

ARM926EJ-S S3C2450 Mango24R2 Network File System Mount and How to NAND Fusing

<http://www.mangoboard.com/>

<http://cafe.naver.com/embeddedcrazyboys>

Crazy Embedded Laboratory



Document History

Revision	Date	Change note

1. CRZ Technology 문서화 방법.....오류! 책갈피가 정의되어 있지 않습니다.
 - 1.1. 파일 이름 문서화 방법오류! 책갈피가 정의되어 있지 않습니다.

1. Initializing a Build Environment

https://docs.google.com/document/d/1PyAQZwv_Gu3_1fPWhqHRWuoMye3HHes6AgLTIGfHL7s/edit

2. Build U-boot

NAND Booting 용 u-boot

```
$ tar jxvf u-boot-1.3.4-mango2450-20120615.tar.bz2
$ cd u-boot-1.3.4-mango2450
$ vi include/configs/mango2450.h
...
331 /* Boot configuration (define only one of next) */
332 ##define CONFIG_BOOT_MOVINAND
333 #define CONFIG_BOOT_NAND
...
$ export PATH=/opt/arm-2010q1/bin:$PATH
$ make ARCH=arm CROSS_COMPILE=arm-none-linux-gnueabi- distclean
$ make ARCH=arm CROSS_COMPILE=arm-none-linux-gnueabi- mango2450_config
$ make ARCH=arm CROSS_COMPILE=arm-none-linux-gnueabi-
$ cp u-boot.bin u-boot.bin-nand
```

SD Booting 용 u-boot

```
$ vi include/configs/mango2450.h
...
331 /* Boot configuration (define only one of next) */
332 #define CONFIG_BOOT_MOVINAND
333 ##define CONFIG_BOOT_NAND
...
$ export PATH=/opt/arm-2010q1/bin:$PATH
$ make ARCH=arm CROSS_COMPILE=arm-none-linux-gnueabi- distclean
$ make ARCH=arm CROSS_COMPILE=arm-none-linux-gnueabi- mango2450_config
$ make ARCH=arm CROSS_COMPILE=arm-none-linux-gnueabi-
$ cp u-boot.bin u-boot.bin-sdmmc
```

3. Kernel build

```
$ cp mango2450_config .config
$ make menuconfig ARCH=arm    #종료시 저장합니다
$ ./build_kernel.sh
$ cp arch/arm/boot/zImage zImage-mango2450
```

“make menuconfig” 에러 발생 시

```
menubox.c:(text+0x4d4): undefined reference to `wrefresh'
collect2: ld returned 1 exit status
make[1]: *** [scripts/kconfig/mconf] Error 1
make: *** [menuconfig] Error 2
```

```
$ sudo apt-get install libncurses5-dev
```

4. Filesystem build (Buildroot)

```
$ tar jxvf buildroot-mango2450.tar.bz2

$ cd buildroot-2012.05
$ make distclean
$ cp mango2450.config .config
$ make
$ ls output/images
rootfs.tar
```

5. SD Boot Image Fusing

ARM926EJ S3C2450 Mango24R2 U-boot image transfer to SD/MMC:

https://docs.google.com/document/d/1qTWxjvlqbe9UFRxJMQhKJ5kNEEHZU0wMVKQz7bhY_d4/edit

6. NAND Flash Image Fusing

환경 구성

TFTP 설정합니다.

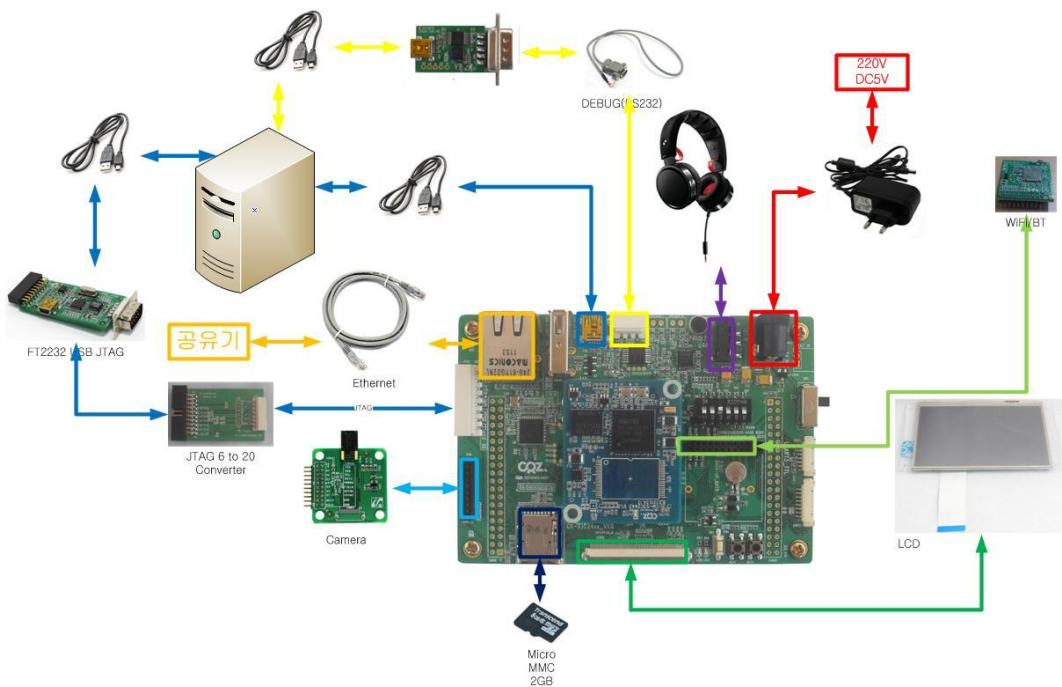
참조 문서

<https://docs.google.com/a/crz->

[tech.com/folder/d/0Bxdf_3fzbUgSZV9sdC1wenI3V2M/edit#docId=0Bxdf_3fzbUgSMElyRkJDVzIwd0U](https://docs.google.com/a/crz-tech.com/folder/d/0Bxdf_3fzbUgSZV9sdC1wenI3V2M/edit#docId=0Bxdf_3fzbUgSMElyRkJDVzIwd0U)

이미지를 tftp root 디렉토리에 copy를 합니다.

이더넷 케이블을 망고보드에 연결합니다. 아래 연결도 참조합니다.



SD boot 모드[3번 ON] 로 부팅

```
Really scrub this NAND flash? <y/N>
```

```
Y <-- 선택합니다.
```

```
[u-boot] tftp c0000000 u-boot.bin-nand
```

```
[u-boot] nand write c0000000 0 40000
```

NAND 모드 Booting [3,5,6 ON] 로 부팅

u-boot가 실행 후

Kernel image Write

```
[u-boot] tftp c0000000 zImage-mango2450  
[u-boot] nand erase 40000 3A0000; nand write c0000000 40000 3A0000  
[u-boot] setenv bootcmd 'nand read 0xC0008000 0x40000 0x3A0000;bootm 0xC0008000'  
[u-boot] setenv bootargs 'noinitrd console=ttySAC1,115200 rw root=/dev/mmcblk0p2  
rootfstype=ext4 rootwait'  
[u-boot] saveenv
```

Filesystem Fusing

Micro SD card (2GB 이하) 준비

```
$ sudo wget  
http://crztech.iptime.org:8080/Release/mango24R2\_S3C2450/sdwriter\_recovery/mango24R2\_sdwriter\_i  
mage\_120704\_Rel.tgz  
$ sudo tar xvf mango24R2_sdwriter_image_120704_Rel.tgz
```

Card를 PC에 삽입



```
# cp output/image/rootfs.tar sdwriter/
# cd sdwriter
```

```
# df
Filesystem                1K-blocks    Used  Available Use% Mounted on
/dev/sda5                  117017192   6157080 105000784   6% /
udev                      886476      4      886472    1% /dev
tmpfs                     358104      916    357188    1% /run
none                      5120        0      5120     0% /run/lock
none                      895256      76    895180    1% /run/shm
192.168.0.113:/home/icanjji/work/ 1746752512 174884864 1484445696  11% /media/113
/dev/sdb1                1845952     0    1845952  0% /media/9016-4EF8
```

"df" 명령으로 device 확인

```
# sudo ./sdwriter sdb 24 all
```

망고 보드에 삽입합니다.

부팅을 합니다.

부팅이 안되는 경우 , "bootcmd", "bootargs" 값을 확인합니다.

```
[u-boot] setenv bootcmd 'nand read 0xC0008000 0x40000 0x3A0000;bootm 0xC0008000'
[u-boot] setenv bootargs 'noinitrd console=ttySAC1,115200 rw root=/dev/mmcblk0p2
rootfstype=ext4 rootwait'
[u-boot] saveenv
```

7. NAND Write

1. SD card Linux PC 삽입
cp rootfs.tar /media/sd/root/

2. SD Card 를 보드에 삽입 후 , SD boot 합니다.
부팅합니다.

부팅이 완료 후

ubifs 만들기(mtd2 가 루트파일시스템이 올라갈 파티션임)

```
# flash_erase /dev/mtd2 0 0
```

다음은 비어있는 UBIFS file system 을 만듭니다:

```
# ubiattach /dev/ubi_ctrl -m 2  
# ubimkvol /dev/ubi0 -N rootfs -m
```

```
# mkdir /mnt/nand  
# mount -t ubifs ubi0:rootfs /mnt/nand  
# cd /root  
# tar xvf rootfs.tar -C /mnt/nand  
# umount /mnt/nand
```

u-boot 와 커널 nand 에 Write 하시고,

reboot 하고 u-boot 프롬프트상에서 bootargs 입력합니다.

```
setenv bootcmd 'nand read 0xC0008000 0x40000 0x3A0000;bootm 0xC0008000'  
#setenv bootargs 'noinitrd console=ttySAC1,115200 rw ubi.mtd=2 root=ubi0:rootfs rootfstype=ubifs  
rootwait'
```