Installing Jetson environment

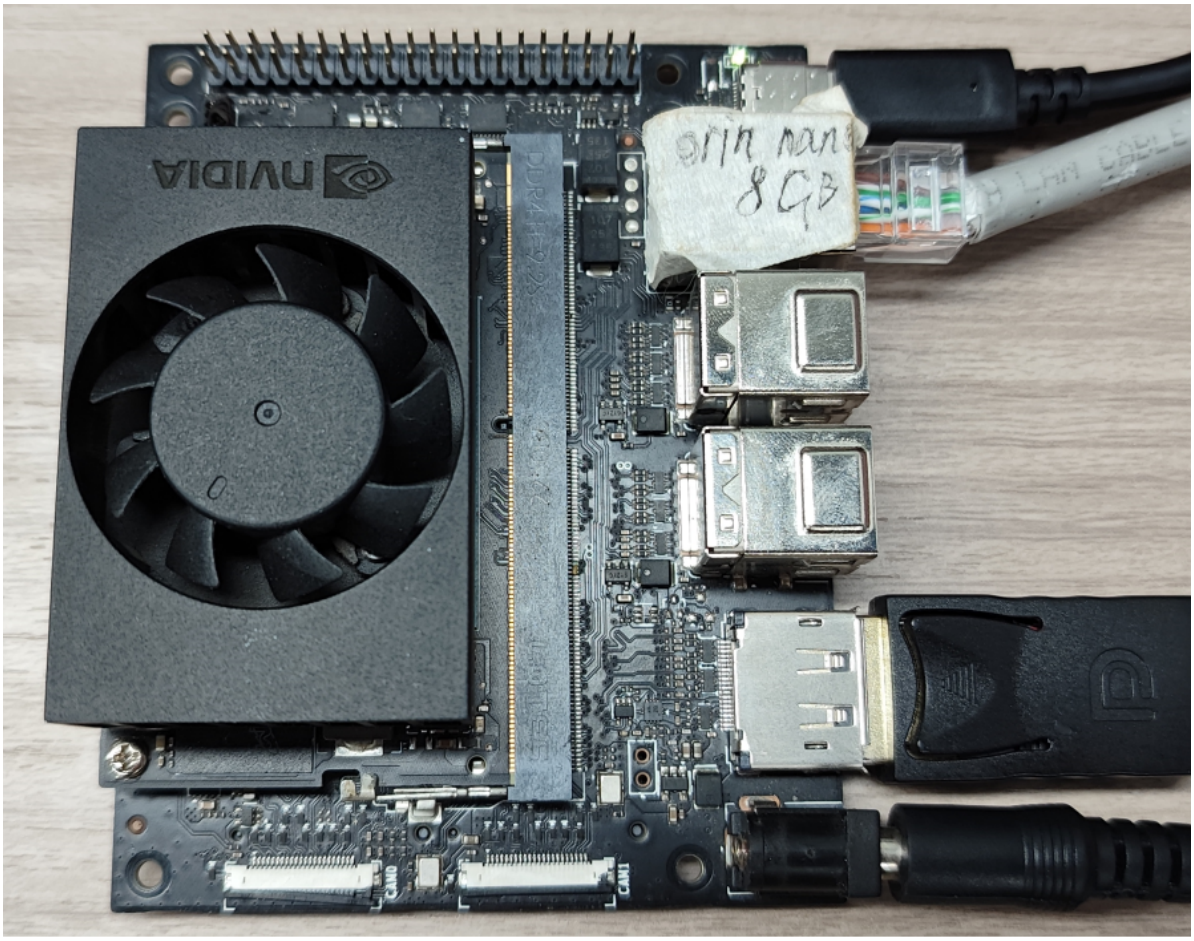
Some users may need to use NVIDIA's own system component environment. After installing the system and successfully entering the system desktop, you can follow the tutorial below to install the component environment!

Note: The solid-state drive that comes with the product has a factory image, which contains NVIDIA's official system and motherboard environment; if you do not have a requirement for a pure system, do not operate!

```
The entire process requires the network, and some components may require
scientific Internet access. If the user cannot complete the component
installation, use our factory image
```

1. Hardware connection

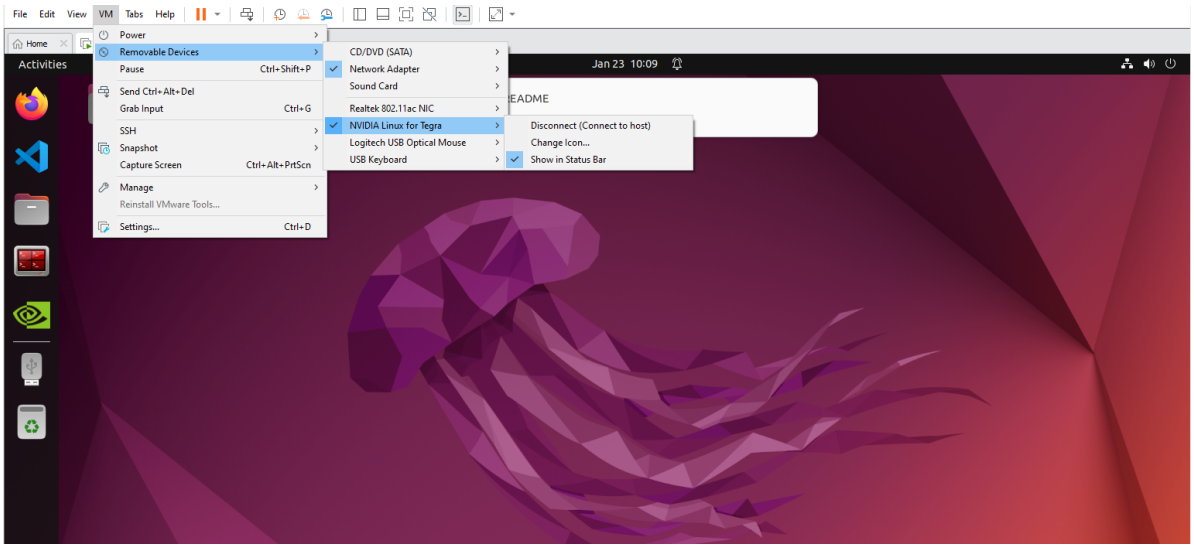
The Jetson Orin motherboard needs to be connected to a DC power adapter, DP data cable, network cable, and Type C data cable: Type C data cable connects to a computer or virtual machine



2. Software connection

The tutorial uses VMware Workstation 17 Pro to burn the system!

After starting the virtual machine, select in the menu bar: Virtual Machine → NVIDIA Linux for Tegra → Confirm the status of the connection with the virtual machine



3. Use SDK Manager

The Jetson Orin motherboard is in the normal system startup state, and the Type-C data cable is used to connect to the computer or virtual machine.

3.1. Motherboard selection

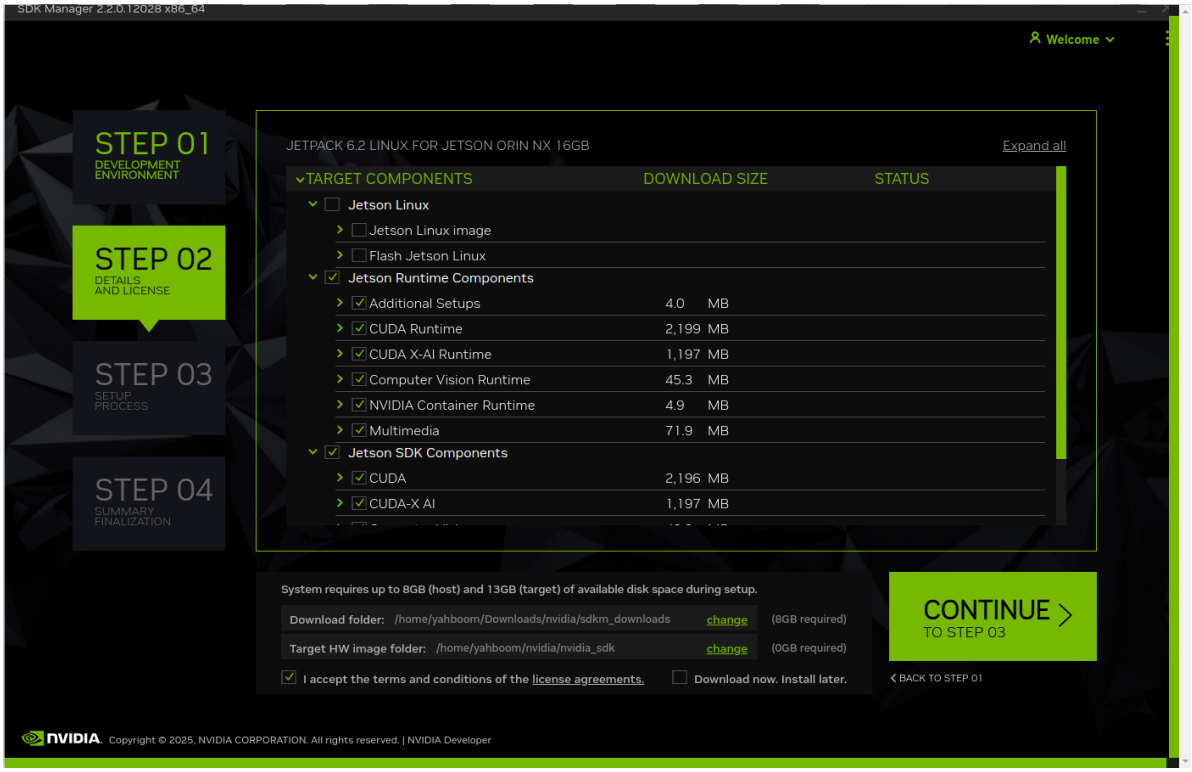
After opening `SDK Manager`, select according to your motherboard model.

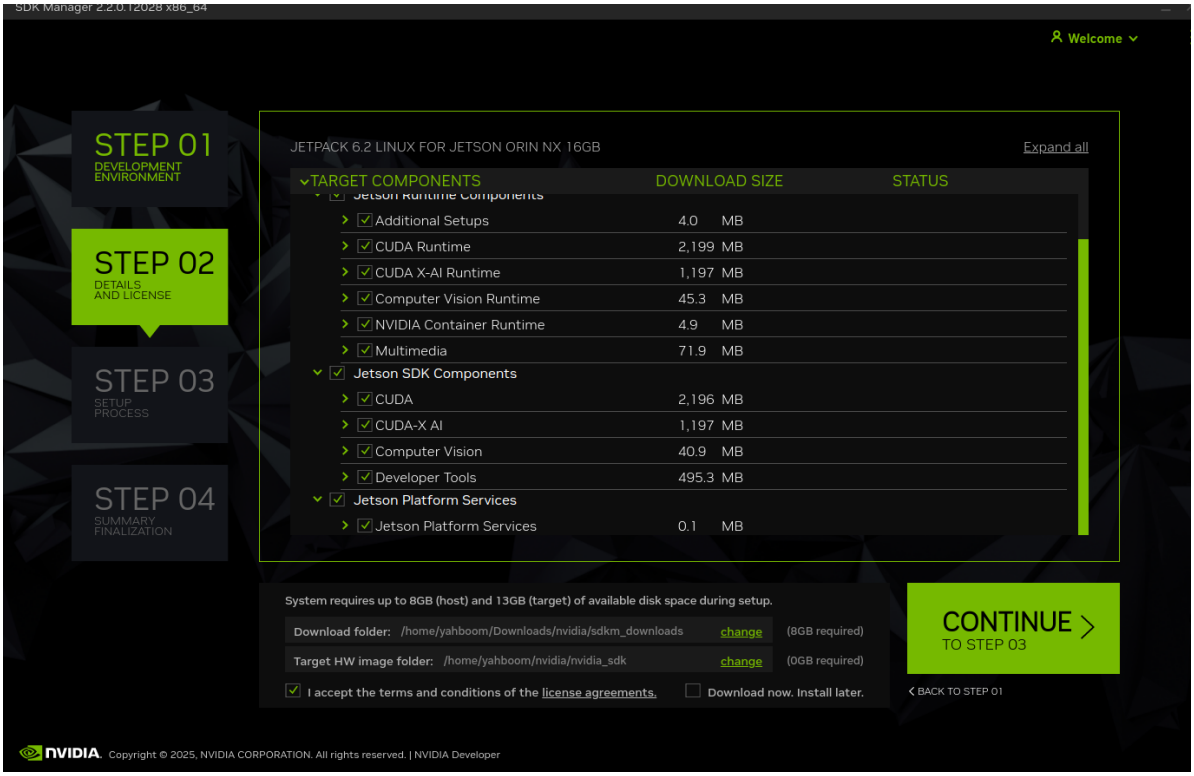
3.2, STEP1

Check the options below, confirm that they are consistent, and click `CONTINUE`:

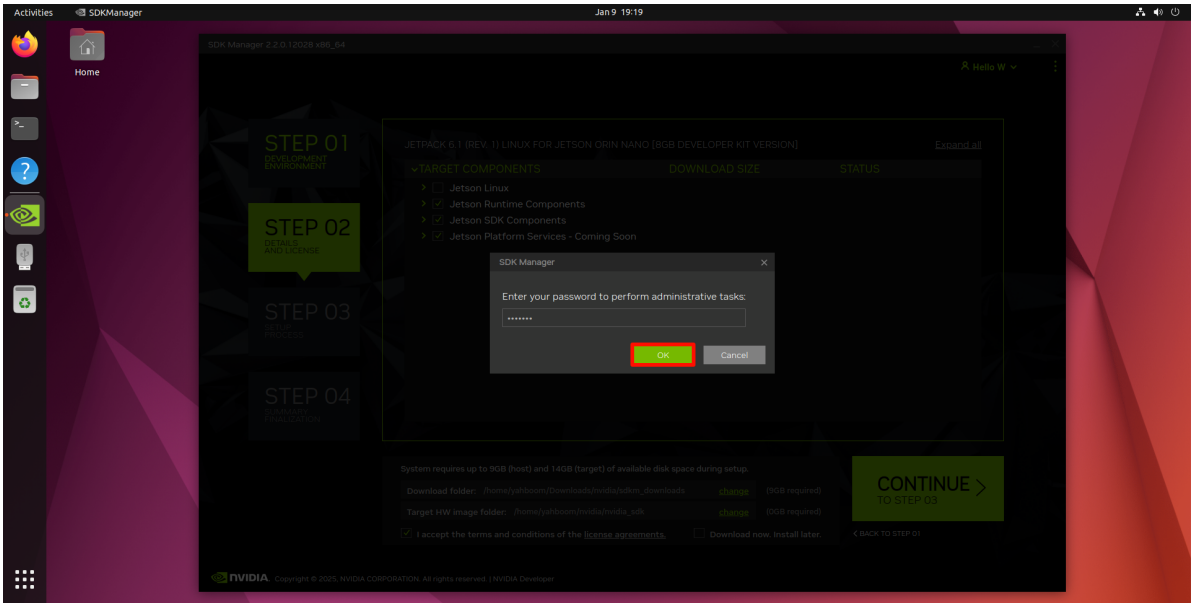
3.3, STEP2

Check all components except the Jetson Linux system:



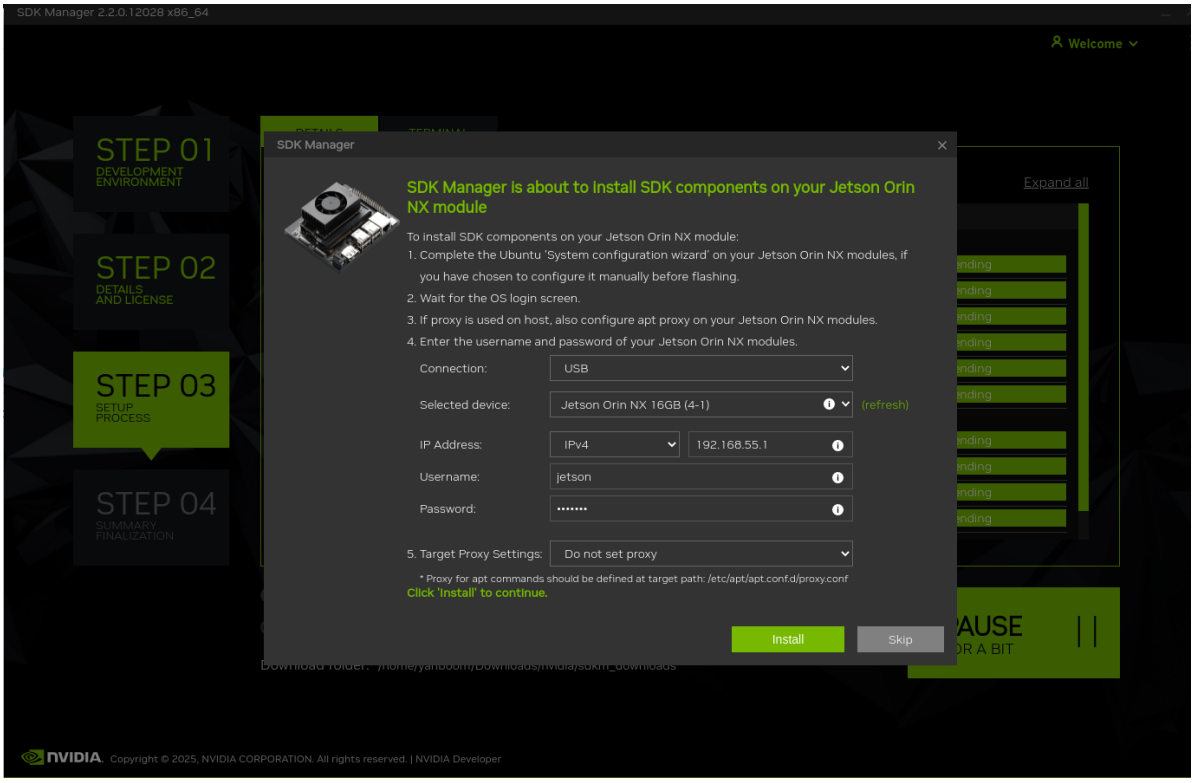


Enter the virtual machine password: yahboom

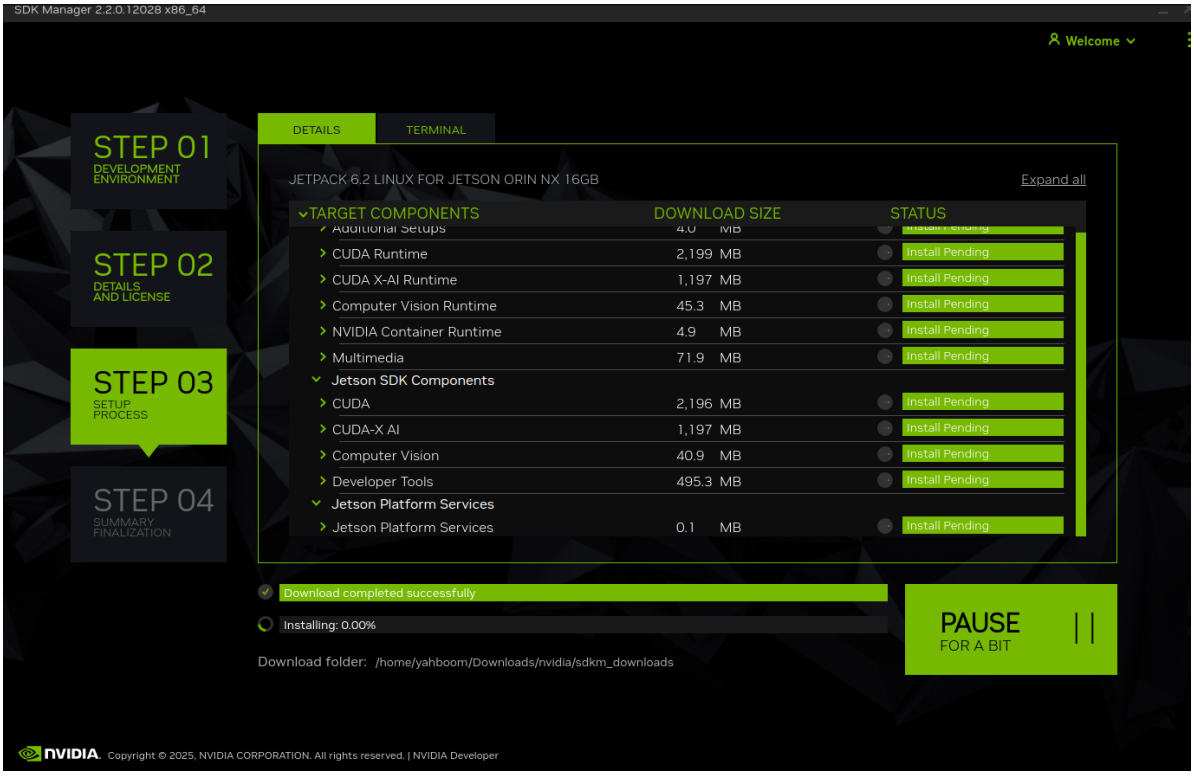


3.4, STEP3

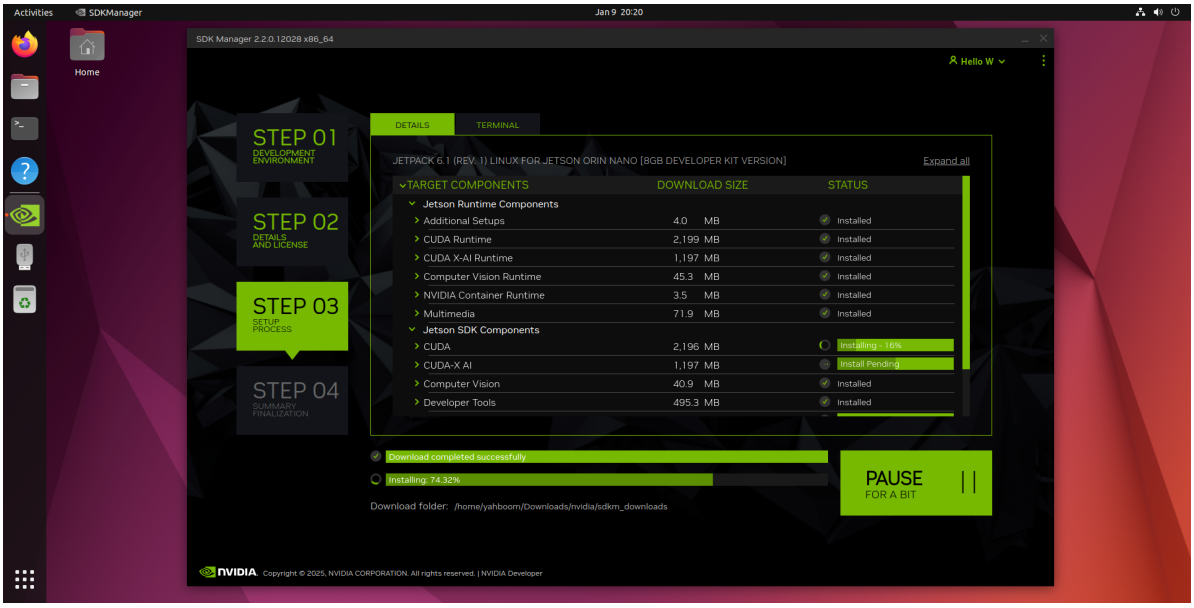
Enter the username and password of the motherboard system, and leave other options unchanged by default. After filling in, click `Install`:



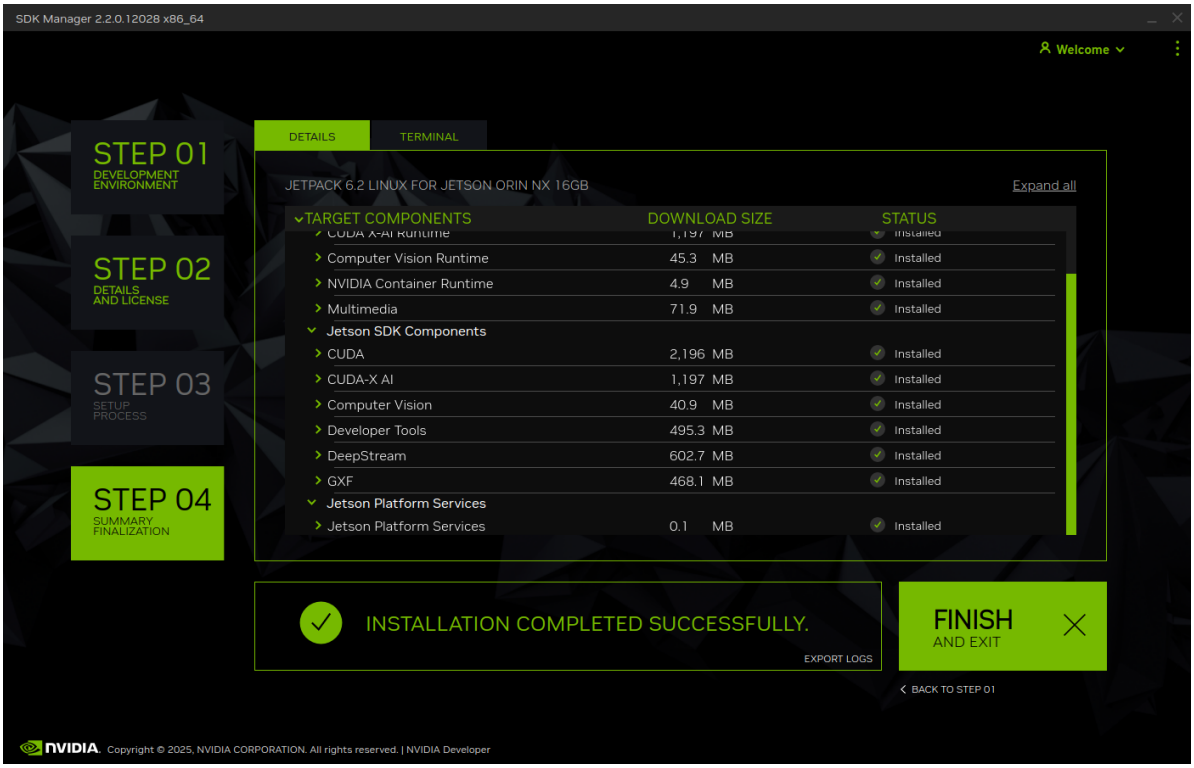
Wait for the system to download and install: The virtual machine has a network failure during the whole process, which can be ignored. The actual test did not affect the burning of the component environment



The entire installation process is relatively long, so you need to wait patiently. If the installation fails, you can restart the motherboard system and restart the SDK Manager installation:



3.5, STEP4

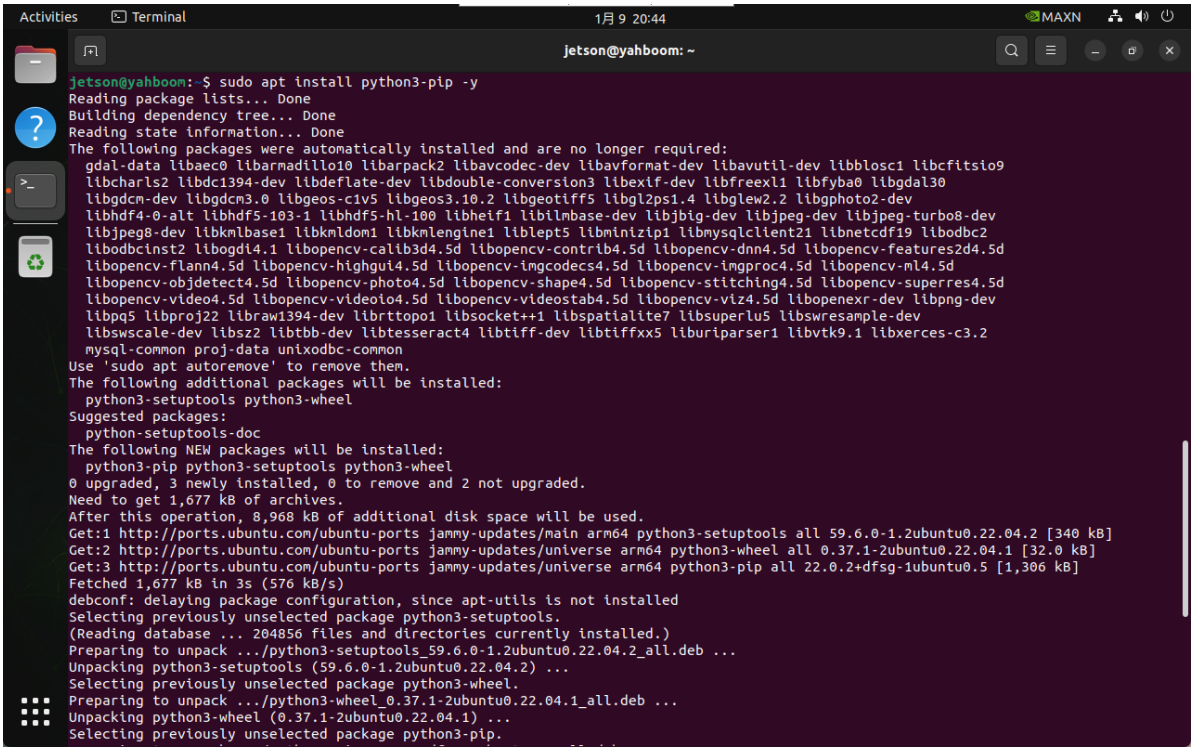


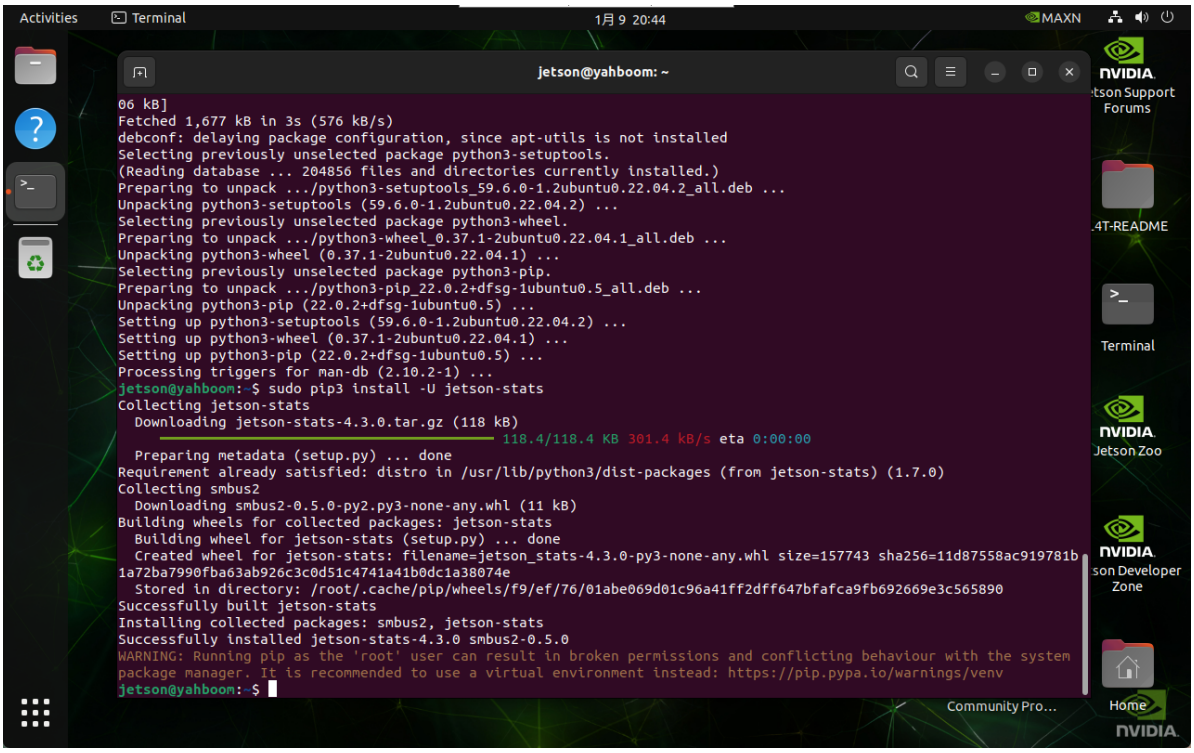
4. Environment verification

> **Jtop tool**

Use the following command to install Jtop:

```
sudo apt update && sudo apt upgrade
sudo apt install python3-pip -y
sudo pip3 install -U jetson-stats
```





Note: After the installation is complete, you need to restart the system!

> **Best performance mode**

Enable MAX power mode

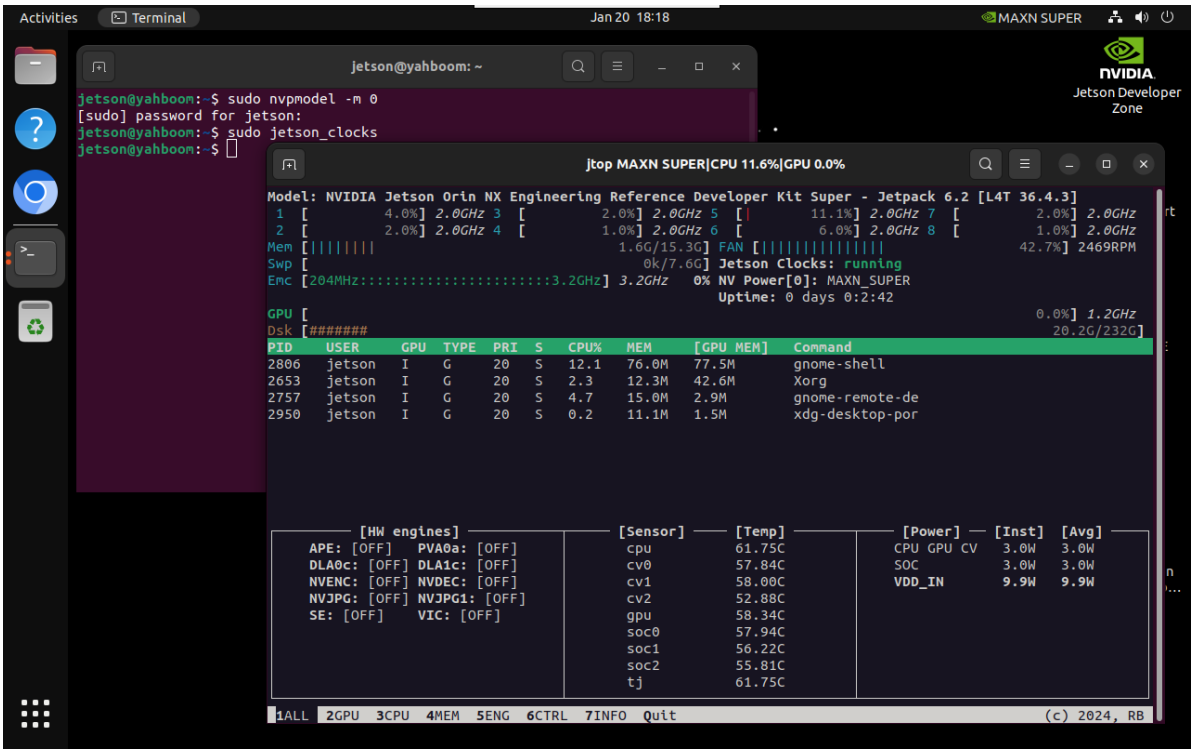
```
sudo nvpmodel -m 0
```

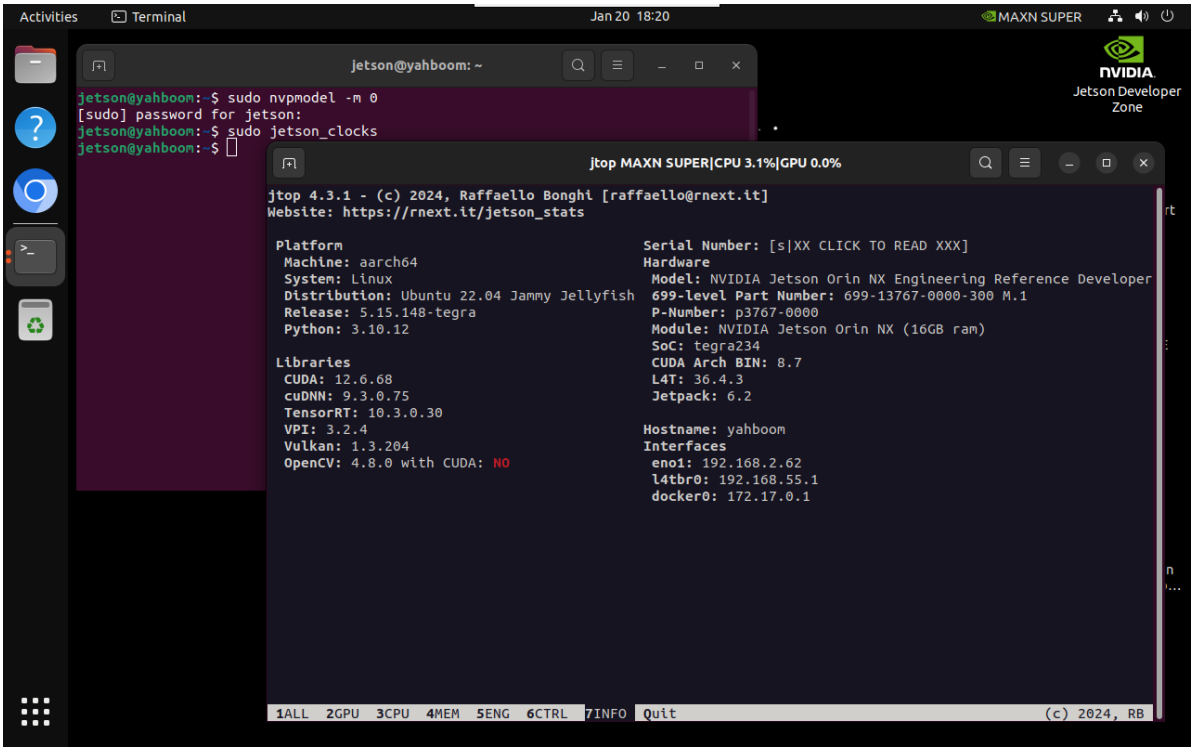
Enable Jetson clocks: CPU and GPU cores run at maximum frequency

```
sudo jetson_clocks
```

Use Jtop tool to view system information:

```
jtop
```


Activities
Terminal
Jan 20 18:18
MAXN SUPER
jetson@yahboom: ~
jetson@yahboom:~$ sudo nvpmodel -m 0
[sudo] password for jetson:
jetson@yahboom:~$ sudo jetson_clocks
jetson@yahboom:~$
jtop MAXN SUPER|CPU 11.6%|GPU 0.0%
Model: NVIDIA Jetson Orin NX Engineering Reference Developer Kit Super - Jetpack 6.2 [L4T 36.4.3]
Mem [1.6G/15.3G] FAN [42.7%] 2469RPM
Swp [0k/7.6G] Jetson Clocks: running
Emc [204MHz:3.2GHz] 3.2GHz 0% NV Power[0]: MAXN_SUPER
Uptime: 0 days 0:2:42
GPU [0.0%] 1.2GHz
Dsk [20.2G/232G]
PID USER GPU TYPE PRI S CPU% MEM [GPU MEM] Command
2806 jetson I G 20 S 12.1 76.0M 77.5M gnome-shell
2653 jetson I G 20 S 2.3 12.3M 42.6M Xorg
2757 jetson I G 20 S 4.7 15.0M 2.9M gnome-remote-de
2950 jetson I G 20 S 0.2 11.1M 1.5M xdg-desktop-por
[HW engines]
APE: [OFF] PVA0a: [OFF]
DLA0c: [OFF] DLA1c: [OFF]
NVENC: [OFF] NVDEC: [OFF]
NVJPG: [OFF] NVJPG1: [OFF]
SE: [OFF] VIC: [OFF]
[Sensor] [Temp]
cpu 61.75C
cv0 57.84C
cv1 58.00C
cv2 52.88C
gpu 58.34C
soc0 57.94C
soc1 56.22C
soc2 55.81C
tj 61.75C
[Power] [Inst] [Avg]
CPU GPU CV 3.0W 3.0W
SOC 3.0W 3.0W
VDD_IN 9.9W 9.9W
1ALL 2GPU 3CPU 4MEM 5ENG 6CTRL 7INFO Quit
(c) 2024, RB
NVIDIA
Jetson Developer Zone


Activities
Terminal
Jan 20 18:20
MAXN SUPER
jetson@yahboom: ~
jetson@yahboom:~$ sudo nvpmodel -m 0
[sudo] password for jetson:
jetson@yahboom:~$ sudo jetson_clocks
jetson@yahboom:~$
jtop MAXN SUPER|CPU 3.1%|GPU 0.0%
jtop 4.3.1 - (c) 2024, Raffaello Bonghi [raffaello@rnext.it]
Website: https://rnext.it/jetson_stats
Platform
Machine: aarch64
System: Linux
Distribution: Ubuntu 22.04 Jammy Jellyfish
Release: 5.15.148-tegra
Python: 3.10.12
Libraries
CUDA: 12.6.68
cuDNN: 9.3.0.75
TensorRT: 10.3.0.30
VPI: 3.2.4
Vulkan: 1.3.204
OpenCV: 4.8.0 with CUDA: NO
Serial Number: [s|XX CLICK TO READ XXX]
Hardware
Model: NVIDIA Jetson Orin NX Engineering Reference Developer
699-level Part Number: 699-13767-0000-300 M.1
P-Number: p3767-0000
Module: NVIDIA Jetson Orin NX (16GB ram)
SoC: tegra234
CUDA Arch BIN: 8.7
L4T: 36.4.3
Jetpack: 6.2
Hostname: yahboom
Interfaces
eno1: 192.168.2.62
l4tbr0: 192.168.55.1
docker0: 172.17.0.1
1ALL 2GPU 3CPU 4MEM 5ENG 6CTRL 7INFO Quit
(c) 2024, RB
NVIDIA
Jetson Developer Zone