



CV18(1x/0x) Bare and Non-Bare Chip Burning Upgrade Operation Guide

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CONTENTS

1	Disclaimer	2
2	Use SD Card for Bare Burn	3
2.1	Preparations Before Use	3
2.2	Explanation of Bare Burning Process	4
2.3	Operation Process	4
2.4	Operation Example	4
2.5	Use upgrade.zip to Upgrade	5
2.6	Precautions	6
2.7	Set eMMC ECSD Register	6
3	Use USB to Burn	7
3.1	Preparation Before Use	7
3.2	Operation Process	7
3.3	Operation Example	8
3.4	Precautions	10

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

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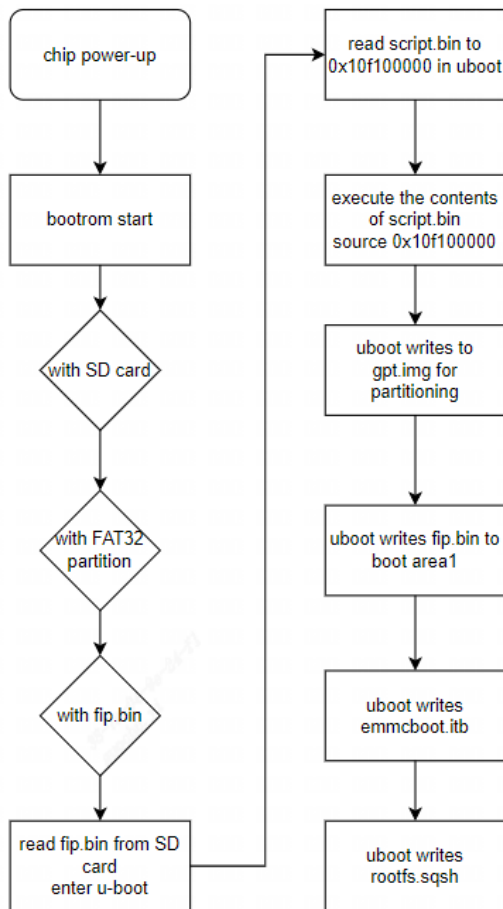
Forum <https://developer.sophgo.com/forum/index.html>

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

- Put fip.bin, *.emmc/.spinand/.spinor in the SD card
- Insert the SD card into the SD card slot of Cvitek EVB
- 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

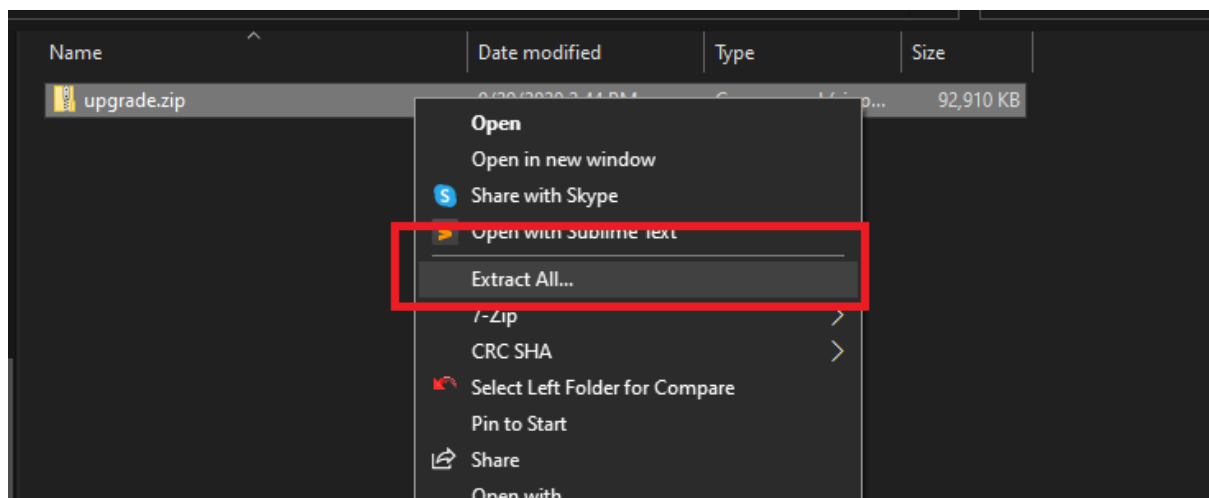
Insert the SD card, connect the cv1835 platform to the power supply, and start the recording program automatically

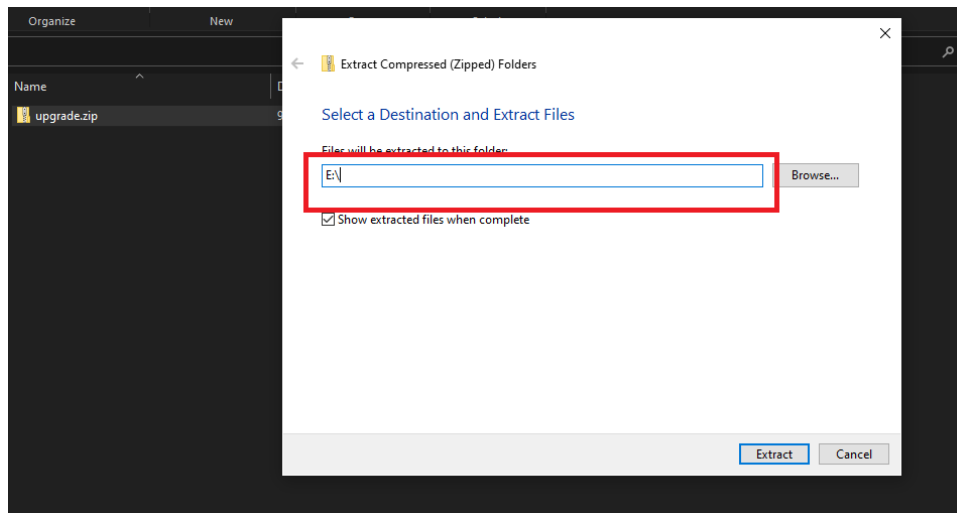
When the platform is finished recording, you can see the following message on UART port. Power off the platform and restart it to finish recording

Use

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 recording mode is as follows:

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

```
uboot # mmc fuse_rstn 0
```


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 mars_dl.py -libusb -cpu riscv -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 mars_dl.py -libusb -cpu riscv -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

```
C:\mars\usb_d1>cd C:\mars\usb_d1\firmware_path
C:\mars\usb_d1\firmware_path>dir
驱动器 C 中的卷是 Windows
卷的序列号是 9CC1-430E

C:\mars\usb_d1\firmware_path 的目录
2022/07/25  16:02    <DIR>          .
2022/07/25  16:02    <DIR>          ..
2022/07/25  15:49           2,709,836 boot.spinor
2022/07/13  15:35           404,992 fip.bin
2022/07/13  11:30    <DIR>          META
2022/07/13  11:20           691 partition_spinor.xml
2022/07/25  15:49           3,825,792 rootfs.spinor
2022/07/13  11:29           8,370,070 upgrade.zip
2022/07/13  11:30    <DIR>          utils
                    5 个文件          15,311,381 字节
                    4 个目录 13,933,441,024 可用字节
```

Execute the command in the directory of the usb burn script

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

```
C:\mars\usb_d1>dir
驱动器 C 中的卷是 Windows
卷的序列号是 9CC1-430E

C:\mars\usb_d1 的目录
2022/07/25  15:59    <DIR>          .
2022/07/25  15:59    <DIR>          ..
2022/07/25  16:02    <DIR>          firmware path
2022/07/15  16:50           1,671 mars_dl.py
2022/07/25  15:23    <DIR>          rom usb_d1
                    1 个文件          1,671 字节
                    4 个目录 13,931,442,176 可用字节
```

```
C:\mars\usb_dl>py mars_dl.py --libusb --cpu riscv --image_dir C:\mars\usb_dl\firmware_path
INFO: Using libusb
INFO: Mars USB download start

fip_path: C:\mars\usb_dl\rom_usb_dl\riscv_prg.bin
Mars USB download start
Connecting to ROM
Waiting for USB port: \
```

After connecting USB port to PC, recording will start automatically

```
C:\mars\usb_dl>py mars_dl.py --libusb --cpu riscv --image_dir C:\mars\usb_dl\firmware_path
INFO: Using libusb
INFO: Mars USB download start

fip_path: C:\mars\usb_dl\rom_usb_dl\riscv_prg.bin
Mars USB download start
Connecting to ROM
COM52ng for USB port: /
USB VID:PID=3346:1000 SER=1259A LOCATION=1-1.4

done
Send cv_dl_magic.bin...
--- 0.0 Seconds ---
done
COM52ng for USB port: |
USB VID:PID=3346:1000 SER=1259A LOCATION=1-1.4

Send 4096B fip.bin...
--- 0.02 Seconds ---
set flag
break
Connecting to ROM 2nd stage...
```

Recording complete,

```
CA 选择命令提示符
LIBUSB on Windows
INFO: SEND FILE C:\mars\usb_dl\firmware_path\fip.bin
C:\mars\usb_dl\firmware_path\fip.bin is 404992 bytes
Send to address 0x81800000
--- 50.1 Seconds ---
LIBUSB on Windows
INFO: SEND FILE C:\mars\usb_dl\firmware_path\boot.spinor
--- size 64 0.28102 Seconds ---
--- size 2709772 1.41774 Seconds ---
INFO: CVI_USB_PROGRAM
INFO: SEND FILE C:\mars\usb_dl\firmware_path\rootfs.spinor
--- size 64 0.27954 Seconds ---
--- size 3825728 2.11969 Seconds ---
INFO: CVI_USB_PROGRAM
LIBUSB on Windows
INFO: reboot device done
INFO: USB download complete
INFO: Mars USB download end
```

When the platform is finished recording, 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 recording, 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 recording.