



IFC-BOX-SF

(User Manual)



Low power fanless mini PC

For your personal safety and to avoid property damage, you must pay attention to the tips in this manual. The warning is indicated as follows, depending on the level of risk.

 **Warning**

Indicates that if no action is taken, the PC may be damaged beyond repair.

 **Attention**

Indicates that an undesirable result or state may occur if the prompt is not followed.

The products/systems covered by this document are only permitted to be operated by qualified personnel who meet all work requirements.

 **Warning**

IFC industrial PC products are only allowed to be used for the specified conditions of the catalogue and related technical documents. If you want to use other company's products and components, you must get the recommendation and permission from IFC Technology. Proper transportation, storage, assembly, installation, commissioning, operation and maintenance are the premise of product safety and normal operation. Permissible environmental conditions must be ensured. You must pay attention to the prompts in the relevant files.

Disclaimer

IFC Technology reserves the right to change this manual and the products are subject to change without prior notice. We are not responsible for any direct, indirect, intentional or accidental damage or hidden dangers caused by improper installation or use.

Before ordering the product, please ask the dealer to know whether the product performance meets your requirements.

All rights reserved. It may not be reproduced mechanically, electronically or in any other way without permission.

Warranty:

1 year.

The second and third year we can repair the PC for free, but we will charge for the part that need to change and each of us pay half of the shipping fee.

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1. Product Introduction

1.1 Product overview

IFC-BOX-SF is an ultra low power fanless mini PC. It uses Intel® core i5-8260U quad core i3-10110U and i5-10210, i7-10710U processors, support Windows 8/10/11 & Linux OS etc., support 1*M.2 2280 and 1*2.5 inch HDD and very convenient to use.

All aluminum fanless design, structure is simple, good dustproof, heat dissipation, and EMC function, high reliability and strong environmental applicability.

1.2 product specification (Main parameter)

Processor	Onboard Intel Core i5 8260U Quad Core 1.6GHz to 3.9GHz
	Onboard Intel Core i3 10110U Dual Core 2.1GHz to 4.1GHz
	Onboard Intel Core i5 10210U Quad Core 1.6GHz to 4.2GHz
	Onboard Intel Core i7 10810U Six core 1.1GHz to 4.9GHz
Display Chip	Integrated Intel UHD Graphics, support DP,HDMI
RAM	1*DDR4 SODIMM Slot 2400/2666 MHz, Max. Support 32GB
LAN	Onboard 2*i211-AT / i210-AT / i225-V 1000M LAN
Storage	Support 1*M.2 2280, 1*2.5 inch SSD/HDD
Expansion	Support 1*Mini PCIE (WIFI/3G/4G Optional)
USB	Support 4*USB3.0 and 2*USB2.0
COM	Support 2* COM (RS232/ RS485 Optional)
Dimension	186*126.5*66MM
Weight	1.8KG
Power Supply	9-36 VDC
Work Temp	-10°C~50°C (SSD) surface air flow

2. Application Planning

2.1 Transportation

Well packaged products can by any means of transport, to any place, in the long-distance transportation shall not be installed in the open cabin and carriages, midway transshipment shall not be stored in open-air warehouse, not allowed to be transported with inflammable, explosive, corrosive goods together. And products are not allowed to get wet by rain, snow or liquid substances and mechanical damage.

2.2 Storage

The products should be stored in the original packaging box, the storage environment temperature of the products is 0°C ~ 50°C, the relative humidity is 20% ~ 85%. All kinds of harmful gases, inflammable and explosive products and corrosive chemicals are not allowed in the warehouse, and there is no strong mechanical vibration, impact and strong magnetic field effect. The packing case should be placed at least 10cm away from the ground and at least 50cm away from the wall, heat source, cold source, window or air inlet.

Beware of the risk of damaging the equipment! Extreme temperature variations should be noted when transporting products in cold weather. In this case, make sure no water droplets (condensation) form on or inside the device. If condensation forms on the device, please wait at least 12 hours before connecting the device.

2.3 Open and inspection of delivered equipment

Please note the following points when unpacking the equipment:

- It is recommended that you do not discard the original packaging materials. Please keep the original packaging materials for use in the transportation of equipment again.
- Please store the document in a safe place, for initial debugging of the equipment need to use it.
- Inspect the delivered equipment to see whether there is any significant damage in transit.

- Verify that the shipment contains the complete equipment and accessories that you ordered separately. If there is any discrepancy or exist shipping damage, please contact customer service.

2.4 Installation

19 inch Rack Mount Desktop Embedded VESA Portable

3. Device Connection

3.1 Precautions before device connection

Warning

Connected or built-in peripherals shall not be connected to devices of opposite polarity.

Warning

This device can only be operated on the grounding power network. It is forbidden to operate on the ungrounded or impedance grounded power network.

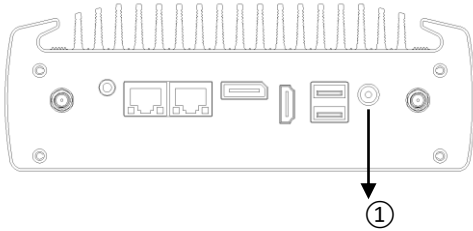
Warning

The rated voltage of the equipment used must conform to the power supply characteristics of the product.

Attention

Connect the peripherals that are approved for industrial use. When the machine is running, it can be connected to hot-plug I/O module (USB). I/O devices without hot-plug function can only be connected after the power is disconnected.

3.2 Connect the device to the power supply

Steps of connect the device to the power supply	Diagrammatic drawing
<p>Connect 9-36 VDC power adapter to the power input port ①, then press the front panel power switch button, PC start with blue power LED on</p>	

⚠ Warning

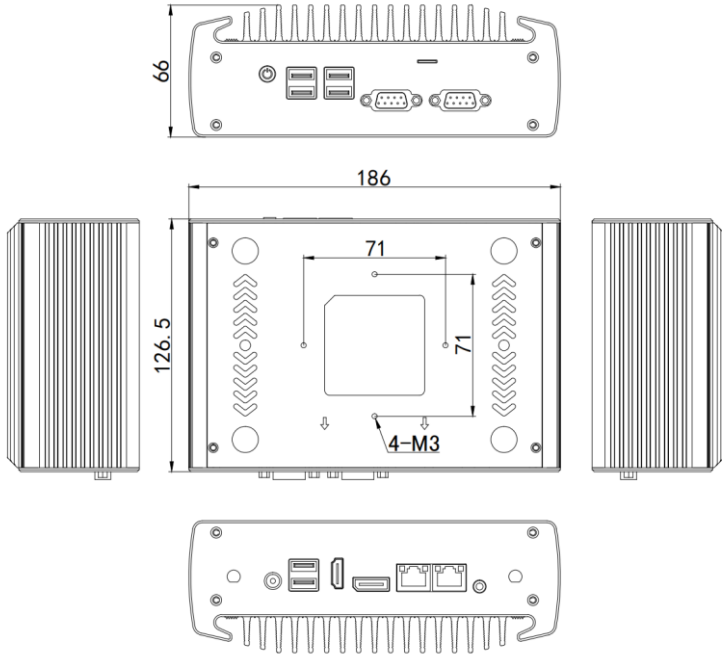
The on/off button signal will not cut off the PC power!

4. Application specification

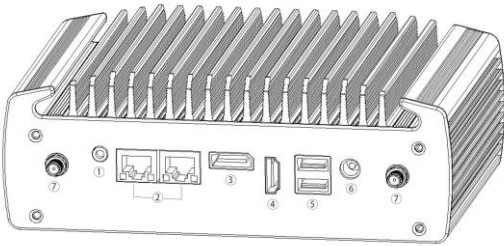
4.1 Product Photos

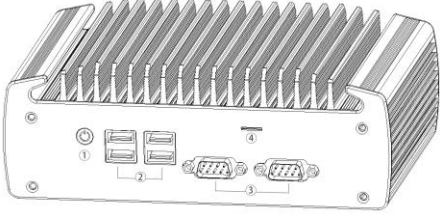
4.2 Product size drawing



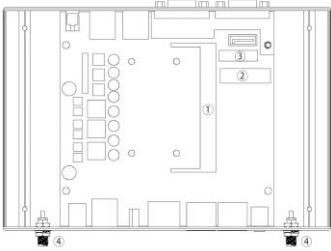


4.3 I/O Port

Back Plate	NO	Port Name
	1	Audio/Mic
	2	2*LAN
	3	DP
	4	HDMI
	5	2*USB2.0
	6	1*DC-IN 12V
	7	WiFi holes
	Remark	Support Synchronous and Asynchronous Dual Display

Front Plate	NO	Port Name
	1	Switch botton
	2	4*USB3.0
	3	2*COM
	4	SIM card slot
	Remark	No COM is Optional

4.4 Internal expansion port

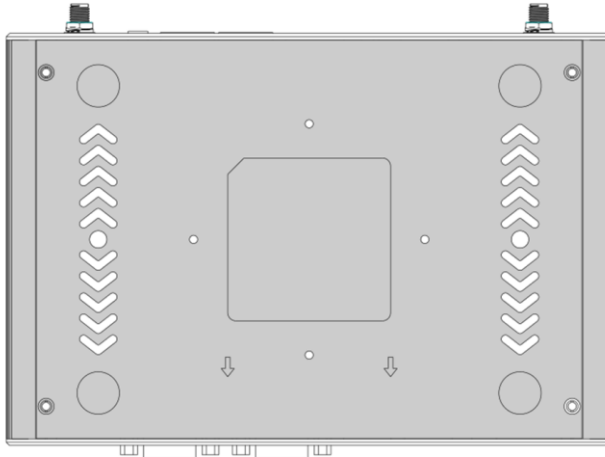
Internal expansion port	NO	Port Name
	1	Notebook Memory Slot
	2	M.2 2280
	3	Mini PCIE (WIFI/3G/4G Optional)
	4	WIFI hole

4.5 Status indicator LED

Name	Description	LED	Meaning
POWER	PC boot up	Not Light	Power off
		Light	Running

4.6 Install the internal parts

1. Remove four M2.5*6 screws from the bottom plate (see below), remove the bottom plate, then please install the RAM, WIFI module, M.2 or 2.5" HDD and other accessories.

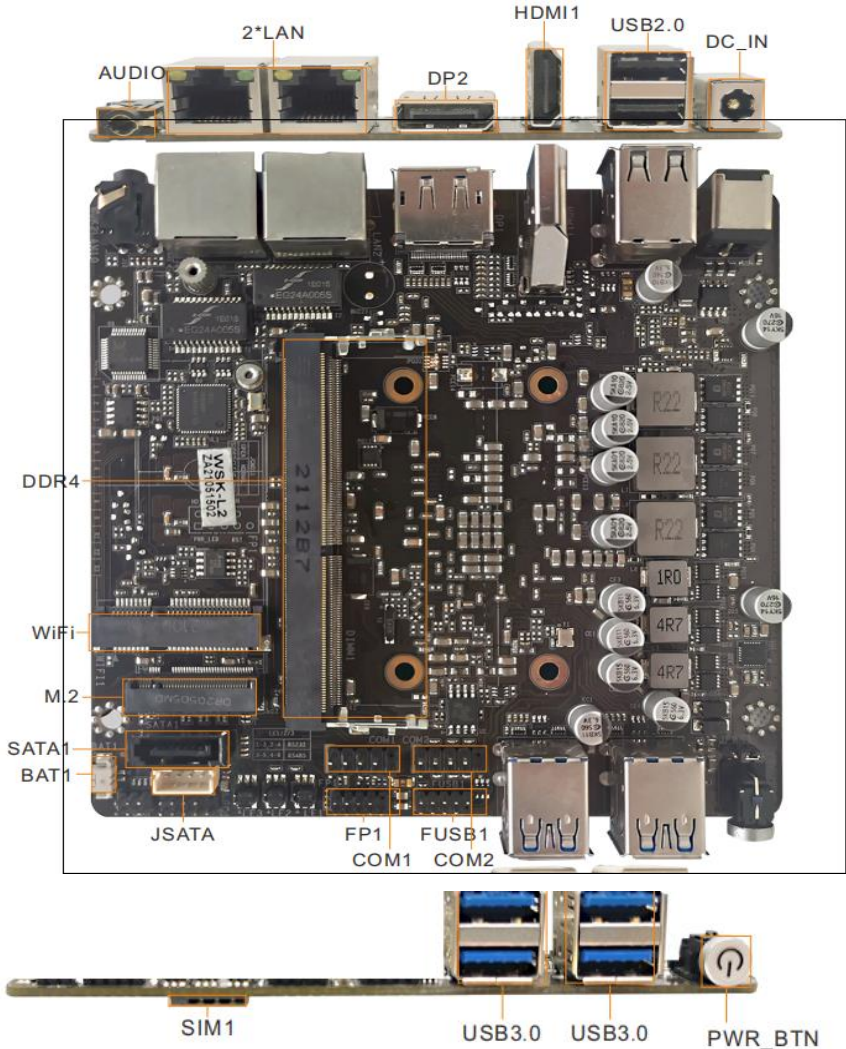


2. After finish installing the internal parts, then install the bottom plate and install the M2.5*6 screws.

Warning

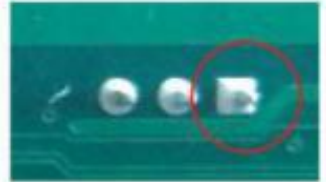
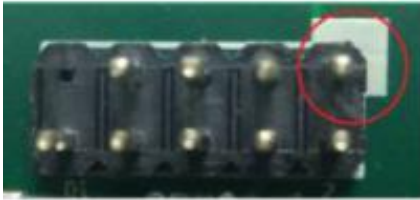
This operation is only suitable for customers who purchase N15 barebone PC. Customers who have installed internal accessories should not disassemble the machine at will.

4.7 Mainboard



4.8 Definition of Pins

Note: The identification method of the first pin of the first pin in the pins on the motherboard is: 1. There is a white bold silk screen mark or an arrow mark; 2. The pins seen on the back of the motherboard are square holes.



FP1

Signal	PIN	PIN	Signal
HDD LED +	1	2	PWR LED +
HDD LED -	3	4	PWR LED -
Reset SW -	5	6	Power SW +
Reset SW +	7	8	Power SW -
	9	10	

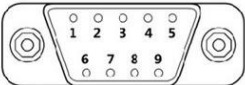
F USB1

Signal	PIN	PIN	Signal
VCC	1	2	VCC
USB Data -	3	4	USB Data -
USB Data +	5	6	USB Data +
GND	7	8	GND
	9	10	

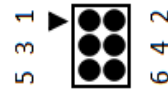
COM1/COM2 definition

Signal	PIN	PIN	Signal
DCD	1	2	RXD
TXD	3	4	DTR
GND	5	6	DSR
RTS	7	8	CTS
RI	9	10	NC

COM DB9 definition

PIN	RS232	RS485	
1	DCD	TX-	
2	RXD	TX+	
3	TXD		
4	DTR		
5	GND	GND	
6	DSR		
7	RTS		
8	CTS		
9	RI		

COM1/COM2 RS232/RS485 Jump cap definition (need to cooperate with BIOS settings to take effect)

COM port	LE1/LE2/LE3	Mode	
COM1	1-3	RS232	
	3-5	RS485	
COM2	2-4	RS232	
	4-6	RS485	

SATA1

PIN	Signal
1	GND
2	SATA TXP
3	SATA TXN
4	GND
5	SATA RXP
6	SATA RXN
7	GND

JSATA

PIN	Signal
1	+5V
2	GND
3	GND
4	+12V

JPWR1

PIN	Signal
1-2	NC
2-3	AUTO-ON

CPU_FAN1

PIN	Signal
1	GND
2	VCC +12V
3	FG(speed signal)
4	PWM

GPIO1

Signal	PIN	PIN	Signal
+ V5	1	2	+V3.3
GPIO 56	3	4	GND
GPIO 57	5	6	GPIO 60

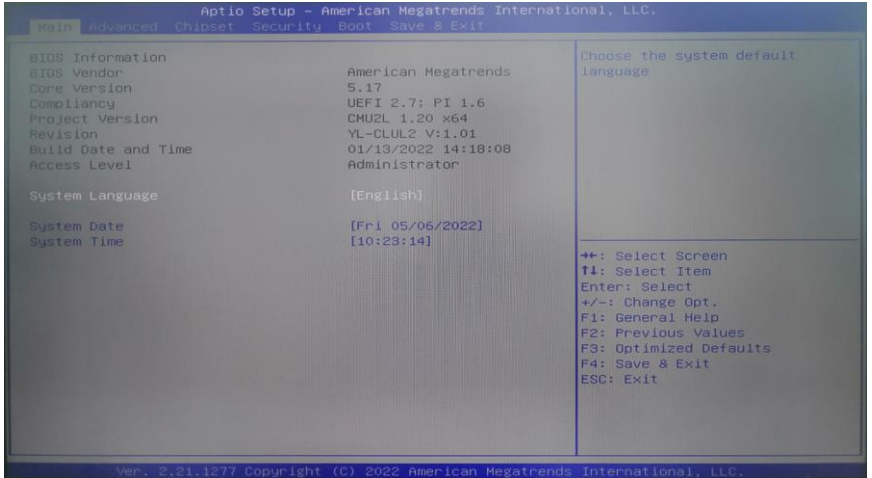
Warning

The internal wiring of the PC has been installed, and the wire plug and screw have been fixed with glue. Please do not disassemble and install the motherboard, jumpers and other operations at will to avoid damage to the motherboard.

Note: The identification method of the first pin of the first pin in the pins on the motherboard is: 1. There is a white bold silk screen mark or an arrow mark; 2. The pins seen on the back of the motherboard are square holes.

5. BIOS Setting

BIOS settings menu is divided into the following options:



After the device starts, press the "Delete" button to enter the BIOS setting interface.

Main: BIOS information, time and date

Advanced: BIOS advanced menu settings

Chipset: chipset settings

Security: security settings

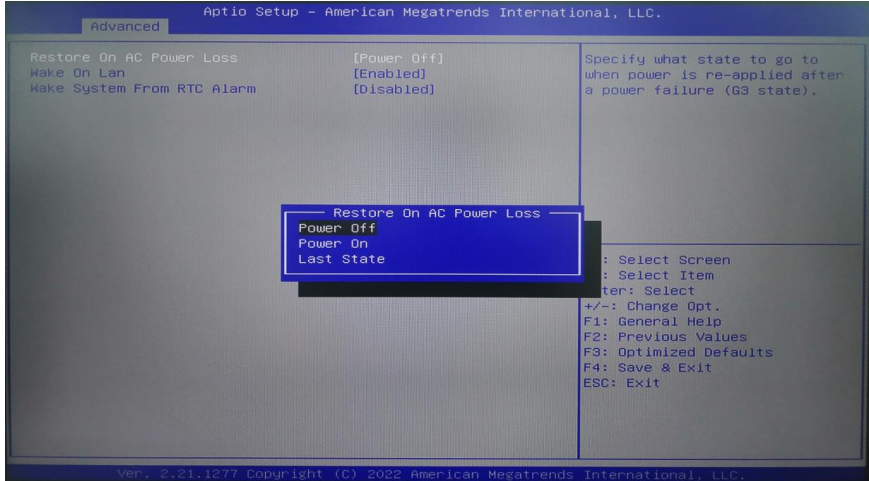
Boot: Boot option settings

Save & Exit: Save & exit BIOS settings

1. Setting the function of auto power on when there is electricity

“Advanced”→“System power Management” → “Restore On AC Power Loss”,

See picture as follow



Restore on AC Power loss function description:

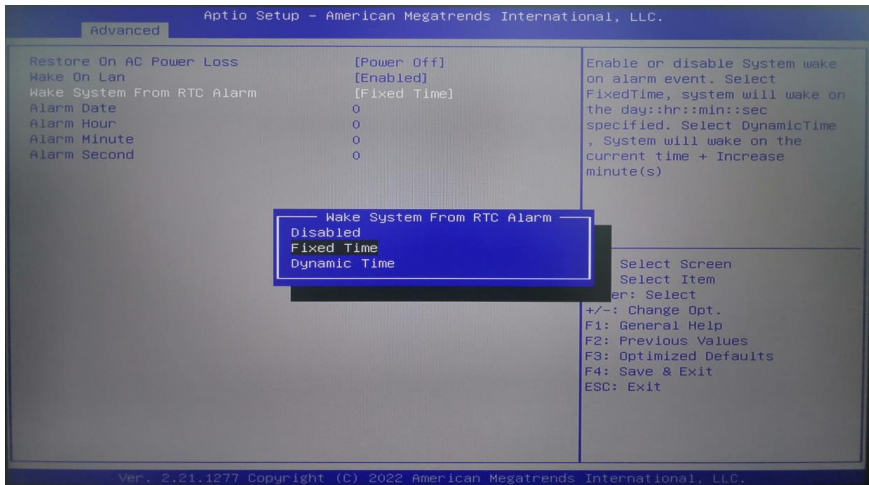
Power Off: After the device is connected to the 12V power supply, you need to press the power button to turn it on;

Power On: After the device is connected to the 12V power supply, the device will automatically turn on;

Last State: After the device is connected to the 12V power supply, it is determined whether to power on or not according to the state value of the last device.

2. Setting timing boot function

Choose “Advanced”—“System Power Management”—“Wake System From RTC Alarm”—“Fixed Time”, then set the time of booting up every day, then press “F4”—“YES” then exit.



Wake System From RTC Alarm function description:

Alarm Date: The unit date of the wake-up time, when it is set to 0, it means every day;

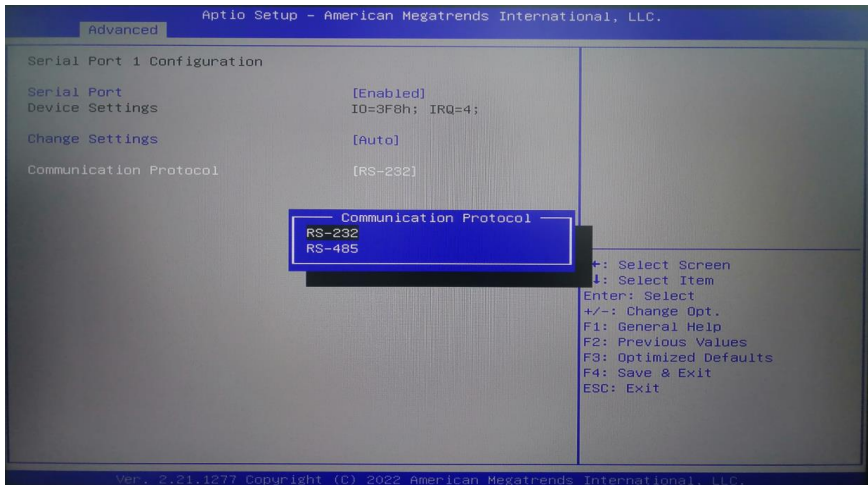
Alarm Hour: The wake-up time unit is hours;

Alarm Minute: The wake-up time unit is minutes;

Alarm Second: Wake-up time in seconds.

3. COM port configuration

“Advanced” → “ITE Super IO Configuration” → “Serial Port 1 Configuration”



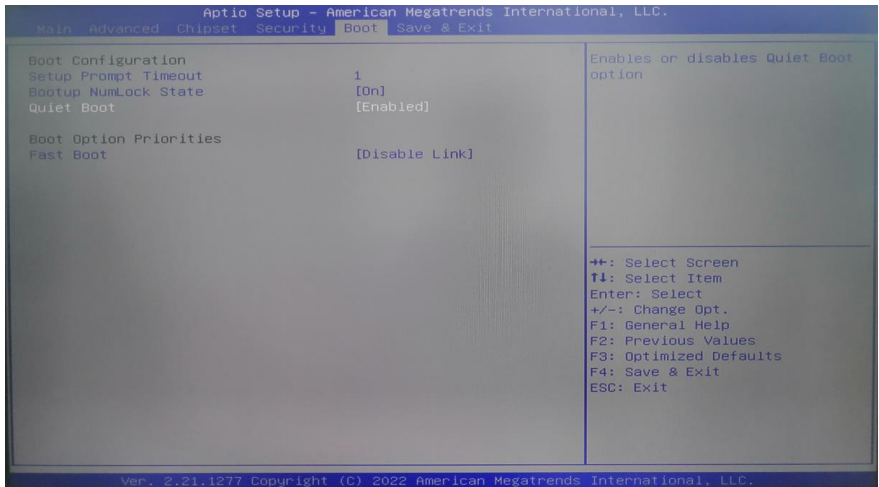
Serial Port Configuration function description:

serial Port: Enabled enable COM port;

serial Port: Disabled to close the COM port;

Communication Protocol: RS232 and RS485 two modes can be selected (need to cooperate with the motherboard jumper cap settings to take effect).

4. BOOT boot configuration



Boot Configuration function description:

Setup Prompt Timeout: the waiting time for the boot logo, the time unit is seconds;

Bootup NumLock State: The state of the NumLock key on the keyboard at startup;

Quiet Boot: "Enabled" turns on the boot logo, and "Disabled" turns off the boot logo.

Warning

Please do not change the BIOS setting at will to avoid the PC can't work.

6. Daily maintenance

1. When the PC is in normal use, please ensure that the PC is working in a non-vibration environment to avoid damaging the hard disk and internal accessories.
2. When using the PC, please pay attention that the environmental temperature should be between -10°C and 55°C .
3. This PC uses the PC case for heat dissipation. In order to ensure the heat dissipation effect of the PC, we strongly recommend that you clean the PC surface regularly every three months.
4. In order to ensure the efficient and reliable operation of the PC, we recommend you to clean and defragment the hard disk regularly every three months.
5. When using the internal slot of the PC, we strongly advise you not to plug and unplug with electricity to avoid electrostatic damage. When the PC encounters power failure due to non-human reasons, in order to ensure the normal and reliable operation of the PC, we strongly recommend that you disconnect the power supply of the PC immediately, please confirm the stability of the power grid before power on.

7. Troubleshooting for Common hardware failure

No	fault phenomenon	analysis of causes	repair method
1	The PC doesn't boot up after press the power switch	The power adapter is work or not	Suggest to plug tighten the power cord or change the socket; Change the power adapter;
		Motherboard damage	Return back for repair;
2	No image on the monitor	Maybe the signal input is not connected properly	Check whether the PC starts up normally; Check whether the LED of monitor is on or not; Check whether VGA cable or HDMI cable is connecting right or not;
		The monitor is in a "power-saving" state	Press any key of the keyboard
3	Can't enter the OS	BIOS Setting mode not allow	Boot up the PC, then press the "DEL", enter BIOS, change the OS mode to WIN7/WIN8.X, then press "F4" save and exit.
		Hard disk power cord or data cable is damaged	Check HDD (The hard disk must be installed the OS and bootable) power cord or data cable is loose or not
		The hard disk OS file is corrupted	Enter the OS with a bootable disc (Usual use WINPE OS) . Check the hard disk OS is damage or not and reinstall the OS if necessary.
4	Keep beeping after PC turn on	No memory detected	Open PC case to re-plug the RAM

Warning

When you need to open the case or enter the BIOS Settings, non-professionals should follow the steps under the guidance of technicians.