

Use Jtop

Install Jtop

(1) Install JTOP to check the CPU usage

```
sudo apt-get update
sudo apt-get full-upgrade
sudo apt install curl
sudo apt install nano
curl https://bootstrap.pypa.io/get-pip.py -o get-pip.py # Download the
installation script
sudo python3 get-pip.py # Run the installation script
sudo pip3 install jetson-stats
jtop
```

Check the installed system components

(1) The OS image of Jetson-nano already comes with JetPack, cuda, cudnn, opencv, etc., which are already installed, and there are examples. The installation paths of these examples are as follows

```
TensorRT /usr/src/tensorrt/samples/
CUDA /usr/local/cuda-10.2/samples/
cuDNN /usr/src/cudnn_samples_v8/
visionworks /usr/share/visionworks/sources/samples/
/usr/share/visionworks-tracking/sources/samples/
/usr/share/visionworks-sfm/sources/samples/

opencv /usr/share/opencv4/samples/
```

(2) Check CUDA

CUDA 10.2 has been installed in Jetson-nano, but if you run `nvcc -V` at this time, it will not succeed. You need to write the CUDA path into the environment variable. OS comes with Vim tool, so run the following command to edit environment variables

First, check whether there is `nvcc` in the bin directory of cuda:

```
ls /usr/local/cuda/bin
```

If it exists,

```
sudo vim ~/.bashrc enters the configuration file; Add the following two lines at
the end:
```

Note: In vim, return to command mode by pressing Esc, switch to input module by pressing I, and enter text in input mode

```
export PATH=/usr/local/cuda/bin:$PATH

export LD_LIBRARY_PATH=/usr/local/cuda/lib64:$LD_LIBRARY_PATH
```

```

alias ls='ls --color=auto'
#alias dir='dir --color=auto'
#alias vdir='vdir --color=auto'

alias grep='grep --color=auto'
alias fgrep='fgrep --color=auto'
alias egrep='egrep --color=auto'
fi

# colored GCC warnings and errors
#export GCC_COLORS='error=01;31:warning=01;35:note=01;36:caret=01;32:locus=0'

# some more ls aliases
alias ll='ls -alF'
alias la='ls -A'
alias l='ls -CF'

# Add an "alert" alias for long running commands.  Use like so:
# sleep 10; alert
alias alert='notify-send --urgency=low -i "${[ $? = 0 ]} && echo terminal ||'

# Alias definitions.
# You may want to put all your additions into a separate file like
# ~/.bash_aliases, instead of adding them here directly.
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
    if [ -f /usr/share/bash-completion/bash_completion ]; then
        . /usr/share/bash-completion/bash_completion
    elif [ -f /etc/bash_completion ]; then
        . /etc/bash_completion
    fi
fi
export PATH=/usr/local/cuda/bin:$PATH
export LD_LIBRARY_PATH=/usr/local/cuda/lib64:$LD_LIBRARY_PATH

```

Note: After exiting to command mode via Esc, press : to start entering commands, wq for save and exit, q for exit, and q! for forced exit

Save and exit.

Then you need to source it to take effect.

```
source ~/.bashrc
```

After source, execute nvcc -V again. The result is as follows

beckhans@Jetson:~\$ nvcc -V

```

nano@nano-desktop:~$ nvcc -V
nvcc: NVIDIA (R) Cuda compiler driver
Copyright (c) 2005-2019 NVIDIA Corporation
Built on Wed_Oct_23_21:14:42_PDT_2019
Cuda compilation tools, release 10.2, V10.2.89

```

(3) Check OpenCV

OpenCV 4.1.1 has been installed in Jetson-nano. You can use the command to check whether OpenCV is installed properly

```
pkg-config opencv4 --modversion
```

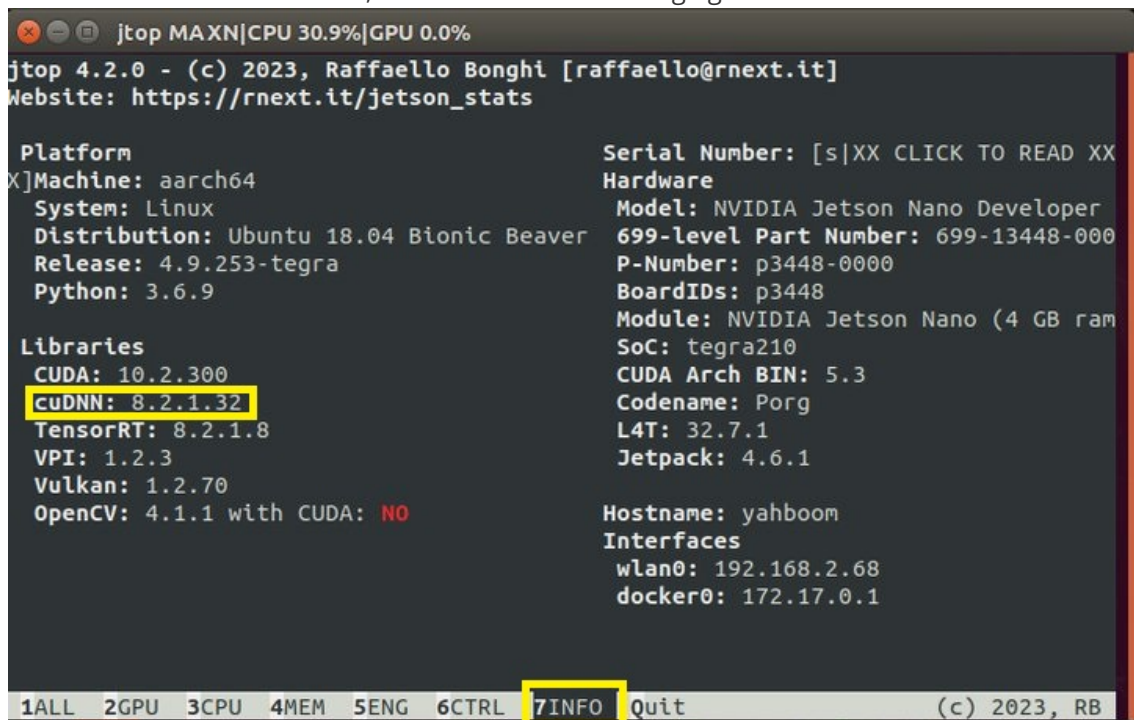
If OpenCV is installed properly, the version number will be displayed. My version is 4.4.1

```
nano@nano-desktop:~$ pkg-config opencv4 --modversion
4.1.1
```

(4) Check cuDNN

cuDNN has been installed in Jetson-nano, and there are examples to run. Let's run the example to verify the above CUDA

- Enter jtop in the terminal, press the right arrow key on the keyboard to select **7info**, and you can see the version of cuDNN, as shown in the following figure:



```
jtop MAXN|CPU 30.9%|GPU 0.0%
jtop 4.2.0 - (c) 2023, Raffaello Bonghi [raffaello@rnext.it]
Website: https://rnext.it/jetson_stats

Platform
Machine: aarch64
System: Linux
Distribution: Ubuntu 18.04 Bionic Beaver
Release: 4.9.253-tegra
Python: 3.6.9

Serial Number: [s|XX CLICK TO READ XX
Hardware
Model: NVIDIA Jetson Nano Developer
699-level Part Number: 699-13448-000
P-Number: p3448-0000
BoardIDs: p3448
Module: NVIDIA Jetson Nano (4 GB ram
SoC: tegra210
CUDA Arch BIN: 5.3
Codename: Porg
L4T: 32.7.1
Jetpack: 4.6.1

Libraries
CUDA: 10.2.300
cuDNN: 8.2.1.32
TensorRT: 8.2.1.8
VPI: 1.2.3
Vulkan: 1.2.70
OpenCV: 4.1.1 with CUDA: NO

Hostname: yahboom
Interfaces
wlan0: 192.168.2.68
docker0: 172.17.0.1

1ALL 2GPU 3CPU 4MEM 5ENG 6CTRL 7INFO Quit (c) 2023, RB
```