

Q: How to burn images to iNand in EM210 (Android4.0.3)?

A:

1 Burn uboot.bin to iNand when there dose not have uboot.bin in iNand

Step 1, Set EM210 board to USB boot mode

Configure the boot mode:

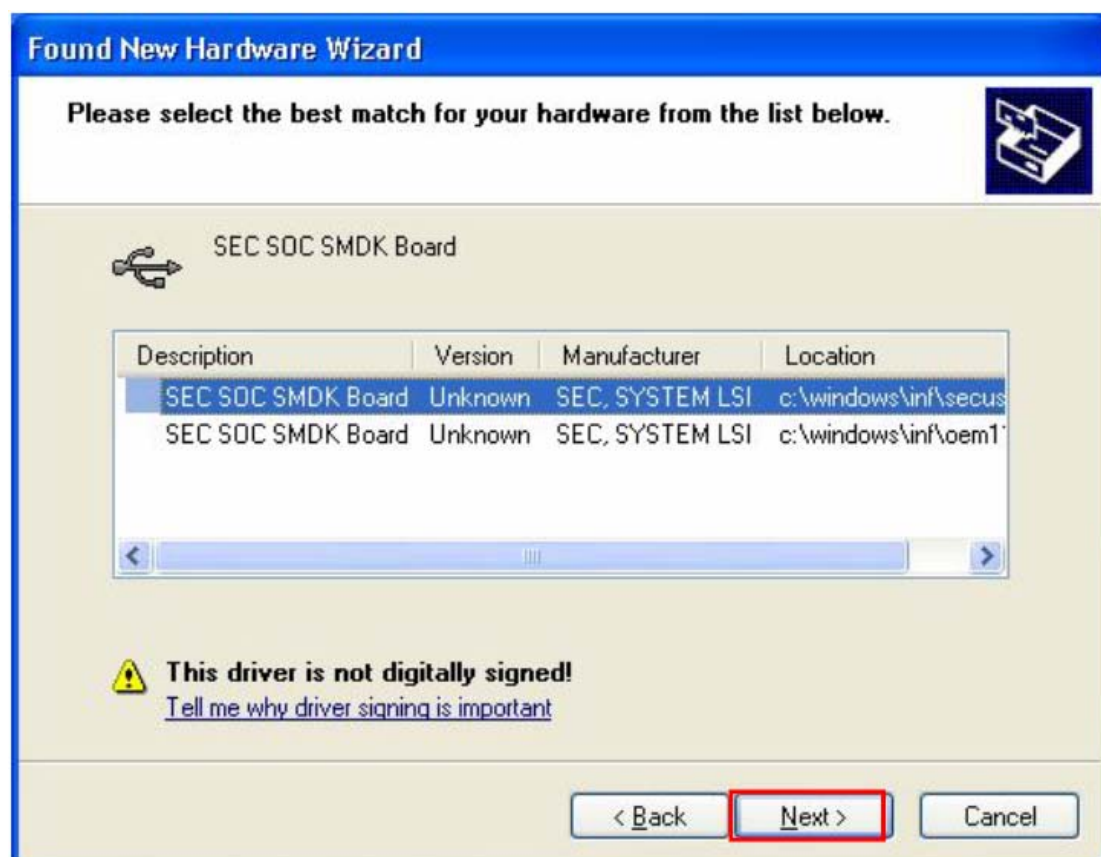
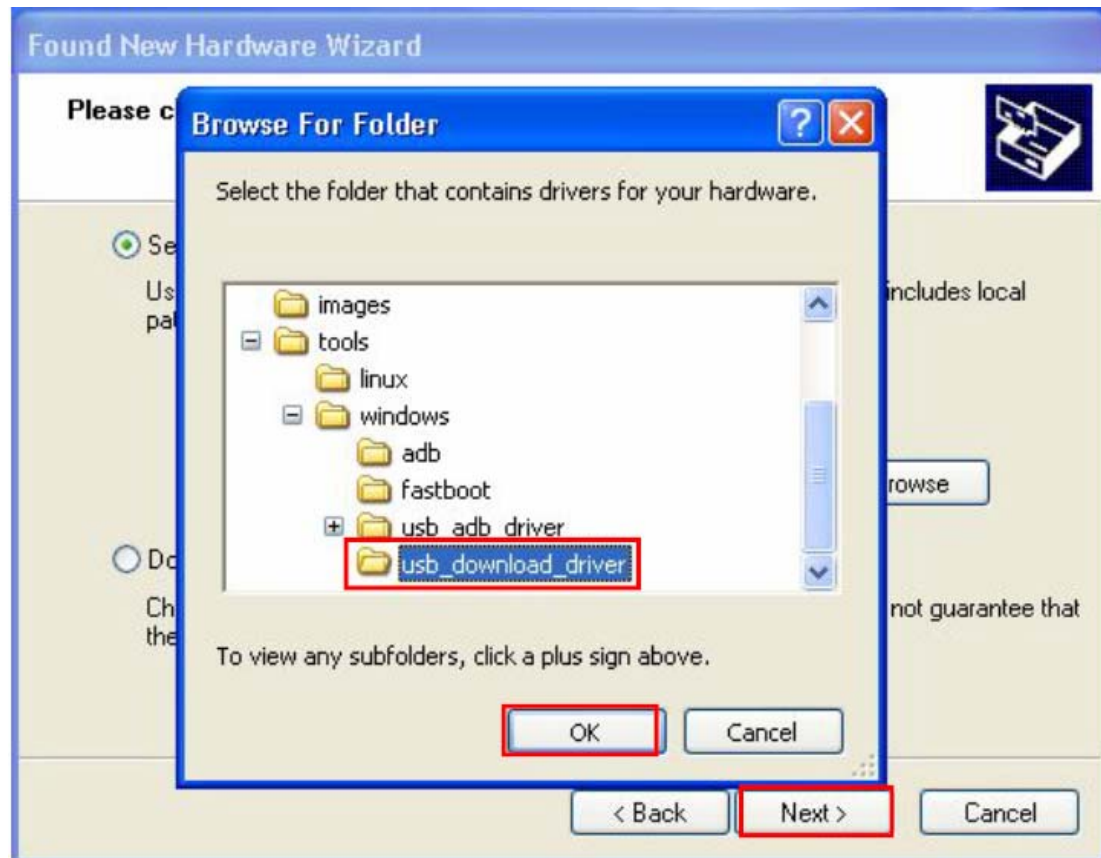
Boot Mode	J1	J2	J3	J4	J5	J6
NAND	ON	ON	ON	ON	OFF	ON
iNAND	ON	ON	OFF	OFF	ON	ON
USB	OFF	ON	ON	ON	OFF	ON

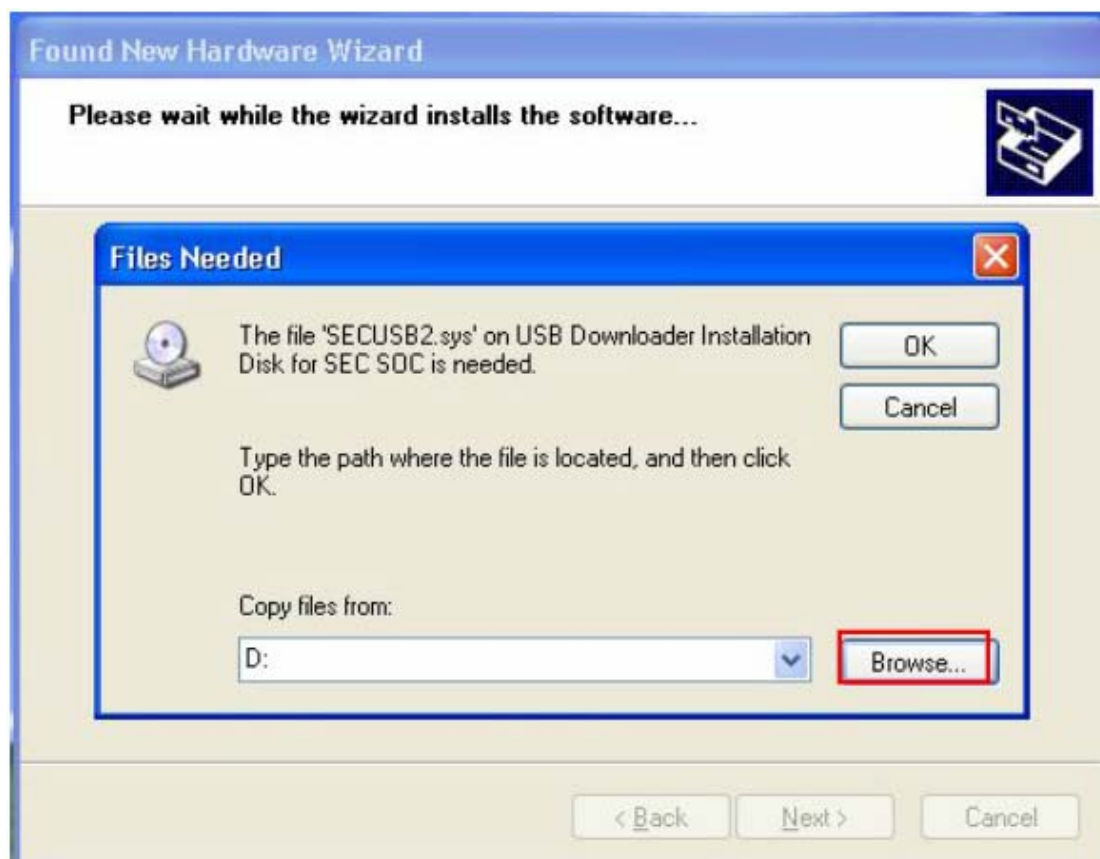
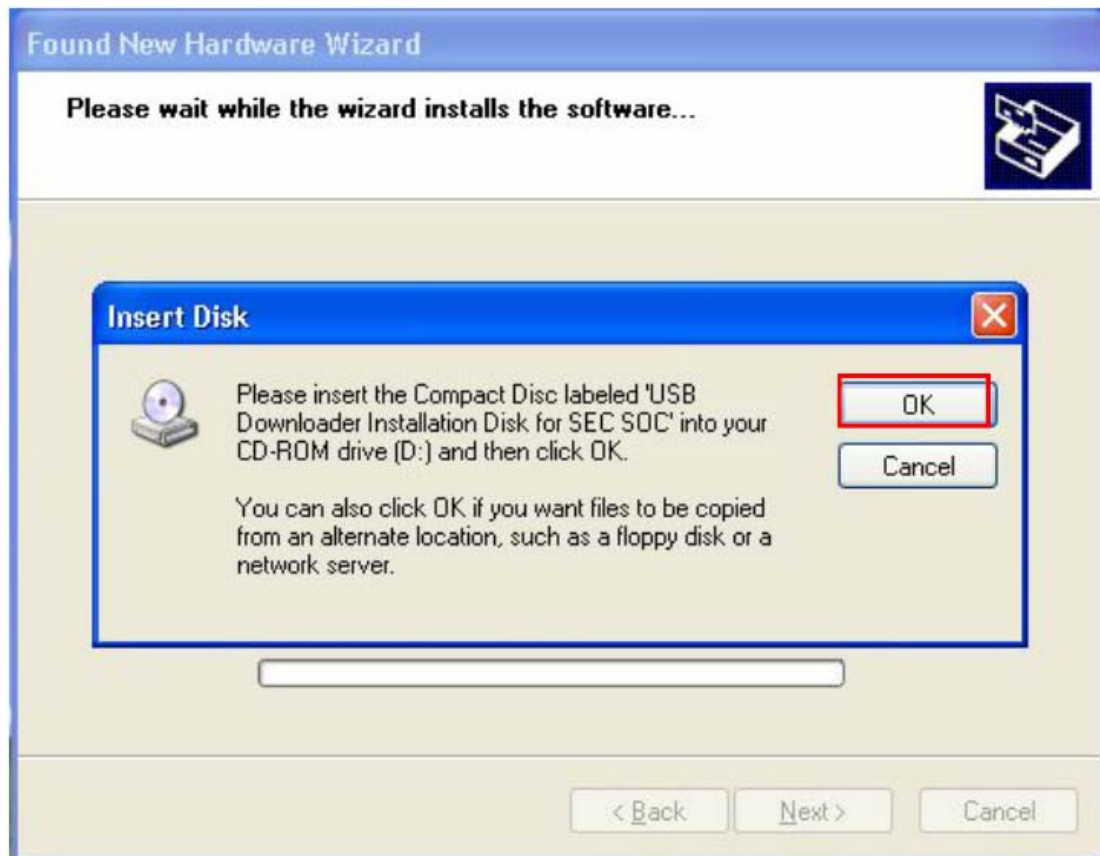
Step 2, EM210 board connect 5V adapter, serial cable, USB cable (between EM210 USB OTG port and PC).

Step 3, Power on EM210 board. The PC will report that found new hardware if your PC does not have installed this USB drive (tools\windows\usb_download_driver), install the USB driver as following,

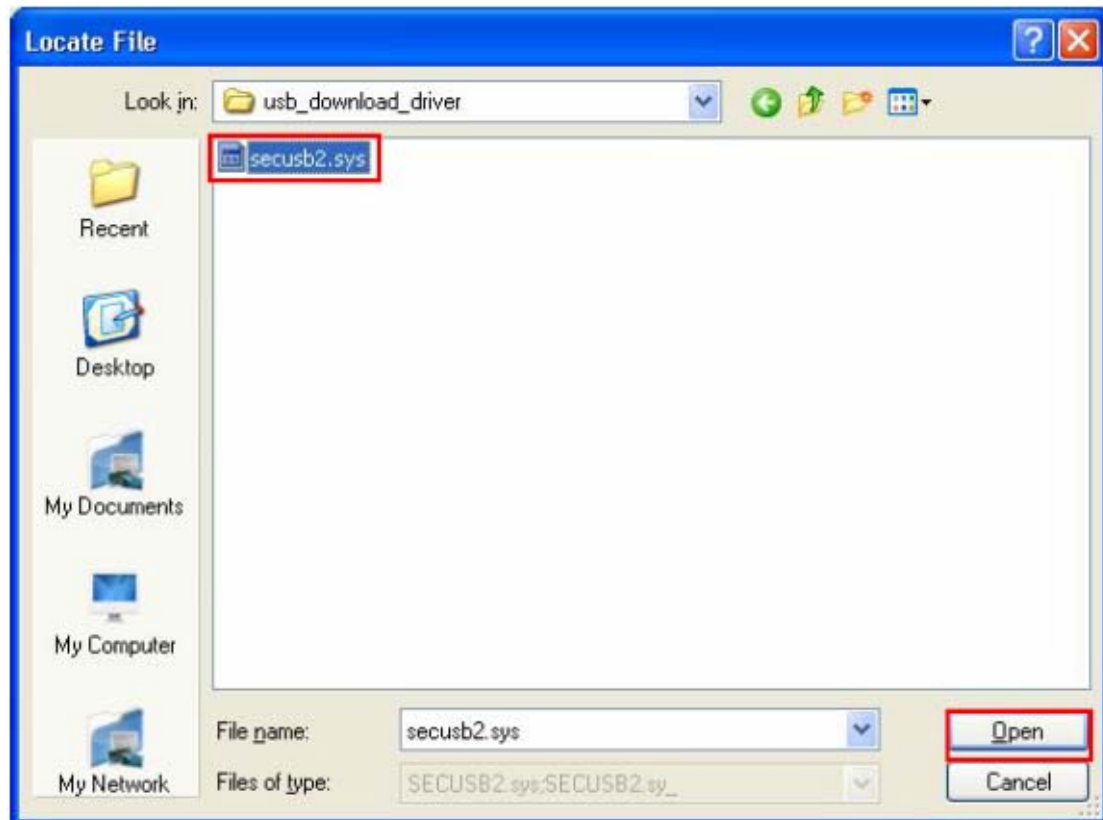


Click "Next" and select tools/windows/usb_download_driver director.



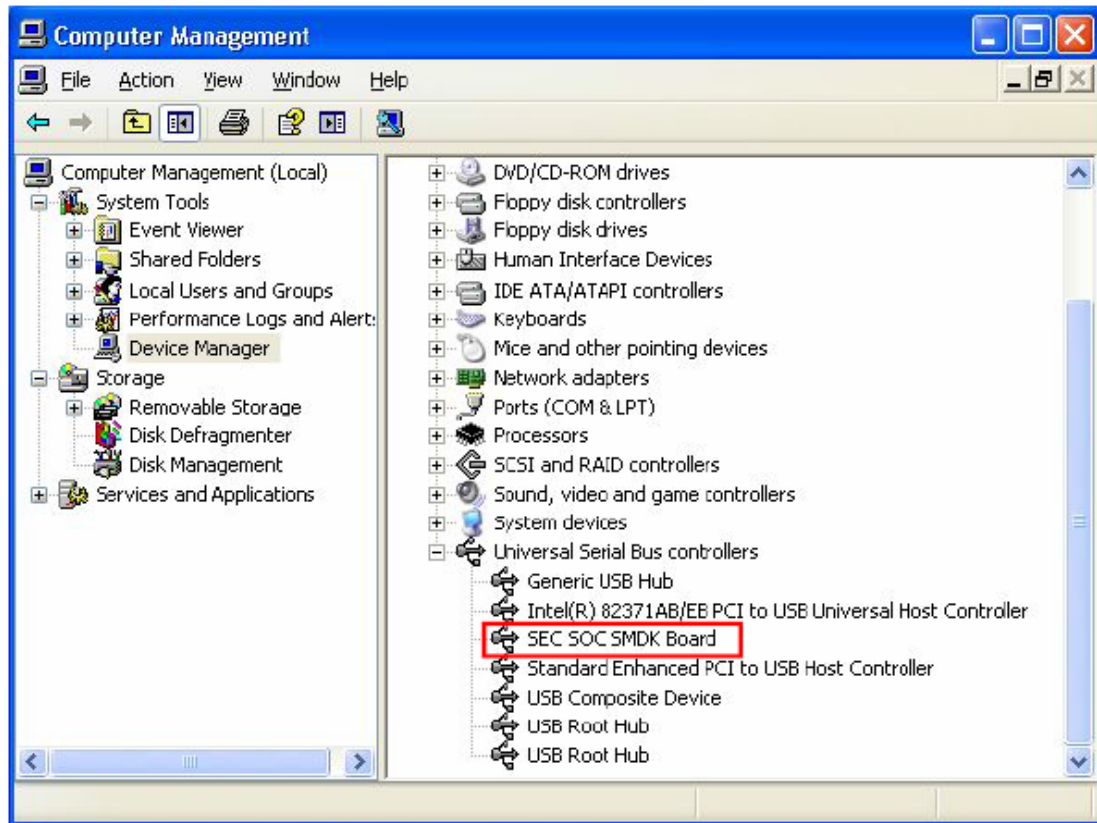


Click "**Browse**" and select tools/windows/usb_download_driver/secusb2.sys.



Click “**Open**” and then click “**OK**”.





Now, the USB download driver is installed successfully.

Step 4, Open DNW (tools\windows\dnw.exe).

In DNW interface, select **Serial Port-> Connect** to connect EM210 serial console.

Configuration->Options to set USB Port downloads address: **0xd0020010**, then click **[OK]**.

This time on the top of DNW window will show:

[COM1:115200bps][USB: OK] [ADDR: 0xd0020010]

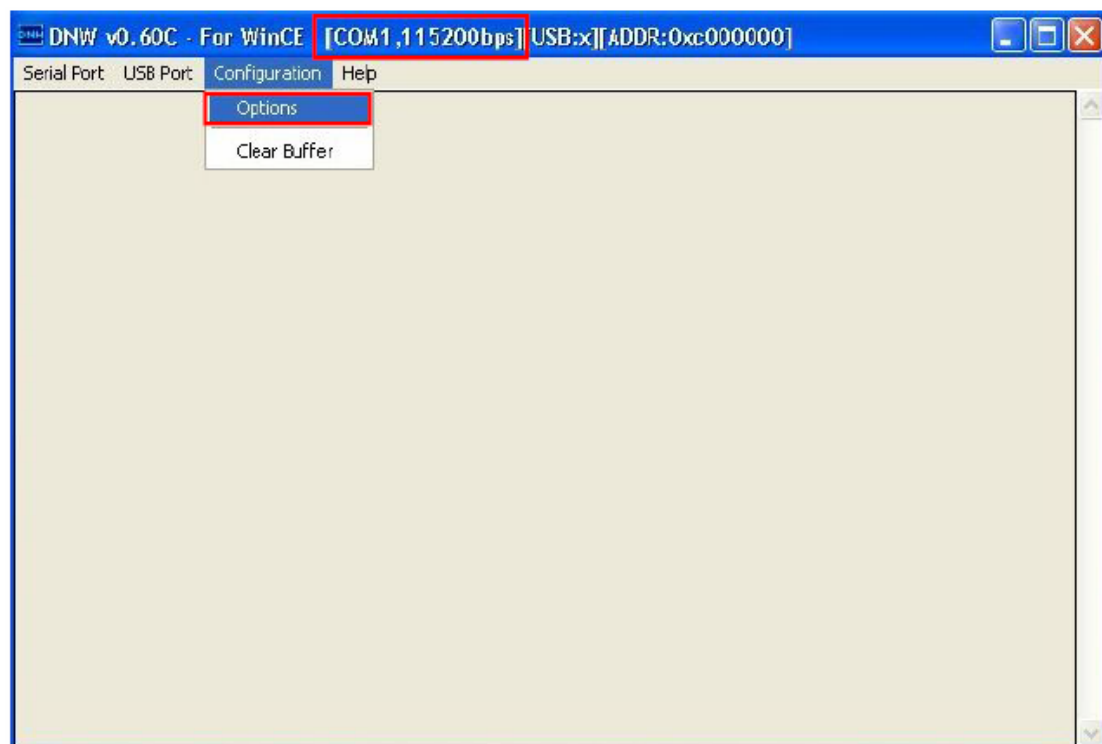
Then select **USB Port->transmit->transmit** to download images\V210_USB.BL2.bin to EM210 RAM.

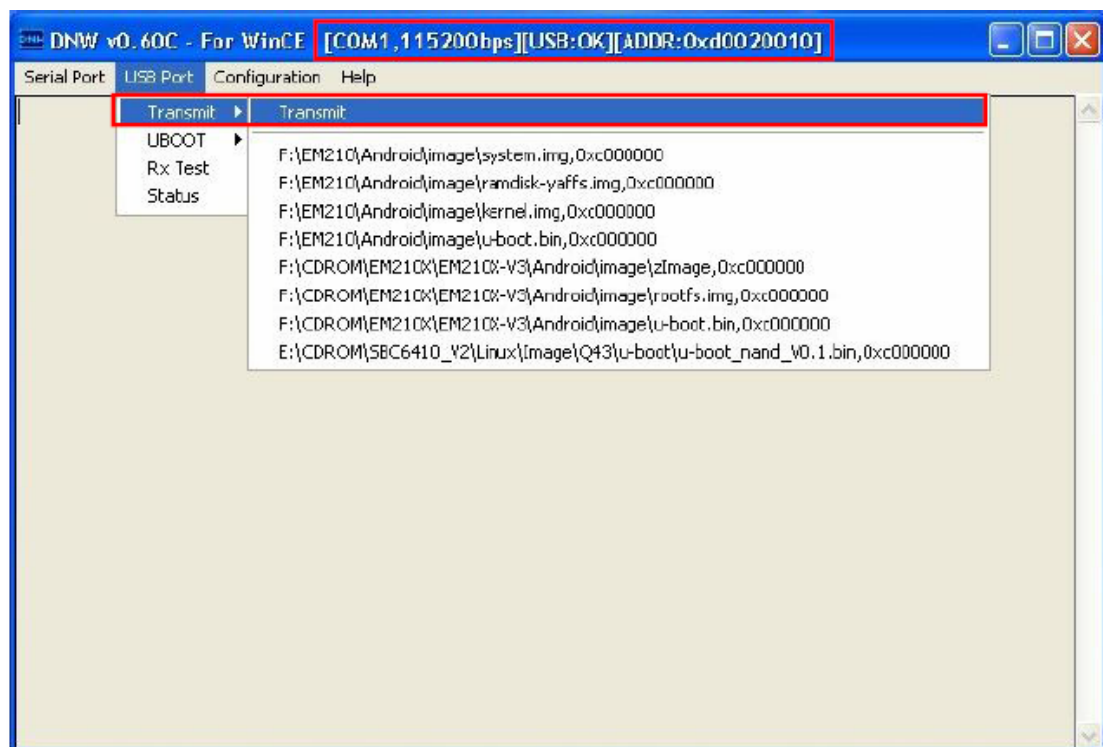
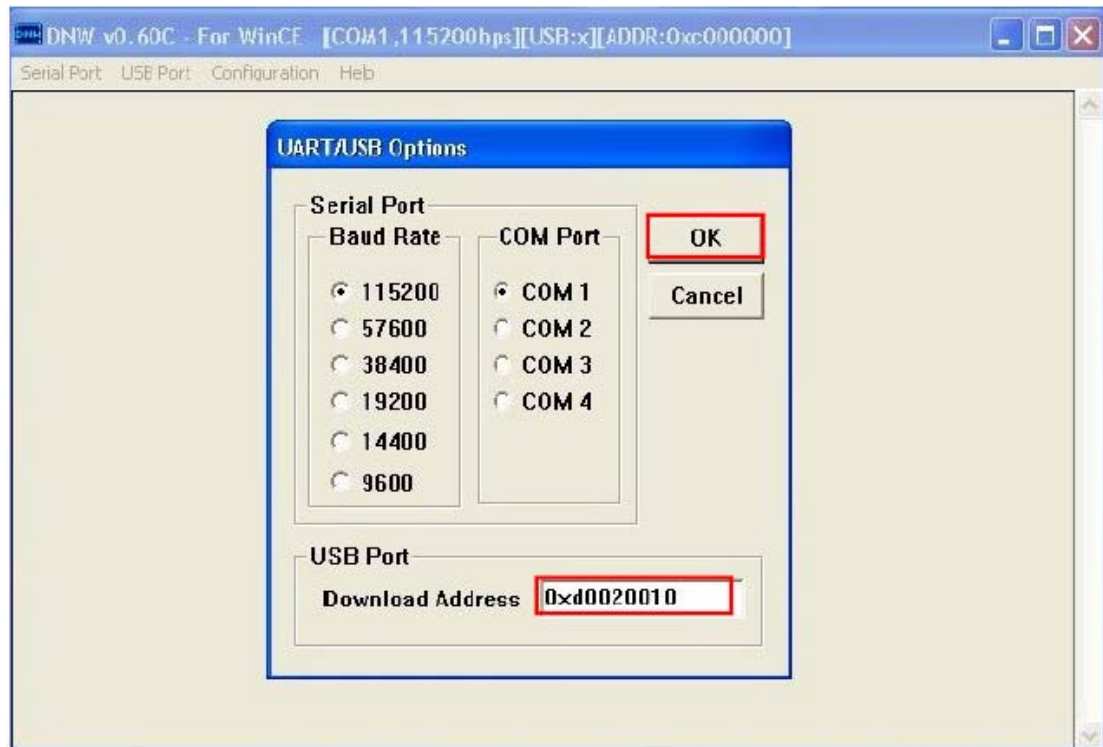
Configuration->Options to set USB Port downloads address: **0x23e00000**

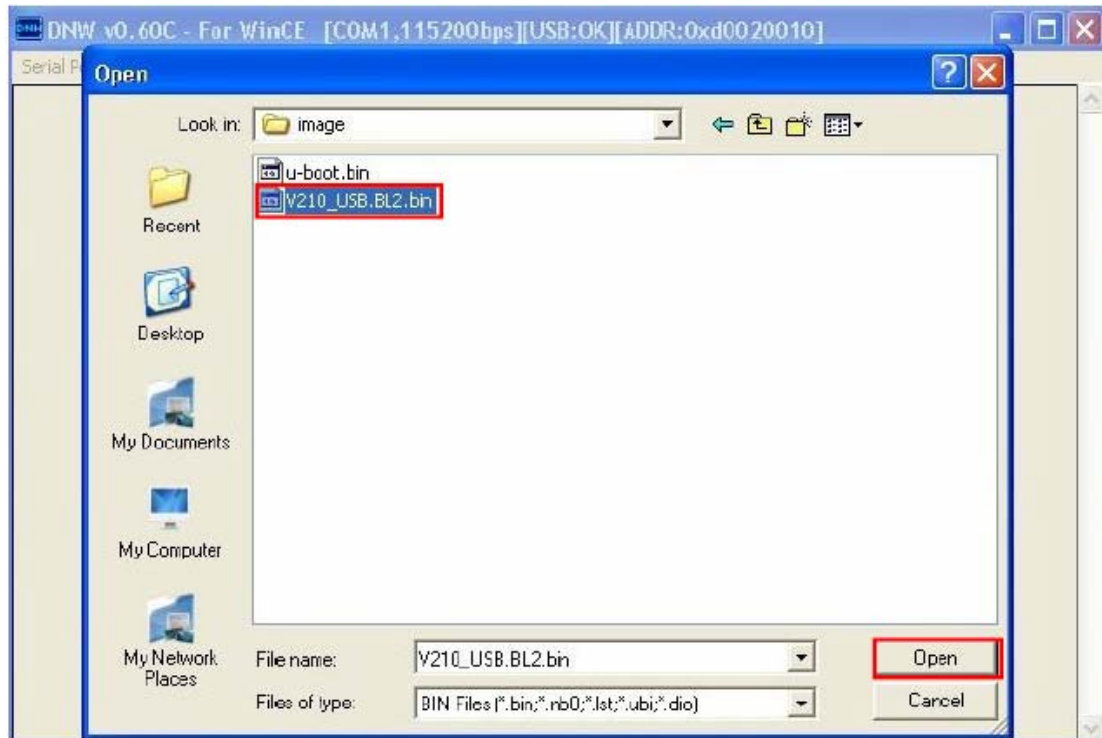
Select **USB Port->transmit->transmit** to download images\uboot.bin to EM210 RAM.

This time uboot.bin is going to run on EM210 board and will output message through serial port.

Following pictures show the detailed process:

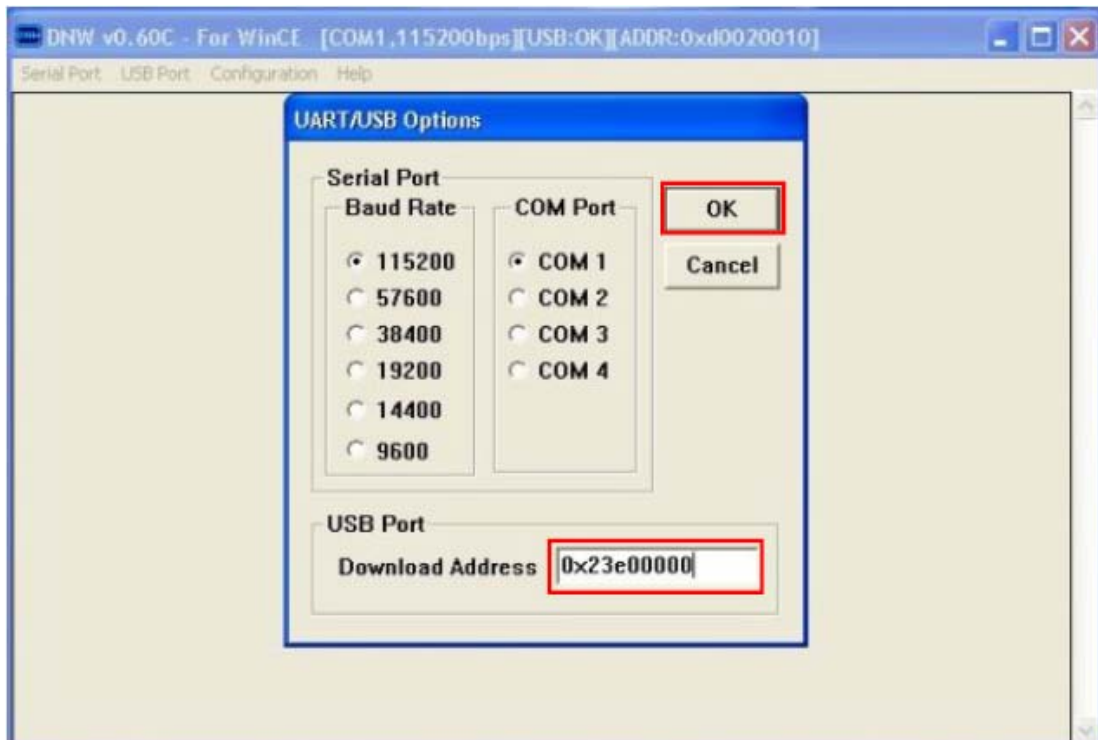


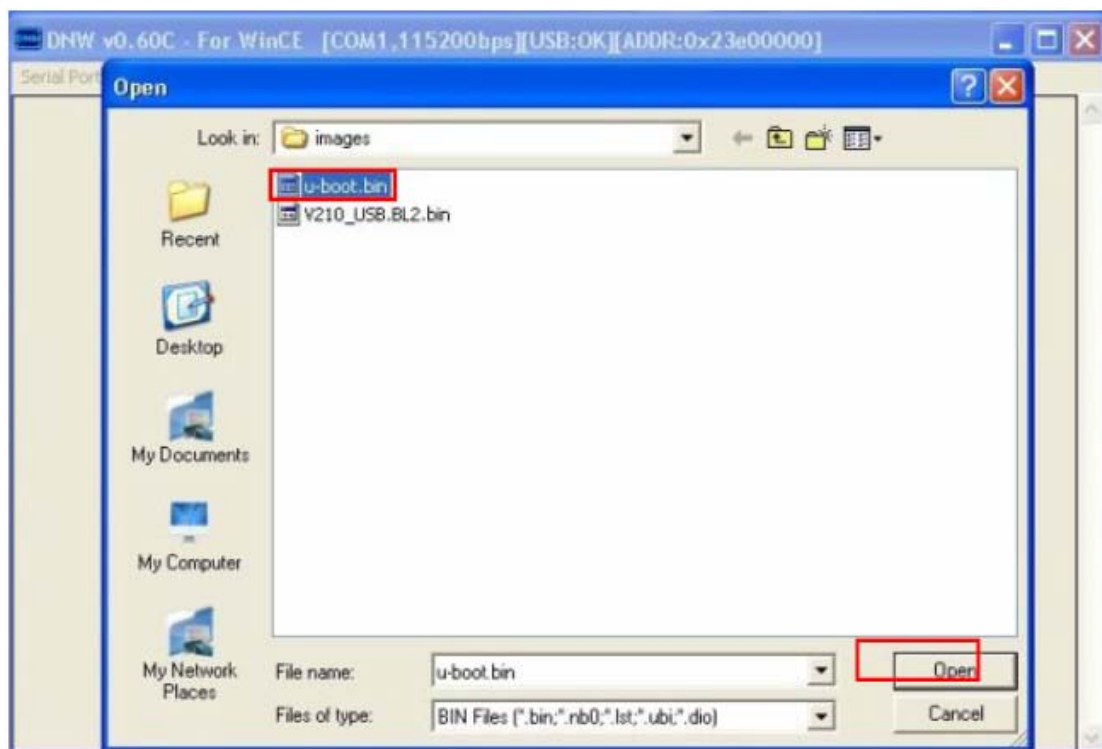
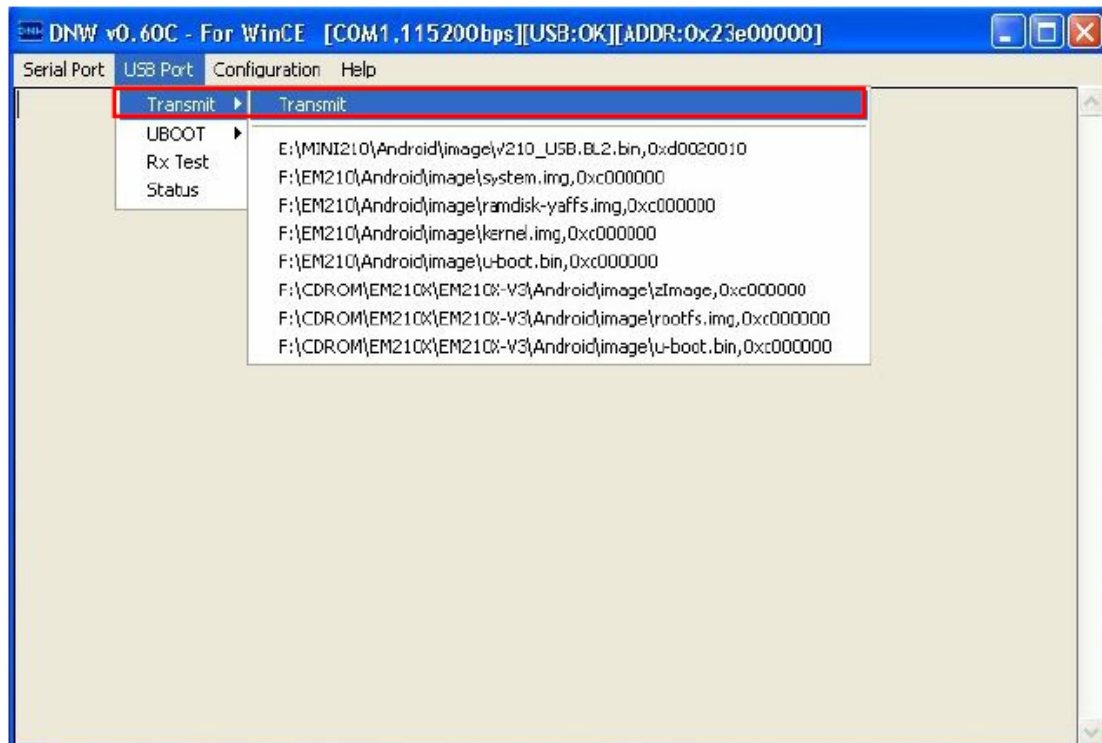


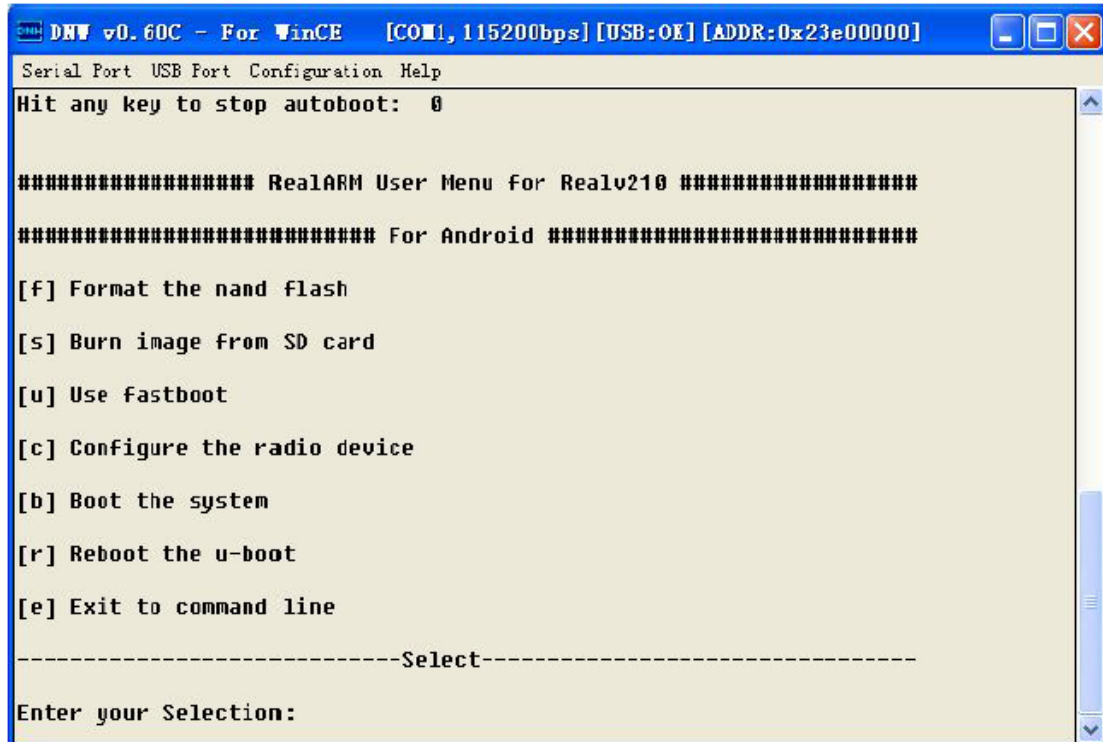


[COM1,115200bps][USB:x] ADDR:

[COM1,115200bps][USB:OK] ADDR:







```

DHW v0.60C - For WinCE [COM1, 115200bps] [USB:OK] [ADDR:0x23e00000]
Serial Port USB Port Configuration Help
Hit any key to stop autoboot: 0

##### RealARM User Menu for Realv210 #####
##### For Android #####

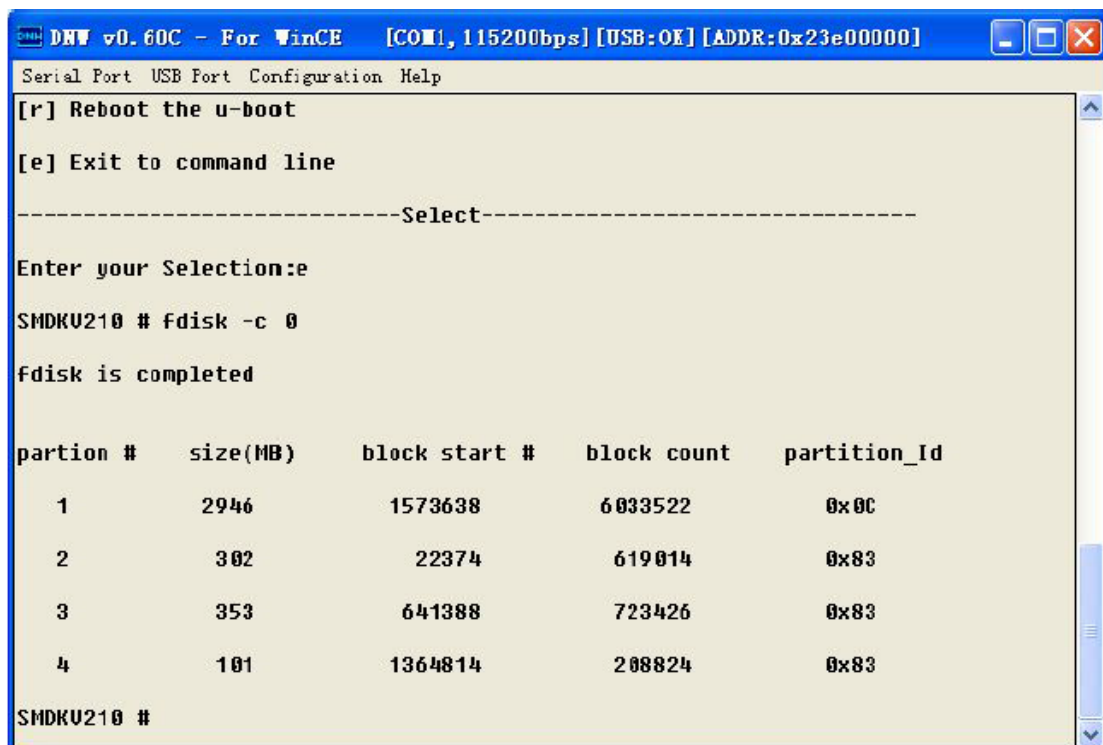
[f] Format the nand flash
[s] Burn image from SD card
[u] Use fastboot
[c] Configure the radio device
[b] Boot the system
[r] Reboot the u-boot
[e] Exit to command line

-----Select-----
Enter your Selection:

```

Step 5, Select option “e” to enter command line mode, in uboot console create 4 partitions for iNand as following.

SMDKV210# fdisk -c 0



```

DHW v0.60C - For WinCE [COM1, 115200bps] [USB:OK] [ADDR:0x23e00000]
Serial Port USB Port Configuration Help
[r] Reboot the u-boot
[e] Exit to command line

-----Select-----
Enter your Selection:e
SMDKV210 # fdisk -c 0
fdisk is completed

partition #    size(MB)    block start #    block count    partition_Id
-----
1             2946         1573638          6033522         0x0C
2              302           22374           619014          0x83
3              353          641388           723426          0x83
4              101         1364814           208824          0x83

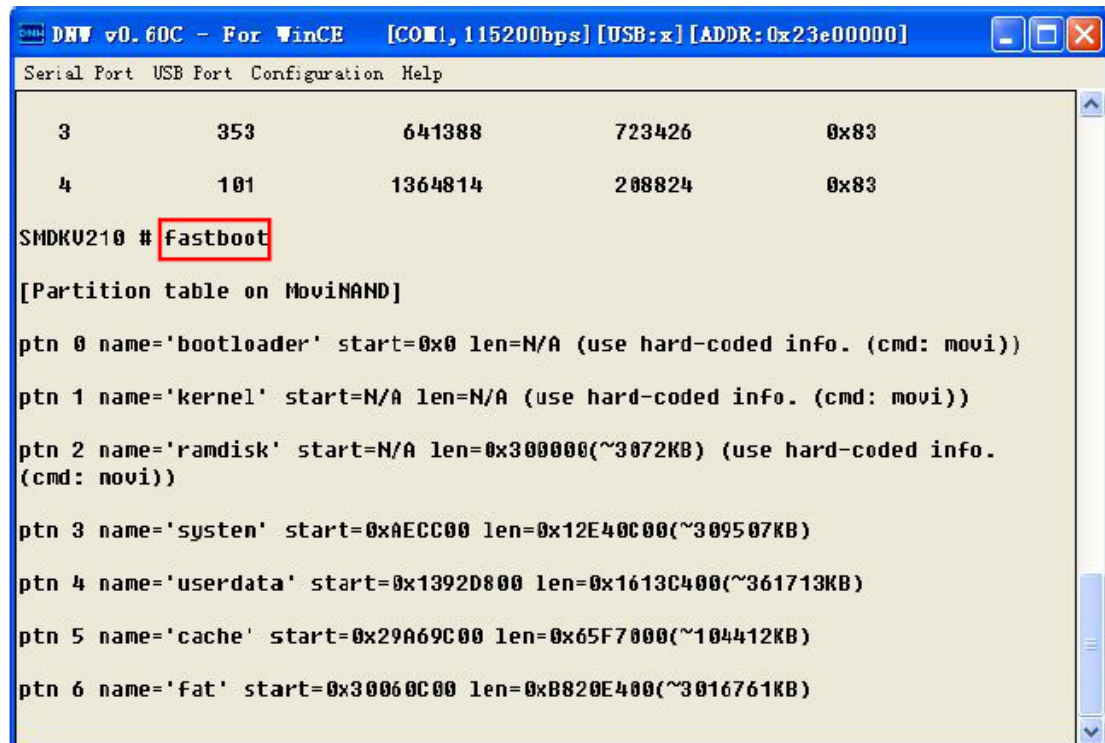
SMDKV210 #

```

Then enter fastboot

SMDKV210# fastboot

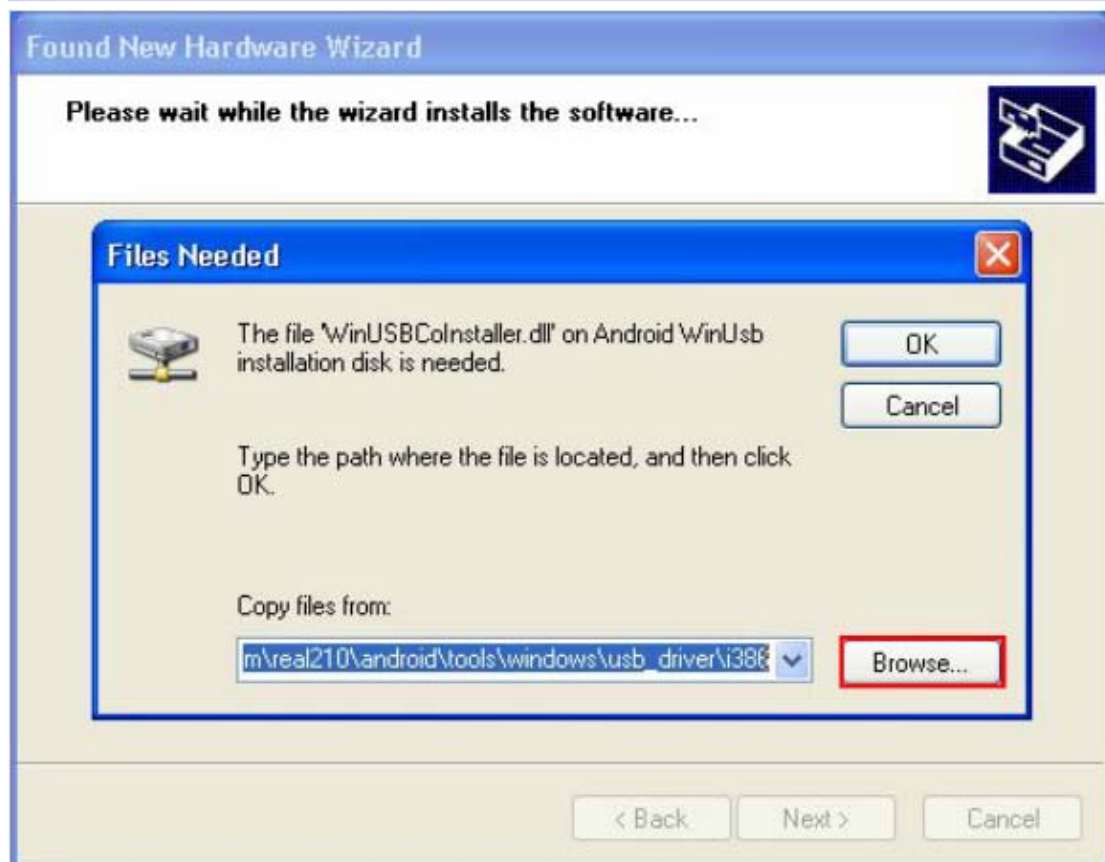
The pc will report that have found new hardware if you have not installed this USB driver (tools\windows\usb_fastboot_driver)



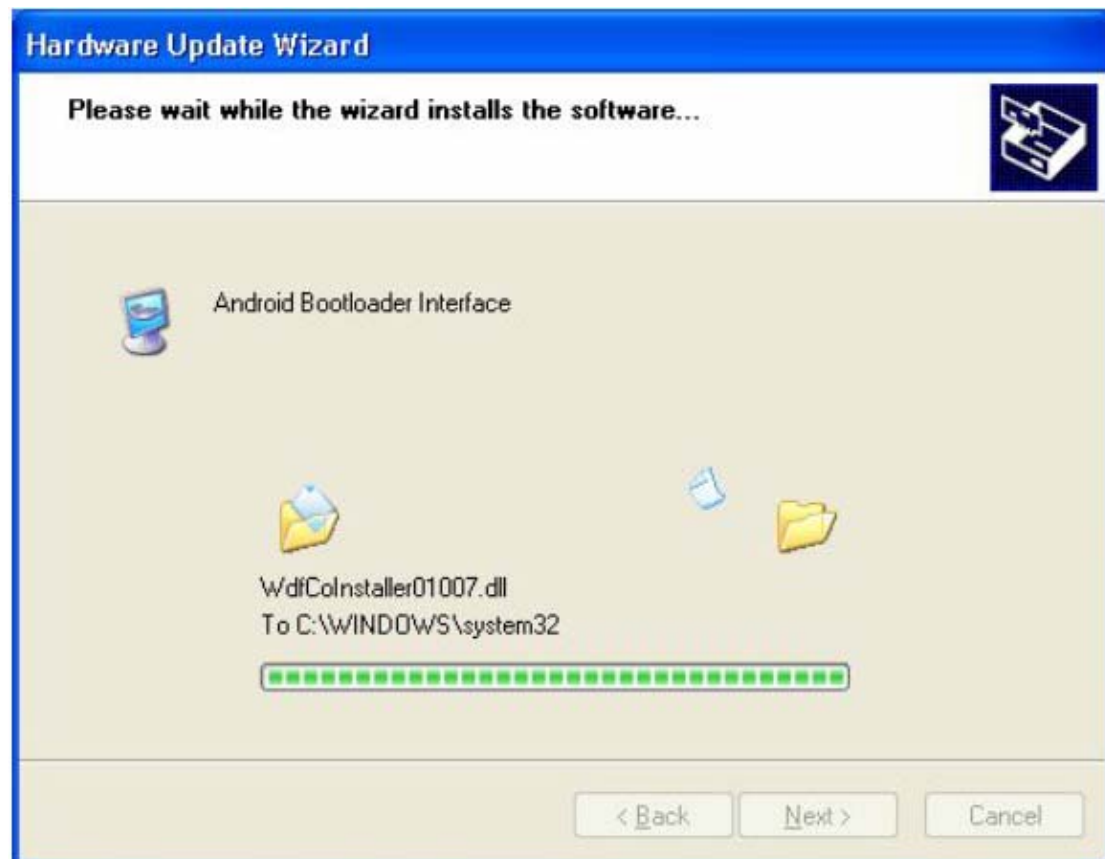
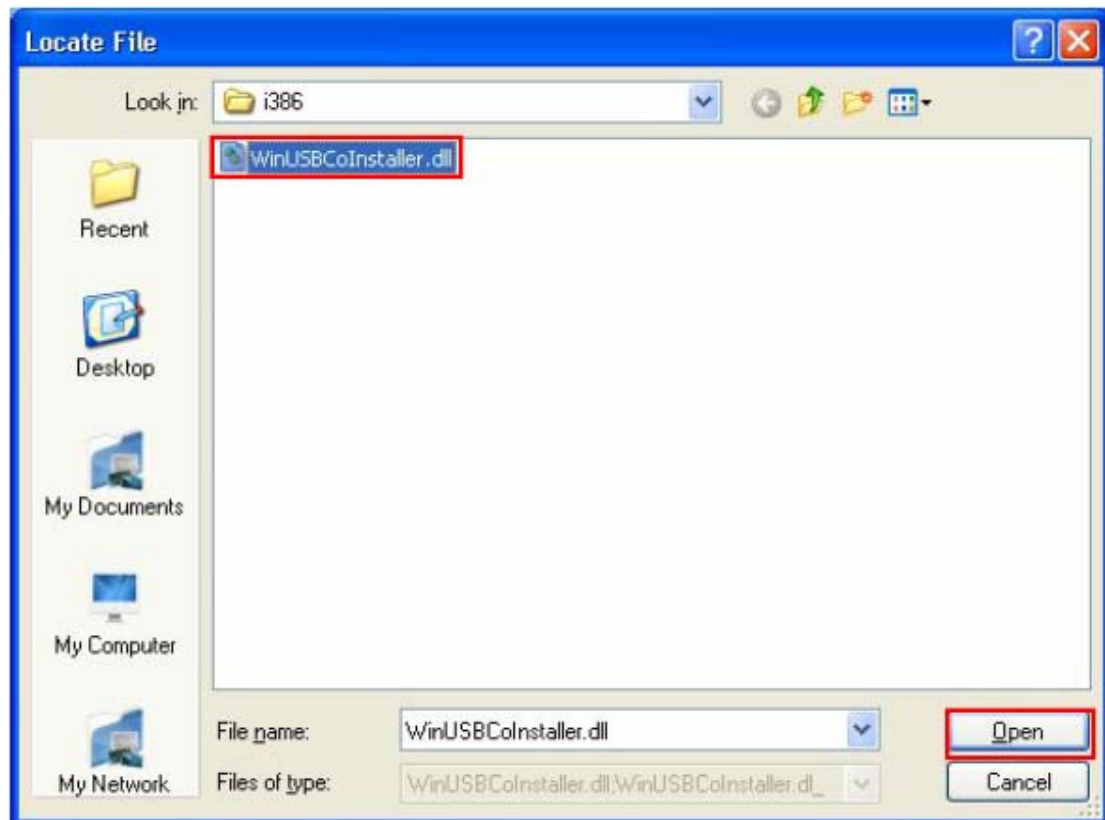
Now you need to install the USB fastboot driver.

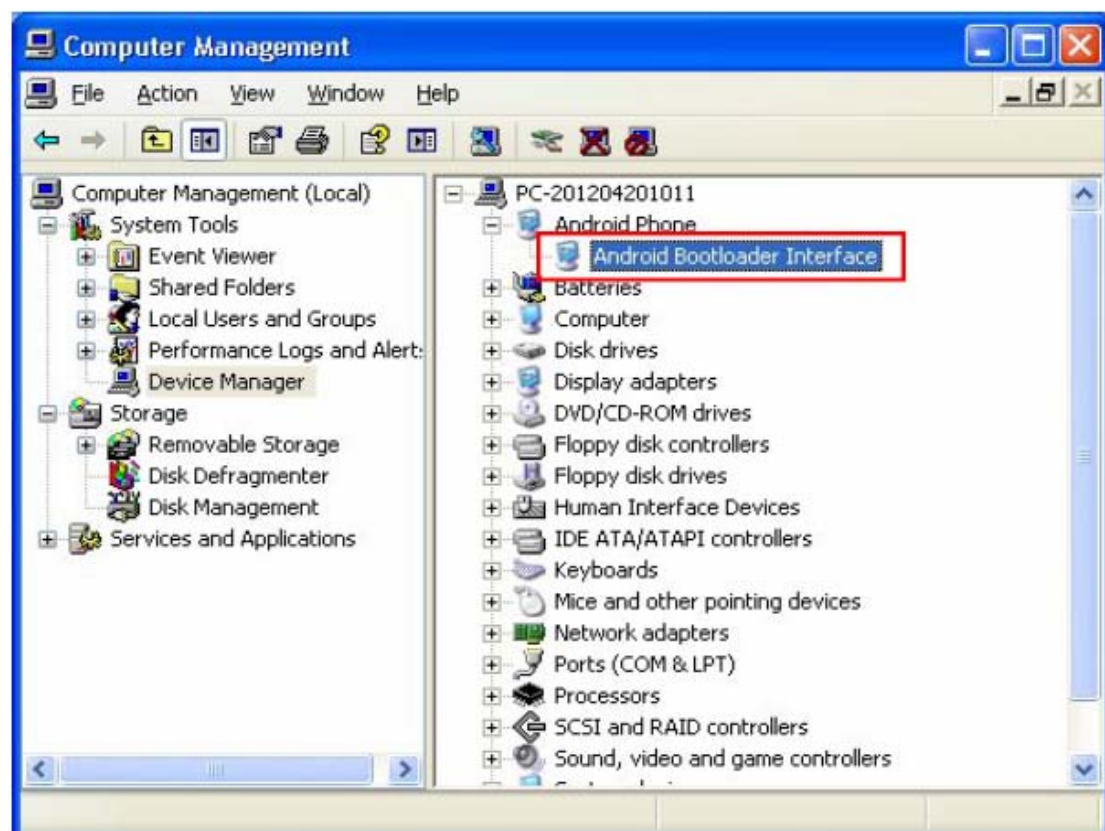


Click "Next" and select tools/windows/usb_fastboot_driver director.



Click "**Browse**" and select
tools/windows/usb_fastboot_driver/i386/**WinUSBCoInstaller.dll**.

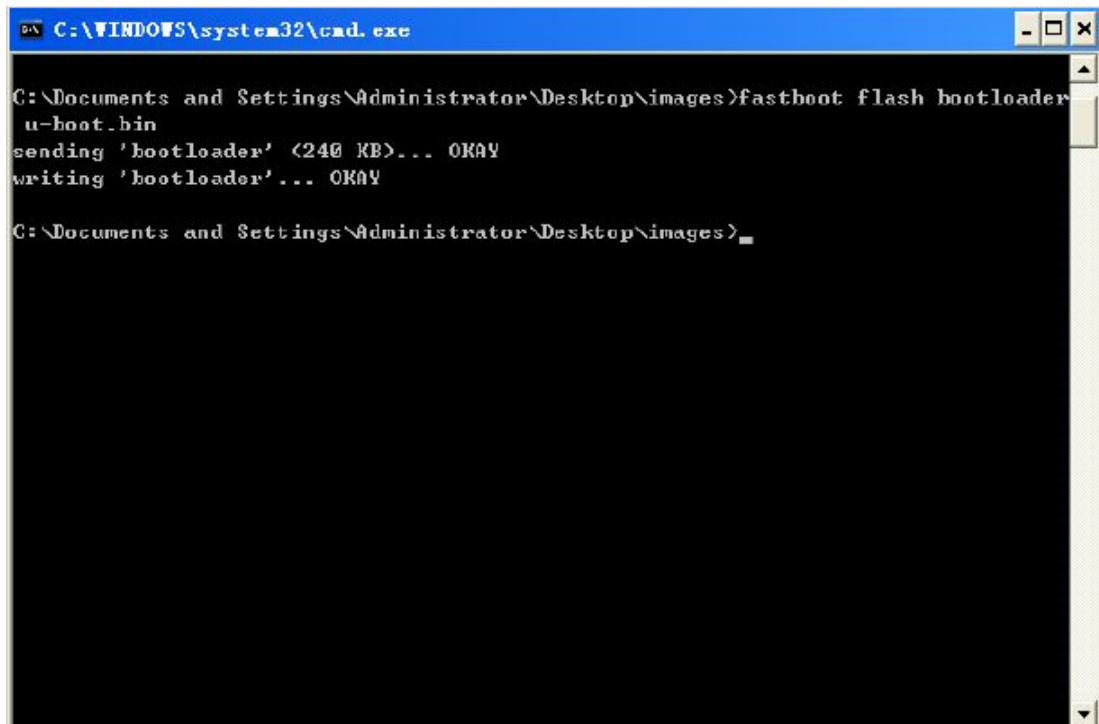




Now, the USB fastboot driver is installed successfully.

Step 6: Open cmd.exe (Android4.0\images\cmd.exe) and lunch **fastboot flash bootloader u-boot.bin** to flash uboot.bin to iNand.

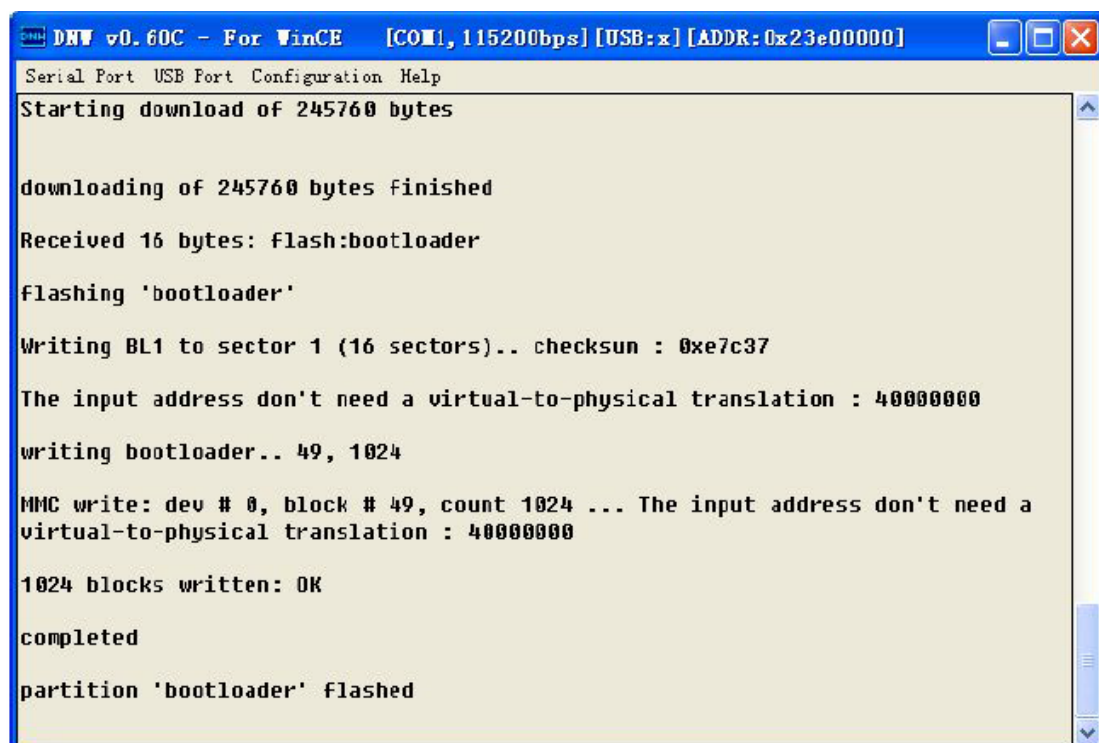
Following pictures show the detailed process.



```
C:\WINDOWS\system32\cmd.exe

C:\Documents and Settings\Administrator\Desktop\images>fastboot flash bootloader
u-boot.bin
sending 'bootloader' (240 KB)... OKAY
writing 'bootloader'... OKAY

C:\Documents and Settings\Administrator\Desktop\images>
```



```
DNV v0.60C - For WinCE [COM1, 115200bps] [USB:x] [ADDR: 0x23e00000]
Serial Port USB Port Configuration Help
Starting download of 245760 bytes

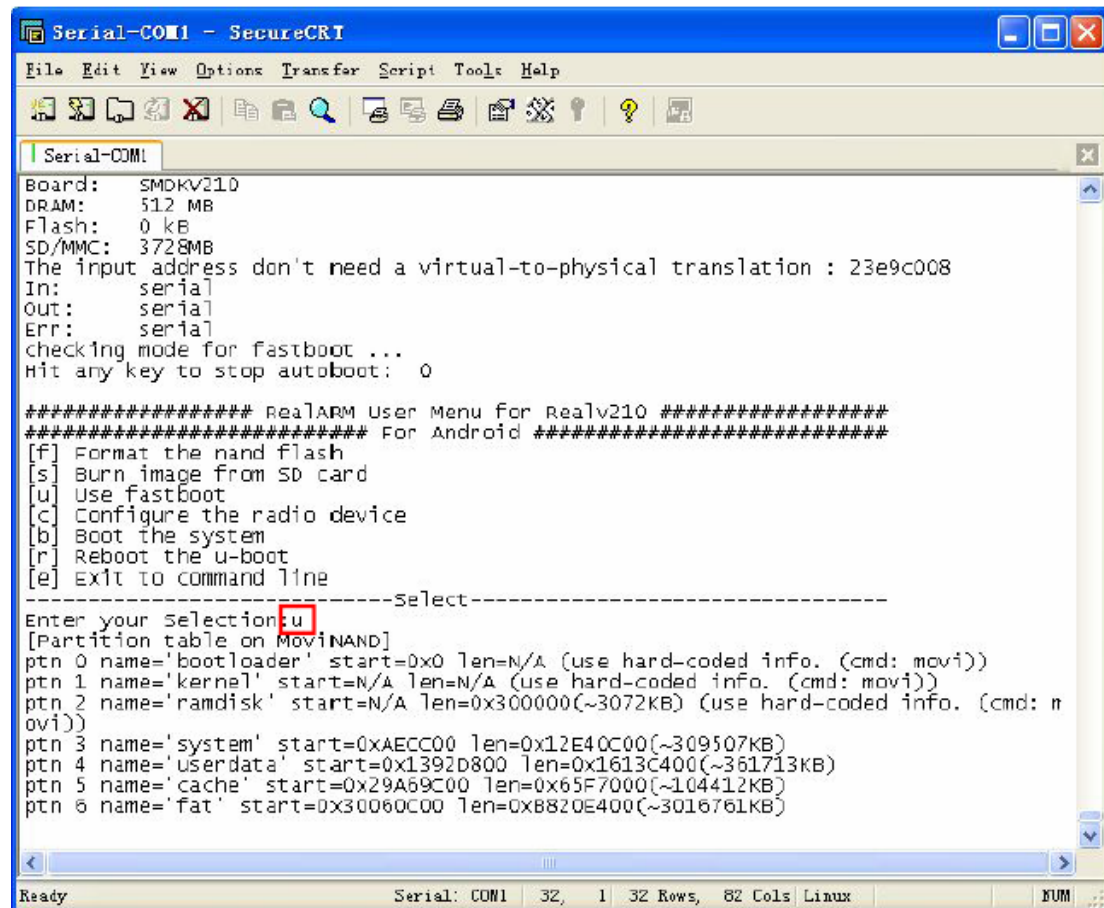
downloading of 245760 bytes finished
Received 16 bytes: flash:bootloader
Flashing 'bootloader'
Writing BL1 to sector 1 (16 sectors).. checksum : 0xe7c37
The input address don't need a virtual-to-physical translation : 40000000
writing bootloader.. 49, 1024
MMC write: dev # 0, block # 49, count 1024 ... The input address don't need a
virtual-to-physical translation : 40000000
1024 blocks written: OK
completed
partition 'bootloader' flashed
```

2 Burn kernel and Android (zImage ramdisk-uboot.img system.img)

Step 1, Set the JP106 to iNand boot mode as follow:

Boot Mode	J1	J2	J3	J4	J5	J6
iNAND	ON	ON	OFF	OFF	ON	ON

Step 2, Power on EM210 board and press any key in 3 seconds in serial console, select “u” to enter fastboot mode (if your PC does not have installed this fastboot USB driver, the PC will report found new hardware).



```

Serial-CON1 - SecureCRT
File Edit View Options Transfer Script Tools Help
Serial-CON1
Board: SMDKV210
DRAM: 512 MB
Flash: 0 kB
SD/MMC: 3728 MB
The input address don't need a virtual-to-physical translation : 23e9c008
In: serial
Out: serial
Err: serial
checking mode for fastboot ...
Hit any key to stop autoboot: 0

##### RealARM User Menu for Realv210 #####
##### For Android #####
[f] Format the nand flash
[s] Burn image from SD card
[u] Use fastboot
[c] Configure the radio device
[b] Boot the system
[r] Reboot the u-boot
[e] Exit to command line
-----Select-----
Enter your Selection: u
[Partition table on MovinAND]
ptn 0 name='bootloader' start=0x0 len=N/A (use hard-coded info. (cmd: movi))
ptn 1 name='kernel' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 2 name='ramdisk' start=N/A len=0x300000(~3072KB) (use hard-coded info. (cmd: m
ovi))
ptn 3 name='system' start=0xAECC00 len=0x12E40C00(~309507KB)
ptn 4 name='userdata' start=0x1392D800 len=0x1613C400(~361713KB)
ptn 5 name='cache' start=0x29A69C00 len=0x65F7000(~104412KB)
ptn 6 name='fat' start=0x30060C00 len=0xB820E400(~3016761KB)

Ready Serial: CON1 32, 1 32 Rows, 82 Cols Linux
  
```

Step 3, Run batch file write_all.bat to download images and write to iNand.

Copy images folder to Windows PC from Development CD/Android 4.0/images, run batch file **write_all.bat** to download and write **zImage, ramdisk-uboot.img** and **system.img** to iNand.

At the same time, in the uboot console will report the progress.

```

C:\WINDOWS\system32\cmd.exe

C:\Documents and Settings\Administrator\Desktop\images>fastboot flash kernel zImage
sending 'kernel' (3798 KB)... OKAY
writing 'kernel'... OKAY

C:\Documents and Settings\Administrator\Desktop\images>fastboot flash randisk ramdisk-uboot.img
sending 'randisk' (160 KB)... OKAY
writing 'randisk'... OKAY

C:\Documents and Settings\Administrator\Desktop\images>fastboot -w
erasing 'userdata'... OKAY
erasing 'cache'... OKAY

C:\Documents and Settings\Administrator\Desktop\images>fastboot flash system system.img
sending 'system' (204800 KB)...

```

```

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

Serial-COM1
Start Format MMC0 partition3 ....
** Partition3 is not ext2 file-system 0 **
Partition3: Start Address(0x9c96c), Size(0xb09e2)
Start ext2format...
write 0/3block-group
Reserved blocks for journaling : 4102
Start write addr : 0x9c96c
Erase inode table(0) - 0x9ca3c.....
d_indirect_point:0xa084c
write 1/3block-group
Reserved blocks for journaling : 4102
Start write addr : 0xdc96c
Erase inode table(1) - 0xdca3c.....
write 2/3block-group
Reserved blocks for journaling : 4102
Start write addr : 0x11c96c
Erase inode table(2) - 0x11c97c.....
partition 'userdata' erased
Received 11 bytes: erase:cache
erasing(formatting) 'cache'
Start Format MMC0 partition4 ....
** Partition4 is not ext2 file-system 0 **
Partition4: Start Address(0x14d34e), size(0x32fb8)
Start ext2format...
write 0/1block-group
Reserved blocks for journaling : 1025
Start write addr : 0x14d34e
Erase inode table(0) - 0x14d39e.....
partition 'cache' erased
Received 17 bytes: download:0xc800000
Starting download of 209715200 bytes
.....
.....
.....
Ready Serial: COM1 34, 24 34 Rows, 81 Cols Linux NUM

```

Also you can burn images one by one using following command in **cmd.exe**:



```
fastboot flash kernel zImage
```

```
fastboot flash ramdisk ramdisk-uboot.img
```

```
fastboot -w
```

```
fastboot flash system system.img
```

So far, all images have been flashed to iNand. we can reboot EM210 board to start up Android system.

Note: we can use `ext3format` tool to clear partition system, user data and cache in uboot command line as following:

```
SMDKV210 # ext3format mmc 0:1
```

```
SMDKV210 # ext3format mmc 0:2
```

```
SMDKV210 # ext3format mmc 0:3
```

```
SMDKV210 # ext3format mmc 0:4
```