

## Q: How to Burn the Image(EM2440\_Linux)

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.

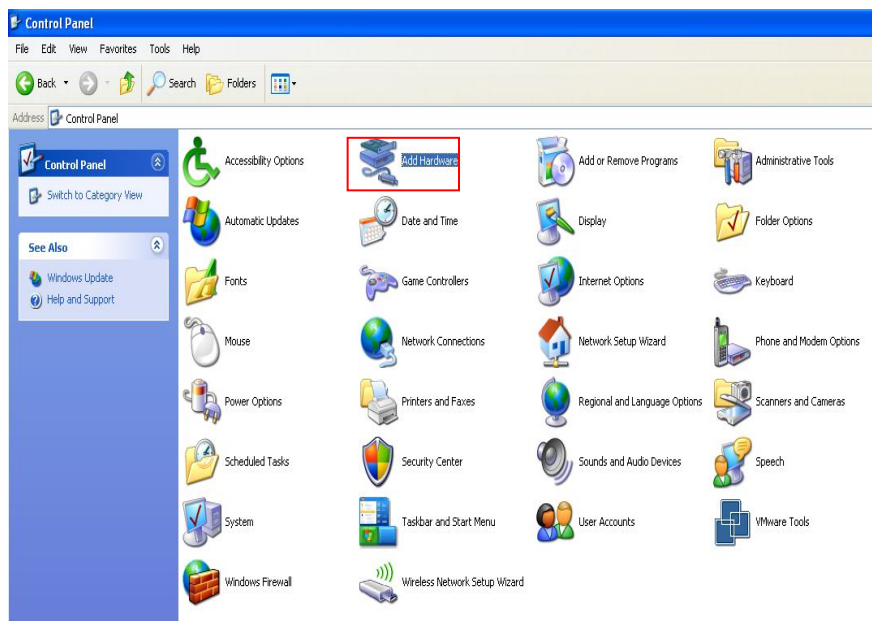
## 1. Burn uboot.bin when there isn't uboot.bin in the nor flash and nand flash.

### (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:






Add Hardware Wizard



**Welcome to the Add Hardware Wizard**

This wizard helps you:

- Install software to support the hardware you add to your computer.
- Troubleshoot problems you may be having with your hardware.

 **If your hardware came with an installation CD, it is recommended that you click Cancel to close this wizard and use the manufacturer's CD to install this hardware.**

To continue, click Next.


< Back

**Next >**

Cancel

Add Hardware Wizard

**Is the hardware connected?**



Have you already connected this hardware to your computer?

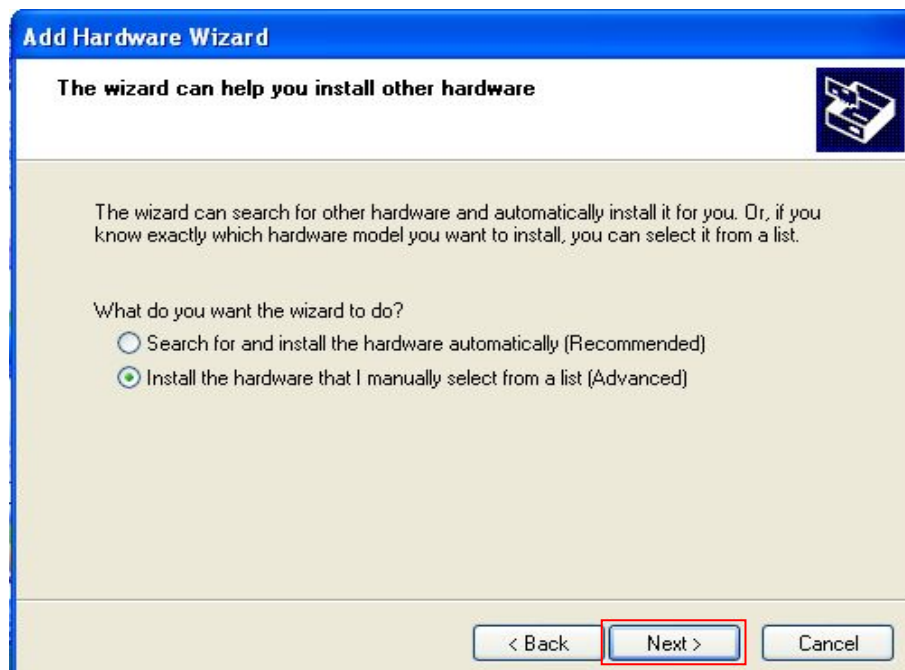
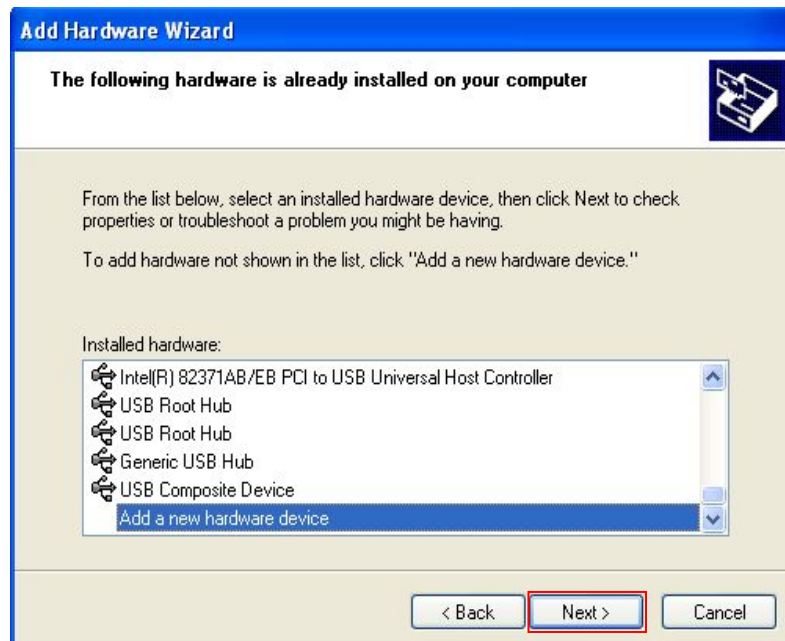
☒ Yes, I have already connected the hardware

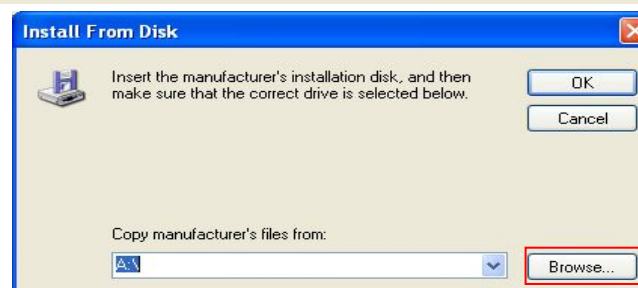
☐ No, I have not added the hardware yet

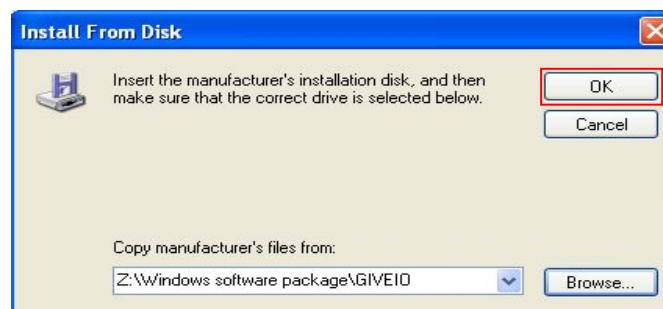
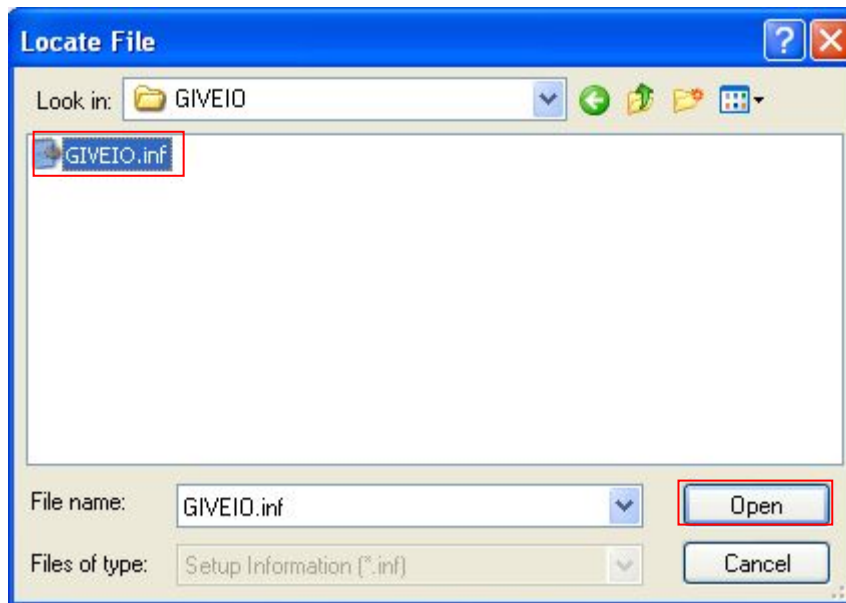
< Back

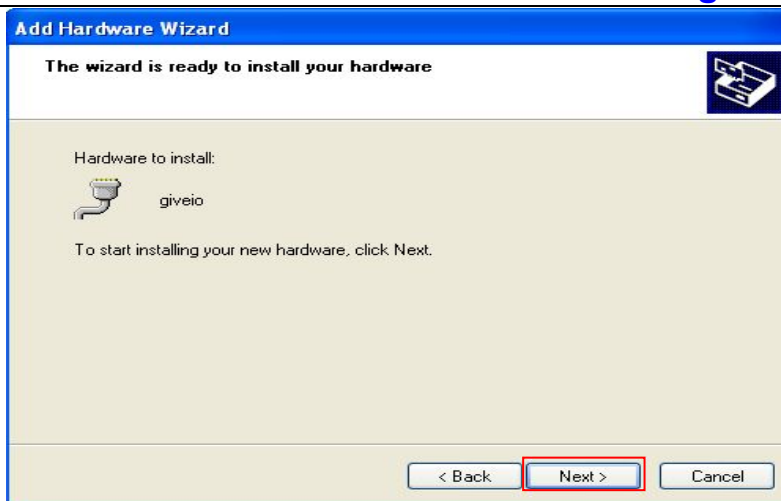
**Next >**

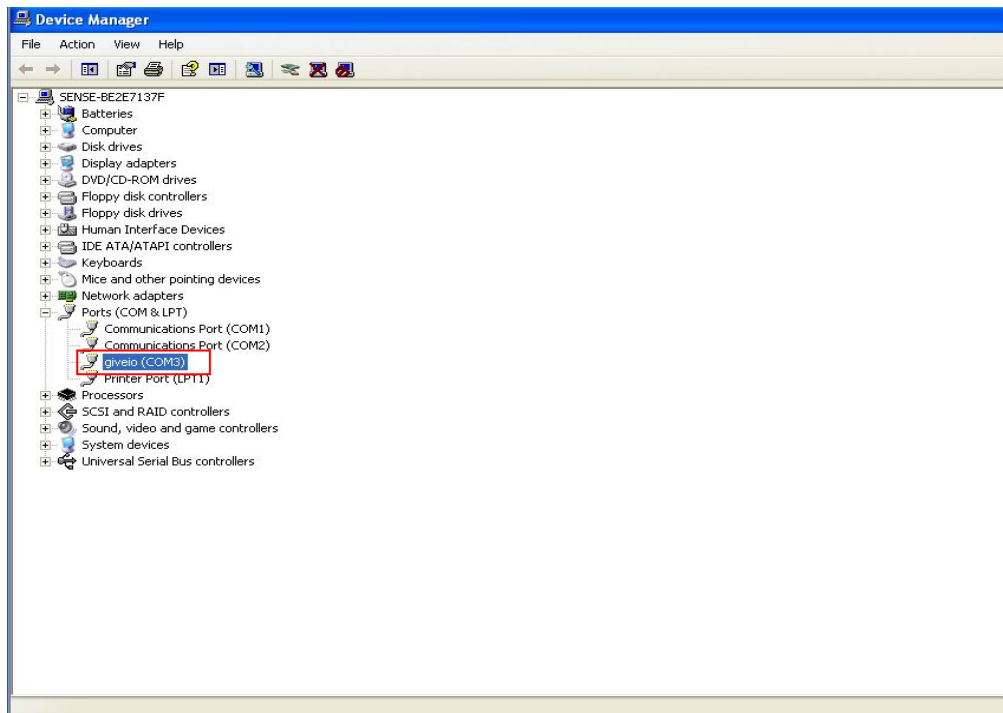
Cancel











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



```
C:\WINDOWS\system32\cmd.exe
F:\EM2440 \Windows software package\SJF2440\SJF2440>SJF2440.exe /f:u-boot
.bin

+-----+
| SEC JTAG FLASH(SJF) v 1.0 |
| <SKY2440/TQ2440 B/D> |
+-----+

Usage: SJF /f:<filename> /d=<delay>
ERROR: No CPU is detected(ID=0xffffffff).

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

Step2: Burn Image to Nand Flash, continuously select “0”, “0”, “0”,and wait for several minutes, the Image will be burned successfully into Nand Flash, as follow:

[illegible]





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: SJF /f:<filename> /d=<delay>
> S3C2440X(ID=0x0032409d) is detected.

[SF 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>
```

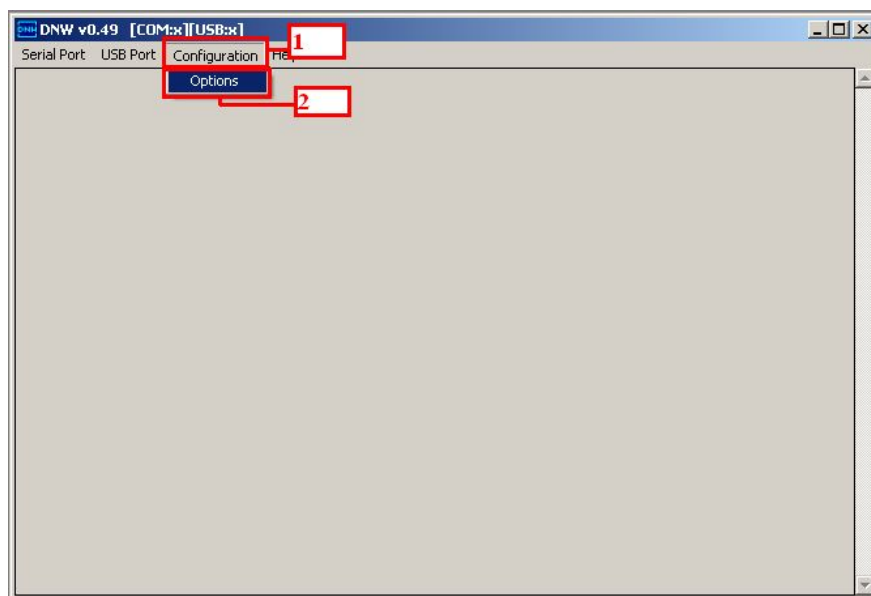
## 2. Burn image when there is uboot.bin in the nor flash and nand flash.

### Step1: Install USB driver

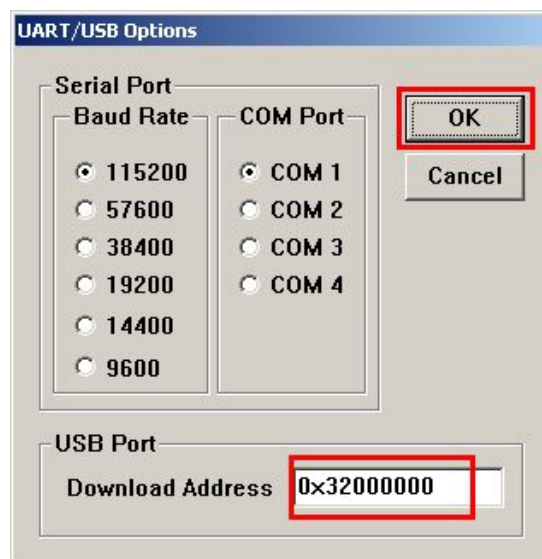
The driver is located under the directory “Windows software package\USB driver”:

(1) Configurte DNW.

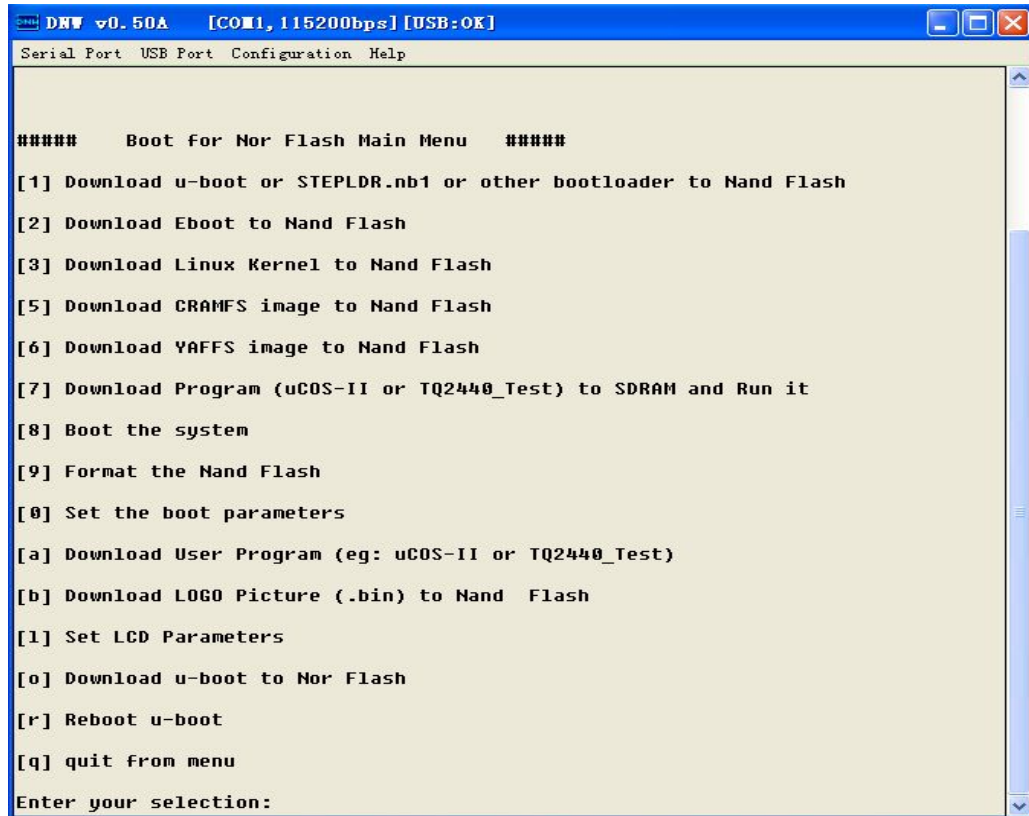
Open DNW,click “Configuration -> Options”, the configuration table “UART/USB Options” appears.



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:



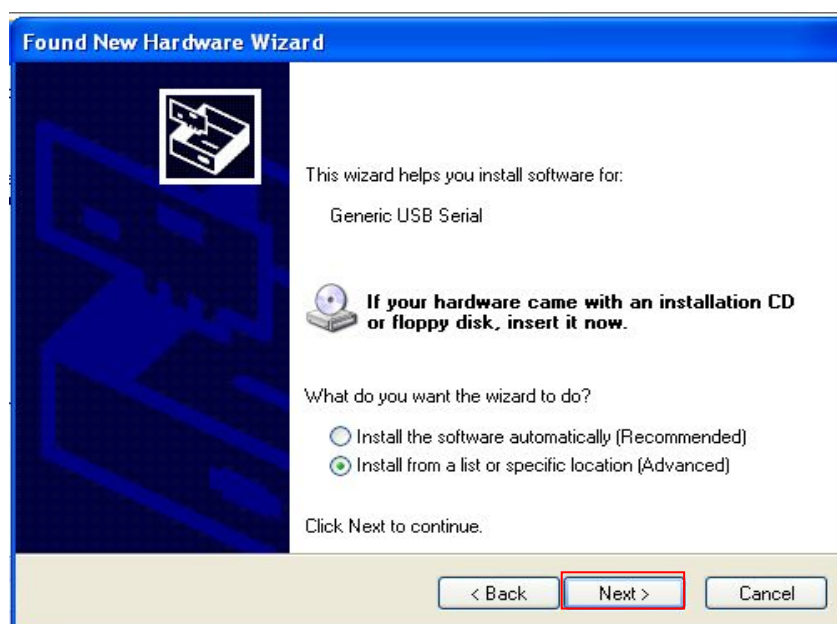
Link the serial port line and power line; press the space-key of PC and hold, and Switch on the power. The DNW will display the u-boot console (instruction: USB download-driver needs to be installed in u-boot console. If your board has no u-boot, please burn the u-boot by Jtag firstly).

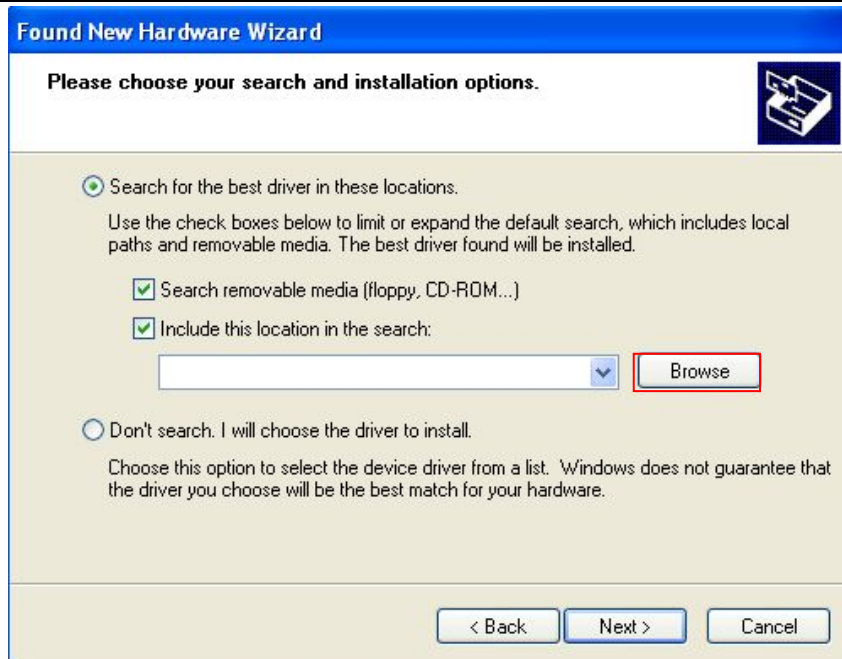


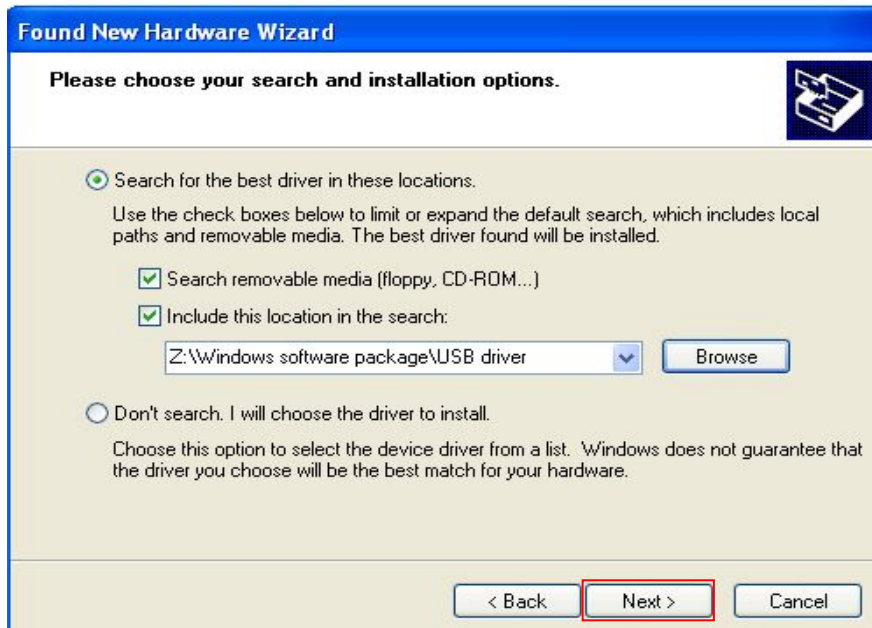
## (2) Install usb driver

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

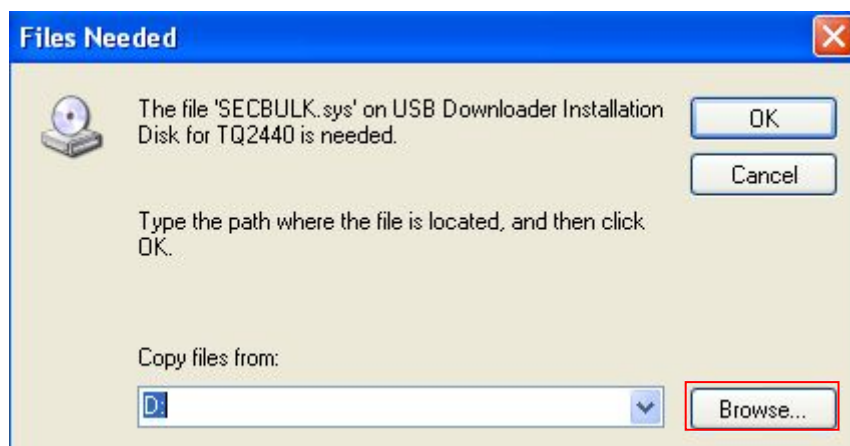
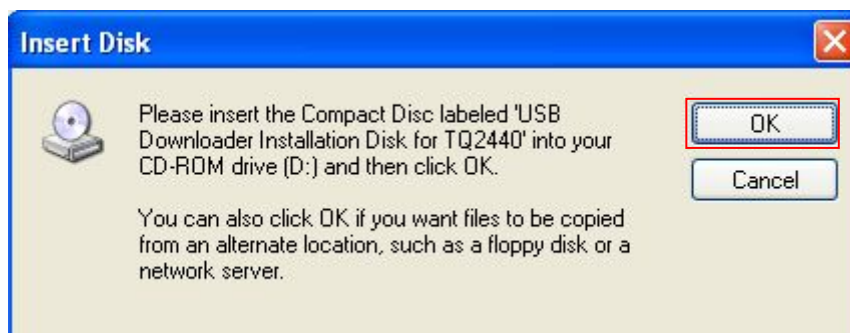
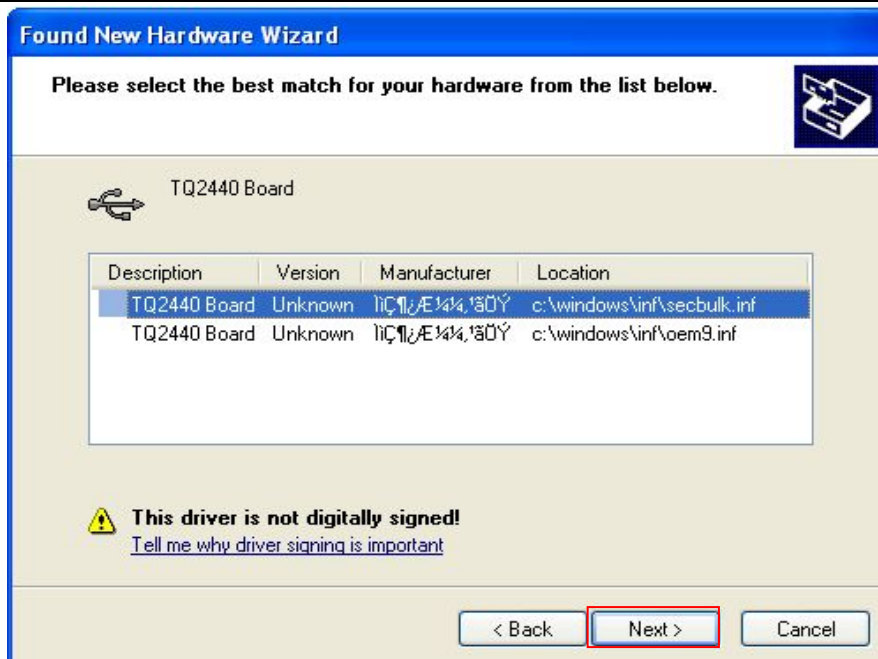




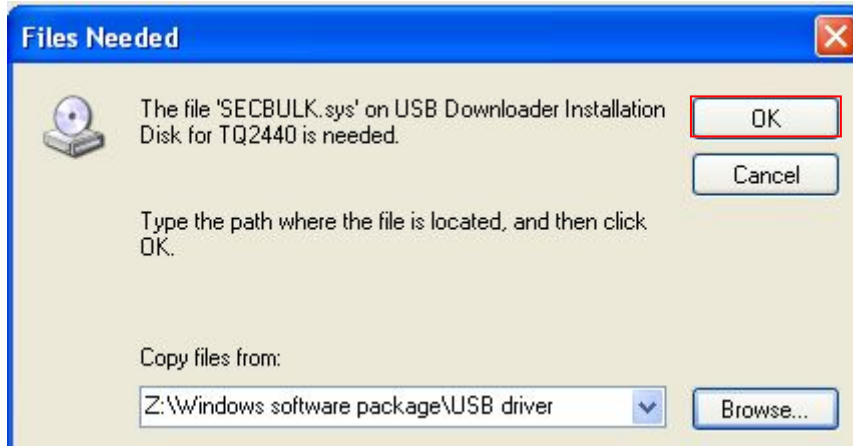
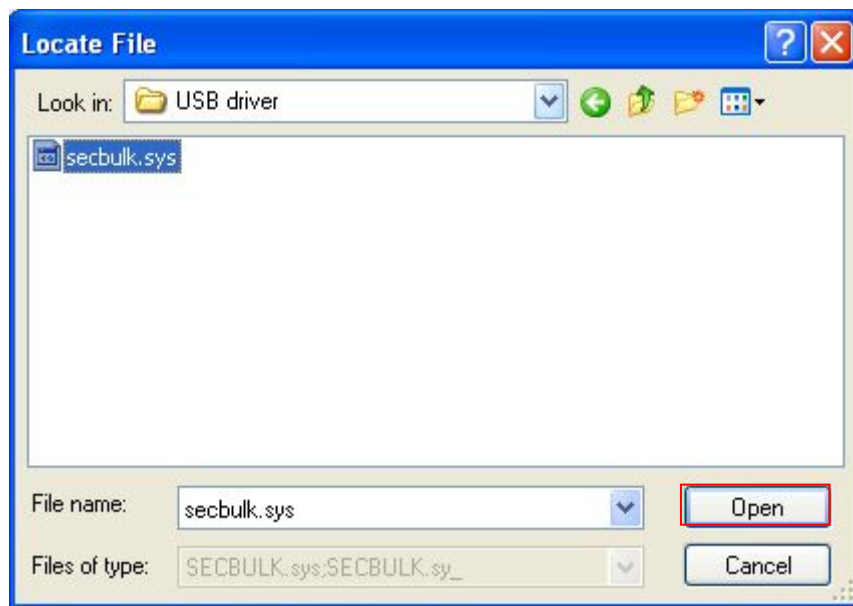




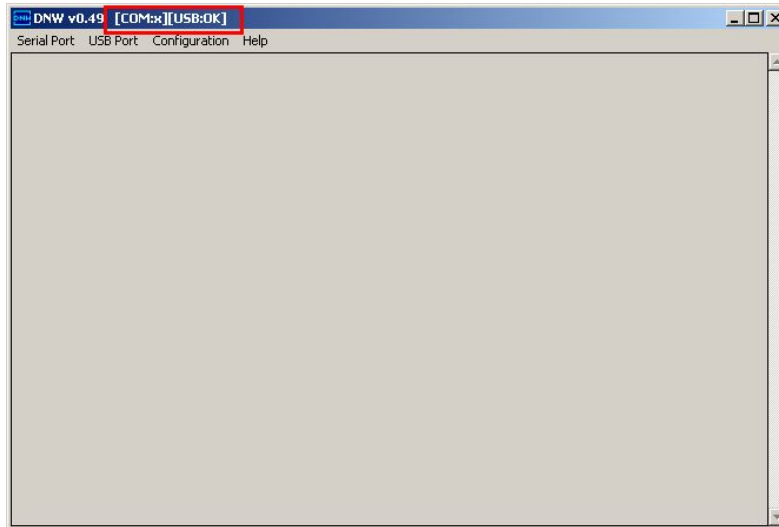




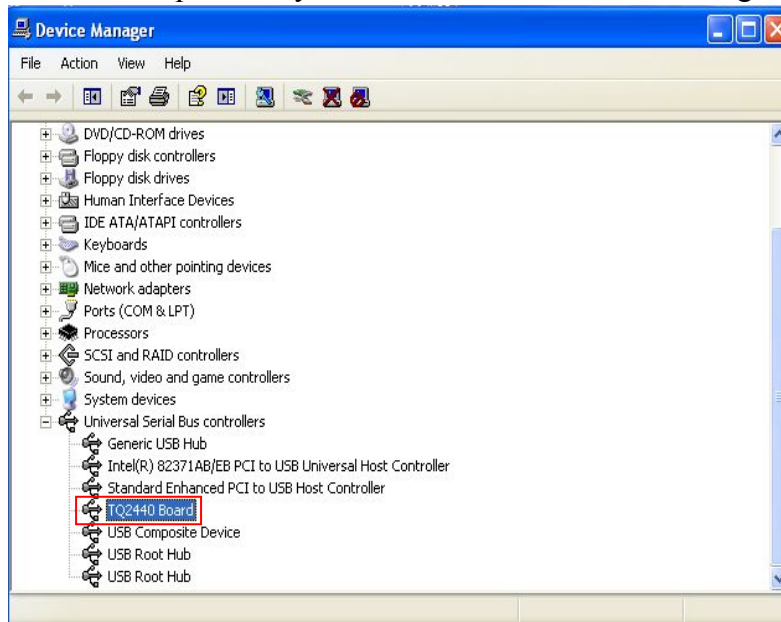




After the USB download-driver has been installed, open DNW software. The mark “[COM:x][USB:OK]” could be found on top of the window:



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.

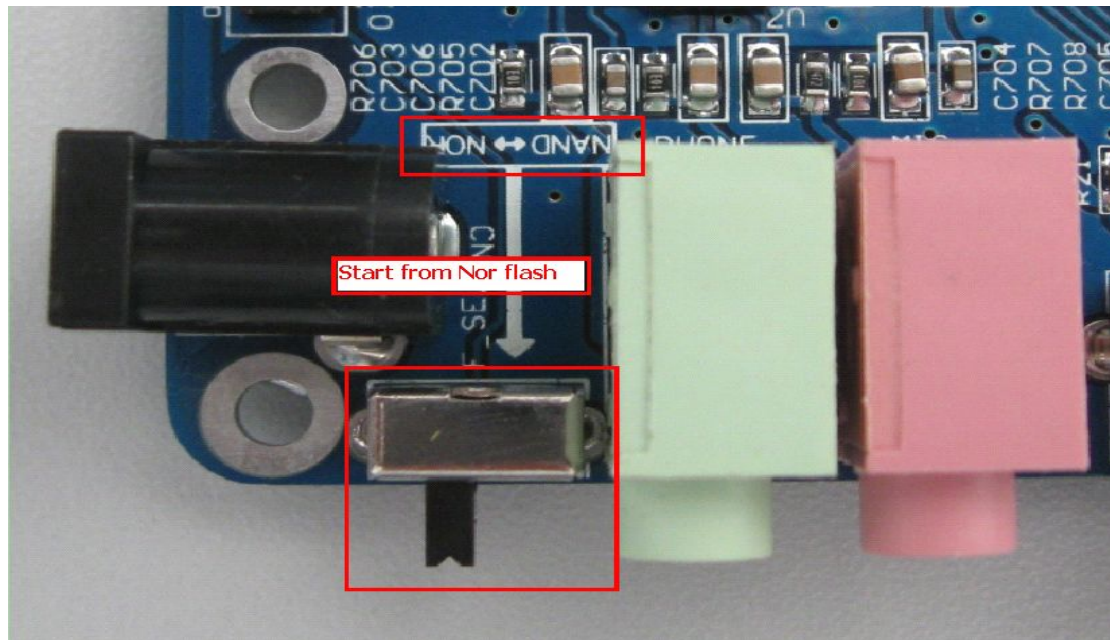
## Step2: burn image

### (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.

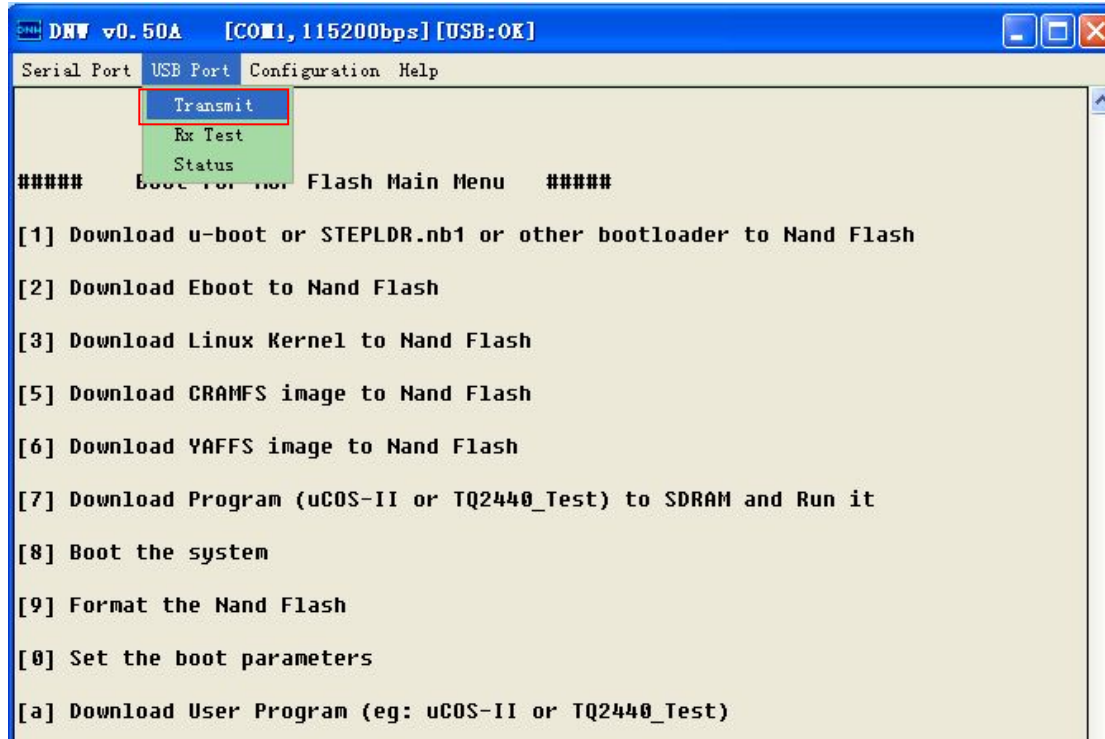
Step 3: Input “1” and press enter key.:

```

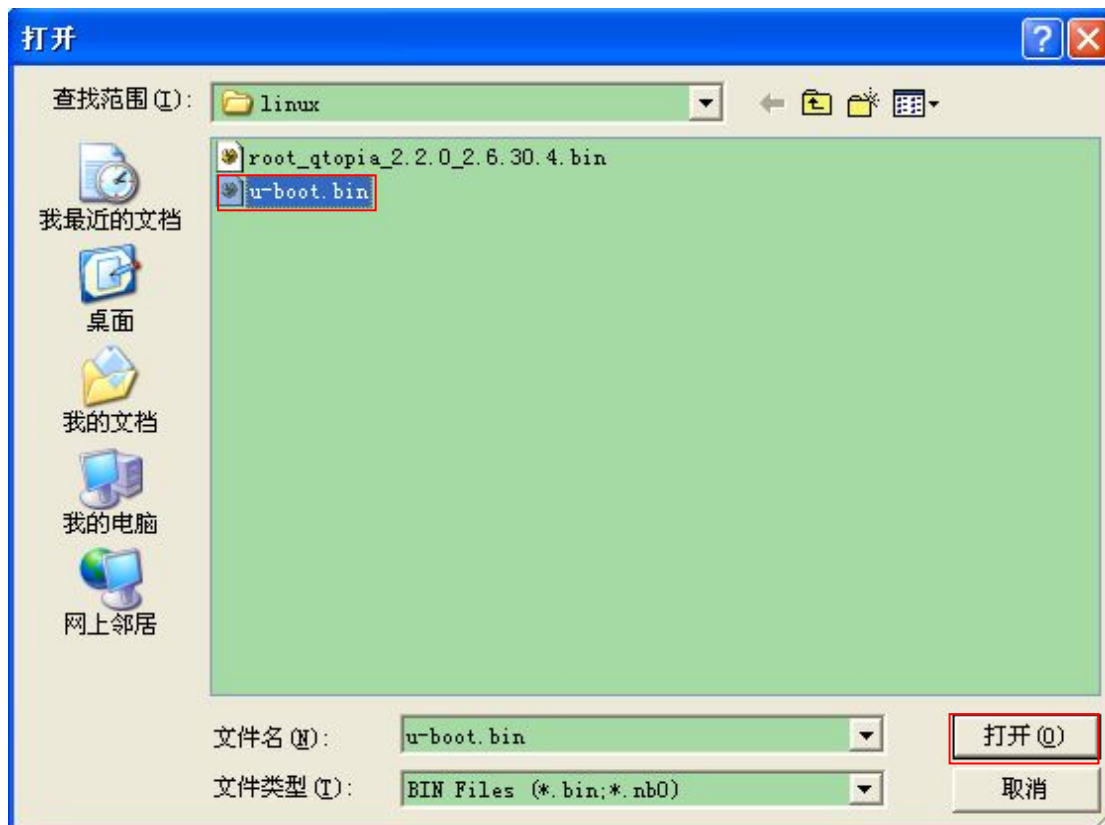
DHW v0.50A [COM1, 115200bps] [USB:OK]
Serial Port USB Port Configuration Help
##### Boot for Nor Flash Main Menu #####
[1] Download u-boot or STEPLDR.nb1 or other bootloader to Nand Flash
[2] Download Eboot to Nand Flash
[3] Download Linux Kernel to Nand Flash
[5] Download CRAMFS image to Nand Flash
[6] Download YAFFS image to Nand Flash
[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
[l] Set LCD Parameters
[o] Download u-boot to Nor Flash
[r] Reboot u-boot
[q] quit from menu
Enter your selection: 1
USB host is connected. Waiting a download.

```

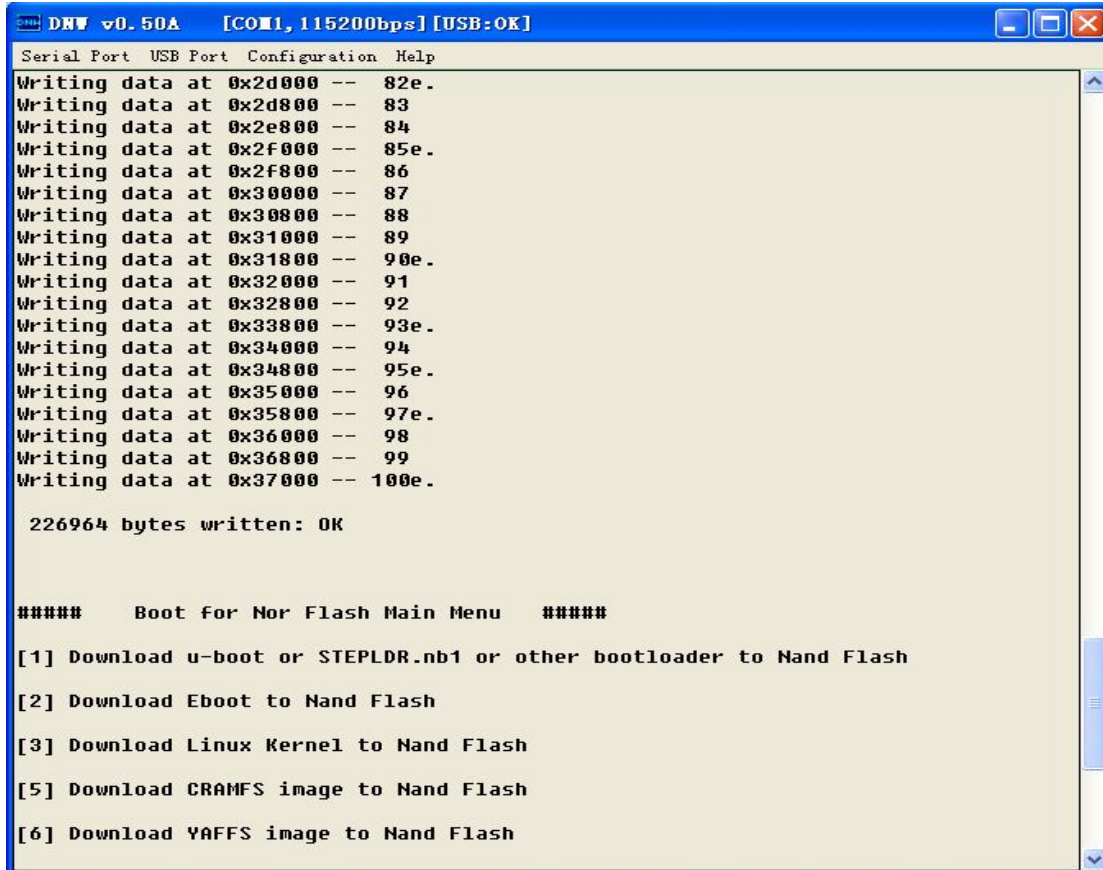
Step 4: Choose the “USB port->transmit”:



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.



```

DNW v0.50A [COM1, 115200bps] [USB:OK]
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 kernel image

Note: We suppose the u-boot has existed on nand flash.

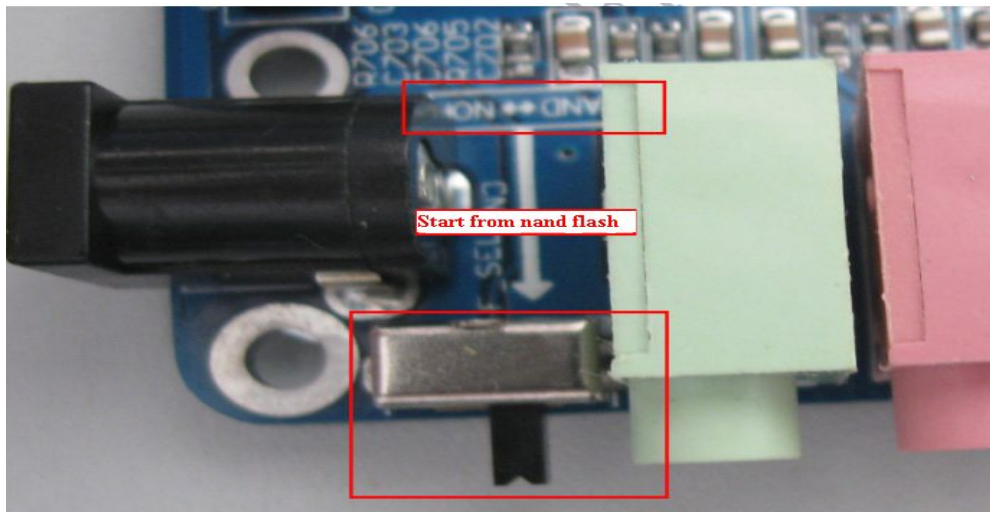
Notice: The steps from 3 to 7 are just used to format nand flash and re-burn the u-boot.

Only under two conditions, the operations are executed:

1. The board is running Wince system, and now you want to burn Linux kernel image.
2. The Linux system can't run properly.

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. Select “9” to format the nand flash. (You don’t have to do it every time, unless your board is running Wince now or Linux can’t run properly)

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

[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: 9

##### Erase Nand Menu #####
[1] Nand scrub - really clean NAND erasing bad blocks (UNSAFE)
[2] Nand earse - clean NAND erasing
[q] Return main Menu
Enter your selection:
```

Step 3: Choose the “1”, and erase all blocks of nand flash.



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

##### Erase Nand Menu #####

[1] Nand scrub - really clean NAND erasing bad blocks (UNSAFE)
[2] Nand earse - clean NAND erasing
[q] Return main Menu
Enter your selection: 1

NAND scrub: device 0 whole chip
Warning: scrub option will erase all factory set bad blocks!

        There is no reliable way to recover them.

        Use this command only for testing purposes if you
        are sure of what you are doing!

Really scrub this NAND flash? <y/N> :
```

Step 5: Type “y” to erase, after the erasing, the following show up, select “q” to quit menu.

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

Erasing at 0xe3c0000 -- 89
Erasing at 0xe660000 -- 90mplete.
Erasing at 0xe8e0000 -- 91
Erasing at 0xeb80000 -- 92
Erasing at 0xee00000 -- 93
Erasing at 0xf0a0000 -- 94mplete.
Erasing at 0xf320000 -- 95
Erasing at 0xf5c0000 -- 96mplete.
Erasing at 0xf840000 -- 97
Erasing at 0xfae0000 -- 98mplete.
Erasing at 0xfd60000 -- 99
Erasing at 0xffe0000 -- 1000K

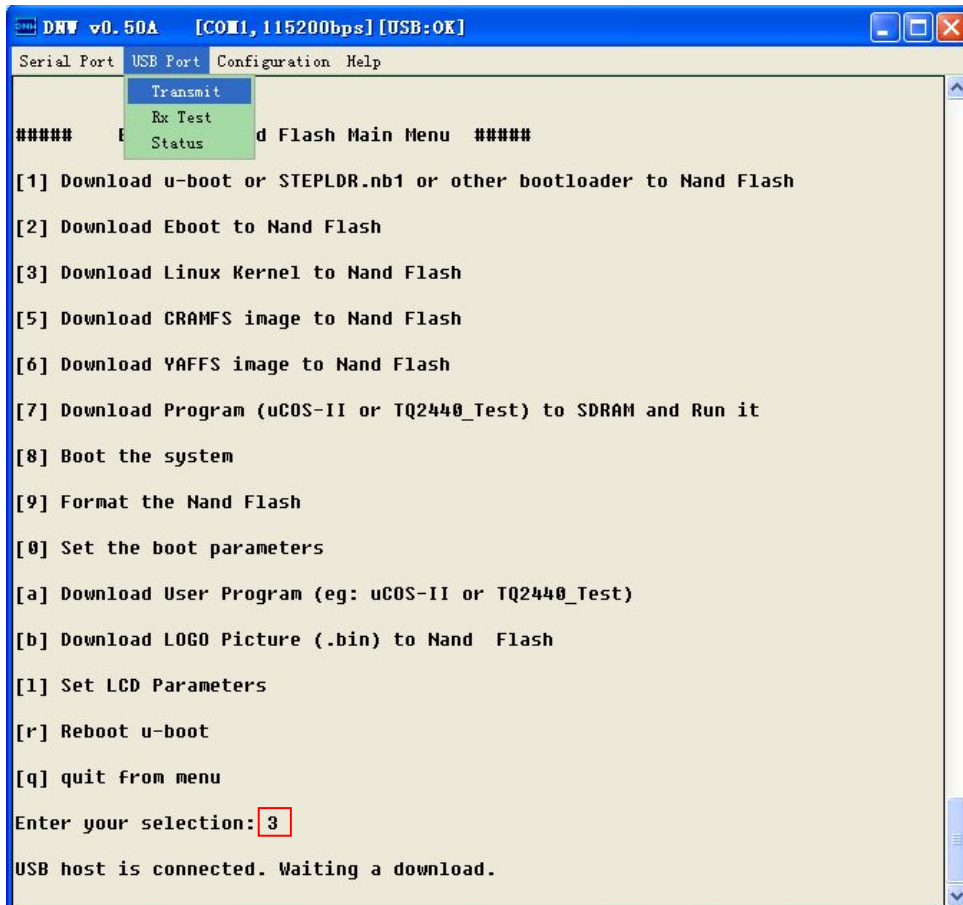
##### Erase Nand Menu #####

[1] Nand scrub - really clean NAND erasing bad blocks (UNSAFE)
[2] Nand earse - clean NAND erasing
[q] Return main Menu
Enter your selection:
```

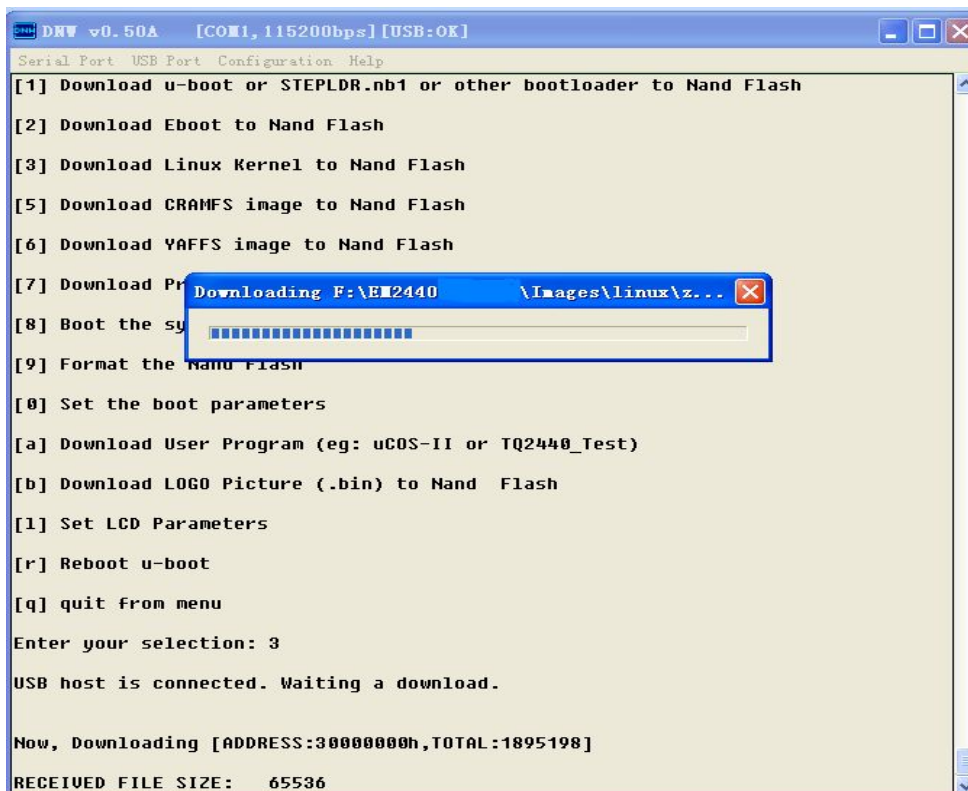
Step 6: Choose “1”, re-burn the u-boot again, because of above format operation. You can refer to chapter (1) for details.

Step 7: Choose the “3”, and select the “USB port->transmit”.

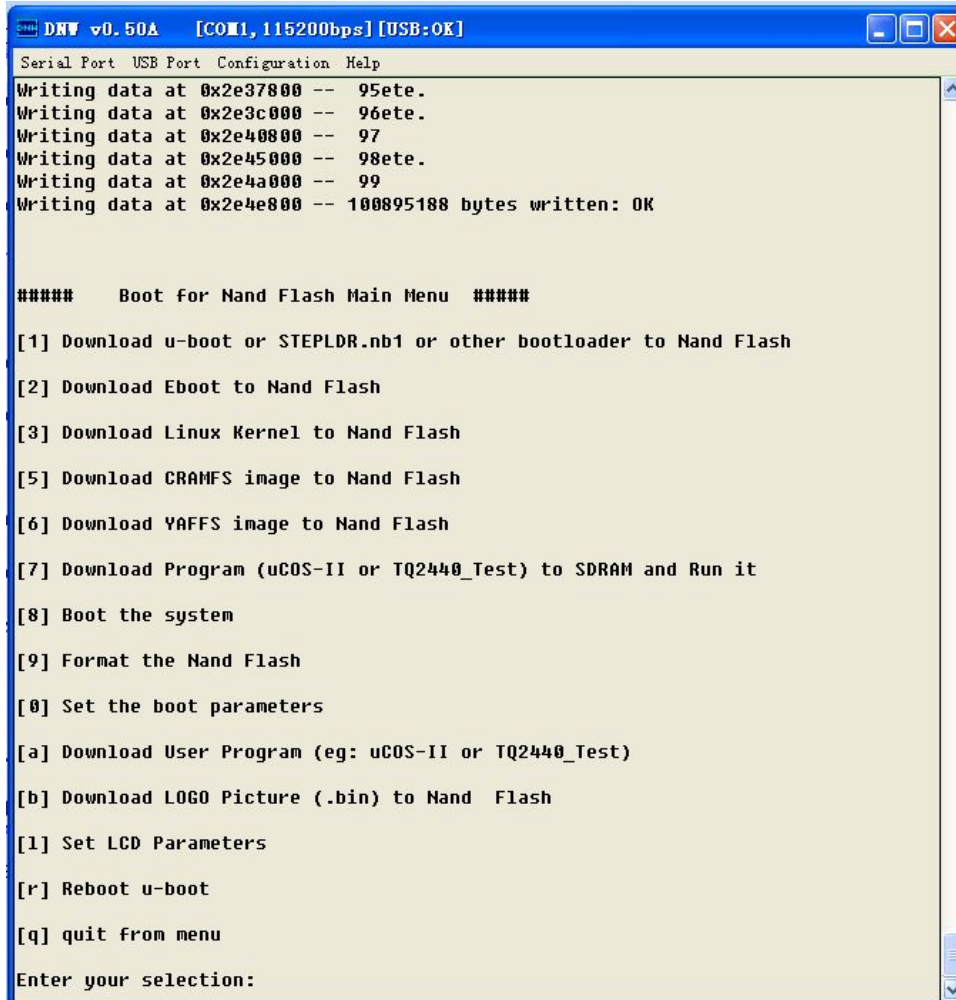




Step 8: select the kernel image “zImage”, and begin to burn.



Step 9: After above steps, you should see the following message, and then, you have burnt the kernel image into the nand flash.



```

DNV v0.50A [COM1, 115200bps] [USB:OK]
Serial Port USB Port Configuration Help
Writing data at 0x2e37800 -- 95ete.
Writing data at 0x2e3c000 -- 96ete.
Writing data at 0x2e40800 -- 97
Writing data at 0x2e45000 -- 98ete.
Writing data at 0x2e4a000 -- 99
Writing data at 0x2e4e800 -- 100895188 bytes written: OK

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

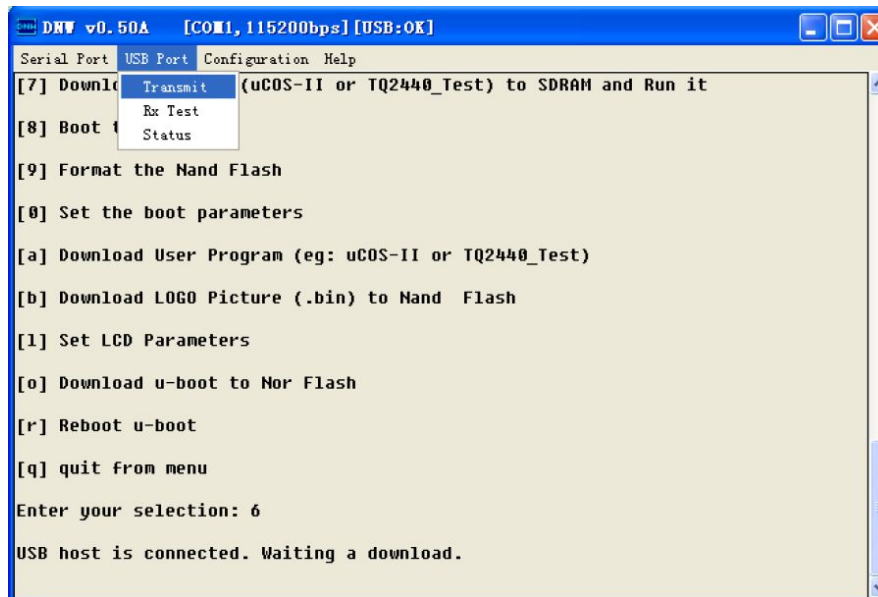
[1] Download u-boot or STEPLDR.nb1 or other bootloader to Nand Flash
[2] Download Eboot to Nand Flash
[3] Download Linux Kernel to Nand Flash
[5] Download CRAMFS image to Nand Flash
[6] Download YAFFS image to Nand Flash
[7] Download Program (uCOS-II or TQ2440_Test) to SDRAM and Run it
[8] Boot the system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

### (3) Burn the root file system image

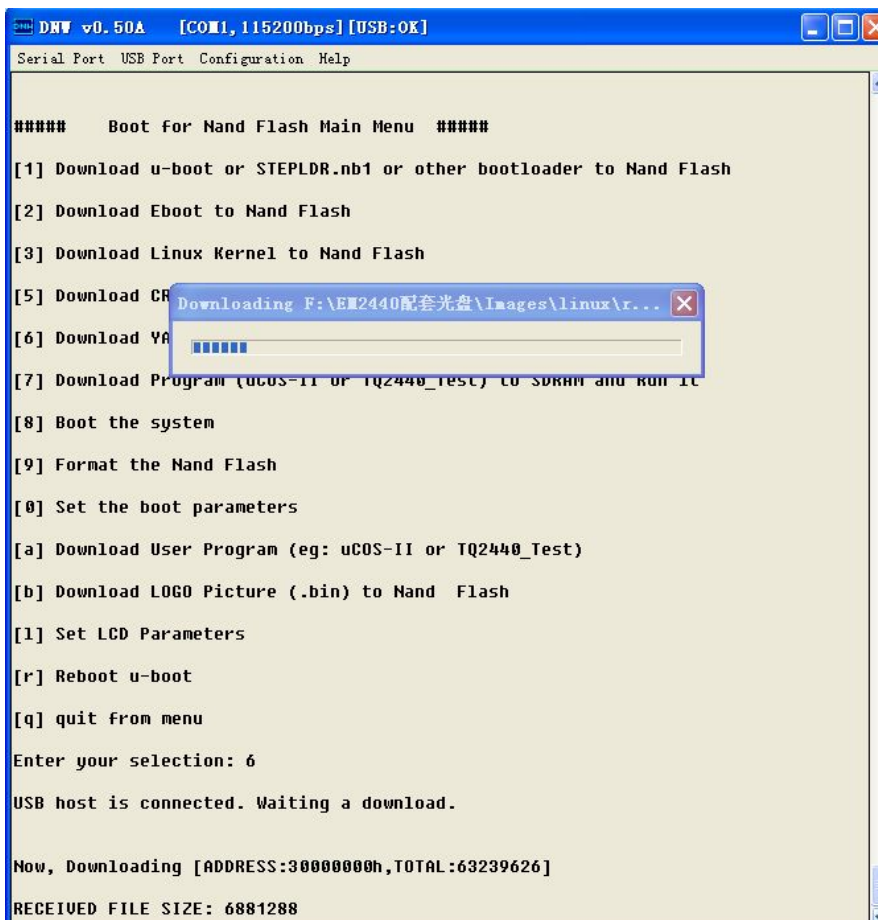
Step 1: Push the button to the nand flash side, select booting from nand flash.

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

Step 3: Choose the “6”, and select the “USB port->transmit”.



Step 4: select the image “root\_qtopia\_2.2.0\_2.6.30.4.bin”, and begin to burn.



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



```
DNW v0.50A [COM1, 115200bps] [USB:OK]
Serial Port USB Port Configuration Help
Writing data at 0x642e800 -- 95
Writing data at 0x64c4800 -- 96
Writing data at 0x655a000 -- 97
Writing data at 0x65f0000 -- 98
Writing data at 0x6685800 -- 99
Writing data at 0x671b000 -- 100itten: 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
[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:
```