

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,

Found New Hardware Wiz	ard
	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 from a list or specific location (Advanced) Click Next to continue.
	< Back Next > Cancel

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



	lardware Wizard	
Please c	Browse For Folder	
	Select the folder that contains drivers for your hardware.	V
⊙ Se Us	images in	ncludes local
pai O Do Ch	 □ tools □ linux □ windows □ adb □ fastboot □ usb adb driver □ usb adb driver 	owse
the	To view any subfolders, click a plus sign above.	ie, guarantee that
	OK Cancel	
	< Back Next >	Cancel
Found New H	lardware Wizard	
Please sele	ect the best match for your hardware from the list below.	
÷	SEC SOC SMDK Board	
Descri	iption Version Manufacturer Location	
Descri SEI SEI	iption Version Manufacturer Location CISOCISMDK Board Unknown SEC, SYSTEM LSI c:\windows CISOCISMDK Board Unknown SEC, SYSTEM LSI c:\windows	\inf\secus \inf\oem1`
Descri SE(iption Version Manufacturer Location C SOC SMDK Board Unknown SEC, SYSTEM LSI c:\windows C SOC SMDK Board Unknown SEC, SYSTEM LSI c:\windows	Ninf\secus Ninf\oem1
Descri SEC SEC Thi Tel	iption Version Manufacturer Location C SOC SMDK Board Unknown SEC, SYSTEM LSI c:\windows C SOC SMDK Board Unknown SEC, SYSTEM LSI c:\windows III is driver is not digitally signed! Ime why driver signing is important	Ninf\secus Ninf\oem1

Please wait	while the wizard installs the software
Insert Di	sk Please insert the Compact Disc labeled 'USB Downloader Installation Disk for SEC SOC' into your
	CD-ROM drive (D:) and then click OK. Cancel You can also click OK if you want files to be copied from an alternate location, such as a floppy disk or a network server.
und New Ha	<pre></pre>
und New Ha Please wait	<pre></pre>
und New Ha Please wait Files Ne	<pre></pre>
und New Ha Please wait Files Ne	In the software wizard installs the software eded Image: Second s
und New Ha Please wait Files Ne	< Back
und New Ha Please wait	< Back

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



Locate File					? 🔀
Look jn:	😂 usb_downlo	oad_driver	~	G 🕸 🖻 🖽 -	
D Recent	secusb2.sys]			
Desktop					
My Documents					
My Computer					
1	File name:	secusb2.sys		~	<u>O</u> pen
My Network	Files of type:	SECUSB2 sys/SECUSB2 sy	-	~	Cancel

Click "Open" and then click "OK".

Found New Hardware Wiz	ard
	Completing the Found New Hardware Wizard The wizard has finished installing the software for: SEC SOC SMDK Board
	K Back Finish Cancel



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:



	For WinCE	[COM:x][USB:x][ADDR:0x:000000]	
Serial Port USB Port	Configuration	n Heþ	
Transmit			-
	For WinCE	[COM1,115200bps] USB:x][ADDR:0xc000000]	
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Serial Port USB Port	For WinCE Configuration Options	[COM1;115200bps] USB:x][ADDR:0xc000000] Hep	
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Serial Port USB Port	For WinCE Configuration Options Clear Buff	[COM1.115200bps] USB:x][ADDR:0xc000000] Hep	



ai Port Ust Port Con	riguration Help			
	UART/USB Options	1 1		
	Baud Rate	COM Port	OK	
	· 115200	€ COM 1	Cancel	
	C 57600	C COM 2		
	C 19200	C COM 4		
	C 14400			
	<u> </u>	0.25		
	USB Port			
	Download Ad	dress 0×d002	0010	

🔤 DNW v0.60C - For W	inCE [COM1,115200hps][USB:OK][ADDR:0xd0020010]	
Serial Port US8 Port Config	guration Help	
Transmit 🕨	Transmit	<u>^</u>
UBCOT Rx Test Status	F:\EM210\Android\image\system.img,0xc000000 F:\EM210\Android\image\randisk-yaffs.img,0xc000000 F:\EM210\Android\image\kernel.img,0xc000000 F:\EM210\Android\image\u-boct.bin,0xc000000 F:\CDROM\EM210X\EM210X-V3\Android\image\zImage,0xc000000 F:\CDROM\EM210X\EM210X-V3\Android\image\u-boct.bin,0xc000000 F:\CDROM\EM210X\EM210X-V3\Android\image\u-boct.bin,0xc000000 E:\CDROM\SBC6410_Y2\Linux\Image\Q43\u-boct\u-boot_nand_v0.1.bin,0xc000000	
		×



DNV	V v0.60C - For \	WinCE [COM1	,115200bps][USB:C	K][ADDR:0	xd0020010]		
Serial P	Open					? 🛛	
	Look in:	image		•	- 🗈 💣 📰 -		
	20 Recent	u-boot.bin	2.bh				
	Desktop						
	My Documents						
	My Computer						
	My Network Places	File name:	V210_USB.BL2.bin		•	Open	
		Files of type:	BIN Files (*.bin;*.nb0;*	".lst;".ubi;".dio)	-	Cancel	2

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

[COM1,115200bps<mark>][USB:OK]</mark>[ADDR:

LIART/LISB Options			
Serial Port Baud Rate © 115200 © 57600 © 38400 © 19200 © 14400 © 9600 USB Port Download Add	COM Port COM 1 COM 2 COM 3 COM 4 dress	OK Cancel	



= DNW v0.60C - For W	/inCE_[COM1.115200bps][USB:OK][ADDR:0x23e00000]	
Serial Port US8 Port Confi	iguration Help	
Transmit 🕨	Transmit	
UBOOT Rx Test Status	E:\MINI210\Android\image\V210_U5B.BL2.bin,0xd0020010 F:\EM210\Android\image\v35ben.img,0xc000000 F:\EM210\Android\image\randisk-yaffs.img,0xc000000 F:\EM210\Android\image\kernel.img,0xc000000 F:\EM210\Android\image\u-boct.bin,0xc000000 F:\CDROM\EM210X\EM210X-V3\Android\image\zImage,0xc000000 F:\CDROM\EM210X\EM210X-V3\Android\image\u-boct.bin,0xc000000 F:\CDROM\EM210X\EM210X-V3\Android\image\u-boct.bin,0xc000000	







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

SMDKV210# fdisk -c 0

🏧 DNV 🛛 0. 6	OC - For VinC	E [COm1, 115200b]	ps][USB:OK][ADD]	R:0x23e00000]					
Serial Port USB Port Configuration Help									
[r] Reboot	the u-boot				<u>^</u>				
[e] Exit to command line									
		Select							
Enter your	Selection:e								
SMDKV210 #	fdisk -c Ø								
fdisk is co	ompleted								
partion #	size(MB)	block start #	block count	partition_Id					
1	2946	1573638	6033522	0× 0C					
2	3 02	22374	619014	Øx83					
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)



IN DIN VO.	.60C - For Vind	E [COM1, 115200	bps][USB:x][ADDR	:0x23e00000]					
Serial Port	USB Fort Configu	ration Help							
3	353	641388	723426	0×83	^				
4	101	1364814	208824	0×83					
SMDKV210	# fastboot								
[Partitio	n table on Mov	inand]							
ptn 0 nam	e='bootloader'	start=0x0 len=N/	'A (use hard-code	d info. (cmd: m	ovi))				
ptn 1 nar	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: novi))									
ptn 3 nam	e='systen' sta	rt=0xAECC00 len=0	x12E40C00(~30950	17KB)					
ptn 4 nam	me='userdata' s	tart=0x1392D800 1	.en=0x1613C400(~3	61713KB)					
ptn 5 nar	e='cache' star	t=0x29A69C00	0x65F7000(~10441	2KB)					
ptn 6 nam	e='fat' start=	0x30060C00 1en=0x	:B820E400(~301676	1KB)					
2					~				

Now you need to install the USB fastboot driver.

Found New Hardware Wiz	ard
	Welcome to the Found New Hardware Wizard This wizard helps you install software for: Android Bootloader Interface
	If your hardware came with an installation CD or floppy disk, insert it now.
a management	What do you want the wizard to do?
a hall the second	Install the software automatically (Recommended)
State of the local division of the local div	Install from a list or specific location (Advanced)
	Click Next to continue.
	< <u>B</u> ack <u>N</u> ext > Cancel

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





Found Nev	v Hardware Wizard	
Please	Browse For Folder	
00	Select the folder that contains drivers for your hardware.	
U	□ □ windows □ adb □ fastboot □ usb_adb_driver	icludes local
OD	usb_download_driver usb_fastboot_driver im amd64 im i386 v	owse
C tł	s n To view any subfolders, click a plus sign above.	ot guarantee that
	OK Cancel	
	< Back Next >	Cancel
-		
Found Nev	v Hardware Wizard	
Found Nev Please	v Hardware Wizard wait while the wizard installs the software	X
Found Nev Please v	v Hardware Wizard wait while the wizard installs the software Needed	
Found Nev Please v	v Hardware Wizard wait while the wizard installs the software Needed The file WinUSBCoInstaller.dll' on Android WinUsb installation disk is needed.	OK ancel
Found Nev Please v	wait while the wizard installs the software Needed The file 'WinUSBCoInstaller.dll' on Android WinUsb installation disk is needed. Type the path where the file is located, and then click OK.	OK ancel
Found Nev Please v	wait while the wizard installs the software Needed The file 'WinUSBCoInstaller.dll' on Android WinUsb installation disk is needed. Type the path where the file is located, and then click OK. Copy files from: Intreal210\android\tools\windows\usb_driver\i388 Bro	OK ancel

Click "Browse" and select

tools/windows/usb_fastboot_driver/i386/WinUSBCoInstaller.dll.



Locate File	2 🔀 😒
Look jn:	🔁 i386 🛛 🗹 🧿 🕼 🛄 -
D Recent	WinUSBCoInstaller.dll
Desktop	
My Documents	
My Computer	
My Network	File name: WinUSBCoInstaller.dll Open Files of type: WinUSBCoInstaller.dll.WinUSBCoInstaller.dl_ Cancel
Hardware Up	date Wizard
Please w ai	t while the wizard installs the software
9	Android Bootloader Interface
	WdfCoInstaller01007.dll
	<pre></pre>







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 bootloade: u-boot.bin sending 'bootloader' (240 KB) OKAY writing 'bootloader' OKAY	
C: \Documents and Settings\Administrator\Desktop\images}_	
	•
🔤 DNW v0.60C - For WinCE [COM1,115200bps][USB:x][ADDR:0x23e00000]	X
DNU v0.60C - For WinCE [COM1,115200bps][USB:x][ADDR:0x23e00000]	
Image: Serial Port USB Fort Configuration Help Starting download of 245760 bytes	
Image: Data of 245760 bytes [COII, 115200bps] [USB:x] [ADDR:0x23e00000] Image: Data of 245760 bytes	
Image: Dark v0.60C - For VinCE [COL1, 115200bps] [USB:x] [ADDR:0x23e00000] Serial Port USB Fort Configuration Help Starting download of 245760 bytes downloading of 245760 bytes finished Received 16 bytes: flash:bootloader	
Image: Dark v0.60C - For VinCE [COI1, 115200bps] [USB:x] [ADDR:0x23e00000] Serial Port USB Fort Configuration Help Starting download of 245760 bytes downloading of 245760 bytes finished Received 16 bytes: flash:bootloader flashing 'bootloader'	
DNU v0.60C - For VinCE [COL1,115200bps][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) checksun : 0xe7c37	
DNT v0.60C - For VinCE [COI1,115200bps][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) checksun : 0xe7c37 The input address don't need a virtual-to-physical translation : 400000000	
DNU v0.60C - For VinCE [COL1,115200bps][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) checksun : 0xe7c37 The input address don't need a virtual-to-physical translation : 40000000 writing bootloader 49, 1024	
DNU v0.60C - For VinCE [COI1,115200bps][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) checksun : 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	
DNT v0.60C - For VinCE [COII, 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) checksun : 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 : 1024 1024 blocks written: DK	
<pre>DNV v0.60C - For VinCE [COIL, 115200bps][USB:x][ADDR:0x23e00000] Serial Port USB Fort 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) checksun : 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</pre>	



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

Step	1.	Set t	he	JP106	to	iNand	boot	mode	as	follow:
	-,									

Boot	J1	J2	J3	J4	J5	J6
Mode						
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).



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 **zlmage**, **ramdisk-uboot.img and system.img** to iNand.

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



C:\UIHDOUS\system32\cmd.exe C:\Documents and Settings\Administrator\Desktop\images>fastboot flash kernel zIm age sending 'kernel' (3798 KB)... OKAY writing 'kernel'... OKAY C:\Documents and Settings\Administrator\Desktop\images>fastboot flash ramdisk ra mdisk-uboot.img sending 'ramdisk' (160 KE)... OKAY writing 'ramdisk' (160 KE)... OKAY writing 'ramdisk' ... OKAY C:\Documents and Settings\Administrator\Desktop\images>fastboot -w erasing 'userdata'... OKAY c:\Documents and Settings\Administrator\Desktop\images>fastboot flash system sys tem.ing sending 'system' (204900 KB)...



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