

# 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 (Et)
Open
Explore
Search
Sharing and Security
Add to archive
Add to "Archive.rar"
Compress and email
Compress to "Archive.rar" and email
Format
Format Eject
Format Eject Cut
Format Eject Cut Copy
Format Eject Cut Copy Create Shortcut
Format Eject Cut Copy Create Shortcut Rename

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



	Format Removable Disk (E:) 🛛 🕐 🔀
	Capacity:
	3.63 GB
	File system
	FAT32
	Allocation unit size
	Default allocation size
<u>.</u>	WARNING: Formatting will erase ALL data on this dis To format the disk, click OK. To quit, click CANCEL.



Formatting Removable Disk (E:) [ 🗙
Capacity:
3.63 GB
File system
FAT32
Allocation unit size
Formatting Removable Disk (E:)
Create an Mo-DOD startup usk
(**************************************
Start Cancel

(2) Open moviNAND\_Fusing\_Tool.exe in windows XP.



D/MMC Drive	Drive Size
ize Configuration	Bootloader
SRAM Size 8 KB 💌	Image file Browse
Fuse Size 1 KB 💌	The image file will be fused from to on drive
artition Size	Kernel
Bootloader	Image file Browse
256 KB 💌	
Kernel	
4 MB 🗸	Rootfs
Rootfs	Image file Browse
8 MB 💌	The image file will be fused from to on drive
pecific Sector	
Sector 0	Image File Browse

(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".

SDIMINC DRAF G	Drive Size Tocordo Sectors
Size Configuration	Bootloader
SRAM Size 8 KB 🔽	Image file (\SBC6410\Linux\Image\Q43\u-boot\u-boot_movi.bin Browse)
EFuse Size 1 KB 🔽	The image file will be fused from 7626199 to 7626749 on drive G
Partition Size	Kernel
Bootloader	Image file Browse
256 КВ 💌	The image file Furging image dope to on drive
Kernel	
4 MB 💌	Rootfs
Rootfs	Image file Browse
8 MB 💌	The image file will be fused from to on drive
Specific Sector	
Sector 0	Image File Browse

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	
	Velcome to the Found New lardware Wizard his wizard helps you install software for: SEC S3C6400X Test B/D If your hardware came with an installation CD or floppy disk, insert it now. /hat do you want the wizard to do? Install the software automatically (Recommended) Install the software automatically (Recommended) Install from a list or specific location (Advanced) lick Next to continue.
	K Back Next > Cancel
Found New Hardware Wizard	
Please choose your search a	and installation options.
<ul> <li>Search for the best driver</li> </ul>	in these locations.
Use the check boxes belo paths and removable medi	w to limit or expand the default search, which includes local ia. The best driver found will be installed.
Search removable n	nedia (floppy, CD-ROM)
Include this location	in the search:
C:\tools\6410_usb	Browse
O Don't search. I will choose	the driver to install.
Choose this option to select the driver you choose will be driver you	ot the device driver from a list. Windows does not guarantee that be the best match for your hardware.
	< Back Next> Cancel



Found New Hardware Wiz	ard
	Completing the Found New Hardware Wizard The wizard has finished installing the software for: SEC SOC SMDK Board
	Click Finish to close the wizard.

#### 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.



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





③ Chose the "u-boot\_nand\_V0.1.bin" file.



Open					? 🔀
Look in:	🚞 u-boot		· 0	1 🖻 🛄	
D Recent	u boot_movi b u-boot_nand.l	bin			
Desktop					
My Documents					
Mu Computer					
My computer	File name:	u-boot_nand.bin		~	Open
My Network	Files of type:	Image (*.bin)		~	Cancel

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





DNW v0.60C - ru	r wi <mark>1 x][US</mark>	5B:OK][ADDR:0x30000000]			_ 🗆 🗵
	nit 🕨 Transmit				<u></u>
2 Rx Te	st				
Status					
<u> </u>					
and the second se					
Open					? 🛛
Open Look in:	Cinux		•	• 🗈 👉 🔳•	? 🔀
Open Look in:	Cinux	vaffs	•	• 🗈 💣 📰 •	? 🛛
Open Look in: Pecent	Cinux	vaffs	•	• 🗈 💣 📰 •	? 🛛
Open Look in: Pecent	Cinux	vaffs	•	• 🗈 💣 📰 •	? 🛛
Open Look in: Pecent Desktop	Linux rootfs_DHCP.y	vaffs	•	• 🗈 💣 🃰 •	? 🔀
Open Look in: Pecent Desktop	Cinux rootfs_DHCP.y	vaffs	•	• 🗈 📩 🃰	? 🔀
Open Look in: Recent Desktop	Linux rootfs_DHCP.y	vaffs	•	• 🗈 📩 📰	? 🔀
Open Look in: Recent Desktop My Documents	Cinux rootfs_DHCP.y	vaffs	•	• 🗈 💣 📰	? 🔀
Open Look in: Recent Desktop My Documents	Cinux rootfs_DHCP.y	vaffs	•	• 🗈 💣 📰	? 🔀
Open Look in: Recent Desktop My Documents	Cinux rootfs_DHCP.y	vaffs	•		? 🔀
Open Look in: Recent Desktop My Documents	Cinux rootfs_DHCP.y	raffs		•	
Open Look in: Recent Desktop My Documents My Computer	Linux Control	vaffs zlmage-Q43			Open





### 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.



🕞 Serial-COM1 - SecureCRT	
Eile Edit Yiew Options Iransfer Script Tools Help	
<sup>1</sup> 3 3 ↓ 3 × 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Serial-COM1	×
Checksum is being calculated Checksum O.K.	<b>_</b>
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. 2261872 bytes written: OK	
<pre>##### Boot for Nand Flash Main Menu ##### [1] Download u-boot or STEPLDR.nb1 or other bootloader to Nand Flash [2] Download Linux Kernel to Nand Flash [4] Download LoGO Picture (.bin) to Nand Flash [4] Download CRAMFS image to Nand Flash [6] Download CRAMFS image to Nand Flash [6] Download Program to SDRAM and Run it [8] Boot the system [9] Format the Nand Flash [0] Set the boot parameters [a] Download User Program [r] Reboot u-boot [t] Test Linux Image (ZImage) [q] quit from menu Enter your selection: [6] USB is not connected yet. USB is connected. Waiting a download.</pre>	
Ready Serial: COM1 31, 1 31 Rows, 85 Cols VT100 M	
DNW v0.600 - rur wi 1k[[USB:0K][ADDR:0x30000000]	
Serial Port USB Port Computation Help UBBOOL UBBOOL Rx Test Status Status	A



Open						? 🛛
Look in:	🔁 Filesystem			- + E	) 🕂 💷 •	•
Recent Desktop My Documents My Computer	For Camera a root_qt_4.5_c root_qtopia_2	nd WIFI 5410_V0.1 2.0_6410_V0.1 yaffs				
My Network Places	File name: Files of type:	root_qtopia_2.2. All Files (*.*)	0_6410_V0.1		•	Open Cancel
Ele     Edit     Yiew     Options     Iransfer     Script     Tools     Help       Image: State						
<pre>[a] Download User Program [r] Reboot u-boot [t] Test Linux Image (zImage) [q] quit from menu Enter your selection: 6 USB is not connected yet. USB is connected. Waiting a download.</pre>						
Now, Downloadir Please waiting	ng [ADDRESS:0xc	Download File:	0x3996c00] size:0x3996			
checksum is being calculated Checksum O.K. NAND erase: device 0 offset 0x500000, size 0xf900000 Skipping bad block at 0x06a00000_						
Erasing at Oxfde0000 100% complete. OK NAND write: device 0 offset 0x500000, size 0x3996c00 Writing data at 0x3cd7800 100% complete. 60386304 bytes written: OK						
##### Boot for Nand Flash Main Menu ##### [1] Download u-boot or STEPLDR.nb1 or other bootloader to Nand Flash						<b>!</b>
Ready		Serial: COM1	38, 23 38 Ro	ws,85 Cols VT	100	



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 you're 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.

Serial-COM1 - SecureCRT	
Eile Edit View Options Transfer Script Tools He	p
133000 <b>%</b> >6 <b>0</b>	<b>自然! ? </b>
Serial-COM1	2
##### Parameter Menu ##### [1] Set NFS boot parameter [2] Set Yaffs boot parameter(use to [3] Set UBIfs boot parameter(use to [4] Set parameter [5] View the parameters [6] Delete parameters to wand Flass	standard Linux) android) sh
Enter your selection: 3 bootargs: noinitrd ubi.mtd-3 root-uk 128M	pi0:rootfs rootfstype-ubifs init-/init console-ttySAC0 mem-
##### Parameter Menu ##### [1] Set NFS boot parameter [2] set yaffs boot parameter (use to [3] Set UBIfs boot parameter (use to [4] set parameter [5] View the parameters [6] Delete parameters [5] Save the parameters to Nand Flas [6] Return main Menu Enter your selection:	standard Linux) android) sh
Ready	Serial: COM1 24, 23 24 Rows, 94 Cols VT100 NUM

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.



