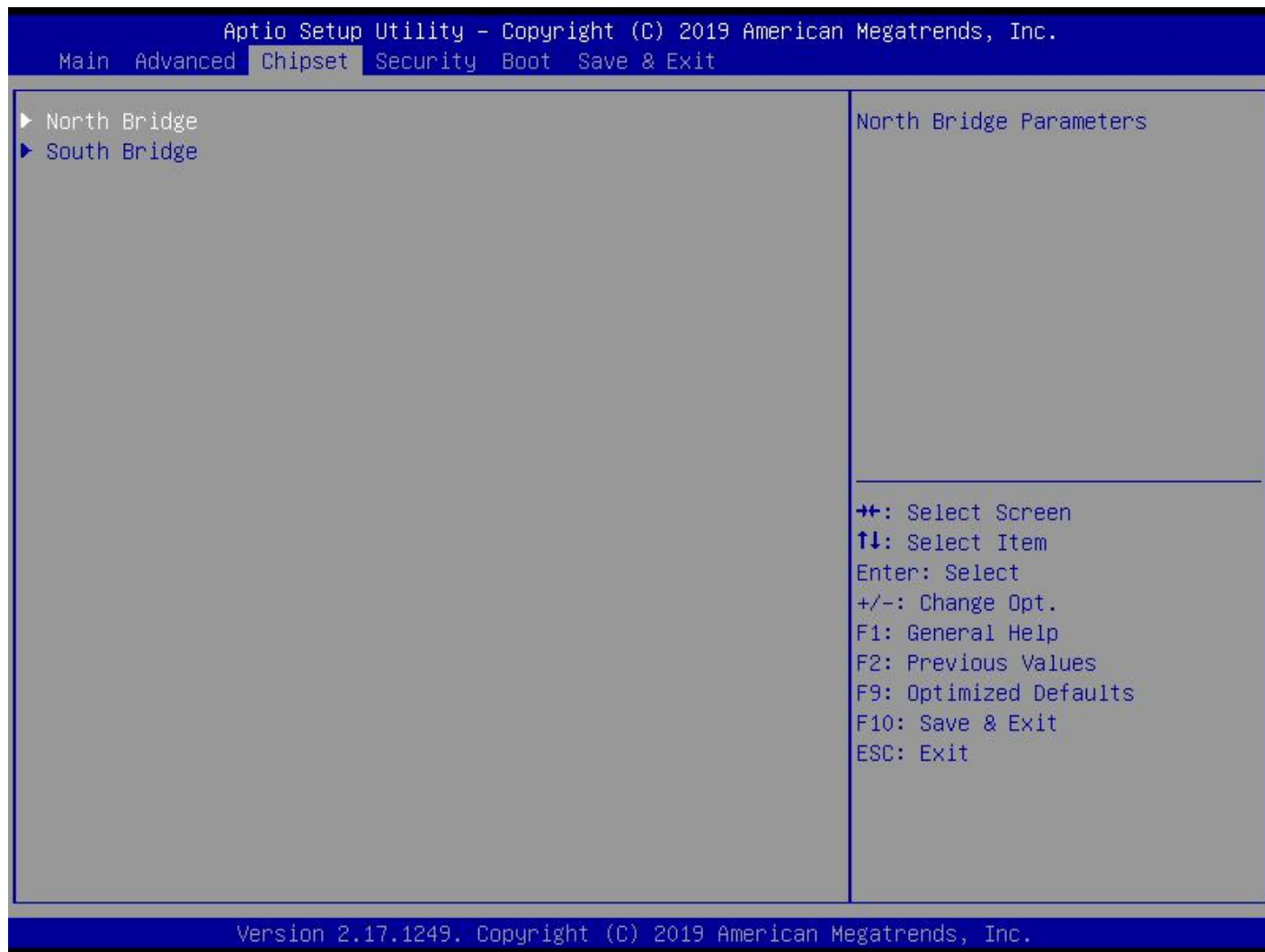
Tips; the black font is read-only information items; it contains information such as BIOS ID, version, manufacturer, etc.

4.2.2 Advance



1. ACPI Settings; power management settings option, this item is used to select the power saving mode that the system enters during sleep, the mode is not
The same, the system power consumption is also different
2. IT8613 Super I/O CPU Configuration; Super I/O configuration includes COM port and watchdog related settings.
3. Wakeup Management; regular startup settings.
4. CPU Configuration; CPU information and common configuration options.
5. PPM Configuration; PPM configuration.
6. SATA Configuration; hard disk mode, switch setting options and existing device information display options.
7. LPSS & SCC Configuration; eMMC, LPSS related settings.
8. CSM Configuration; Compatibility Support Module Option
9. USB Configuration; USB related setting options.

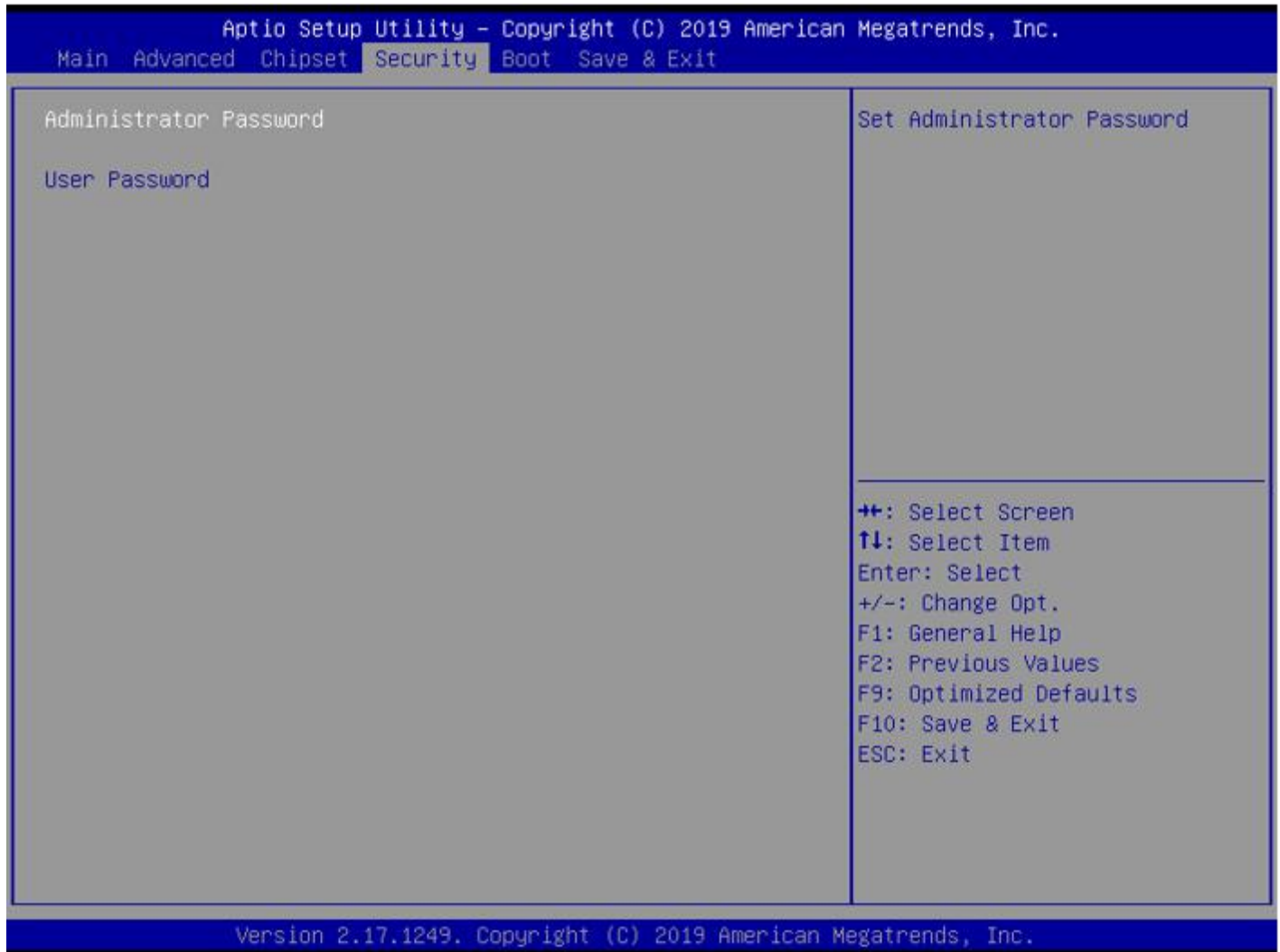
4.2.3 Chipset



1. North Bridge; video memory allocation, memory information display configuration

1. 2.South Bride; USB, PCI configuration options

4.2.4 Security



1.Administrator Password; this prompt line is used to set the supervisor password

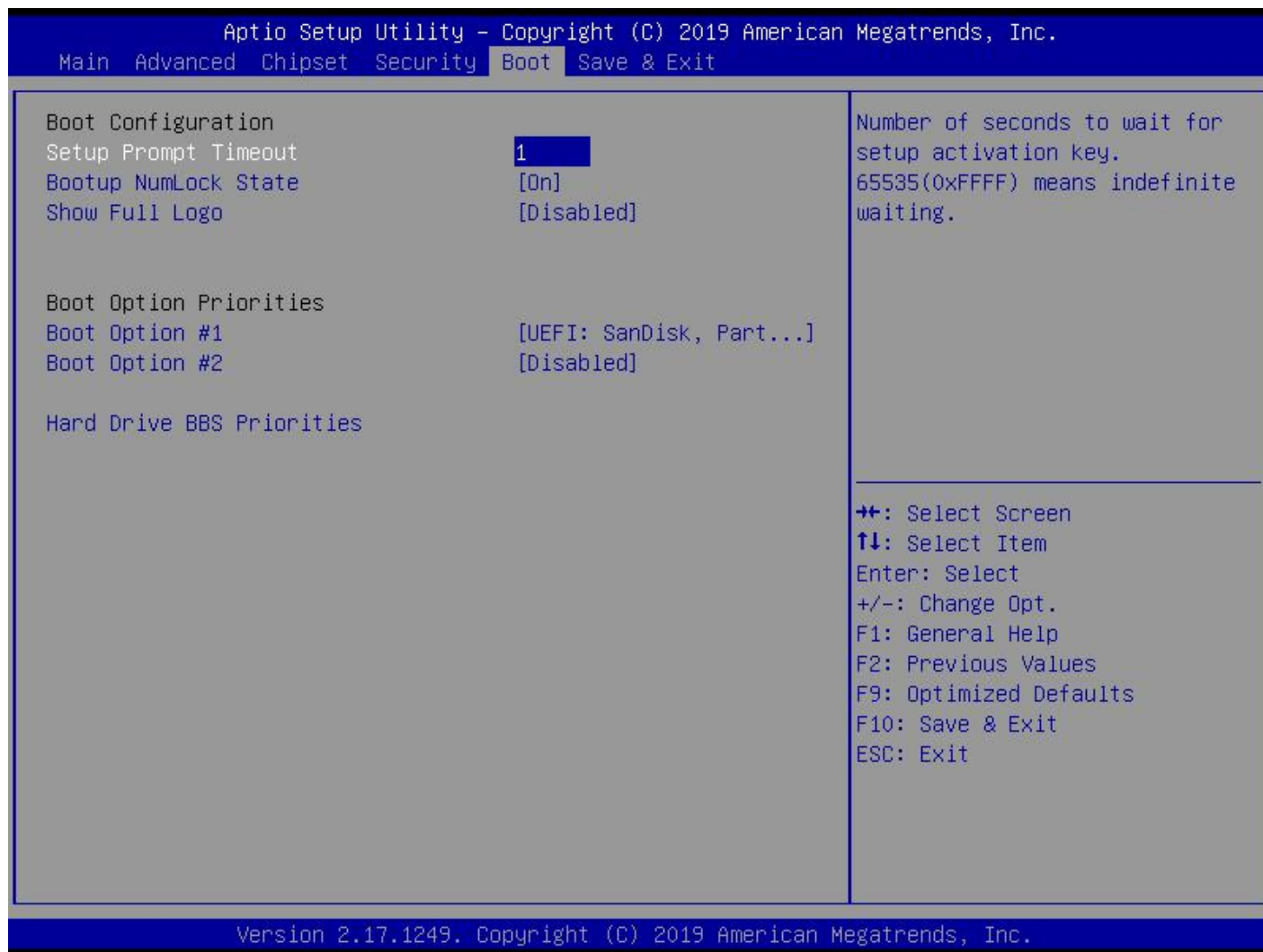
2.User Password; the prompt line is used to set the ordinary user password

Tip: The minimum length of the password is 3 digits, and the maximum length is 20 digits.

If you forget the password; short pin RTC1 for 5 seconds or unplug BAT,

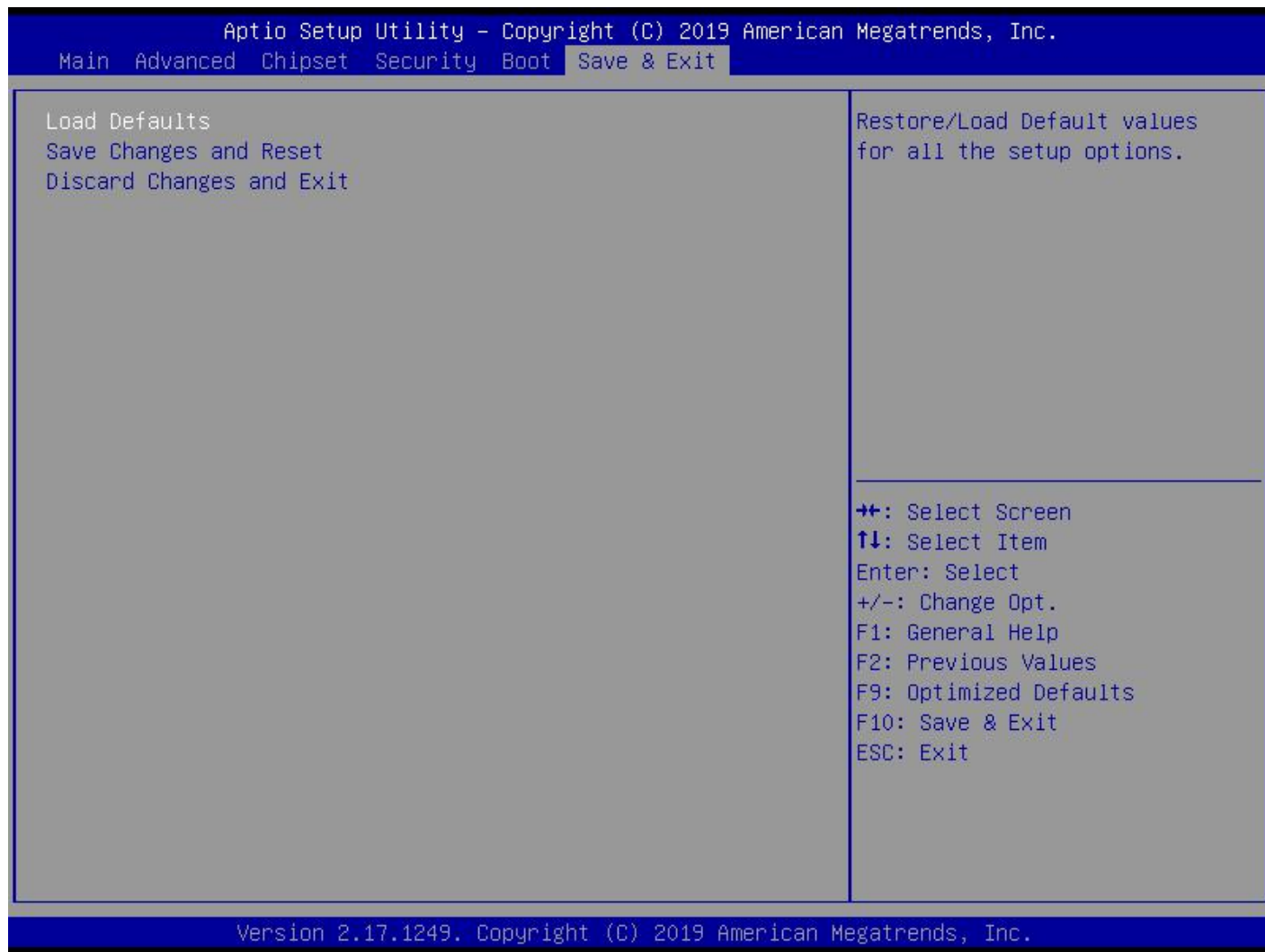
You can clear the password by shorting the positive and negative electrodes for 5 seconds.

4.2.5 Boot



- 1) 1.Setup Prompt Timeout; dwell time setting of self-test interface
- 2) 2.Bootup Numlock state; small keyboard light switch option after booting
- 3) 3.Show Full Logo; supplier icon open option
- 4) 4.Boot Option Priorities; Boot priority options
- 5) 1) Boot Option # 1; First boot item setting
- 6) 2) Boot Option # 2; second boot item setting

4.2.6 Save & Exit



1. Load Defaults; load default values.

2. Save Changes and Rest; save changes and exit.

3. Discard Changes and Exit; discard changes and exit

Appendix:

Appendix 1: Glossary

BIOS

Basic input/output system. It is software that contains all the input/output control code interfaces in the PC. It performs hardware detection at system startup, starts the operation of the operating system, and provides an interface between the operating system and the hardware. The BIOS is stored in a read-only memory chip.

BUS

bus. In a computer system, the channel through which data is exchanged between different components is a set of hardware circuits. The BUS we refer to is usually a local line inside the CPU and main memory components.

Chipset

chipset. An integrated chip designed to perform one or more related functions. We refer to a system-level chipset consisting of Southbridge and Northbridge, which determines the architecture and main features of the motherboard.

AHCI

Serial ATA standard control interface, Microsoft Windows XP (higher than SP1 version) and IAA driver support this interface

CMOS

Complementary metal-oxide semiconductors. It is a widely used type of semiconductor. It features high speed and low power consumption. The CMOS we refer to is a part of the reserved space in the CMOS RAM on the motherboard to store date, time, system information and system parameter settings.

COM serial port

A general-purpose serial communication interface, generally using the standard DB9 male interface connection.

DIMM

Dual in-line memory module. It is a small board with a memory chipset. Provides a 64-bit memory bus width.

DRAM

Dynamic random access memory. Is a general memory type of a normal computer. A transistor and a capacitor are typically used to store a bit. As technology advances, the types and specifications of DRAMs have become more diverse in computer applications. For example, SDRAM, DDR SDRAM and RDRAM are commonly used today.

LAN

LAN interface. A computer network consisting of interconnected computers in a small area, usually in an enterprise or a building. A local area network is generally composed of servers, workstations, and some communication links. A terminal can access data and devices anywhere through wires, and many users can share expensive devices and resources.

led

A light-emitting diode, a semiconductor device that illuminates when current flows, and is typically used to visualize information, such as whether the power supply is turned on or the hard drive is operating.

PnP

Plug and play. A specification that allows the PC to automatically configure the external device without the user's manual operating system. To achieve this feature, BIOS support for both PnP and a PnP expansion card is required.

DMI

Direct media interface, data transfer channel between processor CPU and IO controller (PCH, ICH).

TIPS:

Power on self test. During system startup, the BIOS performs a continuous check on the system, including detecting RAM, keyboard, hard drive, etc. to see if it is properly connected and working properly.

PS/2

An interface specification for keyboard and mouse connections developed by IBM. PS/2 is a 6PIN DIN interface that can also be used to connect to other devices, such as a modem.

USB

Universal Serial Bus. A hardware interface suitable for low-speed peripheral devices, generally used to connect a keyboard, a mouse, and the like. A PC can connect up to 127 USB devices and provide a 12Mbit/s transmission bandwidth. USB supports hot plug and multi-stream function, that is, USB devices can be inserted when the system works, and the system can automatically recognize and insert the inserted devices. normal.

FSB

Front side bus, external bus.

PCIe

Full name Peripheral Component Interconnect Express A high speed serial differential full duplex bus transmission specification.

PXE

The pre-boot execution environment is used to run software without a hard disk data PC over the network.

S3

Turn off the hard disk after writing the running data to the memory.

S5

Shut down and all hardware devices (including power supplies) are turned off.

Appendix II: Analysis and Solution of Common Faults

malfunction	checking point
Do not boot after power on	<ol style="list-style-type: none">1. Please confirm that the power cable is connected properly.2. Please confirm whether the power supply used meets the power supply requirements of the motherboard.3. Try to re-plug the memory4. Try to replace the memory module5. Try to clear the motherboard CMOS according to the motherboard instructions.6. Please confirm whether there is an external card, whether it is normal after removing the external card
VGA does not display after booting	<ol style="list-style-type: none">1. Check if the display is open2. Check that the power cord is properly connected to the monitor and system unit3. Check that the monitor cable is properly connected to the system unit and display4. Check if the display brightness control is set to dark state, and the brightness can be increased by the brightness control. For detailed information, please refer to the display operating instructions.5. The display is in "power saving" mode, press any key on the keyboard
BIOS Setup settings cannot be saved	<ol style="list-style-type: none">1. Please confirm whether the CMOS battery voltage is lower than 2.8V. If it is lower than 2.8V, please replace it with new one. Pool, reset settings2. The BIOS setting is incorrect, according to the boot screen prompt button (DEL), in the BIOS Adjust time and date in Setup

Prompt to find a bootable device	<ol style="list-style-type: none">1. Please confirm whether the hard disk power cable and data cable are connected properly.2. Please confirm whether the hard disk has physical damage.3. Please confirm whether the operating system is installed properly on the hard disk
Blue screen or crash when entering the system	<ol style="list-style-type: none">1. Please confirm whether the memory module and external card are loose.2. Try to remove the newly installed hardware, uninstall the driver or software3. Try to replace the memory
Slow system entry	<ol style="list-style-type: none">1. Try to use third-party software to check if the hard disk has bad sectors.2. Please confirm if there is too little free space in the partition where the system is located.3. Please confirm whether the CPU cooling fan rotates normally.
System automatically restarts	<ol style="list-style-type: none">1. Please confirm whether the CPU cooling fan rotates normally.2. Please confirm whether the IPC reset button is triggered by mistake.3. Please use anti-virus software to confirm whether the system is infected with virus.4. Please confirm whether the memory module and external card are loose.5. Please confirm whether the power supply capacity is enough, try to replace the power supply
Unable to detect USB device	<ol style="list-style-type: none">1. Please confirm whether the USB device needs to be powered separately.2. Please confirm whether the USB interface is in poor contact.3. Please confirm whether the USB controller is turned on in the BIOS Setup