

# Linux - How to build and flash spirom

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## Check whether the 1GB board is old batch

1. Prepare a USB serial cable and connect debug port to PC terminal
2. Switch SW2 to '0' for sd boot
3. Power on the board and check the beginning of the debug messages, If your board is actually 1GB but the debug message show 2GB, then you must update the spirom.

```
C1:80000000
C2
?_?
C3h
hwsetting size: 00000950
C4
f
5-5
Goto FSBL: 0x80008000
Welcome to FSBL ....

REG32(V0_SW_SEC_1)=01C00000
[FSBL] Secure: 0x0000BEEE
[FSBL] DCache Enable: 0x00000000
[FSBL] SVP = N
***** FW_TYPE_BOOTCODE *****
FW Image to 0x00100000, size=0x00080BA0 (0x00180BA0)
FW Image fr 0x881313E8
kmcp_bypass copy audio bin
FSBL: plat_gic_setup
FSBL: plat_gic_setup_percpu
FSBL Jumps to LK

U-Boot 2015.07 (Feb 25 2020 - 15:59:50 +0800)

CPU : Cortex-A53 Quad Core - AARCH64
Board: Realtek QA Board
DRAM: 2 GiB
watchdog: Disabled
mapping memory 0x20000000-0x40000000 non-cached
flushing dcache successfully.
nor flash id [0x00ef4018]
```

## Build the spirom

1. Get the source code

```
$ git clone https://github.com/BPI-SINOVOIP/BPI-M4-bsp
```

2. According to the [README.md](#) to compile the spirom, 1GB or 2GB version.

## Flash the spirom

1. Prepare a bootable sdcard with bpi linux image flashed.

2. Connect debug serial cable to PC terminal.
3. Prepare a udisk with fat32 format, copy the right spirom firmware, spiloader-1GB.bin or spiloader-2GB.bin to udisk. Plug udisk to board.
3. Press "Esc" and power on the board to enter uboot command mode.
4. Flash the firmware to board,

```
BPI-M4> usb start
BPI-M4> fatload usb 0:1 0x01500000 spiloader-1GB.bin
BPI-M4> go 0x01500000
```

```
BPI-M4>
BPI-M4> fatload usb 0:1 0x01500000 spiloader-1GB.bin
reading spiloader-1GB.bin
761248 bytes read in 137 ms (5.3 MiB/s)
BPI-M4> go 0x01500000
Starting application at 0x01500000 ...
flash_type: SPI
begin:

nor flash id [0x00EF4018]
  sector 256k en: 0x00000000
  sector 64k en: 0x00000001
  sector 32k en: 0x00000001
  sector 4k en: 0x00000001
  page_program : 0x00000001
  max_capacity : 0x01000000
  spi type name : WINBOND_W325Q128BV_128Mbit

init
spi : erase 0x00200000 bytes from 0x88100000
////////////////////////////////////
spi : write hw setting&signature, start=0x88130800, len=0x00000BE8
..
spi : write bootcode, start=0x881313E8, len=0x000080B80
.....
spi : write bootcode signature, start=0x881B1F68, len=0x00000020
.....
spi : write fsbl, start=0x881B1F88, len=0x00007A08
.....
spi : write parameter, start=0x88130000, len=0x00000428
.exit
Finish
reset...
C1:80000000
C2
?_?
C3h
hwsetting size: 00000950
```