SBC6410 Burn Linux Image Manual

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1. Make starting SD card

Note:
(1) Make the boot from SD-card; please choose standard SD-card with the capacity is 2G bytes. Advise to choose 1/2G Kingston or Sandisk good quality card.

(2) Please plug card reader in the USB interface when you write SDboot.bin to SD card. You had better not use the built-in card reader of notebook computer. Sometimes, the built-in SD card reader of notebook computer can not write normally, or it can't start normally even if it is written success.

2. Make boot from SD card

The software which was named “moviNAND_Fusing_Tool.exe” in CD: SBC6410\tools\ can make boot from SD card quickly and it is used for burning image to Nand Flash of SBC6410 development board.

Please make it refer to the follow steps:

(1) Plug SD card in USB card reader and format SD card as FAT32 in windows XP.
Removable Disk (E:)
Open
Explore
Search...
Sharing and Security...
Add to Archive...
Add to "Archive.rar"
Compress and email...
Compress to "Archive.rar" and email
Format...
Eject
Cut
Copy
Create Shortcut
Rename
Properties

Format Removable Disk (E:)
Capacity:
3.63 GB
File system
FAT32
Allocation unit size
Default allocation size
Volume label
Format options
Quick Format
Enable Compression
Create an MS-DOS startup disk

Start  Close
(2) Open moviNAND_Fusing_Tool.exe in windows XP.
(3) Write `u-boot_movi.bin` to the SD card.

At the place of "SD/MMC Driver", please select the SD card’s mapped disc path under windows XP.

Click the "Browse" button to add `u-boot_movi_V0.1.bin` in the Image file.

Click "START".
If it is ok, will pop up "Fusing image done", and click "OK" to complete the operation.
Note: After successful programming, you will not see the data what you have written and
the capacity of SD card will not change.

3. Installing the USB download driver

Explain: The USB download drivers locate in CD: \SBC6410\tools\Connect the development board and PC through USB and serial port, the installation
process is shown below:
Found New Hardware Wizard

Welcome to the Found New Hardware Wizard

This wizard helps you install software for:
SEC S3CS400X Test B/D

If your hardware came with an installation CD or floppy disk, insert it now.

What do you want the wizard to do?

- Install the software automatically (Recommended)
- Install from a list or specific location (Advanced)

Click Next to continue.

Please choose your search and installation options.

- Search for the best driver in these locations.
  Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
  - Search removable media (floppy, CD-ROM...)
  - Include this location in the search

- C:\tools\S6410_usb

- Don't search. I will choose the driver to install.
  Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
4. Burn uboot_nand

(1) **Set boot from SD**

Switch SW2 is for selecting the boot modes. SD-card boot corresponds to **SW2 [4:1] 1111**. Switch **SW2 [4:1] is 1100**; this sets the Boot mode to Nand boot mode.

The boot modes setting in the following picture is from SD boot mode and Nand boot mode.

(2) **Burn u-boot_nand.bin**
Download and burn `u-boot_nand.bin` by DNW and SecureCRT. Turn the SW2 [4:1] to 1111 and turn on the development board. Pressing space key to enter command line, it will appear following message then do as following command.

The command as follows:

1. Select “9” to format the Nand Flash.

   ![Format Nand Flash](image1)

2. Select “1” to download u-boot to Nand Flash. Then open “DNW.exe” software in Windows XP to download the u-boot.

   ![Download u-boot](image2)
③ Chose the “u-boot_nand_V0.1.bin” file.
The following picture shows “u-boot_nand” has been written to Nand Flash.
After above operation we can boot from Nand flash. Power off the development board and set boot from Nand flash (SW2 [4:1] =1100).
Power on the development board, press the space key to enter the uboot command line. You should do above operation again, otherwise the system unable to be mounted.
Select “9” to format the Nand Flash and select “1” to download u-boot to Nand Flash.
Note:
No matter which image you want to burn, you also need to burn the other images (uboot, kernel, file system) at the same time.

5. Download Kernel

Note: in below example it takes 4.3Inch TFT LCD as an example; please select the corresponding LCD when download the relative Kernel.

Below are steps for downloading Kernel
6. Download File System

The default burned file system for SBC6410 is Qtopia-2.2.0. At here it also takes
download Qtopia-2.2.0 as an example.

Below pictures show steps for downloading file system.
Checksum is being calculated...
Checksum O.K.
NAND erase: device 0 offset 0x200000, size 0x300000
Erasing at 0x4e0000 -- 100% complete.
Ok
NAND write: device 0 offset 0x200000, size 0x228370
writing data at 0x428000 -- 100% complete.
2261672 bytes written: Ok

Boot for Nand Flash Main Menu
1. Download u-boot or STEPLDR.nsl or other bootloader to Nand Flash
2. Download Elboot to Nand Flash
3. Download Linux Kernel to Nand Flash
4. Download LOBO Picture (.bin) to Nand Flash
5. Download cronsh Image to Nand Flash
6. Download YAFFS Image to Nand Flash
7. Download Program to SDRAM and Run it
8. Boot the system
9. Format the Nand Flash
10. Set the boot parameters
11. Download User Program
12. Reboot U-Boot
13. Test Linux Image (ziimage)
14. quit from menu
Enter your selection: 6

USB is not connected yet.
USB is connected, waiting a download.
After finished above download, select the command “8” to reboot Linux. Below is a snapshot after Linux reboot.

7. Set booting parameters

Select the command “0” under uboot download mode to enter into setting parameters windows, then you can select booting from yaffs file system, NFS or UBIFS file system. Below is a snapshot of setting booting parameters, just for an example.

Set parameters booting from NFS:

Use command “1” to set parameters booting from NFS, the parameters including IP address, mask, IP address of Host PC, and path that NFS in the Host PC and mounted NFS type.

Below are explanation for the below picture,

192.168.0.110 -It is IP address of Linux Host PC, please input the IP address that valid in your subnet.

192.168.0.123 -It is IP address of SBC6410, please input the IP address that valid in your subnet.

255.255.255.0 -It is subnet mask of SBC6410, please input the subnet mask that valid in your subnet.

/opt/Boardcon/root_nfs -It is NFS path that saved in the Host PC, please use your correct path.

/linuxrc - It is type parameters of booting NFS, please use the parameter /linuxrc if you get it from product CDROM “Linux\Source\File system\root_nfs_V0.1.tar.bz2”. Please use the parameter /init if you get it from product CDROM “Android2.3\Source\sbc6410_android2.3.4.tar.bz2”
Set SBC6410 booting from Yaffs file system.
Select the command "2", the system will automatically finish the setting.

Set SBC6410 booting from UBIFS file system.
Select the command “3”, the system will automatically finish the setting.

After finished setting, select the command ‘s’ to save the just set booting parameters. It will call on the just saved setting when SBC6410 boots uboot in the next time.

Select the command “q” to uboot download mode menu.
1. Download u-boot or TI-PLD, uBL or other bootloader to NAND Flash
2. Download eBoot to NAND Flash
3. Download Linux Kernel to NAND Flash
4. Download Linux Image (.bin) to NAND Flash
5. Download U-Boot Image to NAND Flash
6. Download YAFFS Image to NAND Flash
7. Download Program to SDRAM and Run it
8. Boot the system
9. Format the NAND Flash
10. Set the boot parameters
11. Download User Program
12. Reboot u-boot
13. Test Linux Image (.image)
14. Quit from menu

Enter your selection: [number]