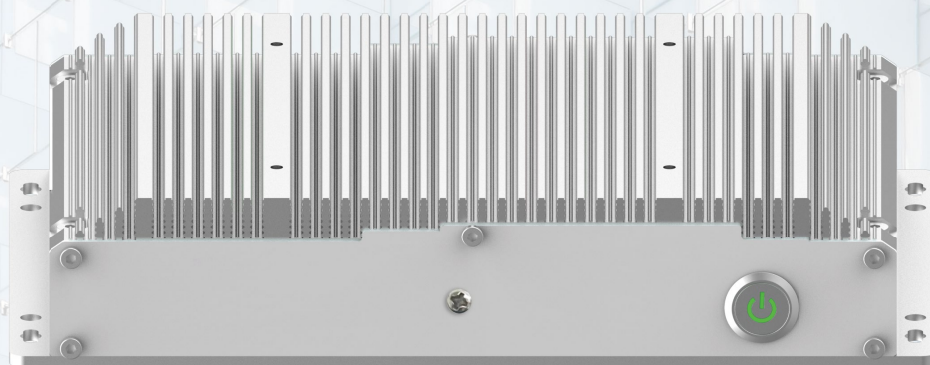


User Operation Manual

iBOX22XX Series

Fanless Industrial Box PC



Publication List

Product model	Company
iBOX22XX Series	Shanghai Panelmate Electronics Co., LTD

Review/Approval

	Name/function/Company	Signature
Draw Up	FZJ/Document control engineer/Panelmate electronics	
Approval	ZJC/Design engineer/Panelmate electronics	
Authorize	JJY/General manager/Panelmate electronics	

Other

Revision date	Page
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Declaration Of Conformity

These restrictions are for system operation in a commercial environment from harmful interference in the operation of the system in a commercial environment. This device generates, uses and transmits radio frequency energy. If not properly installed and used correctly to the manual instructions, it may cause harmful interference to radio communications. However, even if the installation and use of the manual instructions are followed, there is no guarantee that there will be no interference. If this device will cause harmful interference with radio or television signal reception, the user can confirm by turning the device on and off. When the device produces harmful interference, the user can take the following measures to solve the interference problem:

1. Adjust the direction or position of the receiving antenna.
2. Increase the distance between this device and the receiver.
3. Plug the power connector of this device into a power socket with different circuit from the receiver.
4. For technical support, consult your dealer or an experienced radio technician.

Technical Support And Service

1. For the latest information and documentation of this product, please visit our official website www.panelmate.cn
2. If you need technical support, please contact your local distributor, sales representative customer service center. Before technical consultation, the user must collect the following product information:
 - Product name and serial number
 - Description of peripheral additional devices
 - Description of the user software (operating system, version, application software, etc.)
 - A complete description of the problem with the product
 - The full content of each error message

Safety Instruction

1. Before installing, wiring, operating, and checking the product, it is necessary to carefully read this manual and related manuals introduced in the manual, and operate the product correctly with full attention to safety.
2. Please keep this user manual for future reference.
3. Please unplug the power cord from the socket before cleaning the device with a damp rag. Do not use liquid or decontamination sprays to clean the equipment.
4. For devices that use power cords, there must be an easily accessible power socket around the device.
5. Ensure that the device is placed on a reliable surface before installation. An unexpected fall may damage the device.
6. Before you connect the device to the power socket, make sure that the power socket voltage meets the requirements.
7. Please place the power cord in a position where people cannot easily trip, and do not cover any debris in the power line.
8. Please pay attention to all warnings and attention signs on the device.
9. If you do not use the device for a long time, please disconnect it from the power socket to avoid the device being damaged by excessive voltage fluctuations.
10. Do not allow any liquid to flow into the equipment, you must disconnect to avoid fire or short circuit.
11. Please do not turn on the device by yourself. To ensure your safety, disconnect all external power supplies used by the system before turning on the device. Turn on the device by a certified professional engineer with sufficient electrical knowledge.

In case of the following situations, please be repaired by professional personnel:

- The power cord or plug is damaged
- There is liquid flowing into the equipment
- The device does not work properly, or you cannot make it work properly through the user manual
- Equipment falls or is damaged
- The equipment has obvious appearance damage

Please do not store the device in an environment beyond our recommended temperature range, that is, not lower than -20 ° C or higher than 80 ° C, otherwise it may damage the device.

Disclaimer

All components are provided with specific hardware and software configurations are suitable for application software. Unauthorized modification and alteration of hardware or software configuration beyond the scope of the document is prohibited, otherwise Shanghai Panelmate Electronics Co., Ltd. shall not be liable for any resulting liability arising therefrom.

The following actions are not within the scope of responsibility of the Company:

- Failure to comply with the provisions of this document
- Improper use
- Operated by untrained personnel
- Unauthorized replacement of parts

Employee Qualifications and Responsibilities

All operations involving software and hardware should only be performed by qualified personnel with knowledge of control and automation engineering. Qualified personnel must understand the management of control teams and related networks.

All interventions must have knowledge of control planning, and qualified personnel must be familiar with existing standards and guidelines for automated environments.

The operator must ensure that:

- Products are used only as intended
- The product runs in good condition and works normally
- Products are operated, maintained and repaired only by qualified and authorized personnel
- Regularly receive guidance from personnel on safety and be familiar with the operating manual, especially the safety instructions contained in this document
- The operating manual is in good condition, complete and always available for reference at the product location

Table Of Contents

Chapter 1 Overview

1.1 File content	06
1.2 Safety notice	06

Chapter 2 Introduction

2.1 Product overview	07
2.2 Product characteristics	07
2.3 Name Rule	07
2.4 Product specification	08
2.5 Product size	12
2.6 Product interface definition	13
2.7 Bios Interface Settings	17
2.9 CPU temperature limit setting	21

Chapter 3 Installation instructions

3.1 Install	25
3.2 Install RAM and SSD	27
3.3 Install miniPCle	28
3.4 Transportation and storage	29

Chapter 4 Safety Prevention And Maintenance

4.1 Safety precautions	29
4.2 Prevention and cleaning	30

Chapter 5 FAQ

5.1 Technical support and service	31
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Chapter 1 Overview

1.1 File Content

This document contains the information you need to use the product during the applicable phase of the product's life cycle, as follows:

- Specification and model
- Product size
- Interface definition
- Mounting method
- Safety instruction

1.2 Safety Notes

For safety, the following icons are used in this document to provide you with more security information tips:

Icon	Description
	Warning: Indicates a potentially hazardous situation that, if not avoided, will result in death, serious injury, or significant property damage
	Danger: indicates an imminent hazardous situation that, if not avoided, will result in death, serious injury, or significant property damage
	Tip: Indicates important information

Chapter 2 Introduction

2.1 Product Overview

iBOX22XX series is a low-power fanless industrial computer, the body is made of aluminum magnesium alloy profile, large area aluminum fin design to ensure excellent heat dissipation and robustness, fully enclosed design to prevent dust intrusion.

Equipped with Intel® Celeron®, Intel® Core™ series processors and complete functional interfaces, to provide customers with industrial computing solutions;

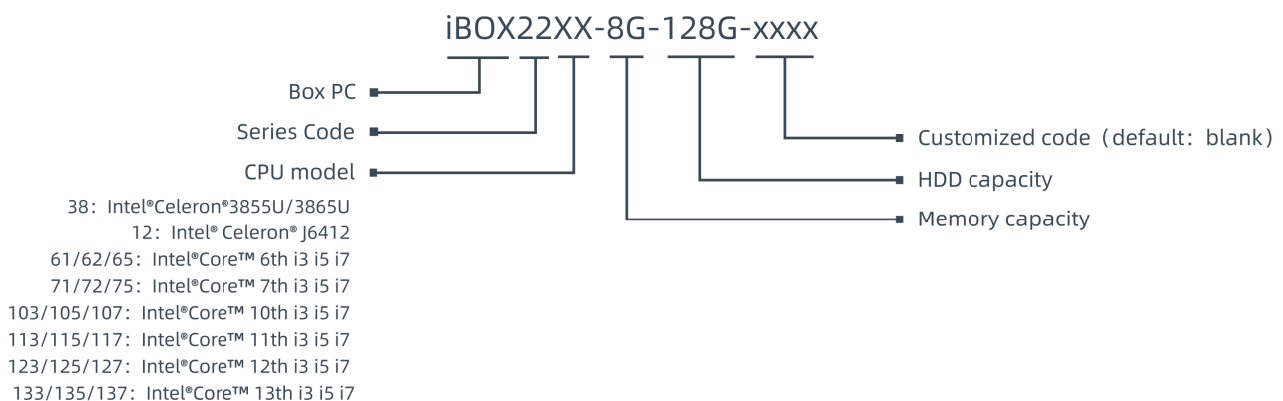
Products are widely used in automation, machine vision, robot applications, intelligent gateways and so on. Intel® Celeron® 3855U/3865U/6412, Intel® Core™ 6/7/10/11/12/13 generation i3/i5/i7 series processors are available.

2.2 Product Features

- Compact aluminium-magnesium alloy profile housing, large area aluminium fin design to ensure a good cooling system
- Unilateral interface, Flat mounting or Wall-mounting
- 2 x RJ45 support EtherCAT and jumbo frames, 3 x RJ45(Intel®Core™ 10th or above)
- 4 x USB3.0
- 2 x COM (DB9) , Support BIOS options RS232 or 485
- Intel® Celeron® 3855U, Intel® Celeron® 6412、 Intel® Core™ 6/7/10/11/12/13th i3/i5/i7 series to optional
- OS: Win7, Win8, Win10, Win11, Linux, etc
(Intel® Celeron® J6412, Intel®Core™ 10th or above don't support Win7)
- Extendable WIFI, 4G
- Fanless. operating temperature ranges from -20 to 60 ° C
- DC 9~36V

2.3 Name Rule

Product naming rules:



2.4 Product Specification

2.4.1 iBOX22 Series Product Specification (Dual network port)

Intel® Celeron® 3855U/3865U, Intel® Core™ 6/7 generation i3/i5/i7 series

Description	iBOX22XX	
Processor	CPU	Intel® Celeron® 3855U/3865U Intel® Core™ 6/7th i3 i5 i7
	Memory	DDR4-2133 Max: 32GB
	Storage	1x mSATA, 1x SATA3.0
	BIOS	AMI UEFI 64Mbit
I/O	LAN	2 x RJ45
	USB	4 x USB3.0
	COM	2x RS232/RS422/RS485, The interface is isolated from TVS (DB9), and the RS485 supports automatic flow control
	Expansion slot	1x mini-PCIe X1 card slot with Sim card slot supporting 4G LTE/WIFI/BT
	Indicator	1 x Power light
	Input Voltage	DC 9~36V, 3 pin connection terminal
	Audio	Realtek ALC662VD audio controller, Supports 5.1 channels
	Control Switch	1x power switch, 1x CLR/CMOS, 1x AT/ATX switch
Display	HDMI	The highest resolution supported is available 4096*2160@24Hz
OS	OS	Windows7, Windows8, Windows10, Windows11, Linux, etc (Intel® Celeron® 6412 do not support Win7)
Physical	Dimension(L x W x H)	216mm x 152.3mm x 45mm (8.50" x 6.00" x 1.77")
	Box Structure	Compacted aluminium-magnesium alloy profile housing, Large aluminum fins dissipate heat GND protection

Physical	Mounting	Flat mounting, Wall-mounting
	Power	25W (Intel®Core™ total power consumption up to 80W depending on CPU)
Environment	Operating Temperature	-20~60°C (Using a wide temperature rating SSD)
	Storage Temperature	-20~80°C
	Relative Humidity	5~95% (Non condensation)
	Shock	Operating 10G peak acceleration(11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5~500Hz, 1Grms@with HDD;2Grms@with SSD, follow IEC 60068-2-64
	EMC	CE/FCC Class B

2.4.2 iBOX22 Series Product Specification (Dual network port)

Intel® Celeron® 6412

Description	iBOX22XX	
Processor	CPU	Intel® Celeron® 6412
	Memory	DDR4-2133 Max: 32GB
	Storage	1x mSATA, 1x SATA3.0
	BIOS	AMI UEFI 64Mbit
I/O	LAN	2 x RJ45
	USB	4 x USB3.0
	COM	2x RS232/RS422/RS485, The interface is isolated from TVS (DB9), and the RS485 supports automatic flow control
	Expansion slot	1x mini-PCIe X1 card slot with Sim card slot supporting 4G LTE/WIFI/BT

I/O	Indicator	1 x Power light
	Input Voltage	DC 9~36V, 6 pin connection terminal
	Control Switch	1x Power Switch
Display	HDMI	The highest resolution supported is available 4096*2160@24Hz
OS	OS	Windows10, Windows11, Linux, etc
Physical	Dimension (L x W x H)	216mm x 152.3mm x 45mm (8.50" x 6.00" x 1.77")
	Box Structure	Compacted aluminium-magnesium alloy profile housing, Large aluminum fins dissipate heat GND protection
	Mounting	Flat mounting, Wall-mounting
	Power	25W (Intel®Core™ total power consumption up to 80W depending on CPU)
Environment	Operating Temperature	-20~60°C (Using a wide temperature rating SSD)
	Storage Temperature	-20~80°C
	Relative Humidity	5~95% (Non condensation)
	Shock	Operating 10G peak acceleration(11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5~500Hz, 1Grms@with HDD; 2Grms@with SSD, follow IEC 60068-2-64
	EMC	CE/FCC Class B

2.4.3 iBOX22 Series Product Specification (Triple-network-port)

Intel® Core™ 10/11/12/13th i3/i5/i7 series

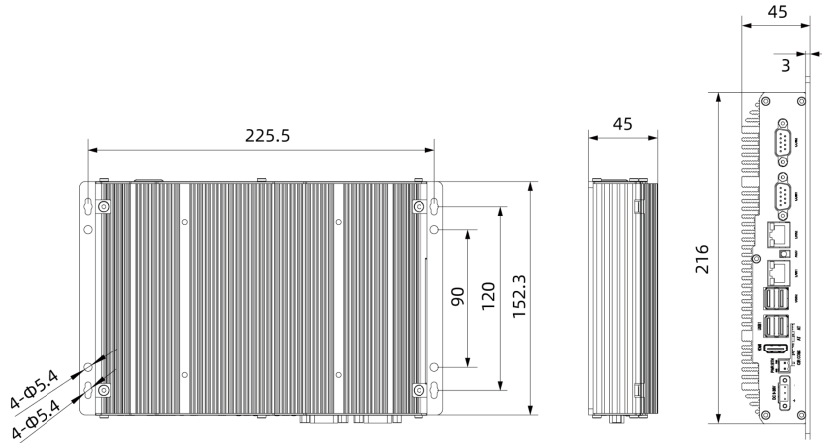
Description	iBOX22XX	
Processor	CPU	Intel® Core™ 10/11/12/13th i3 i5 i7

I/O	LAN	3 x RJ45
	USB	4xUSB3.0
	COM	2xRS232/RS422/RS485, The interface is isolated from TVS (DB9), and the RS485 supports automatic flow control
	Expansion slot	1xmini-PCIe X1 card slot with Sim card slot supporting 4G LTE/WIFI/BT
	Indicator	1xPower light
	Input Voltage	DC 9~36V, 6 pin connection terminal
	Control Switch	1x Power Switch
Display	HDMI	The highest resolution supported is available 4096*2160@24Hz
OS	OS	Window8, Windows10, Windows11, Linux, etc
Physical	Dimension (L x W x H)	221.8mm x 154mm x 62mm (8.73" x 6.06" x 2.44")
	Box Structure	Compacted aluminium-magnesium alloy profile housing, Large aluminum fins dissipate heat GND protection
	Mounting	Flat mounting, Wall-mounting
	Power	25W (Intel®Core™ total power consumption up to 80W depending on CPU)
Environment	Operating Temperature	-20~60°C (Using a wide temperature rating SSD)
	Storage Temperature	-20~80°C
	Relative Humidity	5~95% (Non condensation)
	Shock	Operating 10G peak acceleration(11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5~500Hz, 1Grms@with HDD; 2Grms@with SSD, follow IEC 60068-2-64
	EMC	CE/FCC Class B

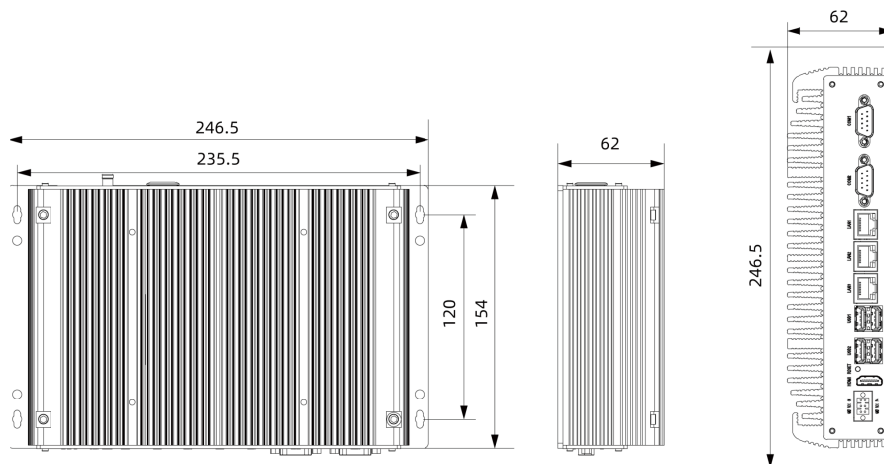
2.5 Product Size

Intel® Celeron® 3855U/3865U/ 6412、Intel® Core™ 6/7th i3/i5/i7 iBOX22XX Series Size drawing:

The detailed interface section is in Chapter 2.6, which is for reference only.

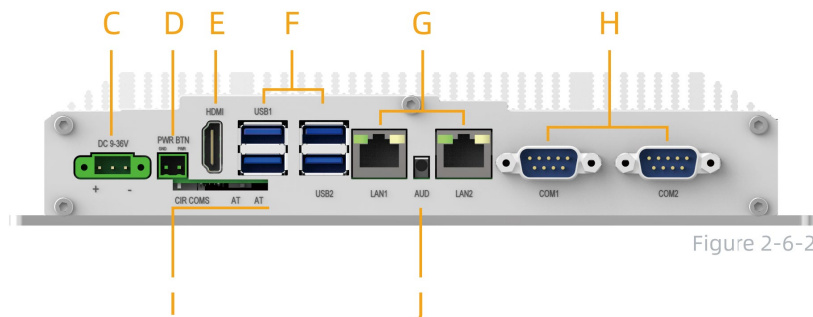
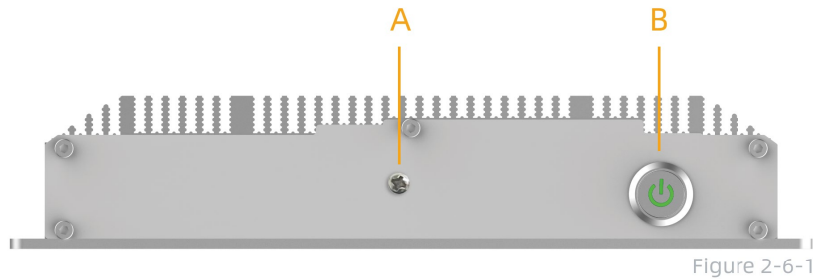


Intel® Core™ 10/11/12/13th i3/i5/i7 iBOX22XX Series Size drawing:



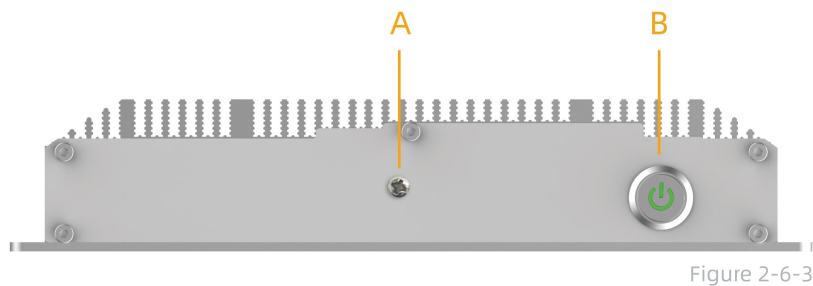
2.6 Product Interface Definition

① The processor is Intel® Celeron® 3855U/3865U、Intel® Core™ 6/7th i3/i5/i7 iBOX22XX Series Fanless Industrial Box PC interface definition is shown in Figure 2-6-1 & Figure2-6-2:



A: Ground	B: Switch button with power indicator	C: DC IN	D: Power Switch	E: HDMI
F: 4 x USB	G: 2 x RJ45	H: 2 x COM	I : CLR/CMOS	J : Audio

② The processor is Intel® Celeron® J6412 iBOX22XX Series Fanless Industrial Box PC interface definition is shown in Figure 2-6-3 & Figure2-6-4:



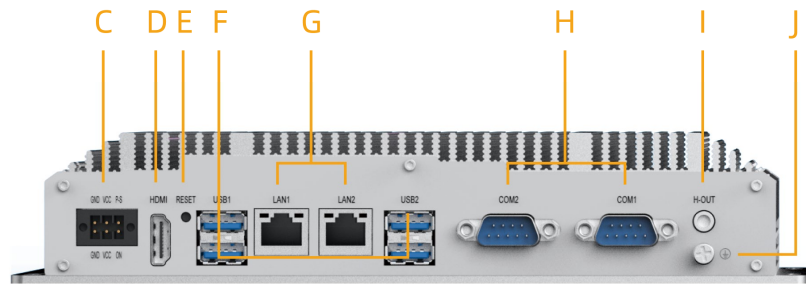


Figure 2-6-4

A: Ground B: Switch button with power indicator C: DC IN D: HDMI E: RESET
 F: 4 x USB G: 2 x RJ45 H: 2 x COM I: H-OUT J: Ground

② The processor is **Intel® Core™ 10/11/12/13th i3/i5/i7** iBOX22XX Series Fanless Industrial Box PC interface definition is shown in Figure 2-6-5 & Figure2-6-6:

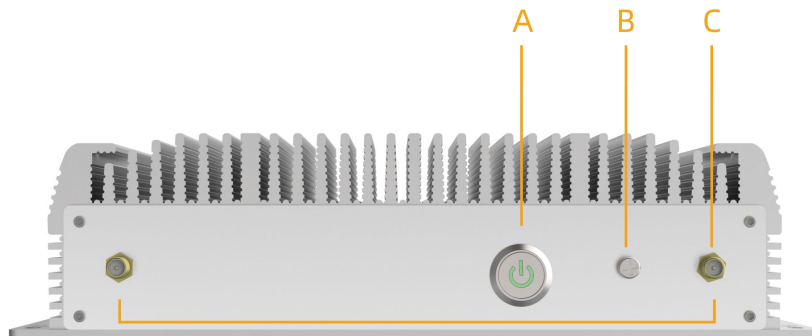


Figure 2-6-5

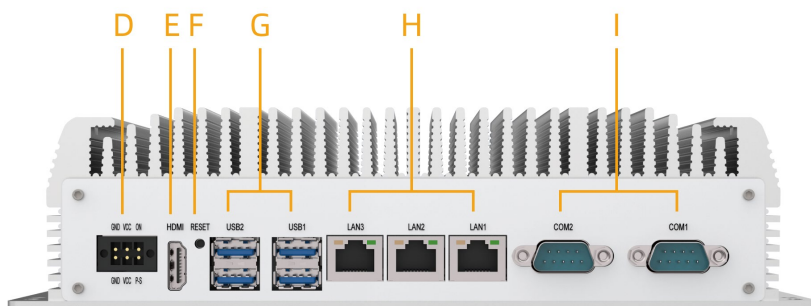


Figure 2-6-6

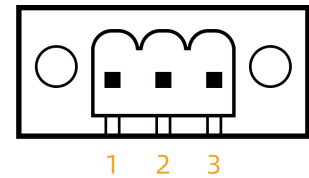
A: Switch button with power indicator B: Ground C: WIFI Bluetooth antenna D: DC IN E: HDMI
 F: RESET G: 4 x USB H: 3 x RJ45 I: 2 x COM

2.6.1 Power Port

The processor is Intel® Celeron® 3855U/3865U, Intel® Core™ 6/7 th i3/i5/i700 iBOX22XX series fanless industrial Box PC provides a wide voltage (9~36V) input through a 3-pin terminal:

Pin Assignment Introduction

DC IN interface pin definition	
Pin	Signal
Pin1	9~36V
Pin2	GND
Pin3	0V



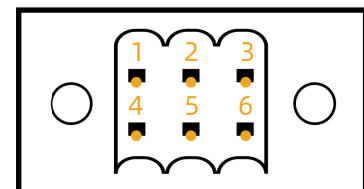
DC power input port

The processor is Intel® Celeron® J6412, Intel® Core™ 10/11/12/13 generation i3/i5/i7 iBOX22XX series of fanless industrial Box PC provide a wide voltage (9~36V) input through a 6-pin terminal:

Note: The power input can choose a set of DC_IN and GND, and 24V power supply is preferred.

Pin Assignment Introduction

DC IN interface pin definition	
Pin	Signal
Pin1	ON
Pin2	DC_IN
Pin3	GND
Pin4	P-S
Pin5	DC_IN
Pin6	GND



DC power input port

2.6.2 HDMI Interface

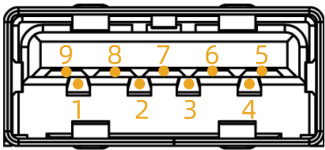
iBOX22XX Series Box PC all provide A standard HDMI Type A interface, which can be directly connected to the interface for video transmission.

2.6.3 USB3.0 TypeA Interface

iBOX22XX Series Box PC provide 4 standard USB3.0 TypeA interfaces and can use 4 USB interfaces at the same time.

Pin Assignment Introduction

USB3.0 TypeA interface pin definition		
Pin	Signal	Description
Pin1	VBUS	Power Supply
Pin2	D-	2.0 Data difference pairs, Data-
Pin3	D+	2.0 Data difference pairs, Data+
Pin4	GND	Power ground, GND
Pin5	StdA_SSRX-	High speed data differential pair, RX-
Pin6	StdA_SSRX+	High-speed data differential pair, RX+
Pin7	GND_DRAIN	Signal Ground
Pin8	StdA_SSTX-	Height data difference pair, TX-
Pin9	StdA_SSTX+	Height data difference pair, TX+



USB3.0 TypeA

2.6.4 Ethernet interface

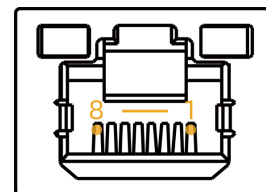
iBOX22XX Series Box PC provides RJ45 Ethernet port with surge protection.

2 x RJ45 (Intel® Core™ 6/7th & Intel® Celeron® 3855U/3865U/J6412)

3 x RJ45 (Intel® Core™ 10/11/12/13th)

Pin Assignment Introduction

Ethernet interface pin definition	
Pin	Signal
Pin1	TX0+
Pin2	TX0-
Pin3	TX1+
Pin4	TX1-
Pin5	TX2+
Pin6	TX2-
Pin7	TX3+
Pin8	TX3-

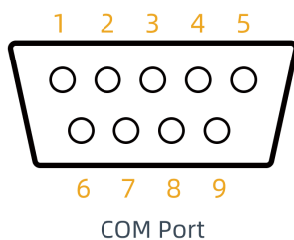


RJ45 Ethernet Interface

2.6.5 COM Interface

iBOX22XX series Box PC via DB9 connector. The COM interface can be configured to RS232, RS422 or RS485 through Bios Settings.

Note: The processor is Intel® Celeron® J6412, Intel® Core™ 10/11/12/13 th iBOX22XX series products, default support RS232, need to manual DIP switch settings, COM interface can be configured to RS232, RS422 or RS485.



Pin Assignment Introduction

DVI-D In interface pin definition			
Pin	Signal	Pin	Signal
Pin1	RS485-	Pin2	RS485-
Pin3	TXD	Pin4	DTR#
Pin5	GND	Pin6	DSR#
Pin7	RTS#	Pin8	CTS#
Pin9	RL#	-	-

2.7 Bios Interface setting

Main

Contains basic BIOS information.

Figure 2-7-1 shows the Main screen.



Figure 2-7-1

Fast

Contains settings for power-on auto-start.

Figure 2-7-2 & 2-7-3 show the Fast screen.

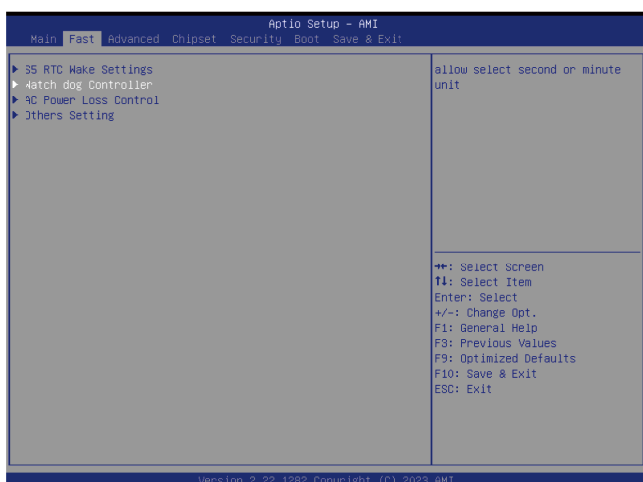


Figure 2-7-2

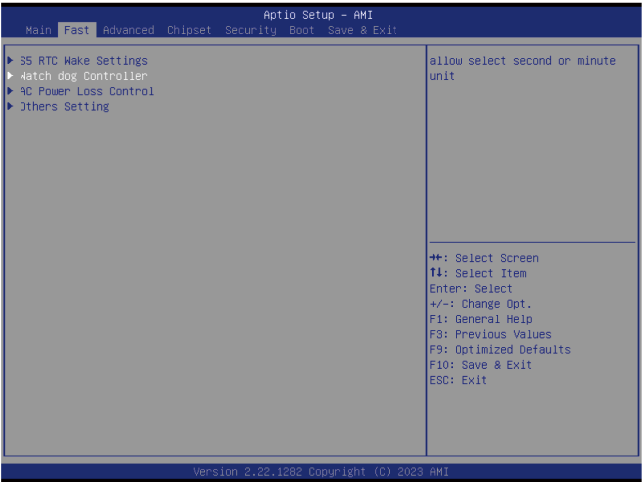


Figure 2-7-3

Advanced

Contains the advanced configuration items of the BIOS system.
Figure 2-7-4 shows the Advanced screen.

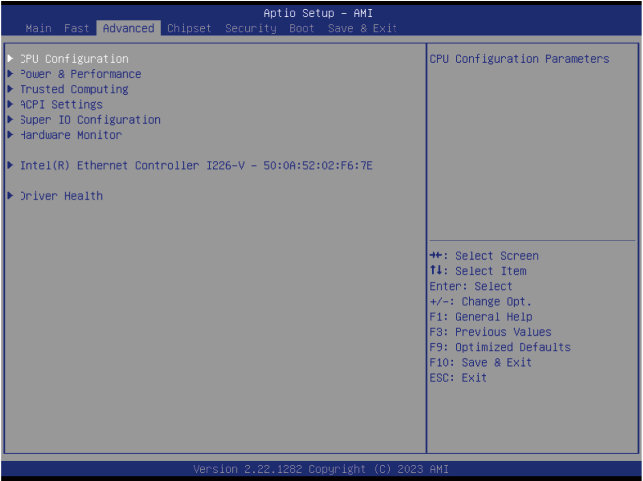


Figure 2-7-4

Chipset

Includes advanced chipset functionality Settings.
Figure 2-8-5 shows the Chipset interface.

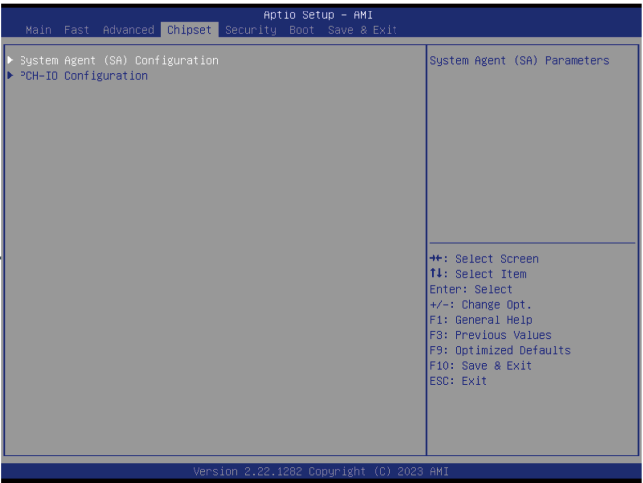


Figure 2-7-5

Security

Includes control over security functions.
Figure 2-7-6 shows the Security screen.

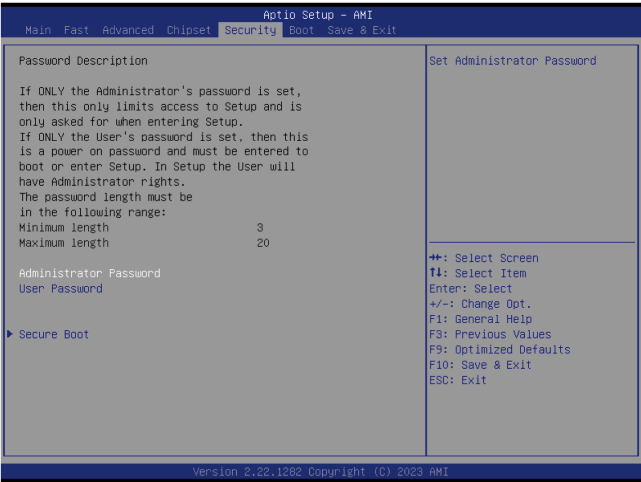


Figure 2-7-6

Boot

Set the boot mode, boot sequence, and boot process.
Figure 2-7-7 shows the Boot screen.

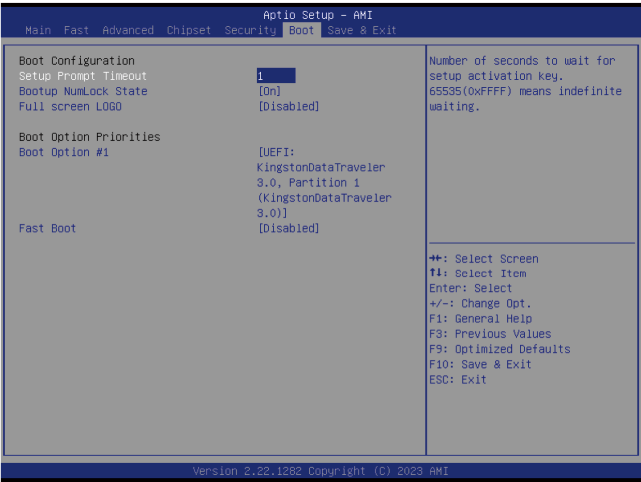


Figure 2-7-7

Save&Exit

The user can save BIOS parameter modification and exit BIOS Setup.
Figure 2-7-8 shows the Save&Exit screen.

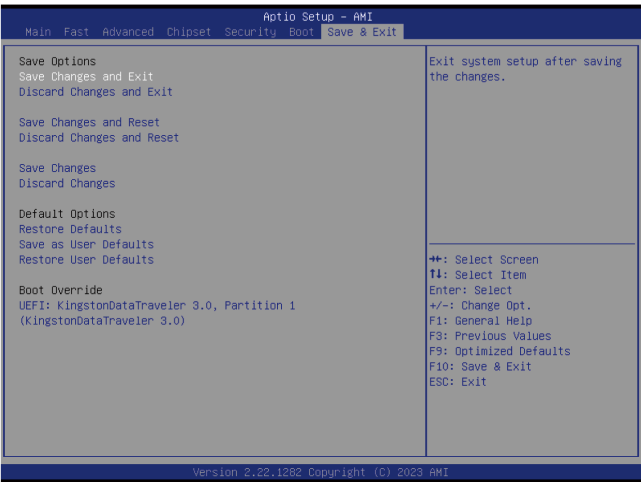


Figure 2-7-8

2.8 CPU temperature limit setting

Note: Intel® Celeron® 6412、Intel® Core™ 6/7/10/11/12/13th i3/i5/i7 series Supports CPU temperature limit Settings.

① During startup, press F2 continuously to enter the BIOS interface, Figure 2-8-1.

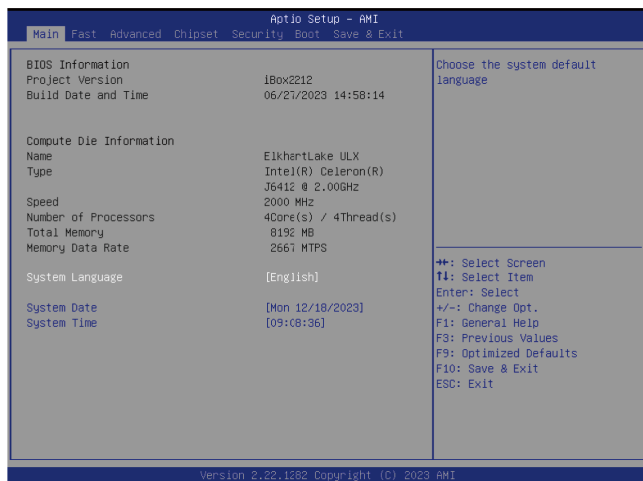


Figure 2-8-1

② Press CTRL + F1 to enter BIOS administrator mode. When the drop-down progress bar appears, it indicates success. Figure 2-8-2.

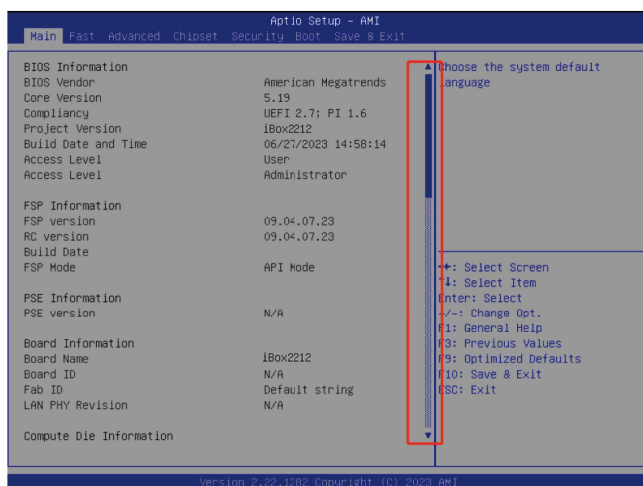


Figure 2-8-2

③ Select the Advanced menu item, press the ↓ key to select the Thermal Configuration item, and press the Enter key to enter. Figure 2-8-3.

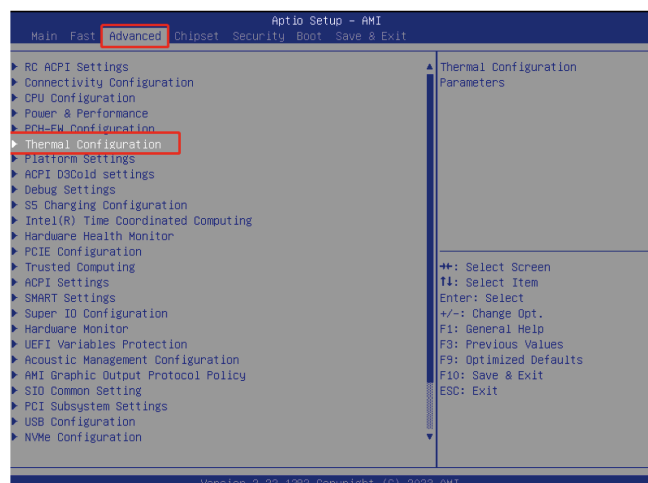


Figure 2-8-3

④ Press the ↓ key to select CPU Thermal Configuration and press Enter. Figure 2-8-4.

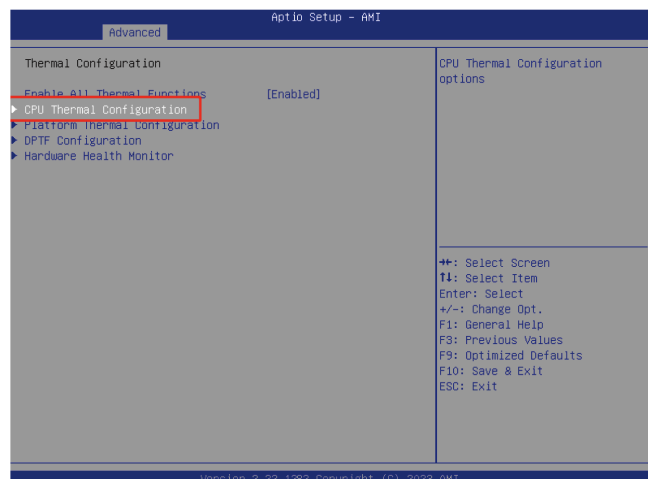


Figure 2-8-4

⑤ After entering, press the ↓ key to select Tcc Activation Offset, the default value is 20 (representing 100-20=80°), and the value is changed to 30 and the temperature limit is 70°. Keypad input numbers. Figure 2-8-5.

(Note:Please don't modify parameters at will. If you have questions, please contact our technical staff.)

Here, for example, the temperature limit is set to 70 degrees (Figure 2-8-6).

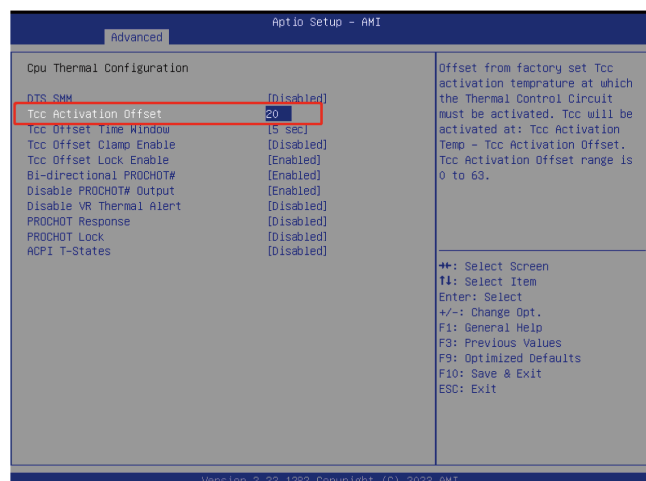


Figure 2-8-5

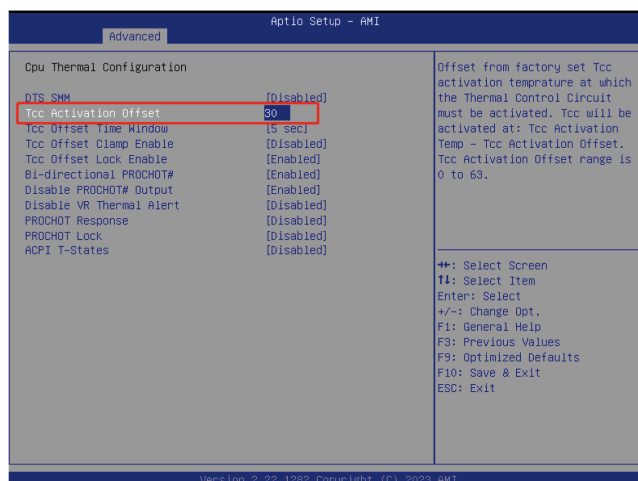


Figure 2-8-6

⑥ Press the ↓ key to select the Tcc Offset Time Window item, the default value is 5sec (Figure 2-8-7), and the value can be changed to 3sec. Press Enter to select this option. Figure 2-8-8.

(Note:Please don't modify parameters at will. If you have questions, please contact our technical staff.)

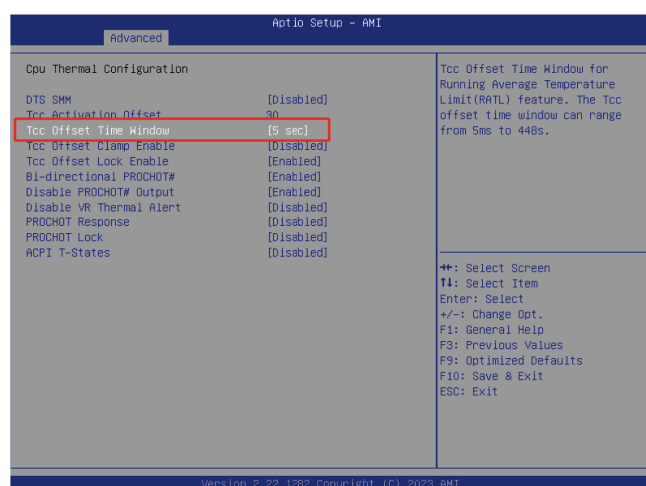


Figure 2-8-7

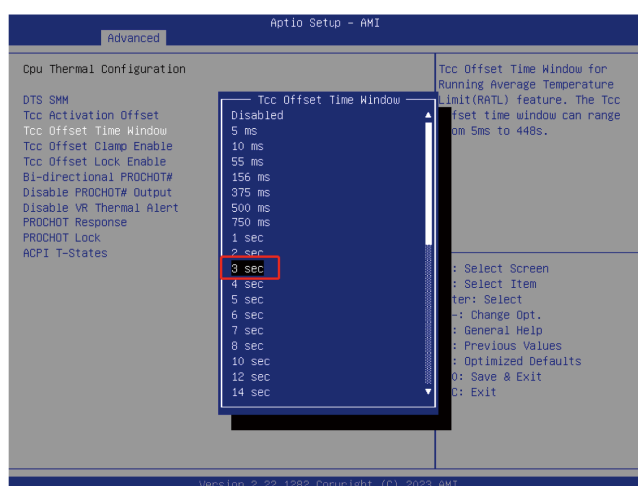


Figure 2-8-8

⑦ After the setting is completed, press F10 on the keyboard to pop up the Save&Exit Setup pop-up window. Use the ← or → key on the keyboard to select YES and press the Enter key to save the settings. Figure 2-8-9.

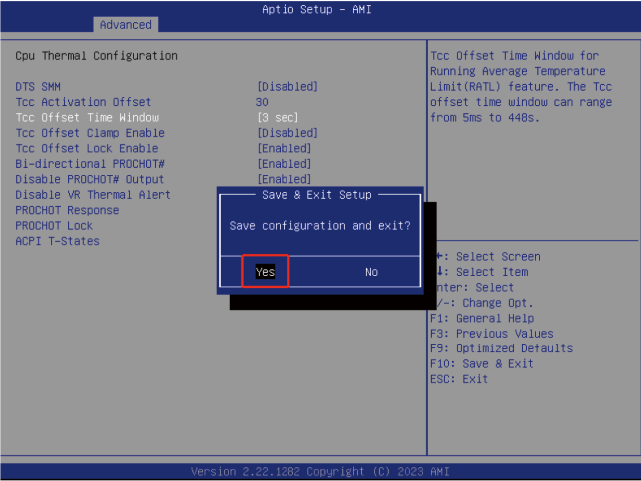


Figure 2-8-9

Chapter 3 Installation Instructions

Follow the following installation instructions when installing and using the network and software.

3.1 Product overview

This products are iBOX22XX series Fanless Box PC, following points should pay attention before installation:

- Do not work on live equipment. Power off the device before installation, troubleshooting, or maintenance. Protect the device from accidental opening.
- Comply with the relevant accident prevention regulations for your machine (e.g. BGVA3, electrical systems and equipment).
- Ensure that connections comply with standard to avoid risks to personnel. Ensure that data and power cables are layout in a standard manner and that pins are properly distributed.
- Follow the relevant EMC guidelines for your application.
- Avoid polarity reversal of data and power cables, which may damage the device.
- Devices, including electronic components, may be damaged by electrostatic discharge upon contact. Comply with DIN EN61340-5-1/-3 safety measures to prevent electrostatic emissions.
- The external ground cable must be installed, and the external ground cable is at least 4 mm² square.

3.1.1 Installation and operation

Directly connect the power input, video interface, network interface, etc. of the product to the corresponding signal interface, connect the USB port through the matching USB cable, and connect the power input port to the input power required by the corresponding model (pay attention to the positive and negative polarity). (For specific interfaces and definitions, see 2-6-1 in 2.6 Interface Definitions in Chapter 2.)

Installation instructions

- Ensure that the power supply is cut off before installation.
- Please try to avoid direct sunlight to extend the service life of the machine.
- Connect the device according to the device connection port and pay attention to the bending radius of the cable during installation to avoid a small radius.
- Ensure that the device is properly connected before switching on the power supply.
- For internal examples of industrial computers with Intel® Celeron® 3855U/3865U processors, please install the products according to the iBOX22XX series products with different processors.

Flat mounting

Figure 3-1-1,

Lay the body of the iBOX22XX series industrial computer flat on the confirmed position of the desktop, Prepare four m4 screws, screw them into each position, and check whether they are fastened. That is, the desktop installation is complete.

You can also choose to temporarily place the industrial computer directly on the desktop, pay attention to the use of the environment and protect the interface area.

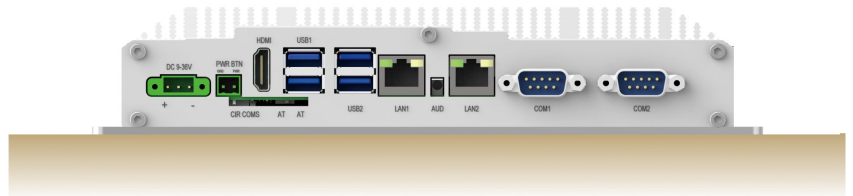


Figure 3-1-1

Wall-mounted

Figure 3-1-2,

- ① Prepare accessories in advance, drill holes and fix the product to the wall or cabinet by horizontal wall hanging (depending on the user's environment).
- ② Place the industrial computer horizontally, align four fixing m4 screws with the fixing card slot, and gently move the card down into the fixing card slot.
- ③ The four simultaneously tighten the industrial computer is fixed and stable, connected to the power supply, etc., it can be used normally.

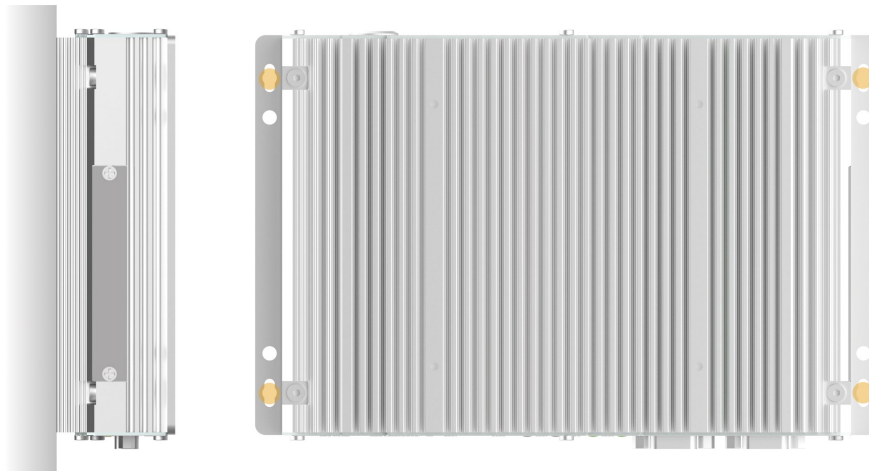


Figure 3-1-2

Matters needing attention

- Strictly follow the above steps to fixation the Box PC!
- All screws must be tightened to prevent the product from falling off!
- Avoid exposing the Box PC to sunlight directly!
- Avoid extreme environments and protect the control panel from dust, moisture and heat.

Grounding measure

The ground connection eliminates interference from external power cables, transverse cables, or external device cables. PE devices must be properly grounded during normal use. Loss of ground connection may result in failure.

3.2 Install RAM and SSD

- ① First place the product horizontally, turn off the power and unplug all interfaces.
- ② Remove four m3 studs from the outside of the product (Figure 3-2-1), and gently remove the housing to see the internal circuit board structure.

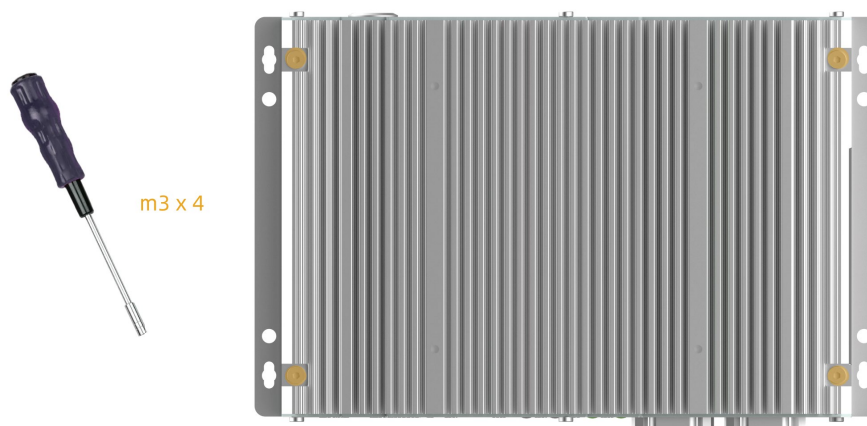


Figure 3-2-1

3.2.1 Install RAM

Remove: Bend the iron plates on both sides to remove the preinstalled memory module.

Install: Insert the memory module into the memory slot. Ensure that the memory module is aligned with the slot. Gently press down the memory module to ensure stable installation.

Figure 3-2-2.

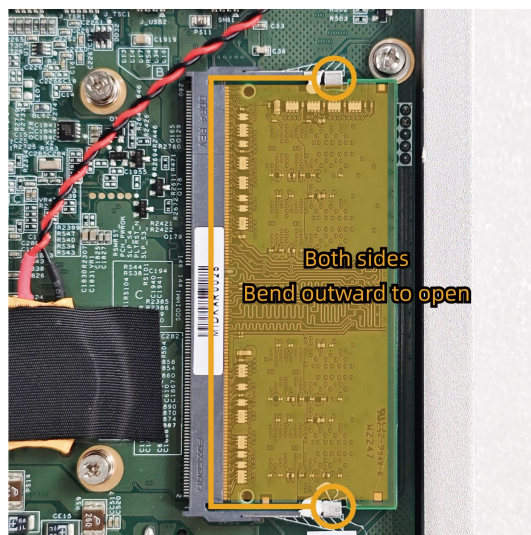


Figure 3-2-2

3.2.2 Install SSD

Remove: Use a screwdriver to remove the screws from the SSD slot and carefully remove the SSD.

Install: Insert the SSD into the mainboard at an Angle of 25° to align with the screw port interface, and then gently press down to ensure that the SSD is inserted and secured by screws. To prevent shaking and failure.

Figure 3-2-3.

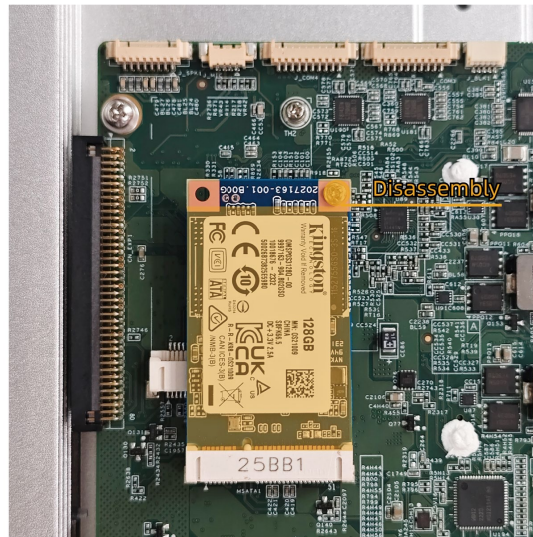


Figure 3-2-3

3.3 Install miniPCle

After the SSD is removed, there is a miniPCle card slot below it, which can be used to install 4G, Wifi, Bluetooth and other functional modules. Figure 3-3-1.

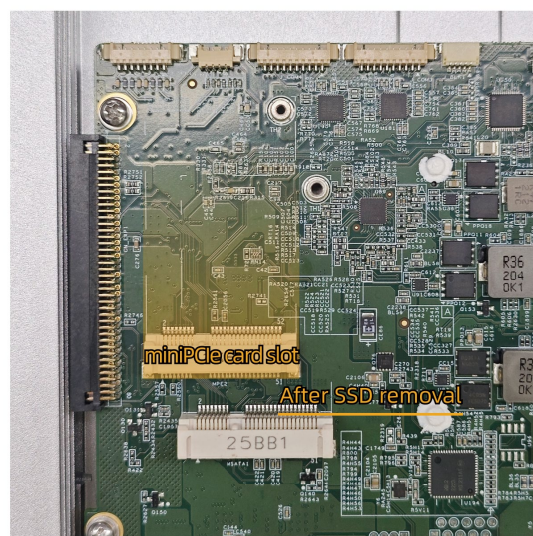


Figure 3-3-1

3.4 Transportation and storage

Transport

Despite the robust design of this product, however these components are sensitive to strong vibrations and shocks. The display must be protected from excessive mechanical stress during transport and the original packaging should be used.

Storage

The Box PC needs to be stored in a dry environment in its original packaging at a temperature between -20°C and 80°C.

Package

Follow these steps as below and disassemble the device.

1. Remove the package.
2. Keep the original packaging for future relocation.
3. Compare with your order to check that the delivery goods are complete.
4. Keep relevant documents. It contains important information used to process the product.
5. Check the device if there is visible damage during the transportation.

* If you notice any shipping damage or inconsistencies between the goods with your order, please notify Shanghai Panelmate Electronics Co., Ltd. for after-sales service.

Chapter 4 Safety Prevention And Maintenance

4.1 Safety Precautions

Please follow the following safety precautions.

4.1.1 General Safety Precautions

- Always follow the electrostatic precautions outlined below when using the iBOX22XX series.
- Whenever it is necessary to install, move or modify iBOX22XX series products, ensure that the power supply is turned off and the power cord is disconnected.
- Do not apply voltage levels that exceed the specified voltage range. Failure to do so may result in fire or electric shock.
- When iBOX22XX series are in operation, once the inside of the product is opened, an electric shock may occur.
- Do not drop or insert any object into the air vent of the iBOX22XX series.
- Once a large amount of dust, water or liquid enters the product, the power should be turned off immediately, unplug the power cord, and then contact Panelmate.

- The following activities are prohibited:
- Do not drop the device onto hard ground.
- Do not knock the product or exert excessive force on it.
- Do not use PC60XX series products in places where the ambient temperature exceeds the rated temperature.

4.1.2 ESD Preventive Measures

Warning:

Failure to take ESD precautions during installation of the iBOX22XX series products may result in permanent damage to the products and serious injury to users.

Electrostatic discharge (ESD) may cause serious damage to the electrical components of this product. Dry climates are more likely to produce ESD. Therefore, once this product is opened and any electrical parts need to be handled, the following anti-static precautions must be strictly followed:

- Wear an ESD wrist strap: Wear a simple ESD wrist strap to prevent ESD damage to electrical components.
- Self-grounding: Any grounding conductive material should be touched before handling any electrical parts. During handling of electrical parts, any conductive substance that is grounded should always be touched.
- Use an ESD mat: When you configure electrical components or perform related operations, place them on an ESD mat. This reduces the possibility of ESD damage.
- Only touch the edge of the electrical parts: In the case of handling electrical parts, hold the electrical parts by holding the edge.

4.1.3 The scope of the product is not applicable

The product is not suitable for operation in the following areas:

- Areas with aggressive environments, e.g. aggressive gases or chemicals

4.2 Maintenance and Cleaning

Please maintain and clean the product as follows.

4.2.1 Maintenance and Cleaning

Please read the following details before cleaning any parts or components of the product. Do not spray or spray the liquid directly on any other parts.

- No need to clean the inside to avoid liquids from getting inside.
- Be careful not to damage the internal small , removable parts.
- Please turn off the power before cleaning.
- Do not drop any object or allow any liquid to enter the product through the opening.
- When cleaning, be careful of any allergic reactions your body may have to solvents or chemicals.
- Avoid eating, drinking and smoking near work areas.

4.2.2 Cleaning Tool

Only specially designed products can be used to clean certain parts. In such cases, such products are clearly noted in the cleaning instructions. Here is a list of items that can be used for cleaning:

- Cloth - Although paper towels or tissue paper can be used, soft, clean cloths are recommended.
- Water or external alcohol - Cloths with water or external alcohol should be used.
- Use solvents - It is recommended not to use solvents as they may cause damage to plastic parts.
- Vacuum cleaners - Using vacuum cleaners designed for computers is one of the best cleaning methods. Dust and dirt can restrict airflow and cause corrosion of the circuit.
- Cotton swabs with external alcohol or water are an excellent tool for wiping hard-to-reach product areas.
- Foam swabs - If possible, it is best to use foam swabs and other non-lint labels for cleaning.

Chapter 5 FAQ

5.1 Technical Support And Service

Please visit the official website of Shanghai Yiyao Electronics www.panelmate.cn and wechat official account “亿耀电子” to download the documents and related driver software, or contact the company directly for support and service.