

Installation Manual for SMDK6410 (Windows Embedded CE 6.0)

1

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S3C6410 RISC Microprocessor Installation Manual

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Contents

1	OVERVIEW	1
2	COPYING BSP AND SETTING UP VISUAL STUDIO 2005	2
3	CREATING A NEW OS DESIGN	5
4	BUILDING OS IMAGE – WITHOUT KITL	
5	RUNNING NK.NB0 IMAGE	
6	FUSING WINCE IMAGE TO NAND FLASH VIA USB	
7	BUILDING AND RUNNING OS IMAGE – WITH KITL	
	7.1 USB Serial KITL	61
8	APPENDIX I – DIP SWITCH SETTINGS FOR BOOTING MODE	



Figures

Figure 2-1 SMDK6410 BSP Files	2
Figure 2-2 Visual Studio 2005 Window	4
Figure 3-1 Creating New Project	5
Figure 3-2 New Project for WinCE6.0	6
Figure 3-3 Windows Embedded CE 6.0 OS Design Wizard	6
Figure 3-4 Windows Embedded CE 6.0 OS Design Wizard - Step 1	7
Figure 3-5 Windows Embedded CE 6.0 OS Design Wizard - Step 2	
Figure 3-6 Windows Embedded CE 6.0 OS Design Wizard - Step 3	9
Figure 3-7 Windows Embedded CE 6.0 OS Design Wizard - Step 4	10
Figure 3-8 Windows Embedded CE 6.0 OS Design Wizard - Step 5	11
Figure 3-9 Windows Embedded CE 6.0 OS Design Wizard - Step 6	12
Figure 4-1 Catalog Items View	13
Figure 4-2 Build Mode in Visual Studio 2005	14
Figure 4-3 Adding File System and Data store Item to OS Design	15
Figure $4-4$ Adding Graphics and Multimedia Technologies Item to OS Design	16
Figure 4-4 Adding Coro OS Services Item to OS Design	17
Figure 4-5 Adding Core OS Services Item to OS Design	10
Figure 4-0 Adding Dovice Drivers Item to OS Design	10
Figure 4-7 Adding Networking Itom to OS Design	20
Figure 4-0 Adding Networking Item to 05 Design	20
Figure 4-12 Properties of US Design	21
Figure 4-13 Selecting Language in the Property Pages window	22
Figure 4-14 Removing KITL Setting in US Design Properties window	22
Figure 4-15 Build OS Design	23
Figure 4-16 Building Process	24
Figure 4-17 After Building the OS Image	25
Figure 5-1 DNW Window	26
Figure 5-2 UART/USB Options	27
Figure 5-3 DNW Window after Board Power ON	28
Figure 5-4 USB OTG Mon Menu	29
Figure 5-5 Download & Run	30
Figure 5-6 Selecting NK.nb0 for Download	31
Figure 5-7 Downloading Status of NK.nb0	32
Figure 6-1 DNW Window	33
Figure 6-2 UART/USB Options	34
Figure 6-3 DNW Window after Board Power ON	35
Figure 6-4 usb OTG Mon menu	36
Figure 6-5 Download & Run	. 37
Figure 6-6 Selecting EBOOT.nb0 for Download	38
Figure 6-7 After EBOOT.nb0 Download	39
Figure 6-8 Ethernet Boot Loader Configuration - Before	40
Figure 6-9 Ethernet Boot Loader Configuration - After	41
Figure 6-10 Preparing to download image through USB	42
Figure 6-11 Selecting STEPLDR.nb0 for Download	43
Figure 6-12 Messages via UART Port after STEPLDR.nb0 Download	44
Figure 6-13 DNW Window after reset	45
Figure 6-14 Selecting EBOOT.nb0 for Download	46
Figure 6-15 After FBOOT.nb0 Download	47
Figure 6-16 Ethernet Boot Loader Configuration	48
Figure 6-17 Preparing to download image through USB	49
Figure 6-18 Selecting FBOOT hin for Download	50
Figure 6-19 Messages via LIART Port after FROOT hin Download	50
Figure 6-20 DNW Window after reset	57
Figure 6-20 Diversion FRONT and for Download	J۲ ۲3
Figure 6-21 Streeting EBOOT into Tor Download	55
Figure 6-22 Alter LOOUTIND Download	54
Tigure 0-25 Etherhet boot Evader Gonnyaration	00

Figure 6-24 Preparing to download image through USB	56
Figure 6-25 Selecting NK.bin for Download	57
Figure 6-26 Messages via UART Port during NK.bin Download	58
Figure 7-1 OSDesign Properties	59
Figure 7-2 Property Pages for KITL	60
Figure 7-3 Build OSDesign	61
Figure 7-4 DNW Window after reset	63
Figure 7-5 Selecting EBOOT.nb0 for Download	64
Figure 7-6 After EBOOT.nb0 Download	64
Figure 7-7 Ethernet Boot Loader Configuration	65
Figure 7-8 Target Connectivity Option	66
Figure 7-9 Target Device Connectivity Options Window Before Transport Select	67
Figure 7-10 Target Device Connectivity Options Window After Transport Select	67
Figure 7-11 Attach Device	68
Figure 7-12 Messages via UART Port	69
Figure 7-13 Visual Studio 2005 Window after USB Serial KITL connected	70



1 Overview

This Installation Manual guides you to install the Samsung SMDK6410 Windows Embedded CE 6.0 BSP.

The manual explains the following topics:

- Copying BSP and Setting up Platform Builder
- Creating a New OS Design
- Building OS Image Without KITL
- Running NK.nb0 Image
- Fusing WinCE Image on NAND Flash via USB

The detail information of each topic is explained in the following chapters.



2 Copying BSP and Setting up Visual Studio 2005

In this chapter, you can understand how to copy the Samsung SMDK6410 Windows Embedded CE 6.0 BSP and setup the Platform Builder. There are two distribution types. One is MSI (MS installer) distribution, another one is old-style zip-archived distribution. With MSI, you can just run the MSI file, and then follow the instruction on installer. Here are contents only for old-style zip-archived.

To start the BSP installation, Extract zip-archived file into \$(WINCEROOT)\PLATFORM. See the picture describes folder structure. In archives, PLATFORM folder has two sub folders. One is SMDK6410, and another one is COMMON/SRC/SOC/S3C6410_SEC_V1.
 For example, copy extracted SMDK6410_WinCE60_XX_XX\PLATFORM BSP folder to X:\WINCE600\PLATFORM directory on your host PC. Make sure that catalog file and batch file in X:\WINCE600\PLATFORM\SMDK6410 directory has the same name as that of the BSP, i.e. SMDK6410.pbcxml and SMDK6410.bat.

Note: About PQOAL & SOC Folder Structure, Please refer to porting guide, If you don't know the difference between PQOAL and non-PQOAL structure, read first porting guide.



Figure 2-1 SMDK6410 BSP Files





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 To start SMDK6410 Windows Embedded CE 6.0 BSP Porting, on your host PC click Start, point to All Programs, point to Microsoft Visual Studio 2005 and then click on Microsoft Visual Studio 2005. The following window appears on your screen.



Figure 2-2 Visual Studio 2005 Window



3 Creating a New OS Design

In this chapter, you can understand how to create a new OS Design using the Visual Studio 2005.

On the File menu in the Visual Studio 2005 window, click New /Project as shown in figure 3-1.
 Start Page - Microsoft Visual Studio



Figure 3-1 Creating New Project



2. The following window appears on your screen. Click OK button to continue.

New Project					? ×
Project types:		<u>T</u> emplates:		00	8-8- 8-8- 8-8-
 ─ Visual C++ ─ ATL ─ CLR ─ General ─ MFC ─ Smart Device ─ Win32 ⊕ Other Languages ⊕ Other Project Types ─ Platform Builder for CE 6,0 		Visual Studio installed tem	plates		
		💩 OS Design			
		My Templates			
		🗊 Search Online Templates			
A project for creati	ing a Windows Embed	ded CE 6.0 operation system			_
Name:	OSDesign1				
Location:	D:#WINCE600#OSD)esigns		<u>B</u> rowse,,	. 1
– Solution Na <u>m</u> e:	, OSDesign1	_	Create directory for solution		
			🗖 Add to Rational ClearCase (must be in a vi	ew)	
			0K	Cancel	

Figure 3-2 New Project for WinCE6.0

3. The Windows Embedded CE 6.0 OS Design Wizard appears on your screen as below figure. Click NEXT button to continue.



Figure 3-3 Windows Embedded CE 6.0 OS Design Wizard



4. The Board Support Packages (BSPs) window appears on your screen. Select SMDK6410: ARMV4I and then click Next button.

Windows Embedded CE 6.0 OS Design	n Wizard 🛛 💽 🔀	
Board Support Packages		
Available BSPs: Aruba Board: ARMV4I Device Emulator: ARMV4I H4Sample OMAP2420: ARMV4I Samsung SMDK2443: ARMV4I SMDK6400: ARMV4I SMDK6410: ARMV4I SMDK6410: ARMV4I SMDK6410: ARMV4I		
	Note: Only BSPs supported by installed CPUs are displayed in the list,	
< <u>P</u> revious <u>N</u> ext > Einish Cancel		

Figure 3-4 Windows Embedded CE 6.0 OS Design Wizard - Step 1



5. The Design Template Wizard window appears on your screen. Please select PDA Device from Available design templates list and then click Next button.

Windows Embedded CE 6,0 OS Design Wizard	? ×		
Design Templates A design template is a set of predefined catalog items,			
<u>Available design templates:</u> Consumer Media Device Custom Device Industrial Device <u>Phone Device</u> Small Footprint Device Thin Client	Choose the design template that is most closely aligned with the purpose of your target device, Provides the starting point for a range of personal digital assistants (PDAs) or mobile devices with a clamshell-and-keyboard design,		
< <u>P</u> revious <u>N</u> ext >	<u>F</u> inish Cancel		

Figure 3-5 Windows Embedded CE 6.0 OS Design Wizard - Step 2



6. The Design Template Variants window appears on your screen. Please select Mobile Handheld from Available design Variants list and then click Next button.

Windows Embedded CE 6,0 OS Design Wizard ? 🔀				
Design Template Variants Select a design template variant that provides the functionality that your target device requires,				
target device requires, ⊻ariants: Mobile Handheld Enterprise Web Pad Mobile Handheld				
< <u>P</u> revious <u>N</u> ext > <u>F</u> inish Cancel				

Figure 3-6 Windows Embedded CE 6.0 OS Design Wizard - Step 3



7. The following window appears on your screen. Here you can select the Application & Media you want to include in your platform and then click Next button.

Windows Embedded CE 6,0 OS Design Wizard	? ×
Applications & Media Select items for applications and media to include in yo	ur OS design.
 ✓ ,NET Compact Framework 2,0 ♥ File Systems and Data Store ♥ Windows Embedded CE Error Reportin ♥ ActiveSync ♥ Internet Browser ● Internet Explorer 6,0 ♥ Quarter VGA Resources - Portrait Moc ♥ Windows Media Audio/MP3 ♥ Windows Messenger ♥ WordPad 	ck support for dia Audio and MP3 all footprint, Includes Windows Media s, and codecs, dia Player is not
< <u>P</u> revious <u>N</u> ext > <u>F</u> inish	Cancel

Figure 3-7 Windows Embedded CE 6.0 OS Design Wizard - Step 4



8. The Networking & Communications wizard window appears on your screen. Click Finish button.

Windows Embedded CE 6,0 OS Design Wizard ? 🔀			
Networking & Communications Select items for networking and communications to include in your OS design,			
Image: TCP/IPv6 Support Wide Area Network (WAN) Image: TCP/IPv6 Support Wide Area Network (UAN) Image: TCP/IPv6 Support Image: TCP/IPv6 Support Wide Area Network (UAN) Image: TCP/IPv6 Support Image: TCP/IPv6 Support	The Internet standard protocol, version 6,		
< <u>P</u> revious <u>N</u> ext >	<u>F</u> inish Cancel		

Figure 3-8 Windows Embedded CE 6.0 OS Design Wizard - Step 5



9. The following window appears on your screen. Please read all the security warnings and then click Acknowledge button.

🕹 Catalog Item Notification	×
OBEX Server	•
Security Warning	
 Security Warning Under certain circumstances, the Object Exchange Protocol (OBEX) catalog item can compromise the security of your platform. This catalog item poses the following potential security risks: If proper security and authentication techniques are not used, a service that interferes with — 	
 services.exe can be installed. If proper encryption techniques are not used, OBEX running over Bluetooth could expose data packets to third parties. 	
To learn more about potential OBEX security risks, as well as the best practices for using this catalog item more securely, see the following topics:	
OBEX Security Enhancing the Security of a Device	•
Acknowledge Cancel	

Figure 3-9 Windows Embedded CE 6.0 OS Design Wizard - Step 6



4 Building OS Image - Without KITL

1. In the Visual Studio 2005 window on your host PC, you can see the new OS Design along with its various sub-directories on the left hand side Catalog Items View as shown in figure 4-1. Here, you can choose items what you want to include in your OS design. The chosen items in this instruction are only for sample purpose.



Figure 4-1 Catalog Items View



2. You can change build mode (release or debug mode) as below figures. Select SMDK6410_ARMV4I Release.



Figure 4-2 Build Mode in Visual Studio 2005



3. Expand File Systems and Data Store node in the Core OS node in Catalog Items View, then select some items as shown in the figure below.

File System-RAM and ROM File System Registry Storage-Hive-based Registry(recommended) or RAM-based Registry Storage Manager-Binary Rom Image file System Storage Manager-exFAT File System Storage Manager-Storage Manager Control Panel Applet Storage Manager-TFAT File System



Figure 4-3 Adding File System and Data store Item to OS Design



4. Expand Core OS node in Catalog Items View window, then expand Graphics and Multimedia Technologies. Select some items as shown in the figure below.

Graphics-Direct3D Mobile

Graphics-DirectDraw (Required for Display Driver)

Media-Video Codecs and Renderers-WMV/MPEG-4 Video Codec (Required for MFC)

Media-Windows Media Player (Required for MFC)

Media-DirectShow Video Capture (Required for Camera)



Figure 4-4 Adding Graphics and Multimedia Technologies Item to OS Design



5. Expand Core OS Services node in the Core OS node in Catalog Items View, then expand USB Host Support. Select some items as shown in the figure below.

USB Function Driver

USB Host Support

USB Human Input Device(HID) Class Driver (recommended)

USB HID Keyboard and Mouse

USB Storage Class Driver



Figure 4-5 Adding Core OS Services Item to OS Design



6. Expand Applications and Services Development node in Catalog Items View window, then expand OBEX Server.

Select OBEX File Brower and OBEX Inbox.



Figure 4-6 Adding Core OS Services Item to OS Design



7. Expand Device Drivers node in Catalog Items View window, then expand USB Function. Select Some Items as shown in the figure below.

USB Function Clients-Mass Storage

USB Function Clients-serial

Select SD Bus Driver in SD, SD Memory in SDIO and Windows Embedded CE Test Kit.



Figure 4-7 Adding Device Drivers Item to OS Design



8. Expand Device Drivers node in Catalog Items View window, then expand Networking. Select Serial Infrared (SIR) as shown in the figure below.



Figure 4-8 Adding Networking Item to OS Design



On the top of Visual Studio 2005, You can see the Project menu as below figure.
 And then select Properties...



Figure 4-12 Properties of OS Design



10. The OS Design Properties Pages window appears on your screen. Select Locale tab and click Clear All button. It clears all the language settings in your platform. Now select English (United States) as shown in figure 4-10.

6410_CE60 Property Pages		? 🛛
Configuration: Active(SMDK6410	ARMV4I Rel 🕑 Platform: N/A	Configuration Manager
 Common Properties Build Tree (WINCEROOT Configuration Properties General Locale Build Options 	Locales: ┃ 영어 (남아프리카 공화국) ┃ 영어 (뉴질랜드) ✔ 영어 (미국) ┃ 영어 (벨리즈)	Cl <u>e</u> ar All
– Environment – Custom Build Actions – Subproject Image Setting	Default locale: 영어 (미국)	✓
	Codepages: 437 (OEM - United States) 708 (Arabic - ASMO 708) 720 (Arabic - Transparent ASMO) 737 (OEM - Greek 437G)	Cle <u>a</u> r All
	✓ Localize the <u>b</u> uild ☐ Strict localization checking in the build	
		확인 취소 적용(<u>A</u>)

Figure 4-13 Selecting Language in the Property Pages Window

11. Now please uncheck the square boxes Enable KITL (no IMGNOKITL=1) in the Build Options Properties in OS Design Properties Pages window and then click OK button.

6410_CE60 Property Pages	? 🗵
Configuration: Active(SMDK64 □ Common Properties □ Build Tree (WINCEROO □ Configuration Properties □ General □ Locale □ Build Options □ Environment □ Custom Build Actions □ Subproject Image Setting	ARMV4I Rel Platform: N/A Configuration Manager, Build options: Buffer tracked events in RAM (IMGOSCAPTURE=1) Enable eboot space in memory (IMGEBOOT=1) Enable event tracking during boot (IMGCELOGENABLE=1) Enable event tracking during boot (IMGCELOGENABLE=1) Enable hardware-assisted debugging support (IMGHDSTUB=1) Enable kernel debugger (no IMGNODEBUGGER=1) Enable kernel debugger (no IMGNODEBUGGER=1) Enable profiling (IMGPROFILER=1) Enable ship build (WINCESHIP=1) Flush tracked events to release directory (IMGRAM64=1) Run-time image can be larger than 32 MB (IMGRAM64=1) Use x consult instead of thinks to nonulate release directory (BUIL DBEL_USE_COPV=1)
< >	Yrite run-time image to flash memory (IMGFLASH=1) 확인 취소 적용(<u>A</u>)

Figure 4-14 Removing KITL Setting in OS Design Properties Window



12. On the Build menu, click Build OSDesign1 as shown in figure 4-12 to build the Eboot and OS image.



Figure 4-15 Build OS Design



13. The arrow pointing to the icon in the following figure indicates the Building process.



Figure 4-16 Building Process

Note: Building process may take some time depending on your system capability. So, please wait for the build process to be completed. It might take around 1 hour.



14. After completion of build process, following messages appear as shown in figure 4-12. EBOOT.nb0, EBOOT.bin, STEPLDR./nb0, NK.bin and NK.nb0 are now available in X:\WINCE600\OSDesigns \[OS Design Name]\ [OS Design Name]\RelDir\SMDK6410_ARMV4I_Release directory.



Figure 4-17 After Building the OS Image



5 Running NK.nb0 Image

In this chapter, you can understand how to download and run the NK.nb0 image.

- Before you download the WinCE Image through the USB, you must have 6410_OtgMon.bin image on your AMD Flash. (The image was already fused on your AMD Flash in the board before release)
- 2. Configure DIP switch CFG0 on the CPU Board and CFGB1 on the CPU board properly for booting from AMD Flash. (For more information, Read SMDK6410 Board User's Manual in Document folder...)
- 3. Please install the USB Driver and DNW application on your host PC.
- 4. After installing the USB driver, run dnw.exe on the host PC. The following window appears on your screen.

	50M - For W	inCE	[COM:x]	[USB:x][ADDR:0x50100000]	×
Serial Port	USB Port	Config	guration	Help	

Figure 5-1 DNW Window



5. On the Configuration menu, click Options to set the UART/USB options. The following window appears on your screen. Select Baud Rate and COM Port as shown in figure 5-2, enter the download address as 0x50100000 and then click OK button.

UA	RT/USB Options				
Г	Serial Port				
	-Baud Rate-	COM Port	ОК		
	① 115200 ③ ③ ③ ③ ③ ③ ③ ⑤ ⑥ ⑤	○ COM 1	Cancel		
	O 57600	C COM 2			
	O 38400	C COM 3			
	O 19200	C COM 4			
	O 14400				
	O 9600				
USB Port					
Download Address 0×50100000					

Figure 5-2 UART/USB Options



6. On the Serial Port menu, click Connect. Switch ON the board and then press any key. The DNW window appears as shown in figure 5-3.

🔤 DNW v0.50M - For WinCE [COM2,115200bps][USB:OK][ADDR:0x50100000] 📃 [
Serial Port USB Port Configuration Help	
Reset by XnRESET[RSTSTAT:0x1] VCO=1.064GHz +	
S3C6410 USB OTG Downloader v0.1 (2008.03.11) + System ID : Revision [0], Pass [0] +	
ARMCLK: 532.00MHz HCLKx2: 266.00MHz HCLK: 133.00MHz PCLK: 66.50MHz non-VIC mode / Sync Mode	
USB host is not connected yet. Waiting for USB host connection.	
<pre>!!! USB host is connected !!! - Bulk In EP : 1 - Bulk Out EP : 2</pre>	
- Speed : High - Op Mode : DMA mode	
Download & Run is selected	
Select a file to download in DNW If you want to quit, press any key	
	~

Figure 5-3 DNW Window after Board Power ON



7. Press any key to see USB OTG Mon menu. Now DNW window appears as shown below.

🔤 DNW v0.50M - For WinCE [COM2,115200bps][USB:OK][ADDR:0x50100000] 📃 [
Serial Port USB Port Configuration Help	
System ID : Revision [0], Pass [0] +	^
++ ARMCLK: 532.00MHz HCLKx2: 266.00MHz HCLK: 133.00MHz PCLK: 66.50MHz non-VIC mode / Sync Mode	
USB host is not connected yet. Waiting for USB host connection.	
<pre>!!! USB host is connected !!! - Bulk In EP : 1 </pre>	
- Speed : High - Op Mode : DMA mode	
Download & Run is selected	
Select a file to download in DNW	
If you want to quit, press any key	
0: Download & Run	
1: Donwload Only	
2: Upload Only 3: Select On Mode	
4: Program AMD NOR Flash	
5: Suspend & Resume On/Off	
Select the function to test :	~



.



8. Enter 0 to download and run the Image on the board. DNW window appears as shown in figure 5-5.

INW v0.50M - For WinCE [COM2,115200bps][USB:OK][ADDR:0x50100000]	
Serial Port USB Port Configuration Help	
USB host is not connected yet. Waiting for USB host connection.	~
<pre>!!! USB host is connected !!! - Bulk In EP : 1 - Bulk Out EP : 2 - Speed : High</pre>	
– Op Mode : DMA mode	
Download & Run is selected	
Select a file to download in DNW If you want to quit, press any key	
0: Download & Run 1: Donwload Only 2: Veload Only	
3: Select Op Mode	
4: Program AMD NOR Flash 5: Suspend & Resume On/Off	
Select the function to test : 0	
Select a file to download in DNW	
if you want to quit, press any key	~

Figure 5-5 Download & Run


9. On the USB Port menu, click Transmit and the following window appears on your screen. Select NK.nb0 from X:\WINCE600\OSDesins\[OS Design name]\[OS Design name]\[OS Design name]\[RelDir\SMDK6410_ARMV41_Release directory and then click Open button.

멸기			? 🔀
찾는 위치([):	C SMDK6410_AF	RMV4L_Release 💽 🗢 🖻 📸 🗸	
내 최근 문서 나당 화면 나당 화면 내 문서 내 컴퓨터 내 힘퓨터 내 네트워크 환경	COA 040C 041D 0404 0407 0409 0410 0410 0411 0412 0413 0413 0416 0419 0419 0804 intlfile	 intltrns postproc prebuilt unfiltered usasnap EBOOT,bin EBOOT,nb0 NK,bin NK,nb0 STEPLDR,bin STEPLDR,nb0 sTEPLDR,nb0 ubootimage,ubi 	
	파일 이름(<u>N</u>): 파일 형식(<u>T</u>):	NK,nb0 BIN Files (*,bin)*,nb0;*,lst;*,ubi;*,dio)	열기(<u>0</u>) 취소

Figure 5-6 Selecting NK.nb0 for Download



10. Once download begins, a download status bar appears on your screen as shown in figure 5-7. After NK.nb0 download is over, Windows Embedded CE 6.0 boots on the target Board

🔤 DNW v0.50M - For WinCE [COM2,115200bps][USB:OK][ADDR:0x50030000] 📃 🗔	×
Serial Port USB Port Configuration Help	
(If you want to skip, press 'x' key)	^
Checksum O.K.	
Reset by XnRESET[RSTSTAT:0x1] VCO=1.064GHz	
++ S3C6410 USB OTG Downloader v0.1 (2008.03.11) +	
System ID : R Downloading F:\WINCE600\OSDesigns\6410_C 🗙	
ARMCLK: 532.00M non-VIC mode /	
USB host is not connected yet.	
Waiting for USB host connection.	
!!! USB host is connected !!! - Bulk In EP : 1 - Bulk Out EP : 2	
- Speed : High - On Mode : DMA mode00000)]	=
	~

Figure 5-7 Downloading Status of NK.nb0



6 Fusing WinCE Image to NAND Flash via USB

In this chapter, you can understand how to fuse WinCE image to NAND Flash via USB.

- Before you download the WinCE Image through the USB, you must have 6410_OtgMon.bin image on your AMD Flash. (The image was already fused on your AMD Flash in the board before release)
- 2. Configure CFG0 DIP switch on the CPU Board and CFGB1 on the CPU board properly for booting from AMD Flash. (For more information, Read SMDK6410 Board User's Manual in Document folder...)
- 3. Please install the USB Driver and DNW application on your host PC.
- 4. Run dnw.exe on the host PC. The following window appears on your screen.

🎰 DNW 🗤 501	M – For Wir	nCE [COMix][USB:x][ADDR:0x50100000]	
Serial Port I	USB Port	Configuration	Help	
				<u> </u>
				-

Figure 6-1 DNW Window



5. On the **Configuration** menu in the DNW window, click **Options** to set the UART/USB options. The following window appears on your screen. Select Baud Rate and COM Port as shown in figure 7-4, enter the download address as **0x50030000** and then click **OK** button.

UART/USB Options				
Serial Port		T		
-Baud Rate-	COM Port	ОК		
① 115200 ③		Cancel		
O 57600	O COM 2			
O 38400	O COM 3			
C 19200	○ COM 4			
C 14400				
C 9600				
USB Port Download Address 0×50030000				

Figure 6-2 UART/USB Options



6. On the Serial Port menu, click Connect. Switch ON the board and then press any key. The DNW window appears as shown in figure 6-3.

INW v0.50M - For WinCE [COM2,115200bps][USB:OK][ADDR:0x50030000]	
Serial Port USB Port Configuration Help	
Reset by XnRESET[RSTSTAT:0x1] UCD=1_064CHz	^
V00-1.004anz	
++	
System ID : Revision [0], Pass [0] +	
++ ARMCLK: 532.00MHz HCLKx2: 266.00MHz HCLK: 133.00MHz PCLK: 66.50MHz	
non-VIC mode / Sync Mode	
USB host is not connected yet.	
Waiting for USB host connection.	
<pre>!!! USB host is connected !!!</pre>	
- Bulk In EP : 1	
- BUIK VUT EP : 2 - Speed : Hiah	
- Op Mode : DMA mode	
Download & Run is selected	
Select a file to download in DNW	
If you want to quit, press any key	
	~

Figure 6-3 DNW Window after Board Power ON



7. Press any key to see USB OTG Mon menu. Now DNW window appears as shown below.



Figure 6-4 usb OTG Mon menu



8. Enter 0 to download and run the Image on the board. DNW window appears as shown in figure 6-5.

🔤 DNW v0.50M - For WinCE	[COM2,115200bps] [USB:OK] [ADDR:0x50030000]	
Serial Port USB Port Configuration	n Help	
<pre>!!! USB host is connected ' - Bulk In EP : 1 - Bulk Out EP : 2 - Speed : High - Op Mode : DMA mode</pre>	***	
Download & Run is selected		
Select a file to download :	in DNW	
If you want to quit, press	any key	
0: Download & Run 1: Donwload Only 2: Upload Only 3: Select Op Mode 4: Program AMD NOR Flash 5: Suspend & Resume On/Of	f	
Select the function to test	t:0	
Select a file to download :	in DNW	
If you want to quit, press	any key	
		~





9. On the USB Port menu, click Transmit and the following window appears on your screen. Select EBOOT.nb0 file from X:\WINCE600\OSDesigns\[OSDesign name] \[OSDesign name] \[OSDesign name] \[RelDir\SMDK6410_ARMV4I_Release directory and then click Open button.

열기			? 🗙
찾는 위치(!): 내 최근 문서 나당 화면 나당 화면 내 문서	 SMDK6410_AF OCOA O40C O41D O404 O407 O409 O410 O411 O412 O413 O416 O419 	MV4I_Release Intitrns postproc prebuilt unfiltered SEBOOT.bin EBOOT.nb0 NK,bin NK,nb0 STEPLDR,bin STEPLDR,nb0	
영국 내 네트워크 환경	☐ 0804 ☐ intfile 파일 미름(<u>N</u>): 파일 형식(<u>T</u>):	EBOOT,nb0 BIN Files (*,bin)*,nb0;*,lst;*,ubi;*,dio)	기(<u>0</u>) 취소

Figure 6-6 Selecting EBOOT.nb0 for Download



10. As soon as EBOOT.nb0 download is over, the following messages appear in the DNW window.

```
DNW v0.50M - For WinCE [COM2,115200bps] [USB:x] [ADDR:0x50030000]
                                                                           Serial Port USB Port Configuration Help
-OALArqsInit()
INFO: (unsigned)C IsrHandler : 0x80063F24
INFO: (unsigned)ASM_IsrHandler : 0x8006452C
INFO: (unsigned)pISR : 0xEA019143
BP_Init
[FMD] ++FMD_Init()
[FMD:INF] FMD_Init() : Read ID = 0x0000ecda
[FMD] FMD Init() : NUM OF BLOCKS = 2048
[FMD] FMD Init() : PAGES PER BLOCK = 64
[FMD] FMD_Init() : SECTORS_PER_PAGE = 4
[FMD] --FMD_Init()
[FMD] FMD GetInfo() : NUMBLOCKS = 2048(0x800), SECTORSPERBLOCK = 64(0x40),
BYTESPERSECTOR = 2048(0x800)
[FMD] FMD_GetInfo() : NUMBLOCKS = 2048(0x800), SECTORSPERBLOCK = 64(0x40),
BYTESPERSECTOR = 2048(0 \times 800)
wNUM_BLOCKS : 2048(0x800)
Press [ENTER] to launch image stored on boot media, or [SPACE] to enter boot
monitor.
Initiating image launch in 2 seconds.
```

Figure 6-7 After EBOOT.nb0 Download



11. Please hit the SPACE BAR key to view the current Ethernet Boot Loader Configuration.



Figure 6-8 Ethernet Boot Loader Configuration - Before



12. Configure the Ethernet Boot loader as follows by entering the respective options:

- Enter [0] to enter SMDK6410 Board IP address
- Enter [1] to enter SMDK6410 Board Subnet mask
- Keep DHCP: DISABLED
- Keep Startup image: LAUNCH EXISTING
- Keep Program disk image: ENABLED
- Enter [7] to enter SMDK6410 Board MAC Address
- Keep KITL Configuration: DISABLED
- Enter [W] to Write Configuration Right Now
- Enter [E] to Erase Reserved Blocks in NAND Flash
- Enter [F] to do Low-level format the NAND Flash and wait for few seconds
- Enter [9] to Format Boot Media for BinFS
- After entering [9], please wait for few minutes.
- Enter [U] to Download image now(USB)

DNW v0,50M - For WinCE [COM1,115200bps][USB:OK][ADDR:0x50030000]	- U ×
Serial Port USB Port Configuration Help	
Enter your selection: 8 Ethernet Boot Loader Configuration:	
0) IP address: 192.168.1.200 1) Subnet mask: 255.255.0 2) DHCP: Disabled 3) Boot delay: 5 seconds 4) Reset to factory default configuration 5) Startup image: LAUNCH EXISTING 6) Program disk image into SmartMedia card: Enabled 7) Program CS8900 MAC address (10:20:30:40:50:60)	
 8) RITL Configuration: DISABLED 9) Format Boot Media for BinFS E) Erase Reserved Block B) Mark Bad Block at Reserved Block F) Low-level format the Smart Media card D) Download image now L) LAUNCH existing Boot Media image R) Read Configuration U) DOWNLOAD image now(USB) W) Write Configuration Bight Now 	
Enter your selection:	•

Figure 6-9 Ethernet Boot Loader Configuration - After



13. Change the IP address and Subnet Mask manually on your Host PC in TCP/IP properties before you start to download the OS image to the target board. For example, if the Target Board IP Address is 192.168.1.200, then set Host PC IP address as 192.168.1.100. Set the subnet mask as 255.255.255.0 (You can skip this step for downloading via USB)

And then Enter [U] for download image. If so, You can see the below window.

EXAMPLE 20030000 [2008:08]	- 🗆 🛛
Serial Port USB Port Configuration Help	
3) Boot delay: 5 seconds	^
4) Reset to factory default configuration	
5) Startup image: LAUNCH EXISTING	
6) Program disk image into SmartMedia card: Enabled	
7) Program 638900 MHC address (00:00:00:00:00:00) 9) KITL Configuration: DISADLED	
0) Format Root Modia for RipES	
A) Frase All Blocks	
B) Mark Bad Block at Reserved Block	
C) Clean Boot Option: FALSE	
D) Download image now	
E) Erase Reserved Block	
F) Low-level format the Smart Media card	
L) LAUNCH existing Boot Media image	
R) Read Configuration	
U) DOWNLOAD image now(USB)	
W) Write Configuration Right Now	
Entry your colortions y	
Ciller your Selection. u Suctom Koadut	
Prenaring for download	
INFO: *** Device Name 'SMDK64100' ***	
Please send the Image through USB.	
	브
	×

Figure 6-10 Preparing to download image through USB



14. On the USB Port menu click UBOOT and the following window appears on your screen. Select STEPLDR.nb0 from X:\WINCE600\OSDesigns\[OSDesign name]\[OSDesign name]\[OSDesign button.

열기				? 🛛
찾는 위치(!): 내 최근 문서 나랑 화면 나당 화면 내 문서	 SMDK6410_AR OCOA O40C O41D O404 O407 O409 O410 O410 O411 O412 O413 O416 	MV4I_Release	⊨ 🗈 📸 ज	
내 컴퓨터 동 내 네트워크 환경	□ 0416 ○ 0419 ○ 0804 ○ intfile 파일 이름(<u>N</u>): 파일 형식(<u>T</u>):	STEPLDR,nb0 BIN Files (*,bin)*,nb0)*,1st(*,ubi)*,dio)	열기(<u>0</u>) 취소

Figure 6-11 Selecting STEPLDR.nb0 for Download

15. You can see the following messages on the DNW window after STEPLDR.nb0 download is over.

🔤 DNW v0.50M - For WinCE [COM2,115200bps] [USB:OK] [ADDR:0x50030000] 👘 💽 🗖	×
Serial Port USB Port Configuration Help	
Please send the Image through USB.	^
BL_IMAGE_TYPE_MANIFEST	
BL_IMAGE_TYPE_UNKNOWN	
Download BIN file information:	
[0]: Base Address=0x0	
Stepldr image ImageStart = 0x0, ImageLength = 0x2000, LaunchAddr = 0x0	
Completed file(s):	
[0]: Address=0x0 Length=0x2000 Name="STEPLDR.nb0" Target=RAM dwImageLength = 0x2000 dwNumBlocks = 0x1	
dwBlock(0x0) X g_FlashInfo.wSectorsPerBlock(0x40) = 0x0	
dwBytesPerBlock : 131072	
INFU: SLEP IDAUER IMAGE SLUREU LU SMARL MEDIA. PIEASE REDOOT. HAITING	

Figure 6-12 Messages via UART Port after STEPLDR.nb0 Download



16. Reset the board. DNW window appears as shown in figure 6-13.

INW v0.50M - For WinCE [COM2,115200bps] [USB:OK] [ADDR:0x50030000]	
Serial Port USB Port Configuration Help	
Reset by XnRESET[RSTSTAT:0x1] UCO=1 064CHz	<u>^</u>
VUU- 1. 004aliz	
++ S3C6410 USB OTG Downloader v0.1 (2008.03.11) +	
System ID : Revision [0], Pass [0] + ++	
ARMCLK: 532.00MHz HCLKx2: 266.00MHz HCLK: 133.00MHz PCLK: 66.50MHz non-VIC mode / Sync Mode	
USB host is not connected yet.	
Waiting for USB host connection.	
!!! USB host is connected !!!	
- Bulk In EP : 1	
- Bulk Out EP : 2	
- Op Mode : DMA mode	
Download & Run is selected	
Select a file to download in DNW	
If you want to quit, press any key	
	~

Figure 6-13 DNW Window after reset



17. On the USB Port menu, click Transmit and the following window appears on your screen. Select EBOOT.nb0 file from X:\WINCE600\OSDesigns\[OSDesign name] \[OSDesign name] \[OSDesign name] \[CosDesign name] \[CosDesign name] \]

찾는 위치(): SMDK6410_ARMV4I_Release · · · · · · · · · · · · · · · · · · ·	열기		? 🗙
아이지	찾는 위치([):	I ([]): 🗀 SMDK6410_ARMV4I_Release 🔹 🖛 🖻 📸	
나 컴퓨터 O416 國 STEPLDR, nb0 나 컴퓨터 O419 國 ubootimage, ubi O804 나 네트워크 환경	내 최근 문서 나당 화면 나당 화면 내 문서 내 컴퓨터 내 컴퓨터	OCOA intitrns O40C postproc o41D prebuilt O404 unfiltered O407 usasnap O409 BEOOT.bin O410 BEOOT.nb0 O411 NK.bin O412 MK.nb0 O413 STEPLDR.bin O416 STEPLDR.nb0 O419 mubootimage.ubi O804 intifile	
파일 이름(<u>N</u>): EBOOT,nb0		파일 이름(N): EBOOT, nb0 ▼ 파일 형실(T): BIN Files (+ bio'+ pb0'+ let'+ ubi'+ dio) ▼	열기(<u>0</u>) 최소

Figure 6-14 Selecting EBOOT.nb0 for Download



18. As soon as EBOOT.nb0 download is over, the following messages appear in the DNW window.

```
DNW v0.50M - For WinCE [COM2,115200bps] [USB:x] [ADDR:0x50030000]
                                                                            Serial Port USB Port Configuration Help
-OALArqsInit()
INFO: (unsigned)C IsrHandler : 0x80063F24
INFO: (unsigned)ASM_IsrHandler : 0x8006452C
INFO: (unsigned)pISR : 0xEA019143
BP_Init
[FMD] ++FMD_Init()
[FMD:INF] FMD_Init() : Read ID = 0x0000ecda
[FMD] FMD Init() : NUM OF BLOCKS = 2048
[FMD] FMD Init() : PAGES PER BLOCK = 64
[FMD] FMD_Init() : SECTORS_PER_PAGE = 4
[FMD] --FMD_Init()
[FMD] FMD GetInfo() : NUMBLOCKS = 2048(0x800), SECTORSPERBLOCK = 64(0x40),
BYTESPERSECTOR = 2048(0 \times 800)
[FMD] FMD_GetInfo() : NUMBLOCKS = 2048(0x800), SECTORSPERBLOCK = 64(0x40),
BYTESPERSECTOR = 2048(0 \times 800)
wNUM_BLOCKS : 2048(0x800)
Press [ENTER] to launch image stored on boot media, or [SPACE] to enter boot
monitor.
Initiating image launch in 3 seconds.
```

Figure 6-15 After EBOOT.nb0 Download

19. Please hit the SPACE BAR key to view the current Ethernet Boot Loader Configuration.



INW v0.50M - For WinCE [COM2,115200bps][USB:x][ADDR:0x50030000]	
Serial Port USB Port Configuration Help	
Ethernet Boot Loader Configuration:	~
U) IP address: U.U.U.U A) Subach apply OFF OFF A	
1) SUDNET MASK: 255.255.0 2) DUCD: Disabled	
2) Root delaw: 5 seconds	
4) Reset to factory default configuration	
5) Startup image: LAUNCH EXISTING	
6) Program disk image into SmartMedia card: Enabled	
7) Program CS8900 MAC address (00:00:00:00:00)	
8) KITL Configuration: DISABLED	
9) Format Boot Media for BinFS	
A) Erase All Blocks	
B) Mark Bad Block at Reserved Block	
C) Clean Boot Option: FALSE	
D) Download image now	
E) Erase Reserved Block	
r) LOW-level format the Smart Media card	
C) Chonch existing boot neula image R) Read Configuration	
II) DAWNAAD image now(USB)	
W) Write Configuration Right Now	
··· ··· ··· ··· ······················	
Enter your selection:	
	×

Figure 6-16 Ethernet Boot Loader Configuration



20. Enter [U] to Download image now(USB), the following messages appear in the DNW window.

E DNW v0.50M - For WinCE [COM2,115200bps][USB:x][ADDR:0x50030000]	
Serial Port USB Port Configuration Help	
3) Boot delay: 5 seconds 4) Reset to factory default configuration 5) Startup image: LAUNCH EXISTING 6) Program disk image into SmartMedia card: Enabled 7) Program CS8900 MAC address (00:00:00:00:00) 8) KITL Configuration: DISABLED 9) Format Boot Media for BinFS A) Erase All Blocks B) Mark Bad Block at Reserved Block C) Clean Boot Option: FALSE D) Download image now E) Erase Reserved Block F) Low-level format the Smart Media card L) LAUNCH existing Boot Media image B) Read Configuration	
U) DOWNLOAD image now(USB)	
W) Write Configuration Right Now Enter your selection: u System ready! Preparing for download INFO: *** Device Name 'SMDK64100' *** Please send the Image through USB.	
	~

Figure 6-17 Preparing to download image through USB



21. On the USB Port menu click UBOOT and the following window appears on your screen. Select Eboot.bin from X:\WINCE600\OSDesigns\[OSDesign name]\[OSDesign name]\[OSDesign button.

열기			? 🗙
찾는 위치([);	C SMDK6410_AR	MV41_Release 💽 🖛 🖻 📸	
내 최근 문서 나탕 화면 나당 화면 내 문서 내 컴퓨터 내 컴퓨터	COA 040C 041D 0404 0407 0409 0409 0410 0411 0412 0413 0413 0416 0419 0804 inttfile	 intltrns postproc prebuilt unfiltered usasnap EBOOT,bin EBOOT,nb0 NK,bin NK,nb0 STEPLDR,bin STEPLDR,nb0 ubootimage,ubi 	
	파일 이름(<u>N</u>): 피의 천신(T):	EBOOT, bin	열기(<u>0</u>)
	파달 영역(1):	BIN Files (*, DIN; *, NDU; *, ISU; *, UDU; *, dio)	쥐소

Figure 6-18 Selecting EBOOT.bin for Download



22. You can see the following messages on the DNW window after EBOOT.bin download.

<pre>Serial Port USB Port Configuration Help dwLoadAddress: 0x80030000 dwJumpAddress: 0x8003620 dwStoreOffset: 0x0 sgList[0].dwSector: 0x80 sgList[0].dwLength: 0x82 } ID[1] { dwUersion: 0x1 dwSignature: 0x43465348 String: '' dwImageType: 0x2 dwT1Sectors: 0x32D1 dwLoadAddress: 0x80100000 dwJumpAddress: 0x80100000 dwJumpAddress: 0x80100000 dwJumpAddress: 0x80100000 chainInfo.dwLength: 0x32D1 } chainInfo.dwLength: 0x32D1 } INFO: Eboot image stored to Smart Media. Please Reboot. Halting</pre>	m DNW v0.50M - For WinCE [COM2,115200bps] [USB:OK] [ADDR:0x50030000]	
<pre>dwLoadAddress: 0x80030000 dwJumpAddress: 0x80063620 dwStoreOffset: 0x0 sgList[0].dwSector: 0x80 sgList[0].dwLength: 0x82 } lD[1] { dwVersion: 0x1 dwSignature: 0x43465348 String: '' dwImageType: 0x2 dwTlSectors: 0x32D1 dwLoadAddress: 0x80100000 dwJumpAddress: 0x80100000 dwJumpAddress: 0x80100000 dwStoreOffset: 0x0 sgList[0].dwSector: 0x340 sgList[0].dwLength: 0x32D1 } chainInfo.dwLoadAddress: 0X00000000 chainInfo.dwFlashAddress: 0X00000000 chainInfo.dwFlashAddress: 0X00000000 chainInfo.dwEngth: 0X00000000 chainInfo.dwLength: 0X00000000 chainInfo.dwLength: 0X00000000 chainInfo.dwLength: 0X00000000 chainInfo.dwLength: 0X00000000 chainInfo.dwLength: 0X00000000 chainInfo.dwLength: 0X00000000</pre>	Serial Port USB Port Configuration Help	
	<pre>dwLoadAddress: 0x80030000 dwJumpAddress: 0x8003020 dwStoreOffset: 0x0 sgList[0].dwSector: 0x80 sgList[0].dwLength: 0x82 } ID[1] { dwVersion: 0x1 dwSignature: 0x43465348 String: '' dwImageType: 0x2 dwTtlSectors: 0x32D1 dwLoadAddress: 0x80100000 dwJumpAddress: 0x80100000 dwJumpAddress: 0x80100000 dwJumpAddress: 0x801061B4 dwStoreOffset: 0x0 sgList[0].dwLength: 0x32D1 } chainInfo.dwLoadAddress: 0X000000000 chainInfo.dwLoadAddress: 0X00000000 chainInfo.dwLength: 0X00000000 } INFO: Eboot image stored to Smart Media. Please Reboot. Halting</pre>	

Figure 6-19 Messages via UART Port after EBOOT.bin Download



23. Reset the board. DNW window appears as shown in figure 6-20.

🔤 DNW v0.50M - For WinCE [COM2,115200bps] [USB:OK] [ADDR:0x50030000] 👘 🔳 🗖	×
Serial Port USB Port Configuration Help	
Reset by XnRESET[RSTSTAT:0x1]	^
VCU=1.004GHZ	
++	
S3C6410 USB OTG Downloader v0.1 (2008.03.11) +	
++	
ARMCLK: 532.00MHz HCLKx2: 266.00MHz HCLK: 133.00MHz PCLK: 66.50MHz	
non-VIC mode / Sync Mode	
USB host is not connected yet.	
Waiting for USB host connection.	
!!! USB host is connected !!!	
- Bulk In EP : 1	
- Bulk Out EP : 2 - Sneed : High	
- Op Mode : DMA mode	
Develord & Dup is selected	
NAMITAAA & VAN IZ 2616060	
Select a file to download in DNW	
If you want to quit, press any key	
	~

Figure 6-20 DNW Window after reset



24. On the USB Port menu, click Transmit and the following window appears on your screen. Select EBOOT.nb0 file from X:\WINCE600\OSDesigns\[OSDesign name] \[OSDesign name] \[OSDesign name] \[RelDir\SMDK6410_ARMV4I _Release directory and then click Open button.

열기				? 🗙
찾는 위치([):	C SMDK6410_AF	IMV4I_Release 📃	+ 🗈 📸 🖬 -	
내 최근 문서 나당 화면 나당 화면 내 문서 내 컴퓨터 내 컴퓨터	COA 040C 041D 0404 0407 0409 0410 0410 0411 0412 0413 0416 0419 0804 intlfile	 intltrns postproc prebuilt unfiltered usasnap EBOOT,bin EBOOT,nb0 NK,bin NK,nb0 STEPLDR,bin STEPLDR,nb0 ubootimage,ubi 		
	파일 이름(<u>N</u>): 파일 형식(<u>T</u>):	EBOOT,nb0 BIN Files (*,bin)*,nb0;*,lst;*,ubi;*,dic))	열기(<u>0</u>) 취소

Figure 6-21 Selecting EBOOT.nb0 for Download

25. As soon as EBOOT.nb0 download is over, the following messages appear in the DNW window.

```
DNW v0.50M - For WinCE [COM2,115200bps] [USB:x] [ADDR:0x50030000]
                                                                           Serial Port USB Port Configuration Help
-OALArgsInit()
INFO: (unsigned)C_IsrHandler : 0x80063F24
INFO: (unsigned)ASM_IsrHandler : 0x8006452C
INFO: (unsigned)pISR : 0xEA019143
BP Init
[FMD] ++FMD_Init()
[FMD:INF] FMD_Init() : Read ID = 0x0000ecda
[FMD] FMD_Init() : NUM_OF_BLOCKS = 2048
[FMD] FMD_Init() : PAGES_PER_BLOCK = 64
[FMD] FMD_Init() : SECTORS_PER_PAGE = 4
[FMD] --FMD_Init()
[FMD] FMD_GetInfo() : NUMBLOCKS = 2048(0x800), SECTORSPERBLOCK = 64(0x40),
BYTESPERSECTOR = 2048(0x800)
[FMD] FMD_GetInfo() : NUMBLOCKS = 2048(0x800), SECTORSPERBLOCK = 64(0x40),
BYTESPERSECTOR = 2048(0x800)
wNUM_BLOCKS : 2048(0x800)
Press [ENTER] to launch image stored on boot media, or [SPACE] to enter boot
monitor.
Initiating image launch in 3 seconds.
```

Figure 6-22 After EBOOT.nb0 Download



26. Please hit the SPACE BAR key to view the current Ethernet Boot Loader Configuration.

-	DNW v0.50M - For WinCE [COM2,115200bps][USB:x][ADDR:0x50030000]	
Se	rial Port USB Port Configuration Help	
Etł	nernet Boot Loader Configuration:	^
1) 1)	IP address: 0.0.0.0 Subpot mack: 255 255 255 0	
27	SUDHEL MASK: 255.255.255.0	
2)	Boot delau. 5 seconds	
41	Reset to factory default configuration	
5)	Startup image: LAUNCH EXISTING	
6)	Program disk image into SmartMedia card: Enabled	
7)	Program CS8900 MAC address (00:00:00:00:00)	
8)	KITL Configuration: DISABLED	
9)	Format Boot Media for BinFS	
A)	Erase All Blocks	
B)	Mark Bad Block at Reserved Block	
C)	Clean Boot Option: FALSE	
D)	Download image now	
E)	Erase Reserved Block	
1	LOW-level format the smart meula taru LANNCH existing Root Media image	
R)	Read Configuration	
ш́л.	DOWNLOAD image now(USB)	
W)	Write Configuration Right Now	
, I		
Ent	ter your selection:	-
		▲

Figure 6-23 Ethernet Boot Loader Configuration



- 27. Enter [F] to Reserve for Blocks of StepIdr.nb0 and Eboot.bin, and format other blocks
- 28. Enter [9] to make BinFS on other blocks,
- 29. Enter [U] to Download image now(USB), the following messages appear in the DNW window.

INW v0.50M - For WinCE [COM2,115200bps][USB:x][ADDR:0x50030000]	
Serial Port USB Port Configuration Help	
Serial Port USB Port Configuration Help 3) Boot delay: 5 seconds 4) Reset to factory default configuration 5) Startup image: LAUNCH EXISTING 6) Program disk image into SmartMedia card: Enabled 7) Program CS8900 MAC address (00:00:00:00:00:00) 8) KITL Configuration: DISABLED 9) Format Boot Media for BinFS A) Erase All Blocks B) Mark Bad Block at Reserved Block C) Clean Boot Option: FALSE D) Download image now E) Erase Reserved Block F) Low-level format the Smart Media card L) LAUNCH existing Boot Media image R) Read Configuration U) DOWNLOAD image now(USB) W) Write Configuration Right Now	
Enter your selection: u Sustem readu!	
Preparing for download	
INFO: *** Device Name 'SMDK64100' ***	
riease senu che imaye chrouyn 038.	_
	×

Figure 6-24 Preparing to download image through USB



30. On the USB Port menu click UBOOT and the following window appears on your screen. Select NK.bin from X:\WINCE600\OSDesigns\[OSDesign name]\[OSDesign name]\[OSDesign button.

열기				? 🗙
찾는 위치([);	C SMDK6410_AF	IMV4I_Release 💌 🔶	🗈 💣 🎫	
내 최근 문서 나당 화면 나당 화면 내 문서 내 컴퓨터 내 컴퓨터	COA 040C 041D 0404 0407 0409 0410 0410 0411 0412 0413 0416 0419 0419 0804 inttfile	intltrns postproc prebuilt unfiltered SEBOOT,bin EBOOT,nb0 NK,nb0 STEPLDR,bin STEPLDR,nb0 Ubootimage,ubi		
	파일 이름(<u>N</u>):	NK, bin	•	열기(<u>0</u>)
	파일 형식(<u>T</u>):	BIN Files (*,bin;*,nb0;*,lst;*,ubi;*,dio)	•	취소

Figure 6-25 Selecting NK.bin for Download



31. You can see the following messages on the DNW window after NK.bin download.

🔤 DNW v0.50M - For WinCE [COM2,115200bps][USB:OK][ADDR:0x50030000] 📃 🗖	×
Serial Port USB Port Configuration Help	
C) Clean Boot Option: FALSE D) Download image now E) Erase Reserved Block F) Low-level format the Smart Media card L) LAUNCH existing Boot Media image R) Read Configuration U) DOWNLOAD image now(USB) W) Write Configuration Right Now	~
Enter your selection: u System ready! Preparing for download INFO: *** Device Name 'SMDK64100' *** Please send the Image through USB. BL_IMAGE_TYPE_BIN	
Download BIN file information: [0]: Base Address=0x80100000 Length=0x19683bc	
RAM image	

Figure 6-26 Messages via UART Port during NK.bin Download

32. After NK.bin download is over, Windows Embedded CE 6.0 boots on the target Board.

- **33**. Power **OFF** the board and Configure DIP switch CFG0 on the CPU Board and CFGB3 on the base board properly for booting from NAND Flash. (For more information about board configuration, Read SMDK6410 Board User's Manual in Document folder)
- 34. Power ON the board. You can see Windows Embedded CE 6.0 boots on the target board.



7 Building and Running OS Image - With KITL

In this chapter, you can understand how to build, download and run the OS image with KITL.

1. To enable KITL, on the left side of Visual Studio 2005, You can see the Solution Explorer as below figure. And then right click on OSDesign1 and select Properties.



Figure 7-1 OSDesign Properties

 OSDesign1 Property Pages winow appears on your screen. Check square boxes Enable kernel debugger(no IMGNODEBUGGER=1) and Enable KITL (no IMGNOKITL=1) in the Build Options and then click OK button.



SMDK6410 WINCE6.0 INSTALLATION MANUAL

OSDesign1 Property Pages	
OSDesign1 Property Pages Configuration: Active(Samsung → Common Properties → Build Tree (WINCEROOT) → Configuration Properties → General → Locale → Build Options → Custom Build Actions → Subproject Image Settings	SMDK2443 A Platform: N/A Configuration Manager Build options: Buffer tracked events in RAM (IMGOSCAPTURE=1) Finable eboot space in memory (IMGEBOOT=1) Enable event tracking during boot (IMGCELOGENABLE=1) Enable hardware-assisted debugging support (IMGHDSTUB=1) Enable hardware-assisted debugging support (IMGHDSTUB=1) Enable kernel debugger (no IMGNOEBUGGER=1) Enable kritic (no IMGNOKITL=1) Enable ship build (WINCESHIP=1) Flush tracked events to release directory (IMGAUTOFLUSH=1) Bun-time image can be larger than 32 MB (IMGRAM64=1)
	Use xcopy instead of links to populate release directory (BUILDREL_USE_COPY=1) Write run-time image to flash memory (IMGFLASH=1)
	확인 취소 적용(<u>A</u>)

Figure 7-2 Property Pages for KITL



7.1 USB Serial KITL

- 1. To enable WinCE image with USB Serial KITL, you must do the following:
- X:\WINCE600\PLATFORM\SMDK6410\smdk6410.bat file must have the following settings. set BSP_NOSERIAL= set BSP_NOUSBFN=1

rem set BSP_KITL=NONE rem set BSP_KITL=SERIAL_UART0 rem set BSP_KITL=SERIAL_UART1 rem set BSP_KITL=SERIAL_UART2 rem set BSP_KITL=SERIAL_UART3 set BSP_KITL=USBSERIAL

2. On the Build menu, click Build OSDesign1 as shown in figure 7-16 to build the Eboot and OS image.



Figure 7-3 Build OSDesign



Note: Building process may take some time depending on your system capability. So, please wait for the build process to be completed. It might take around 1 hour.



- 3. After completion of build process, . EBOOT.nb0, EBOOT.bin, STEPLDR.bin, NK.bin and NK.nb0 are now available in X:\WINCE600\OSDesigns \[OS Design Name]\ [OS Design Name]\RelDir\smdk6410_ARMV4I_Release directory.
- 4. Please install the USB Driver and DNW application on your host PC if it is not installed before.
- 5. Please refer to chapter 6 Fusing WinCE image to SMC via USB in this documentation. And fuse to SMC along to Steps in Chapter 6.
- 6. Reset the board. DNW window appears as shown in figure 7-17.

m DNW v0.50M - For WinCE [COM2,115200bps][USB:OK][ADDR:0x50100000]	
Serial Port USB Port Configuration Help	
Reset by XnRESET[RSTSTAT:0x1] VCO=1.064GHz ++	
S3C6410 USB OTG Downloader v0.1 (2008.03.11) + System ID : Revision [0], Pass [0] +	
ARMCLK: 532.00MHz HCLKx2: 266.00MHz HCLK: 133.00MHz PCLK: 66.50MHz non-VIC mode / Sync Mode	
USB host is not connected yet. Waiting for USB host connection.	
<pre>!!! USB host is connected !!! - Bulk In EP : 1 - Bulk Out EP : 2</pre>	
- Speed : High - Op Mode : DMA mode	
Download & Run is selected	
Select a file to download in DNW If you want to quit, press any key	
	~

Figure 7-4 DNW Window after reset

7. On the USB Port menu, click Transmit and the following window appears on your screen. Select EBOOT.nb0 file from X:\WINCE600\OSDesigns\[OSDesign name] \[OSDesign name] \[OSDesign name] \[OSDesign name] \]



멸기					? 🔀
찾는 위치(!): 내 최근 문서 나당 화면 나당 화면 내 문서 내 컴퓨터 내 네트워크 환경	 SMDK6410_AR OCOA O40C O41D O404 O407 O409 O410 O411 O412 O413 O416 O419 O804 inttfile 	 MV4L_Release intltrns postproc prebuilt unfiltered usasnap EBOOT,bin EBOOT,nb0 NK,bin NK,nb0 STEPLDR,bin STEPLDR,nb0] ← È d'	*	
	파일 이름(<u>N</u>): 파일 형식(<u>T</u>):	EBOOT,nb0 BIN Files (*,bin;*,nb0;*,lst;*,ubi;*	*,dio)	• [•]	열기(<u>0</u>) 취소

Figure 7-5 Selecting EBOOT.nb0 for Download

8. As soon as EBOOT.nb0 download is over, the following messages appear in the DNW window.





9. Please hit the SPACE BAR key to view the current Ethernet Boot Loader Configuration. Configure the Ethernet Boot Loader as follows by entering the respective options:



- Keep KITL Configuration: ENABLED
- Enter [L] to LAUNCH existing Boot Media image



Figure 7-7 Ethernet Boot Loader Configuration

10. On the Target menu in the Visual Studio 2005 window, click Connectivity Options... as shown below. Target Device Connectivity Options window appears on your screen as shown in figure 7-22.



SMDK6410 WINCE6.0 INSTALLATION MANUAL



Figure 7-8 Target Connectivity Option

11. On the Target Device Connectivity Options window, select USB option from Transport drop down menu box.


Sarget Device Connectivity Op	ptions	
Device Configuration <u>Add Device</u> <u>Delete Device</u>	<u>T</u> arget Device: CE Device	_
Service Configuration Kernel Service Map	Download: None	Setti <u>n</u> gs
Core Service Settings Service Status	T <u>r</u> ansport: None	Settin <u>a</u> s
	D <u>e</u> bugger: None	Setting <u>s</u>
	<u>Apply</u> <u>C</u> lose	



12. Configure the KdStub option in Debugger drop down menu box.

🔞 Target Device Connectivity O		
Device Configuration <u>Add Device</u> <u>Delete Device</u>	<u>T</u> arget Device: CE Device	•
Service Configuration	Download: None	Setti <u>n</u> gs
<u>Core Service Settings</u> <u>Service Status</u>	T <u>r</u> ansport: USB (USBDevice)	Settings
	D <u>e</u> bugger: KdStub (Prompt On Error)	Setting <u>s</u>
	<u>Apply</u> <u>C</u> lose	

Figure 7-10 Target Device Connectivity Options Window After Transport Select



13. On the Target menu in Visual Studio 2005 window, click Attach Device as shown below.



Figure 7-11 Attach Device

14. You can see the following messages on the DNW window.



Serial Port USB Port Configuration Help -OALArgsInit() +0ALTimerInit(1, 16624, 0) -OALIntrRequestSysIntr(irq = 38, sysIntr = 16) [KITL] ++0EMKitlStartup() [KITL] KITL: USB Serial DeviceId
-OALArgsInit() +OALTimerInit(1, 16624, 0) -OALIntrRequestSysIntr(irq = 38, sysIntr = 16) [KITL] ++OEMKitlStartup() [KITL] KITL: USB Serial DeviceId
<pre>+UALTIMEFINIt(1, 10024, 0) -OALINTREQUESTSYSINT(irq = 38, sysIntr = 16) [KITL] ++0EMKitlStartup() [KITL] KITL: USB Serial DeviceId 6410USBSerKITL kitlArgs.flags 0x11 kitlArgs.devLoc.IfcType1 kitlArgs.devLoc.PhysicalLoc 0x7c000000 kitlArgs.devLoc.Pin 96 kitlArgs.ip4address 0.0.0.0 [KITL] Call OALKitlInit() DeviceId 6410USBSerKITL pArgs->flags 0x11</pre>
<pre>[KITL] ++0EMKitlStartup() [KITL] KITL: USB Serial DeviceId 6410USBSerKITL kitlArgs.flags 0x11 kitlArgs.devLoc.IfcType1 kitlArgs.devLoc.LogicalLoc. 0x7c000000 kitlArgs.devLoc.PhysicalLoc 0x0 kitlArgs.devLoc.Pin 96 kitlArgs.ip4address 0.0.0.0 [KITL] Call OALKitlInit() DeviceId 6410USBSerKITL pArgs->flags 0x11</pre>
<pre>[KITL] KITL: USB Serial DeviceId</pre>
DeviceId
kitlArgs.flags 0x11 kitlArgs.devLoc.IfcType1 kitlArgs.devLoc.LogicalLoc. 0x7c000000 kitlArgs.devLoc.PhysicalLoc 0x0 kitlArgs.devLoc.Pin 96 kitlArgs.ip4address 0.0.0.0 [KITL] Call OALKitlInit() DeviceId 6410USBSerKITL pArgs->flags 0x11
kitlArgs.devLoc.IfcType1 kitlArgs.devLoc.LogicalLoc. 0x7c000000 kitlArgs.devLoc.PhysicalLoc 0x0 kitlArgs.devLoc.Pin 96 kitlArgs.ip4address 0.0.0.0 [KITL] Call OALKitlInit() DeviceId 6410USBSerKITL pArgs->flags 0x11
<pre>kitlArgs.devLoc.LogicalLoc. 0x/c0000000 kitlArgs.devLoc.PhysicalLoc 0x0 kitlArgs.devLoc.Pin 96 kitlArgs.ip4address 0.0.0.0 [KITL] Call OALKitlInit() DeviceId 6410USBSerKITL pArgs->flags 0x11</pre>
kitlArgs.devLoc.Pin 96 kitlArgs.ip4address 0.0.0.0 [KITL] Call OALKitlInit() DeviceId 6410USBSerKITL pArgs->flags 0x11
kitlArgs.ip4address 0.0.0.0 [KITL] Call OALKitlInit() DeviceId 6410USBSerKITL pArgs->flags 0x11
[KITL] Call OALKitlInit() DeviceId 6410USBSerKITL pArgs->flags 0x11
DeviceId 6410USBSerKITL pArqs->flaqs 0x11
pArgs->flags0x11
pArgs->flagsØx11
pArgs->devLoc.IfcType1
phigs /device.cogicalloc. 0x/c000000
pArgs->devLoc.PhysicalLoc 0x0
pArgs->devLoc.Pin
pAros->ip4address0
pDevice->Names
a Device NifeTure d
pbeoice-/ifcigpe
pDevice->id0x7C000000
pDevice->resource0
nDeuice->tune 1
pDevice->pDriver 0x81BB9028
Walt for connecting
minite with full in potting mode
Connecting to Desktop
Connecting to Desktop resending
▼

Figure 7-12 Messages via UART Port

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15. Windows Embedded CE 6.0 boots on the target board and platform builder window appears as shown below.

SMDK6400_FMD_v080529 (Running) - Microsoft Visual Studio	_ 8 ×
Elle Edit View Broject Build Debug Target GlearCase ClearQuest Icols Window Community Help	
- -	
Class View Solution Expl0_FM0_v080529 Output	▼ ×
Show output from: Windows CE Debug • 🖗 🖗 🖾 🛼 😨	
<pre>k c</pre>	× IN5

Figure 7-13 Visual Studio 2005 Window after USB Serial KITL connected



8 Appendix I - DIP Switch Settings for Booting Mode

Table 8-1 and 8-2 explains the DIP Switch configuration on the SMDK6410 board for Booting mode.

AMD NOR/SROM Boot

Description	CFG3[6:1]					
	[6]	[5]	[4]	[3]	[2]	
NOR Boot (8bit Data Width)	Don't Care	OFF	ON	OFF	OFF	
NOR Boot (16bit Data Width)	Don't Care	OFF	ON	OFF	ON	

Table 8-1 DIP Switch setting for AMD Flash Boot (NOR Flash)

NAND Boot

Description	CFG3[6:1]							
	[6]	[[5]	[4]		[3]	[2]	-
Normal NAND, 512-byte page, 3 addr. Cycle	ON	0)FF	OFF		OFF	OFF	-
Normal NAND, 512-byte page, 4 addr. Cycle	ON	0)FF	OFF		OFF	ON	-
Advanced NAND, 2K-byte page, 4 addr. Cycle	ON	0)FF	OFF	OFF ON		OFF	-
Advanced NAND, 2K-byte page, 5 addr. Cycle	ON	0)FF	OFF		ON	ON	_
Description	CFGB3[4:1]							
·	[4]		[3]		[2]		[1]	
Connected NandFlash to Xm0CSn2	OFF		OFF		- OFF		ON	
Connected XD Picture Card to Xm0CSn2	OFF		OFF		OFF ON		OFF	

Table 8-2 DIP Switch setting for NAND Flash Boot

Note: For more information about board configuration, Check SMDK6410 Board Manual in DOC folder

