



CUBIEBOARD
<http://cubieboard.org>

Cubieboard4 Linux Sdk Guide

TF BOOT & TF WRITE EMMC

Website: <http://cubieboard.org/>
Support: support@cubietech.com



Version	Author	Modification	Check
V-0.1-20141226	A.K	Init version	
V-1.0-20150113	A.K	Release 1.0	
V2.0-20150205	A.K	Add Patition card step	
V2.1-20150303	A.K	Check Flash EMMC	



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1. Hardware requirements

- TF Card \geq 4G ,class 10 suggested
- Cubieboard4 (CC-A80)
- Ubuntu12.04 PC Intel® Core™ i5-3470 CPU @ 3.20GHz × 4 Memory 8G tested

2. Software requirements

- The host operating system : Ubuntu12.04 64bit
- Cross-compilation environment

3. Cross-compilation environment set up

```
$sudo apt-get update
```

```
$sudo apt-get upgrade
```

```
$sudo apt-get install ia32-libs
```

```
$sudo apt-get install ncurses-dev
```

```
$sudo apt-get install build-essential git u-boot-tools
```

```
$sudo apt-get install texinfo texlive ccache zlib1g-dev gawk bison flex gettext uuid-dev
```

```
$sudo apt-get install build-essential u-boot-tools uboot-mkimage
```

```
$sudo apt-get install binutils-arm-linux-gnueabi gcc-arm-linux-gnueabi gcc-arm-linux-gnueabi-hf  
cpp-arm-linux-gnueabi-hf
```

```
$ sudo apt-get install libusb-1.0-0 libusb-1.0-0-dev git wget fakeroot kernel-package zlib1g-dev  
libncurses5-dev
```

4. Access to the source code

Build your work space

```
$ mkdir cb4-linux-sdk -card
```

```
$ cd cb4-linux-sdk-card
```

Get kernel source

```
$ git clone https://github.com/cubieboard/CC-A80-kernel-source
```

```
$ mv CC-A80-kernel-source linux-3.4 (master branch)
```

Get products

```
$ git clone https://github.com/cubieboard/CC-A80-products
```

```
$ mv CC-A80-products products (master branch)
```

Get tools

```
$ git clone https://github.com/cubieboard/CC-A80-tools
```

```
$ mv CC-A80-tools tools (master branch)
```

Get U-boot

```
$ git clone https://github.com/cubieboard/CC-A80-binaries
```

```
$ mv CC-A80-binaries binaries (master branch)
```

Get rootfs

```
$ git clone https://github.com/cubieboard/CC-A80-rootfs.git
```

```
$ mv CC-A80-rootfs rootfs (master branch)
```

This is a indexes to rootfs at:

<http://dl.cubieboard.org/model/cc-a80/Source/commom/linux-sdk-rootfs/>

This is a readme txt for the repo :

<http://dl.cubieboard.org/model/cc-a80/Source/commom/linux-sdk-rootfs/README.txt>



5. Check you repo

5.1.

Folder	linux-3.4	products	tools	binaries	rootfs
Function	kernel source	system configuration	Packaging scripts	u-boot file	file system
Branch	master	master	master	master	master

6. Inserting tf card into pc

Please backup your TF data, compilation will format you tf card,make sure that your pc can write your tf card.When you insert your card to pc ,ubuntu will mount it auto.

`$ df -h`

`/dev/sdb 7.5G 4.0K 7.5G 1% /media/2C4A-0AF3`

/dev/sdb is my tf card device,please umount it before compilation:

`$ sudo umount /dev/sdb`

You can check you tf card device :

`$ sudo fdisk -l`

Disk /dev/sdb: 7990 MB, 7990149120 bytes

7. Compilation

7.1. Choose pruduct to compile

`$ cd cb4-linux-sdk-card`

`$ source tools/scripts/envsetup.sh`

Enter number to choose the distrabution to compile ,support list now:

0 - cb4-debian-server

1 - cb4-linaro-desktop-hdmi

2 - cb4-linaro-desktop-vga

This is a readme to compile :

```
-----  
Build sdcard image:  
1. tf card boot  
  (1)cb_build_card_image (compile code to prepare cb_install_tfcart)  
  (2)cb_part_install_tfcart dev_label [pack]  
      dev_label:      sdb sdc sdd ...  
      pack:           the parameter mean we will make a img for dd or win32writer  
      cmd for example: cb_part_install_tfcart sdb pack  
  (3)cb_install_tfcart dev_label [pack]  
      dev_label:      sdb sdc sdd ...  
      pack:           the parameter mean we will make a img for dd or win32writer  
      cmd for example: cb_install_tfcart sdb  
  
2. emmc card boot  
  (1)cb_build_flash_card_image (compile code to prepare cb_install_flash_card)  
  (2)cb_part_install_flash_card dev_label [pack]  
      dev_label:      sdb sdc sdd ...  
      pack:           the parameter mean we will make a img for dd or win32writer  
      cmd for example: cb_part_install_flash_card sdb pack  
  (3)cb_install_flash_card dev_label [pack]  
      (install TF card to flash img to emmc)  
      dev_label:      sdb sdc sdd ...  
      pack:           the parameter mean we will make a img for dd or win32writer  
      cmd for example: cb_install_flash_card sdb  
-----
```

7.2. Compilation

You can compile the two card firmware :

- 1) tf card boot : tf booting card firmware
- 2) emmc boot : tf card flash emmc booting card firmware

7.3. Tf card boot

`$ cb_build_card_image`

It will take about 5-10 Minutes to compile kernel and pack overlay file

`$ cb_part_install_tfcart sdx pack`

This procedure aims to partition and format the card to 2 partition, it may fail sometime , so,check this step to make sure your pc can distinguish the 2 patition ,if you fail ,plug the tf card, and try again .

`$ cb_install_tfcart sdx pack`



`sdx` : your tf card device in your pc

`pack` : backup and release your firmware

It will take about 10 minutes to move rootfs to your tf card ,the length of time is depend on your card- writing speed , class 10 tf card was suggusted.Now ,you get a bootable tc card ,you can insert this card to you CC-A80 tf card slot to start linux system.

You can also find release firmware here,take debian-server example:

output/cb4/cb4-debian-server/[cb4-debian-server-tfcard.img](#)

7.4.Emmc card boot

7.4.1.Clean sdk

```
$ cd cb4-linux-sdk-card/linux-3.4
```

```
$ make mrproper
```

```
$ cd ..
```

```
$ sudo rm -rf build output
```

7.4.2.Compilation

```
$ cb_build_flash_card_image
```

```
$ cb_part_install_flash sdx
```

```
$ cb_install_flash_card sdx pack
```

Now ,you get a bootable tf card ,you can insert this card to you CC-A80 tf card slot to flash emmc.

You can also find the release firmware here,take debian-server example:

output/cb4/cb4-debian-server/[cb4-debian-server-tf_flash_emmc.img](#)

8. Compilation issue

- If you compile fail ,please check your cross-compilation environment
- Please clean sdk when swith to the other boot type
- Please Email me when you in trouble : support@cubietech.com