

U-boot

NAND

compared to bpi-r3 fip is at position 0x580000

```
BPI-R4> ls mmc 0:5
 9010412  6.7.0-rc3-dango.itb
    127   uEnv.txt
 9025092  6.6.0-rc2-dango.itb
24735843  6.6.0-r4-dango
 8941016  6.6.0-r4-dango.itb
 9080636  6.8.0-rc3-dango.itb
32890100  rootfs_arm64.cpio.gz
 254821   bpi-r4_spim-nand_bl2.img
 9031768  6.7.0-rc5-dango_2.itb
 278533   bpi-r4_spim-nand_fip.bin

10 file(s), 0 dir(s)

BPI-R4> mtd erase spi-nand0
spi-nand: spi_nand spi_nand@0: Winbond SPI NAND was found.
spi-nand: spi_nand spi_nand@0: 128 MiB, block size: 128 KiB, page size:
2048, 04
Erasing 0x00000000 ... 0x07ffffff (1024 eraseblock(s))
BPI-R4> fatload mmc 0:5 $loadaddr bpi-r4_spim-nand_bl2.img
254821 bytes read in 19 ms (12.8 MiB/s)
BPI-R4> mtd write spi-nand0 $loadaddr 0x0 0x100000
Writing 1048576 byte(s) (512 page(s)) at offset 0x00000000
BPI-R4> fatload mmc 0:5 $loadaddr bpi-r4_spim-nand_fip.bin
278533 bytes read in 20 ms (13.3 MiB/s)
BPI-R4> mtd write spi-nand0 $loadaddr 0x580000 0x200000
Writing 2097152 byte(s) (1024 page(s)) at offset 0x00580000
BPI-R4> reset
resetting ...
```

debug

devicetree

how to display uboot devicetree

```
BPI-R4> bdinfo
...
fdt_blob    = 0x00000000ff7fbc90
```

```
...
BPI-R4> fdt addr 0x00000000ff7fbc90
BPI-R4> fdt list
BPI-R4> fdt print /pcie@11290000
```

pinmux

```
BPI-R4> pinmux list
| Device                                | Driver                                | Parent
| pinctrl@1001f000                      | mt7988_pinctrl                      |
root_driver
BPI-R4> pinmux dev pinctrl@1001f000
dev: pinctrl@1001f000
BPI-R4> pinmux status
...
PCIE30_2L : Aux Func.1
PCIE30_2L : Aux Func.1
PCIE30_1L : Aux Func.1
PCIE30_1L : Aux Func.1
...
PCIE30_2L : Aux Func.1
PCIE30_1L : Aux Func.1
...
PCIE30_2L : Aux Func.1
PCIE30_1L : Aux Func.1
PCIE30_2L : Aux Func.1
PCIE30_2L : Aux Func.1
PCIE30_1L : Aux Func.1
PCIE30_1L : Aux Func.1
```

clocks

```
BPI-R4> clk dump
Rate                Usecnt      Name
-----
40000000            0          | - - dummy40m
208000000           0          | - - dummy208m
12000000            0          | - - dummy12m
BPI-R4>
```

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