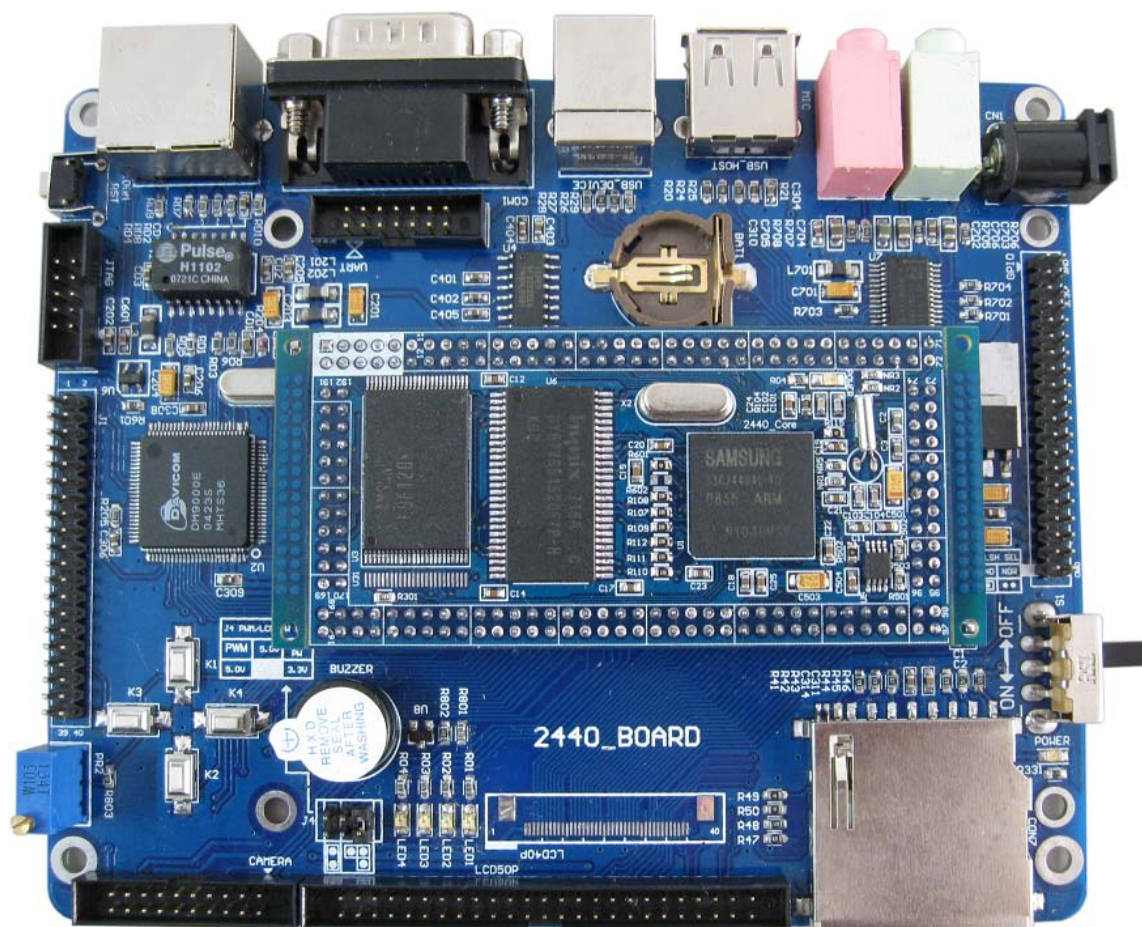


EM2440-III

How to Burn the Image



1. Introduction

1.1. About this Manual

This manual is intended to provide the user with an overview of the board and benefits, complete features specifications, and set up procedures. It contains important safety information as well.

1.2. Feedback and Update to this Manual

To help our customers make the most of our products, we are continually making additional and updated resources available on the Boardcon website (www.armdesigner.com).

These include manuals, application notes, programming examples, and updated software and hardware. Check in periodically to see what's new!

When we are prioritizing work on these updated resources, feedback from customers is the number one influence. If you have questions, comments, or concerns about your product or project, please do not hesitate to contact us at support@armdesigner.com.

1.3. Limited Warranty

Boardcon warrants this product to be free of defects in material and workmanship for a period of one year from date of buy. During this warranty period Boardcon will repair or replace the defective unit in accordance with the following process:

A copy of the original invoice must be included when returning the defective unit to Boardcon. This limited warranty does not cover damages resulting from lightning or other power surges, misuse, abuse, abnormal conditions of operation, or attempts to alter or modify the function of the product.

This warranty is limited to the repair or replacement of the defective unit. In no event shall Boardcon be liable or responsible for any loss or damages, including but not limited to any lost profits, incidental or consequential damages, loss of business, or anticipatory profits arising from the use or inability to use this products.

Repairs made after the expiration of the warranty period are subject to a repair charge and the cost of return shipping. Please contact Boardcon to arrange for any repair service and to obtain repair charge information.

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Chapter 1 Windows Environment Configuration

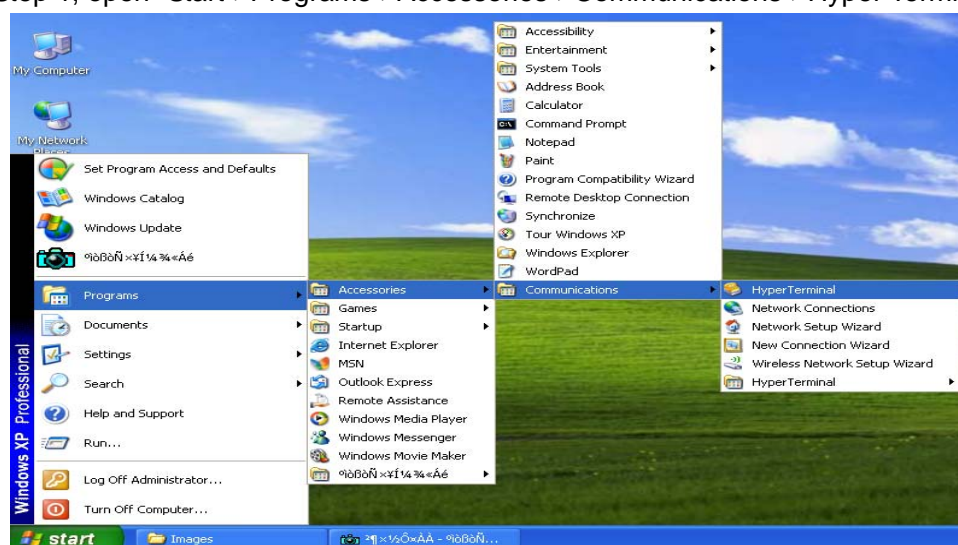
The following captured images might have some difference with the OS you have used in PC.

1.1 Hyper-terminal configuration

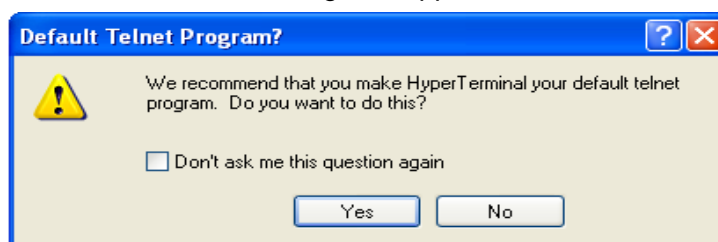
We recommend using Window self-carried hyper-terminal for interaction between PC and EM2440-III. Here we introduce the configuration based on Windows XP hyper-terminal.

The following diagrams introduce the steps configuring the hyper-terminal:

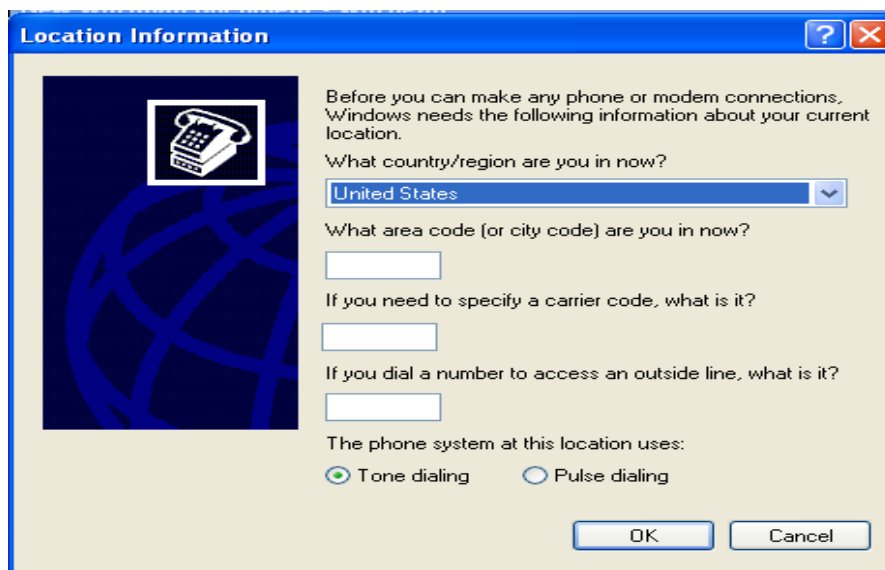
Step 1, open “Start->Programs->Accessories->Communications->Hyper Terminal”:



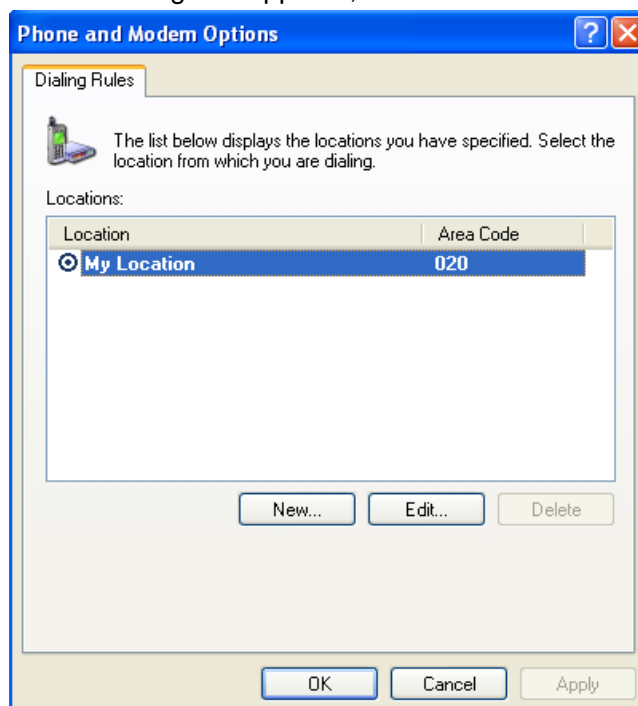
A pop-up window “Default Telnet Program” appears, choose “No”:



A pop-up window “Place message” (fill in the blank “with your district number”, click “Yes” and continue:



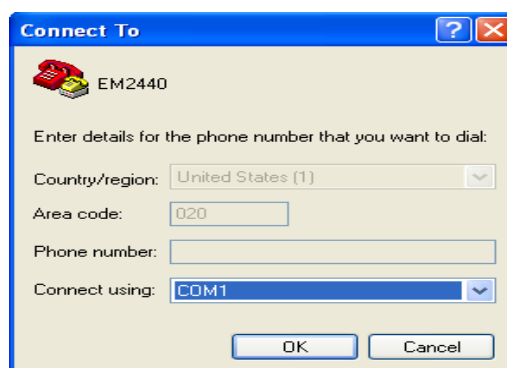
A dialog box as the following one appears, choose "OK":



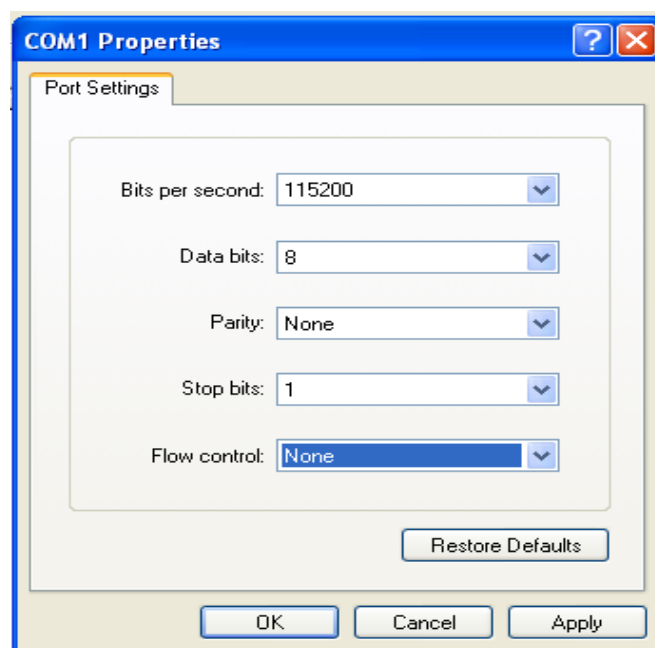
Step 2, an interface as the following one appears. Name your hyper-terminal and select an icon. Then click "OK" to continue:



Step 3, an interface “Connect to” as the following one appears. Select “com*” you connected serial interface. * represents the serial port number of PC you are using. The example uses COM1 of PC. Click “Yes” and continue:

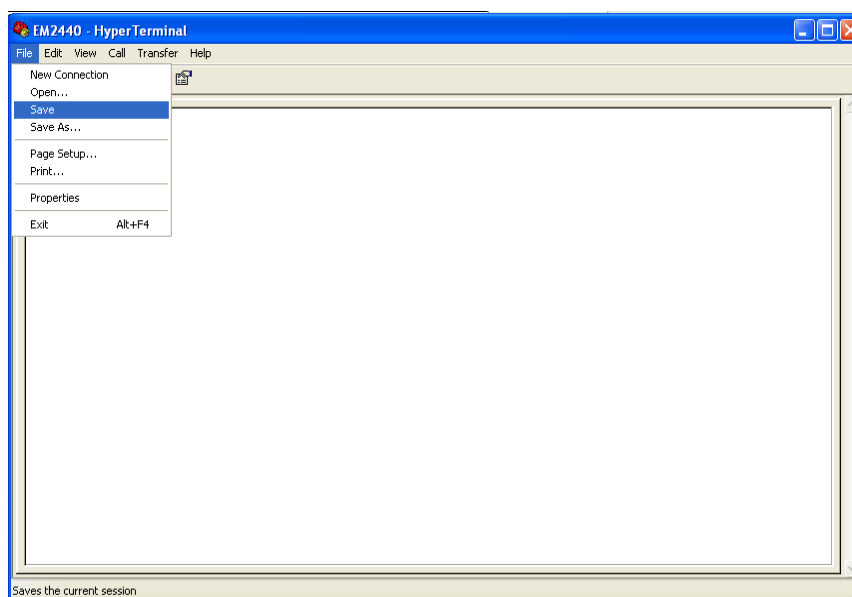


Step 4, an interface “COM1 properties” appears, setting: “Baud rate: 115200, Data bit: 8, Parity : No, Stop bit: 1, Data flow control: No, Click “OK” to continue:

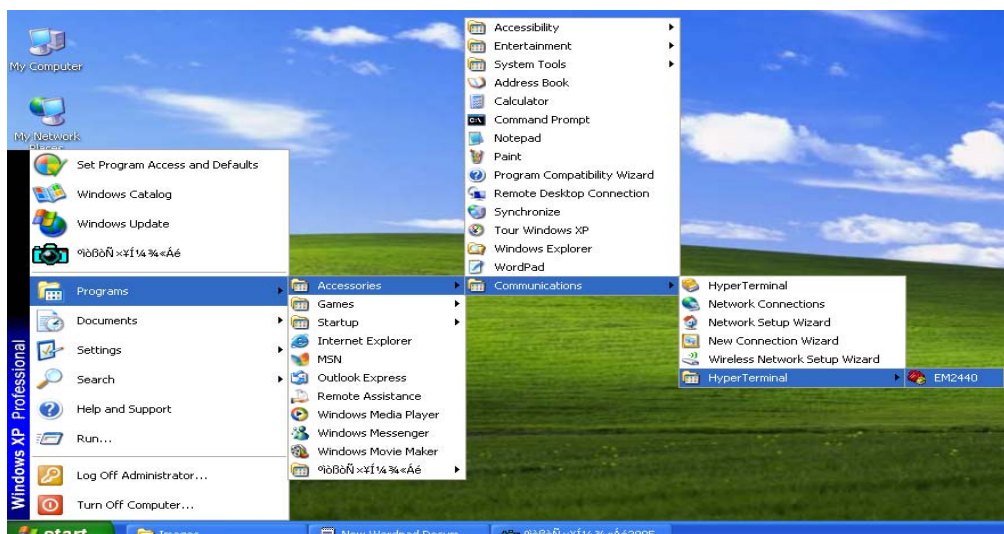


Step 5, the Typer Terminal window appears. Click menu “File” and select “Save” to

save your configuration:

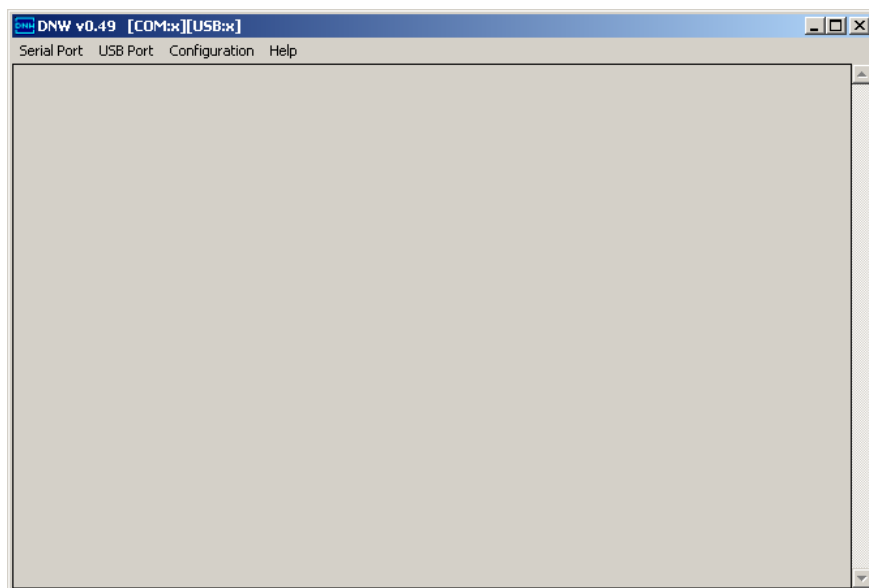


Step 6, in the future use, you can find the saved option “HyperTerminal” under “Start->Program->Appendix->Communication->HyperTerminal”. Click it as follows:
(The user can create a shortcut on your desktop for convenience.)

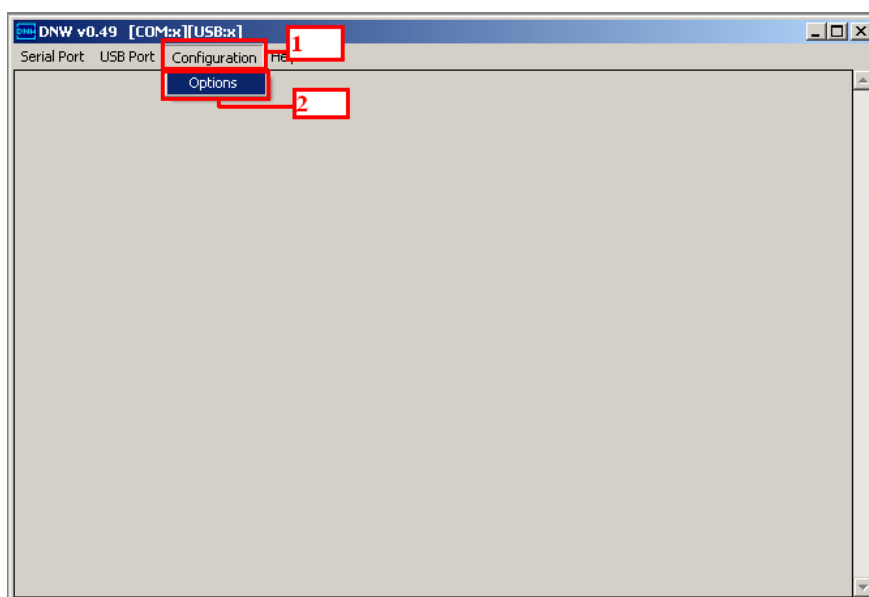


1.2. DNW software configuration

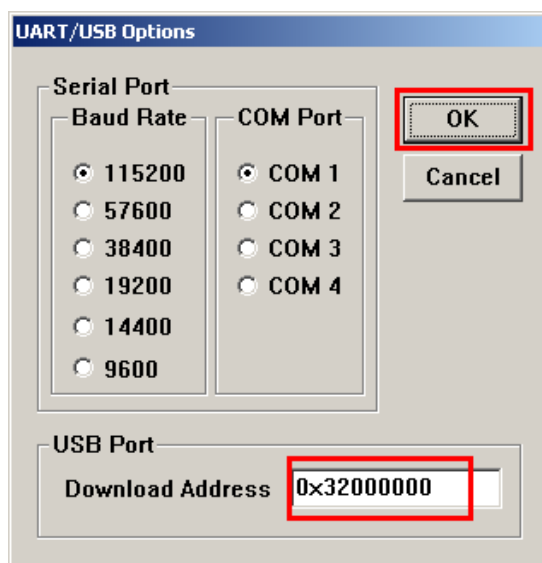
Find DNW software under directory “Windows software package\DNW”. Double-click to open it:



Step 1, click "Configuration -> Options", the configuration table "UART/USB Options" appears.



Step 2, 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:

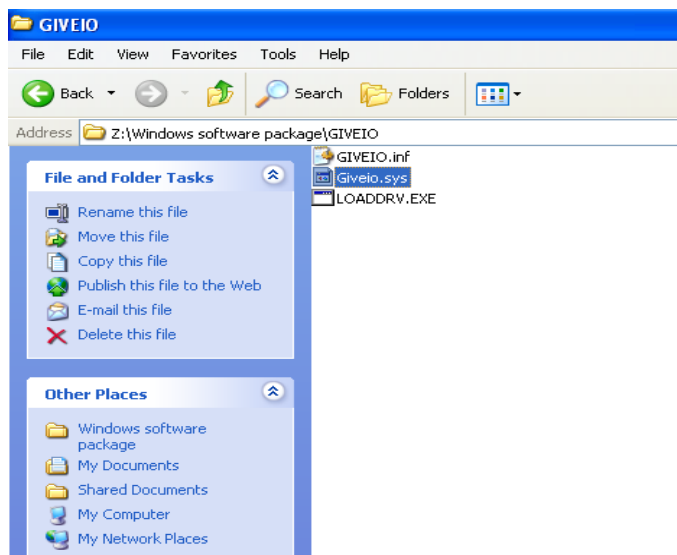


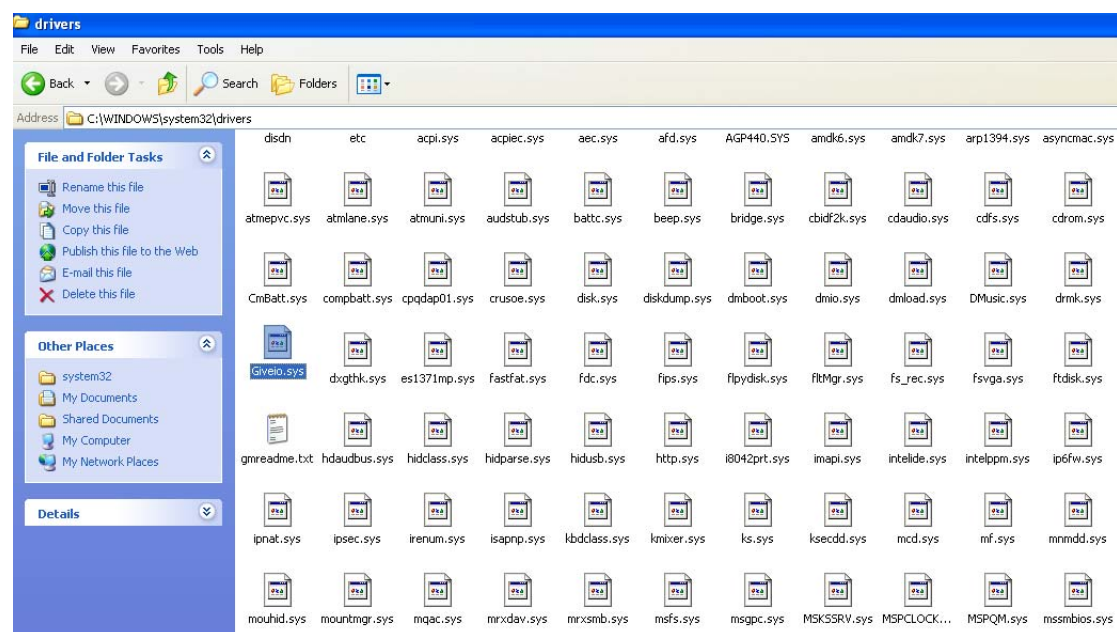
1.3. GIVEIO driver installation

If the user wants to burn u-boot with the Jtag software SJF2440.exe, a driver needs to be installed to virtualize parallel port into IO port. Pay attention to the parallel port configuration under BIOS, SPP and EPP mode is recommended, but ECP mode is not recommended.

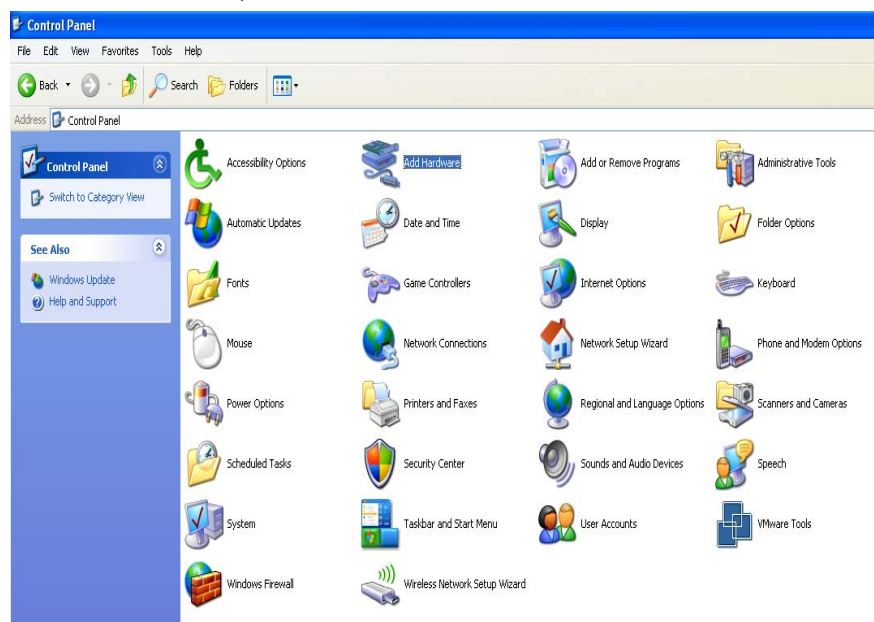
The steps how to install GIVEIO is shown in the following.

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 "WINDOWS\system32\drivers"



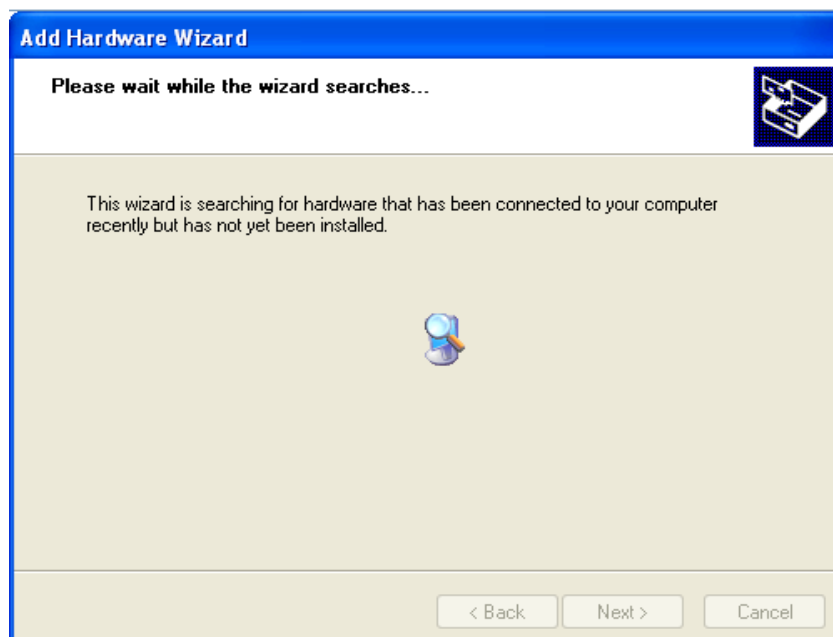


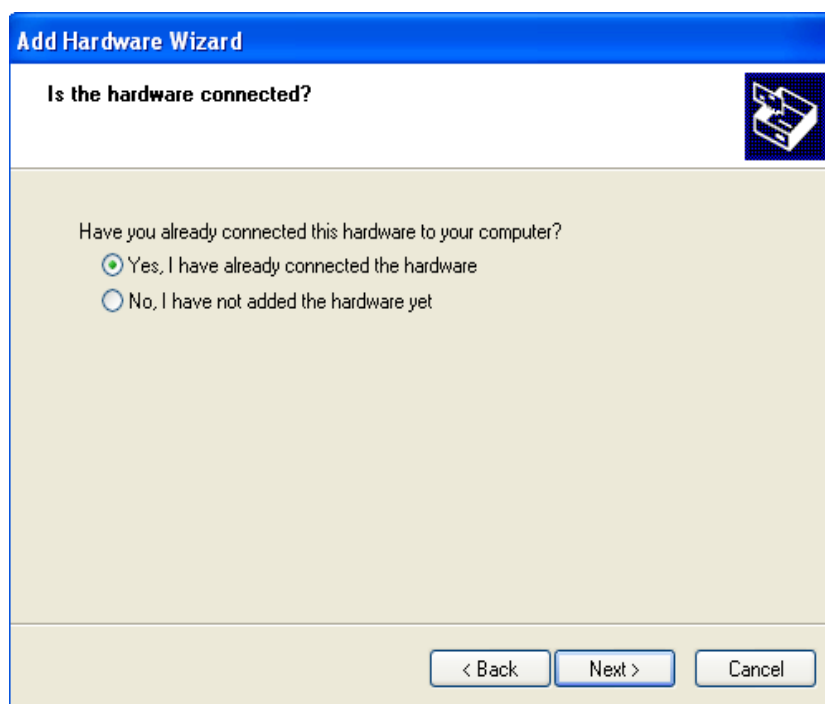
Step 2, open “Control panel” on your PC, double-click the icon “Add hardware” and enter the interface “Add hardware, click “Next” to continue:



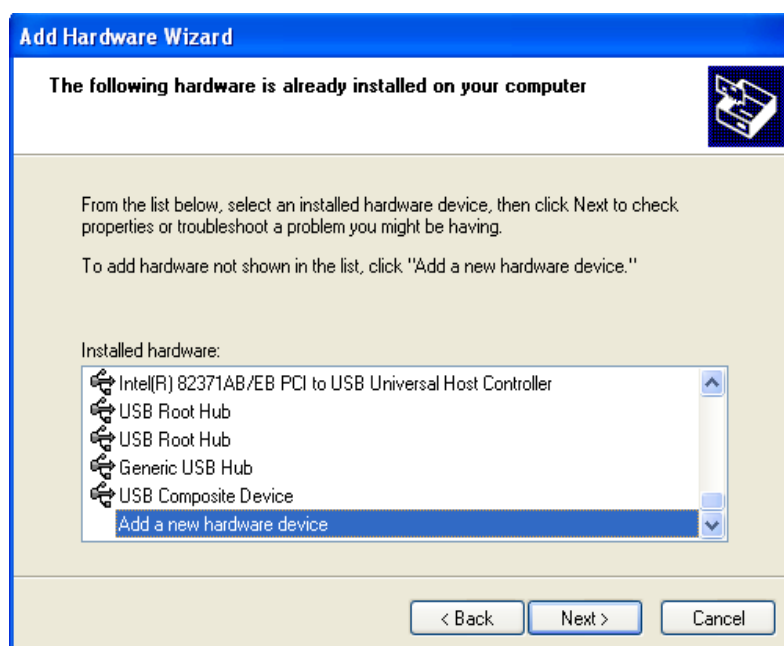


Step 3, system will find the hardware automatically. When the search is finished, the next window appears. Select "Yes, I have selected the hardware", and click "Next" to continue:

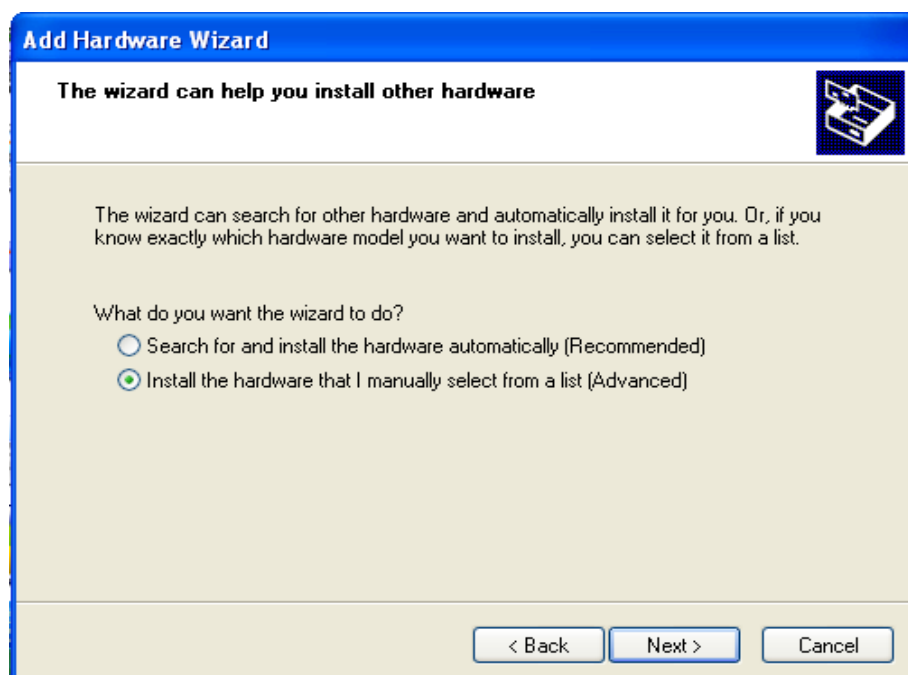




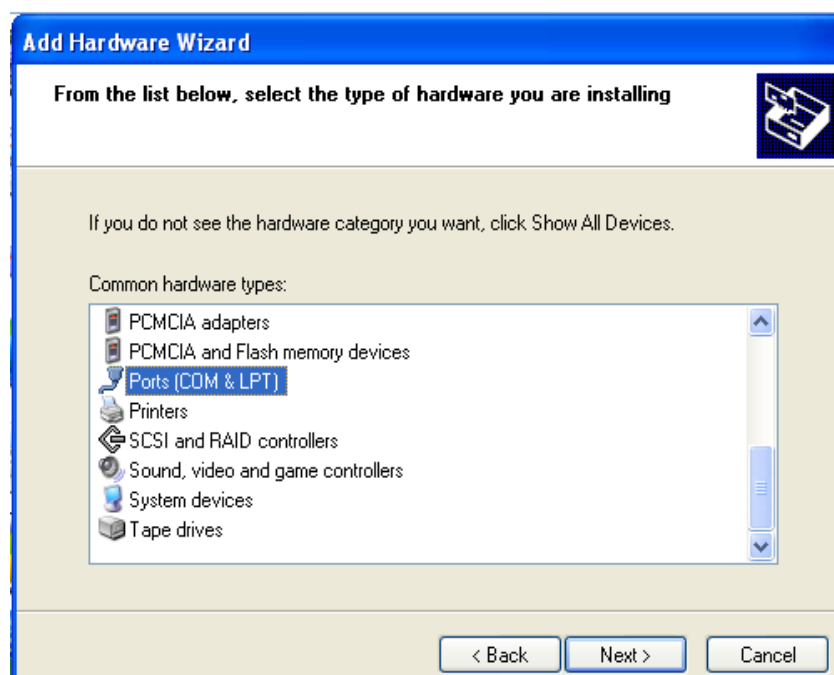
Step 4, select the option as the following one in the appearing interface and click “Next” to continue:



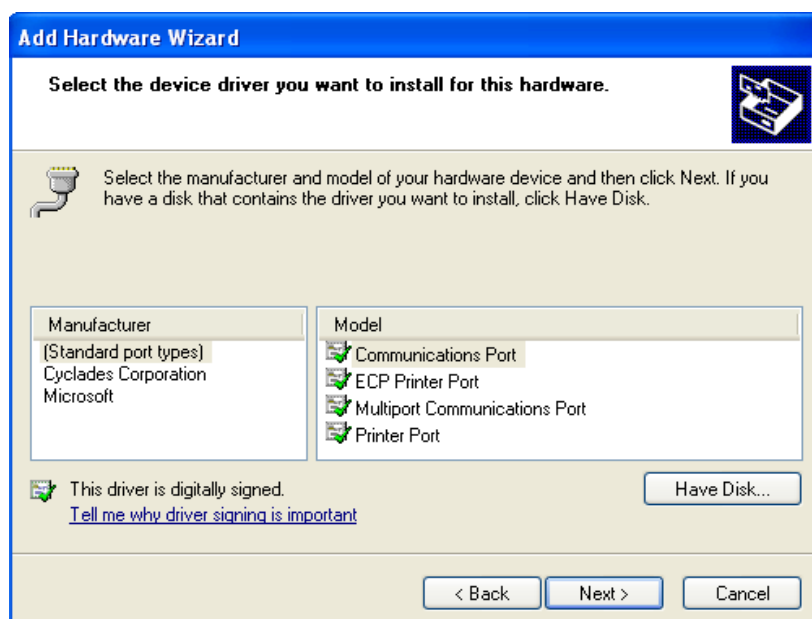
Step 5, the interface “Installation guidance” appears. Select “Install the hardware which I selected by hand (advanced)” and click “Next” to continue:



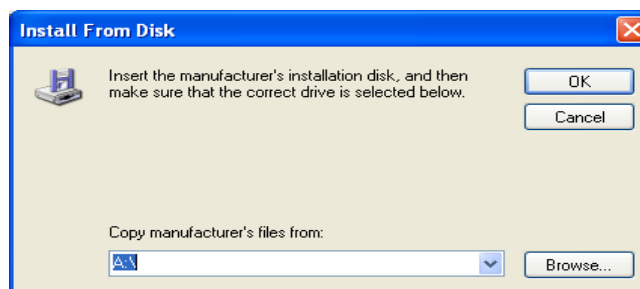
Step 6, select “Ports (COM or LPT)” among the hardware list and click “Next” to continue:



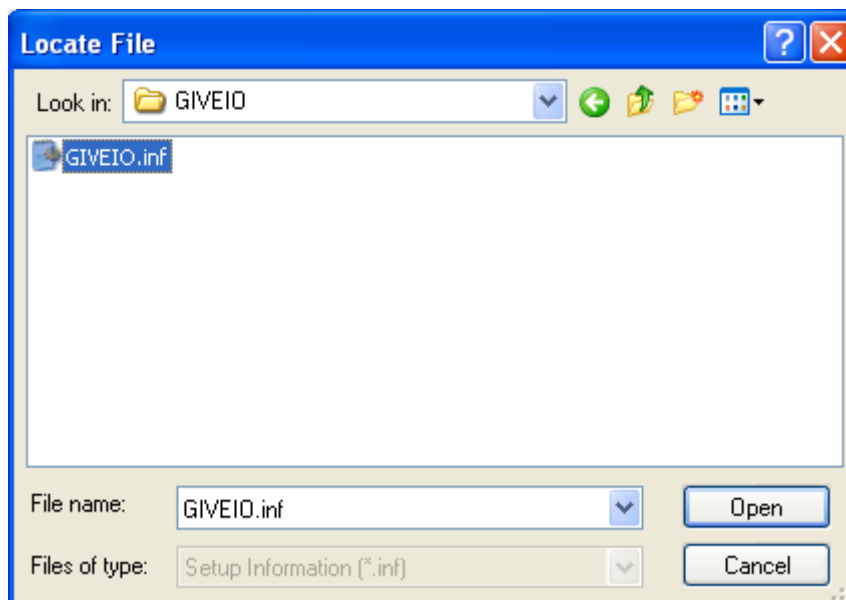
Step 7, click “Install from Hard-disk” and continue:



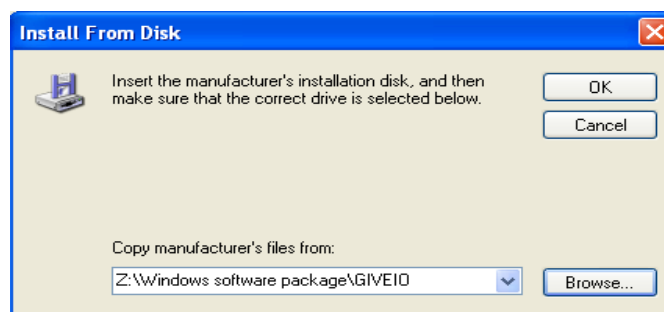
Step 8, select "Browse" in "Install from Hard-disk" interface:



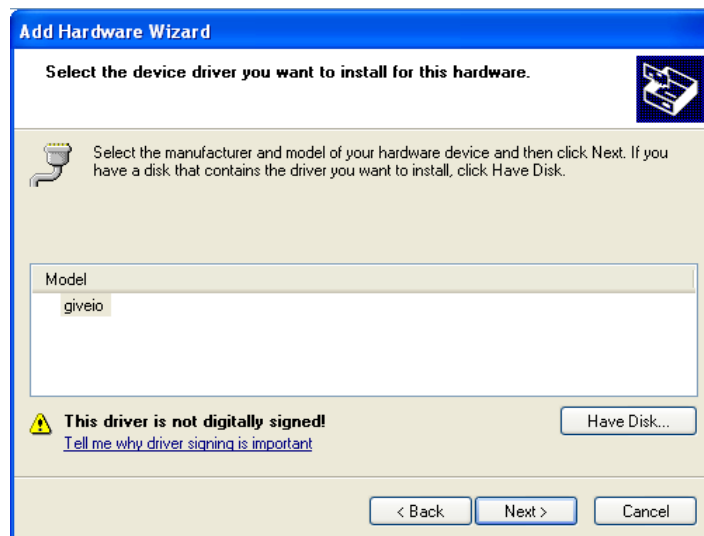
Locate the previous GIVEIO directory. Find the file "GIVEIO.inf" and click "Open" to continue:



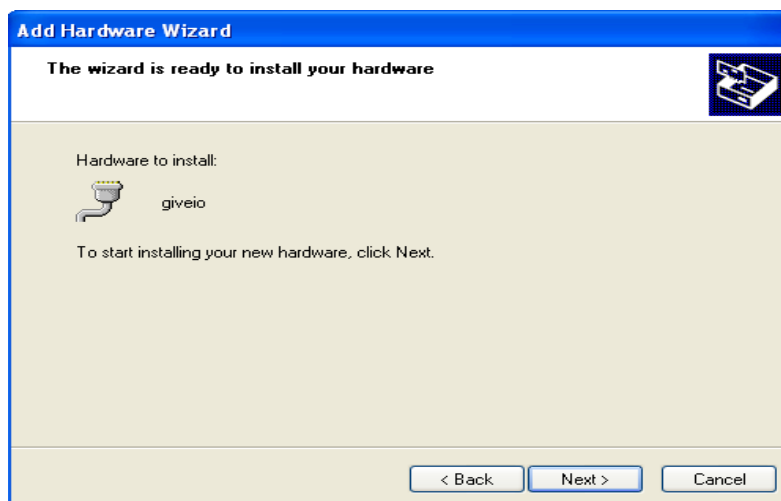
Back to the interface "Install from Harddisk", and click "OK" to continue:



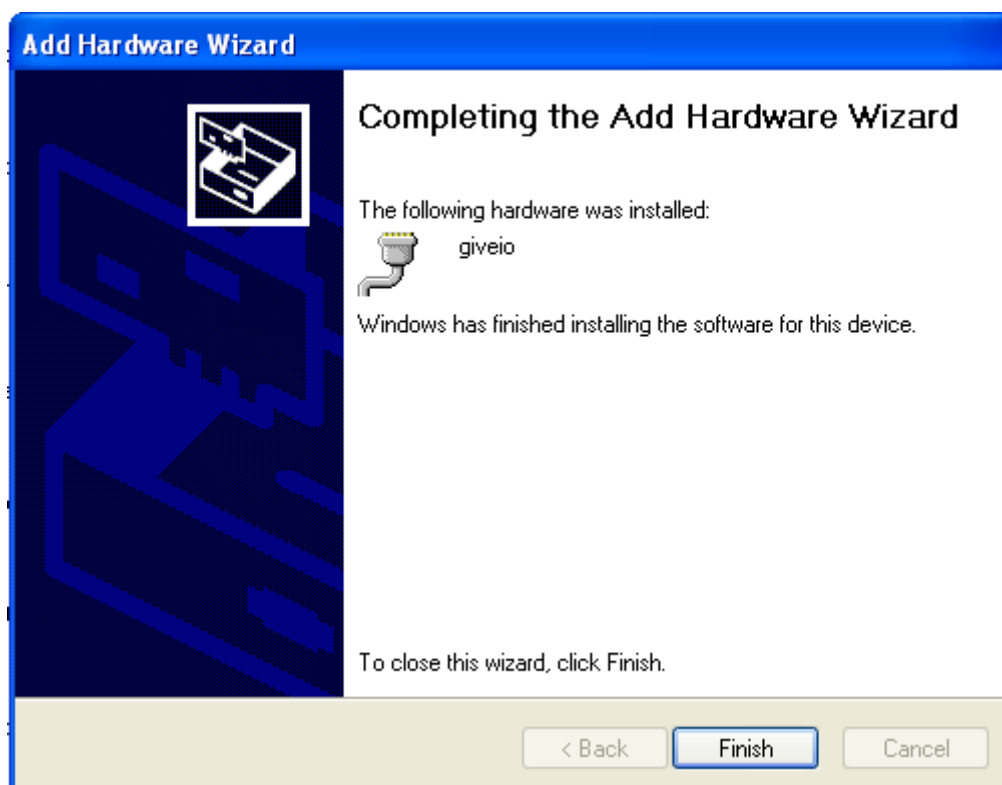
Step 9, back to the interface concerning installing device drivers. Select “giveio” device and click “Next” to continue:



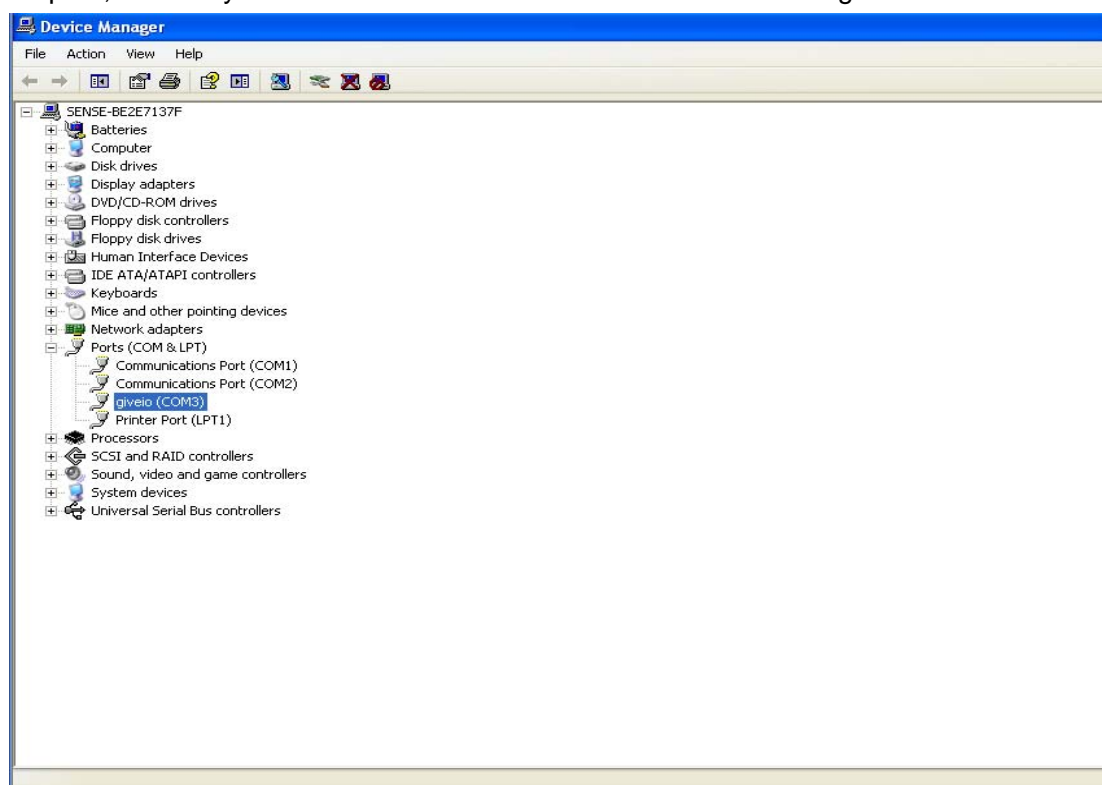
Step 10, “This guidance is preparing to install your hardware” interface appears. Click “Next” to continue:



Step 11, click “Ok” to finish the installation:

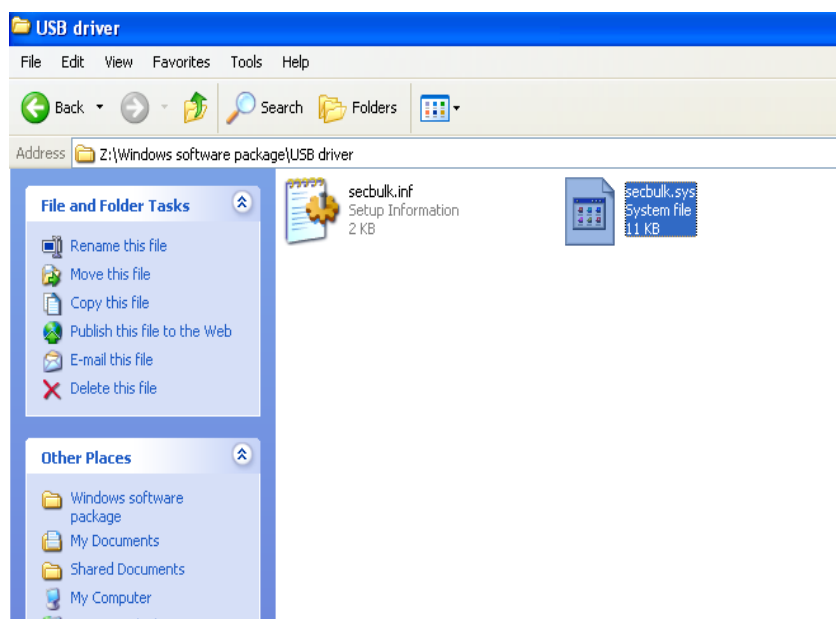


Step 12, the newly installed device could be found in “Device Manager”:

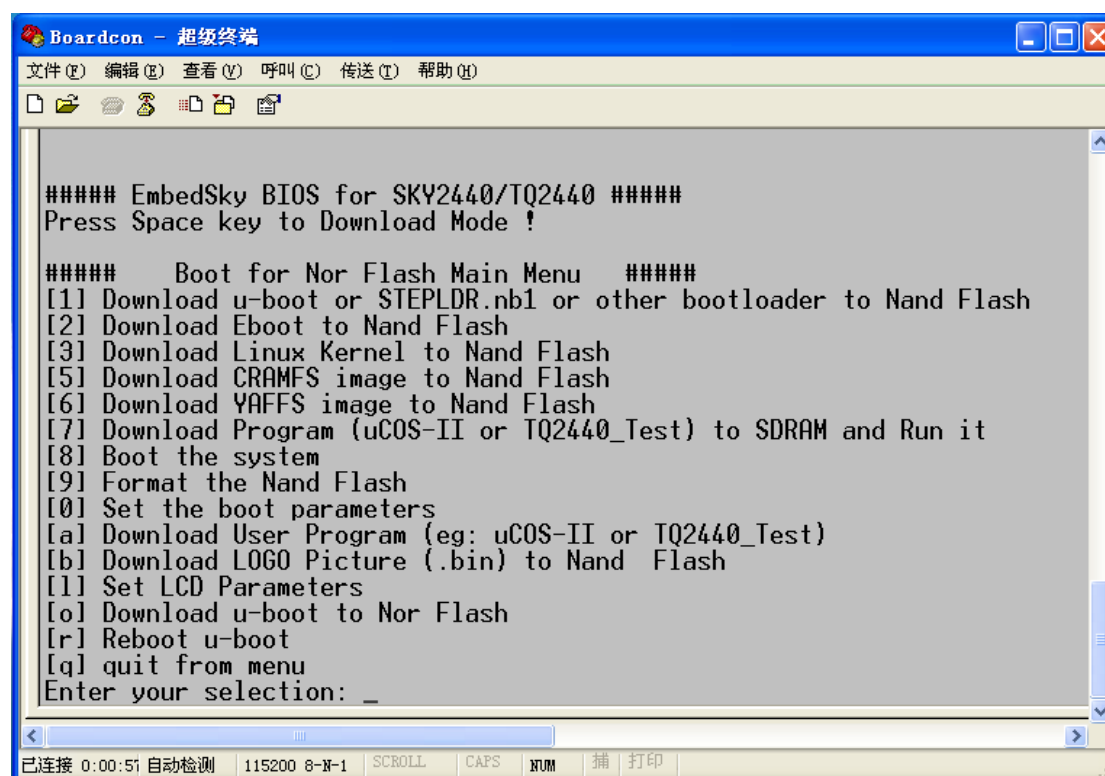


1.4 USB download-driver installation

The following steps introduce how to install USB download-driver. The driver is located under the directory “Windows software package\USB driver”:



Step 1, open hyper-terminal, and link the serial port line and power line; press the space-key of PC and hold, and Switch on the power. The hyper-terminal 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).



Step 2, when linking the USB wire, Windows XP can recognize the new device automatically as the following diagram:



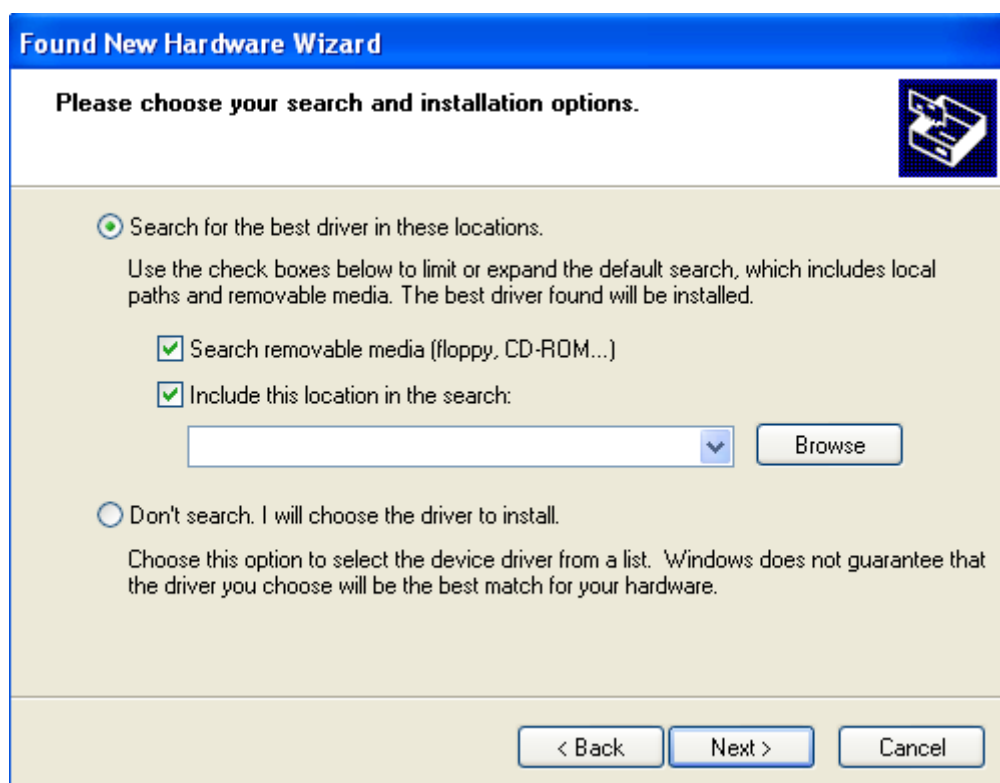
The interface “Find a new hardware” pops up. Select “Yes, only this time” and click “Next” to continue:



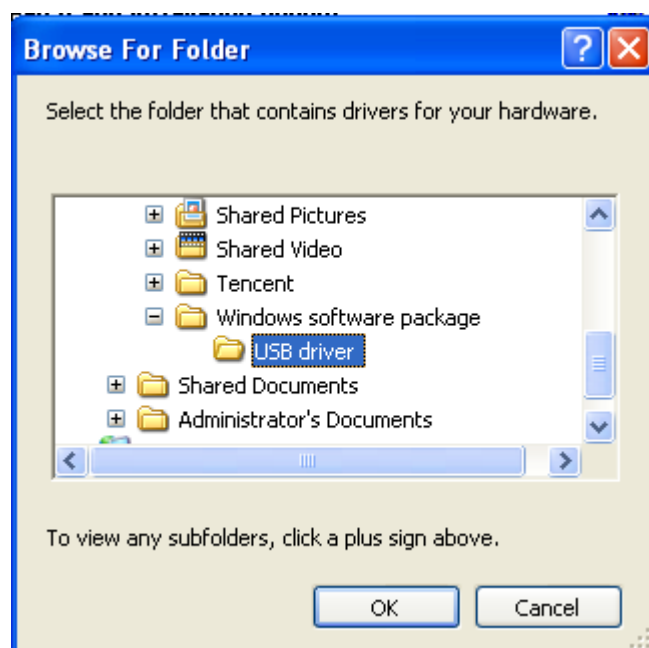
Step 3, select “From a list or specific location (Advanced)” in the next interface and click “Next” to continue:

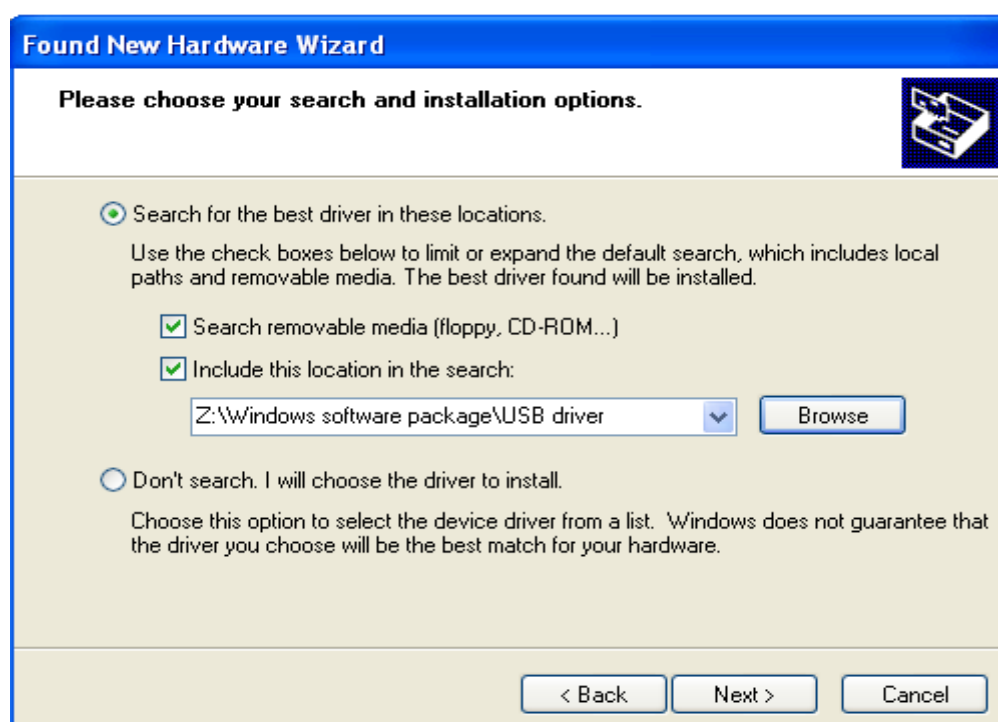


Step 4, select “Include this location in the search” in “In these positions to search the best driver” menu and click “Browse”:

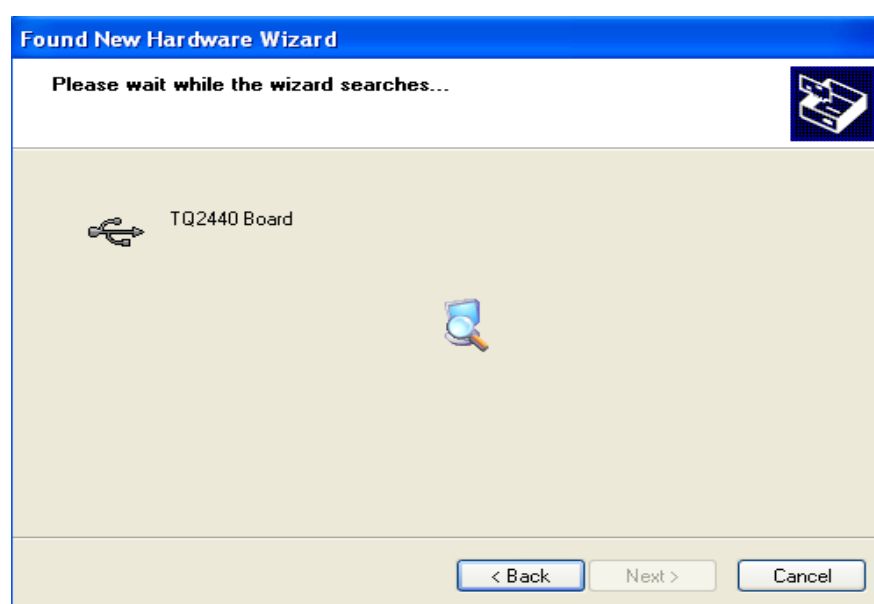


Locate the driver and click “OK” to go back to the upper diagram. Click “Next” to continue:

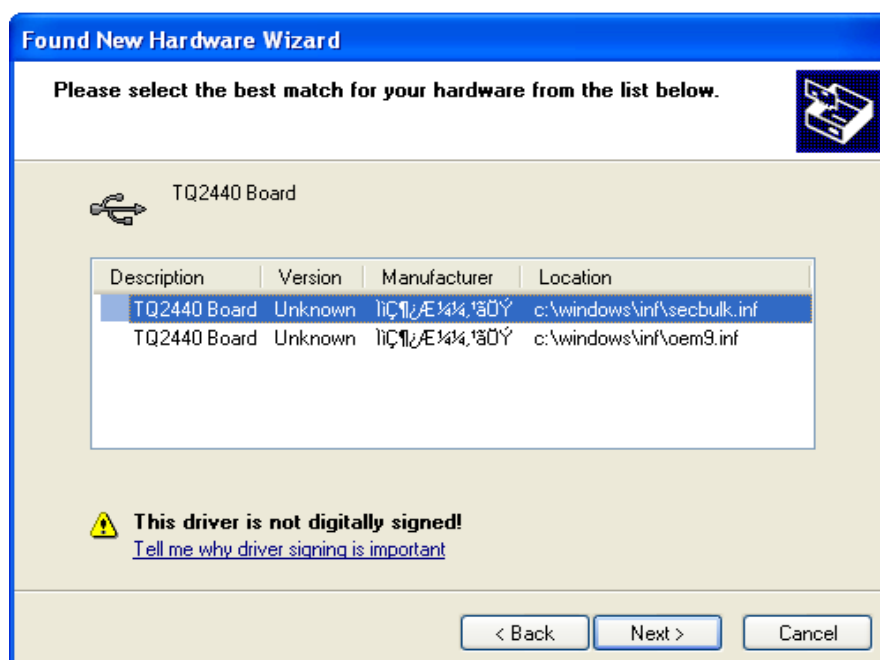




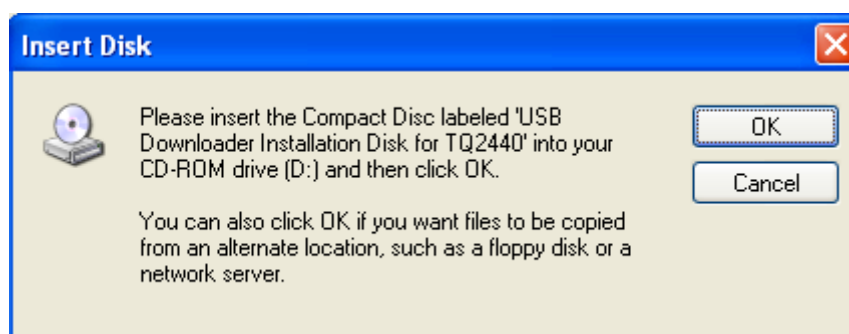
Step 5, the installing guide begins to search hardware device:



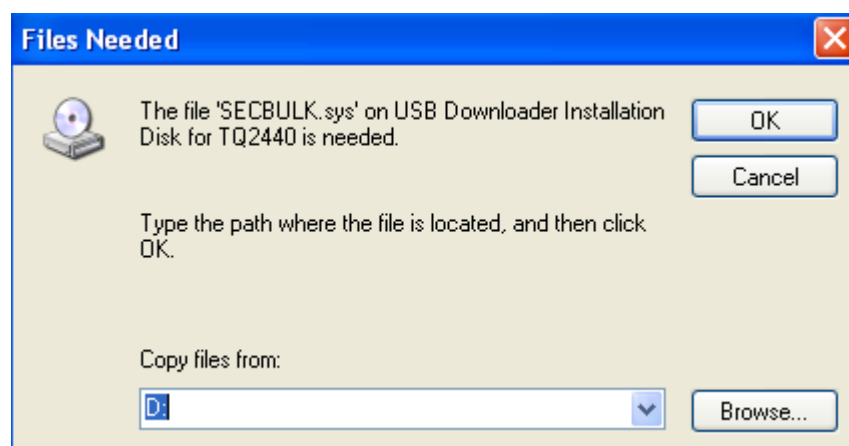
The following diagram appears. Select “SEC SOC Test Board” and click “Next” to continue:



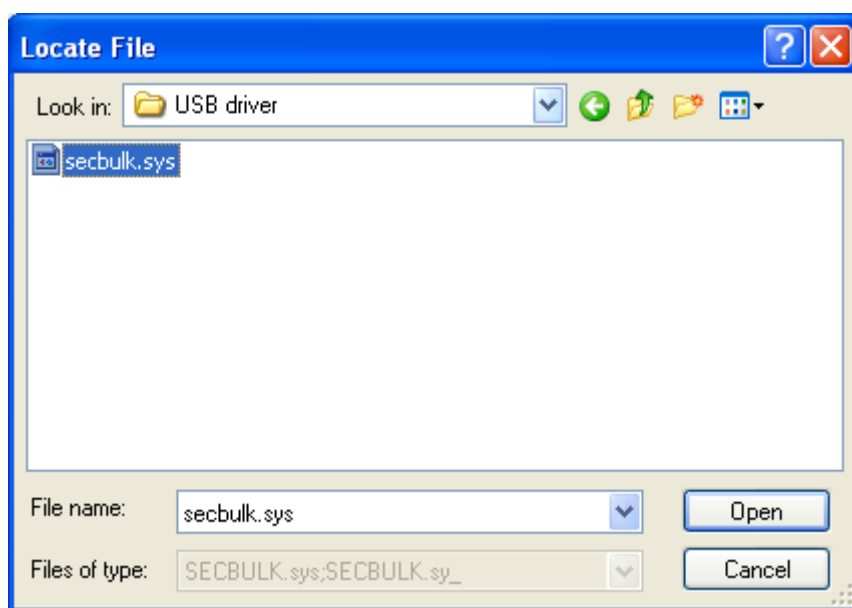
Step 6, the interface "Required Documents" appears:



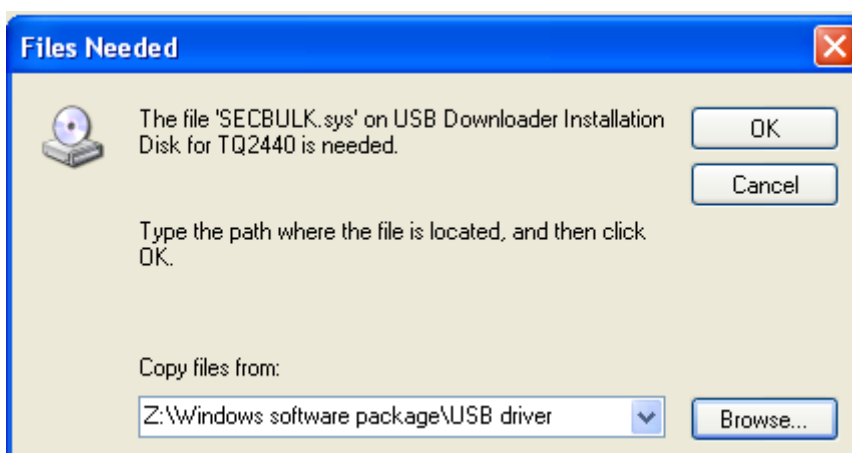
Click "OK". Then the following interface appears. Click "Browse" to locate the driver:



Locate the file "secbulk.sys", and click "Open" to continue:



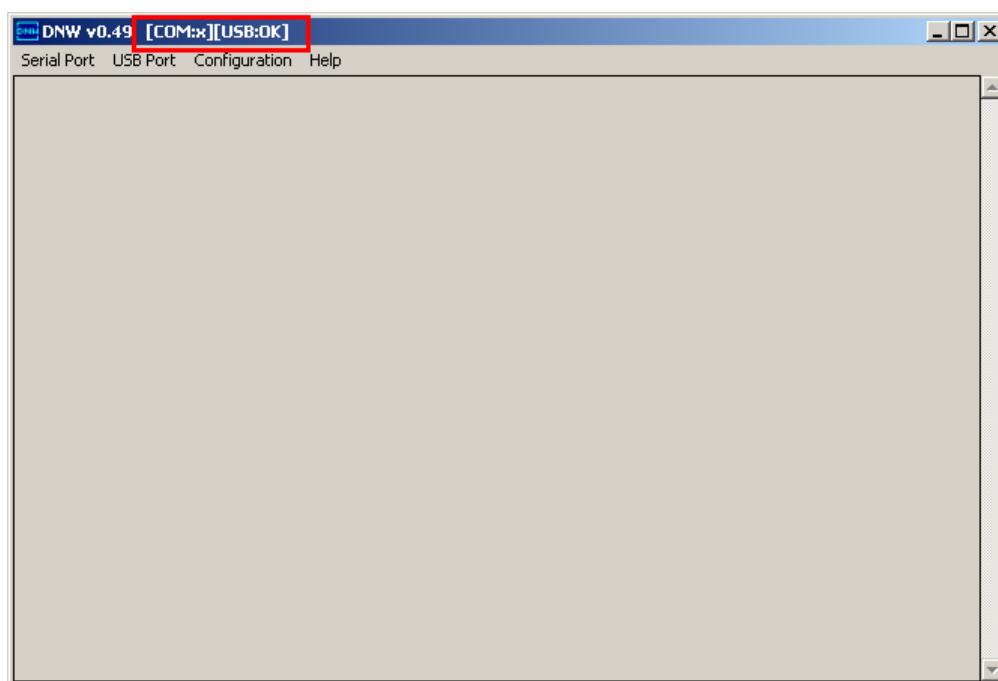
Back to “Required Documents” interface, click “OK” to continue:



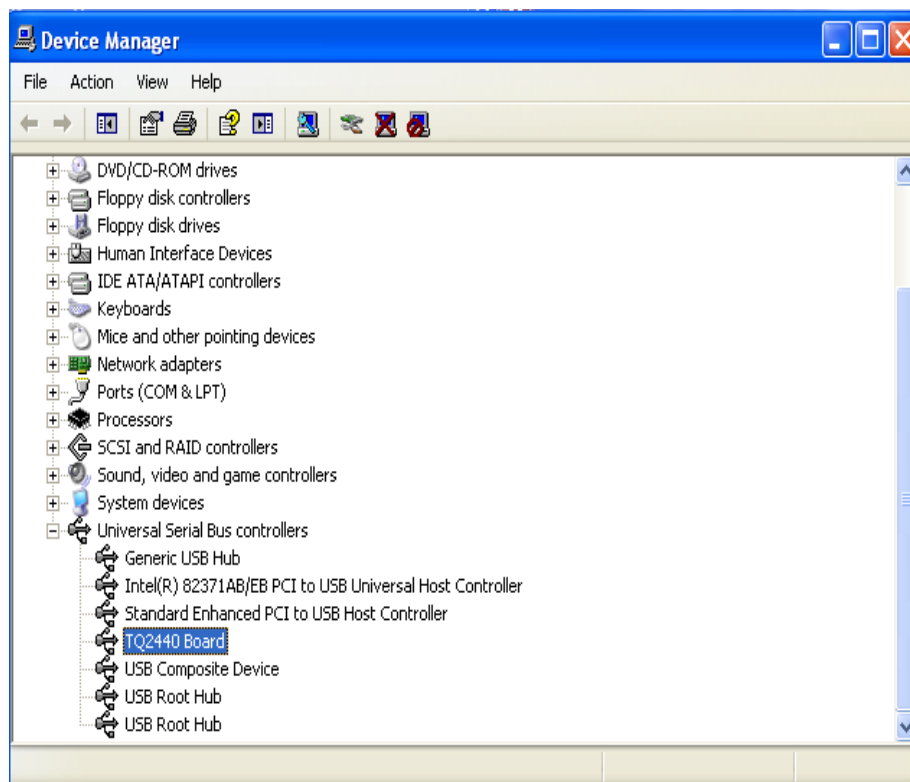
Step 7, click “Ok” to finish USB download-driver installation:



Step 8, 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.

Chapter 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.

Before use SJF2440, below items must be required.

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

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

In this case we take 3.5inch TFT LCD as a 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配套光盘\Windows software package\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:

```

- Burning Image to Nand Flash, continuously select “0”, “0”, “0”, the following diagram shows the steps

```

C:\WINDOWS\system32\cmd.exe
+-----+
| 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:0

[K9FXX08 NAND Flash JTAG Programmer < 64MB ~ 1GB >]
K9F2G08 is detected. ID=0xecda
0:K9FXX08 Program <64MB ~ 1GB>      1:K9FXX08 Pr BlkPage      2:Exit

Select the function to test :0

[SMC(K9F2G08U0A) NAND Flash Writing Program]

Source size:0h~37693h

Available target block number: 0~2047/
Input target block number:0
target start block number      =0
target size      (0x20000*n) =0x40000
STATUS:Test OK 2
Test OK 1
Epp

```

Waiting for several minutes, the Image will be burned successfully into Nand Flash

[illegible]

- 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.

[SFJ 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: AM29LV800DB or AM29LV160DB or EN29LV160AB needs 4 step sequences for 1 hal
f-word data.
    So,the program time is twice of Starata flash(2 step sequences).
[Check AM29LV800 or AM29LV160 or EN29LV160AB]
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 e30
0 e400 e500 e600 e700 e800 e900 ea00 eb00 ec00 ed00 ee00 ef00 f000 f100 f200 f30
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 130
0 1400 1500 1600 1700 1800 1900 1a00 1b00 1c00 1d00 1e00 1f00 2000 2100 2200 230
0 2400 2500 2600 2700 2800 2900 2a00 2b00 2c00 2d00 2e00 2f00 3000 3100 3200 330
0 3400 3500 3600 3700 3800 3900 3a00 3b00 3c00 3d00 3e00 3f00 4000 4100 4200 430
0 4400 4500 4600 4700 4800 4900 4a00 4b00 4c00 4d00 4e00 4f00 5000 5100 5200 530
0 5400 5500 5600 5700 5800 5900 5a00 5b00 5c00 5d00 5e00 5f00 6000 6100 6200 630
0 6400 6500 6600 6700 6800 6900 6a00 6b00 6c00 6d00 6e00 6f00 7000 7100 7200 730
0 7400 7500 7600 7700 7800 7900 7a00 7b00 7c00 7d00 7e00 7f00 8000 8100 8200 830
0 8400 8500 8600 8700 8800 8900 8a00 8b00 8c00 8d00 8e00 8f00 9000 9100 9200 930
0 9400 9500 9600 9700 9800 9900 9a00 9b00 9c00 9d00 9e00 9f00 a000 a100 a200 a30
0 a400 a500 a600
End of the sector data writing!!!

H:\Windows平台工具\SJF2440>

```

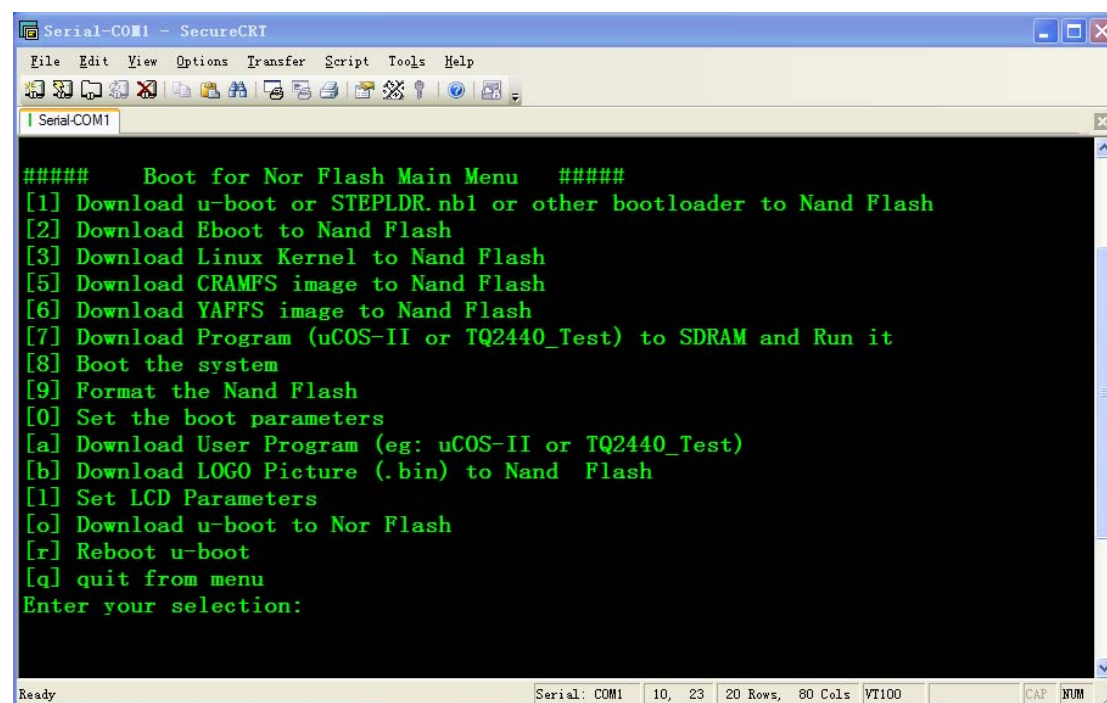
Chapter 3 Using the U-boot to Burn the Image

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:

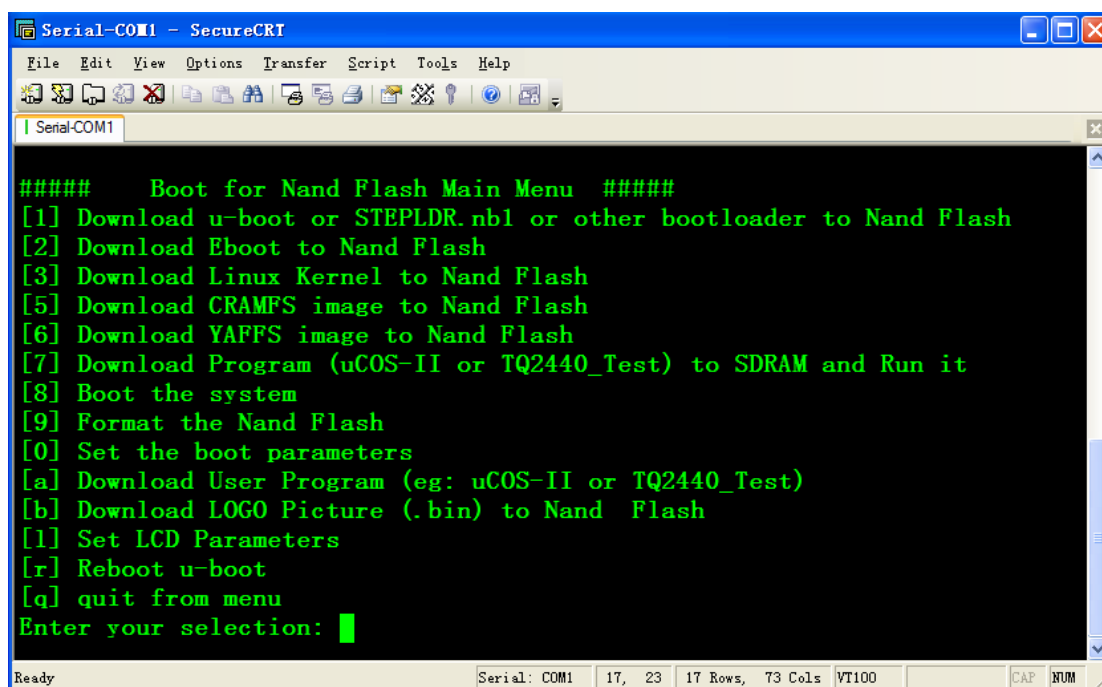
First, after the board powered on, if four green LEDs don't light on at the same time, means that there are no u-boot on the Nor Flash or Nand Flash.

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



```
Serial-COM1 - SecureCRT
File Edit View Options Transfer Script Tools Help
Serial-COM1

##### Boot for Nor Flash Main Menu #####
[1] Download u-boot or STEPLDR.nbl 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:
```

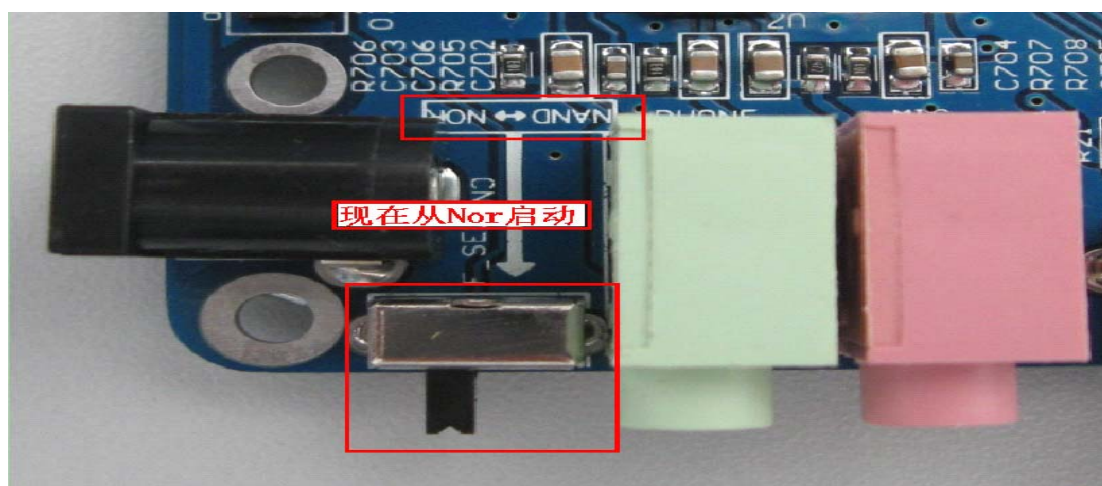


3.1 Using the U-boot to update u-boot

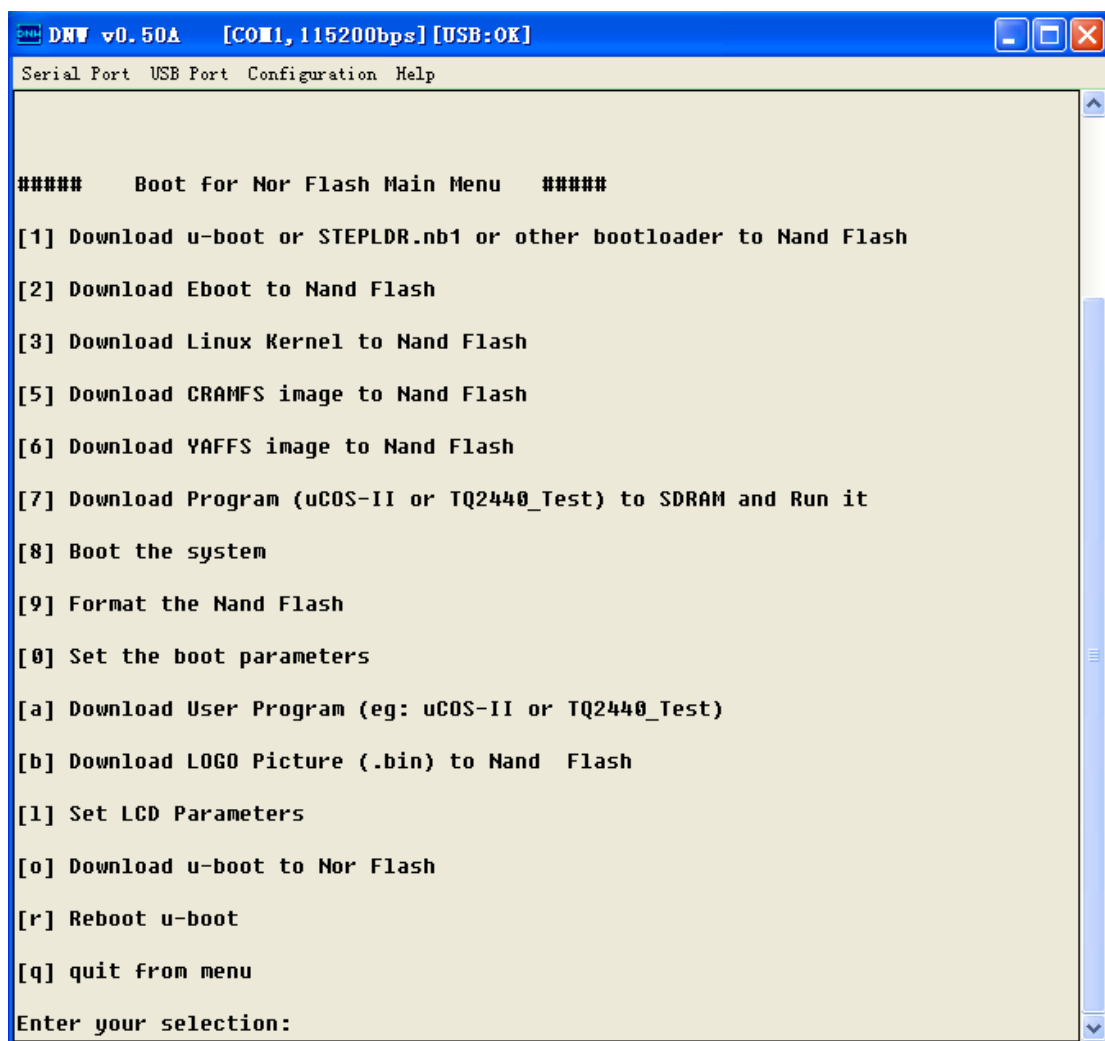
If you erased the u-boot on nand flash, you can burn the u-boot to the nand flash by the u-boot on Nor flash. Of course, you have to burn the u-boot by JTAG if you erased the Nor flash and Nand flash at all.

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.

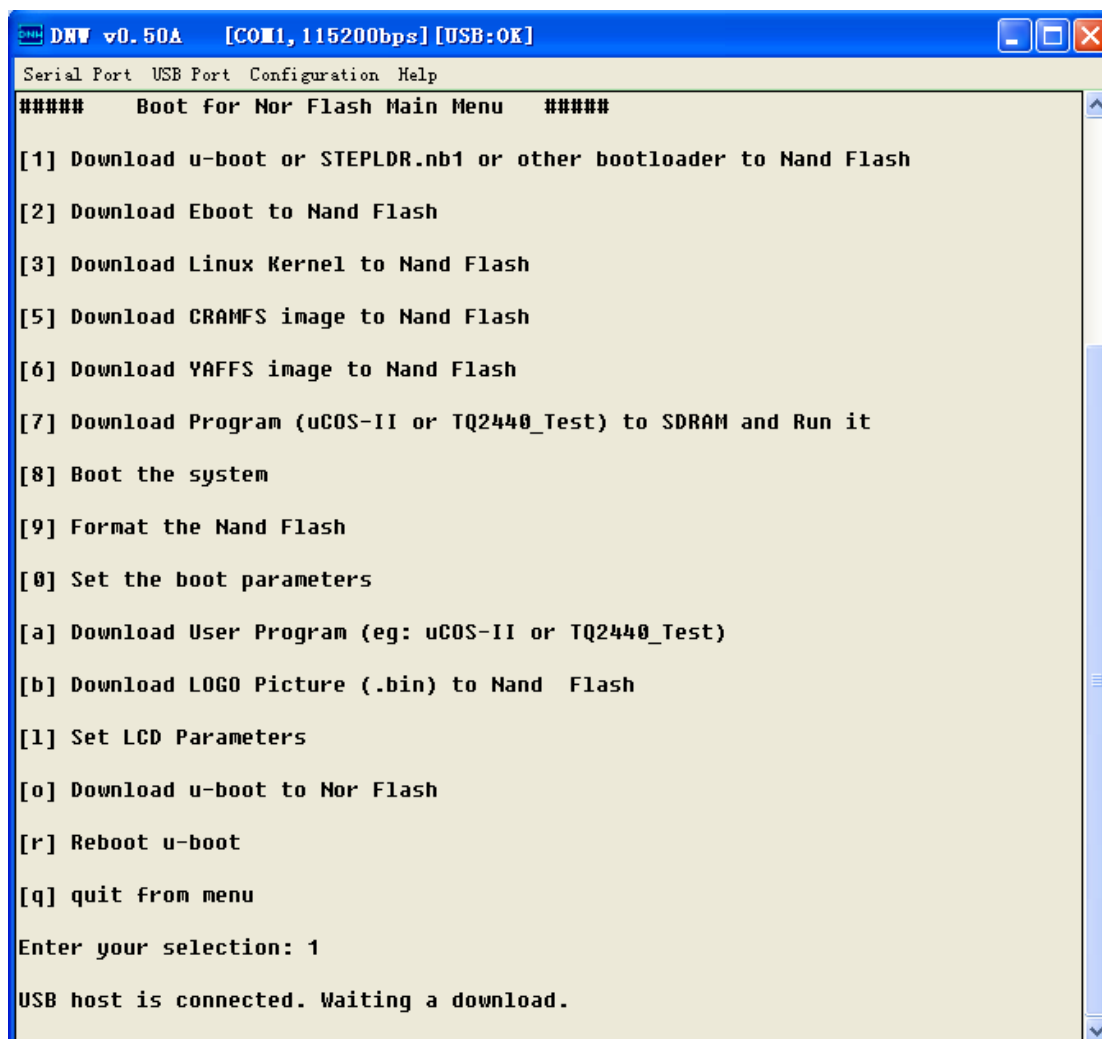


Step 2: Power up the board, you can enter into the u-boot menu as follows:

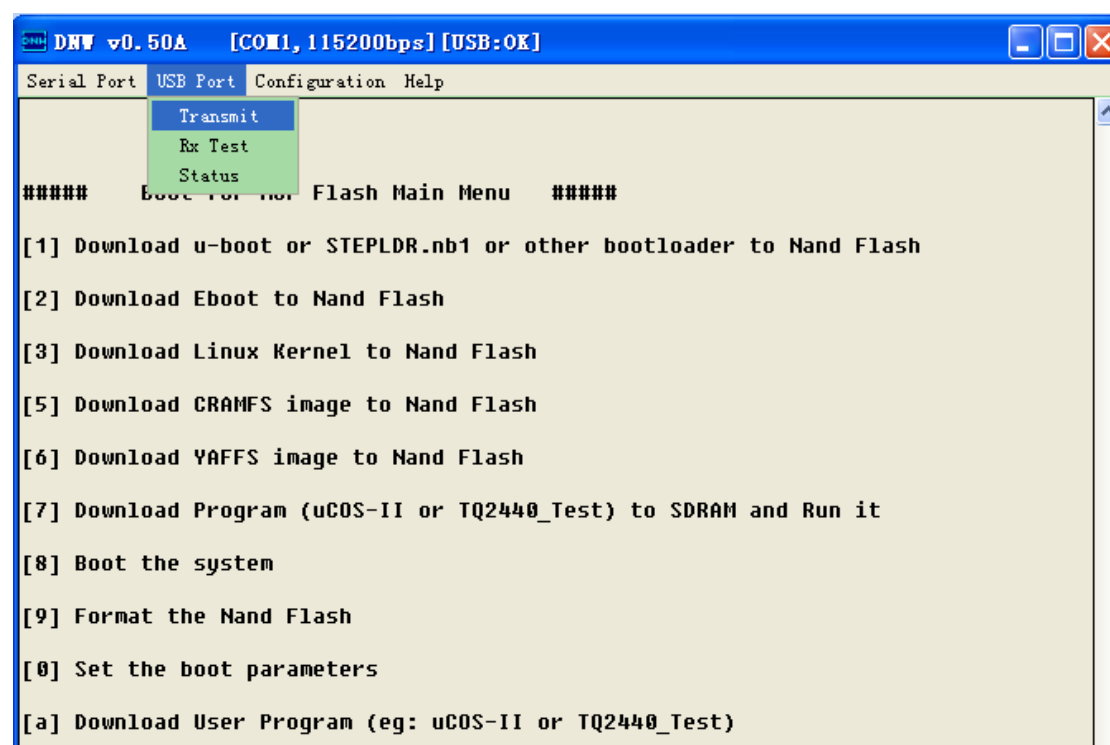
A screenshot of a terminal window titled "DNV v0.50A [COM1, 115200bps] [USB:OK]". The window has a menu bar with "Serial Port", "USB Port", "Configuration", and "Help". The main area displays a boot menu with the following options:

```
##### 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  
[1] Set LCD Parameters  
[o] Download u-boot to Nor Flash  
[r] Reboot u-boot  
[q] quit from menu  
Enter your selection:
```

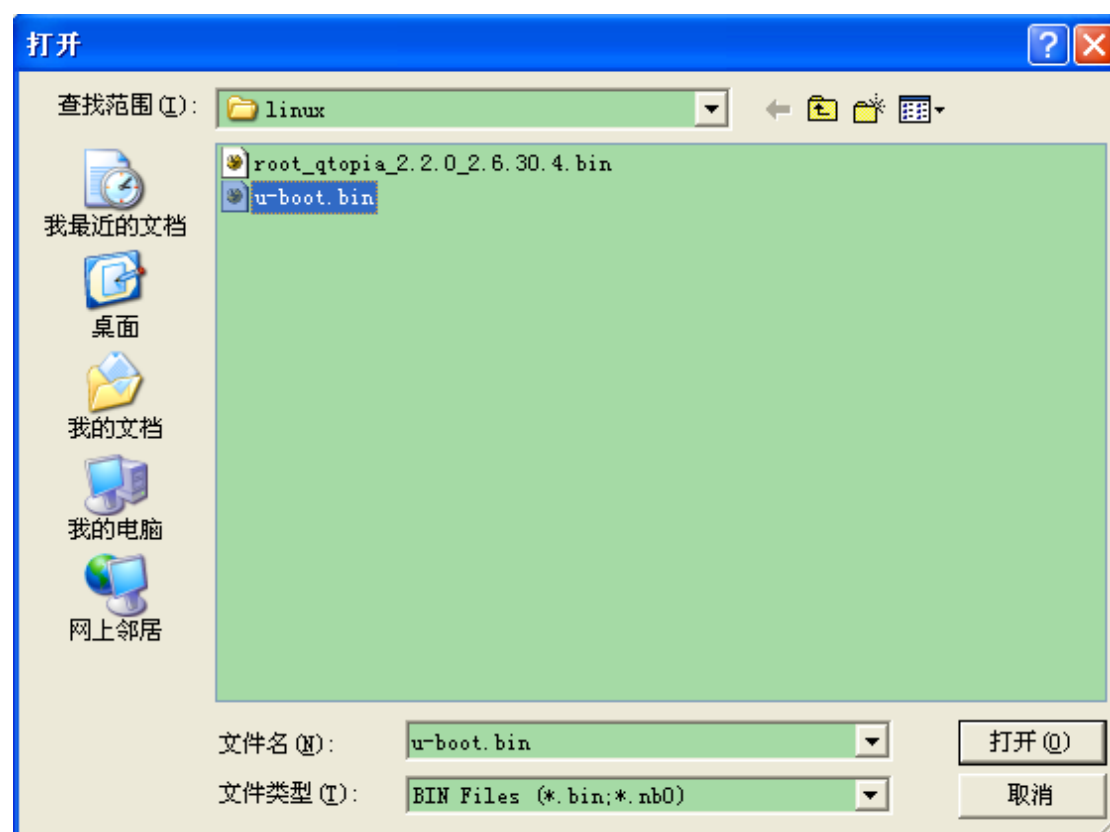
Step 3: Input "1" and press enter key.:



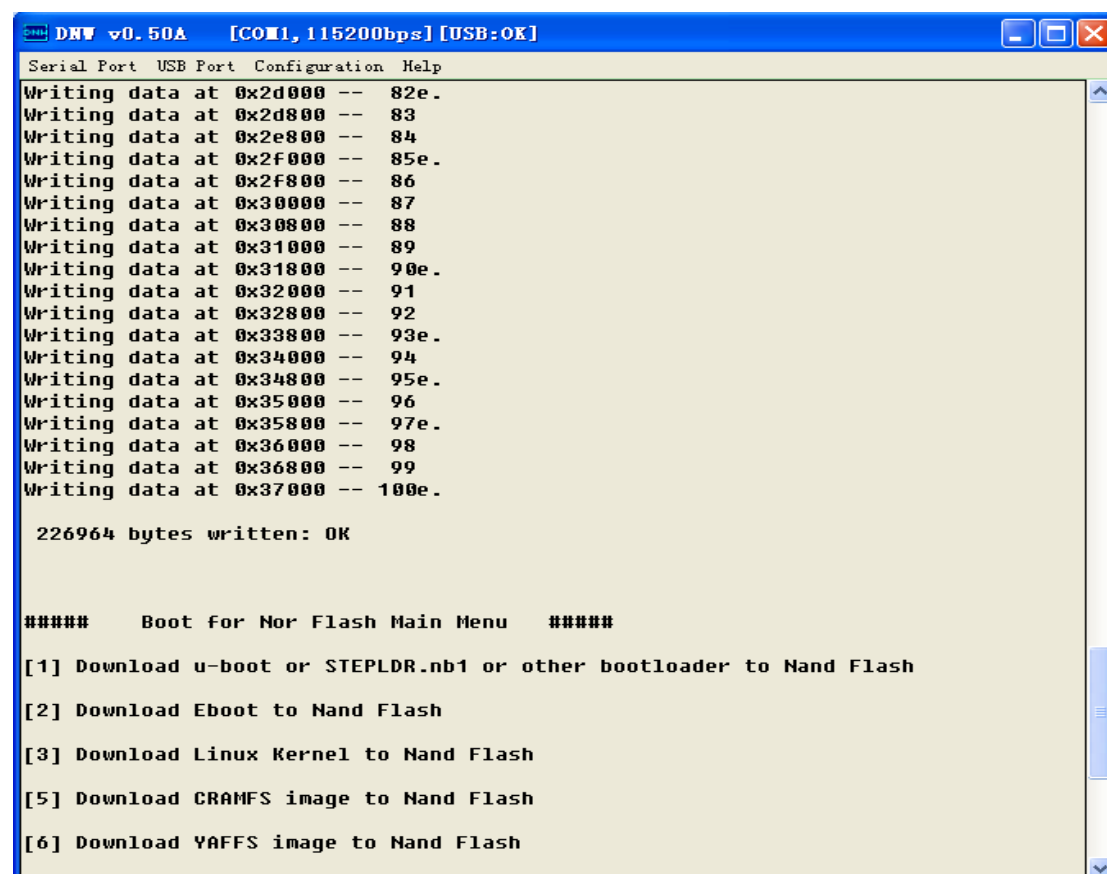
Step 4: Choose the "USB port->transmit":



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.



```
DHW 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
```

3.2 Using the U-boot to Burn the Linux Image

If you want to run linux system, you have to boot from nand flash. Linux system includes three parts: u-boot, kernel and root file system. The process of burning u-boot to nand flash is described in the chapter 3.1. Following, we introduce how to burn the kernel and root file system to nand flash.

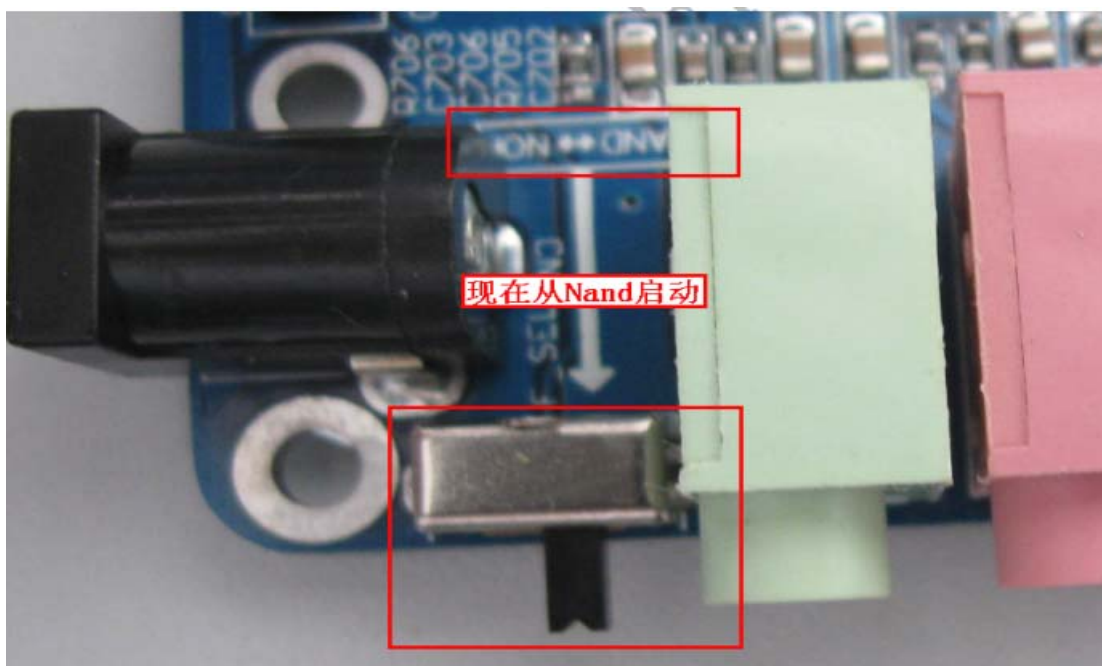
We suppose the u-boot has existed on nand flash.

3.2.1 Burn the kernel image

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.

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

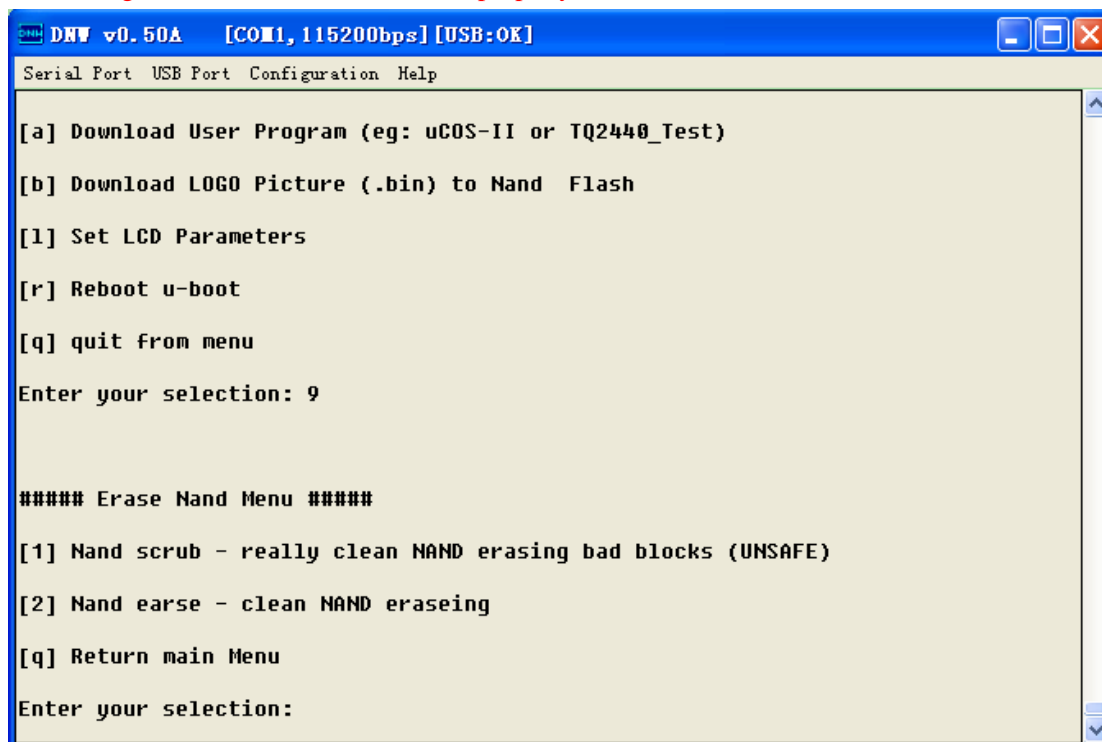
Press Space key to Download Mode !

##### 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
[l] Set LCD Parameters
[r] Reboot u-boot
[q] quit from menu
Enter your selection: |
```

Step 3: 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)

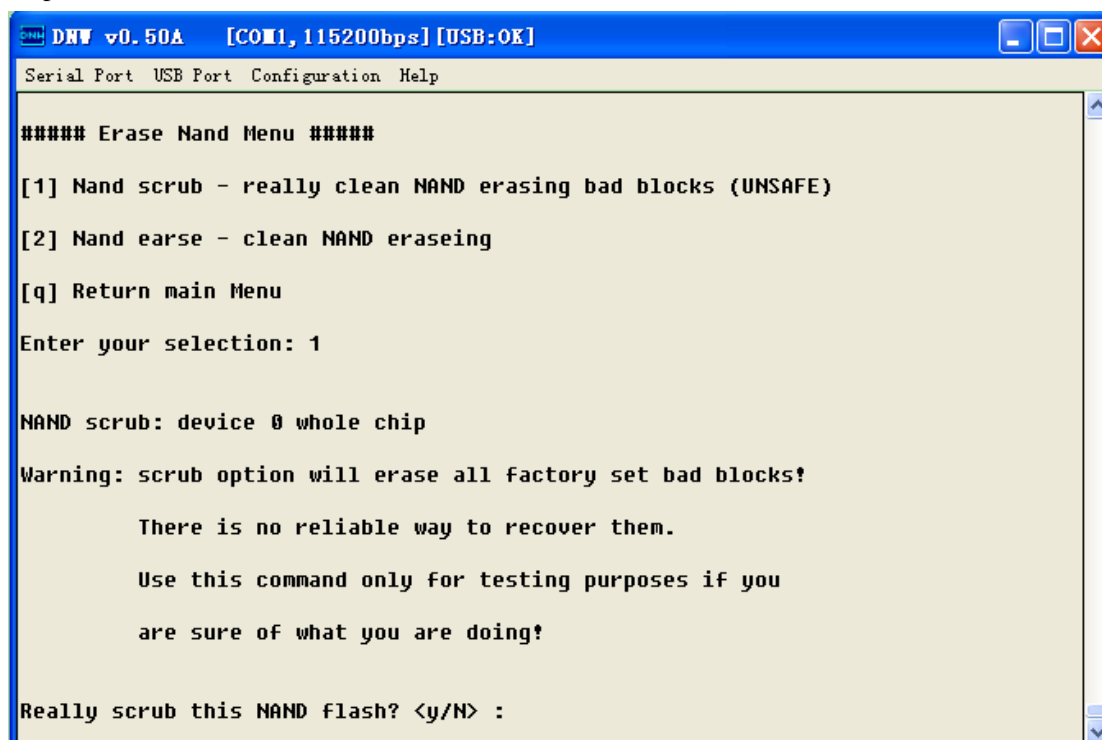


```
DNW v0.50A [COM1, 115200bps] [USB:OK]
Serial Port USB Port Configuration Help

[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 eraseing
[q] Return main Menu
Enter your selection:
```

Step 4: 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 eraseing
[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: Input “y”, and press enter key.

```

DNW v0.50A [COM1, 115200bps] [USB:OK]
Serial Port USB Port Configuration Help
Erasing at 0x11e0000 -- 7
Erasing at 0x1460000 -- 8
Erasing at 0x1700000 -- 9

NAND 256MiB 3,3U 8-bit: MTD Erase failure: -5

Erasing at 0x1980000 -- 10
Erasing at 0x1c20000 -- 11
Erasing at 0x1ea0000 -- 12
Erasing at 0x2140000 -- 13
Erasing at 0x23c0000 -- 14
Erasing at 0x2660000 -- 15
Erasing at 0x28e0000 -- 16
Erasing at 0x2b80000 -- 17
Erasing at 0x2e00000 -- 18
Erasing at 0x30a0000 -- 19
Erasing at 0x3320000 -- 20
Erasing at 0x35c0000 -- 21
Erasing at 0x3840000 -- 22
Erasing at 0x3ae0000 -- 23
Erasing at 0x3d60000 -- 24
Erasing at 0x3fe0000 -- 25
Erasing at 0x4280000 -- 26

```

Step 6: 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 #####

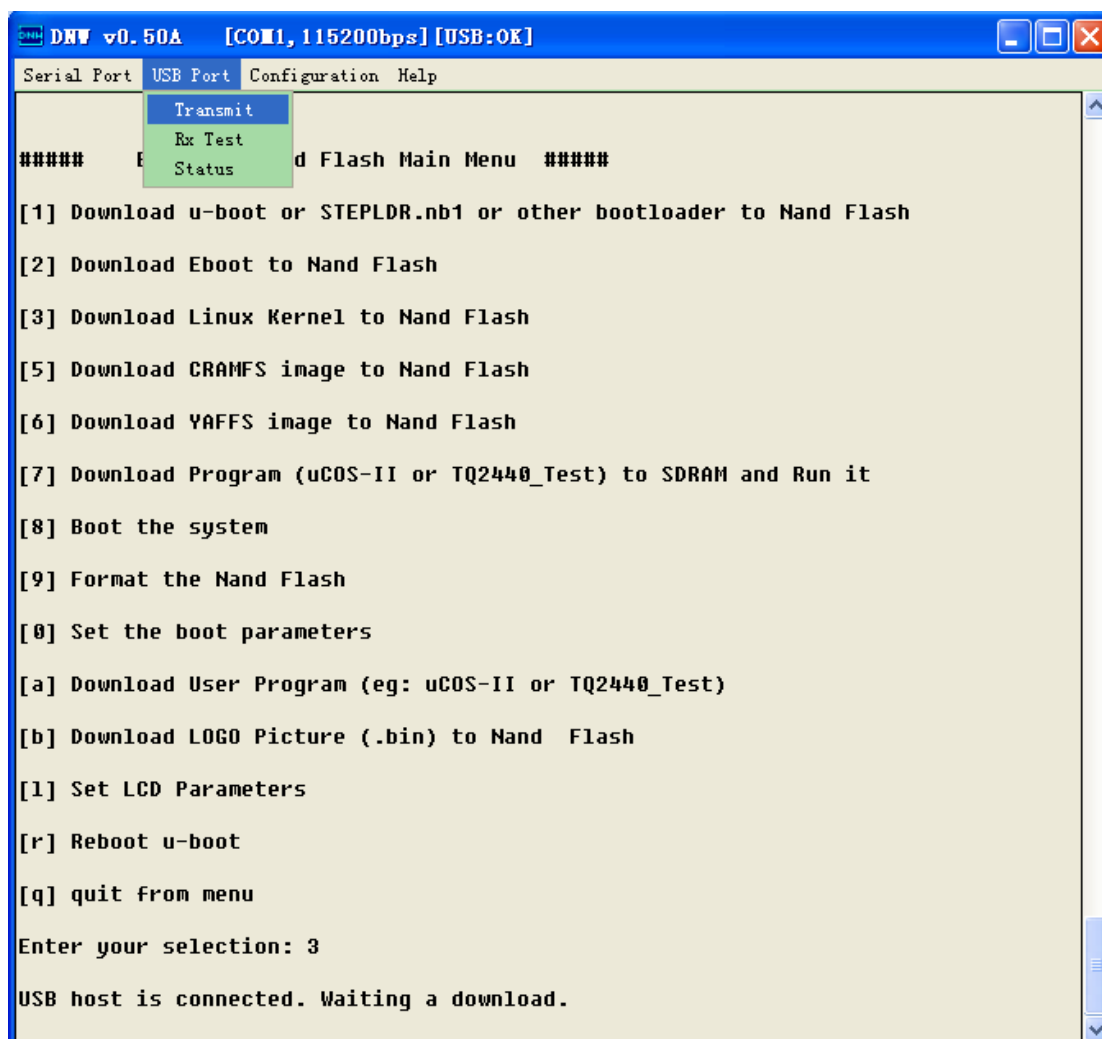
[1] Nand scrub - really clean NAND erasing bad blocks (UNSAFE)
[2] Nand earse - clean NAND eraseing
[q] Return main Menu

Enter your selection:

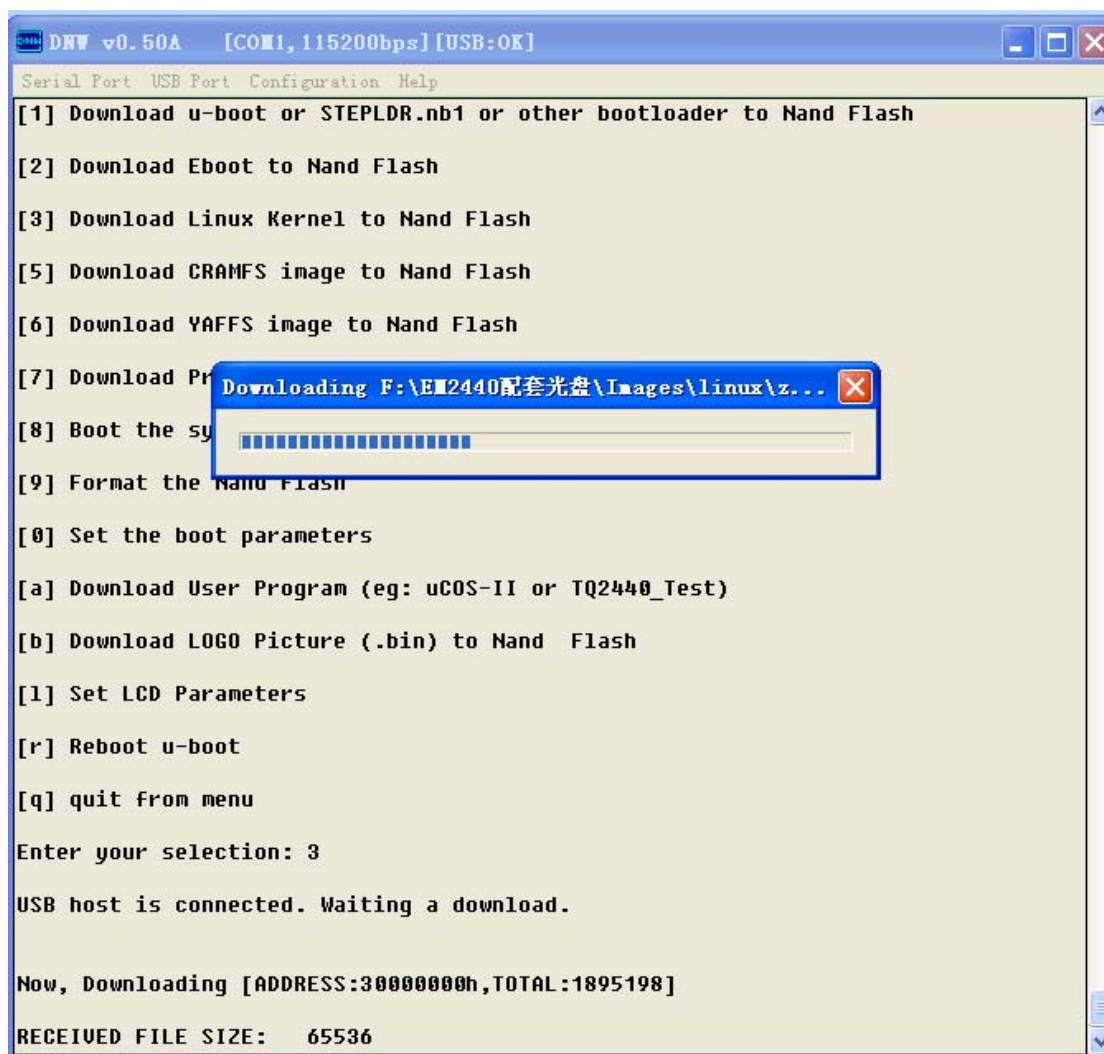
```

Step 7: Choose “1”, re-burn the u-boot again, because of above format operation. You can refer to chapter 3.1 for details.

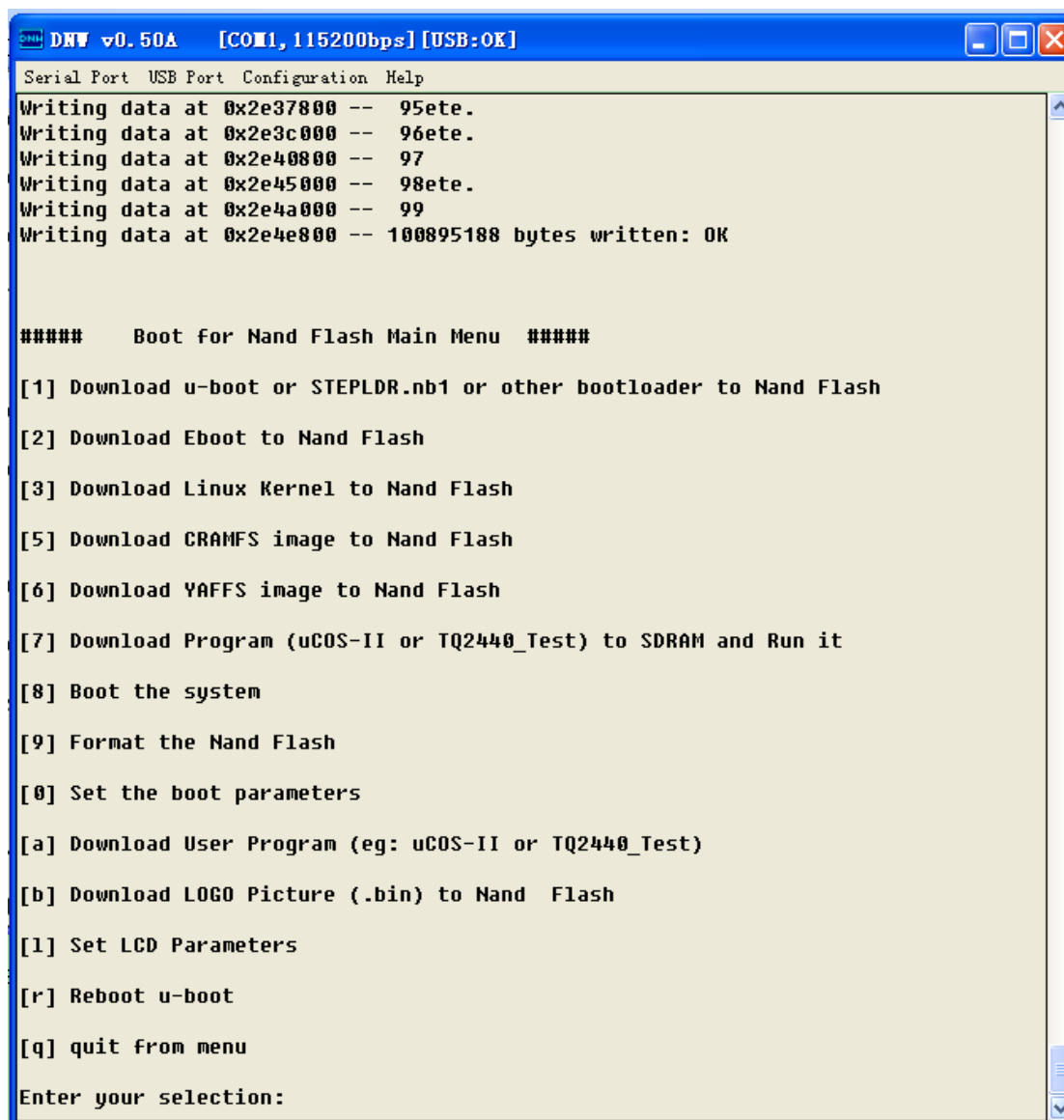
Step 8: Choose the “3”, and select the “USB port->transmit”.



Step 9: select the kernel image “zImage”, and begin to burn.



Step 10: After above steps, you should see the following message, and then, you have burnt the kernel image into the nand flash.



The screenshot shows a terminal window titled "DNW v0.50A [COM1, 115200bps] [USB:OK]". The window has a menu bar with "Serial Port", "USB Port", "Configuration", and "Help". The main text area displays the following output:

```
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

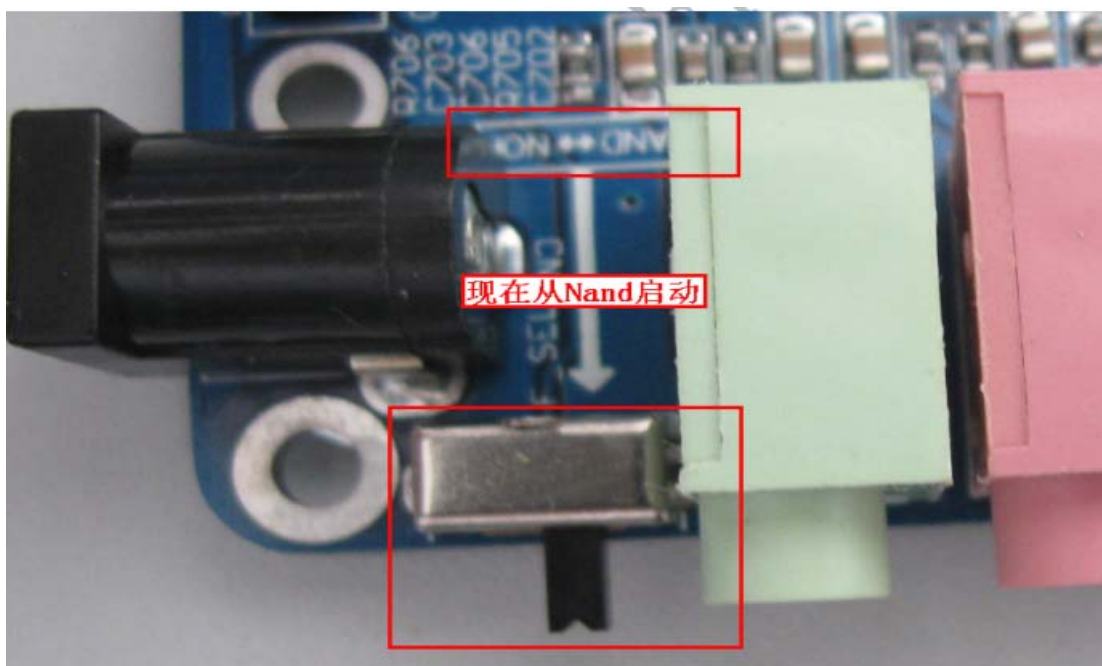
##### Boot for Nand Flash Main Menu #####

[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:
```

3.2.1 Burn the root file system image

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



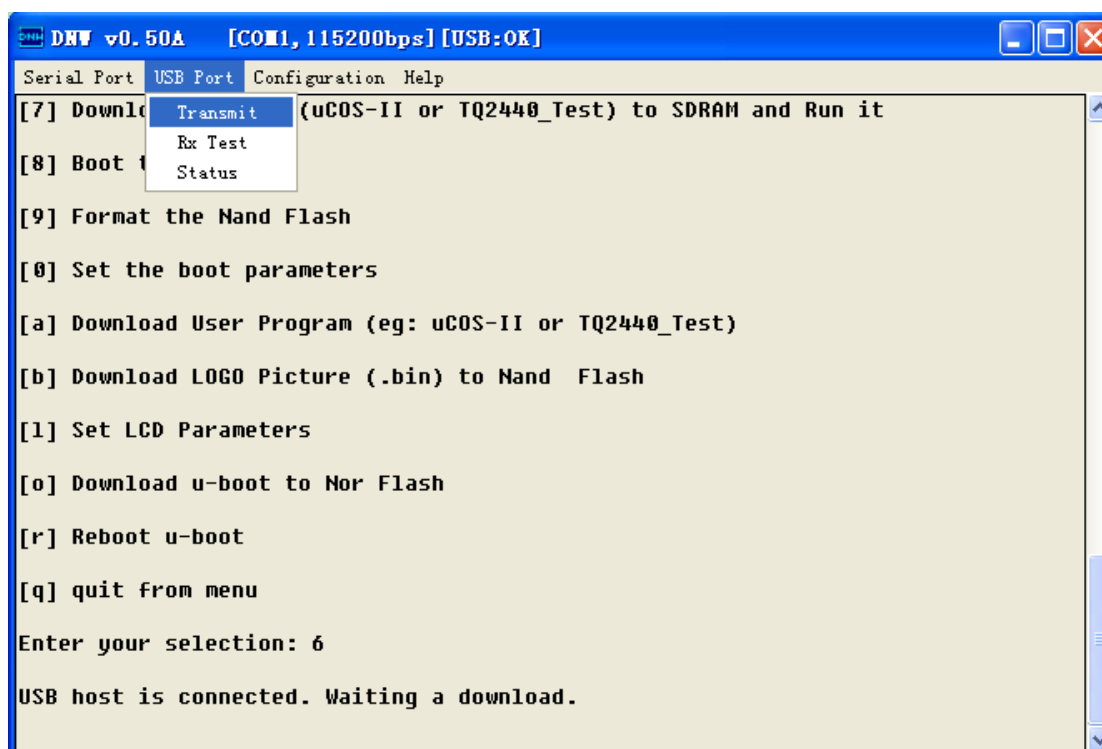
Step 2: Power up the board, and press the space key to enter into the u-boot menu.

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

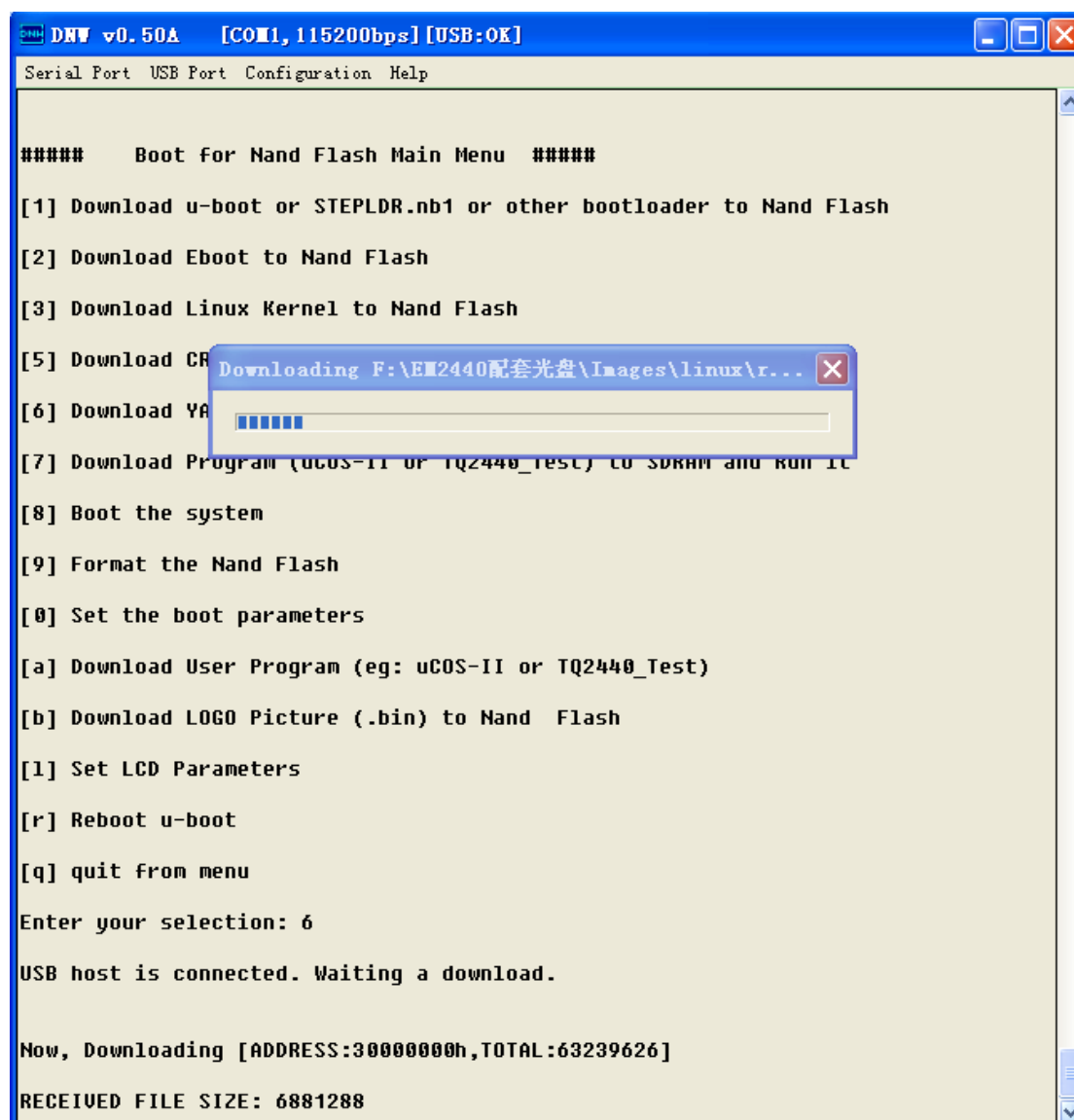
Press Space key to Download Mode !

##### 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
[l] Set LCD Parameters
[r] Reboot u-boot
[q] quit from menu
Enter your selection: |
```

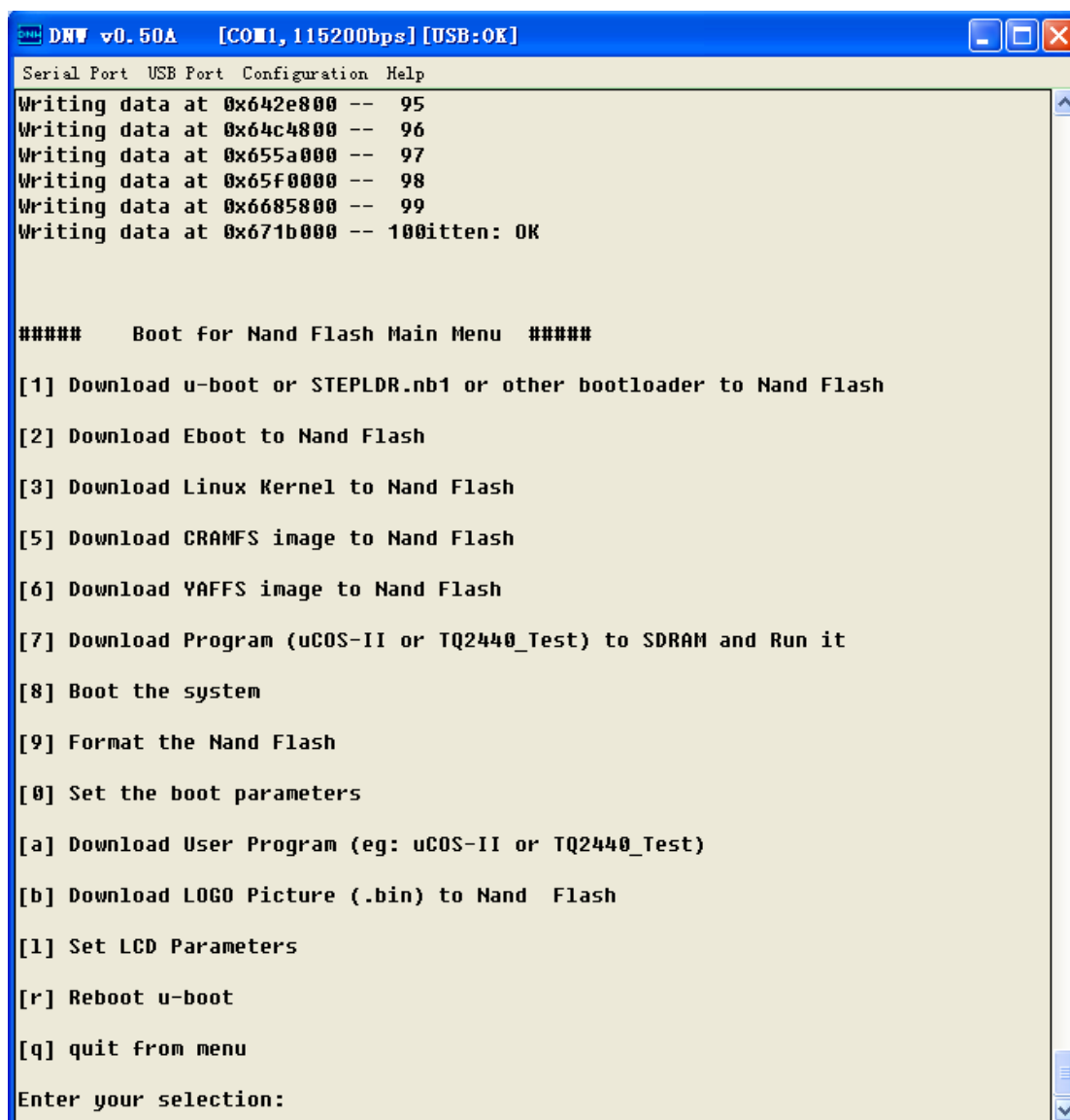
Step 3: Choose the “6”, and select the “USB port->transmit”.



Step 4: select the kernel 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.



The screenshot shows the DNW v0.50A software window with a menu for booting from Nand Flash. The window title is "DNW v0.50A [COM1, 115200bps] [USB:OK]". The menu options are as follows:

```

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:

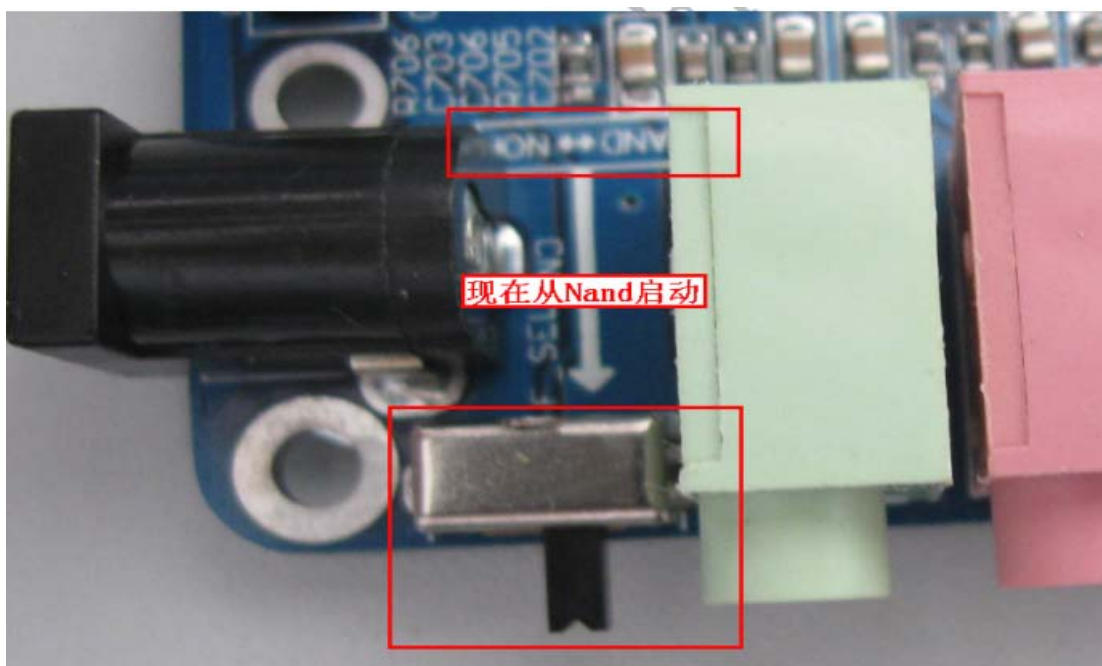
```

3.3 Using the U-boot to Burn the Wince 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. The process of burning u-boot to nand flash is described in the chapter 3.1. So, we suppose the u-boot has existed on nand flash.

3.3.1 Burn the STEPLDR.nb1 and Eboot.nb0 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.

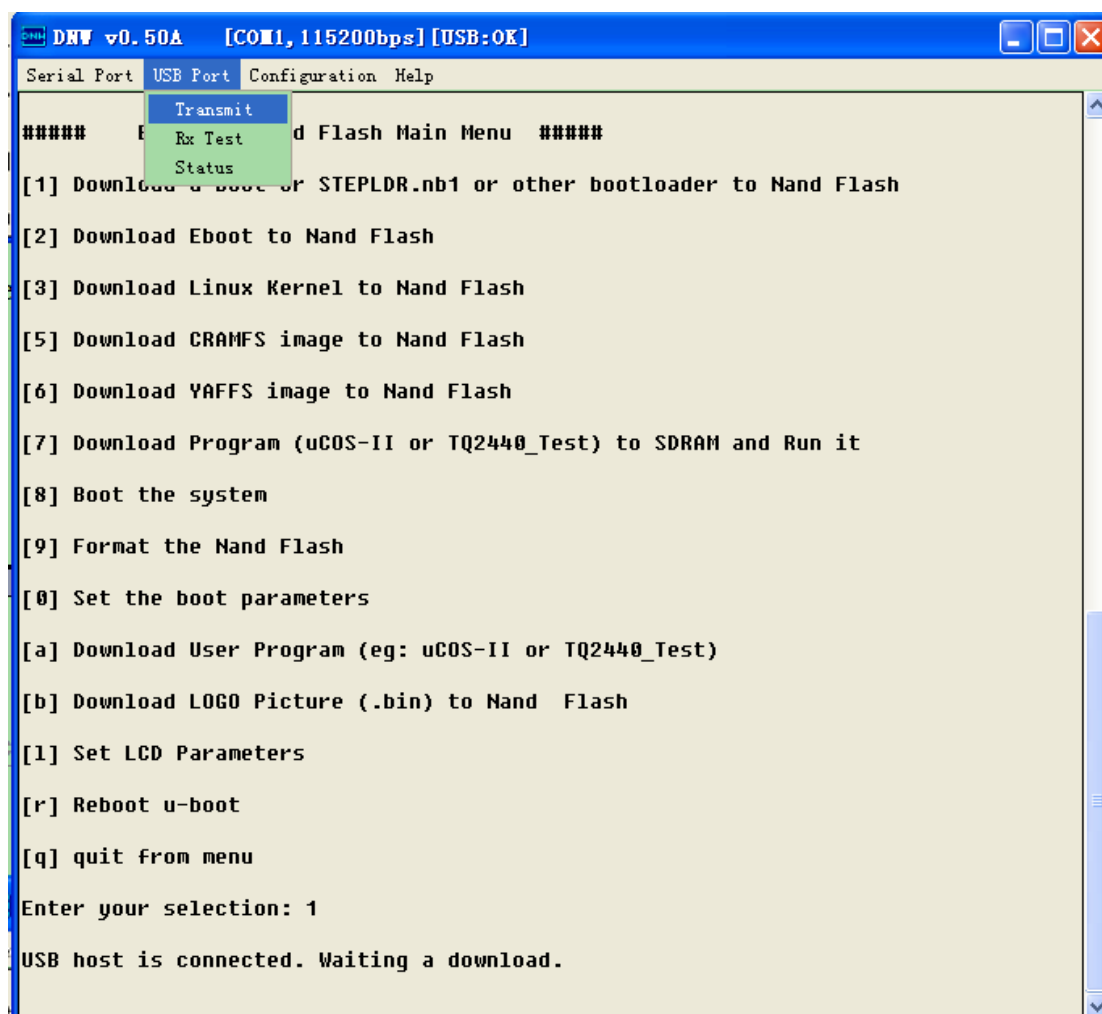
```
DNW v0.50A [COM1,115200bps] [USB:OK]
Serial Port USB Port Configuration Help

Press Space key to Download Mode !

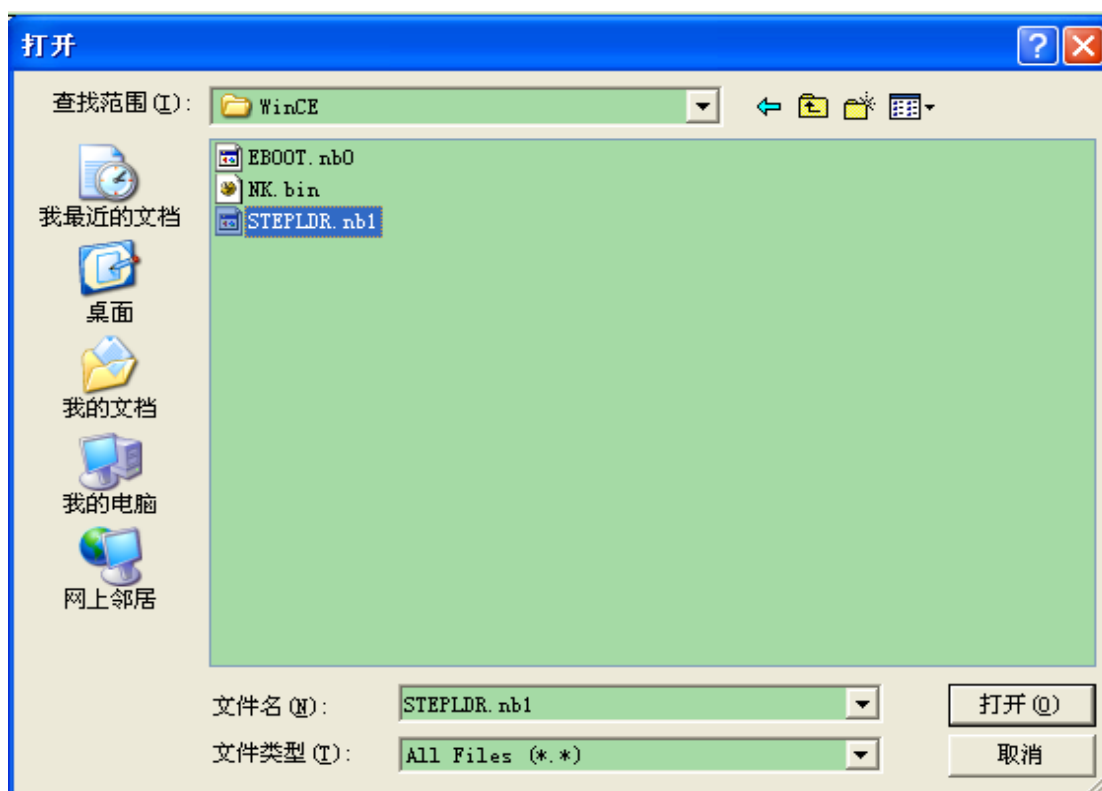
##### Boot for Nand Flash Main Menu #####

[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
[l] Set LCD Parameters
[r] Reboot u-boot
[q] quit from menu
Enter your selection: |
```

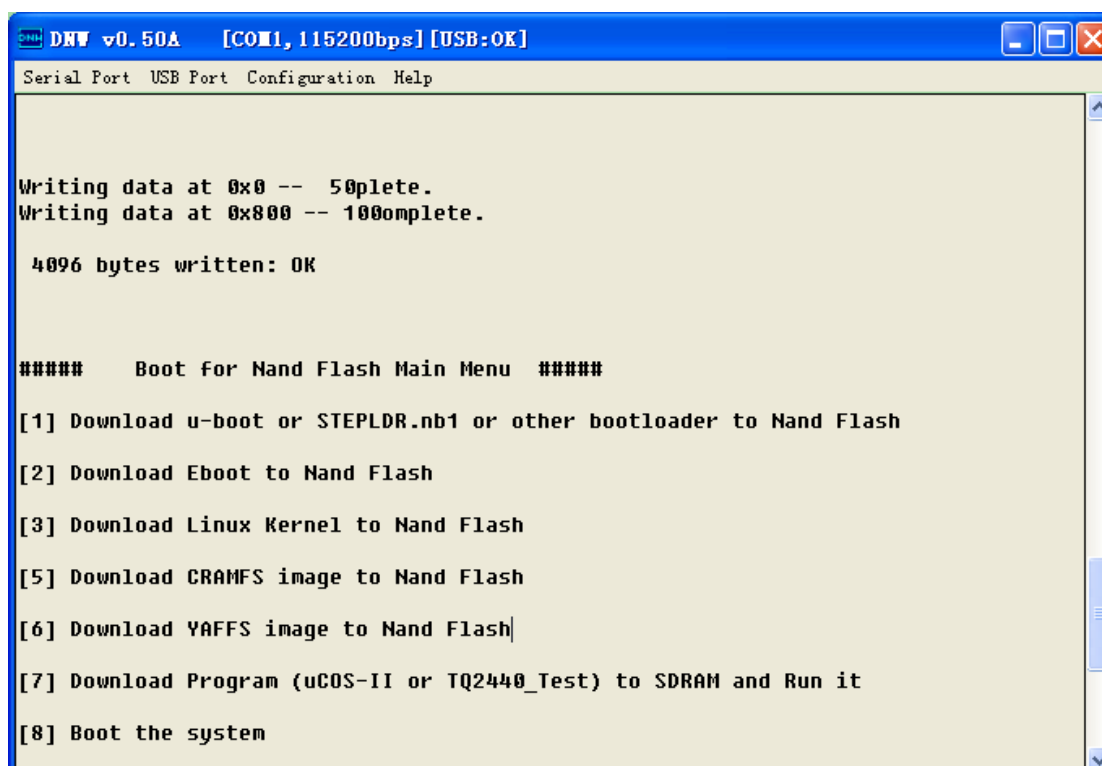
Step 3: Choose “1” to burn the STEPLDR.nb1 image, and select the “USB port->transmit”.



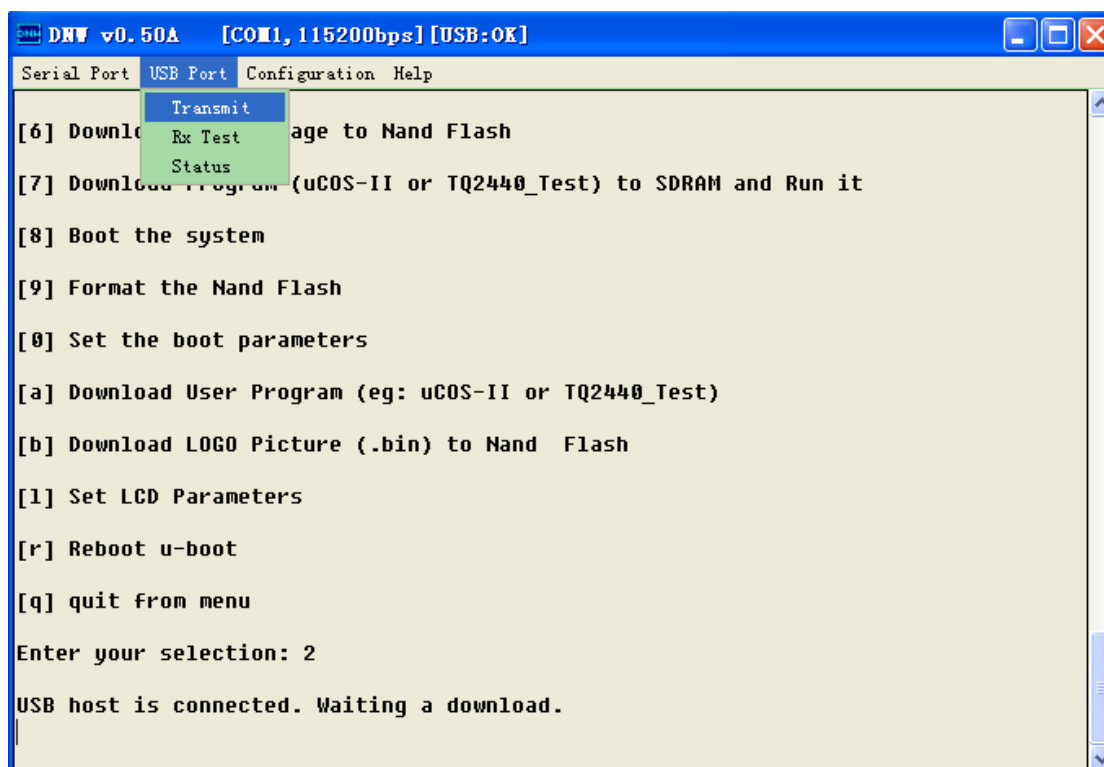
Step 4: select the kernel image “STEPLDR.nb1” image under the /image/wince/ directory, and begin to burn.



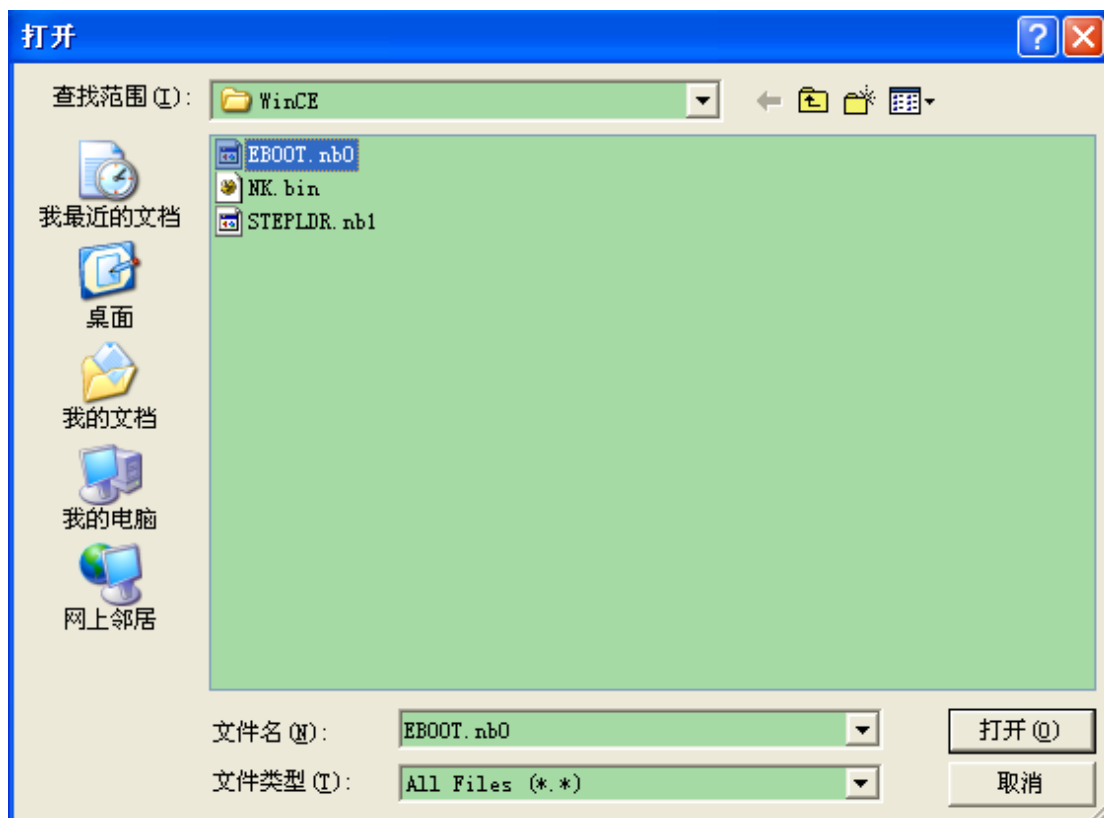
Step 5: After above steps, you should see the following message, and then, you have burnt the STEPLDR.nb1 image into the nand flash.



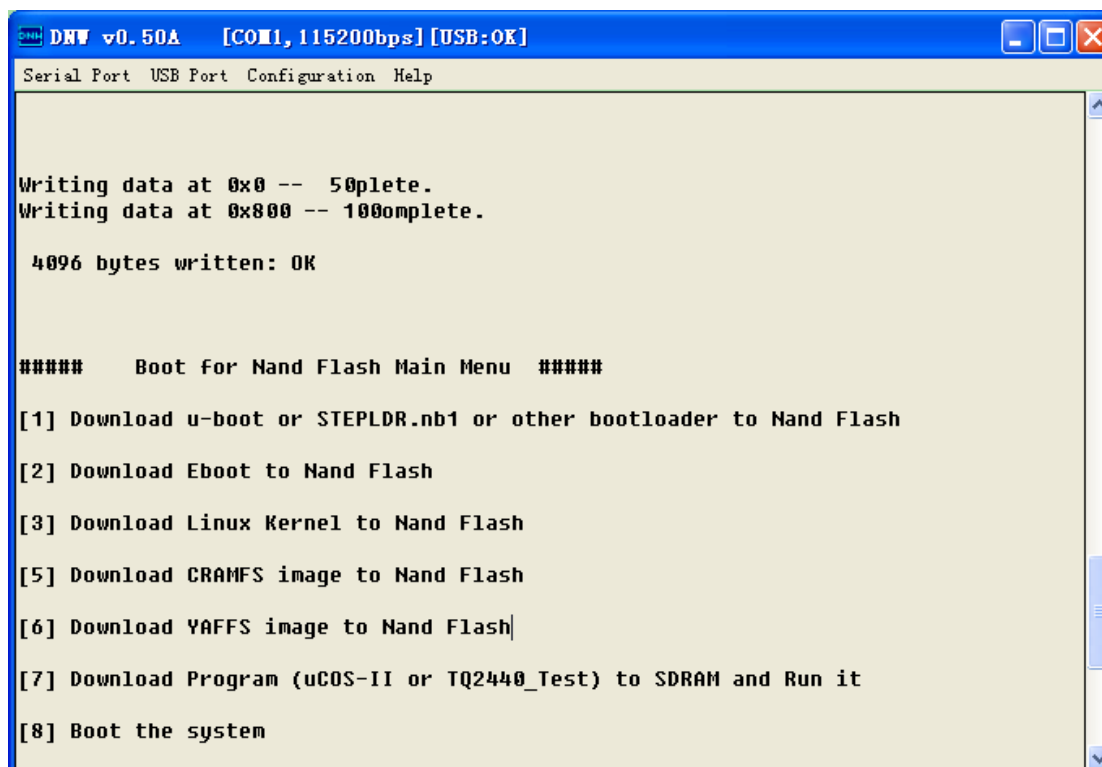
Step 6: Choose “2” to burn the Eboot.nb0 image, and select the “USB port->transmit”.



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.

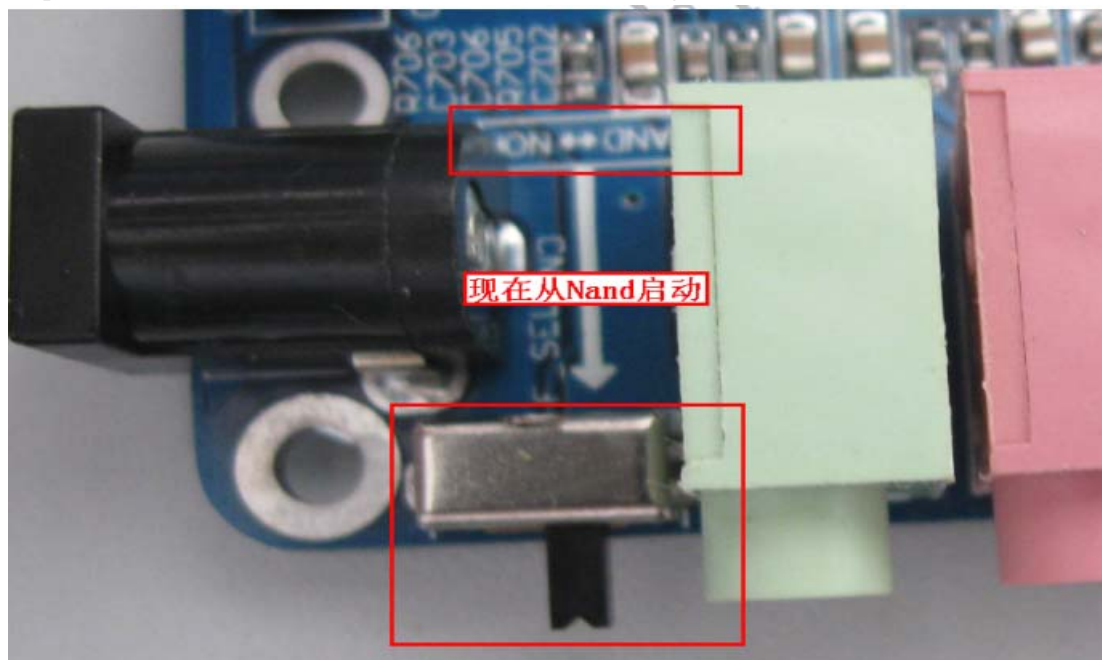


The screenshot shows a terminal window titled "DNW v0.50A [COM1, 115200bps] [USB:OK]". The window has a menu bar with "Serial Port", "USB Port", "Configuration", and "Help". The main text area displays the following output:

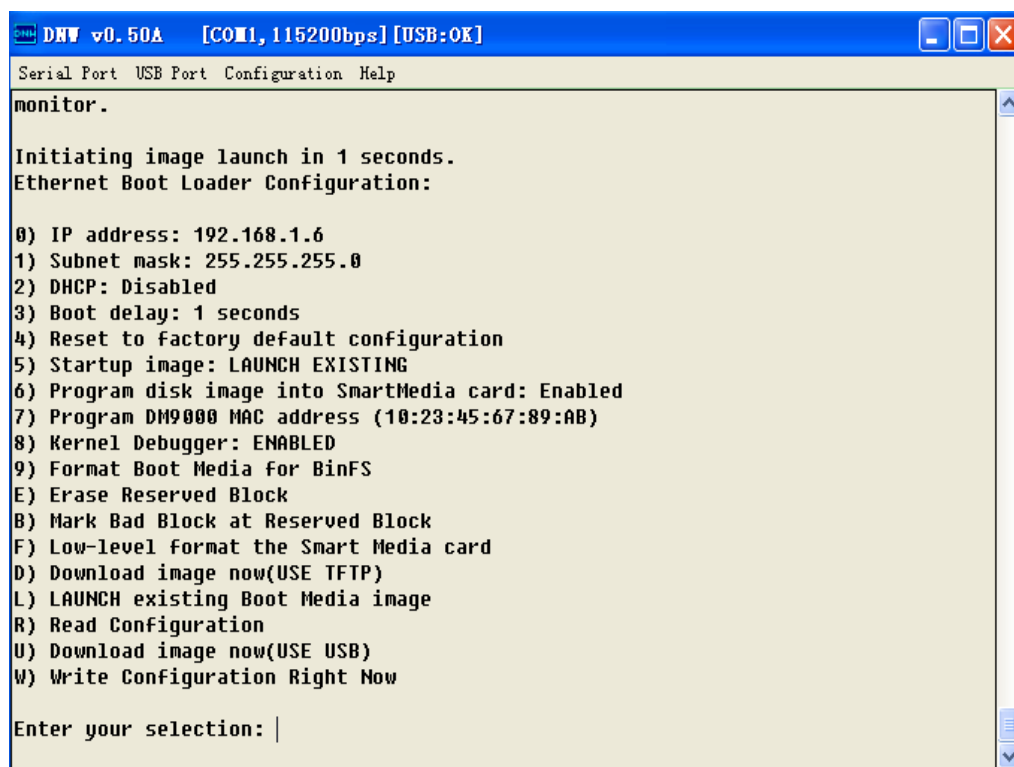
```
Writing data at 0x0 -- 50plete.  
Writing data at 0x800 -- 100omplete.  
  
4096 bytes written: OK  
  
##### Boot for Nand Flash Main Menu #####  
[1] Download u-boot or STEPLDR.nb1 or other bootloader to Nand Flash  
[2] Download Eboot to Nand Flash  
[3] Download Linux Kernel to Nand Flash  
[5] 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
```

3.3.2 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.



```

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

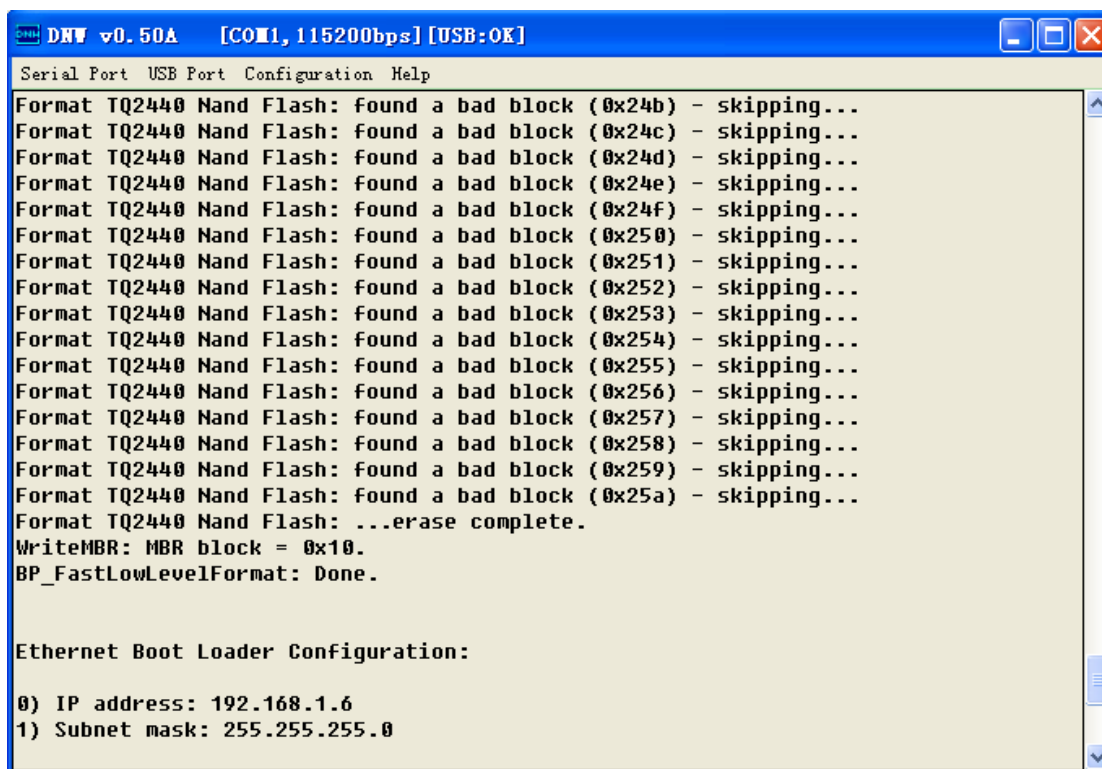
Initiating image launch in 1 seconds.
Ethernet Boot Loader Configuration:

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 DH9000 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.



```

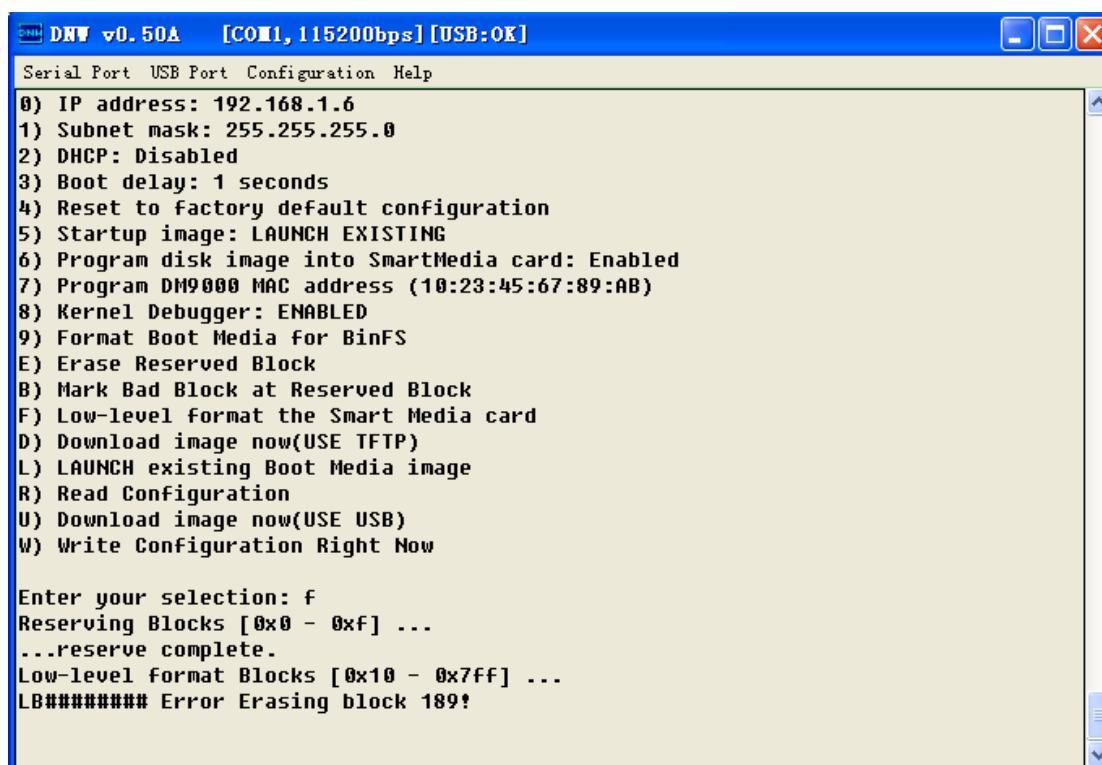
DNV v0.50A [COM1,115200bps] [USB:OK]
Serial Port USB Port Configuration Help
Format TQ2440 Nand Flash: found a bad block (0x24b) - skipping...
Format TQ2440 Nand Flash: found a bad block (0x24c) - skipping...
Format TQ2440 Nand Flash: found a bad block (0x24d) - skipping...
Format TQ2440 Nand Flash: 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:

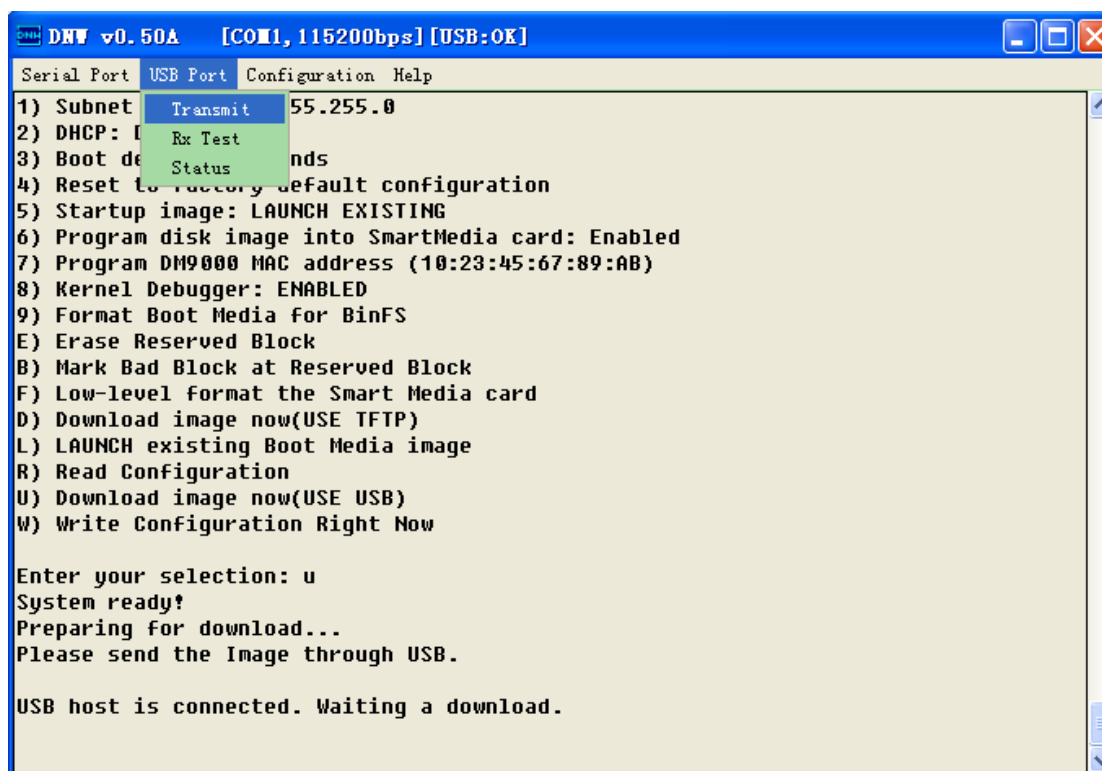
0) IP address: 192.168.1.6
1) Subnet mask: 255.255.255.0

```

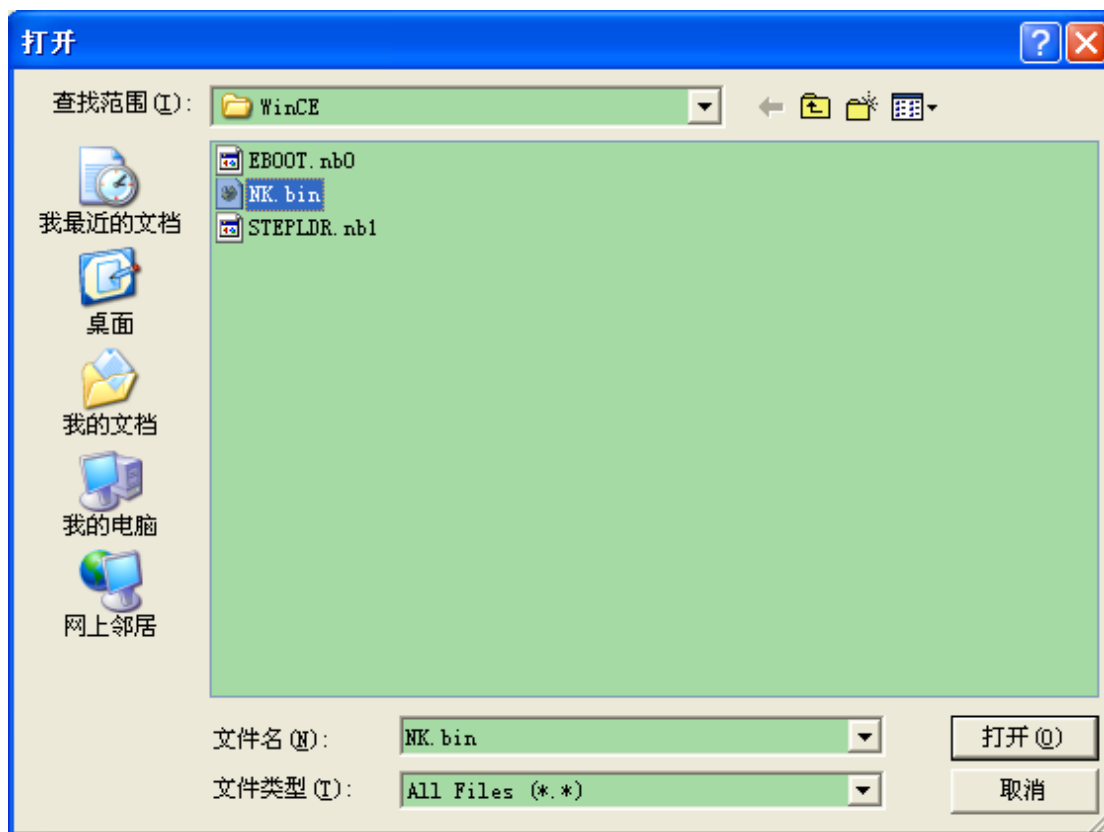
Step 4: Choose the “F” to low-level format the Smart Media card.



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



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



Step 6: After several minute, the Wince system boot automatically, and you have to reset your board at the first time.

