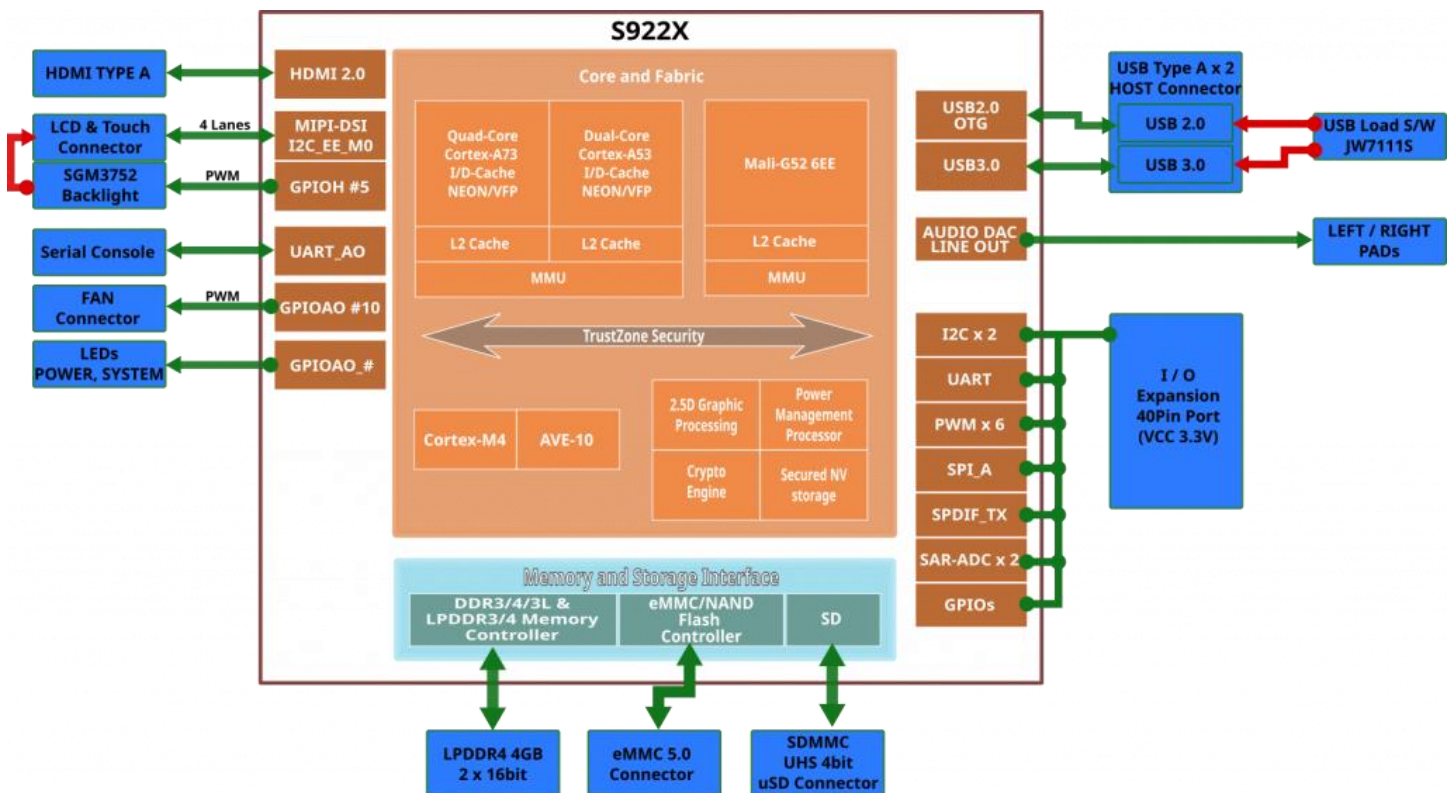


Getting Started with Odroid N2L

ODROID-N2L is a new single board computer that is very small in size but powerful in performance.

The main CPU of the N2L is based on big.Little architecture which integrates a quad-core ARM Cortex-A73 CPU cluster and a dual-core Cortex-A53 cluster with a new generation Mali-G52 GPU. Thanks to the modern 12nm silicon technology, the A73 cores run at 2Ghz minimize thermal throttling using the stock heatsink with the fan allowing a robust computer.

The CPU multi-core performance is the same but the 4GByte/2GByte LPDDR4 RAM is 20% faster than the N2+. The N2L's LPDDR4 RAM is running at 1608Mhz while N2's DDR4 was running at 1320Mhz.



OS Installation Guide

Here are the minimum requirements of each operating system.

- Ubuntu Mate: At least **8 GB** is recommended.
- Ubuntu Minimal: At least **4 GB** is recommended.
- Android: At least **8 GB** is recommended.

To insert a memory card into your computer, you need a **memory card reader** to work with that.

You can purchase **OS preinstalled** eMMC / microSD cards from <https://www.hardkernel.com/product-category/memories/>.

When you choose a memory card, please keep in mind that you should **check the product name carefully** to choose a proper memory card for your board.

- **eMMC** is recommended to you when you want to experience much faster computing comes with robust stability.
- Note that ODROID-HC4 has no eMMC interface/connector.

Operating Systems we're providing

We're providing **Ubuntu Mate** as well as **Android** for each ODROID board.

Ubuntu Mate is one of the most famous Linux distribution provides a graphical desktop environment. It is lightweight, fast, and customizable at your taste. If you want to get more information, please visit Ubuntu Mate websites: <https://ubuntu-mate.org/>

Ubuntu Minimal is for those who want to use the board as a headless server like a NAS, a website hosting server or a media player, even a simple classic game emulator. Or, it could be a remote build machine too.

Android is the most popular mobile platform in the world. You can use Android to get the easy interface for any of diverse use.

ODROID-N2L



Ubuntu MATE 20.04 desktop image.

[KR](#) [US East](#) [US West](#) [EU](#)

Ubuntu Minimal 20.04 image.

[KR](#) [US East](#) [US West](#) [EU](#)

Ubuntu ROS2 20.04 image.

[ROS2](#)



Android Pie (9.0.0) image.

For 64-bit

[KR](#) [US](#) [EU](#)

We're also providing the other useful **third-party** images for use as a media server, a game station, or a network-attached server.

And the other Linux distributions are also provided. These powerful images are from our partners or our customer.

All of these images are listed here: [Third-party images](#).

- Ubuntu MATE user/passwd: odroid/odroid, root/odroid
- Ubuntu Minimal user/passwd: root/odroid

Installation

1. Download Etcher

You can easily flash an image to your memory card using Etcher.

Download Etcher here: <https://www.balena.io/etcher/>

2. Insert a memory card

Insert a memory card into your computer. You may use a proper memory card reader.

If you are using an eMMC card, insert the eMMC card as shown below.



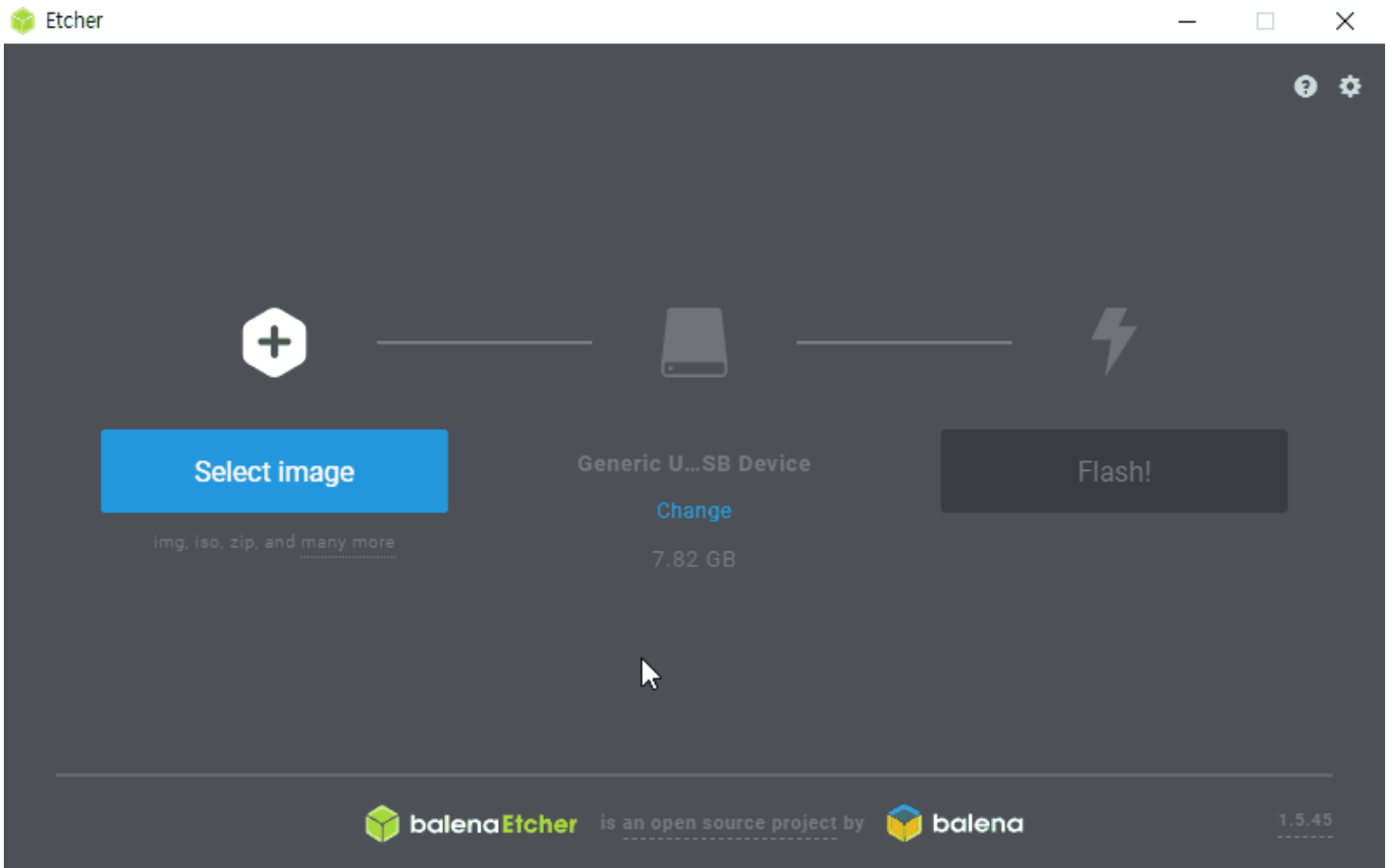
3. Flash the image

4. Open Etcher.

5. Select the downloaded OS image.

6. Select the inserted memory card. (Normally, the memory card is detected automatically.)

7. Click Flash!



Application Note

Hardware Side

- [Build a NTP server with GPS/PPS](#)
- [How to Control Blue Status LED](#)
- [Sound Card Info](#)
- [ODROID-N2 with mini DC UPS](#)
- **Alternative heartbeat LED**

If you want to remap the blue heartbeat LED to other GPIO, refer this great instruction. [Alternative Heartbeat LED](#)

Using Internal Peripherals

- **GPIO**
- [Dallas 1-Wire Support](#)
- [Enhancement of 40pin GPIO](#)

- [GPIO Status Check Program](#)
- [ODROID-N2 I2C Controller\(Device Node\) Information](#)
- [Hardware GPIO-IRQ](#)
- [Memory Mapped GPIO](#)
- [Hardware PWM](#)
- [RPi.GPIO for ODROID](#)
- [RPi.GPIO IRQ for ODROID](#)
- [SPI](#)
- [UART](#)
- [WiringPi and Python Wrapper](#)
- [Power Off and Wake Up using GPIO Key Button](#)
- [Android application launching with a GPIO trigger](#)
- [CAN BUS](#)
- [Android Things with I2C 20x4 LCD](#)
- [Android Things with LED](#)
- [Android Things with PWM](#)
- [Android Things with weather2-board](#)
- [Android Things with Uart Callback](#)
- [Android Things with SPI MCP2515](#)
- [Android Things with SPI Loopback](#)
- [ADC](#)
- [How to Enable SPI/I2C/UART Using DTBO](#)

Software Side

- [How to set cpu frequency and cores](#)
- [How to set display resolution and modes](#)
- [Get weather information with Weather-Board2](#)
- [Support GPIO based IR Blaster \(IR TX\)](#)
- [Tips for Custom Boot Logo](#)
- [How to turn off your monitor](#)
- [How to add more SPI slave devices with SS and IRQ](#)
- [Device Tree Overlay](#)

- [How to change Video capture codec for camera on the Android?](#)
- [HDMI Overscan](#)

Misc

- [How to activate dmesg on display](#)

Regulatory Compliance Documents

*[ODROID-N2L KC Certification](#)

*[ODROID-N2L CE Certification](#)

*[ODROID-N2L FCC Certification](#)

Software Platform

- [Boot sequence](#)
- [Partition Table](#)
- **Build**
- [U-boot](#)
- [Linux](#)
- [Android](#)

Software(OS) Release

Please read [**THIS**](#) once before you start to download and flashing S/W release on your ODROID device.

- [Android](#)
- [Ubuntu](#)
- [Third Party OS Images](#)

Trouble Shooting

- [boot.ini](#)