CV180X & CV181X Bare and Non-Bare Processor Burning Upgrade User Guide

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Contents

Revision History

Revision	Date	Description
0.1	2021/04/20	Initial version
1.1.1	2021/06/11	Modify some typo and description
1.1.2	2022/06/17	Update
1.1.3	2022/10/17	Update
1.1.4	2023/4/17	Delete usb storage upgrade

1 Disclaimer

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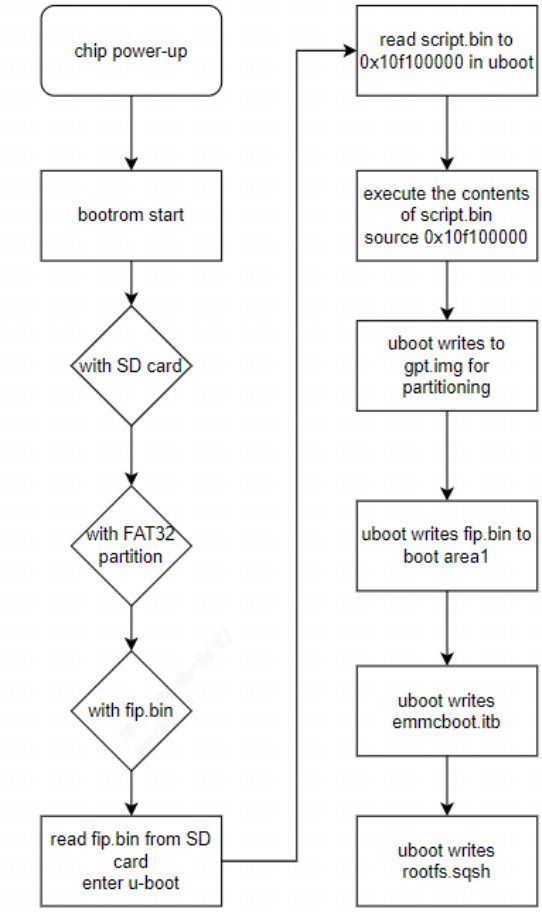
2 Use SD Card for Bare Burn

2.1 Preparations Before Use

1. Refer to [Linux development environment user guide] [1.2 how to compile BSP] to compile the following files:
   - fip.bin - bootloader + uboot
   - boot.emmc/boot.spinand/boot.spinor- minimal Linux image(Optional)
   - rootfs.emmc/rootfs.spinand/rootfs.spinor - rootFS(Optional)
   - system.emmc/system.spinand/system.spinor – rw zoning(Optional)
   - cfg.emmc/cfg.spinand/cfg.spinor - config rw zoning(Optional)
2. A FAT32 format TF Card(micro SD)

2.2 Explanation of Bare Burning Process



2.3 Operation Process

a. Put fip.bin,*.emmc/*.spinand/*.spinor in the SD card

b. Insert the SD card into the SD card slot of Cvitek EVB

c. Boot Cvitek EVB platform

2.4 Operation Example

Confirm files before use

SPINAND

名稱	修改日期	類型	大小
boot.spinand	2021/6/2 上午 04:13	SPINAND 檔案	7,213 KB
cfg.spinand	2021/6/2 上午 04:13	SPINAND 檔案	2,049 KB
fip.bin	2021/6/2 上午 04:10	BIN 檔案	374 KB
rootfs.spinand	2021/6/2 上午 04:13	SPINAND 檔案	28,929 KB
system.spinand	2021/6/2 上午 04:13	SPINAND 檔案	1,921 KB

Insert the SD card, connect the cv180x/cv181x platform to the power supply, and start the burning program automatically

When the platform is finished burning, you can see the following message on UART port.

Power off the platform and restart it to finish burning

```
## Resetting to default environment
Start SD downloading...
switch to partitions #0, OK
mmc0 is current device
403968 bytes read in 19 ms (20.3 MiB/s)
spinor id = C2 20 18
SF: Detected MX25L12835F with page size 256 Bytes, erase size 4 KiB, total 16 MiB
device 0 offset 0x0, size 0x62a00
403968 bytes written, 0 bytes skipped in 3.73s, speed 134480 B/s
sf update speed 0.131 MB/s
64 bytes read in 2 ms (31.3 KiB/s)
Header Version:1
2999536 bytes read in 135 ms (21.2 MiB/s)
device 0 offset 0x100000, size 0x2dc4b0
2999472 bytes written, 0 bytes skipped in 22.529s, speed 136315 B/s
sf update speed 0.133 MB/s
64 bytes read in 2 ms (31.3 KiB/s)
Header Version:1
3100736 bytes read in 139 ms (21.3 MiB/s)
SF: 10485760 bytes @ 0x420000 Erased: OK
device 0 offset 0x420000, size 0x2f5000
SF: 3100672 bytes @ 0x420000 Written: OK
sf write speed 0.649 MB/s
64 bytes read in 1 ms (62.5 KiB/s)
Header Version:1
228 bytes read in 2 ms (111.3 KiB/s)
SF: 524288 bytes @ 0xe20000 Erased: OK
device 0 offset 0xe20000, size 0xa4
SF: 164 bytes @ 0xe20000 Written: OK
sf write speed 0.23 MB/s
Saving Environment to SPIFlash... Erasing SPI flash...Writing to SPI flash...done
Valid environment: 2
OK
cv181x_c906#
```

2.5 Use upgrade.zip to Upgrade

1. Refer to [Linux development environment user's Guide] [1.2 how to compile BSP] to compile upgrade.zip
2. Copy upgrade.zip to SD card
3. Decompress upgrade.zip (please unzip the file to the root directory of SD card)

2.6 Precautions

Please make sure SD card is correctly formatted as FAT32

2.7 Set eMMC ECSD Register

When SD card is used for bare burning, EMMC driver built in u-boot will be used to modify ECSD, mainly for ECSD [162], that is, n_ Rst function is turned on, and the specific burning mode is as follows:

1. Enter the following command under u-boot to start n_Rst function

```
uboot # mmc fuse_rstn 0
```

3 Use USB to Burn

3.1 Preparation Before Use

1. Install Python3 (https://www.python.org/)
2. Use the following steps to install pip
   - Download https://bootstrap.pypa.io/get-pip.py
   - Use "python get-pip.py" to install pip
3. Use "python -m pip install pyserial" to install pyserial
4. Refer to [Linux development environment user guide] [1.2 how to compile BSP] compile the following files
   - fip.bin - bootloader + uboot
   - boot.emmc/boot.spinand/boot.spinor- minimal Linux image(Optional)
   - rootfs.emmc/rootfs.spinand/rootfs.spinor - rootFS(Optional)
   - system.emmc/system.spinand/system.spinor – rw zoning(Optional)
   - cfg.emmc/cfg.spinand/cfg.spinor - config rw zoning(Optional)
   - partition_emmc.xml - partition table information

3.2 Operation Process

a. Windows

   1. Prepare the firmware directory (extracted from the upgrade.zip corresponding to the platform)
   2. Connect the Uart of the platform to the Host, power down the platform, and execute the following command under the command prompt character
   3. cd <pathtoproject>installcv180x_wevb_000xx_spinortoolsusb_dl
   4. py cv181x_dl.py --libusb --image_dir <firmware path>
   5. After successful execution, power on the platform

b. Linux

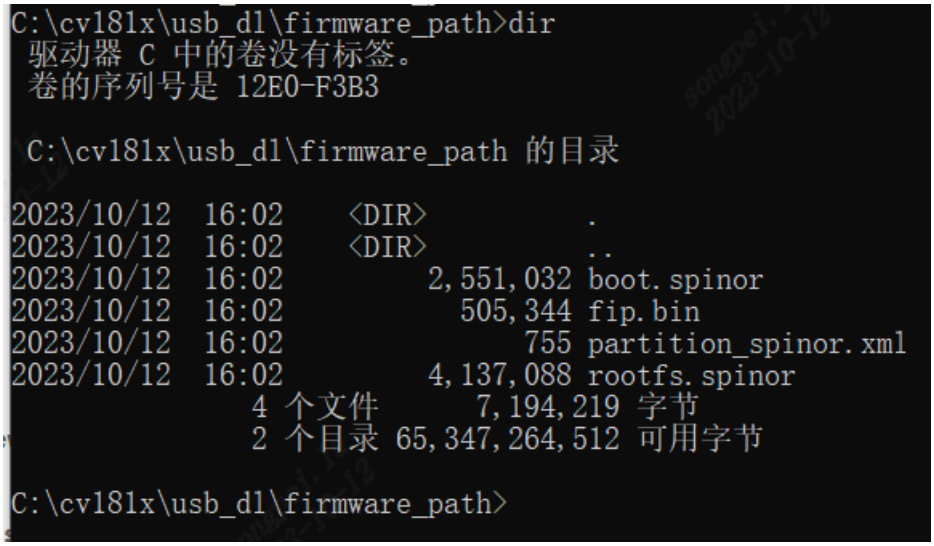
1. Prepare the firmware directory (extracted from the upgrade.zip corresponding to the platform)
2. Connect the Uart of the platform to the Host, power down the platform, and execute the following command at the terminal
3. cd <path/to/project>/install/cv180x_wevb_000xx_spinor/tools/usb_dl/
4. py cv181x_dl.py --libusb --image_dir <firmware path>
5. After successful execution, power on the platform

3.3 Operation Example

Remove the platform DC power supply and unplug the USB port on the PC

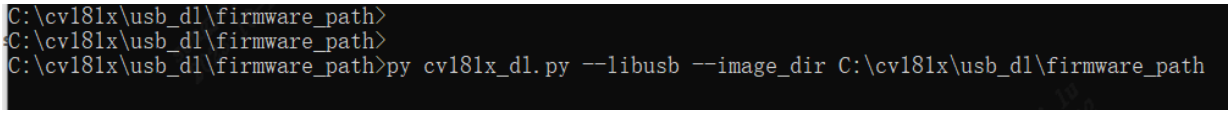
(Platform cv180x_wevb_000xx_spinor as an example)

Preparation before use, prepare the firmware directory



Execute the command in the directory of the usb burn script

py cv181x_dl.py --libusb --image_dir <firmware path>, the script begins to wait for the platform to be connected



After connecting USB port to PC, burning will start automatically

```
C:\cv181x\usb_dl>python .\cv181x_dl.py --libusb --image_dir C:\cv181x\usb_dl\firmware_path
INFO: Using libusb
INFO: CV181X USB download start

fip_path: C:\cv181x\usb_dl\firmware_path\fip.bin
CV181X USB download start
Connecting to ROM
COM167g for USB port:  |
USB VID:PID=3346:1000 SER=123456789ABC LOCATION=1-2
Waiting for USB connect:  \
done
Send cv_dl_magic.bin...
--- 0.0 Seconds ---
done
COM167g for USB port:  |
USB VID:PID=3346:1000 SER=123456789ABC LOCATION=1-2

Send 4096B fip.bin...
--- 0.02 Seconds ---
set flag
```

When the platform is finished burning, the platform will restart automatically and then enter the system, you can see the following message in the UART port.

```
NOTICE:  Overwrite fip_src to FIP_SRC_USB
NOTICE:  fip_src 6
NOTICE:  bind()
NOTICE:  Patch VID 3346
NOTICE:  Patch VID 3346
crq->brequest:0x0
NOTICE:  USB enumeration done
NOTICE:  connection speed: 3
NOTICE:  CVI USB REBOOT
C.SCS/0/0.WD.URPL.USBI.USBS/11c16.USBW/10000.USBL.BS/NOR.PS.PE.BS.BE.J.
FSBL 7vcz:g82ed7fd:2022-07-13T10:19:03+08:00
By pass rtc mode switch
P2S/0x1000/0xc009e00.
P2E.
DPS/0x9e00/0x2000.
DPE.
Mars DDR init.
ddr_param[0]=0x78075562.
pkg_type=2
D2_2_3
DDR3-1G-BGA
DDR BIST PASS
PLLS.
PLLE.
C2S/0x0/0x0/0x0.
No C906L image.
MS/0xbe00/0x80000000/0x1b000.
ME.
L2/0x26e00.
```

3.4 Precautions

1. When using USB burning, please use USB power supply and confirm to remove DC power supply.
2. If the script cannot be executed normally, you can use ctrl + c to interrupt the script, and after powering off the platform, re-execute USB burning.