

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 devlepment 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 writen to SD card. Finish Making SD card.

Following screen shot show the procedure of making SD card.





🖟 VinImage	_ 🗆 🔀
<u>F</u> ile <u>I</u> mage <u>D</u> isk <u>O</u> ptions <u>H</u> elp	
Restore Virtual Hard Disk image on physical d 🔀	Label :
Select a physical drive in the list: Disk 1 : 3,813,376 KB - Generic- Multi-Card 1.00 Cancel Include non removable hard disk(s) WARNING: restoring Virtual Hard Disk image on physical drive will fully erase the physical drive content. Only proceed if you know exactly what you are doing.	Туре Мо

Select the file bootloader_sd.vhd



5	Winlmage						
ļ	Open					? 🛛	
	Look in:	🚞 images		*	G 🜶 📂 🖽	•	
	<i>i</i> Recent	bootloader_:	sd.vhd				
	Desktop						
	My Documents						
	My Computer						
		File name:	bootloader_sd.vhd		*	Open	
	My Network	Files of type:	虚拟硬盘 (*.vhd)		~	Cancel	

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.

Creat 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-COII - SecureCRI	X
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>O</u> ptions <u>T</u> ransfer <u>S</u> cript Too <u>l</u> s <u>H</u> elp	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Serial-COM1	×
Hit any key to stop autoboot: 0	^
<pre>####################################</pre>	
Enter your Selection:o Partition1: Start Address(0×18ae87), Size(0×218eda) reading sdfuse/bootloader_sd.vhd	
1048576 bytes read eMMC OPEN Success.!! !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 Cols VT100 NN	M;

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-COII - SecureCRT	×
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>O</u> ptions <u>T</u> ransfer <u>S</u> cript Too <u>l</u> s <u>H</u> elp	
11 11 11 11 11 11 11 11 11 11 11 11 11	
Serial-COM1	×
<pre>####################################</pre>	
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-COII - SecureCRI	
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>Options</u> <u>Transfer</u> <u>Script</u> Too <u>l</u> s <u>H</u> elp	
19 19 G 49 19 19 19 19 19 19 19 19 19 19 19 19 19	
Serial-COM1	×
Enter your Selection:s	^
<pre>##### Select the function ##### [1] Flash all image [2] Flash kernel [3] 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='botloader' start=N/A len=N/A (use hard-coded info. (cmd: movi)) ptn 2 name='botloader' 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=N/A (use hard-coded info. (cmd: movi)) ptn 6 name='logo' start=N/A len=0x0(~&3188608KB) (use hard-coded info. (cmd: movi)) ptn 7 name='recovery' start=0x0 len=0x0(~4194304KB) (use hard-coded info. (cmd: movi)) ptn 8 name='system' start=0x0 len=0x0(~4318608KB) (use hard-coded info. (cmd: movi)) ptn 9 name='userdata' start=0x0 len=0x0(~134507520KB) ptn 10 name='fat' start=0x0 len=0x0(~1126020096KB) LCD_turnon(); Partition: kernel, File: /sdfuse/zImage Partition1: Start Address(0x6f8628), Size(0x2d852) reading /sdfuse/zImage</pre>	
Ready Serial: COM1 29, 34 29 Rows, 87 Cols VT100 N	м



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" untill 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



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.



-

Found New Hardware Wiz	ard
	Welcome to the Found New Hardware Wizard This wizard helps you install software for: Android Bootloader Interface Image: Software came with an installation CD or floppy disk, insert it now. What do you want the wizard to do? Image: Install the software automatically (Recommended) Image: Imag
	< <u>B</u> ack Next > Cancel
Found New Hardware Wiz	ard
Please choose your sear	ch and installation options.
 Search for the best driuse the check boxes paths and removable removale Search removalies Include this localies C:\Documents Don't search. I will check boxes Choose this option to a the driver you choose 	iver in these locations. below to limit or expand the default search, which includes local media. The best driver found will be installed. ble media (floppy, CD-ROM) ation in the search: and Settings\Administrator\Desktop\t v Browse bose the driver to install. select the device driver from a list. Windows does not guarantee that will be the best match for your hardware.
	< <u>B</u> ack <u>Next</u> 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
Image: This driver is not digitally signed! Have Disk Tell me why driver signing is important Have Disk
< <u>B</u> ack <u>N</u> ext > Cancel

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



Locate File		? 🗙
Look jn:	🗁 usb_fastboot_driver 🛛 🕑 🤣 📂 🖽 -	
0 Recent	amd64	
Desktop		
My Documents		
My Computer		
My Network	File name: android_winusb.inf Files of type: Setup Information (*.inf)	<u>O</u> pen Cancel

Install F	rom Disk	×
4	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



i sana naswinanawara miz	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 <u>c</u> ompatible hardware					
Model					
Android Composite ADB Interface					
This driver is not digita Tell me why driver signing is	Illy signed! <u>H</u> ave Disk s important				
	< <u>B</u> ack <u>N</u> ext > Cancel				
Found New Hardware Wizard					
	Completing the Found New Hardware Wizard				
	The wizard has finished installing the software for: Android Composite ADB Interface				
	The wizard has finished installing the software for: Android Composite ADB Interface Click Finish to close the wizard.				



🖃 Computer Management 📃 🗖 🔀				
📕 File Action View Window H	_ 8 ×			
Computer Management (Local) System Tools Fig. Event Viewer Coal Users and Groups Performance Logs and Alert: Device Manager Storage Disk Defragmenter Disk Management Services and Applications	 PC-201204201011 Android Phone Android Composite ADB Interface Batteries Computer Disk drives Display adapters DVD/CD-ROM drives Floppy disk controllers Floppy disk controllers Floppy disk drives Human Interface Devices Floppy disk drives Mice and other pointing devices Mice and other pointing devices Ports (COM & LPT) Processors Sound, video and game controllers System devices Universal Serial Bus controllers 			

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-COII - SecureCRI
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>O</u> ptions <u>T</u> ransfer <u>S</u> cript Too <u>l</u> s <u>H</u> elp
19 19 17 19 18 19 19 19 19 19 19 19 19 19 19 19 19 19
Serial-COM1
<pre>Wirte 5/8block-group Reserved blocks for jounaling : 4102 Start write addr : 0x1f7e6a Erase inode table(5) - 0x1f807a wirte 6/8block-group Reserved blocks for jounaling : 4102 Start write addr : 0x237e6a Erase inode table(6) - 0x237e7a Wirte 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 MMCO partition4 ** Partition4 is not ext2 file-system 0 ** Partition4 is not ext2 file-system 0 ** Partition5 (start write addr : 0x2e0f0 Erase inode table(0) - 0x2eca70 Partition 'cache' erased Start write addr : 0x2e0f0 Erase inode table(1) - 0x2eca70 partition 'cache' erased Starting download of 215261308 bytes </pre>
······
Ready Serial: COM1 32, 14 32 Rows, 85 Cols Linux NUM



```
GN 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.