

Q: How to Burn the Image(EM2440_WinCE)

A:

Note:

EM2440-III not only supports start from Nor Flash but also supporting start from Nand Flash. When the user erased u-boot in the Nor Flash and Nand Flash, that leading the board can not start from neither Nor Flash nor Nand Flash. In this case the user must use JTAG to burn u-boot to the board.

How to judge there isn't u-boot on the Nor Flash and Nand Flash:

First, after the board powered on, if four green Led's don't light on at the same time, means that there are no u-boot on the Nor Flash or Nand Flash.

Second, connect with serial cable, and power on the board, and check that are there any following message printed, if no uboot message that means there are nothing in the Nor Flash or nand flash.

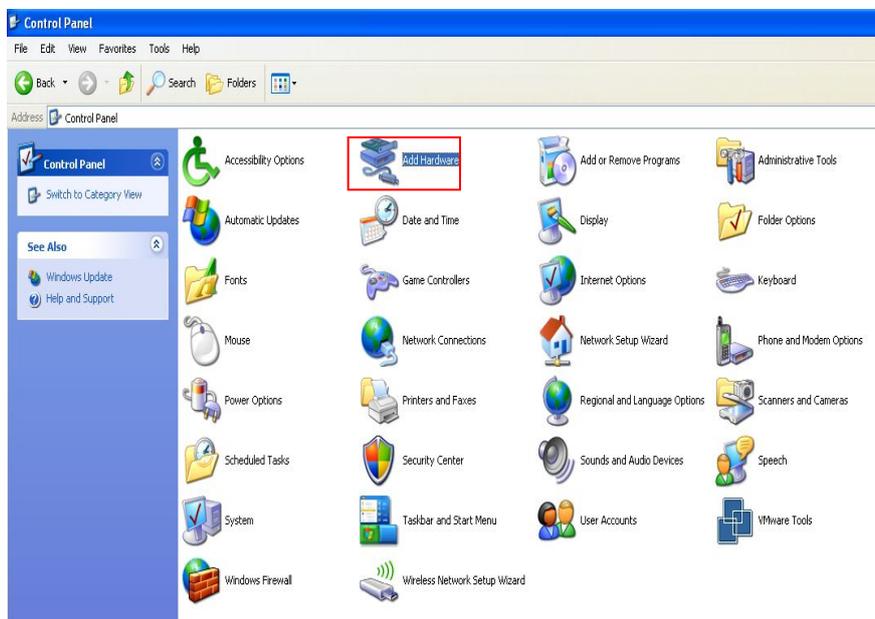
1. Burn uboot.bin when there isn't uboot.bin in the nor flash and nand flash.

(1) install GIVEIO driver

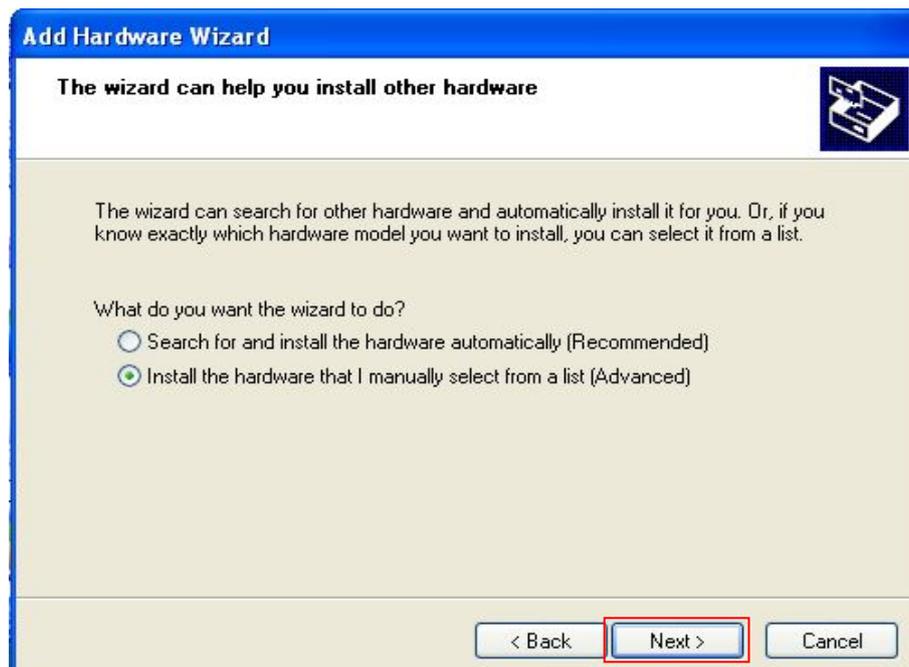
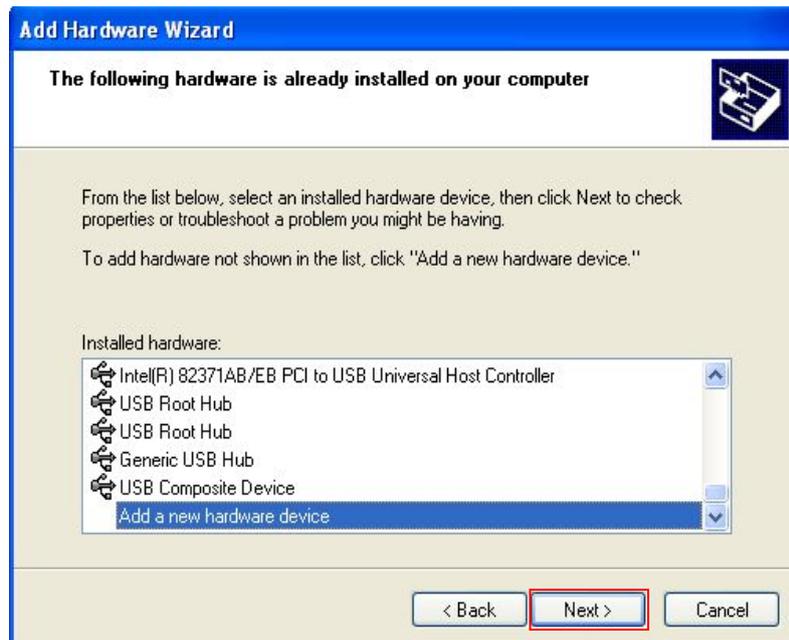
Step 1, find giveio driver in the CD under the directory

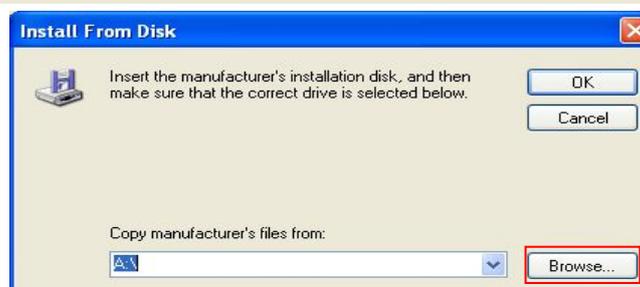
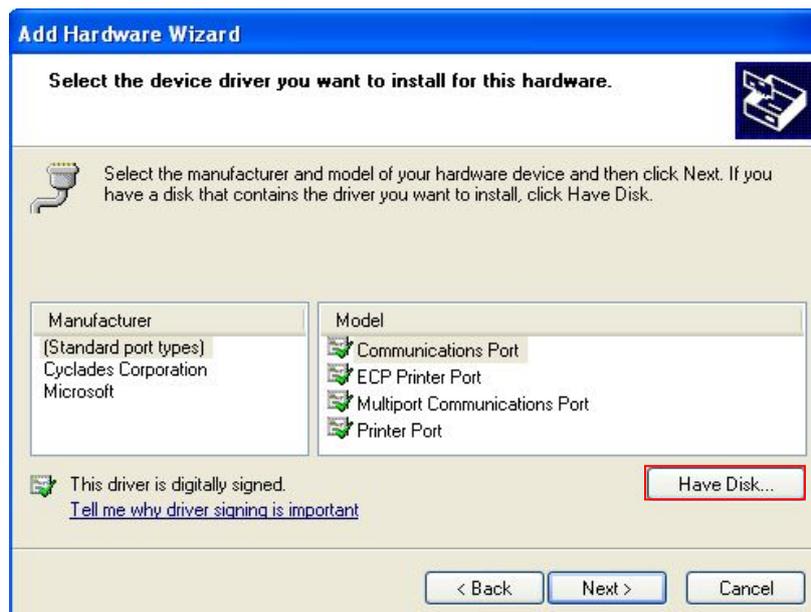
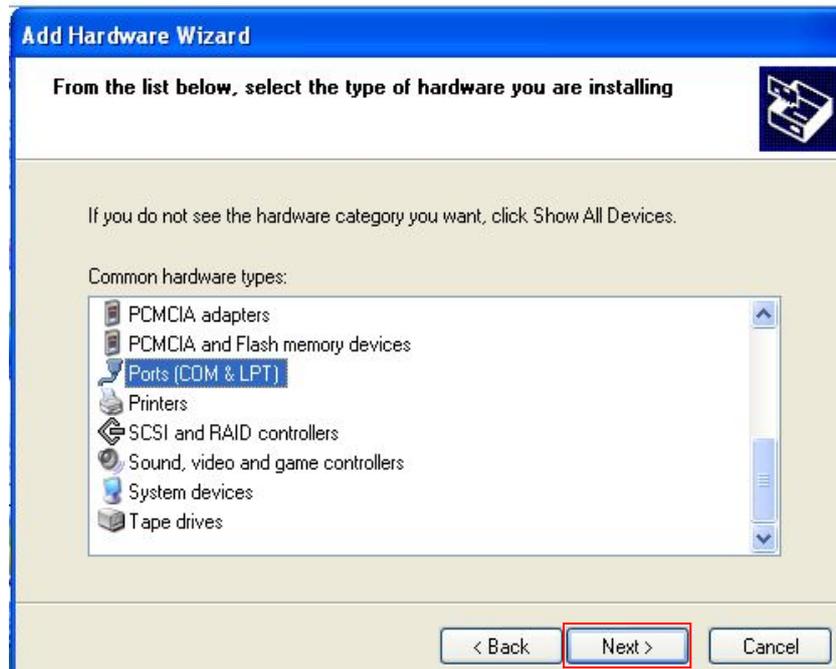
“Windows software package\GIVEIO”. Copy the file “Giveio.sys” to your system disk, under the directory “C:\Windows\System32\drivers\”

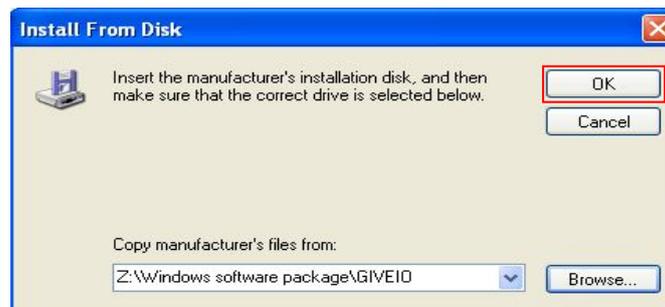
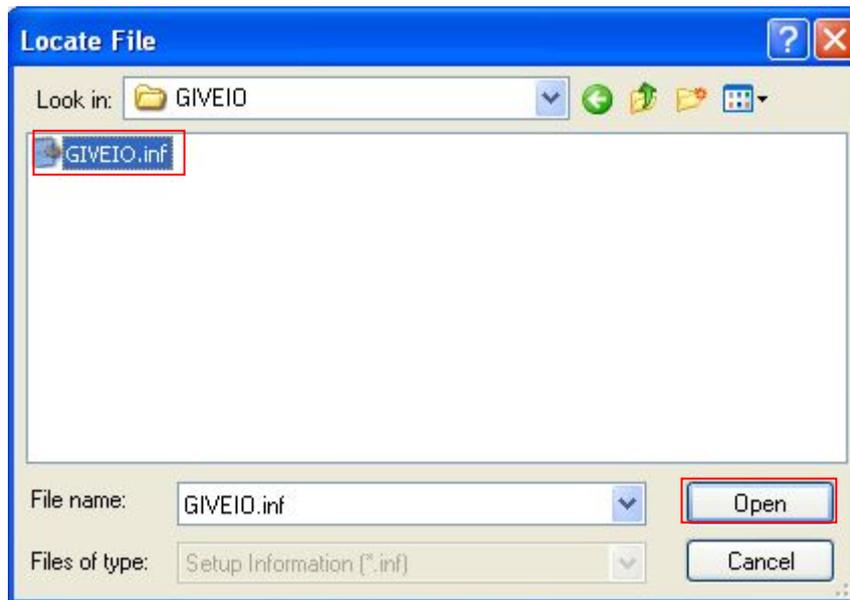
Step 2, open “Control panel” on PC, and double-click the icon “Add hardware” and click “Next” to continue:

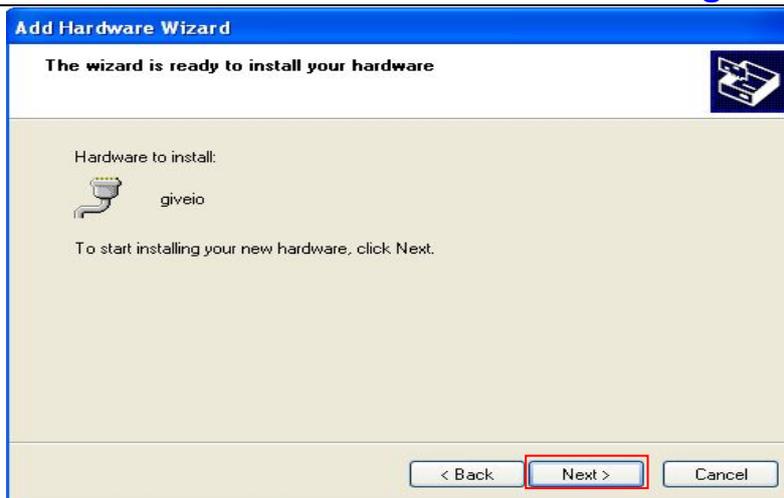


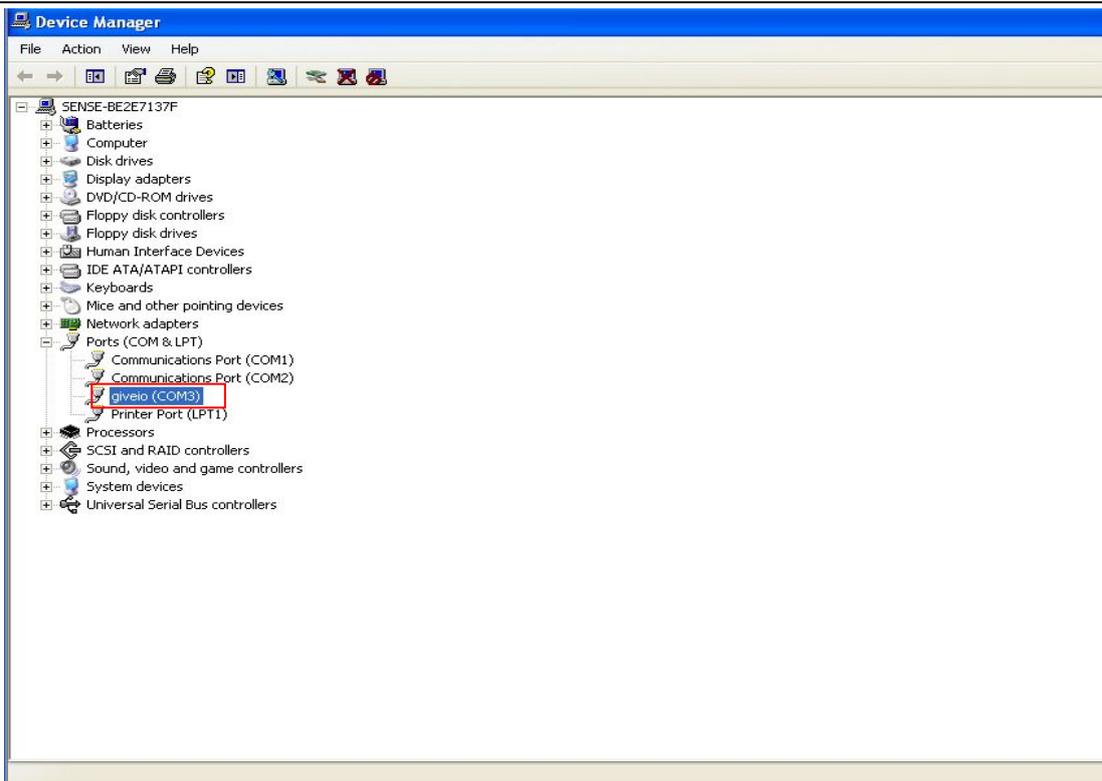












Now, the newly installed device could be found in “Device Manager”.

(2) Burning U-boot by SJF2440

Notice: Unless you destroy the u-boot in the nor flash and nand flash, you don't have to burn the u-boot by SJF2440.

The SJF2440 software is at the place of: EM2440-III_CD\Windows software package\SJF2440.

Step 1: Before use SJF2440, below items must be required.

- a. Make sure PC has parallel interface , and set the mode of BIOS of PC as “EPP”.
- b. The PC has been installed driver of GIVEIO parallel interface.
- c. Via JTAG's 25-pin port Connecting PC's parallel interface with the 10-pin JTAG interface on the board.
- d. Power on the board
- e. Copy the u-boot image into the directory \Windows software package\SJF2440, and make sure the u-boot image is u-boot.bin.

In this case we take 3.5inch TFT LCD as an example; we copy the u-boot image for 3.5 inch into the \Windows software package\SJF2440 directory.

Double click “SJF2440_uboot.bat” to run the software



Step3: Burning image to Nor Flash, continuously select “2”, “0”, the following diagram shows the steps.

```
C:\WINDOWS\system32\cmd.exe
| <SKY2440/TQ2440 B/D> |
+-----+
Usage: $JF /f:<filename> /d=<delay>
> S3C2440X(ID=0x0032409d) is detected.

[ $JF Main Menu]
  0:Nand Flash prog    1:Memory Rd/Wr    2:Nor Flash Prog    3:Exit
Select the function to test:2

[Nor160Writing Program]
NOTE: AM29LU800DB or AM29LU160DB or EN29LU160AB needs 4 step sequences for 1 half-word data.
      So, the program time is twice of Starata flash(2 step sequences).
[Check AM29LU800 or AM29LU160 or EN29LU160AB]
Manufacture ID= 7f(0x0001/0x007F), Device ID(0x225B/0x2249)=2249

Image Size:0h~37694h

Available Target Offset:
    0x0, 0x4000, 0x6000, 0x8000, 0x10000, 0x20000, 0x30000, 0x40000,
0x50000, 0x60000, 0x70000, 0x80000, 0x90000, 0xa0000, 0xb0000, 0xc0000,
0xd0000, 0xe0000, 0xf0000
Input target offset:0

SectorOffset=0x0
```

Waiting for several minutes, the Image will be burned successfully into Nor Flash:

```
C:\WINDOWS\system32\cmd.exe
0 d400 d500 d600 d700 d800 d900 da00 db00 dc00 dd00 de00 df00 e000 e100 e200 e300
0 e400 e500 e600 e700 e800 e900 ea00 eb00 ec00 ed00 ee00 ef00 f000 f100 f200 f300
0 f400 f500 f600 f700 f800 f900 fa00 fb00 fc00 fd00 fe00 ff00
End of the sector data writing!!!

SectorOffset=0x30000
SectorSize =0x10000
Erase the sector:0x30000.
Sector Erase is started!
Start of the sector data writing.
0 100 200 300 400 500 600 700 800 900 a00 b00 c00 d00 e00 f00 1000 1100 1200 1300
0 1400 1500 1600 1700 1800 1900 1a00 1b00 1c00 1d00 1e00 1f00 2000 2100 2200 2300
0 2400 2500 2600 2700 2800 2900 2a00 2b00 2c00 2d00 2e00 2f00 3000 3100 3200 3300
0 3400 3500 3600 3700 3800 3900 3a00 3b00 3c00 3d00 3e00 3f00 4000 4100 4200 4300
0 4400 4500 4600 4700 4800 4900 4a00 4b00 4c00 4d00 4e00 4f00 5000 5100 5200 5300
0 5400 5500 5600 5700 5800 5900 5a00 5b00 5c00 5d00 5e00 5f00 6000 6100 6200 6300
0 6400 6500 6600 6700 6800 6900 6a00 6b00 6c00 6d00 6e00 6f00 7000 7100 7200 7300
0 7400 7500 7600 7700 7800 7900 7a00 7b00 7c00 7d00 7e00 7f00 8000 8100 8200 8300
0 8400 8500 8600 8700 8800 8900 8a00 8b00 8c00 8d00 8e00 8f00 9000 9100 9200 9300
0 9400 9500 9600 9700 9800 9900 9a00 9b00 9c00 9d00 9e00 9f00 a000 a100 a200 a300
0 a400 a500 a600
End of the sector data writing!!!

H:\Windows平台工具\SJF2440>
```

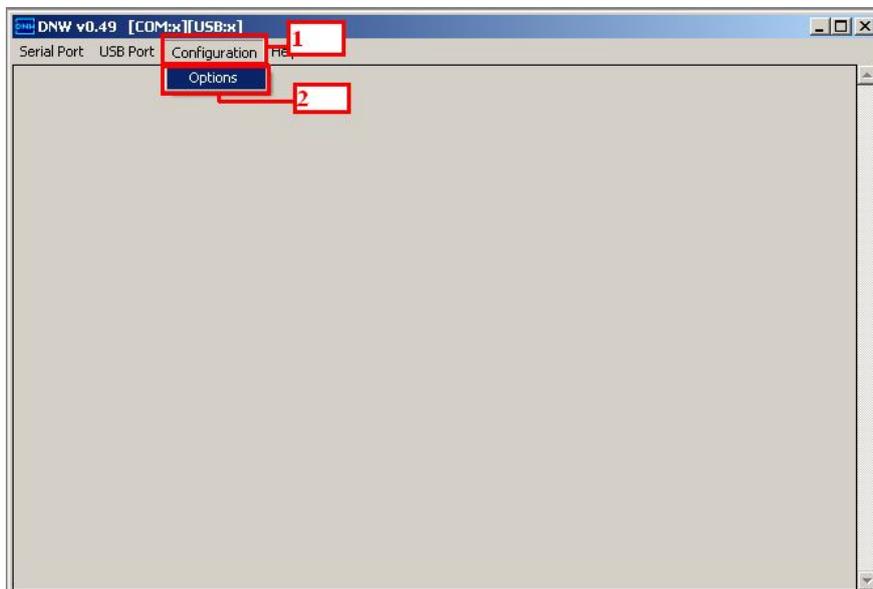
2. Burn image when there is uboot.bin in the nor flash and nand flash.

Step1: Install USB driver

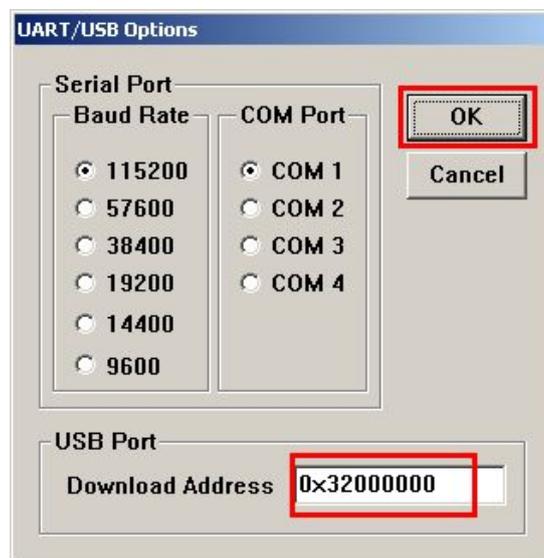
The driver is located under the directory “Windows software package\USB driver”:

(1) Configurte DNW.

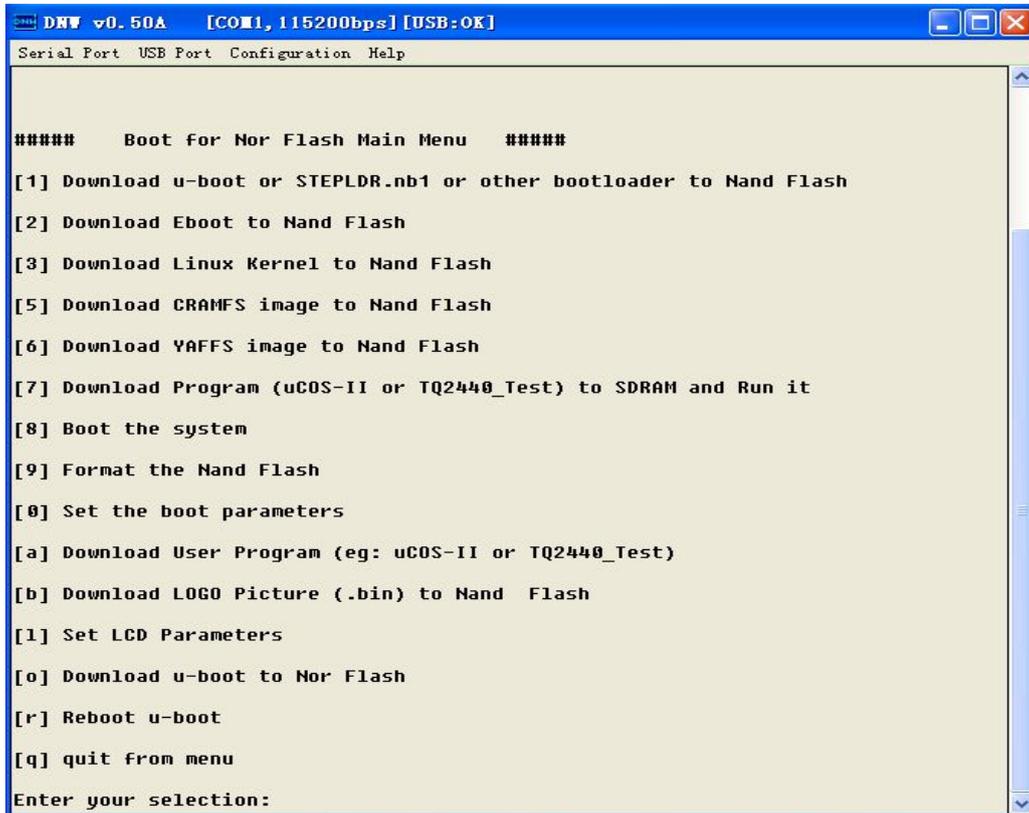
Open DNW,click “Configuration -> Options”, the configuration table “UART/USB Options” appears.



Choose “115200” of “Baud Rate”, choose “COM1” of “COM Port” (choose the right one according to actual situation), fill in “0x32000000” of “USB Port”, click “OK” to finish the DNW configuration:



Link the serial port line and power line; press the space-key of PC and hold, and Switch on the power. The DNW will display the u-boot console (instruction: USB download-driver needs to be installed in u-boot console. If your board has no u-boot, please burn the u-boot by Jtag firstly).

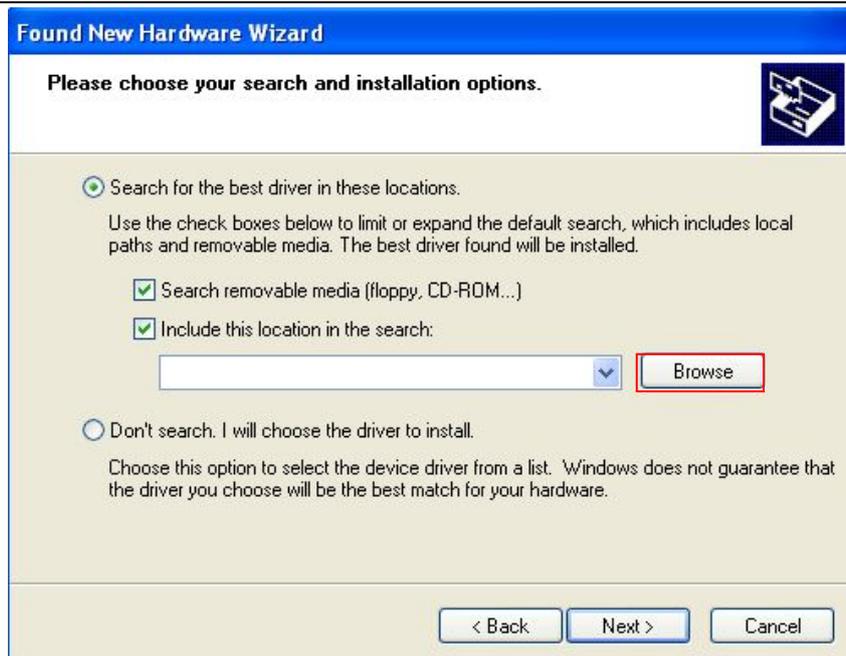


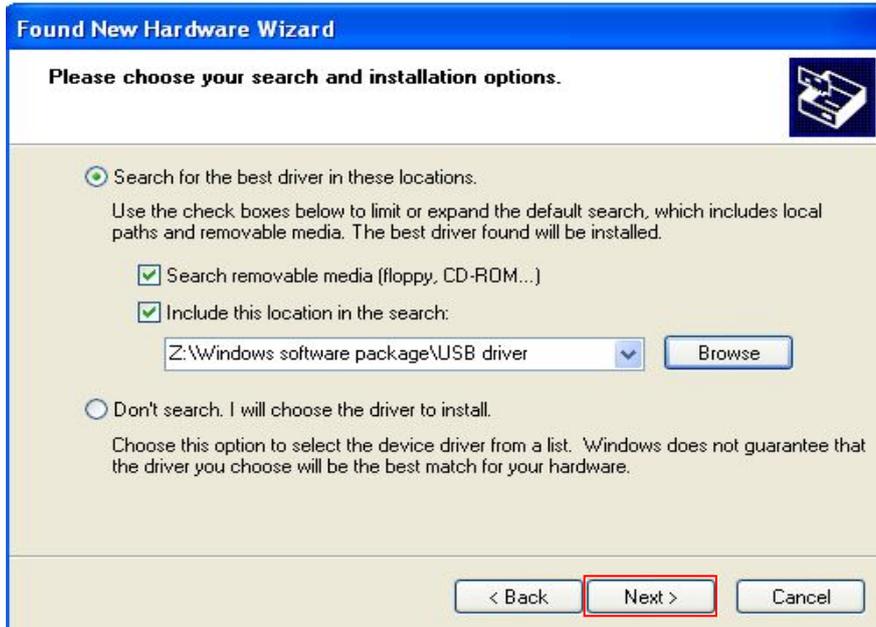
(2) Install usb driver

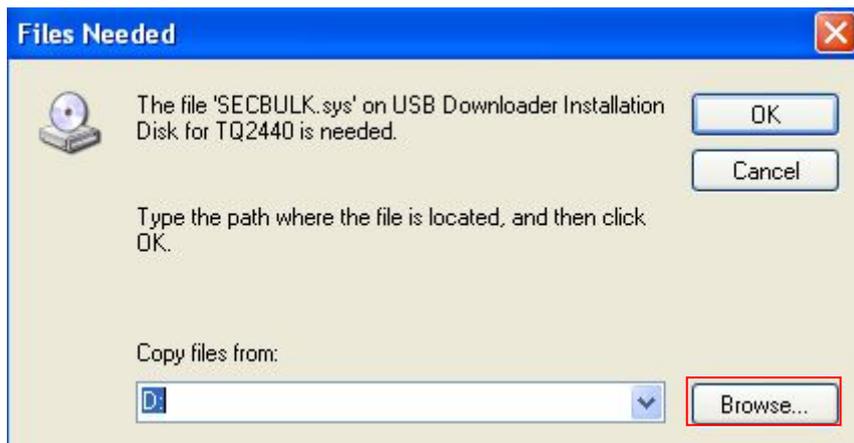
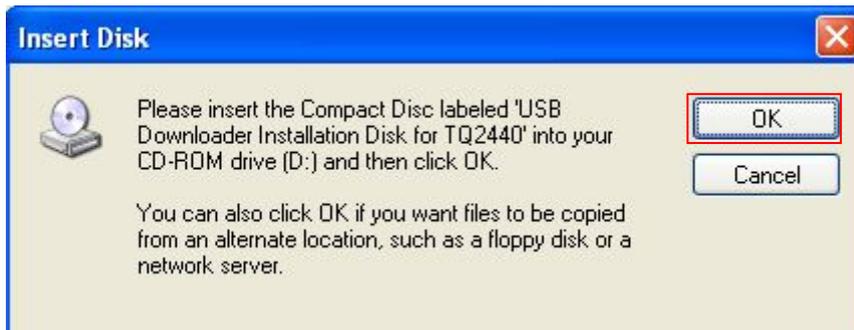
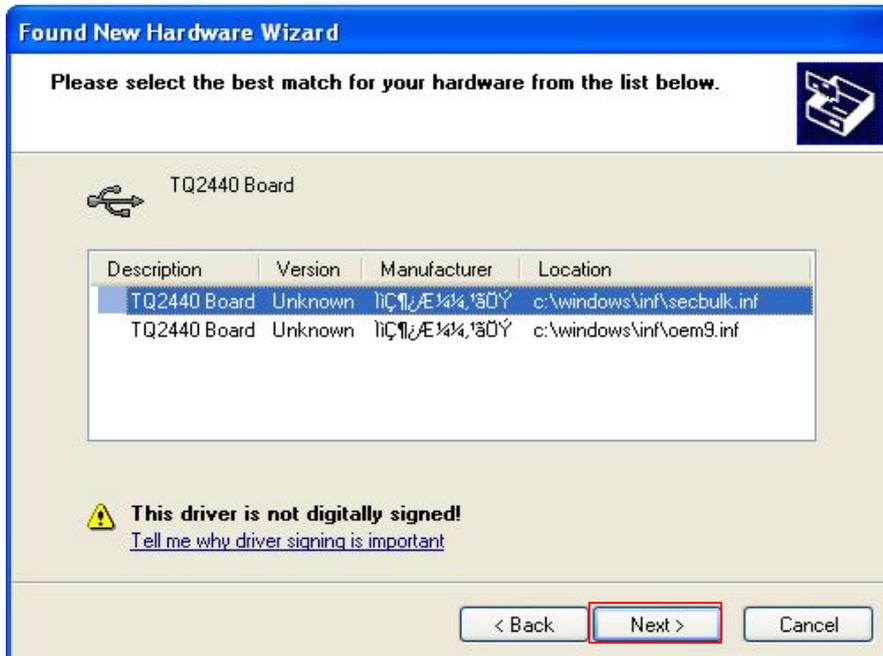
linking the USB wire, PC can recognize the new device automatically as follow:

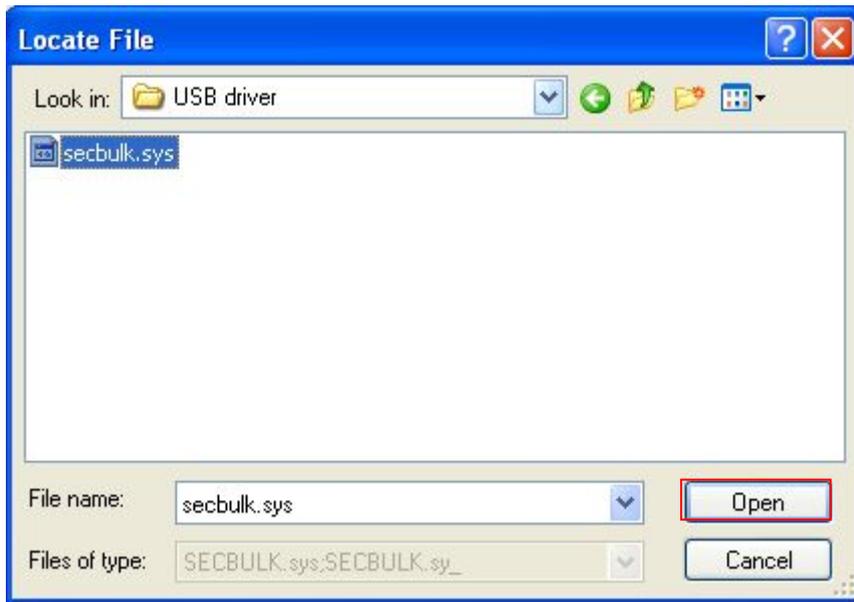




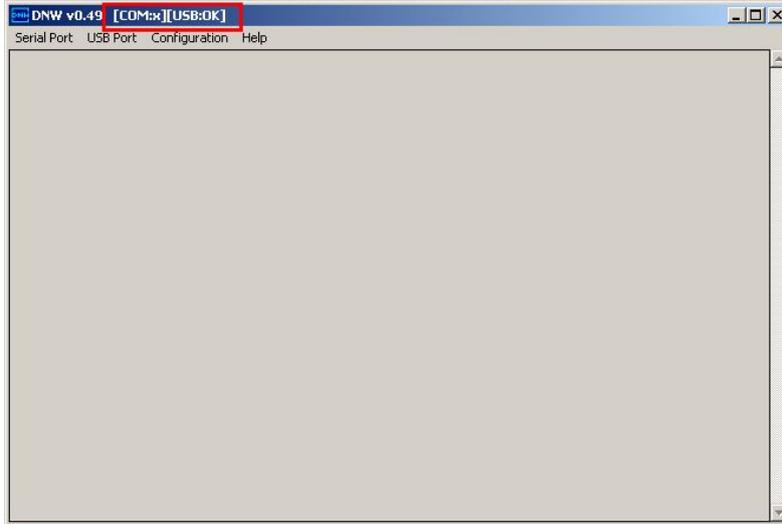




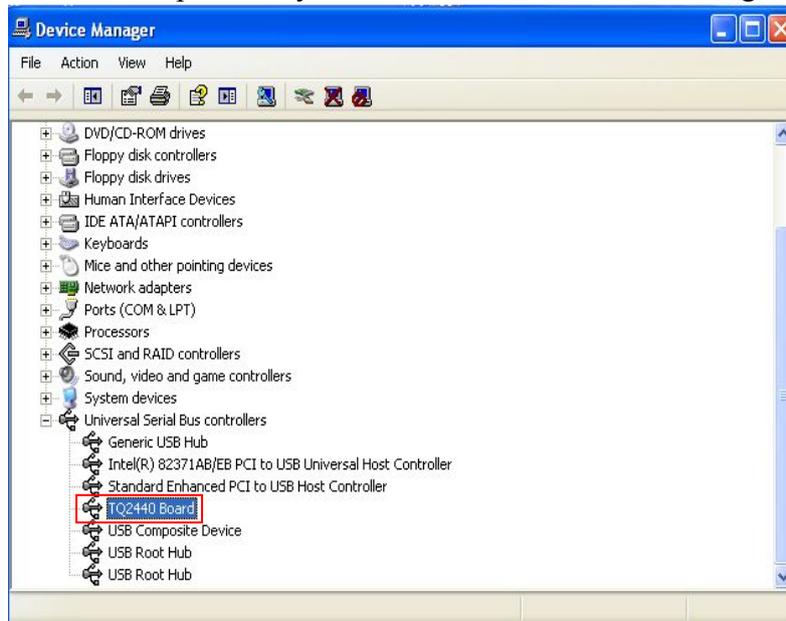




After the USB download-driver has been installed, open DNW software. The mark “[COM:x][USB:OK]” could be found on top of the window:



The USB driver installed previously could be found in “Device Manager”:



Now the user can use USB to download u-boot, operating system and file system.

Step2: burn image

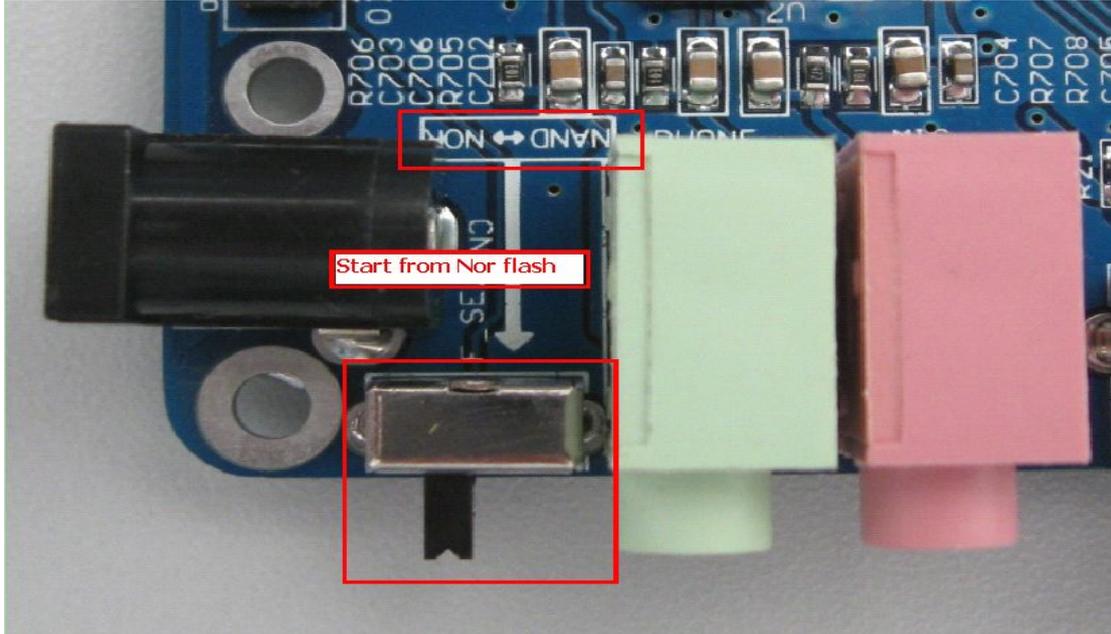
(1)Using the U-boot to update u-boot

If you erased the u-boot on nand flash, you can burn the u-boot to the nand flash by the u-boot on nor flash. Of course, you have to burn the u-boot by JTAG if you erased the Nor flash and Nand flash at all.

Suppose the u-boot on Nor flash was not erased, we introduce the process of burning the u-boot to nand flash by the u-boot on Nor flash.

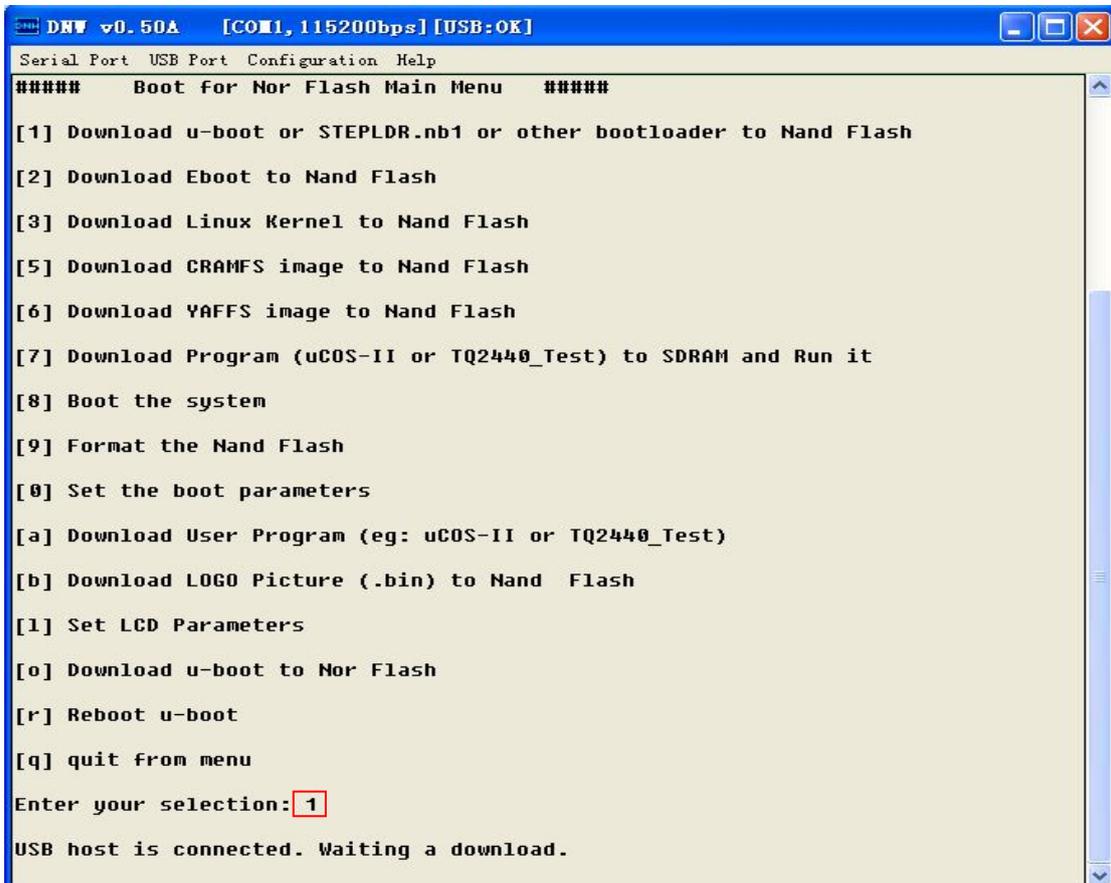


Step 1: Push the button to the Nor flash side, select booting from the Nor flash.

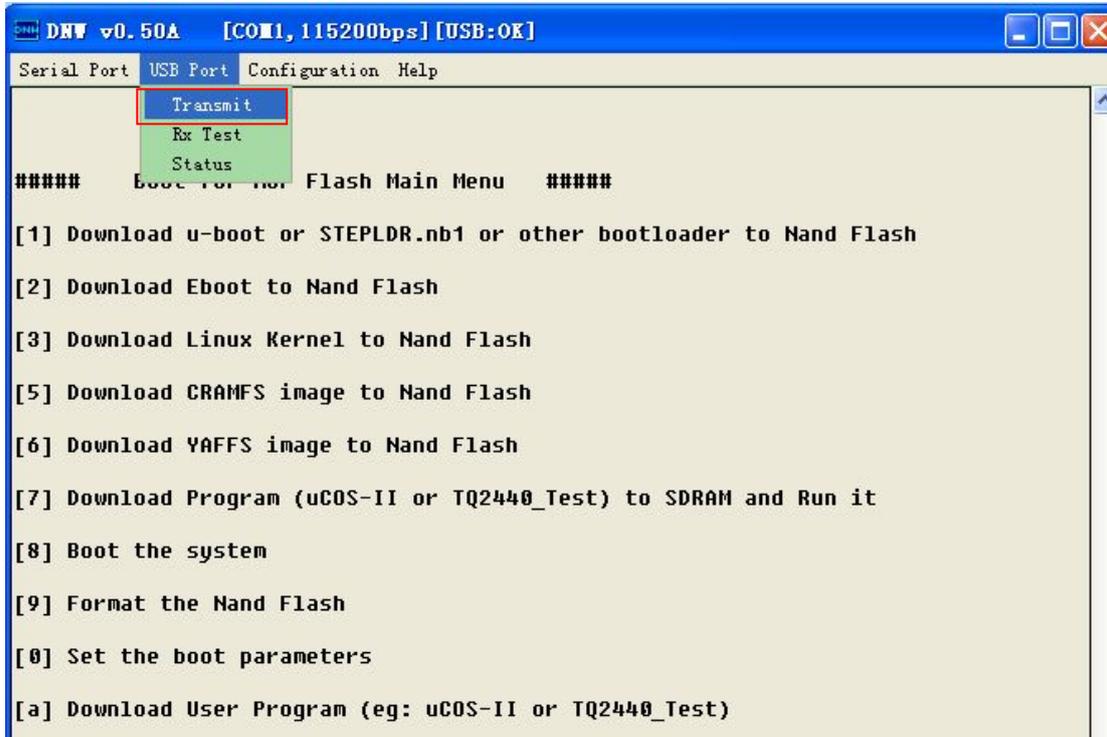


Step 2: Power up the board, you can enter into the u-boot menu.

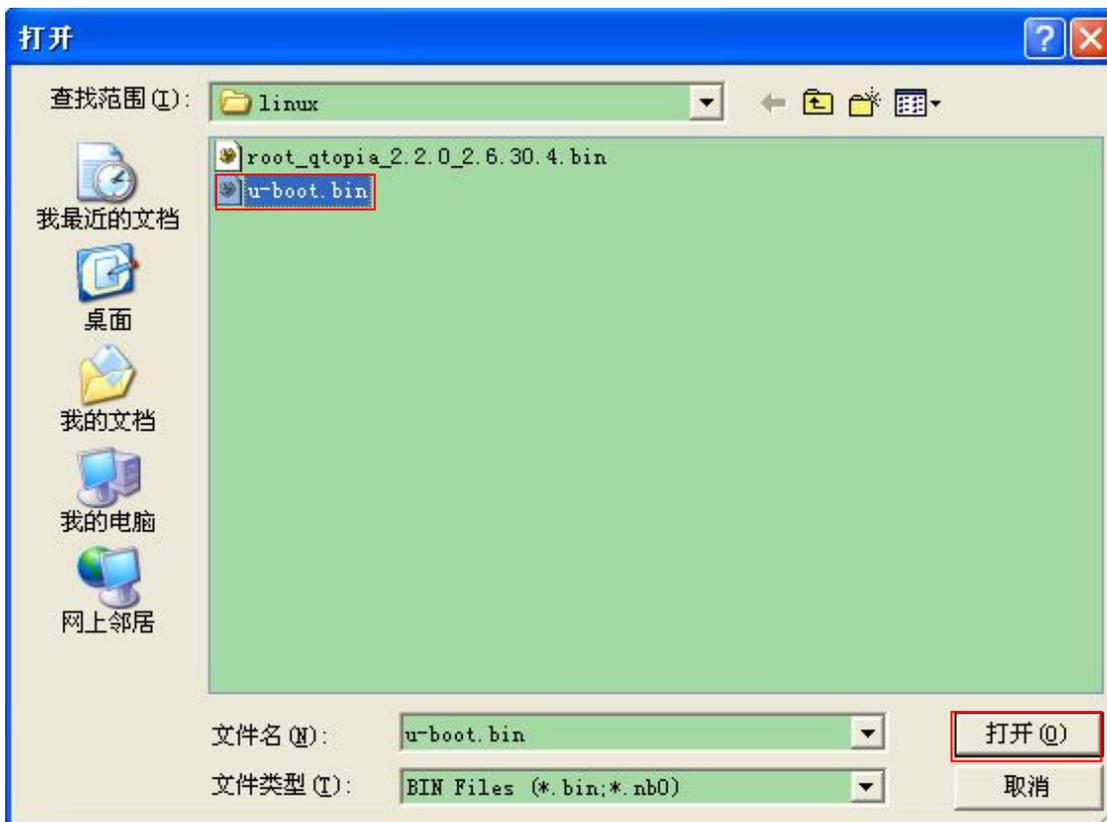
Step 3: Input “1” and press enter key.:



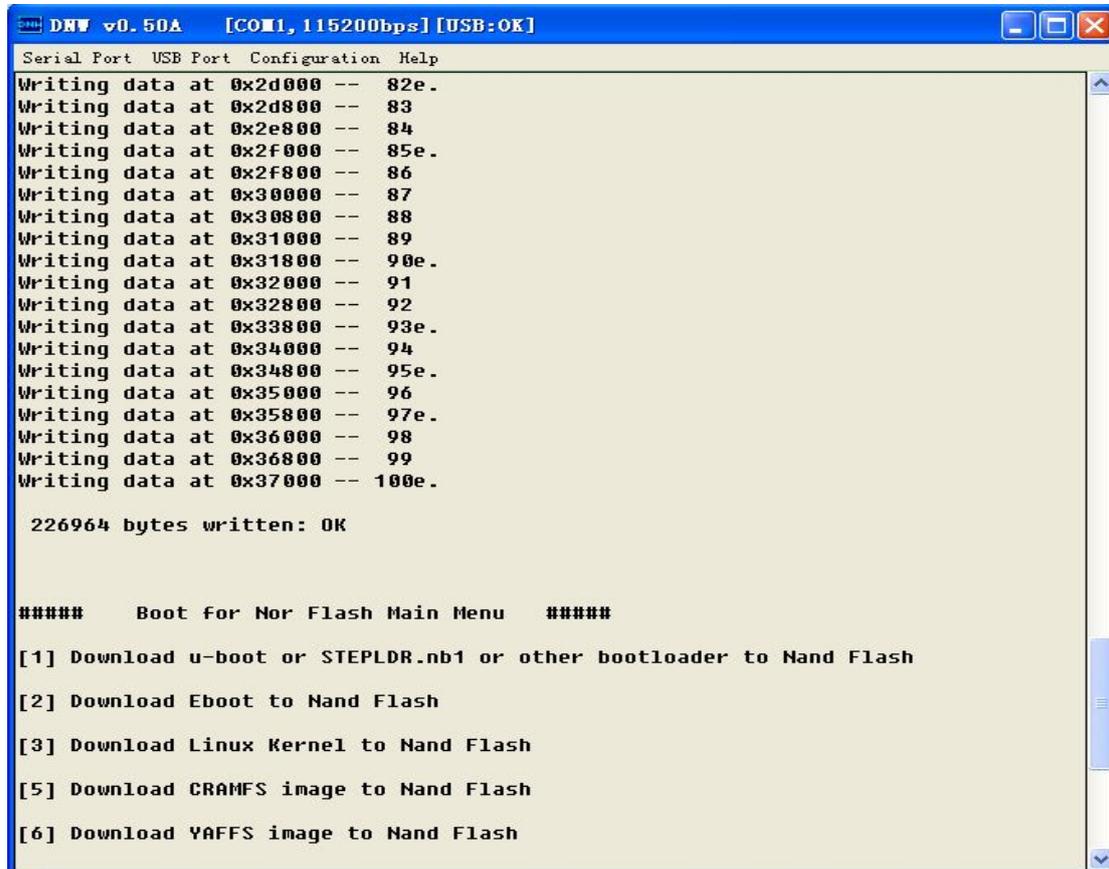
Step 4: Choose the “USB port->transmit”:



Step 5: Select the u-boot.bin image you want to burn.



Step 6: You can see the follow message after above steps, and then you have burnt the u-boot to the nand flash.



```

Serial Port  USB Port  Configuration  Help
Writing data at 0x2d000 -- 82e.
Writing data at 0x2d800 -- 83
Writing data at 0x2e800 -- 84
Writing data at 0x2f000 -- 85e.
Writing data at 0x2f800 -- 86
Writing data at 0x30000 -- 87
Writing data at 0x30800 -- 88
Writing data at 0x31000 -- 89
Writing data at 0x31800 -- 90e.
Writing data at 0x32000 -- 91
Writing data at 0x32800 -- 92
Writing data at 0x33800 -- 93e.
Writing data at 0x34000 -- 94
Writing data at 0x34800 -- 95e.
Writing data at 0x35000 -- 96
Writing data at 0x35800 -- 97e.
Writing data at 0x36000 -- 98
Writing data at 0x36800 -- 99
Writing data at 0x37000 -- 100e.

226964 bytes written: OK

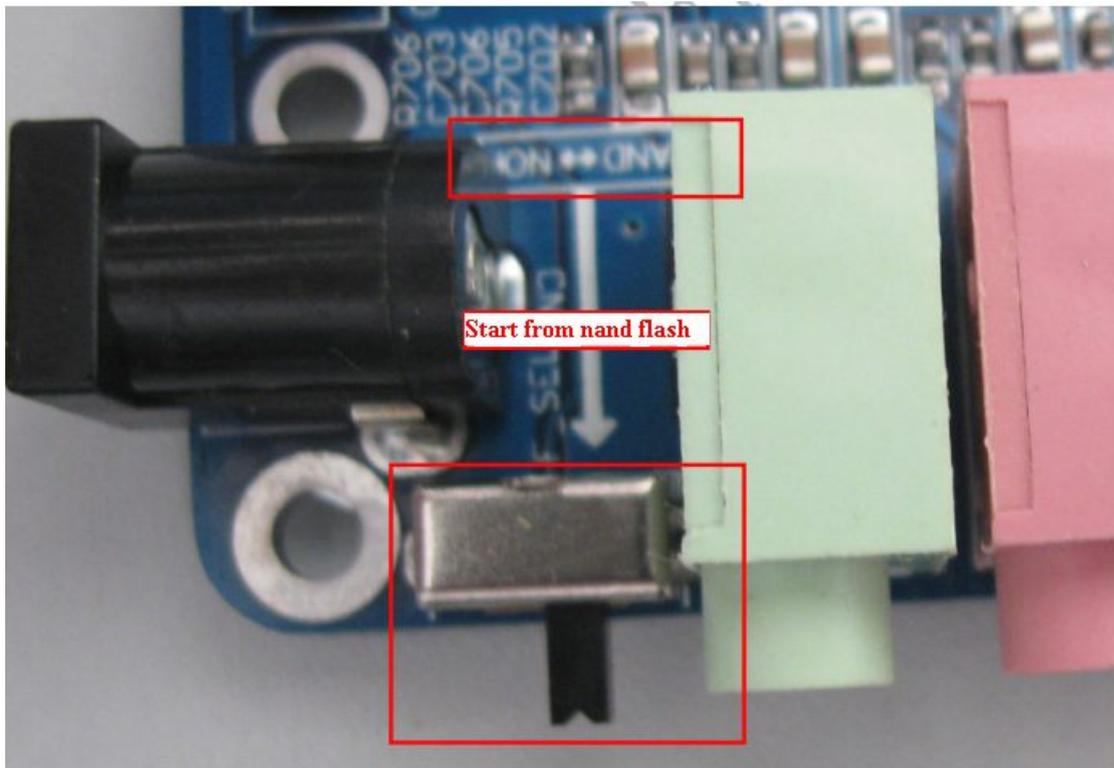
#####  Boot for Nor Flash Main Menu  #####

[1] Download u-boot or STEPLDR.nb1 or other bootloader to Nand Flash
[2] Download Eboot to Nand Flash
[3] Download Linux Kernel to Nand Flash
[5] Download CRAMFS image to Nand Flash
[6] Download YAFFS image to Nand Flash
  
```

(2)Burn the STEPLDR.nb1 and Eboot.nb0 image.

If you want to run Wince system, you have to boot from nand flash. Wince system includes three parts: STEPLDR.nb1, EBOOT.nb0 and NK.bin. We suppose the u-boot has existed on nand flash.

Step 1: Push the button to the nand flash side, select booting from nand flash:



Step 2: Power up the board, and press the space key to enter into the u-boot menu.



```
DNW v0.50A [COM1, 115200bps] [USB:OK]
Serial Port USB Port Configuration Help

Press Space key to Download Mode ?

##### Boot for Nand Flash Main Menu #####

[1] Download u-boot or STEPLDR.nb1 or other bootloader to Nand Flash
[2] Download Eboot to Nand Flash
[3] Download Linux Kernel to Nand Flash
[5] Download CRAMFS image to Nand Flash
[6] Download YAFFS image to Nand Flash
[7] Download Program (uCOS-II or TQ2440_Test) to SDRAM and Run it
[8] Boot the system
[9] Format the Nand Flash
[0] Set the boot parameters
[a] Download User Program (eg: uCOS-II or TQ2440_Test)
[b] Download LOGO Picture (.bin) to Nand Flash
[1] Set LCD Parameters
[r] Reboot u-boot
[q] quit from menu

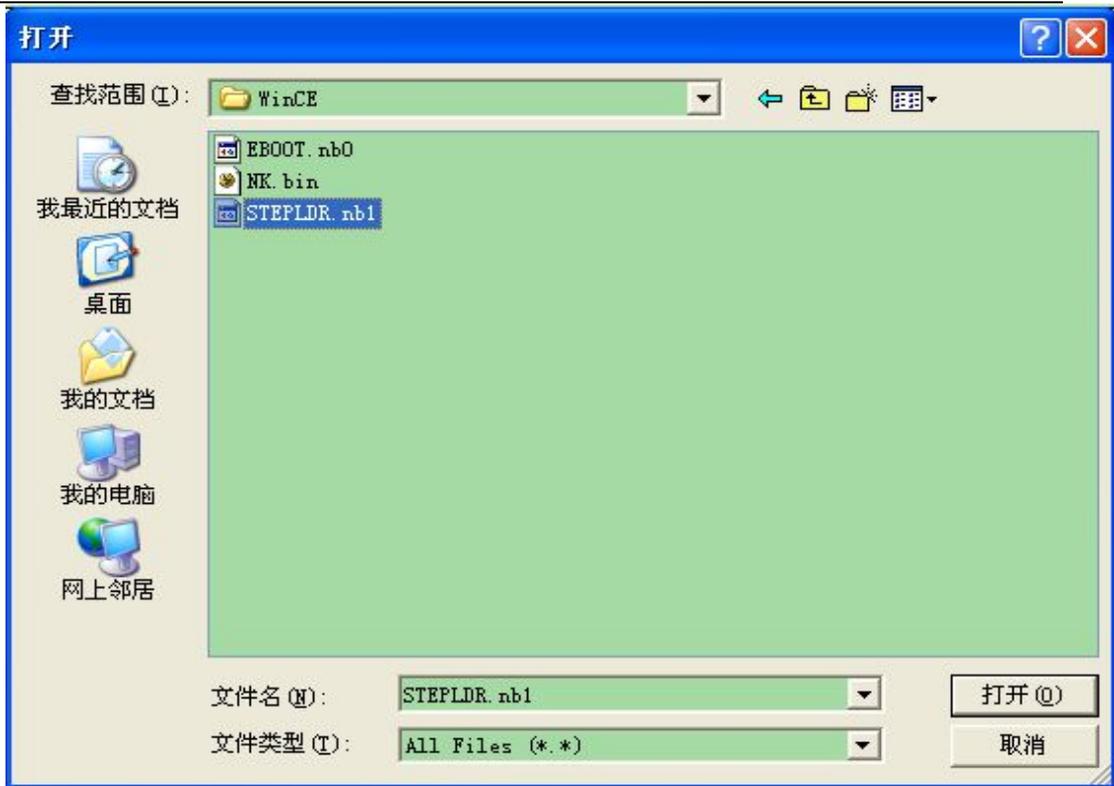
Enter your selection: |
```

Step 3: Choose “1” to burn the STEPLDR.nb1 image, and select the “USB port->transmit”.

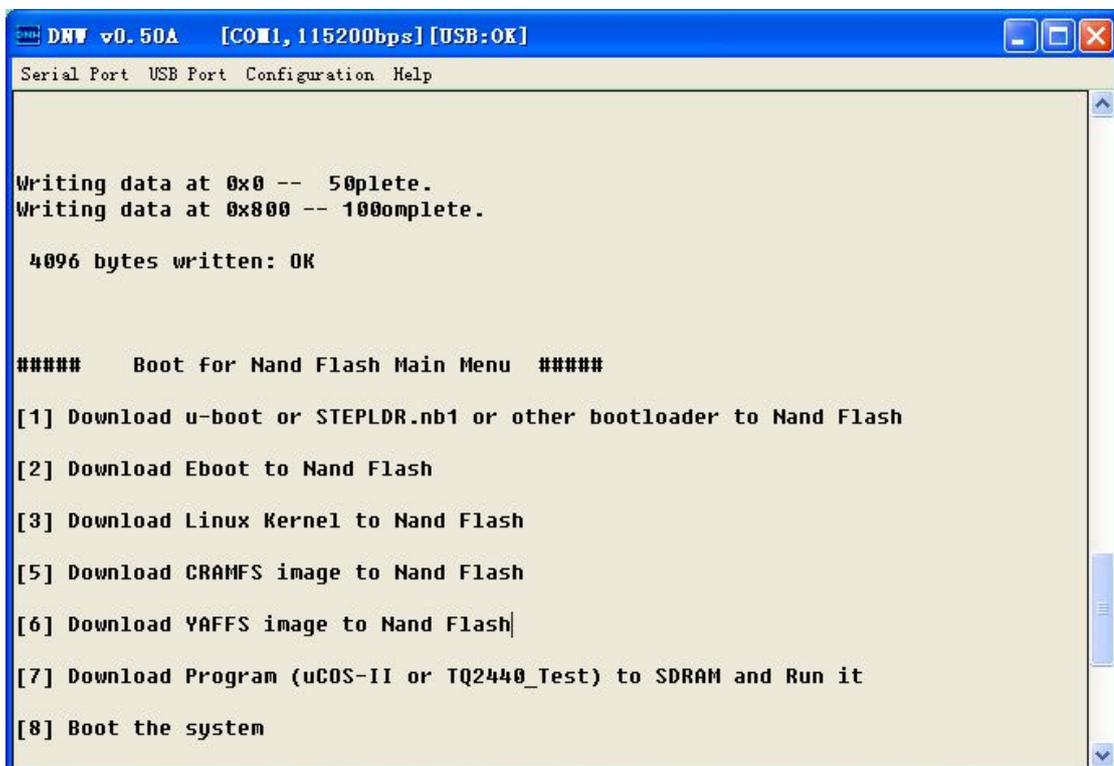


```
DNW v0.50A [COM1, 115200bps] [USB:OK]
Serial Port USB Port Configuration Help
#####
[1] Download STEPLDR.nb1 or other bootloader to Nand Flash
[2] Download Eboot to Nand Flash
[3] Download Linux Kernel to Nand Flash
[5] Download CRAMFS image to Nand Flash
[6] Download YAFFS image to Nand Flash
[7] Download Program (uCOS-II or TQ2440_Test) to SDRAM and Run it
[8] Boot the system
[9] Format the Nand Flash
[0] Set the boot parameters
[a] Download User Program (eg: uCOS-II or TQ2440_Test)
[b] Download LOGO Picture (.bin) to Nand Flash
[1] Set LCD Parameters
[r] Reboot u-boot
[q] quit from menu
Enter your selection: 1
USB host is connected. Waiting a download.
```

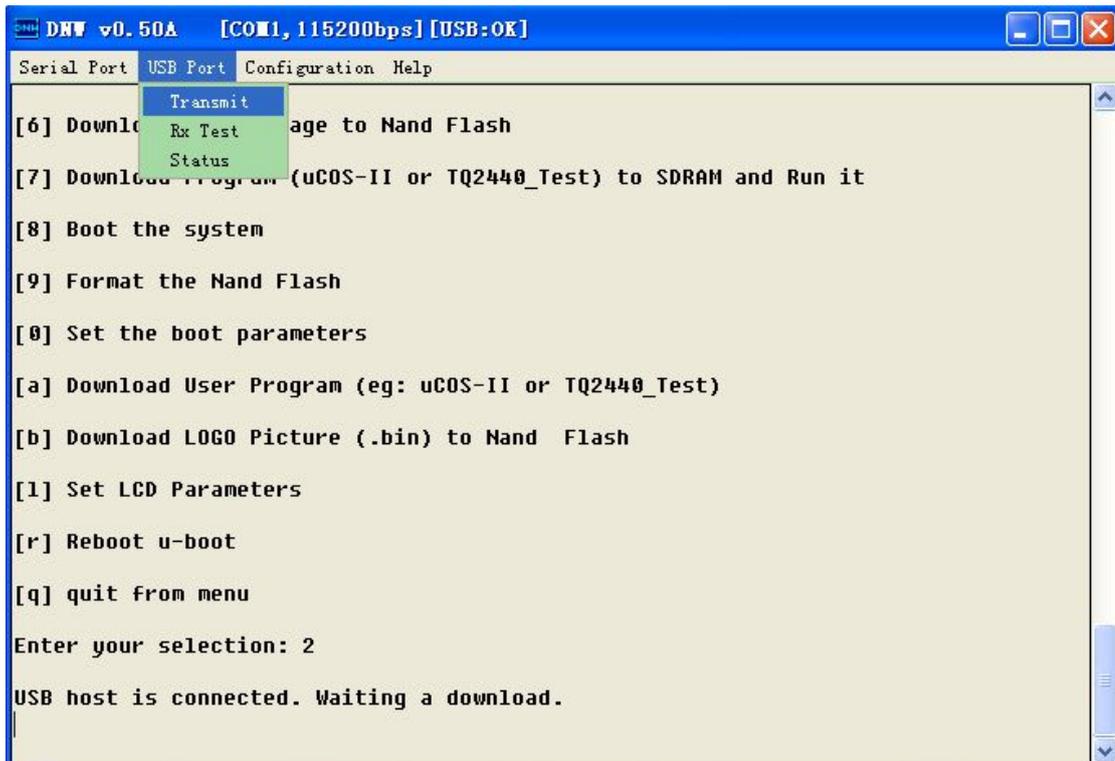
Step 4: select the kernel image “STEPLDR.nb1”image under the /image/wince/ directory, and begin to burn.



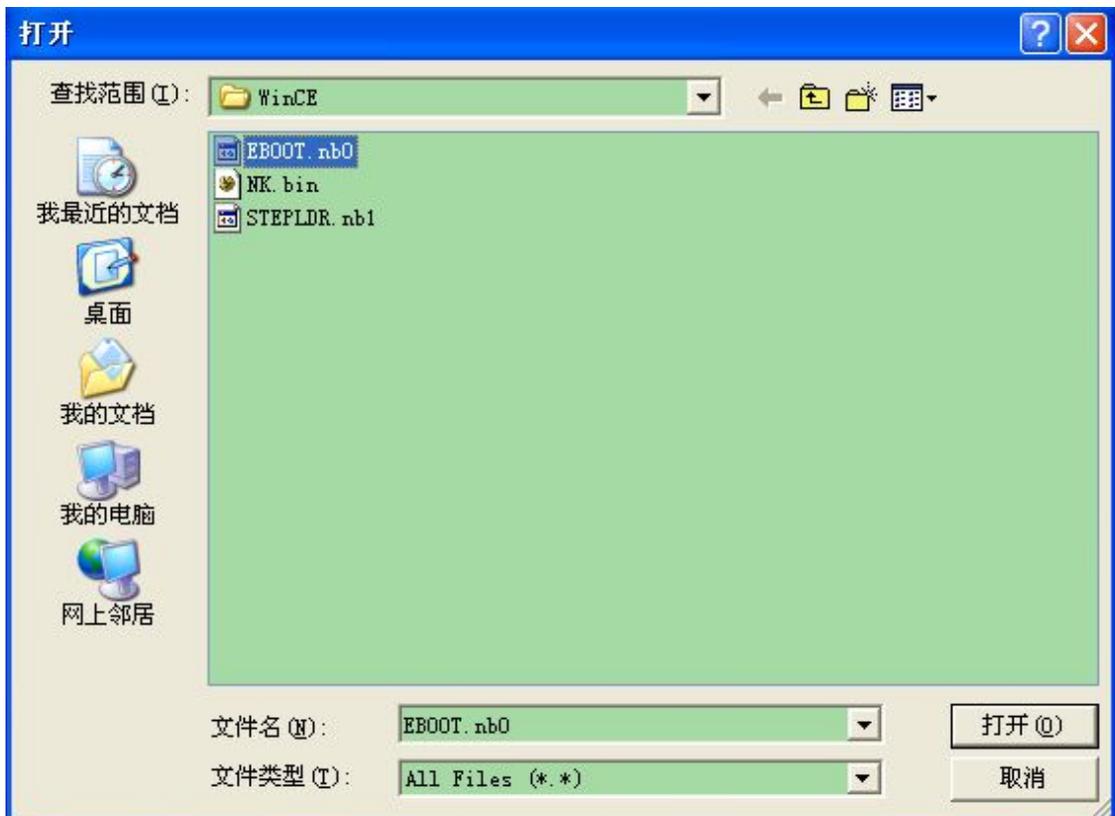
Step 5: After above steps, you should see the following message, and then, you have burnt the STEPLDR.nb1 image into the nand flash.



Step 6: Choose “2” to burn the Eboot.nb0 image, and select the “USB port->transmit”.



Step 7: select the “Eboot.nb0” image under the /image/wince/ directory, and begin to burn.



Step 8: After above steps, you should see the following message, and then, you have burnt the EBOOT.nb0 image into the nand flash.



```
DMV v0.50A [COM1,115200bps] [USB:OK]
Serial Port USB Port Configuration Help

Writing data at 0x0 -- 50plete.
Writing data at 0x800 -- 100omplete.

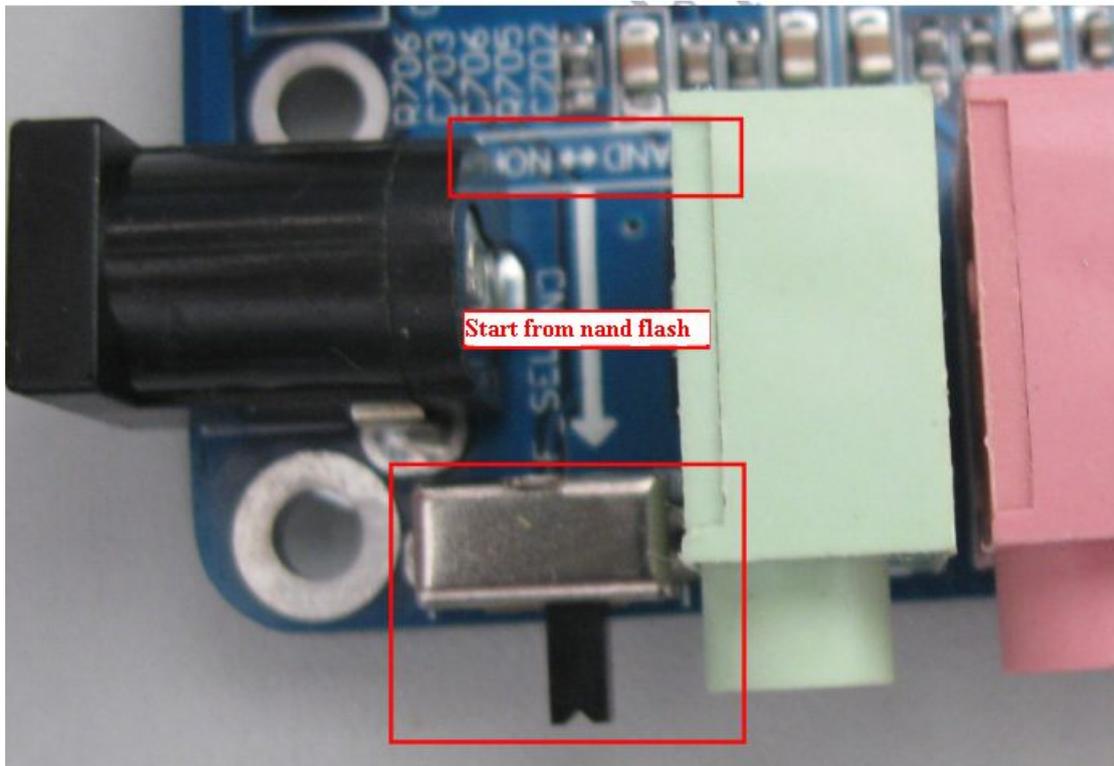
4096 bytes written: OK

##### Boot for Nand Flash Main Menu #####

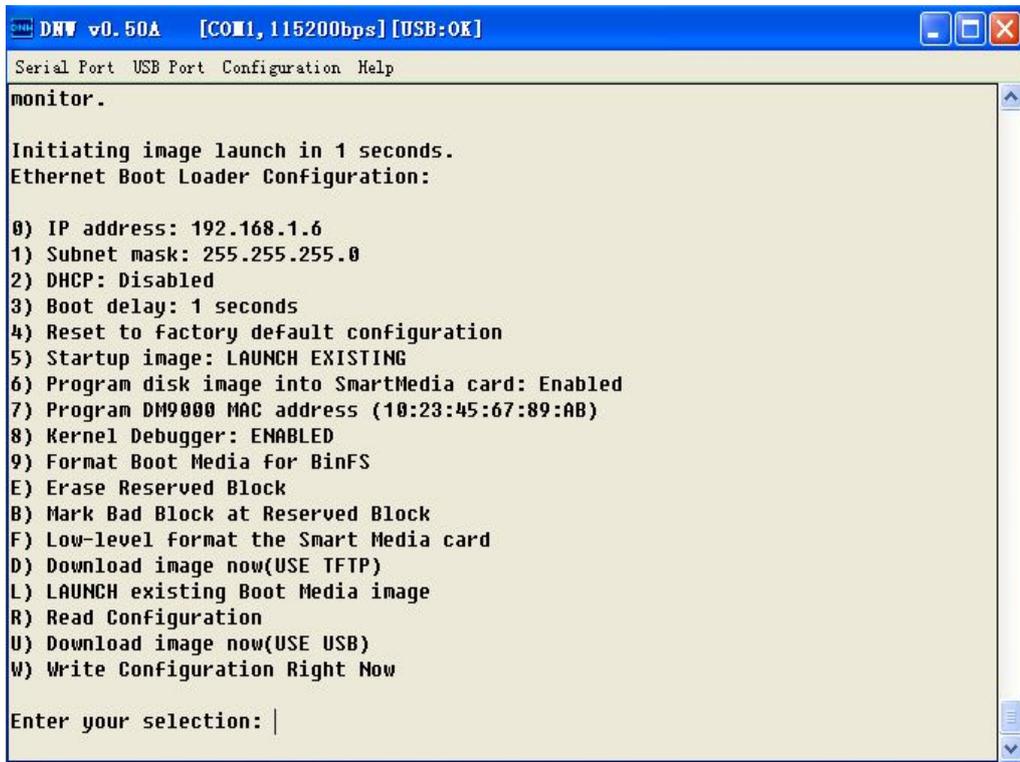
[1] Download u-boot or STEPLDR.nb1 or other bootloader to Nand Flash
[2] Download Eboot to Nand Flash
[3] Download Linux Kernel to Nand Flash
[5] Download CRAMFS image to Nand Flash
[6] Download YAFFS image to Nand Flash|
[7] Download Program (uCOS-II or TQ2440_Test) to SDRAM and Run it
[8] Boot the system
```

(3)Burn the NK.bin image

Step 1: Push the button to the nand flash side, select booting from nand flash:



Step 2: Reset the board, and press the space key to enter into the eboot menu.



```

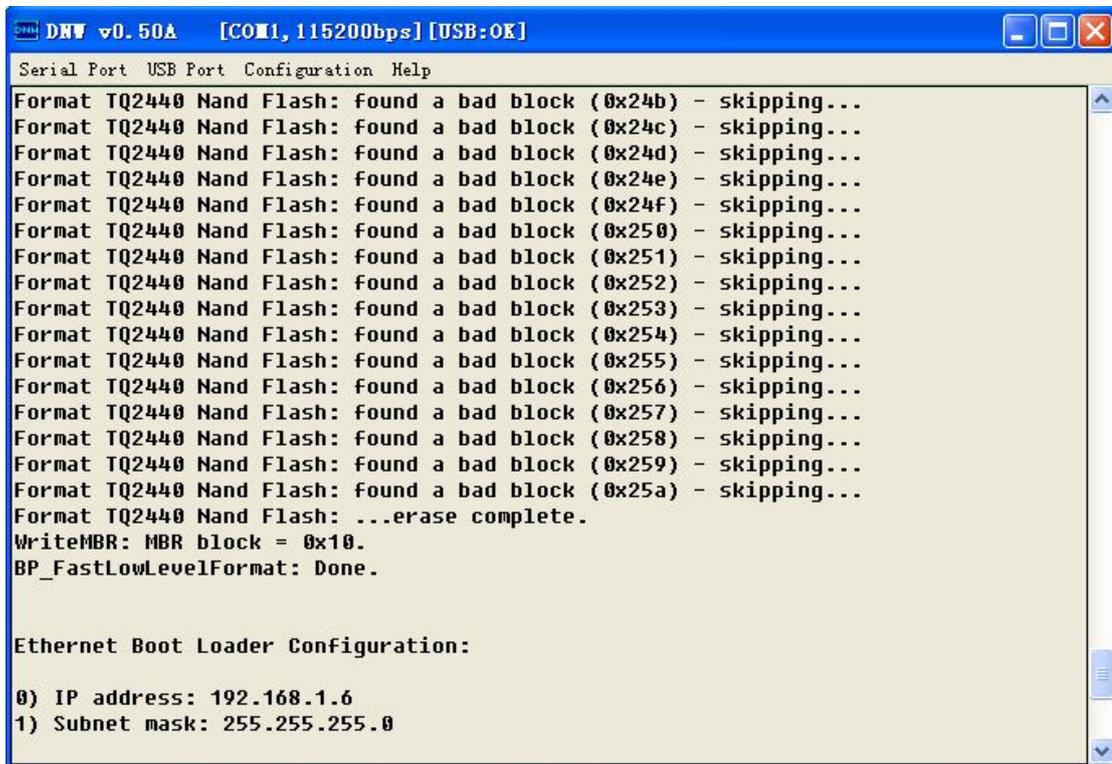
DHW v0.50A [COM1,115200bps] [USB:OK]
Serial Port USB Port Configuration Help
monitor.

Initiating image launch in 1 seconds.
Ethernet Boot Loader Configuration:

0) IP address: 192.168.1.6
1) Subnet mask: 255.255.255.0
2) DHCP: Disabled
3) Boot delay: 1 seconds
4) Reset to factory default configuration
5) Startup image: LAUNCH EXISTING
6) Program disk image into SmartMedia card: Enabled
7) Program DM9000 MAC address (10:23:45:67:89:AB)
8) Kernel Debugger: ENABLED
9) Format Boot Media for BinFS
E) Erase Reserved Block
B) Mark Bad Block at Reserved Block
F) Low-level format the Smart Media card
D) Download image now(USE TFTP)
L) LAUNCH existing Boot Media image
R) Read Configuration
U) Download image now(USE USB)
W) Write Configuration Right Now

Enter your selection: |
  
```

Step 3: Choose the “9” to format the Boot Media for BinFS.



```

DHW v0.50A [COM1,115200bps] [USB:OK]
Serial Port USB Port Configuration Help
Format TQ2440 Nand Flash: found a bad block (0x24b) - skipping...
Format TQ2440 Nand Flash: found a bad block (0x24c) - skipping...
Format TQ2440 Nand Flash: found a bad block (0x24d) - skipping...
Format TQ2440 Nand Flash: found a bad block (0x24e) - skipping...
Format TQ2440 Nand Flash: found a bad block (0x24f) - skipping...
Format TQ2440 Nand Flash: found a bad block (0x250) - skipping...
Format TQ2440 Nand Flash: found a bad block (0x251) - skipping...
Format TQ2440 Nand Flash: found a bad block (0x252) - skipping...
Format TQ2440 Nand Flash: found a bad block (0x253) - skipping...
Format TQ2440 Nand Flash: found a bad block (0x254) - skipping...
Format TQ2440 Nand Flash: found a bad block (0x255) - skipping...
Format TQ2440 Nand Flash: found a bad block (0x256) - skipping...
Format TQ2440 Nand Flash: found a bad block (0x257) - skipping...
Format TQ2440 Nand Flash: found a bad block (0x258) - skipping...
Format TQ2440 Nand Flash: found a bad block (0x259) - skipping...
Format TQ2440 Nand Flash: found a bad block (0x25a) - skipping...
Format TQ2440 Nand Flash: ...erase complete.
WriteMBR: MBR block = 0x10.
BP_FastLowLevelFormat: Done.

Ethernet Boot Loader Configuration:

0) IP address: 192.168.1.6
1) Subnet mask: 255.255.255.0
  
```

Step 4: Choose the “F” to low-level format the Smart Media card.



```
DNW v0.50A [COM1,115200bps] [USB:OK]
Serial Port USB Port Configuration Help
0) IP address: 192.168.1.6
1) Subnet mask: 255.255.255.0
2) DHCP: Disabled
3) Boot delay: 1 seconds
4) Reset to factory default configuration
5) Startup image: LAUNCH EXISTING
6) Program disk image into SmartMedia card: Enabled
7) Program DM9000 MAC address (10:23:45:67:89:AB)
8) Kernel Debugger: ENABLED
9) Format Boot Media for BinFS
E) Erase Reserved Block
B) Mark Bad Block at Reserved Block
F) Low-level format the Smart Media card
D) Download image now(USE TFTP)
L) LAUNCH existing Boot Media image
R) Read Configuration
U) Download image now(USE USB)
W) Write Configuration Right Now

Enter your selection: f
Reserving Blocks [0x0 - 0xf] ...
...reserve complete.
Low-level format Blocks [0x10 - 0x7ff] ...
LB##### Error Erasing block 189!
```

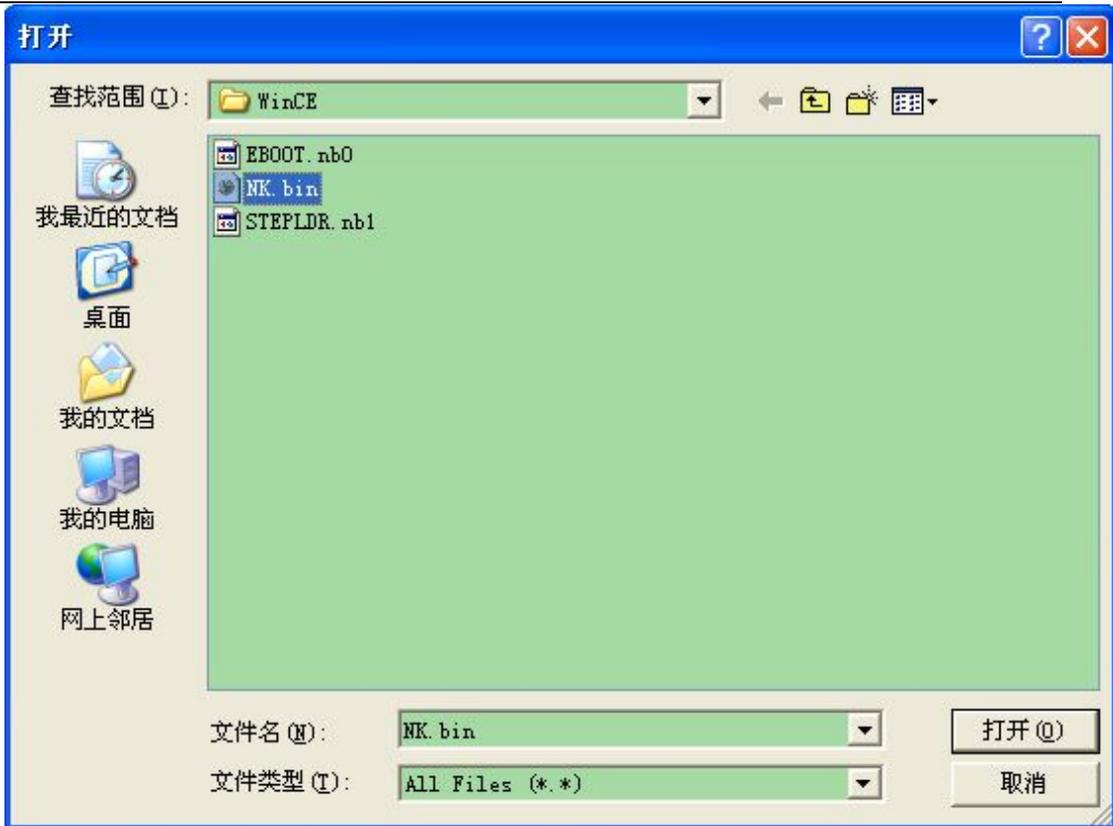
Step 5: Choose the “U” to download the NK.bin image, and select the “USB port->transmit”

```
DNW v0.50A [COM1,115200bps] [USB:OK]
Serial Port USB Port Configuration Help
1) Subnet Transmit 55.255.0
2) DHCP: Rx Test
3) Boot delay Status nds
4) Reset to factory default configuration
5) Startup image: LAUNCH EXISTING
6) Program disk image into SmartMedia card: Enabled
7) Program DM9000 MAC address (10:23:45:67:89:AB)
8) Kernel Debugger: ENABLED
9) Format Boot Media for BinFS
E) Erase Reserved Block
B) Mark Bad Block at Reserved Block
F) Low-level format the Smart Media card
D) Download image now(USE TFTP)
L) LAUNCH existing Boot Media image
R) Read Configuration
U) Download image now(USE USB)
W) Write Configuration Right Now

Enter your selection: u
System ready!
Preparing for download...
Please send the Image through USB.

USB host is connected. Waiting a download.
```

Step 6: select the kernel image “NK.bin” image under the /image/wince/ directory, and begin to burn.



Step 7: After several minute, the Wince system boot automatically, and you have to reset your board at the first time.

