

# Flash partitions

Updating to Debian ubi.img.1.0.6 (just the file system partition), then just type "boot".

## **All is lost !**

Of course, anything that you have placed or configured on the previous image is GONE! right ? Yes of course, we've just re-imaged the filesystem partition.

```
U-Boot 2016.09-rc2-1.0.4-00093-gaf6e0b4-dirty (Apr 24 2018 - 14:25:18 +0200)
```

```
DRAM: 512 MiB
NAND: 1024 MiB
MMC: OMAP SD/MMC: 0
Using default environment
```

```
Net:
```

```
Warning: ethernet@4a100000 using MAC address from ROM
eth0: ethernet@4a100000
Press SPACE to abort autoboot in 2 seconds
```

```
=> mmc rescan
=> fatls mmc 0
** Unrecognized filesystem type **
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=>
```

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```
=> mmc rescan
=> fatls mmc 0
    lost.dir/
    android/
    music/
    camera/
    photos/
1024  system_crypt_file
512   .crypt_keystore
    videos/
    documents/
    voice/
    books/
    downloads/
    paysage/
    chats/
    system volume information/
    star trek the motion picture (1979)/
    rt documentation/
8924  homepolitick.ovpn
113770496 ubi.img.1.0.6
```

```
4 file(s), 15 dir(s)
```

```
=> fatload mmc 0
reading zImage
```

```
** Unable to read file zImage **
=> fatload mmc 0 0x82000000 ubi.img.1.0.6
reading ubi.img.1.0.6
113770496 bytes read in 11649 ms (9.3 MiB/s)
=> nand erase 0x2800000 0x3d800000

NAND erase: device 0 offset 0x2800000, size 0x3d800000
Erasing at 0x3ff80000 -- 100% complete.
OK
=> nand write 0x82000000 0x2800000 0x7000000

NAND write: device 0 offset 0x2800000, size 0x7000000
117440512 bytes written: OK
=>
```

Flashing the dtb, Kernel and the Debian FS with ubi v1.0.6:

```
=> mmc rescan
=> fatls mmc 0
    lost.dir/
    android/
    music/
    camera/
    photos/
    videos/
    documents/
    voice/
    books/
    downloads/
    paysage/
    chats/
    system volume information/
    star trek the motion picture (1979)/
    rt documentation/
    37018  am335x-owasys.dtb
    74400  mlo
    40323  owasys104.png
113770496  ubi.img.1.0.6
    8912896  ubi.img.backup1
    472172  u-boot.img
    3523888  zimage

7 file(s), 15 dir(s)

=> fatload mmc 0 0x82000000 am335x-owasys.dtb
reading am335x-owasys.dtb
37018 bytes read in 22 ms (1.6 MiB/s)
=>
=> nand erase 0x200000 0x80000

NAND erase: device 0 offset 0x200000, size 0x80000
Erasing at 0x200000 -- 100% complete.
OK
```

```
=> nand write 0x82000000 0x200000 0x80000

NAND write: device 0 offset 0x200000, size 0x80000
 524288 bytes written: OK
=> fatload mmc 0 0x82000000 zImage
reading zImage
3523888 bytes read in 378 ms (8.9 MiB/s)
=> nand erase 0x400000 0x1000000

NAND erase: device 0 offset 0x400000, size 0x1000000
Erasing at 0x1380000 -- 100% complete.
OK
=> nand write 0x82000000 0x400000 0x1000000

NAND write: device 0 offset 0x400000, size 0x1000000
 16777216 bytes written: OK
=> fatload mmc 0 0x82000000 ubi.img.1.0.6
reading ubi.img.1.0.6
113770496 bytes read in 11653 ms (9.3 MiB/s)
=> nand erase 0x2800000 0x3d80000

NAND erase: device 0 offset 0x2800000, size 0x3d800000
Erasing at 0x3ff80000 -- 100% complete.
OK
=> nand write 0x82000000 0x2800000 0x7000000

NAND write: device 0 offset 0x2800000, size 0x7000000
 117440512 bytes written: OK

=> boot
Booting from nand ...

NAND read: device 0 offset 0x200000, size 0x80000
 524288 bytes read: OK
```

Flash device = /dev/ubi0

### Flash layout

```
# cat /proc/mtd
```

```
dev: size erasesize name
mtd0: 00080000 00080000 "NAND.SPL"
mtd1: 00080000 00080000 "NAND.SPL.backup1"
mtd2: 00080000 00080000 "NAND.SPL.backup2"
mtd3: 00080000 00080000 "NAND.SPL.backup3"
mtd4: 00080000 00080000 "NAND.u-boot-spl-os"
mtd5: 00080000 00080000 "NAND.u-boot"
mtd6: 00080000 00080000 "NAND.u-boot-env"
mtd7: 00080000 00080000 "NAND.u-boot-env.backup1"
mtd8: 01000000 00080000 "NAND.kernel"
mtd9: 01400000 00080000 "NAND.file-system.backup1"
mtd10: 3d800000 00080000 "NAND.file-system"
```

Partition	Partition name.Purpose	size	Offset in blocks HEXADECIMAL	Image name
mtd0	SPL	512k	0	MLO
mtd1	SPL.b1	512k	80,000	???
mtd2	SPL.b2	512k	100,000	???
mtd3	SPL.b3	512k	180,000	???
mtd4	u-boot-spl-os	512k	200,000	am335x-owasys.dtb
mtd5	u-boot	512k	280,000	u-boot.img
mtd6	u-boot-env	512k	300,000	???
mtd7	u-boot-env.b1	512k	380,000	???
mtd8	kernel	16 M	400,000	zImage
mtd9	file-system.backup1	20M	1,400,000	ubi.img.backup1
mtd10	file-system.Normal	984M	2,800,000	ubi.img.1.0.3

### No backup boot

Hello Martin,

The booting sequence has been defined in this way for security reasons, to avoid third party sw being booted from a SD card. If you brick the unit, let's say because the u-boot has been wrongly flashed, the only solution is to send it back to owasys to recover it. About the partitioning, this has been adopted because they are based in Beaglebone structures and the unused ones are kept just in case, for future use. And the backup partition can be left untouched, just not write to it. It is meant to boot from this when the main FS does not boot, in order to try to repair it, nothing else.

Best regards / Un saludo

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2018-03-06 17:57 GMT+01:00 Martin Politick <mpolitick@wecomine.com>:

*On B)*

*Yes I've read that part, does it not assume that: mtd0 & mtd5 are all valid ?*

*What I mean is what is mtd1, mtd2, mtd3 and how can I use it ?*

*I assume that the boot ssequence is : [http://processors.wiki.ti.com/index.php/Boot\\_Sequence](http://processors.wiki.ti.com/index.php/Boot_Sequence)*

*If, for some reason i BRICK my Owasys43, is there a way for me to set the pins to "SW4 = 00100111 (high to low, i.e. SW4.1 = 1)" to make the CPU boot from the external card ?*

*Also, would it not be safer to keep the file-system.backup1 as it was in a known good state and not overwrite it in case ubi.img.1.0.3 is wrong ?*

*Say flash "nand write 0x82000000 0x2800000 0x7000000", then reboot and verify it works then update the "nand write 0x82000000 0x1400000 0x1000000"*

```
ubinfo /dev/ubi0 -a
```

```
mtd_debug info /dev/mtd0
```

```
device nand0 <nand.0>, # parts = 10
#: name size offset mask_flags
0: NAND.SPL 0x00080000 0x00000000 0
1: NAND.SPL.backup1 0x00080000 0x00080000 0
2: NAND.SPL.backup2 0x00080000 0x00100000 0
3: NAND.SPL.backup3 0x00080000 0x00180000 0
4: NAND.u-boot-spl-os 0x00080000 0x00200000 0
5: NAND.u-boot 0x00080000 0x00280000 0
6: NAND.u-boot-env 0x00080000 0x00300000 0
7: NAND.u-boot-env.backup10x00080000 0x00380000 0
8: NAND.kernel 0x01000000 0x00400000 0
9: NAND.file-system.backup1-(NAND.file-system0x01400000 0x01400000 0
```

```
active partition: nand0,0 - (NAND.SPL) 0x00080000 @ 0x00000000
```

```
defaults:
```

```
mtdids : nand0=nand.0
```

```
mtdparts:
```

```
mtdparts=nand.0:512k(NAND.SPL),512k(NAND.SPL.backup1),512k(NAND.SPL.backup2),512k(NAND.SPL.backup3),512k(NAND.u-boot-spl-os),512k(NAND.u-boot),512k(NAND.u-boot-env),512k(NAND.u-boot-env.backup1),16m(NAND.kernel),20m(NAND.file-system.backup1-(NAND.file-system)
```