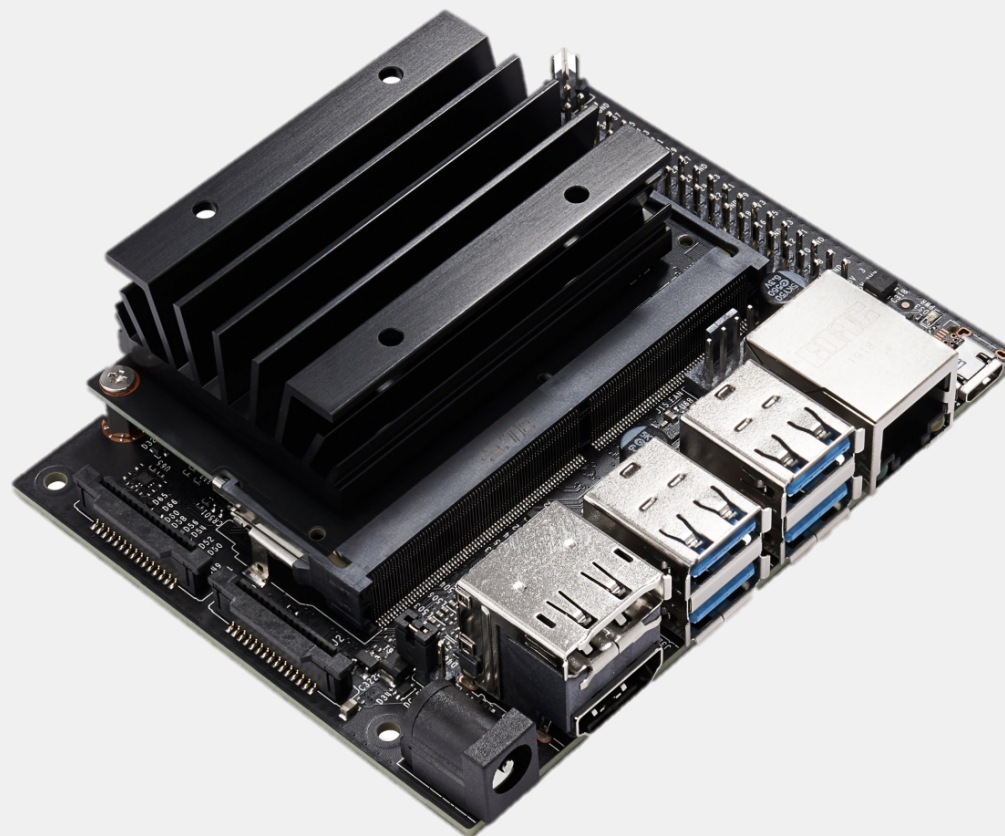


# Getting Started with **NVIDIA JETSON**



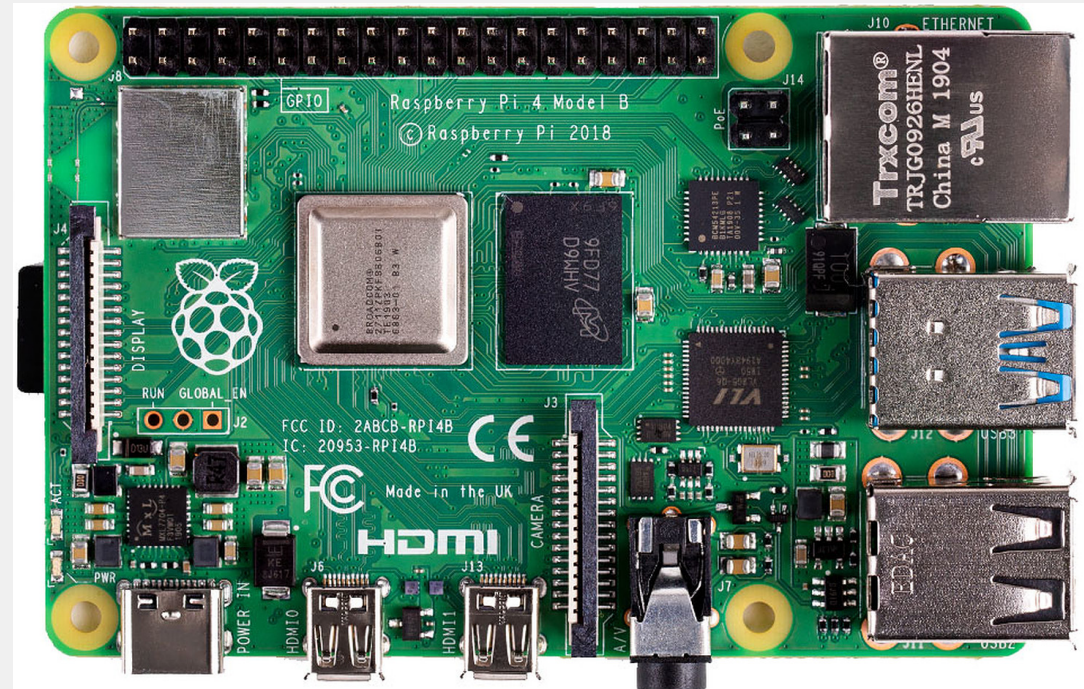
# Content

- How **Jetson** is better than **Raspberry-pi**
- Comparison of different variants of **Jetson**
  - Which and where to buy?
- **SD card flashing**
  - Which and where to buy?
  - How to download image for Jetson
- Running **Jetson** for the first time

# NVIDIA JETSON



VS



# RASPBERRY PI

# Jetson Vs RaspberryPi

| Features     | Jetson Nano                                   | RaspberryPi                 |
|--------------|---|-----------------------------|
| Release Date | March 2019                                    | June 2019                   |
| CPU          | Quad-core ARM A57                             | Quad-core ARM A72           |
| Memory       | 2, 4 GB 64bit LPDDR4                          | 1, 2, 4, 8 GB 64 bit LPDDR4 |
| GPU          | 128-Core Nvidia Maxwell                       | No                          |
| Storage      | External SD Card                              | External SD Card            |
| DL HW        | CUDA GPU                                      | CPU                         |
| USB Ports    | 4x USB Ports                                  | 4x USB Ports                |
| Ethernet     | Yes   | Yes                         |
| Wireless     | External Wifi Dongle                          | Integrated Wifi             |
| Display      | HDMI port<br>Display Port                     | 2x Micro HDMI port          |
| GPIO Header  | 40-pin  | 40-pin                      |
| CSI          | Yes   | Yes                         |
| Power        | Micro-USB (5V, 2/3 A)<br>Barrel Jack (5V, 4A) | Micro-USB (5V, 2/3 A)       |
| Price Range  | 60~100\$                                      | 40~110\$                    |



# Jetson Nano Vs TX2 Vs Xavier

| Features    | Jetson Nano   | Jetson TX2   | Jetson Xavier NX                              | Jetson AGX Xavier  |
|-------------|---|--|---|--|
| CPU         | 4-core ARM A57  | 6-core Denver A57<br>2x 2MB L2 Cache                       | 6-core Carmel ARM<br>3x 2MB L2 Cache, 4 MB L3 | 8-core Carmel ARM<br>4x 2MB L2 Cache, 4 MB L3                          |
| Memory      | 2, 4 GB 64-bit LPDDR4<br>25.6 GB/s                              | 4 GB 128-bit LPDDR4 51 GB/s<br>8 GB 128-bit LPDDR4 58 GB/s | 8 GB 128-bit LPDDR4x 58 GB/s                  | 16 GB 256-bit LPDDR4x<br>137 GB/s<br>32 GB 256-bit LPDDR4x<br>137 GB/s |
| GPU         | 128-Core Nvidia Maxwell<br>0.5 TFLOPS (FP16)                    | 256-Core Nvidia Pascal<br>1.3 TFLOPS (FP16)                | 384-Core Nvidia Volta<br>21 TOPS (INT8)       | 512-Core Volta + NVDLA<br>10 TFLOPS (FP16)<br>32 TOPS INT8             |
| Storage     | External SD Card<br>16 GB eMMC                                  | External SD Card<br>16GB, 32 GB eMMC                       | External SD Card<br>8GB eMMC                  | External SD Card<br>32 GB eMMC   |
| Codec       | 4K @ 60FPS Decode<br>4K @ 30FPS Encode                          | 2x 4K @ 60FPS Decode<br>4K @ 60FPS Encode                  | 2x 4K @ 60FPS Decode<br>2x 4K @ 30FPS Encode  | 4x 4K @ 60FPS Decode<br>6x 4K @ 30FPS Encode                           |
| CSI         | CSI-2 (18 Gbps)   | CSI-2 (30~40 Gbps)   | CSI-2 (30 Gbps)                               | CSI-2 (40~60 Gbps)   |
| Power       | Micro-USB (5V, 2/3 A) (10~15W)<br>Barrel Jack (5V, 4A) (10~20W) | Micro-usb Type-C 10~25W<br>Barrel Jack 10~30W              | Micro-usb Type-C 10~25W<br>Barrel Jack 10~30W | Micro-usb Type-C 10~25W<br>Barrel Jack 10~30W                          |
| Price Range | 60~100\$  | 400~500\$  | 400~500\$                                     | 900~1000\$   |

# SD Card Flashing

- Download the **Jetson** Nano Image
  - <https://developer.nvidia.com/jetson-nano-sd-card-image>
- Download and install Balena**Etcher** for SD card Flashing
  - <https://www.balena.io/etcher/>
- Minimum **16GB** SD Card (**32GB** recommended)



Select image

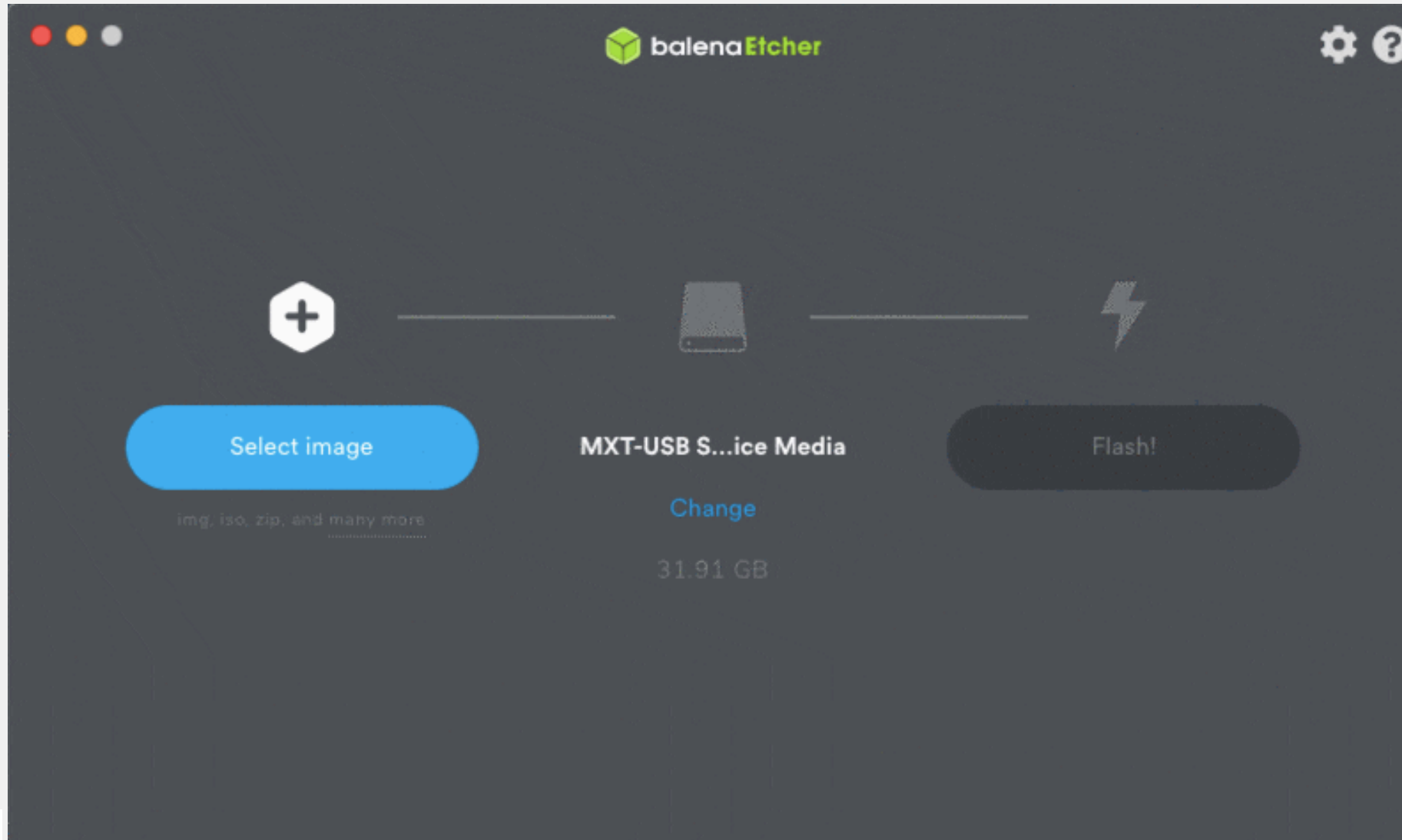


Select drive



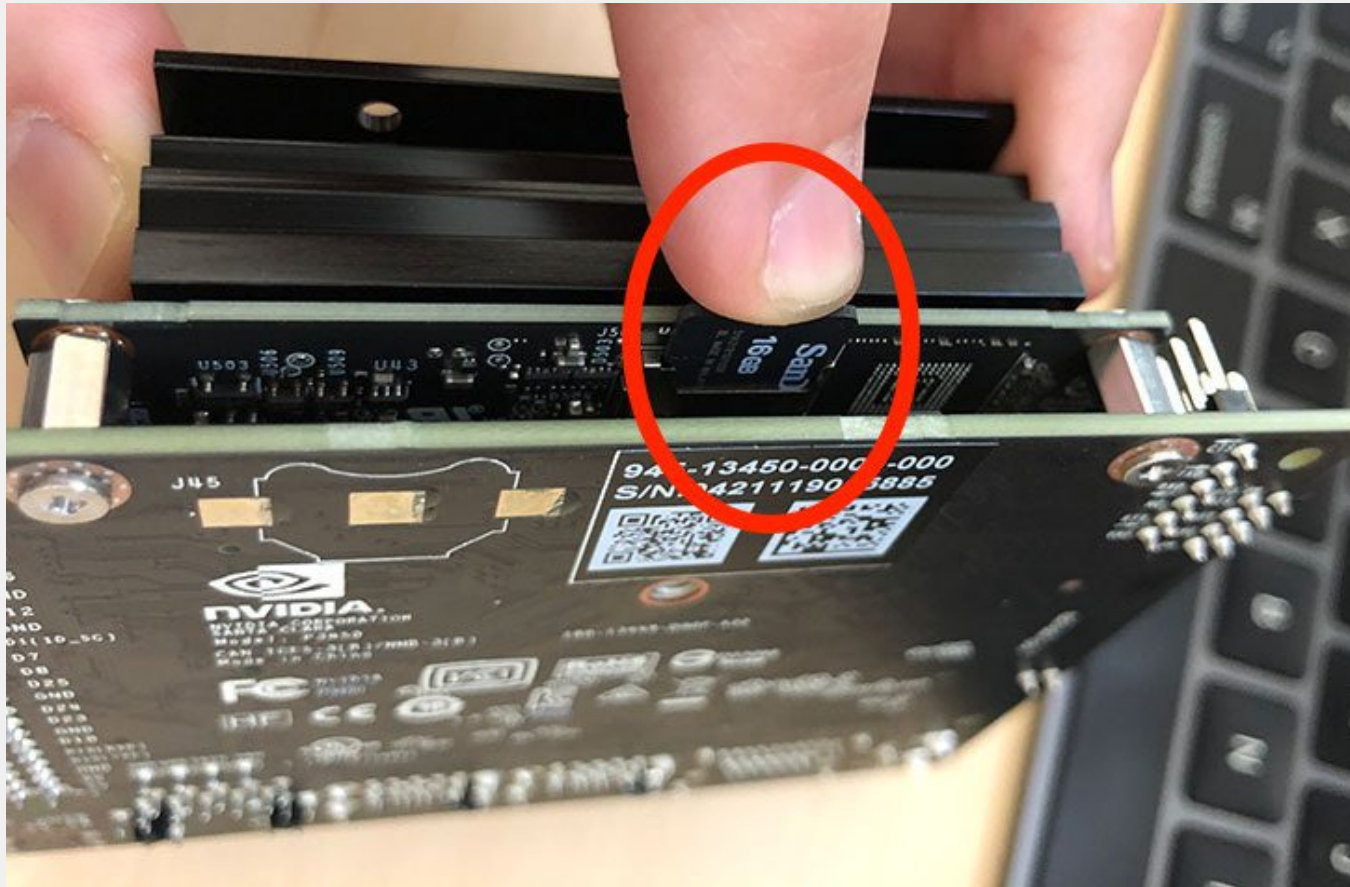
Flash!

# SD Card Flashing



# Starting Jetson

- Inject SD card in to the **Jetson**
- Power on **Jetson** using any power source (Micro-USB or Barrel Jack)





# Links to Buy Items

| Item                        | Link  | Approximate Price |
|-----------------------------|---|-------------------|
| Jetson Nano B01 - 4Gb       | <a href="https://amzn.to/3fW9aLd">https://amzn.to/3fW9aLd</a> | US\$99,00         |
| Jetson Power Supply 5V 4Amp | <a href="https://amzn.to/33MfK4P">https://amzn.to/33MfK4P</a> | US\$16,99         |
| 128GB Micro SD Card         | <a href="https://amzn.to/3tURtEe">https://amzn.to/3tURtEe</a> | US\$24,99         |
| Jetson Case with Fan        | <a href="https://amzn.to/348SAFo">https://amzn.to/348SAFo</a> | US\$12,99         |
| Wifi Module for Jetson      | <a href="https://amzn.to/348SAFo">https://amzn.to/348SAFo</a> | US\$26,99         |
| Logi C270 WebCam            | <a href="https://amzn.to/3r1Zq8Q">https://amzn.to/3r1Zq8Q</a> | US\$24,97         |
| HDMI Cable                  | <a href="https://amzn.to/3u6fQ1X">https://amzn.to/3u6fQ1X</a> | US\$8,99          |
| Keyboard and Mouse          | <a href="https://amzn.to/3u10KL5">https://amzn.to/3u10KL5</a> | US\$23,79         |
| <b>Total Cost</b>           |   | <b>US\$238,71</b> |

**Thank You**