

AM57xx: Creating and Flashing Images to NAND



The target Linux commands listed in this section will only work correctly if Linux is booted from SD card on the target hardware.

The phyCORE-AM57x development kit is delivered with a pre-flashed bootloader and root file system. The following instructions will be useful if you would like to:

- Create a flashable NAND image
- Flash images to NAND

Create a NAND Root File System Image

To create a flashable NAND root file system image, follow these steps on your host PC. In these steps, we use *phytec-tisdk-image-am5728-phycore-rdk.tar.xz* as an example source root file system.

1. Make temporary directories to store your work:

Host

```
mkdir -p ~/nand/temp
cd ~/nand
```

2. Place your root file system in the temporary directory created in the previous step:

Host

```
tar -xf phytec-tisdk-image-am57xx-phycore-kit.tar.xz -C ~/nand/temp
```

3. Create a UBI File System (UBIFS) image from your root file system directory:

Host

```
mkfs.ubifs -m 4096 -c 4083 -e 258048 -r ~/nand/temp phytec-tisdk-image-am57xx-phycore-kit.ubifs
```

4. Create and save a file named *ubi.ini* in your current working directory with the following contents:

Host (ubi.ini)

```
[rootfs]
mode=ubi
image=phytec-tisdk-image-am57xx-phycore-kit.ubifs
vol_id=1
vol_type=dynamic
vol_name=rootfs
vol_flags=autoresize
vol_alignment=1
```

5. Create an unsorted block image (UBI) from your UBIFS image:

Host

```
ubinize -o phytec-tisdk-image-am57xx-phycore-kit.ubi -p 256KiB -m 4096 -s 1024 ubi.ini
```

Configure SD Card for Flashing

In addition to the standard SD card formatted in [Creating a Bootable SD Card](#), the following steps are required to copy images that will be flashed. From the host PC:

1. Copy the NAND-specific MLO and u-boot.img files to the rootfs partition on the SD card. In order to read from and write to the NAND by default, bootloader images that are compiled with NAND support are needed. The images needed are available in the release binaries and the filenames may vary.

Host

```
cp MLO-am5728_phycore_rdk_nand /media/<user>/boot/MLO && sync

cp u-boot.img-am5728_phycore_rdk_nand /media/<user>/boot/u-boot.img && sync
```

2. Copy the NAND-specific root file system image to a convenient place on the SD card. We recommend using the root user's home directory as you will not need to change directories after logging in to follow the rest of this guide.

Host

```
sudo cp phytec-tisdk-image-am57xx-phycore-kit.ubi /media/<user>/rootfs/home/root/ && sync
```

Flash Images to NAND

With a properly configured SD card, follow these steps to flash your NAND:



Please reference [AM57xx Boot Configuration](#) for boot mode settings.

1. Set the boot switches to boot from the SD card and power on the board and boot into Linux.
2. Flash MLO image to NAND:

Target

```
flash_erase /dev/mtd0 0 0

nandwrite -p /dev/mtd0 MLO
```

3. Flash u-boot.img image to NAND:

Target

```
flash_erase /dev/mtd4 0 0

nandwrite -p /dev/mtd4 u-boot.img
```

4. Flash the root file system image to NAND:

Target

```
flash_erase /dev/mtd6 0 0

ubiformat /dev/mtd6 -f phytec-tisdk-image-am57xx-phycore-kit.ubi
```

5. Power off the board, set the boot switches to boot from NAND, and power the board back on.