Installation Manual for S3C2450 (Windows CE 5.0)

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Revision History

Date	Version	Author	Amendment
2008.03.31	1.0	WINCE Team	Preliminary draft
2008.05.02	1.1	WINCE Team	

Contents

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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.

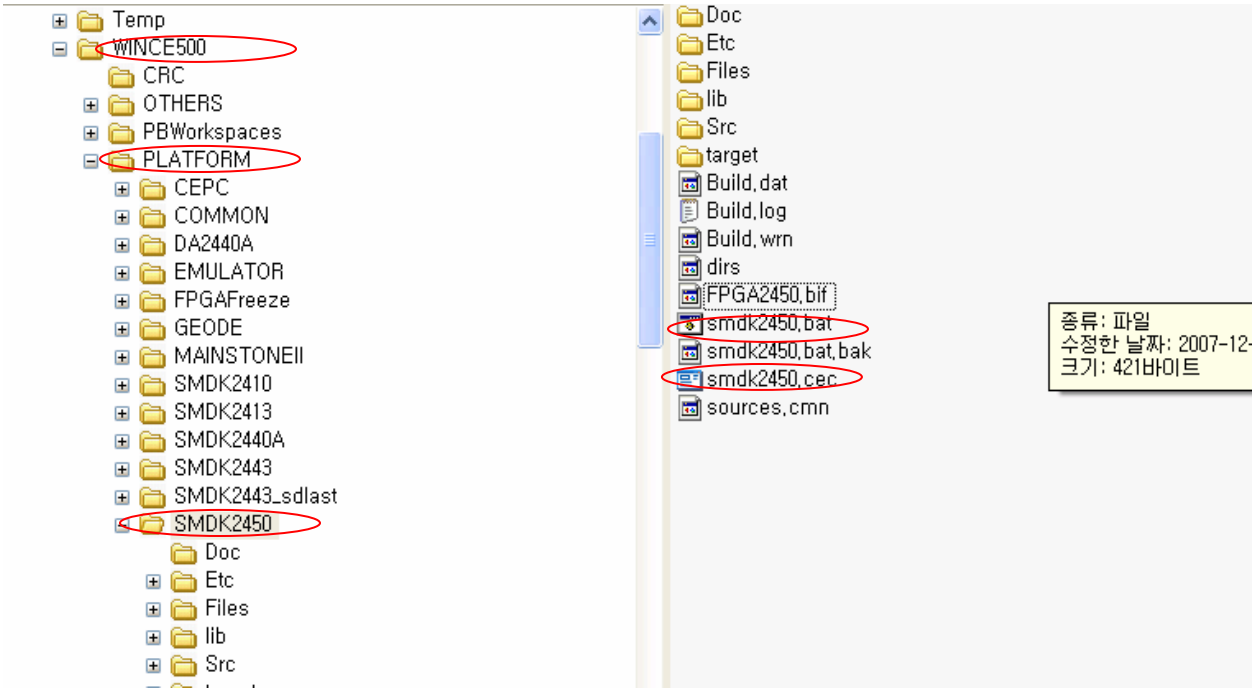


Figure 2-1 Source Files

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.

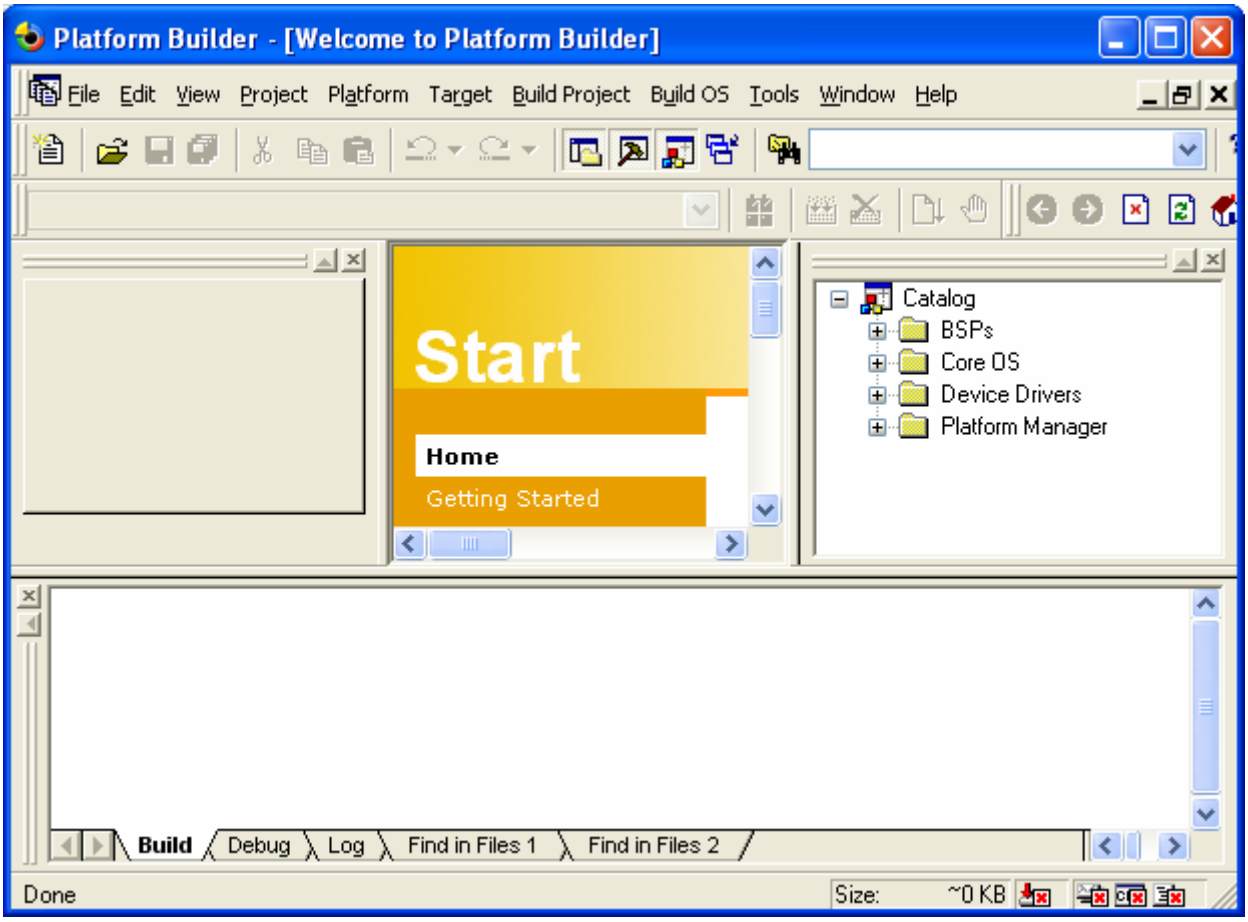


Figure 2-2 Platform Builder Window

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

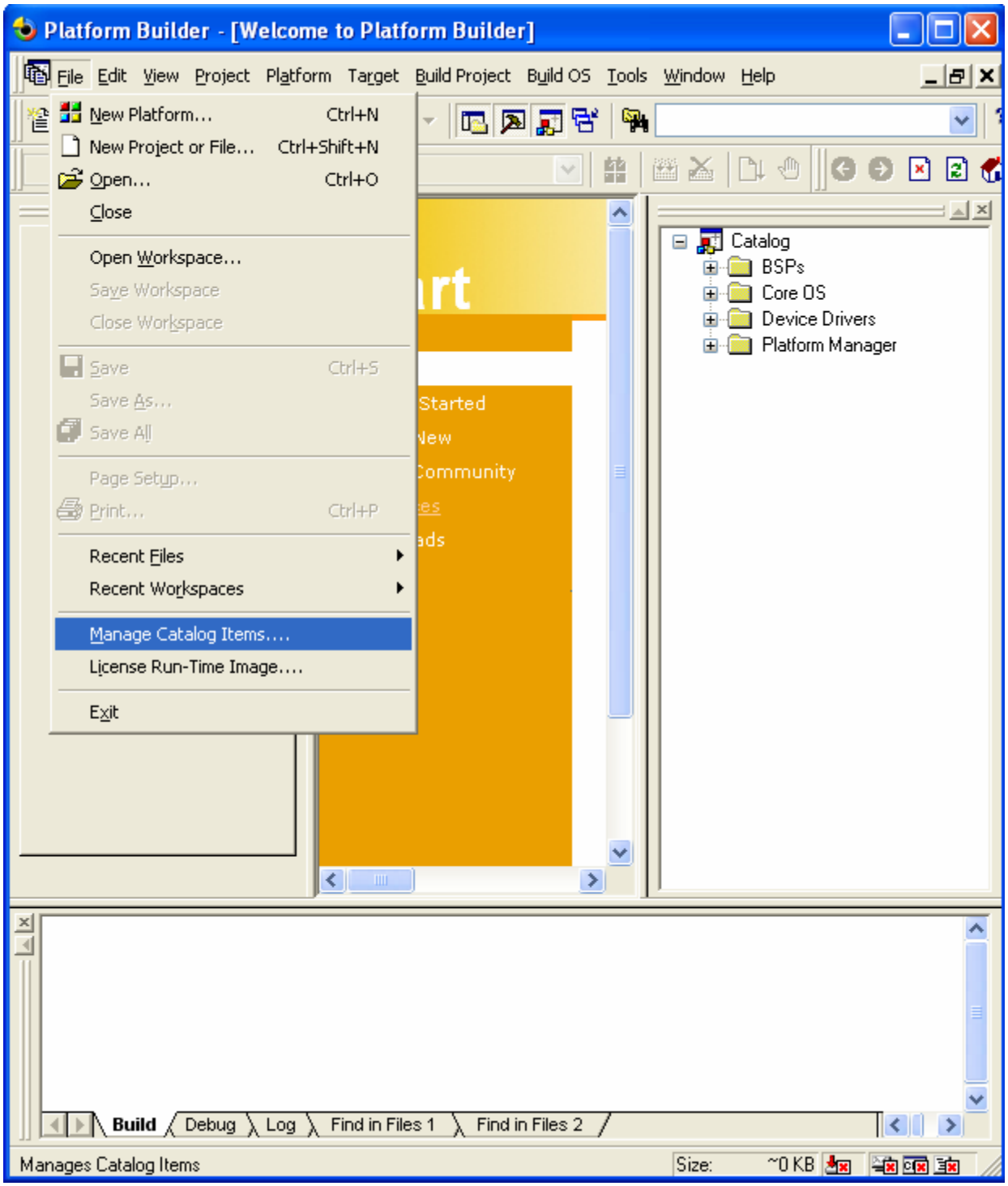


Figure 2-3 Opening Manage Catalog Items Window

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

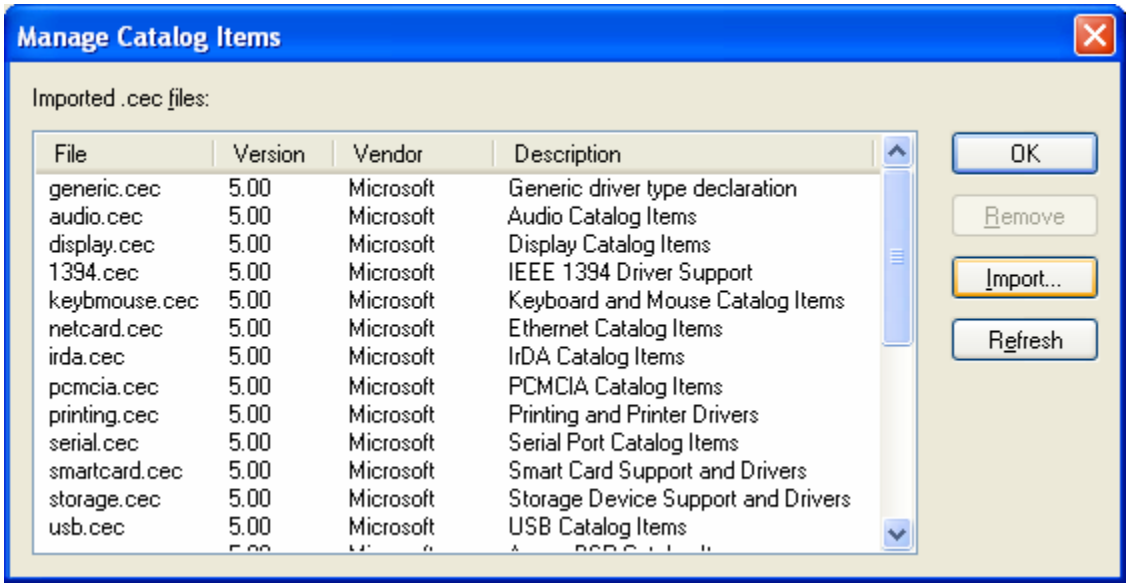


Figure 2-4 Manage Catalog Items Window

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

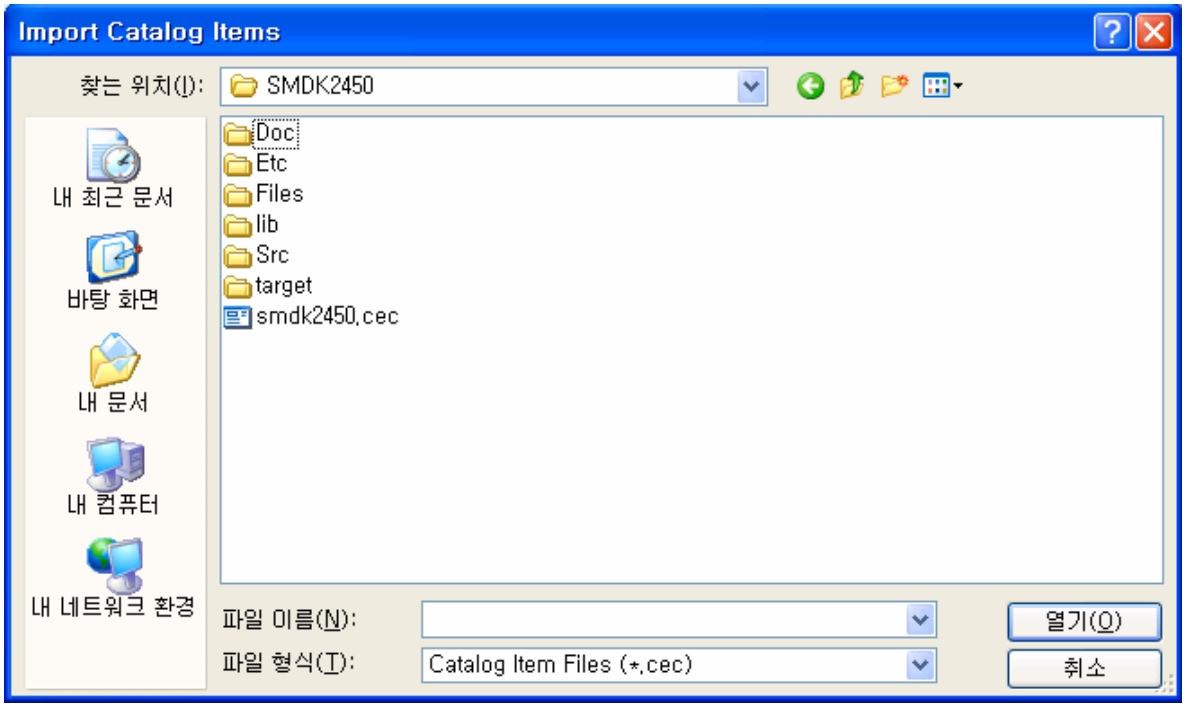


Figure 2-5 Import Catalog Items Window

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.

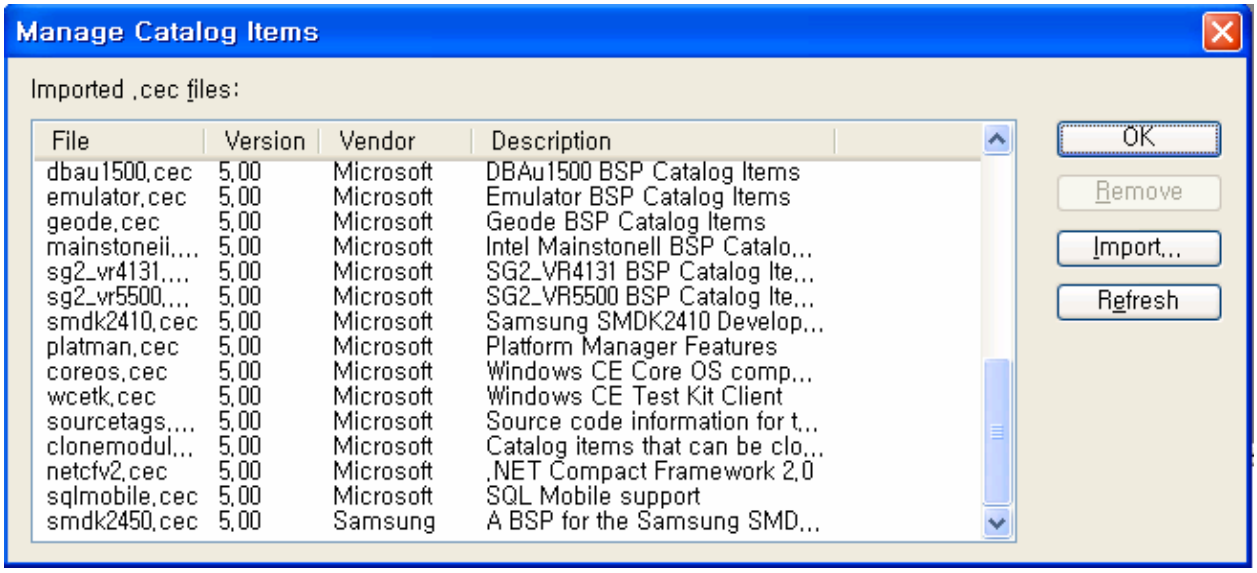


Figure 2-6 Catalog Items Window after Adding SMDK2450.cec File

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.

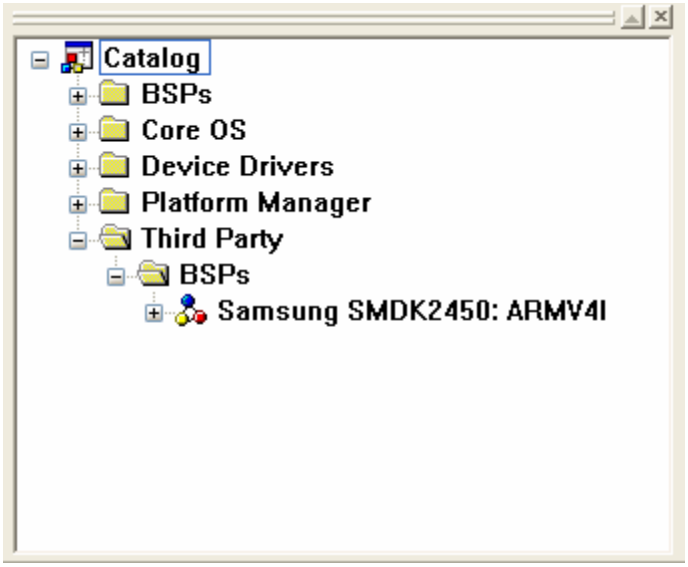


Figure 2-7 Catalog window in Platform Builder

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.

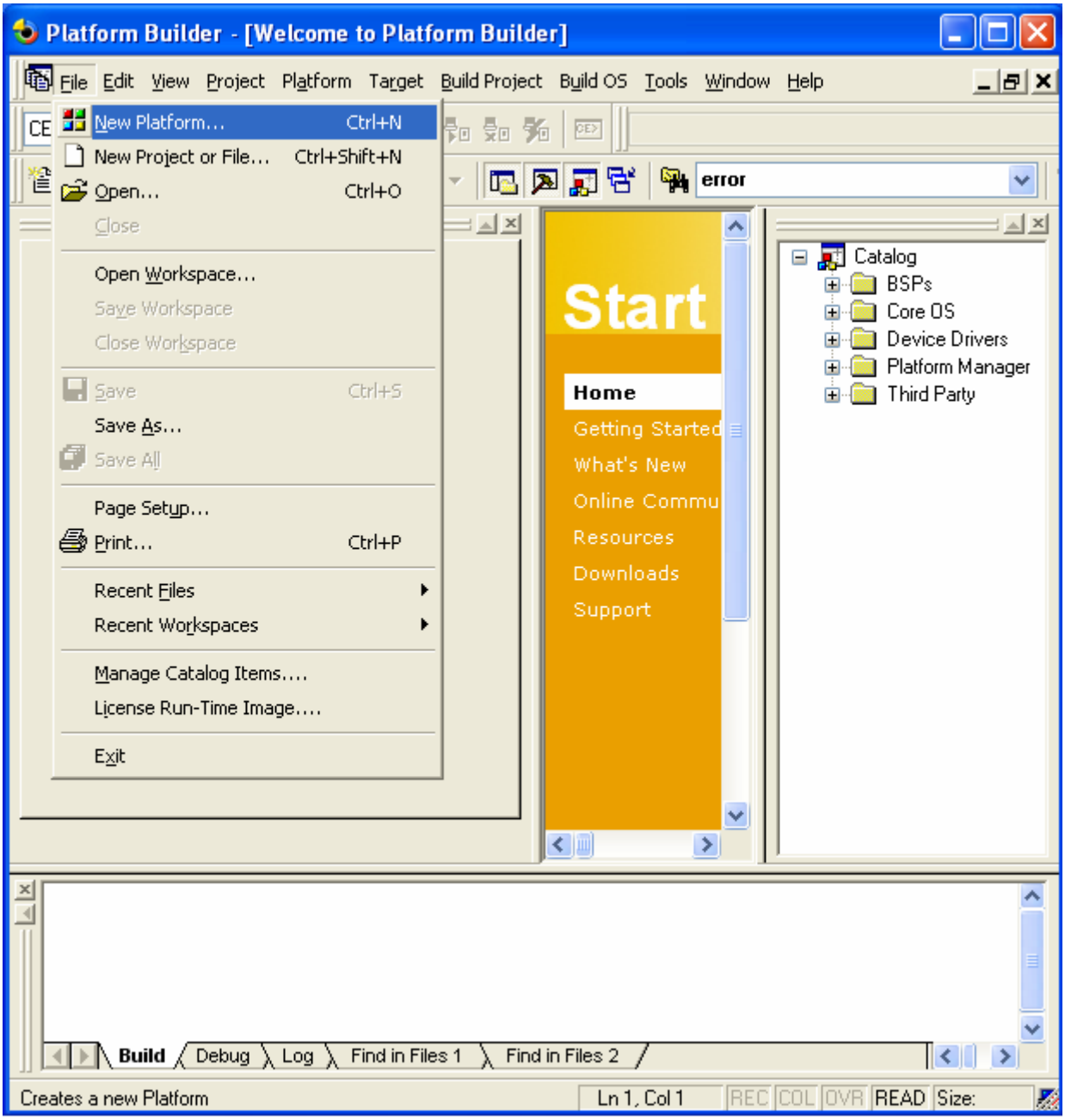


Figure 3-1 Creating New Platform

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

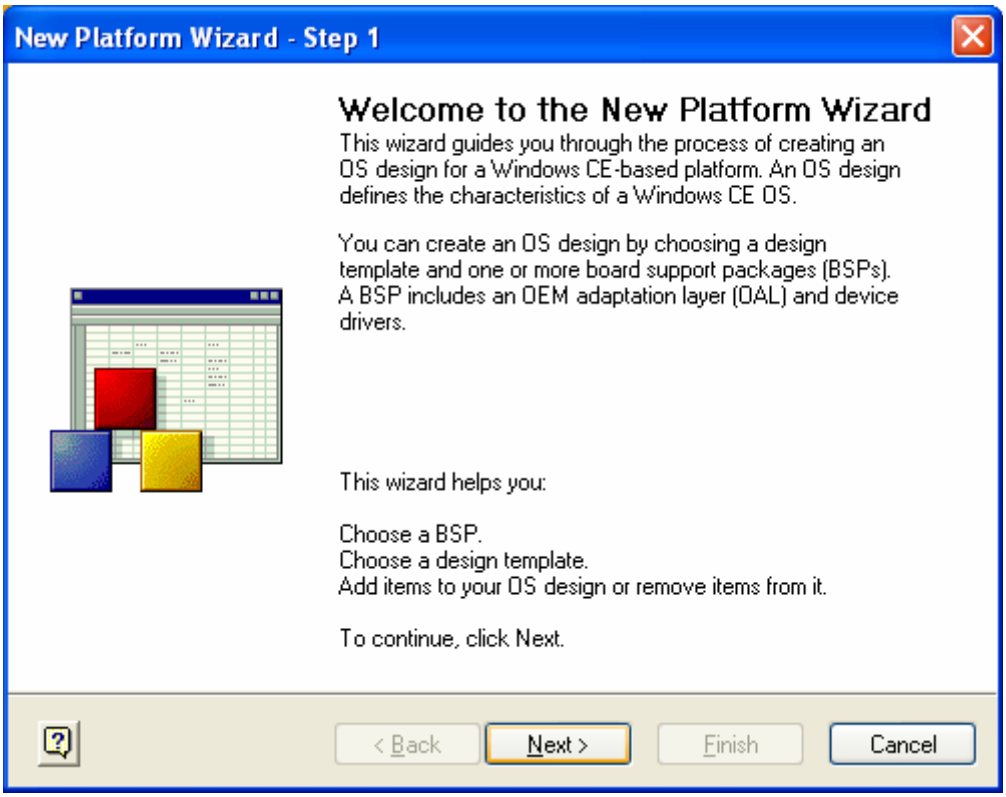


Figure 3-2 New Platform Wizard - Step 1

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

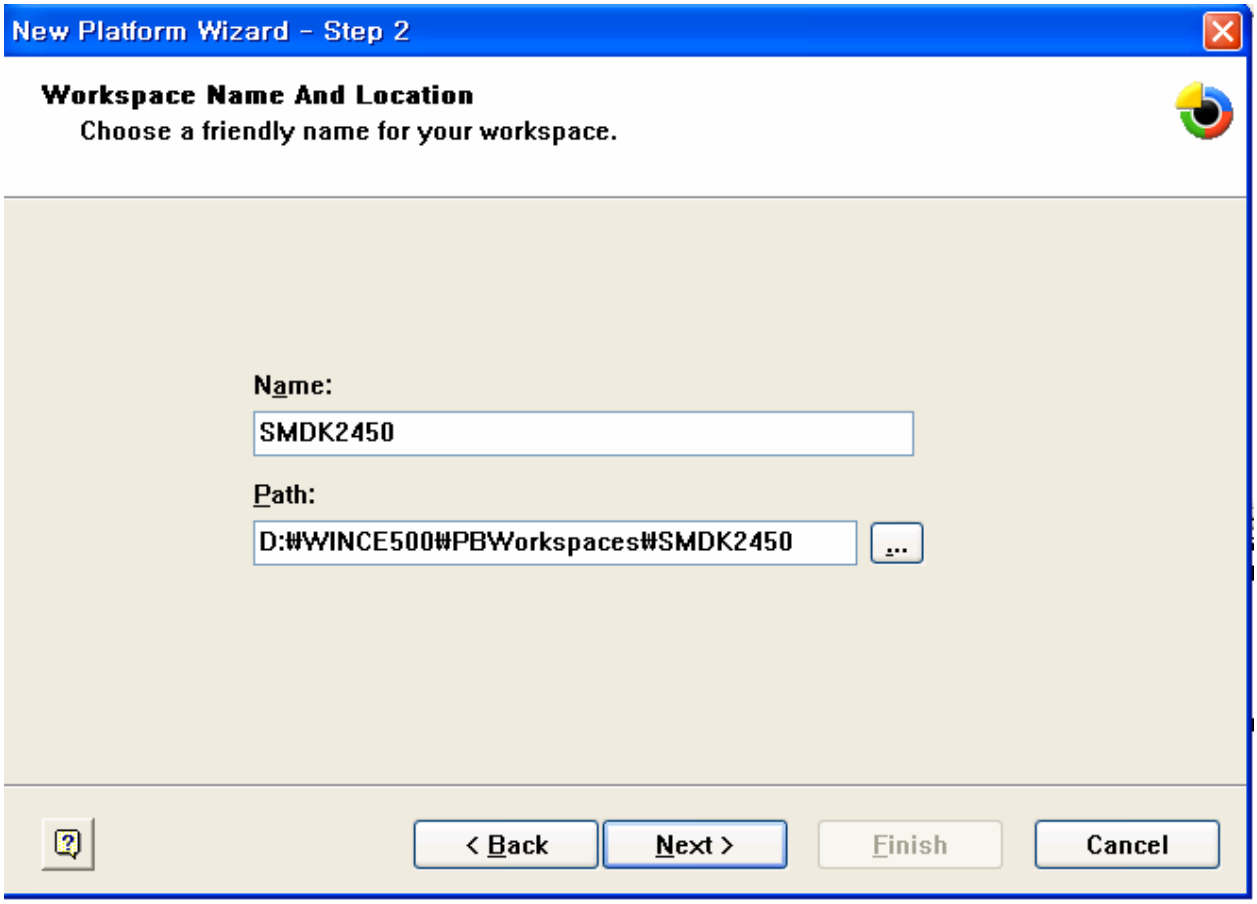


Figure 3-3 Platform Wizard - Step 2

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

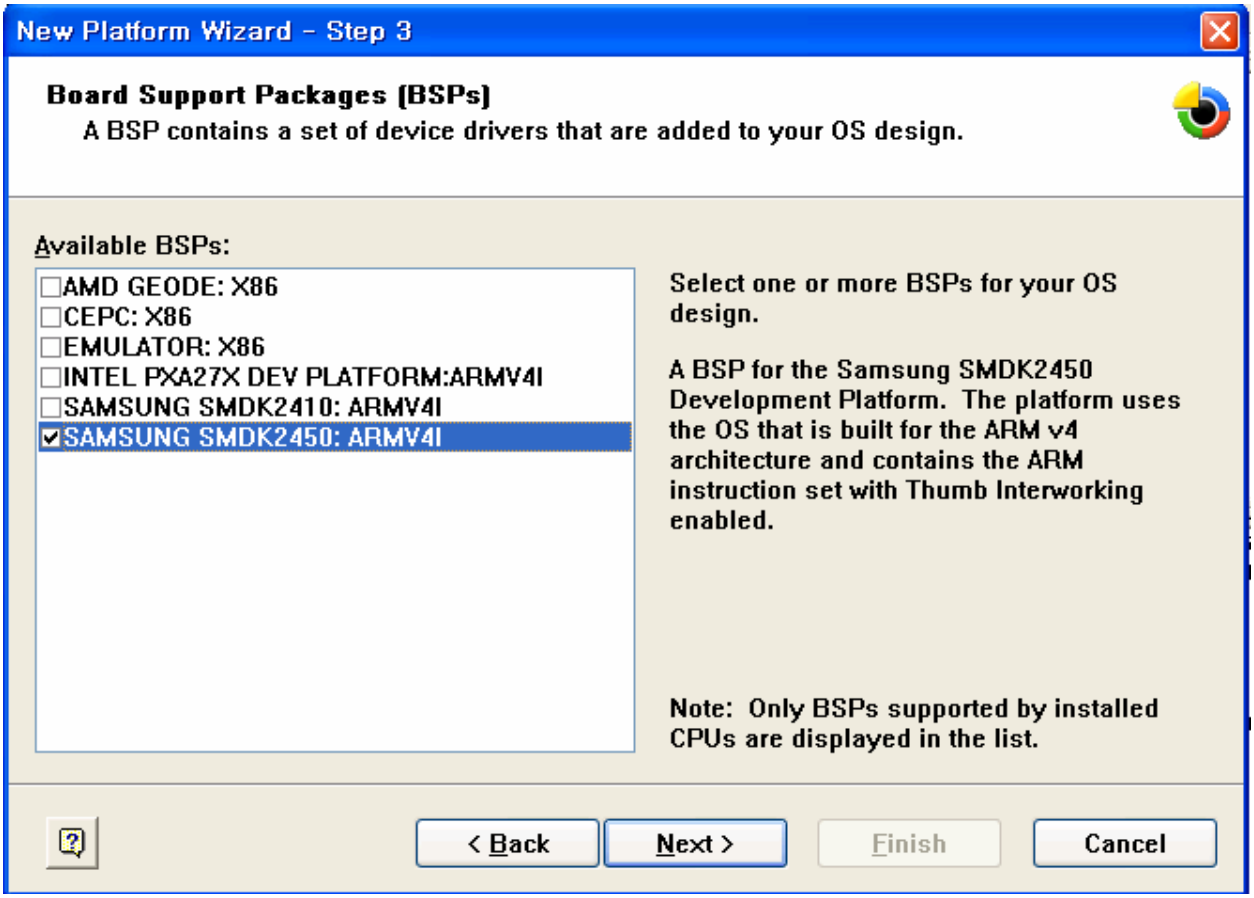


Figure 3-4 New Platform Wizard - Step 3

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

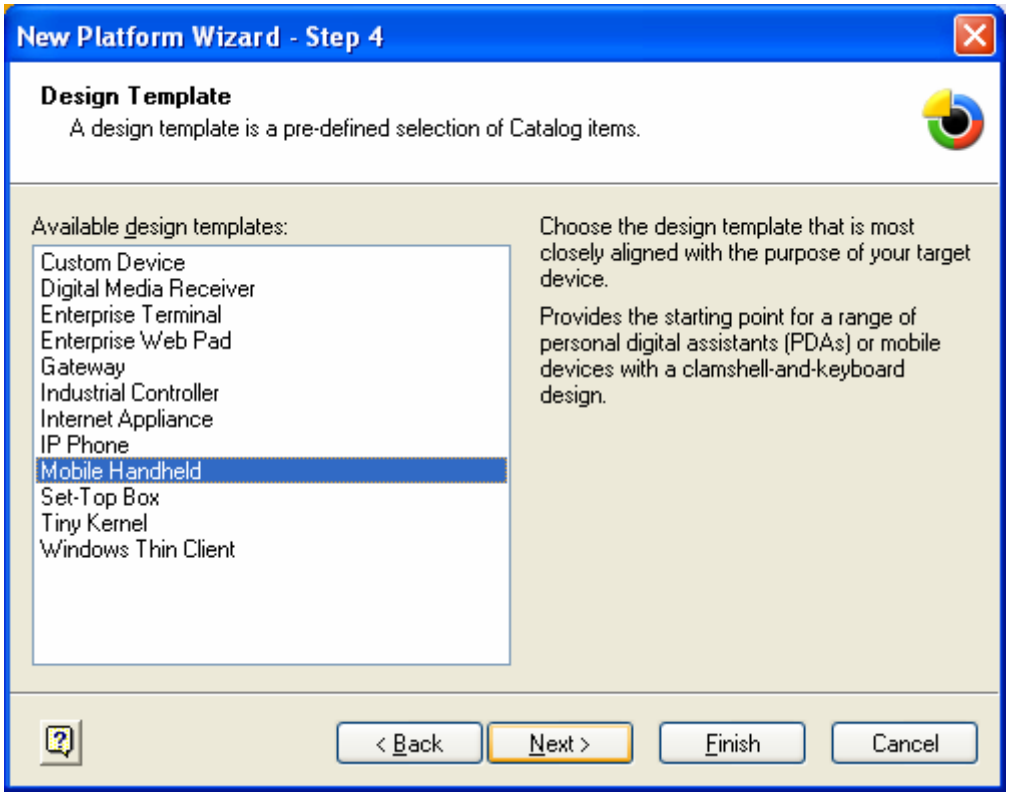


Figure 3-5 New Platform Wizard - Step 4

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.

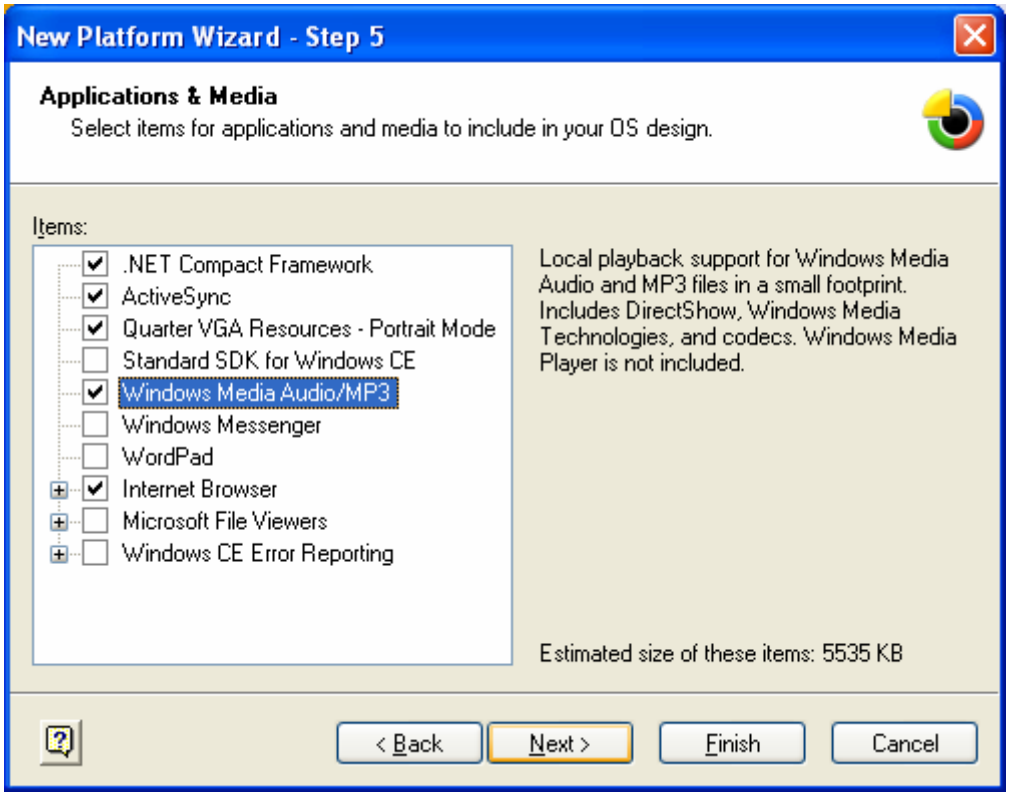


Figure 3-6 New Platform Wizard - Step 5

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

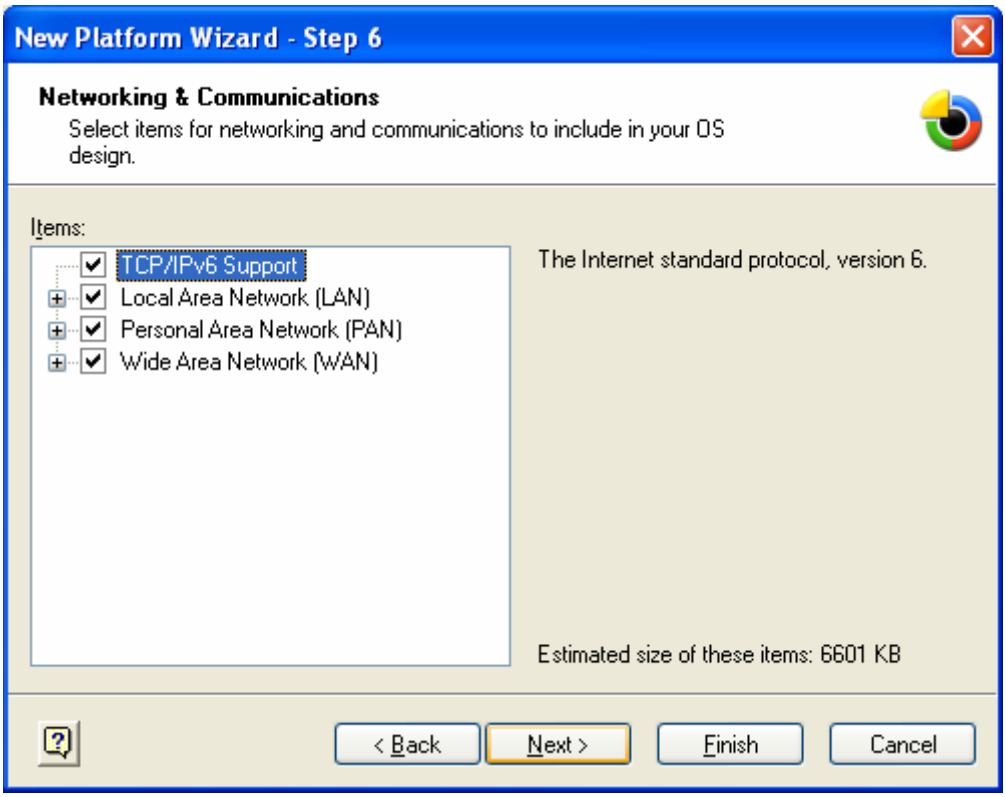


Figure 3-7 New Platform Wizard - Step 6

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

Figure 3-8 New Platform Wizard - Step 7

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

Figure 3-9 New Platform Wizard - Step 8

4 Building OS Image – Without KITL

4.1 Building NK.nb0(Single.bin) Image

1. set smdk2450.bat File

```
set BSP_NOUSB=
set BSP_NOUSBFN=
set BSP_NOCS8900=1
set BSP_NOBACKLIGHT=1
set BSP_NOBATTERY=1
set BSP_NONANDFS=1
set BSP_NOPCCARD=1


@REM  2450 can select MULTIPLEXIP or Single.bin
set IMGMULTIXIP=

@REM - To support PocketMory
call %_TARGETPLATROOT%\src\Whimory\wmrenv.bat
```

2. 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.

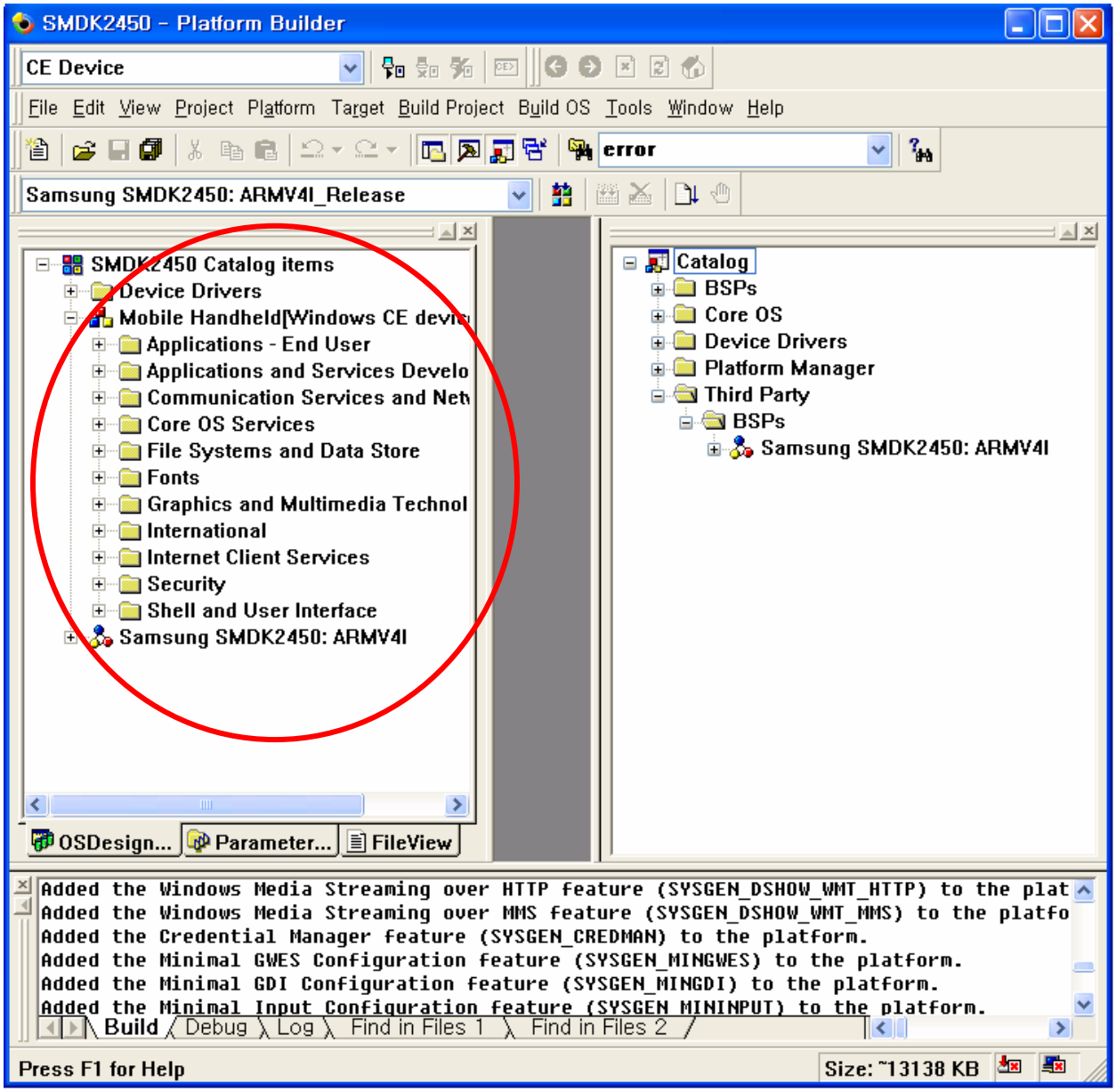


Figure 4-1 New Platform Items

3. 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.

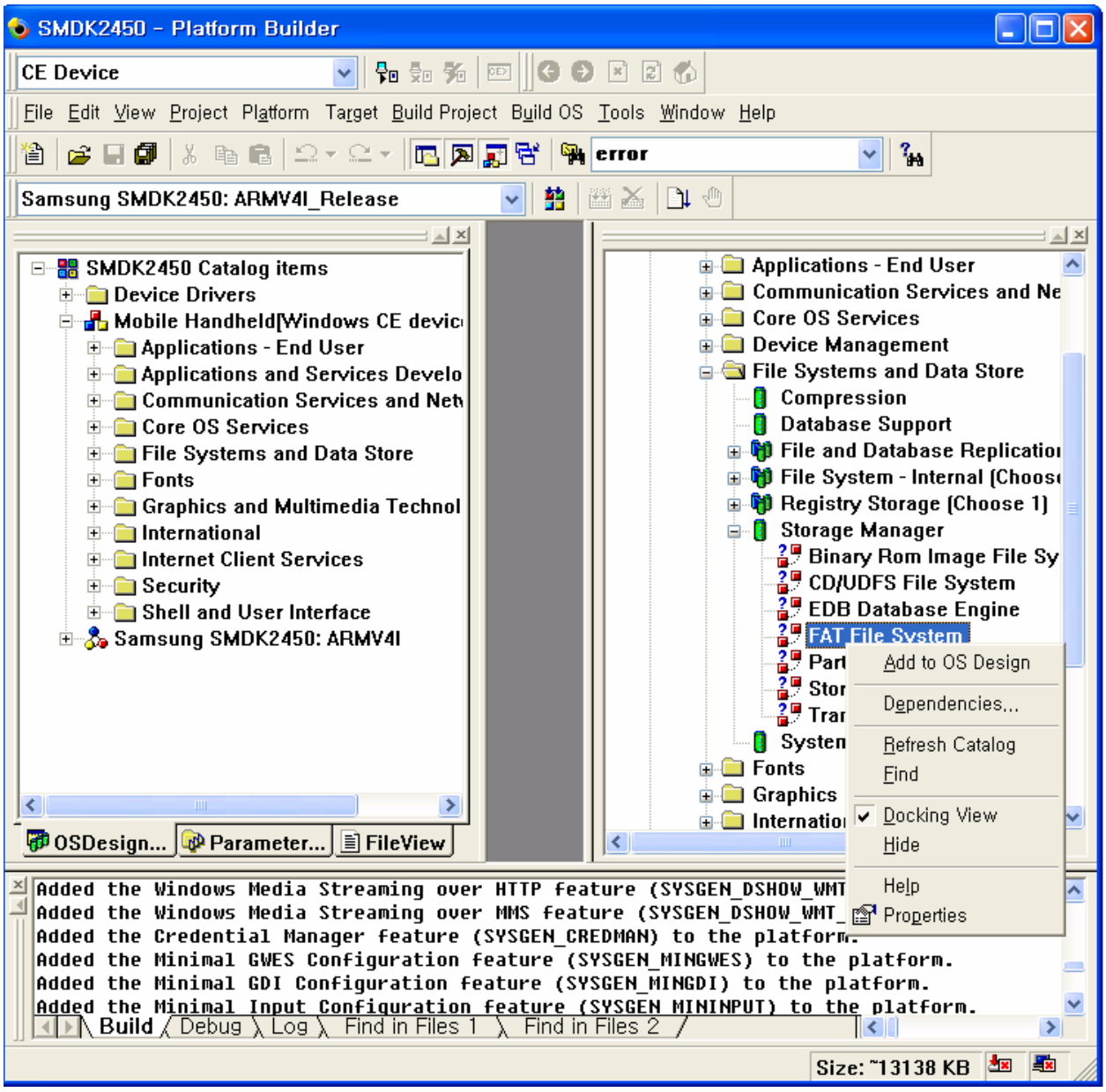


Figure 4-2 Adding FAT File System to the Platform

4. 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. [ ] of follow picture indicate one which you should add to OS Design.

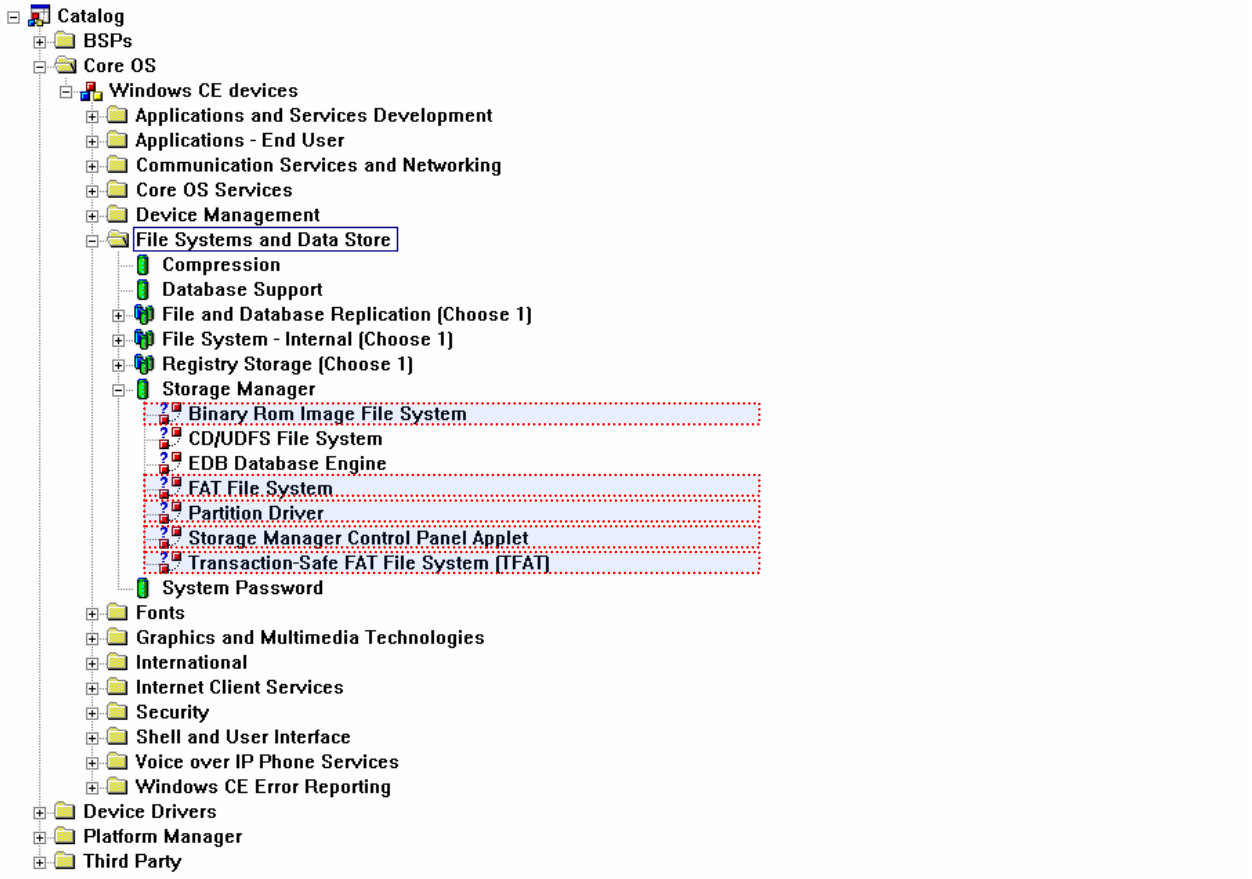


Figure 4-3 which you should add to OS Design

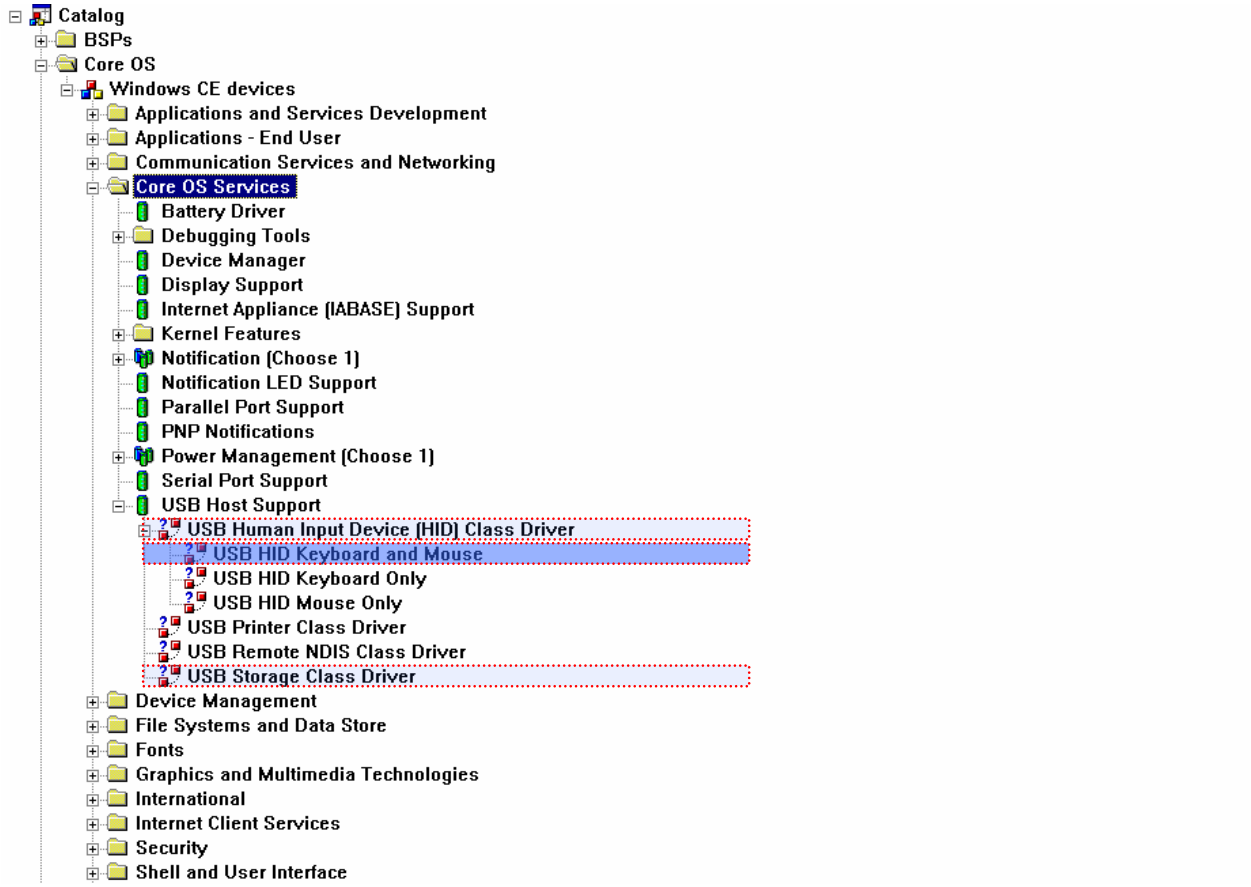


Figure 4-4 Somes which you should add to OS Design

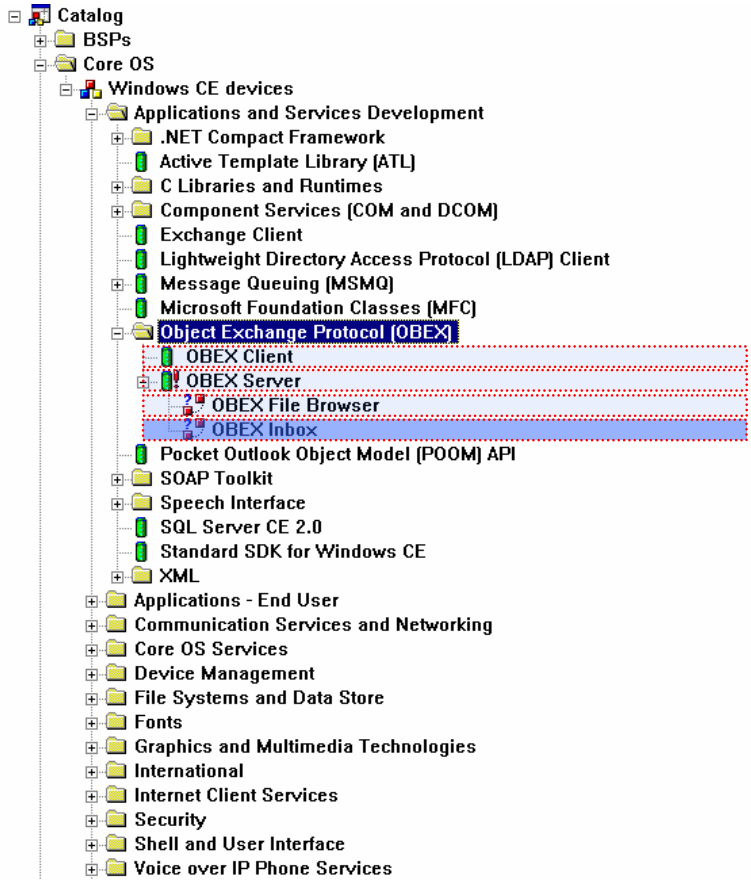


Figure 4-5 Some which you should add to OS Design

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.

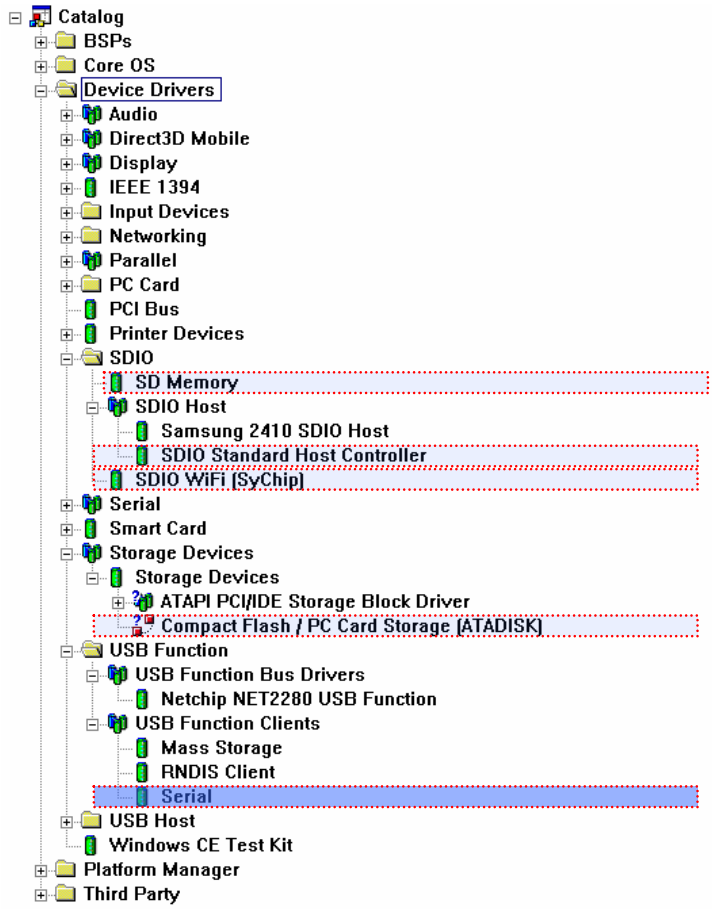


Figure 4-6 Some which you should add to OS Design

5. 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**.

6. On the **Platform** menu, click **Settings...** as shown in figure 4-7.

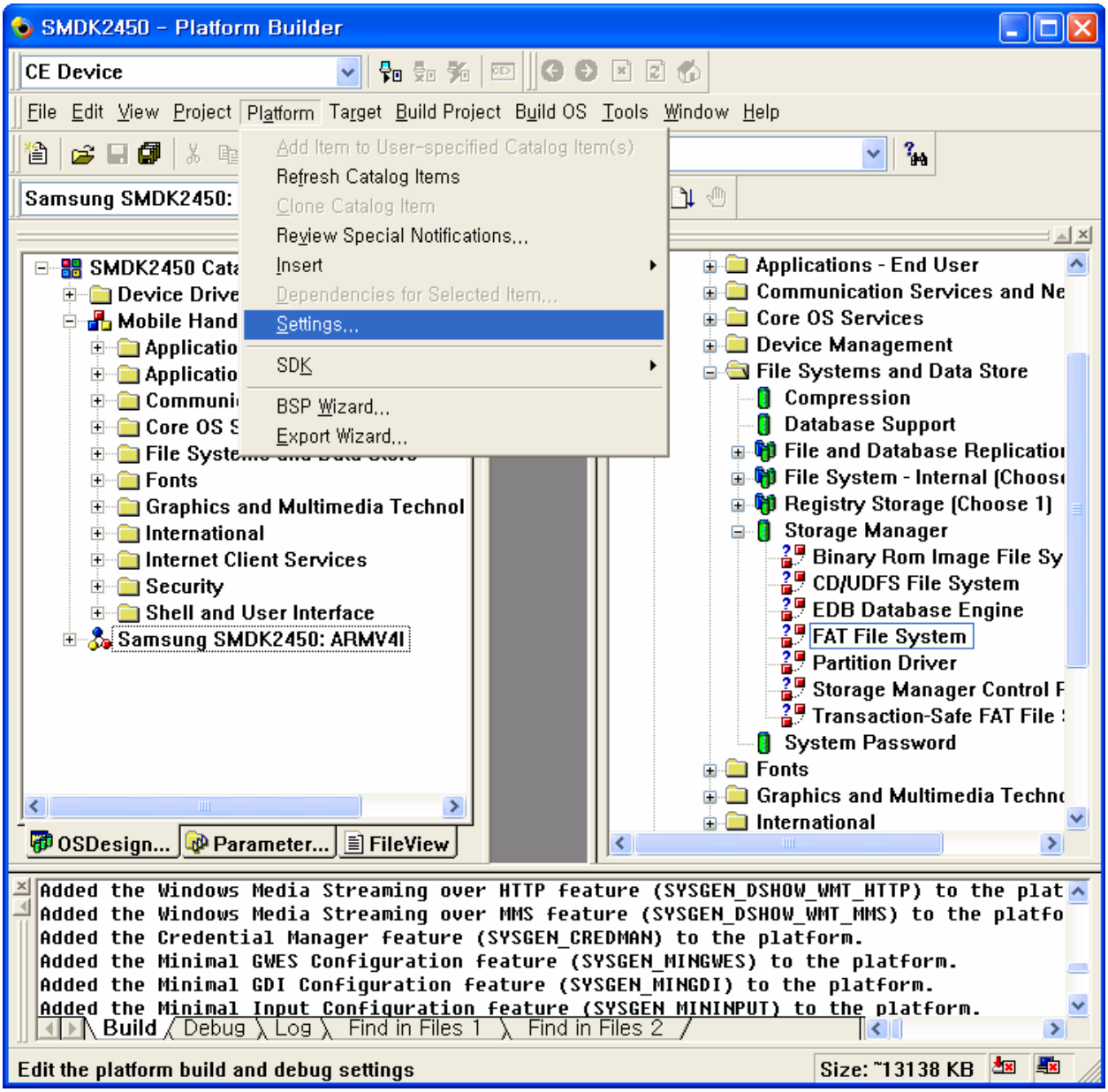


Figure 4-7 Platform Settings

7. 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 4-8.

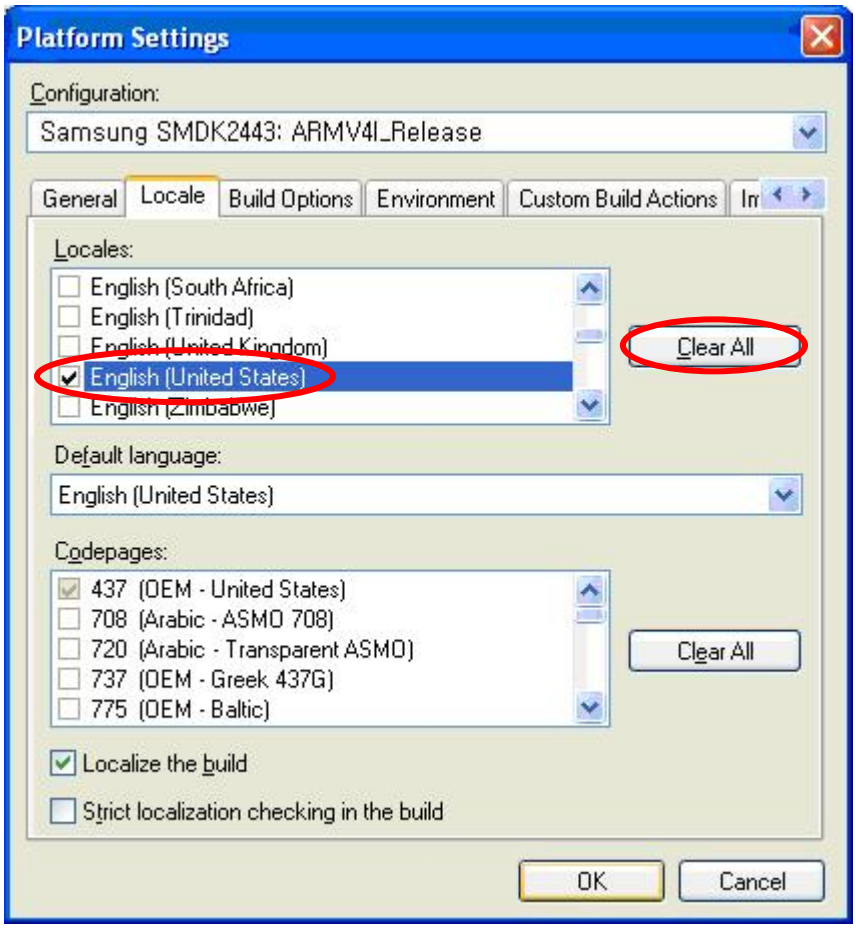


Figure 4-8 Selecting Language in the Platform Settings Window

8. 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.

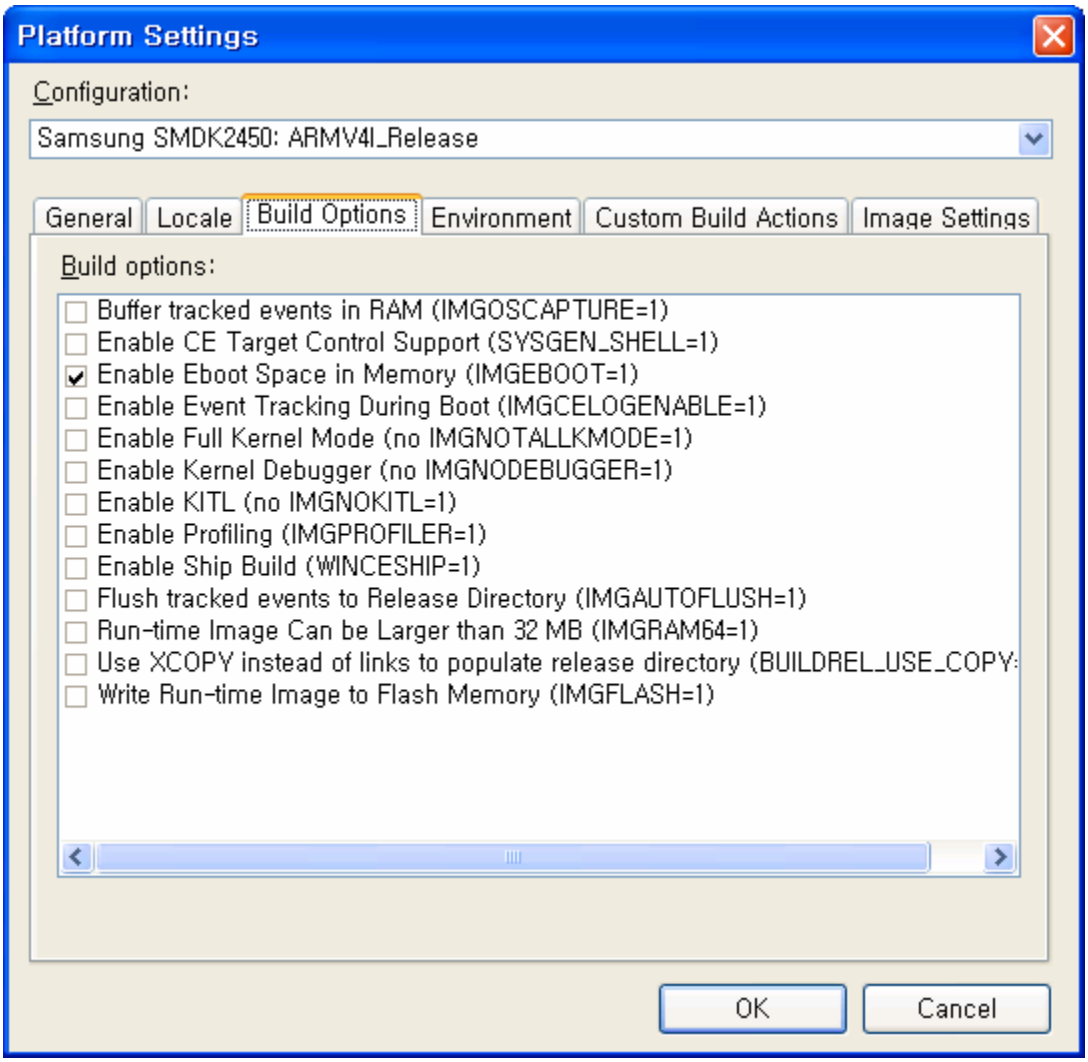


Figure 4-9 Removing KITL Setting in the Platform Settings Window

9. 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.

10. On the **Build OS** menu, click **Build and Sysgen** as shown in figure 4-10 to build the **Eboot image**.

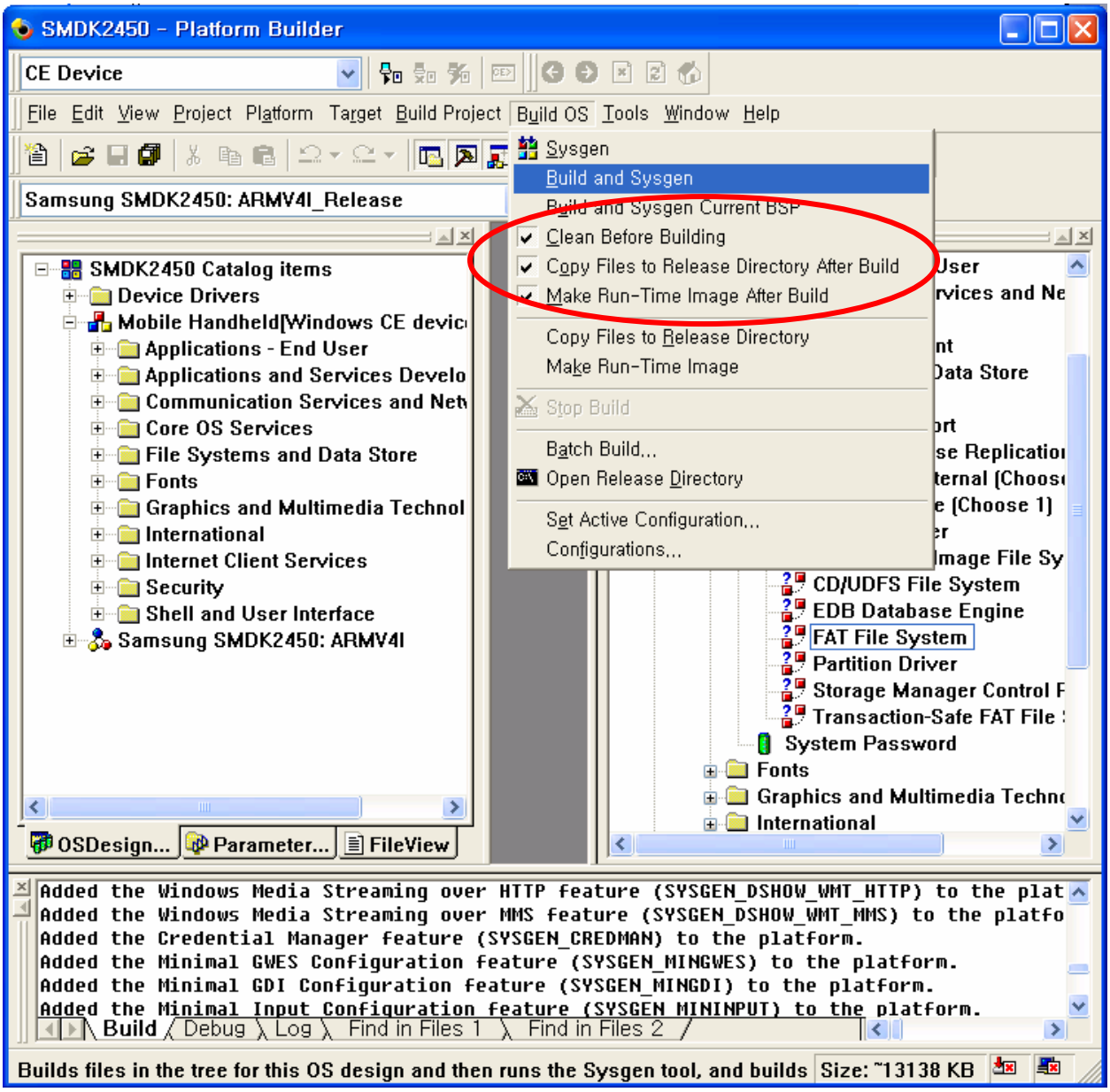


Figure 4-10 Build and Sysgen

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

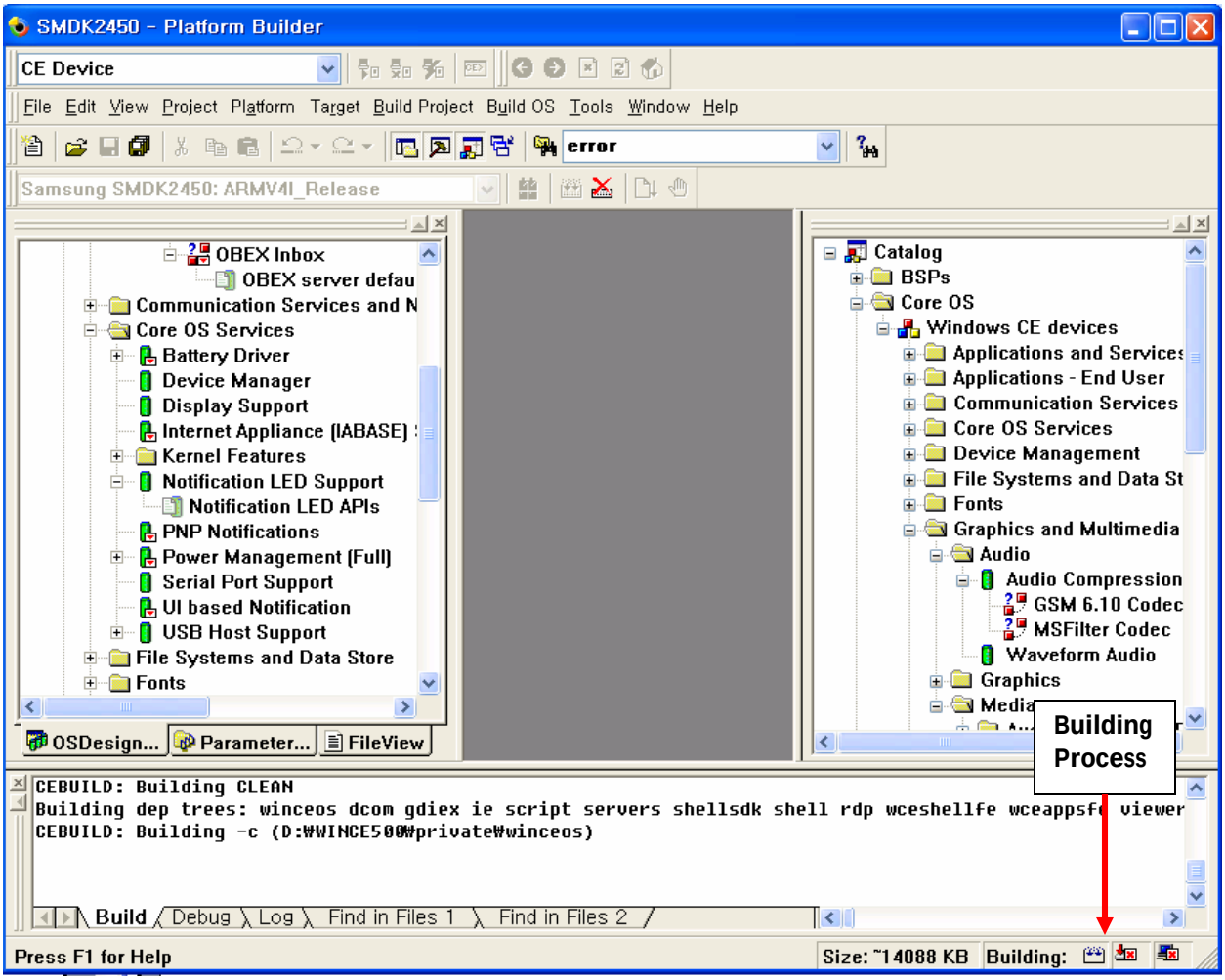


Figure 4-11 Building Process

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.

12. After completion of build process, following messages appear as shown below. In Case of **Single .bin**, **EBOOT.nb0, EBOOT.bin, Block0img.nb0, NK.bin** and **NK.nb0** is now available in **X:\WINCE500\PBWorkspaces\[platform name]\RelDir\SMDK2450_ARMV4I_Release** directory.

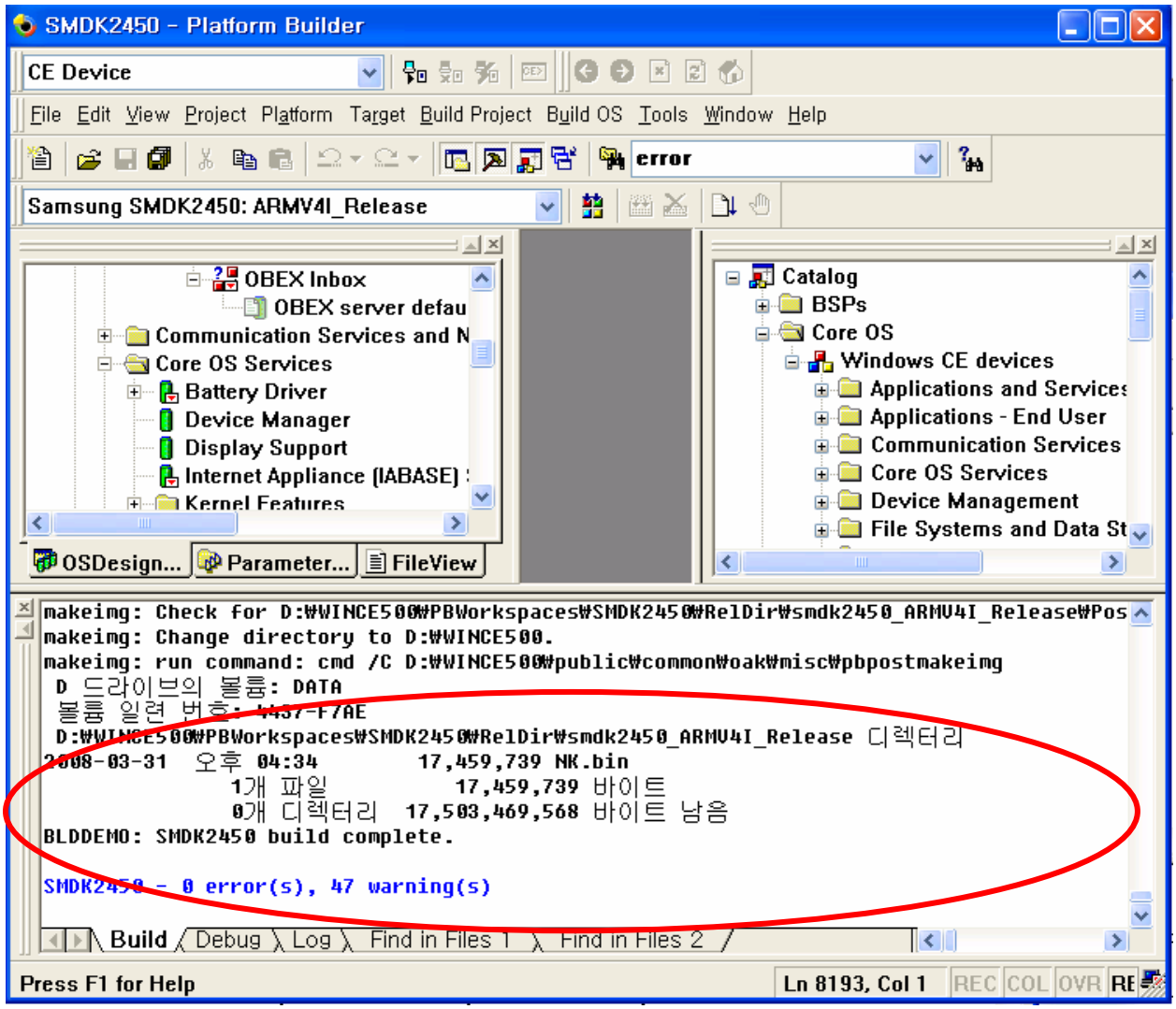


Figure 4-12 After Building the OS Image

4.2 Building Chain.lst(Multiple XIP) Image

In case of MultipleXIP, you cannot generate the Nk.nb0 image. So you cannot download the Nk.nb0 image directly. Instead of Nk.nb0, you can generate following files.

- Chain.bin
- Nk.bin
- Xipkernel.bin
- Chain.lst

To generate above files, you must do following procedures.

1. Set smdk2450.bat File

```
set BSP_NOUSB=
set BSP_NOUSBFN=
set BSP_NOCS8900=1
set BSP_NOBACKLIGHT=1
set BSP_NOBATTERY=1
set BSP_NONANDFS=
set BSP_NOPCCARD=1


@REM  2450 can select MULTIPLEXIP or Single.bin
set IMGMULTIXIP=1

@REM - To support PocketMory
call %_TARGETPLATROOT%\src\Whimory\wmrenv.bat
```

2. repeat step 2 to 8 of previous chapter.

3. Copy blocmmon.c file

To fusing multiple XIP images, Copy blcommon.c file present in the [BSP]\Doc\ directory to X:\WINCE500\PLATFORM\COMMON\SRC\COMMON\BOOT\BLCOMMON and X:\WINCE500\PUBLIC\COMMON\OAK\DRIVERS\ETHDBG\BLCOMMON directory.
If you don't copy this file, there will be error during fusing the OS image to NAND flash.

4. repeat step 9 to 12 of previous chapter

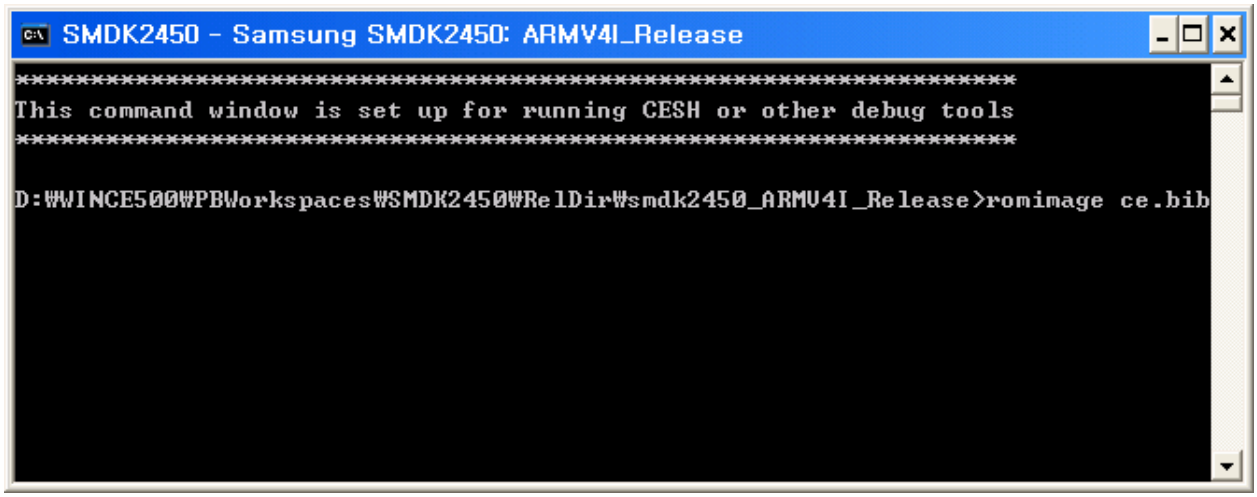
5. Change the ce.bib file in release directory

Change the region definition from NK to XIPKERNEL like as below.
The "[ReleaseDirectory]" string can be different depends on your build environment.

```
nk.exe      [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\nk.exe      XIPKERNEL  SH
coredll.dll   [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\coredll.dll  XIPKERNEL  SH
filesys.ese   [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\filesys.exe  XIPKERNEL  SH
binfs.dll     [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\binfs.dll    XIPKERNEL  SH
fsdmgr.dll   [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\fsdmgr.dll  XIPKERNEL  SH
mspart.dll   [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\mspart.dll  XIPKERNEL  SH
default.fdf   [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\default.fdf  XIPKERNEL  SH
```

6. Open the command window using platform builder menu [Build OS]->[Open Release Directory].

Enter the "romimage ce.bib" command



Then below files will be generated.

- Chain.bin
- Nk.bin
- Xipkernel.bin
- Chain.lst

5 Single.bin Image

5.1 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.

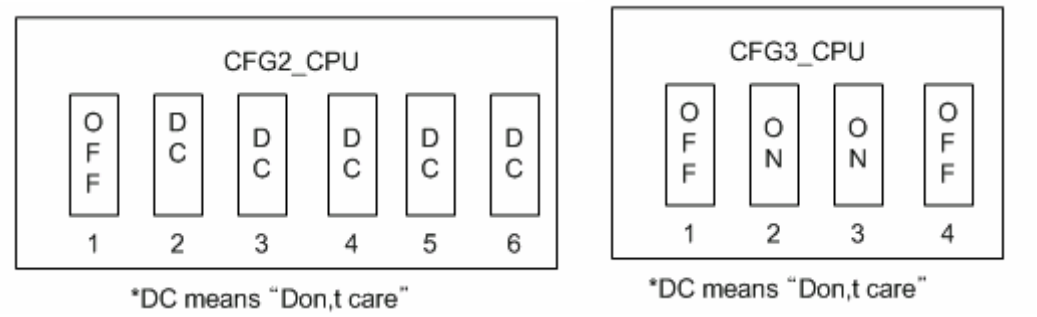


Figure 5-1 Jumper Setting for crystal

3. Set the Jumpers for memory type

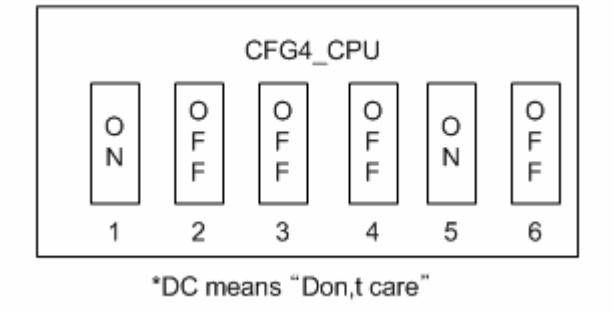


Figure 5-2 Jumper Setting for SDR Memory

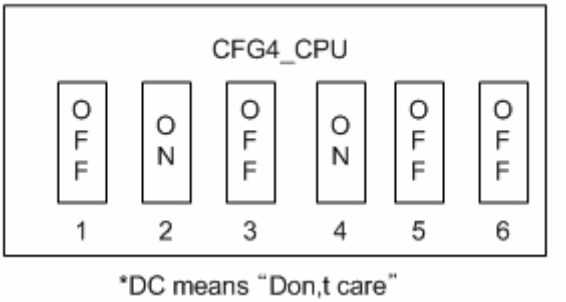


Figure 5-3 Jumper Setting for DDR Memory

* 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.

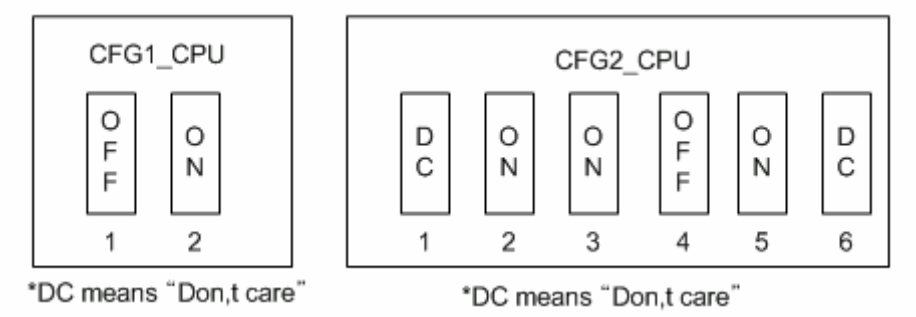


Figure 5-4 Switch Setting on CPU board for AMD flash boot

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.

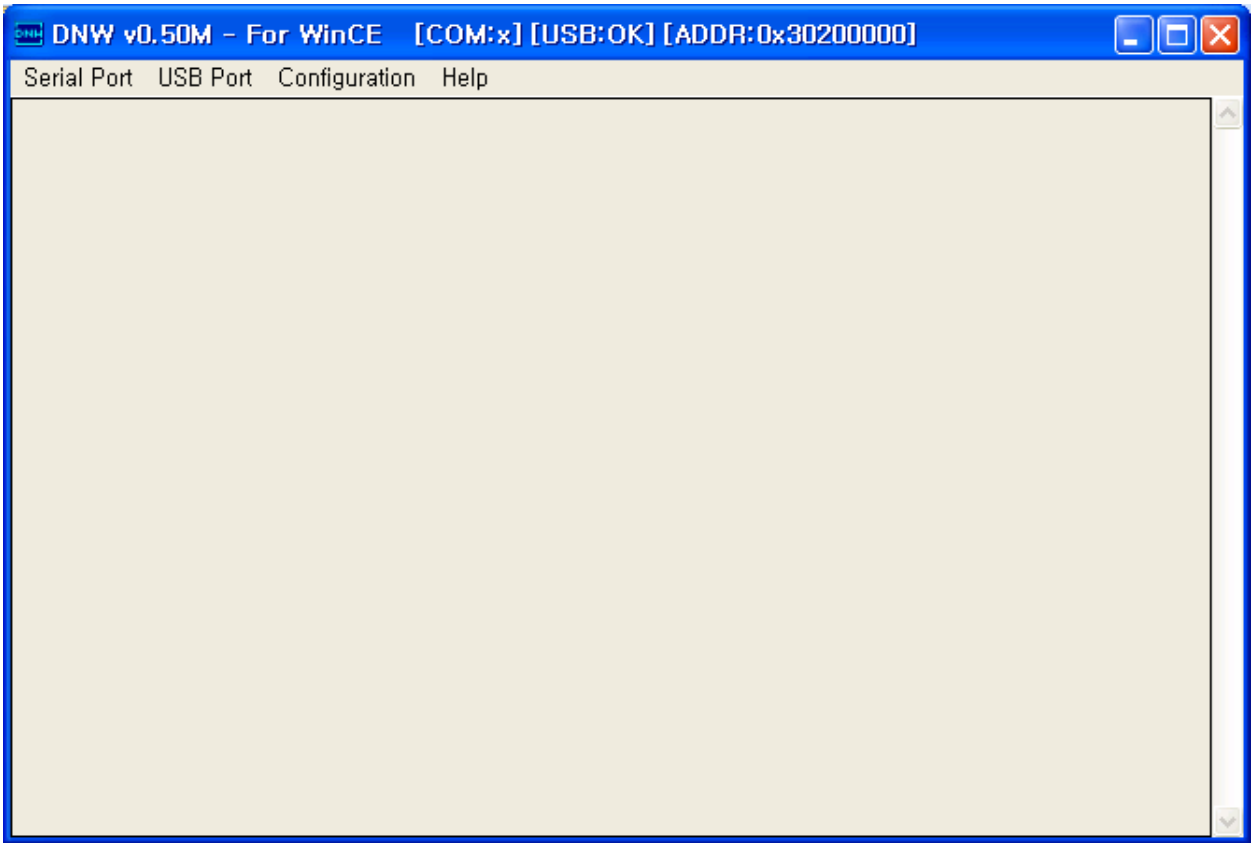


Figure 5-5 DNW Window

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 5-6, enter the download address as **0x30200000** and then click **OK** button.

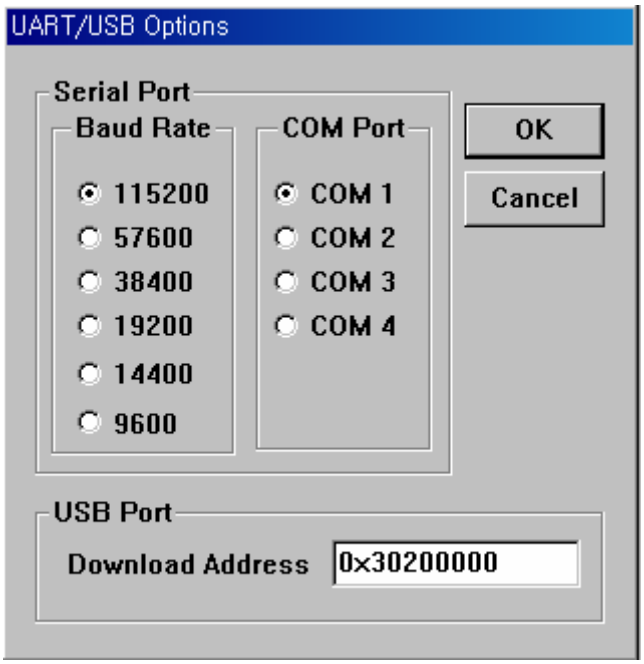


Figure 5-6 UART/USB Options

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 5-7.

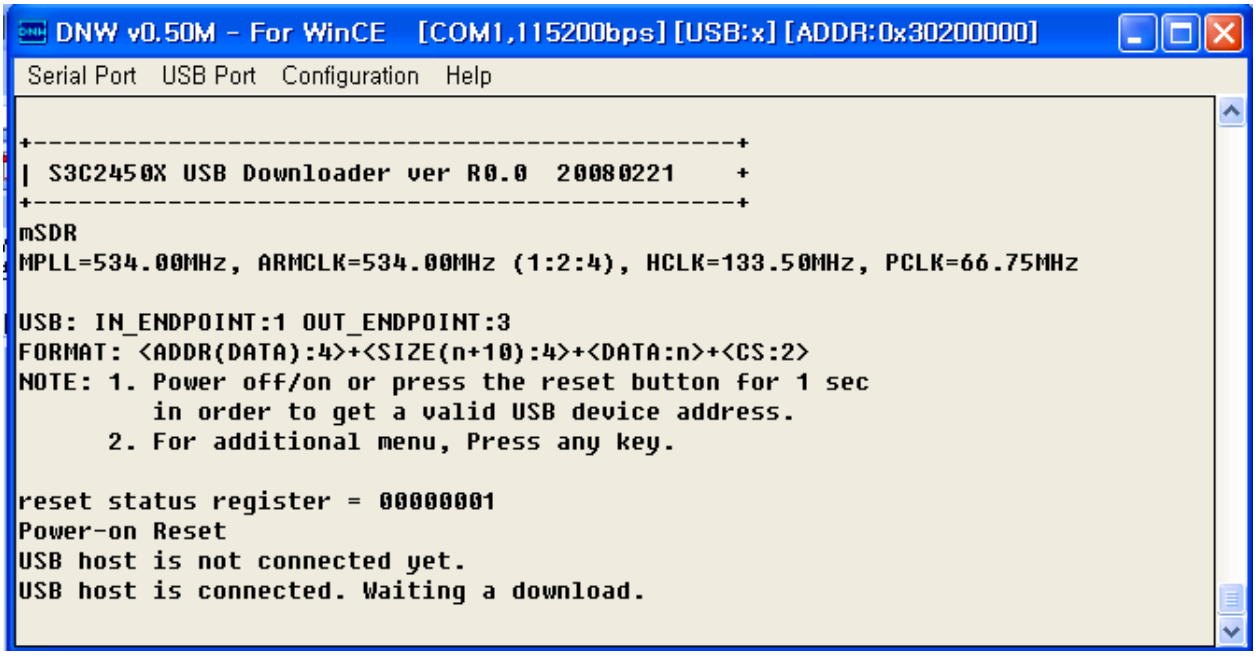


Figure 5-7 DNW Window after Board Power ON

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

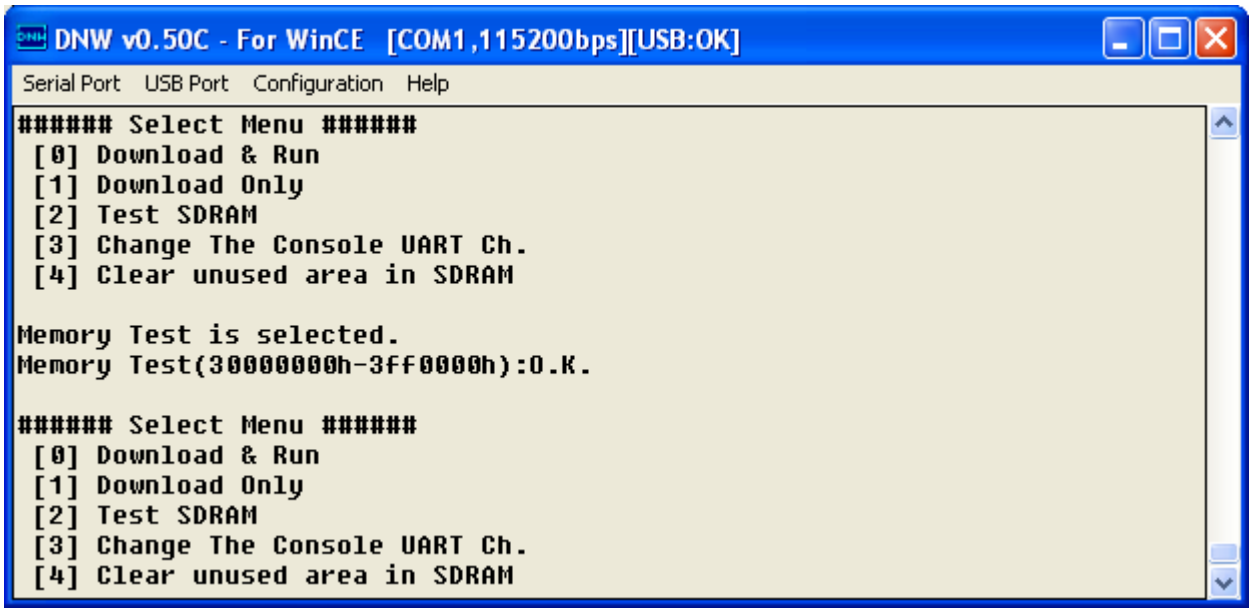


Figure 5-8 SDRAM Test

10. Enter **0** to download and run the Image on the board. DNW window appears as shown in figure 5-9.

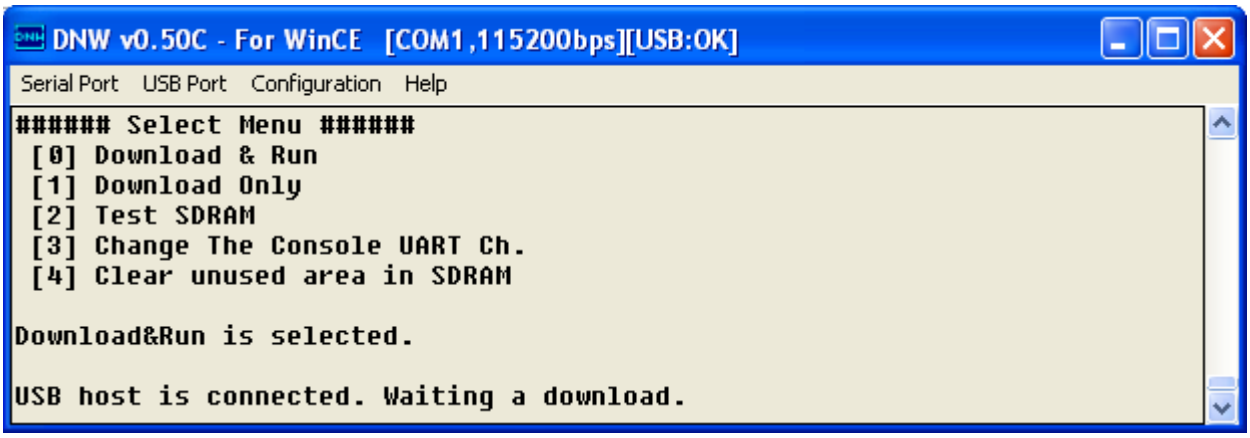


Figure 5-9 Download & Run

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.

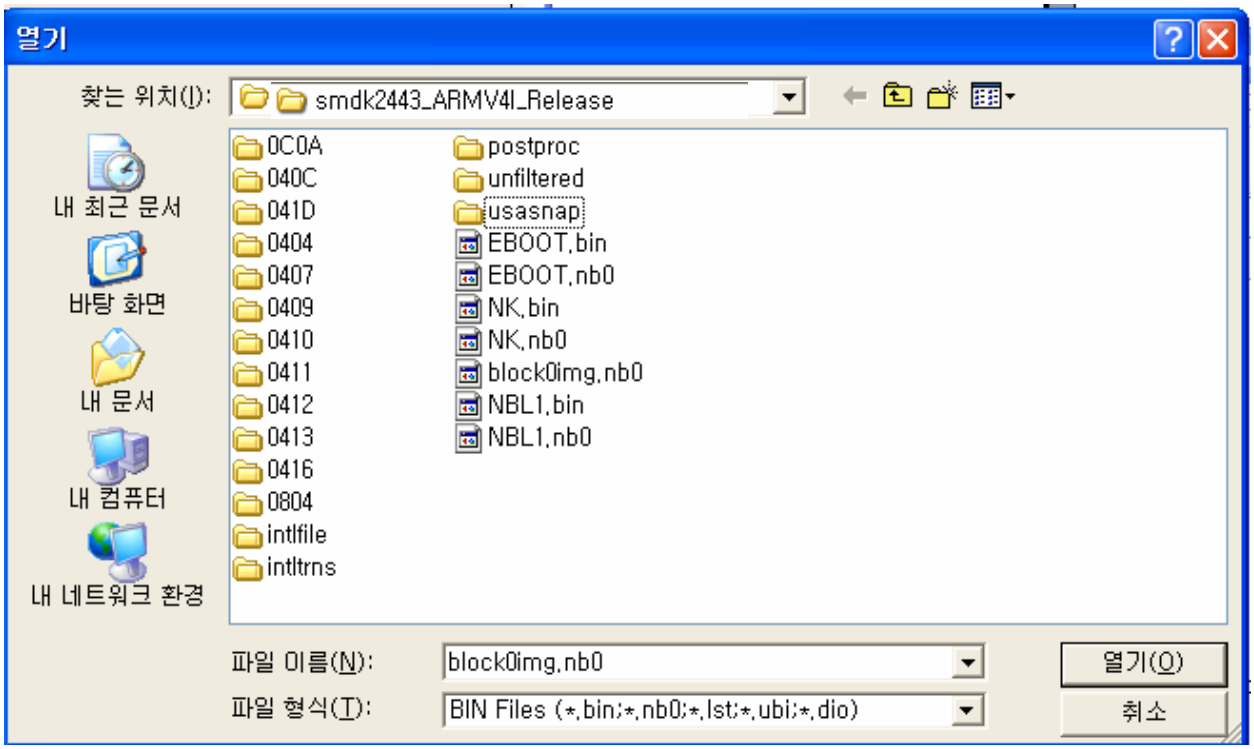


Figure 5-10 Selecting NK.nb0 for Download

12. Once download begins, a download status bar appears on your screen as shown in figure 5-11.

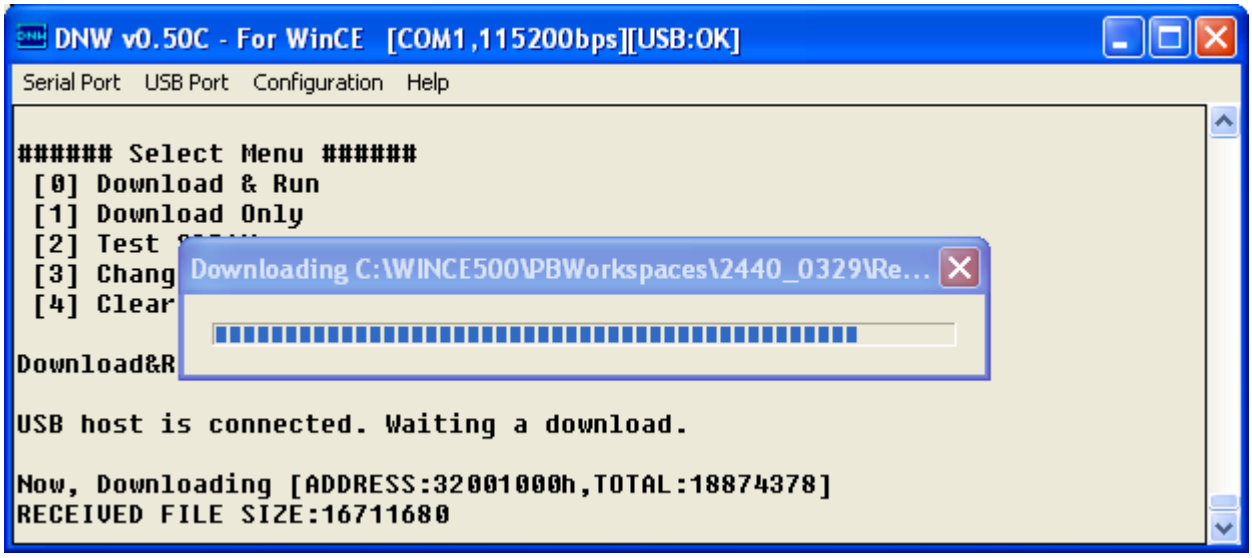


Figure 5-11 Downloading Status of NK.nb0

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

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

In this chapter, you can understand how to fuse the block0img.nb0, eboot.bin and OS image to the SOP NAND via USB download.

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

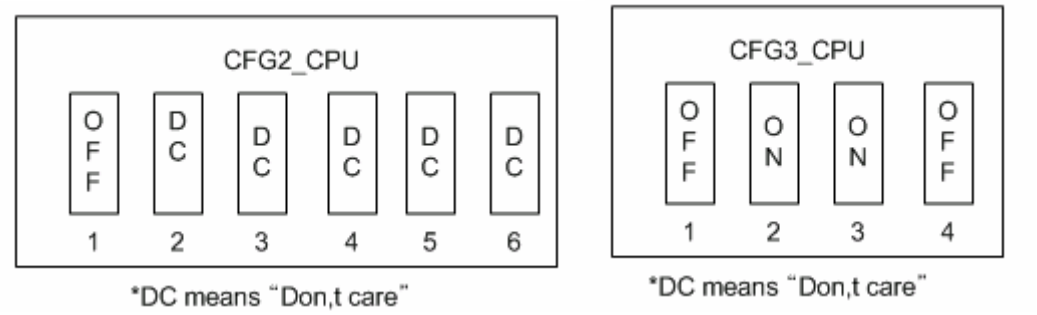


Figure 5-12 Jumper Setting for crystal

3. Set the Jumpers for memory type

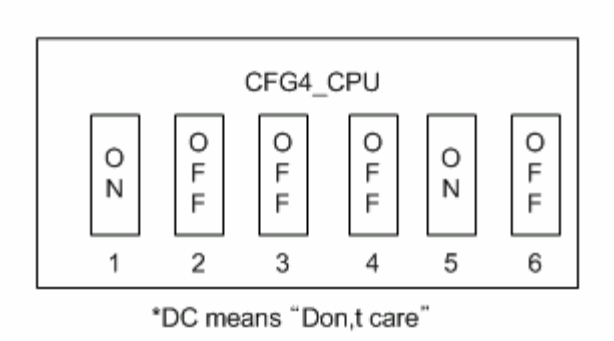


Figure 5-13 Jumper Setting for SDR Memory

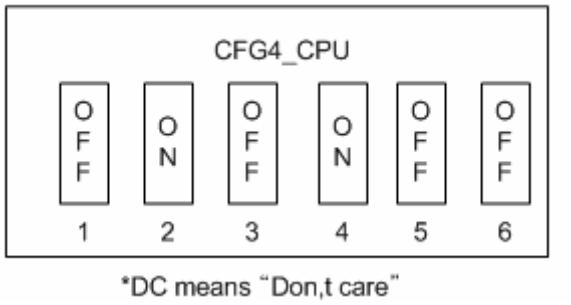


Figure 5-14 Jumper Setting for DDR Memory

* 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

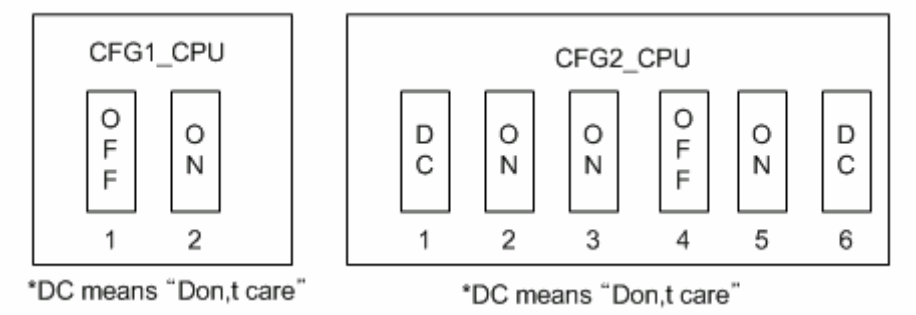


Figure 5-15 Switch Setting on CPU board for AMD flash boot

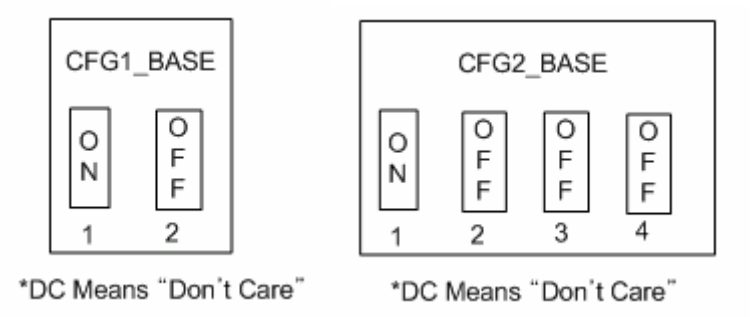


Figure 5-16 Switch Setting on Base board for NandAccess

5. Please install the USB Driver and DNW application on your host PC.

6. Run **dnw.exe** on the host PC. The following window appears on your screen.

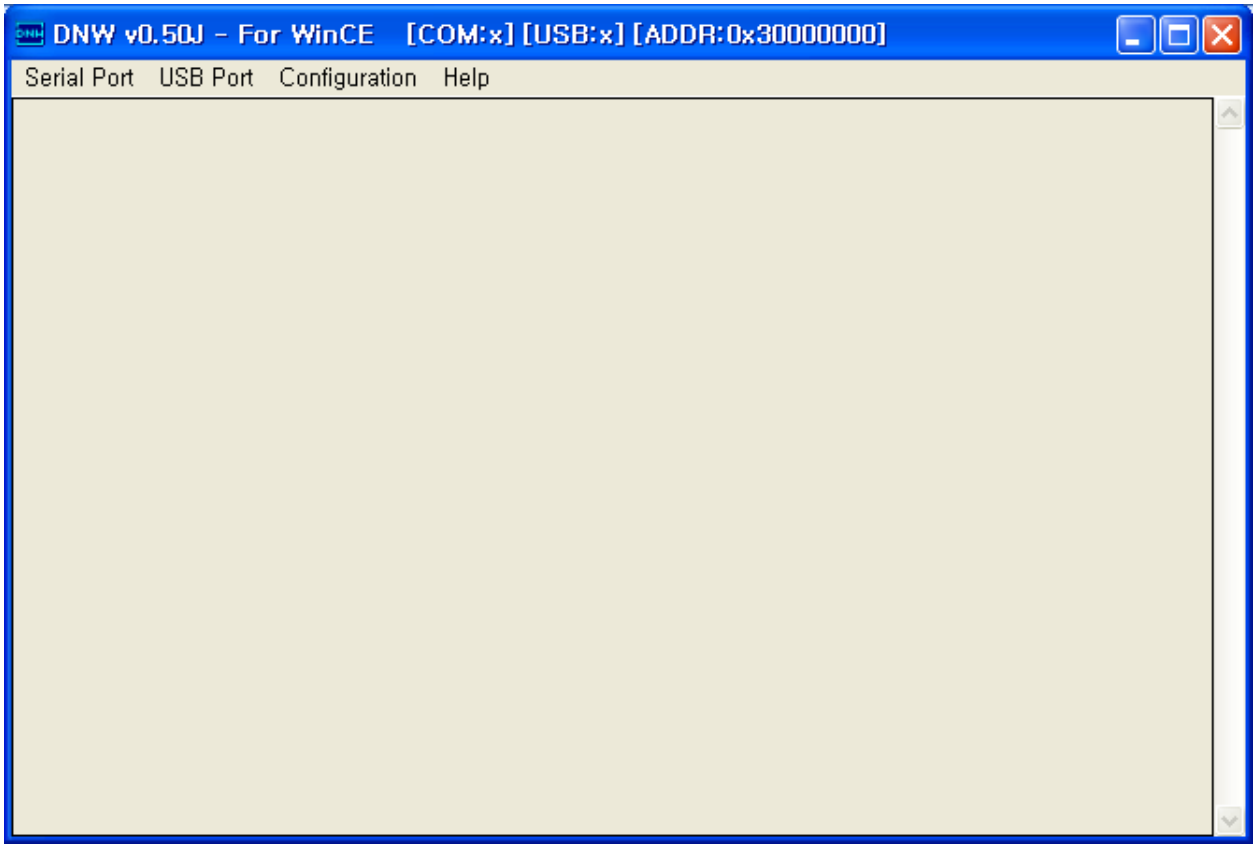


Figure 5-17 DNW Window

7. On the C**onfiguration** 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 5-18, enter the download address as **0x30038000** and then click **OK** button.

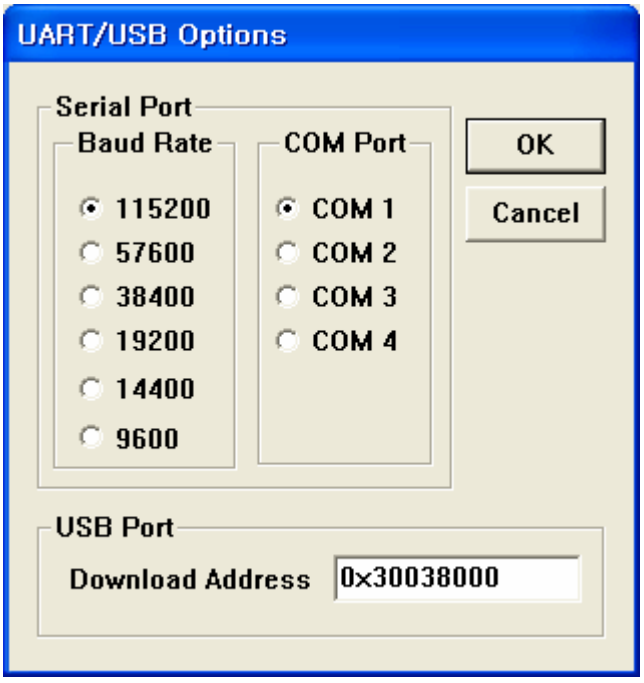


Figure 5-18 UART/USB Options

8. On the **Serial Port** menu, click **Connect**. Switch **ON** the reference board. The DNW window appears as shown in figure 5-19.

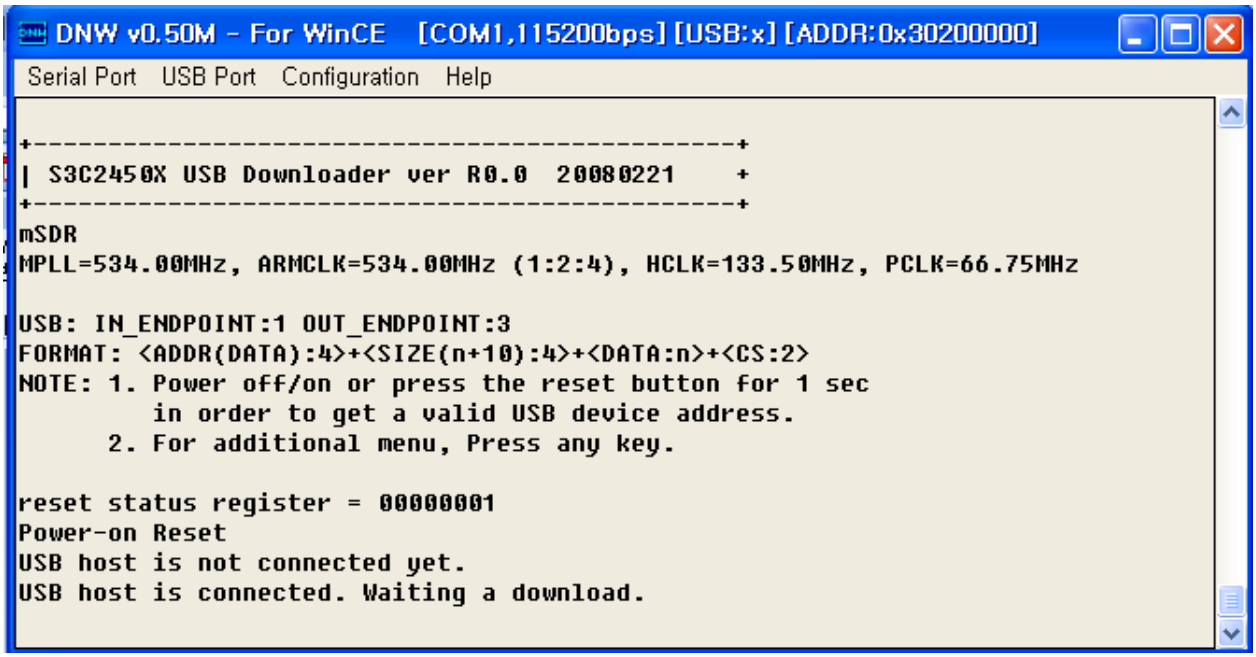


Figure 5-19 DNW Window after Board Power ON

9. 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.

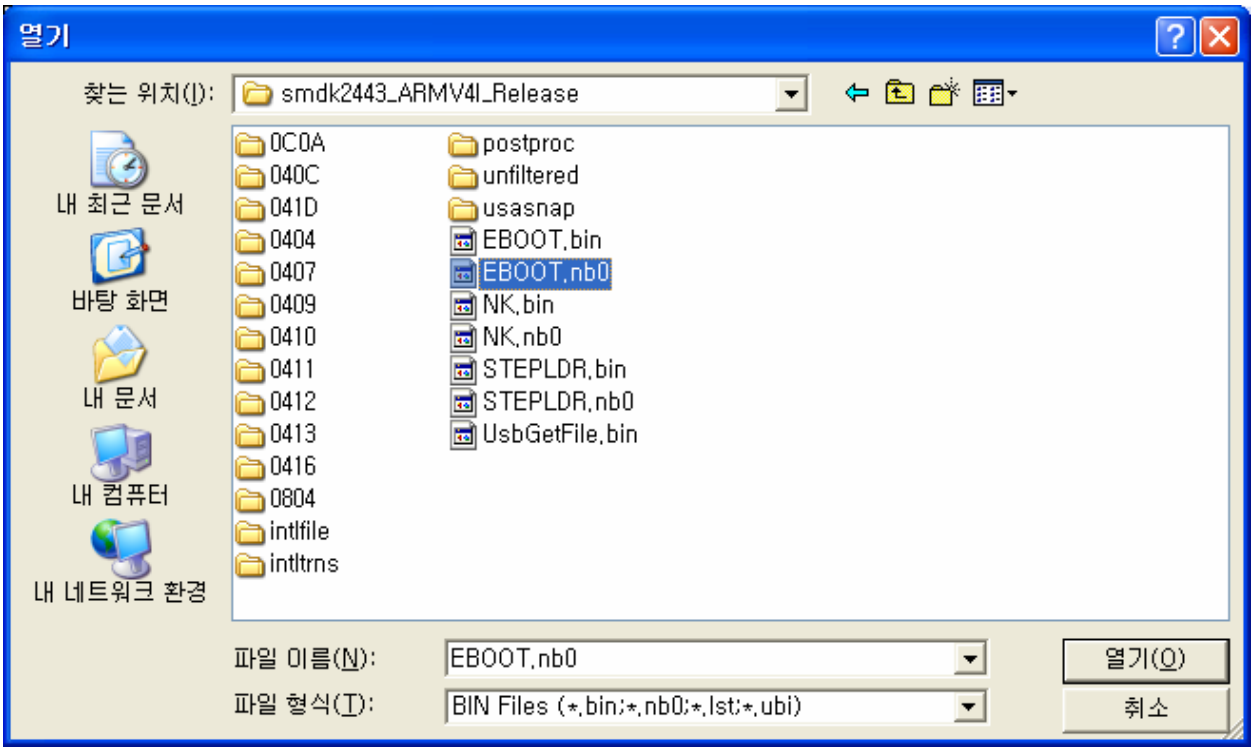


Figure 5-20 Selecting EBOOT.nb0 for Download

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

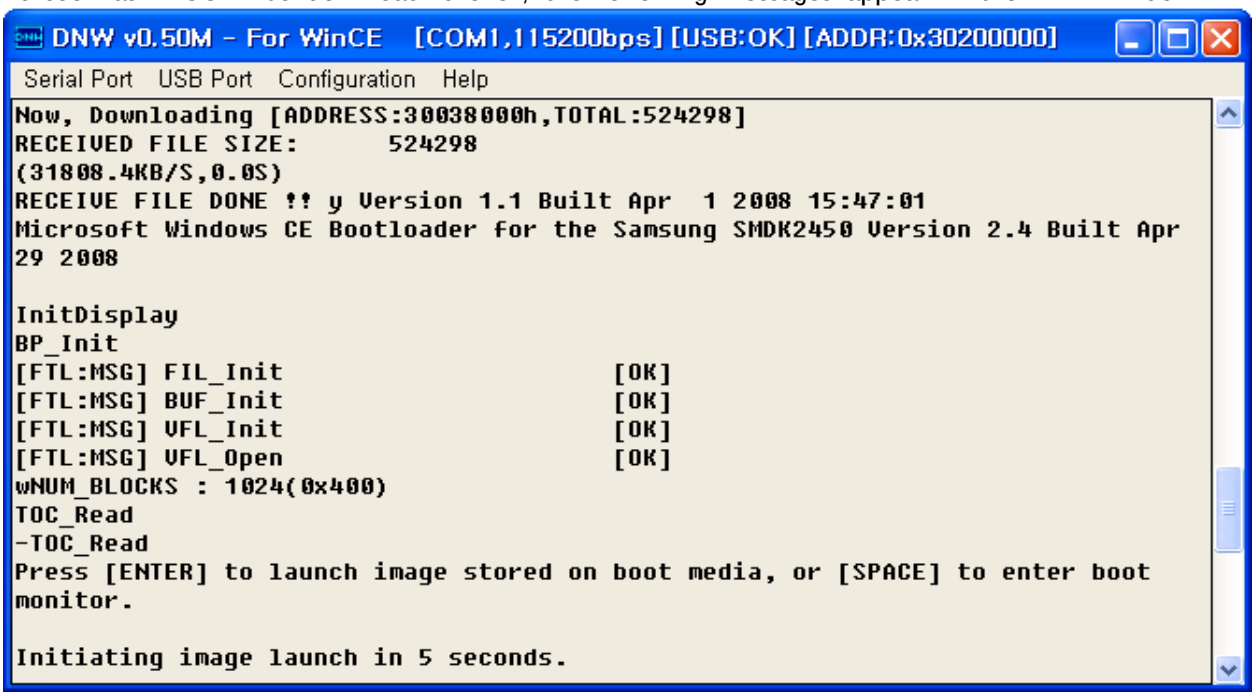


Figure 5-21 After EBOOT.nb0 Download

11. 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 Nand Flash:** ENABLED
- Enter **[W]** to **Write Configuration Right Now**
- Enter **[A]** to **Format FIL (Erase All Blocks)**

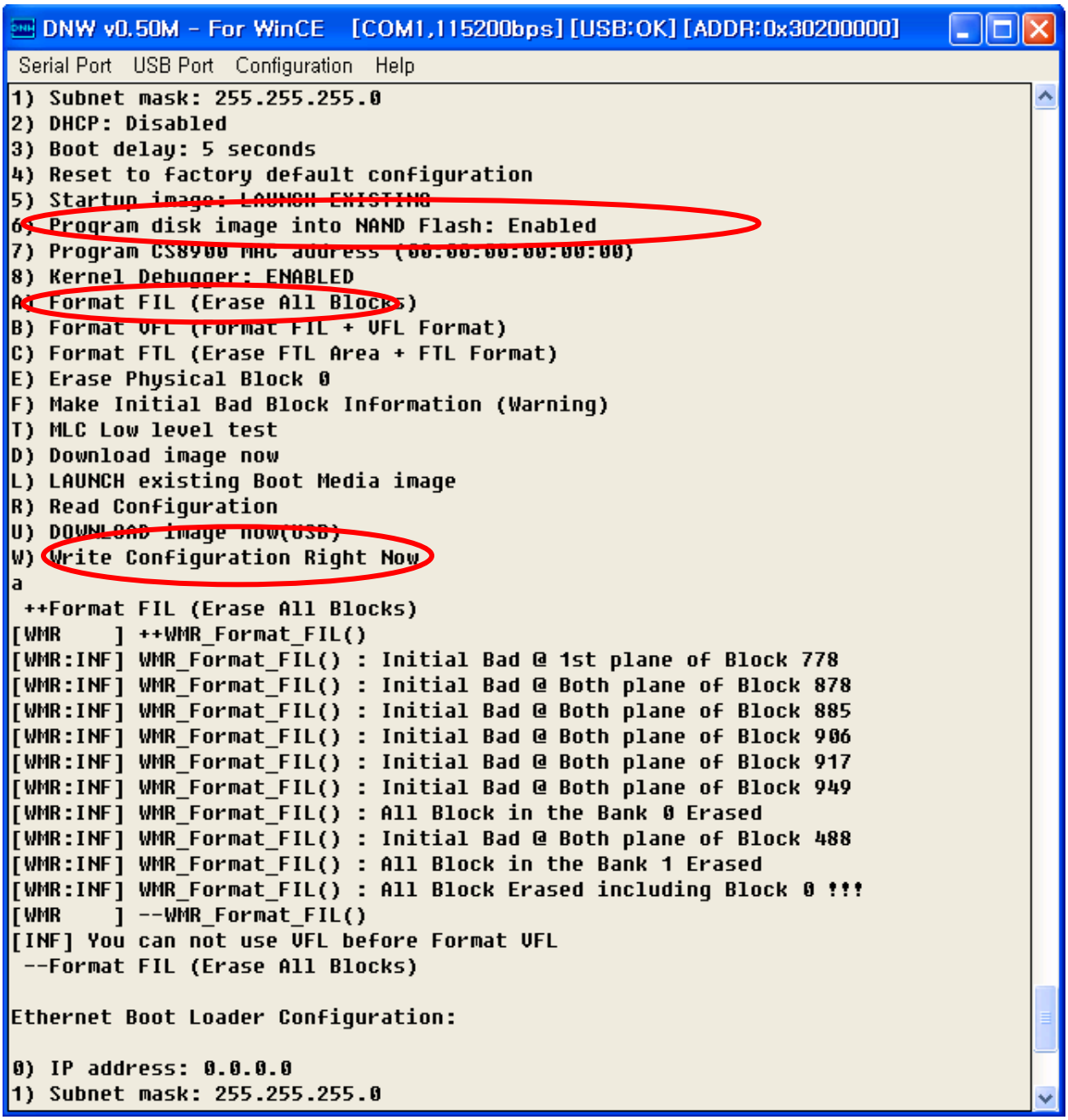
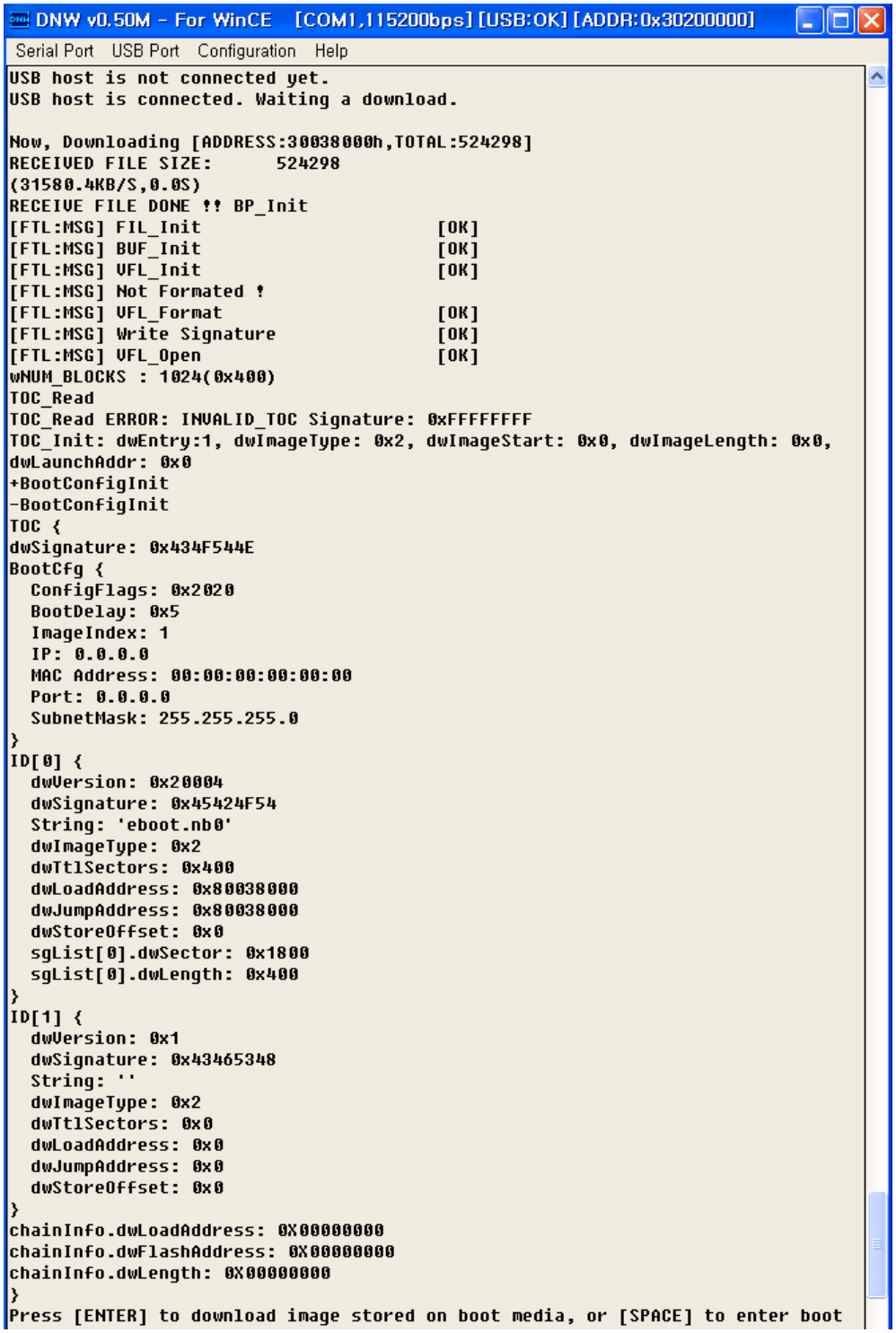


Figure 5-22 Boot Loader Configurations

12. Reboot SMDK board. Retry to download **Eboot.nb0** image. You can see following Message.



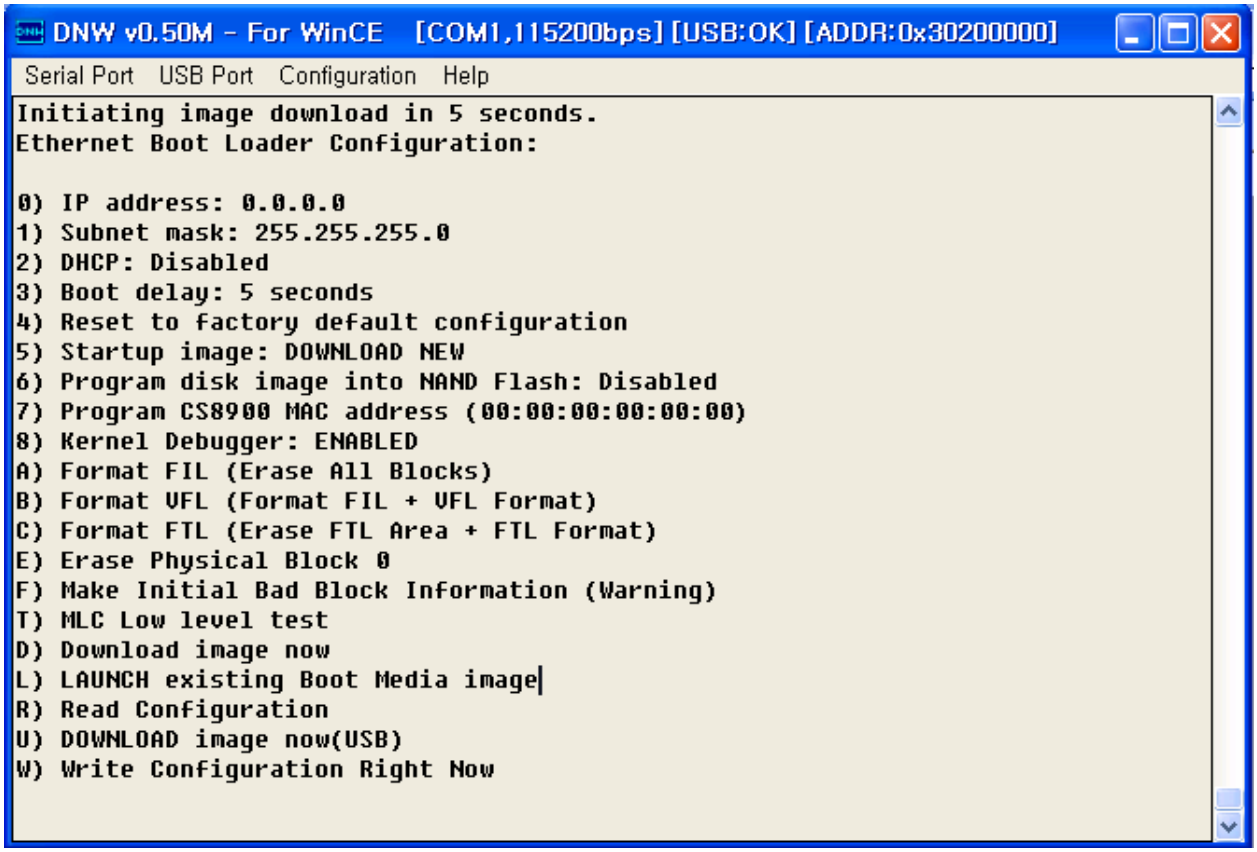


Figure 5-23 Boot Loader Status after format

13. 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 Nand Flash:** ENABLED
- Enter **[5]** to make **Startup image: LAUNCH EXISTING**
- Enter **[W]** to **Write Configuration Right Now**
- Enter **[U]** to **Download image now(USB)**

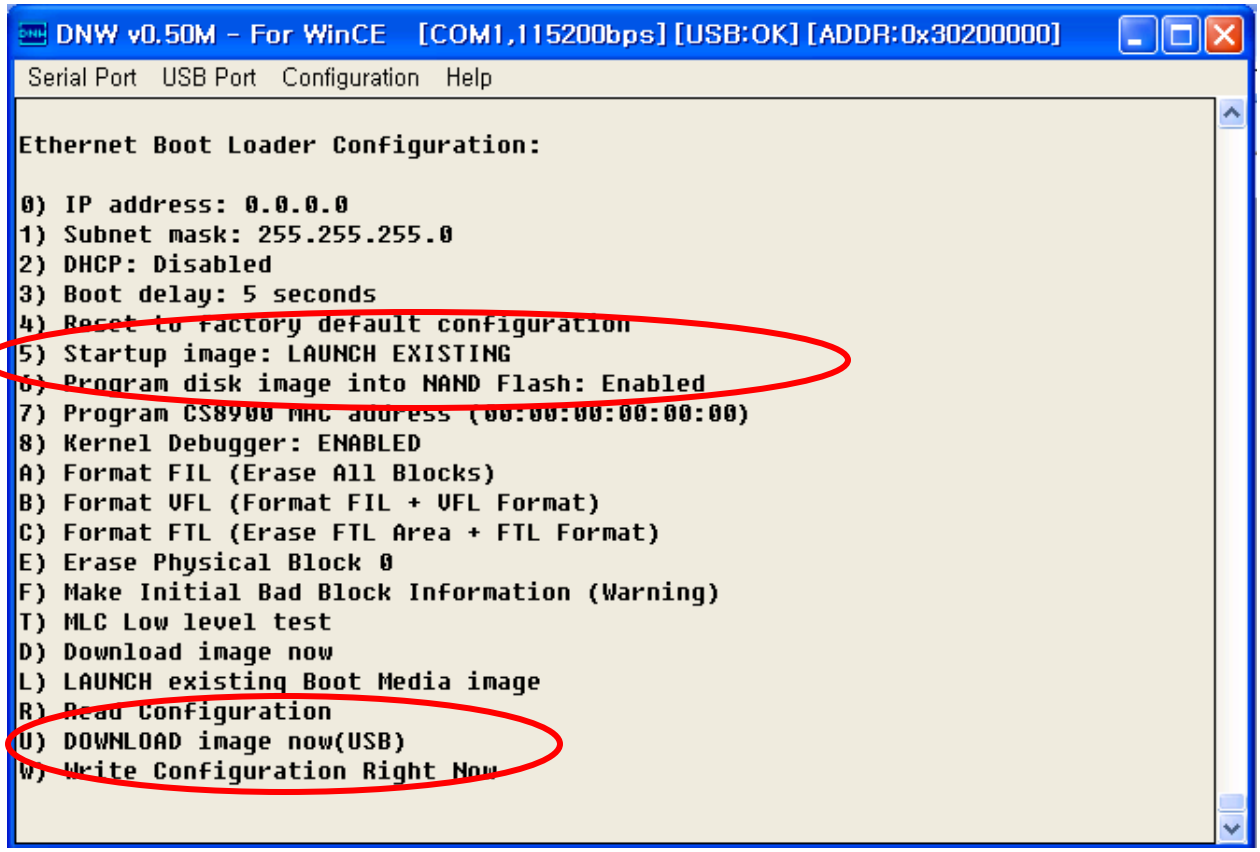


Figure 5-24 Boot Loader configurations

14. On the **USB Port** menu click **UBOOT** and the following window appears on your screen. Select **block0img.nb0**from **X:\WINCE500\PBWorkspaces\[platform name]\RelDir\smdk2450_ARMV4I_Release** directory and then click **Open** button.

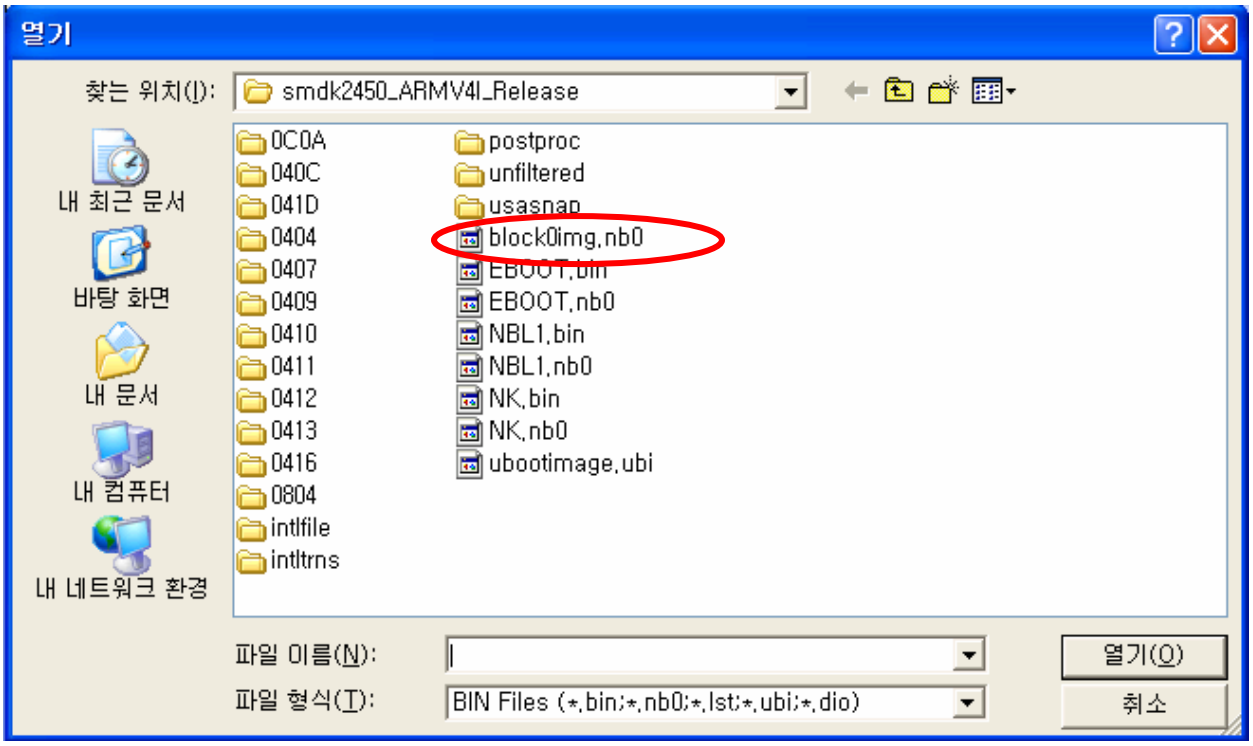


Figure 5-25 Selecting block0img.nb0 for Download

15. You can see the following messages on the DNW window after **block0img.nb0** download is over.

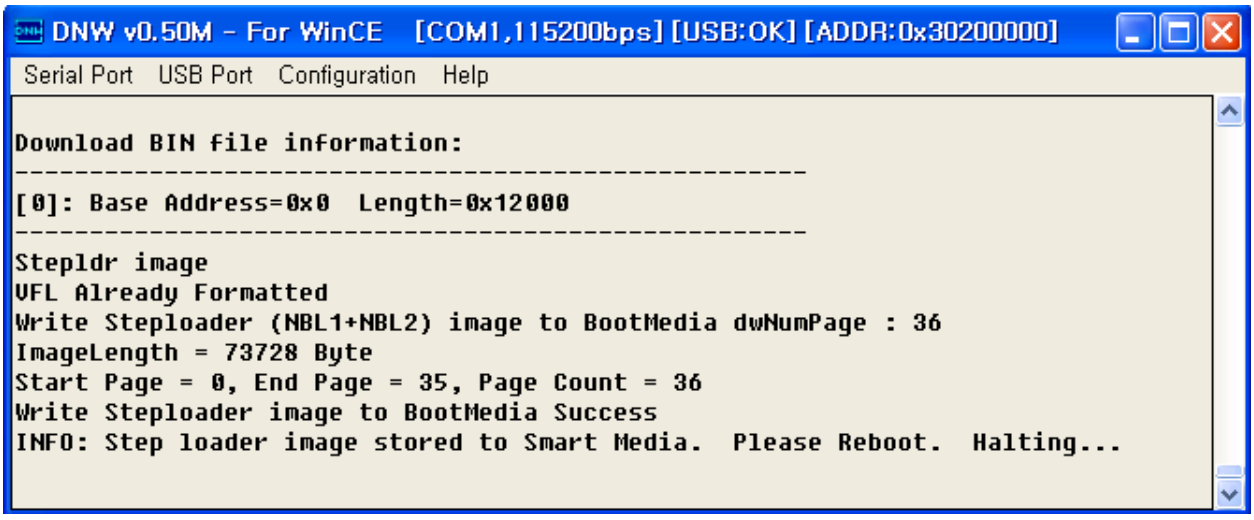


Figure 5-26 Messages via UART Port after block0img.nb0 Download

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

- Enter **[U]** to **Download image now(USB)**

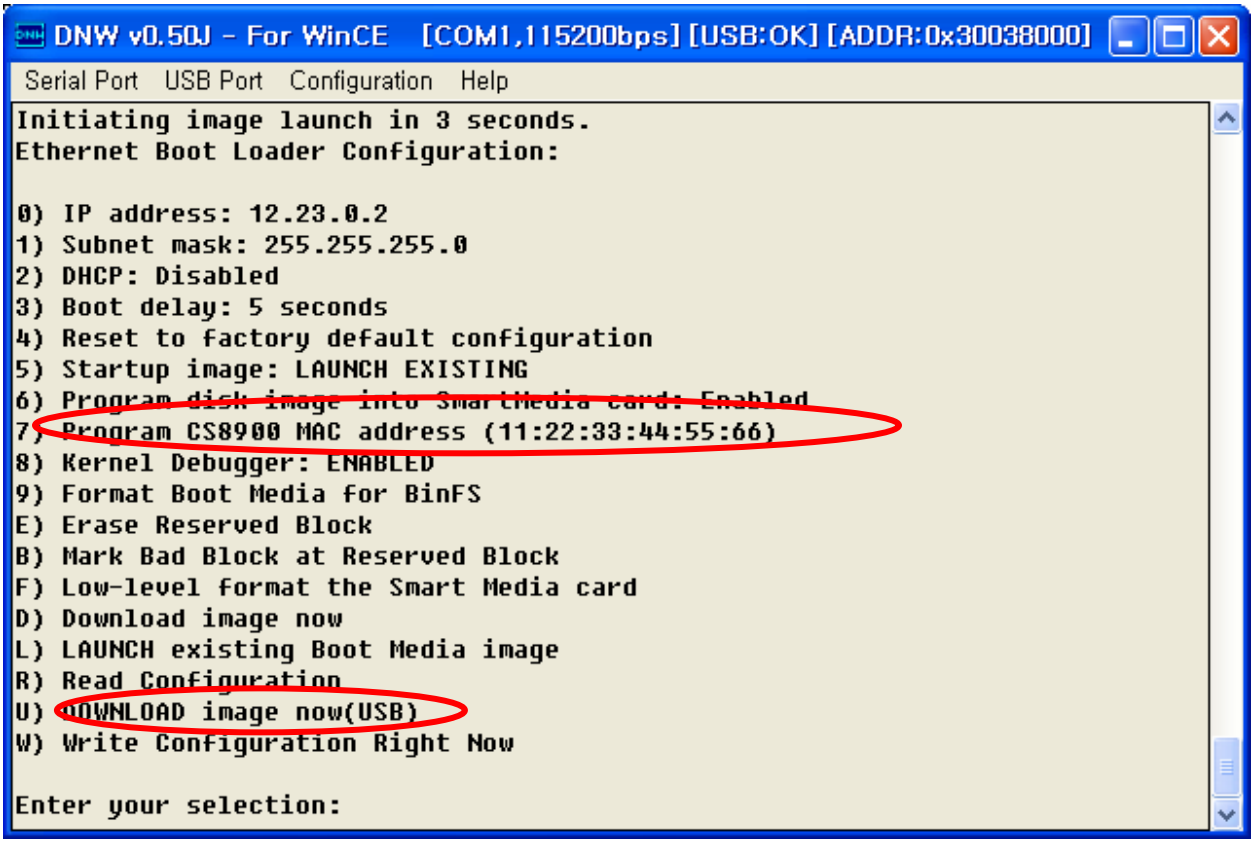


Figure 5-27 USB Boot Loader Configurations

16. 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.

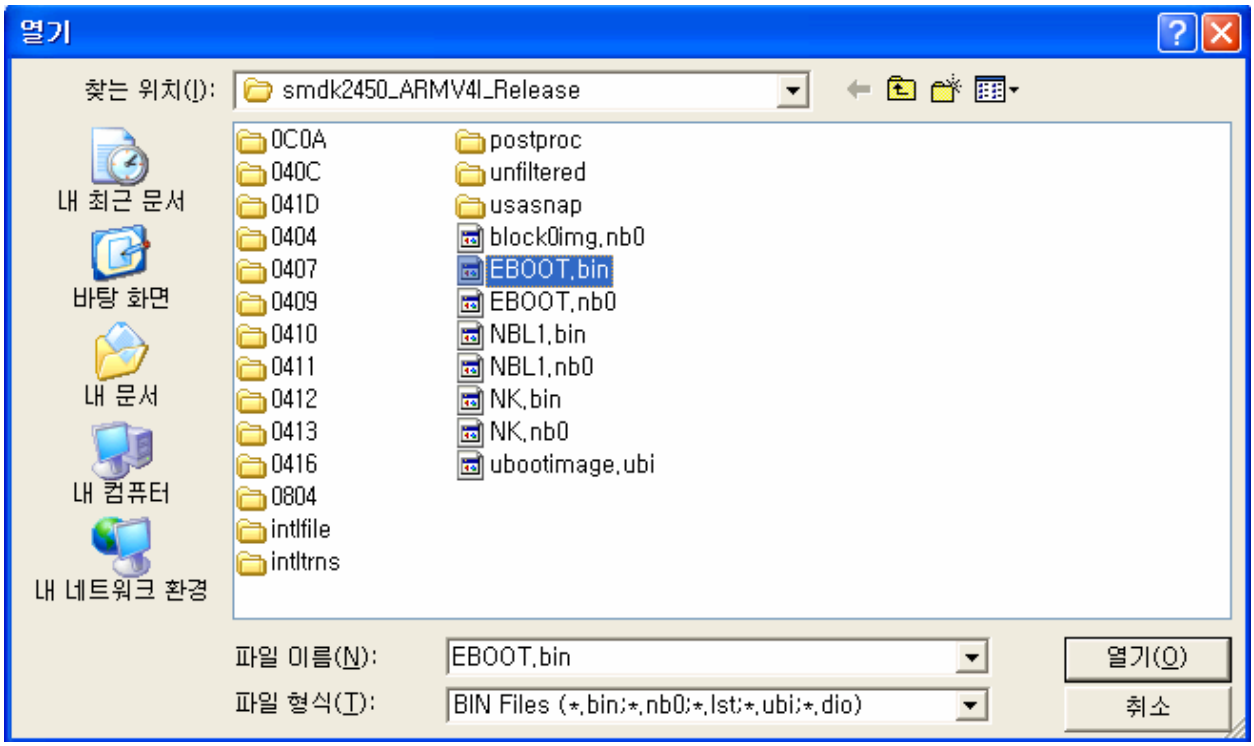


Figure 5-28 Selecting EBOOT.bin for Download

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

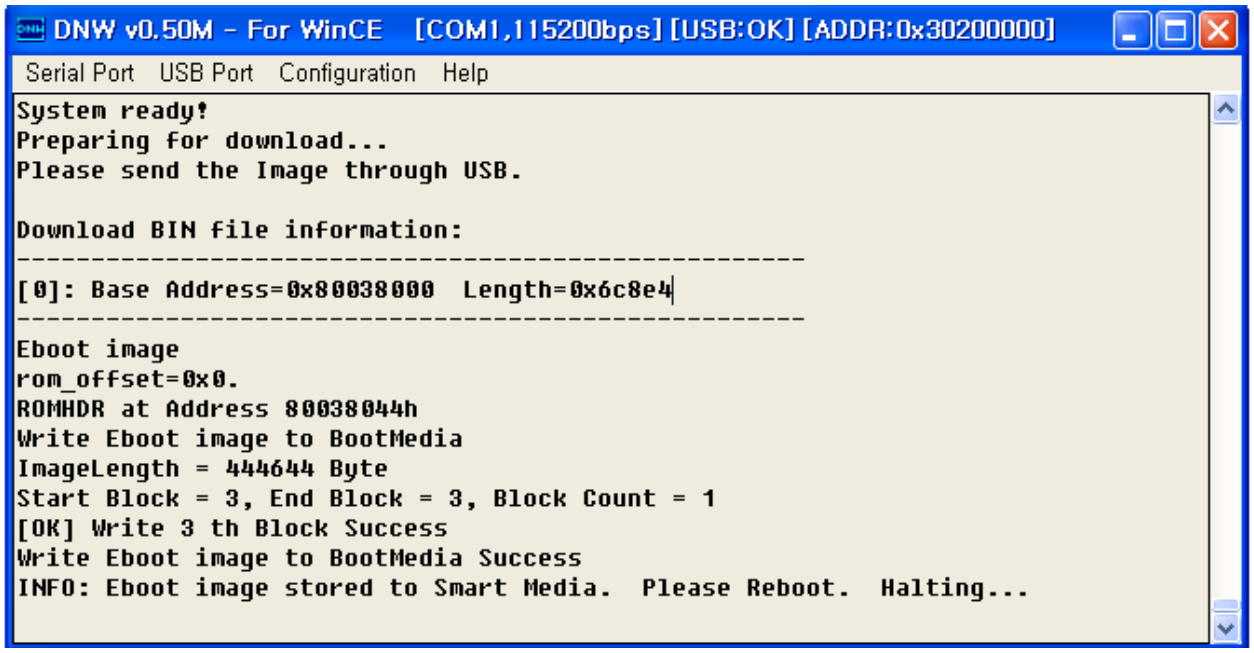


Figure 5-29 Messages via UART Port after eboot.bin Download

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 Nand Flash:** ENABLED
- Enter **[5]** to make **Startup image:** LAUNCH EXISTING
- Enter **[W]** to **Write Configuration Right Now**
- Enter **[U]** to **Download image now(USB)**

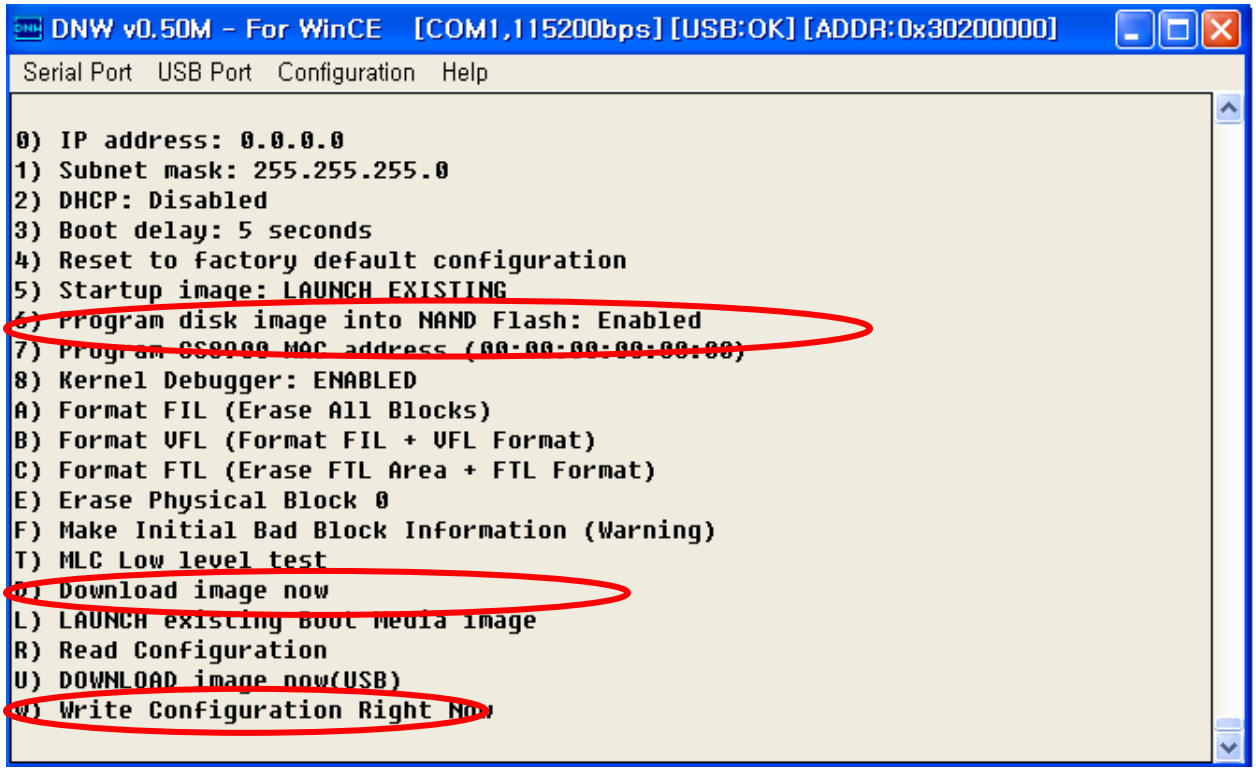


Figure 5-30 USB Boot Loader Configurations

18. 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.

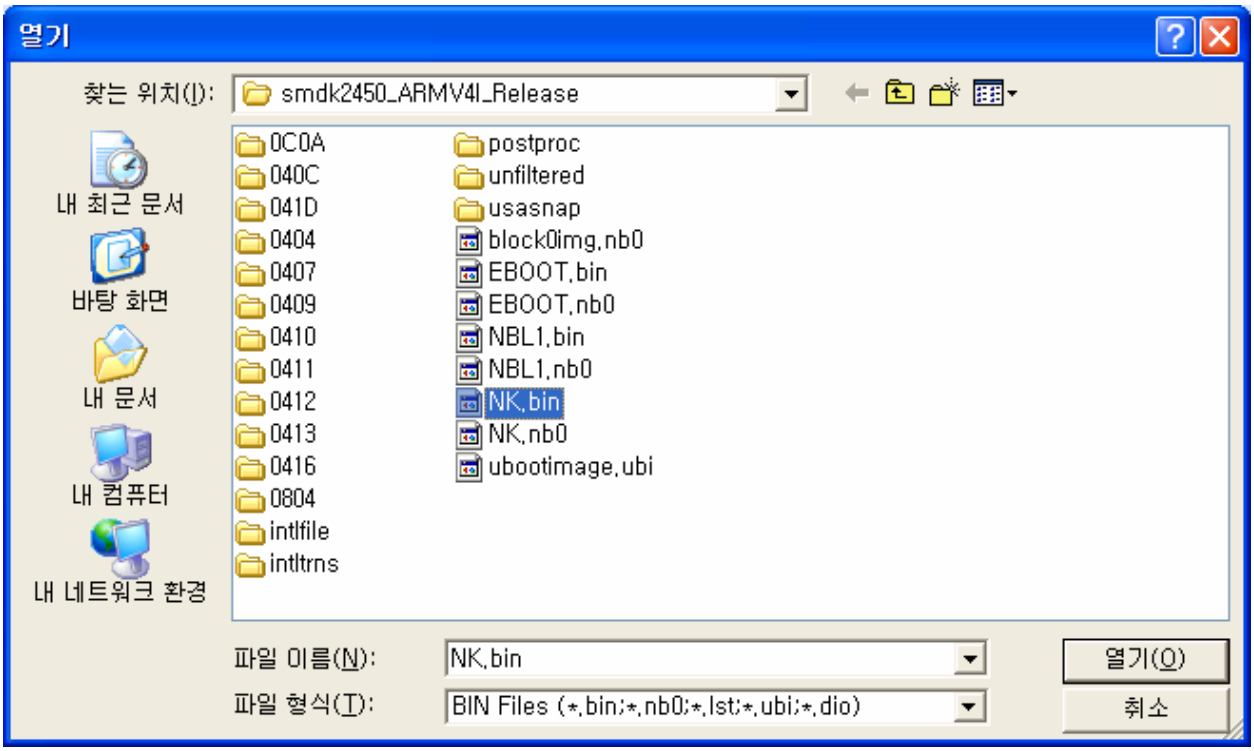


Figure 5-31 Selecting NK.bin for Download

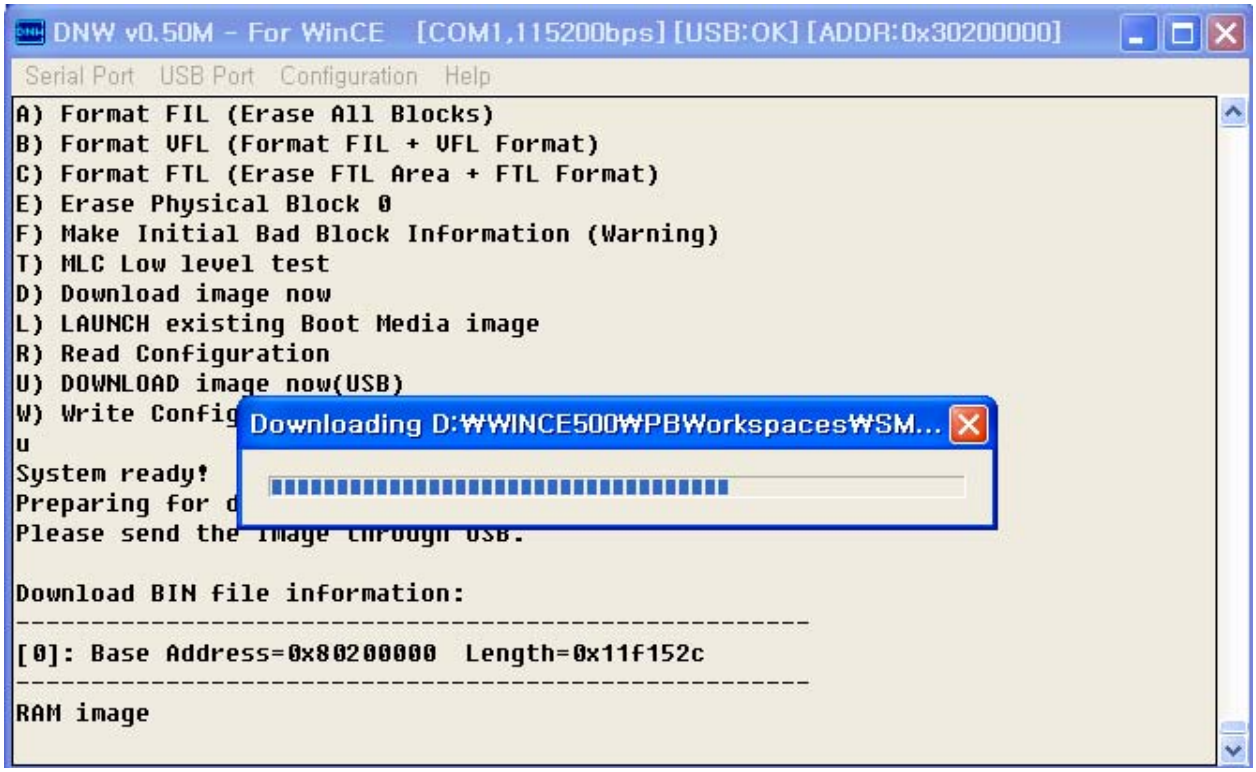


Figure 5-32 Messages via UART Port during NK.bin Download

19. 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.

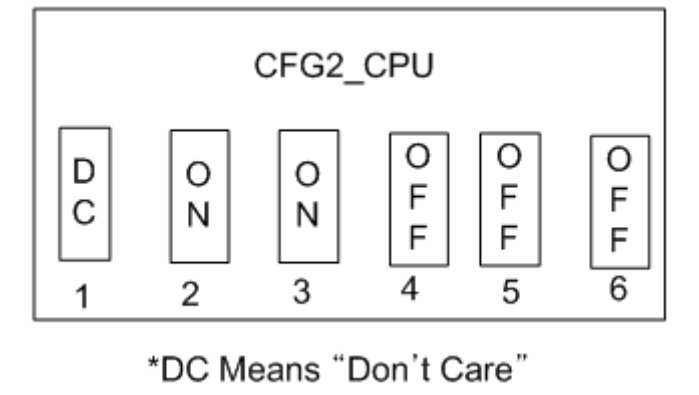


Figure 5-33 Switch setting for Nand Advanced NAND(page 2KB, Addr 5) card booting

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

5.3 Building and Running Single.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.

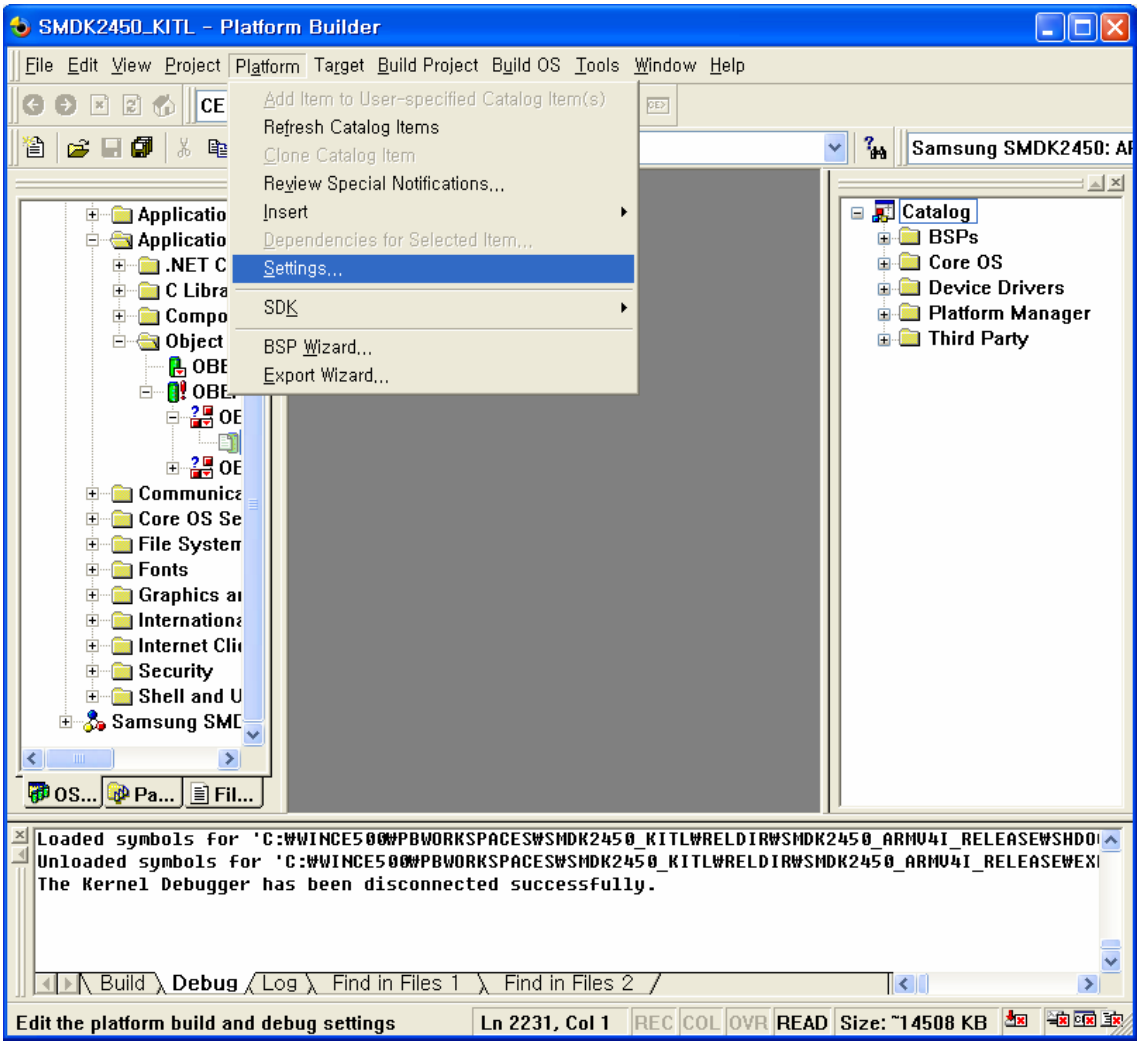


Figure 5-34 Platform Settings 1

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

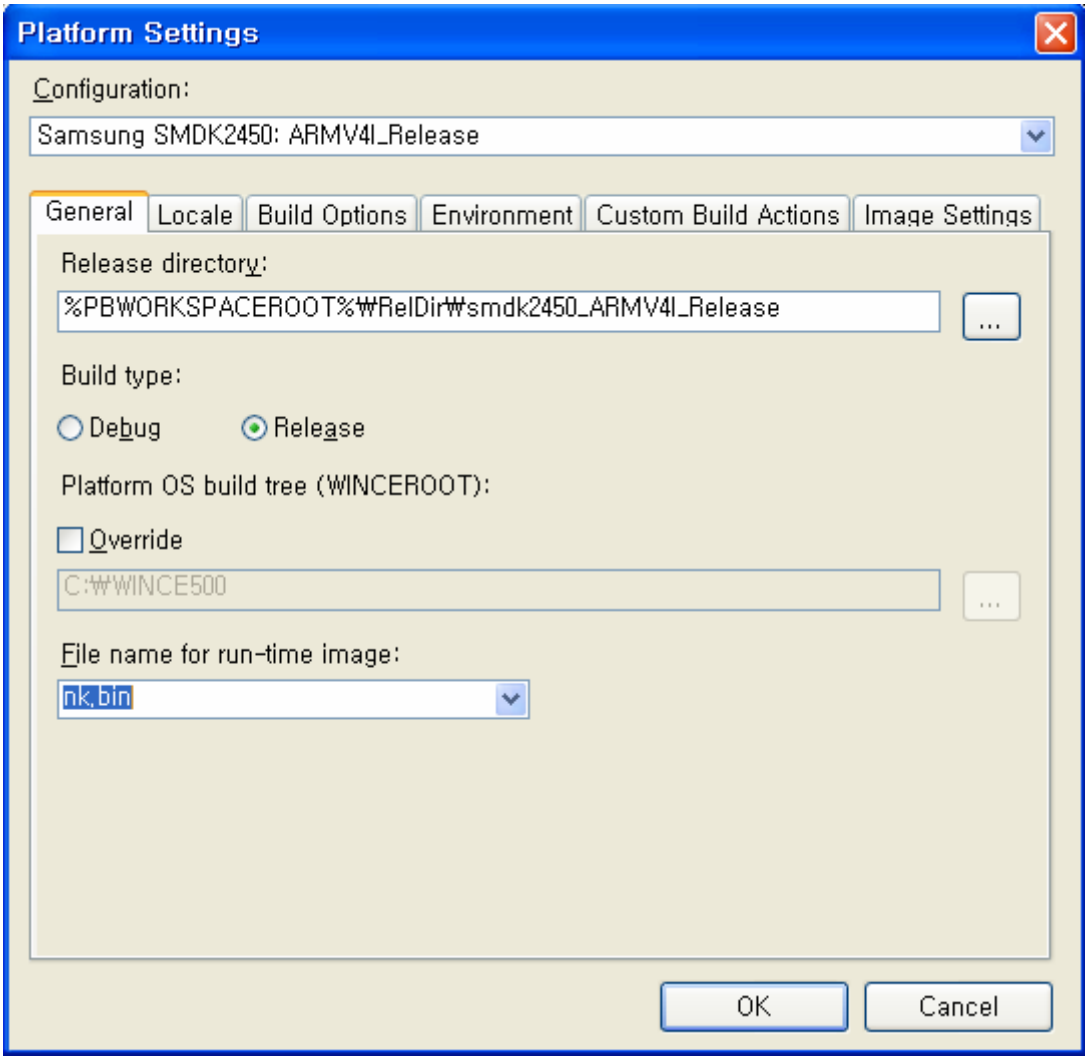


Figure 5-35 Platform Settings 2

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

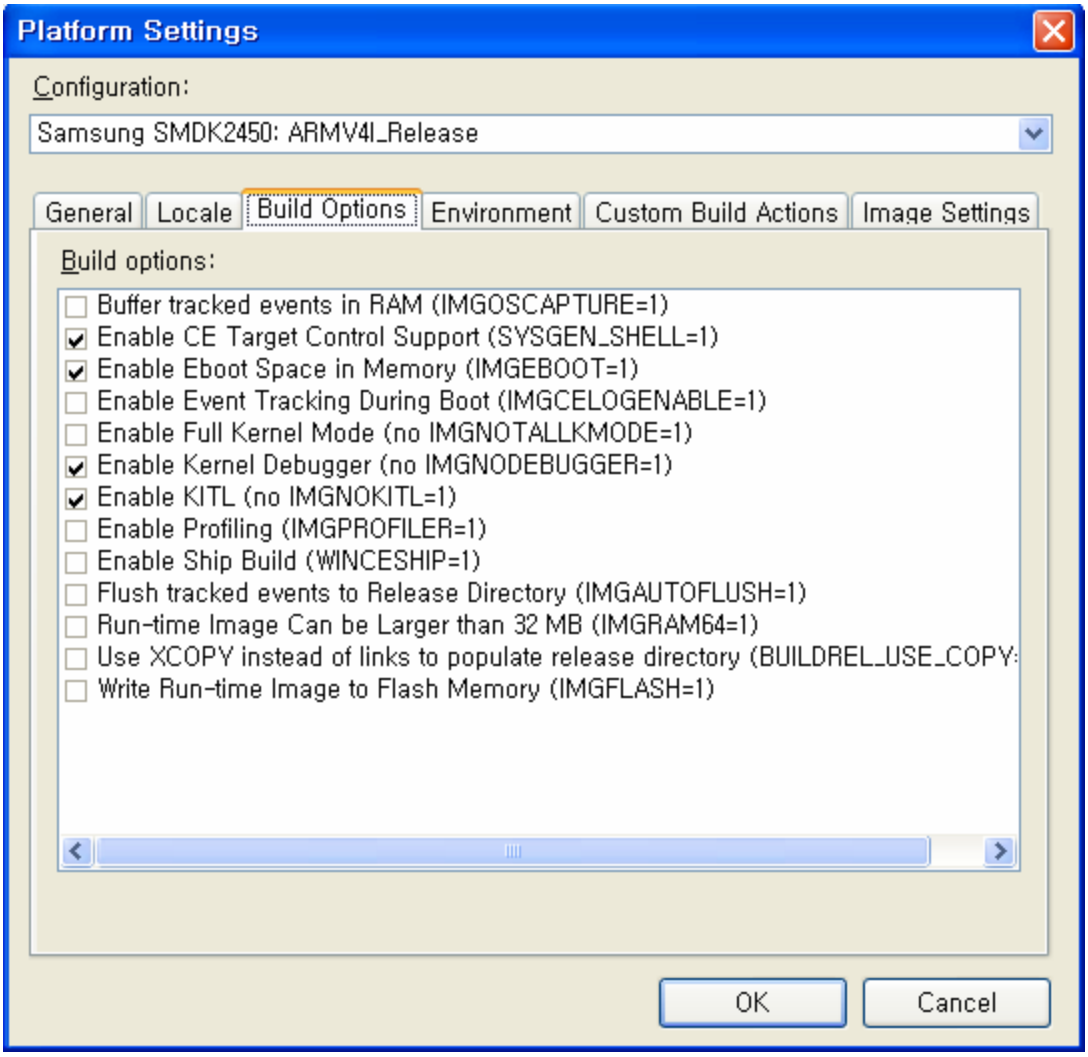


Figure 5-36 Platform Setting for KITL

5.4 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**.

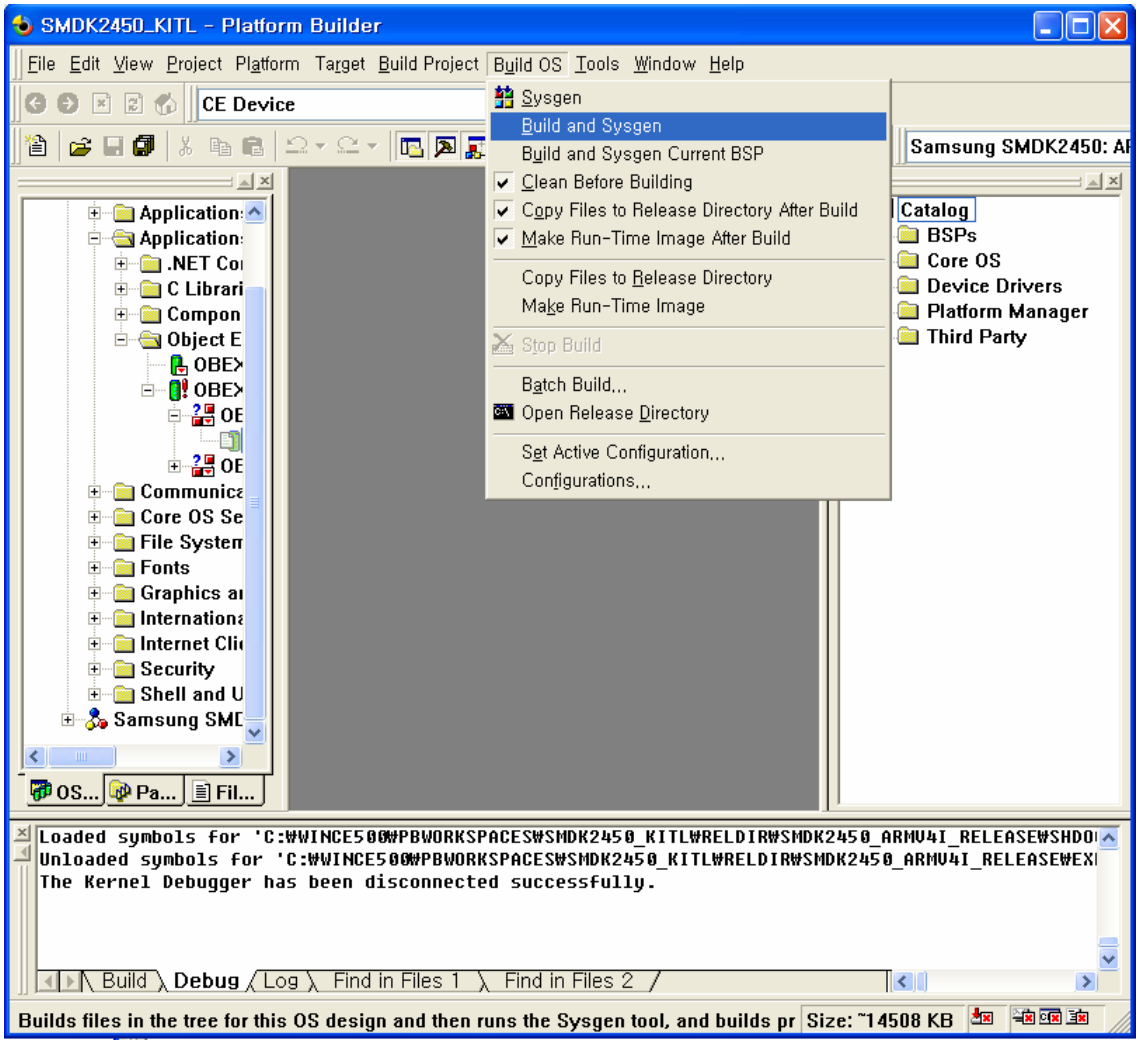


Figure 5-37 Build and Sysgen

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.

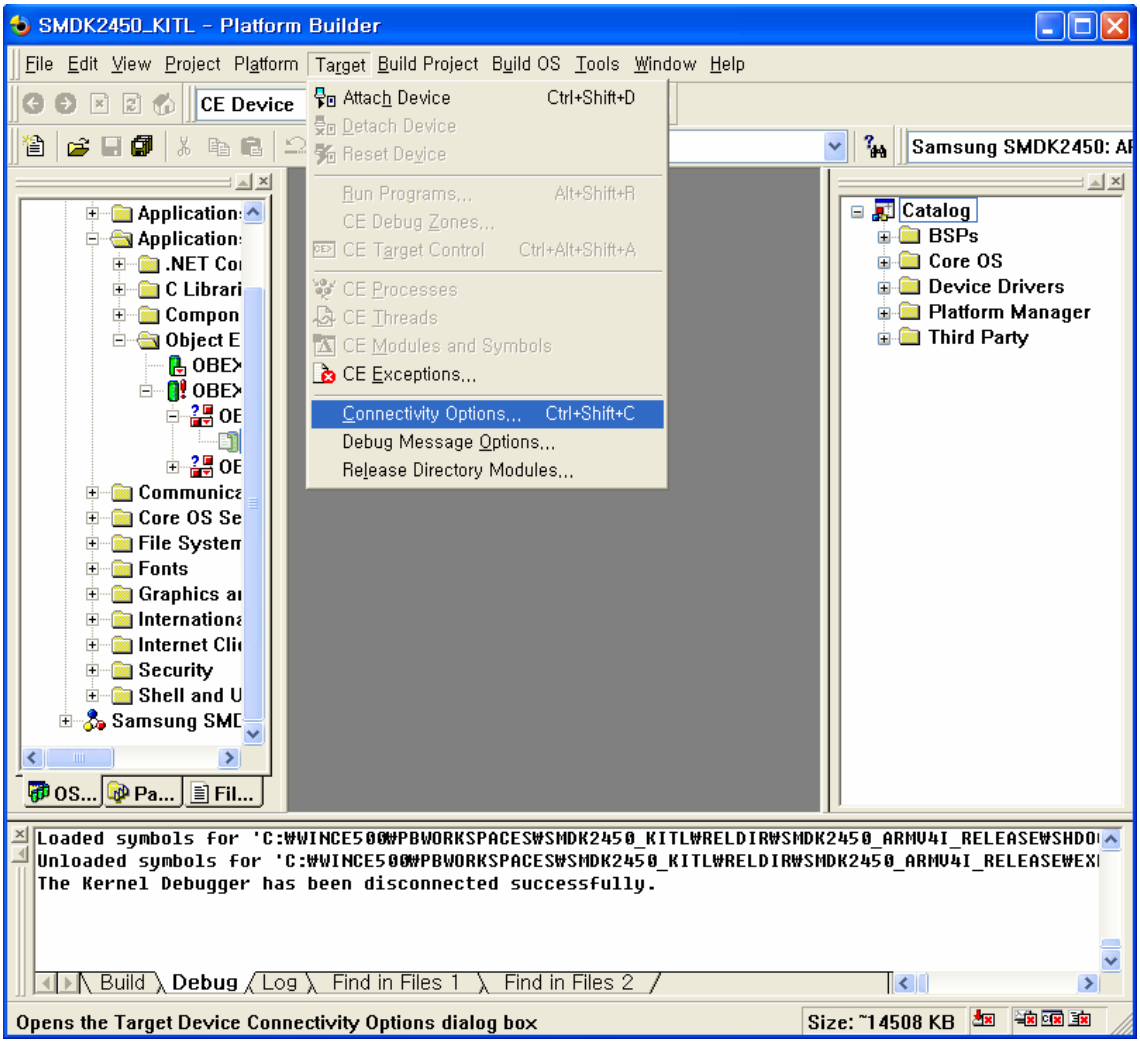


Figure 5-38 Selecting Connectivity Options

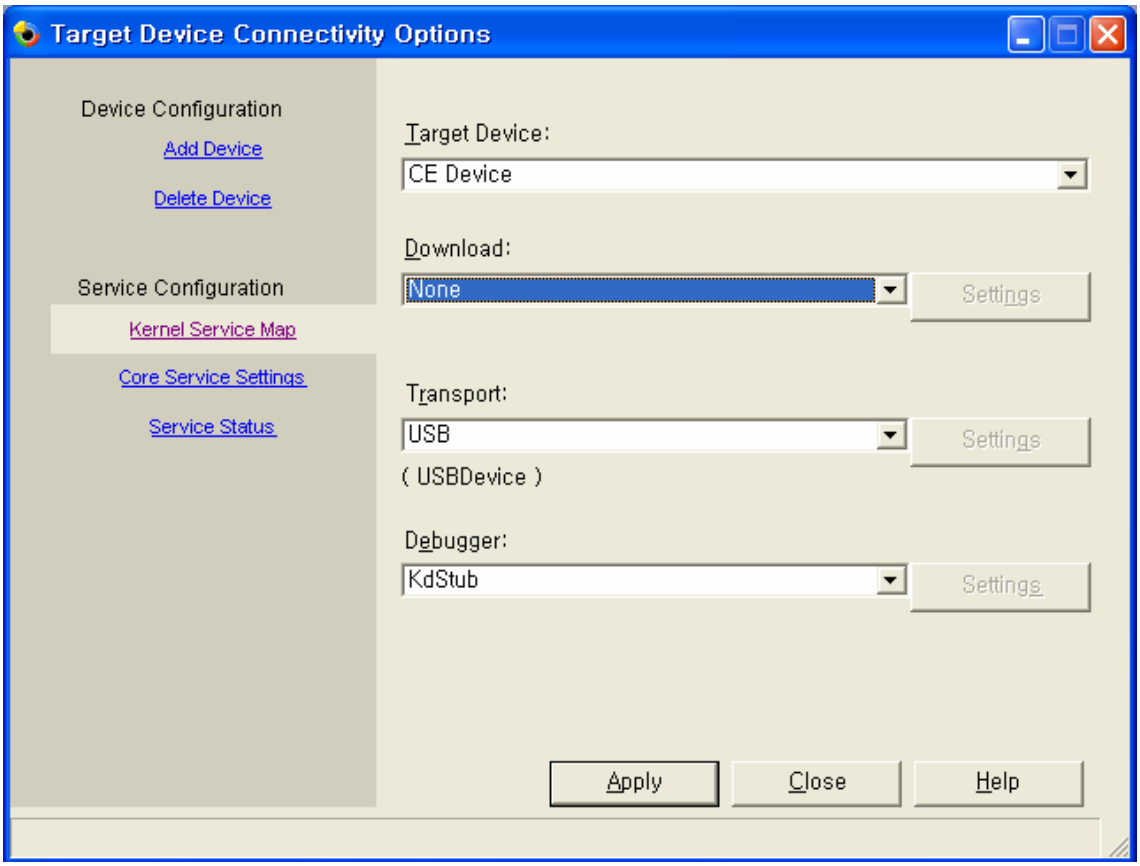


Figure 5-39 Target Device Connectivity Options Window

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.

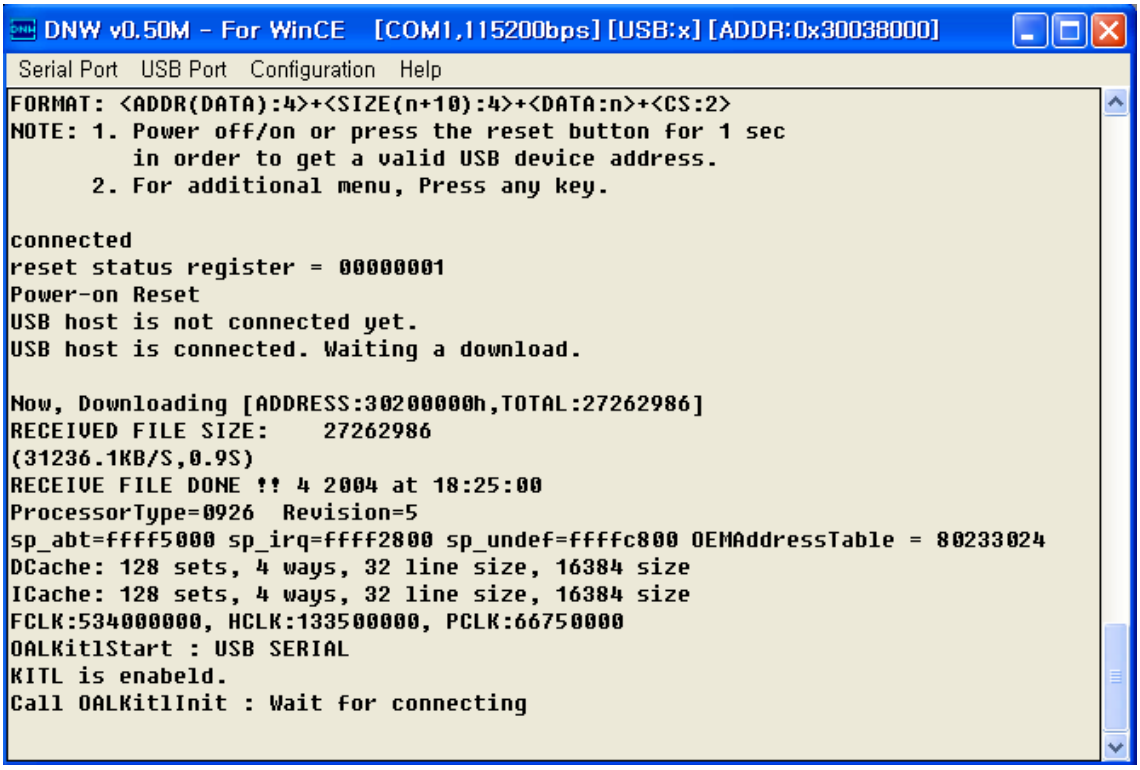


Figure 5-40 Messages via UART Port after NK.nb0 Download

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

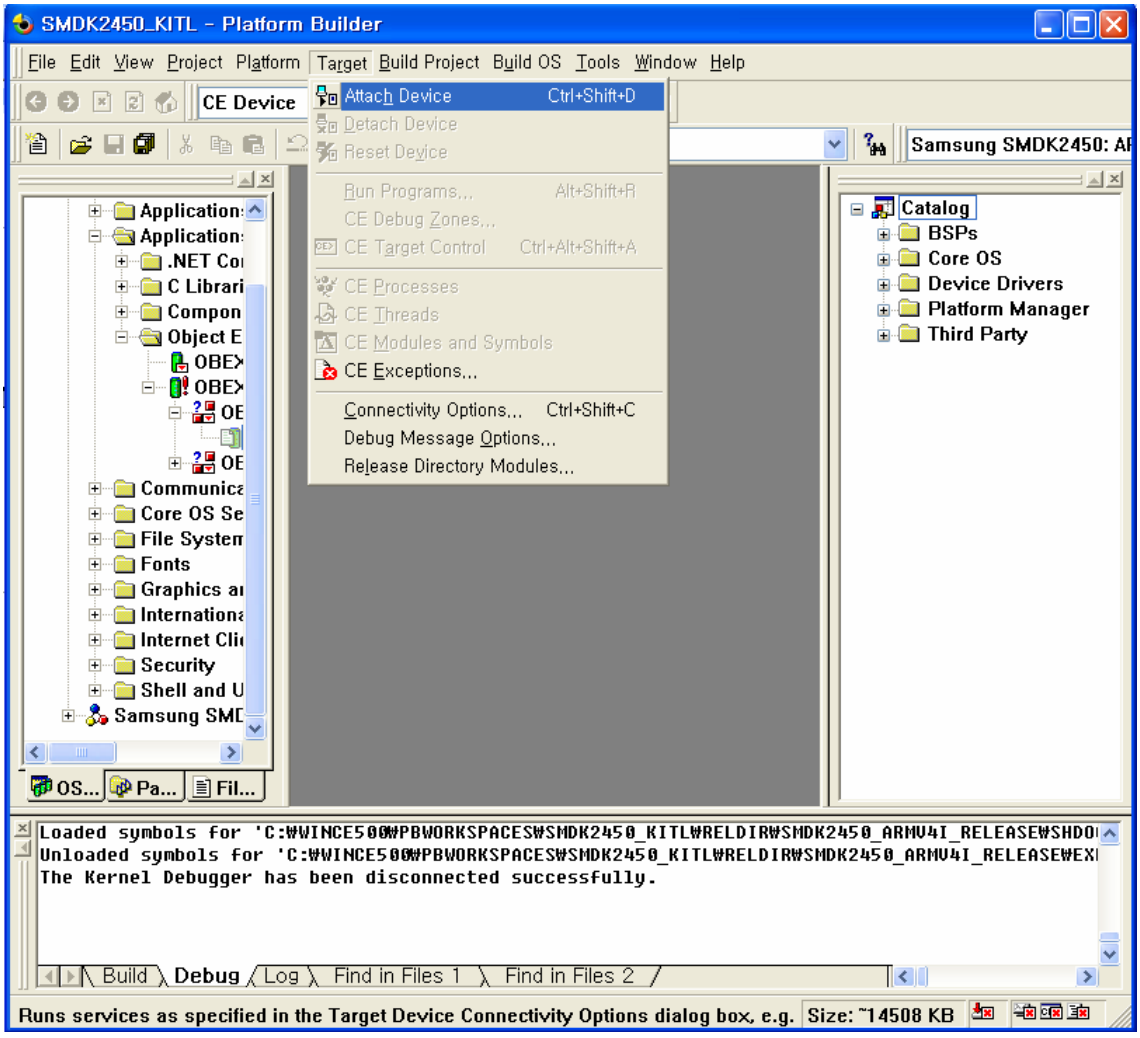


Figure 5-41 Attach Device

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.

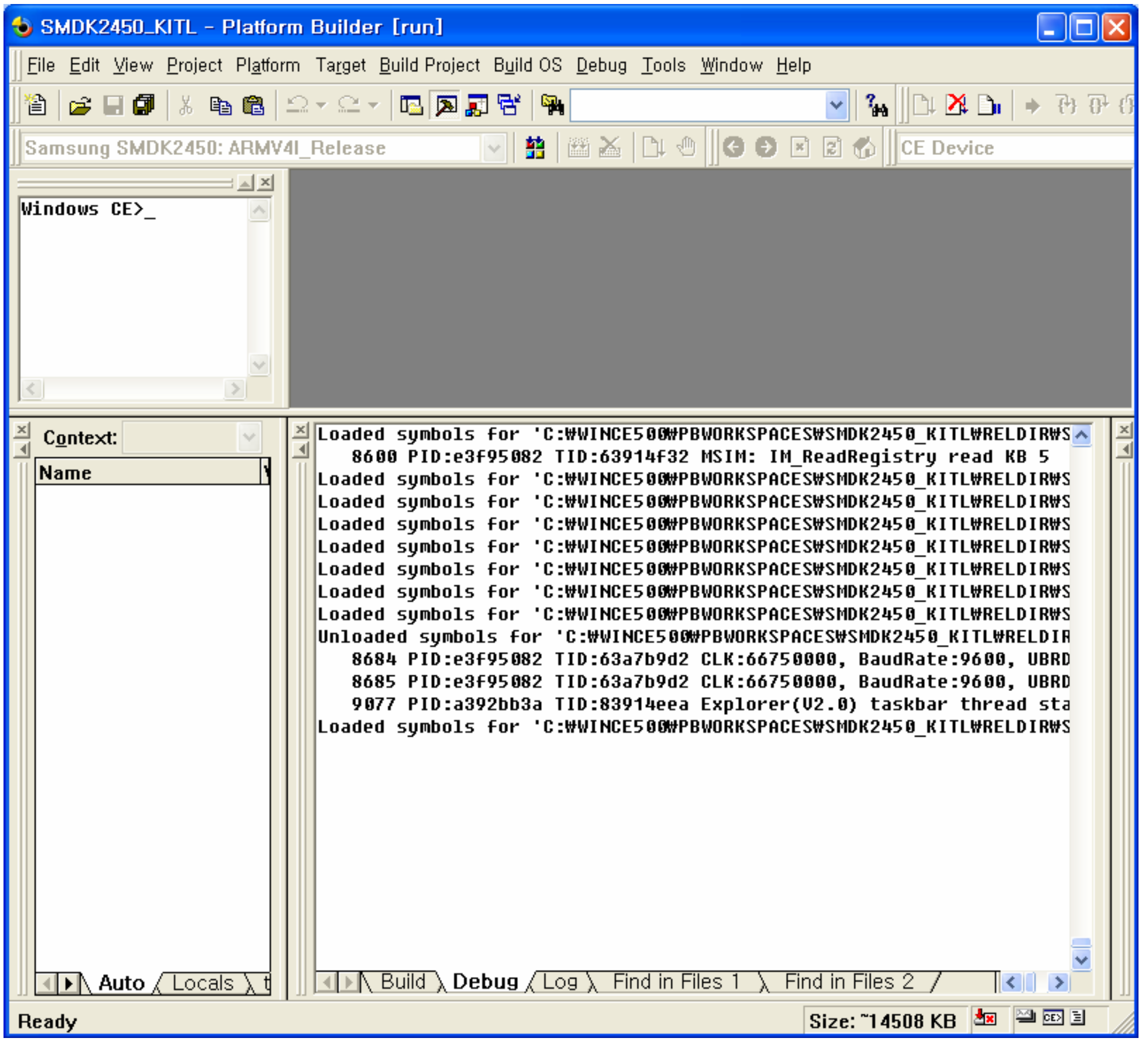


Figure 5-42 Platform Builder Window after USB Serial KITL connected

6 Mulitpple XIP Image

6.1 Running chain.lst Image

In case of MultipleXIP, you cannot generate the Nk.nb0 image. So you cannot download the Nk.nb0 image directly.

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

In this chapter, you can understand how to fuse the block0img.nb0, eboot.bin and OS image to the SOP NAND via USB download.

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

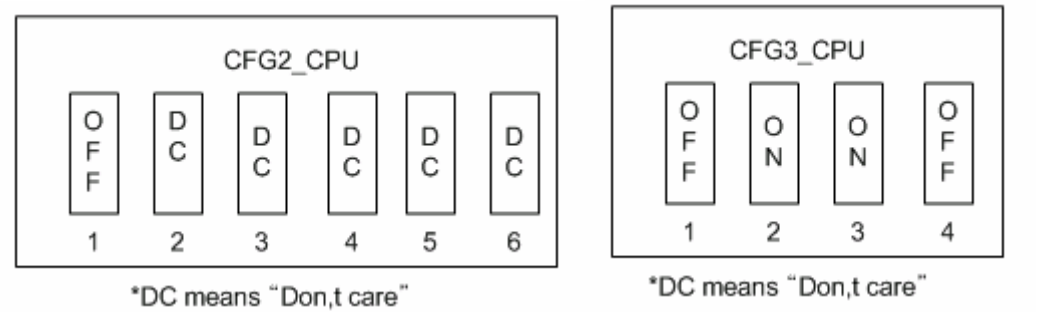


Figure 6-1 Jumper Setting for crystal

3. Set the Jumpers for memory type

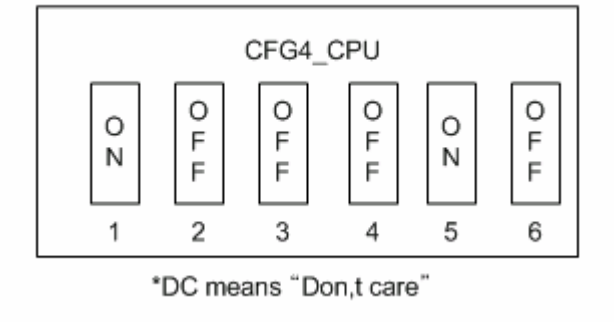


Figure 6-2 Jumper Setting for SDR Memory

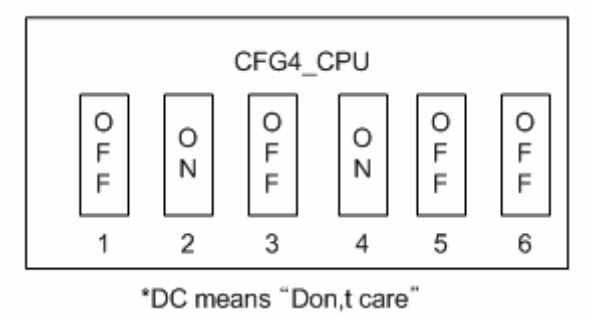


Figure 6-3 Jumper Setting for DDR Memory

* 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

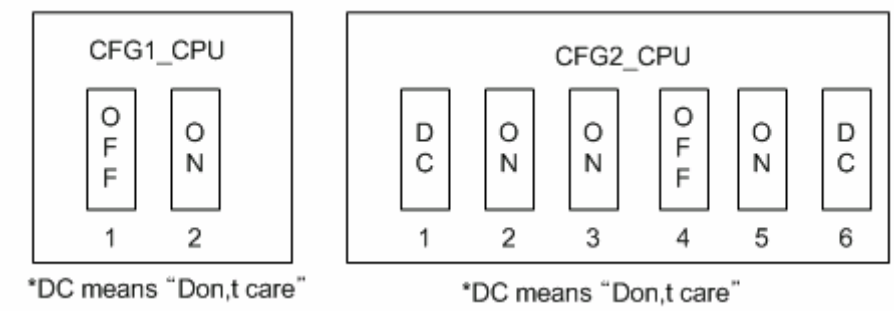


Figure 6-4 Switch Setting on CPU board for AMD flash boot

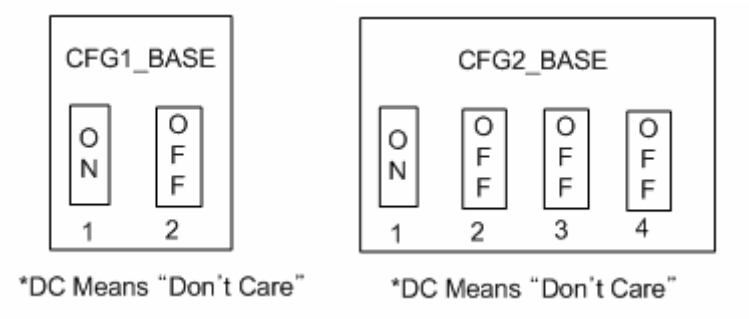


Figure 6-5 Switch Setting on Base board for NandAccess

5. Please install the USB Driver and DNW application on your host PC.

6. Run **dnw.exe** on the host PC. The following window appears on your screen.

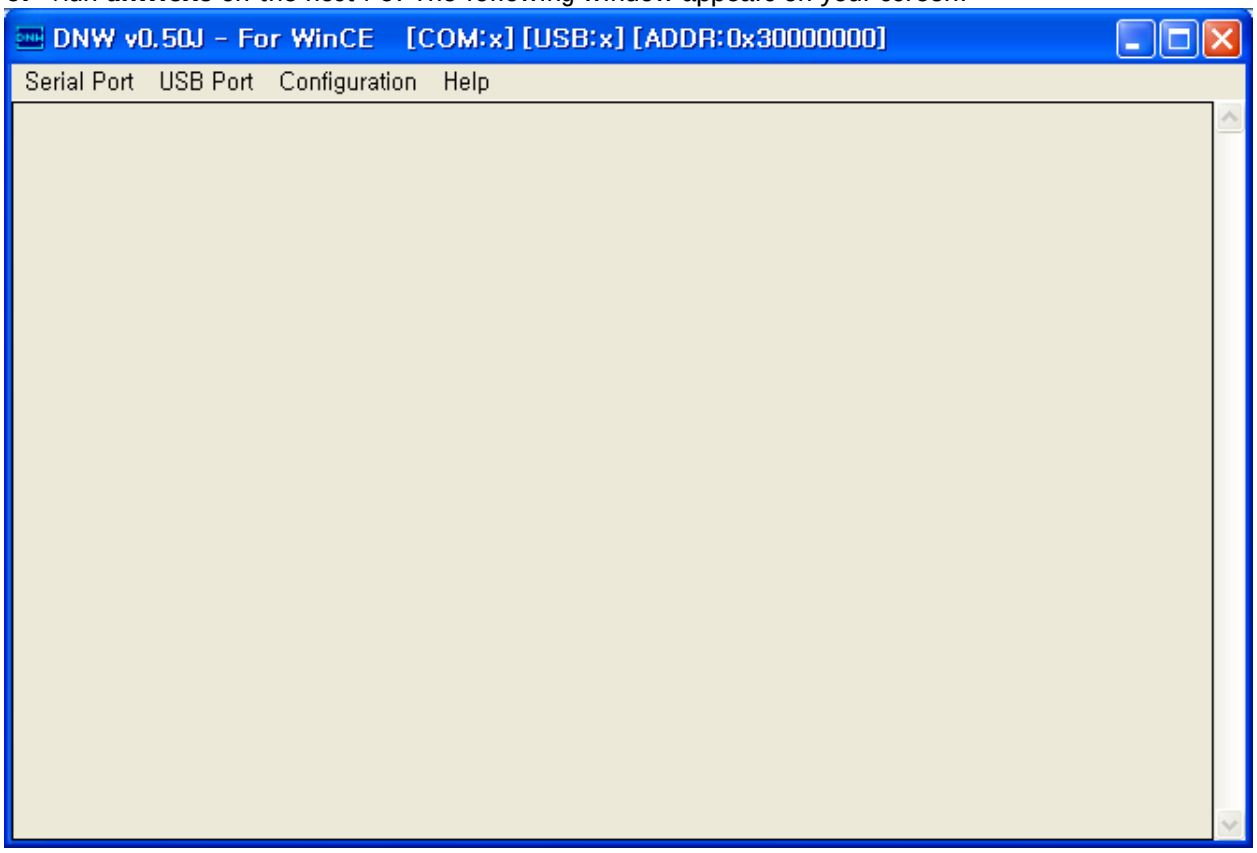


Figure 6-6 DNW Window

7. On the C**onfiguration** 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 6-7, enter the download address as **0x30038000** and then click **OK** button.

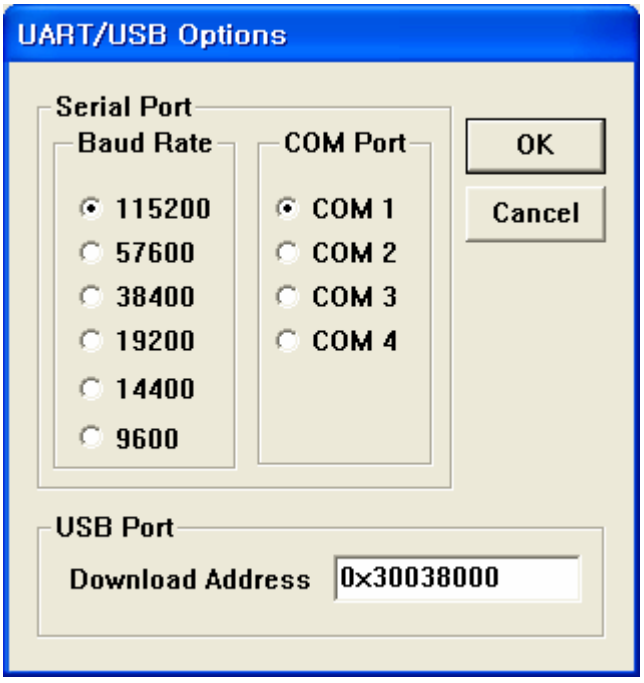


Figure 6-7 UART/USB Options

8. On the **Serial Port** menu, click **Connect**. Switch **ON** the reference board. The DNW window appears as shown in figure 6-8.

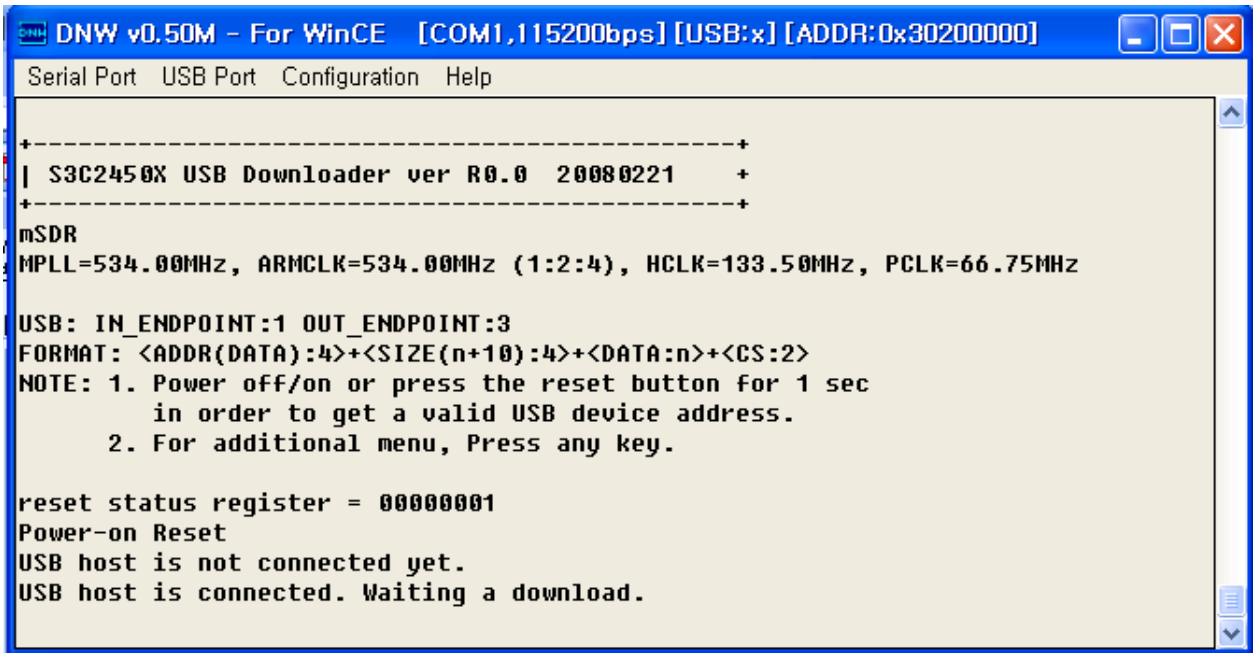


Figure 6-8 DNW Window after Board Power ON

9. 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.

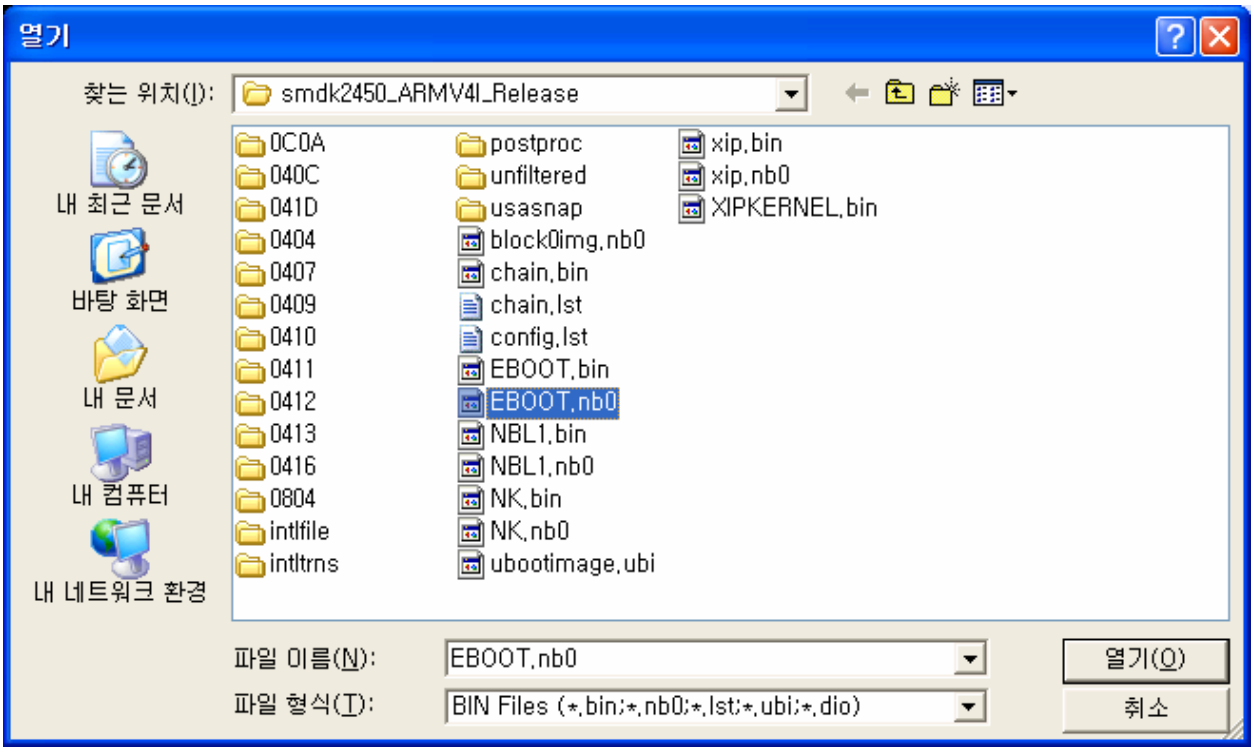


Figure 6-9 Selecting EBOOT.nb0 for Download

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

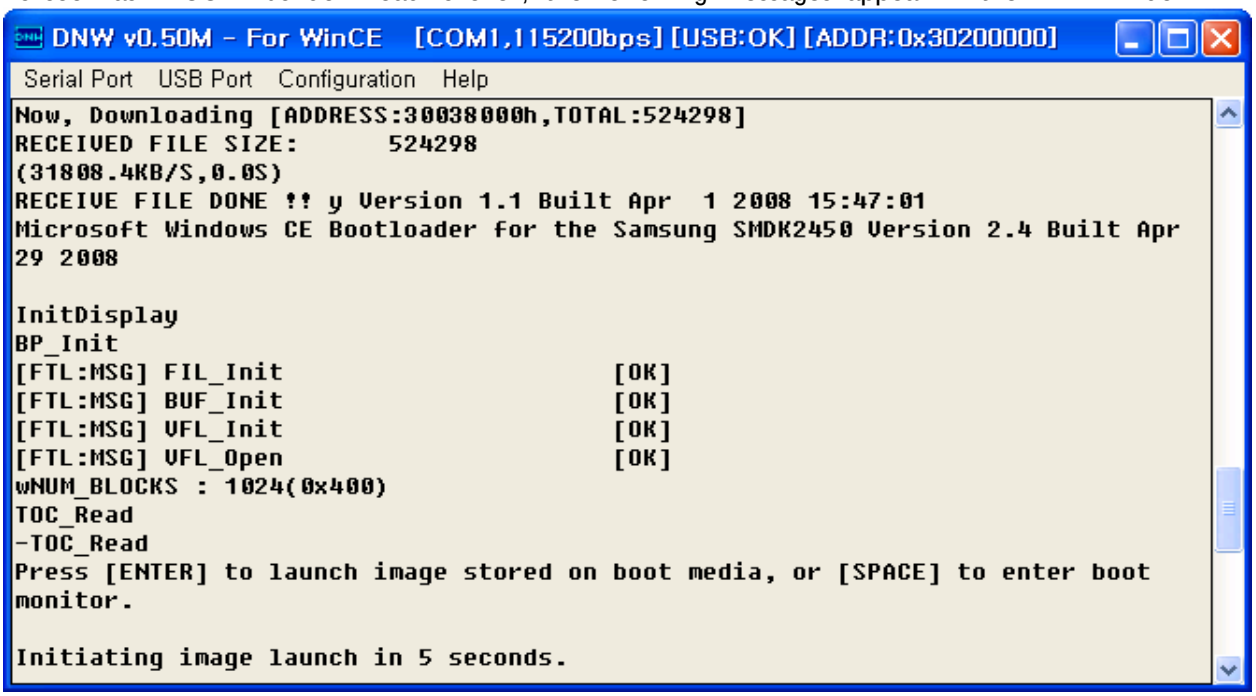


Figure 6-10 After EBOOT.nb0 Download

11. 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 Nand Flash:** ENABLED
- Enter **[W]** to **Write Configuration Right Now**
- Enter **[A]** to **Format FIL (Erase All Blocks)**

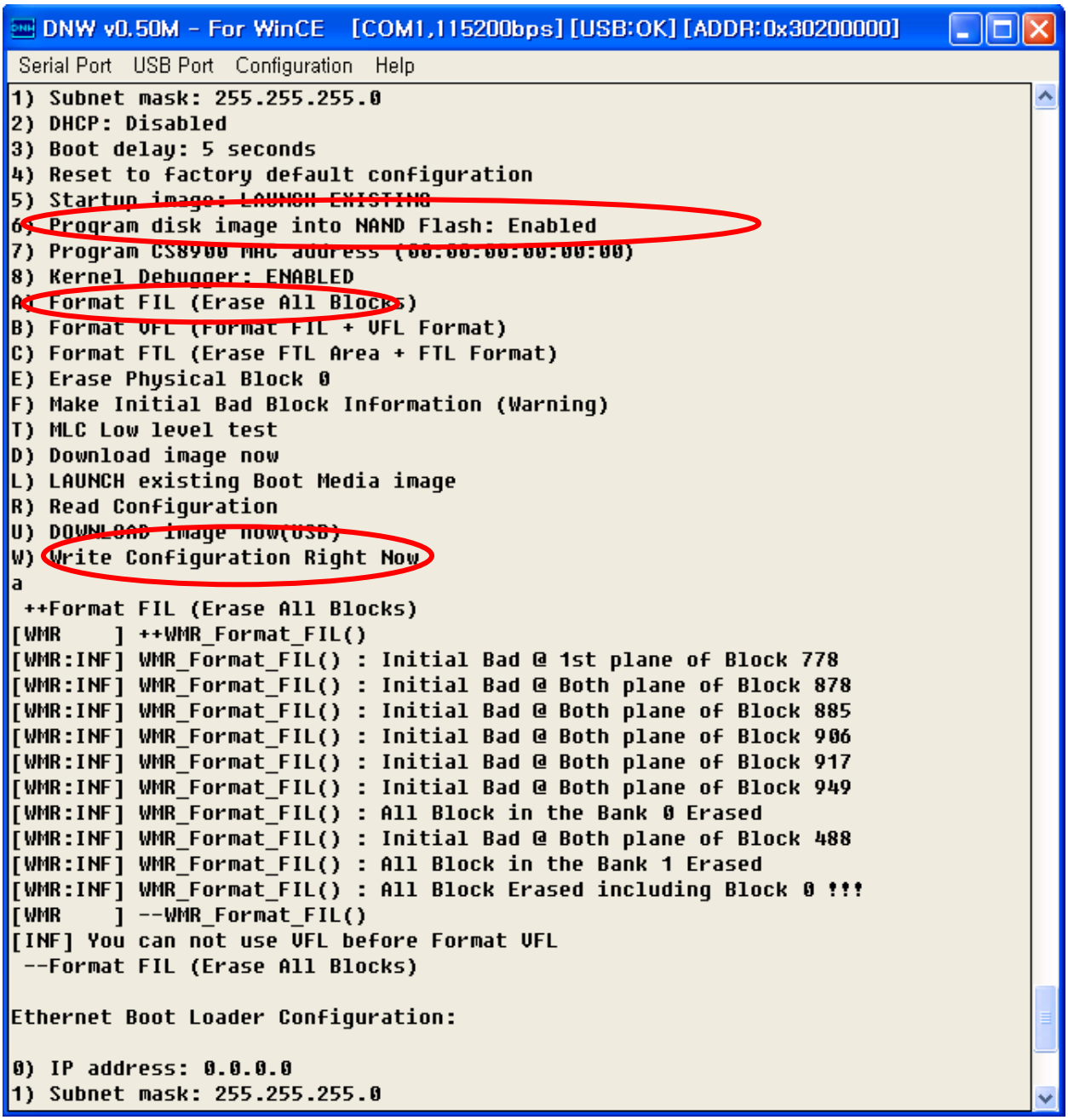
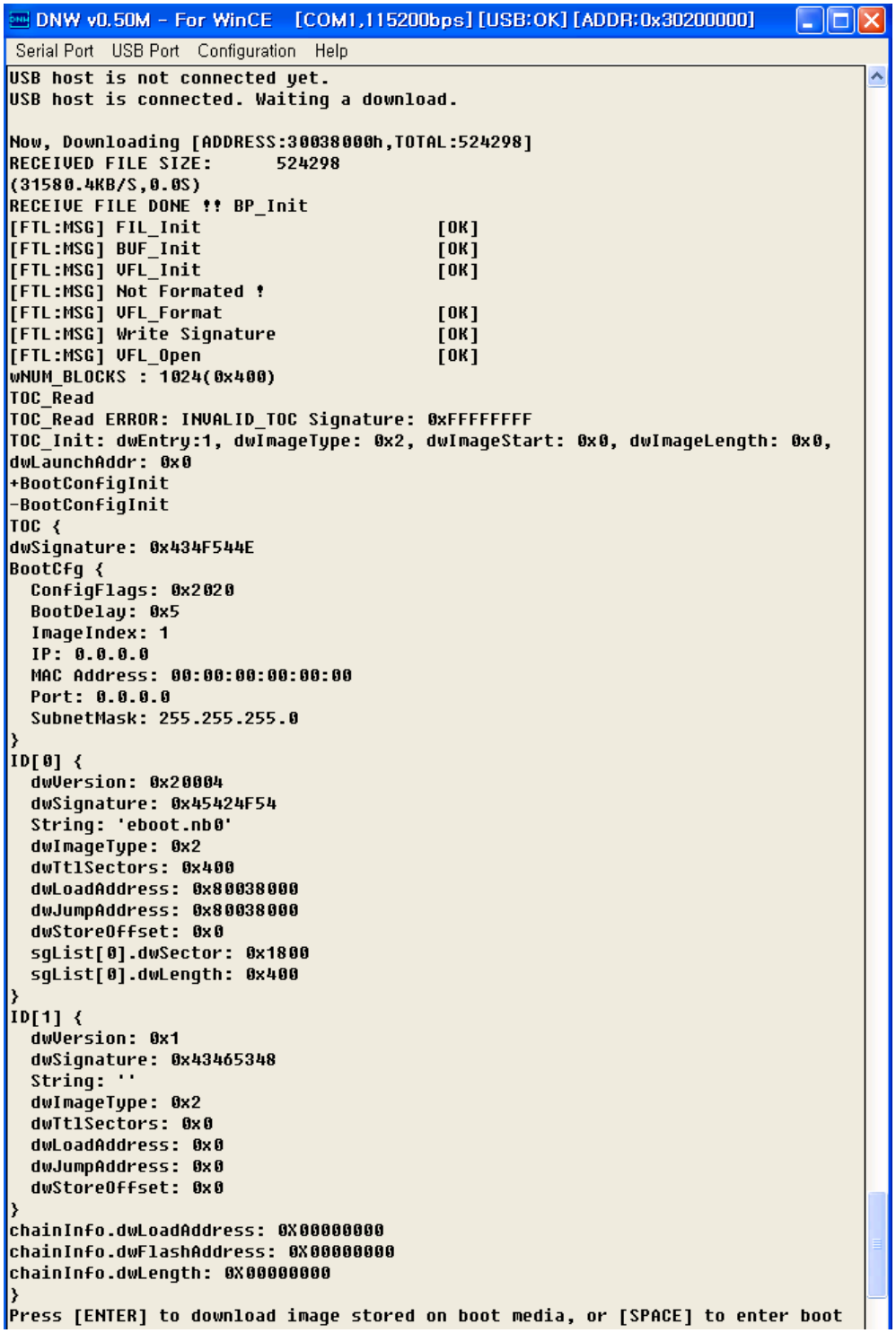


Figure 6-11 Boot Loader Configurations

12. Reboot SMDK board. Retry to download **Eboot.nb0** image. You can see following Message.



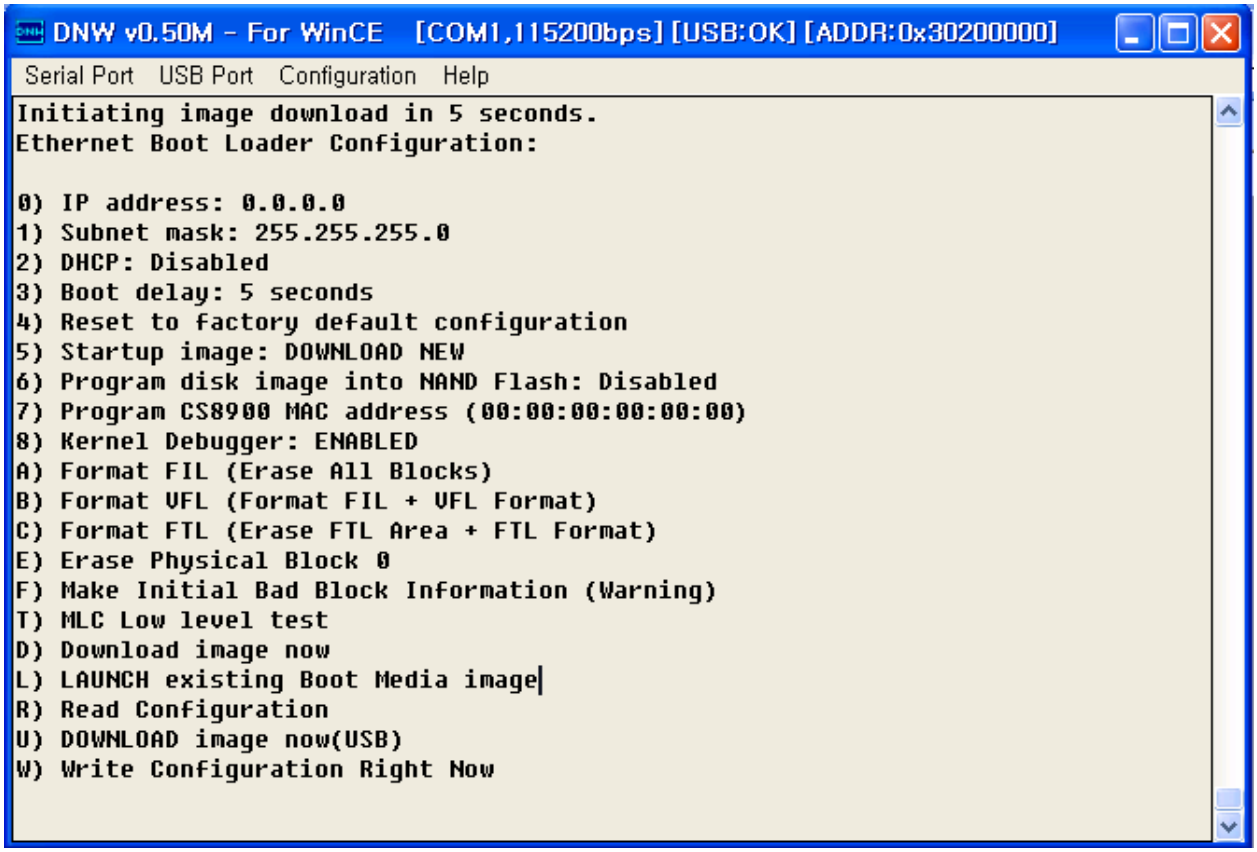


Figure 6-12 Boot Loader Status after format

13. 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 Nand Flash:** ENABLED
- Enter **[5]** to make **Startup image: LAUNCH EXISTING**
- Enter **[W]** to **Write Configuration Right Now**
- Enter **[U]** to **Download image now(USB)**

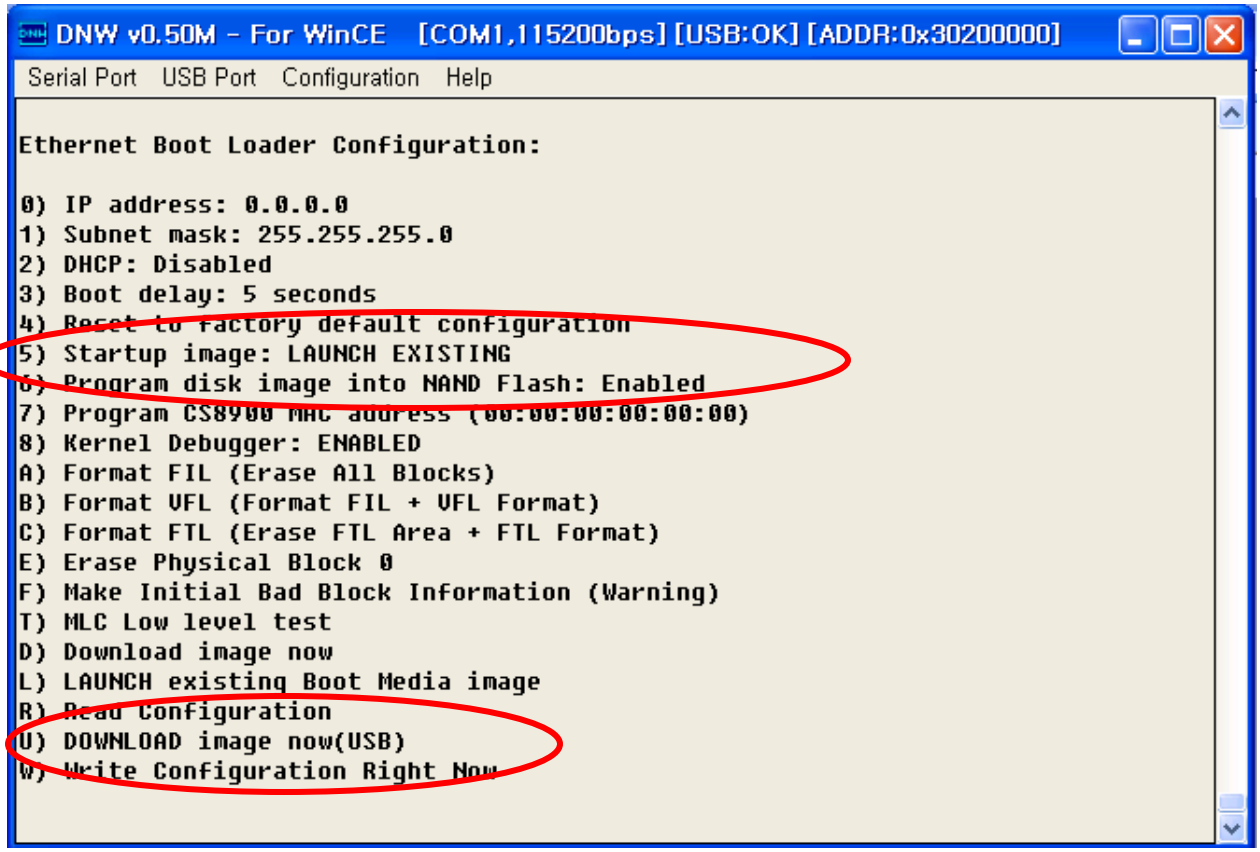


Figure 6-13 Boot Loader configurations

14. On the **USB Port** menu click **UBOOT** and the following window appears on your screen. Select **block0img.nb0**from **X:\WINCE500\PBWorkspaces\[platform name]\RelDir\smdk2450_ARMV4I_Release** directory and then click **Open** button.

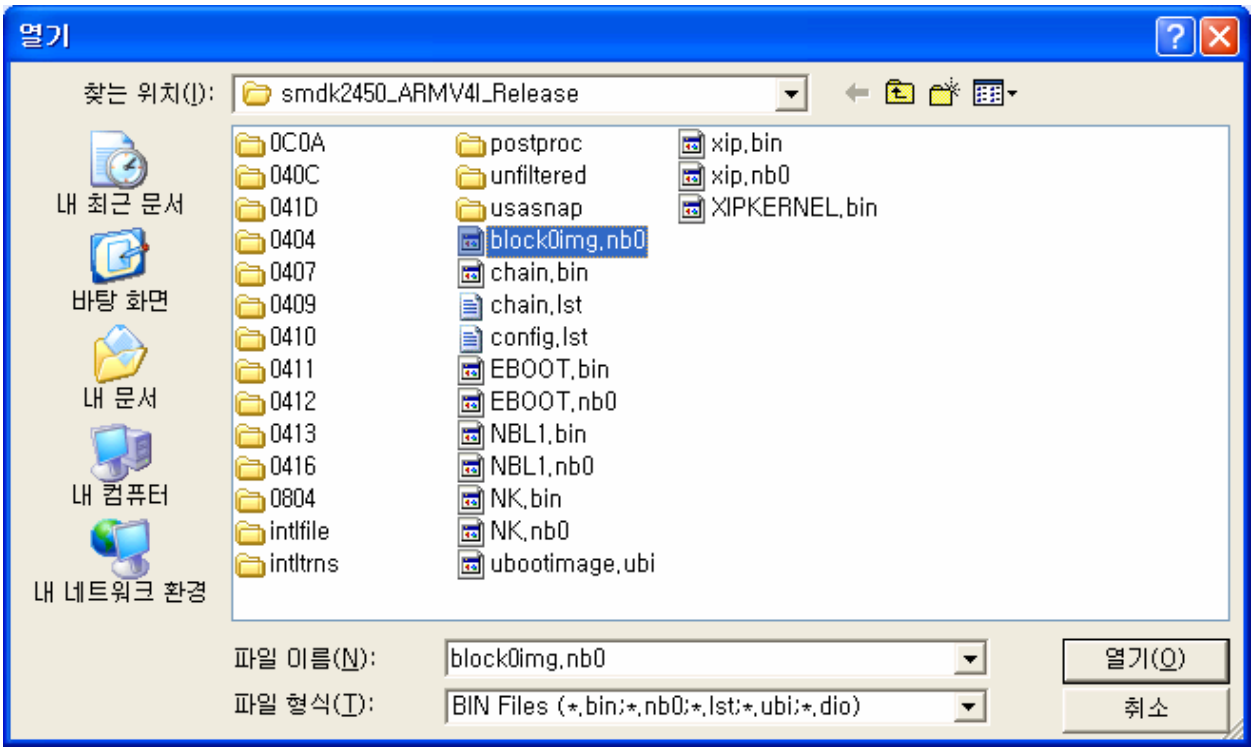


Figure 6-14 Selecting block0img.nb0 for Download

15. You can see the following messages on the DNW window after **block0img.nb0** download is over.

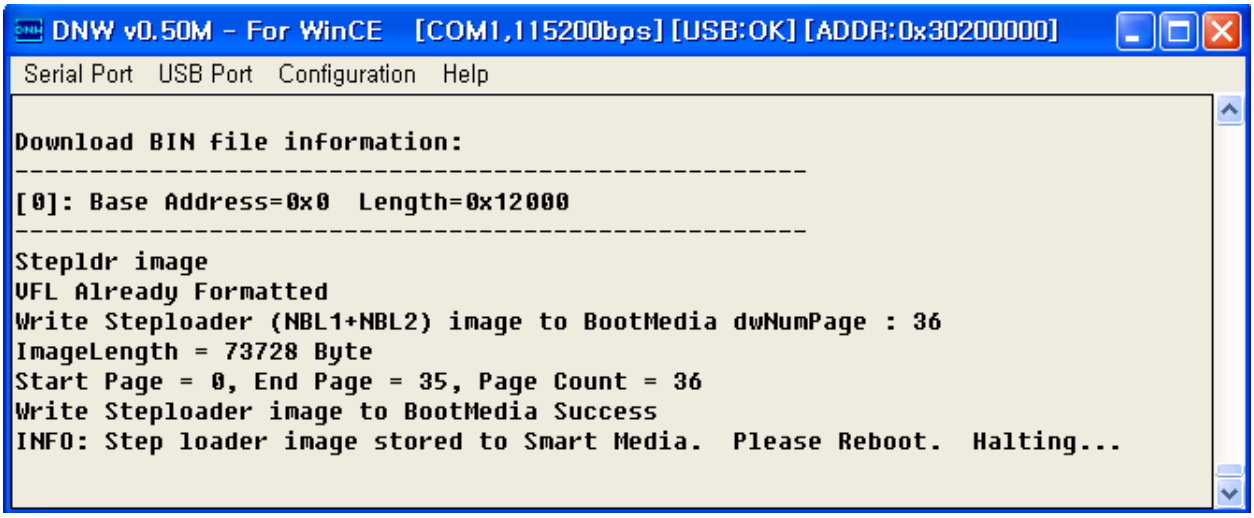


Figure 6-15 Messages via UART Port after block0img.nb0 Download

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

- Enter **[U]** to **Download image now(USB)**

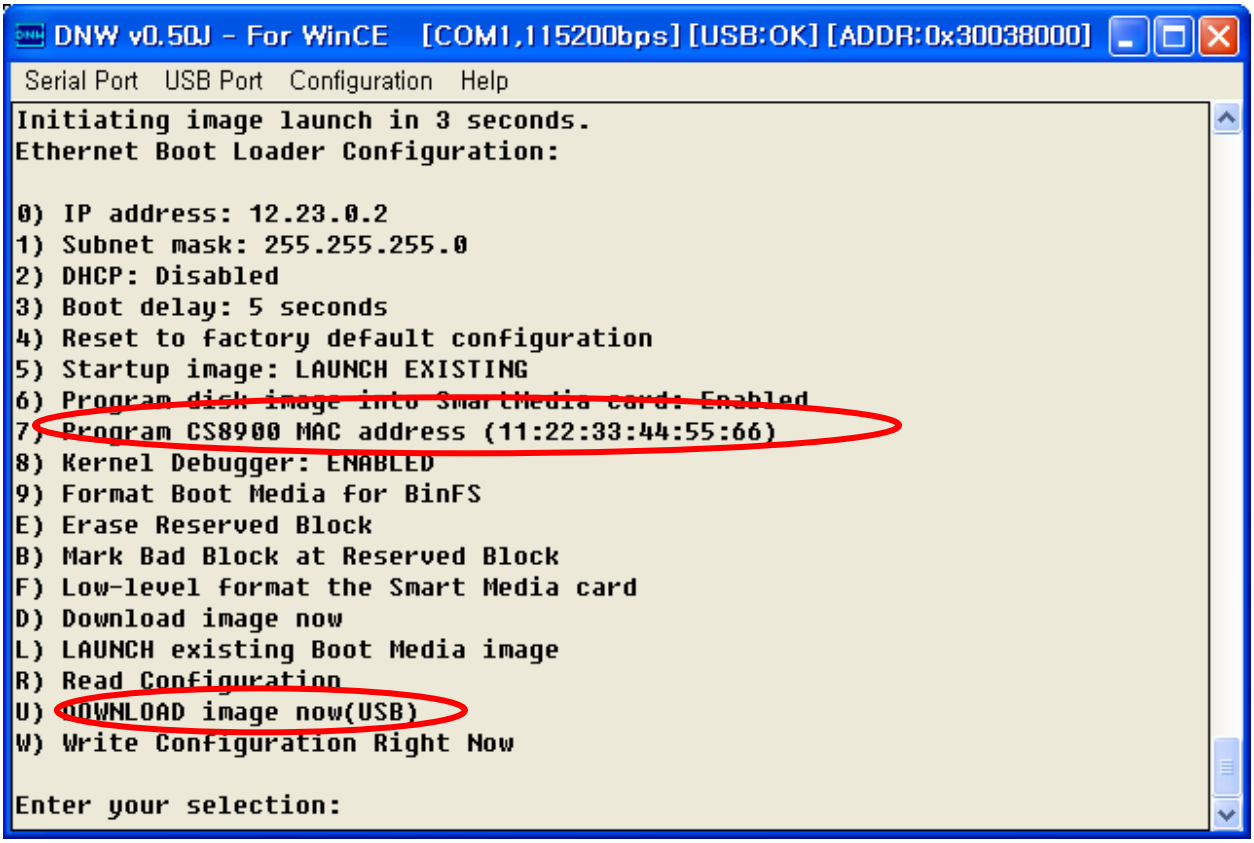


Figure 6-16 USB Boot Loader Configurations

16. 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.

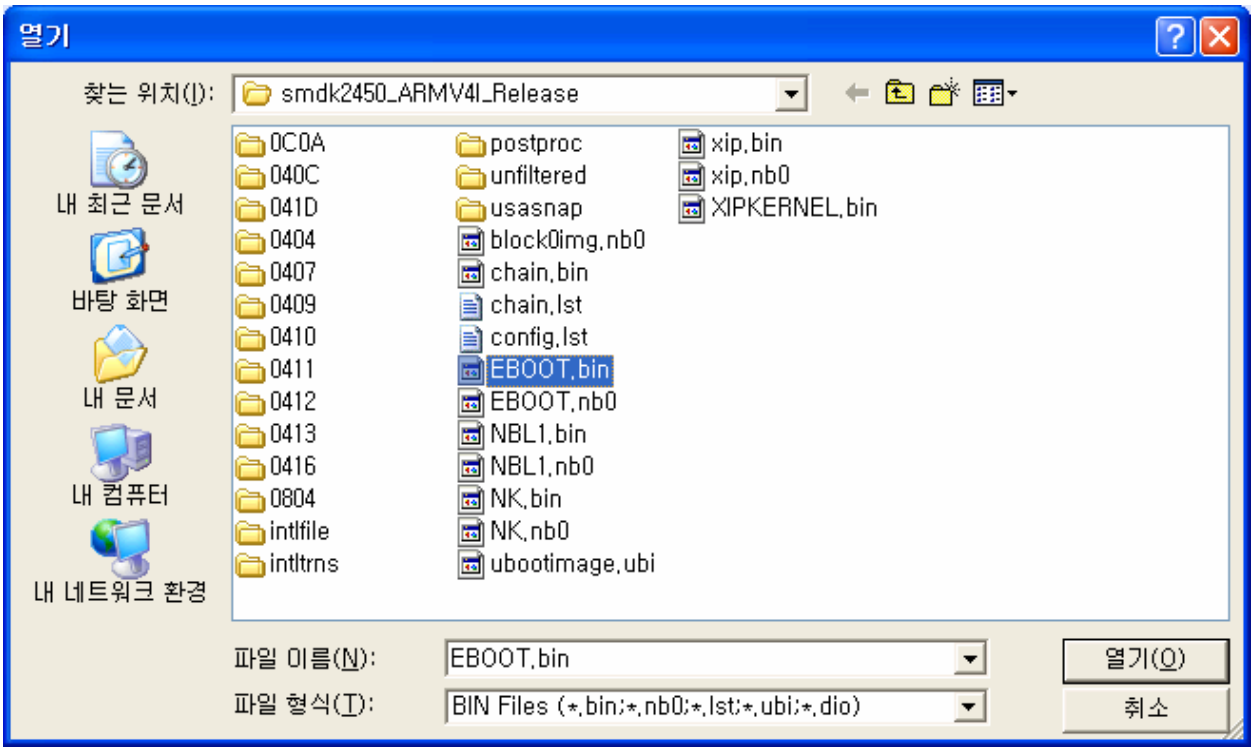


Figure 6-17 Selecting EBOOT.bin for Download

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

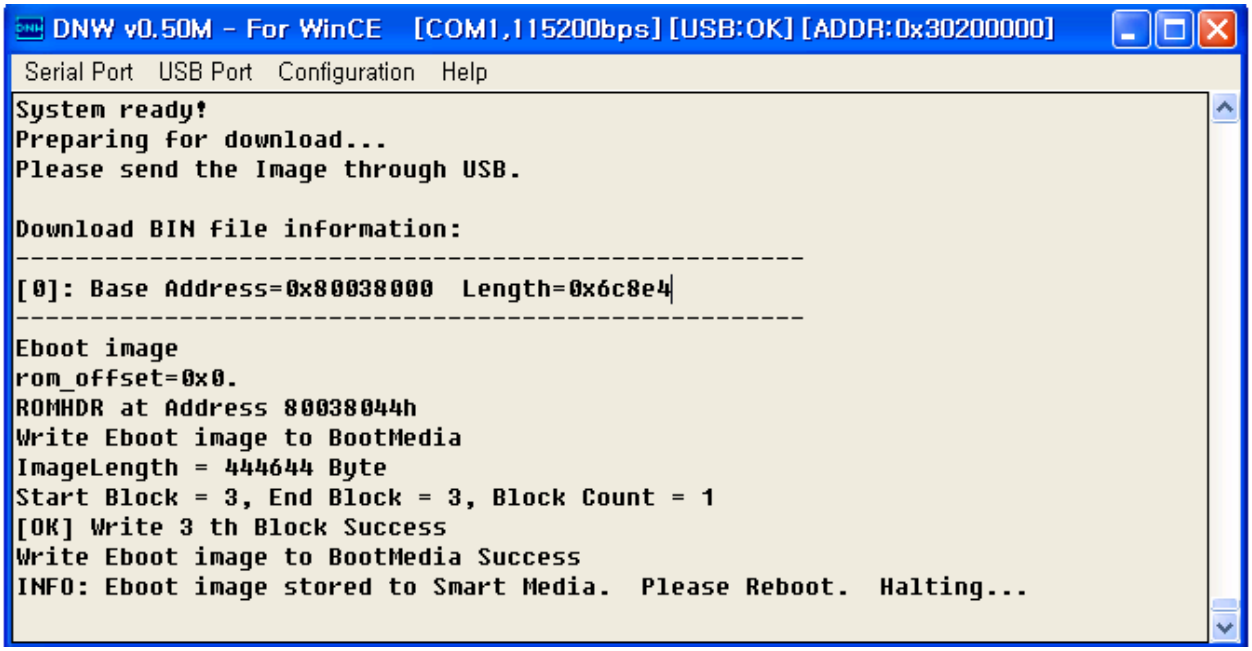


Figure 6-18 Messages via UART Port after eboot.bin Download

18. 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 Nand Flash:** ENABLED
- Enter **[5]** to make **Startup image:** LAUNCH EXISTING
- Enter **[W]** to **Write Configuration Right Now**
- Enter **[U]** to **Download image now(USB)**

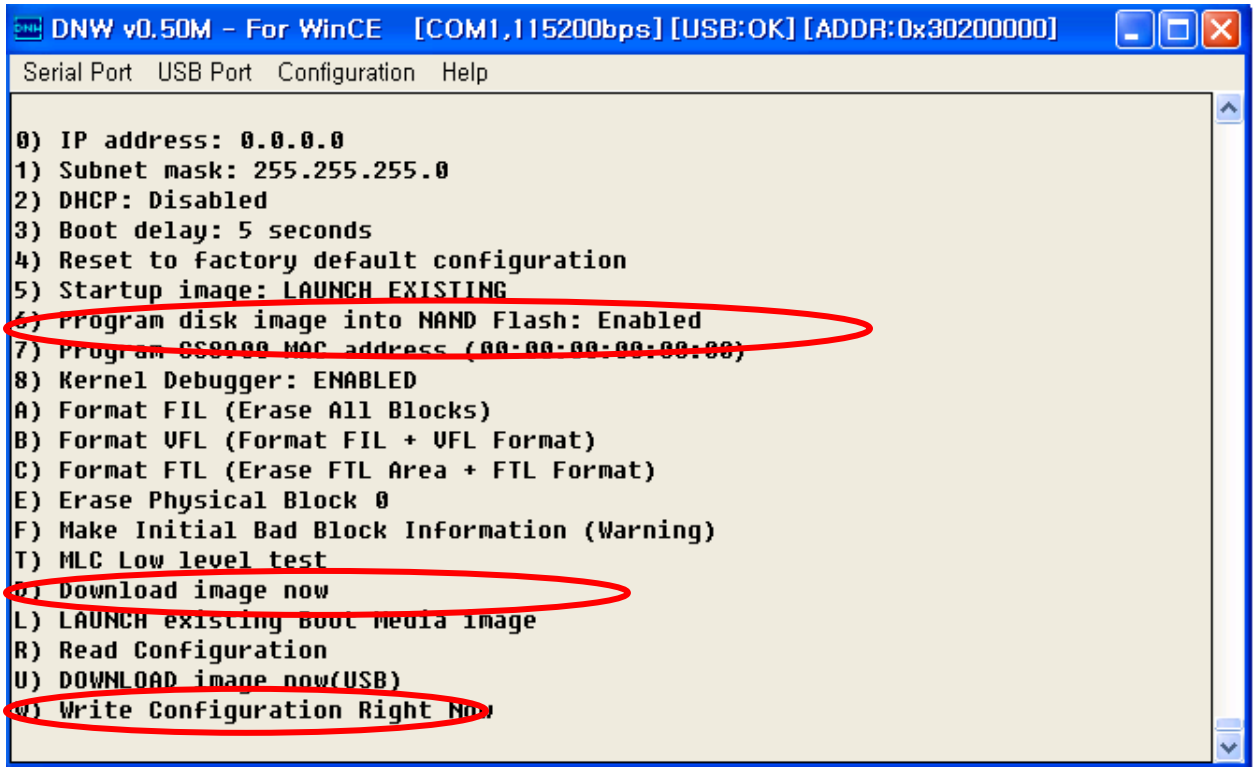


Figure 6-19 USB Boot Loader Configurations

19. On the **USB Port** menu click **UBOOT(WINCE500)** and the following window appears on your screen. Select **chain.lst** from **X:\WINCE500\PBWorkspaces\[platform name]\RelDir\smdk2450_ARMV4I_Release** directory and then click **Open** button.

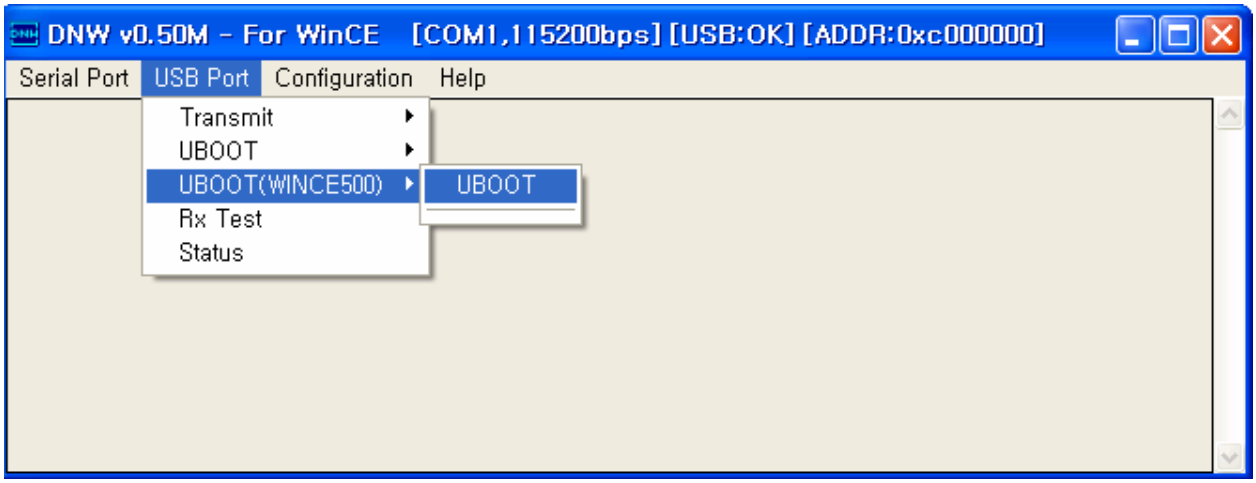


Figure 6-20 Selecting UBOOT(WINCE500)

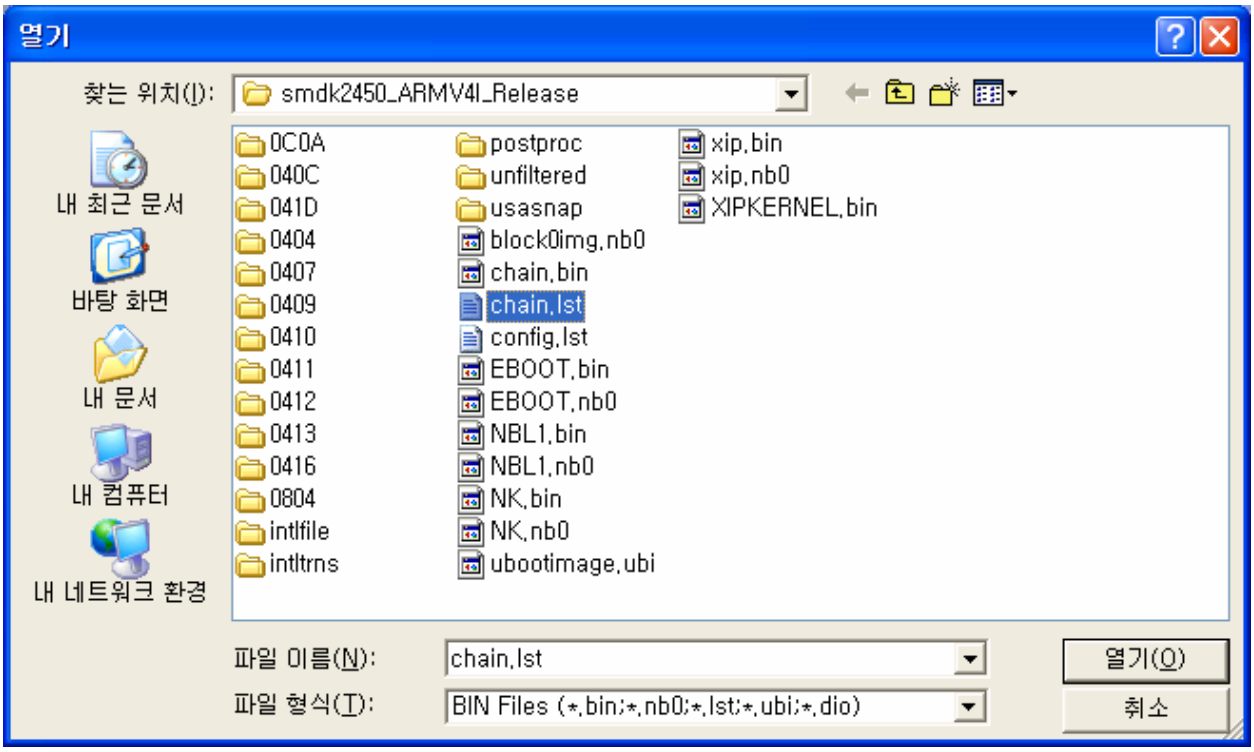


Figure 6-21 Selecting Chain.lst for Download

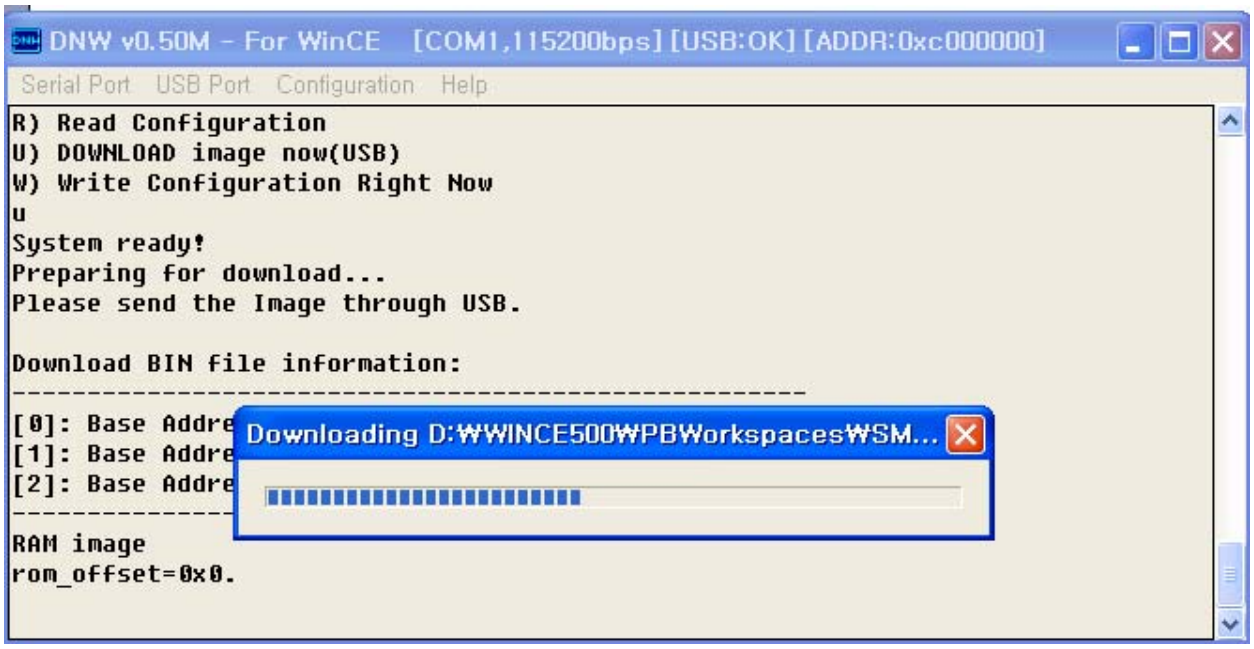


Figure 6-22 Messages via UART Port during Chain.lst Download

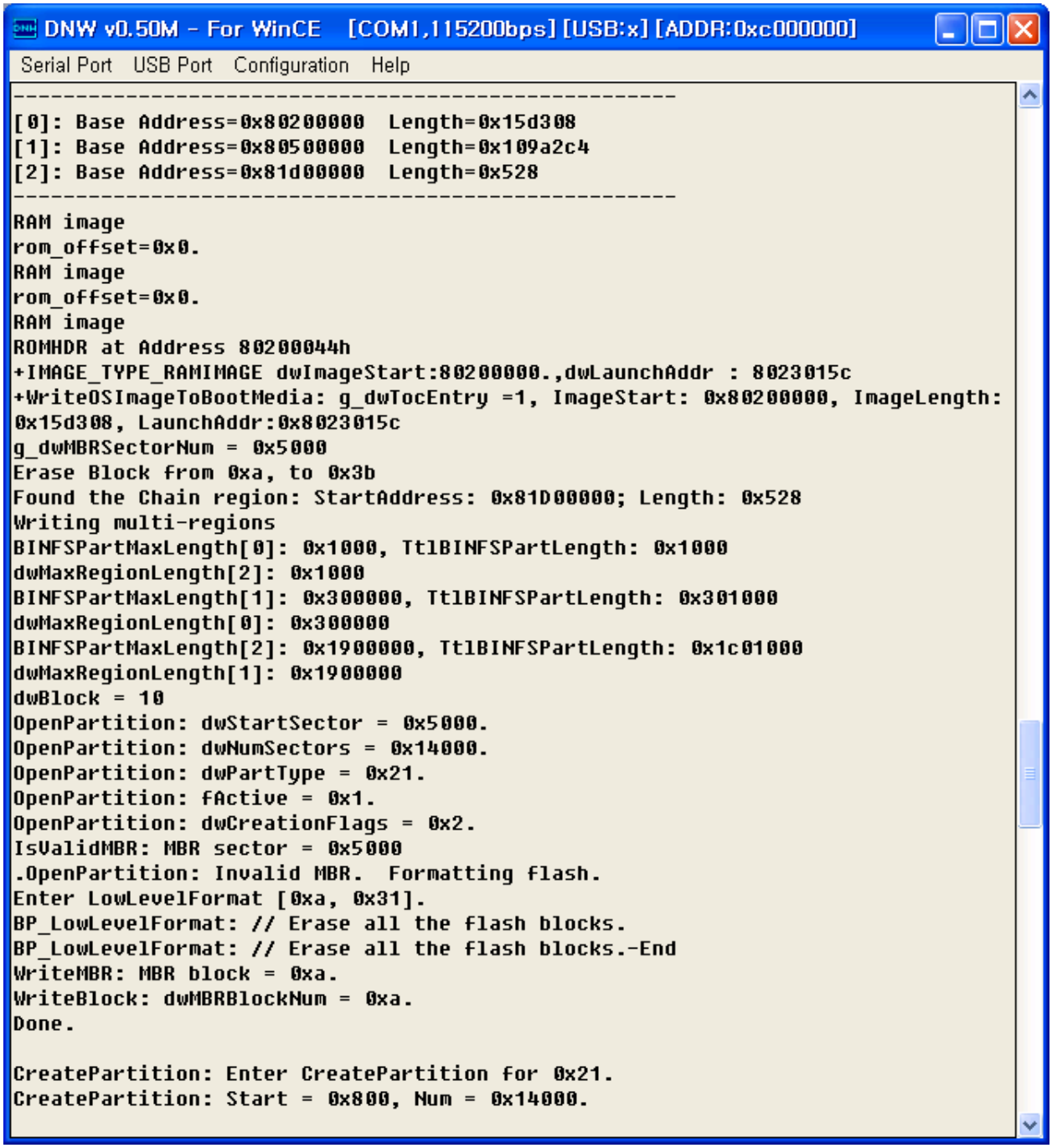


Figure 6-23 Messages via UART Port after fusing chain.lst

20. You can see the following messages on the DNW window during **Chain.bin** download. After **Chain.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.

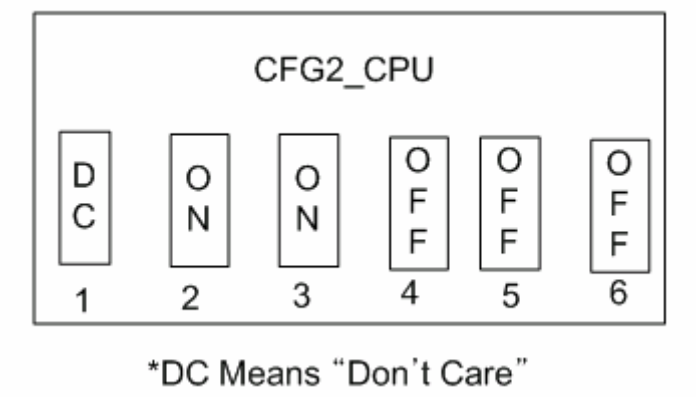


Figure 6-24 Switch setting for Nand Advanced NAND(page 2KB, Addr 5) card booting

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

6.3 Building and Running MutilpleXIP 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 6-25.

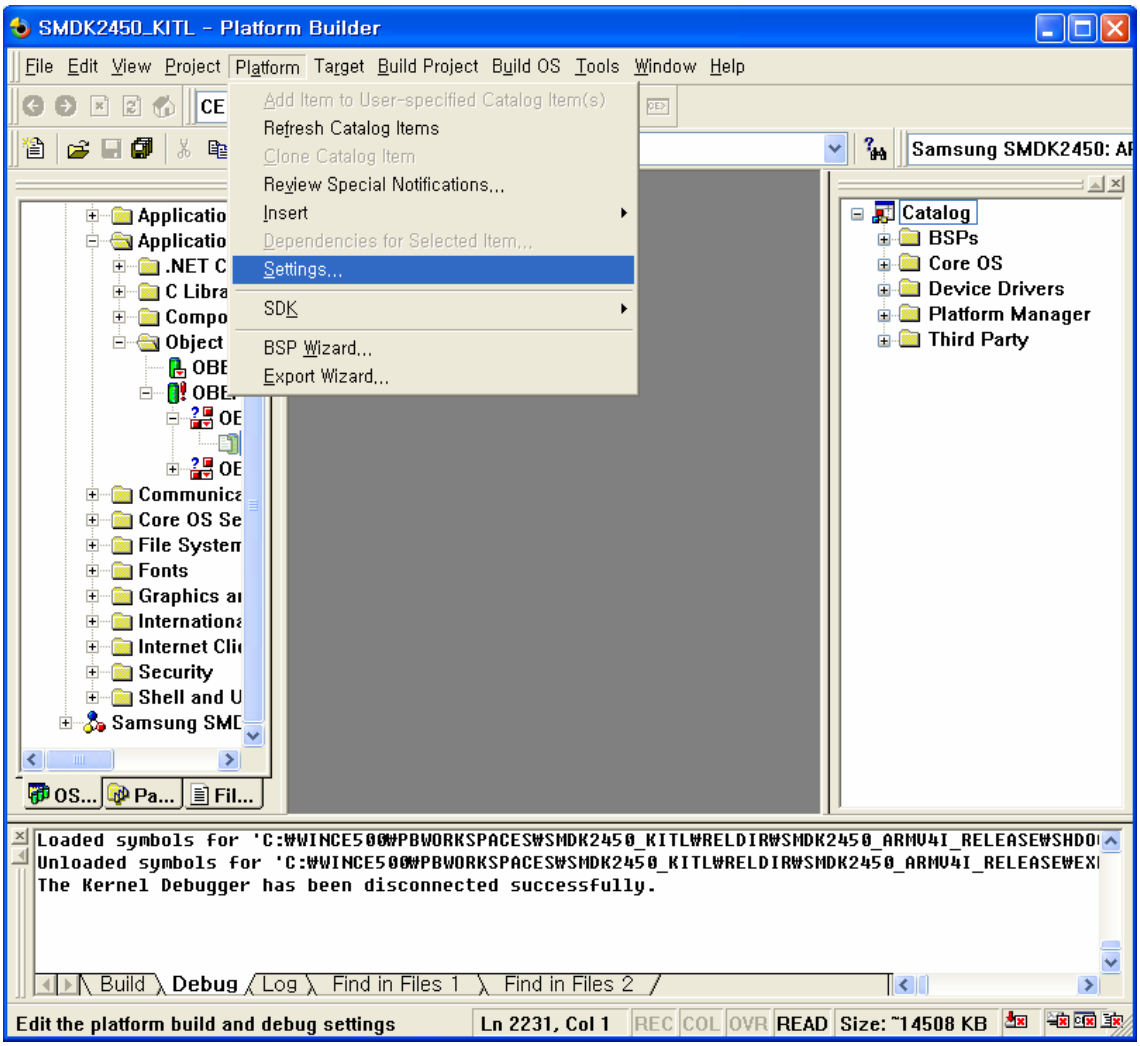


Figure 6-25 Platform Settings 1

2. The **Platform Settings** window appears on your screen. Select **chain.lst** on File name for run-time image.

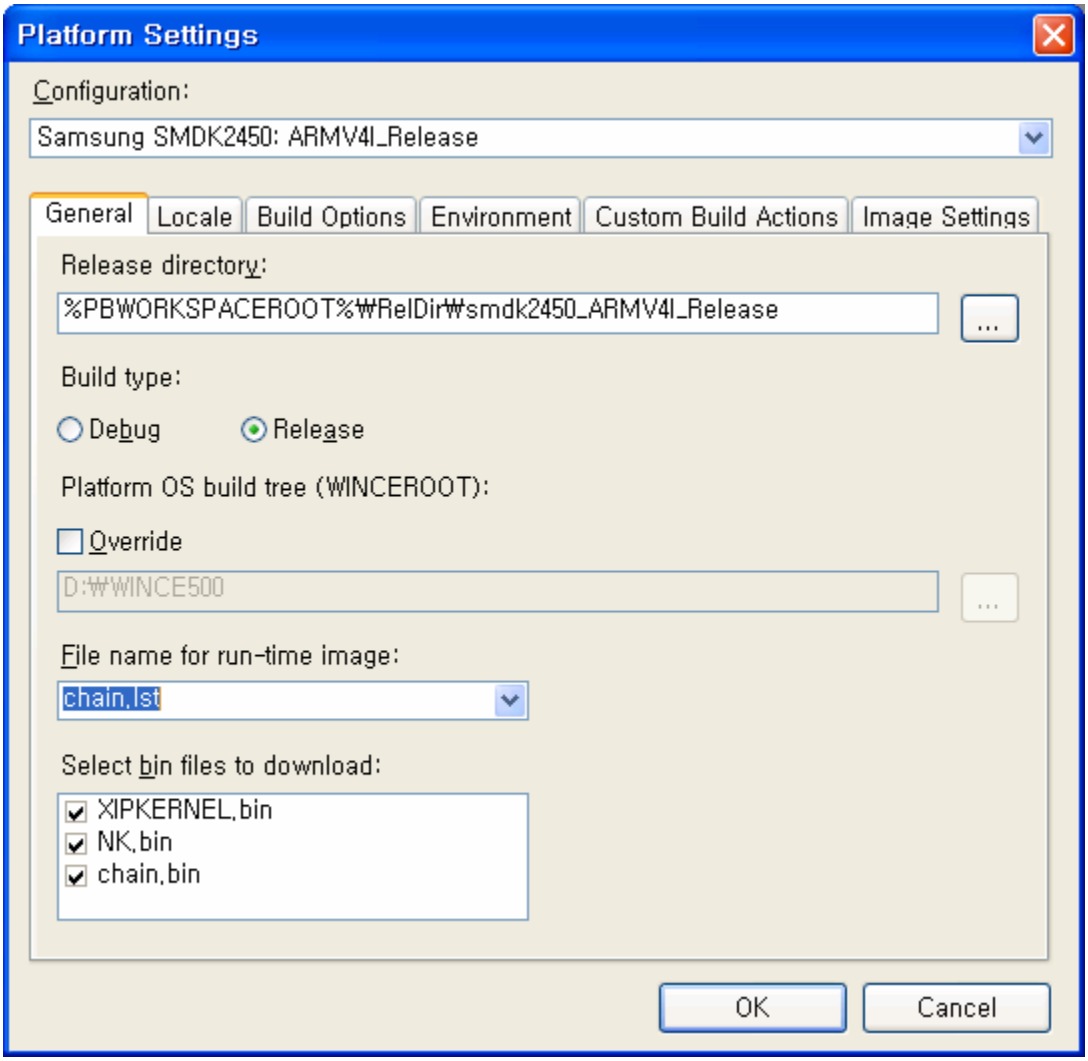


Figure 6-26 Platform Settings 2

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

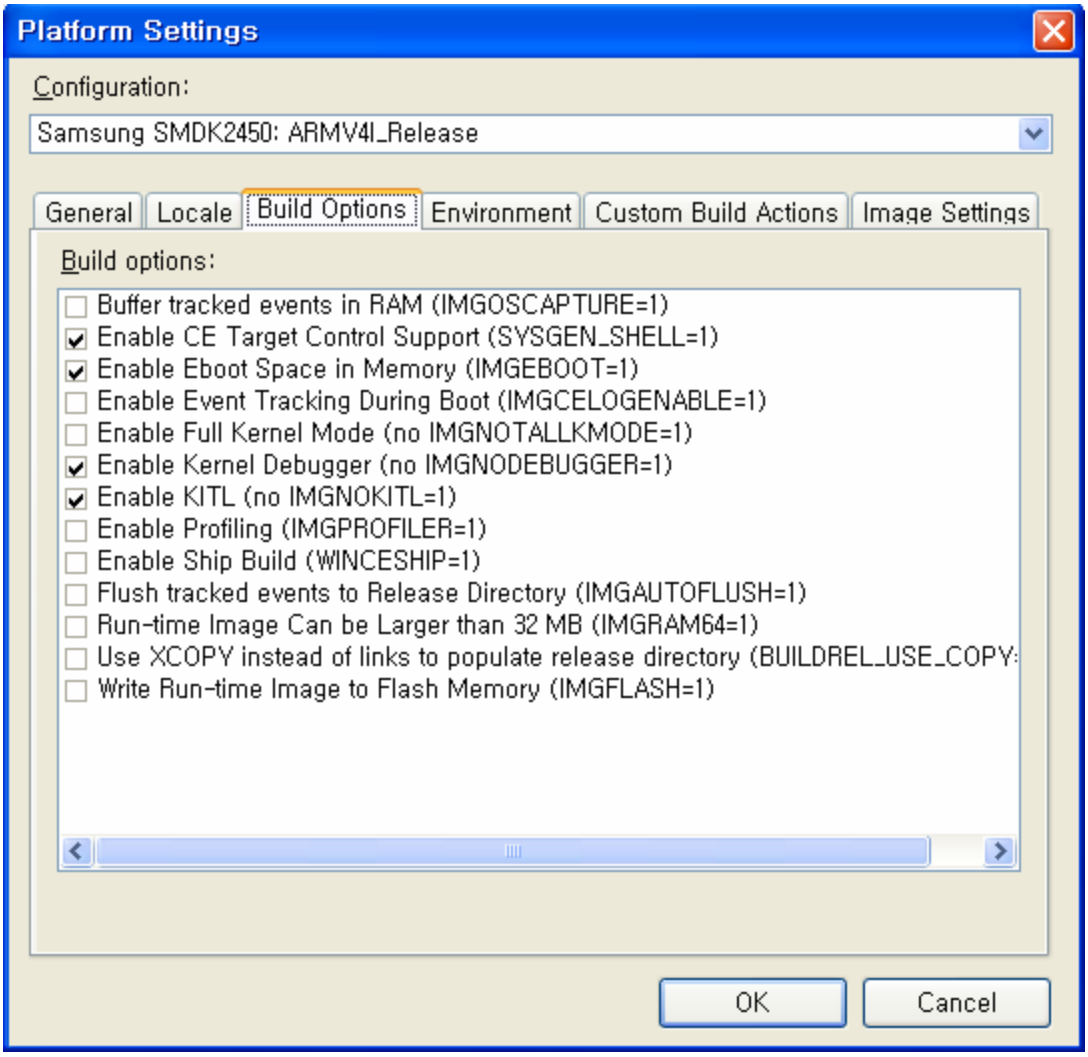


Figure 6-27 Platform Setting for KITL

6.4 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 6-28 to build the WinCE image with **USB Serial KITL**.

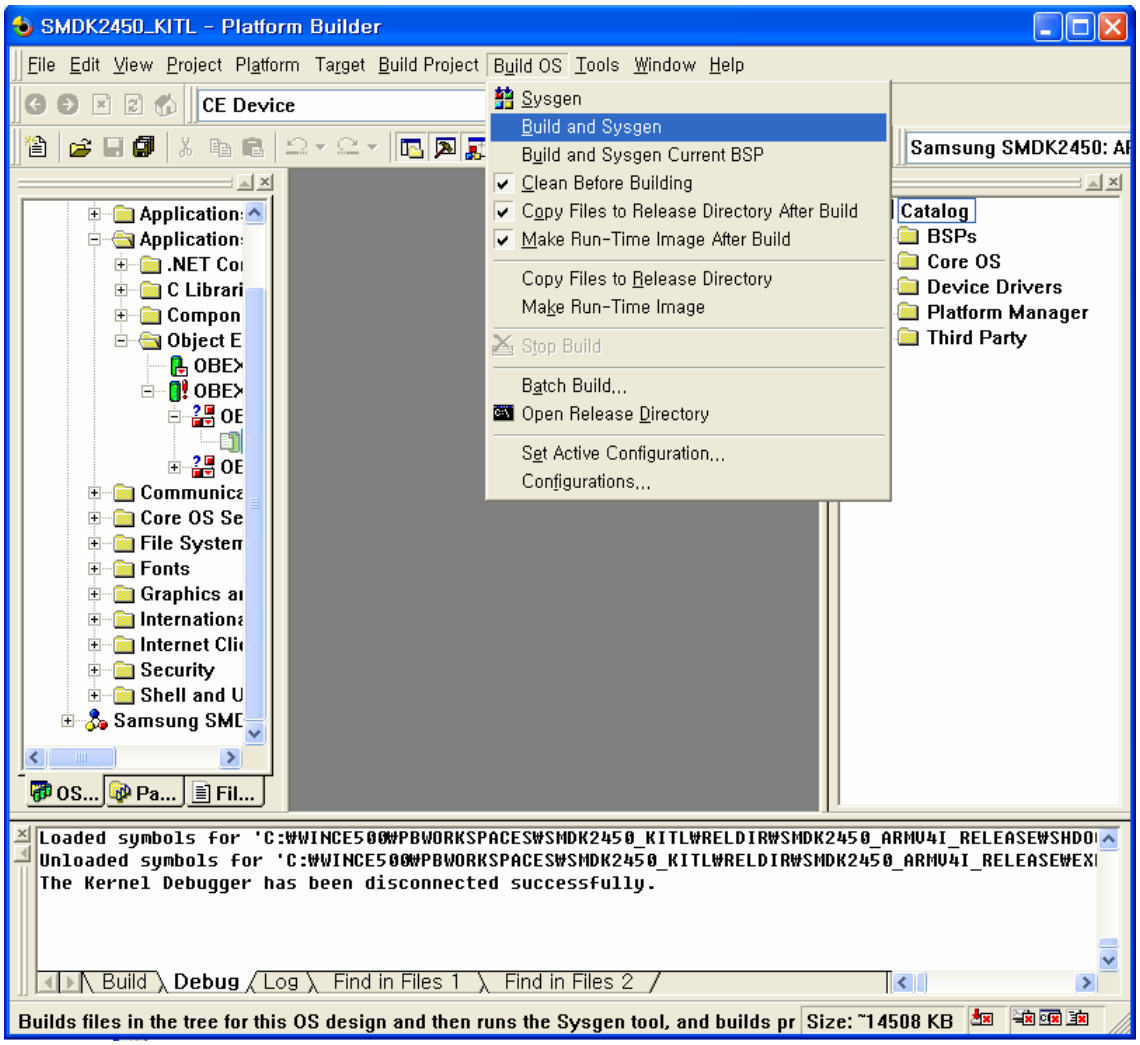


Figure 6-28 Build and Sysgen

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.

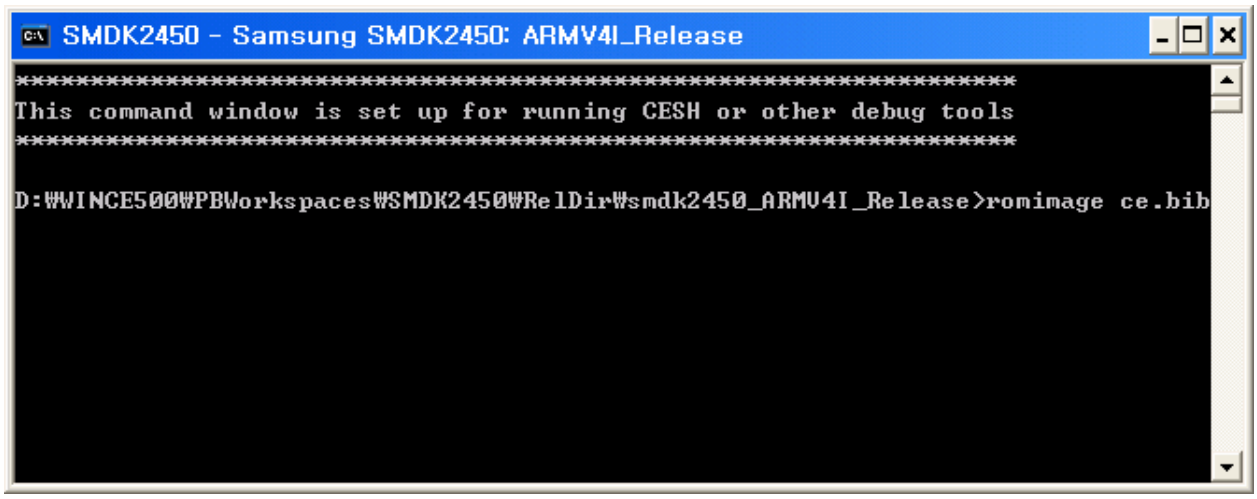
3. Change the ce.bib file in release directory
Change the region definition from NK to XIPKERNEL like as below.
The "[ReleaseDirectory]" string can be different depends on your build environment.

```
nk.exe [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\kernkitl.exe     XIPKERNEL  SH
kd.dll   [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\kd.dll XIPKERNEL SH
hd.dll   [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\hd.dll     XIPKERNEL  SH
osaxst0.dll [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\osaxst0.dll     XIPKERNEL  SH
osaxst1.dll [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\osaxst1.dll     XIPKERNEL  SH

coredll.dll   [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\coredll.dll  XIPKERNEL  SH
filesys.ese   [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\filesys.exe  XIPKERNEL  SH
binfs.dll     [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\binfs.dll    XIPKERNEL  SH
fsdmgr.dll    [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\fsdmgr.dll   XIPKERNEL  SH
mspart.dll    [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\mspart.dll   XIPKERNEL  SH
default.fdf   [ReleaseDirectory]\RelDir\smdk2450_ARMV4I_Release\default.fdf  XIPKERNEL  SH
```

4. Open the command window using platform builder menu [Build OS]->[Open Release Directory]

Enter the "romimage ce.bib" command



Then below files will be generated.

- Chain.bin
- Nk.bin
- Xipkernel.bin
- Chain.lst

5. 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 6-29.

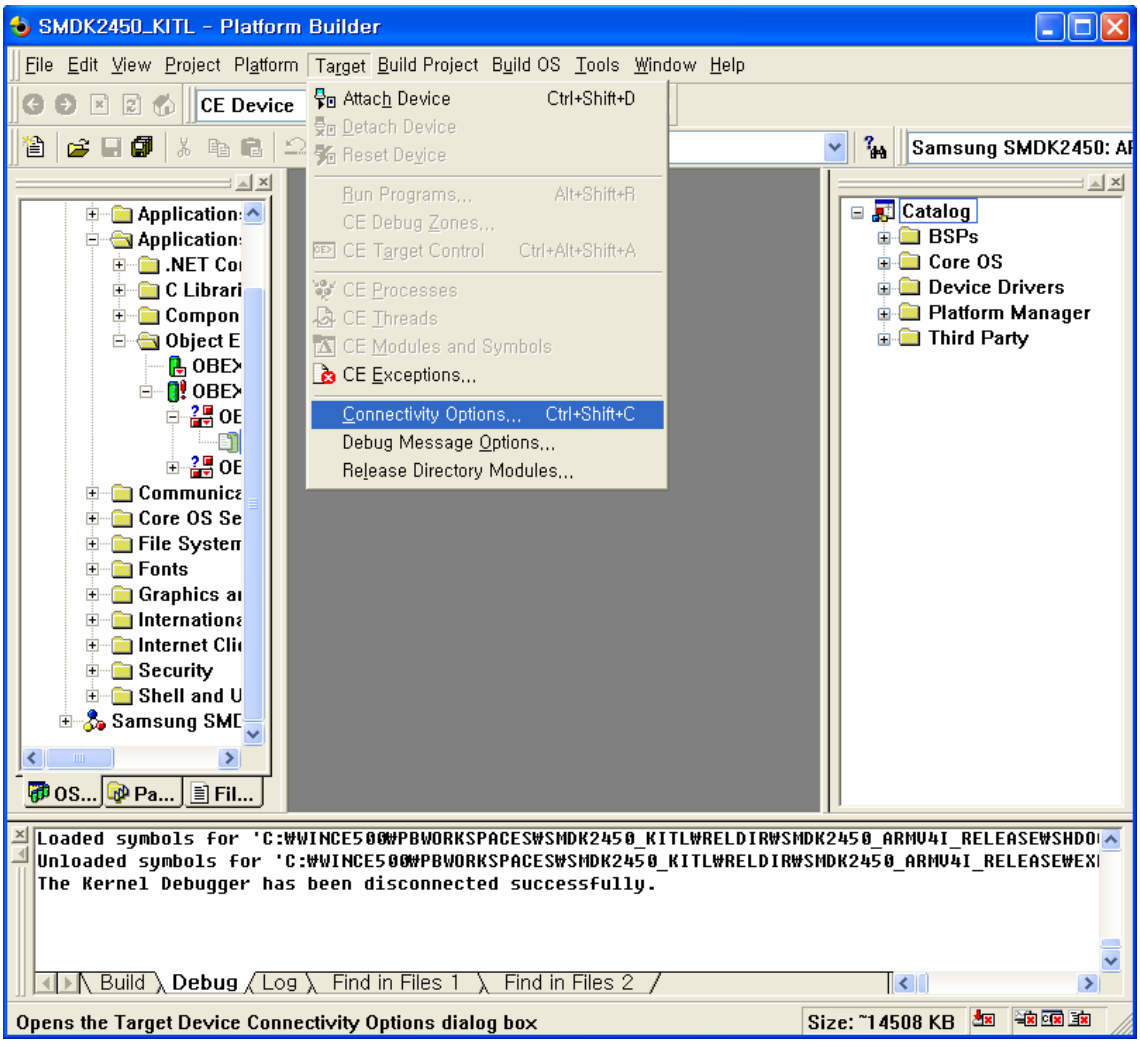


Figure 6-29 Selecting Connectivity Options

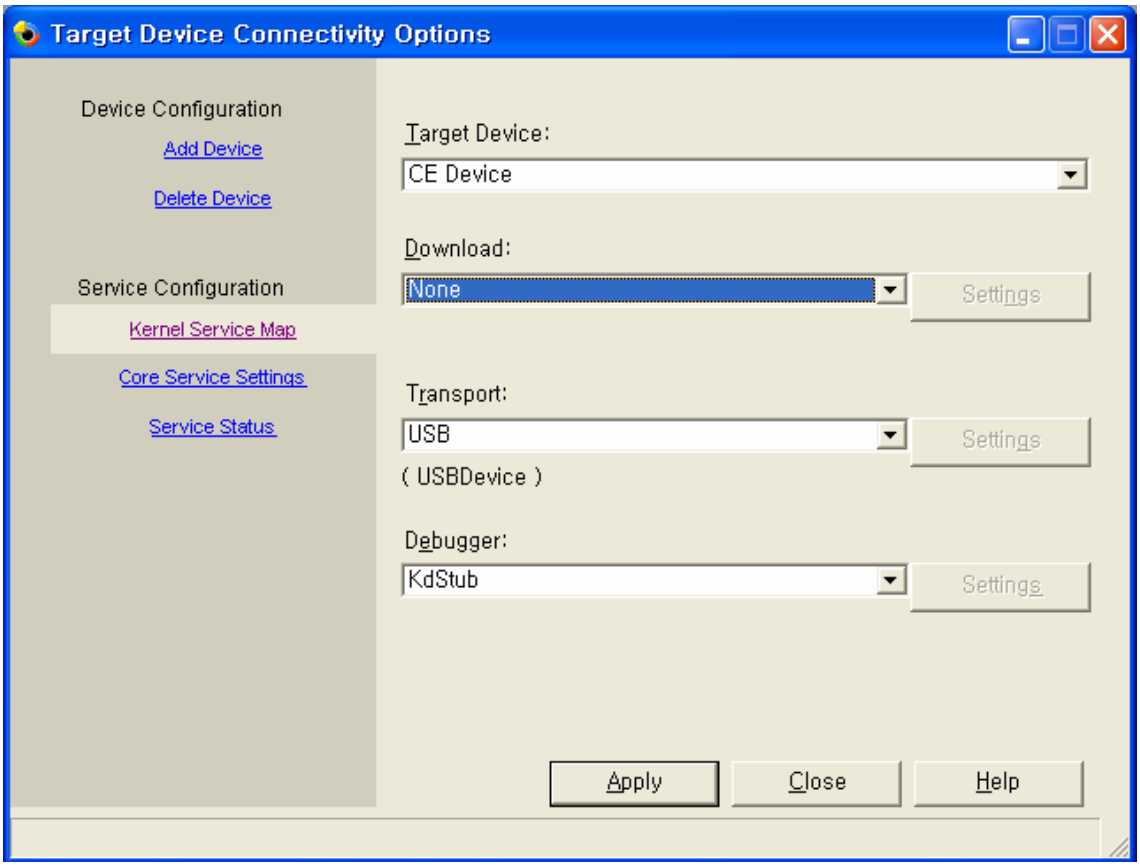


Figure 6-30 Target Device Connectivity Options Window

6. Click **Apply** button first and then click **Close** button.
7. **Disable USB connection** on PC ActiveSync Connection Manager.
8. Fuse the **chain.lst.**
9. You can see the following messages on the DNW window after Power on.

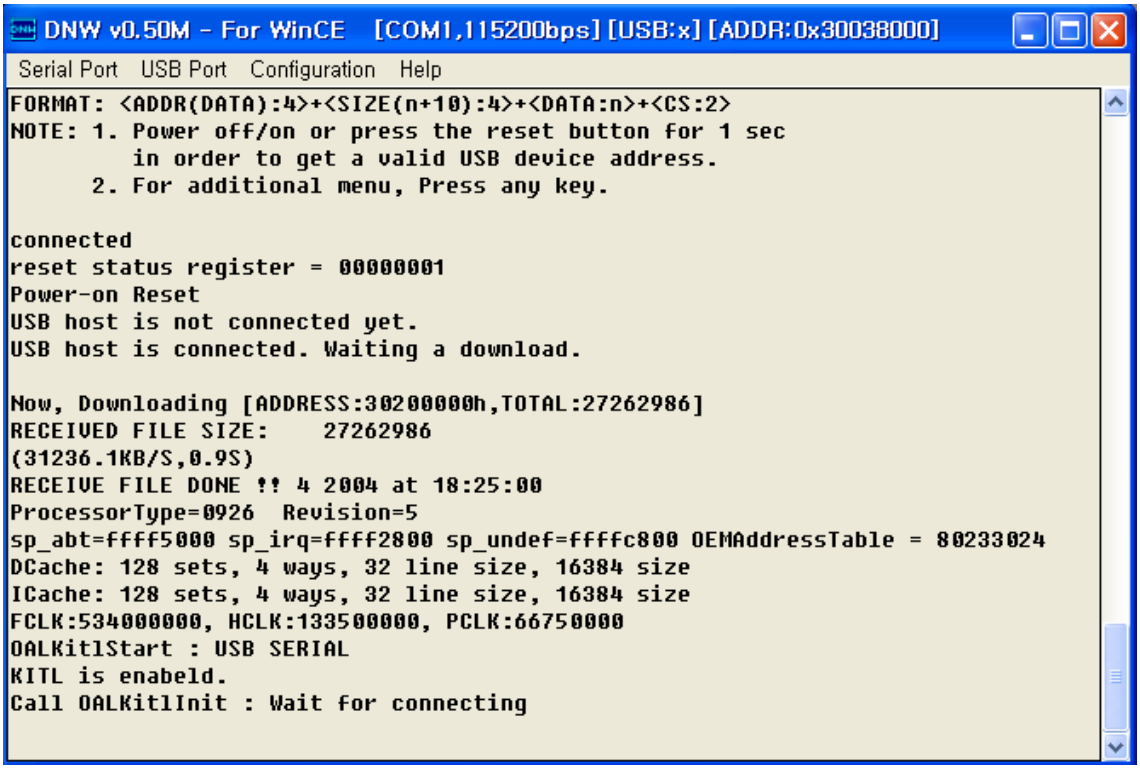


Figure 6-31 Messages via UART Port after NK.nb0 Download

10. On the **Target** menu in **Platform Builder** window, click **Attach Device** as shown in figure 6-32.

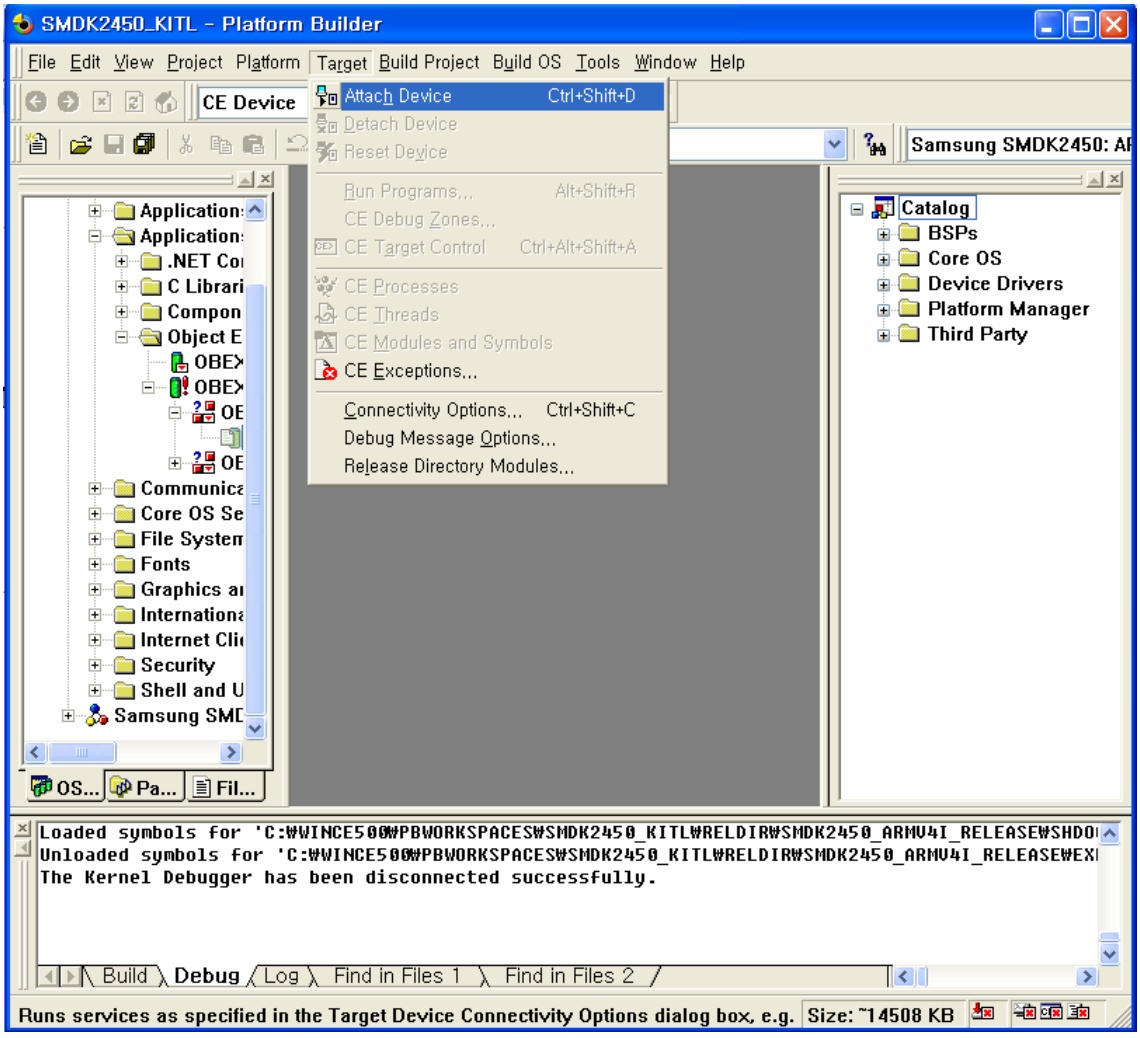


Figure 6-32 Attach Device

11. USB Serial KITL gets connected. **Windows CE 5.0** boots on the target board and platform builder window appears as shown below in figure 6-33.

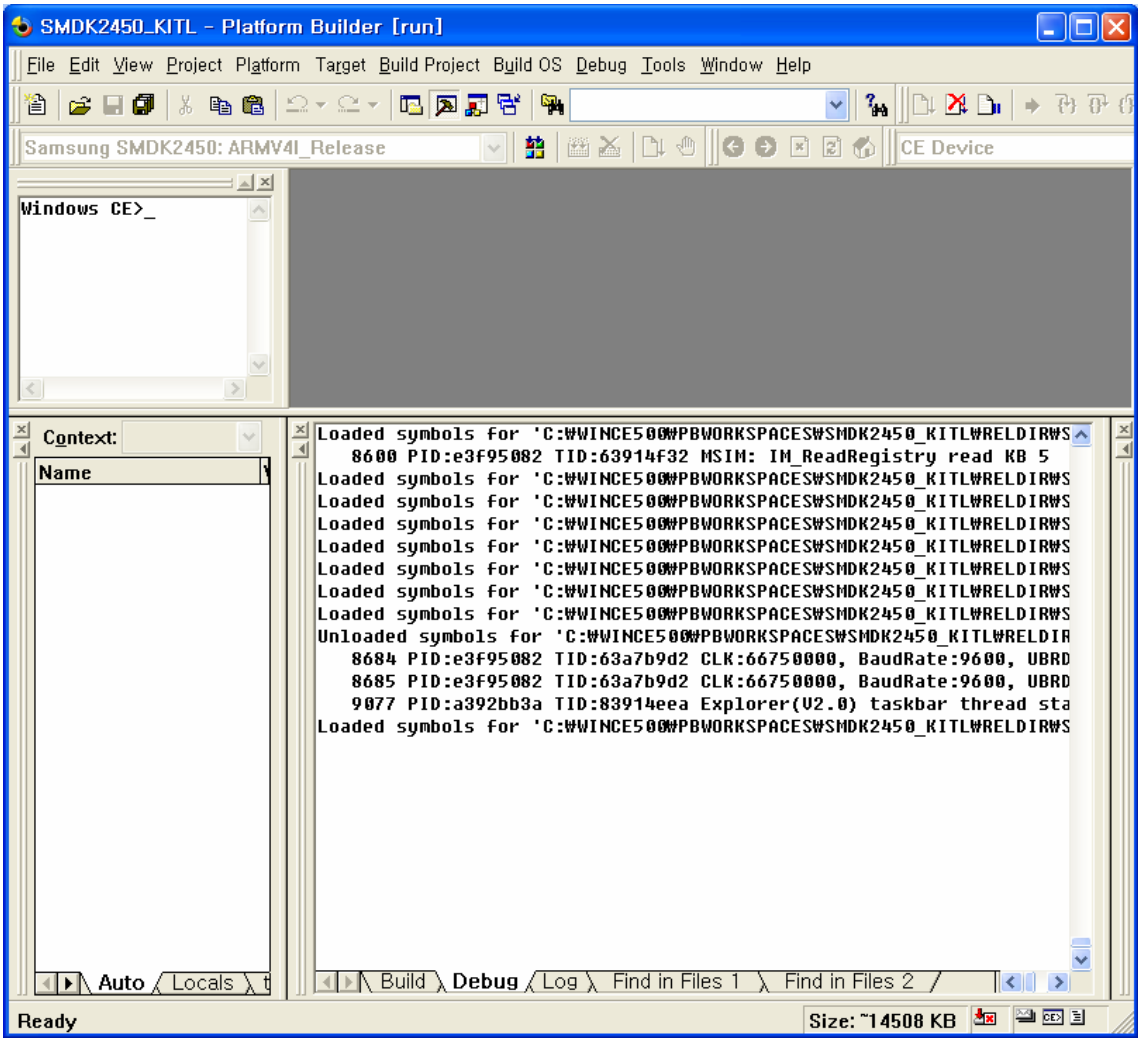


Figure 6-33 Platform Builder Window after USB Serial KITL connected