Kernel Driver Building – CA378-AOIS

Hardware: Jetson TX2
OS: Ubuntu 16.04 LTS – JetPack 3.2 L4T 28.2
CSI Hardware: CenturyArks CA378-AOIS (Sony IMX378)

Notes

This instruction is for building kernel directly on a running Jetson board.
$DEVDIR is the path where you download the kernel
$ ... is the user command prompt
# ... is the super user command prompt (sudo)

References

- http://www.jetsonhacks.com/2017/03/25/build-kernel-and-modules-nvidia-jetson-tx2/
- https://elinux.org/Jetson/TX2_DTB

Prepare kernel source

Download the attached file to home directory on JetsonTX2 and run the following command.

```
$ tar zxvf CA378_2L_v1.1.0_L4T28.2_src_build.tar.gz
$ cd CA378_2L_v1.1.0_L4T28.2_src_build
$ ./PrepareKernelSources.sh
```

Install new Linux kernel

Install kernel modules

```
$ ./BuildKernelSources.sh
```

Please enter the number of connected cameras.

```
What is the number of camera connections? : 1
```

Flash new Device Tree Binary (DTB)

Copy compiled dtb file to the host computer

```
$ cd ~/JetPack/3.2/64_TX2/Linux_for_Tegra_64_tx2/
$ sudo sshpass -p 'nvidia' scp -o StrictHostKeyChecking=no nvidia@192.168.xxx.xxx:/boot/*.dtb ./kernel/dtb/
# nvidia@192.168.xxx.xxx is IP address on JetsonTX2.
$ cp ./kernel/dtb/tegra186-quill-p3310-1000-c03-00-imx378.dtb ./kernel/dtb/tegra186-quill-p3310-1000-c03-00-base.dtb
```

Put the board into force USB Recovery Mode:

1. Power down the device. If connected, remove the AC adapter from the device. The device must be powered OFF, and not in a suspend or sleep state.
2. Connect the Micro-B plug on the USB cable to the Recovery (USB Micro-B) Port on the device and the other end to an available USB port on the host PC.
3. Connect the power adapter to the device.
4. Press POWER button
5. Press and hold the RECOVERY FORCE (REC) button.
6. While pressing the RECOVERY FORCE button, press and release the RESET button.
7. Wait 2 seconds and release the RECOVERY FORCE button

Flash dtb partition

Replace this original DTB with your own build DTB

```
JetPack/3.2/64_TX2/Linux_for_Tegra_64_tx2/kernel/dtb/tegra186-quill-p3 310-1000-c03-00-base.dtb
```

Flash

```
$ sudo ./flash.sh -r -k kernel-dtb jetson-tx2 mmcblk0p1
```