

% We substitute Installation Manual of SMDK2416 for SMDK2450 because those are exactly same.

Installation Manual for SMDK2450 (Windows CE 5.0)



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Contact Address

Samsung Electronics Co., Ltd. San #24 Nongseo-Ri, Giheung-EUP, Yongin- City, Gyeonggi-Do, Korea C.P.O Box #37, Suwon 449-900 Home Page: <u>http://www.samsungsemi.com</u>







Revision History

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1 Overview

This Installation Manual guides you to install the Samsung S3C2450 Windows CE 5.0 BSP.

The manual explains the following topics:

- Copying BSP and Setting up Platform Builder
- Creating a New Platform
- Building OS Image Without KITL
- Fusing WinCE Image via Ethernet

A detailed explanation of each topic is explained in the following chapters.





2 Copying BSP and Setting up Platform Builder

In this chapter, you can understand how to copy the Samsung S3C2450 Windows CE 5.0 BSP and setup the Platform Builder.

1. To start the BSP installation, copy SMDK2450 BSP to X:\WINCE500\PLATFORM directory on your host PC. Make sure that the cec file and batch file in X:\WINCE500\PLATFORM\SMDK2450 directory has the same name as that of the BSP, i.e. smdk2450.cec and smdk2450.bat.

Note: If you want, you can use a different BSP directory name. But make sure that the cec file and batch file has the same name as that of the BSP directory name.



2. To start S3C2450 Windows CE 5.0 BSP Porting, on your host PC click Start, point to All Programs, point to Microsoft Windows CE 5.0 and then click on Platform Builder 5.0. The following window appears on your screen.





🕹 Platform Builder - [Welcome to Platform Builder]]					
File Edit View Project Platform Target Build Project I	B <u>u</u> ild OS	<u>T</u> ools	<u>W</u> indow	Help		BX
🖹 😂 🖬 🖉 X 🖻 🖻 오 • 오 • 🖪 🗖	7 B					V 1
			# X	Dt 🕘 🛛 🛛	0 🗵	2 🐔
Start Home Getting Started		~		Catalog BSPs Core OS Device Drive Platform Mar	ers nager	
Build Debug Log Find in Files 1 Find in	Files 2 /	,			 	× × ×
Done			Size:	~0 KB 🛓		1

Figure 2-2 Platform Builder Window





3. On the File menu, click Manage Catalog Items.... as shown in the figure below.



Figure 2-3 Opening Manage Catalog Items Window

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4. Manage Catalog Items window appears on your screen as shown below. Click Import... button.

M	Manage Catalog Items						
	Imported .cec <u>files</u> :						
	File	Version	Vendor	Description	^	ОК	
	generic.cec	5.00	Microsoft	Generic driver type declaration			
	audio.cec	5.00	Microsoft	Audio Catalog Items		Remove	
	display.cec	5.00	Microsoft	Display Catalog Items			
	1394.cec	5.00	Microsoft	IEEE 1394 Driver Support		Import	
	keybmouse.cec	5.00	Microsoft	Keyboard and Mouse Catalog Items			
	netcard.cec	5.00	Microsoft	Ethernet Catalog Items		Befresh	
	irda.cec	5.00	Microsoft	IrDA Catalog Items		<u>noncan</u>	
	pomoia.cec	5.00	Microsoft	PCMCIA Catalog Items			
	printing.cec	5.00	Microsoft	Printing and Printer Drivers			
	serial.cec	5.00	Microsoft	Serial Port Catalog Items			
	smartcard.cec	5.00	Microsoft	Smart Card Support and Drivers			
	storage.cec	5.00	Microsoft	Storage Device Support and Drivers			
	usb.cec	5.00	Microsoft	USB Catalog Items	~		
		E 00	14° 6				

Figure 2-4 Manage Catalog Items Window

5. Import Catalog Items window appears on your screen. Select SMDK2450.cec file from X:\WINCE500\PLATFORM\SMDK2450 directory and then click Open button.

Import Catalog	ltems							? 🗙
찾는 위치(!):	🗁 SMDK2450	•	*	G	1 🖻	•		
내 최근 문서 (내 최근 문서 () 바탕 화면	CDOC Etc Files Ib Src Src smdk2450, cec							
() 내 문서								
내 컴퓨터								
S								
내 네트워크 환경	파일 이름(<u>N</u>):					*	열기(())
	파일 형식(<u>T</u>):	Catalog Item Files (*,cec)				*	취소	;;

Figure 2-5 Import Catalog Items Window





6. Now SMDK2450.cec is added to Imported .cec files: list in Manage Catalog Items window as shown in figure 2-6. Click Refresh button first and then OK click button.

N	lanage Catal	og Items				
	Imported , cec <u>f</u> ile	es:				
	File dbau1500, cec emulator, cec geode, cec	Version 5,00 5,00 5,00	Vendor Microsoft Microsoft Microsoft	Description DBAu1500 BSP Catalog Items Emulator BSP Catalog Items Geode BSP Catalog Items	<u> </u>	OK <u>R</u> emove
	mainstoneii, sg2_vr4131, sg2_vr5500, smdk2410,cec platman,cec coreos,cec	5,00 5,00 5,00 5,00 5,00 5,00	Microsoft Microsoft Microsoft Microsoft Microsoft Microsoft	Intel Mainstonell BSP Catalo SG2_VR4131 BSP Catalog Ite SG2_VR5500 BSP Catalog Ite Samsung SMDK2410 Develop Platform Manager Features Windows CE Core OS comp		Import, Refresh
	wcetk, cec sourcetags clonemodul netcfv2, cec sqlmobile, cec smdk2450, cec	5,00 5,00 5,00 5,00 5,00 5,00	Microsoft Microsoft Microsoft Microsoft Samsung	Windows CE Test Nt Client Source code information for t, Catalog items that can be clo NET Compact Framework 2,0 SQL Mobile support A BSP for the Samsung SMD,		

Figure 2-6 Manage Catalog Items Window after Adding SMDK2450.cec File

7. Look at Catalog\Third Party\BSPs directory on Catalog window. Confirm whether SMDK2450: ARMV4I BSP is added properly as shown below. If not added properly, then remove SMDK2450.cec file in the Imported .cec files: list from Manage Catalog Items window and then repeat steps 4-7 again.



Figure 2-7 Catalog window in Platform Builder





3 Creating a New Platform

In this chapter, you can understand how to create a new platform using the Platform Builder.

1. On the File menu in the Platform Builder window, click New Platform... as shown in figure 3-1.



Figure 3-1 Creating New Platform



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



Figure 3-2 Platform Wizard - Step 1





3. The Workspace Name And Location window appears on your screen. Type a platform name in the Name box and then click Next button.

New Platform Wizard - Step 2							
Workspace Na Choose a frie	Workspace Name And Location Choose a friendly name for your workspace.						
	Name						
	SMDK2450						
	Path:						
	D:#WINCE500#PBWorkspaces#SMDK2450						
2	< <u>Back N</u> ext > Einish Canc	el					

Figure 3-3 New Platform Wizard - Step 2





4. The Board Support Packages (BSPs) window appears on your screen. Select SMDK2450: ARMV4I and then click Next button.

New Platform Wizard - Step 3	New Platform Wizard - Step 3 🛛 🔀					
Board Support Packages (BSPs) A BSP contains a set of device drivers that are added to your OS design.						
Available BSPs: AMD GEODE: X86 CEPC: X86 EMULATOR: X86 INTEL PXA27X DEV PLATFORM:ARMV4I SAMSUNG SMDK2410: ARMV4I ✓SAMSUNG SMDK2450: ARMV4I	Select one or more BSPs for your OS design. A BSP for the Samsung SMDK2450 Development Platform. The platform uses the OS that is built for the ARM v4 architecture and contains the ARM instruction set with Thumb Interworking enabled. Note: Only BSPs supported by installed CPUs are displayed in the list.					
2 < Back	<u>N</u> ext > <u>Finish</u> Cancel					

Figure 3-4 New Platform Wizard - Step 3



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

New Platform Wizard - Step 4								
Design Template A design template is a pre-defined selection of Catalog items.								
Available design templates: Custom Device Digital Media Receiver Enterprise Terminal Enterprise Web Pad Gateway Industrial Controller Internet Appliance IP Phone Mobile Handheld Set-Top Box Tiny Kernel Windows 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.							
2 < Back	<u>Next ></u> inishCancel							

Figure 3-5 New Platform Wizard - Step 4





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

New Platform Wizard - Step 5								
Applications & Media Select items for applications and media to include in your OS design.								
Items: .NET Compact Framework ActiveSync Quarter VGA Resources - Portrait Mode Standard SDK for Windows CE Windows Media Audio/MP3 Windows Messenger WordPad Internet Browser Microsoft File Viewers Windows CE Error Reporting	Local playback support for Windows Media Audio and MP3 files in a small footprint. Includes DirectShow, Windows Media Technologies, and codecs. Windows Media Player is not included.							
	Estimated size of these items: 5535 KB							
2 < Back	<u>N</u> ext > <u>F</u> inish Cancel							

Figure 3-6 New Platform Wizard - Step 5



7. The Networking & Communications wizard window appears on your screen. Click Next button.

New Platform Wizard - Step 6			
Networking & Communications Select items for networking and communications to include in your OS design.			
Items:	The Internet standard protocol, version 6. Estimated size of these items: 6601 KB		
(Back	<u>N</u> ext > <u>F</u> inish Cancel		

Figure 3-7 New Platform Wizard - Step 6





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

New Platform Wizard - Step 7	\mathbf{X}
Bluetooth	^
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:	Ξ
 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	
	~
(<u>Back</u> <u>Next</u>) Einish Cancel	

Figure 3-8 New Platform Wizard - Step



9. The following window appears on your screen. Click Finish button to complete the process.

New Platform Wizard - Step 8	×
Completing the New Platform Wizard	>
You have successfully completed the New Platform Wizard.	
You have created an OS design for a Windows CE-based platform. By default, Platform Builder provides a Debug configuration and a Release confi <mark>guration</mark> of this OS design.	
 Options: Modify build options for the Debug and Release configurations of your OS design without closing this wizard. 	
To close this wizard, click <i>Finish</i> .	
	~
Cance	

Figure 3-9 New Platform Wizard - Step 8

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4 Building OS Image - Without KITL

1. In the **Platform Builder** window on your host PC, you can see the new platform created along with its various sub-directories on the left hand side as shown in figure 4-1.



Figure 4-1 New Platform Items

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 Expand Core OS node in Catalog window, then expand Windows CE devices -> File Systems and Data Store -> Storage Manager, right click on FAT File System and click Add to OS Design as shown in the figure below.



Figure 4-2 Adding FAT File System to the Platform





3. Similarly, please do follow steps to add the various features to your platform. You can also add other features which you want to install in your platform. follow picture indicate one which you should add to OS Design.

🗆 🌉 Catalog
🗄 🧰 BSPs
🖻 🚔 Core OS
🖻 🛃 Windows CE devices
Applications and Services Development
Applications - End User
Communication Services and Networking
Core US Services
Eile Susteme and Date Stere
Database Sunnort
The Minister State
🗉 🙀 File System - Internal (Choose 1)
🗄 🏟 Registry Storage (Choose 1)
🖃 🔋 Storage Manager
📲 Binary Rom Image File System
CD/UDFS File System
EDB Database Engine
FAT File System
2 Partition Driver
Transfer Anager Control Panel Applet
17 Iransaction-bate FAI File System [IFA]
Graphics and Multimedia Technologies
n international
E Internet Client Services
🕀 🧰 Security
🗉 🧰 Shell and User Interface
🗉 🧰 Voice over IP Phone Services
🗈 🧰 Windows CE Error Reporting
🗄 🦲 Device Drivers
🗈 🛄 Platform Manager

Figure 4-3 Somes which you should add to OS DesignFigure 4-3



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Figure 4-4 Somes which you should add to OS Design

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Figure 4-5 Some which you should add to OS Design

When you click right click on **OBEX Server** and click **Add to OS Design**. **Special Feature Notification** window appears on your screen. Click **Close** button.





Figure 4-6 Some which you should add to OS Design

4. Expand Core OS node in Catalog window, then expand Windows CE devices -> Graphics and Multimedia Technologies, select all the required Media Components and then Add to OS Design.

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5. On the Platform menu, click Settings... as shown in figure 4-3.



Figure 4-7 Platform Settings



6. The Platform Settings 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 4-4.

Platform Settings
Configuration:
Samsung SMDK2443: ARMV4I_Release 🛛 😪
General Locale Build Options Environment Custom Build Actions In
Locales:
English (South Africa) English (Trinidad) English (United Kingdom) English (United States) Clear All
English (Zimbabwe)
Default language:
English (United States)
Codepages:
✓ 437 (0EM - United States) ☐ 708 (Arabic - ASMO 708) ☐ 720 (Arabic - Transparent ASMO) ☐ 737 (0EM - Greek 437G) ☐ 775 (0EM - Baltic)
 Localize the build Strict localization checking in the build
OK Cancel

Figure 4-8 Selecting Language in the Platform Settings Window





7. Now please uncheck the square boxes Enable CE Target Control Support (SYSGEN_SHELL=1), Enable Full Kernel Mode (no IMGNOTALLKMODE=1) and Enable KITL (no IMGNOKITL=1) in the Build Options tab in Platform Settings window and then click OK button.

Platform Settings		
Configuration:		
Samsung SMDK2443: ARMV4I_Release		
General Locale Build Options Environment Custom Build Actions In		
Build options:		
Buffer tracked events in RAM (IMGOSCAPTURE=1) Enable CE Target Control Support (SYSGEN_SHELL=1)		
Enable Eboot Space in Memory (IMGEBOOT=1)		
Enable Eboot Space in Memory (IMGEBODT=1) Enable Event Tracking During Boot (IMGCELOGENABLE=1) Enable Full Kernel Mode (no IMGNOTALLKMODE=1) Enable Kernel Debugger (no IMGNODEBUGGER=1) Enable KITL (no IMGNOKITL=1) Enable Profiling (IMGPROFILER=1) Enable Ship Build (WINCESHIP=1) Flush tracked events to Release Directory (IMGAUTOFLUSH=1) Run-time Image Can be Larger than 32 MB (IMGRAM64=1) Use XCOPY instead of links to populate release directory (BUILDREL_L Write Run-time Image to Flash Memory (IMGFLASH=1)		
OK Cancel		

Figure 4-9 Removing KITL Setting in the Platform Settings Window

- 8. Enable Clean Before Building, Copy Files to Release Directory After Build and Make Run-Time Image After Build if they are not enabled in the Build OS menu on the Platform Builder window.
- 9. On the Build OS menu, click Build and Sysgen as shown in figure 4-6 to build the Eboot image.





Figure 4-10 Build and Sysgen

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



Figure 4-11 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.



11. After completion of build process, following messages appear as shown below. EBOOT.nb0, EBOOT.bin, STEPLDR.nb0, STEPLDR.bin, NK.bin and NK.nb0 is now available in X:\WINCE500\PBWorkspaces\[platform name]\RelDir\SMDK2450_ARMV4I_Release directory.



Figure 4-12 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.

- 1. Before you download the WinCE image through the USB, you must have USB monitor image in your AMD Flash.
- 2. Set the Jumpers to use crystal for clock source.



Figure 5-1 Jumper Setting for crystal

3. Set the Jumpers for memory type



Figure 5-2 Jumper Setting for SDR Memory







*DC means "Don,t care"

Figure 5-3 Jumper Setting for DDR Memory

 * NOTE : After set memory type jumper, check memory config which is defined is correct in platform\smdk2450\src\inc\s3c2450.inc file

4. Set the Switches on SMDK2450 board as shown below for AMD flash boot.



*DC means "Don,t care"

*DC means "Don,t care"

Figure 5-4 Switch Setting on CPU board for AMD flash boot

- 5. Please install the USB Driver and DNW application on your host PC.
- 6. After installing the USB driver, run **dnw.exe** on the host PC. The following window appears on your screen.





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DNW v0.50C - For WinCE [COM:x][USB:x]	
Serial Port USB Port Configuration Help	
	<u>^</u>
	~

Figure 5-5 DNW Window



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7. 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 6-3, enter the download address as 0x30200000 and then click OK button.

Baud Rate	COM Port	ОК	
• 115200	COM 1	Cancel	
C 57600	C COM 2		
O 38400	C COM 3		
O 19200	C COM 4		
○ 14400			
O 9600			
USB Port Download Address 0×30200000			

Figure 5-6 UART/USB Options

8. On the Serial Port menu, click Connect. Switch ON the reference board and then press any key. The DNW window appears as shown in figure 6-4.





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DNW v0.50M - For WinCE [COM1,115200bps][USB:x][ADDR:0x30200000]		
Serial Port USB Port Configuration Help		
	^	
++ S3C2450X USB Downloader ver R0.0 20080221 + ++		
mSDR MPLL=534.00MHz, ARMCLK=534.00MHz (1:2:4), HCLK=133.50MHz, PCLK=66.75MHz		
USB: IN_ENDPOINT:1 OUT_ENDPOINT:3		
FORMAT: <addr(data):4>+<size(n+10):4>+<data:n>+<cs:2></cs:2></data:n></size(n+10):4></addr(data):4>		
NOTE: 1. Power off/on or press the reset button for 1 sec		
in order to get a valid USB device address.		
2. For additional menu, Press any key.		
reset status register = 00000001		
Power-on Reset		
USB host is not connected yet.		
USB host is connected. Waiting a download.		
	~	

Figure 5-7 DNW Window after Board Power ON

9. Enter 2 to check whether SDRAM can Read and Write. Now DNW window appears as shown below.



Figure 5-8 SDRAM Test



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

□ DNW v0.50C - For WinCE [COM1,115200bps][USB:OK] □	
Serial Port USB Port Configuration Help	
###### Select Menu ###### [0] Download & Run [1] Download Only [2] Test SDRAM [3] Change The Console UART Ch. [4] Clear unused area in SDRAM Download&Run is selected.	
USB host is connected. Waiting a download.	~

Figure 5-9 Download & Run

11. On the USB Port menu, click Transmit and the following window appears on your screen. Select NK.nb0 from X:\WINCE500\PBWorkspaces\[platform name]\RelDir\smdk2450_ARMV4I_Release directory and then click Open button.

Open			? 🗙
Look jn: My Recent Documents Desktop My Documents My Computer	 smdk2443_/ ocoA o4oc o41D o404 o407 o409 o410 o411 o412 o413 o416 o804 intlfile intlfile postproc 	ARMV4I_Release	
My Network Places	File <u>n</u> ame: Files of <u>typ</u> e:	NK.nb0 BIN Files (*.bin;*.nb0;*.lst;*.ubi) C]pen ancel

Figure 5-10 Selecting NK.nb0 for Download







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12. Once download begins, a download status bar appears on your screen as shown in figure 6-8.



Figure 5-11 Downloading Status of NK.nb0

13. After NK.nb0 download is over, Windows CE 5.0 boots on the target Board.





6 Fusing Windows CE Image on SMC via USB (using UBOOT)

In this chapter, you can understand how to fuse the stepldr.nb0, eboot.bin and OS image to the SOP NAND via USB download.

- 1. Before you download the WinCE image through the Ehternet, you must have USB monitor image in your AMD Flash.
- 2. Set the Jumpers for clock source.



Figure 6-1 Jumper Setting for crystal

3. Set the Jumpers for memory type



Figure 6-2 Jumper Setting for SDR Memory





*DC means "Don,t care"

Figure 6-3 Jumper Setting for DDR Memory

 * NOTE : After set memory type jumper, check memory config which is defined is correct in platform\smdk2450\src\inc\s3c2450.inc file

4. Set the Jumpers on SMDK2450 board as shown below for AMD flash boot **5.**



Figure 6-4 Switch Setting on CPU board for AMD flash boot

- 6. Please install the USB Driver and DNW application on your host PC.
- 7. Run dnw.exe on the host PC. The following window appears on your screen.





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🚥 DNW v0.50J - For W	VinCE [COM:x][U	SB:x] [ADDR:0x30000000]	
Serial Port USB Port Co	nfiguration Help		
			<u>^</u>
			~

Figure 6-5 DNW Window



8. 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 6-2, enter the download address as 0x30038000 and then click OK button.

UART/USB Optic	ns	
Serial Port Baud Rate	COM Port	ОК
 115200 57600 38400 19200 14400 9600 	 ○ COM 1 ○ COM 2 ○ COM 3 ○ COM 4 	Cancel
USB Port Download Add	iress 0×3003	8000

Figure 6-6 UART/USB Options

9. On the Serial Port menu, click Connect. Switch ON the reference board. The DNW window appears as shown in figure 6-3.





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📟 DNW v0.50M - For WinCE [COM1,115200bps][USB:x][ADDR:0x30200000]	
Serial Port USB Port Configuration Help	
	^
\$3C2450X USB Downloader ver K0.0 20080221 +	
mSDR	
MPLL=534.00MHz, ARMCLK=534.00MHz (1:2:4), HCLK=133.50MHz, PCLK=66.75MHz	
USB: IN_ENDPOINT:1 OUT_ENDPOINT:3	
FORMAT: <addr(data):4>+<size(n+10):4>+<data:n>+<cs:2></cs:2></data:n></size(n+10):4></addr(data):4>	
NOTE: 1. Power off/on or press the reset button for 1 sec	
in order to get a valid USB device address.	
2. For additional menu, Press any key.	
reset status register = 00000001	
Power-on Reset	
USB host is not connected uet.	
USB host is connected. Waiting a download.	
	~

Figure 6-7 DNW Window after Board Power ON

10. On the USB Port menu, click Transmit and the following window appears on your screen. Select EBOOT.nb0 file from

X:\WINCE500\PBWorkspaces\[platform name]\RelDir\smdk2450_ARMV4I_Release directory and then click Open button.



열기				? 🛛
찾는 위치(!): 내 최근 문서 나당 화면 나당 화면 내 문서 내 컴퓨터 내 네트워크 환경	 smdk2443_ARI OCOA O40C O41D O404 O407 O409 O410 O411 O412 O413 O416 O804 intlfile intltrns 	 mV4I_Release postproc unfiltered usasnap EBOOT,bin EBOOT,nb0 NK,bin NK,nb0 STEPLDR,bin STEPLDR,nb0 UsbGetFile,bin]-
	파일 이름(<u>N</u>): 파일 형식(<u>T</u>):	EBOOT,nb0 BIN Files (*,bin;*,nb0;*,lst;*,ubi)	•	열기(<u>0</u>) 취소

Figure 6-8 Selecting EBOOT.nb0 for Download

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



Figure 6-9 After EBOOT.nb0 Download





- **12.** Please hit the **SPACE BAR** key to view the current Boot Loader Configuration. Configure the Ethernet Boot loader as follows by entering the respective options:
 - Enter [6] to make Program disk Image into SmartMedia card: ENABLED
 - Enter [W] to Write Configuration Right Now
 - Enter [E] to Erase Block 0
 - Enter [U] to Download image now(USB)

🔤 DNW v0.50J - For WinCE [COM1,115200bps][USB:OK][ADDR:0x30038000] 📃 🗖 [×
Serial Port USB Port Configuration Help	
Initiating image launch in 3 seconds.	^
Ethernet Boot Loader Configuration:	
0) IP address: 12.23.0.2	
1) Subnet mask: 255.255.0	
2) DHCP: Disabled	
3) Boot delay: 5 seconds	
4) Reset to factory default configuration	
S) Startup Image Lionan Entorna	
7) Program CS8900 MHC address (11.22.33.44:55:66)	
8) Kernel Debugger: ENABLED	
9) Format Boot Media for BinFS	
Erase Reserved Block	
F) Low-level format the Smart Media card	
D) Download image now	
L) LAUNCH existing Boot Media image	
R) Read Configuration	
U) Write Configuration Right New	
w) write configuration Kiynt Now	≣
Enter your selection:	~

Figure 6-10 USB Boot Loader Configurations

13. On the USB Port menu click UBOOT and the following window appears on your screen. Select StepIdr.nb0 from

X:\WINCE500\PBWorkspaces\[platform name]\RelDir\smdk2450_ARMV4I_Release directory and then click Open button.



열기					? 🔀
찾는 위치(!): 내 최근 문서 나당 화면 나당 화면 내 문서 내 컴퓨터	 smdk2443_AR 0COA 040C 041D 0404 0407 0409 0410 0411 0412 0413 0416 0804 intfile 	MV4L_Release postproc unfiltered usasnap EBOOT,bin EBOOT,nb0 NK,bin NK,nb0 STEPLDR,bin STEPLDR,nb0 ubootimage,ubi	-] ← Ē) 💣 📰•	
내 네트워크 환경	[] intltrns 파일 이름(<u>N</u>): 파일 형식(<u>T</u>):	STEPLDR,nb0 BIN Files (*,bin;*,nb0;*,lst;*,ubi)	• •	열기(<u>0</u>) 취소

Figure 6-11 Selecting StepIdr.nb0 for Download

14. You can see the following messages on the DNW window after StepIdr.nb0 download is over.



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





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Reset the board and repeat step 6 to 8. Configure the Ethernet Boot loader as follows by entering the respective options:

- Enter [6] to make Program disk Image into SmartMedia card: ENABLED
- Enter [W] to Write Configuration Right Now
- Enter [U] to Download image now(USB)

🔤 DNW v0.50J - For WinCE [COM1,115200bps][USB:OK][ADDR:0x30038000] 🔄 🗖	X
Serial Port USB Port Configuration Help	
Initiating image launch in 3 seconds.	^
Ethernet Boot Loader Configuration:	
0) IP address: 12 23 0 2	
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	
7) Program UISK IMaye INCO SMarcheula Caru: ENaDieu 7) Program CS8900 MOC address (11:22:33:JJ:55:66)	
8) Kernel Debugger: ENABLED	
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	
R) Read Configuration	
U) COWNLOAD image now(USB)	
W) Write Configuration Right Now	
Enter your selection:	~

Figure 6-13 USB Boot Loader Configurations

15. On the USB Port menu click UBOOT and the following window appears on your screen. Select Eboot.bin from X:\WINCE500\PBWorkspaces\[platform name]\RelDir\smdk2450_ARMV4I_Release directory and then click Open button.



열기					? 🛛
찾는 위치(!): 내 최근 문서 나당 화면 나당 화면 내 문서 내 컴퓨터 내 네트워크 환경	 smdk2443_ARI OCOA O40C O41D O404 O407 O409 O410 O411 O412 O413 O416 O804 intlfile intltrns 	 MV4I_Release postproc unfiltered usasnap EBOOT.bin EBOOT.nb0 NK, bin NK, nb0 STEPLDR, bin STEPLDR, nb0 UsbGetFile, bin] 🗕 🔁 (* =	
	파일 이름(<u>N</u>): 파일 형식(<u>T</u>):	EBOOT,bin BIN Files (*,bin;*,nb0;*,lst;*,ubi)	ĝ	•	열기(<u>0</u>) 취소

Figure 6-14 Selecting EBOOT.bin for Download

16. You can see the following messages on the DNW window after **Eboot.bin** download is over.

INW VU.SUU - FOR WINCE [COMT, ITS2000ps][USB:OK][ADDR:UX30038000] - C	٢.
Serial Port USB Port Configuration Help	
dwLoadAddress: 0x80200000 dwJumpAddress: 0x8022BC2C dwStoreOffset: 0x0 sgList[0].dwSector: 0x900	^
sgList[0].dwLength: 0x903F } chainInfo.dwLoadAddress: 0X00000000 chainInfo.dwLoadAddress: 0X00000000	
chainInfo.dwFlashHodress: 0x00000000 chainInfo.dwLength: 0X00000000 }	
INFO: Eboot image stored to Smart Media. Please Reboot. Halting	~

Figure 6-15 Messages via UART Port after eboot.bin Download





SMDK2450 Installation Manual

Reset the board and repeat step 6 to 8. Configure the USB Boot loader as follows by entering the respective options:

- Enter [6] to make Program disk Image into SmartMedia card: ENABLED
- Enter [5] to make Startup image: LAUNCH EXISTING
- Enter [W] to Write Configuration Right Now
- Enter [F] to Erase Block from 2 to 18 for fusing Eboot.bin
- Enter [9] to Make Bin File system on the NAND
- Enter [U] to Download image now(USB)

📟 DNW v0.50J - For WinCE [COM1,115200bps][USB:OK][ADDR:0x30038000] 📃 🗖	×
Serial Port USB Port Configuration Help	
Initiating image launch in 3 seconds. Ethernet Boot Loader Configuration:	^
0) IP address: 12.23.0.2	
1) Subnet mask: 255.255.255.0	
2) DHCP: Disabled	
3) Boot delay: 5 seconds	
4) Reset to factory default configuration E) Startup image: LAUNCH EXISTING	
5) Startup IMade, Chubba Parsina An Program disk image into SmartMedia card: Enabled	
7) Program CS0900 MAC address (11:22:00:44.55:00)	
8) Kernel Debugger: ENABLED	
9) Format Boot Media for BinFS	
E) Erase Keserved Block	
B) Mark Bad Block at Reserved Block	
t) Low-level format the Smart Media card	
D) DOWNIOAd Image now	
L) LHUNCH EXISTING BOOL MEUIA IMAYE R) Read Configuration	
UI) DOWNLOAD image now(USB)	
W) Write Configuration Right Now	
	≡
Enter your selection:	~

Figure 6-16 USB Boot Loader Configurations

17. On the USB Port menu click UBOOT and the following window appears on your screen. Select NK.bin from X:\WINCE500\PBWorkspaces\[platform name]\RelDir\smdk2450_ARMV4I_Release directory and then click Open button.



열기				? 🛛
찾는 위치()): 내 최근 문서 나당 화면	 smdk2443_AR OCOA O40C O41D O404 O407 O409 O410 	MV4I_Release	← 🗈 💣 패-	
내 문서 내 컴퓨터 내 컴퓨터 내 네트워크 환경	0410 0411 0412 0413 0416 0804 intlfile intltrns	I NK, nbU I STEPLDR, bin I STEPLDR, nb0 I UsbGetFile, bin		
	파일 이름(<u>N</u>): 파일 형식(<u>T</u>):	NK,bin BIN Files (*,bin;*,nb0;*,lst;*,ubi)	• •	열기(<u>0</u>) 취소

Figure 6-17 Selecting NK.bin for Download



Figure 6-18 Messages via UART Port during NK.bin Download

18. You can see the following messages on the DNW window during NK.bin download. After NK.bin download is over, Windows CE 5.0 boots on the target Board. Power OFF the board and Set CFG jumpers on the 2450 evaluation board as below.

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Figure 6-19 Switch setting for Pure NAND card booting

Power ON the board and you can see Windows CE 5.0 boots on the target Board.



7 Building and Running NK.bin 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 **Platform** menu in the platform builder window, click **Settings**... as shown in figure 5-34.



Figure 7-1 Platform Settings 1



2. The Platform Settings window appears on your screen. Select nk.bin on File name for run-time image.

Platform Settings
Configuration:
Samsung SMDK2450: ARMV4I_Release 🔹
General Locale Build Options Environment Custom Build Actions Image Settings Release directory: %PBWORKSPACEROOT%WRelDirWsmdk2450_ARMV4I_Release Build type: Debug • Release Platform OS build tree (WINCEROOT): Override
C:\WINCE500
File name for run-time image:
OK Cancel



3. The Platform Settings window appears on your screen. Check square boxes Enable CE Target Control Support (SYSGEN_SHELL=1) and Enable KITL (no IMGNOKITL=1) and Enable Kernel Debugger(no IMGNODEBUFFER=1) in the Build Options tab and then click OK button



Platform Settings
Configuration:
Samsung SMDK245U: ARMV4LHelease
General Locale Build Options Environment Custom Build Actions Image Settings
 Buffer tracked events in RAM (IMGOSCAPTURE=1) Enable CE Target Control Support (SYSGEN_SHELL=1) Enable Eboot Space in Memory (IMGEBOOT=1) Enable Event Tracking During Boot (IMGCELOGENABLE=1) Enable Full Kernel Mode (no IMGNOTALLKMODE=1) Enable Kernel Debugger (no IMGNODEBUGGER=1) Enable KITL (no IMGNOKITL=1) Enable Profiling (IMGPROFILER=1) Enable Ship Build (WINCESHIP=1) Flush tracked events to Release Directory (IMGAUTOFLUSH=1) Run-time Image Can be Larger than 32 MB (IMGRAM64=1) Use XCOPY instead of links to populate release directory (BUILDREL_USE_COPY: Write Run-time Image to Flash Memory (IMGFLASH=1)
OK Cancel

Figure 7-3 Platform Setting for KITL





7.1 USB Serial KITL

- 1. To enable WinCE image with USB Serial KITL, you must do the following:
 - X:\WINCE500\PLATFORM\SMDK2450\smdk2450.bat file must have the following settings. set BSP_NOCS8900= set BSP_NOSERIAL= set BSP_NOUSBFN=1

set BSP_KITL=NONE rem set BSP_KITL=USBSERIAL

2. On the Build OS menu in platform builder window, click Build and Sysgen as shown in figure 5-37 to build the WinCE image with USB Serial KITL.



Figure 7-4 Build and Sysgen

AP Development, System LSI.



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, NK.nb0 is generated in X:\WINCE500\PBWorkspaces\[platform name]\RelDir\smdk2450_ARMV4I_Release directory.
- 4. On the Target menu in the Platform Builder window, click Connectivity Options... as shown below. Target Device Connectivity Options window appears on your screen. Select None from Download drop down menu box and USB from Transport drop down menu box as shown in figure 5-38.



Figure 7-5 Selecting Connectivity Options



👈 Targe	t Device Connectivity	Options	
Dev	ice Configuration Add Device Delete Device	<u>T</u> arget Device: CE Device	•
Serv	ice Configuration	Download: None	Settings
	Kernel Service Map	_	
	Service Status	T <u>r</u> ansport: USB	Settings
		(USBDevice) —]
		D <u>e</u> bugger: KdStub	Setting <u>s</u>
		_	
		<u>Apply</u> <u>C</u> lose	<u>H</u> elp
			11

Figure 7-6 Target Device Connectivity Options Window

1627841216859684

- 5. Click Apply button first and then click Close button.
- 6. Disable USB connection on PC ActiveSync Connection Manager.
- 7. Refer Chapter 6 to download and run the NK.nb0 image via USB.
- 8. You can see the following messages on the DNW window after NK.nb0 download is over.



🔤 DNW v0.50M - For WinCE [COM1,115200bps][USB:x][ADDR:0x30038000] 💿 💽 🗖 🔯	
Serial Port USB Port Configuration Help	
FORMAT: <addr(data):4>+<size(n+10):4>+<data:n>+<cs:2> NOTE: 1. Power off/on or press the reset button for 1 sec in order to get a valid USB device address. 2. For additional menu, Press any key.</cs:2></data:n></size(n+10):4></addr(data):4>	~
connected reset status register = 00000001 Power-on Reset USB host is not connected yet. USB host is connected. Waiting a download.	
Now, Downloading [ADDRESS:30200000h,TOTAL:27262986] RECEIVED FILE SIZE: 27262986 (31236.1KB/S,0.9S) RECEIVE FILE DONE !! 4 2004 at 18:25:00 ProcessorType=0926 Revision=5 sp_abt=ffff5000 sp_irq=ffff2800 sp_undef=ffffc800 OEMAddressTable = 80233024 DCache: 128 sets, 4 ways, 32 line size, 16384 size ICache: 128 sets, 4 ways, 32 line size, 16384 size	
FCLK:534000000, HCLK:133500000, PCLK:66750000 OALKitlStart : USB SERIAL KITL is enabeld. Call OALKitlInit : Wait for connecting	

Figure 7-7 Messages via UART Port after NK.nb0 Download

9. On the Target menu in Platform Builder window, click Attach Device as shown in figure 5-41.





Figure 7-8 Attach Device





10. USB Serial KITL gets connected. **Windows CE 5.0** boots on the target board and platform builder window appears as shown below in figure 5-42.

SMDK2450_KITL - Platform Builder [run]
Eile Edit View Project Platform Target Build Project Build OS Debug Tools Window Help
12 2 - 2 - 12 2 - 2 - 12 2 2 2 2 2 2 2 2 2
Samsung SMDK2450: ARMV4I_Release 💿 🙀 🖆 🖄 🗅 🖓 🗍 G 🗿 🗷 😰 🏠 🛛 CE Device
Windows CE>_
Context: Name Loaded symbols for 'C:WWINCE500WPBWORKSPACESWSMDR2450_KITLWRELDIRWS 8600 PID:e3f95082 TID:63914f32 MSIM: IM_ReadRegistry read KB 5 Loaded symbols for 'C:WWINCE500WPBWORKSPACESWSMDR2450_KITLWRELDIRWS Loaded symbols for 'C:WWINCE500WPBWORKSPACESWSMDR2450_KITLWRELDIRWS WIN10aded symbols for 'C:WWINCE500WPBWORKSPACESWSMDR2450_KITLWRELDIRWS 8685 PID:e3f95082 TID:63a7b9d2 CLK:66750000, BaudRate:9600, UBRD 8685 PID:e3f95082 TID:63a7b9d2 CLK:66750000, BaudRate:9600, UBRD 8685 PID:e3f95085 for 'C:WWINCE500WPBWORKSPACESWSMDR2450_KITLWRELDIRWS Loaded symbols for 'C:WWINCE500WPBWORKSPACESWSMDR2450_KITLWRELDIRWS WINDE3000000000000000000000000000000000000
Auto (Locals) Build Debug (Log) Find in Files 1) Find in Files 2 /
Ready Size: ~14508 KB 💆 🖼 🖻 🗉

Figure 7-9 Platform Builder Window after USB Serial KITL connected





