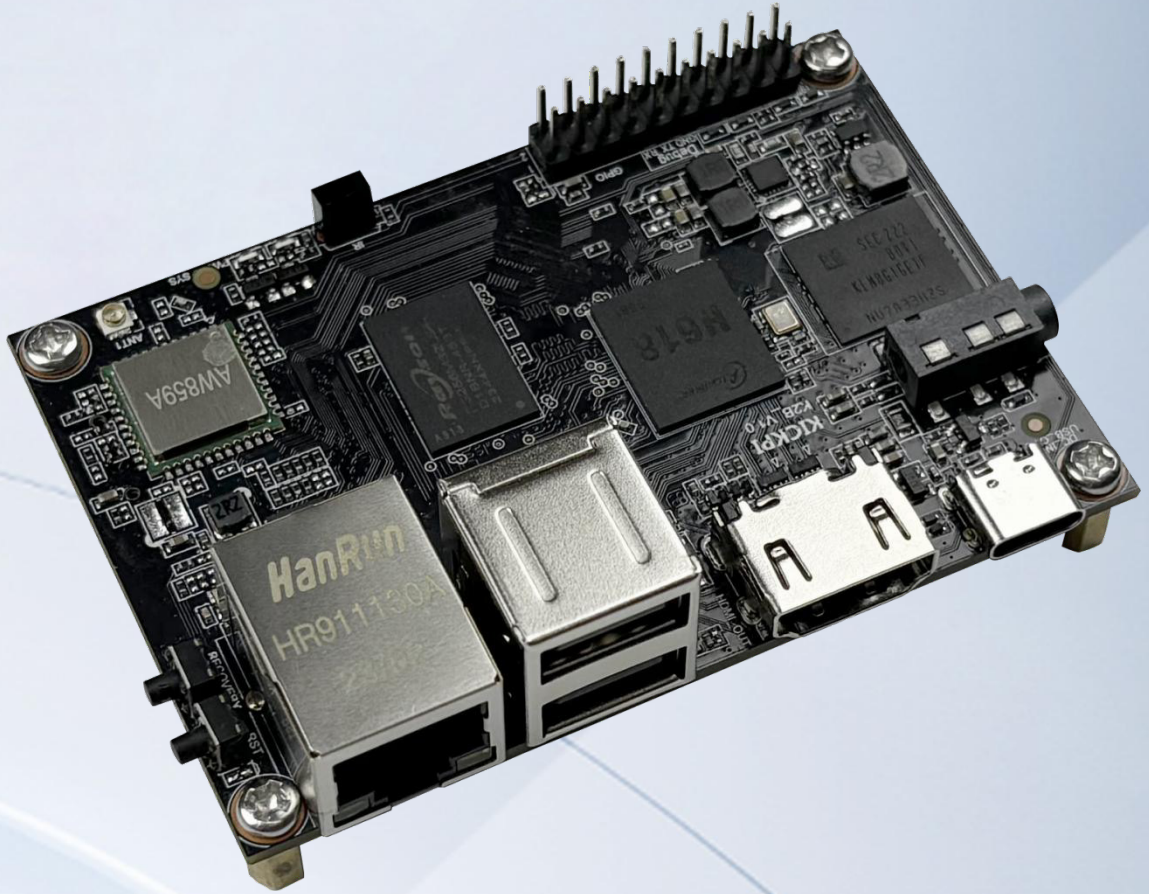


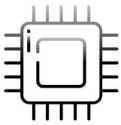
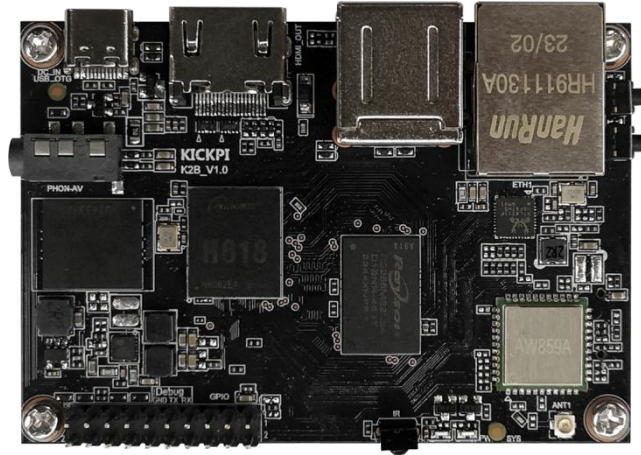
KICKPI



Product Specification

www.kickpi.com

1、Product Features



Quad-core 64-bit processor

Quad-core 64-bit Cortex-A53

processor Allwinner H618

Main frequency up to 2.0GHz, low power consumption and high performance



Powerful network communication function

Equipped with gigabit high-speed and large network interface, have stable communication and faster speed, suitable for various scene requirements.



4K video decoding

4K@60fps Video decoding

Supports HDMI display interface



Supports multiple system operations

Supports two major systems, Android 12.0 and Ubuntu 22.04, provides system call API reference code, and perfectly supports the development of upper level application apps and SDKs for customers.



Efficient secondary development and independent customization

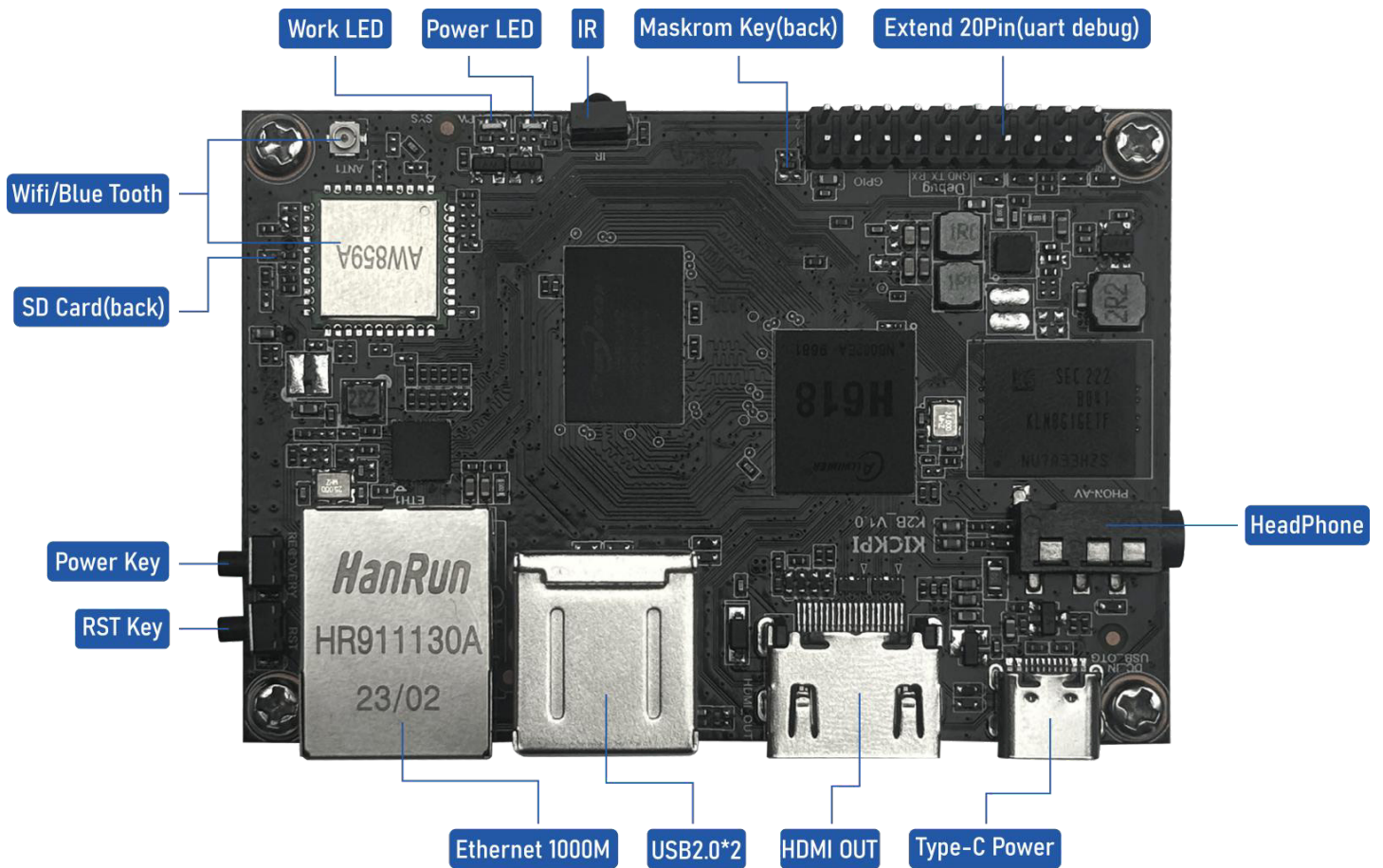
Embedded operating system underlying drivers, providing technical information and Engineer one-on-one service enables users to efficiently perform secondary opening
Develop and quickly build independent and controllable products



Widely applicable fields

Mainly targeting the customized market for set-top boxes, karaoke machines, video conferencing terminals, projectors, and other industries.

2、Interface Description

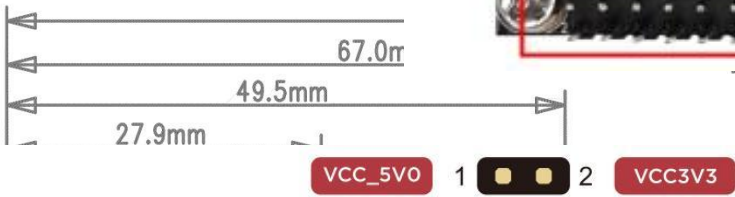
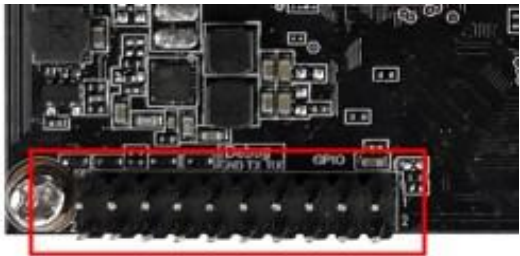


3、Specifications

Function	Main Parameter
Main Controller	Allwinner H618
CPU	Quad-core Cortex-A53 (up to 2.0GHz)
GPU	Mali G31 MP2
Memory	1G / 2G / 4G LPDDR4
Storage	8G / 16G / 32G eMMC
Systems Supported	Android 12.0 / Ubuntu 2204
Power Supply	Type-C 5V
LED Light	* Power LED * Work LED
USB HOST	USB 2.0 HOST X2
USB OTG	USB 2.0 OTG X1
Infraed Receiver	Y
Debug Serial Port	Y
Buttons	* Recovery KEY * RESET KEY * FEL KEY
Expansion Pins	Extend Pin Total 20Pin: * UART X2 * SPI X1 * PWM X4 * I2C X4 * I2S X1 * SPDIF X1 * USB X1
HDMI Display	X1 (up to 4K@60Hz)
SD-Card	Y
Ethernet	1000M X1

4、Interface Illustration

20Pin Definition



5、What can I do with K2B?

Home Entertainment: It is suitable for scenarios such as smart TV boxes, supports 4K@60fps video encoding, and can provide users with a clear and smooth video playback experience.

- **Smart Home:** It supports access to various sensors and peripheral devices, and enables the interconnection and centralized control of smart home devices.
- **IoT Devices:** It is widely used in the Internet of Things (IoT) field, such as intelligent monitoring devices and intelligent environmental monitors, enabling the collection, processing and transmission of data.
- **Development Platform:** It adopts Allwinner H618 as the main control chip, providing an ideal development platform for professionals in the embedded and computing industries.

6、How to Use and Install KICKPI K2B ?

K2B can be powered by both Android and Linux. when Linux is in use, Like most Pi products, K2B can work in headless mode(no display connected, access via ssh) and desktop mode(Ubuntu).

To start using K2B as a Linux interactive computer , you need to prepare the following items:

- Power Supply
- Display and Display Cable
- [Boot Media](#)
- Keyboard and Mouse

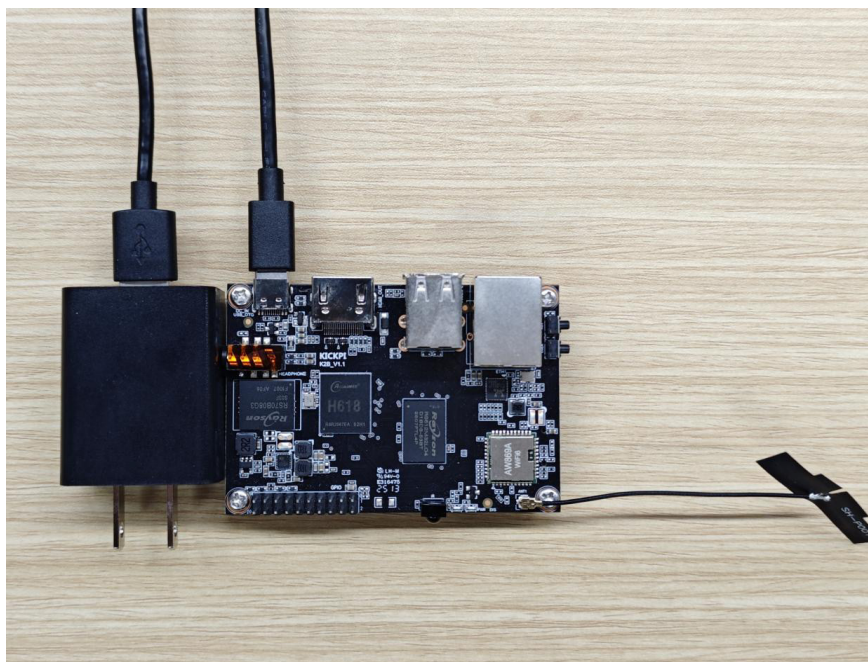
Tool Preparation and Installation

Power Supply

K2B only supports 1 power mode.

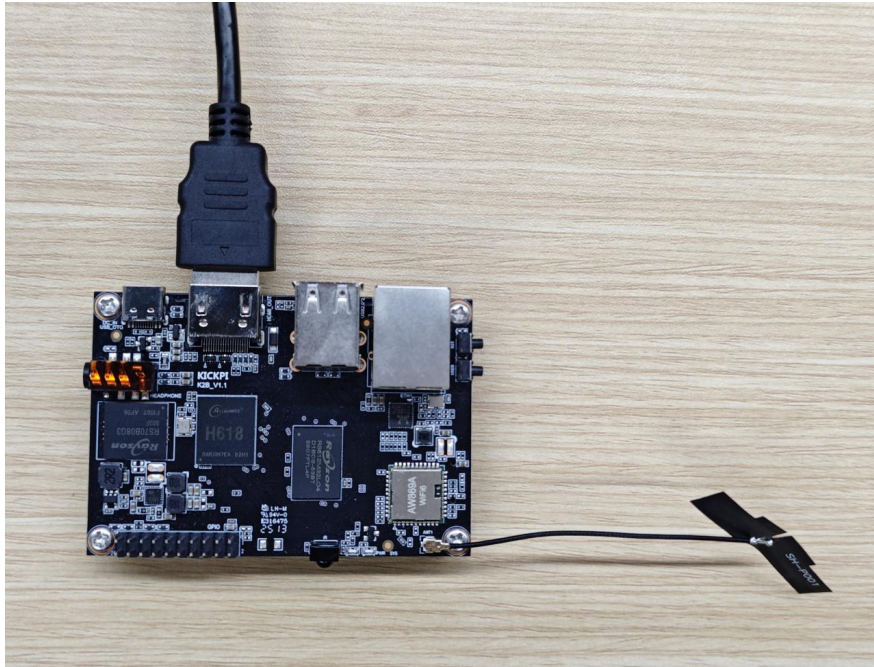
Power Mode	Voltage/Current
Type - C	5V/2A(2A is the baseline, or above)

Power supply connection demonstrated:



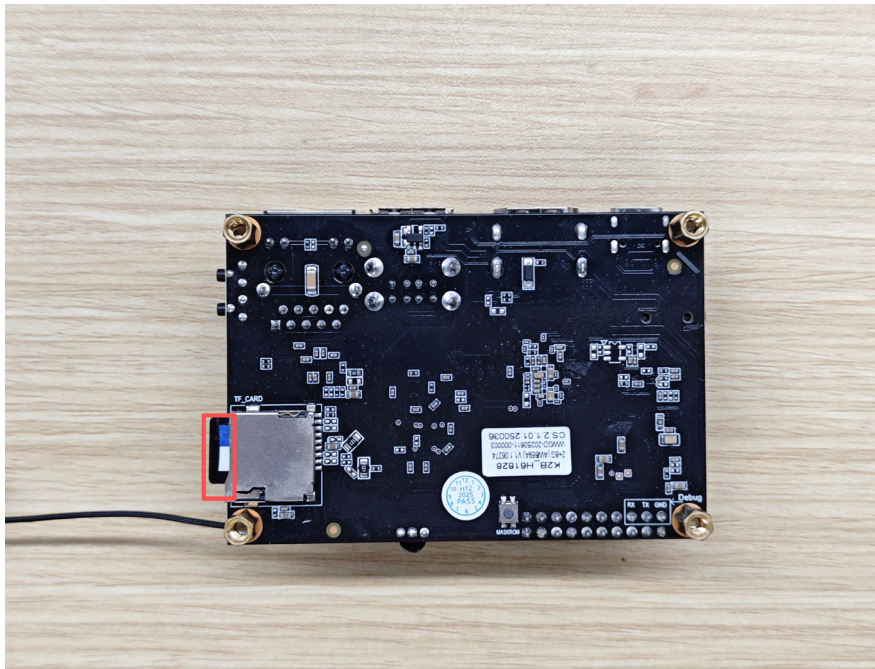
Display

Interface	Maximum Resolution Support
HDMI	4K@60Hz



Boot Media

The K2B is available in two versions: on-board eMMC (embed-ded Multi Media Card) and no on-board eMMC. The on-board eMMC version comes pre-installed with the Android 12 operating system at the factory, requiring no additional boot media. However, for subsequent use (the no on-board eMMC version must be equipped with an SD card), if you wish to replace the operating system or boot from an SD card, you need to prepare an SD card with a storage capacity of $\geq 16\text{GB}$.



Keyboard and Mouse

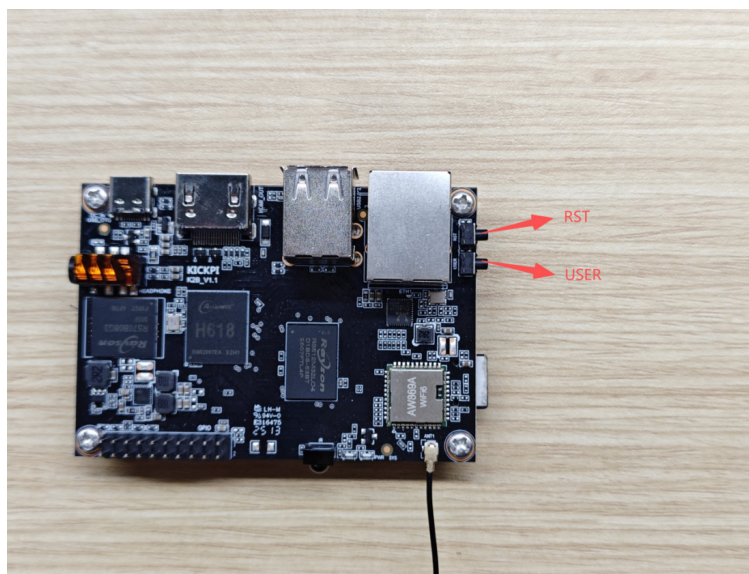
K2B has 2 USB 2.0 ports. You can use any one of them to connect a keyboard or

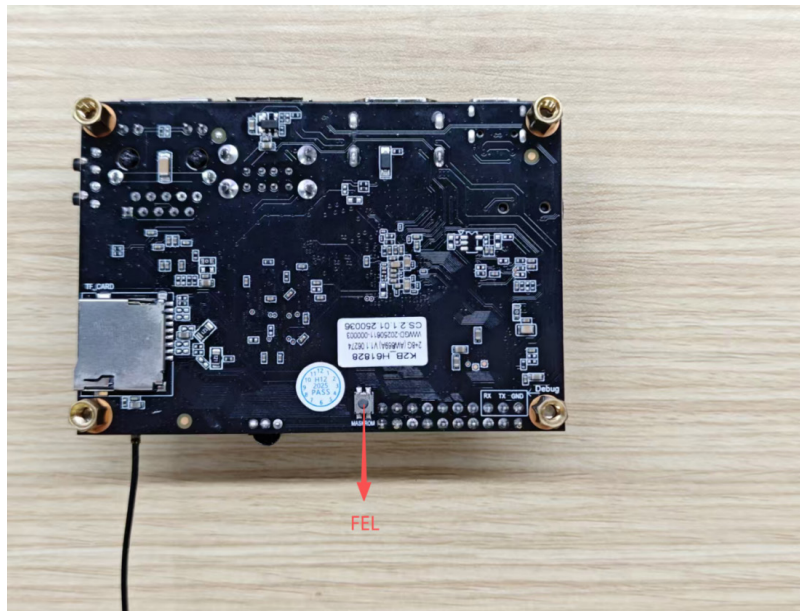


Buttons

K2B has 3 physical buttons on-board, each one has unique function, here are their usage description:

- RST: Short press to hot reset device once.
- USER: Ubuntu Desktop Edition: A short press opens the Logout interface; Ubuntu Server Edition: A short press of the USER button shuts down the device directly; Android System: A short press turns off the screen.
- FEL: Located on the bottom side of the board. It is used in the scenario of installing OS Image to on-board eMMC, when pressed and hold with a power-on action, SoC's Init code will put device into MASKROM mode, cooperate with flashing tool to install Image into eMMC. MASKROM mode means cheating SoC init code into thinking eMMC has nothing programmed, even without U-boot or U-boot is corrupted and unable to work correctly. It give people a chance to reprogram eMMC after bricking it.





System Startup

User and Password

For any Linux distro Image we released, Default user and password for different distros are as follows:

System	Username	Password
Ubuntu2204	<u>kickpi</u>	<u>kickpi</u>
Ubuntu2204	root	root

Hardware Installation

In below installation diagram, we have installed the power supply, HDMI display, mouse, and keyboard to KickPi K2B (If in you scenario , K2B works as a headless device and without display, here is a way to tell how the device's working and trouble shoot issues via on-board LED). FPC Antenna has bare metal surface, should avoid direct contact with board. Antenna may also generate electromagnetic interference , harm DDR's signals, please place antenna spatially away from DDR and SoC.



LED Status Indicator

You can tell the system working status via the LED indicators.

- K2B board has two LED indicators. **green LED is the power indicator**, and **blue LED is the heartbeat indicator**.

Success: Green LED is steady on, blue LED is blinking.

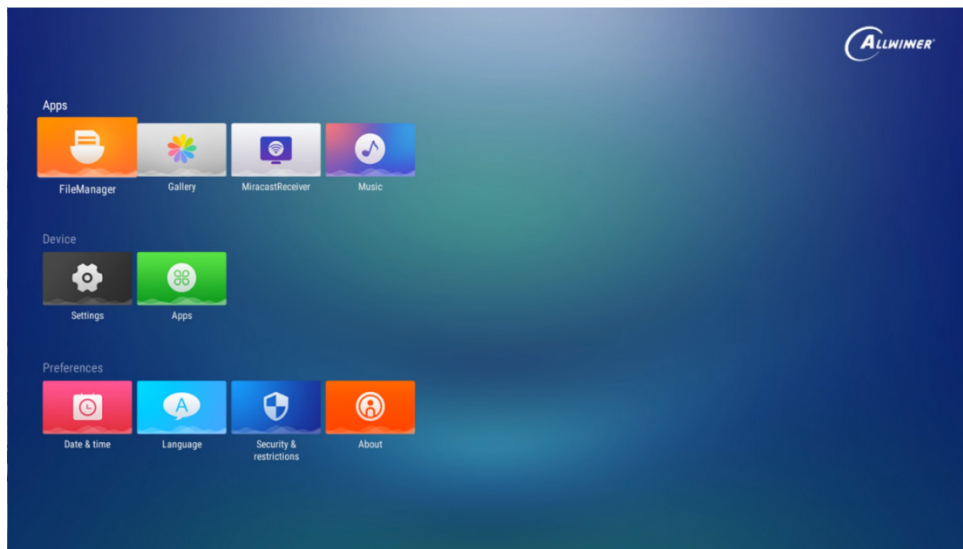
Failure: If green LED is off when device is powered on, please check power supply or short circuit issue. green LED sucks current directly from DC power without any external control. If the blue LED is off or steady on(no blinking), kernel panic or died. Blinking is controlled by a kernel driver. All our released OS Image work this way: Android, Ubuntu, Debian, Armbian.

System Desktop

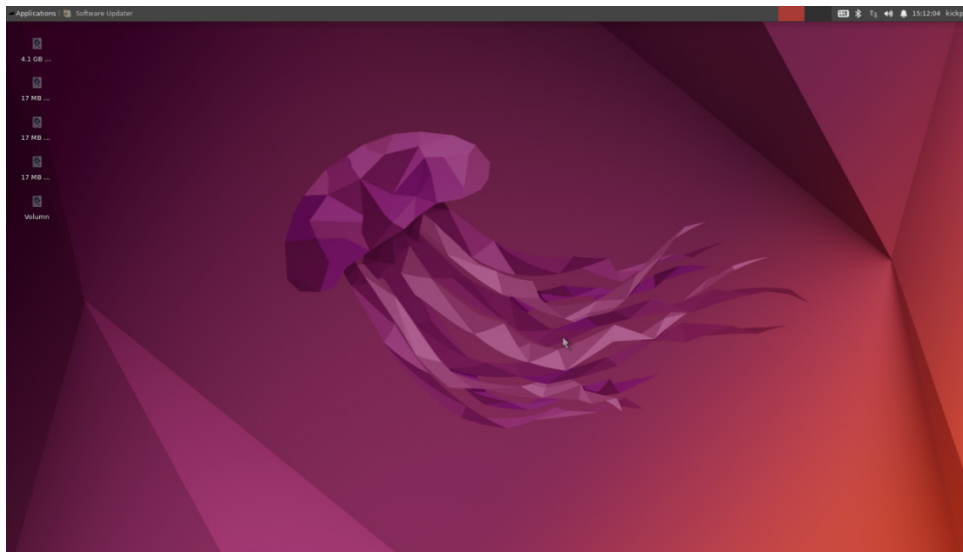
K2B supports Android, Ubuntu operating systems. When our released OS images been installed, each one use different desktop wallpaper.

Android12.0

The K2B supports Android TV and Android tablet operating systems, and the one shown in the figure is the Android TV operating system.



Ubuntu22.04 xfce



Installing Operating System

The Android image for the Kickpi K2B supports both SD card installation and USB installation, while the Ubuntu image currently only supports SD card installation. Motherboards equipped with an eMMC module come pre-flashed with the Android 12 system image by default at the factory.

Obtaining Image

Obtain Kickpi K2B image files from [OneDrive](#).

Android Image USB Installation

Install the Android image via USB. Please check if the development board has an onboard eMMC. If it does not have one, you can skip this , in this scenario, board can only boot from SD boot card.

Preparation

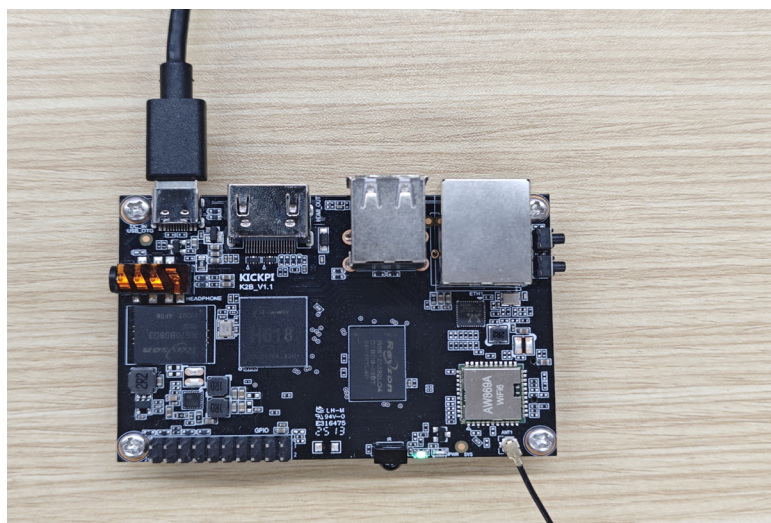
Hardware: DC 12V independent power supply, USB A-to-C cable.

Software: Installing tool [PhoenixSuit](#), [Android](#) image.

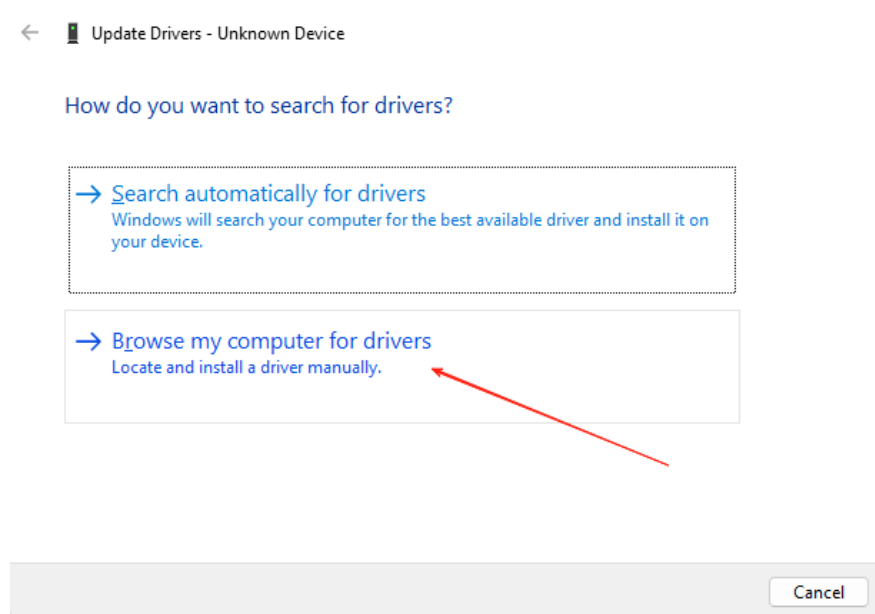
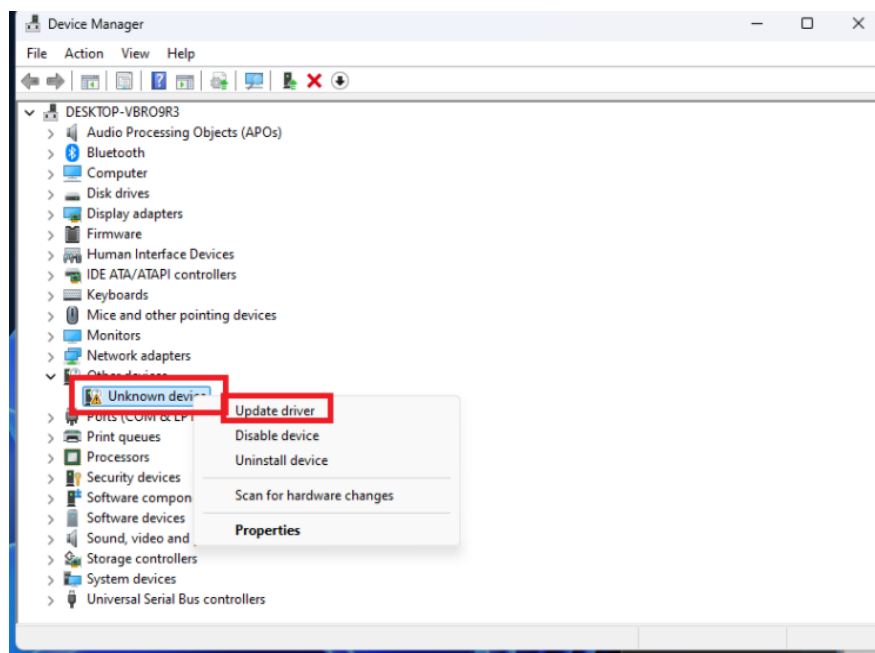
Steps

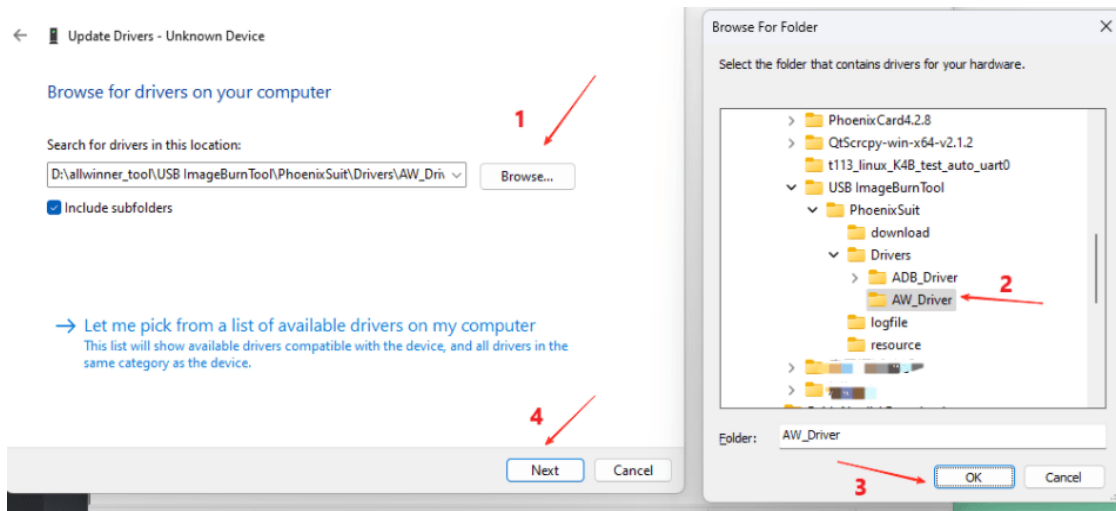
1. The board enters the Installation Mode,the green LED stays on.

Installation Mode: When the board is powered off, long-press the FEL button on the bottom side of the board, then connect the power supply. The green light on the board will stay on, indicating successful entry into Installation mode. When the board is powered on, first press and hold the FEL button,don't let loose, then press RST button. The green light will stay on, indicating successful entry into Installation mode.

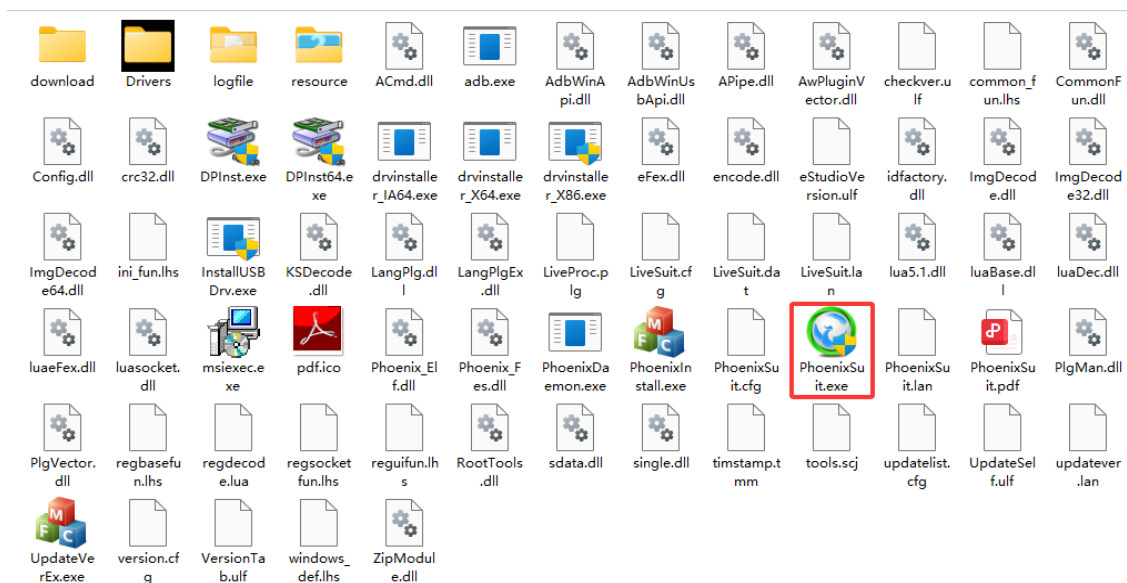


2. Install driver, connect the computer via a USB A – to – C cable, open the computer's Device Manager, and follow the operations shown in the diagram. Driver folder path: PhoenixSuit/Drivers/AW_Driver/

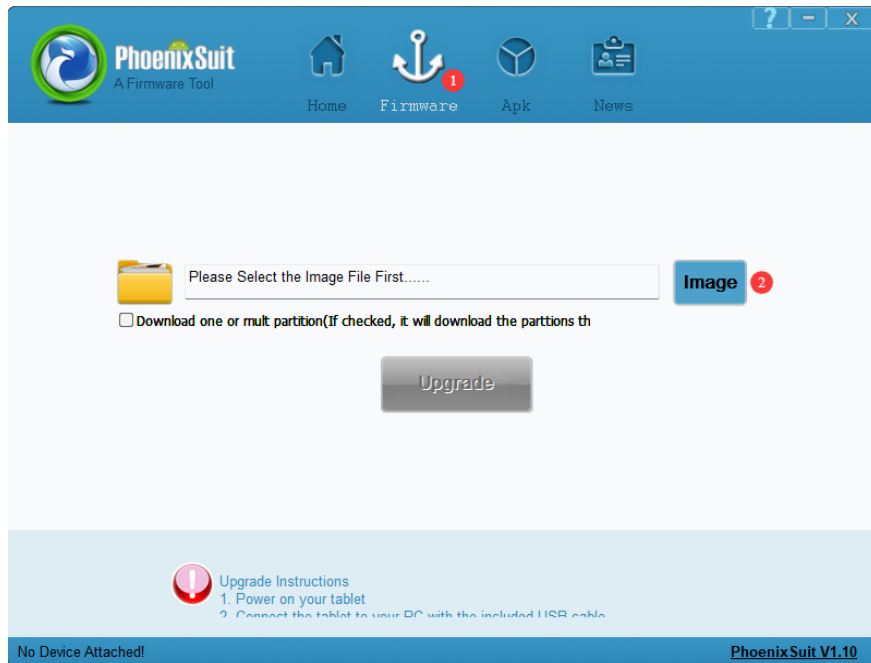




3. Open **PhoenixSuit** from the extracted folder in Administrator mode.



4. In the installing software, click “firmware” to select the image to be install (do not click “Upgrade”).

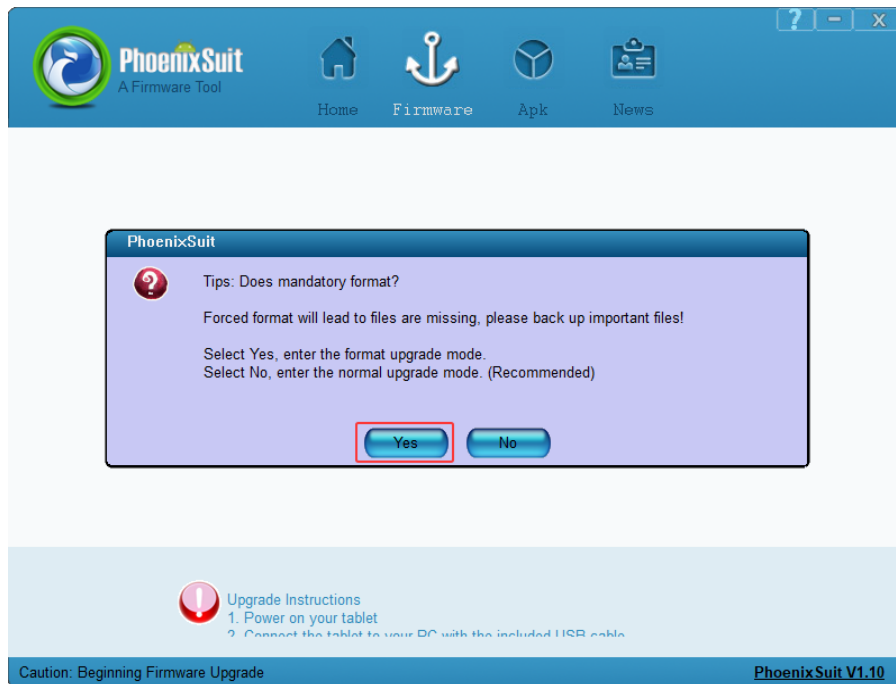


5. Re–enter the installation mode on the development board, connect the USB, and when the software displays the screen as shown below, click “Yes” to start installing. Simply wait for the installing to complete successfully.

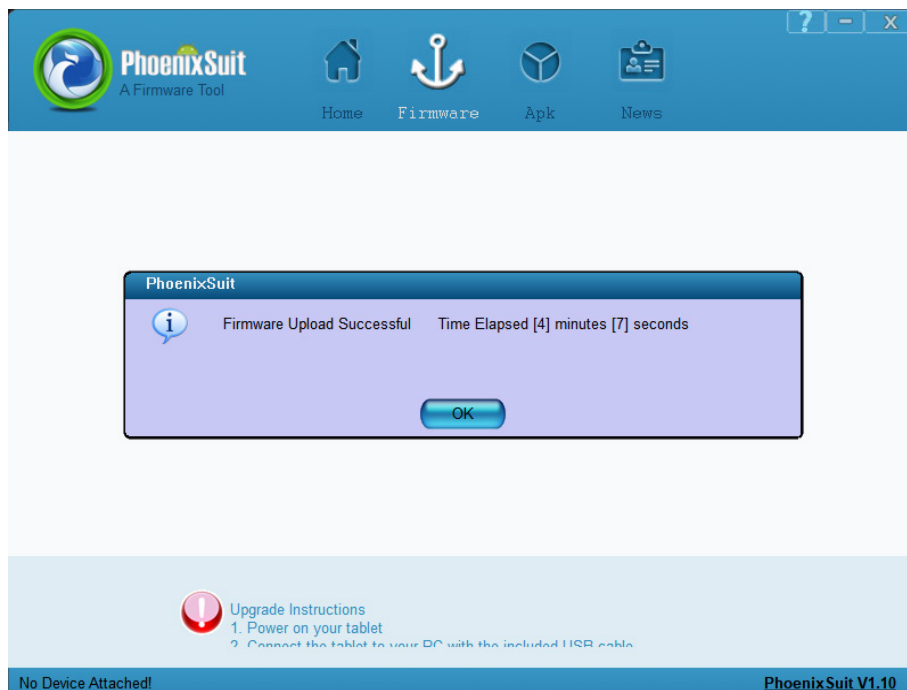
Installation Mode:

When the board is powered off, long–press the **FEL** button on the bottom side of the board, then connect the power supply. The green light on the board will stay on, indicating successful entry into Installation mode.

When the board is powered on, first press and hold the **FEL** button, don’t let loose, then press **RST** button. The green light will stay on, indicating successful entry into Installation mode.



6. Once the image is installed successfully, the board will restart automatically.



Android Image SD Card Installation

K2B has a SD card slot (microSD aka. TransFlash or TF) which can also serve as a bootable device. In K2B's boot sequence, SD card has higher priority, so K2B always try to boot from SD card first, when no one mounted, K2B then boot from on-board eMMC. Since SoC vendor's official Tools use terminology SD(microSD) instead of TF, so we use SD card in this context, **TF and SD means the same thing.**

With SoC vendor's tool, we can make 2 types of booting card. **SD Boot Card** works like a portable edition OS, e.g. windows PE. We use **SD Boot Card** to power device for some maintain and fix purpose. also can be used to verify your own customization. the second type is **SD installation** card. you create this kind of booting card when you try to use it to install new Image into on-board eMMC. it contains a specific script to create partition, format FS, copy files to eMMC. Make sure you understand what you need and create the right SD card.

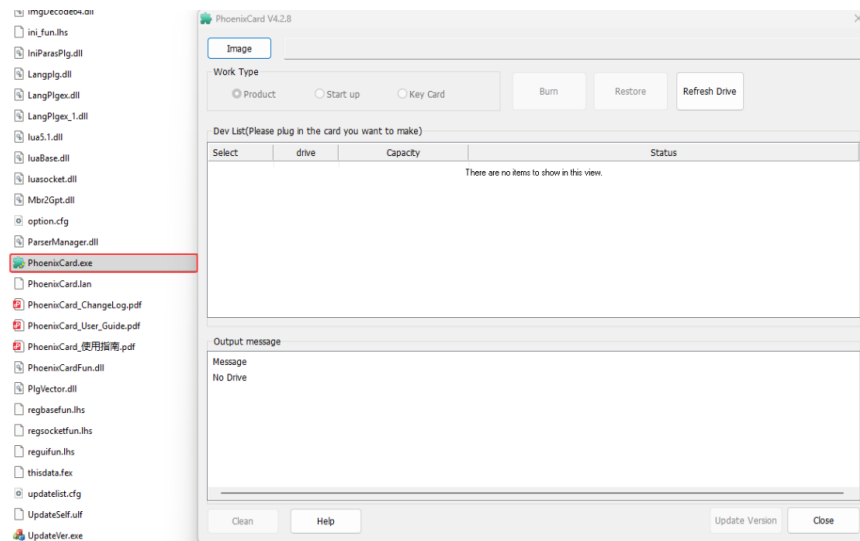
Preparation

- **Hardware:** Windows PC/laptop, HDMI Display (optional), USB TYPE-C cable(some cheap TYPE-C cable only provide current, make sure use the one capable of data exchange). some users reported when using double male TYPE-C to TYPE-C cable, installation failed sometimes, when switch to double male USB TYPE-A to TYPE-C, it's ok.
- **Software:** Installing tool PhoenixCard, Android image.

SD Boot Card

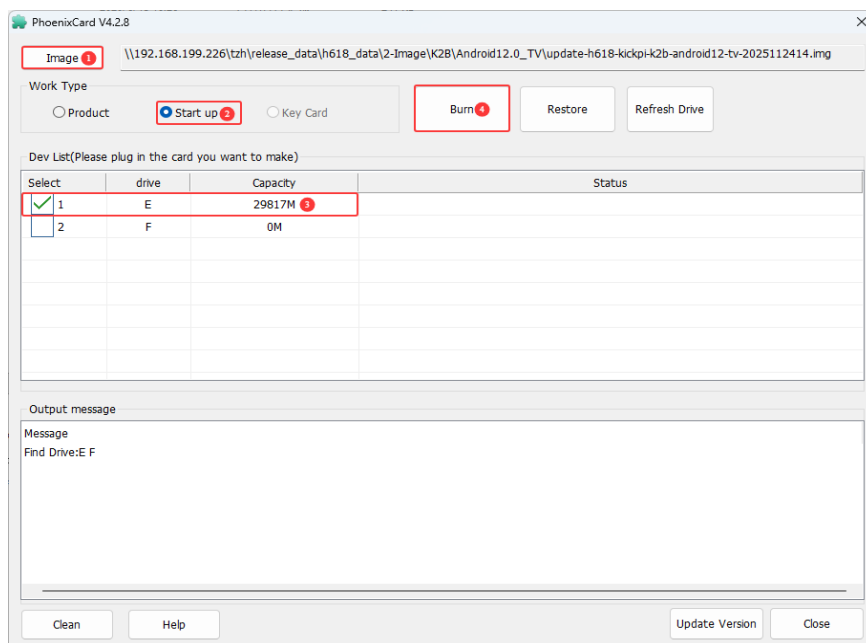
When both the eMMC and the SD boot card have system images installed, the system will boot from the SD card by priority.

1. Navigate to the PhoenixCard extracted folder and launch Phoenix-Card.

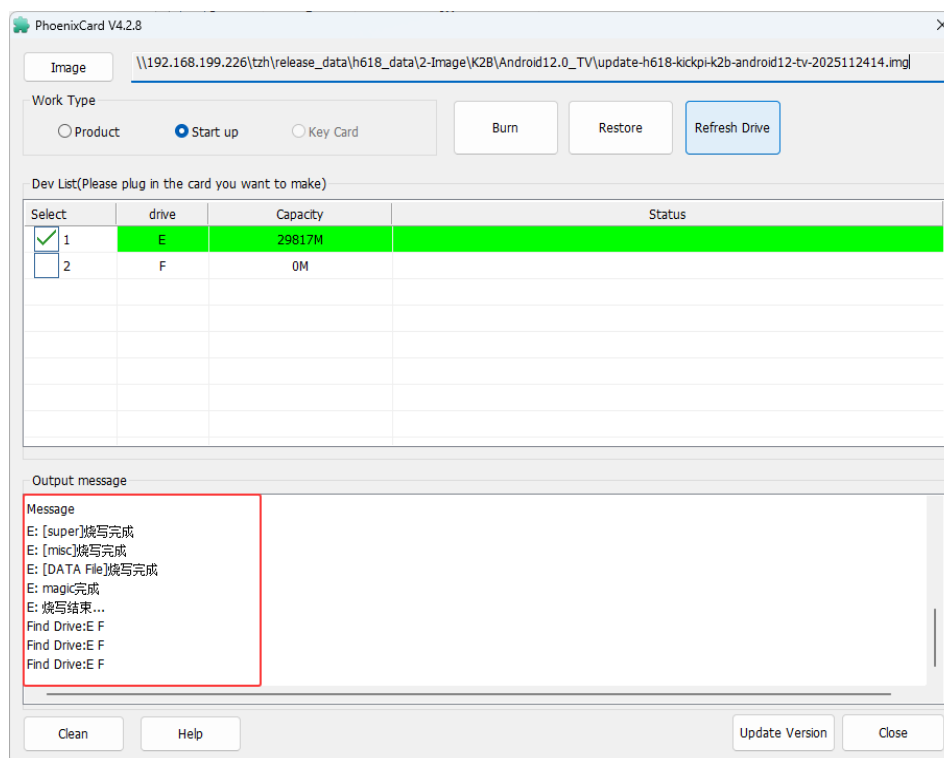


2. Follow the steps shown in the diagram to flash the downloaded image onto the SD card.

During the operation, if PhoenixCard prompts to format the SD card, simply confirm the formatting.



3. The SD boot card is created successfully.

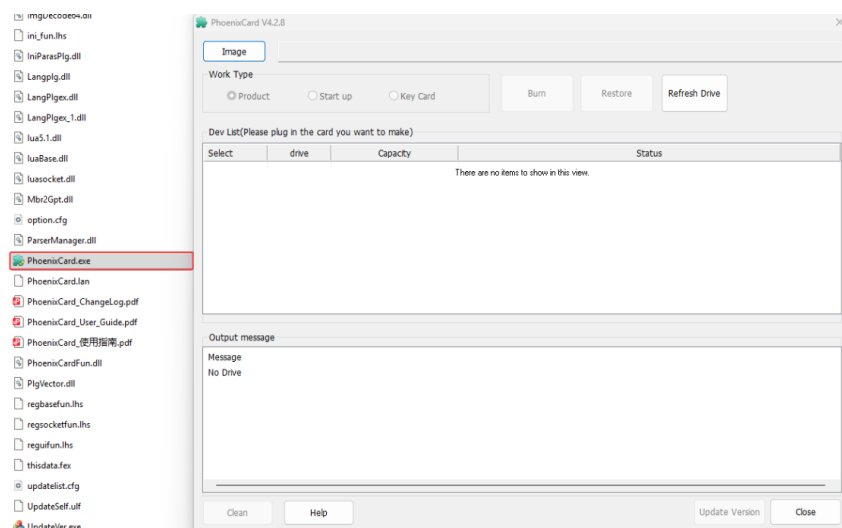


4. Power off the motherboard, insert the SD boot card into the TF card slot on the motherboard, reconnect the power supply, and wait for the system desktop to display normally on the monitor

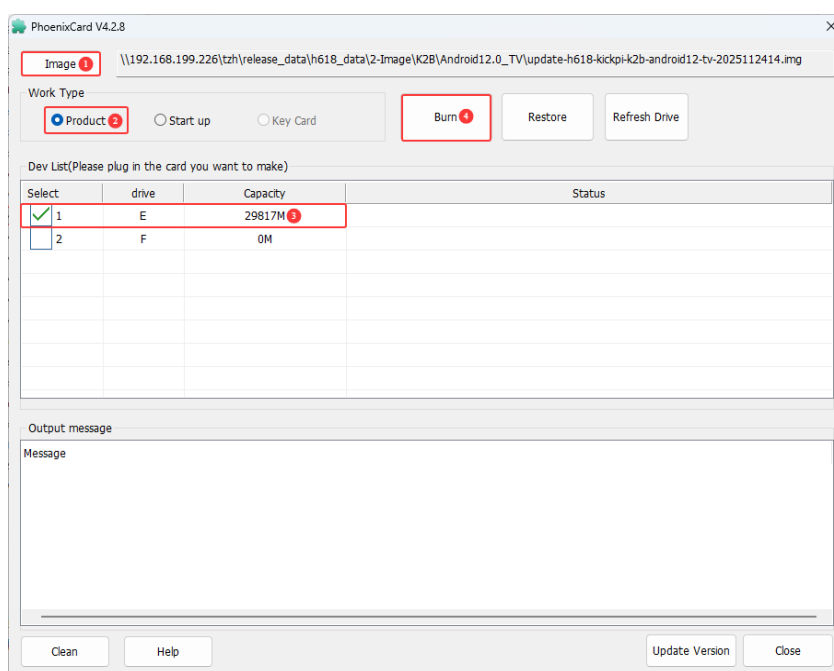
Success: The green LED remains lit, and the blue LED blinks continuously (the blue LED will not light up immediately, please wait patiently).

7、SD Installation Card

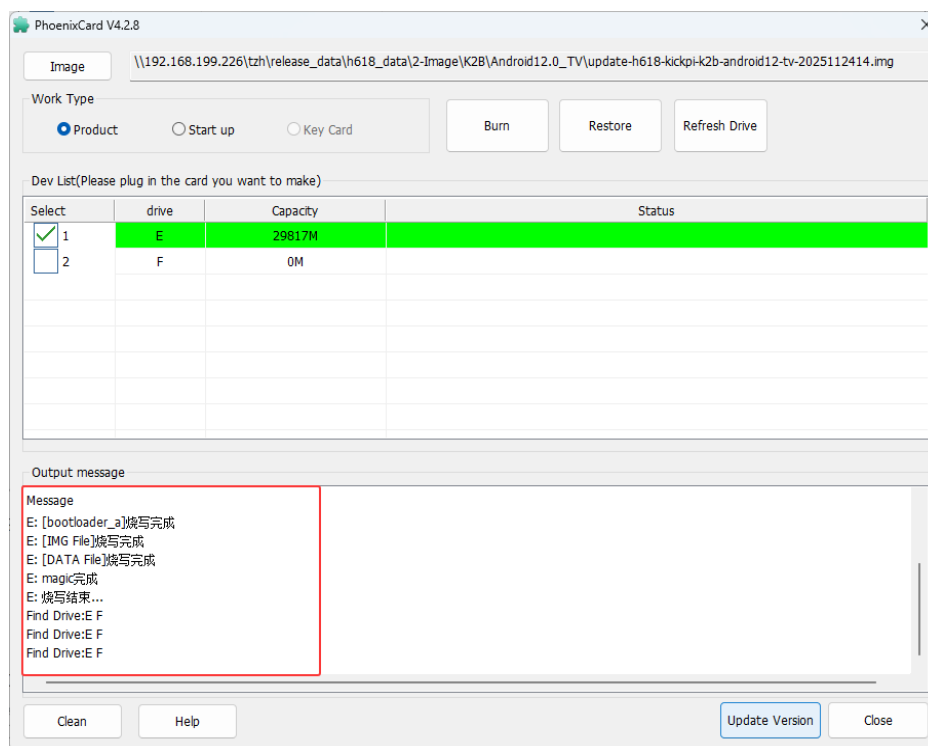
1. Navigate to the PhoenixCard extracted folder and launch Phoenix-Card.



2. Follow the steps shown in the diagram to flash the downloaded image onto the SD card. During the operation, if PhoenixCard prompts to format the SD card, simply confirm the formatting.



3. The SD boot card is created successfully.



4. Power off the motherboard, insert the SD installation card into the TF card slot on the motherboard, and wait for the image installation to complete.

Success: A progress bar will be displayed on the monitor during the installation; the monitor will turn off upon completion, and both the green and blue LEDs will be off simultaneously. At this point, remove the SD card, power the motherboard back on, and wait for the system to restart.

Ubuntu Image SD Installation

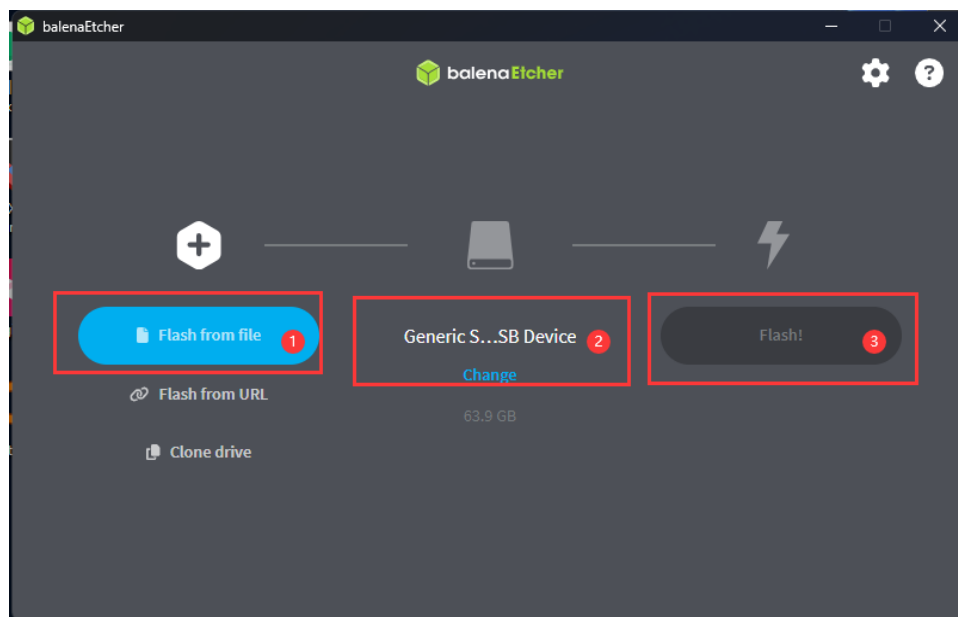
The Ubuntu image currently only supports SD card installing.

Preparation

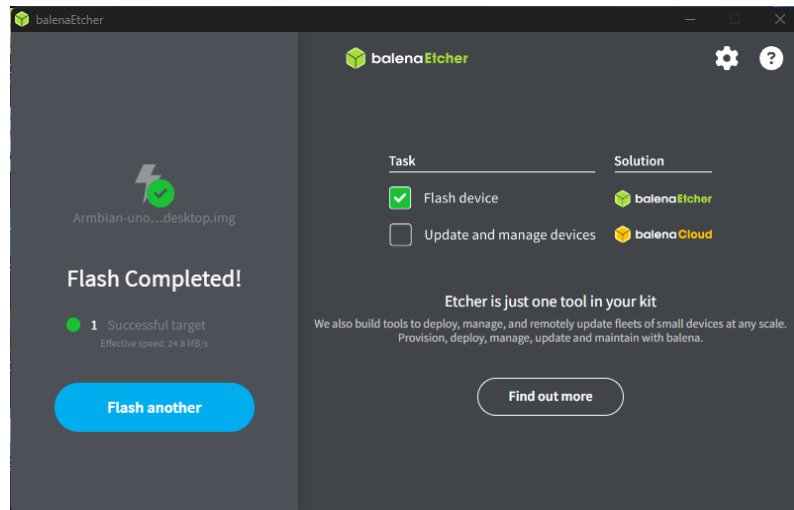
- Hardware: SD card (recommended capacity larger than 16GB), SD card reader.
- Software: installing imager tool [balenaEtcher](#), [Ubuntu](#) image.

Steps

1. Create an SD Boot Card: Insert the SD card into the computer, open balenaEtcher to write the Linux image.

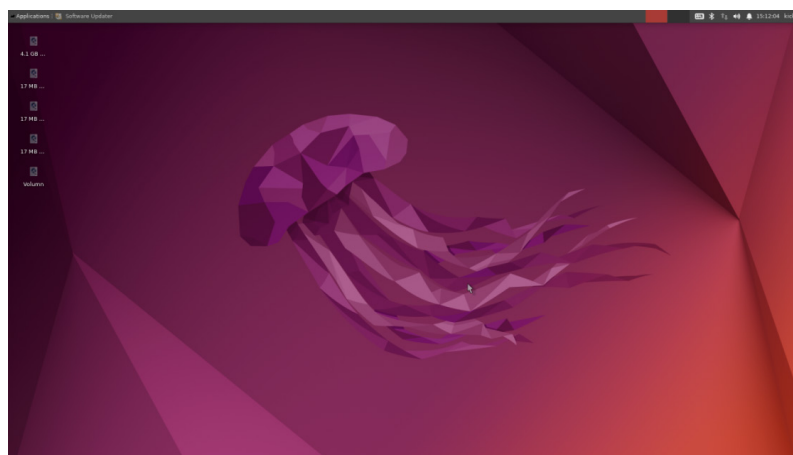


2. After installing is complete, close the imager software.



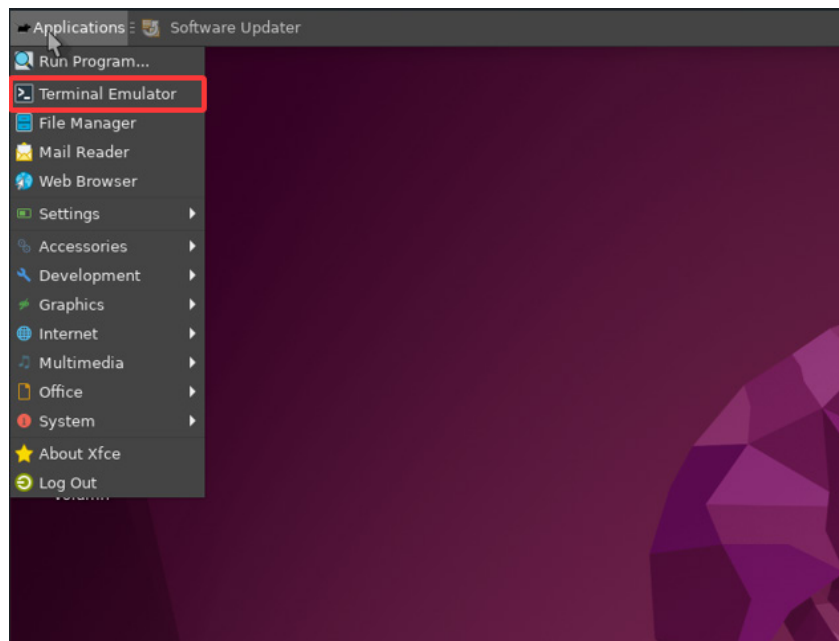
3. Insert the installed SD card into the development board, power on the board. The development board will boot from the SD card. Connect an HDMI monitor to check if the desktop is the newly installed one .

Boot code chooses SD card as the first booting device, then onboard eMMC in booting.If you only need to boot Ubuntu from the SD card, you can skip the subsequent installing steps.



4. Installing Ubuntu system from the SD boot card to onboard eMMC.

- Connect the board to an HDMI monitor, a keyboard, and a mouse, then open the Terminal Emulator.

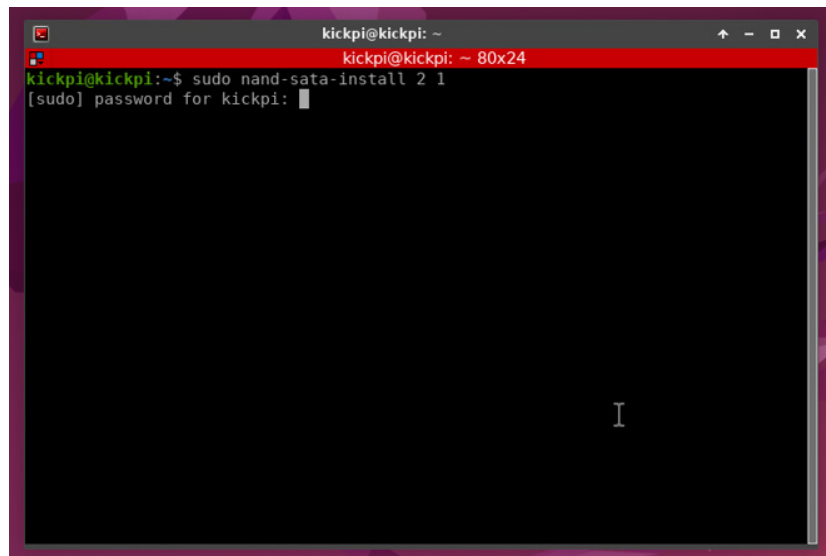


- Enter the following command in the Terminal

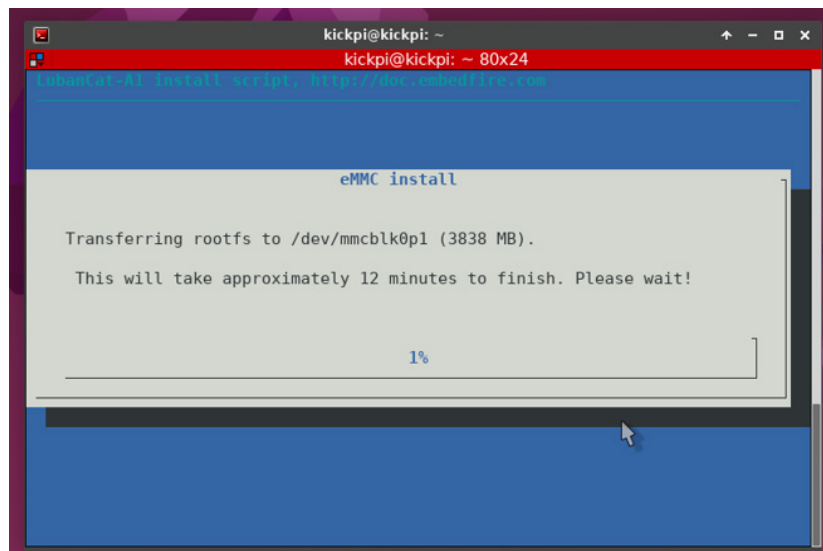
```
sudo nand-sata-install 2 1
```

//Enter the password.

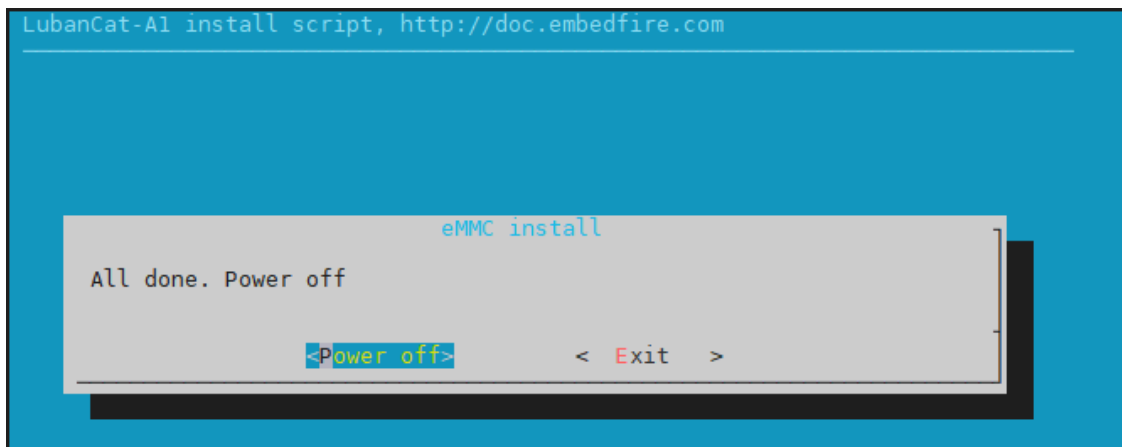
Kickpi



- After entering the password, press Enter. The system will automatically start installing process. Wait for the installing to complete.



- After the installing is completed, select “**Power off**”, press the ++enter++ , and wait for the system to restart. Then, power off the device, remove the SD card, and power it on again to check if the Ubuntu system has been installed successfully.



FCC Warning

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE 1: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

NOTE 2: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF Exposure Statement

To maintain compliance with FCC'S RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm between the radiator and your body. This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.