EM4412 Burn Linux Image Manual

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1. Burn uboot

(1) Make SD card to support SD card boot as follows.(uboot already exist in iNand can skip this step)

Put SD card into SD reader and connect SD card reader with PC.

Run **WinImage tool** (there are **WinImage** install package in development CD)

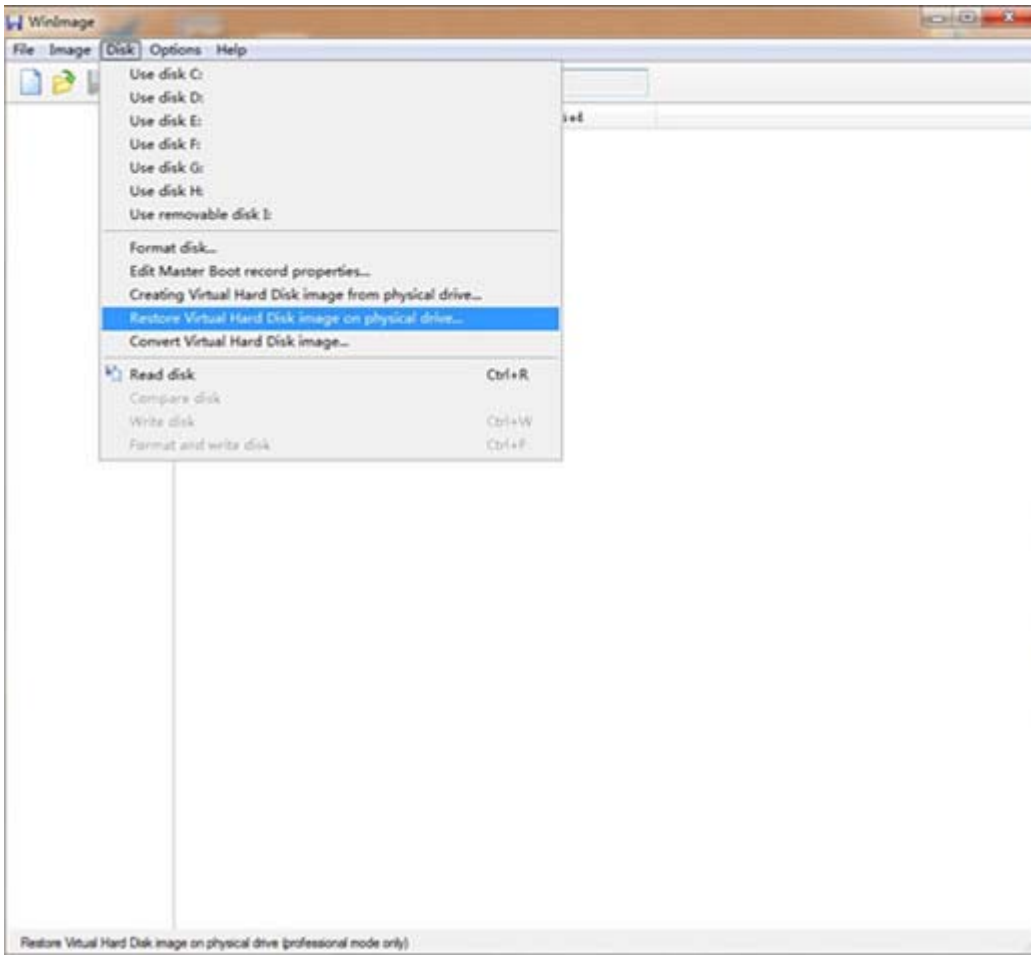
In the menu of WinImage, go **Disk** -> **Restore Virtual Hard Disk image on physical drive ...**

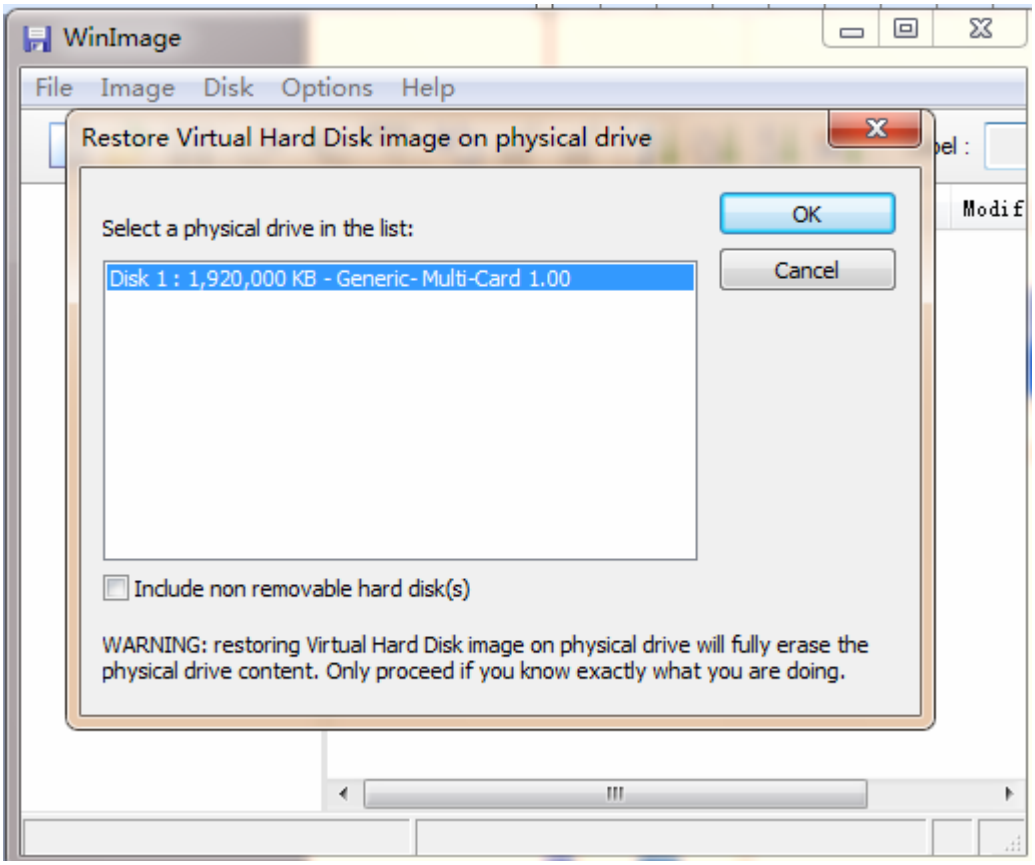
Select **the physical Disk** which is corresponding to the SD card inserted.

Click **OK** button and browse to locate file **bootloader_sd.vhd** which will be written to SD card.

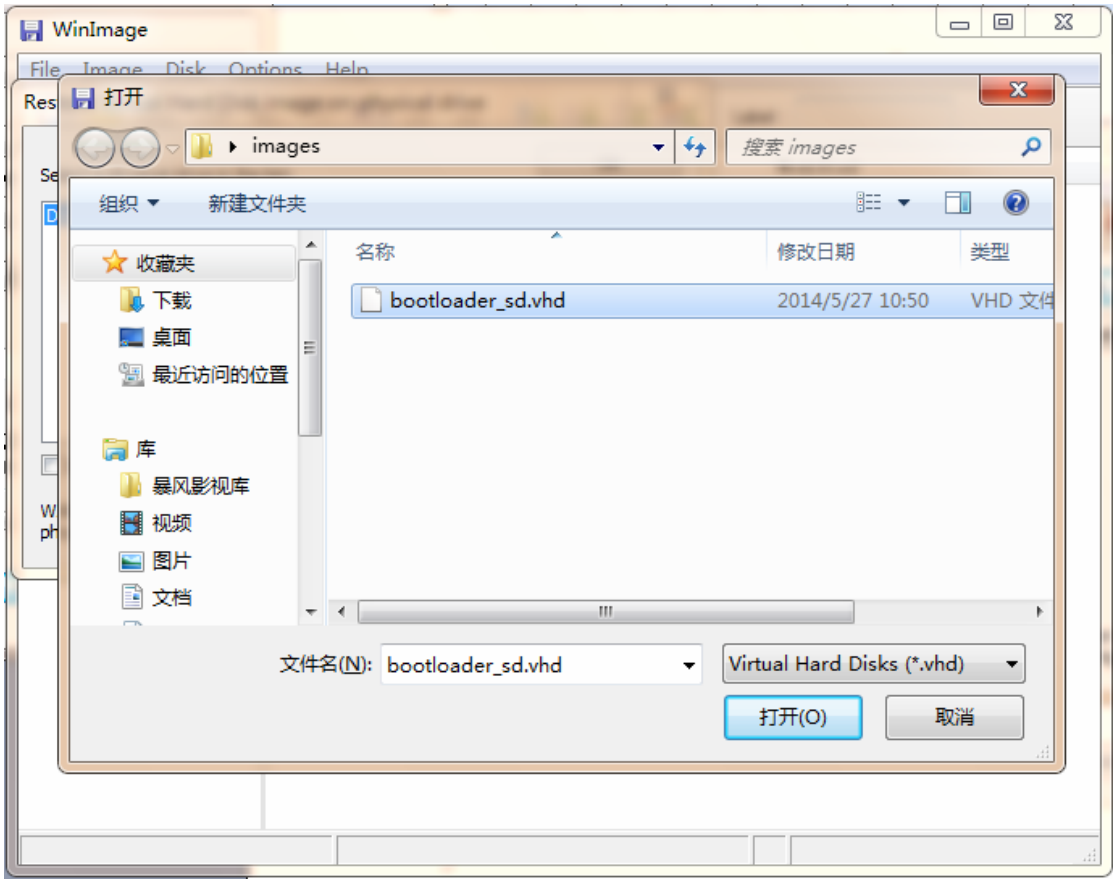
Finish Making SD card.

Following screen shot show the procedure of making SD card.





Select the file **bootloader_sd.vhd.**



Note: After making SD card with WinImage, if open the SD card disk in Windows PC, Windows may say need to format; in this case user have to format the SD card to store files.

(2) Set Boot from iNand/SD card.

For boot from iNand/SD card, Set DIP to [**OFF ON OFF ON**] as follows,

Boot Mode	1	2	3	4
iNand/SD card	**OFF**	**ON**	**OFF**	**ON**

Note: In iNand/SD card boot mode, EXYNOS 4412 internal program will firstly try to load u-boot image from first boot source iNand , But when there is no u-boot image exists in the iNAND, the loading will fail, in this case EXYNOS 4412 internal program are going on to try the second boot source, namely SD card.

(3) Connect 12V/2A Power adaptor and serial cable (COM1), Insert SD card prepared in step (1).

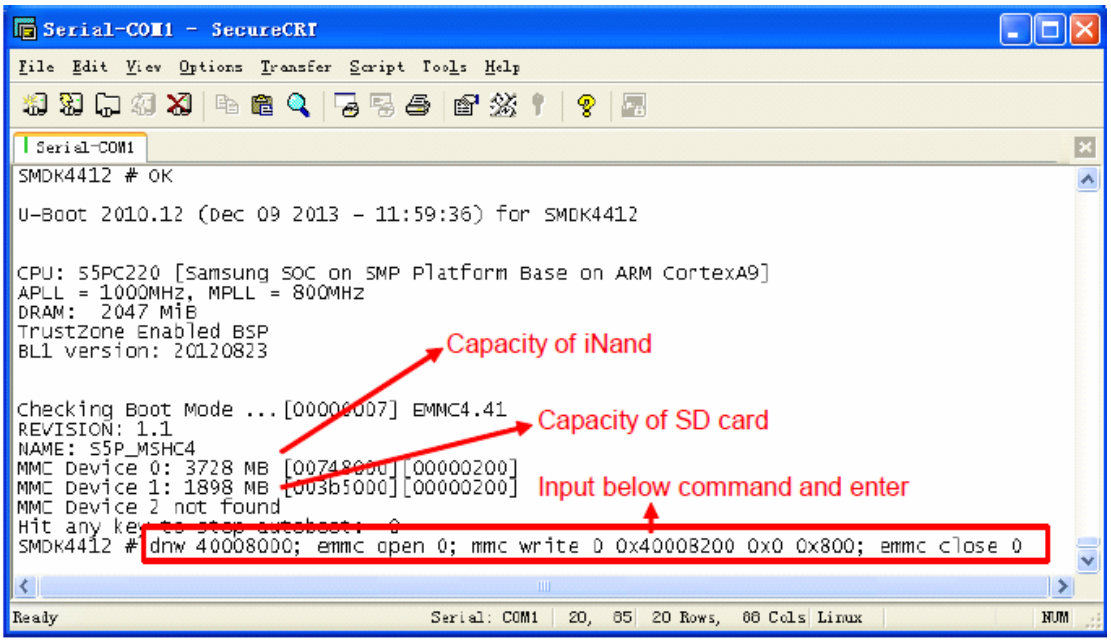
(4) Open DNW(Configuration->Options to config serial port, Serial Port->connect to connect)

(5) Press and hold on the ON/OFF key for 3 - 5 seconds.

EM4412 will boot from SD card if there is no u-boot exists in the iNAND.

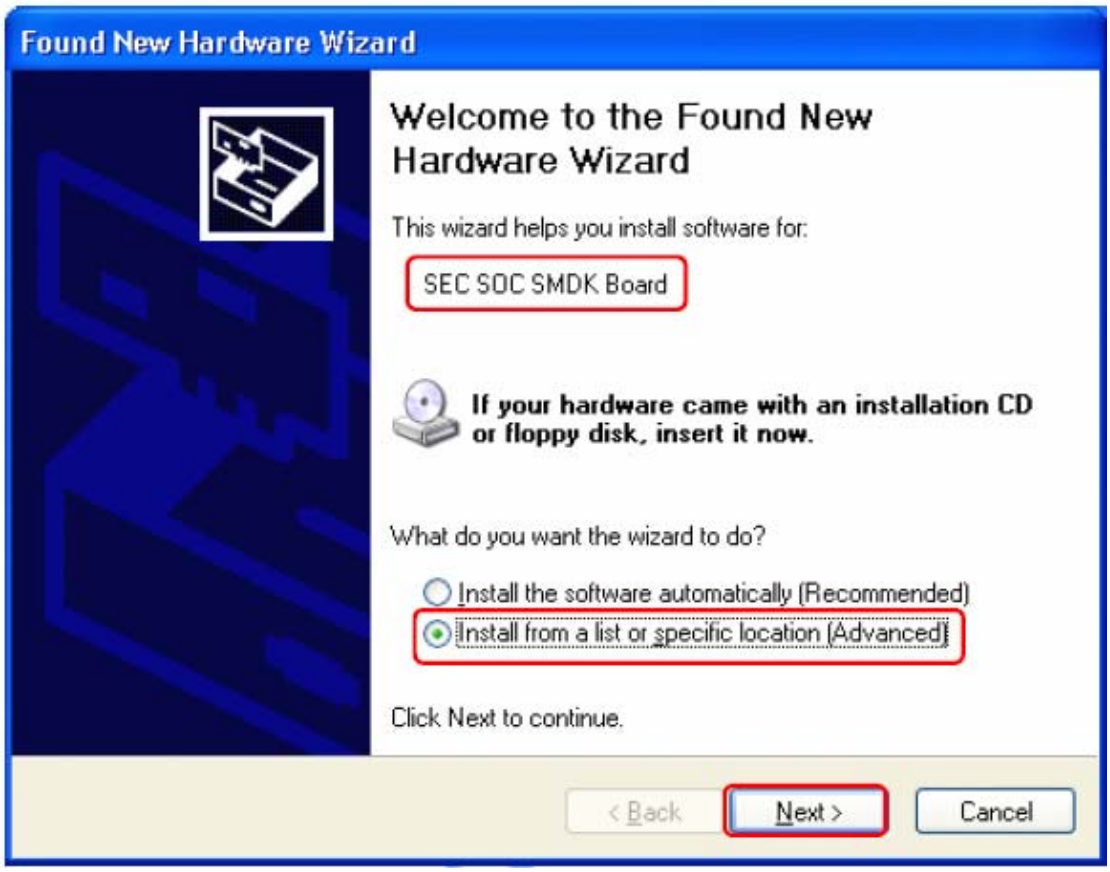
And stop at the uboot command line, input the following command.

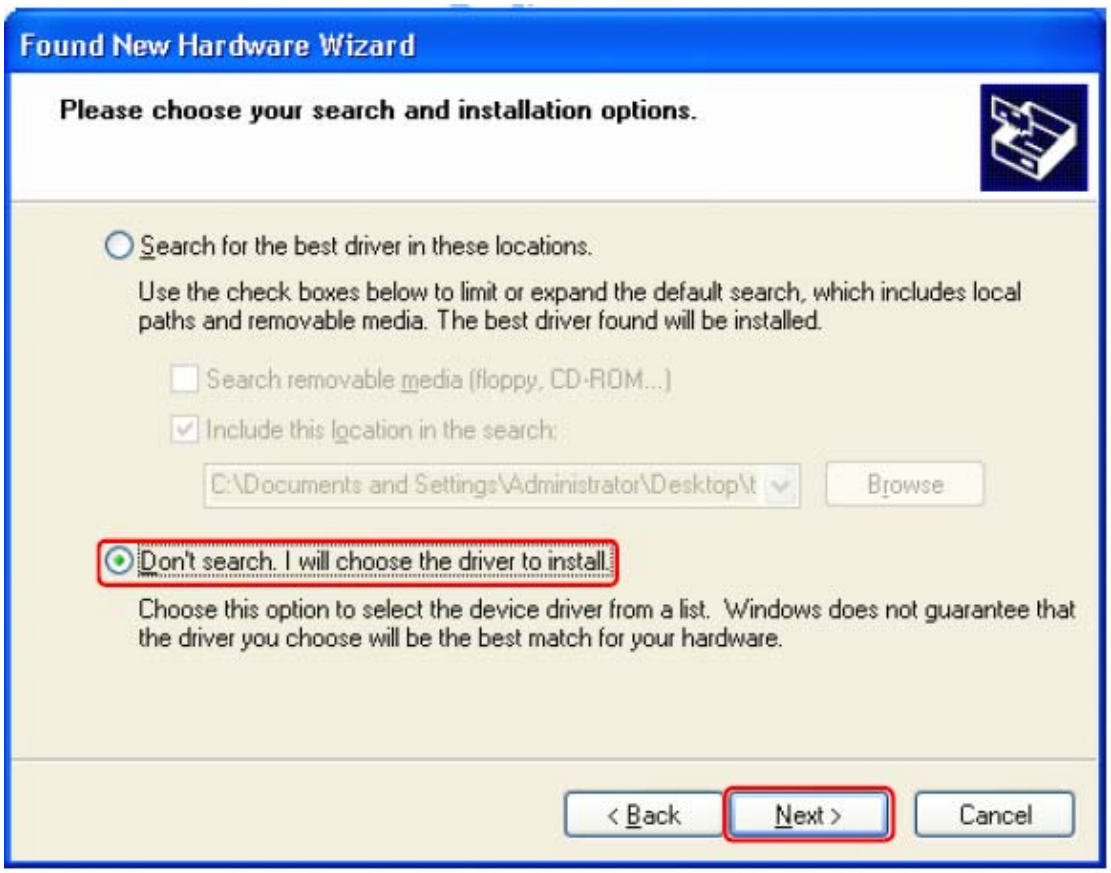
SMDK4412# dnw 40008000; emmc open 0; mmc write 0 0x40008200 0x0 0x800; emmc close 0

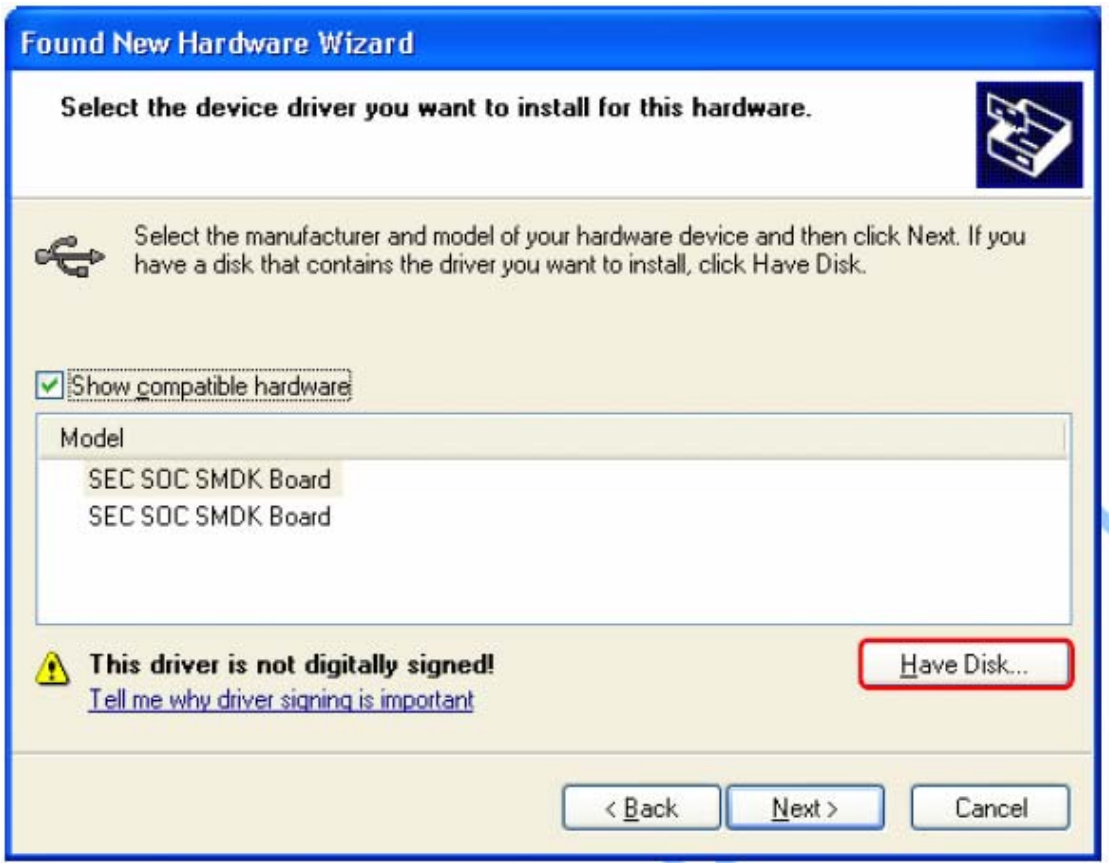


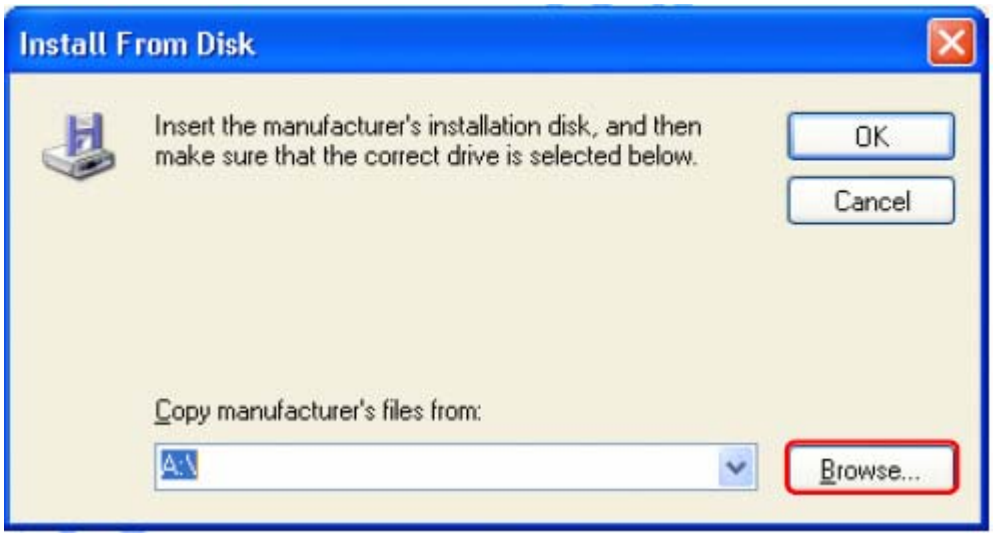
(6) Connect EM4412 board and Windows PC with USB OTG cable.

If have not install usb_download_driver this PC, Windows PC will prompt "Found New Hardware" pops up message and requires installing USB driver, as follows:

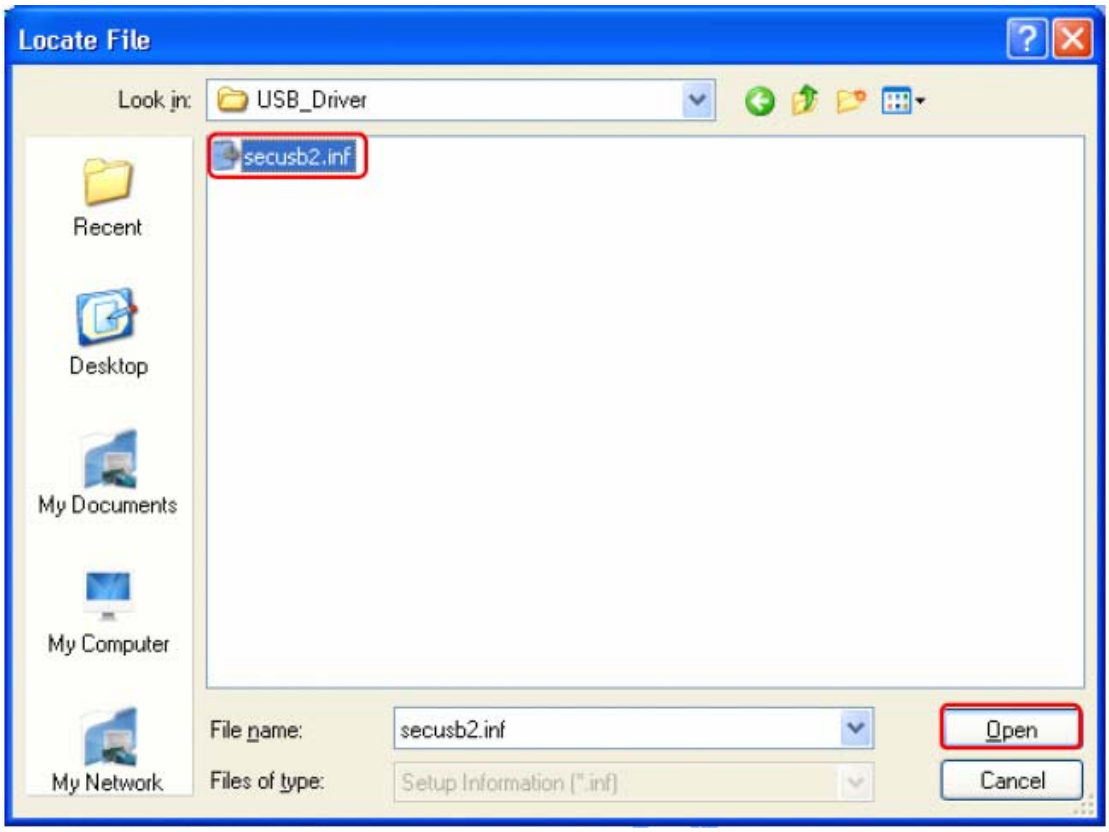

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
SEC SOC SMDK Board
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

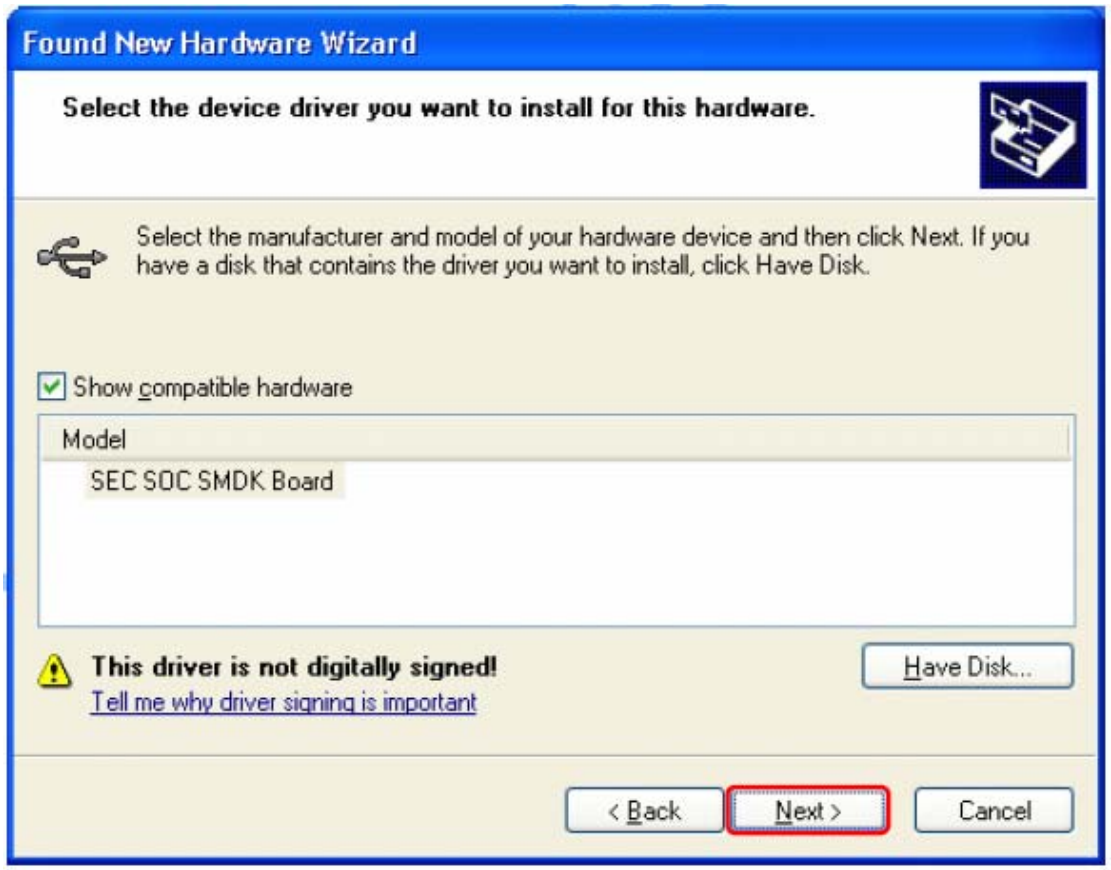

Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\Documents and Settings\Administrator\Desktop\t
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

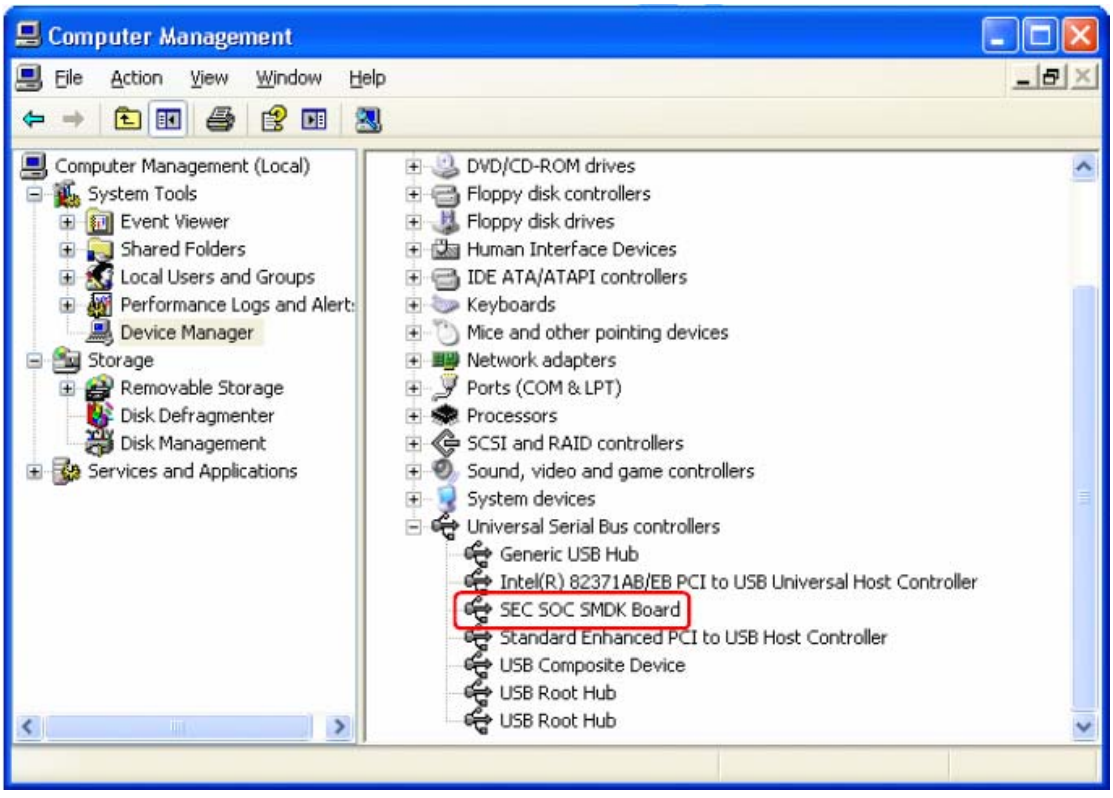




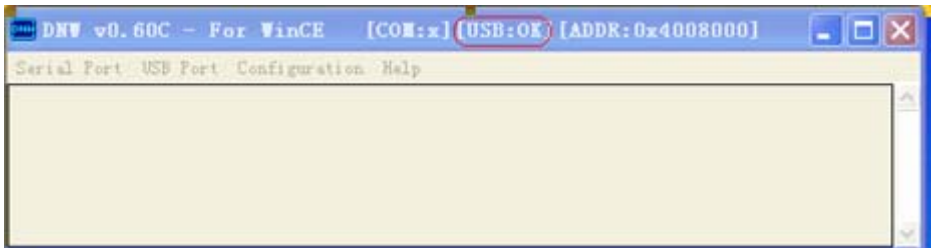
Select Tools\usb_download_driver\USB_Driver**secusb2.inf**


Locate File
Look in:
USB_Driver
secusb2.inf
Recent
Desktop
My Documents
My Computer
My Network
File name:
secusb2.inf
Files of type:
Setup Information (*.inf)
Open
Cancel


Found New Hardware Wizard
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Show compatible hardware
Model
SEC SOC SMDK Board
This driver is not digitally signed!
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel



If USB driver install successfully, the USB state of DNW will have a process from【**USB:x**】to【**USB:OK**】



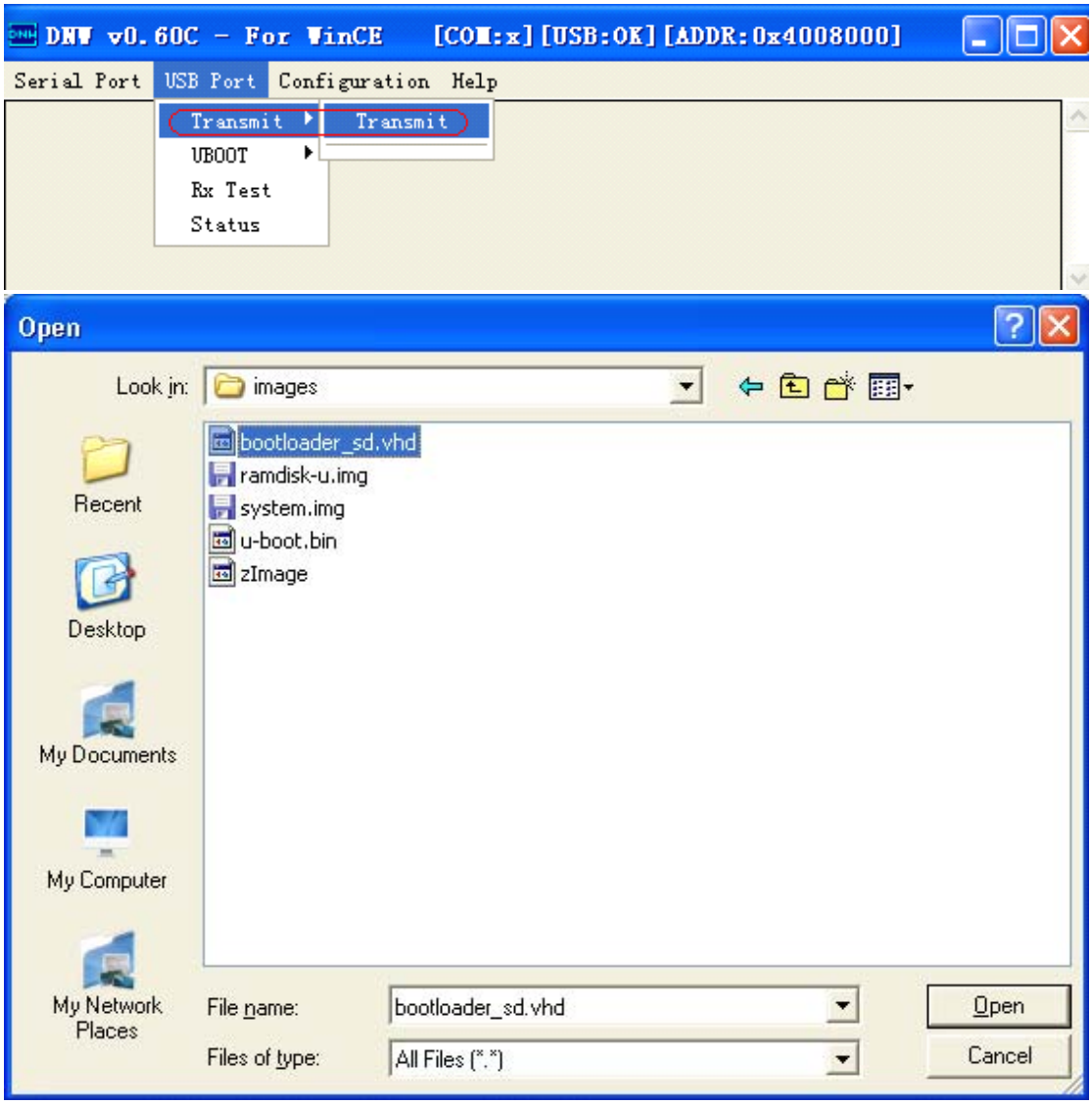
(7) Download and write uboot to iNand.

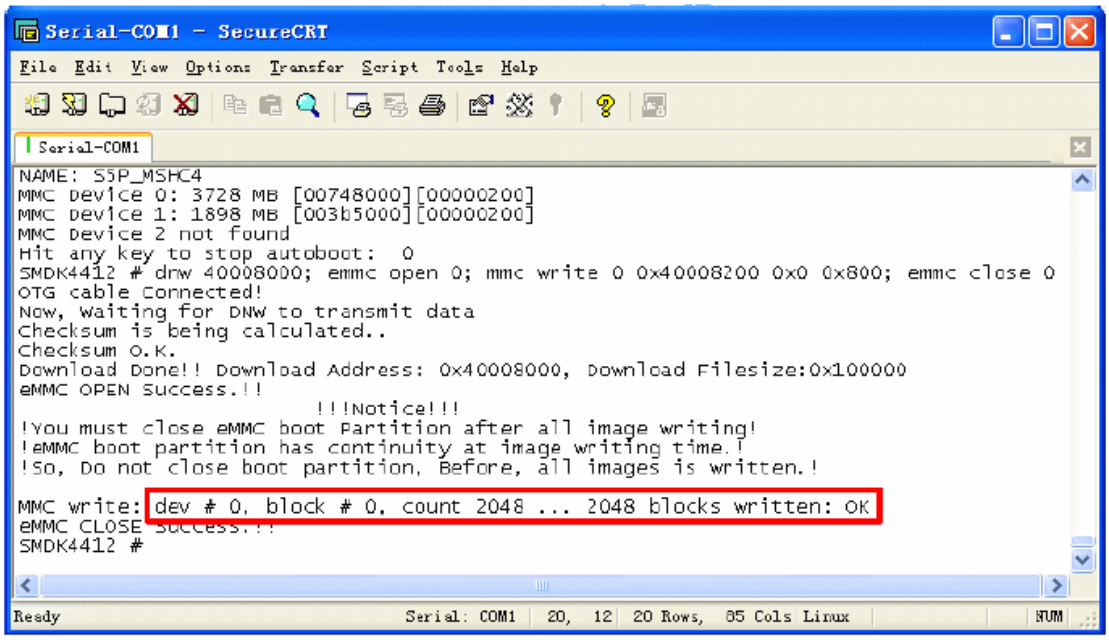
Does **USB Port->Transmit** and browse to locate file **bootloader_sd.vhd.**

At the same time in uboot console will report the progress of writing.

Note: To erase uboot exists in iNand use following command,

SMDK4412#mmc erase boot 0 0 0

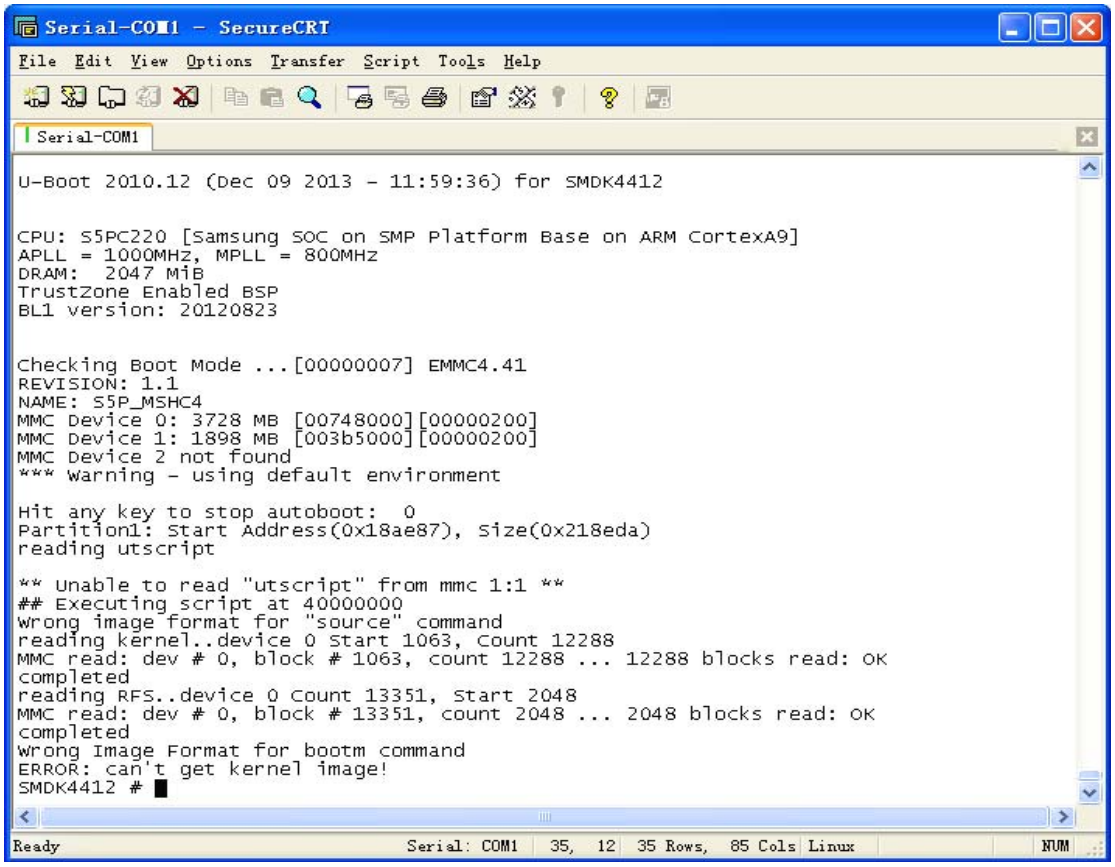




2. Download Kernel and File System

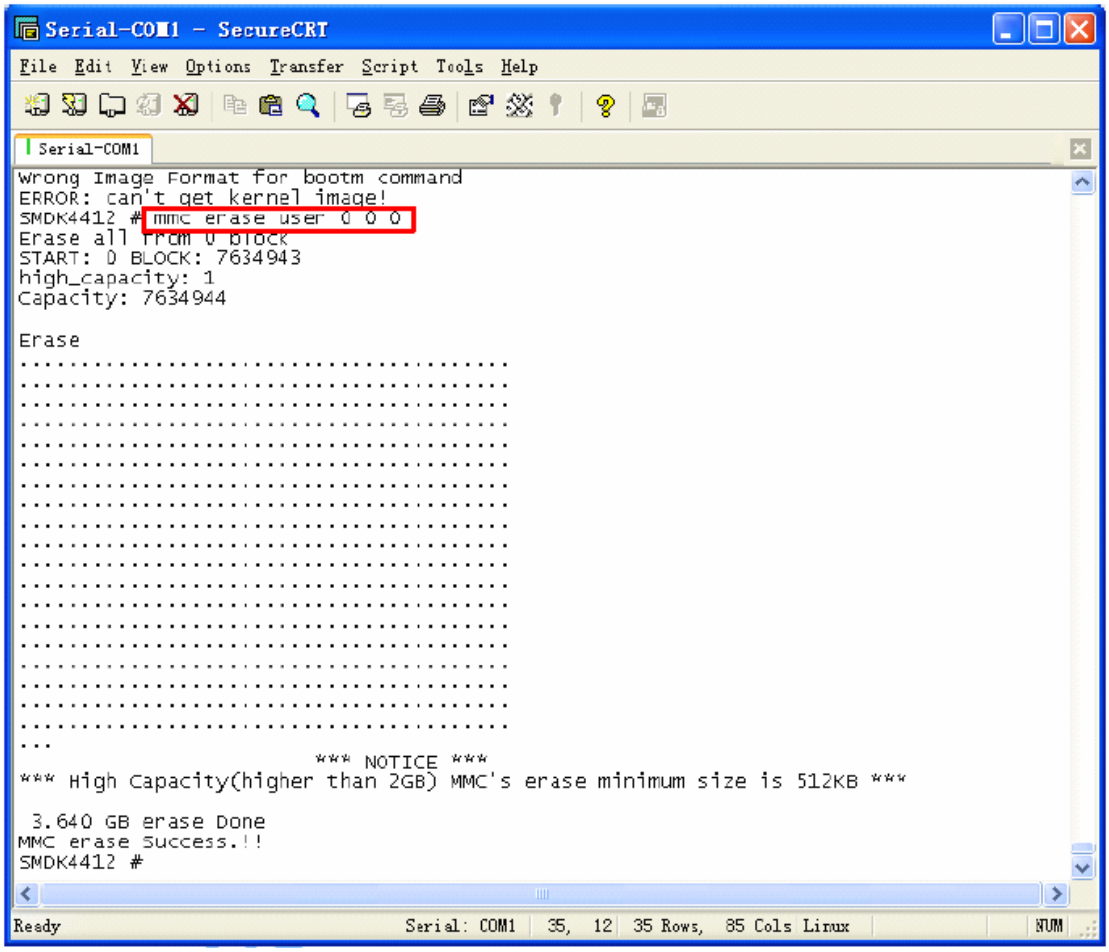
(1) Power off the board (press RESET key), unplug USB OTG cable. Press ON/OFF key 3 seconds.

EM4412 board will boot from iNand and output uboot start up information from debug serial port, the serial port will output the following information and stop at the uboot command line:



(2) Erase iNand user space.

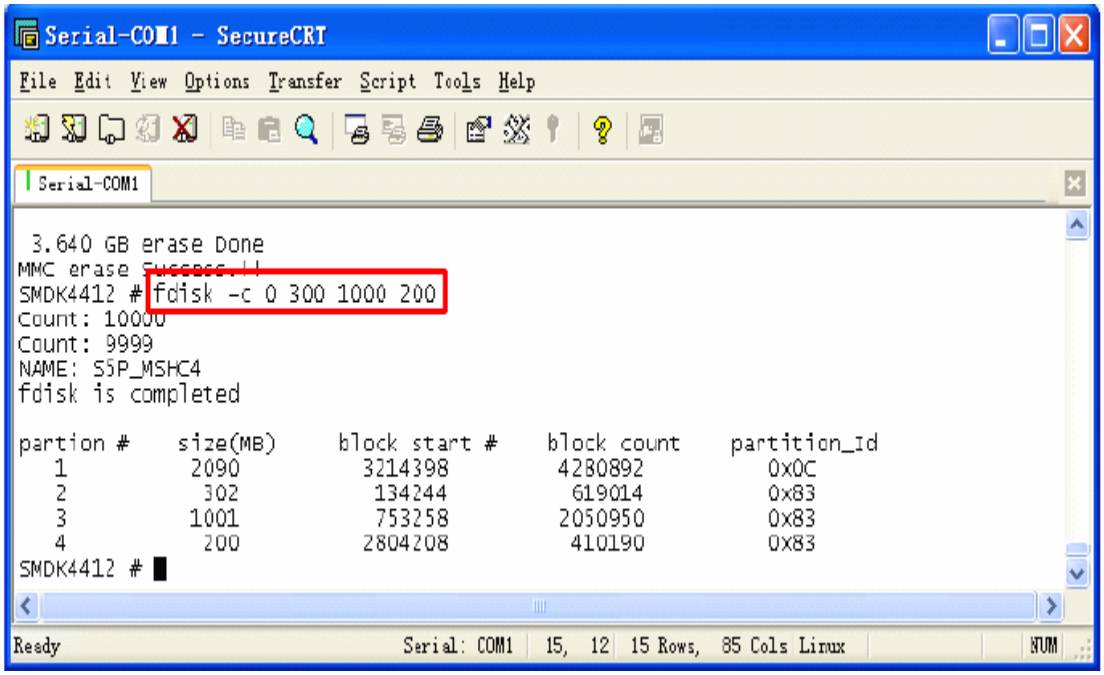
SMDK4412# mmc erase user 0 0 0



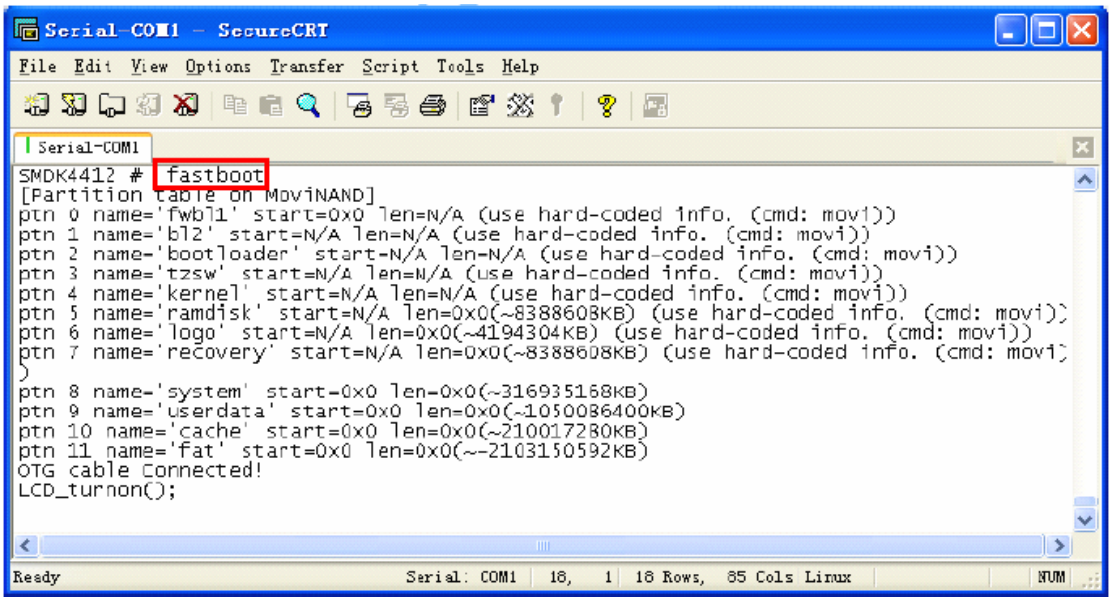
(3) Create partitions and reset EM4412 board.

SMDK# fdisk -c 0 300 1000 200

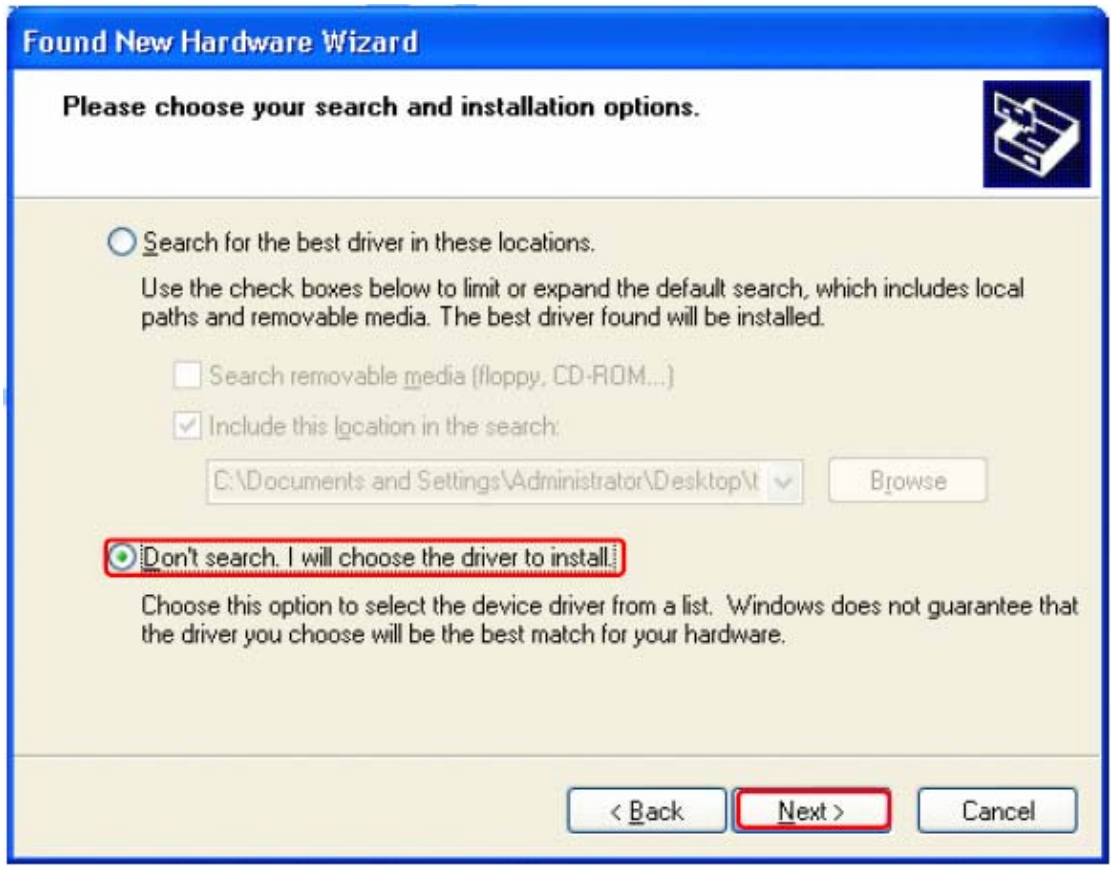
(4) Reboot the board and enter uboot command, input fastboot command.

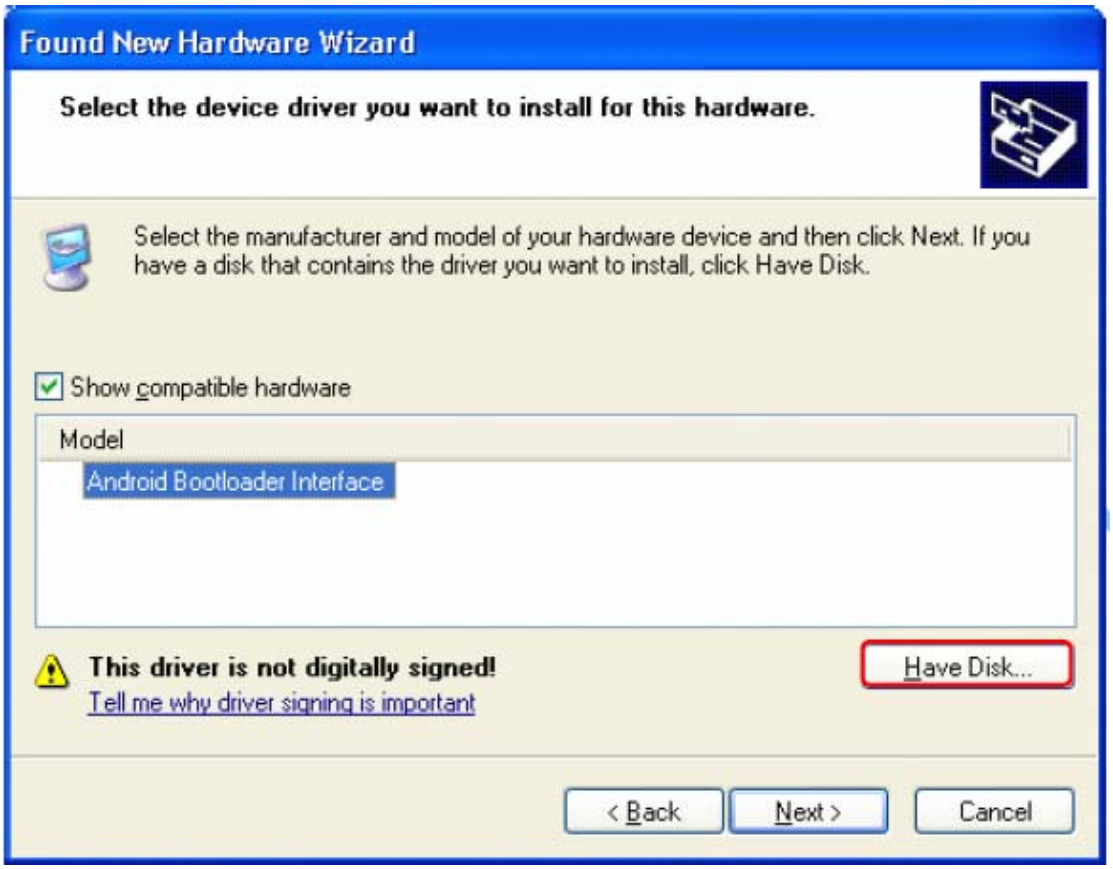


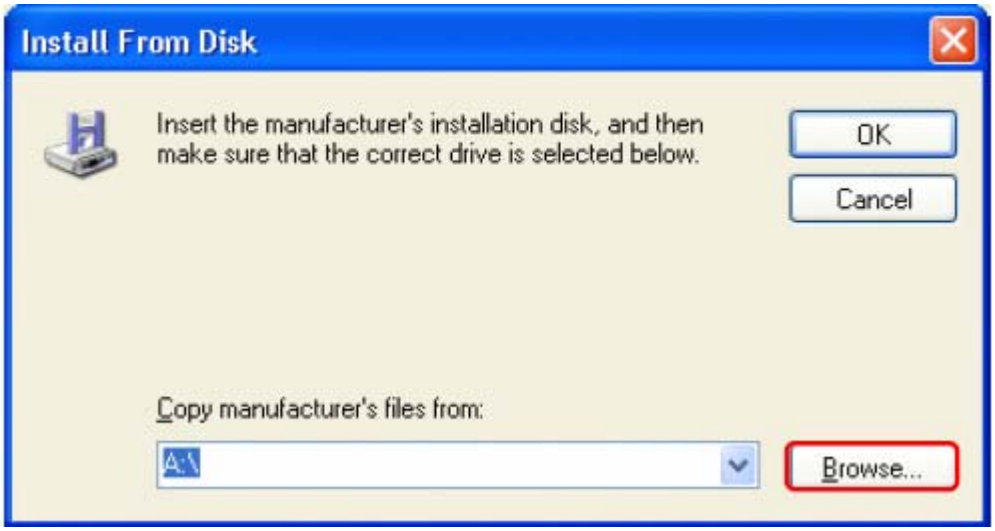
SMDK4412# fastboot

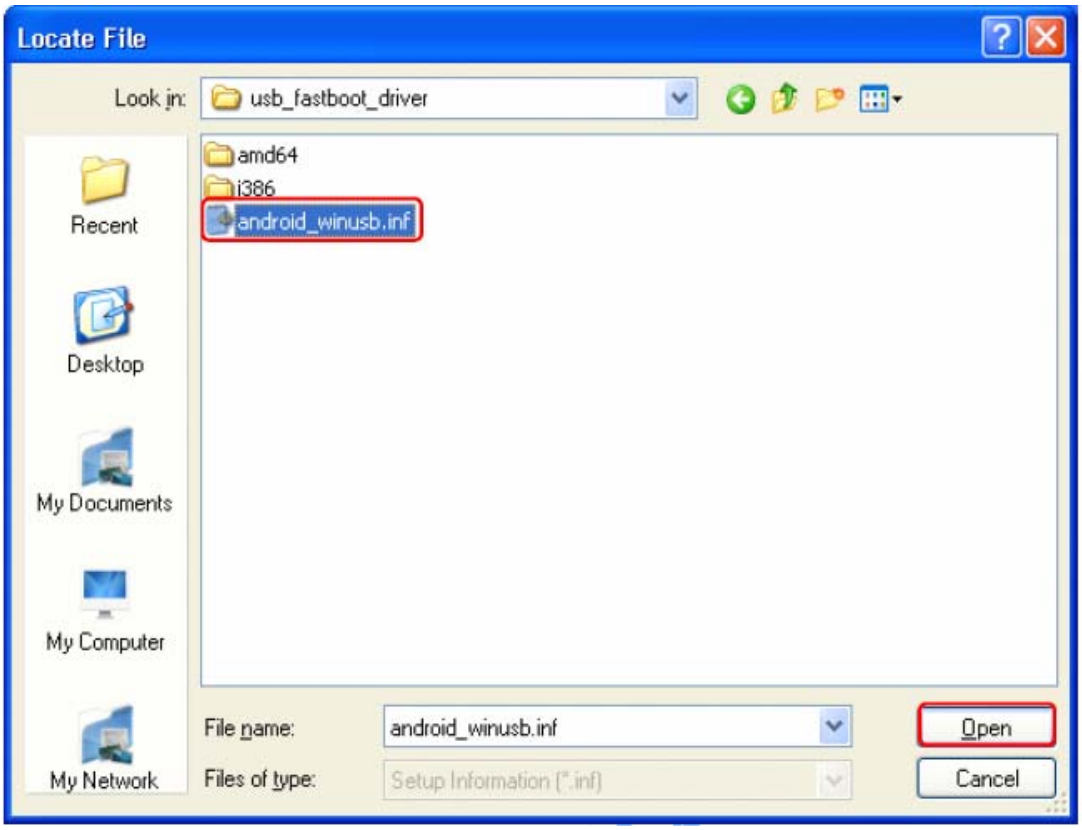


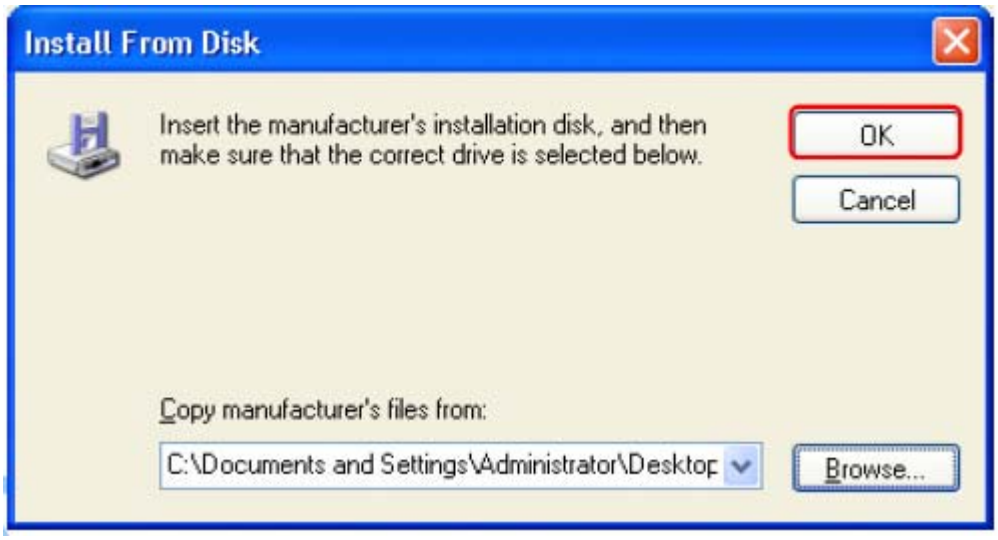
Then connect USB OTG cable with PC again, if the PC has not install **usb_fastboot_driver**, Windows will prompt have detected new device and requires installing the USB fastboot driver. Installation steps are as follows.

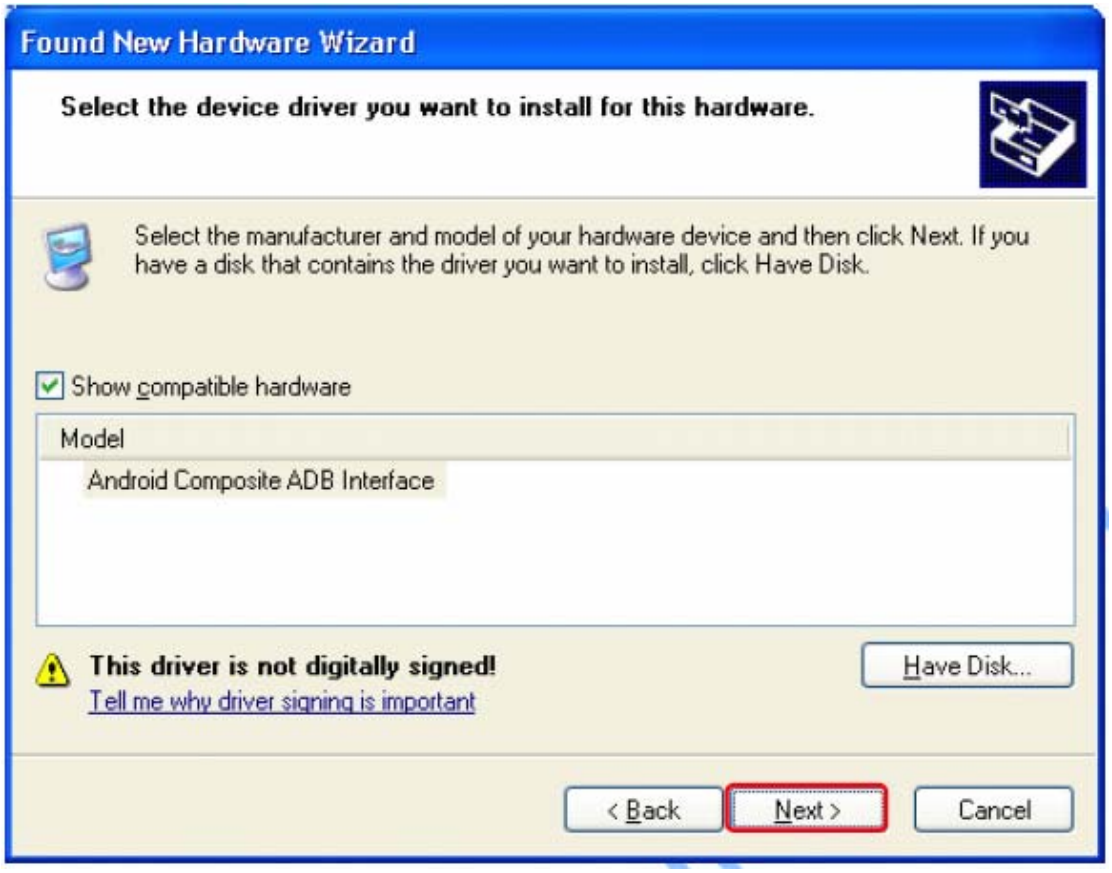

Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\Documents and Settings\Administrator\Desktop\t
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

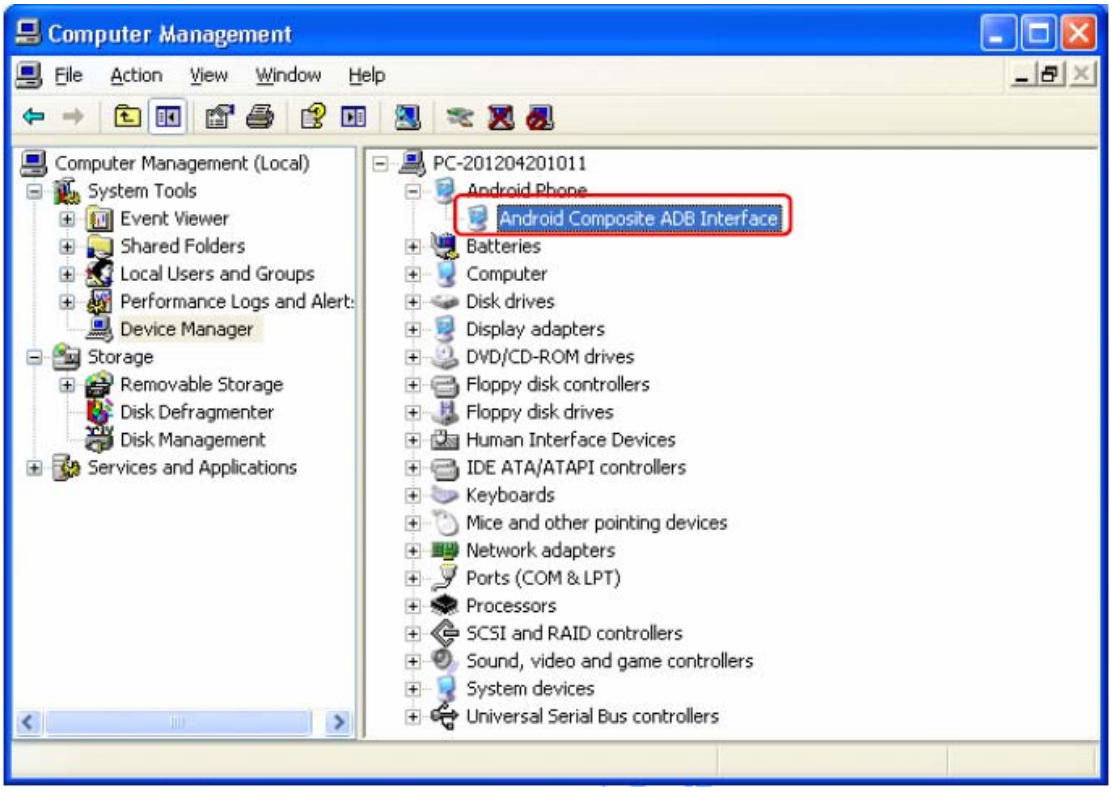

Found New Hardware Wizard
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Show compatible hardware
Model
Android Bootloader Interface
This driver is not digitally signed!
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel


Install From Disk
Insert the manufacturer's installation disk, and then make sure that the correct drive is selected below.
OK
Cancel
Copy manufacturer's files from:
A:\
Browse...


Locate File
Look in:
usb_fastboot_driver
amd64
i386
android_winusb.inf
Recent
Desktop
My Documents
My Computer
My Network
File name:
android_winusb.inf
Files of type:
Setup Information (*.inf)
Open
Cancel


Install From Disk
Insert the manufacturer's installation disk, and then make sure that the correct drive is selected below.
OK
Cancel
Copy manufacturer's files from:
C:\Documents and Settings\Administrator\Desktop
Browse...


Found New Hardware Wizard
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Show compatible hardware
Model
Android Composite ADB Interface
This driver is not digitally signed!
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel



After finished installation, Device Manager Window will display <**Android Composite ADB Interface**>

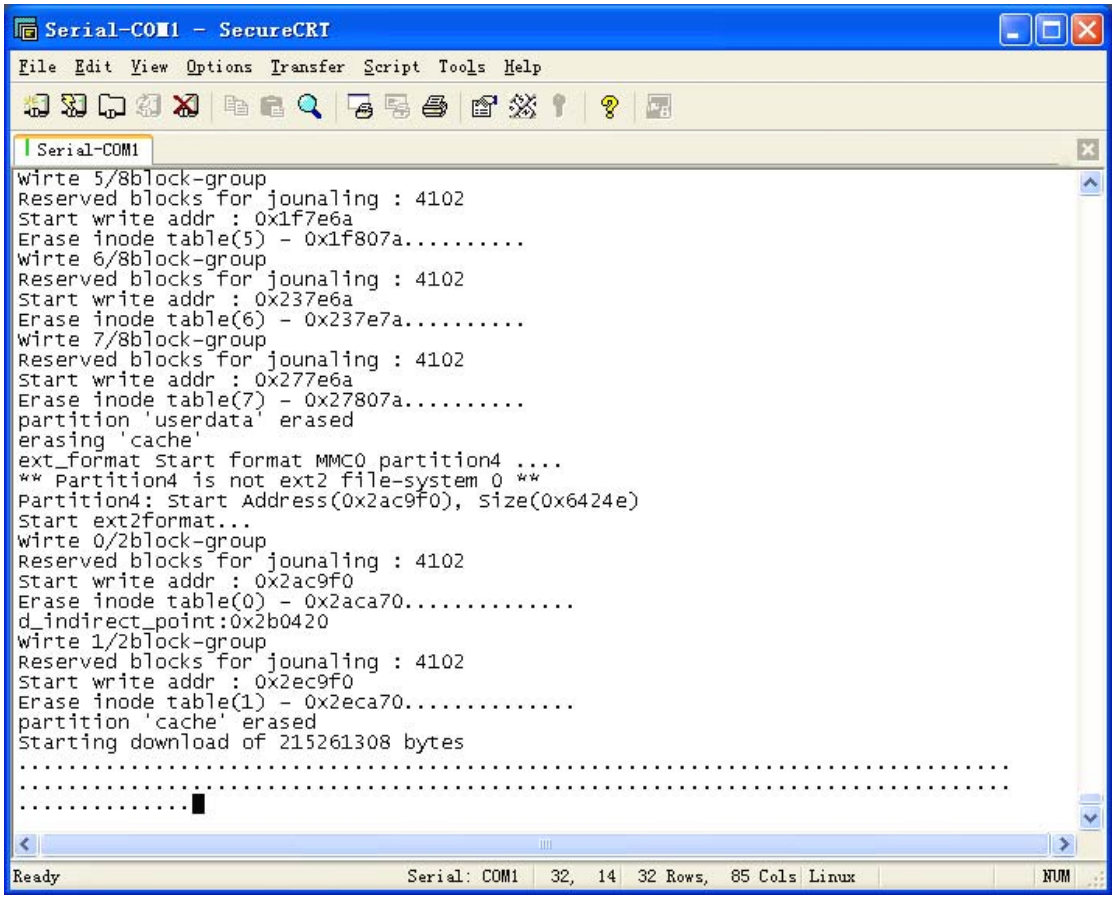
Also in the uboot console will display following messages,

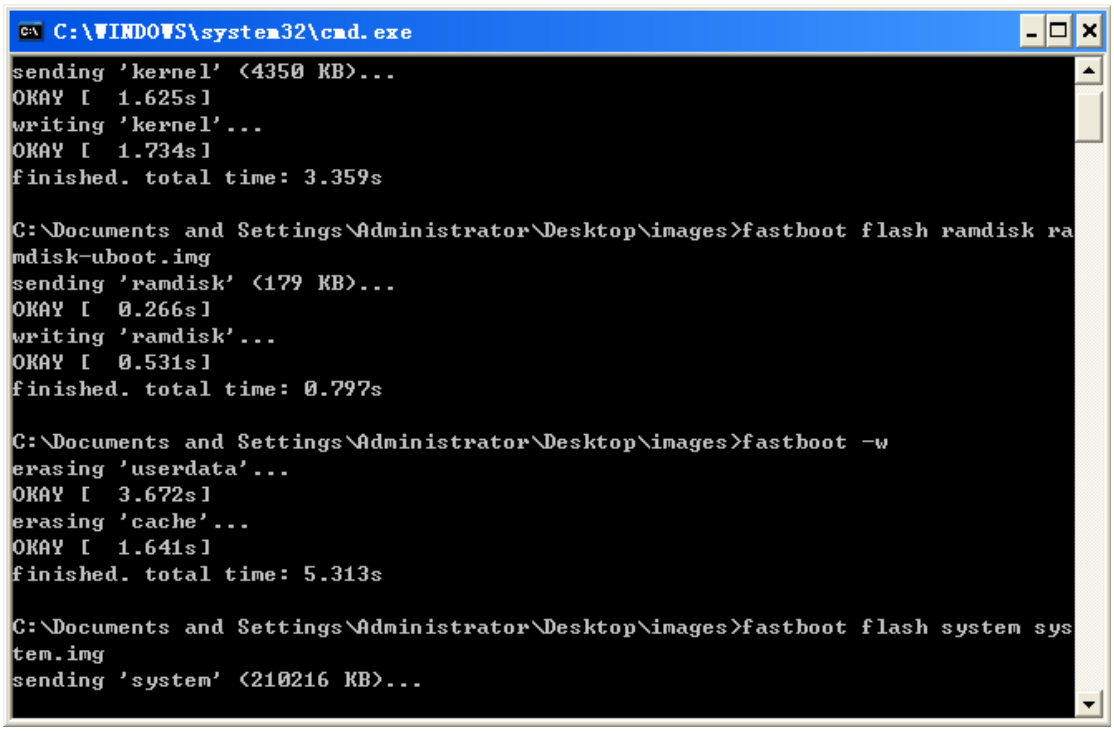
```
OTG cable Connected!
LCD_turnon();
Default Lcd !
```

(5) Run batch file write_all.bat to download images and write to iNand.

Copy images folder to Windows PC from Development CD/Linux**/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.





Also user can write single image to iNand use fastboot command in Window command line as follows.

fastboot flash kernel zImage

fastboot flash ramdisk ramdisk-u.img

fastboot -w

fastboot flash system system.img

fastboot flash userdata userdata.img

After the programming is completed, user can reset the board and enjoy the Linux on the EM4412 board.