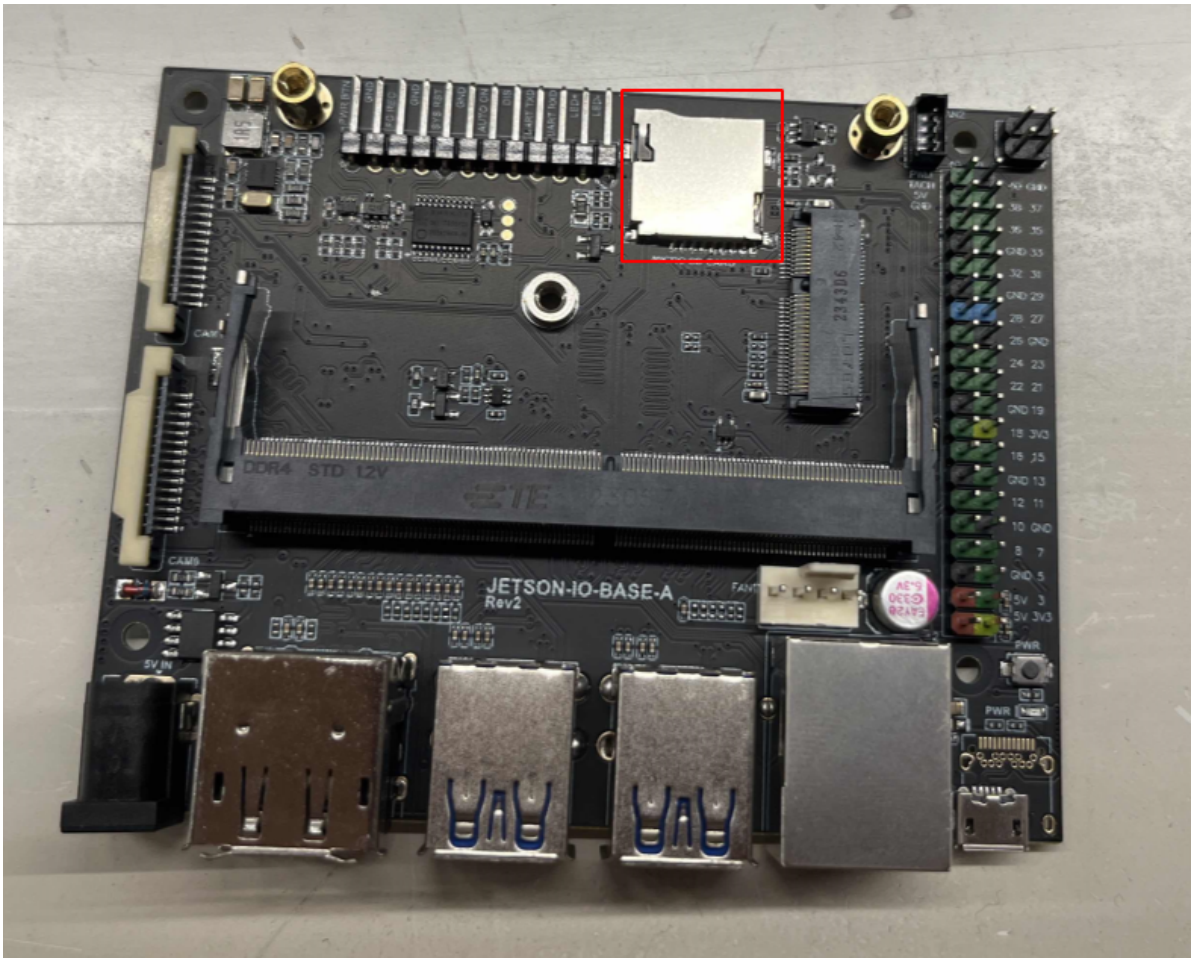
7.Jetson Nano B01 SD card startup and expansion

The Jetson Nano B01 SUB board boots via eMMC by default instead of booting from the SD card like previous NVIDIA official kits. Currently, Jetson Nano eMMC only has 16G. For most users who need to install CUDA, tensorflow and other resources, 16G content is still too small. Setup instructions for the extended SD card are provided here.

hardware

The baseboard needs to have an expanded SD card slot.



Software settings

- Please first ensure that Jetson Nano B01 can enter the EMMC system normally. If you haven't programmed the EMMC system yet, you can first follow the steps in our tutorial [Programming the EMMC system]**
    - **For normal operation, please check not to write wrong characters or change wrong positions. Otherwise you need to start from scratch**
- Insert the sd card into the Jetson Nano B01 board
- Start Jetson Nano B01 and open the terminal
- Download the dtb file to Jetson Nano B01 and unzip it. The dtb file can be obtained from our appendix

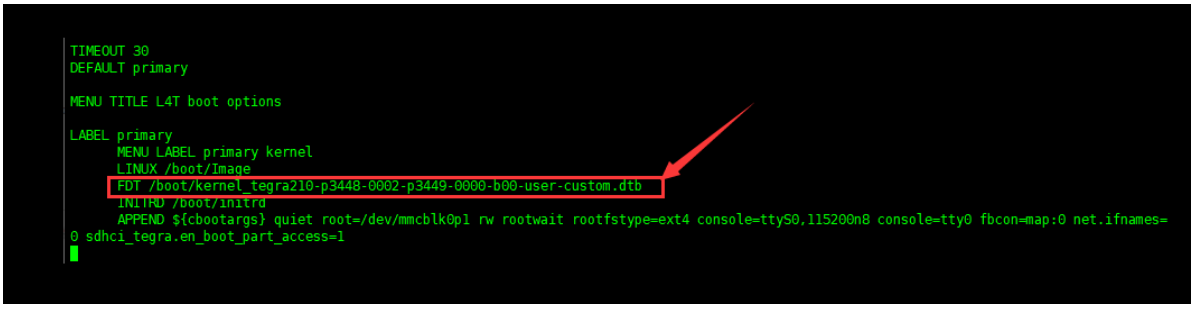
```
unzip Nano-dtb-SDMMC.zip
```

- Copy the dtb file to the boot directory

```
sudo cp kernel_tegra210-p3448-0002-p3449-0000-b00-user-custom-JP461.dtb
/boot/kernel_tegra210-p3448-0002-p3449-0000-b00-user-custom.dtb
```

- Modify the extlinux.conf configuration file (path: **boot/extlinux/**)
    - **Add the following statements to the file, be careful not to change other locations to avoid failing to start the system properly**

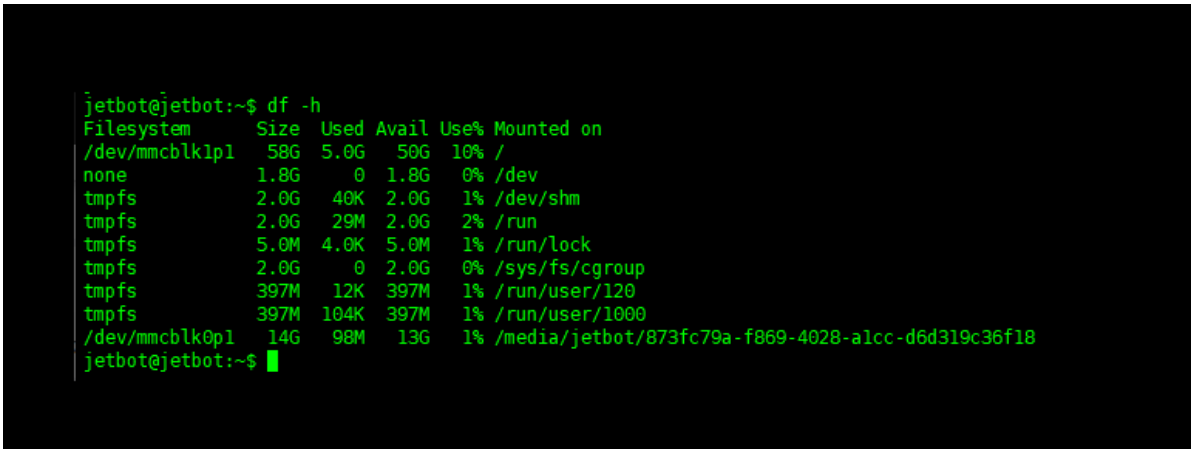
```
FDT /boot/kernel_tegra210-p3448-0002-p3449-0000-b00-user-custom.dtb
```



After the addition is completed, save and restart Jetson Nano B01

```
sudo reboot
```

- After restarting, run the df -h command to check whether there is mmclk1p1 device. If the mmclkb1p1 device is recognized (no other additional storage devices are connected), it means that the SD card has been recognized normally.
    - If you just want to use the SD card as additional storage, this step is enough
- Set up SD card boot
    - The SD card has been pre-burned with the nano system (JetPack version 4.5.1 or above is recommended)
    - Modify the extlinux.conf file, find the statement APPEND ${cbootargs} quiet root=/dev/mmcblk0p1 rw rootwait rootfstype=ext4 console=ttyS0,115200n8 console=tty0, change **mmclk0p1 to mmclk1p1**, save, and then restart the system That's it
    - After restarting, run df -h to view the device. You can see that the root directory has been changed to the mmcblk1p1 device (SD card), and the mmcblk0p1 device (emmc) is hung in /media.


jetbot@jetbot:~$ df -h
Filesystem Size Used Avail Use% Mounted on
/dev/mmcblk1p1 58G 5.0G 50G 10% /
none 1.8G 0 1.8G 0% /dev
tmpfs 2.0G 40K 2.0G 1% /dev/shm
tmpfs 2.0G 29M 2.0G 2% /run
tmpfs 5.0M 4.0K 5.0M 1% /run/lock
tmpfs 2.0G 0 2.0G 0% /sys/fs/cgroup
tmpfs 397M 12K 397M 1% /run/user/120
tmpfs 397M 104K 397M 1% /run/user/1000
/dev/mmcblk0p1 14G 98M 13G 1% /media/jetbot/873fc79a-f869-4028-a1cc-d6d319c36f18
jetbot@jetbot:~$