Steps for Booting Up Your LattePanda¶

- What You Will Need¶

To get started, you will need the following hardware:

- LattePanda 3 Delta Mainboard
- USB Type C Power Adapter(attached in the box), or Other 12V Power Adapter
- Power Supply Cable
- Display Device (TV, Monitor, or eDP Display)
- Display Cable (HDMI, USB Type C, or eDP Cable)
- Input devices (Keyboard, mouse, etc.)
- WIFI/BT Antennas

- Instructions¶

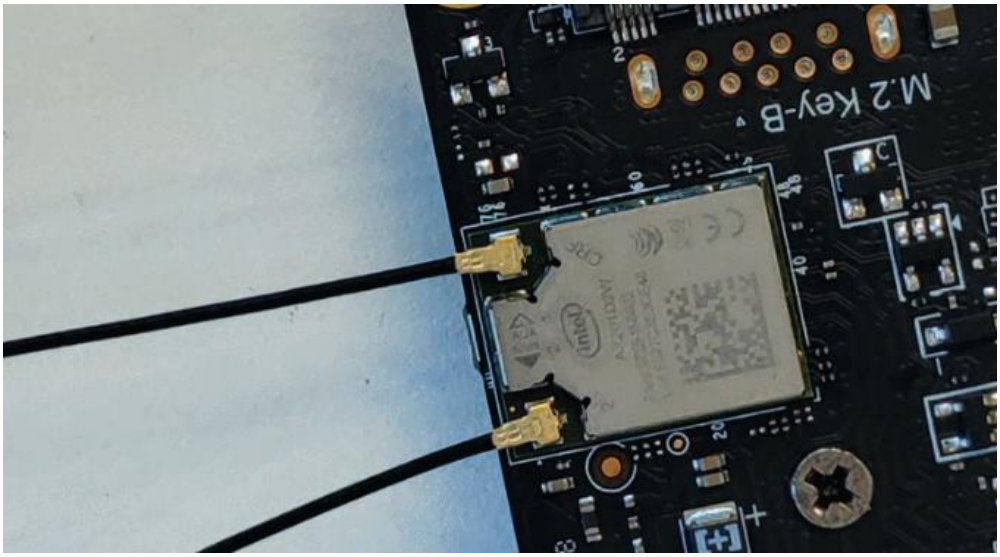
Warning

The LattePanda is relatively special in its pocket-sized product form and design, and it can connect multiple devices to provide endless possibilities for embedded developments and IoT innovations.

CPU-related products are all **electrostatically sensitive**. So although we have adopted the **anti-static design**, users still need to be careful when using these electronics.

Be sure to remove the static electricity from your body before touching the LattePanda! Otherwise, this may cause potential static discharge and damage your LattePanda!

- Connect Wi-Fi/BT antennas to the sockets.



Antenna and socket spec - IPEX4 2.4 & 5G Dual-band

There are two antennas sockets on the wireless module. One socket is used for 2.5G&5G Wi-Fi, and the other one is used for Bluetooth. So please insert two antennas. Both antennas are the same.

Tip

You can purchase enhanced antennas to improve the WIFI and Bluetooth signal strength.

- Connect LattePanda and the display device with the display cable. Please see the Display and Touch Connections section for instructions on using different displays with your LattePanda.
- Connect the keyboard and mouse to LattePanda.
- Connect the power adapter to LattePanda. Please see the Powering LattePanda 3 Delta section for instructions on using different power adapters to power your LattePanda.
- Press and hold the power button for approximately 1 second. The onboard blue LED indicator will light up, and LattePanda will boot into OS. The default OS is windows 10.

Related Links¶

- Powering LattePanda 3 Delta
- Operating Systems
- Display and Touch Connections

Operating Systems¶

This document will show how to install an operating systems compatible with LattePanda 3 Delta. It will also cover the acceptable bootup media, as well as instructions, resources for installing operating systems and other special considerations.

Overview¶

The LattePanda 3 Delta is **a development device that supports two different operating systems.**

1. Windows 10, Windows 11
2. Linux Ubuntu, or other Linux versions

Tip

Please feel free to contribute or request new content via our Official Docs Repository

Warning

Please back up your important files or data before OS installation.

Windows System¶

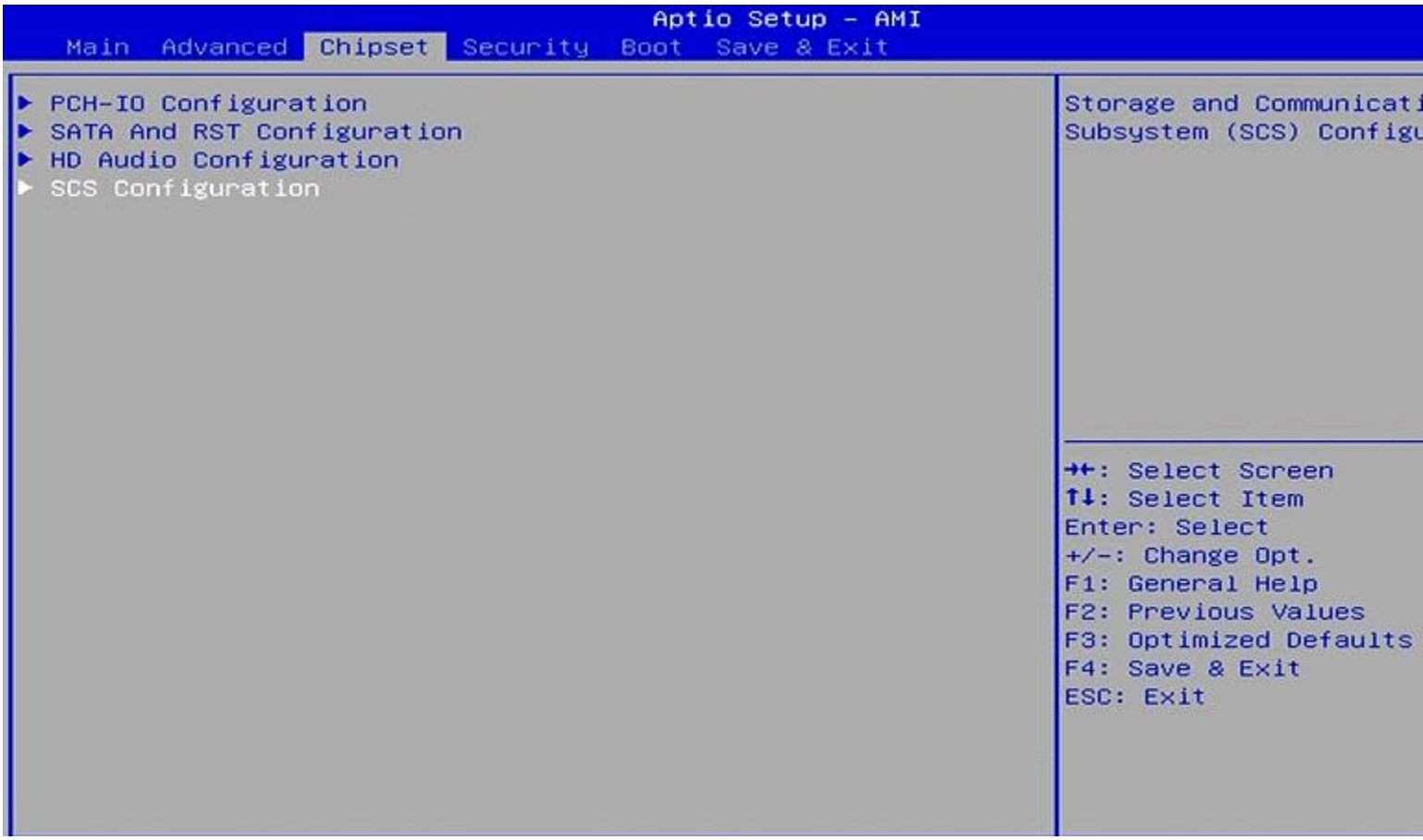
The following contents will take the Windows OS installation as an example to demonstrate.

- The installation steps for Windows 10 and Windows 11 are same.
- We will use the official system image file(provided by LattePanda team) with all hardware drivers pre-installed and ready to use, bringing you a fast and ultimate experience.
- The system will be installed on the eMMC by default.

- How to install the official system image to the SSD?

1.Insert your SSD into the LattePanda, then remove all other storage.

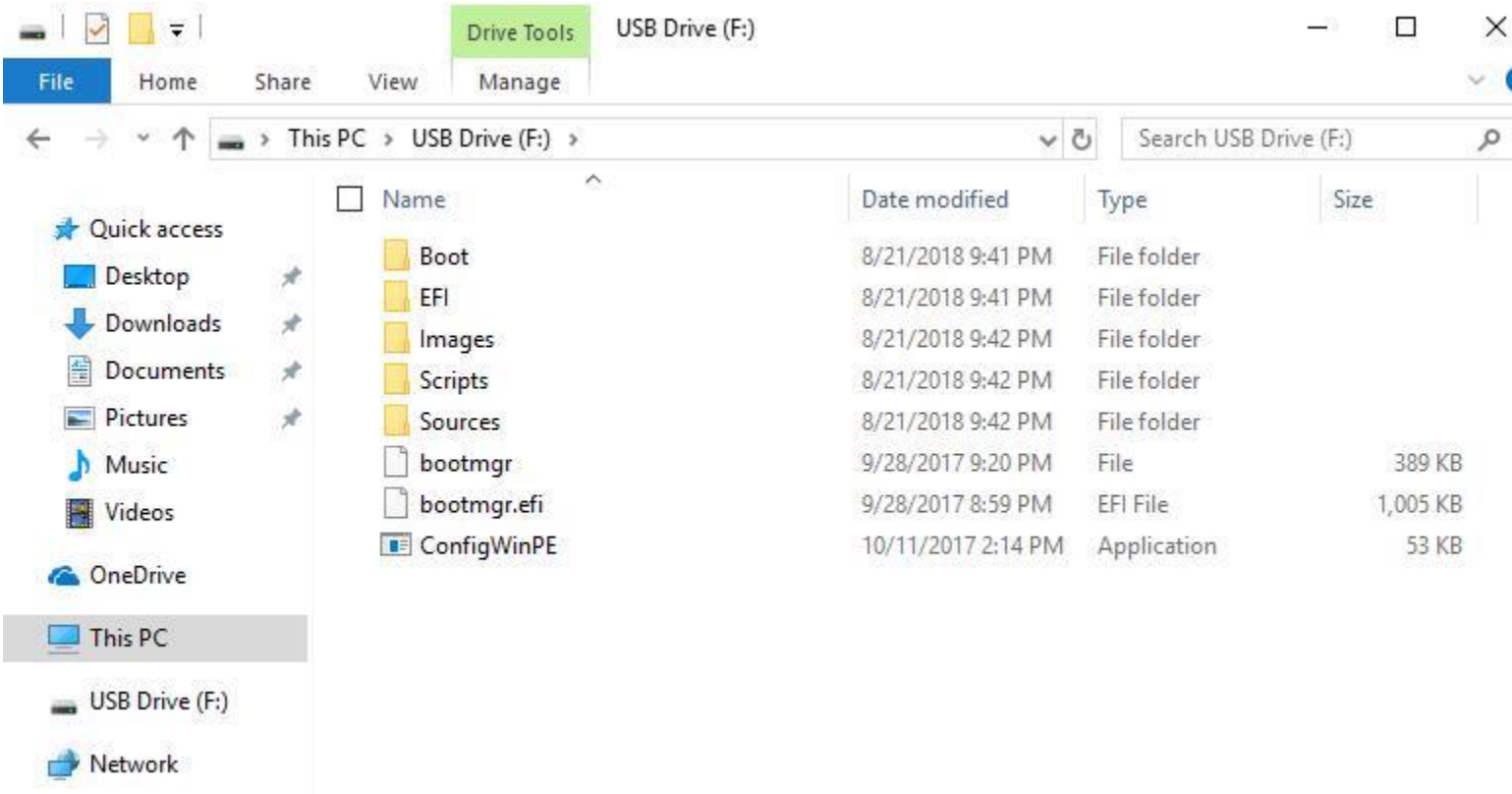
2.Enter into the BIOS setup to disable the onboard eMMC. Then save the change.



3.Restart the LattePanda. Use the following installation steps to install the system image.

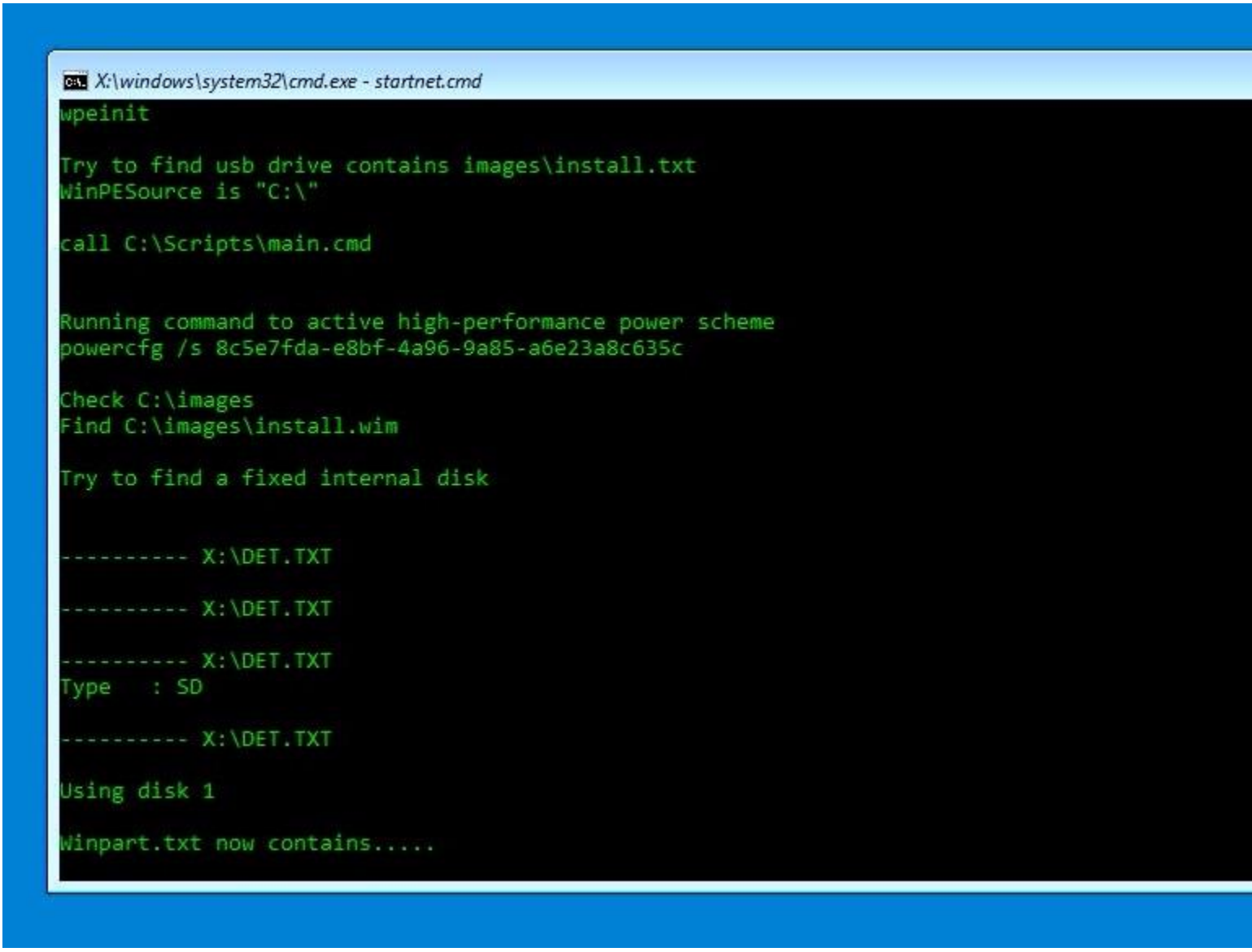
- What You Will Need¶
  - Empty USB flash drive (8 GB or larger)
  - OS Disc Image File for the LattePanda 3 Delta: Download from Dropbox Link or Google Drive Link
- Installation Steps¶
  - Download the Windows 10/11 disc image file of LattePanda 3 Delta.
  - Format your USB drive into NTFS format.
  - Unzip the Windows 10/11 disc image file. Then copy and paste them to the USB drive.

The files location on the USB flash drive should be as shown below.



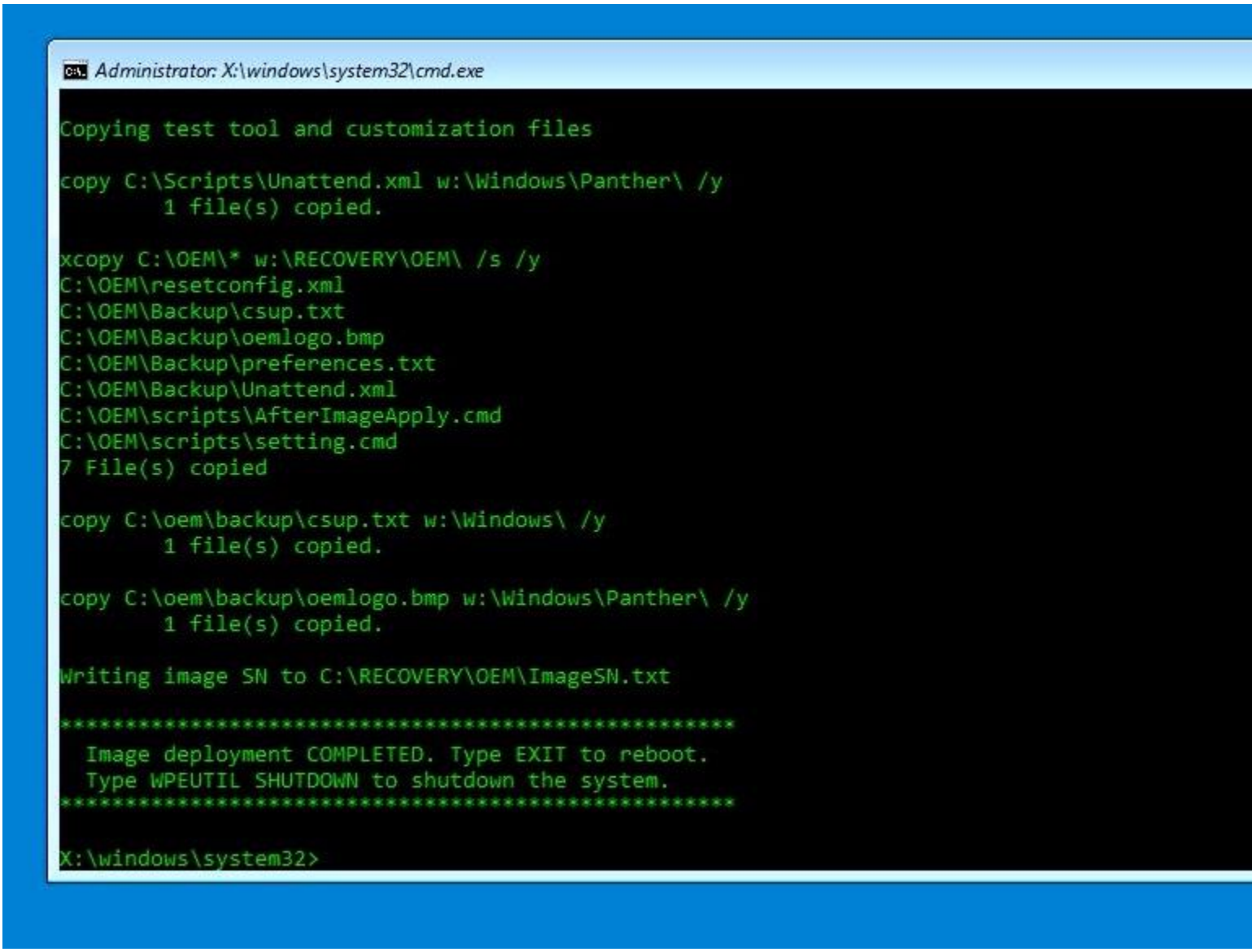
- Insert your USB drive into LattePanda, and turn on the LattePanda. (If you created the USB installation media on LattePanda, please restart the LattePanda before OS installation.)
- Press '**F7**' key continuously to enter into **Bootable Device Selection Menu**.
- Use the '**UP**' or '**Down**' key to choose the USB bootable device, then press '**Enter**' key.

- It will enter into the OS installation terminal. It should look like the picture below. As it's a fully automatic process, you don't need to do anything. Please wait patiently for 5-8 minutes.



- After 5~8 minutes, the installation will be completed. You will get the notice in the terminal like the picture below.

Then shut down the LattePanda. Unplug the USB flash drive.



- Press the power button to turn on the LattePanda. Then it will start the system initialization. After about 3 minutes, it will enter into Windows System desktop. Now enjoy it!

- ## Windows Activation¶

If you are using LattePanda 3 Delta activated model, there should be a License Key in the box as shown below.

There are 6 steps to activate your LattePanda:

- Scrape the coating off the sticker to obtain the full **Product Key**
- Make sure your LattePanda has an active internet connection via WiFi or Ethernet
- Right click on the Windows button and select **System**
- Click **Activate Windows**
- Click **Change Product Key**
- Enter the product key number
- Click **Next**

Ubuntu¶

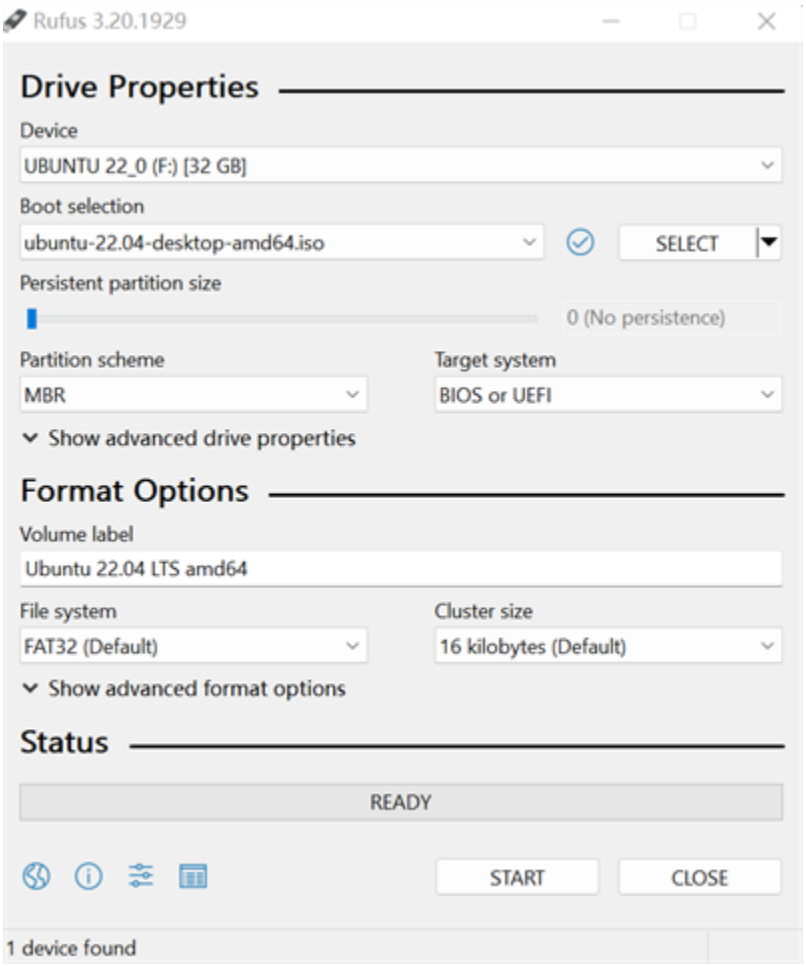
- ## Bootable Drive¶
  - eMMC
  - M.2 M-key NVMe SSD

Tips

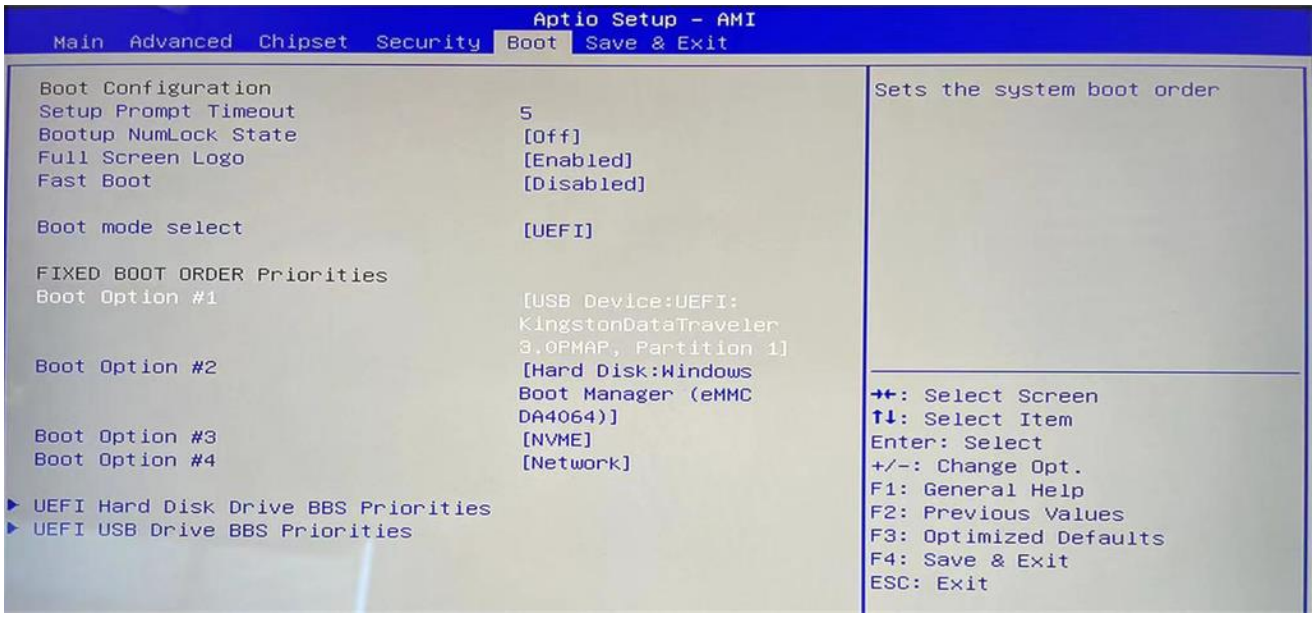
This tutorial is for the LattePanda 3 Delta. If you are using other LattePanda models, please refer to the corresponding section.

- ## What You Will Need¶
  - 1 x Empty USB Flash Drive (8 GB or larger)
  - Ubuntu 22.04 LTS disc image file (64-bit Desktop disc image file is recommended)

- Installation Steps¶
  - Download the Ubuntu 22.04 LTS image.
  - Create a USB installation media for Ubuntu. We recommend using 'Rufus' to create the installation media. You can download it here.
  - Choose your USB flash drive, and load the ISO file. The GUI of Rufus will look like the picture below. Click the start button to burn the ISO file onto the USB flash drive.



  - Insert your USB drive into LattePanda, and turn on the LattePanda. (If you created the USB installation media on LattePanda, please restart the LattePanda before OS installation.)
  - Press 'Esc' continuously to enter BIOS menu.
  - Navigate to the "Boot" tab and set the USB drive as "Boot Option #1" under "Boot Option Priorities" part.



- Navigate to the "Save & Exit" tab and select "Save Changes & Exit".

LattePanda will restart. Afterward, you will enter the installation GUI as shown below.

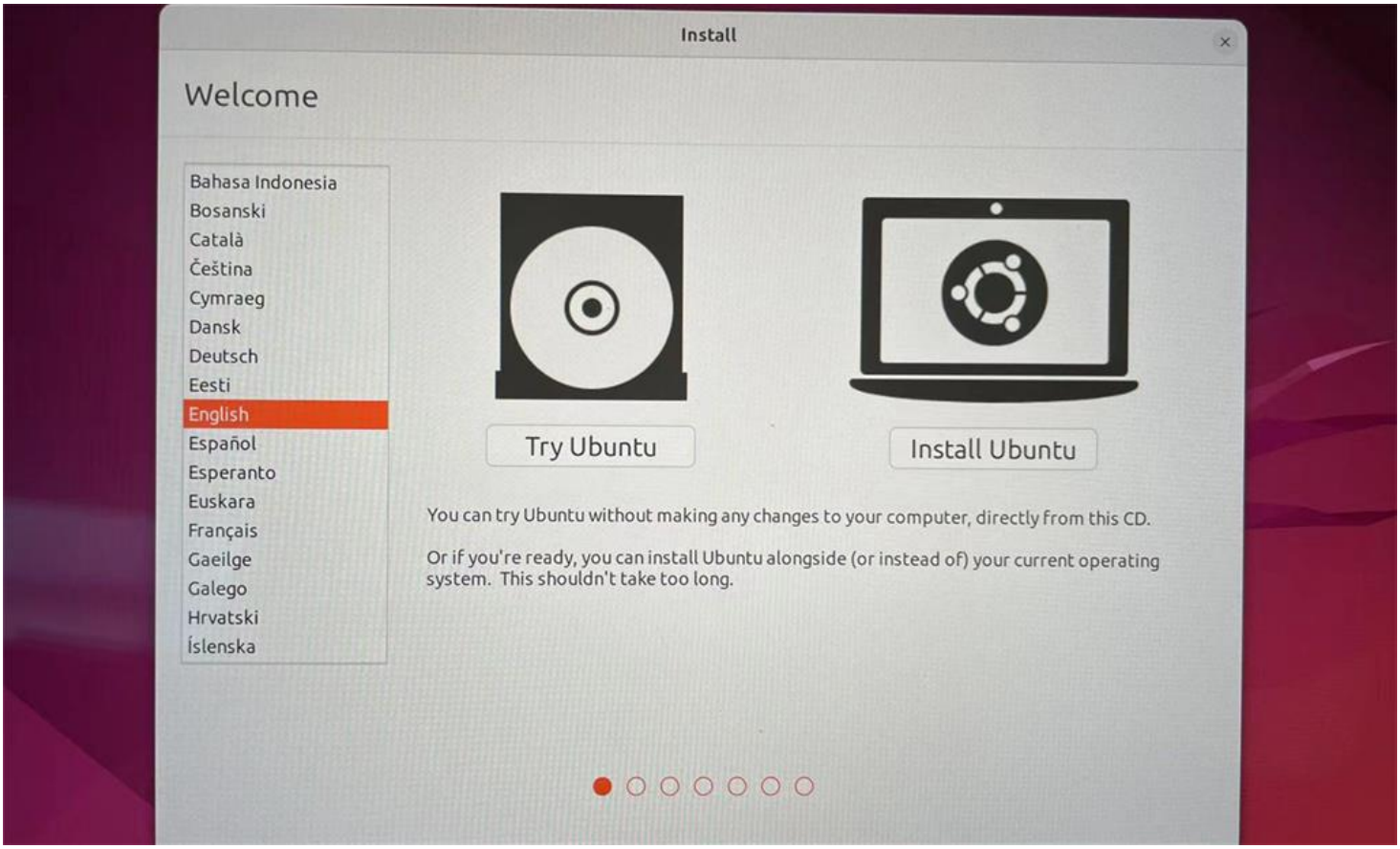
There will be two options:

- Try Ubuntu without installing
- Install Ubuntu

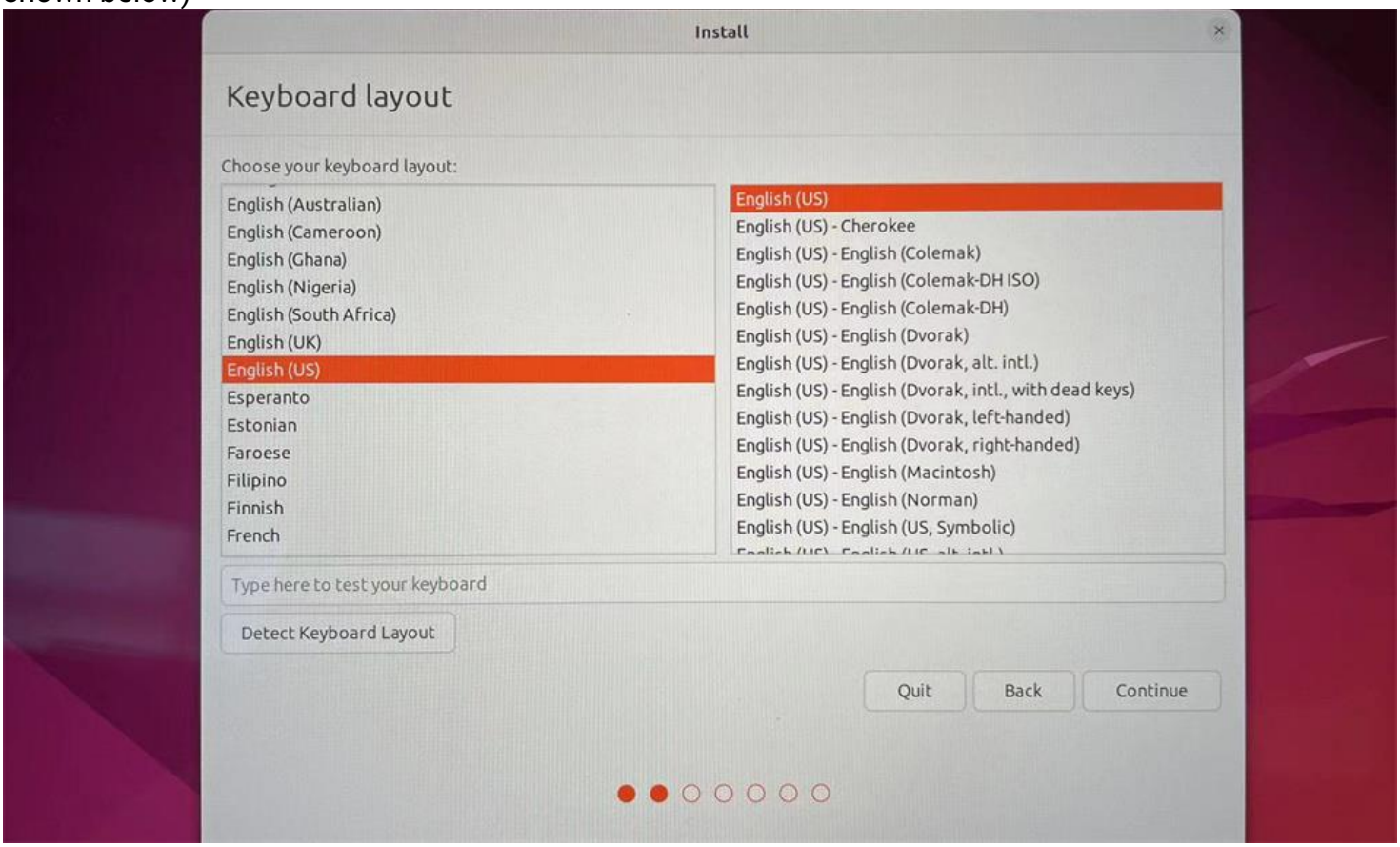
Both options should work, but in this tutorial, we will take the 'Install' option as an example. Then, the files will load. After a while, the following picture should appear.

Note

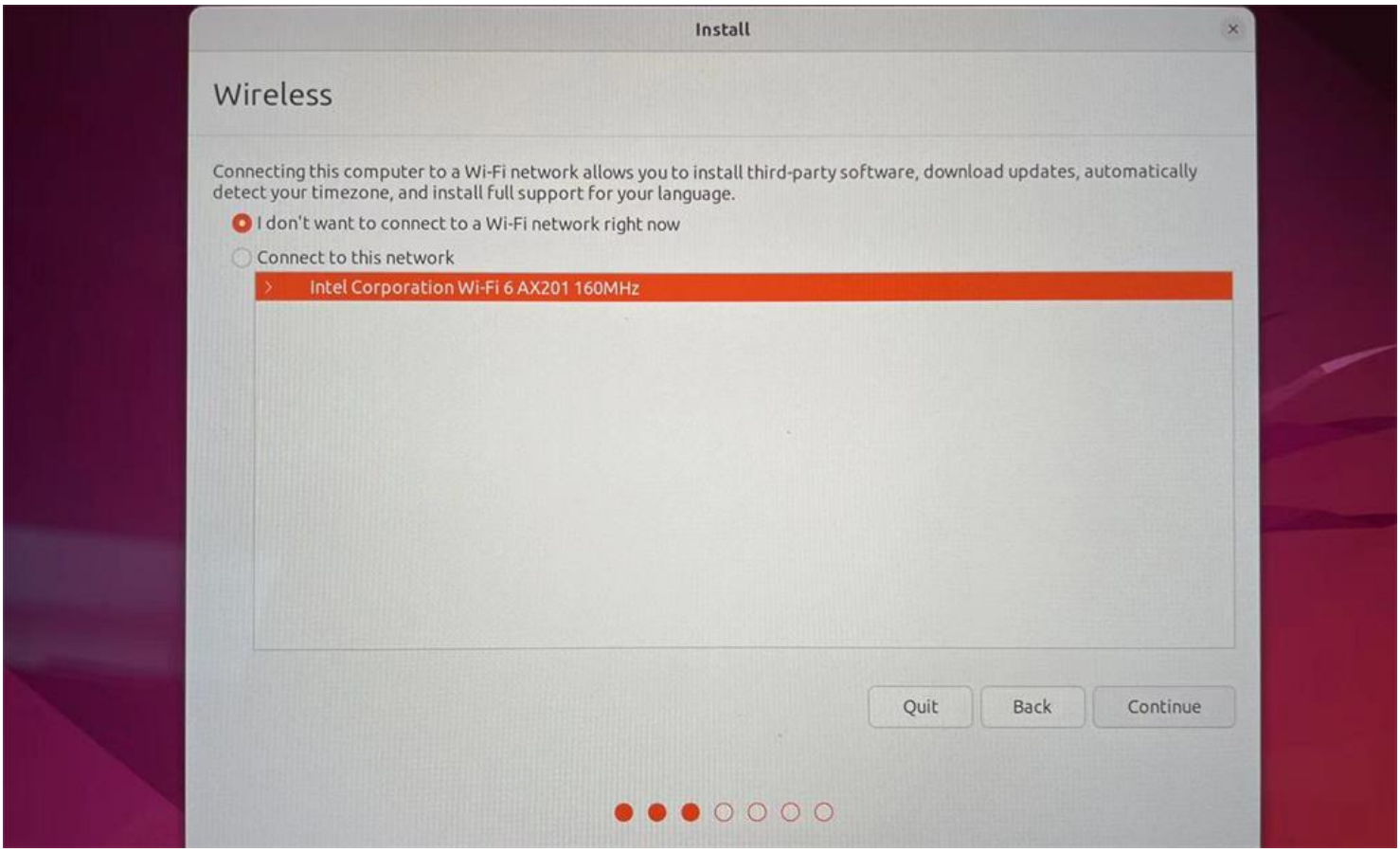
During this process, the screen may go black. Please be patient and do not do anything until you see the following screen.



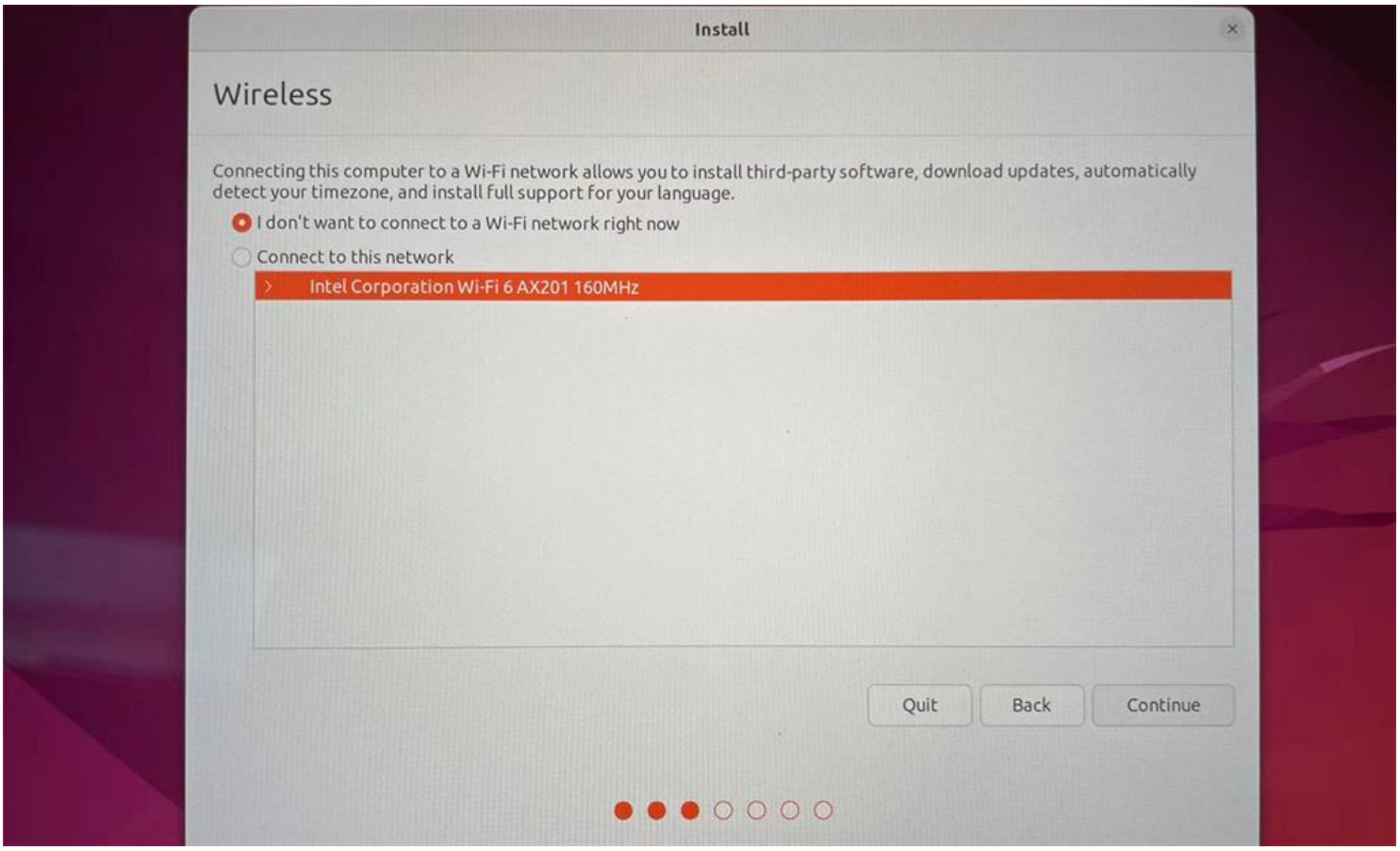
Please double-click the 'Install Ubuntu' icon. After double-clicking, the installation will begin.(as shown below)



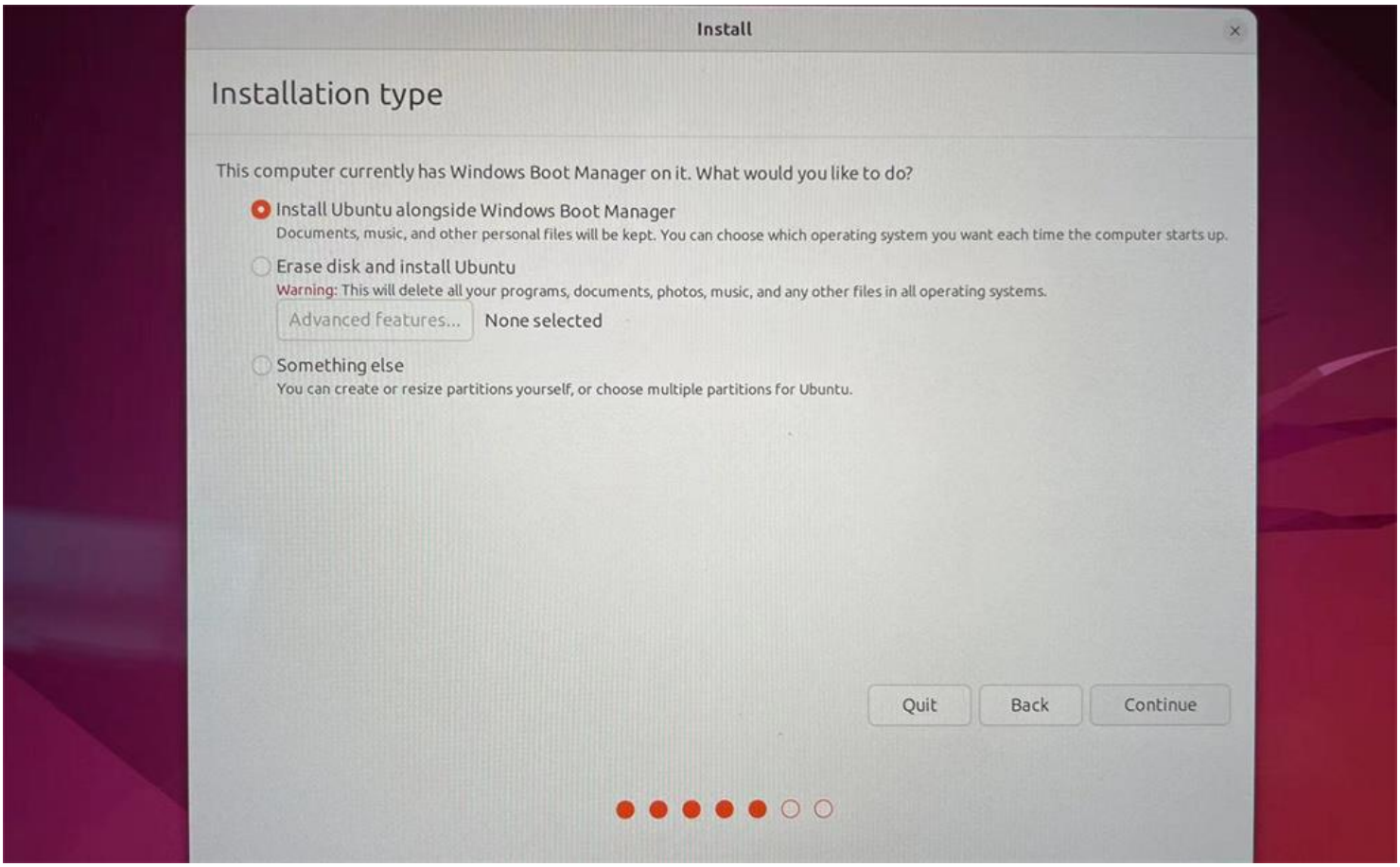
Choose your default language and continue.



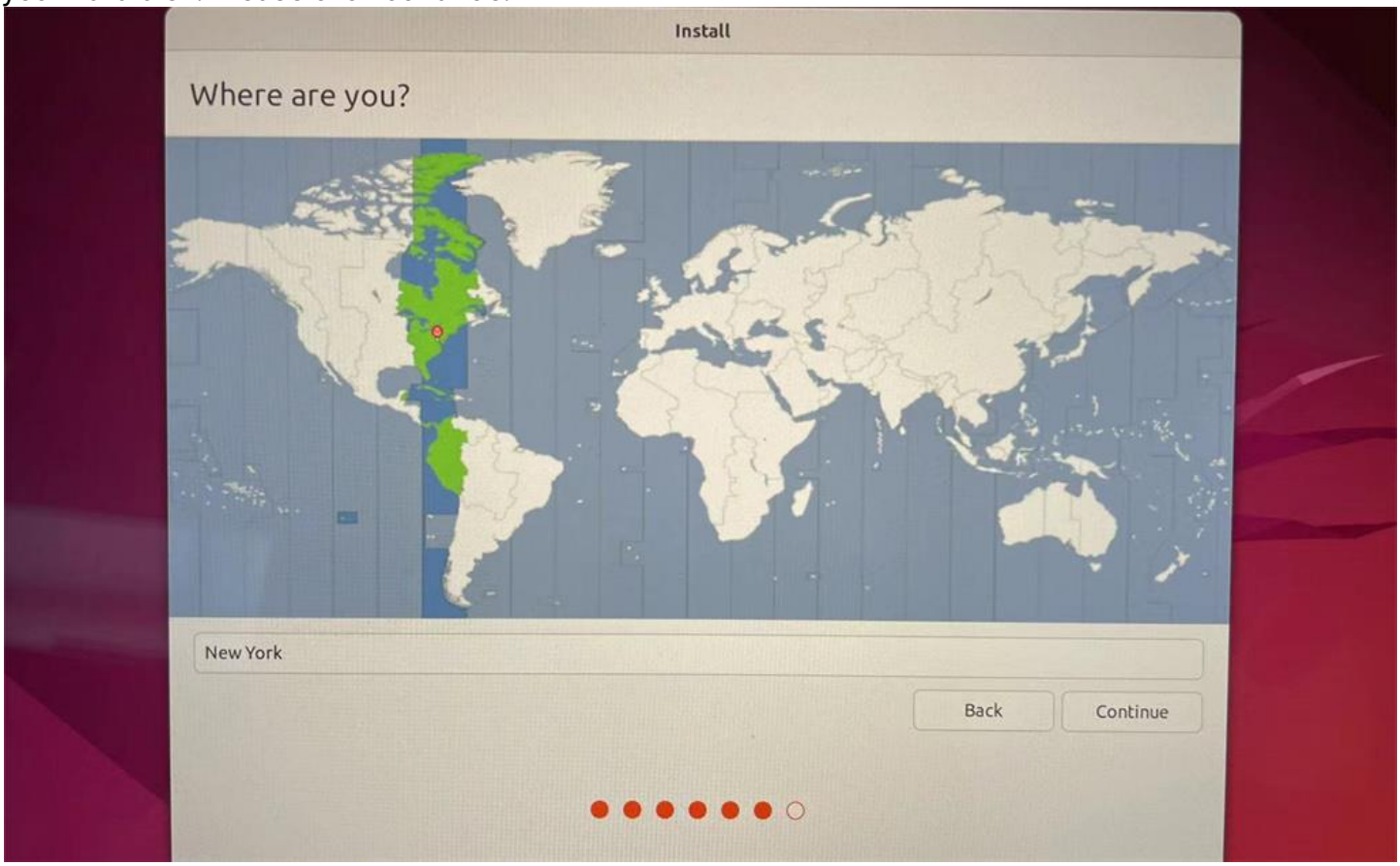
Connect to a WiFi network.



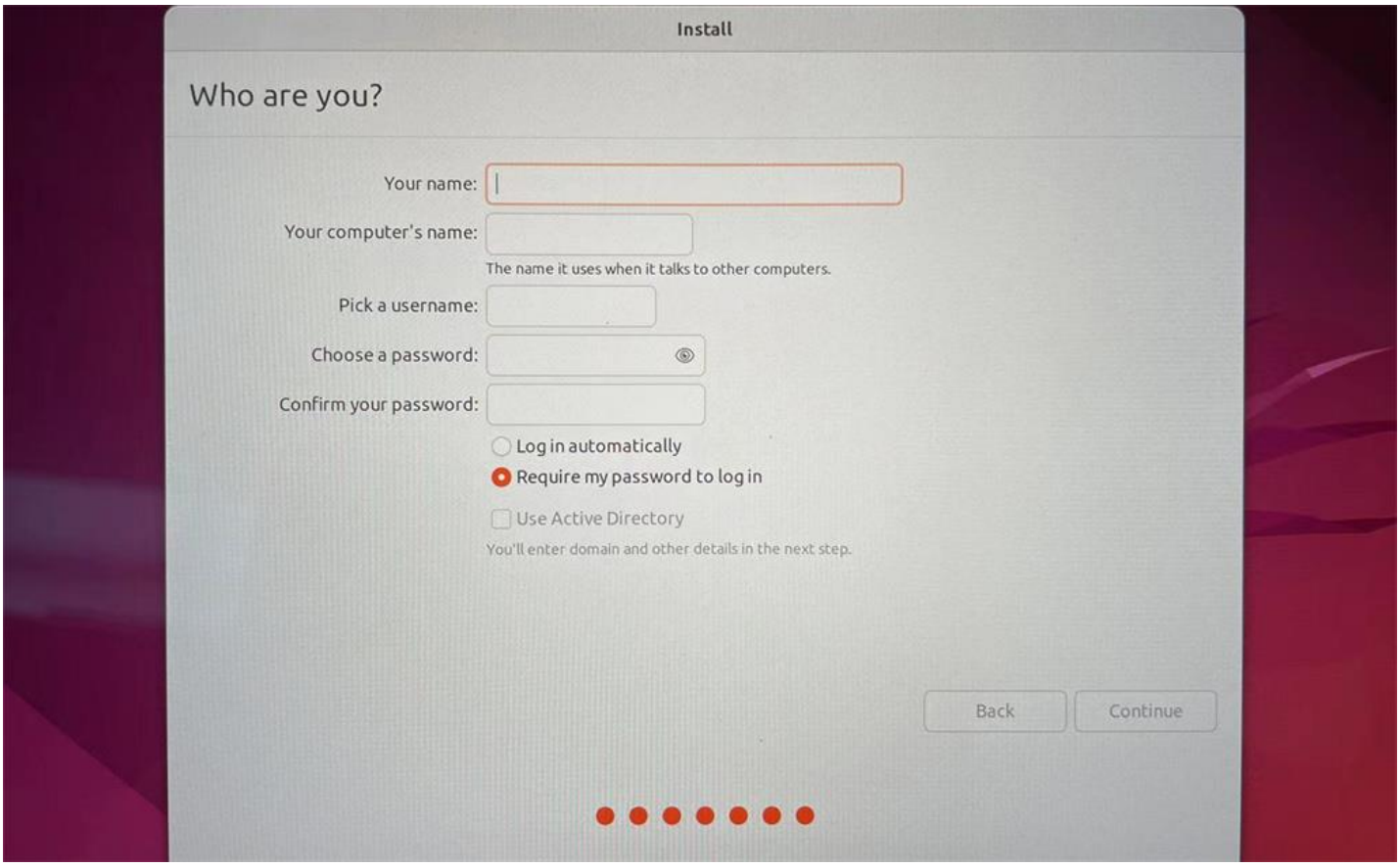
Choose "Normal installation".



Choose the best option for you. There will be a small window to confirm that changes will be made to your hard disk. Please click continue.



Choose your time zone and click continue to proceed.



Fill out all input fields to continue.

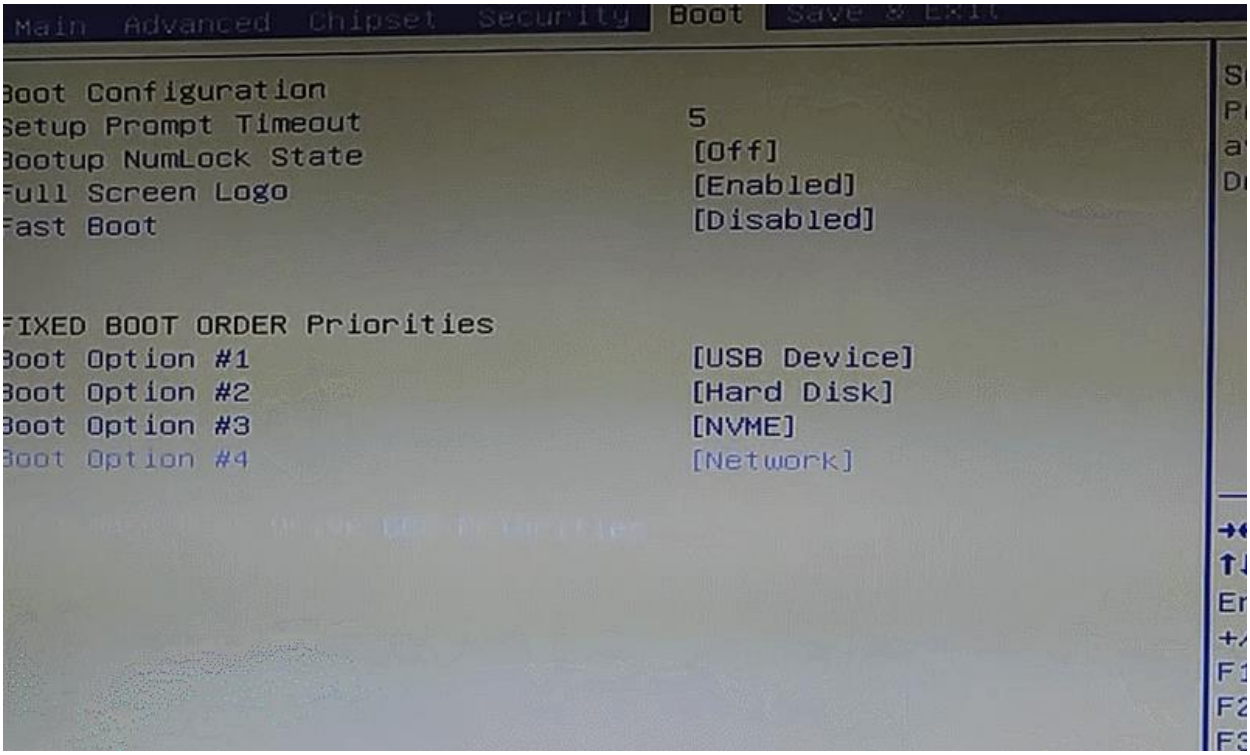
Please be patient and wait for the installation to complete. Then, you will be asked to restart LattePanda to complete the installation.

Wait for your LattePanda to restart and boot up Ubuntu, then enter your password to log in. Enjoy it!

Attention:

If you choose to install Ubuntu alongside Windows Boot Manager, LattePanda may boot into Windows instead of Ubuntu after restart , or Ubuntu doesn't show in the boot order priorities, please take the following steps:

- Select 'UEFI Hard Disk Drive BBS Priorities'
- Change the device in 'Boot Option #½'



Regular Driver¶

If you do not use the windows image file provided by us, you may encounter driver problems. **You can use Windows Update to get the latest drivers. Most drivers can be installed correctly, such as WiFi, ethernet, and graphics drivers.**

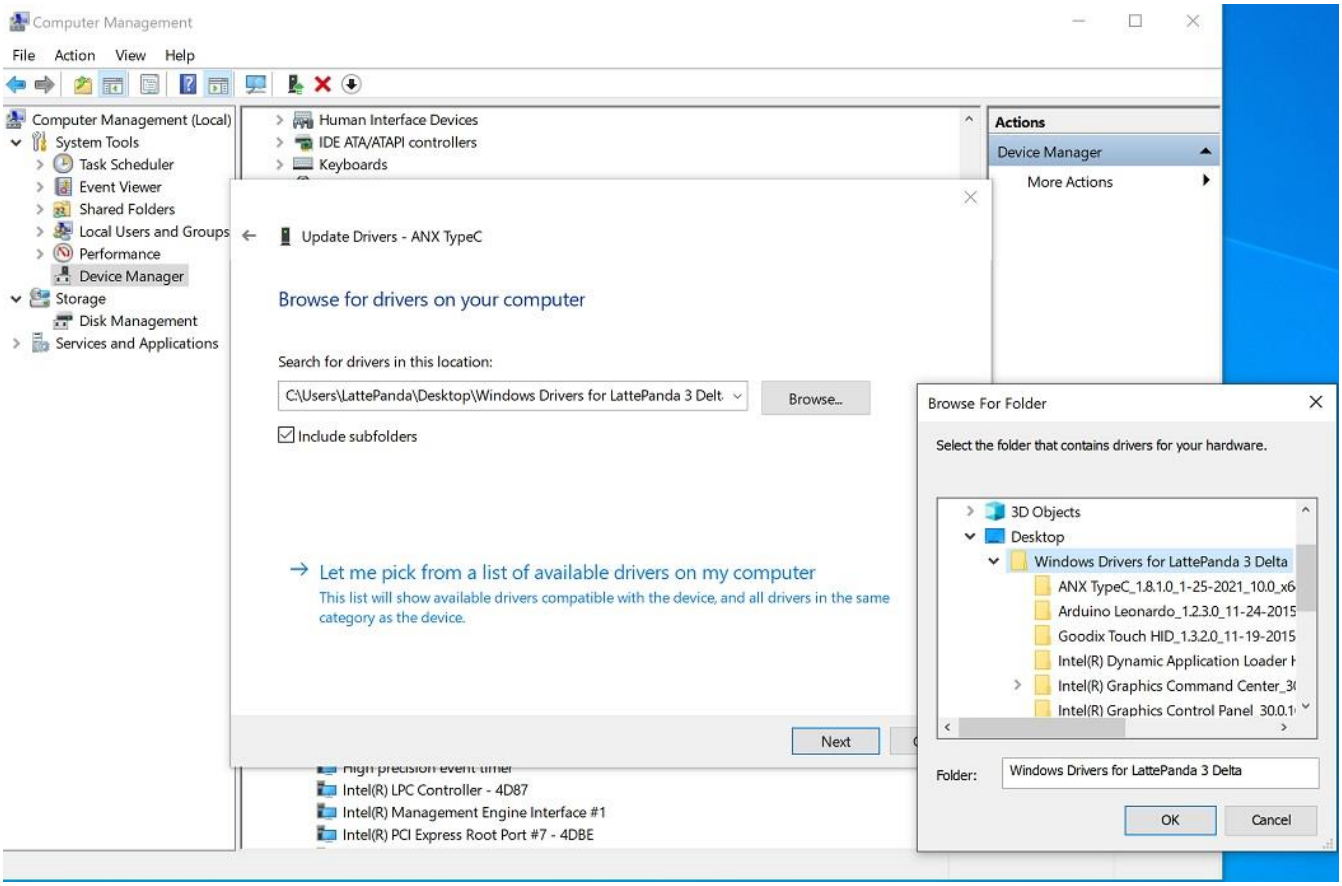
If you still find some unknown devices in the device manager, please refer to the following method.

We packaged all hardware drivers in our Windows operating system. So you could directly download the driver files. These drivers may not be the latest, but they all work fine in windows 10 and 11.

- ### How to install the driver of the unknown device?¶

  - Download the driver files from Dropbox Link or Google Drive Link.
  - Unzip the driver files. You could unzip them in the same folder.
  - Open the device manager, then select the unknown device.

    Right Click -> Update driver -> Browse my computer for drivers, then select the folder where you unzip the driver files.



- Then click Next. The driver will be automatically installed.

Touch Panel Driver¶

The touch panel driver for LattePanda 3 Delta is the same as that for the LattePanda V1.0 and LattePanda Alpha/Delta.

Windows Touch Panel Drivers (V1.1) - 64Bit for Windows 10

PLEASE NOTE: “install.bat” must be run as administrator to update the driver correctly.

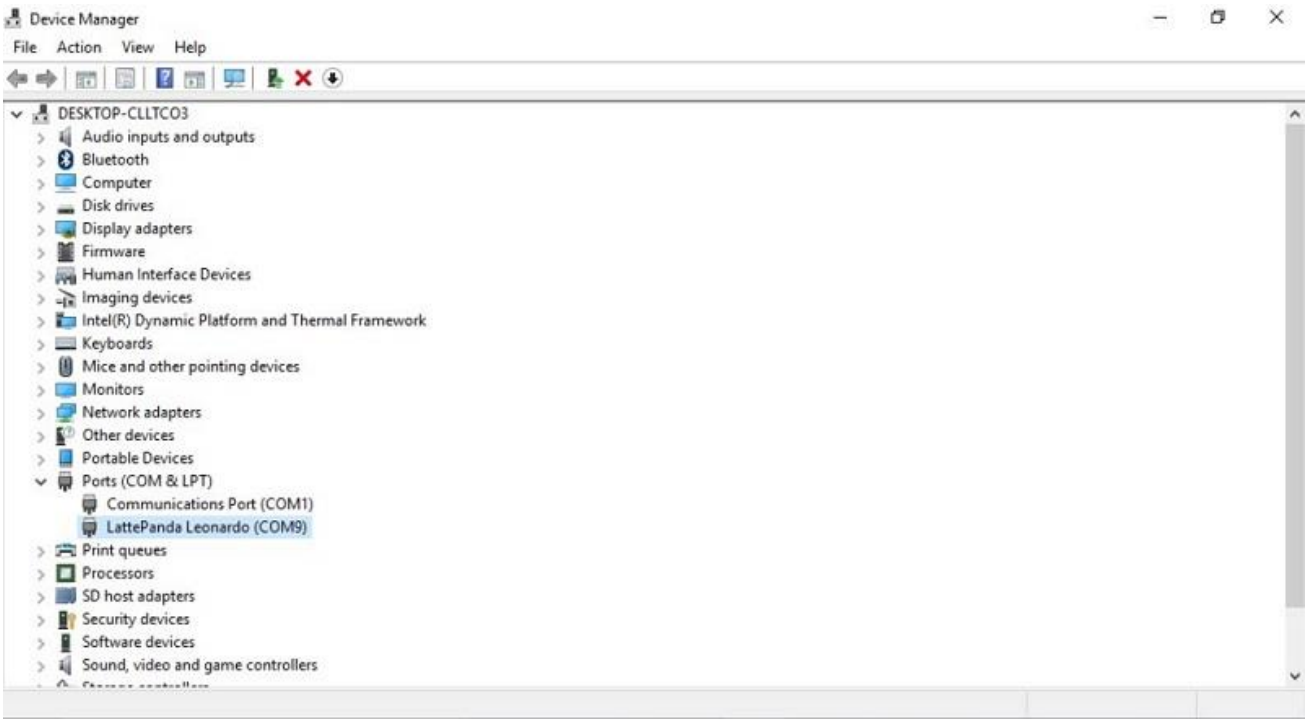
Windows Touch Panel Drivers(V1.3.2)-64bit for Windows 11

LattePanda Leonardo Driver¶

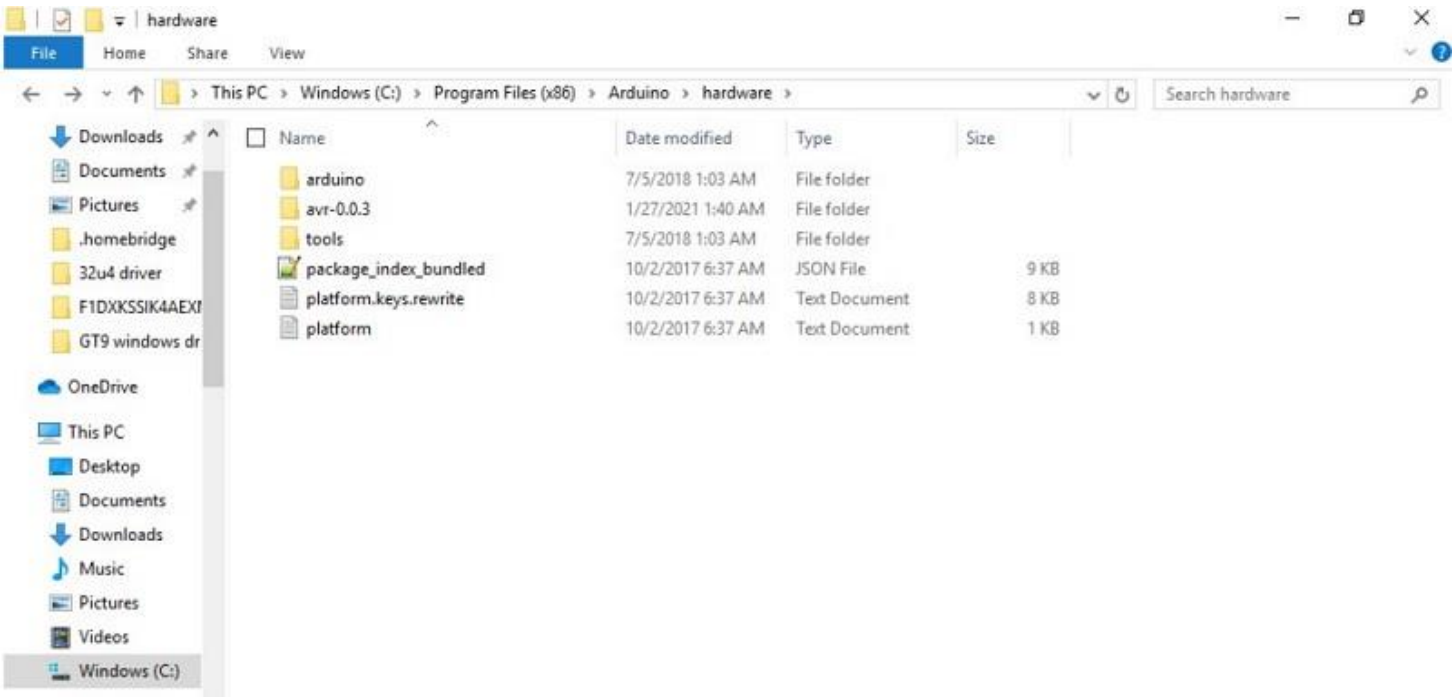
The LattePanda Leonardo is different from the standard Arduino Leonardo. The IDE configuration files and drivers are not the same.

The official windows 10/11 system image provided by LattePanda team has integrated drivers and configuration files. So if you installed the Windows system by yourself, please configure the driver and IDE files according to the following steps.

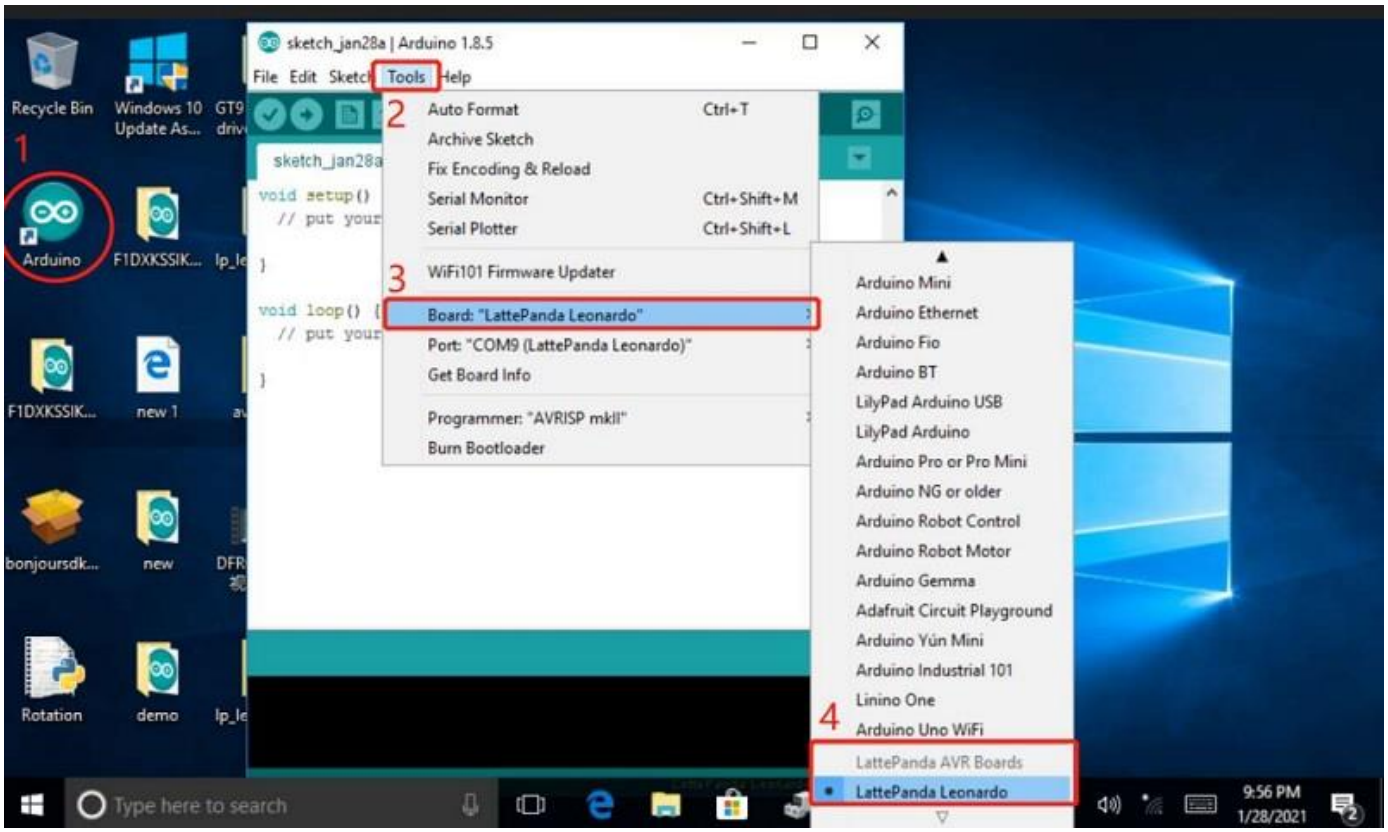
- Download the Arduino IDE. Then install it on your windows 10/11 system. We use the Arduino IDE 1.8.16.
- Download the LattePanda Leonardo configuration files from Dropbox Link or Google Drive Link. Then unzip it.
- Enter into "Windows Driver" folder, and run "dpinst-amd64.exe" to install the driver. After that, you will see the LattePanda Leonardo port in the device manager.



- Enter into "Arduino IDE Files" folder, copy "avr-0.0.3" folder to "C:\Program Files(x86)\Arduino\hardware".



- Run Arduino IDE，Open “Tool” menu，Choose “Board：xxx” -> “LattePanda AVR Boards”->“LattePanda Leonardo”. If you see “LattePanda Leonardo” board, the Arduino IDE files are correct.



Previous2x OS Support

Power Adapter Description¶

The recommended power adapter is undoubtedly the official USB Type-C PD adapter that comes with your LattePanda 3 Delta.

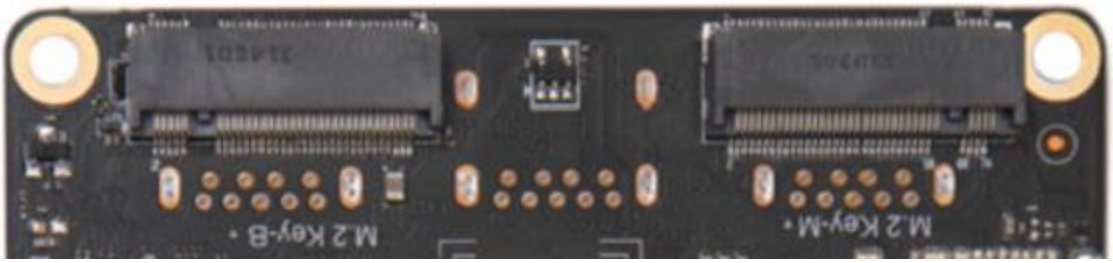
However, LattePanda 3 Delta is also designed for embedded applications, like robotic components, mobile or portable devices. So, an external power supply will be necessary: 12 Volt DC Input - JST PH2.0-4P connector.

The Specifications should be as follows:

- 11-15V(no higher than 15V)
- 24 watts or above is recommended
- Recommended power source: 12V, at least 2A

M.2 Socket¶

There are two M.2 sockets on LattePanda 3 Delta: M key and B key.



- M.2 M Key¶

The M.2 M key socket only allows PCIe 3.0 x2.

Compatible Device¶

STORAGE¶

- Compatible with M.2 NVMe SSD

OTHER DEVICES¶

- eGPU(you can also connect an eGPU to m.2 M key if you have a high-quality cable adapter like ADT Link) Video link here to the eGPU

- M.2 B Key¶

The M.2 B key socket allows SATA III, USB 2.0, USB3.0, and SIM.

Compatible Device¶

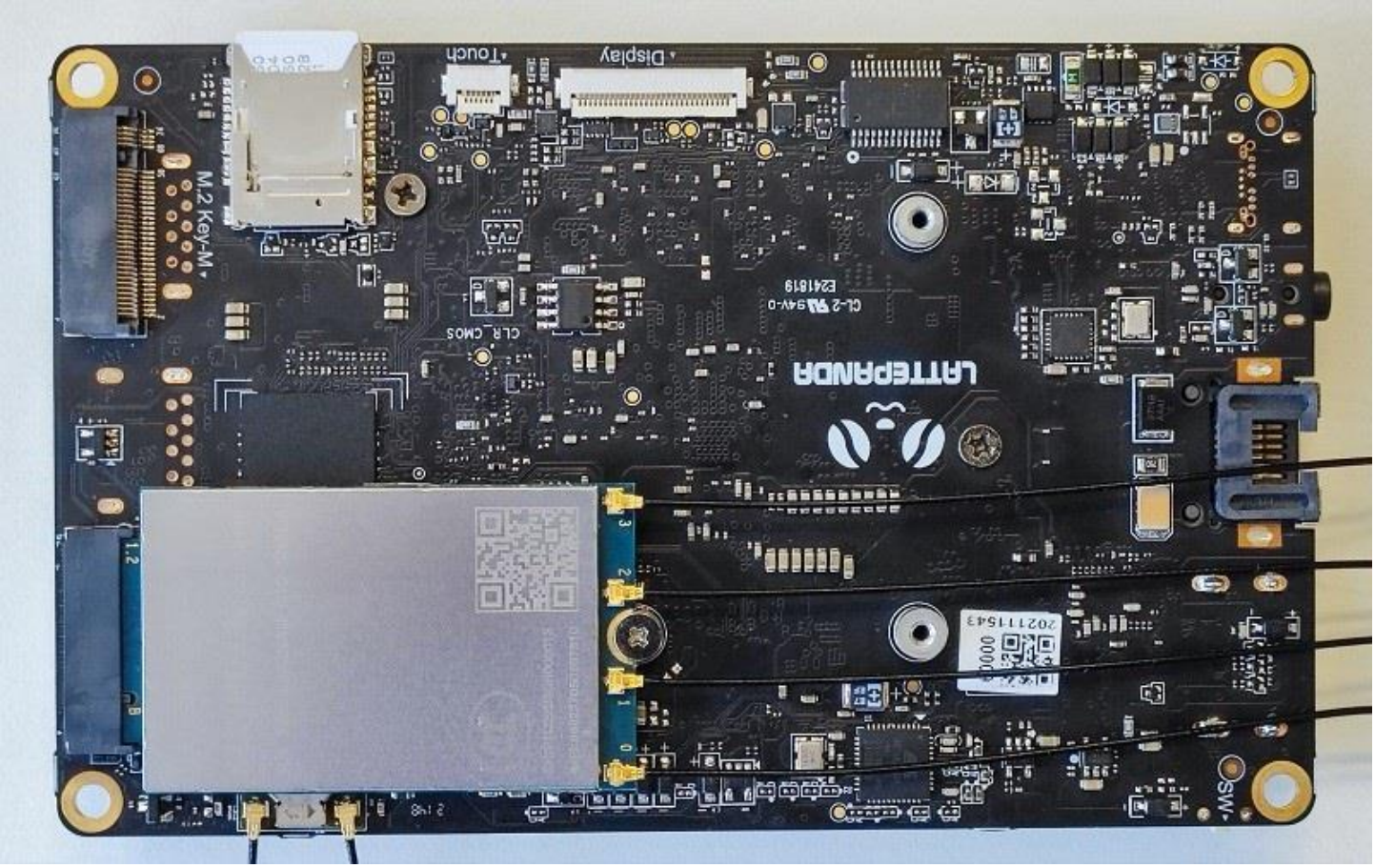
STORAGE¶

- Compatible with M.2 SATA SSD

WIRELESS DEVICES¶

- M.2 4G Module (USB 2.0 lane)
- M.2 5G Module (USB 3.0 lane)

Before using the 4G or 5G module, please insert a micro-SIM card into the SIM card slot, then assemble the antennas on the module.



Then install the driver of the module after logging into the OS.

We have tested the following modules, which are working fine in the Windows 10 OS.

- Quectel EM05-E
- SIMCom SIM7600G-H-M2
- Quectel RM500Q-GL

USB Type-A Port¶

There are three USB Type-A ports on LattePanda 3 Delta. One of them is a USB 3.2 gen2 x1 port with an ultra-high bandwidth, delivers up to 10Gb/s throughput, which is twice faster than USB3.2 gen1 x1 (previously known as USB3.0). The remaining two are USB3.2 gen1 x1 ports.

USB Type-C Port¶

There is a USB Type-C port on the LattePanda 3 Delta. It can be connected to a PD power adapter or a USB-C hub to expand to more ports, like DP, DVI, USB, SD/MicroSD, etc.

The USB Type-C port supports simultaneous use of following three functions.

- Power Delivery
- DP 1.4
- USB 2.0

Female Header Pins¶

- ### Status Indication Pin¶

The S0, S3, S4 pins can indicate the current state of operating system through different output voltages. So the OS status can be obtained by reading these voltages or connecting LED indicators.

The voltage of these pins in different states are shown as follows:

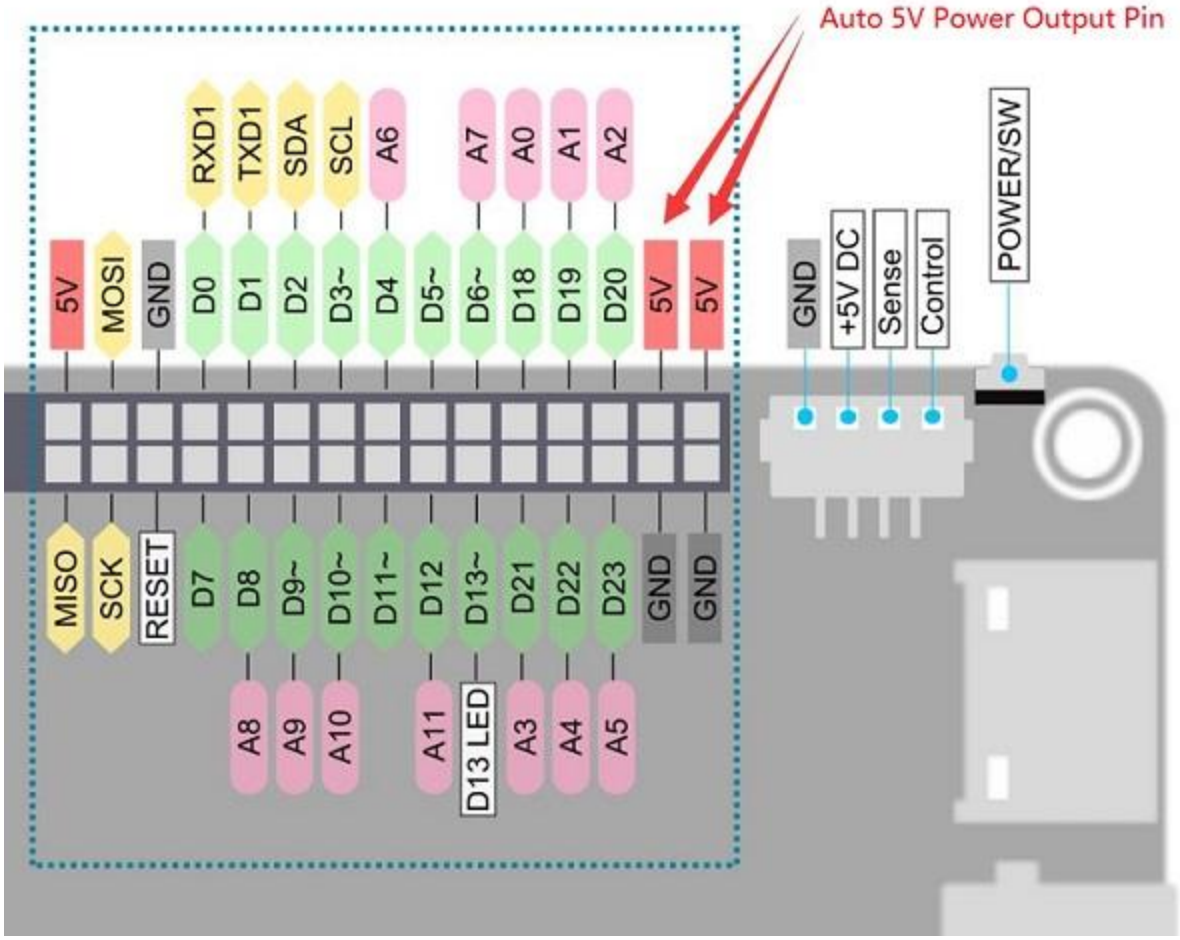
S0 Pin	High	Low	Low	Low
S3 Pin	Low	High	Low	Low
S4 Pin	Low	Low	High	Low

- High: 5V; Low: 0V

- ### Auto 5V Output Pin¶

There are two 5V output pins in the female headers. They are automatically controlled according to different states.

Other 5V & 3.3V output pins are always turned on unless you enable Deep Sleep EUP function in BIOS.

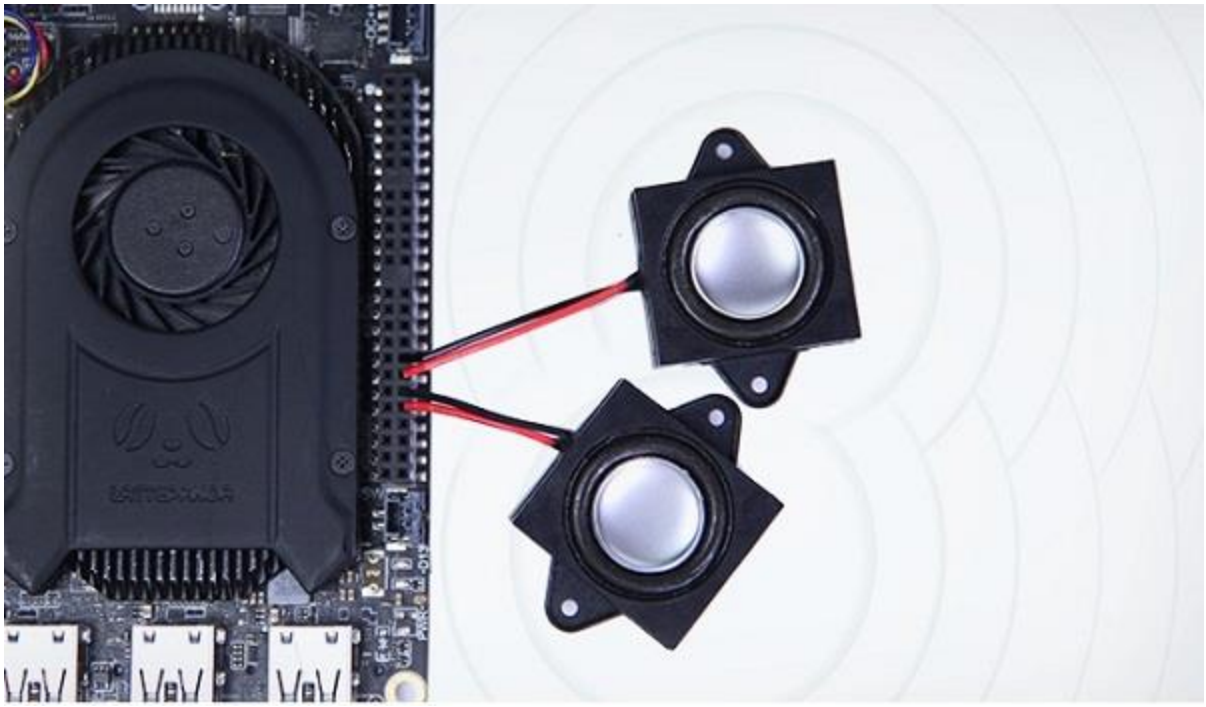


The power output of these two 5V output pins is as follows:

power output of these 5V output pins	Enabled	Enabled	Disabled	Disabled

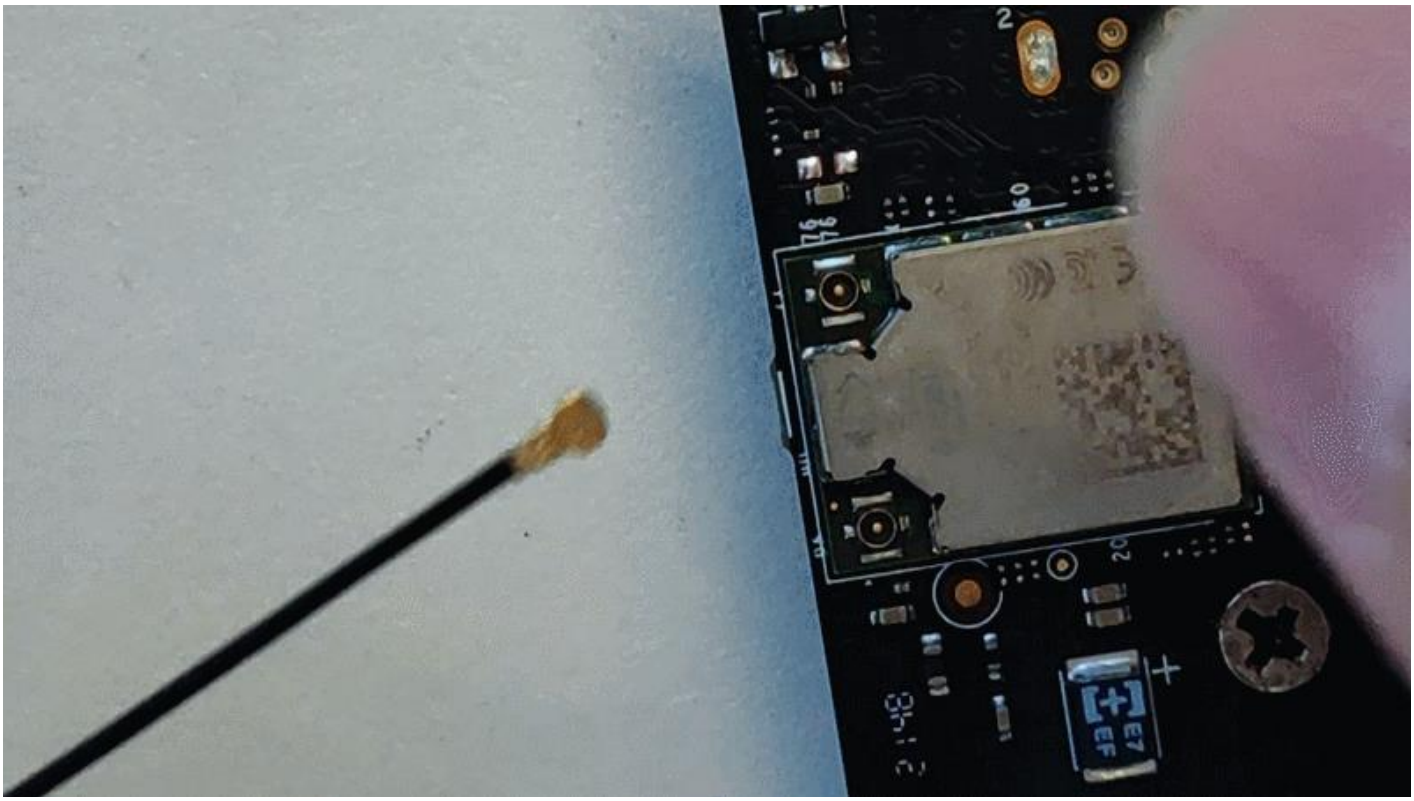
- Audio Output Pin¶

LattePanda 3 Delta has two-channel audio output pins with audio power amplifier and the output power of each channel can be up to 2W. You can directly connect two speakers to play sound. When the headphone is inserted, the audio output automatically switches to the headphone jack.



WIFI¶

Before connecting to a Wi-Fi source, you should install two Wi-Fi antennas to your LattePanda board by plugging the round-shaped end of the antenna into the complementary socket.



Then, surf the internet!

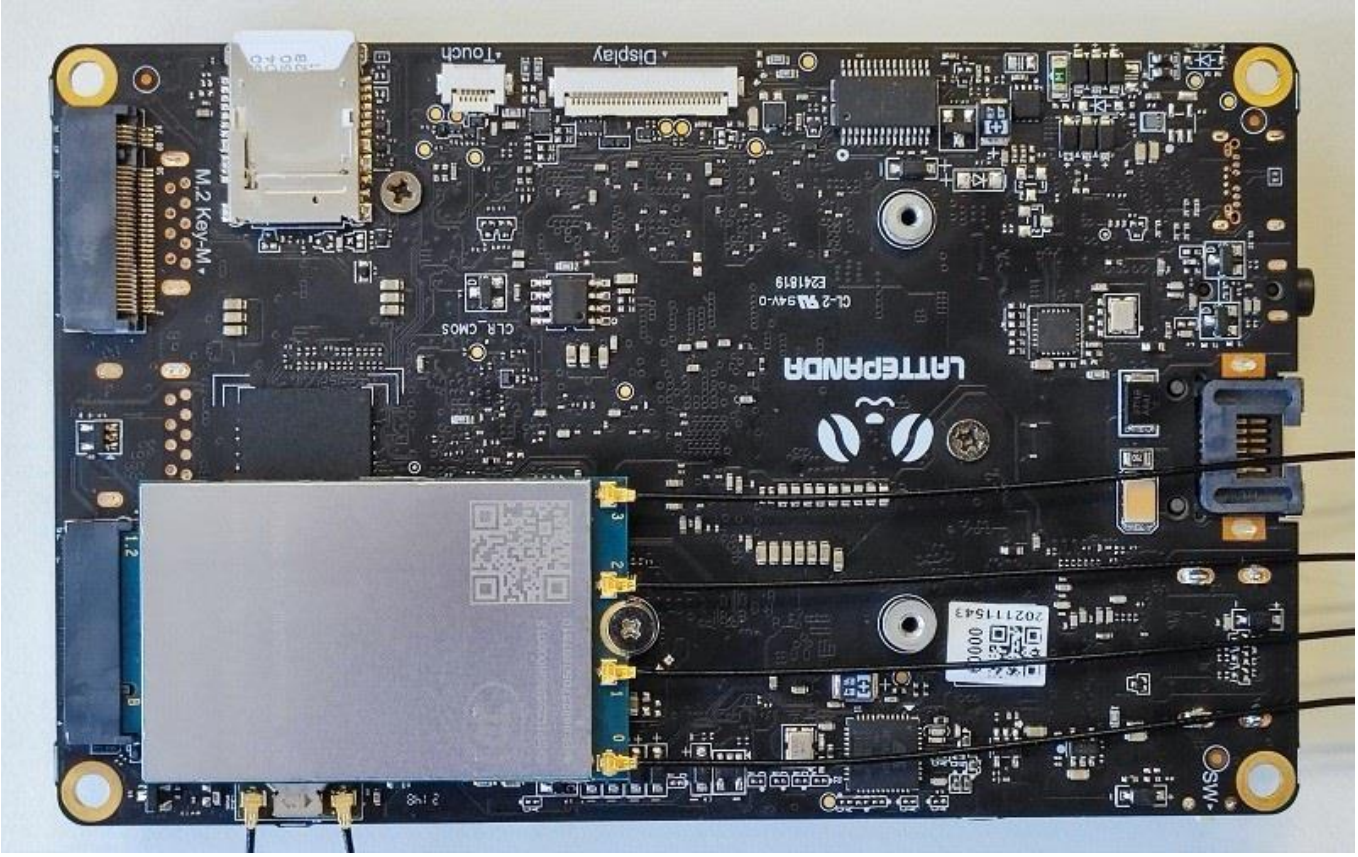
Ethernet¶

There is an Ethernet port on the LattePanda board. Plug the ethernet cable, then surf the internet!

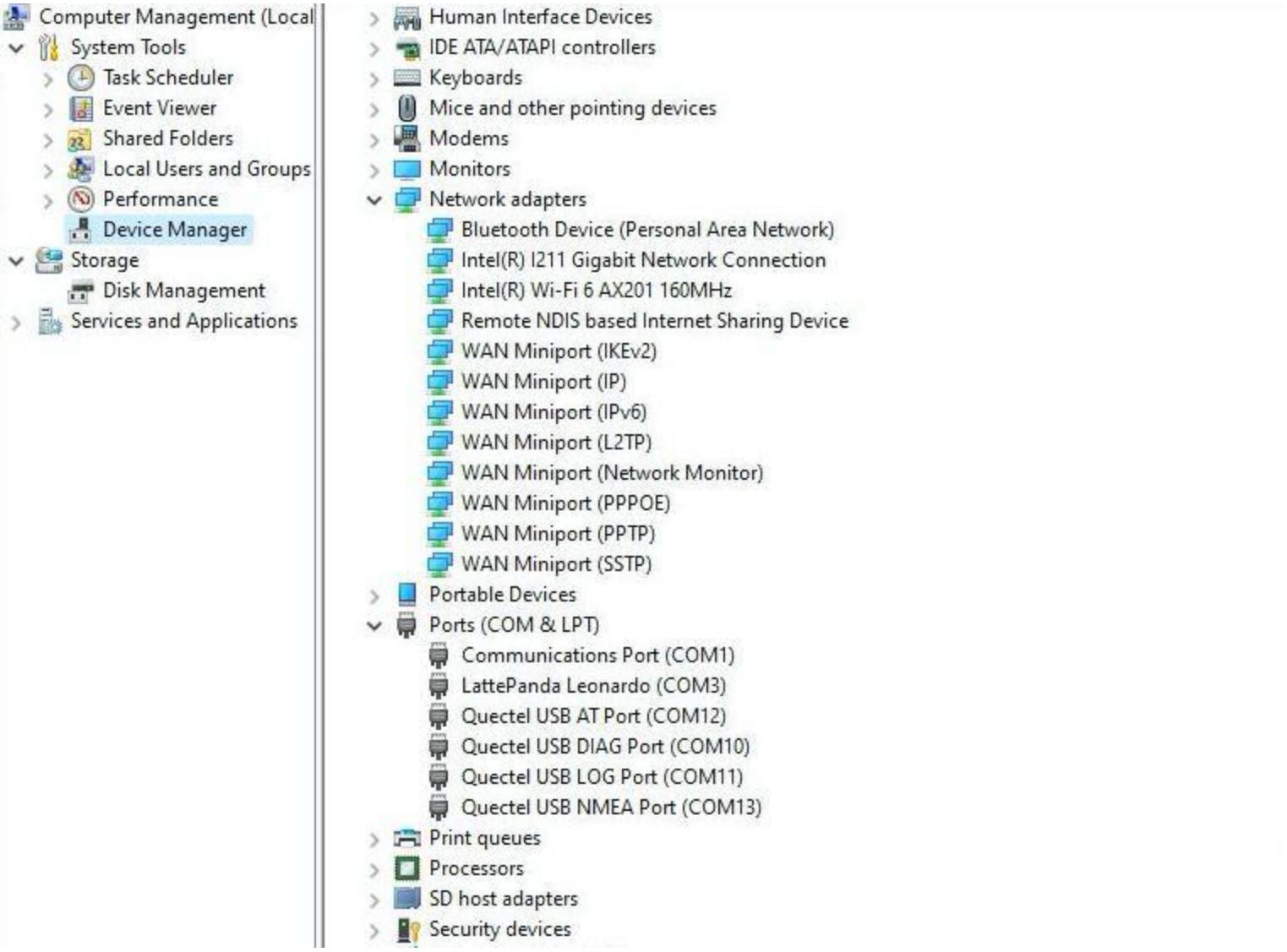
Cellular (4G/5G)¶

Before using the cellular network, please assemble the 4G/5G module on the M.2 B key socket first!

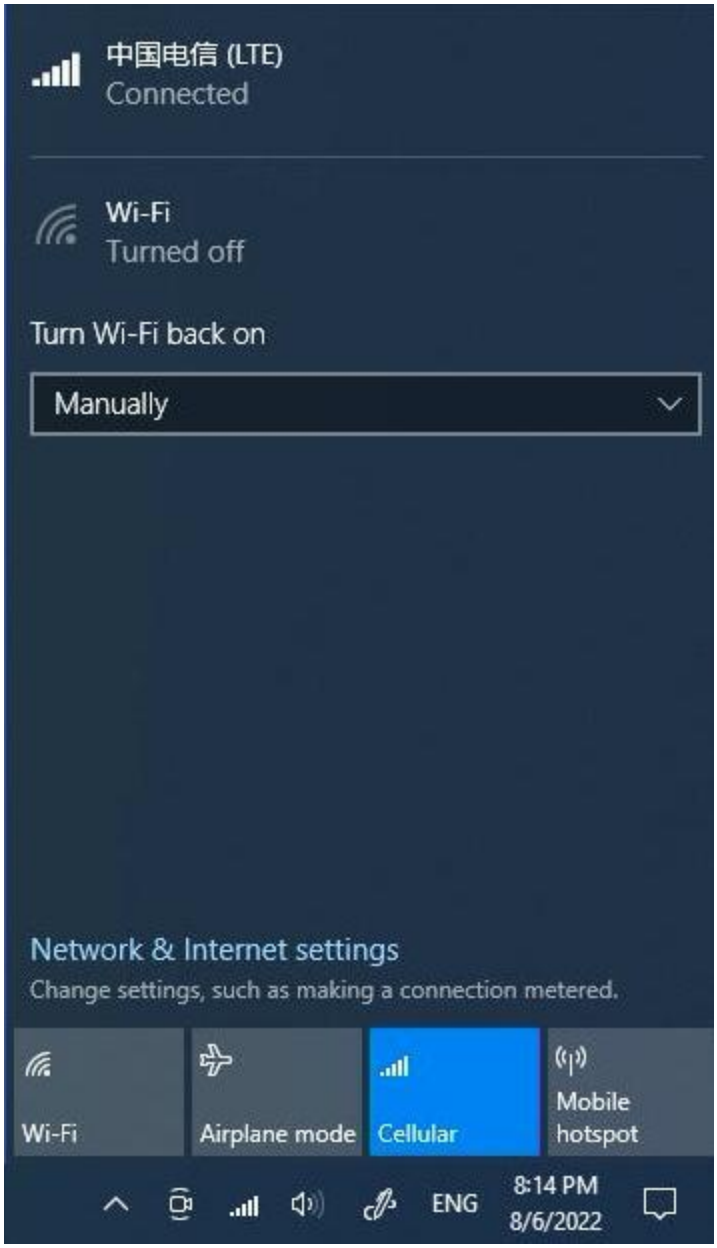
- Assemble the 4G/5G module on the M.2 B key socket. Then assemble the 4G/5G antennas on the module. Insert a micro-SIM card into the SIM card slot as well.



- Then install the driver of the module after logging into the OS. There should be no unknown devices in the device manager.



- Now surf the internet!



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- SIMCom SIM7600G-H-M2
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Installing Ubuntu Operating System

Using eDP Touch Display

Set up Auto Power-on

Operating System

Drivers & Software

3D Model