



ED-IPC2200

User Manual

by EDA Technology Co., Ltd

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1 Hardware Manual

This chapter introduces the product overview, packing list, appearance, button, indicator and interface.

1.1 Overview

The ED-IPC2200 Series is an industrial computer based on the Raspberry Pi CM4, including ED-IPC2210 and ED-IPC2220. According to different application scenarios and user needs, different specifications of RAM and eMMC/SD card computer systems can be selected.

- Options for 1GB, 2GB, 4GB and 8GB RAM
- Options for 0GB, 8GB, 16GB and 32GB eMMC storage
- Options for 0GB, 32GB and 64GB SD card

TIP

When you purchase a product model, you must choose one of SD card and eMMC, and you cannot choose both at the same time.

The ED-IPC2200 provides common interfaces such as HDMI, USB 2.0, USB 3.0, Audio, and Ethernet, while supporting network connectivity via Wi-Fi, Ethernet, and 4G. Integrated with a super capacitor backup power supply (optional), RTC, Watch Dog, EEPROM, and encryption chip, it enhances the product's ease of use and reliability, primarily applied in industrial control and IoT fields.



1.2 Packing List

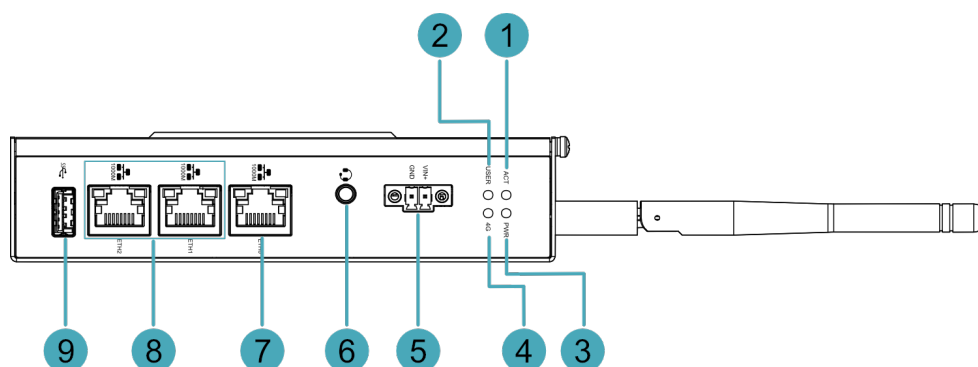
- 1 x ED-IPC2200 Unit
- [optional Wi-Fi/BT version] 1x 2.4GHz/5GHz Wi-Fi/BT Antenna
- [optional 4G version] 1x 4G/LTE Antenna

1.3 Appearance

Introducing the functions and definitions of interfaces on each panel.

1.3.1 Front Panel

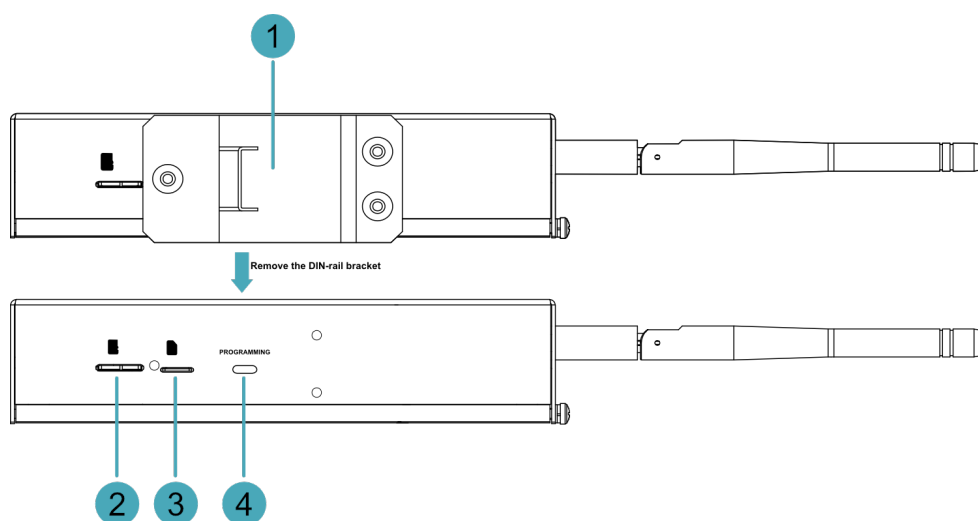
Introducing the front panel interface types and definitions.



| NO. | Function Definition |
|-----|--|
| 1 | 1 x green system status indicator, which is used to check the working status of device. |
| 2 | 1 x green user indicator, user can customize a status according to actual application. |
| 3 | 1 x red power indicator, which is used to check the status of device power-on and power-off. |
| 4 | 1 x green 4G indicator, which is used to check the status of 4G signal. |
| 5 | 1 x DC input, 2-Pin 3.5mm pitch phoenix terminals with screw holes. It supports 9V~36V input, the signal is defined as VIN+/GND. |
| 6 | 1 x Audio input/Stereo output, 3.5mm audio jack connector. It can be used as MIC IN and LINE OUT. <ul style="list-style-type: none"> • When a headphone is connected, the audio output is switched to the headphone. • When a headphone is not connected, the audio output is switched to the speaker. |
| 7 | 1 x 10/100/1000M adaptive ethernet port (ETH0), RJ45 connector, with led indicator. It can be used to access the network. |
| 8 | 2 x 10/100/1000M adaptive ethernet ports (ETH1 & ETH2), RJ45 connector, with led indicator. It can be used to access the network. |
| 9 | 1 x USB 3.0 port, Type-A connector, which supports up to 5Gbps transmission rate. |

1.3.2 Rear Panel

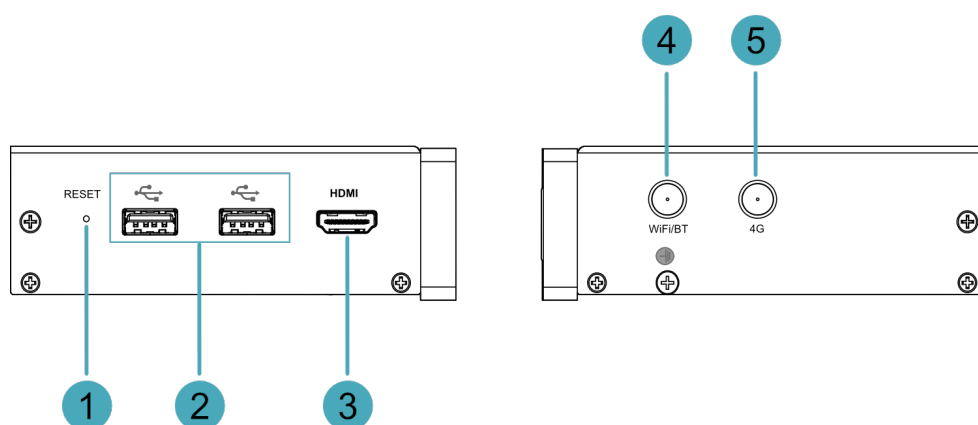
Introducing the types and definitions of the rear panel interface.



| NO. | Function Definition |
|-----|--|
| 1 | 1 x DIN-rail bracket, ED-IPC2200 Unit can be installed on the DIN-rail through the bracket. |
| 2 | 1 x Micro SD card slot, which is used to install Micro SD Card. It supports booting the OS from SD card. |
| 3 | 1 x Nano SIM slot, which is used to install a Nano SIM card for getting 4G signal. |
| 4 | 1 x Micro USB port, which supports to flash to eMMC for the system. |

1.3.3 Side Panel

Introducing the types and definitions of side panel interfaces.



| NO. | Function Definition |
|-----|---|
| 1 | 1 x Reset button, pressing the button will restart the device. |
| 2 | 2 x USB 2.0 ports, Type-A connector, each channel supports up to 480Mbps transmission rate. |
| 3 | 1 x HDMI port, Type-A connector, which is compatible with HDMI 2.0 standard and supports 4K 60Hz. It supports to connect a display. |

| NO. | Function Definition |
|-----|--|
| 4 | 1 x Wi-Fi/BT antenna port, SMA connector, which can connect to Wi-Fi/BT antenna. |
| 5 | 1 x 4G antenna port, SMA connector, which can connect to 4G antenna. |

1.4 Button

ED-IPC2200 includes a RESET button, which is a hidden button, and the silkscreen on the case is "RESET". Pressing the RESET button will reset the device.

1.5 Indicator

Introducing the various statuses and meanings of indicators contained in ED-IPC2200.

| Indicator | Status | Description |
|-----------------------------------|--------|---|
| PWR | On | The device has been powered on. |
| | Blink | Power supply of the device is abnormal, please stop the power supply immediately. |
| | Off | The device is not powered on. |
| ACT | Blink | The system started successfully and is reading and writing data. |
| | Off | The device is not powered on or does not read and write data. |
| USER | On | User can customize a status according to actual application. |
| | Off | The device is not powered on or not defined by the user, and the default status is off. |
| 4G | On | The dial-up is successful and the connection is normal. |
| | Off | 4G signal is not connected or the device is not powered on. |
| Yellow indicator of Ethernet port | On | The data transmission is abnormal. |
| | Blink | Data is being transmitted over the Ethernet port. |
| | Off | The Ethernet connection is not set up. |
| Green indicator of Ethernet port | On | The Ethernet connection is in the normal state. |
| | Blink | The Ethernet connection is abnormal. |
| | Off | The Ethernet connection is not set up. |

1.6 Interface

Introducing the definition and function of each interface on ED-IPC2220.

1.6.1 Card Slot

ED-IPC2200 includes a Micro SD card slot and a Nano SIM card slot.


1.6.1.1 SD Card Slot

The silkscreen on the case of Micro SD card slot is "", which is used to install Micro SD card for storing user data. It supports booting the OS from SD card.

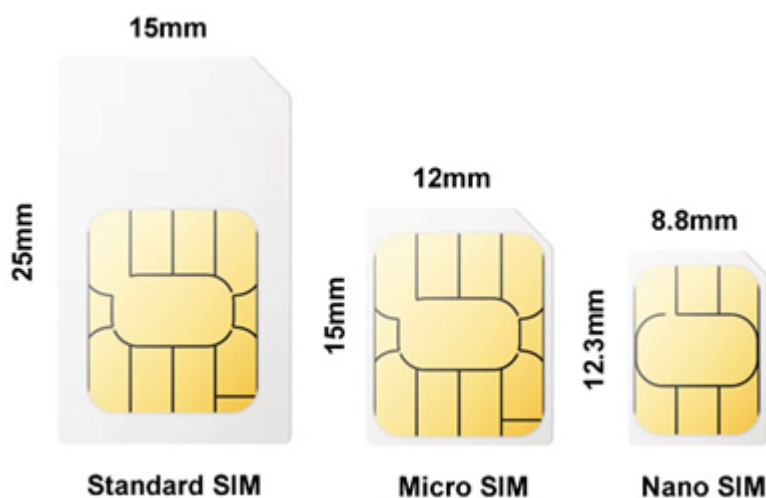
TIP

When you purchase a product model, you must choose one of SD card and eMMC, and you cannot choose both at the same time.

1.6.1.2 SIM Card Slot

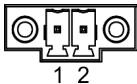
The silkscreen on the case of Nano SIM card slot is "", which is used to install SIM card for obtaining 4G signals.

The size differences between standard SIM, Micro SIM and Nano SIM cards are as follows:




1.6.2 Power Supply

The ED-IPC2200 includes one power input, 2-Pin 3.5mm pitch phoenix terminals with screw holes. The silkscreen of port is "VIN+/GND", and the pins are defined as follows.


|  | Pin ID | Pin Name |
|---|--------|----------|
| | 1 | GND |
| | 2 | 9V~36V |

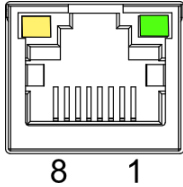
1.6.3 Audio

ED-IPC2200 includes one audio input, the connector is a 3.5mm 4-pole headphone jack. The silkscreen of port is “”, which supports OMTP stereo headphone output and mono microphone recording.


- When the headphone is connected, the audio output is switched to the headphone.
- When the headphone is not connected, the audio output is switched to the speaker.

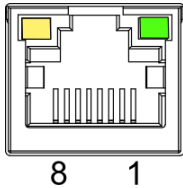
1.6.4 1000M Ethernet (ETH0)

ED-IPC2200 includes one adaptive 10/100/1000M Ethernet port, and the silkscreen is “”. The connector is RJ45, it is recommended to use the network cable of Cat6 and above. The pins corresponding to the terminal are defined as follows:

|  | Pin ID | Pin Name |
|--|--------|----------|
| | 1 | TX1+ |
| | 2 | TX1- |
| | 3 | TX2+ |
| | 4 | TX2- |
| | 5 | TX3+ |
| | 6 | TX3- |
| | 7 | TX4+ |
| | 8 | TX4- |

1.6.5 1000M Ethernet Interface (ETH1 and ETH2)

ED-IPC2200 includes two adaptive 10/100/1000M Ethernet port, and the silkscreen is “”. The connector is RJ45, and it is recommended to use the network cable with Cat6 and above when accessing to network. The pins corresponding to the terminal are defined as follows:


|  | Pin ID | Pin Name |
|---|--------|----------|
| | 1 | TX1+ |
| | 2 | TX1- |
| | 3 | TX2+ |
| | 4 | TX2- |
| | 5 | TX3+ |
| | 6 | TX3- |

| | | |
|--|---|------|
| | 7 | TX4+ |
| | 8 | TX4- |


1.6.6 HDMI

ED-IPC2200 includes one HDMI port, the silkscreen is "HDMI". The connector is Type-A HDMI, which can connect to an HDMI display and supports up to 4Kp60.

1.6.7 USB 2.0

ED-IPC2200 includes two USB2.0 ports, the silkscreen is "". The connector is Type-A USB, which can connect to standard USB 2.0 peripherals and supports up to 480Mbps transmission rate.

1.6.8 USB 3.0

ED-IPC2200 includes one USB 3.0 port, the silkscreen is "". The connector is Type-A USB, which can connect to standard USB 3.0 peripherals and supports up to 5Gbps transmission rate.

1.6.9 Micro USB

ED-IPC2200 includes one Micro USB port, the silkscreen is "PROGRAMMING" and it can be connected to a PC to flash to eMMC of the device.

1.6.10 Antenna (optional)

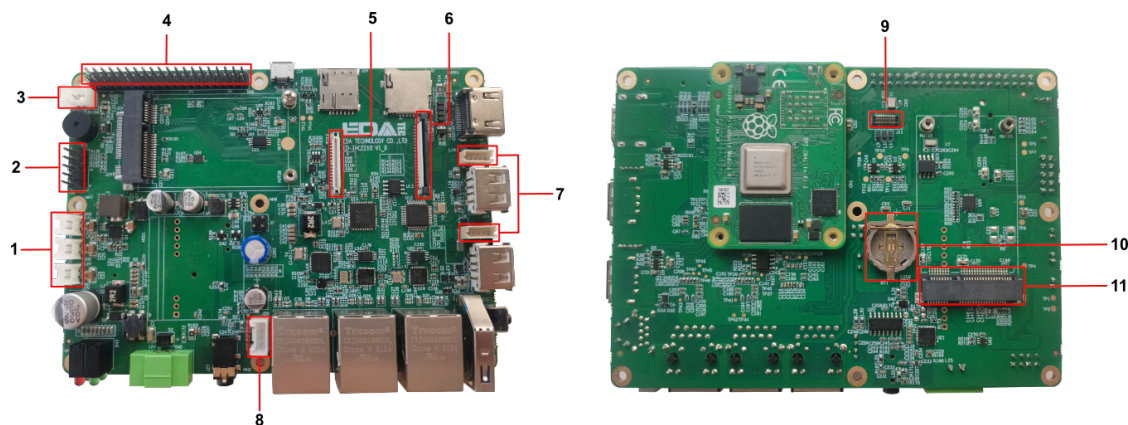
The ED-IPC2200 device can include up to two SMA antenna ports, the silkscreens are "4G" and "Wi-Fi/BT" and they can be connected to the 4G antenna and Wi-Fi/BT antenna.

TIP

The number of antenna interface is related to the purchasing product model. Here, we take two antenna interfaces as an example.

1.6.11 Motherboard

Introducing the interfaces reserved in the ED-IPC2200 series device, which can be obtained only after the device case is opened and can be expanded according to actual needs.



| NO. | Function |
|-----|---|
| 1 | 12V 1A Power Output |
| 2 | 10-Pin GPIO Pin Header |
| 3 | 5V 1A Power Output |
| 4 | 40-Pin GPIO Pin Header |
| 5 | FPC DSI Interface Note: Only ED-IPC2220 include this interface. |
| 6 | FPC HDMI Interface Note: Only ED-IPC2220 include this interface. |
| 7 | USB 2.0 Pin Header |
| 8 | Speaker Interface Note: Only ED-IPC2220 include this interface. |
| 9 | CSI Interface Note: Only ED-IPC2220 include this interface. |
| 10 | RTC Battery Base |
| 11 | mSATA Interface |

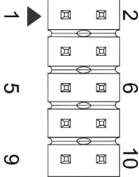
1.6.11.1 12V 1A Output

The motherboard of ED-IPC2200 series device includes 3 expanded 12V 1A power output ports with 2-Pin 2.0mm pitch white WTB connector, which is reserved for the extended LCD screen to supply power. The pins are defined as follows:

| | | |
|--|--------|----------|
| | Pin ID | Pin Name |
| | 1 | GND |
| | 2 | 12V |

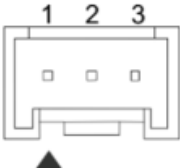
1.6.11.2 10-Pin GPIO

The motherboard of ED-IPC2200 series device includes a 10-Pin GPIO Pin Header with 2x5-Pin 2.54mm pitch, which is used to lead out the extended GPIO port. The user can customize the extension, and the pins definition are as follows:

| | | |
|---|--------|----------|
|  | Pin ID | Pin Name |
| | 1 | EXIO_P10 |
| | 2 | 3V3 |
| | 3 | EXIO_P12 |
| | 4 | EXIO_P11 |
| | 5 | EXIO_P14 |
| | 6 | EXIO_P13 |
| | 7 | EXIO_P16 |
| | 8 | EXIO_P15 |
| | 9 | GND |
| | 10 | EXIO_P17 |

1.6.11.3 5V 1A Output

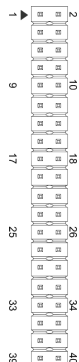
The motherboard of ED-IPC2200 series device includes an extended 5V 1A power output port with 3-Pin 2.0mm pitch white WTB connector, which is reserved for the extended LCD screen to supply power. The pins are defined as follows:

| | | |
|---|--------|----------|
|  | Pin ID | Pin Name |
| | 1 | GND |
| | 2 | 5V |
| | 3 | GND |

1.6.11.4 40-Pin GPIO

The motherboard of ED-IPC2200 series device includes a 40-Pin GPIO terminal with 2x20-Pin 2.54mm pitch, which is used to lead out the GPIO port of CM4, and reserves to connect the extended accessories. The pins are defined as follows:

| | | | | |
|--|--------|----------|--------|----------|
| | Pin ID | Pin Name | Pin ID | Pin Name |
|--|--------|----------|--------|----------|

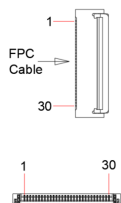


| | | | |
|----|---------|----|---------|
| 1 | 3V3_EXT | 2 | 5V2_CM4 |
| 3 | GPIO2 | 4 | 5V2_CM4 |
| 5 | GPIO3 | 6 | GND |
| 7 | GPIO4 | 8 | GPIO14 |
| 9 | GND | 10 | GPIO15 |
| 11 | GPIO17 | 12 | GPIO18 |
| 13 | GPIO27 | 14 | GND |
| 15 | GPIO22 | 16 | GPIO23 |
| 17 | 3V3_EXT | 18 | GPIO24 |
| 19 | GPIO10 | 20 | GND |
| 21 | GPIO9 | 22 | GPIO25 |
| 23 | GPIO11 | 24 | GPIO8 |
| 25 | GND | 26 | GPIO7 |
| 27 | GPIO0 | 28 | GPIO1 |
| 29 | GPIO5 | 30 | GND |
| 31 | GPIO6 | 32 | GPIO12 |
| 33 | GPIO13 | 34 | GND |
| 35 | GPIO19 | 36 | GPIO16 |
| 37 | GPIO26 | 38 | GPIO20 |
| 39 | GND | 40 | GPIO21 |

Note: GPIO6 and GPIO7 has been used for other specific functions. If you need to use the function of its ordinary IO, you need to remove the jumper resistance on the corresponding signal line.

1.6.11.5 FPC DSI (optional)

The motherboard of ED-IPC2200 series device includes one extended DSI port, with 30-pin 0.5mm pitch FPC connector and 4-Lane DSI signal. It supports the output of MIPI display signal to LCD screen, reserving to connect the extended LCD screen. It supports USB/I2C touch screen and backlight adjustment, and the pins are defined as follows:

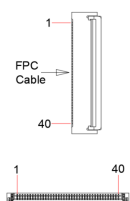


| Pin ID | Pin Name | Pin ID | Pin Name |
|--------|------------|--------|------------|
| 1 | GND | 2 | USB_DM_LCD |
| 3 | USB_DP_LCD | 4 | GND |
| 5 | GND | 6 | SCL_LCD |

| | | | |
|----|------------|----|------------|
| 7 | SDA_LCD | 8 | GND |
| 9 | TPINT_L | 10 | GND |
| 11 | GND | 12 | DSI1_D0_N |
| 13 | DSI1_D0_P | 14 | GND |
| 15 | GND | 16 | DSI1_D1_N |
| 17 | DSI1_D1_P | 18 | GND |
| 19 | GND | 20 | DSI1_CLK_N |
| 21 | DSI1_CLK_P | 22 | GND |
| 23 | GND | 24 | DSI1_D2_N |
| 25 | DSI1_D2_P | 26 | GND |
| 27 | GND | 28 | DSI1_D3_N |
| 29 | DSI1_D3_P | 30 | GND |

1.6.11.6 FPC HDMI (optional)

The motherboard of ED-IPC2200 includes one extended HDMI interface with 40-pin 0.5mm pitch FPC connector. It supports video signal output to LCD screen, reserves to connect the extended LCD screen. It supports USB/I2C touch screen and backlight adjustment. The pins are defined as follows:

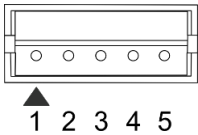


| Pin ID | Pin Name | Pin ID | Pin Name |
|--------|------------|--------|------------|
| 1 | NC | 2 | NC |
| 3 | NC | 4 | NC |
| 5 | NC | 6 | NC |
| 7 | NC | 8 | GND |
| 9 | HDMI1_CLKN | 10 | HDMI1_CLKP |
| 11 | GND | 12 | GND |
| 13 | HDMI1_TX0N | 14 | HDMI1_TX0P |
| 15 | GND | 16 | GND |
| 17 | HDMI1_TX1N | 18 | HDMI1_TX1P |
| 19 | GND | 20 | GND |
| 21 | HDMI1_TX2N | 22 | HDMI1_TX2P |
| 23 | GND | 24 | GND |

| | | | |
|----|------------|----|------------|
| 25 | HDMI1_CEC | 26 | GND |
| 27 | HDMI1_SCL | 28 | HDMI1_SDA |
| 29 | GND | 30 | HDMI1_HPD |
| 31 | GND | 32 | TPINT_L |
| 33 | GND | 34 | SDA_LCD |
| 35 | SCL_LCD | 36 | GND |
| 37 | GND | 38 | USB_DP_LCD |
| 39 | USB_DM_LCD | 40 | GND |

1.6.11.7 USB 2.0

The motherboard of ED-IPC2200 series device includes an extended USB 2.0 Pin Header with 5-Pin 1.5mm pitch WTB connector. It is used to expand a USB 2.0 interface, the pins are defined as follows:

|  | Pin ID | Pin Name |
|---|--------|----------|
| | 1 | VBUS |
| | 2 | USB_DM |
| | 3 | USB_DP |
| | 4 | GND |
| | 5 | GND |

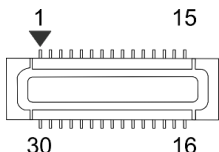
1.6.11.8 Speaker (optional)

The motherboard of ED-IPC2200 series device includes one extended Speaker output with 4-Pin 2.0mm pitch WTB connector. Dual-channel stereo output, which can be extended to connect two 4Ω 3W stereo speakers. The pins are defined as follows:

|  | Pin ID | Pin Name |
|---|--------|----------|
| | 1 | R+ |
| | 2 | R- |
| | 3 | L+ |
| | 4 | L- |

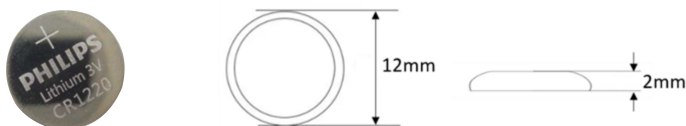
1.6.11.9 CSI

The motherboard of ED-IPC2200 series device includes one extended CSI interface, with 2x15-Pin 0.4mm pitch connector and 2-Lane CSI signal. It is used to expand to connect 8-megapixels CSI camera, the pins are defined as follows:

|  | Pin ID | Pin Name | Pin ID | Pin Name |
|---|--------|-----------|--------|-----------|
| | 1 | NC | 2 | NC |
| | 3 | 1V8_CM4 | 4 | 1V2_CSI |
| | 5 | 1V8_CM4 | 6 | GND |
| | 7 | CSI_MCLK | 8 | GND |
| | 9 | GND | 10 | 2V8_CSI |
| | 11 | NC | 12 | NC |
| | 13 | NC | 14 | NC |
| | 15 | GND | 16 | GND |
| | 17 | NC | 18 | NC |
| | 19 | GND | 20 | CSI_D1_N |
| | 21 | CSI_D1_P | 22 | GND |
| | 23 | CSI_D0_N | 24 | CSI_D0_P |
| | 25 | GND | 26 | CSI_CLK_N |
| | 27 | CSI_CLK_P | 28 | GND |
| | 29 | SCL_1V8 | 30 | SDA_1V8 |

1.6.11.10 RTC Battery Base

The motherboard of ED-IPC2200 series device is integrated with RTC. In China, we will install CR1220 battery (RTC backup power supply) by default.



RTC can ensure that the system has an uninterrupted and reliable clock, which is not affected by factors such as the device is power off.

TIP

Some international logistics do not support the transportation of batteries, and some ex-factory devices are not equipped with CR1220 batteries. Therefore, before using RTC, please prepare a CR1220 battery and install it on the motherboard.

1.6.11.11 mSATA

The motherboard of ED-IPC2200 series device includes a mSATA port with mini PCIe connector. It is used to connect a mSATA SSD.

2 Installing Components (optional)

This chapter describes how to install optional components.

2.1 Installing Internal Components

Introducing the detailed operations of opening/closing the device casing and installing the RTC battery. Before installing the internal components, it is necessary to open the device case.

2.1.1 Open Device Case

Preparation:

A cross screwdriver has been prepared.

Steps

1. Pull out the default configuration of phoenix connector (male for wiring).
2. Use a screwdriver to loosen two M3 screws on two sides counterclockwise.



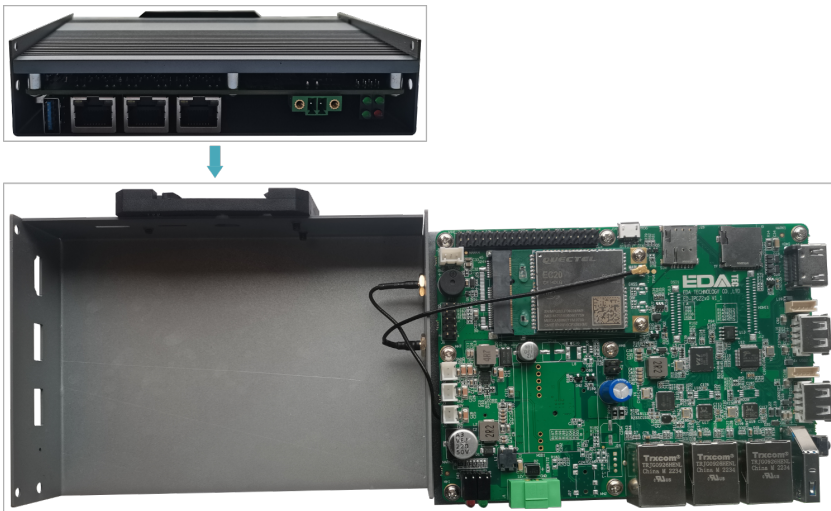
3. Remove the front cover to the right.



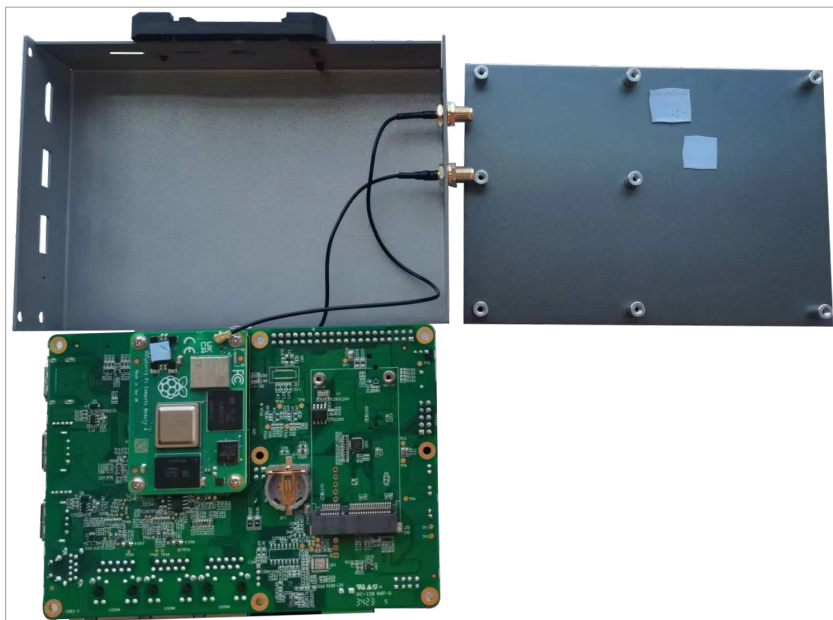
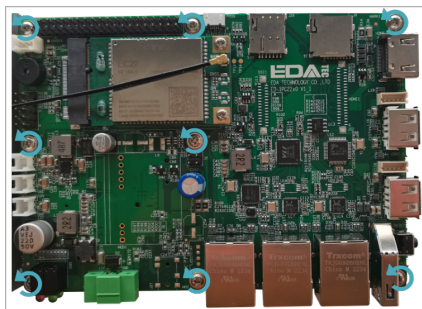
4. Use a screwdriver to loosen four M2.5 screws and one grounding screw on two sides counterclockwise.



5. Remove the upper cover upward and turn it to the antenna port side.



6. Use a screwdriver to loosen the 8 screws fixing the PCBA counterclockwise, remove the upper cover and flip it to the back of the PCBA.



2.1.2 Install RTC battery

TIP

Some international logistics do not support the transportation of batteries, and some ex-factory not equipped with CR1220 batterie. Therefore, before using RTC, please prepare a CR1220 battery and install it on the motherboard.

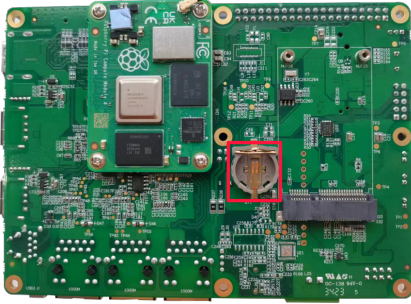
Preparation :

- The device case has been opened.
- The CR1220 battery has been prepared.

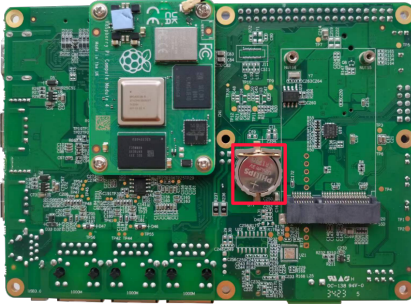


Steps :

1. Locate the RTC battery base where the battery is to be installed, as shown in the red box below.



- Put the positive pole of the battery upwards and press it into the RTC base. The installation effect is as shown below.



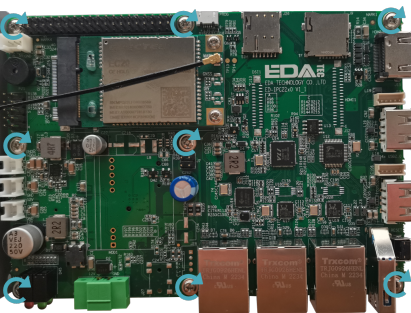
2.1.3 Close Device Case

Preparation :

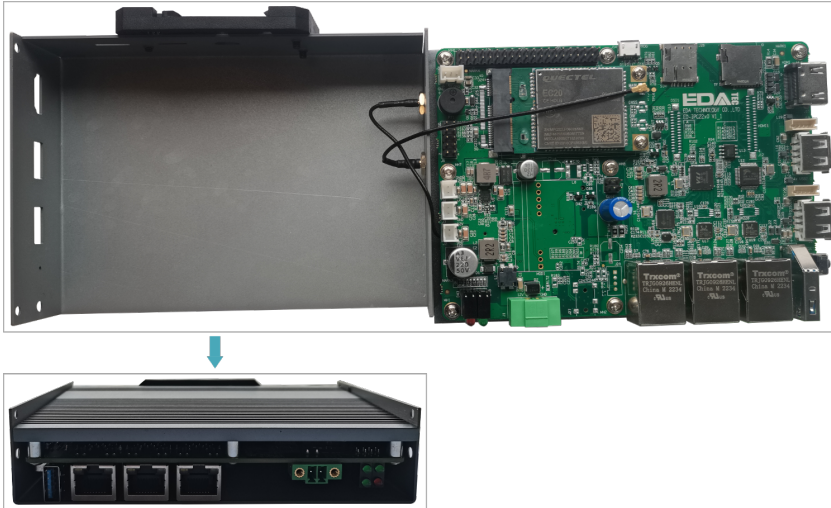
A cross screwdriver has been prepared.

Steps :

- Turn the PCBA over to the front and place it on the upper cover, align the 8 screw holes on the PCBA with the stud holes in the upper cover, insert the 8 mounting screws, and then use a screwdriver to tighten clockwise to fix the PCBA on the on the upper cover.



- Turn the upper cover downwards, align the ports on PCBA with the ports on each side panel and close the upper cover.



3. Align the screw holes on the upper and side panels and use a screwdriver to tighten four M2.5 screws and one grounding screw on two sides clockwise.



4. Align the ports on PCBA with the ports on the front panel, insert the front cover.



5. Insert 2 M3 screws and then use a screwdriver to fasten two M3 screws clockwise.



6. Plug in the default phoenix connector.

2.2 Installing/Removing External Components

Introducing the detailed operations of installing/removing some optional accessories.

2.2.1 Install Antenna

If the purchasing ED-IPC2200 series device includes 4G and Wi-Fi functions, the antenna need to be installed before using the device.

Preparation :

The corresponding antennas have been obtained from the packaging box. If there are multiple antennas, they can be distinguished by the labels on the antennas.

Steps :

1. Find the location of antenna port, as shown in the red mark of figure below.



2. Align the ports on both sides of the device and the antenna and tighten them clockwise to ensure that they will not fall off.

2.2.2 Install Micro SD Card

If the product model includes a Micro SD card, the Micro SD card will be installed by default. If the product model does not include a Micro SD card, you will need to use the Micro SD card later. Please refer to the following to install it.

WARNING

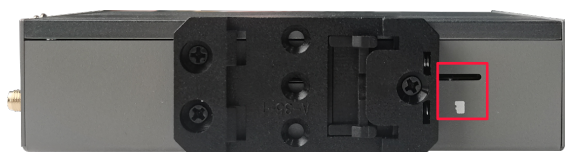
Please turn off the power before inserting or removing the Micro SD card.

Preparation :

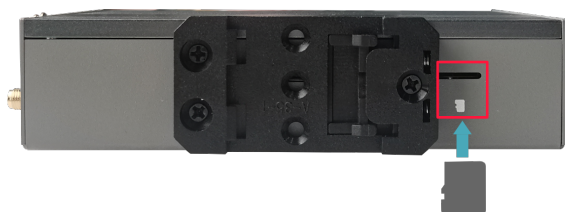
- Micro SD card is ready.
- The device has been disconnected from power.

Steps :

1. Find the location of Micro SD card slot, as shown in the red mark of figure below.



2. Insert the Micro SD card into the corresponding card slot with the contact side facing down, and hear a sound to indicate that the installation is completed.



2.2.3 Pull Out Micro SD Card

If you need to remove the Micro SD card while using the product, you can refer to the following instructions.

Preparation :

The device has been disconnected from power.

Steps :

1. Find the location of Micro SD card, as shown in the red mark of figure below.



2. Press the Micro SD card into the card slot with your hand to pop it out, and then pull out the Micro SD card.



2.2.4 Install Nano SIM Card

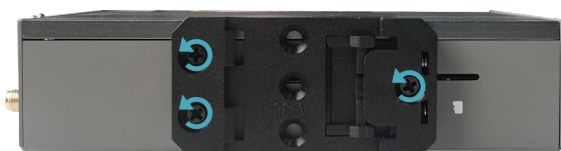
If the purchasing ED-IPC2200 series device includes 4G function, the Nano SIM card need to be installed before using 4G.

Preparation :

The 4G Nano SIM card is ready.

Steps :

1. Use a cross screwdriver to loosen three screws on the DIN-rail bracket counterclockwise and remove the default DIN-Rail bracket.



2. Find the location of Nano SIM card slot, as shown in the red mark of figure below.



3. Insert the Nano SIM card into the corresponding card slot with the chip side up, and hear a sound to indicate that the installation is completed.



4. Install the DIN-Rail bracket onto the device case.

3 Installing Device

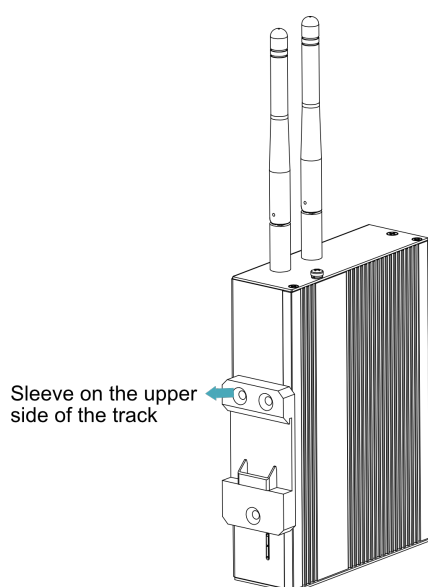
This chapter introduces how to install the device.

3.1 DIN-Rail Installation

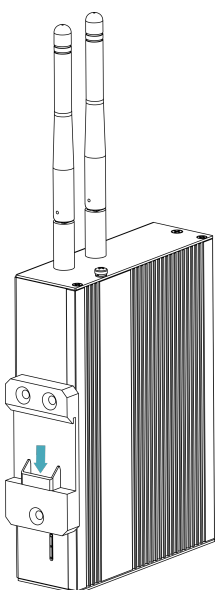
When the ED-IPC2200 series device leaves the factory, the DIN-rail bracket is installed as standard by default.

Steps :

1. Face the side of the DIN-rail bracket to the rail, and sleeve the upper side of the bracket on the upper side of the rail.



2. Press down the buckle on the lower side of the DIN-rail bracket until the bracket can be buckled on the rail, and the installation is completed.



4 Booting The Device

This chapter introduces how to connect cables and boot the device.

4.1 Connecting Cables

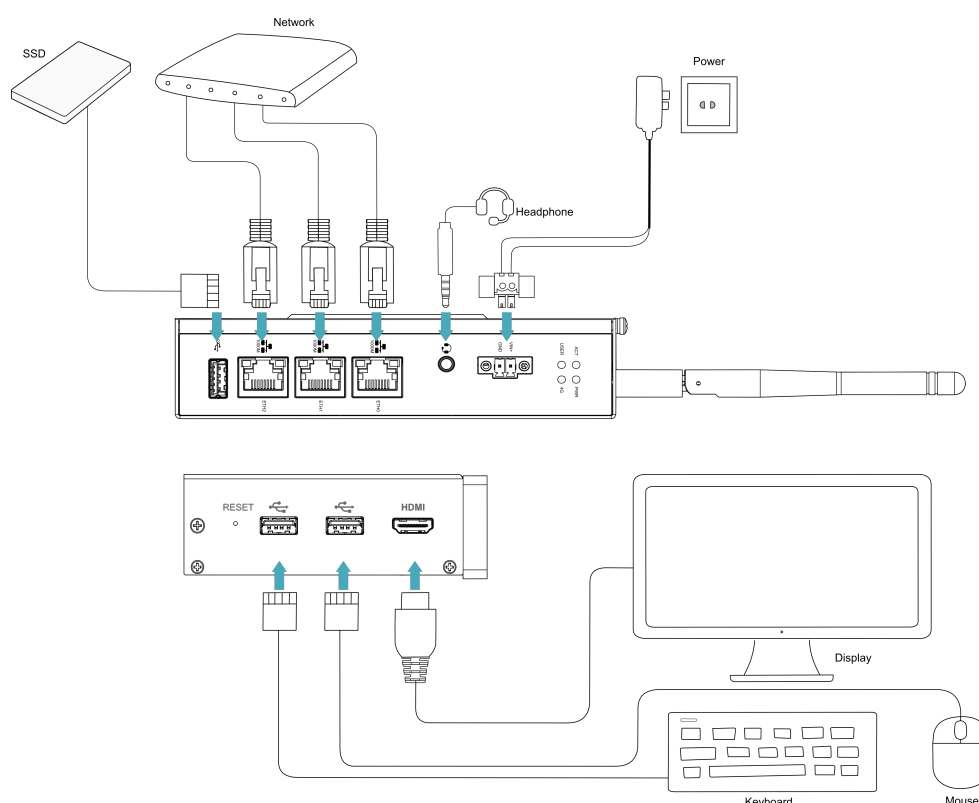
This section describes how to connect cables.

Preparation :

- Accessories such as display, mouse, keyboard and power adapter that can be used normally have been ready.
- A network that can be used normally.
- Get the HDMI cable and network cable that can be used normally.

Schematic diagram of connecting cables:

Please refer to [1.6 Interfaces](#) for the pin definition of each interface and the specific method of wiring.



4.2 Booting The System For The First Time

ED-IPC2200 series device does not have a power switch. After the power supply is connected, the system will start.

- The red PWR indicator is on, indicating that the device has been powered normally.

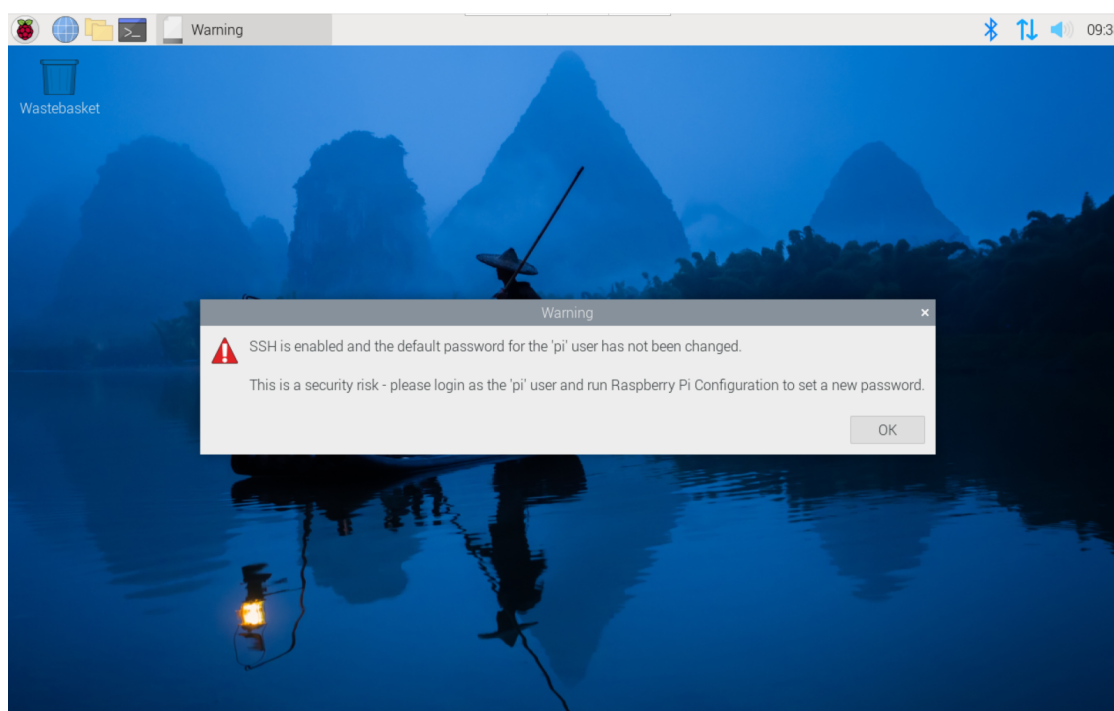
- The green ACT indicator is blinking, indicating that the system is started normally, and then the logo of Raspberry Pi will appear in the upper left corner of the screen.

TIP

Default username is `pi` , Default password is `raspberrypi` .

4.2.1 Raspberry Pi OS (Desktop)

If the Desktop version of the system is installed when the product leaves the factory, after the device is started, it will directly enter the desktop, as shown in the following figure.



4.2.2 Raspberry Pi OS (Lite)

If the Lite version of the system is installed when the product leaves the factory, the default username pi will be used to automatically log in after the device is started, and the default password is raspberrypi. The following figure shows that the system has been started normally.


```
[ OK ] Started LSB: rng-tools (Debian variant).
[ OK ] Started WPA supplicant.
[ OK ] Started Authorization Manager.
[ OK ] Reached target Network.
[ OK ] Listening on Load/Save RF Kill Switch Status /dev/rfkill Watch.
        Starting Modem Manager...
        Starting /etc/rc.local Compatibility...
        Starting Permit User Sessions...
[ OK ] Finished Remove Stale Onlime4 Metadata Check Snapshots.
[ OK ] Started /etc/rc.local Compatibility.
        Starting Load/Save RF Kill Switch Status...
[ OK ] Finished Permit User Sessions.
[ OK ] Started Getty on tty1.
[ OK ] Reached target Login Prompts.
[ OK ] Started Load/Save RF Kill Switch Status.
[ OK ] Started User Login Management.
        Starting Save/Restore Sound Card State...
[ OK ] Finished Save/Restore Sound Card State.
[ OK ] Reached target Sound Card.
[ OK ] Started Modem Manager.
[ OK ] Started LSB: Switch to on=(unless shift key is pressed).

Raspbian GNU/Linux 11 raspberrypi tty1

raspberrypi login: pi
Password:
Linux raspberrypi 6.1.21-08+ #1642 SMP PREEMPT Mon Apr  3 17:24:16 BST 2023 aarch64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Tue Jul 11 11:15:28 BST 2023 on tty1

Wi-Fi is currently blocked by rfkill.
Use raspi-config to set the country before use.

pi@raspberrypi:~$ ~
```


5 Configuring System

This chapter introduces how to configure system.

5.1 Finding Device IP

Finding Device IP

5.2 Remote Login

Remote Login

5.3 Configuring Storage Devices

Configuring Storage Devices

5.4 Configuring Wi-Fi (Optional)

Configuring Wi-Fi

5.5 Configuring Ethernet IP

Configuring Ethernet IP

5.6 Configuring Bluetooth (Optional)

Configuring Bluetooth

5.7 Configuring 4G (Optional)

Configuring 4G

5.8 Configuring Buzzer

Configuring Buzzer

5.9 Configuring RTC

Configuring RTC

5.10 Configuring Audio (Optional)

Configuring Audio

5.11 Configuring USER Indicator

Configuring USER Indicator

6 Installing OS (optional)

The device is shipped with an operating system by default. If the OS is corrupted during use or the user needs to replace the OS, it is necessary to re-download the appropriate system image and install it. Our company supports to install the OS by installing the standard Raspberry Pi OS first, and then install the Firmware package.

The following section describes the specific operations of image download, image flashing and installation of Firmware packages.

6.1 Downloading OS File

You can download the corresponding official Raspberry Pi OS file according to your actual needs, the download path is listed below:

| OS | Download Path |
|--|---|
| Raspberry Pi OS(Desktop) 64-bit-bookworm (Debian 12) | https://downloads.raspberrypi.com/raspios_arm64/images/raspios_arm64-2024-07-04/2024-07-04-raspios-bookworm-arm64.img.xz (https://downloads.raspberrypi.com/raspios_arm64/images/raspios_arm64-2024-07-04/2024-07-04-raspios-bookworm-arm64.img.xz) |
| Raspberry Pi OS(Lite) 64-bit-bookworm (Debian 12) | https://downloads.raspberrypi.com/raspios_lite_arm64/images/raspios_lite_arm64-2024-07-04/2024-07-04-raspios-bookworm-arm64-lite.img.xz (https://downloads.raspberrypi.com/raspios_lite_arm64/images/raspios_lite_arm64-2024-07-04/2024-07-04-raspios-bookworm-arm64-lite.img.xz) |
| Raspberry Pi OS(Desktop) 32-bit-bookworm (Debian 12) | https://downloads.raspberrypi.com/raspios_armhf/images/raspios_armhf-2024-07-04/2024-07-04-raspios-bookworm-armhf.img.xz (https://downloads.raspberrypi.com/raspios_armhf/images/raspios_armhf-2024-07-04/2024-07-04-raspios-bookworm-armhf.img.xz) |
| Raspberry Pi OS(Lite) 32-bit-bookworm (Debian 12) | https://downloads.raspberrypi.com/raspios_lite_armhf/images/raspios_lite_armhf-2024-07-04/2024-07-04-raspios-bookworm-armhf-lite.img.xz (https://downloads.raspberrypi.com/raspios_lite_armhf/images/raspios_lite_armhf-2024-07-04/2024-07-04-raspios-bookworm-armhf-lite.img.xz) |

TIP

Our engineers are currently adapting and developing firmware packages for Raspberry Pi OS-trixie (Debian 13), so it is temporarily not supported. We recommend using the Raspberry Pi OS-bookworm (Debian 12) version of the operating system.

6.2 Flashing to eMMC or Flashing to SD Card

The ED-IPC2200 supports booting the system from either eMMC or SD card. Refer to the following section for burning instructions based on the actual application.

6.2.1 Flashing to eMMC

It is recommended to use the Raspberry Pi official tools. The download paths are as follows:

- Raspberry Pi Imager: https://downloads.raspberrypi.org/imager/imager_latest.exe (https://downloads.raspberrypi.org/imager/imager_latest.exe)
- SD Card Formatter: <https://www.sdcardformatter.com/download/> (<https://www.sdcardformatter.com/download/>)
- Rpiboot: https://github.com/raspberrypi/usbboot/raw/master/win32/rpiboot_setup.exe (https://github.com/raspberrypi/usbboot/raw/master/win32/rpiboot_setup.exe)

Preparation:

- The downloading and installation of the official tools to the computer have been completed.
- A Micro USB to USB Type-A cable (USB flashing cable) has been prepared.
- The OS file has been obtained.

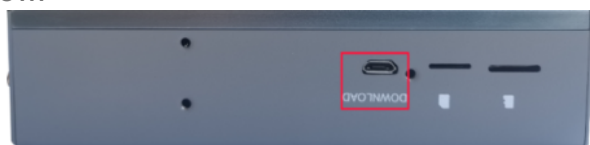
Steps:

The steps are described using Windows system as an example.

1. Use a cross screwdriver to loosen three screws on the DIN-rail bracket counterclockwise (red box position in the figure below) and remove the default DIN-Rail bracket.



2. Determine the location of the Micro USB port on the side of the device, as shown in the red box below.



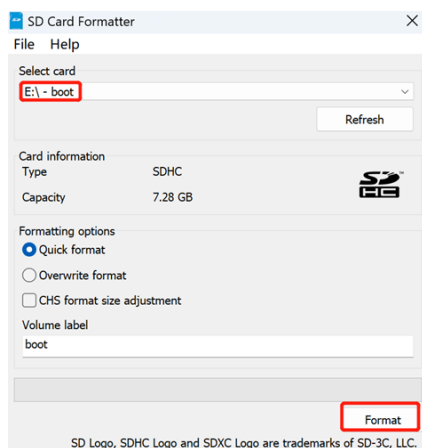
3. Connect the power cord and USB flashing cable (Micro-USB to USB Type-A).
 - Connecting to USB flashing cable: One end is connected to the Micro USB port on the device, and the other end is connected to the USB port on the PC.
 - Connecting to power cord: One end is connected to the DC 2Pin Phoenix terminal on the device, and the other end is connected to the external power supply.
4. Disconnect the power supply of ED-IPC2200 and then power it on again.
5. Open rpiboot tool to automatically convert the drive to a letter

```

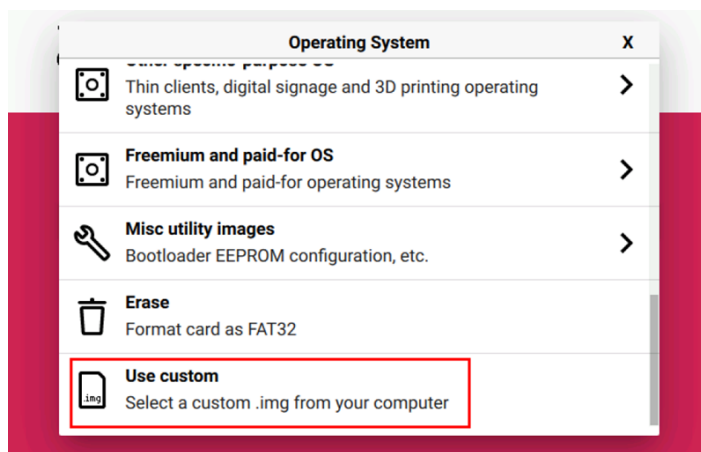
rpiboot
RPiBOOT: build-date Dec 16 2022 version 20221215-105525 lafa26c5
Waiting for BCM2835/6/7/2711...
Loading embedded: bootcode4.bin
Sending bootcode.bin
Successful read 4 bytes
Waiting for BCM2835/6/7/2711...

```

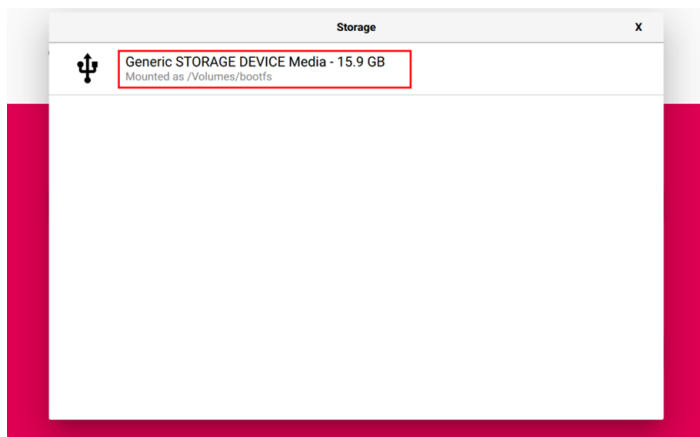
6. After the completion of the drive letter, the drive letter will pop up in the lower right corner of the computer.
7. Open SD Card Formatter, select the formatted drive letter, and click "Format" at the lower right to format.



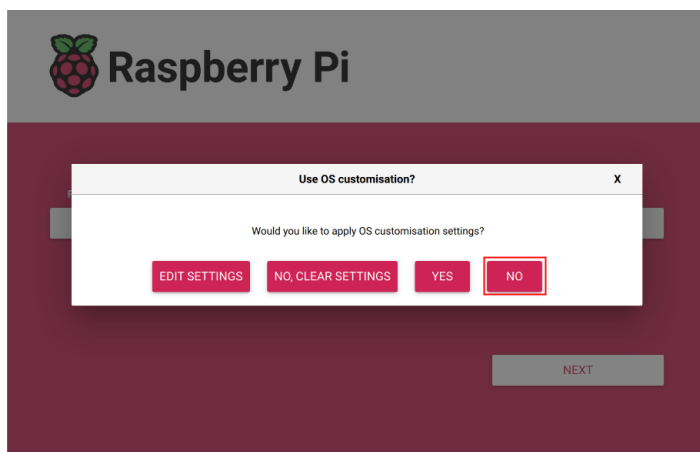
8. In the pop-up prompt box, select "Yes".
9. When the formatting is completed, click "OK" in the prompt box.
10. Close SD Card Formatter.
11. Open Raspberry Pi Imager, select "CHOOSE OS" and select "Use Custom " in the pop-up pane.



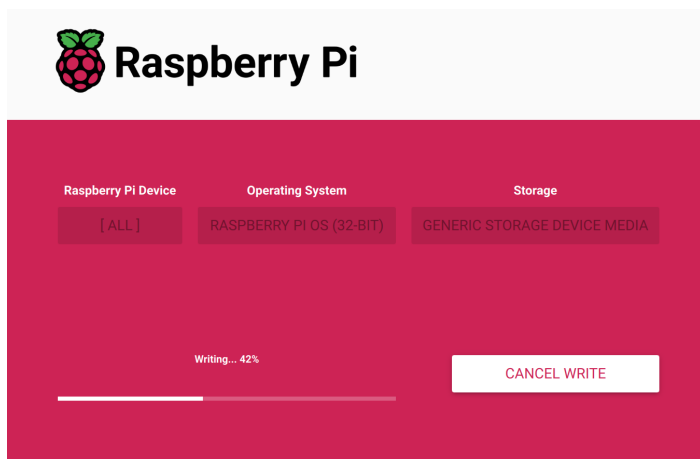
12. According to the prompt, select the OS file under the user-defined path and return to the main page.
13. Click "CHOOSE STORAGE", select the default device in the "Storage" interface, and return to the main page.



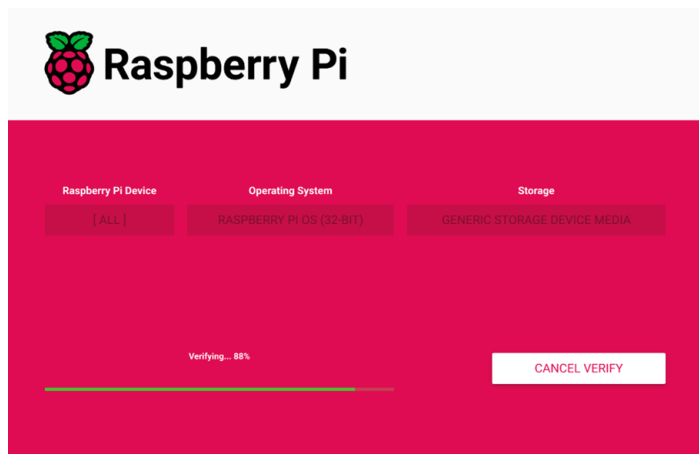
14. Click “NEXT”, select "NO " in the pop-up “Use OS customization?” pane.



15. Select “YES” in the pop-up “Warning” pane to start writing the image.



16. After the OS writing is completed, the file will be verified.



17. After the verification is completed, click “CONTINUE” in the pop-up “Write Successful” box.
18. Close Raspberry Pi Imager, remove USB cable and power on the device again.

6.2.2 Flashing to SD Card

It is recommended to use the Raspberry Pi official tools. The download paths are as follows:

- Raspberry Pi Imager: https://downloads.raspberrypi.org/imager/imager_latest.exe (https://downloads.raspberrypi.org/imager/imager_latest.exe)
- SD Card Formatter: <https://www.sdcardformatter.com/download/> (<https://www.sdcardformatter.com/download/>)

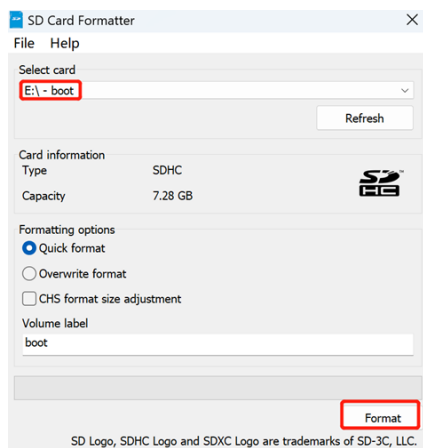
Preparation:

- The downloading and installation of the official tools to the computer have been completed.
- An SD card reader has been prepared.
- The OS file has been obtained.

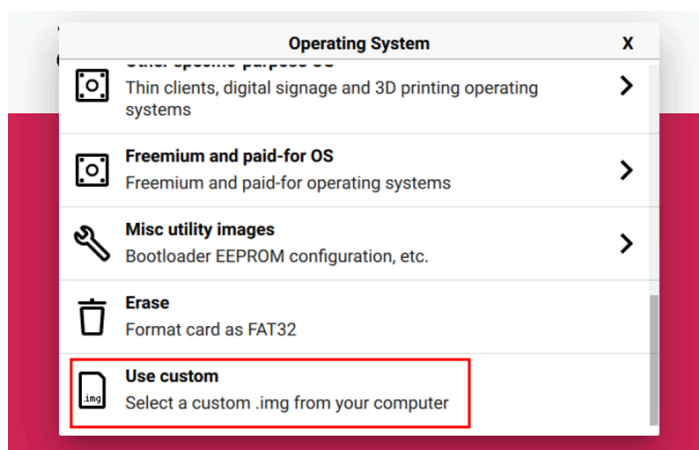
Steps:

The steps are described using Windows system as an example.

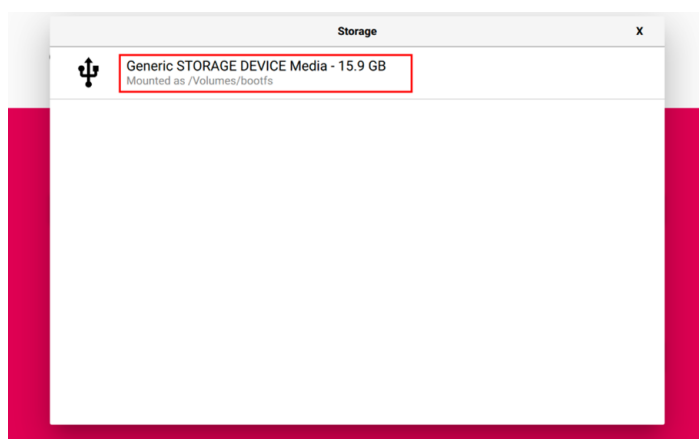
1. Before flashing to SD card, it is necessary to remove the SD card. Please refer to [2.2.3 Pull Out Micro SD Card](#).
2. Insert the Micro SD card into the card reader, and then insert the card reader into the USB port of your computer.
3. Open SD Card Formatter, select the formatted drive letter, and click "Format" at the lower right to format.



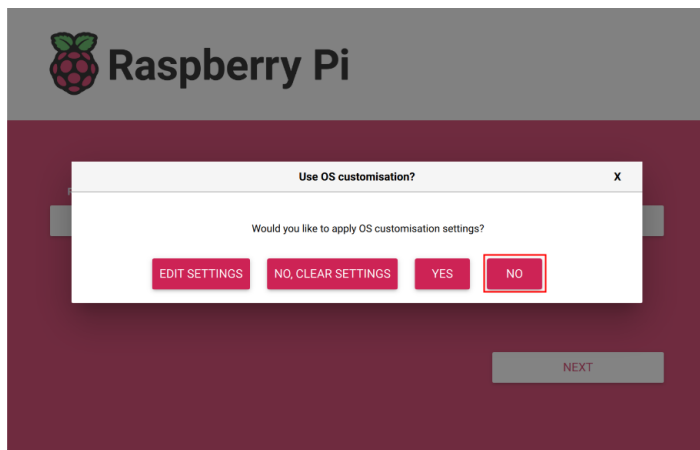
4. In the pop-up prompt box, select "Yes".
5. When the formatting is completed, click "OK" in the prompt box.
6. Close SD Card Formatter.
7. Open Raspberry Pi Imager, select "CHOOSE OS" and select "Use Custom " in the pop-up pane.



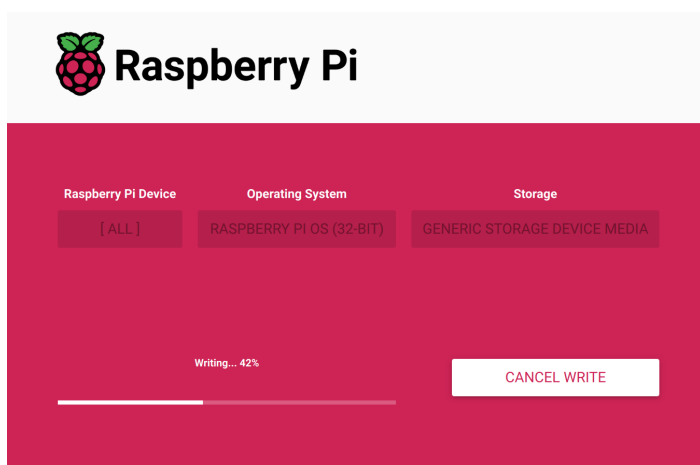
8. According to the prompt, select the OS file under the user-defined path and return to the main page.
9. Click "CHOOSE STORAGE", select the default device in the "Storage" interface, and return to the main page.



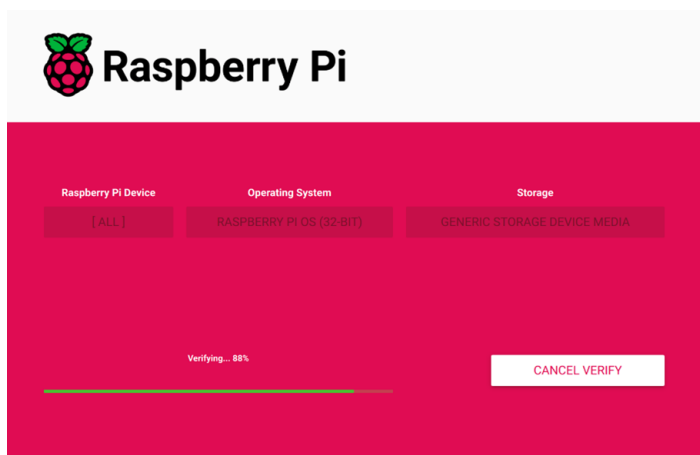
10. Click "NEXT", select "NO " in the pop-up "Use OS customization?" pane.



11. Select “YES” in the pop-up “Warning” pane to start writing the image.



12. After the OS writing is completed, the file will be verified.



13. After the verification is completed, click “CONTINUE” in the pop-up “Write Successful” box.

14. Close Raspberry Pi Imager, Remove the card reader and SD card.

15. Insert the SD card into the device and then power it up.

6.3 Installing Firmware Package

After flashing the standard Raspberry Pi OS on ED-IPC2200 series, you need to add edatec apt source and install firmware package to configure the system, so that the system can be used normally, the following system Debian 12 (bookworm) desktop version.

TIP

Our engineers are currently adapting and developing firmware packages for Raspberry Pi OS-trixie (Debian 13), so it is temporarily not supported. We recommend using the Raspberry Pi OS-bookworm (Debian 12) version of the operating system.

Preparation:

- The flashing to eMMC of the Raspberry Pi standard OS (bookworm) has been completed.
- The device has booted normally and the relevant boot configuration has been completed.

Steps:

1. After the device starts normally, execute the following commands in the command pane to add the edatec apt source and installing firmware package.

```
curl -s https://apt.edatec.cn/bsp/ed-install.sh | sudo bash -s ipc2200
```

sh

```
pi@raspberrypi:~$ curl -s https://apt.edatec.cn/bsp/ed-install.sh | sudo bash -s ipc2200
% Total % Received % Xferd Average Speed Time Time Time Current
Dload Upload Total Spent Left Speed
100 157 100 157 0 0 1046 0 --:--:-- --:--:-- --:--:-- 1082
--2024-10-22 11:14:34-- https://apt.edatec.cn/bsp/splash.png
Resolving apt.edatec.cn (apt.edatec.cn)... 47.242.199.148
Connecting to apt.edatec.cn (apt.edatec.cn)|47.242.199.148|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 36809 (35K) [image/png]
Saving to: '/tmp/eda-common/eda/splash.png'
/tmp/eda-common/eda/splash.png 100%[=====] 35.17K --.-KB/s in 0.03s
2024-10-22 11:14:34 (1.26 MB/s) - '/tmp/eda-common/eda/splash.png' saved [36809/36809]
--2024-10-22 11:14:34-- https://apt.edatec.cn/pubkey.gpg
Resolving apt.edatec.cn (apt.edatec.cn)... 47.242.199.148
Connecting to apt.edatec.cn (apt.edatec.cn)|47.242.199.148|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 1639 (1.6K) [application/octet-stream]
Saving to: '/tmp/eda-common/eda/edatec.gpg'
/tmp/eda-common/eda/edatec.gpg 100%[=====] 1.60K --.-KB/s in 0s
```

2. After the installation is complete, the system automatically reboots.
3. Execute the following command to check whether the firmware package is installed successfully.

```
dpkg -l | grep ed-
```

sh

The result in the picture below indicates that the firmware package has been installed successfully.

```
pi@raspberrypi:~$ dpkg -l | grep ed-
ii  ed-base-bsp-v8      2:1.20240924.1      arm64      EDATec BSP for Raspberry Pi v8
ii  ed-ipc2210-firmware 1.20240806.1         arm64      Firmware of EDATec Software Package
ii  libparted-fs-resize0:arm64 3.5-3              arm64      disk partition manipulator - shared FS resizing li
brary
ii  libshine3:arm64      3.1.1-2            arm64      Fixed-point MP3 encoding library - runtime files
ii  shared-mime-info      2.2-1              arm64      FreeDesktop.org shared MIME database and spec
ii  usr-is-merged         37~deb12u1         all        Transitional package to assert a merged-/usr syste
m
```

TIP

If you have installed the wrong firmware package, you can execute

`sudo apt-get --purge remove package` to delete it, where “package” is the package name.