

Q: How to burn images to iNand in EM4412?

A:

1.1 Burn images to iNand by SD Card

Step1, 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)

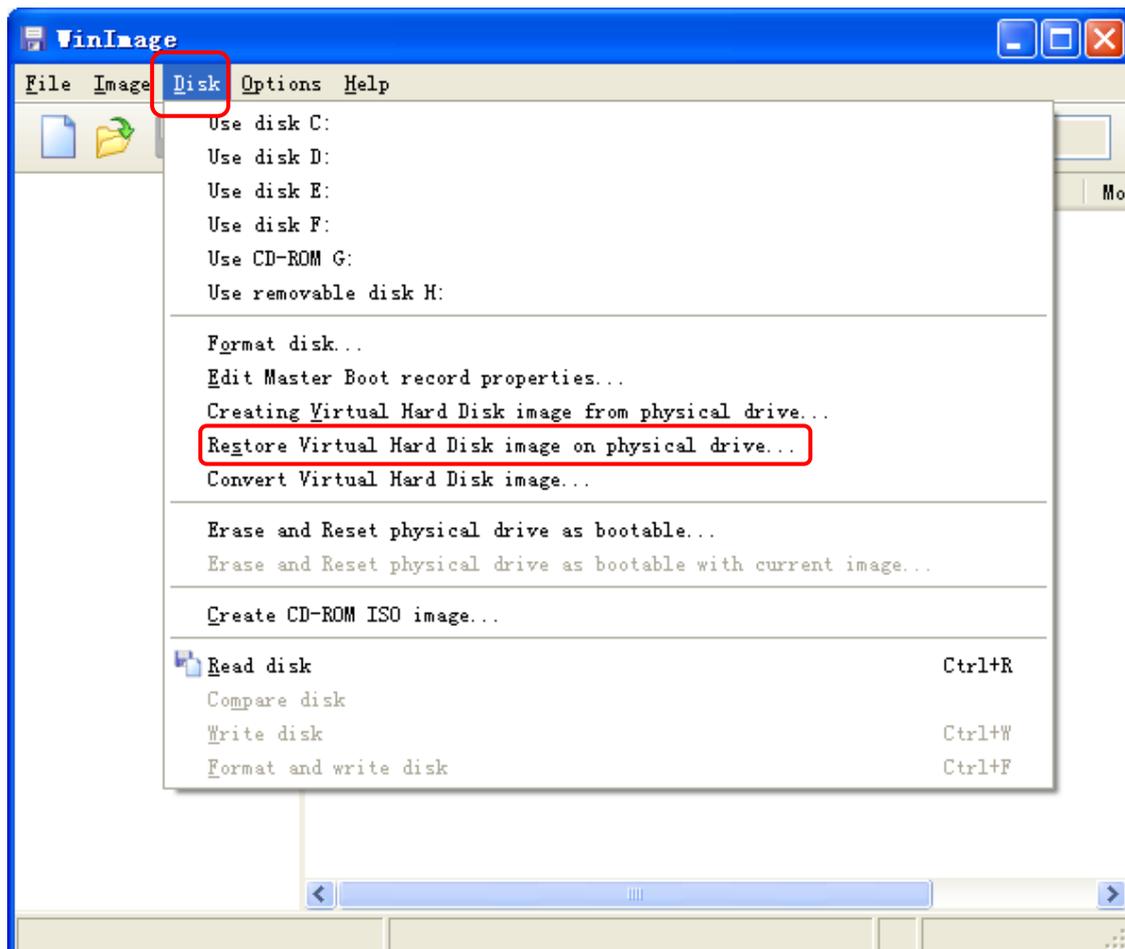
In the menu of WinImage,Go Disk(D) -> Restore Virtual Hard Disk image on physical drive (S)...

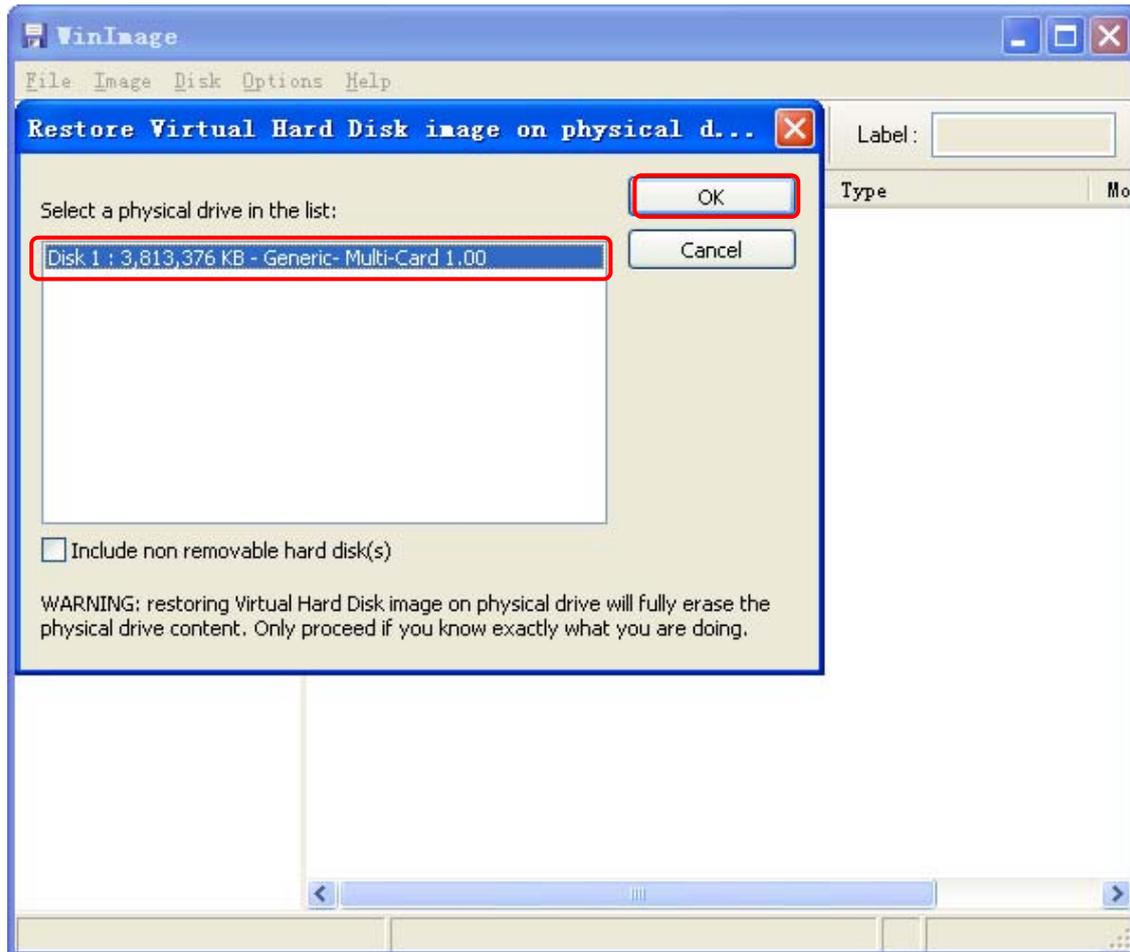
Select the physical Disk which is corresponding to the SD card inserted.

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

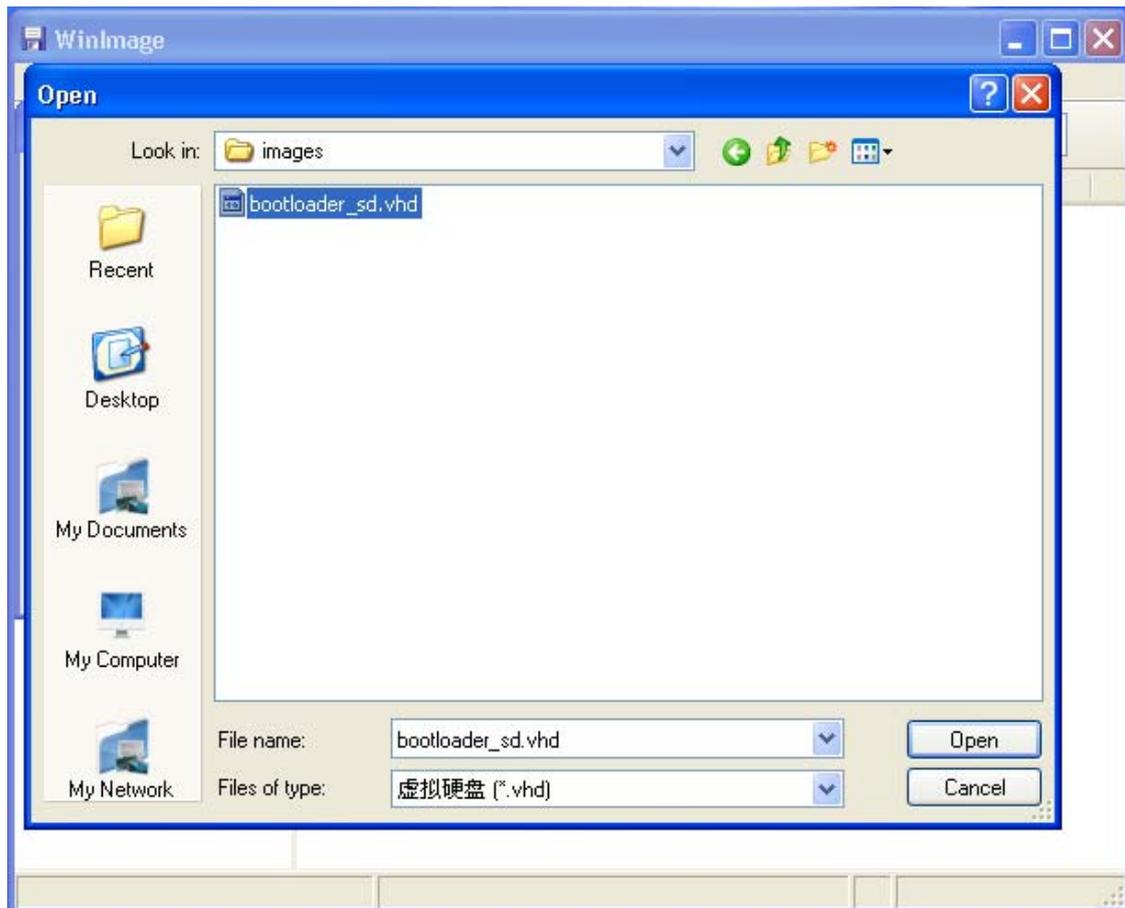
Finish Making SD card.

Following screen shot show the procedure of making SD card.





Select the file bootloader_sd.vhd



Note: After making SD card with WinImage, when open the SD card disk in Windows PC, Windows may say need formatting, in this case we should format the SD card to some format in order to store files.

Create a new folder named **sdfuse** in the SD card and put the images: `bootloader_sd.vhd`, `zImage`, `ramdisk-u.img`, `system.img`, `userdata.img`.

Step 2 Set Boot from SD card.

Note: You must burn the uboot by SD card boot mode when there is no uboot in iNand.

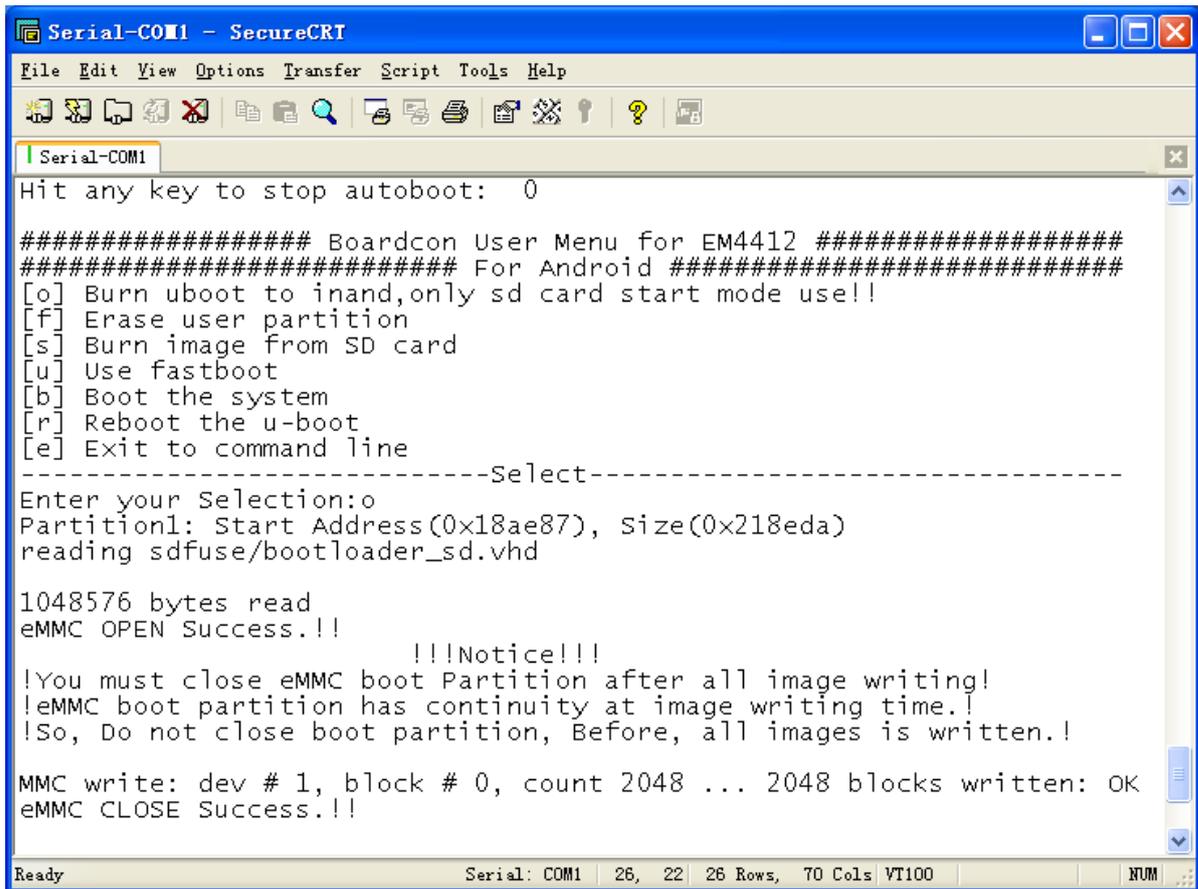
For boot from SD card, Set DIP to [ON ON OFF ON] as follows,

Boot Mode	1	2	3	4
SD card	ON	ON	OFF	ON

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

Step 4 Open SecureCRT.

Step 5. Press and hold on the ON/OFF key for 3 - 5 seconds. EM4412 will boot from SD card. And stop at the user menu, burn uboot to iNand by choose "o".



```

Serial-COM1 - SecureCRT
File Edit View Options Transfer Script Tools Help
Serial-COM1
Hit any key to stop autoboot: 0

##### Boardcon User Menu for EM4412 #####
##### For Android #####
[o] Burn uboot to inand,only sd card start mode use!!
[f] Erase user partition
[s] Burn image from SD card
[u] Use fastboot
[b] Boot the system
[r] Reboot the u-boot
[e] Exit to command line
-----Select-----
Enter your Selection:o
Partition1: Start Address(0x18ae87), Size(0x218eda)
reading sdfuse/bootloader_sd.vhd

1048576 bytes read
eMMC OPEN Success.!!

!!!Notice!!!
!You must close eMMC boot Partition after all image writing!
!eMMC boot partition has continuity at image writing time.!
!So, Do not close boot partition, Before, all images is written.!

MMC write: dev # 1, block # 0, count 2048 ... 2048 blocks written: OK
eMMC CLOSE Success.!!

Ready Serial: COM1 26, 22 26 Rows, 70 Co1s VT100 NUM

```

Step 6, Power off the board.

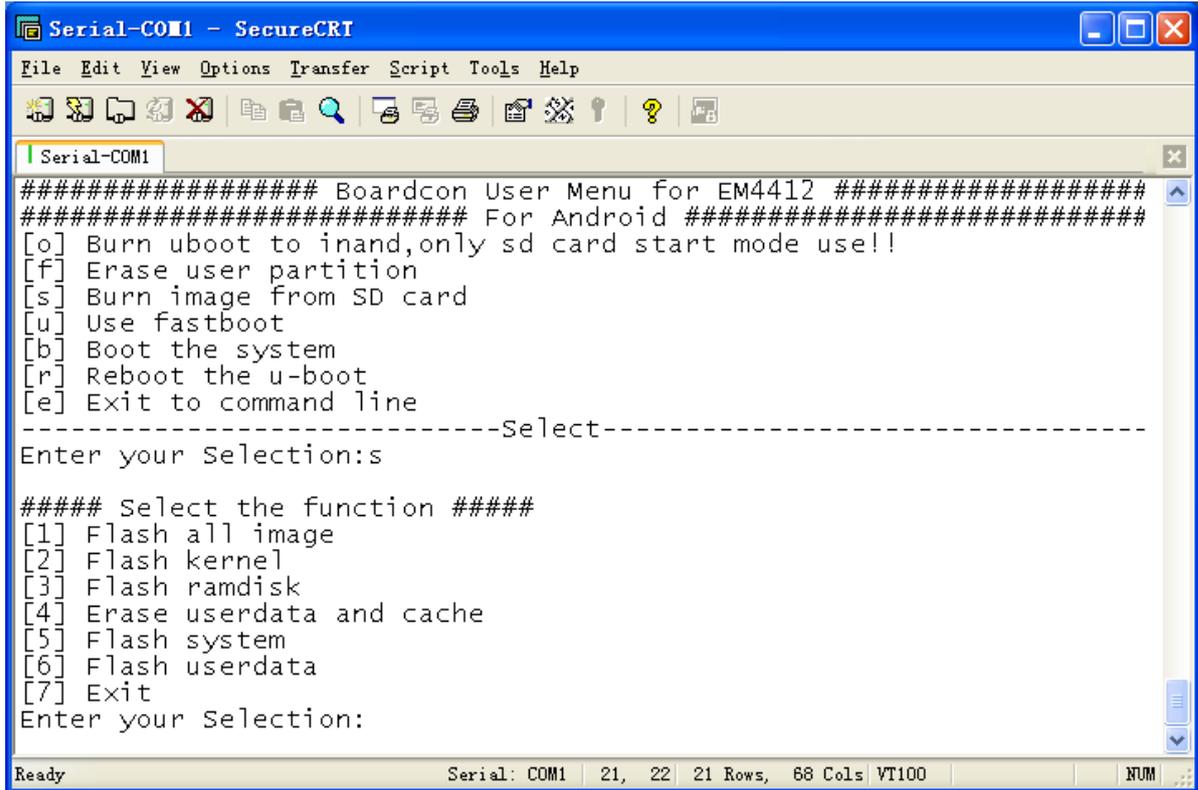
For boot from iNand,Set DIP to [ON OFF ON ON] as follows,

Boot Mode	1	2	3	4
iNand	ON	OFF	ON	ON

press ON/OFF key 3 seconds. EM4412 board will boot from iNand and output uboot start up information from debug serial port.

You had better erase the iNand flash if this is your first time burning system.

Erase the iNand by choose “f”,and then choose “s” to burn images:



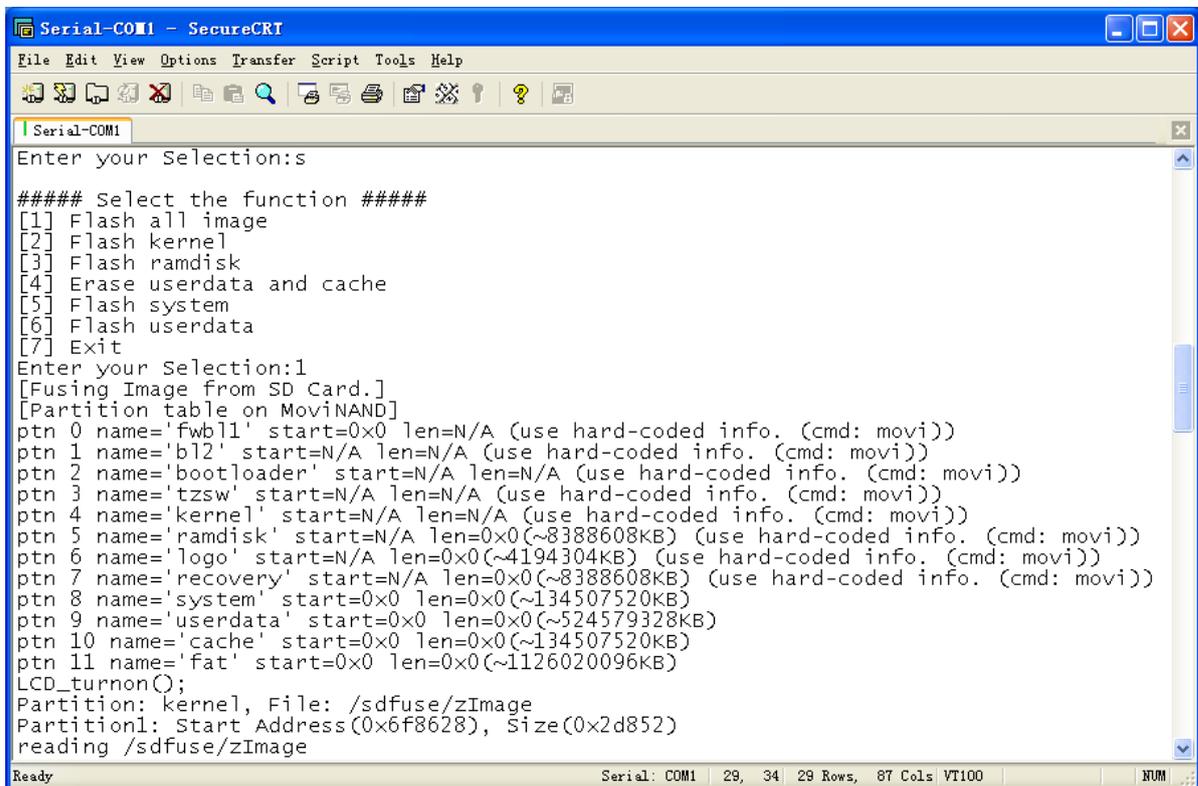
```

Serial-COM1 - SecureCRT
File Edit View Options Transfer Script Tools Help
Serial-COM1
##### Boardcon User Menu for EM4412 #####
##### For Android #####
[o] Burn uboot to inand,only sd card start mode use!!
[f] Erase user partition
[s] Burn image from SD card
[u] Use fastboot
[b] Boot the system
[r] Reboot the u-boot
[e] Exit to command line
-----Select-----
Enter your Selection:s

##### Select the function #####
[1] Flash all image
[2] Flash kernel
[3] Flash ramdisk
[4] Erase userdata and cache
[5] Flash system
[6] Flash userdata
[7] Exit
Enter your Selection:
Ready Serial: COM1 21, 22 21 Rows, 68 Cols VT100 NUM

```

You can choose “1” to automatically burn in all, or choose other to burn single image which you update.



```

Serial-COM1 - SecureCRT
File Edit View Options Transfer Script Tools Help
Serial-COM1
Enter your Selection:s

##### Select the function #####
[1] Flash all image
[2] Flash kernel
[3] Flash ramdisk
[4] Erase userdata and cache
[5] Flash system
[6] Flash userdata
[7] Exit
Enter your Selection:1
[Fusing Image from SD Card.]
[Partition table on MovinAND]
ptn 0 name='fwbl1' start=0x0 len=N/A (use hard-coded info. (cmd: movi))
ptn 1 name='bl2' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 2 name='bootloader' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 3 name='tzsw' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 4 name='kernel' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 5 name='ramdisk' start=N/A len=0x0(~8388608KB) (use hard-coded info. (cmd: movi))
ptn 6 name='logo' start=N/A len=0x0(~4194304KB) (use hard-coded info. (cmd: movi))
ptn 7 name='recovery' start=N/A len=0x0(~8388608KB) (use hard-coded info. (cmd: movi))
ptn 8 name='system' start=0x0 len=0x0(~134507520KB)
ptn 9 name='userdata' start=0x0 len=0x0(~524579328KB)
ptn 10 name='cache' start=0x0 len=0x0(~134507520KB)
ptn 11 name='fat' start=0x0 len=0x0(~1126020096KB)
LCD_turnon();
Partition: kernel, File: /sdfuse/zImage
Partition1: Start Address(0x6f8628), Size(0x2d852)
reading /sdfuse/zImage
Ready Serial: COM1 29, 34 29 Rows, 87 Cols VT100 NUM

```

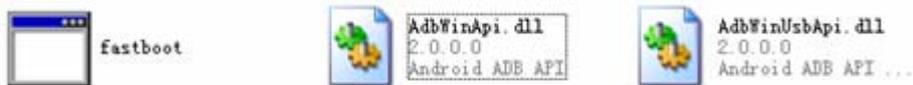
1.2 Burn images by fastboot

Note: You must burn the uboot by SD card boot mode if there is no uboot in iNand. Please read the burn method at “Burn by SD card”.

Step 1, Set the DIP switch to iNand flash boot mode as follow:

Boot Mode	1	2	3	4
iNand	ON	OFF	ON	ON

You can use “fastboot” until you copy three files as follows from Tools/windows/fastboot directory to :\\WINDOWS\system32 directory.



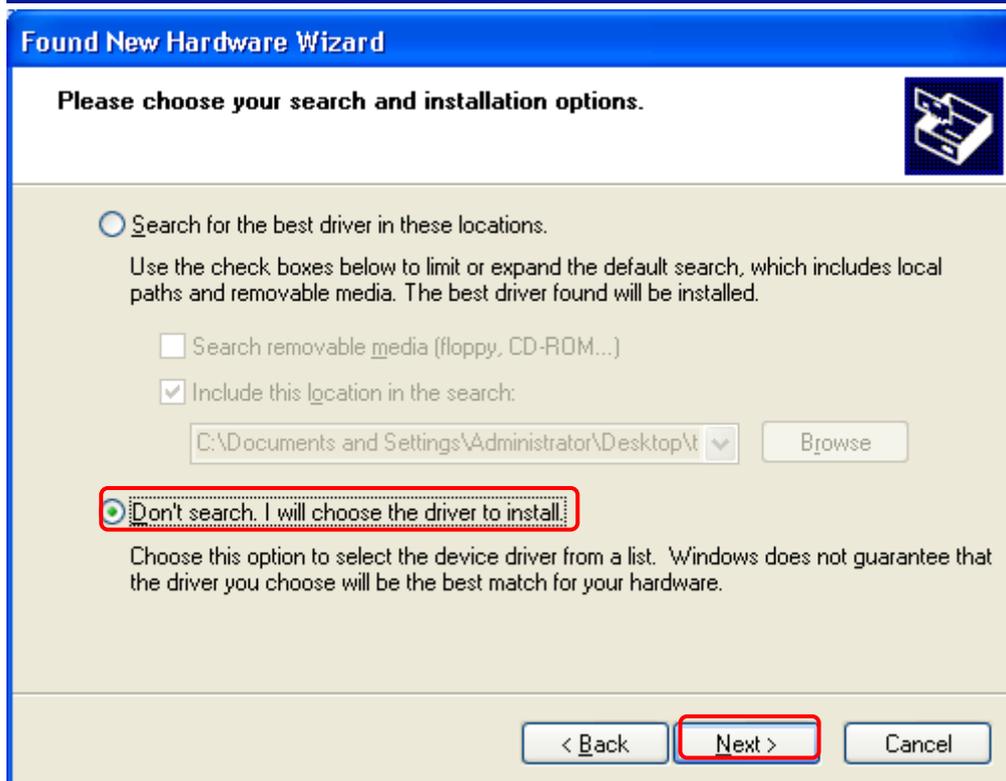
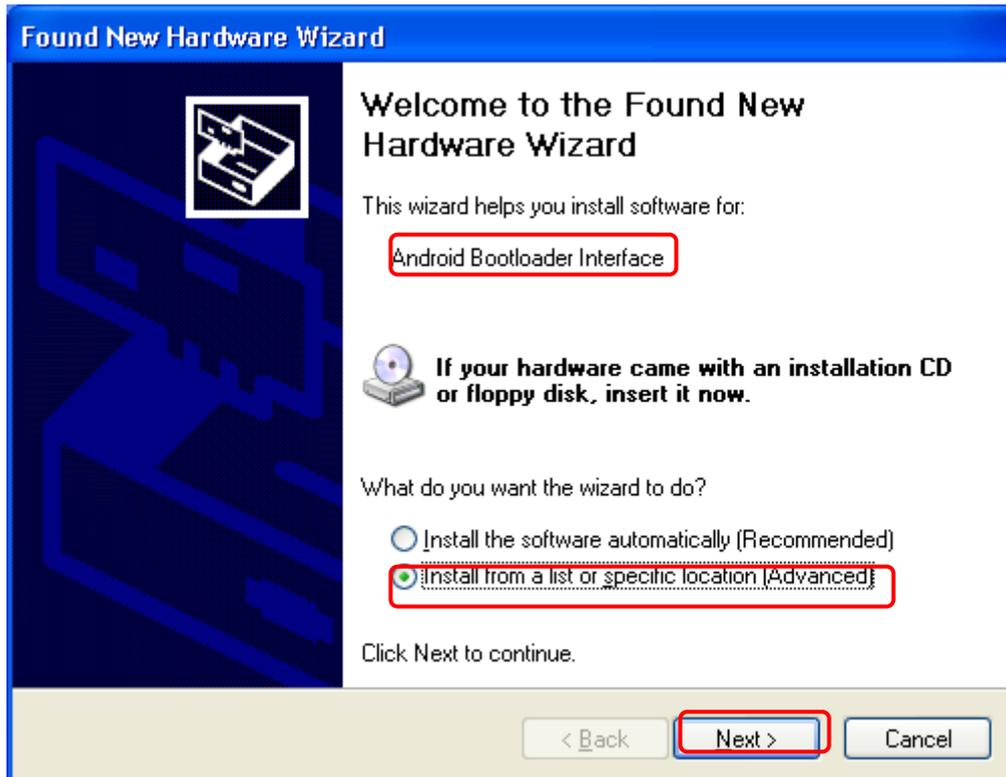
Step 2, Boot from iNand and select the option [u] in the menu to boot uboot

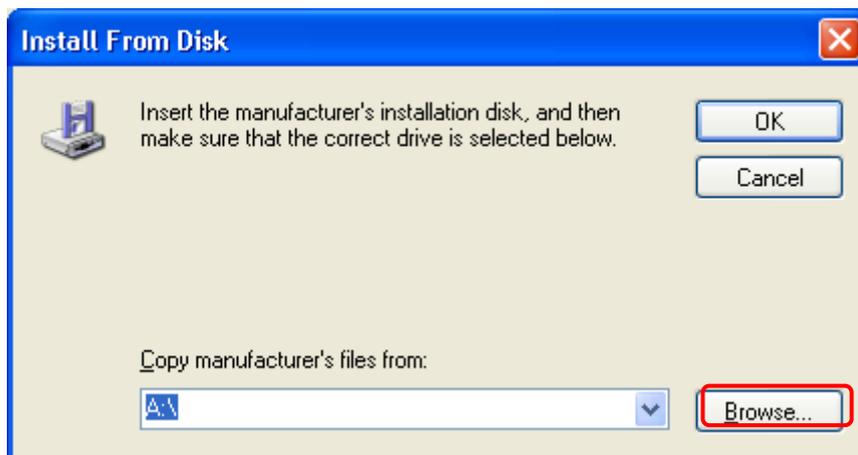
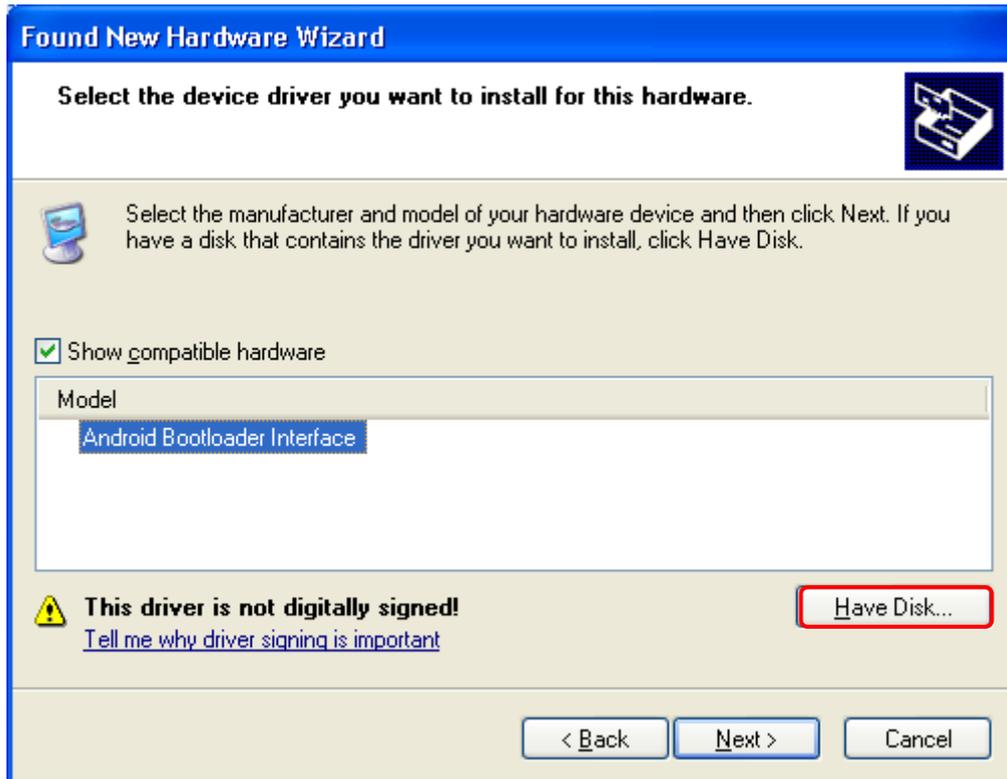
```

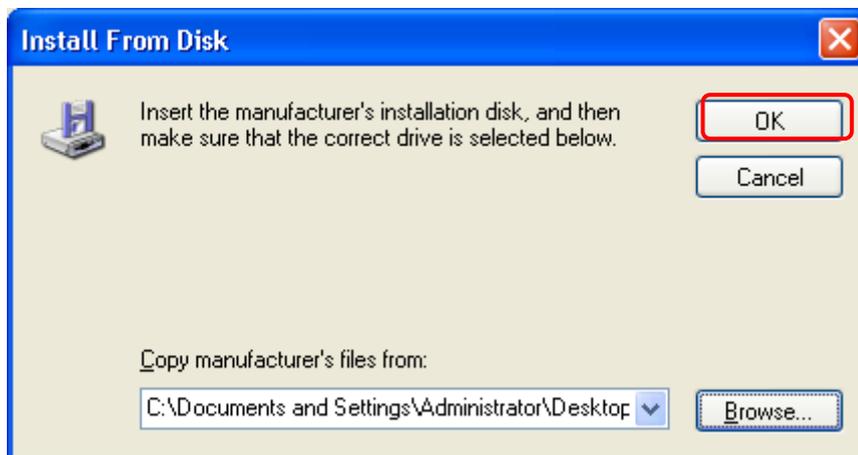
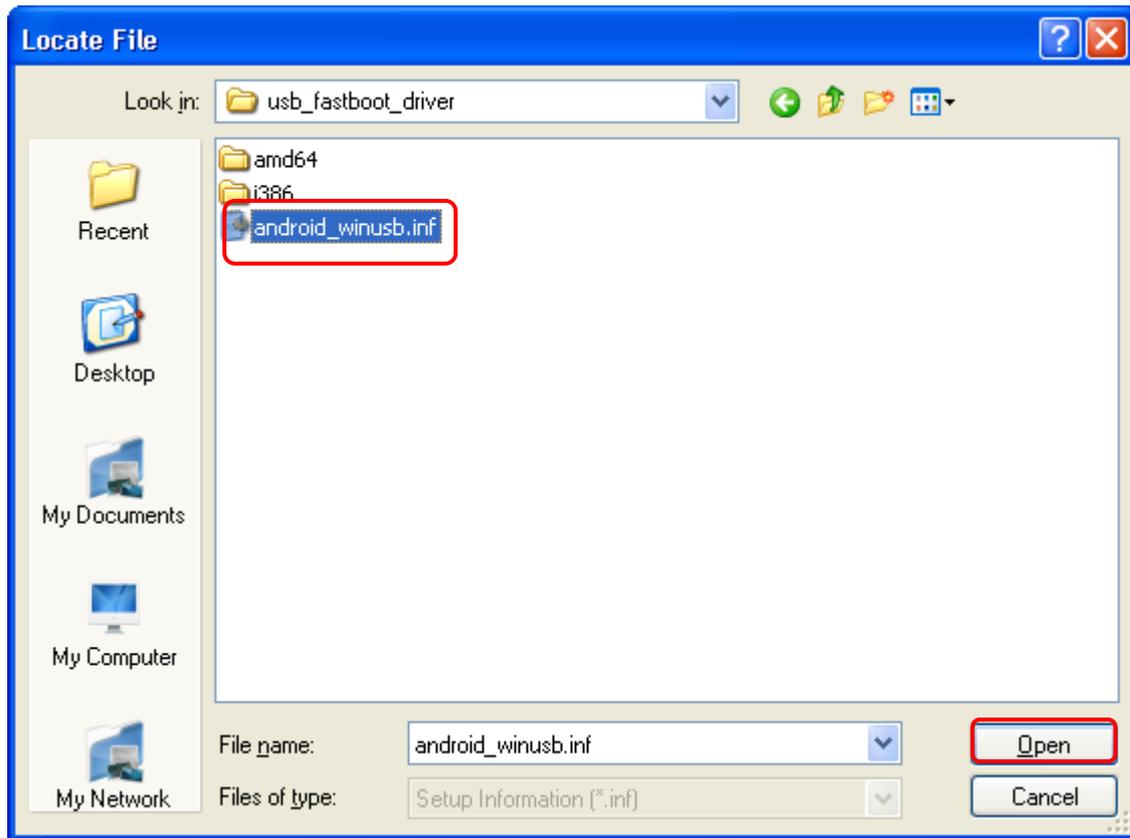
Serial-COM1 - SecureCRT
File Edit View Options Transfer Script Tools Help
Serial-COM1
##### Boardcon User Menu for EM4412 #####
##### For Android #####
[o] Burn uboot to inand,only sd card start mode use!!
[f] Erase user partition
[s] Burn image from SD card
[u] Use fastboot
[b] Boot the system
[r] Reboot the u-boot
[e] Exit to command line
-----Select-----
Enter your Selection:u
[Partition table on MovINAND]
ptn 0 name='fwbl1' start=0x0 len=N/A (use hard-coded info. (cmd: movi))
ptn 1 name='bl2' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 2 name='bootloader' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 3 name='tzsw' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 4 name='kernel' start=N/A len=N/A (use hard-coded info. (cmd: movi))
ptn 5 name='ramdisk' start=N/A len=0x0(~8388608KB) (use hard-coded info. (cmd: movi))
ptn 6 name='logo' start=N/A len=0x0(~4194304KB) (use hard-coded info. (cmd: movi))
ptn 7 name='recovery' start=N/A len=0x0(~8388608KB) (use hard-coded info. (cmd: movi))
ptn 8 name='system' start=0x0 len=0x0(~134507520KB)
ptn 9 name='userdata' start=0x0 len=0x0(~524579328KB)
ptn 10 name='cache' start=0x0 len=0x0(~134507520KB)
ptn 11 name='fat' start=0x0 len=0x0(~1126020096KB)
OTG cable Connected!
LCD_turnon();
Ready Serial: COM1 28, 1 | 28 Rows, 86 Cols VT100 NUM

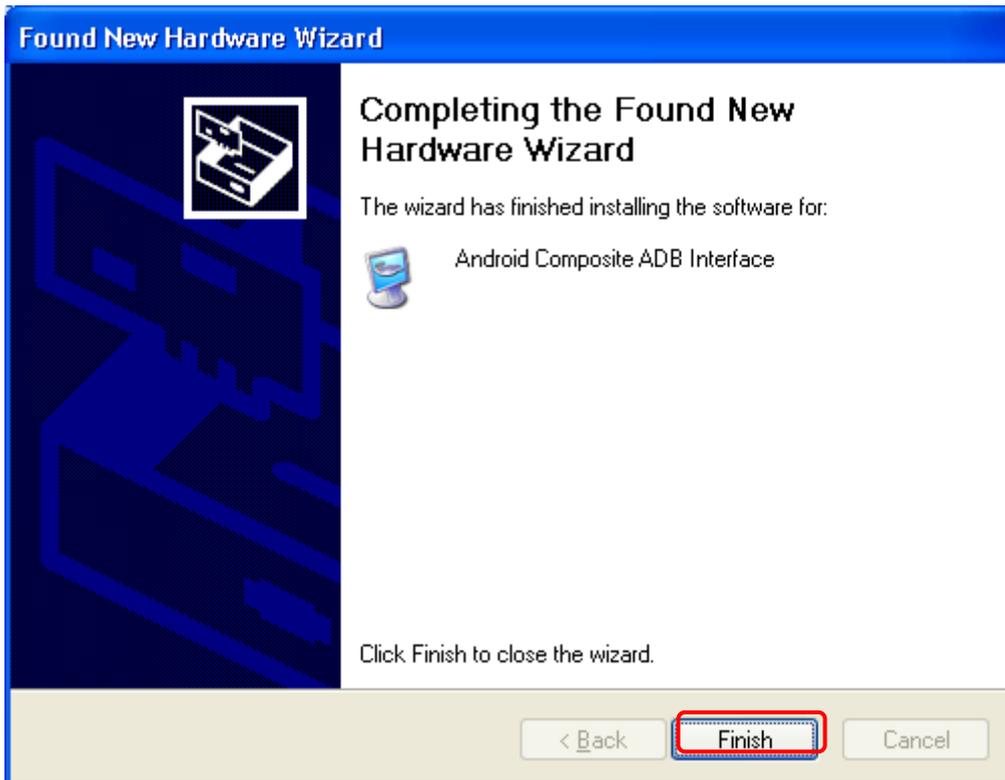
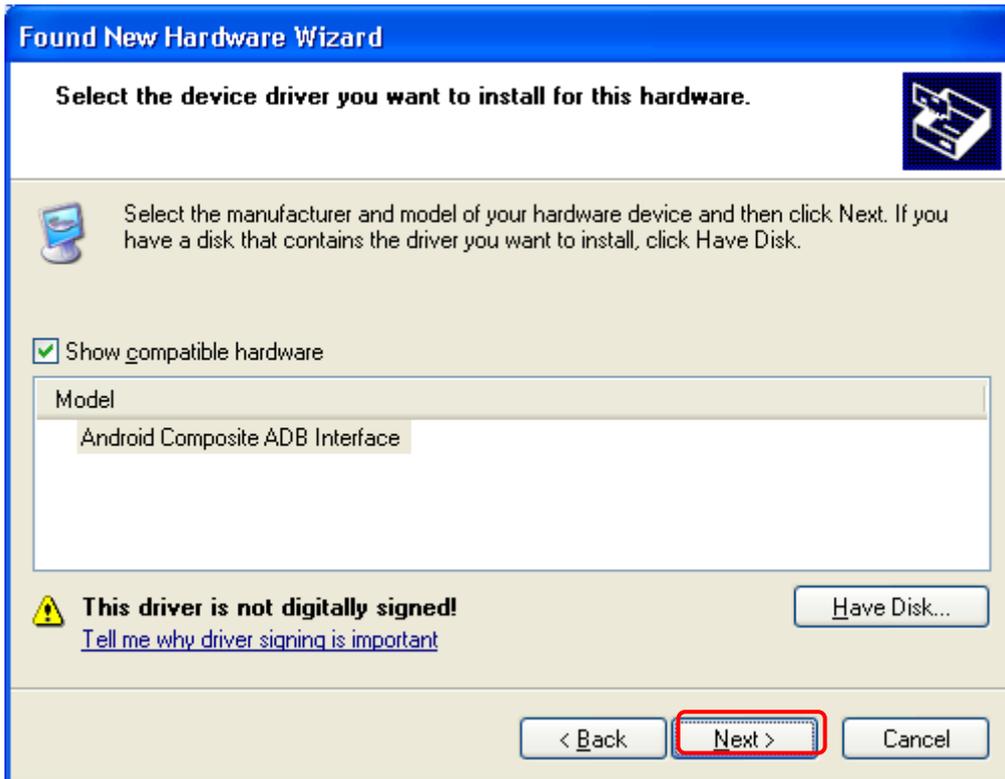
```

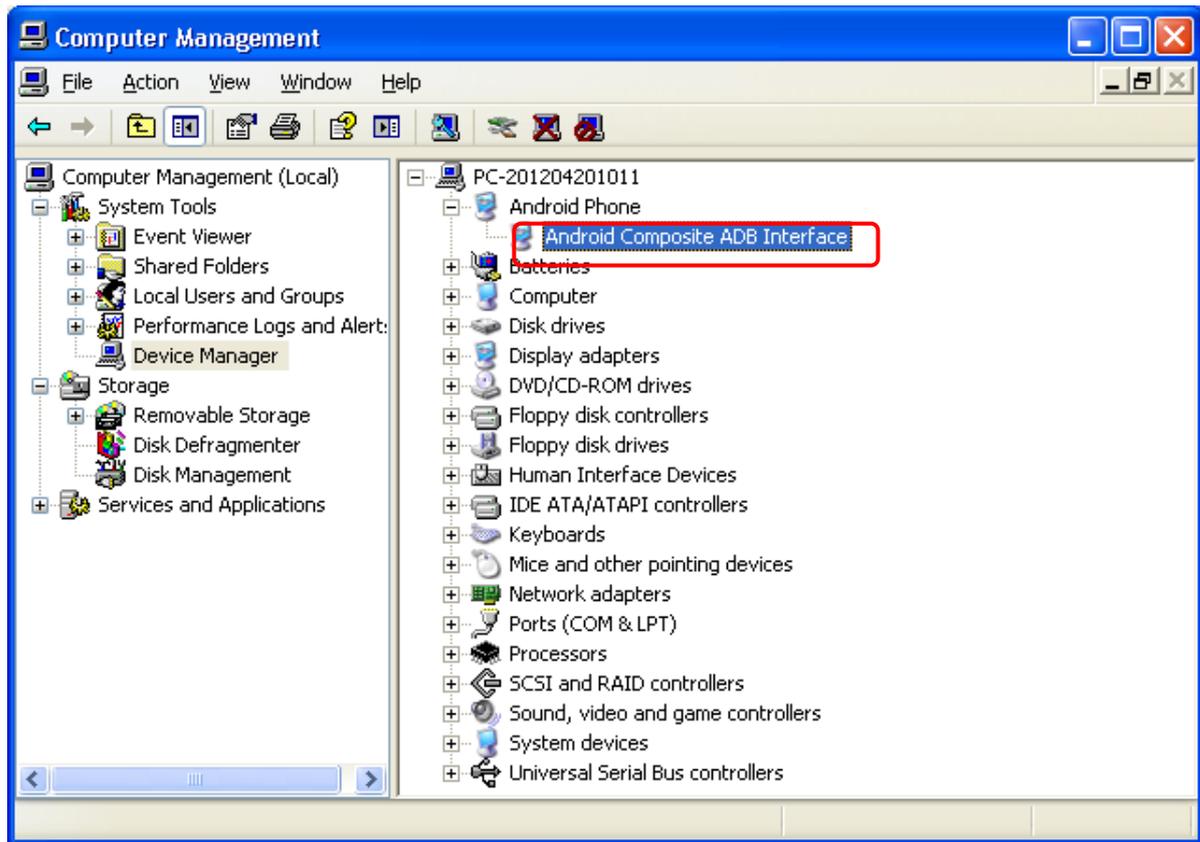
Step 3, Then connect USB OTG cable with PC, If the PC have not ever install usb_fastboot_driver, Windows will prompt have detected new device and requires installing the usb fastboot driver. Installation steps are as follows.











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

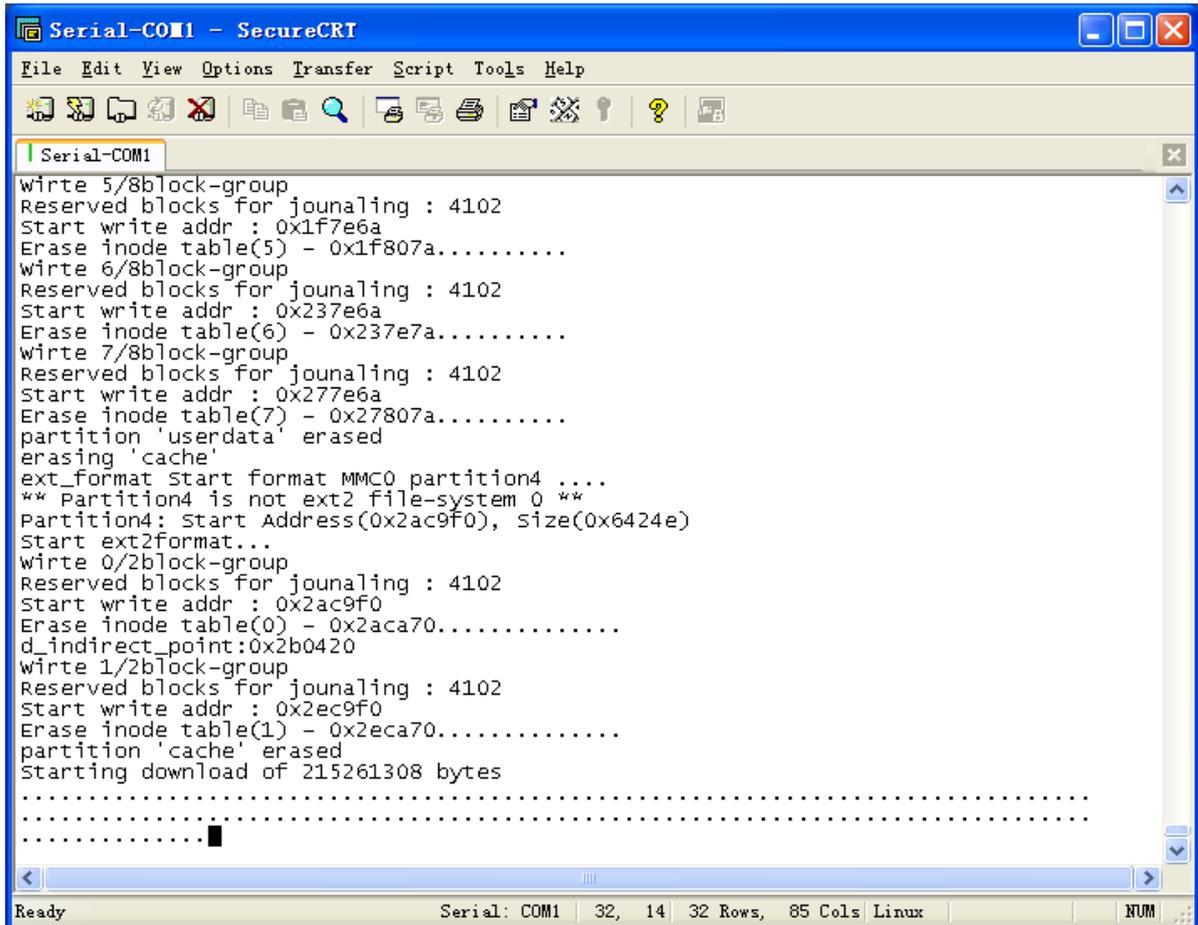
Also in the uboot console will display following messages,

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

Step 4, Run batch file write_all.bat to download images and write to iNand.

Copy images folder to Windows PC from Development CD/Android4.2.2/images,run batch file write_all.bat to download and write zImage, ramdisk-u.img and system.img to iNand.

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



```

Serial-COM1 - SecureCRT
File Edit View Options Transfer Script Tools Help
Serial-COM1
write 5/8block-group
Reserved blocks for jounaling : 4102
Start write addr : 0x1f7e6a
Erase inode table(5) - 0x1f807a.....
write 6/8block-group
Reserved blocks for jounaling : 4102
Start write addr : 0x237e6a
Erase inode table(6) - 0x237e7a.....
write 7/8block-group
Reserved blocks for jounaling : 4102
Start write addr : 0x277e6a
Erase inode table(7) - 0x27807a.....
partition 'userdata' erased
erasing 'cache'
ext_format start format MMC0 partition4 ....
** Partition4 is not ext2 file-system 0 **
Partition4: Start Address(0x2ac9f0), size(0x6424e)
Start ext2format...
write 0/2block-group
Reserved blocks for jounaling : 4102
Start write addr : 0x2ac9f0
Erase inode table(0) - 0x2aca70.....
d_indirect_point:0x2b0420
write 1/2block-group
Reserved blocks for jounaling : 4102
Start write addr : 0x2ec9f0
Erase inode table(1) - 0x2eca70.....
partition 'cache' erased
Starting download of 215261308 bytes
.....
.....
.....

```

Ready Serial: COM1 32, 14 32 Rows, 85 Cols Linux NUM



```
C:\WINDOWS\system32\cmd.exe
sending 'kernel' (4350 KB)...
OKAY [ 1.625s]
writing 'kernel'...
OKAY [ 1.734s]
finished. total time: 3.359s

C:\Documents and Settings\Administrator\Desktop\images>fastboot flash ramdisk ra
mdisk-uboot.img
sending 'ramdisk' (179 KB)...
OKAY [ 0.266s]
writing 'ramdisk'...
OKAY [ 0.531s]
finished. total time: 0.797s

C:\Documents and Settings\Administrator\Desktop\images>fastboot -w
erasing 'userdata'...
OKAY [ 3.672s]
erasing 'cache'...
OKAY [ 1.641s]
finished. total time: 5.313s

C:\Documents and Settings\Administrator\Desktop\images>fastboot flash system sys
tem.img
sending 'system' (210216 KB)...
```

Also you 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, you can reset the board and enjoy the Android4.2.2 on EM4412 board.