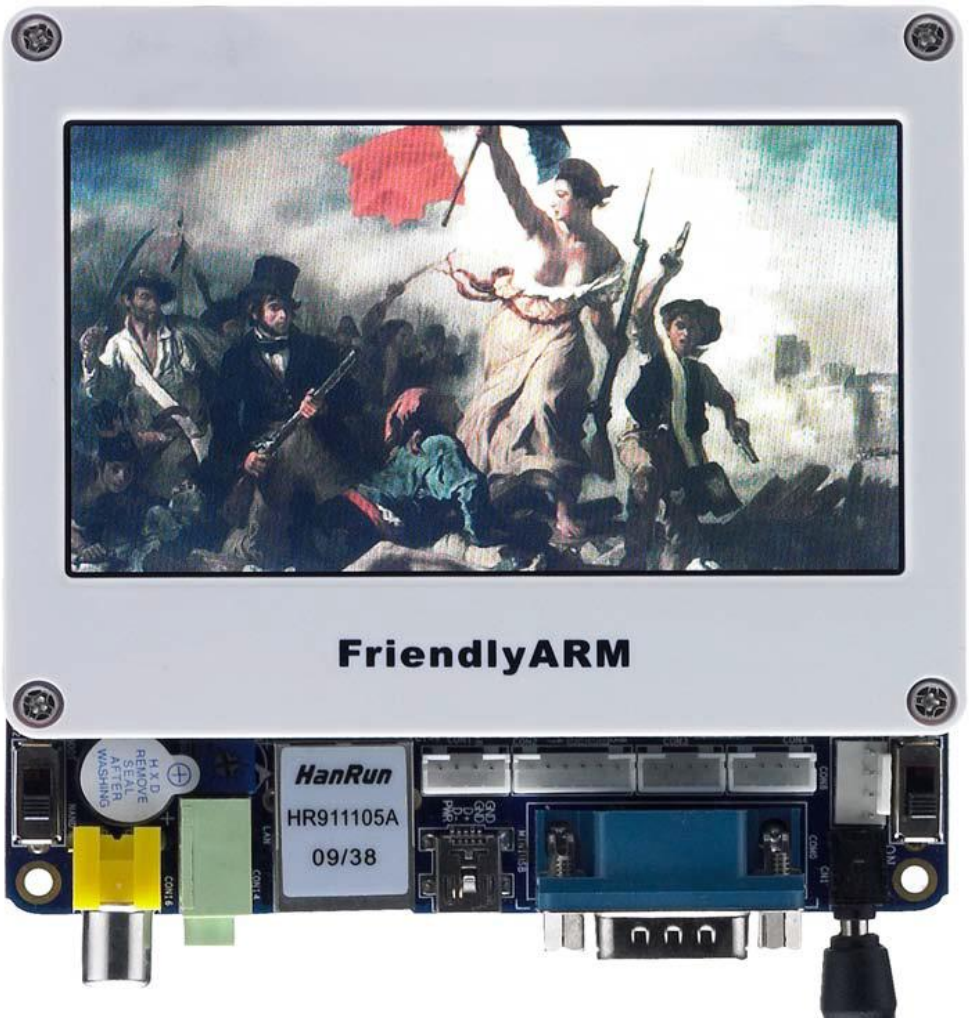
User's Guide to Mini6410 System Installation



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FriendlyARM creates the way of installing operating systems via USB download for the Mini2440 board. We advanced this technology further for our Mini6410 by exploring its feature of supporting booting from the SD card. For instance, we developed a bootloader that supports FAT32. This way users can read image files directly from the SD card without going via USB download from a PC.

If you have stepped through our previous chapters you would have experienced this new way of installation. It is prompt and easy. In our upcoming products we will deliver more cool features.

A lot of our customers have already been used to installing systems via USB download especially for development and testing. Therefore we kept this feature in our Mini6410. The required utilities are identical to those for the Mini2440.

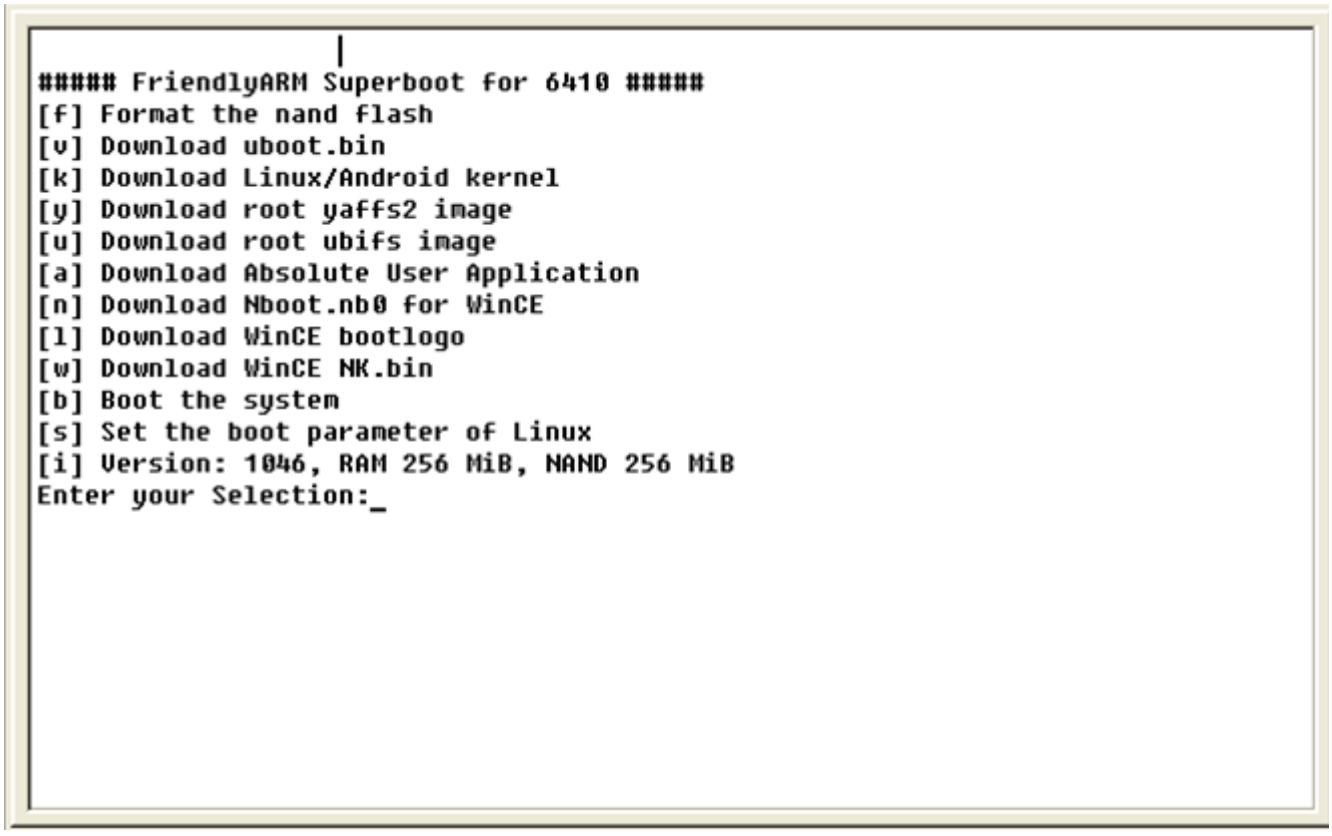
We will start this guide by introducing the “one key installation” feature.

1 Installation via USB

When using Superboot as the SD card's bootloader to boot the board, users will enter the USB download mode in the following two situations:

1. "images\FriendlyARM.ini" doesn't exist in the SD card or its file name is not spelled correctly

2. When the ini file exists and "CheckOneButtons" is "Yes" users forget to press a key to continue the booting process.



When system is being formatted Superboot might detect some bad sections in its routine

checking, however this doesn't necessarily mean your board will not work properly. A common NAND flash doesn't guarantee all sections are good. Bad sections will be detected by software but will generally not affect systems.

1.1 Install Linux (YAFFS2 or UBIFS)

Note: you need to install the USB download driver before go forward in the steps below. If you have already installed it please switch "S2" to "SDBOOT". Our system is subject to continuous upgrades so the following screenshots may subject to changes accordingly.

Note: the bin file needed for installing Linux is under "images\Linux", please read the ReadMe file in that directory. Below are the steps to follow:

(1) Format the NAND Flash - [f]

(2) Install a bootloader - [v]

(3) Install a kernel - [k]

(4) Install target file system (yaffs2 or ubifs): [y] or [u]

We will take a 4.3-inch system as an example to show you how to install a UBIFS Linux:

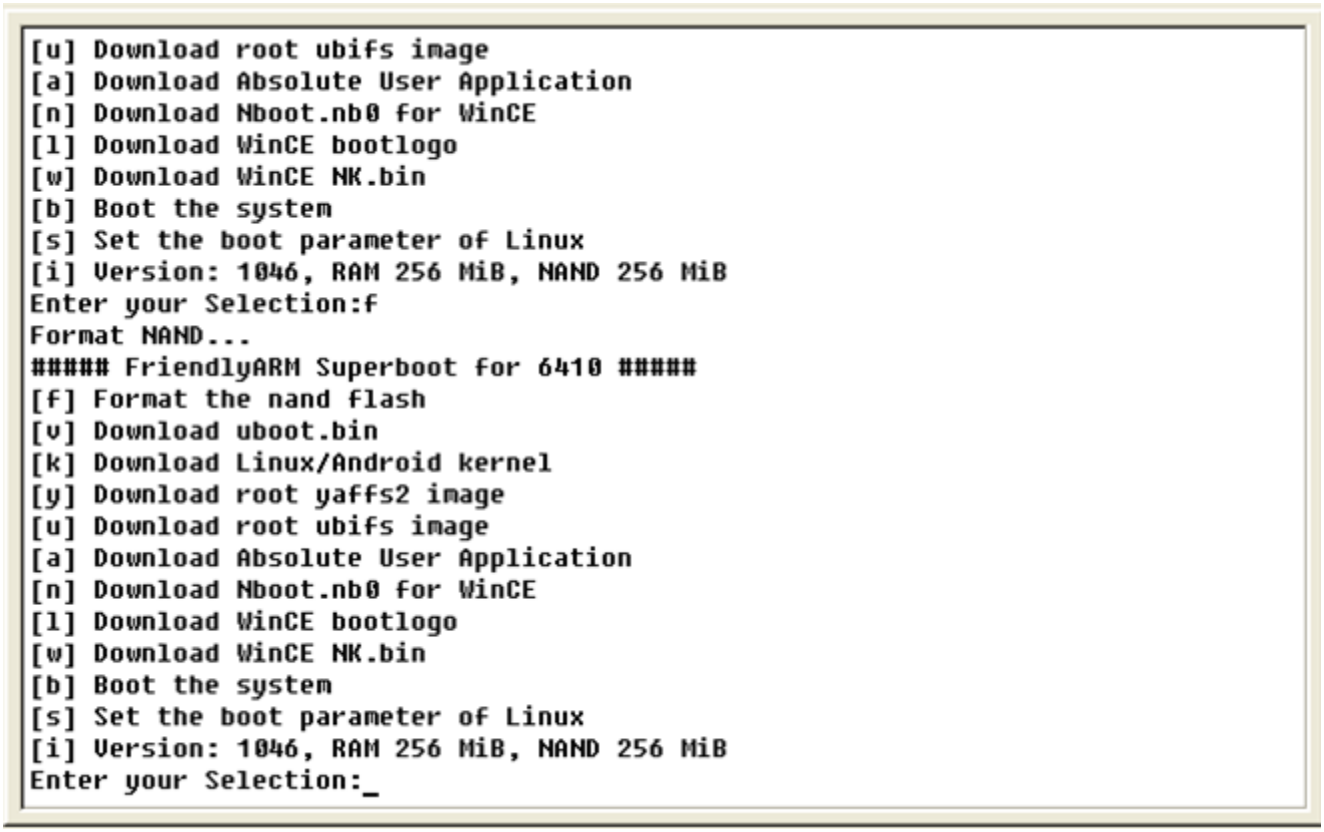
Step1: format the NAND Flash

Attention: this will remove all the data in the flash!

Connect your board to a PC via our serial cable, start the super terminal, power on and enter the BIOS main menu. Type **[f]** to format the Nand Flash

Superboot might detect some bad sections in its routine checking, however this doesn't

necessarily mean your board will not work properly. A common NAND flash doesn't guarantee all sections are good. Bad sections will be detected by software but will generally not affect systems.



Step2: install Bootloader

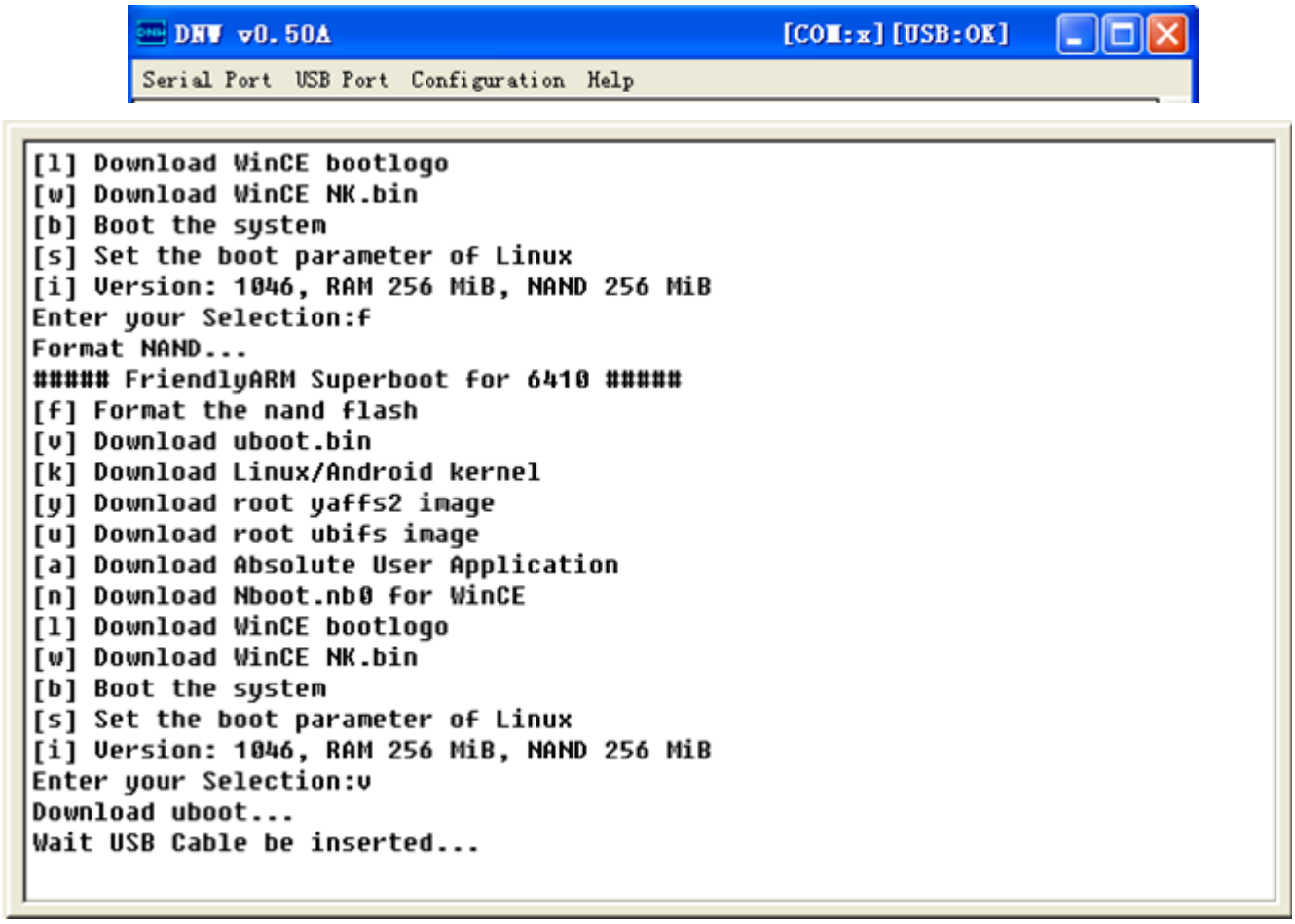
For different systems we offered different u-boot burning files (there are configuration options in the source code)

- u-boot_sd-ram128.bin : support booting from the SD card, for 128M RAM
- u-boot_sd-ram256.bin : support booting from the SD card, for 256M RAM
- u-boot_nand-ram128.bin : support booting from the NAND flash, for 128M RAM

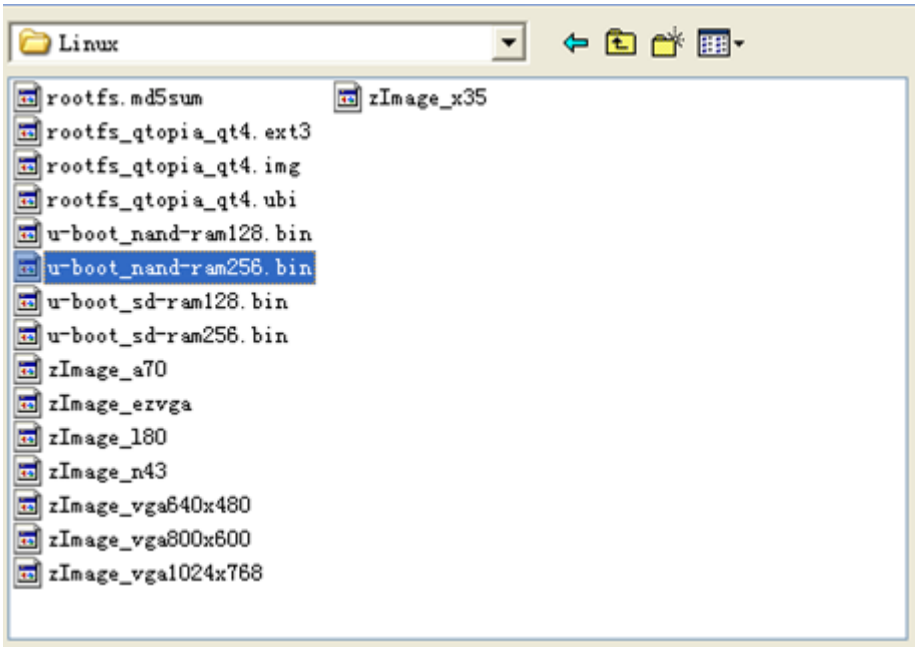
➢ u-boot_nand-ram256.bin : support booting from the NAND flash, for 256M RAM

The bootloader installation file is U-boot_nand-ram256.bin (abbreviated as u-boot.bin), it will be burned to the Nand Flash's Block 0.

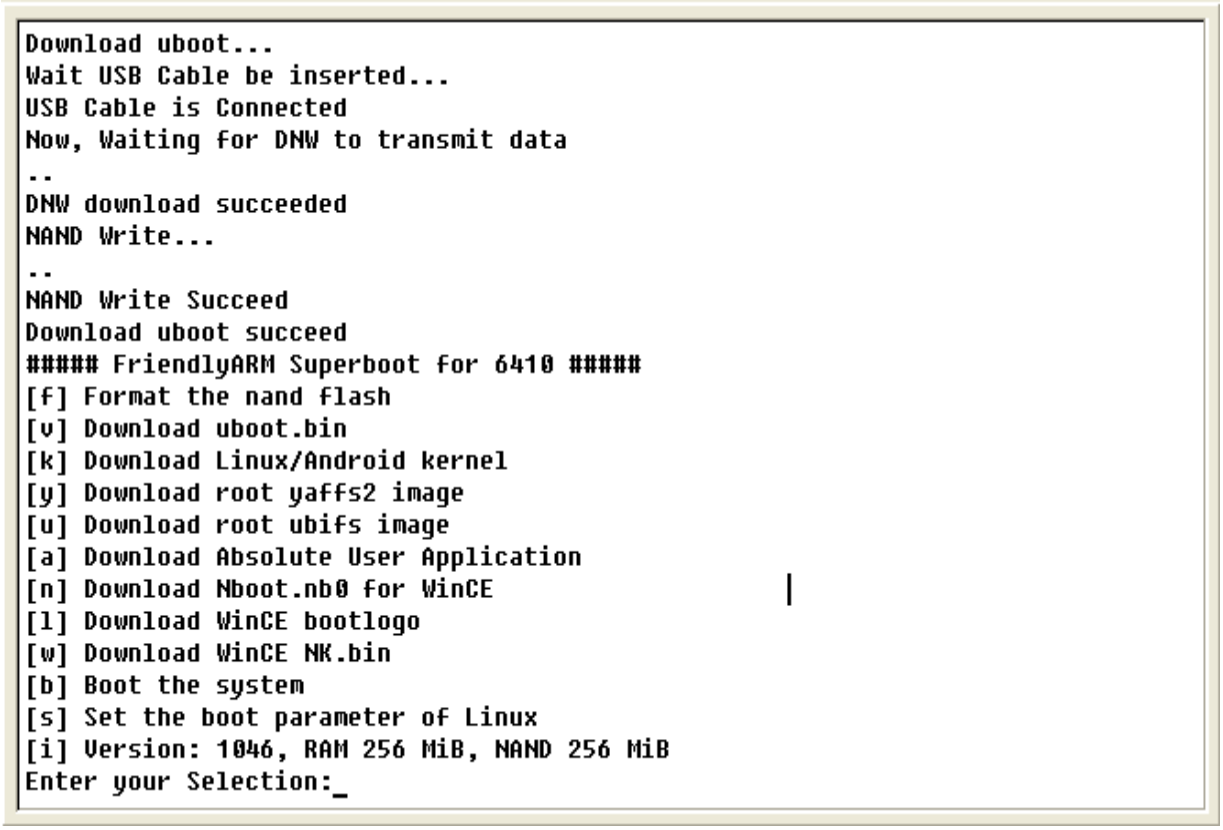
(1) Start DNW, connect via USB, if DNW shows [USB:OK], it indicates a successful USB connection, select[v] to begin downloading U-boot.bin



(2) Click on "USB Port->Transmit/Restore", select a u-boot.bin file (under "images/linux") to start download



(3) After download is done, “U-boot.bin” will be burned into the Nand Flash and users will be directed back to the main menu



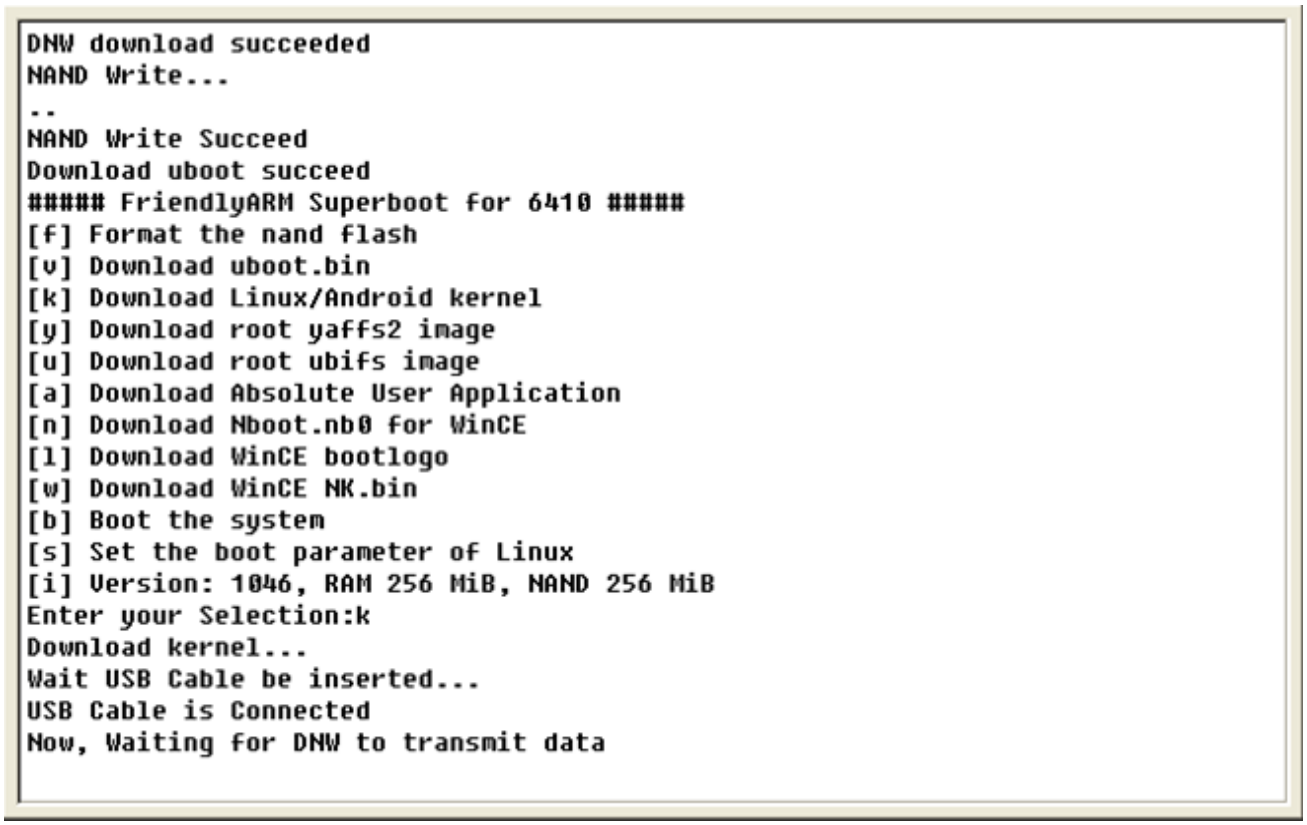
Step3: install Linux kernel

For different systems we offered different u-boot burning files (there are configuration options in the source code)

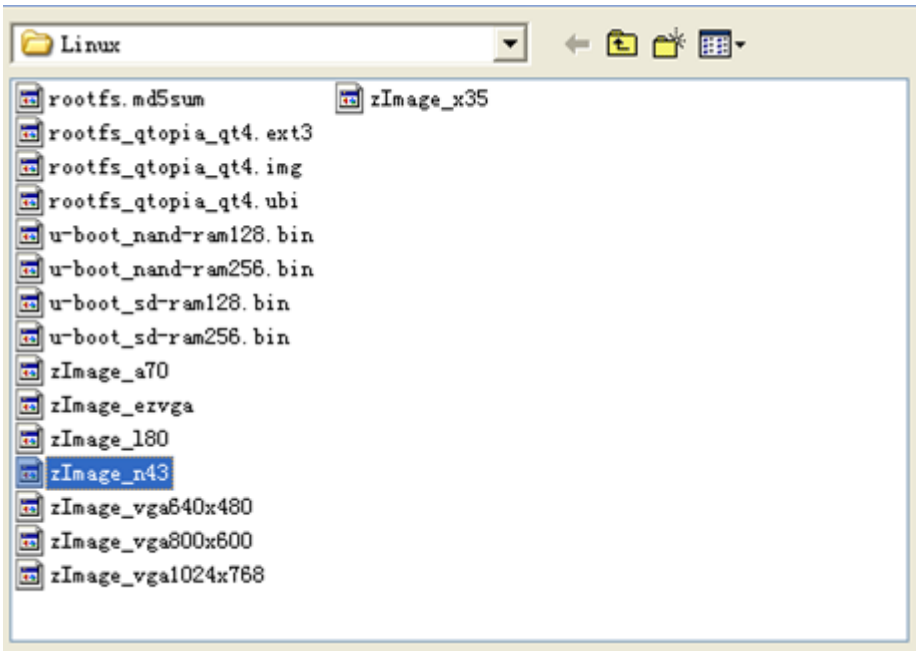
Different LCD systems require differed kernel files which we call zImage uniformly. Here we listed several items. If your LCD is not in the list, please refer to "User's Guide to Linux" for configuration and compiling details.

- zImage_n43 – for NEC4.3"LCD， resolution 480x272
- zImage_a70 – for 7" true color screen, resolution 800x480
- zImage_VGA1024x768- for 1024x768 VGA module

(1) in the BIOS main menu select [k] to download a zImage



(2) click on “USB Port->Transmit”, select a zImage (we have one in images/Linux) to start download



(3) after download is done, BIOS will be burned into the Nand Flash and users will be directed back to the main menu

```
Download kernel...
Wait USB Cable be inserted...
USB Cable is Connected
Now, Waiting for DNW to transmit data
.....
DNW download succeeded
NAND Write...
.........
NAND Write Succeed
Download kernel succeed
##### FriendlyARM Superboot for 6410 #####
[f] Format the nand flash
[v] Download uboot.bin
[k] Download Linux/Android kernel
[y] Download root yaffs2 image
[u] Download root ubifs image
[a] Download Absolute User Application
[n] Download Nboot.nb0 for WinCE
[l] Download WinCE bootlogo
[w] Download WinCE NK.bin
[b] Boot the system
[s] Set the boot parameter of Linux
[i] Version: 1046, RAM 256 MiB, NAND 256 MiB
Enter your Selection:_
```

Step4: install target file system

We offered three embedded graphic systems: Qtopia-2.2.0, Qtopia4 and QtE-4.7.0, the SMPlayer player and some media files. The total size is relative big.

Superboot supports burning of yaffs2 (only for SLC nand Flash) and ubifs (for both SLC and MLC Nand Flash). We listed several options for users:

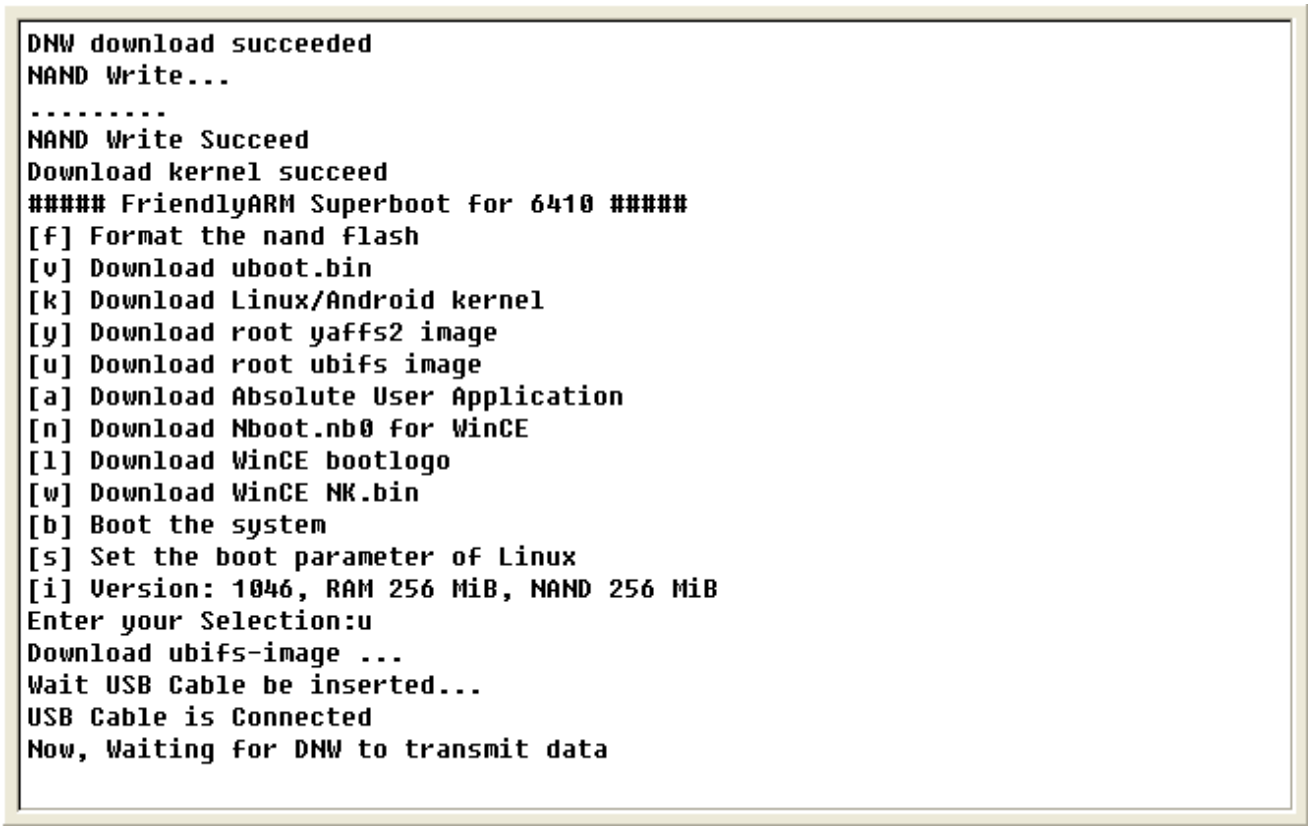
Note: if your boards is equipped with MLC2 Nand Flash (model:K9GAG08U0E),please use the files with the extension “mlc2”

- rootfs_qtopia_qt4.img : YAFFS2 image
- rootfs_qtopia_qt4.ubi : UBIFS image

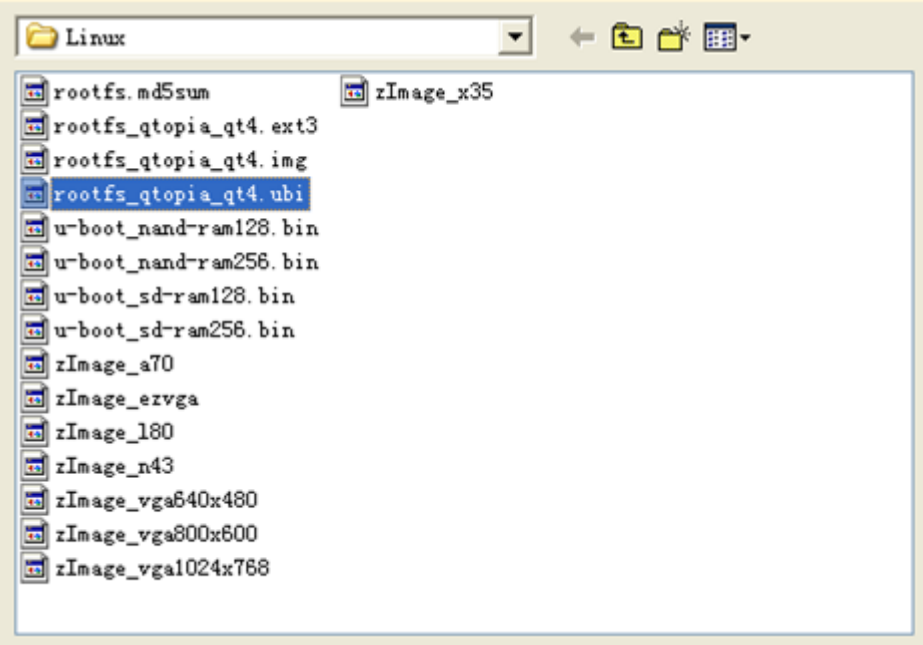
- rootfs_qtopia_qt4.ext3 : EXT3 image

We take a UBIFS image as an example to show you how to burn it. For yaffs2 images, you only need to change the file name and follow the same procedure

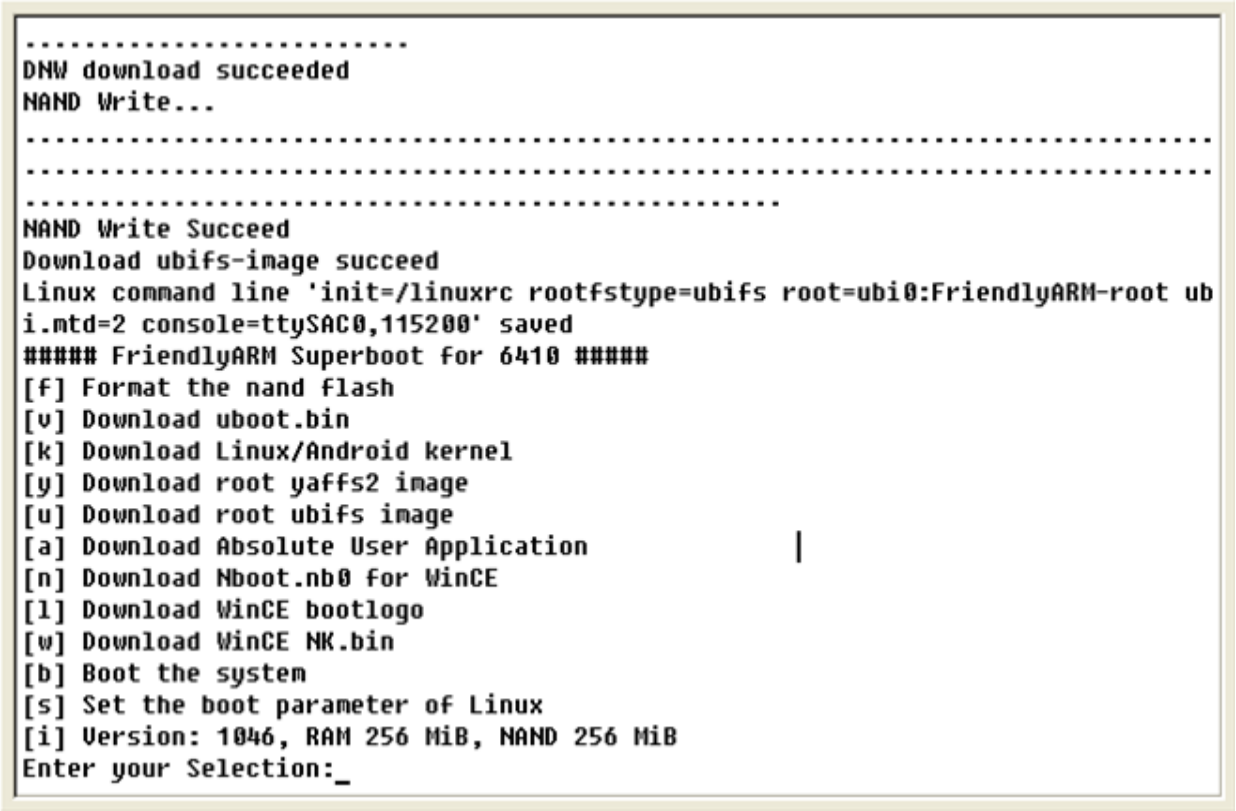
(1) select [u] in the BIOS main menu to begin download of a UBIFS image



(2) go to “USB Port->Transmit/Restore” and select a rootfs-qtopia-qt4.ubi (we have one under “images/Linux”) to begin download



(3) after download is done BIOS will be burned into the Nand Flash and corresponding Linux booting configurations will be automatically updated accordingly to boot the UBIFS



Note: after download is done, please disconnect the USB connection otherwise users will get into trouble in system reset or reboot.

Select [b] in the BIOS main menu to reboot the system. If the boot mode is “NAND Flash”, system will reboot automatically when powered on.

1.2 Install WinCE

Note: the bin file needed for installing WinCE6 is under “images\WindowsCE6” abbreviated as WinCE6. Below are the steps to follow:

(1) Format the NAND Flash - [f]

(2) Install a bootloader - [n]

(3) Install a boot logo (bmp) - [l]

(4) Install WinCE kernel image - [w]

Please connect the board to a PC via a serial cable, start the super terminal and enter the BIOS main menu. We will take 4.3” LCD as an example to show you how to install:

Step1: Format the Nand Flash

Attention: this will remove all the data in the flash

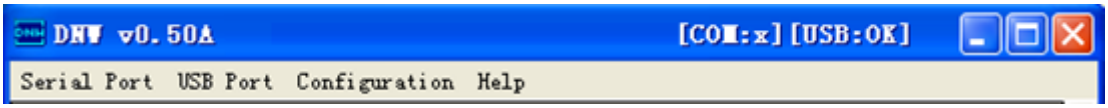
Connect your board to a PC via our serial cable, start the super terminal, power on and enter the BIOS main menu. Type **[f]** to format the Nand Flash

```
[u] Download root ubifs image
[a] Download Absolute User Application
[n] Download Nboot.nb0 for WinCE
[l] Download WinCE bootlogo
[w] Download WinCE NK.bin
[b] Boot the system
[s] Set the boot parameter of Linux
[i] Version: 1046, RAM 256 MiB, NAND 256 MiB
Enter your Selection:f
Format NAND...
##### FriendlyARM Superboot for 6410 #####
[f] Format the nand flash
[v] Download uboot.bin
[k] Download Linux/Android kernel
[y] Download root yaffs2 image
[u] Download root ubifs image
[a] Download Absolute User Application
[n] Download Nboot.nb0 for WinCE
[l] Download WinCE bootlogo
[w] Download WinCE NK.bin
[b] Boot the system
[s] Set the boot parameter of Linux
[i] Version: 1046, RAM 256 MiB, NAND 256 MiB
Enter your Selection:_
```

Step2: install Bootloader

In WinCE our bootloader is nboot, however nboot doesn't detect LCDs automatically therefore for different systems we offered different image files (there are configuration options in the source code).

(1) Start DNW, connect via USB, if DNW shows [USB:OK], it indicates a successful USB connection, select[n] to begin downloading nboot.nb0

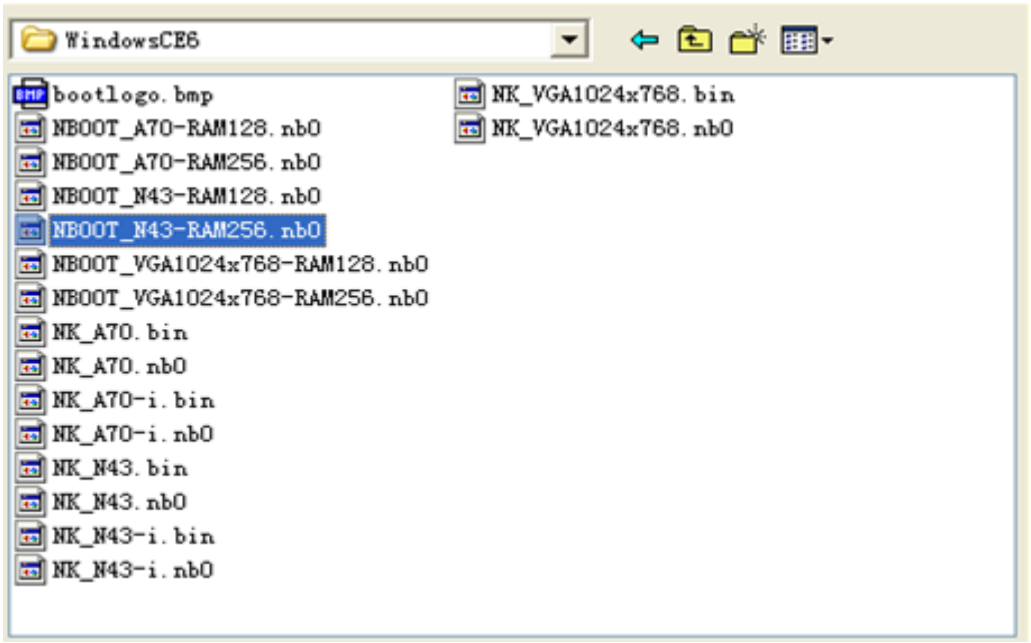



```
[w] Download WinCE NK.bin
[b] Boot the system
[s] Set the boot parameter of Linux
[i] Version: 1046, RAM 256 MiB, NAND 256 MiB
Enter your Selection:f
Format NAND...
##### FriendlyARM Superboot for 6410 #####
[f] Format the nand flash
[v] Download uboot.bin
[k] Download Linux/Android kernel
[y] Download root yaffs2 image
[u] Download root ubifs image
[a] Download Absolute User Application
[n] Download Nboot.nb0 for WinCE
[l] Download WinCE bootlogo
[w] Download WinCE NK.bin
[b] Boot the system
[s] Set the boot parameter of Linux
[i] Version: 1046, RAM 256 MiB, NAND 256 MiB
Enter your Selection:n
Download nboot...
USB Cable is Connected
Now, Waiting for DNW to transmit data
```

(2) Nboot will load a boot logo. Different LCDs and memories need differed nboot image

files:

- For 128M 6410 system
  - NBOOT_N43-RAM128.nb0 : for NEC 4.3”LCD
  - NBOOT_A70-RAM128.nb0 : for Innolux 7”LCD
  - NBOOT_VGA1024x768-RAM128.nb0 : for 1024x768 LCD2VGA module
- For 256M 6410 system
  - NBOOT_N43-RAM256.nb0 : for NEC 4.3”LCD
  - NBOOT_A70-RAM256.nb0 : for Innolux 7”LCD
  - NBOOT_VGA1024x768-RAM256.nb0 : for 1024x768 LCD2VGA module



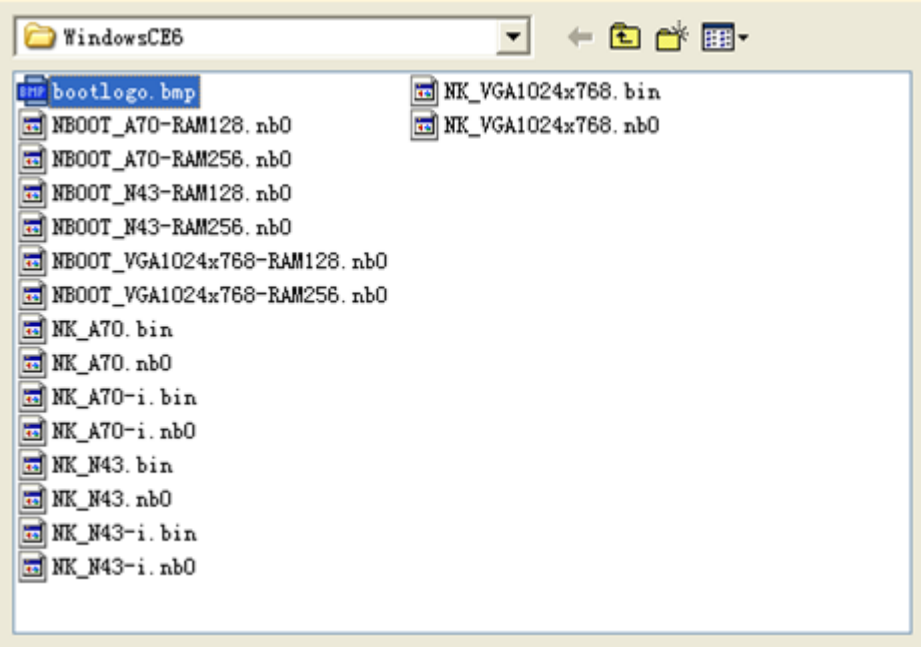
(3) after download is done Nboot_n43.nb0 will be burned into the Nand Flash’s block0

Step3: Download boot logo

The boot logo will be loaded by nboot after the system is powered on. It should be a 24bit true color bmp file (in general a bmp file is true color) and no larger than 2M. A 1024x768 24bit true color bmp file is 2M.

(1) Select [l] in the BIOS main menu to begin downloading a bmp file (we have one in the shipped CDs）

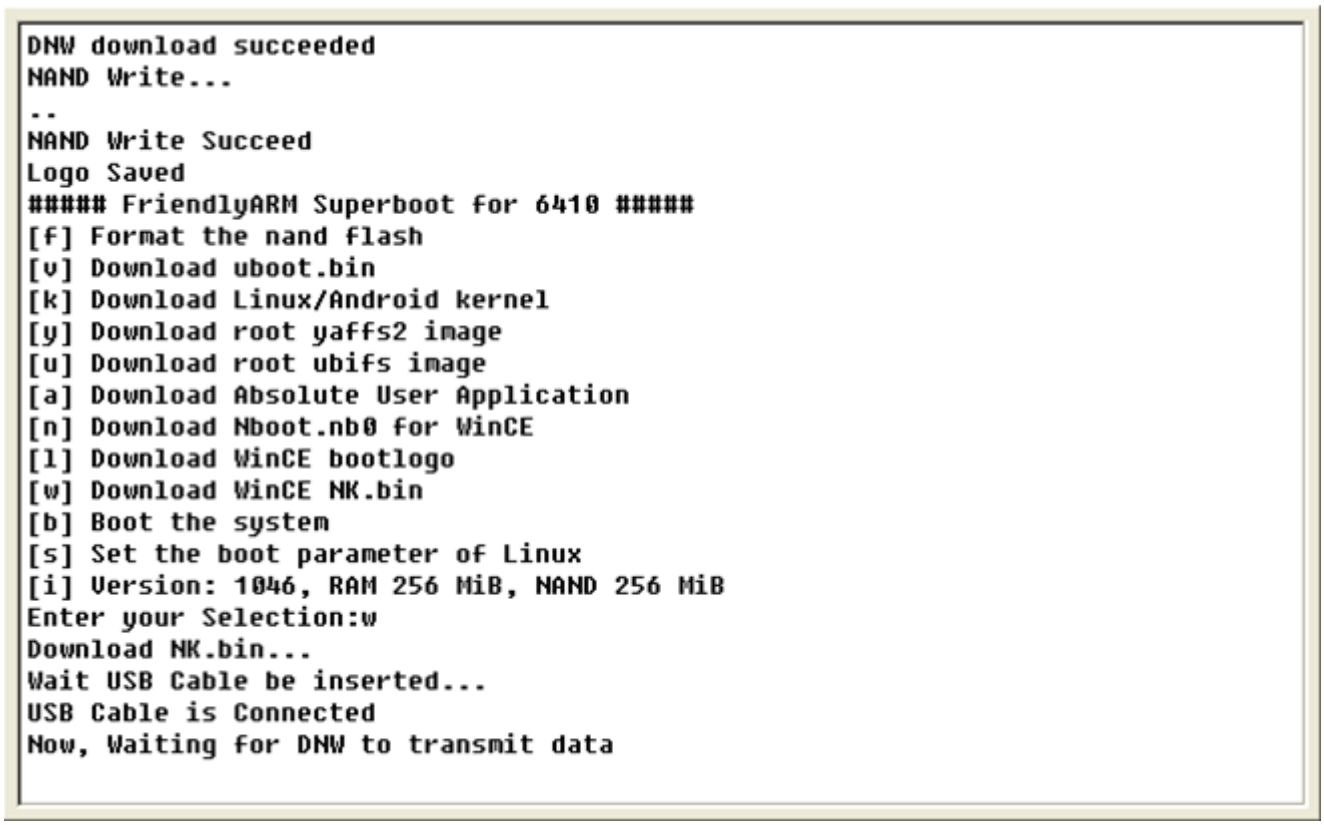
(2) Go to “USB Port->Transmit/Restore” and select a bootlogo.bmp



(3) After download is done, the bootlogo.bmp will be burned into the Nand Flash and users will be directed back to the main menu

Step3: install WinCE kernel

(1) in the BIOS main menu select [w] to download a WinCE kernel



(2) Go to "USB Port->Transmit/Restore" and select a kernel image NK.bin (under "\images\WindowsCE6") to begin download. Here is a list of different versions of image files:

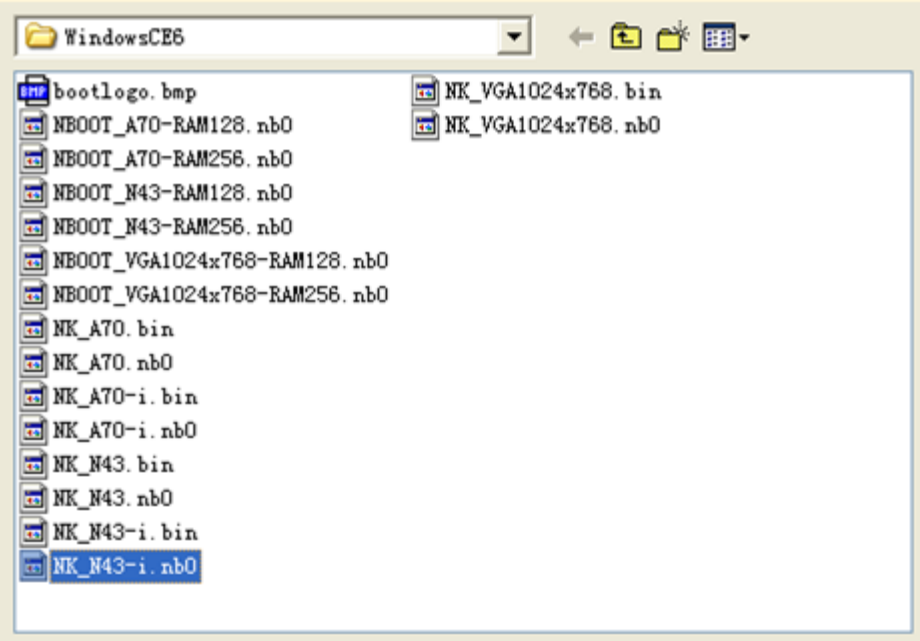
NK_n43.bin – support ARM's touch screen controller , for NEC4.3"LCD, resolution 480x272

NK_a70.bin – support ARM's touch screen controller, for 7" true color LCD, resolution 800x480

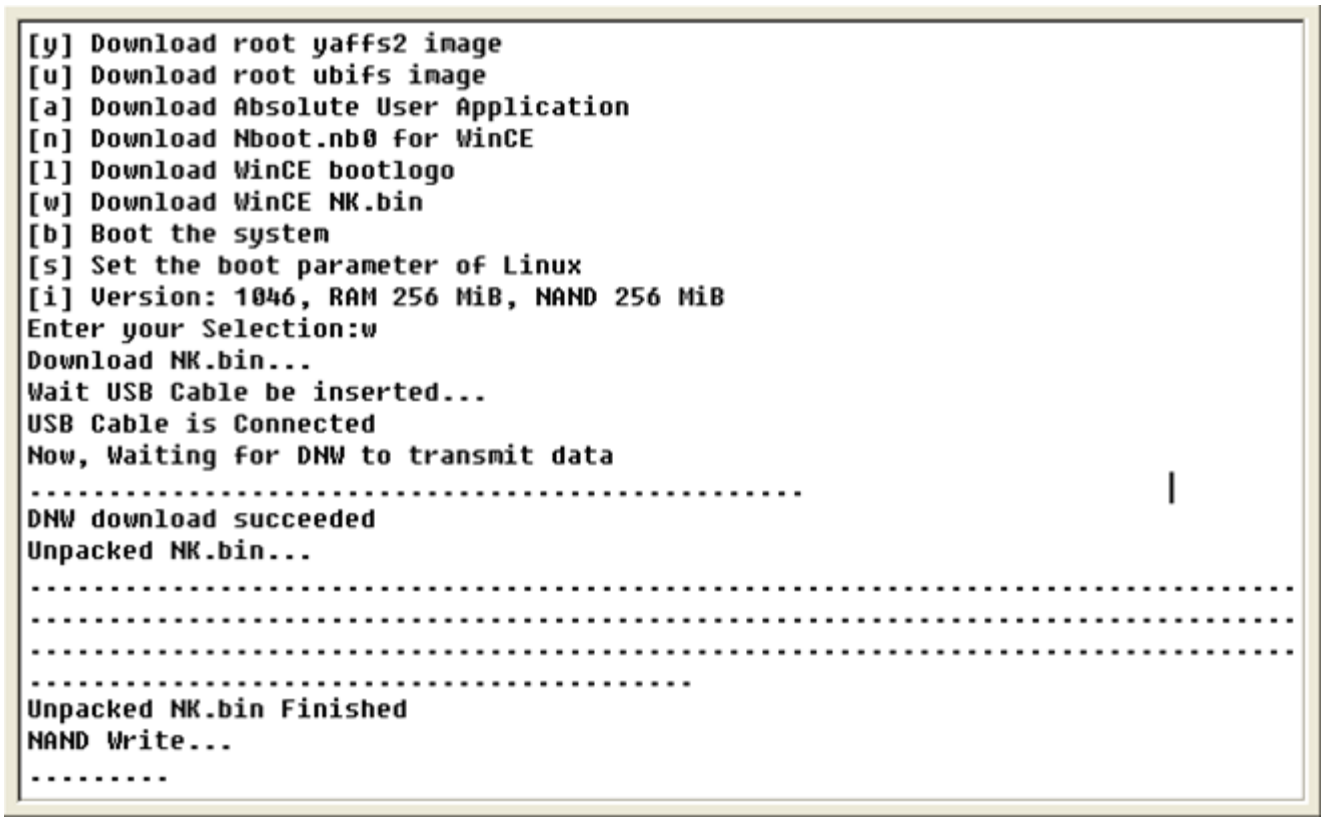
NK_VGA1024x768.bin – support ARM's touch screen controller, for 1024x768 VGA module

NK_n43-i.bin – support 1-wire precise touching, for NEC4.3"LCD, resolution 480x272

NK_a70-i.bin – support 1-wire precise touching, for 7" true color LCD, resolution 800x480



After download is done, BIOS will format the NAND Flash and burn the WinCE image and reboot the system users will see the following information on the super terminal window:



1.3 Install Android (YAFFS2 or UBIFS)

Note: you need to install the USB download driver before go forward in the steps below. If you have already installed it please switch “S2” to “SDBOOT”. Our system is subject to continuous upgrades so the following screenshots may subject to changes accordingly.

There is an Android image file under “**images/Android**”. Users can follow the steps below to install:

(1) Format the NAND Flash - [f]

(2) Install bootloader - [v]

(3) Install kernel - [k]

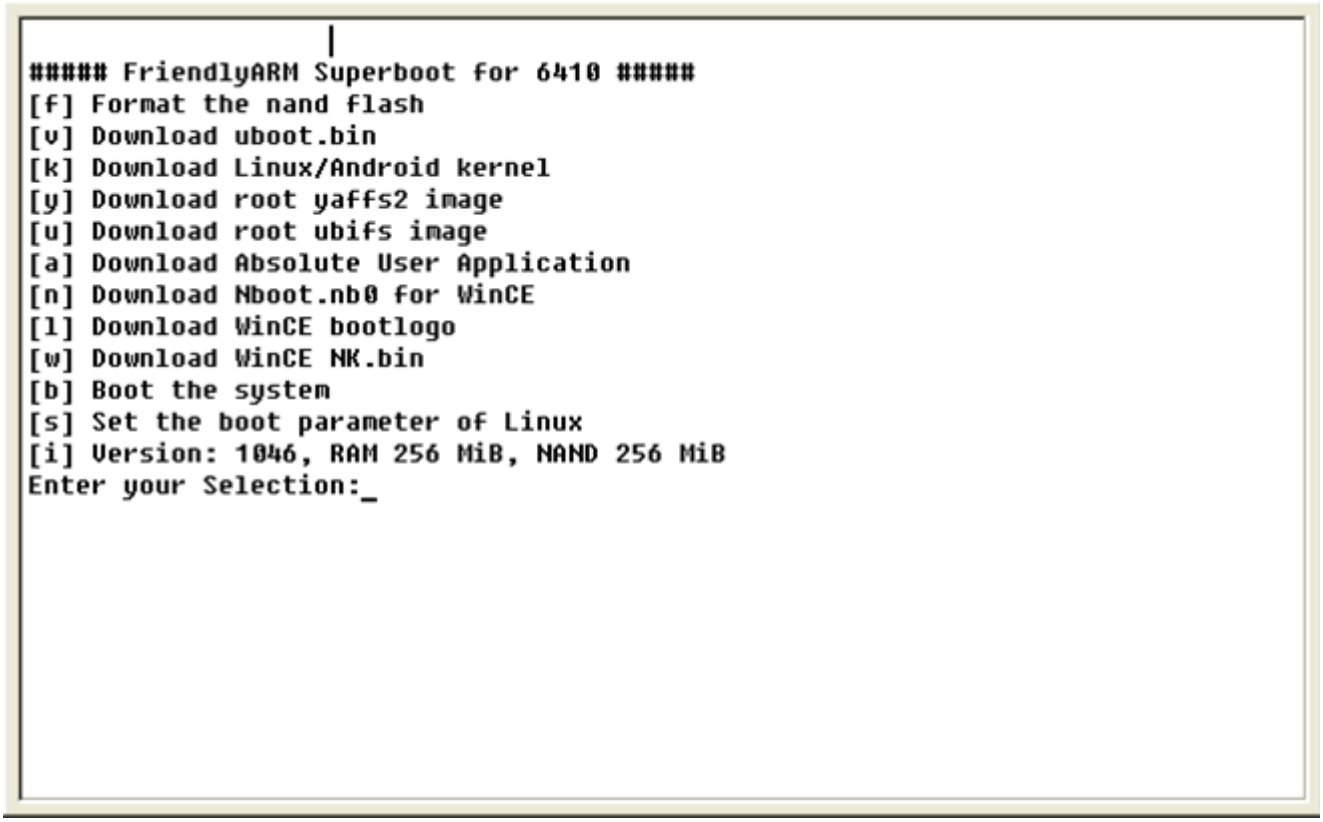
(4) Install target file system (yaffs2 or ubifs) - [y] or [u]

We will take a 4.3”LCD system as an example to show you how to install a UBIFS Android:

Step1 : format the Nand Flash

Attention: this will remove all the data in the flash

Connect your board to a PC via our serial cable, start the super terminal, power on and enter the BIOS main menu. Type **[f]** to format the Nand Flash



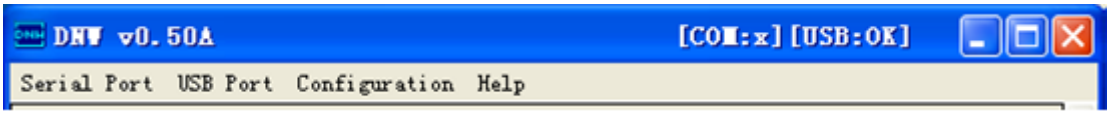
Step2: install bootloader

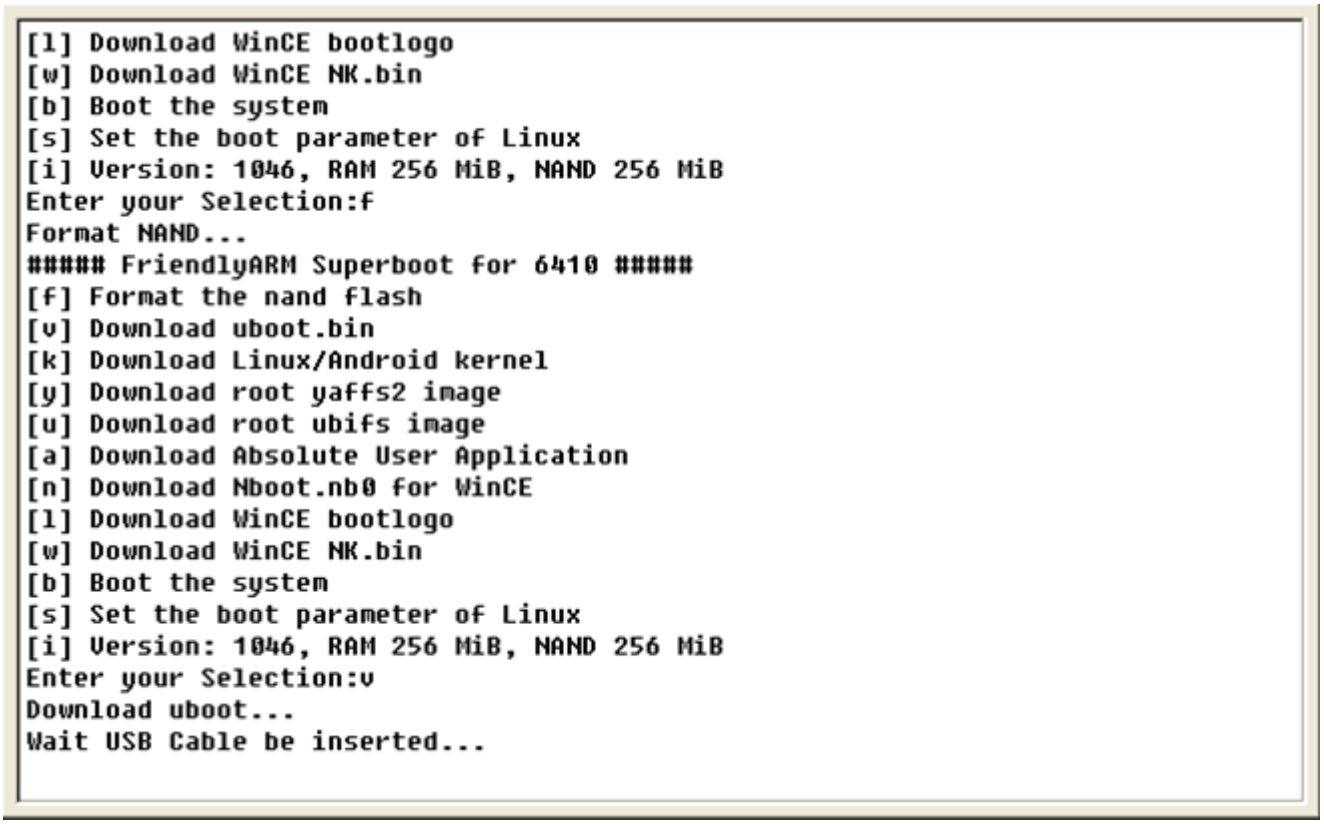
For different systems we offered different u-boot files (there are configuration options in the source code):

- u-boot_sd-ram128.bin : support booting from the SD card, for 128M RAM
- u-boot_sd-ram256.bin : support booting from the SD card, for 256M RAM
- u-boot_nand-ram128.bin : support booting from the NAND Flash, for 128M RAM
- u-boot_nand-ram256.bin : support booting from the NAND Flash, for 256M RAM

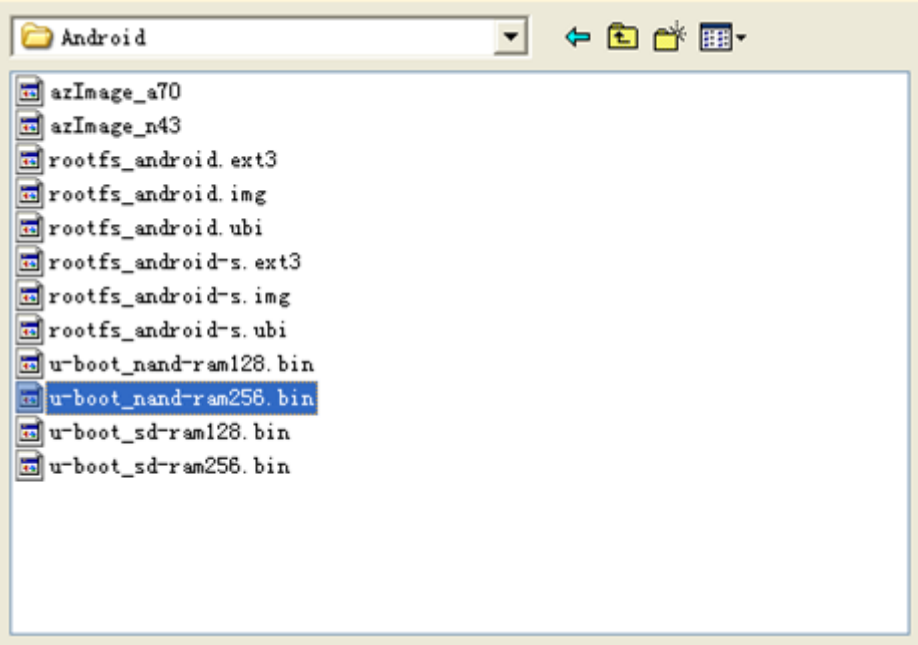
The bootloader's file name is u-boot_nand-ram256.bin (abbreviated as U-boot.bin). It will be burned into the NAND Flash's Block 0.

(1) Start DNW, connect via USB, if DNW shows [USB:OK], it indicates a successful USB connection, select[v] to begin downloading u-boot.bin

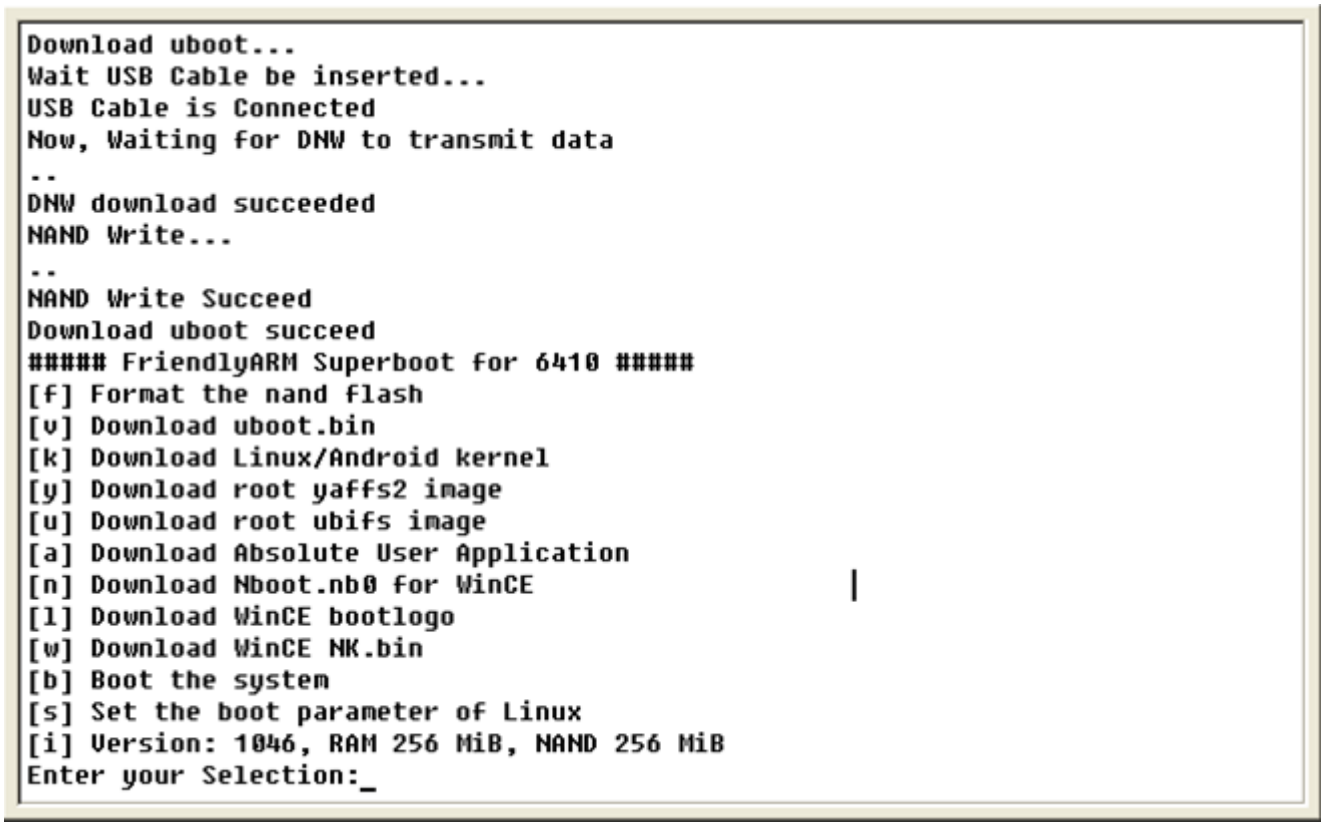




(2) Go to “USB Port->Transmit/Restore” and select a kernel image u-boot.bin (under “\images\Android”) to begin download



(3) After download is done, u-boot.bin will be burned into the NAND Flash and users will be directed back to the main menu



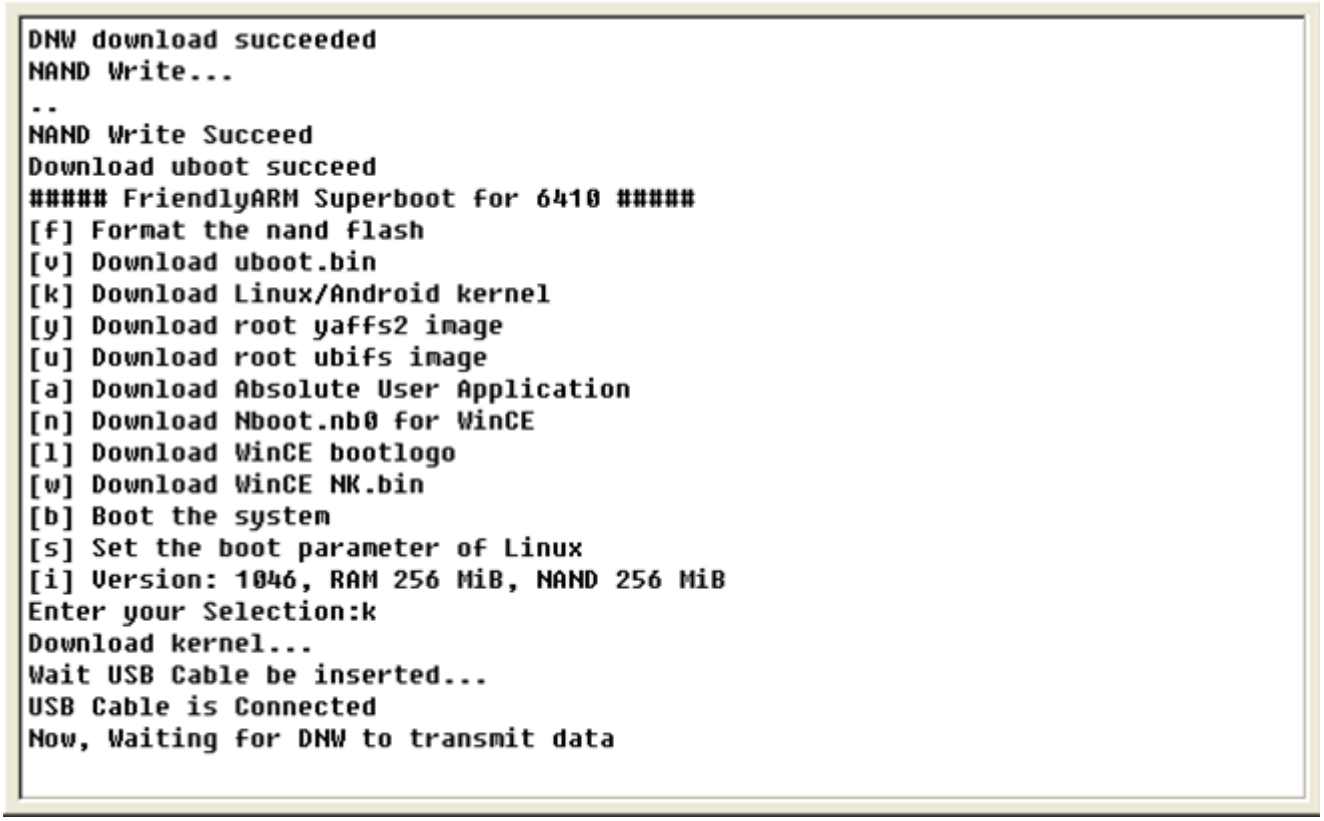
Step3: install Android kernel

Different LCD systems require different kernel images (under images/Android). We call an Android image azImage. Here is a list of different image files :

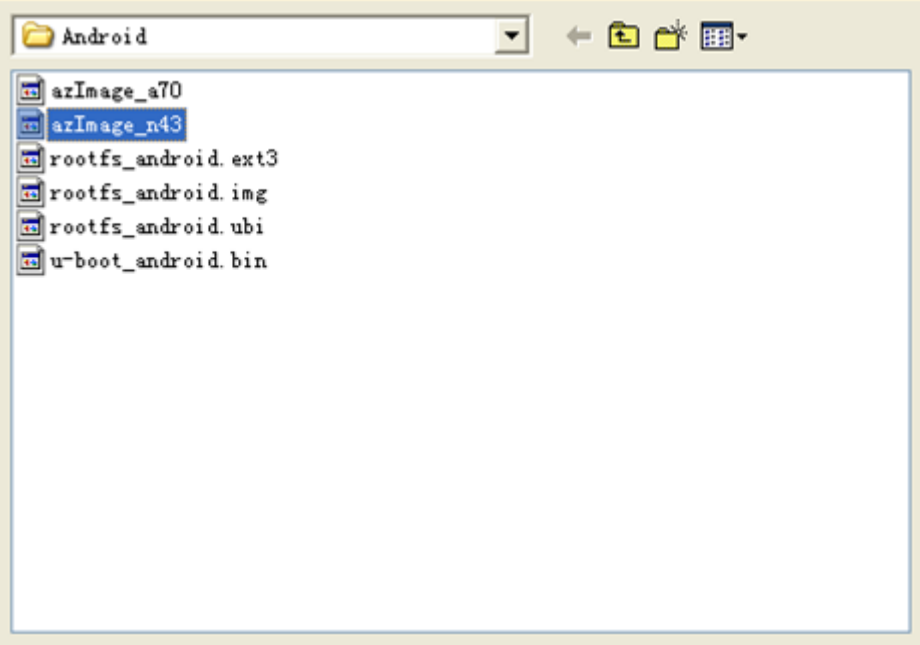
azImage_n43 – for NEC4.3”LCD, resolution 480x272

azImage_a70 – for 7” true color LCD, resolution 800x480

(1) in the BIOS main menu select [k] to download an azImage



(2) Go to “USB Port->Transmit/Restore” and select an azImage (under “\images\Android”) to begin download



(3) After download is done, the image file will be burned into the NAND Flash and users will be directed back to the main menu

Step4: install target file system

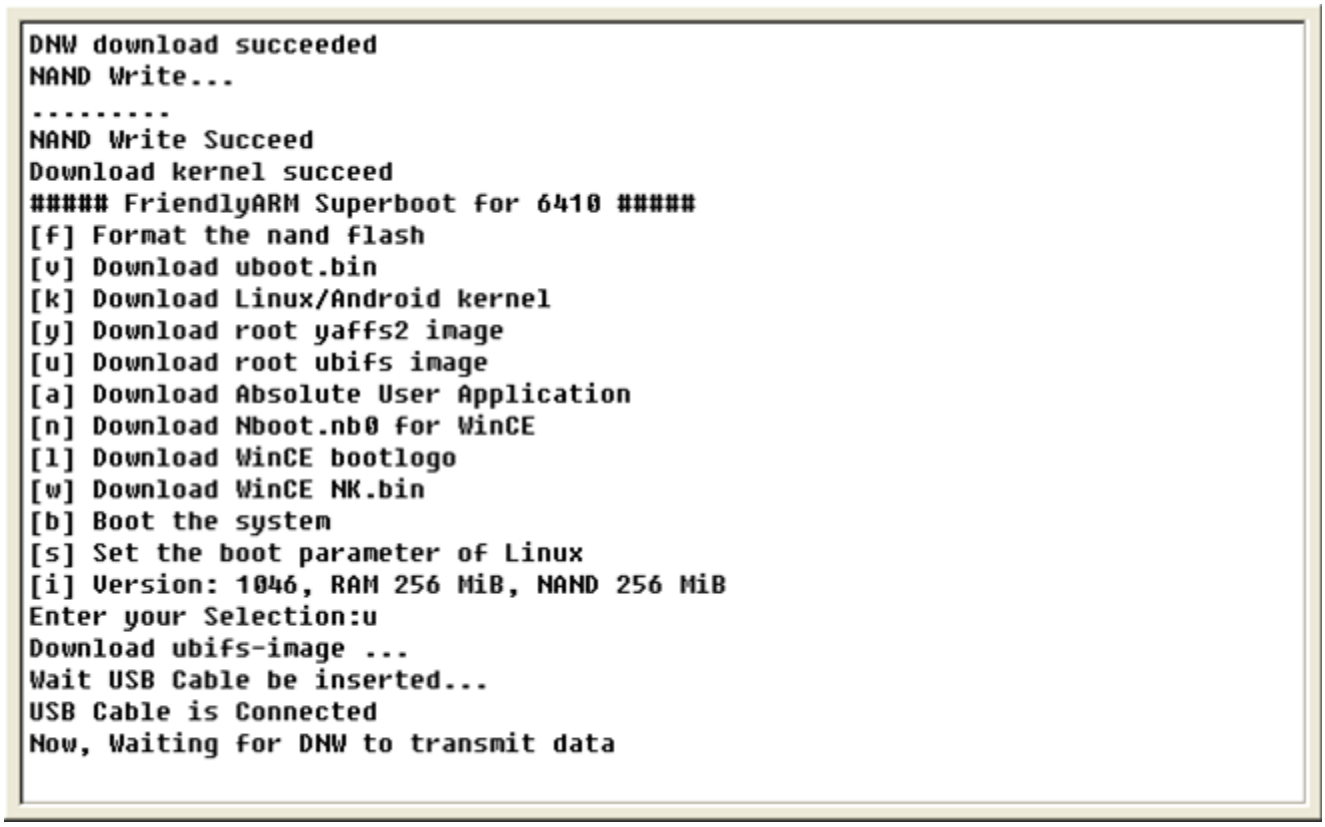
Superboot supports burning of yaffs2 (for SLC nand flash only) and ubifs (for both SLC and MLC nand flash) file systems. Here is a list of different image files:

- rootfs_android.img : it can auto-detect ARM touch screen interface and supports 1-wire precise touching. It is a yaffs2 image and the [y] command can burn it into the Nand Flash
- rootfs_android.ubi : it can auto-detect ARM touch screen interface and supports 1-wire precise touching. It is a UBIFS image and the [u] command can burn it into the Nand Flash
- rootfs_android.ext3 : it can auto-detect ARM touch screen interface and supports 1-wire

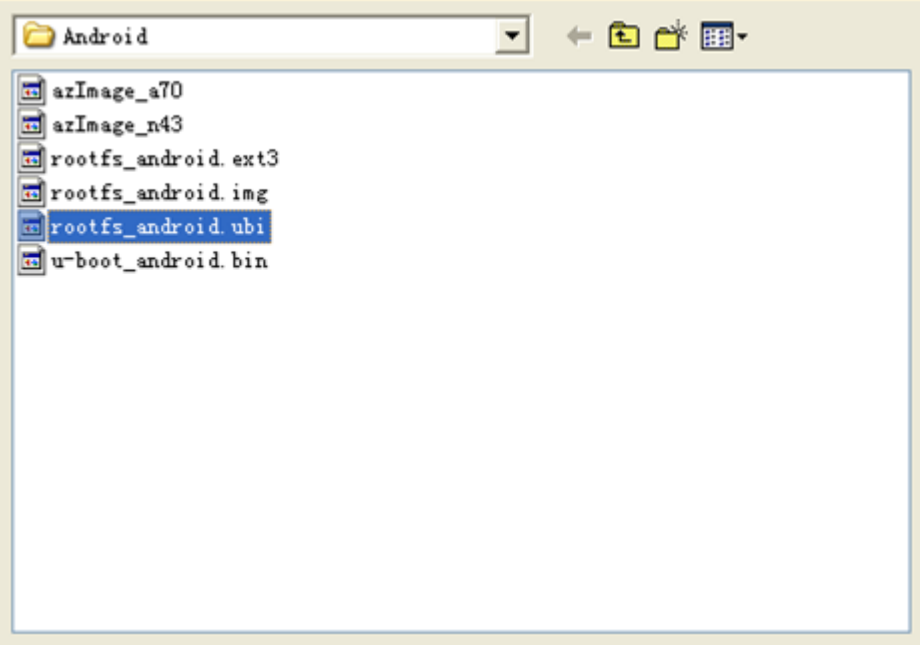
precise touching. It is an EXT3 image and can be run directly from the SD card

A UBIFS image file is usually smaller than a YAFFS2 image. We take a UBIFS image as an example to show you how to do it. For yaffs2 images, you only need to change the file name and then follow the same procedure

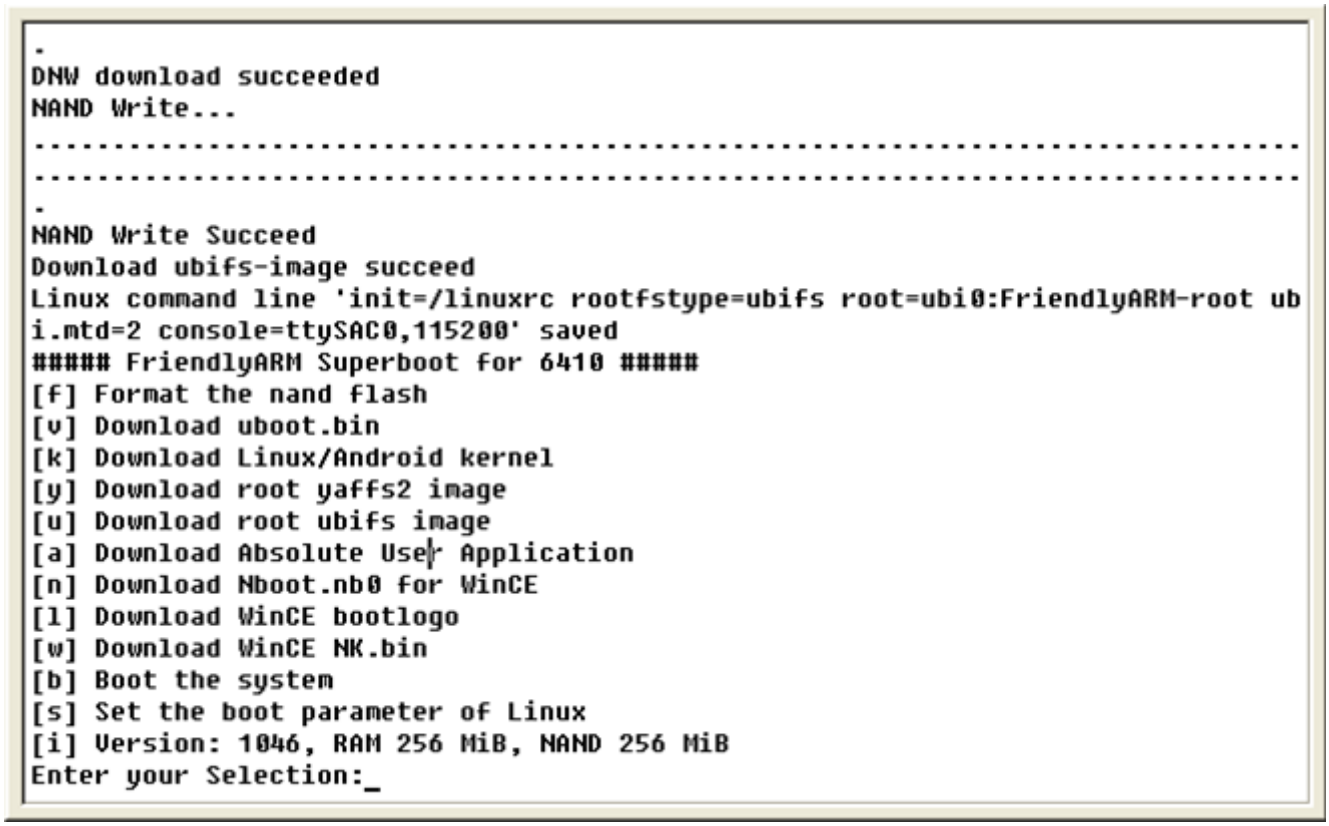
(1) In the BIOS main menu select **[u]** to begin downloading a UBIFS image



(2) Go to “USB Port->Transmit/Restore” and select an rootfs_android.ubi (under “\images\Android”) to begin download



(3) After download is done, the image file will be burned into the NAND Flash and some booting parameters will be updated accordingly to boot the UBIFS system



Attention: after download is done please disconnect the USB connection otherwise users Will get into trouble in system reset or reboot.

In the BIOS menu selecting [b] will reboot the system. If you switch the board to the "NAND Flash" boot mode, system will reboot automatically after powered on.

2 Install Systems from SD Card

To install systems from the SD card users need to use our SD-Flasher utility to burn a Superboot into the SD card and copy related system files to its images directory. Those files are in the images directory in the shipped CD. If you want to use your own files you can just copy your files into that directory.

Superboot supports both a common SD card and a high speed large memory card. We will use the files in our shipped CD to show you how to install systems.

Note: you can change your configurations in the FriendlyARM.ini file in the following steps based on your preferences or use the one in our CD (CDB\images\)

2.1 Install Linux (YAFFS2)

Note: YAFFS2 only applies to SLC Nand Flash

Step1: open the FriendlyARM.ini file in the SD card's images directory and make changes as follows:

Items	Options (case insensitive)
Action	Install
OS	Linux
Linux-Kernel	Linux/zImage_n43 (or your own image)
Linux-CommandLine	root=/dev/mtdblock2 rootfstype=yaffs2 init=/linuxrc console=ttySAC0,115200
Linux-RootFs-InstallImage	linux/rootfs_qtopia_qt4.img
Note: words in red should be typed exactly like what are presented here. "n43" in "zImage_n43" is the LCD's type. Below is a list of image files for different systems: zImage_x35 – for Sony 3.5"LCD, resolution 240x320	

zImage_n43 – for NEC4.3”LCD, resolution 480x272 zImage_a70 – for 7” true color screen, resolution 800x480 zImage_L80 – for Sharp 8”(or compatible models)LCD, resolution 640x480 zImage_VGA1024x768 – for 1024x768 VGA module zImage_VGA800x600 – for 800x600 VGA module zImage_VGA640x480 – for 640x480 VGA module zImage_EZVGA800x600 – for simple VGA module, resolution 800x600

Step2: toggle “S2” to “SDBOOT” and insert an SD card

Step3: power on and you will hear a beep and LED4 begins to flash

Step4: Within seconds you will see that LED3, 2 and 1 begin to flash one by one and finally you will hear two beeps and all LEDs are on and round-robin flashing. The system is completely up and running

2.2 Install Linux (UBIFS)

Step1: open the FriendlyARM.ini file in the SD card’s images directory and make changes as follows:

Items	Options (case insensitive)
Action	Install
OS	Linux
Linux-Kernel	Linux/zImage_n43 (or your own image)
Linux-CommandLine	root=ubi0:FriendlyARM-root ubi.mtd=2 rootfstype=ubifs init=/linuxrc console=ttySAC0,115200
Linux-RootFs-InstallImage	linux/rootfs_qtopia_qt4.ubi
Note: words in red should be typed exactly like what are presented here. “n43” in “zImage_n43” is the LCD’s type. Below is a list of image files for different systems: zImage_x35 – for Sony 3.5”LCD, resolution 240x320 zImage_n43 – for NEC4.3”LCD, resolution 480x272 zImage_a70 – for 7” true color screen, resolution 800x480 zImage_L80 – for Sharp 8”(or compatible models)LCD, resolution 640x480	

zImage_VGA1024x768 – for 1024x768 VGA module zImage_VGA800x600 – for 800x600 VGA module zImage_VGA640x480 – for 640x480 VGA module zImage_EZVGA800x600 – for simple VGA module, resolution 800x600

Step2: toggle “S2” to “SDBOOT” and insert an SD card

Step3: power on and you will hear a beep and LED4 begins to flash

Step4: Within seconds you will notice that LED3, 2 and 1 begin to flash one by one and finally you will hear two beeps and all LEDs are on and round-robin flashing. The system is completely up and running

2.3 Install WindowsCE6

The following steps for 4.3” LCD systems

Step1: open the FriendlyARM.ini file in the SD card’s images directory and make changes as follows:

Items	Options (case insensitive)
Action	Install
OS	WindowsCE6 (alternatives: “CE6” or “Wince6”)
WindowsCE6-Bootloader	WindowsCE6\ NBOOT_N43-RAM256.nb0
WindowsCE6-BootLogo	WindowsCE6\bootlogo.bmp (or your own bmp)
WindowsCE6-InstallImage	WindowsCE6\NK_N43-i.bin (or your own image)
Note: “N43” in these names represents the LCD type, for more details please refer to the readme files under “\images\WindowsCE6\” in the shipped CD	

Step2: toggle “S2” to “SDBOOT” and insert an SD card

Step3: power on and you will hear a beep and LED4 begins to flash

Step4: Within seconds you will notice that LED3, 2 and 1 begin to flash one by one and

finally you will hear two beeps and all LEDs are on and round-robin flashing. The system is completely up and running

2.4 Install Android (YAFFS2)

Note: YAFFS2 only applies to SLC nand flash for Android

The following steps for 4.3" LCD systems

Step1: open the FriendlyARM.ini file in the SD card's images directory and make changes as follows:

Items	Options (case insensitive)
Action	Install
OS	Android
Android-Kernel	Android/azImage_n43(or azImage_a70 or your own image)
Android-CommandLine	root=/dev/mtdblock2 rootfstype=yaffs2 init=/linuxrc console=ttySAC0,115200
Android-RootFs-InstallImage	Android/rootfs_android.img
Note: words in red should be typed exactly like what are presented here. "n43" in "azImage_n43" is the LCD's type.	

Step2: toggle "S2" to "SDBOOT" and insert an SD card

Step3: power on and you will hear a beep and LED4 begins to flash

Step4: Within seconds you will notice that LED3, 2 and 1 begin to flash one by one and finally you will hear two beeps and all LEDs are on and round-robin flashing. The system is completely up and running

2.5 Install Android (UBIFS)

The following steps for 4.3” LCD systems

Step1: open the FriendlyARM.ini file in the SD card’s images directory and make changes as follows:

Items	Options (case insensitive)
Action	Install
OS	Android
Android-Kernel	Android/azImage_n43(or azImage_a70 or your own image)
Android-CommandLine	root=ubi0:FriendlyARM-root ubi.mtd=2 rootfstype=ubifs init=/linuxrc console=ttySAC0,115200
Android-RootFs-InstallImage	Android/rootfs_android.ubi
Note: words in red should be typed exactly like what are presented here. “n43” in “azImage_n43” is the LCD’s type.	

Step2: toggle “S2” to “SDBOOT” and insert an SD card

Step3: power on and you will hear a beep and LED4 begins to flash

Step4: Within seconds you will notice that LED3, 2 and 1 begin to flash one by one and finally you will hear two beeps and all LEDs are on and round-robin flashing. The system is completely up and running

2.6 Install Ubuntu (UBIFS)

Note: installing Ubuntu takes about 500M flash therefore at least 1GB Nand flash is needed.

Step1: open the FriendlyARM.ini file in the SD card’s images directory and make changes as follows:

Items	Options (case insensitive)

Action	Install
OS	Ubuntu
Android-Kernel	Ubuntu/uzImage_n43 (or your own image)
Android-CommandLine	root=ubi0:FriendlyARM-root ubi.mtd=2 rootfstype=ubifs init=/linuxrc console=ttySAC0,115200
Android-RootFs-InstallImage	Ubuntu/rootfs_ ubuntu.ubi
Note: words in red should be typed exactly like what are presented here. “n43” in “uzImage_n43” is the LCD’s type.	

Step2: toggle “S2” to “SDBOOT” and insert an SD card

Step3: power on and you will hear a beep and LED4 begins to flash

Step4: Within seconds you will notice that LED3, 2 and 1 begin to flash one by one and finally you will hear two beeps and all LEDs are on and round-robin flashing. The system is completely up and running

3 Run Systems from SD Card

You can run systems directly from the SD card without buring them to the nand flash

3.1 Run Linux

Step1: open the FriendlyARM.ini file in the SD card's images directory and make changes as follows:

Items	Options (case insensitive)
Action	Run
OS	Linux
Linux-Kernel	Linux/zImage_n43 (or your own image)
Linux-RootFs-RunImage	Linux/rootfs_qtopia_qt4.ext3
Note: words in red should be typed exactly like what are presented here. "n43" in "uzImage_n43" is the LCD's type.	

Step2: toggle "S2" to "SDBOOT" and insert an SD card, power on and Linux will be loaded

3.2 Run WindowsCE

Step1: open the FriendlyARM.ini file in the SD card's images directory and make changes as follows:

Items	Options (case insensitive)
Action	Run
OS	WindowsCE6(alternatives: "CE6" or "WinCE6")
WindowsCE6-InstallImage	WindowsCE6\NK_n43-i.bin (or your own image)
Note: running WinCE6 from the SD card doesn't need a bootloader and doesn't support a boot logo either. "n43" in "NK_n43-i.bin" is the LCD's type. In the shipped CD's "\images\WindowsCE6" directory there are detailed descriptions and an English version as well.	

Step2: toggle “S2” to “SDBOOT” and insert an SD card, power on and Linux will be loaded

3.3 Run Android

Note: the 128M RAM system doesn’t support running an ext3 Android from the SD card due to its memory limits. Our 256M RAM system doesn’t have this issue and we recommend users to burn Android into the Nand flash and run it.s

Step1: open the FriendlyARM.ini file in the SD card’s images directory and make changes as follows:

Items	Options (case insensitive)
Action	Run
OS	Android
Android-Kernel	Android/azImage_n43 (or azImage_a70 or your own image)
Android-RootFs-RunImage	Android/rootfs_android.ext3
Note: words in red should be typed exactly like what are presented here. “n43” in “azImage_n43” is the LCD’s type. In the shipped CD’s “\images\Android” directory there are detailed descriptions.	

Step2: toggle “S2” to “SDBOOT” and insert an SD card, power on and Linux will be loaded

3.4 Run Ubuntu

For this option we recommend to use a 256M system which loads Ubuntu from the SD card faster than others.

Step1: open the FriendlyARM.ini file in the SD card's images directory and make changes as follows:

Items	Options (case insensitive)
Action	Run
OS	Ubuntu
Ubuntu-Kernel	Ubuntu/uzImage_n43 (or your own image)
Ubuntu-RootFs-RunImage	Ubuntu/rootfs_ubuntu.ext3
Note: words in red should be typed exactly like what are presented here. "n43" in "uzImage_n43" is the LCD's type. In the shipped CD's "\images\Ubuntu" directory there are detailed descriptions.	

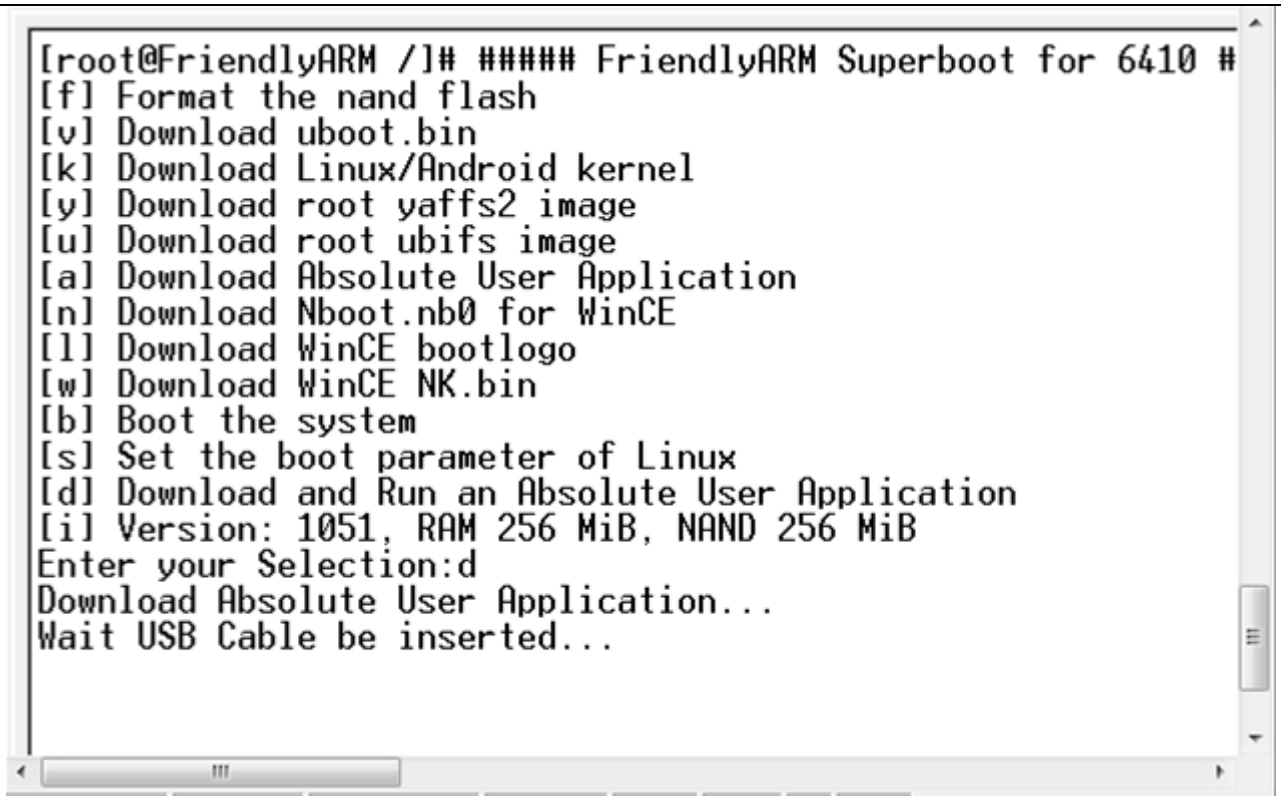
Step2: toggle "S2" to "SDBOOT" and insert an SD card, power on and Linux will be loaded

4 Run Standalone Programs and Download via USB

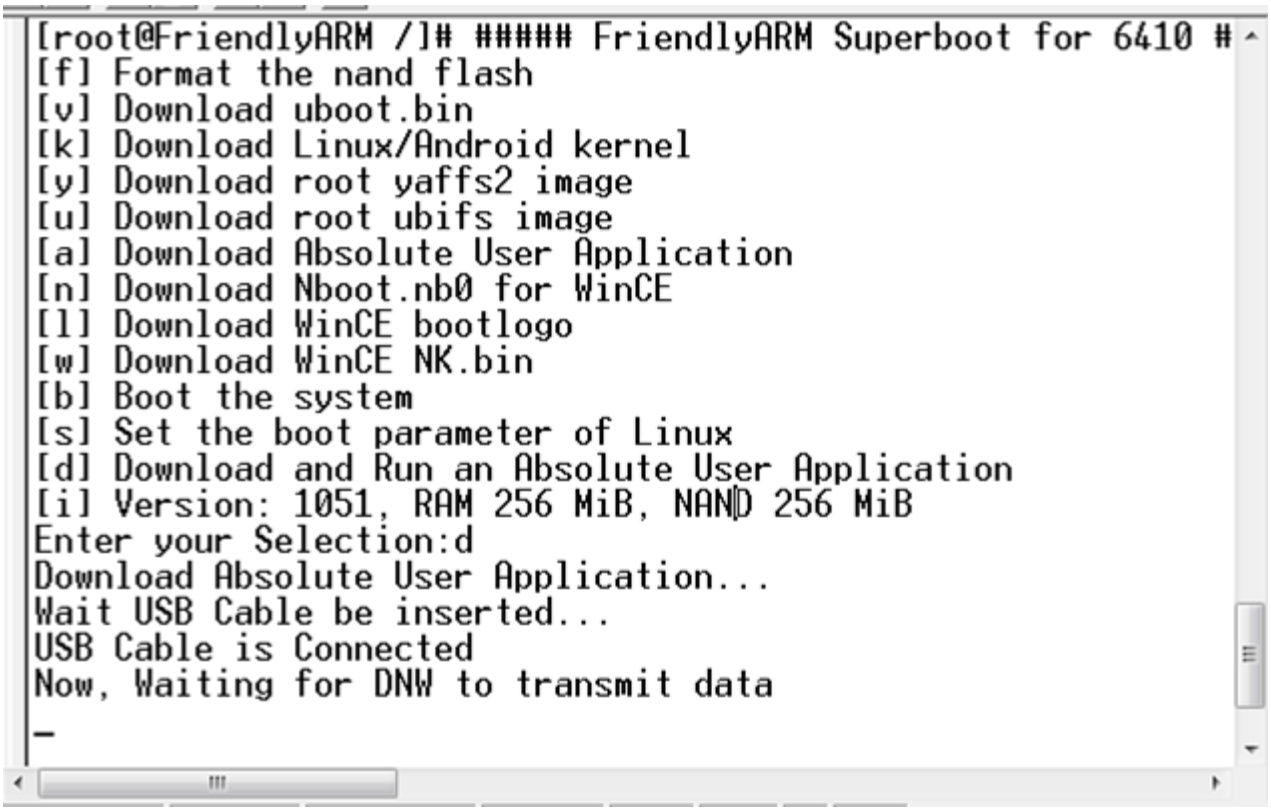
Before follow the steps below you need to install the USB download driver and switch the board to “SDBOOT”. The screenshots presented below may subject to changes

We have, in our shipped CDs a standalone program’s executable and source code. “demo.bin” is the executable and “demo.zip” is the source code. Running it will output “Hello, Mini6410” and flash the LEDs. We will take this program as an example to show you how to download via USB and run a standalone program on your board.

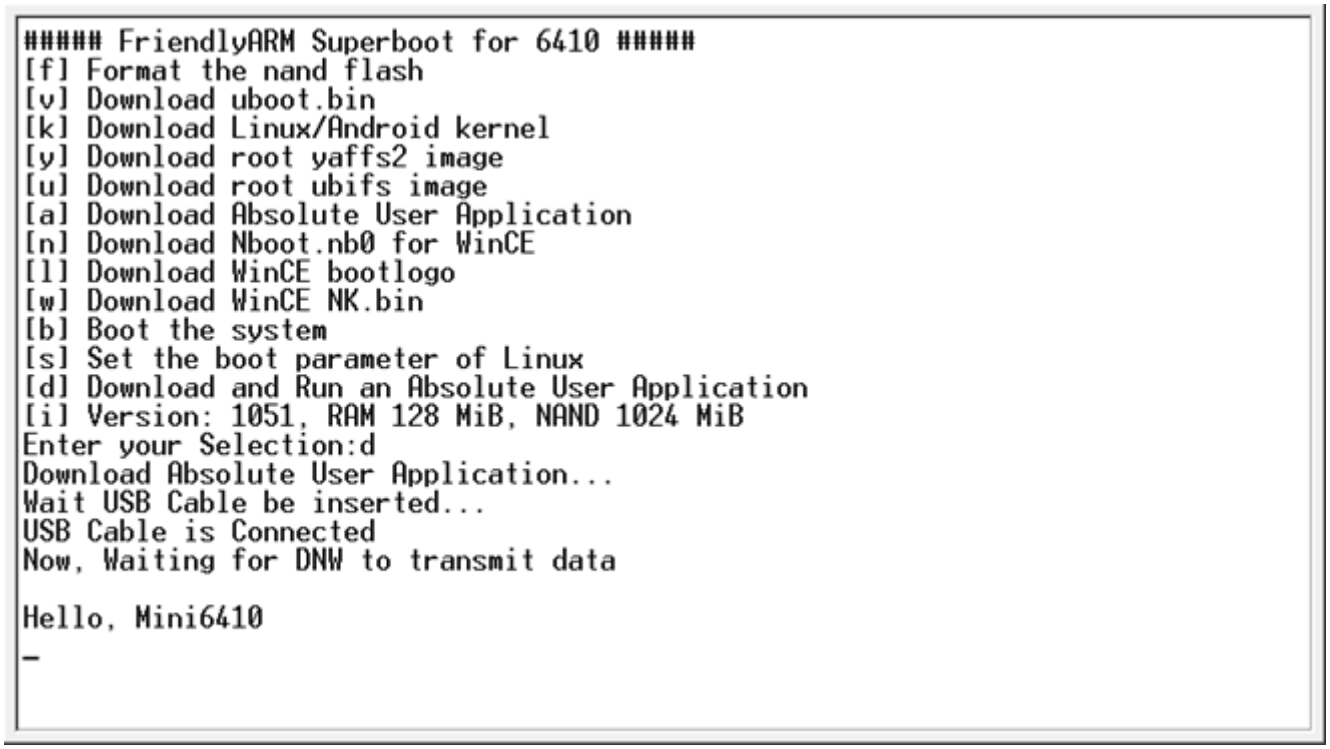
Please connect your board to a PC via a serial cable, power on, enter the BIOS main menu, select [d]. If you didn’t connect your USB it would show “Wait for USB Cable to be inserted…”



After a USB connection is established your system will show “Now, Waiting for DNW to transmit data” and the Mini6410 is waiting for the PC’s data



Start DNW, and go to “USB Port -> Transmit/Restore” and a dialog will pop up prompting you to select a file. You can navigate and locate your demo.bin and it will be downloaded to the Mini6410 and burned to RAM’s (0x50000000) and run.


FriendlyARM Superboot for 6410
[f] Format the nand flash
[v] Download uboot.bin
[k] Download Linux/Android kernel
[y] Download root yaffs2 image
[u] Download root ubifs image
[a] Download Absolute User Application
[n] Download Nboot.nb0 for WinCE
[l] Download WinCE bootlogo
[w] Download WinCE NK.bin
[b] Boot the system
[s] Set the boot parameter of Linux
[d] Download and Run an Absolute User Application
[i] Version: 1051, RAM 128 MiB, NAND 1024 MiB
Enter your Selection:d
Download Absolute User Application...
Wait USB Cable be inserted...
USB Cable is Connected
Now, Waiting for DNW to transmit data
Hello, Mini6410