

# i.MX25 PDK Linux Demo Image

## Readme

This document contains important information about the package contents and flashing procedures.

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# 1 Release Contents

This is a release of the Freescale Semiconductor i.MX25 PDK Linux BSP (Demo Image).

## 1.1 Supported Hardware

This package supports the i.MX25 PDK Rev. 1.1 board.

## 1.2 Supported Features in this Release

The following table describes the features that are supported in the Demo Image.

Feature Class	Feature
Kernel	2.6.31
Boot	Redboot and Uboot (NAND)
Machine Specific layer	ARM Core
	GPT Timer
	SDMA
	GPIO
	SPBA
Character Device Driver	MXC UART
Graphic Drivers	Synchronous FB
Multimedia Drivers	OmniVision OV2640 2MP Camera
	V4L2 Capture
Power Management IC (MC34704)	Protocol
	Power management
Input Device Driver	Keypad
	Touch panel
Sound Drivers	AudMux
	SSI
	ESAI
	Stereo Codec
	5.1 Channel Codec
MTD Driver	NAND MTD
Networking Drivers	LAN9217
	FEC

Feature Class	Feature
USB Drivers	Host stack
	Gadget stack
	USB OTG
General Drivers	RTC
	MMC/SD/SDIO
	I2C
	CSPI
	CAN
	SIM
Power Management Drivers	Low-Level Power Management
	DVFS
Audio Player	MP3
	AAC
	WMA
	m4a (ACC) (MP3)
PCM encoding	MP3

## 1.3 Release Contents

The following table identifies the files and documents provided in this release package.

Item	Description
mx25_3stack_redboot.bin	Bootloader on redboot
u-boot-3ds.bin	Bootloader on uboot
zImage	Kernel Image (redboot)
ulmage	Kernel Image (uboot)
rootfs.ext2.gz	Root file system tarball
rootfs.jffs2	Root file system image
i.MX25 PDK 17 Linux Demo Image Readme	This file

## 2 Flashing Procedures

This section explains where to obtain instructions for erasing the NAND flash and flashing the bootloader.

It also provides procedures for flashing the kernel image, rootfs, and demo program into the i.MX25 PDK, and running the image on the target.

## 2.1 Erasing the NAND Flash and Flashing the Bootloader

This section explains how to install the ATK tool, erase FLASH, download Redboot, u-boot, zImage and rootfs to NAND flash.

### 2.1.1 Installing the ATK Tools

Download the ATK tool install package from the Freescale release web site or from Freescale support.

### 2.1.2 NAND Flash

### 2.1.3 Erasing the NAND Flash

If the board does not boot up or identifies an excessive number of bad blocks when booting up, erase NAND flash and power up the boards again. This problem may occur because a different NAND bad block handling mechanism had been used previously.

To erase the NAND Flash, use these steps:

1. Set the boot mode dip switches on the Debug board to internal boot (bootstrap mode) as shown in the following tables:

**Debug board SW4 switch setup for boot**

Switch	1	2	3	4	5	6	7	8
SW4	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON

**Debug board switch (SW5 – SW10) setup for ATK downloading**

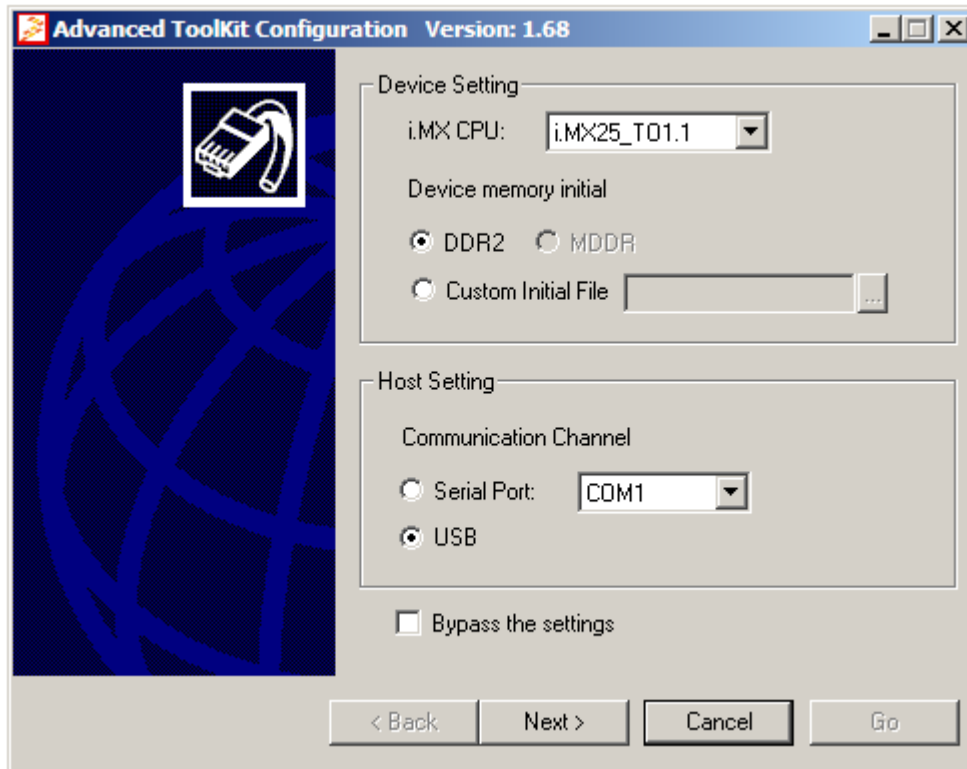
SW5	SW6	SW7	SW8	SW9	SW10
OFF	OFF	OFF	OFF	ON	ON

**Personality board switch setup for NAND internal boot**

Samsung K9LAG08U0M-PCB0 (MCIMX25WPKD)								
Switch	1	2	3	4	5	6	7	8
SW21	ON	OFF	OFF	ON	ON	OFF	OFF	OFF
SW22	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
Samsung K9LBG08U0D-PCB (MCIMX25WPKJ)								
Switch	1	2	3	4	5	6	7	8
SW21	ON	OFF	OFF	ON	OFF	ON	OFF	OFF
SW22	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF

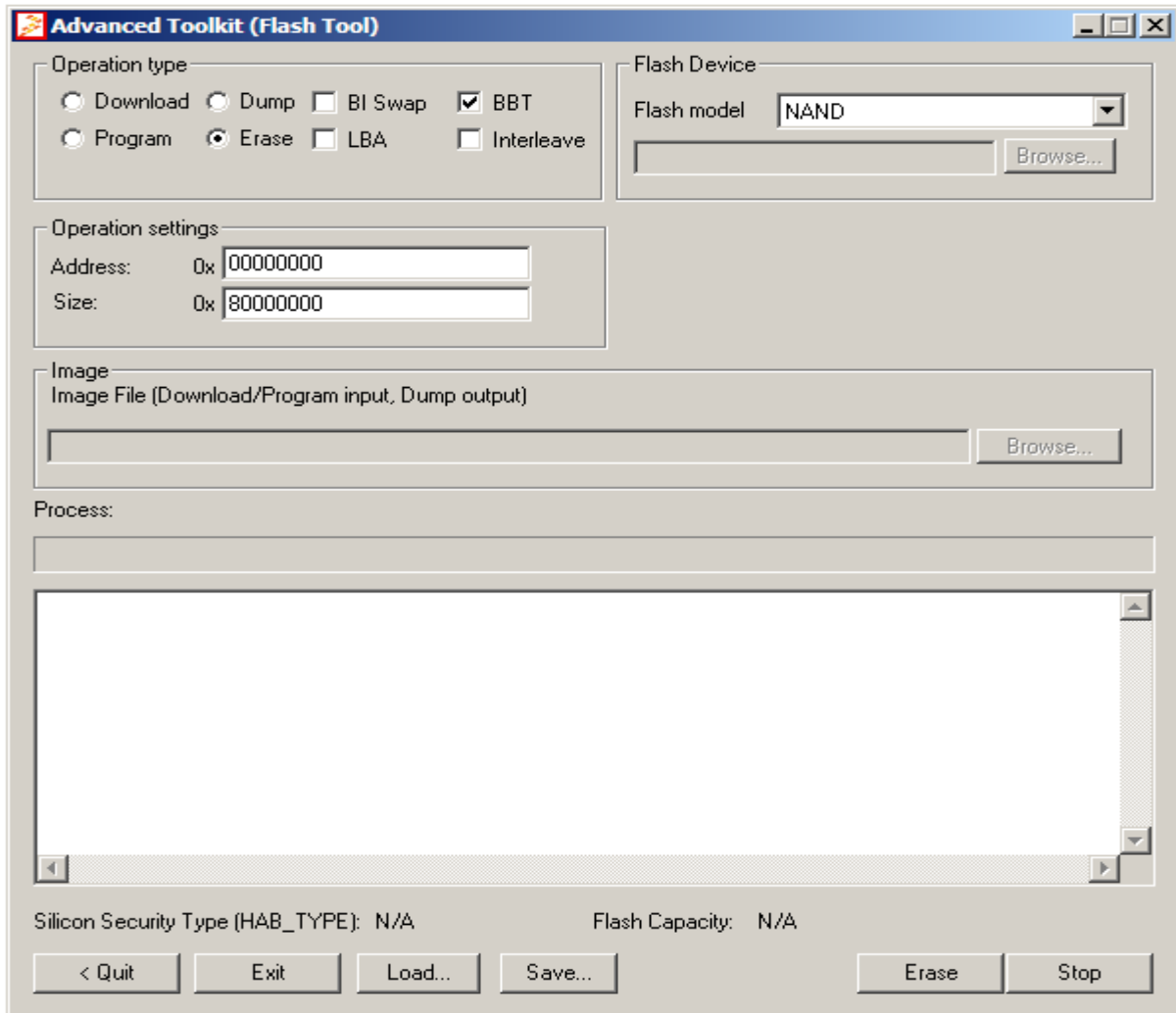
2. Power on i.MX25 3stack board and Run the ATK, and then select the options for your platform, for **Device memory initial (DDR2 or MDDR)**. Select “DDR2” for i.MX25 TO1.1 3stack. For **Communication Channel**, both serial and USB can be used. However, we suggest to use USB since it is faster than serial. Figure 2.1-1 illustrates ATK configuration for i.MX25 TO1.1 3stack.
3. Click **next** and select **Flash Tool**, then click **Go**.

Figure 2.1-1 i.MX25 TO1.1 ATK configuration



4. Select the erase options as Figure 2.1-2
5. Click **Erase** to erase the flash.

Figure 2.1-2 i.MX25 TO1.1 NAND flash Erase configuration

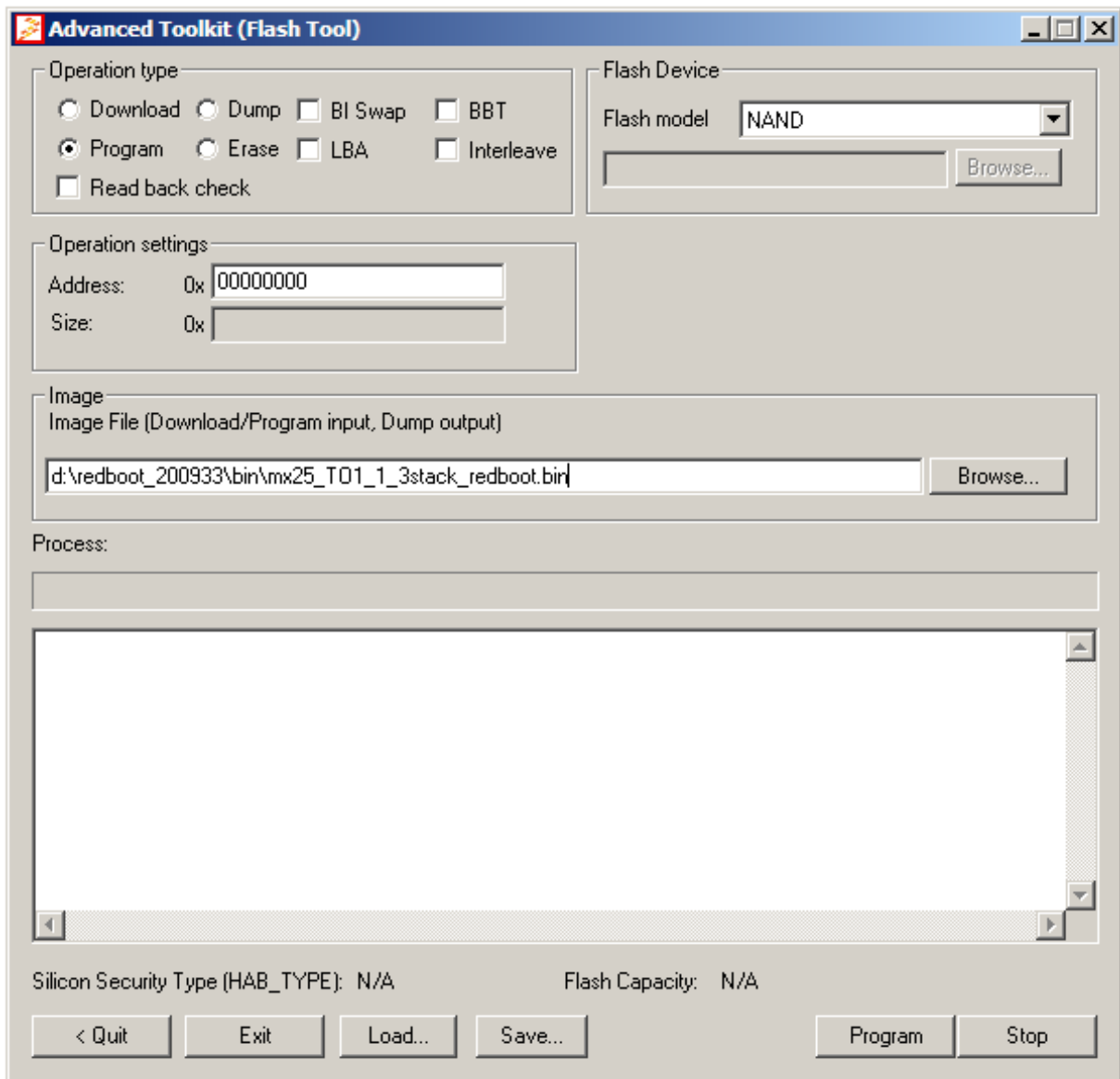


## 2.1.4 Download RedBoot/u-boot zImage and rootfs to NAND Flash

To download the bootloader, use these steps:

6. Set ATK as same steps 1-3 in 2.1-1
7. Program RedBoot/u-boot by selecting the options as Figure 2.1-3
8. Click **Browse** to select Redboot/u-boot and click **Program** to download.

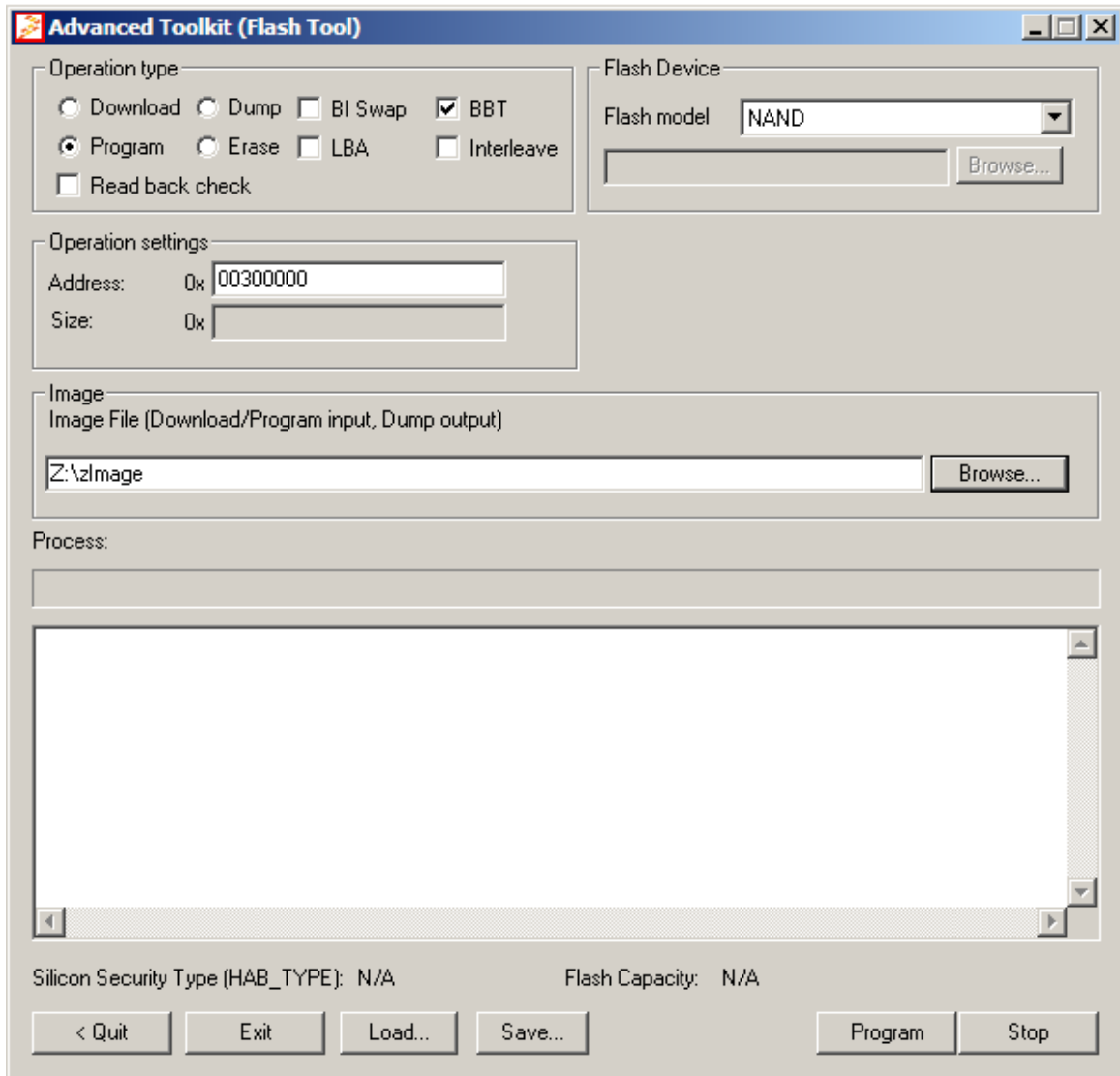
Figure 2.1-3 i.MX25 programming bootloader to NAND flash



9. Program zImage/uImage by selecting the options as Figure 2.1.4. Address is 0x300000 for both zImage and uImage.
10. Click **Browse** to select zImage/uImage and click **program** to download

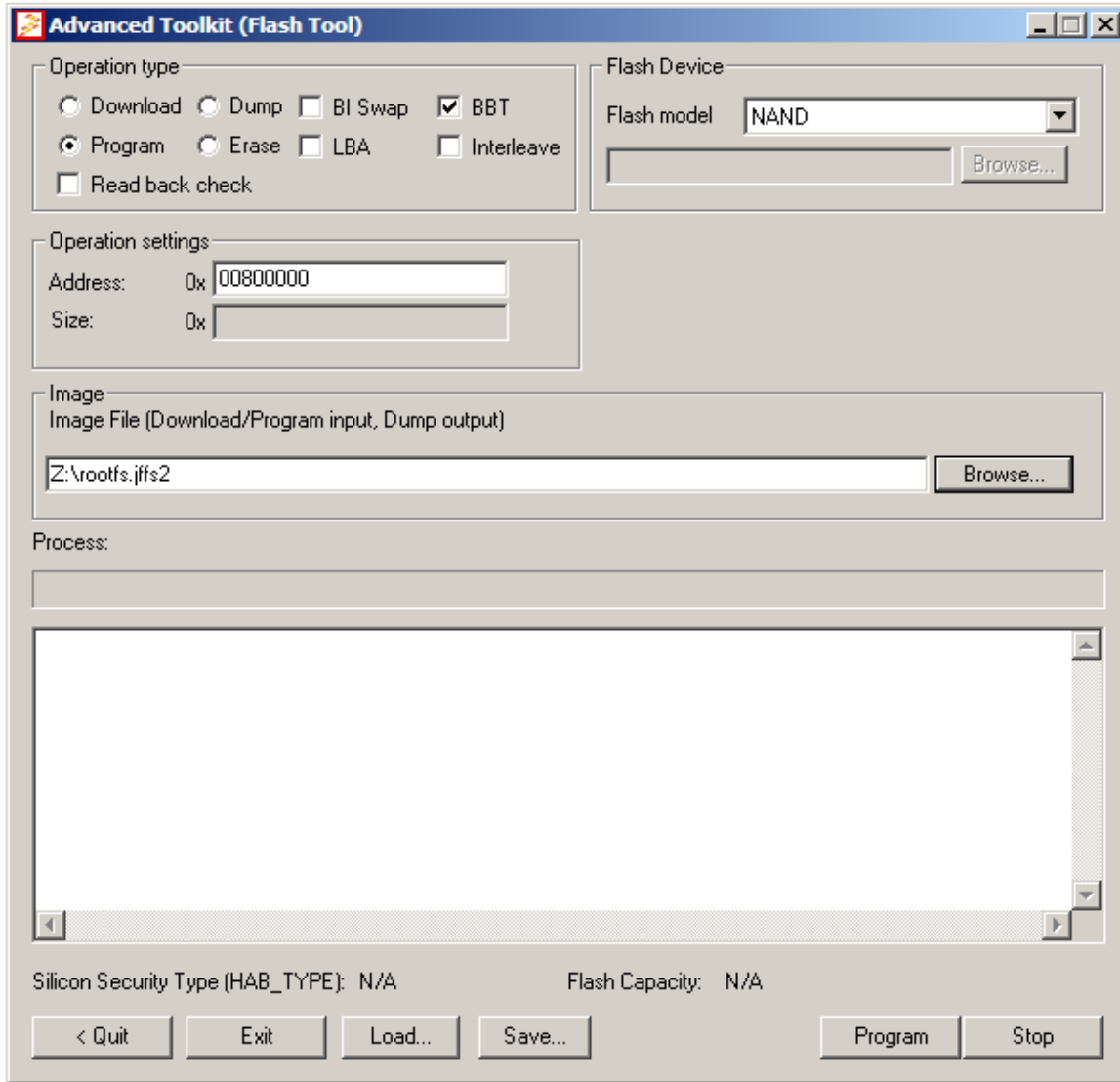


Figure 2.1-4 i.MX25 program Kernel image to NAND flash



11. Program rootfs by selecting the options as Figure 2.1.5
12. Click **Browse** to select rootfs.jffs2 and click **Program** to download.

Figure 2.1-5 i.MX25 program Kernel image to NAND flash



## 2.2 Running an Image on the Target

To boot the kernel from NAND flash as following steps:

1. Set dip switch on the debug board as follows:

**Debug board switch (SW5 – SW10) setup for NAND internal boot**

SW5	SW6	SW7	SW8	SW9	SW10
OFF	OFF	OFF	OFF	OFF	OFF

2. Run the following command in the RedBoot/u-boot prompt.

Redboot:

```
RedBoot> fis load kernel
RedBoot> fis create -f 0x300000 -l 0x500000 -n kernel -e 0x300000 -b
0x300000
RedBoot> exec -c "noinitrd console=ttyMxc0,115200 root=/dev/mtdblock2 rw rootfstype=jffs2 ip=dhcp"
```

U-Boot:

```
MX25 U-Boot > setenv bootargs nand 'setenv bootargs ${bootargs}
root=/dev/mtdblock2 ip=dhcp rootfstype=jffs2'
MX25 U-Boot > setenv bootcmd nand 'run bootargs base bootargs nand; nand
read ${loadaddr} 0x300000 0x200000;bootm'
MX25 U-Boot > saveenv
MX25 U-Boot > run bootcmd_nand
```

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