

EM210 Burn Linux Image Manual

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1. Make the SD Card used to burn image

Partition the SD card before make the bootable SD card in the windows OS. Set aside front 10M space to uboot.

Open "**pmsrv_demo.exe**" in the CD: **/Linux/Tools/windows** to install Paragon Partition Manager.

(1) Open "Paragon Partition Manager"



(2) Select the SD card

Selcome to Paragon Partition]	Lanager 9.0 Professional!				
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ß					
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🔗 Redistribute Free Space	Tarning: Formatting	g will erase all the data on the part I partition	ition !		
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Copy Tasks	Basic Hard Disk 1 (Generic)	STORAGE DEVICE USB Device)			
🖏 Copy Hard Disk	(G:)				
S Copy Partition	1.8 GB FAI32				
	c	hoose sd card			
Tools	NTES EATS?	FAT16 Linux Fv+2	Linux Ext3	ReiserFS	
Ready					(1) No changes;
					- 1.m

(3) Right click the mouse and select "Delete Partition..."







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✓ Undelete Partitions ✓ Install New OS	Name Basic Hard Disk O (ST3) SLogical Disk (C:)	500413AS)	Volume label WINXP	Type Basic Hard Disk Drive Primary	File system	Size 465.7 GB 34.1 GB	Used 14.7 GB	Star 🔨
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Apply pending operations					<u> </u>	You have	insaved ch	anges;

(4) Right click the mouse and select "Create Partition..."

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	l 🖁 💝	Scan this unallocated space	e for lost or del	eted partition	s and recover them.				
😅 Merge Partitions	and the second s	Please note, that only the	se partitions the	t do not overl	ap with each other can	be undeleted.			
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🍪 Undelete Partitions					1				
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😅 Copy Partition			Test Surface.						
			Edit/View Sec	tors					
Tools			Properties						
	NTFS	FAT32 F.	AT16 Li:	nux Ext2	Linux Ext3	ReiserFS			
Create new partition and format it								🕕 No ch	anges.

(5) Set aside front 10M space Select [FAT32] Select [Yes]



😨 Welcome to Paragon Partition Wanager 9.0 Professional!	
Tools Changes Wizards Hard Disk Partition View Help	
Create Partition Copy Partition Copy Hard Disk Format Partition Delete Partition Help	Apply Discard View Changes Undo Redo
Basic Partitioning Tasks	
Partition Manager	
 Create new partition on disk 1? You are about to create a new partition on disk 1? You are about to create a new partition in (Usallocated), 1.8 GB area. Please select size, position and file system of the new partition. Basic Hard Disk 1 (Generic STORAGE DEVICE USB Device) Advanced Warg Warg Redit Create new partition as: 	partitions and recover them. not overlap with each other can be undeleted.
Please specify new partition size: 1872 😴 7 MB - 1,882 MB	
Under Please specify size of free space before the partition: 10 🗢 0 MB - 1,874 MB	ne label Type 🛛 File system Size Used Star 🔨
🏹 Inst: Please specify size of free space after the partition: 0 🔮 0 MB - 1,874 MB	Basic Hard Disk Drive 1.8 GB
Please select file system for new partition: FAT32	Label] Free space 1.8 GB 0 Bytes 1
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Please specify drive letter:	
Wore options	Cr:) 2 GB NTFS
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	(1) No changes.

(6) Select [Application]

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Discard All Changes					
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🖉 II Russissione	Create a copy of the ent	tire hard disk			
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🔗 Redistribute Free Space	Pre-				
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Teels					
	NTFS FAT32	FAT16 Linux Ext2	Linux Ext3	ReiserFS	
Apply pending operations				👍 You have	unsaved changes.
Salaat [Vaa]					

Select [Yes]



😌 Welcome to Paragon Partition	Manager 9.0 Professional!
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Copy Partition	1.8 GB FAT32
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	🔔 You have unsaved changes.
🕏 Velcome to Paragon Partition	Tanager 9.0 Professional!
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		No changes

For the point you have reserved the space for the uboot.



🔄 Welcome to Paragon Partition I	Lanager 9.0	Professional!							
Tools Changes Wizards Hard Disk Partiti	on <u>V</u> iew <u>H</u> elp								
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 Merge Partitions Redistribute Free Space Undelete Fartitions 	Properties	Love/Resize Part Resize or Move part Format Partition This wizard helps y	<mark>ition</mark> Lition. Frou to format the selec	ed partition.					
	Name			Volume label	Туре	File system	Size	Used	Star 🔨
🏹 Install New OS	👘 💽 (Unallo	cated)		[No label]	Free space		7.8 MB	O Bytes	1
	- Logi cal	Disk (G:)		[No label]	Primary	FAT32	1.8 GB	3.6 MB	1 🗸
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Tools 🛞 🎽	Tota Used Free	1 size: 1.8 GB : 3.6 MB : 1.8 GB							
	NTFS	FAT32	FAT16 I	inum Ext2	Linux Ext3	ReiserFS			
								I No ch	anges.

2. Burn the uboot by SD card

(1)Before you use the SD card, you had better format the SD card to FAT32 format. (2)Open "moviNAND_Fusing_Tool_v2.0".



(3) Open the disk corresponds to the SD card in moviNAND_Fusing_Tool_v2.0 (Please use the SD card provided by Boardcon) and select the file you want to burn.

	Boardcon Embedded Design
_	
6	WAND ROOM TO D CO. C.

5D/MMC Drive 🛛 🔄	Drive Size 3813376 sectors SDHC Load Save
iize Configuration	Bootloader
SRAM Size 8 KB 💌	image file Browse
EFuse Size 512 B 💌	The image file will be fused from to On drive
Partition Size	Kernel
Bootloader	Image file Browse
512 КВ 💌	
Kernel	The image file will be fused from to on drive
4 MB 👻	Rootfs
Rootfs	Image file Browse
8 MB 💌	The image file will be fused from to on drive
Specific Sector	
Sector 0	Image File Browse
EVT1	



查找范围(I):	20091229_S	D_FUSING_TOOL	EVT1	· 00	P 📴 •	
します。 成長近的文档 の 重面	i sdfuse u-boot					
我的文档 我的文档 我的电脑						
网上邻居	文件名 (8): 文件类型 (1):	Image (*. b	in)		*	打开 (0) 取消

(4)Click "START". The pop-up "NOTICE" window shows writing is successful.



5D/MMC Drive G 🚽	Drive Size 3813376 sectors SDHC Load Save
iize Configuration	Bootloader
SRAM Size 8 KB 💌	Image file E:\210\20091229_SD_FUSING_TOOL_EVT1\u-boot.bii Browse
EFuse Size 512 B 💌	The image file will be fused from to on drive
Partition Size	Kernel
Bootloader	Image file Browse
512 KB 💌	
Kernel	
4 MB 💌	Rootfs
Pootfe	Image file Browse
8 MB 💌	The image file will be fused from to on drive
Specific Sector	
Sector 0	Image File Browse

Boardcon Embedded Design



5D/MMC Drive G	Drive Size 1990656 sectors SDHC Load Save
Size Configuration	Bootloader
SRAM Size 8 KB 💌	Image file E:\guan\个人\super\烧写\u-boot.bin Browse
EFuse Size 512 B 💙	The image file will be fused from 49 to 1120 on drive G
Partition Size	Kernel
Bootloader	Image file FOTTOR Browse
512 КВ 👻	
Kernel	The mage n Fusing image done
4 MB 💌	Rootfs 确定
Rootfs	Image file Browse
8 MB 🔽	The image file will be fused from to on drive
5pecific Sector	
Sector 0	Image File Browse

3. Set SD booting mode

EM210 provide a variety of boot modes via setting DIP switch. Currently we only use Nandflash boot mode and SD card boot mode. Set as follows:

Boot Mode	J1	J2	J3	J4	J5	J6
256M NAND	ON	ON	ON	ON	OFF	ON
2G NAND	ON	ON	ON	OFF	ON	ON
SD	ON	ON	OFF	OFF	ON	ON

Creating a new folder named sdfuse in the SD card and put the u-boot.bin into the folder. Set the board boot from SD card booting mode. Insert the SD card made in 2 and turn on the board, and press the space key in 3 seconds. Then the serial port will print the following information:



```
U-Boot 1.3.4 (Mar 29 2012 - 10:44:12) for SMDKV210
CPU: 55PV210@1000MHz(OK)
        APLL = 1000MHZ, HClkMSyS = 200MHZ, PClkMSyS = 100MHZ
        MPLL = 667MHz, EPLL = 80MHz
                       HclkDsys = 166MHz, PclkDsys = 83MHz
HclkPsys = 133MHz, PclkPsys = 66MHz
SCLKA2M = 200MHz
Serial = CLKUART
Board:
         SMDKV210
DRAM:
         512 MB
Flash:
         0 kB
SD/MMC:
         1909MB
         *maf_id = 236,dev_id = 218
NAND:
256 MB
The input address don't need a virtual-to-physical translation : 23e9d2a0
*** Warning - using default environment
         serial
In:
         serial
serial
Out:
Err:
checking mode for fastboot ...
Hit any key to stop autoboot: 0
################### kealakm user menu for kealv210 ##############################
[f] Format the nand flash
[s] Burn_image from SD card
[u] Use fastboot
[c] Configure the radio device
[b] Boot the system
Ī٣Ĵ
   Reboot the u boot
[e] Exit to command line
                          ----Select-----
Enter your Selection:
```

Now you can burn the images by SD card or USB cable.

Burn bootloader into the nand flash by sdfuse command:

Enter "f" and enter "y" to format the nand flash.

Then enter "s" and "2" to burn u-boot.bin in SD card

4. Use sdfuse to burn system by SD card

You can do the following operations in SD card mode or Nand flash mode. But you must burn the bootloader by SD card boot mode referencing 3 if there is no uboot in nand flash. Creating a new folder named sdfuse in the SD card and put the images you want to burn into the folder.

You had better erase the nandflash if it is your first time to burn system.



```
realv210_init
checking mode for fastboot ...
Hit any key to stop autoboot: 0
SMDKV210 # nand erase
NAND erase: device 0 whole chip
Skipping bad block at 0x00cc0000
Skipping bad block at 0x053e0000
Skipping bad block at 0x09b00000
Skipping bad block at 0x09b00000
Skipping bad block at 0x09b00000
Skipping bad block at 0x0f520000
Skipping bad block at 0x0f520000
Skipping bad block at 0x0f520000
Erasing at 0xffe0000 -- 100% complete.
OK
```

(1)Burn all images

Sdfuse support automatically burn all files by single instruction. Enter command below in the uboot command line.

sdfuse flashall

```
checking mode for fastboot ...

Hit any key to stop autoboot: 0

SMDKV210 # sdfuse flashall

[Fusing Image from SD Card.]

Fastboot: employ default partition information

[Partition table on NAND]

ptn 0 name='bootloader' start=0x0 len=0x100000(~1024KB)

ptn 1 name='recov y' start=0x100000 len=0x500000(~5120KB)

ptn 2 name='kernel' start=0x600000 len=0x500000(~5120KB)

ptn 3 name='ramdisk' start=0xB00000 len=0x500000(~5120KB) (Yaffs)

ptn 4 name='system' start=0x1000000 len=0x500000(~2120KB) (Yaffs)

ptn 5 name='cache' start=0x1000000 len=0x500000(~2160KB) (Yaffs)

ptn 6 name='userdata' start=0x7E00000 len=0x1400000(~20480KB) (Yaffs)

Partition: bootloader, File: /sdfuse/u-boot.bin

Partition1: Start Address(0x58a4), Size(0x75612c)
```

(2)Burn Single image

Sdfuse also support single burning image so that you needn't to burn all images when you update your system.

① Enter command below to burn the uboot into nandflash.

sdfuse flash bootloader u-boot.bin

2 Enter command below to burn Linux kernel image.

sdfuse flash kernel kernel.img

③ Enter command below to burn system partition. (Qtopia).

sdfuse flash system system.img



5. Use fastboot to write by USB

(1)Install USB driver

Turn on the development board and connect computer's USB port with board OTG USB port by a USB cable. Windows will immediately recognize the USB device and prompt to load the driver.



Click "Next" and select Tools/usb_driver/USB_ADB_driver directory.



Found New Hardwa	re Wizard	
Please choose yo	Browse For Folder	20
	Select the folder that contains drivers for your hardware.	Ś
⊙ Search for th	E 🖻 Tools	
Use the chec paths and re		ocal
Searcl	🖃 🧰 windows 🕀 🧰 adb	
🗹 Includ	🕀 🧰 fastboot	
C:\too	E Cando	
🔘 Don't search	· · · · · · · · · · · · · · · · · · ·	
Choose this o the driver you	To view any subfolders, click a plus sign above.	ntee that
	OK Cancel	
0	< Back Next > 0	Cancel

Click "Next" and select Tools/usb_driver/USB_ADB_driver directory.

Please choose yo	Browse For Folder	En
	Select the folder that contains drivers for your hardware.	Ś
Search for the Use the chert paths and released in the chert paths and released in the chert paths and released in the chert paths are chert paths and released in the chert path chert	□ Cools ▲ □ Cools ▲ □ Linux □ Cools ▲ □ Cools ▲ □ Linux □ Cools ▲ □ Linux □ Cools ▲ □ Cools	ocal
C:\too O Don't search Choose this o the driver you	□ 🗀 usb_driver: ⊡ 📄 amd64 ⊕ 🚞 i386 💽 To view any subfolders, click a plus sign above.	ntee that
	OK Cancel	Cancel





(2)Burn images by fastboot

The followings can be operated in SD card mode or Nand flash mode. But burn the uboot must be in SD card boot mode referencing 3 if there is no uboot in nandflash. You can use "**fastboot**" until you copy three files as follows from

Tools/windows/fastboot directory to C:\\WINDOWS\system32 directory.









Boot from nand flash with space key in 3 seconds, and type following command to format the nand flash.

Nand scrub

*** Warning - using default environment
In: serial
Out: serial
Err: serial
checking mode for fastboot ...
Hit any key to stop autoboot: 0
SMDKV210 # nand scrub
NAND scrub: device 0 whole chip
Warning: scrub option will erase all factory set bad blocks!
There is no reliable way to recover them.
Use this command only for testing purposes if you
are sure of what you are doing!

Really scrub this NAND flash? <y/N>

Type following command to use fastboot burning:

fastboot

```
SMDKV210 # fastboot
Fastboot: employ default partition information
[Partition table on NAND]
ptn 0 name='bootloader' start=0x0 len=0x100000(~1024KB)
ptn 1 name='kernel' start=0x100000 len=0x500000(~5120KB)
ptn 2 name='system' start=0x600000 len=N/A (Yaffs)
Insert a OTG cable into the connector!
```

Creating a folder named **210** under the **C:\Documents and Settings\Administrator**, and open "**CDM.exe**" in windows OS. Then type following commands to burn the images.

fastboot flash bootloader u-boot.bin

fastboot flash kernel kernel.img

fastboot flash system system.img