



DM37x Windows Embedded CE 6.0 BSP

User Guide

BSP Documentation

Logic PD // Products
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Revision History

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A	EF, SMC	-Initial Release	JCA	07/05/11
B	JA	-Added Section 3.5 to describe how to recreate the SD card demo image; -Section 4.5: Added product keys for Windows Embedded CE 6.0 and Visual Studio 2005; -Added Section 6.6.3 to explain how to change the RAM configuration	SO	07/24/13
C	RAH	-Throughout: Updated template; updated links for new support site; -Added Section 5 to provide instructions about preparing for Windows CE application development	RAH, SO	01/27/14

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1 Introduction

This user guide provides information pertaining to Logic PD's DM37x Windows Embedded CE 6.0 Board Support Package (BSP).

1.1 Nomenclature

- This document applies to the DM3730/AM3703 SOM-LV and the DM3730/AM3703 Torpedo™ SOM. Use of "DM3730/AM3703 SOM" suggests text that applies to both platforms; information specific to one platform will call out the precise name.
- Use of "DM3730 Development Kit" suggests text that applies to both the Zoom™ DM3730 SOM-LV Development Kit and Zoom™ DM3730 Torpedo Development Kit; information specific to one development kit will call out the precise name.

IMPORTANT NOTE: Windows CE software is not supported for use with the DM3730/AM3703 Torpedo + Wireless SOM.

1.2 Note on Images

The images of screen captures included in this user guide exist as examples of what may appear on your host PC display during software installation and use of the BSP; please note that version numbers, file names, and other items may differ from the most current release.

2 Download DM37x Windows Embedded CE 6.0 BSP

2.1 Prerequisites

- DM3730 Development Kit registered on [Logic PD's support site](http://support.logicpd.com/TechnicalSupport/RegisterProduct.aspx)¹
 - Registration is required to grant you access to your product's download page from where the BSP can be downloaded
- Host PC
- Internet connection

2.2 Download Steps

1. Depending on the DM3730 Development Kit you are using, click on the link below to point a web browser to the appropriate downloads page. (If you are not already logged in, you will need your username and password that was set up during registration to access the downloads page.)
 - [DM3730/AM3703 SOM-LV downloads page](http://support.logicpd.com/ProductDownloads/DM3730AM3703SOM-LV.aspx)²
 - [DM3730/AM3703 Torpedo downloads page](http://support.logicpd.com/ProductDownloads/DM3730AM3703TorpedoSOM.aspx)³
2. Under the *Windows CE* category, click on *DM37x Windows CE 6.0 Source BSP* to begin the download.
3. Save the file to your host PC.
4. After the download completes, locate the *10xxxxx_LogicPD_WinCE6_BSP_x-x-x.zip* file on your host PC.
5. Extract the file to a directory of your choice.

¹ <http://support.logicpd.com/TechnicalSupport/RegisterProduct.aspx>

² <http://support.logicpd.com/ProductDownloads/DM3730AM3703SOM-LV.aspx>

³ <http://support.logicpd.com/ProductDownloads/DM3730AM3703TorpedoSOM.aspx>

6. After the extraction is complete, visually verify that the following sub-directories and files have been created:

```

.\Binaries
    \<OS Design Name>
        \<Platform Name>
            \several NK.bin files
        \LogicLoader_Scripts
.\Documentation
    Driver Description documents for specific
    components
    Feature Matrix
.\OSDesigns
    \<OS Design Name>
.\PLATFORM
    \COMMON\SRC\SOC\<SOC Name>
        Several subfolders and files
    \<Platform Name>
        Several subfolders and files
.\Test_Docs

LogicPD_WinCE6_BSP_x-x-x_Release_Notes.txt
Windows CE Development Prerequisites.txt

```

7. Take special note of the two text files at the root level: *LogicPD_WinCE6_BSP_x-x-x_Release_Notes.txt* and *Windows CE Development Prerequisites.txt*. Both of these files will be referenced later in this user guide.

2.3 Next Steps

From this point, you can continue through this user guide in order or, based on the following descriptions, you can jump to the section that is most appropriate for your use.

- Section 3 describes how to use the pre-built *NK.bin* binary files (included in the BSP download) to evaluate the BSP on the DM3730 Development Kit. These *NK.bin* files are loaded to the DM3730 Development Kit via an external source (SD card, CompactFlash (CF) card, or Ethernet).
- Section 4 explains how to install the evaluation version of Windows Embedded CE 6.0 on your host PC, including Visual Studio 2005 and Platform Builder. If you already have these programs installed on your PC, you can skip this section.
- Section 5 describes how to begin Windows CE development using Logic PD's BSP and DM3730 Development Kit. Visual Studio 2005 and Platform Builder must be installed on your host PC before proceeding to this section.

3 Sample Pre-Built Images

This section describes how to load a Windows CE pre-built image (*NK.bin*) on the DM3730 Development Kit using three different methods: SD card, CF card, and Ethernet.

Sample *NK.bin* binary files allow you to evaluate Logic PD's BSP on the DM3730 Development Kit. They are also useful for application development since each image includes helpful libraries and a variety of drivers. Logic PD's sample *NK.bin* images are not meant for production and should not be regarded as production-ready.

3.1 Prerequisites

- Tera Term terminal emulator (or equivalent)
- The most current Windows CE Source BSP release, as described in Section 2
- An SD card or CF card with a capacity of at least 32 MB—this card must be large enough to store the sample *NK.bin* file
- An Ethernet cross-over cable

3.2 Load Pre-Built Image via SD Card

This section describes how to load the *NK.bin* image from an SD card using LogicLoader and then boot the image.

1. Locate the *10xxxxx_LogicPD_WinCE6_BSP_x-x-x.zip* file that you extracted in Section 2.
2. Read through the *LogicPD_WinCE6_BSP_x-x-x_Release_Notes.txt* to learn of any dependencies specific to the most current release.
3. Navigate to the *.\Binaries\<OS Design Name>* directory and you will find several *NK.bin* files.
4. Copy the *<SOM_Type>_NK.bin* file from that directory to an SD card. (Make sure to copy the appropriate file for your DM3730 Development Kit.)
5. Insert the SD card into the DM3730 Development Kit's SD card slot. **NOTE:** For the DM3730 Torpedo™ Development Kit, use the primary SD card slot (J21) located closer to the middle of the baseboard edge.
6. Verify the DM3730 Development Kit is connected to the host PC via a serial cable and is connected to the power supply. (Detailed instructions for these connections can be found in the respective DM3730 Development Kit User Guides.)
7. Launch Tera Term on your host PC.
8. In Tera Term, select Setup > Serial port... from the menu bar.
9. Select the appropriate COM port for your host PC and then change the port settings to:
 - a. Baud rate: **115200**
 - b. Data: **8 bit**
 - c. Parity: **none**
 - d. Stop: **1 bit**
 - e. Flow control: **none**

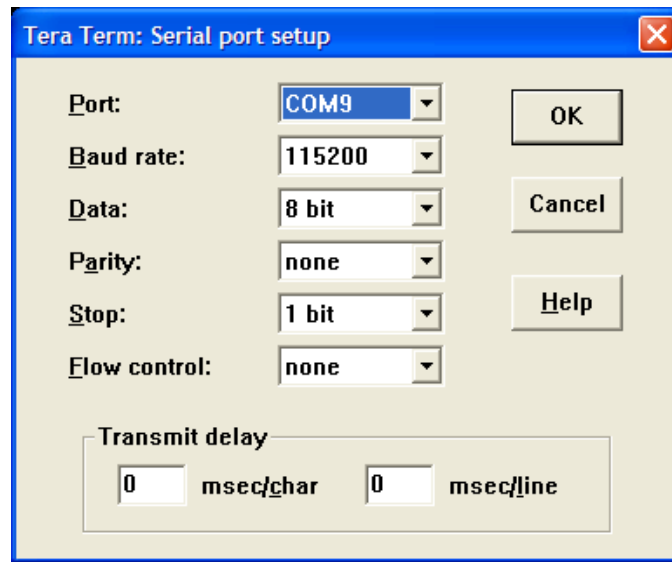


Figure 3.1: Tera Term Serial Port Settings

10. Click OK.
11. Power on the DM3730 Development Kit and verify the LogicLoader prompt appears in the terminal emulator window.
12. Mount the SD card in LogicLoader.

```
losh> mount fatfs /dev/sdmmc0a /sd
```

13. Change directories to the SD card.

```
losh> cd /sd
```

14. List the contents of your SD card and confirm the `<SOM_Type>_NK.bin` file is on the card.

```
losh> ls
:                               SOM-LV_NK.bin 28032595
```

15. Load the `NK.bin` file into RAM with the command below. Be sure to insert the appropriate name of the file you are using.

NOTE: LogicLoader is case sensitive, so be sure to type the filename the same way it appears in LogicLoader after using the `ls` command.

```
losh> load bin <SOM_Type>_NK.BIN
```

You should see the following output, indicating your *NK.bin* file was successfully loaded into system RAM and is ready to boot:

[illegible]

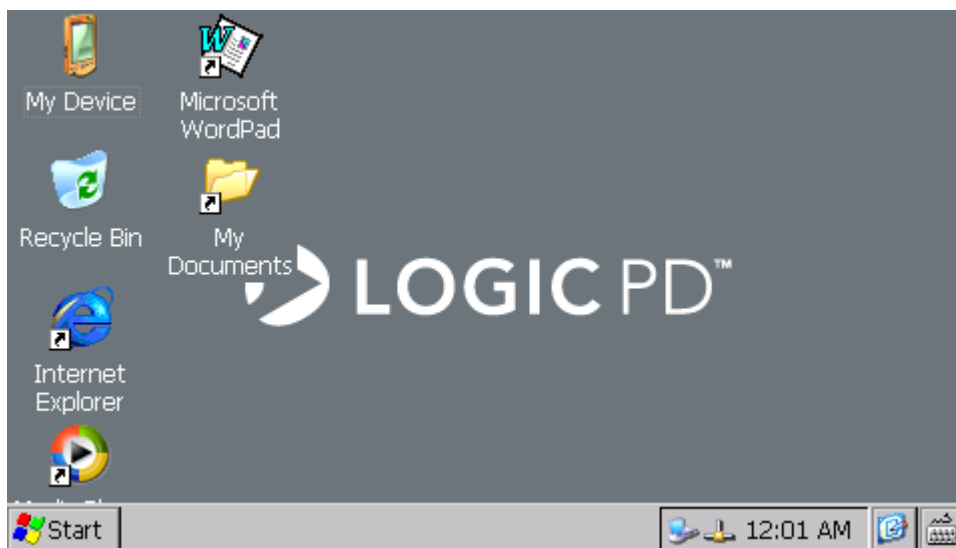
NOTE: The sample *NK.bin* images provided on Logic PD's website run from system RAM and cannot be burned to system flash. Since the sample *NK.bin* images are volatile, they need to be loaded from an external source (like an SD card) after every power cycle.

16. Boot the *NK.bin* file.

```
losh > exec
```

Immediately, the kit LCD should turn on. In Tera Term, you will see a message stating *Starting Kernel...* and then other output messages.

17. After allowing time for the image to boot, the kit LCD may prompt you to calibrate the touchscreen by pressing a stylus to the center of cross-hairs on the screen. If necessary, follow the onscreen instructions and the *NK.bin* file will boot and display the Windows Embedded CE 6.0 graphical user interface (GUI) on the kit LCD.



3.3 Load Pre-Built Image via CF Card

NOTE: This section only applies to the DM3730 SOM-LV Development Kit; the DM3730 Torpedo™ Development Kit does not have a CF card slot.

The process for loading a sample image via CF card is very similar to the SD card.

1. Locate the *10xxxxx_LogicPD_WinCE6_BSP_x-x-x.zip* file that you extracted in Section 2.
2. Read through the *LogicPD_WinCE6_BSP_x-x-x_Release_Notes.txt* file to learn of any dependencies specific to the most current release.
3. Navigate to the *.\Binaries\<OS Design Name>* directory and you will find several *NK.bin* files.
4. Copy the *SOM_LV_NK.bin* file from that directory to a CF card.
5. Insert the CF card into the DM3730 SOM-LV Development Kit's CF card slot.
6. Verify the DM3730 SOM-LV Development Kit is connected to the host PC via a serial cable and is connected to the power supply. (Detailed instructions for these connections can be found in the [DM3730 SOM-LV Development Kit User Guide](#).⁴)
7. Launch Tera Term on the host PC.
8. In Tera Term, select Setup > Serial port... from the menu bar.
9. Select the appropriate COM port for your host PC and then change the port settings to:
 - a. Baud rate: **115200**
 - b. Data: **8 bit**
 - c. Parity: **none**
 - d. Stop: **1 bit**
 - e. Flow control: **none**

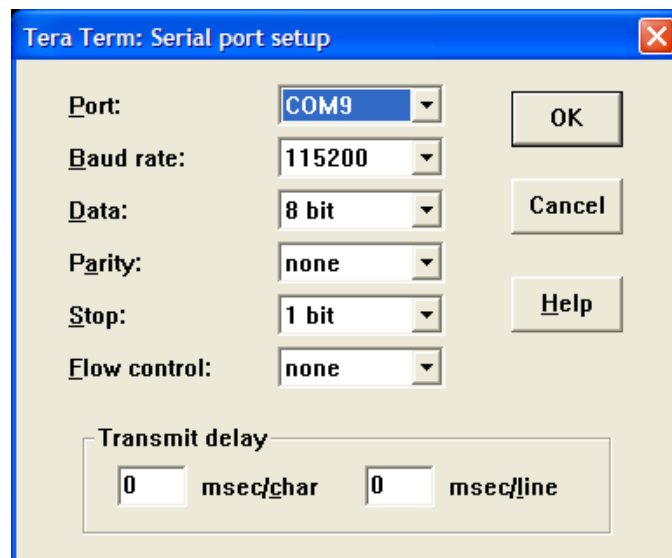


Figure 3.2: Tera Term Serial Port Settings

10. Click OK.

⁴ <http://support.logicpd.com/DesktopModules/Bring2mind/DMX/Download.aspx?portalid=0&EntryId=715>

11. Power on the DM3730 SOM-LV Development Kit and verify the LogicLoader prompt appears in the terminal emulator window.
12. Mount the CF card in LogicLoader.

```
losh> mount fatfs /dev/ata0a /cf
```

13. Change the directory to the CF card.

```
losh> cd /cf
```

14. List the contents of your CF card and confirm the *SOM_LV_NK.bin* file is on the card.

```
losh> ls
:
SOM_LV_NK.bin 28032595
losh>
```

15. Load the *SOM_LV_NK.bin* file into RAM.

NOTE: LogicLoader is case sensitive, so be sure to type the filename the same way it appears in LogicLoader after using the /s command.

```
losh> load bin SOM_LV_NK.BIN
```

You should see the following output, indicating your *NK.bin* file was successfully loaded into system RAM and is ready to boot:

[illegible]

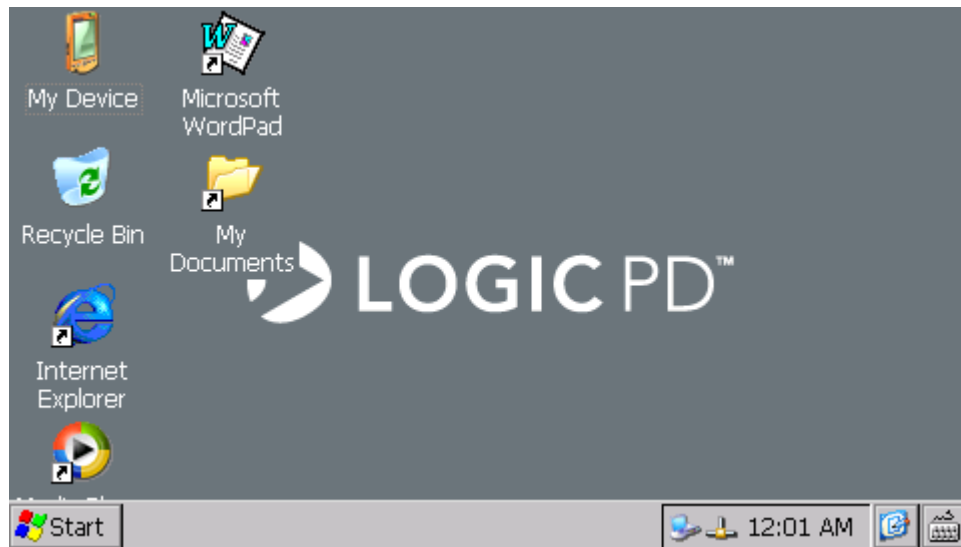
NOTE: The sample *NK.bin* images provided on Logic PD's website run from system RAM and cannot be burned to system flash. Since the sample *NK.bin* images are volatile, they need to be loaded from an external source (like an SD card) after every power cycle.

16. Boot the *NK.bin* file.

```
l0sh> exec
```

Immediately, the kit LCD should turn on. In Tera Term, you will see a message stating *Starting Kernel...* and then other output messages.

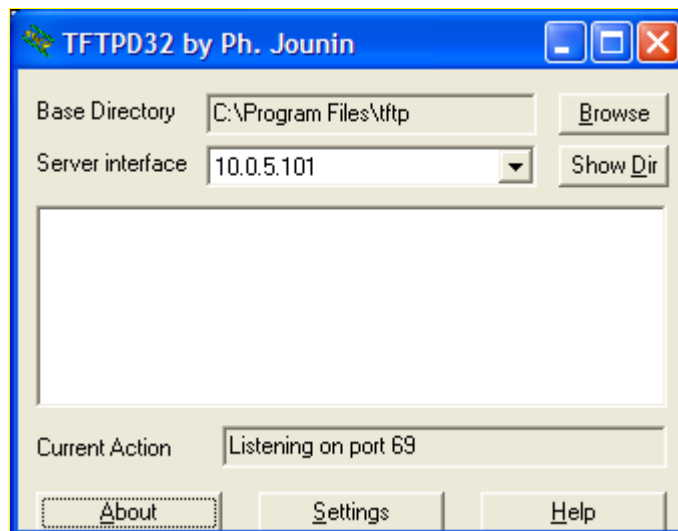
17. After allowing time for the image to boot, the kit LCD may prompt you to calibrate the touchscreen by pressing a stylus to the center of cross-hairs on the screen. If necessary, follow the onscreen instructions and the *NK.bin* file will boot and display the Windows Embedded CE 6.0 graphical user interface (GUI) on the kit LCD.



3.4 Load Pre-Built Image via Ethernet

This section describes how to download the OS image via Ethernet in LogicLoader. It is assumed that a TFTP program has been installed on your host PC.

1. Place the *<SOM_TYPE>_NK.bin* file in your TFTP folder.
2. Launch your TFTP program.



3. Start Tera Term and initialize the Ethernet port.

```
losh> ifconfig

sm0: up      100M full-duplex (25)
sm0:          mac: 00:08:ee:02:38:79 ip: 0.0.0.0
           mask: 0.0.0.0  gw: 0.0.0.0
```

4. Start DHCP.

```
losh> ifconfig sm0 dhcp
Starting DHCP on sm0.
```

5. Finally, use *ifconfig* again to obtain an IP address.

```
losh> ifconfig

sm0: up      100M full-duplex  (25)
sm0:      mac: 00:08:ee:02:38:79  ip: 10.0.5.119
      mask: 255.255.252.0      gw: 10.0.4.1
```

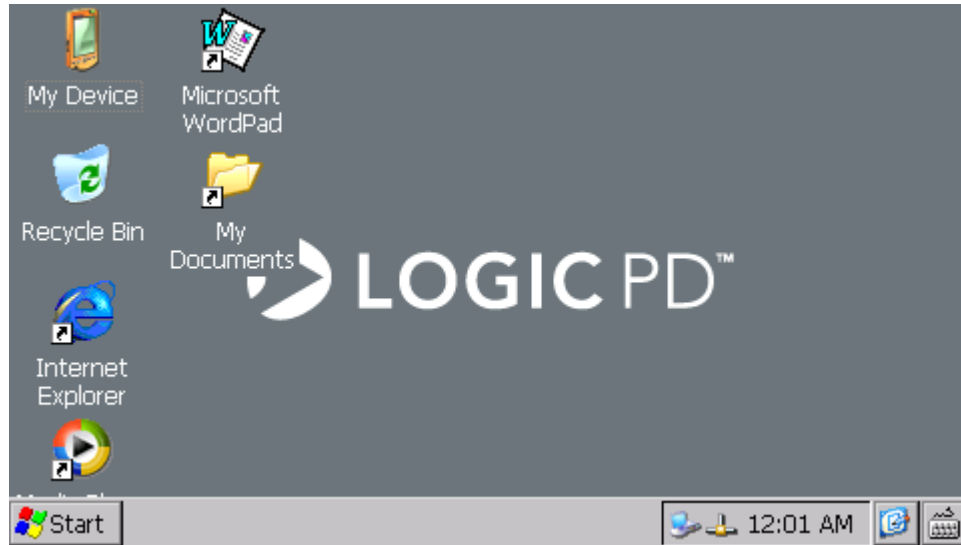
6. Load the *NK.bin* file with the command below. Be sure to insert the IP address for your system and the appropriate name of the file you are using.

[illegible]

7. Boot the *NK.bin* file.

```
losh> exec
Windows CE Kernel for ARM (Thumb Enabled) Built on Feb 5 2008 at
10:48:36
PlatfromInit: DONE!!!
---High Performance Frequency is 32768 khz---
```

8. After allowing time for the image to boot, the kit LCD may prompt you to calibrate the touchscreen by pressing a stylus to the center of cross-hairs on the screen. If necessary, follow the onscreen instructions and the *NK.bin* file will boot and display the Windows Embedded CE 6.0 graphical user interface (GUI) on the kit LCD.



3.5 Recreate Bootable SD Card Demo Image

This section will explain how to build a bootable SD card that contains the same files as those on the DM37x Windows Embedded CE 6.0 Demo SD card included in the DM3730 Development Kit.

3.5.1 Prerequisites

To execute the procedures in this section, you will need to download the following files from the Logic PD website:

- [DM37x Windows Embedded CE 6.0 SD Card Demo Image](http://support.logicpd.com/DesktopModules/Bring2mind/DMX/Download.aspx?portalid=0&EntryId=2666)⁵
- [HP USB Disk Storage Format Tool v2.0.6](http://support.logicpd.com/DesktopModules/Bring2mind/DMX/Download.aspx?portalid=0&EntryId=2760)⁶

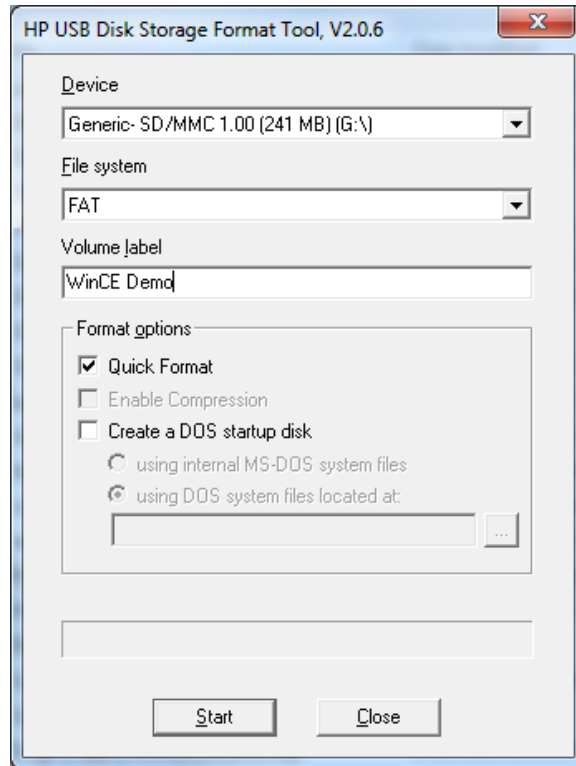
3.5.2 Procedure

1. Launch the HP USB Disk Storage Format Tool v2.0.6.

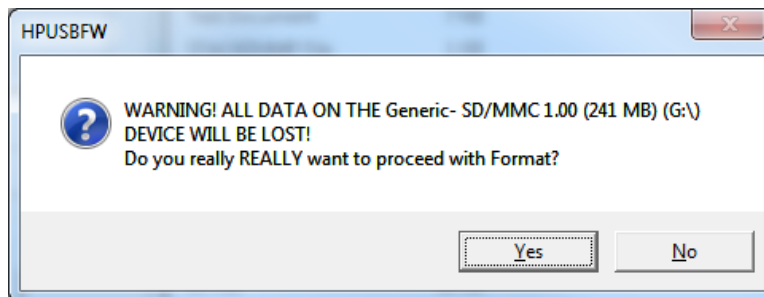
⁵ <http://support.logicpd.com/DesktopModules/Bring2mind/DMX/Download.aspx?portalid=0&EntryId=2666>

⁶ <http://support.logicpd.com/DesktopModules/Bring2mind/DMX/Download.aspx?portalid=0&EntryId=2760>

2. In the window that appears:
 - a. Select your SD card drive from the *Device* drop-down menu.
 - b. Select FAT in the *File System* drop-down menu.
 - c. Add a description to the *Volume label* field to help you identify the card later.
 - d. Select the checkbox labeled "Quick Format."



3. Double check that you have selected the correct device for the format operation. The next step will remove everything from the selected device and is not reversible.
4. Click Start to begin the format process.
5. You will receive a warning that the data will be lost on the device you have selected. Use this opportunity to once again ensure the correct drive has been selected.



6. When the format operation is complete, copy the *MLO* file from the DM37x Windows Embedded CE 6.0 SD Card Demo Image download to the new SD card.
7. Then copy the remaining files from the download to the SD card.

The SD card can now boot the Windows CE demo image on the DM3730 Development Kit.

4 Prepare for Windows CE Development

This section describes the steps required to prepare your host PC for Windows CE development.

4.1 Prerequisites

- Host PC with DVD drive (DVD drive only required if using the *Windows Embedded CE 6.0 180-Day Evaluation Kit* DVD)
- Current version of Internet Explorer, Firefox, or other web browser and access to the Internet
- *Windows Embedded CE 6.0 180-Day Evaluation Kit* DVD included with your DM3730 Development Kit or equivalent downloads from the [Microsoft Windows Embedded CE website](http://www.microsoft.com/windowseembedded/en-us/downloads/default.aspx)⁷
- *Windows CE Development Prerequisites.txt* file included with the Logic PD DM37x Windows Embedded CE 6.0 BSP release

4.2 Installation Overview

This section will walk you through the recommended installation steps for Visual Studio 2005 and Platform Builder. The following is a high-level look at the installation process:

1. Update your PC using Windows Update.
2. Install Visual Studio 2005 from the *Windows Embedded CE 6.0 180-Day Evaluation Kit* provided with the DM3730 Development Kit or from the Microsoft Windows Embedded CE website.
3. Update Visual Studio from the Windows Update website, which includes the Visual Studio 2005 Service Pack 1.
4. Install Platform Builder from the Evaluation Packet.
5. Update Platform Builder.

NOTE: Different versions of Logic PD's Windows CE BSP may require specific Microsoft Platform Builder updates. Since Microsoft releases monthly patches to Windows CE, please refer to the *Windows CE Development Prerequisites.txt* file to determine which updates pertain to your BSP version. This text file is located in the base directory of the Logic PD Windows CE BSP source package.

6. Run Visual Studio 2005.
7. Run the QFE Check tool from Visual Studio 2005

IMPORTANT NOTE: This document is written assuming the use of the Windows XP operating system (OS). Other Windows OSs, such as Vista and Windows 7, may require additional updates or installations. Please refer to the Microsoft website for necessary details.

4.3 Evaluation DVD vs. Downloads from Microsoft Website

The instructions in the following sections are written from the perspective of using the Evaluation DVD. It should be assumed that wherever the instruction exists to insert the DVD into your host PC, you can access the equivalent installation files on the Microsoft Windows Embedded CE website.

⁷ <http://www.microsoft.com/windowseembedded/en-us/downloads/default.aspx>

4.4 Update Windows OS

Before beginning the installation of Visual Studio 2005, Platform Builder, or any Windows CE 6.0 components, verify that your Windows OS has all of the most recent updates from Microsoft.



4.5 Obtain Product Key(s)

Microsoft has discontinued the distribution of evaluation keys for Windows Embedded CE 6.0 on their website. If you do not already have product keys for Windows Embedded CE 6.0 and Visual Studio 2005 use the keys below.

Windows Embedded CE 6.0 (plug-in for Visual Studio 2005):

H8RQR-MMKRP-XFRFC-9HKGJ-82R6J

Visual Studio 2005, Visual Studio 2005 Professional Edition Trial:

M3C9X-9K3Q9-DC8PX-B3YR3-BKQR8

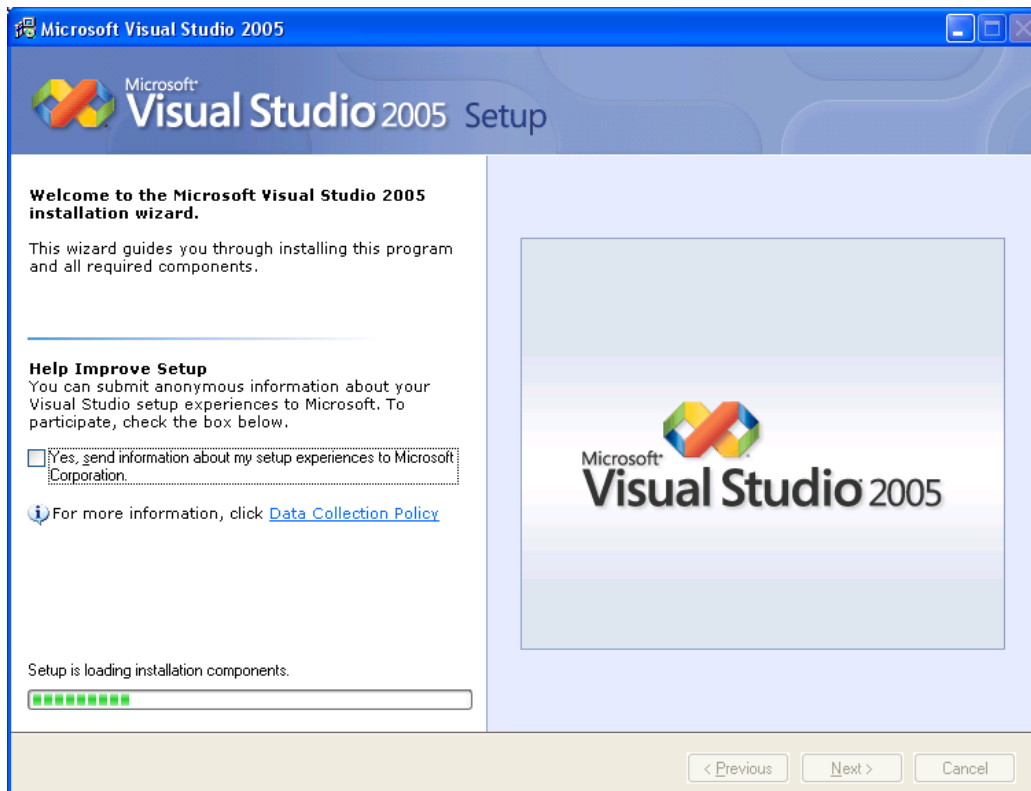
These keys have been approved for distribution by Microsoft for the demo versions of the associated products.

4.6 Install Visual Studio 2005

1. Insert the *Visual Studio 2005* DVD into your host PC's DVD drive.
2. The *Visual Studio 2005 Setup* window will appear. Click the *Install Visual Studio 2005* link.



Visual Studio 2005 will begin loading installation components on your host PC.

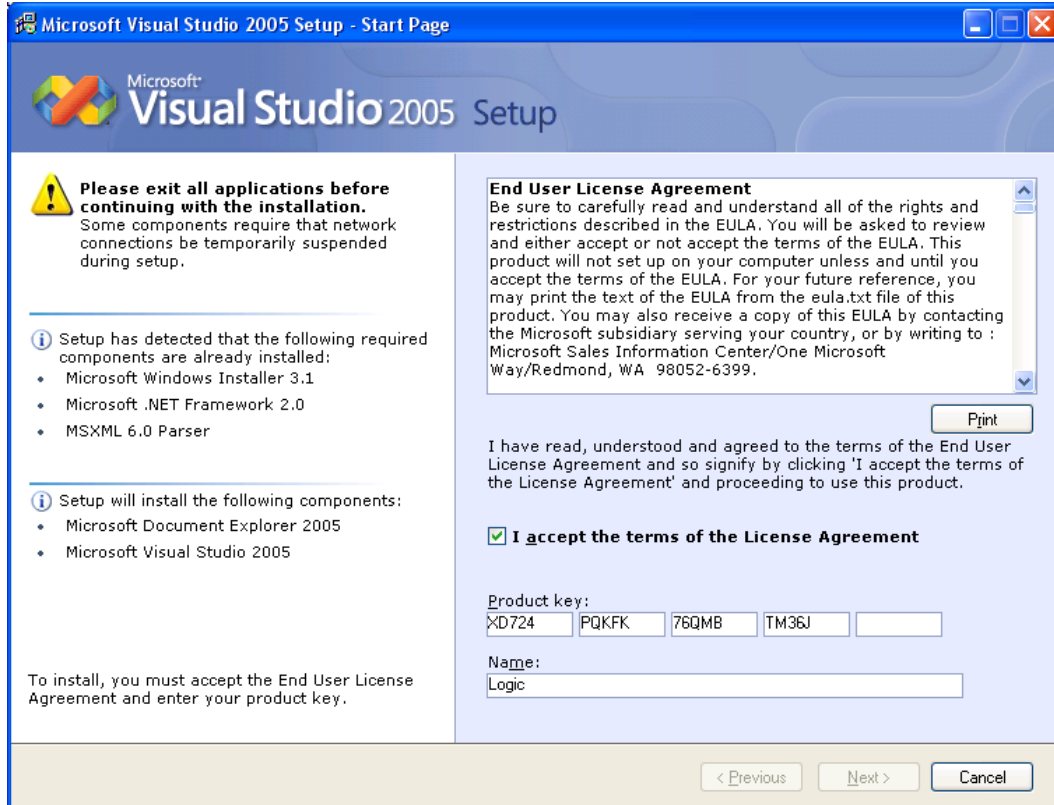


3. When the installation wizard window appears, click Next.

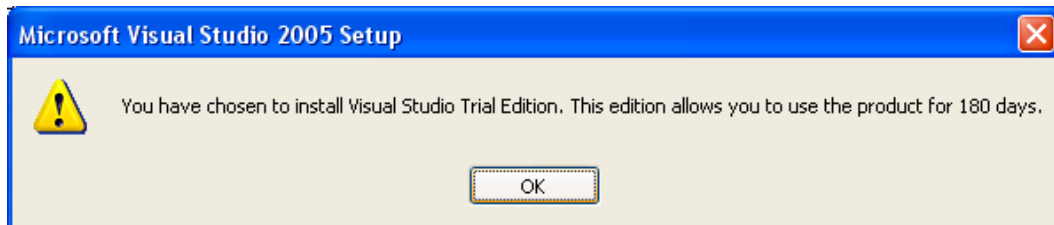


4. On the next screen, select the checkbox labeled "I accept the terms of the License Agreement."
5. Enter the product key for your Visual Studio 2005 in the *Product Key*: field.

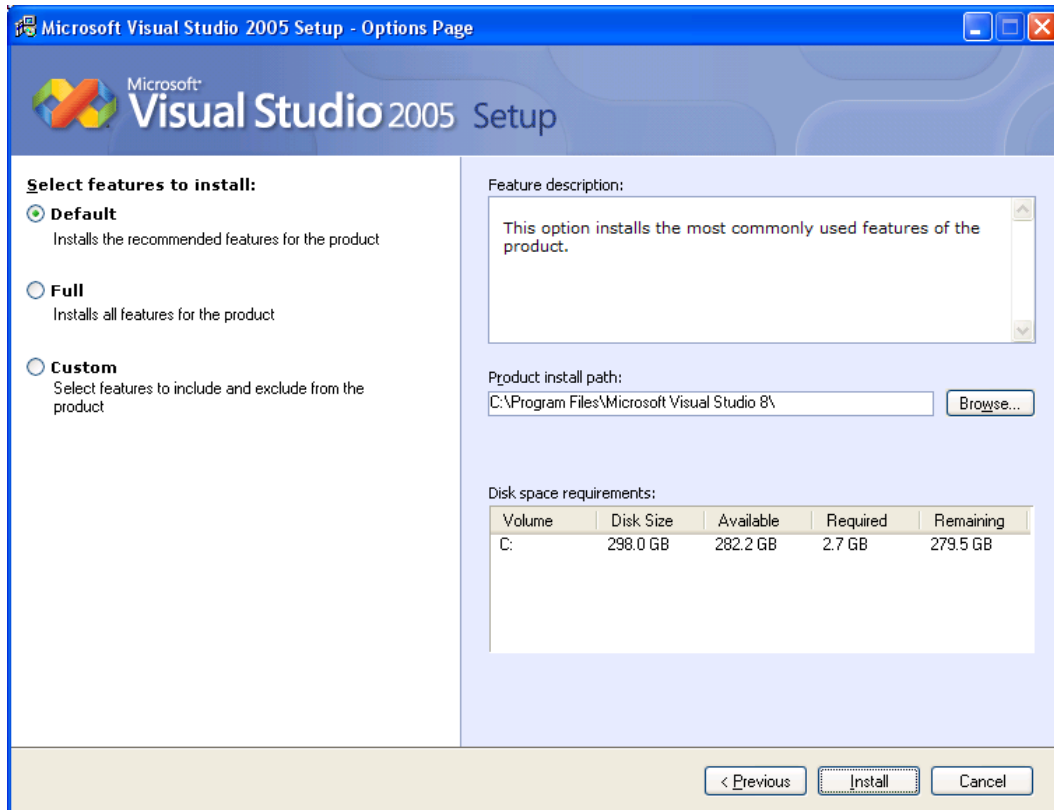
6. Enter your name in the *Name:* field and then click Next.



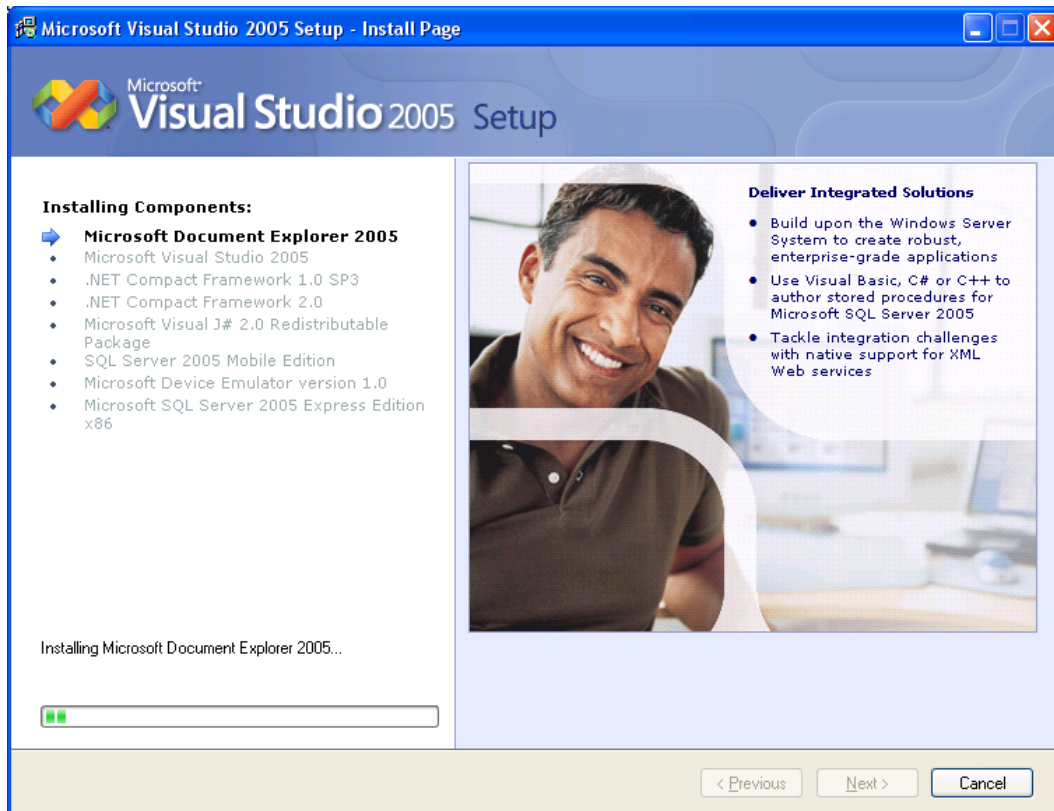
7. A warning prompt will open reminding you that you are installing a trial edition of Visual Studio. Click OK.



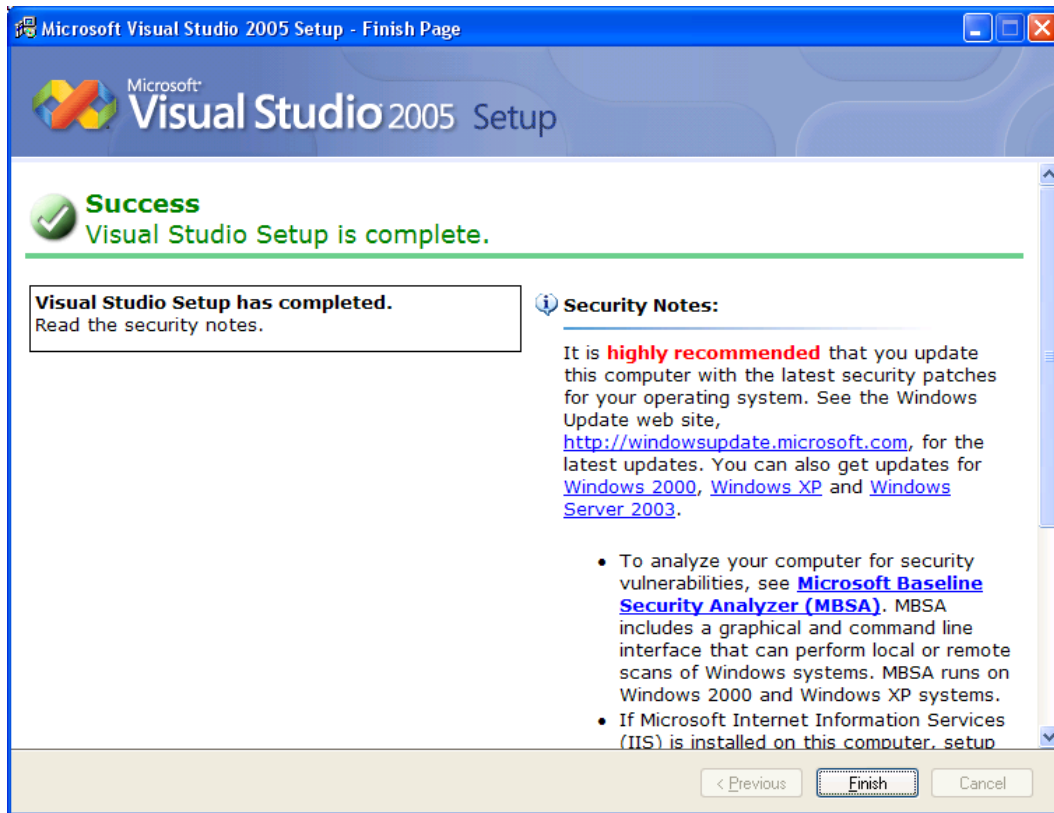
8. You will be asked to select which features to install.
 - a. Select the radio button labeled "Default."
 - b. It is recommended to use the default "Product install path". If this location is not appropriate for your host PC, click Browse... and select a different install location.
 - c. Click Install.



9. Visual Studio 2005 will begin installing on your host PC. This may take quite some time depending upon the performance capabilities of your host PC.



10. You will receive a *Success - Visual Studio Setup is complete* notification when the installation process has completed. Click Finish to return to the main *Visual Studio 2005 Setup* window.

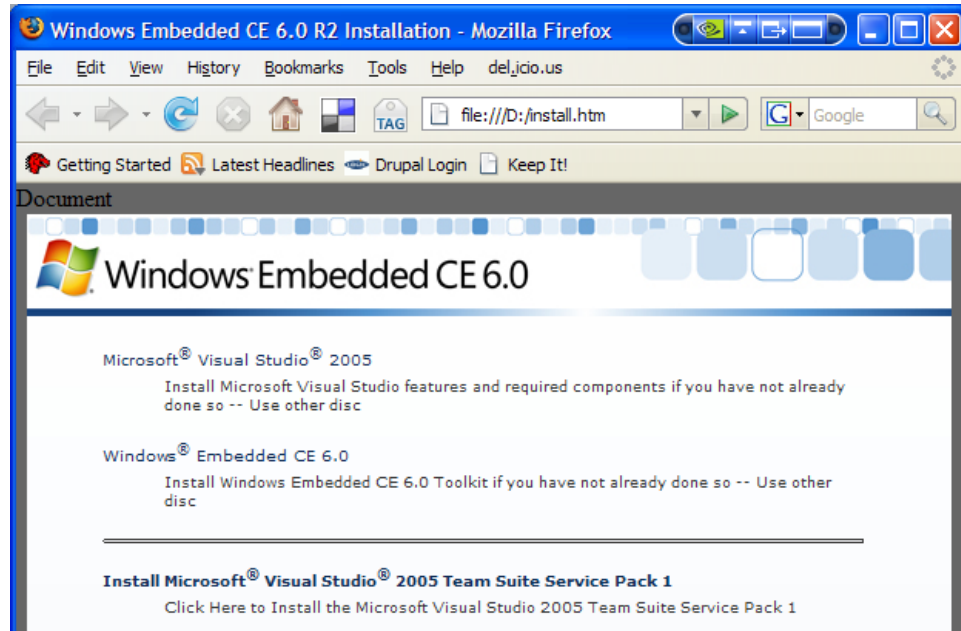


11. Click Exit and remove the DVD from your host PC.

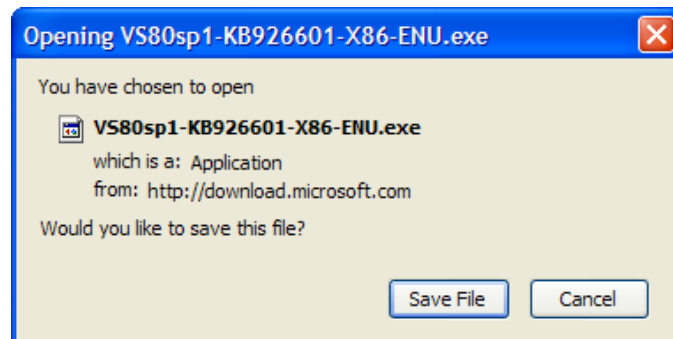


4.7 Install Visual Studio 2005 Service Pack 1

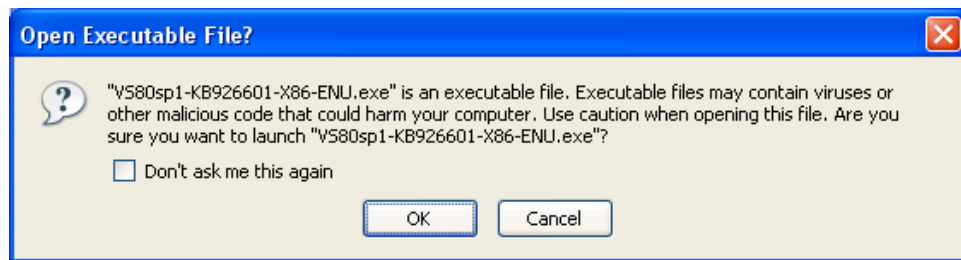
1. Insert the *Windows Embedded CE 6.0 R2* DVD into your host PC.
2. A web browser will open with the contents of the DVD.
3. Click on the line that states: *Click Here to Install the Microsoft Visual Studio 2005 Team Suite Service Pack 1*.



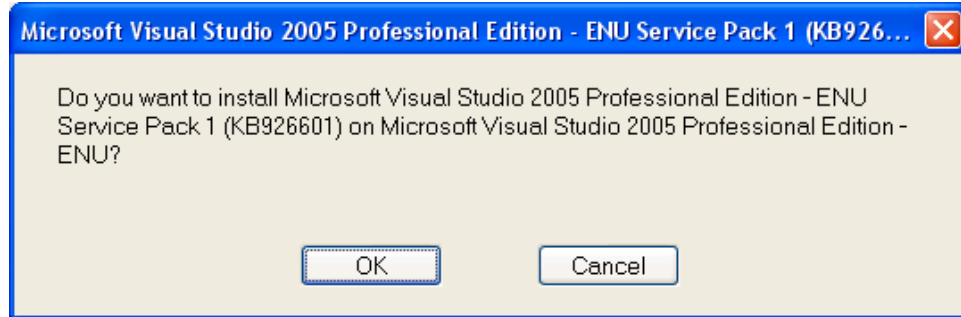
4. Click Save File to save the download to your local drive.



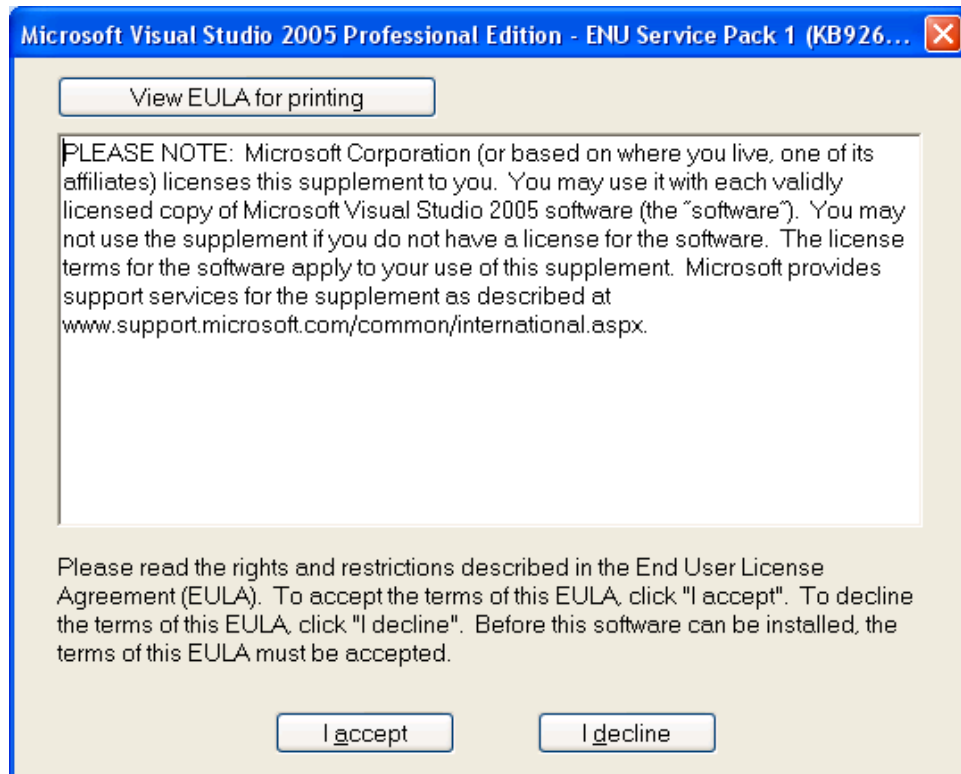
5. After the download is complete, locate the .exe file on your local drive and double-click to open it.
6. Click OK when warned about opening an executable file.



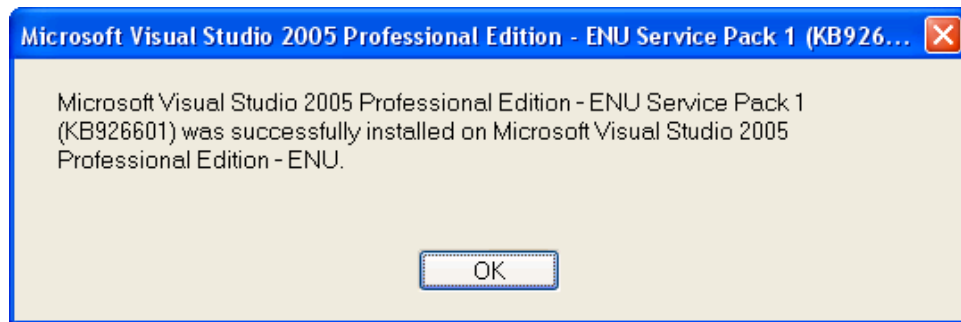
7. Click OK when asked if you want to install the ENU Service Pack 1.



8. A window containing the End User License Agreement (EULA) will appear. Read the EULA and click "I accept" to continue.



9. The ENU Service Pack 1 will install on your host PC and you will receive a notification when installation is complete. Click OK.



10. Remove the *Windows Embedded CE 6.0 R2* DVD from your host PC.

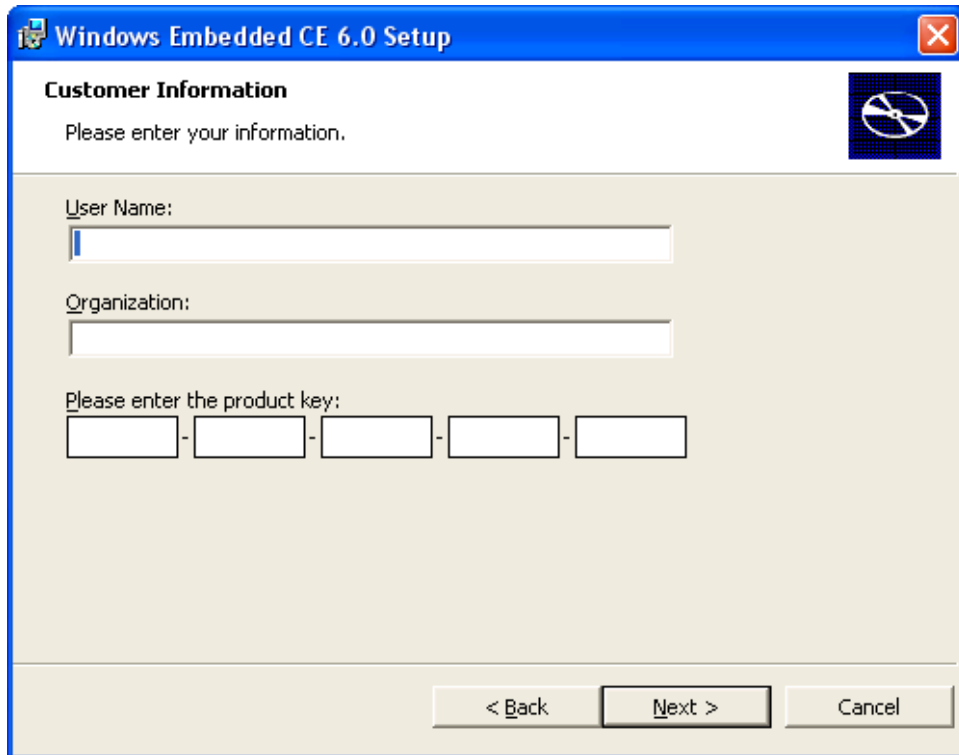
4.8 Install Platform Builder

This section will describe how to install the Platform Builder Plug-in for Microsoft Visual Studio 2005.

1. Insert the *Windows Embedded CE 6.0* DVD into your host PC that contains the Platform Builder Plug-in for Microsoft Visual Studio 2005.
2. When the *Windows Embedded CE 6.0 Setup* window appears, click Next.

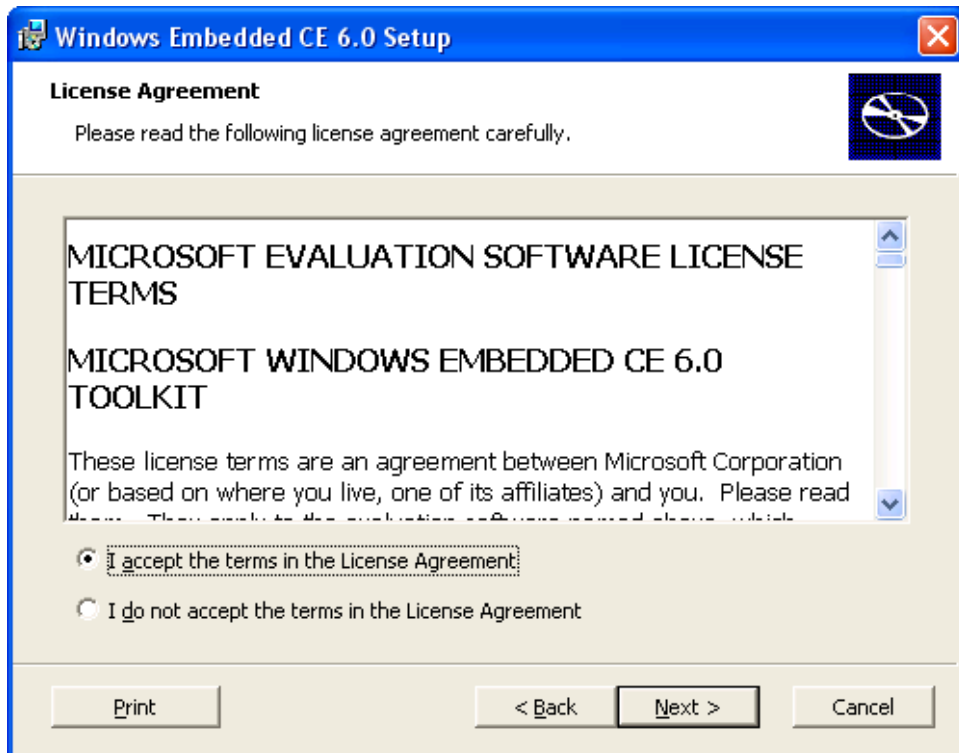


3. In the *Customer Information* window, enter your name, organization, and product key (obtained in Section 4.5 above) for Windows Embedded CE 6.0 in the appropriate fields.



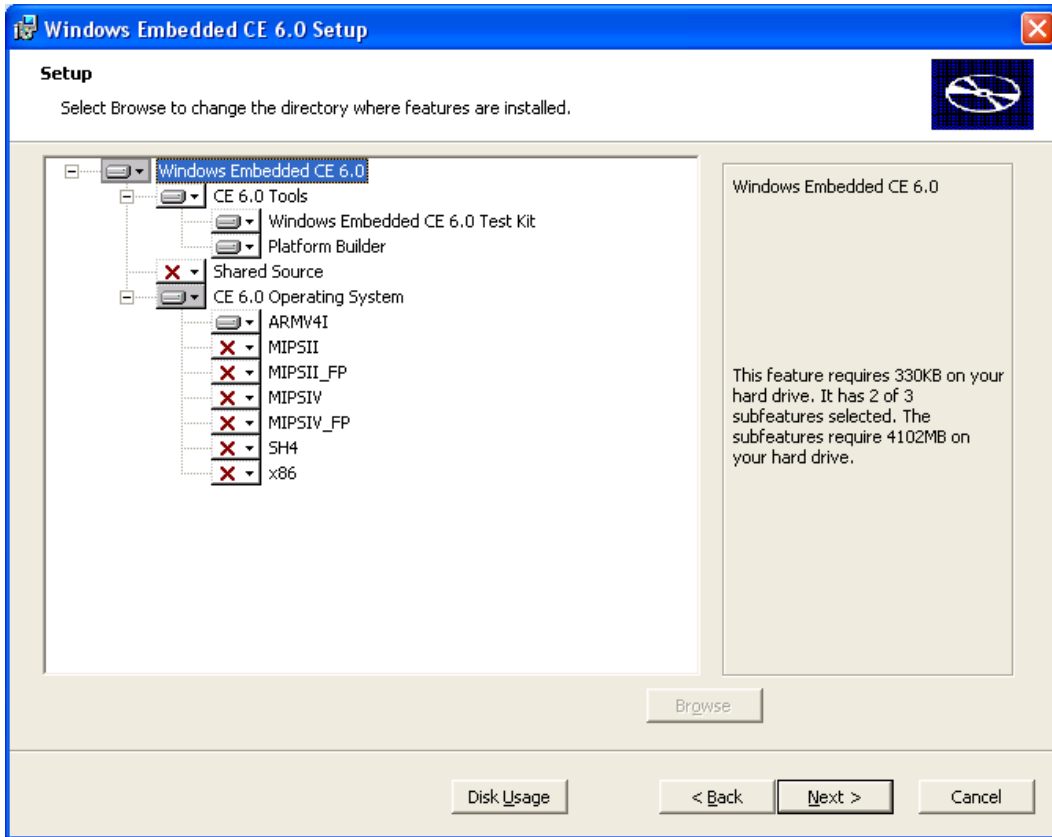
The screenshot shows the 'Customer Information' window of the Windows Embedded CE 6.0 Setup. The window has a blue title bar with the text 'Windows Embedded CE 6.0 Setup' and a close button. Below the title bar, the window is titled 'Customer Information' and contains the instruction 'Please enter your information.' There are three input fields: 'User Name:', 'Organization:', and 'Please enter the product key:'. The product key field is a five-part box with hyphens. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

4. Read the License Agreement and select the radio button labeled "I accept..." if you agree to the terms. Click Next.



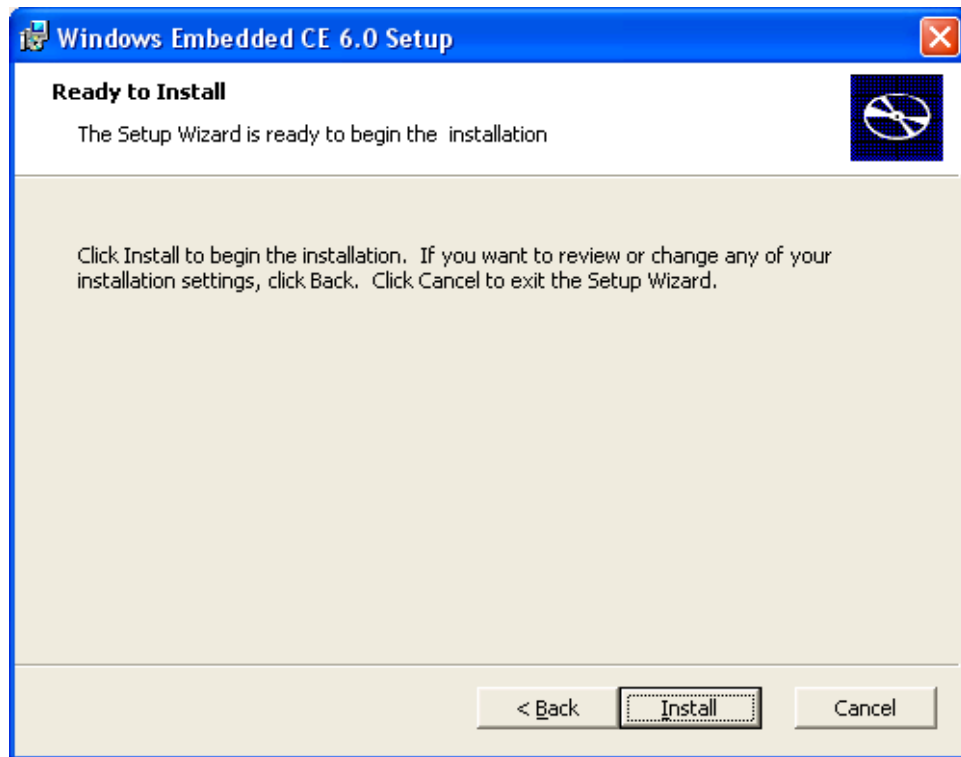
The screenshot shows the 'License Agreement' window of the Windows Embedded CE 6.0 Setup. The window has a blue title bar with the text 'Windows Embedded CE 6.0 Setup' and a close button. Below the title bar, the window is titled 'License Agreement' and contains the instruction 'Please read the following license agreement carefully.' The main area contains the text 'MICROSOFT EVALUATION SOFTWARE LICENSE TERMS' and 'MICROSOFT WINDOWS EMBEDDED CE 6.0 TOOLKIT'. Below this, there is a paragraph of text: 'These license terms are an agreement between Microsoft Corporation (or based on where you live, one of its affiliates) and you. Please read these terms carefully before you use the evaluation software named above which'. At the bottom, there are two radio buttons: 'I accept the terms in the License Agreement' (which is selected) and 'I do not accept the terms in the License Agreement'. At the bottom right, there are three buttons: 'Print', '< Back', and 'Next >'. A 'Cancel' button is also present at the bottom right.

5. In the *Setup* window that appears, select the features that you want installed. By default, the CE 6.0 Tools (Windows Embedded CE 6.0 Test Kit and Platform Builder) and the CE 6.0 Operating System for ARMV4I are selected. These default features are required for development.

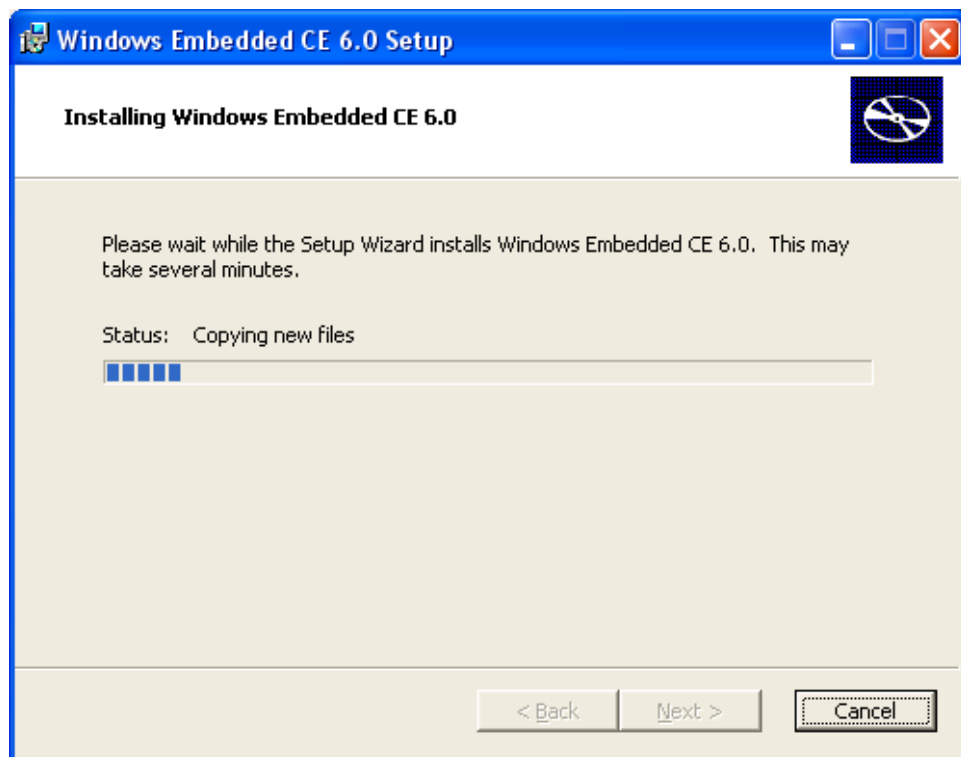


6. Click Next.

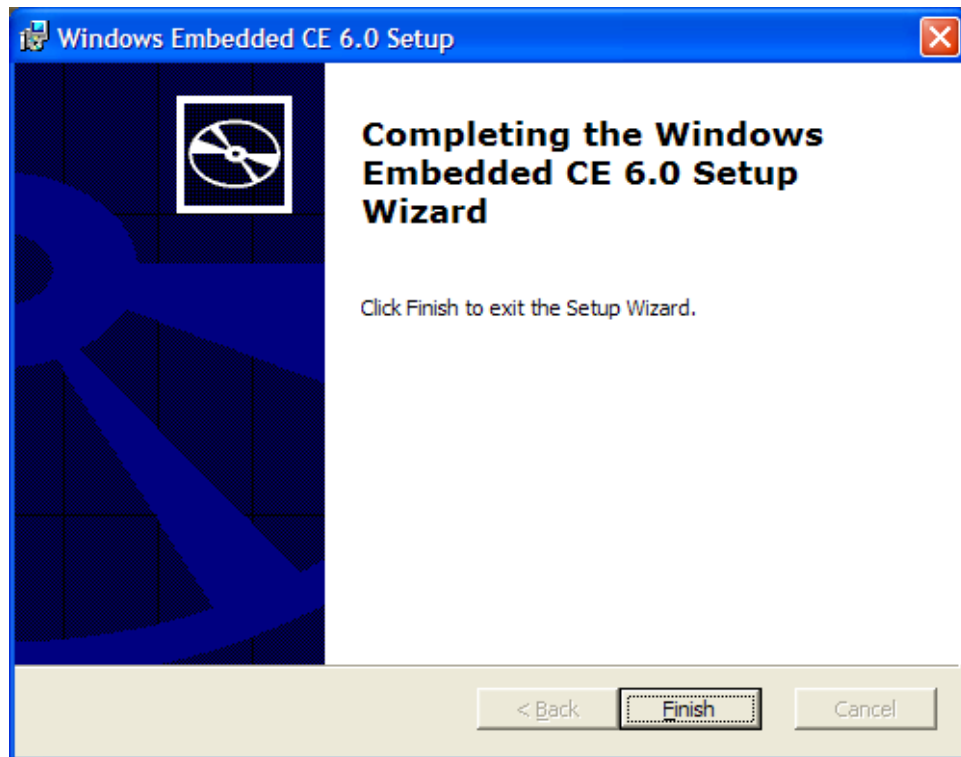
7. If your host PC is missing any prerequisites in order to complete the installation, a warning window will appear listing the missing components. Once your host PC has everything that is required, a *Ready to Install* window will appear. Click Install.



8. Windows Embedded CE 6.0 will begin installing. This may take quite some time depending upon the performance capabilities of your host PC.



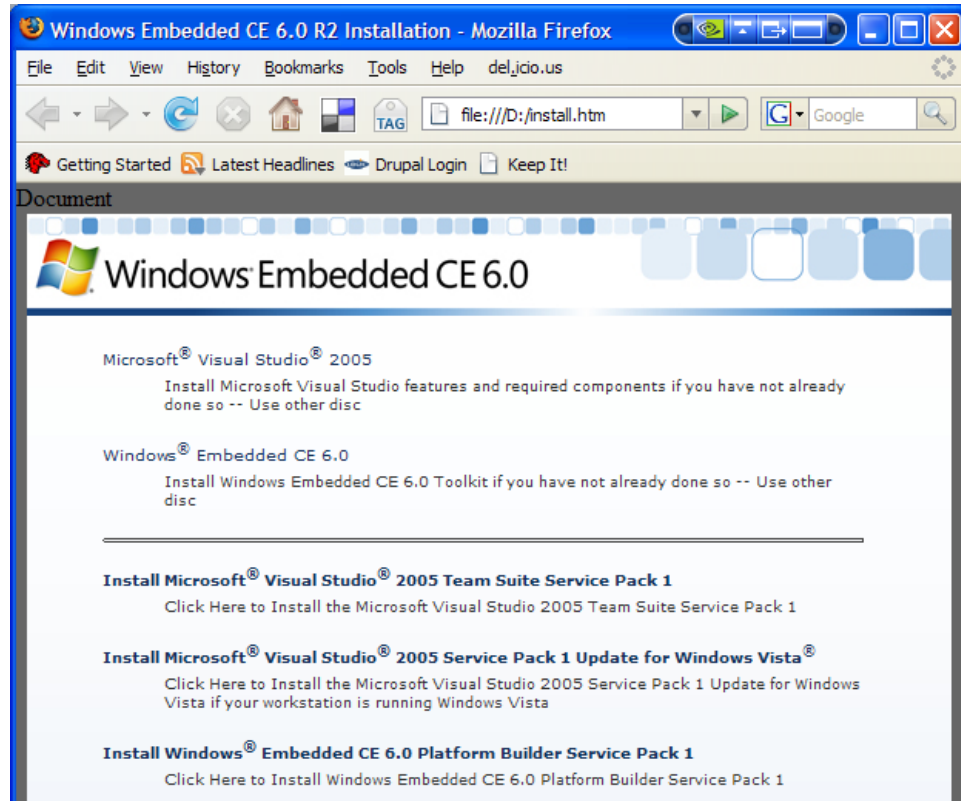
9. When the setup is complete, click Finish.



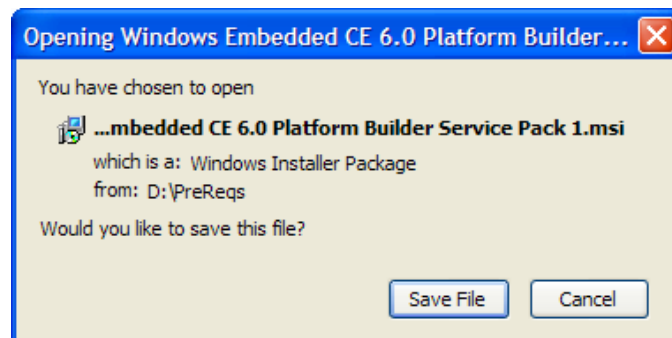
10. Remove the *Windows Embedded CE 6.0* DVD from host PC.

4.9 Install Platform Builder Service Pack 1

1. Once again, insert the *Windows Embedded CE 6.0 R2* DVD into your host PC. A web browser will open with the contents of the DVD.
2. Click on the line that states: *Click Here to Install Windows Embedded CE 6.0 Platform Builder Service Pack 1*.

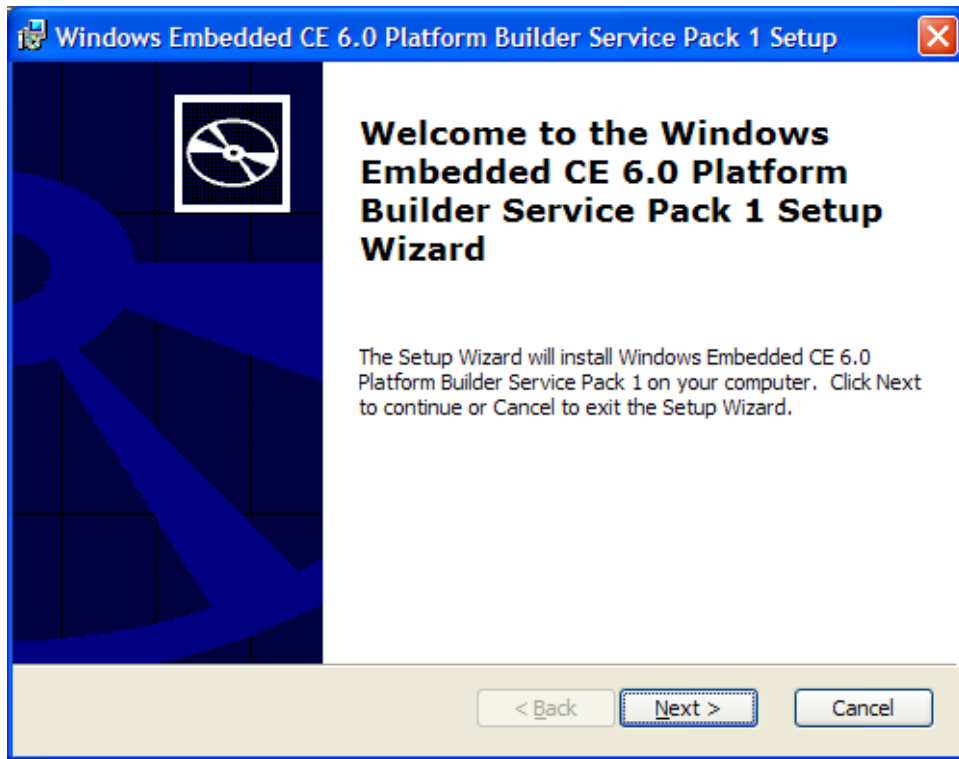


3. Click Save File to save the download to your local drive.

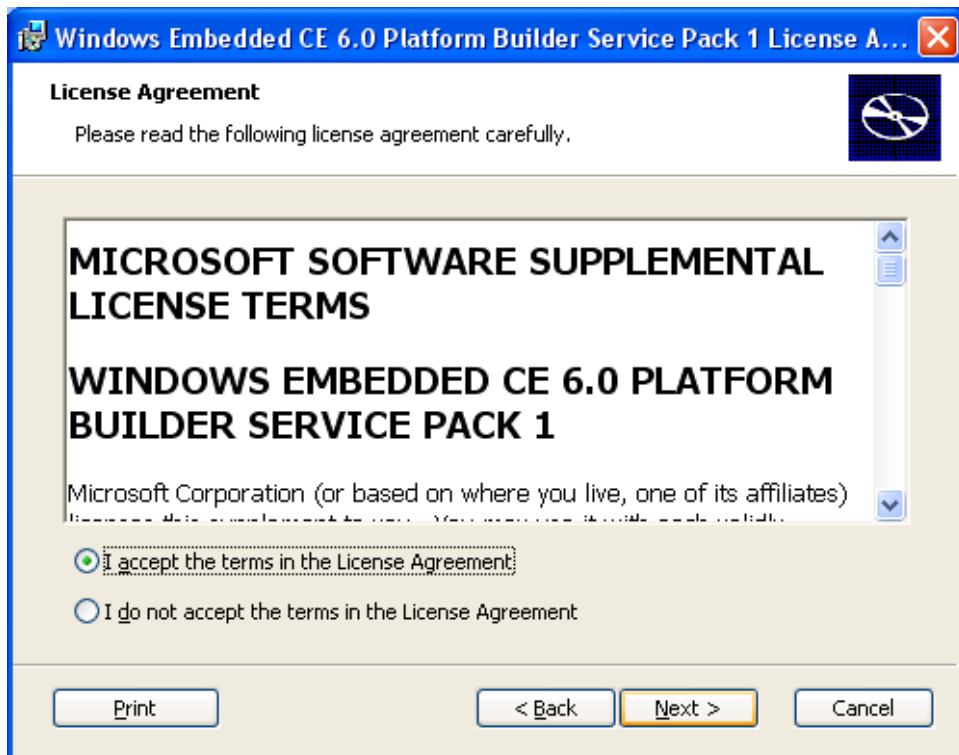


4. After the download is complete, locate the .msi file on your local drive and double-click to open it.

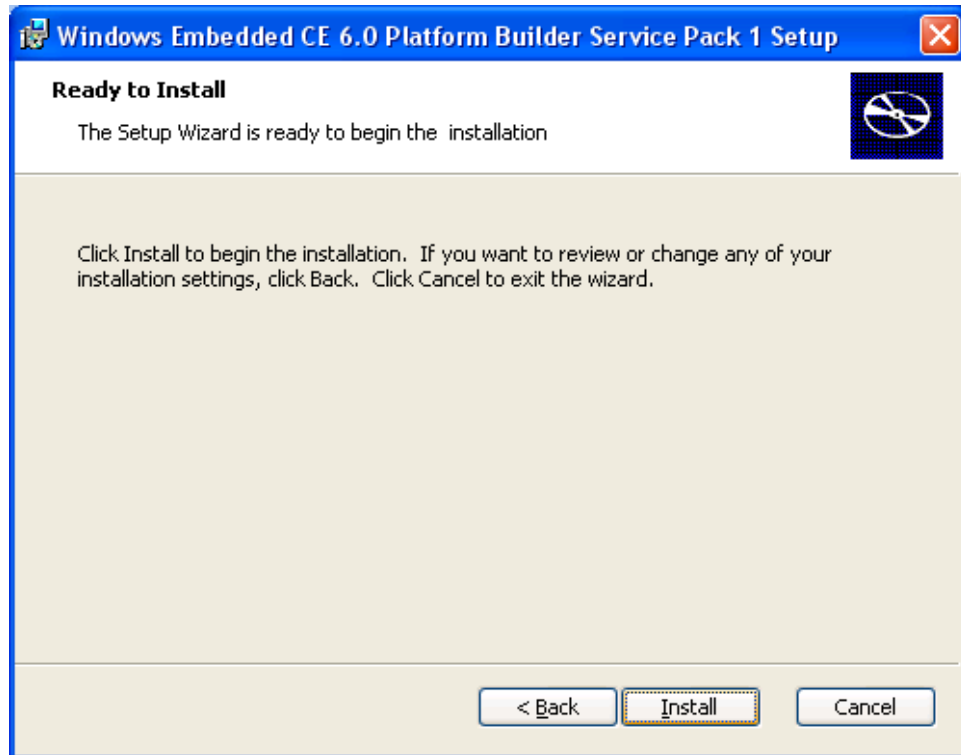
- When the *Windows Embedded CE 6.0 Platform Builder Service Pack 1 Setup* window appears, click Next.



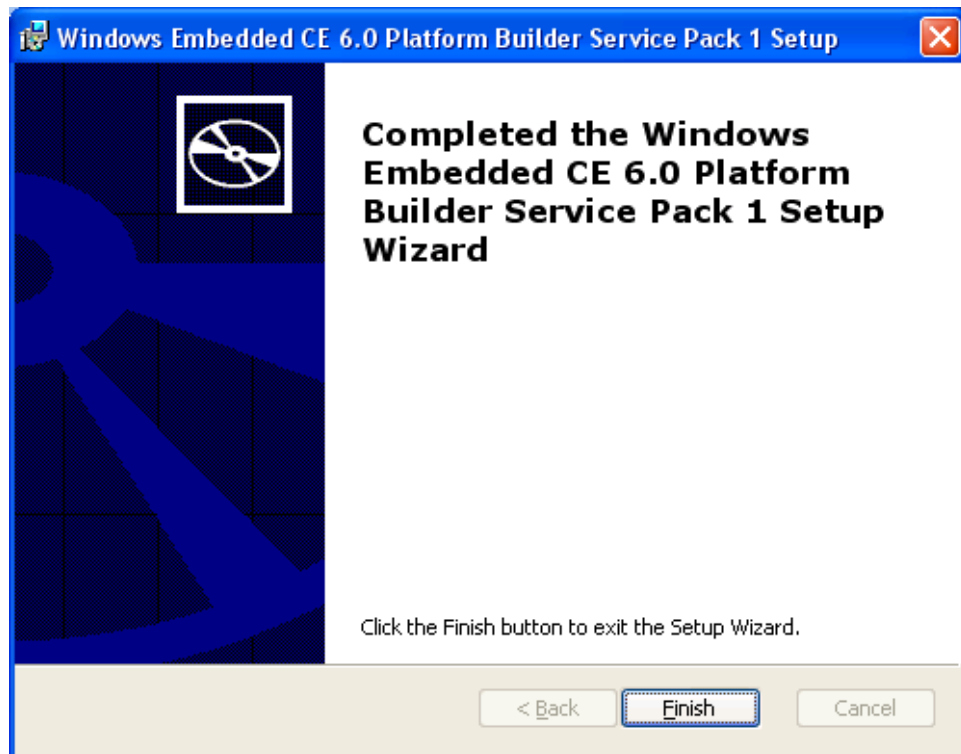
- Read the License Agreement and select the radio button labeled "I accept..." if you agree to the terms. Click Next.



7. Click Install to begin installing Platform Builder Service Pack 1.

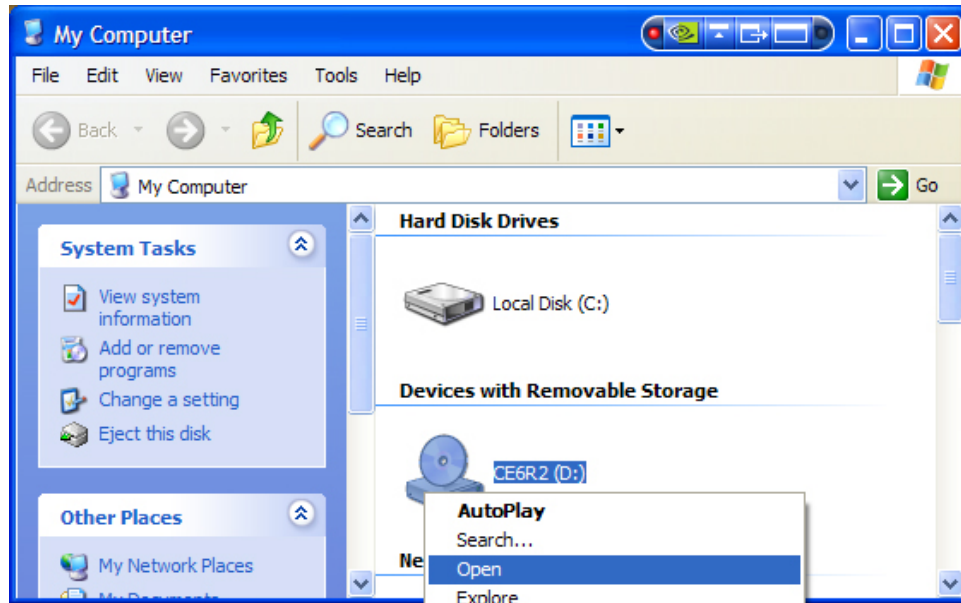


8. When installation is complete, click Finish.

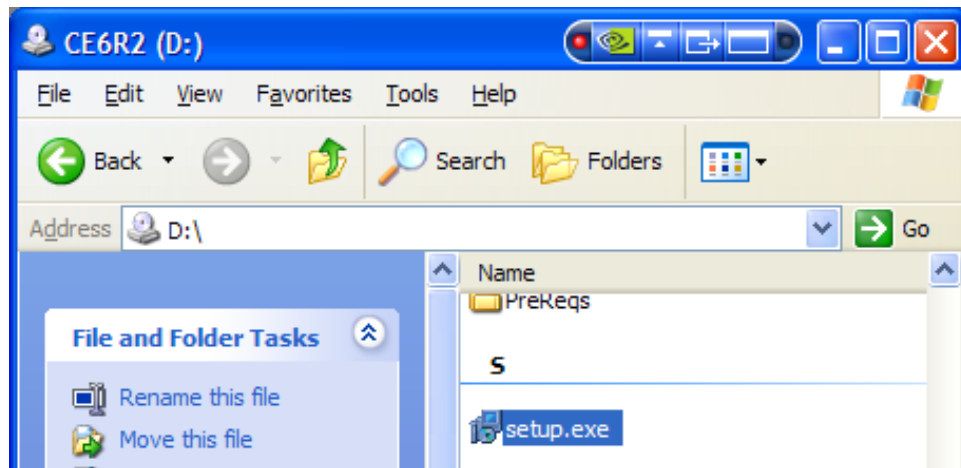


4.9.1 Install Windows Embedded CE 6.0 R2 Update

1. Navigate to My Computer. Right-click the CE6R2 DVD icon and select Open from the menu.



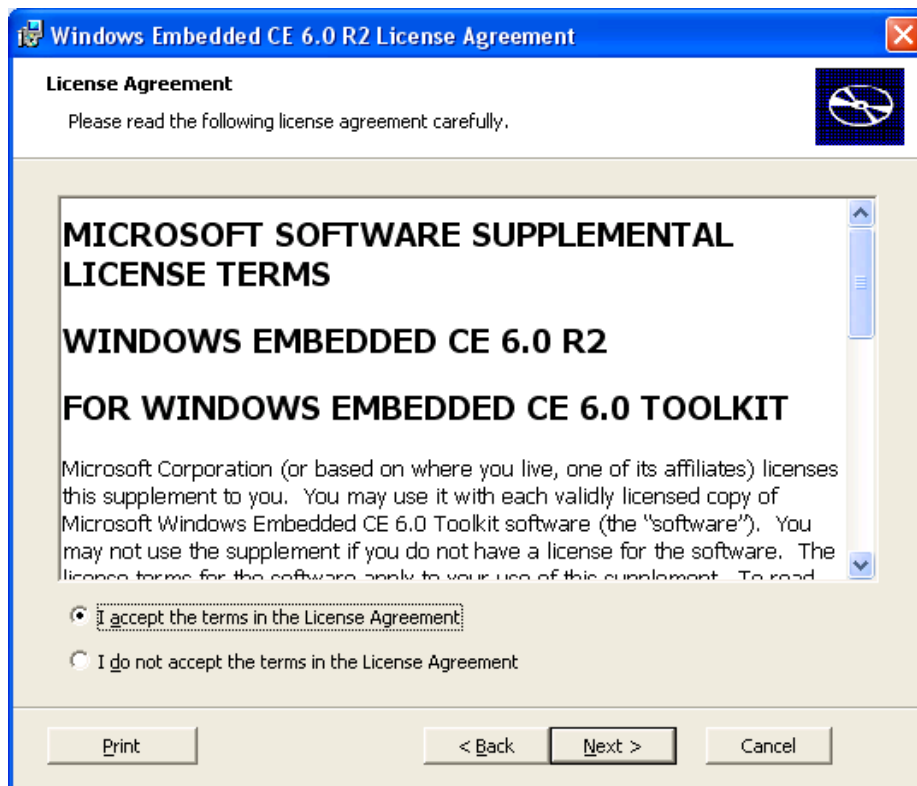
2. Locate the *setup.exe* file and double-click it.



3. A *Windows Embedded CE 6.0 R2 Setup* window will appear. Click Next.



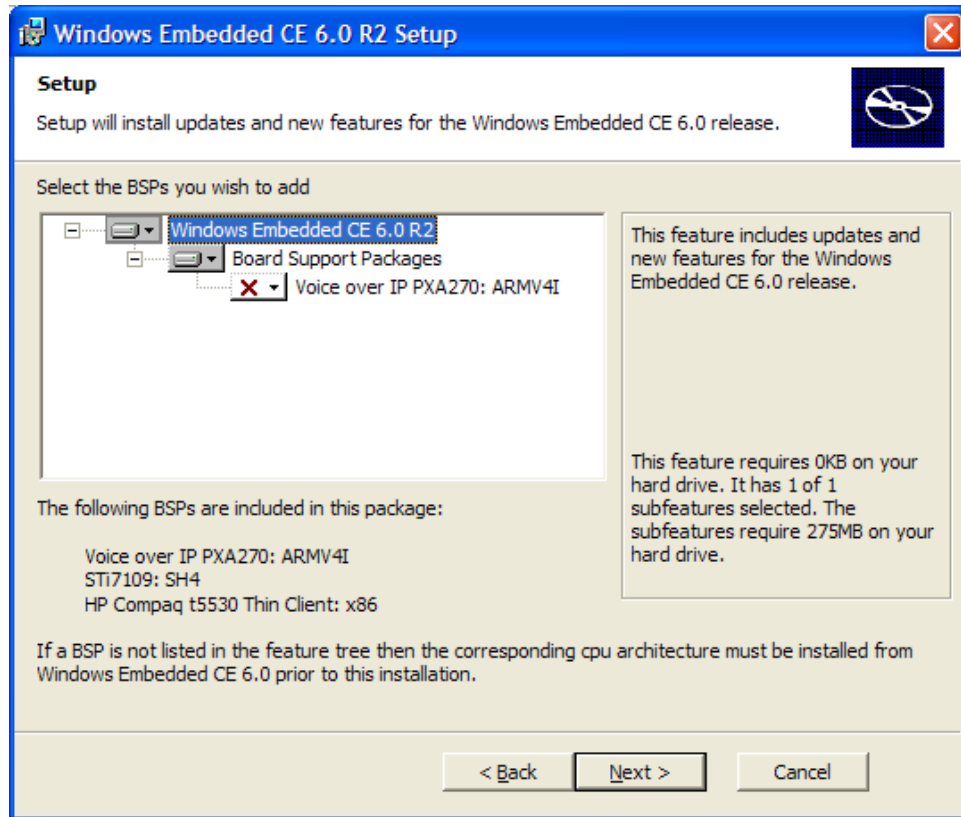
4. Read the License Agreement and select the radio button labeled "I accept..." if you agree to the terms. Click Next.



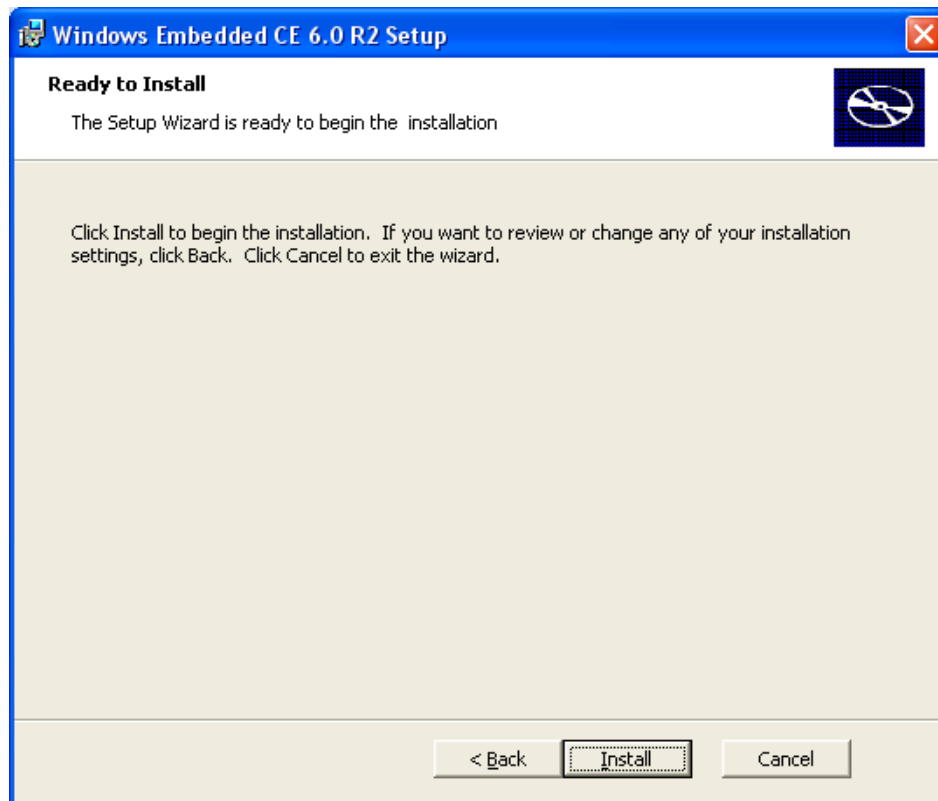
5. The setup program has to determine the disk space requirements on your host PC. There is no status window for this, so you may receive the following notice if you click Next again.



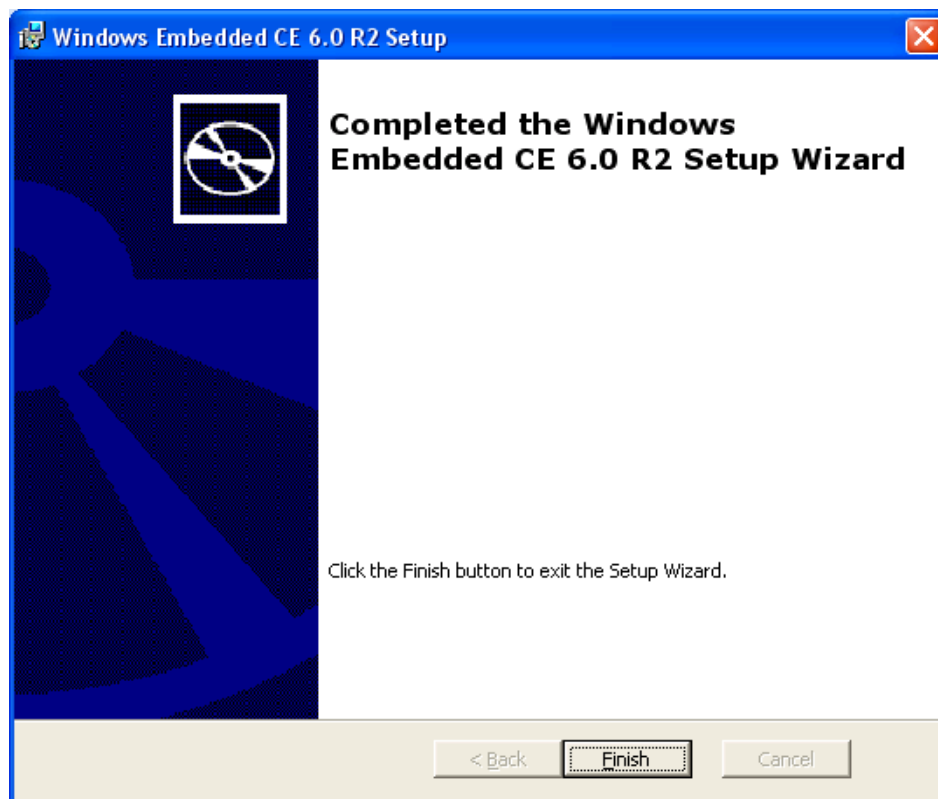
6. Eventually, the *Setup* window will appear. Keep the default settings and click Next.



- Click Install.



- When installation is complete, click Finish.



4.9.2 Updated Releases

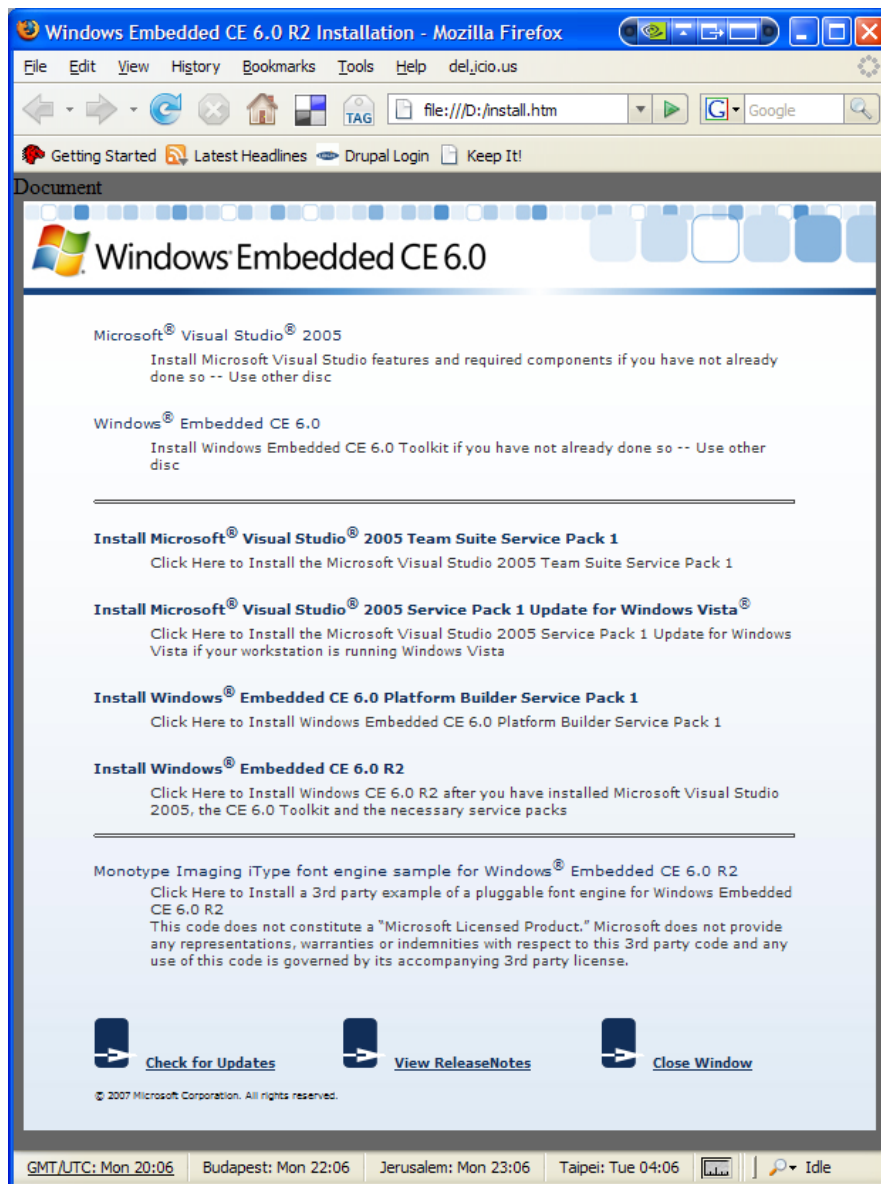
Since the publication of this user guide, additional service packs may have been released from Microsoft (e.g., *Embedded CE 6.0 R3*). Please refer to the *Windows CE Development Prerequisites.txt* file included with the Logic PD Windows CE BSP release to ensure you have the latest updates required for that release. Installation steps will be similar to those found in this user guide.

4.9.3 Use QFE Patches to Update Windows Embedded CE 6.0

This section will describe how to install Quick Fix Engineering (QFE) patches from Microsoft. Installing each QFE patch is a similar process, so we will only document the first patch and you can repeat the steps for each required QFE patch.

4.9.3.1 Download QFE Patches

1. Return to the web browser that shows the contents of the DVD and click the link to *Check for Updates* at the bottom of the page.



You will be taken to Microsoft's Download Center website. Because there are several update files that will be required from Microsoft's website, we recommend that you download all of the files to your local drive before actually running the updates. The following steps will explain the download process.

2. Locate the *Windows Embedded CE 6.0 Cumulative Product Update Rollup Package (through 12/31/2009)* link and click on it.

Title	Released	Popularity ▲
Windows Embedded CE 6.0 Evaluation Edition This evaluation software is a 180 day trial version of Windows Embedded CE 6.0, valid from the day of installation.	5/10/2007	771
Windows Embedded CE 6.0 R3 This download is an incremental release to Windows Embedded CE 6.0 R2. If you do not have Windows Embedded CE 6.0 R2, you can also download an evaluation copy from the Microsoft Download Center. Windows Embedded CE 6.0 R3 provides innovative technologies that help device manufacturers create devices with rich user experiences and connections to Windows PCs, servers, and services.	10/29/2009	785
Windows Embedded CE 6.0 R2 This download is an incremental release to Windows Embedded CE 6.0, if you do not have CE 6.0, you can also download an evaluation copy from Microsoft® download center. Windows Embedded CE 6.0 R2 provides the latest breakthrough technologies that help Windows Embedded CE 6.0 device makers efficiently build small footprint devices that connect to Windows Vista and Windows Server 2008.	12/10/2009	841
Windows Embedded CE 6.0 Platform Builder Service Pack 1 The Windows Embedded CE 6.0 Platform Builder Service Pack 1 Tools helps address some areas of the Windows Embedded CE 6.0 toolkit impacted by Windows Vista™ enhancements and also helps improve other aspects of the toolkit.	4/30/2007	964
Windows Embedded CE 6.0 USB Camera Driver This device driver adds support for USB cameras to Windows Embedded CE 6.0. It enables still and video capture from cameras which comply with USB Video Class version 1.1.	6/6/2007	1052
Windows Embedded CE 6.0 Monthly Update May 2010 Download this set of updates for Windows Embedded CE 6.0 R3 environment released during the period of May 1 - May 31, 2010.	6/4/2010	1661
<u>Windows Embedded CE 6.0 Cumulative Product Update Rollup Package (through 12/31/2009)</u> Download the full set of updates for Windows Embedded CE 6.0	2/2/2010	1871
Windows Embedded CE 6.0 Monthly Update June 2010 Download this set of updates for Windows Embedded CE 6.0 R3 environment released during the period of June 1 - June 30, 2010.	7/20/2010	2057
Windows Embedded CE 6.0 Monthly Update April 2010 Download this set of updates for Windows Embedded CE 6.0 R3 environment released during the period of April 1 - April 30, 2010.	5/11/2010	2202
Mobile QQ Messenger Client for Windows Embedded CE 6.0 R3 Mobile QQ is a 3rd party component instant messenger client for Windows Embedded CE 6.0 R3.	9/28/2009	2249

3. Click the *Download files below* link.

Microsoft
Download Center

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Product Families
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Office
Servers
Business Solutions
Developer Tools
Windows Live
MSN
Games & Xbox
Windows Mobile
All Downloads

Download Categories
Games
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Internet
Windows Security & Updates
Windows Media
Drivers
Home & Office
Mobile Devices
Mac & Other Platforms
System Tools
Development Resources

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Microsoft Update Services
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Download Notifications
Notifications Signup

Windows Embedded CE 6.0 Cumulative Product Update Rollup Package (through 12/31/2009)

Brief Description
Download the full set of updates for Windows Embedded CE 6.0

On This Page
[Quick Details](#) [Overview](#)
[System Requirements](#) [Instructions](#)
[Related Resources](#) [What Others Are Downloading](#)

[Download files below](#)

Quick Details

Version:	1.0
Date Published:	2/2/2010
Language:	English
Download Size:	85 KB - 1008.6 MB*

*Download size depends on selected download components.

Overview
This is a full set of updates for Windows Embedded CE 6.0 R3. Please see the associated Readme for a list of the updates.
For complete details regarding the updates in this release, please download the Windows Embedded CE 6.0_Product_Update_Rollup_2009.htm file below.

4. Locate the *WinCEPB60-091231-Product-Update-Rollup-Armv4I.msi* file and click the Download button next to the file name.

[Top of page](#)

Files in This Download
The links in this section correspond to separate files available in this download. Download the files most appropriate for you.

File Name:	File Size	
WinCEPB60-091231-Product-Update-Rollup-Armv4I.msi	147.7 MB	Download
WinCEPB60-091231-Product-Update-Rollup-MIPSII.msi	145.6 MB	Download
WinCEPB60-091231-Product-Update-Rollup-MIPSII_FP.msi	145.8 MB	Download
WinCEPB60-091231-Product-Update-Rollup-MIPSIV.msi	144.5 MB	Download
WinCEPB60-091231-Product-Update-Rollup-MIPSIV_FP.msi	144.7 MB	Download
WinCEPB60-091231-Product-Update-Rollup-SH4.msi	142.3 MB	Download
WinCEPB60-091231-Product-Update-Rollup-X86.msi	138.0 MB	Download
Windows Embedded CE 6.0_Product_Update_Rollup_2009.htm	85 KB	Download

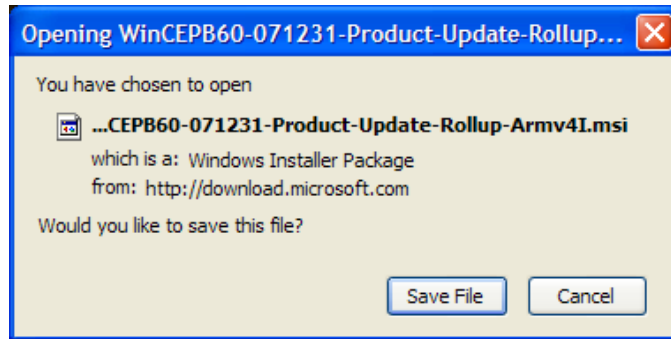
[Top of page](#)

Related Resources

- [Windows Embedded Books](#)
- [Windows Embedded Community](#)
- [Windows CE Home Page](#)
- [Windows CE Documentation](#)

[Top of page](#)

- Click Save File to download the update file to your local drive.

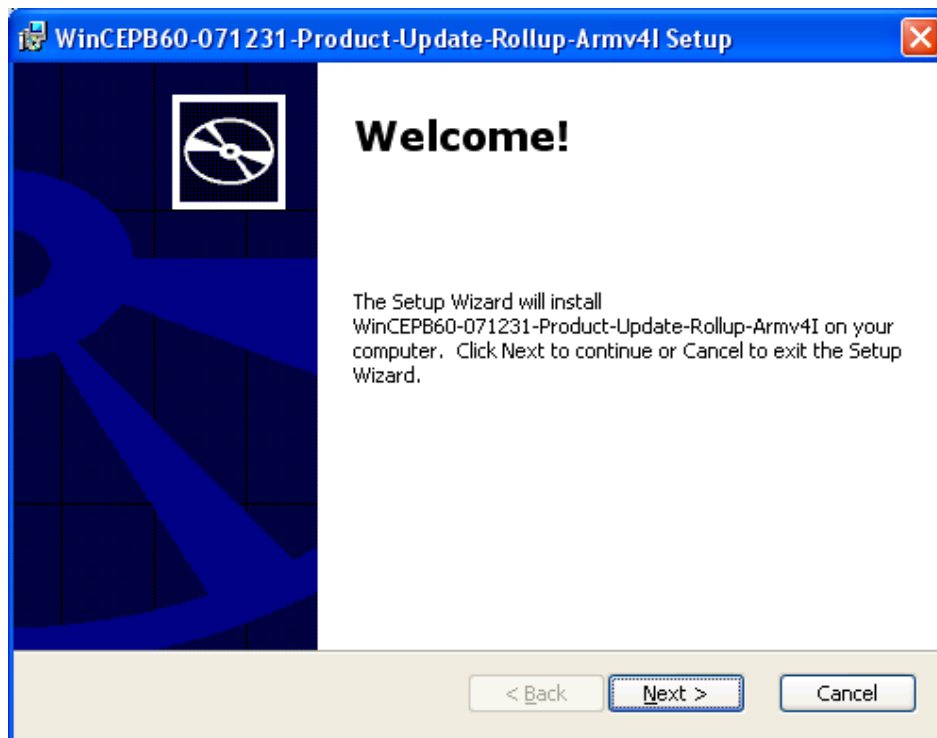


- Once that file has finished downloading, use the back button in your web browser to return to the Microsoft Download Center page with "Results for – 'Windows Embedded CE 6.0'" displayed.
- Repeat Steps 2 through 5 until all of the required updates are installed.

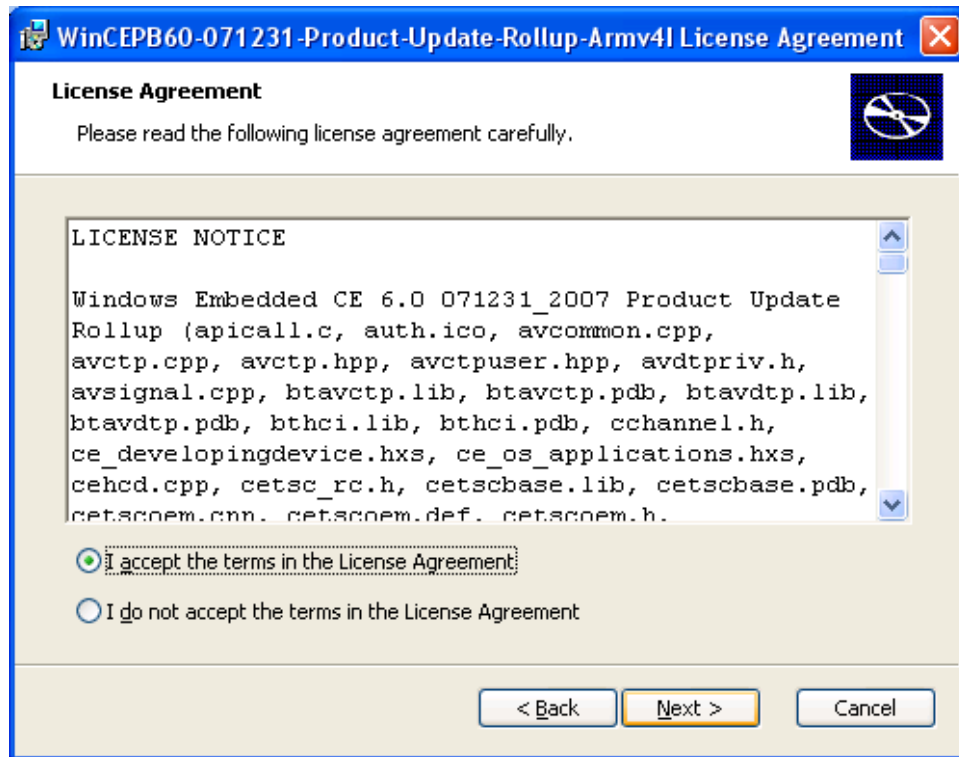
IMPORTANT NOTE: More QFE patches may be required depending on the BSP source you are using. Please refer to the *Windows CE Development Prerequisites.txt* file included with Logic PD's Windows CE source BSP download to see which QFE patches are required. More information about Logic PD's Windows CE source BSP will be covered in the next section of this document.

4.9.3.2 Install QFE Patches

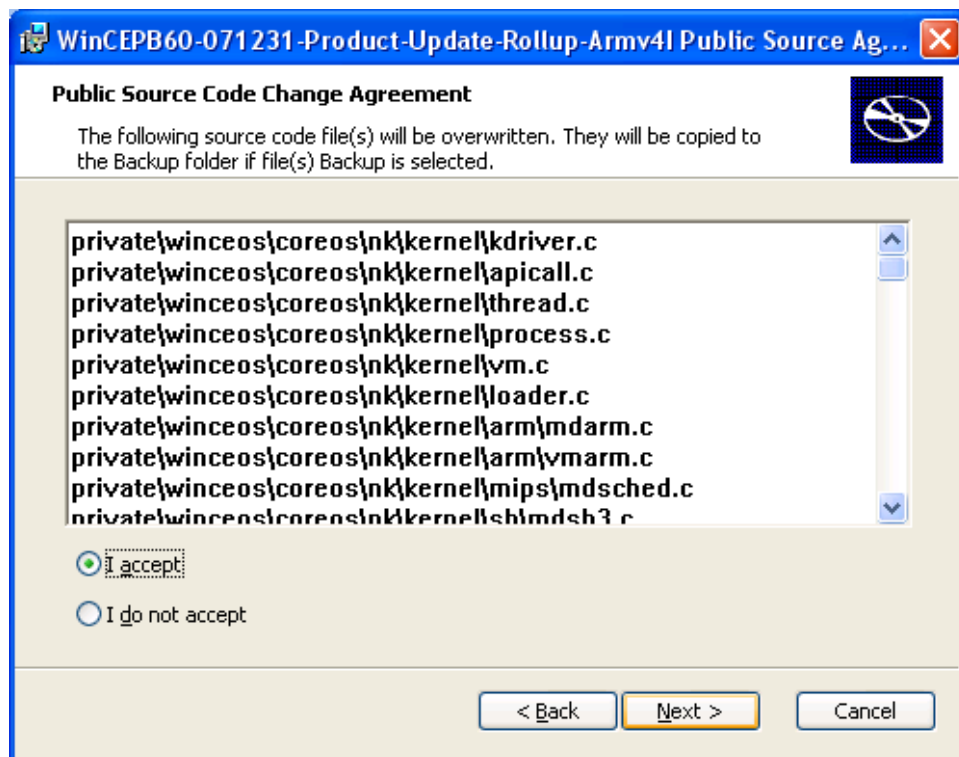
- On your local drive where you saved the downloads from Microsoft's website, locate the *WinCEPB60-091231-Product-Update-Rollup-Armv4I.msi* file and double-click it to begin installing the Cumulative Product Update Rollup for 2009.
- When the *WinCEPB60-071231-Product-Update_Rollup-Armv4I Setup* window appears, click Next.



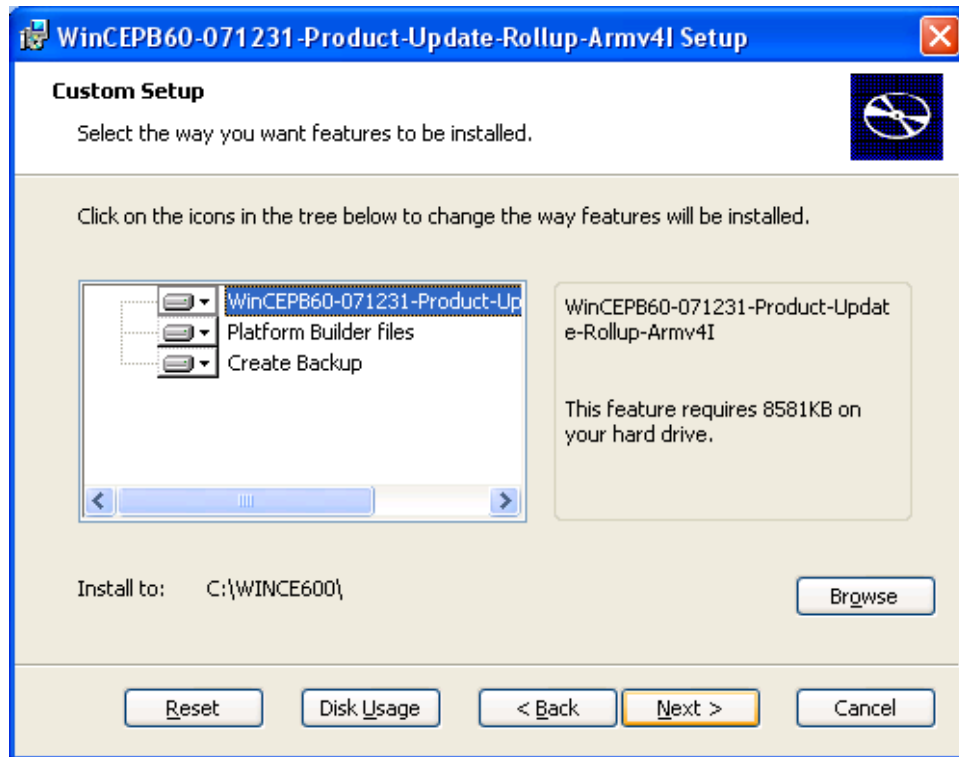
3. Read the License Agreement and select the radio button labeled "I accept..." if you agree to the terms. Click Next.



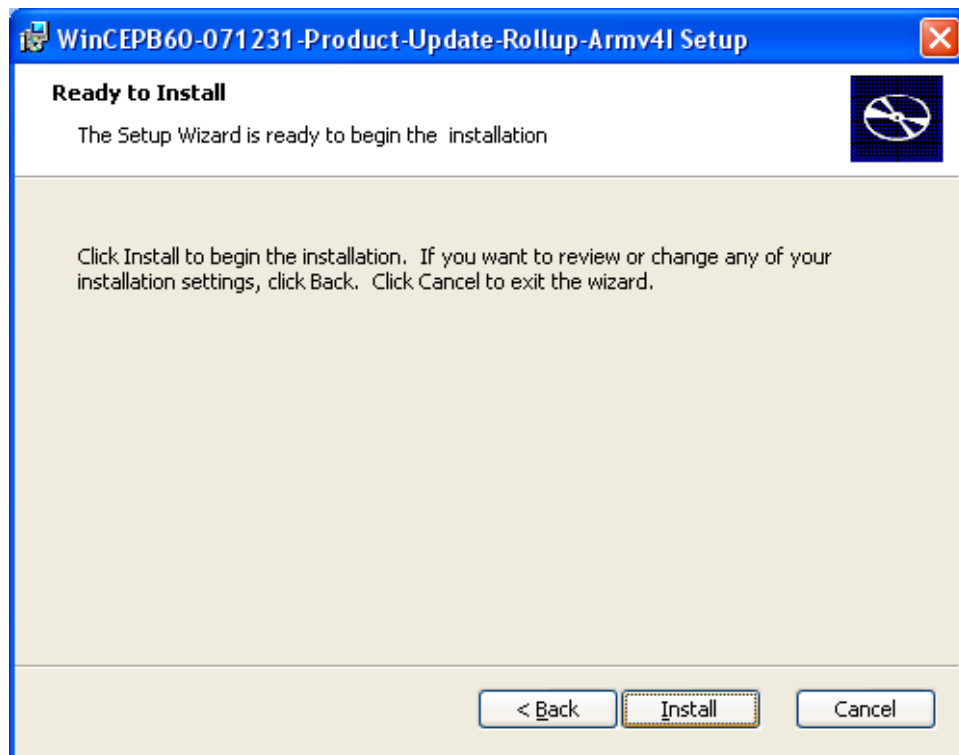
4. You will be notified of the source code files that will be overwritten during the installation process. Select the radio button labeled "I accept" and click Next to continue.



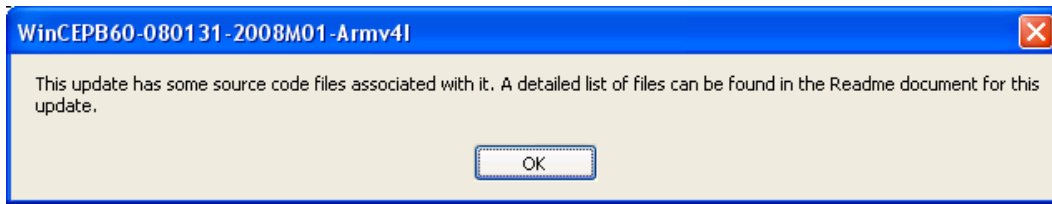
5. You will be presented with the option to customize the installation. We recommend you keep the default settings and click Next.



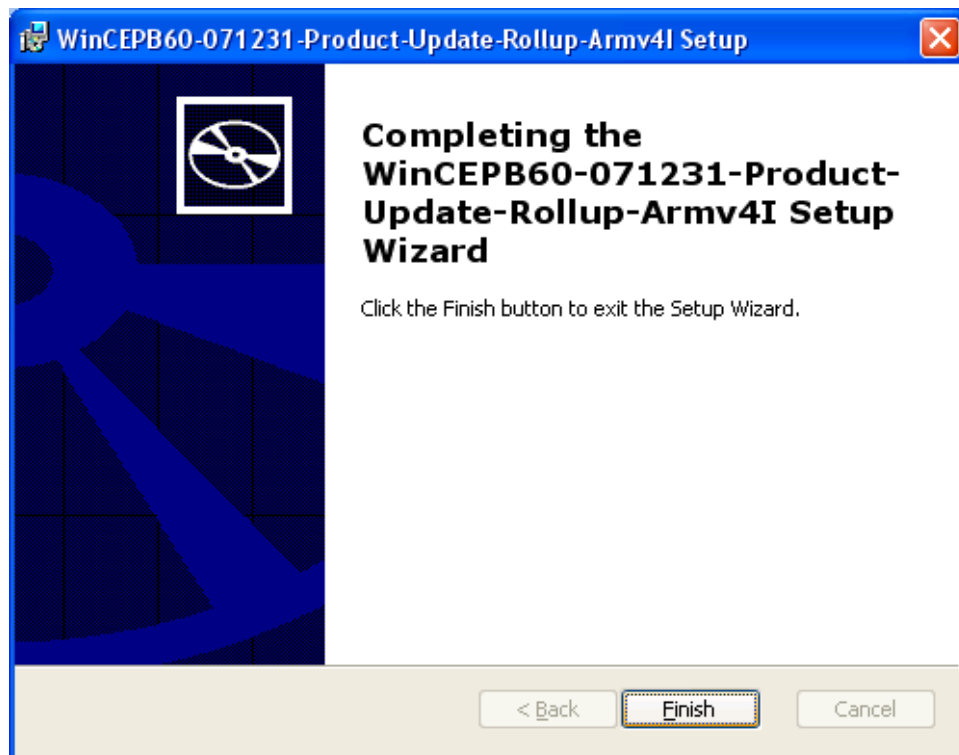
6. Click Install.



- When the installation nears completion, you will see the following window explaining that the update has source code files associated with it. (**NOTE:** This window will often open behind the other windows on your desktop. If it appears that the installation process has stalled, see if this window is hiding behind the others.) Click OK and a web browser will open showing the associated Readme document.



- When installation is complete, click Finish.



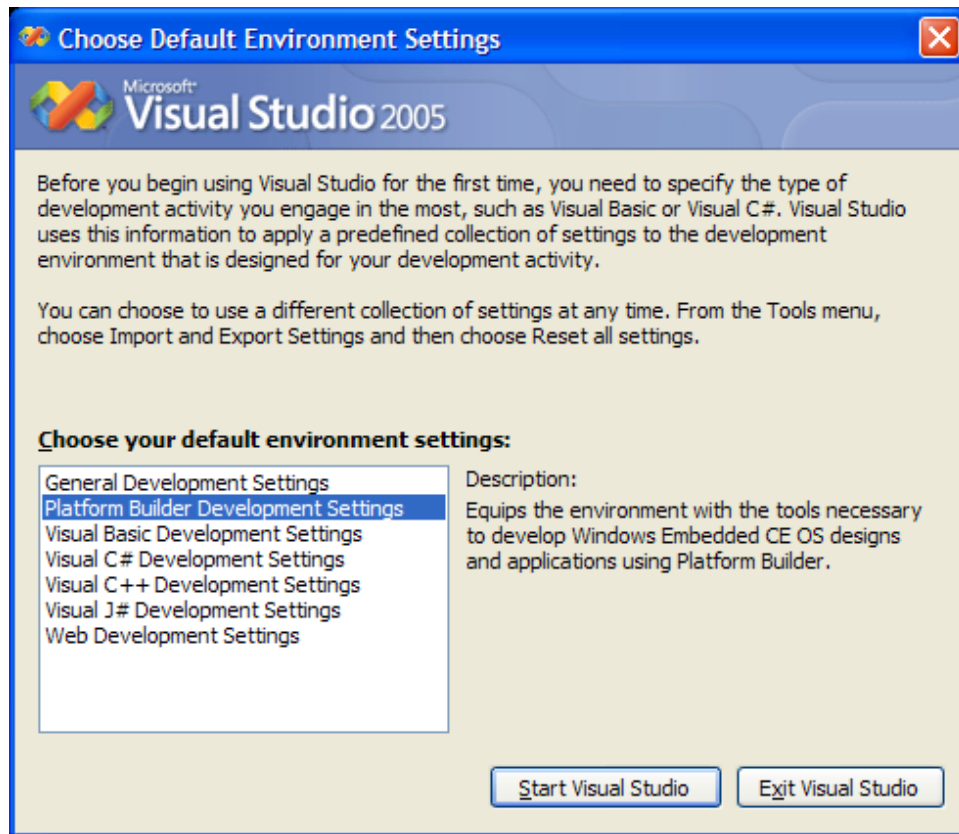
- Repeat Steps 1 through 8 for each of the remaining QFE patches.

4.9.4 Verify the QFE Patch Installations

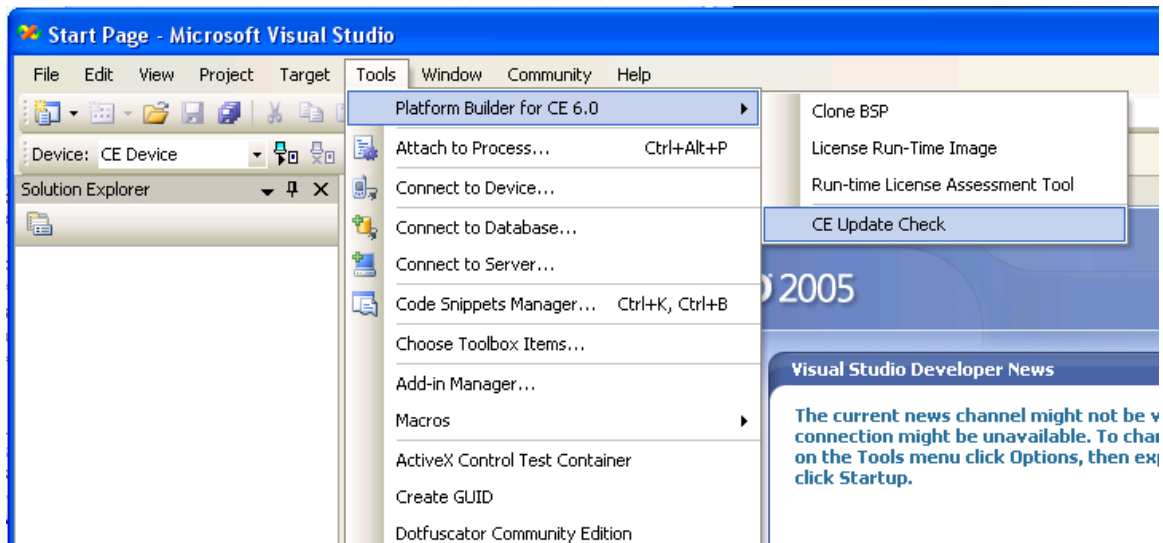
To verify that you have installed all the necessary QFE patches, you will have to launch the Visual Studio 2005 application.

- Launch Visual Studio 2005 by selecting Start Menu > All Programs > Microsoft Visual Studio 2005 > Microsoft Visual Studio 2005.

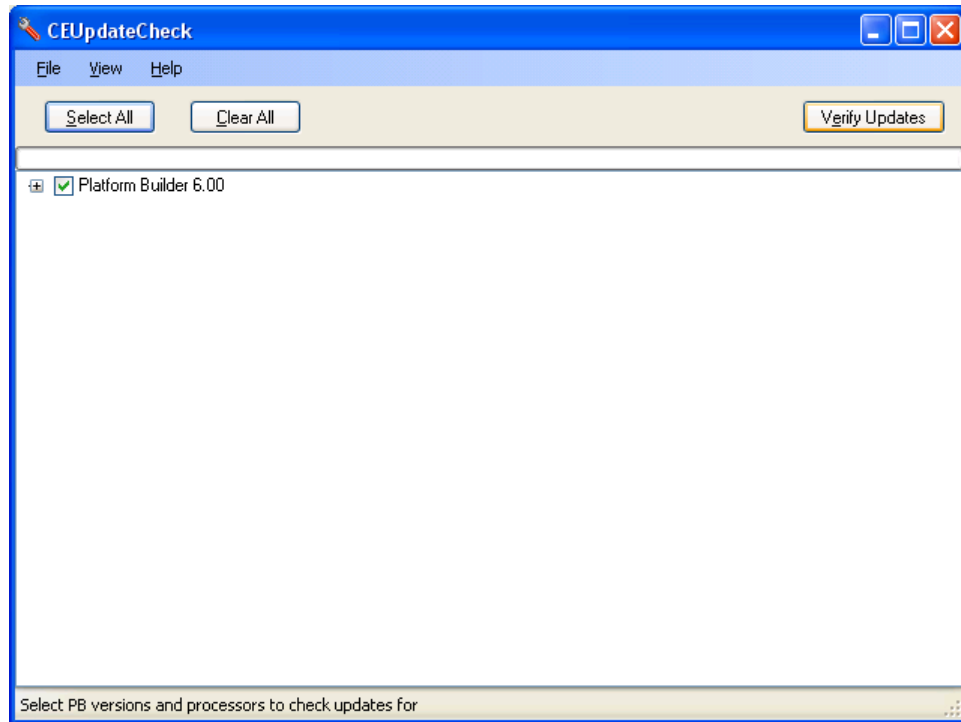
- If this is the first time you've launched Visual Studio 2005, you will have to specify your default development environment. Select Platform Builder Development Settings from the drop-down menu and click the Start Visual Studio button to continue.



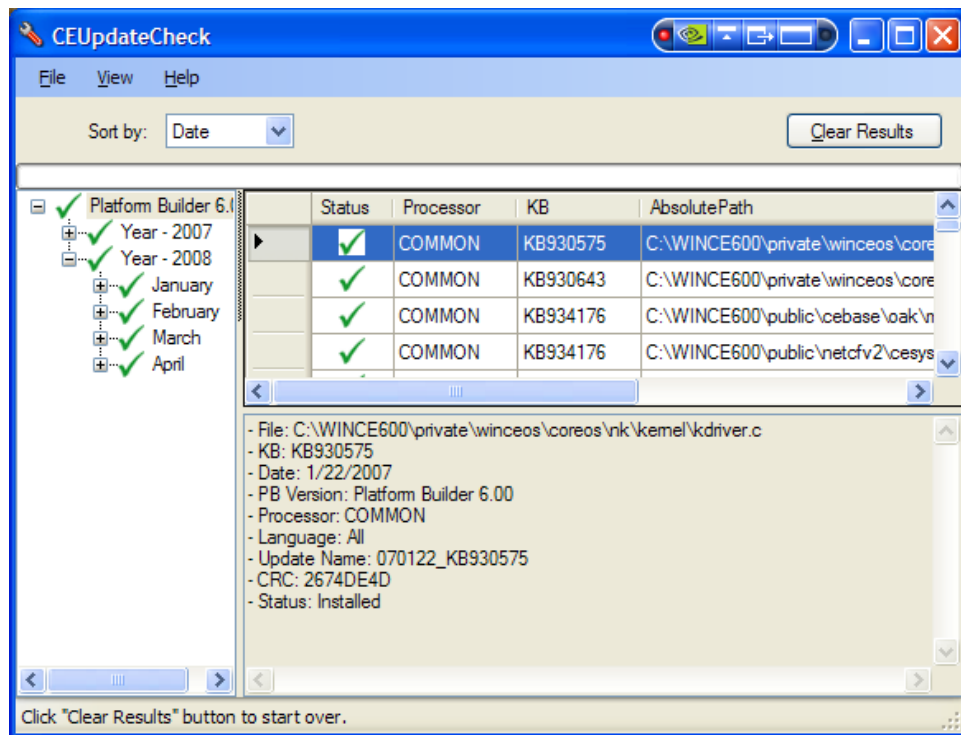
- In Visual Studio 2005, select Tools > Platform Builder for CE 6.0 > CE Update Check.



4. In the *CEUpdateCheck* window, click Verify Updates.



5. *CEUpdateCheck* will compare all of the updates that you have installed on your host PC against the updates that have been released to date.



Your host PC now has all the necessary tools to begin Windows CE development.

5 Prepare for Windows CE Application Development

This section describes the steps required to set up your host PC for Windows CE applications development using the DM37x Linux BSP. Application developers will need the SDK created in this section to develop applications that communicate with the BSP.

5.1 Prerequisites

- Host PC with DVD drive (DVD drive only required if using the *Windows Embedded CE 6.0 180-Day Evaluation Kit* DVD)
- Current version of Internet Explorer, Firefox, or other web browser and access to the Internet
- *Windows Embedded CE 6.0 180-Day Evaluation Kit* DVD included with your DM3730 Development Kit or equivalent downloads from the [Microsoft Windows Embedded CE website](http://www.microsoft.com/windowseembedded/en-us/downloads/default.aspx)⁸
- *Windows CE Development Prerequisites.txt* file included with the Logic PD DM37x Windows Embedded CE 6.0 BSP release

5.2 Create & Install SDK

1. In Visual Studio 2005, select Project > Add New SDK.
2. Fill in the SDK property information as shown below. Click OK.

LogicPD DM37x Family SDK 3.0.1 Property Pages

General

SDK Name: LogicPD DM37x Family SDK 3.0.1

Product Name: DM37x Family

Product Version: Major: 0 Minor: 0 Build: 0

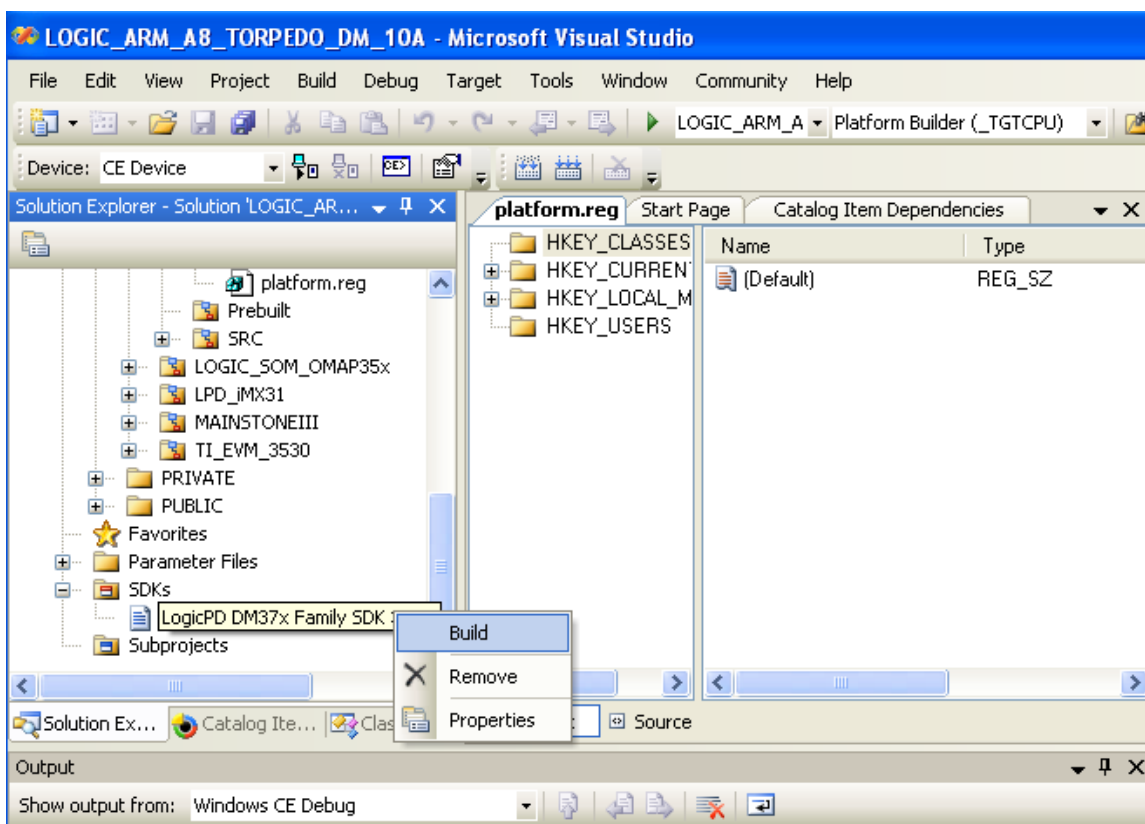
Company Name: LogicPD

Company Website: www.logicpd.com

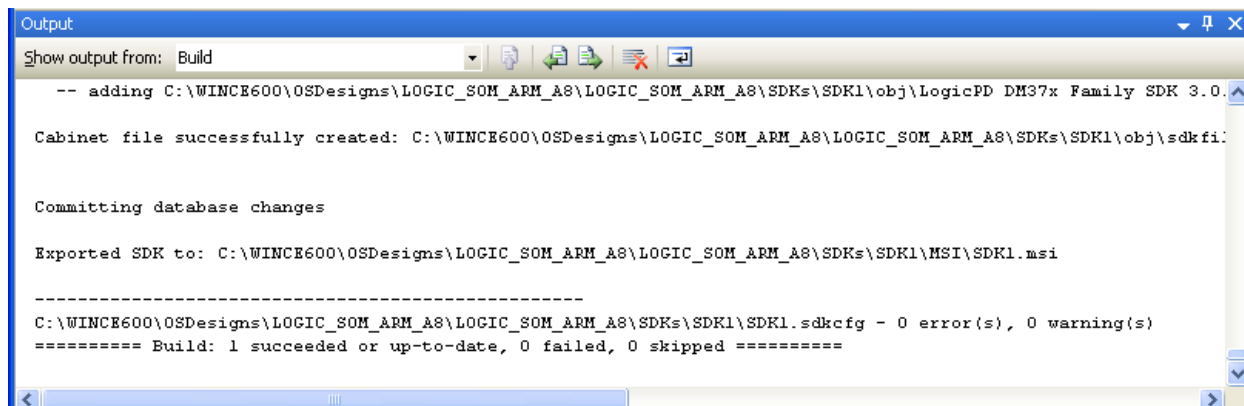
OK Cancel Apply

⁸ <http://www.microsoft.com/windowseembedded/en-us/downloads/default.aspx>

- Right-click LogicPD DM37x Family SDK 3.0.1 in the *Solution Explorer* window and select Build. Wait for the SDK build to complete.



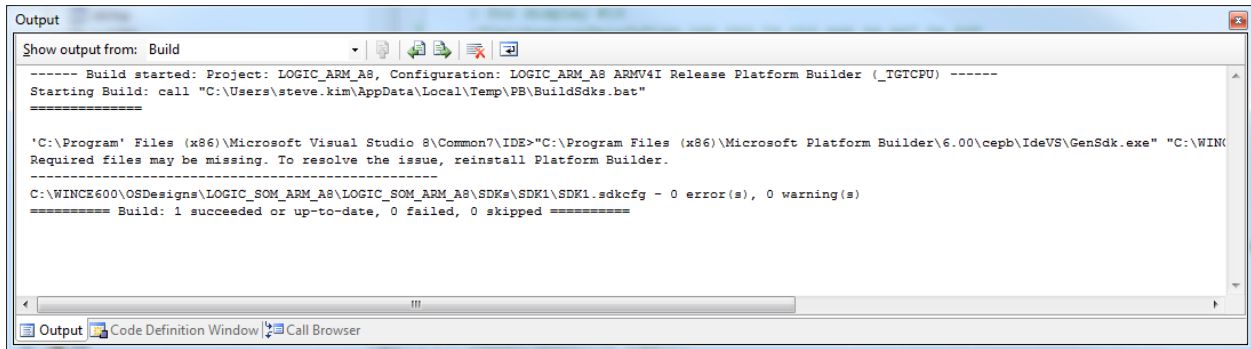
You should see the output below; note the location of the SDK in the output. If Platform Builder failed to generate the install file, please see Section 5.2.1.



- Navigate to *C:\WINCE600\OSDesigns\LOGIC_SOM_ARM_A8\LOGIC_SOM_ARM_A8\SDKs\SDK1\MSI* and double-click *SDK1.msi* to begin installation.

5.2.1 SDK Does not Build Properly

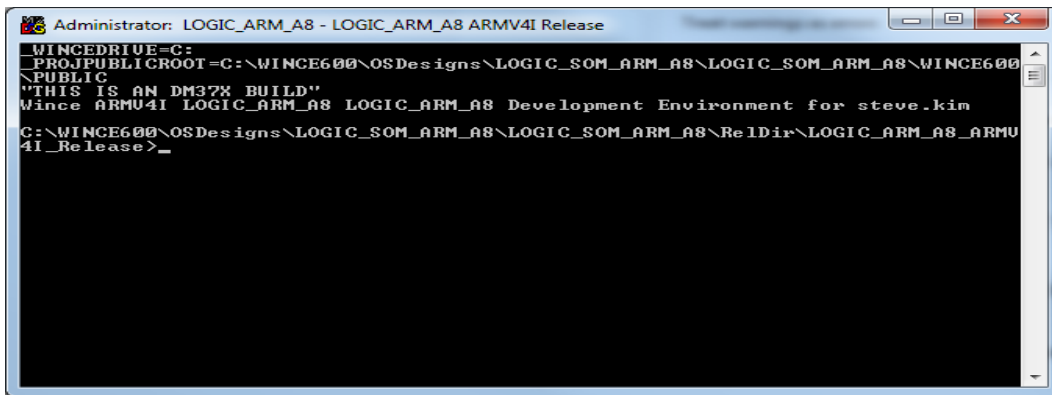
When building the SDK, Platform Builder may generate the following warning:



In this case, you will need to generate a 32-bit wrapper application to execute the *gensdk.exe* with the correct registry configuration. Follow "Step 7: PBXMLUtils" from this [Installing Windows CE 6.0 Tools wiki article](http://geekswithblogs.net/WindowsEmbeddedCookbook/archive/2010/08/31/installing-windows-ce-6.0-tools-on-a-windows7-64bit-pc.aspx)⁹ to create a wrapper application.

You will now need to use the Platform Builder command line to build the SDK.

1. In Visual Studio 2005, select Build > Open Release Directory in Build Window.



2. Enter the following commands to build your SDK:

```
"C:\Program Files (x86)\Microsoft Platform
Builder\6.00\cepb\IdeVS\GenSdk32.exe"
"C:\WINCE600\OSDesigns\LOGIC_SOM_ARM_A8\LOGIC_SOM_ARM_A8\SDKs\SDK1\obj\
BuildSDK1.xml"
```

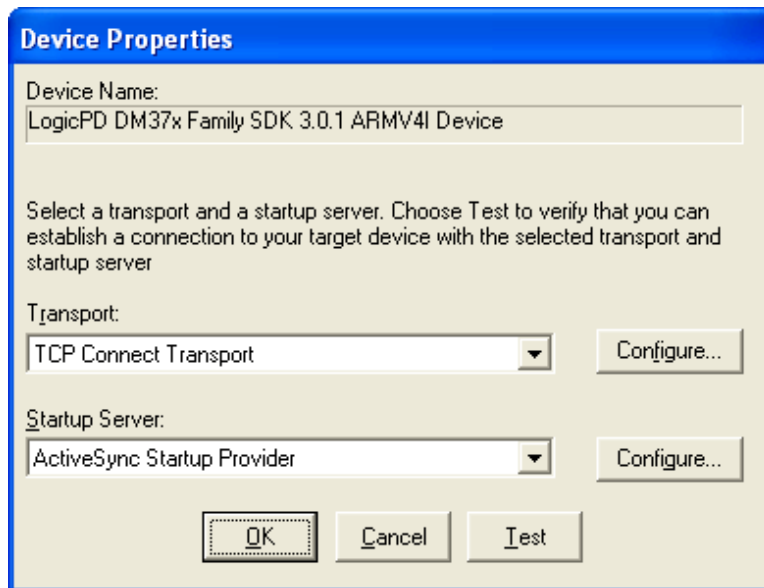
5.3 Use Remote Registry Viewer

As an example of using the SDK, this section explains how to connect to the DM3730 Development Kit using the SDK to view and edit the registry on the kit.

1. Connect a USB OTG cable to the USB OTG port on the DM3730 Development Kit and to the host PC.

⁹ <http://geekswithblogs.net/WindowsEmbeddedCookbook/archive/2010/08/31/installing-windows-ce-6.0-tools-on-a-windows7-64bit-pc.aspx>

2. Complete the installation of any ActiveSync drivers. You should be able to browse the files on the remote device using ActiveSync.
3. To start the Windows CE Remote Registry Editor, select Start > All Programs > Microsoft Visual Studio 2005 > Visual Studio Remote Tools > Remote Registry Editor.
4. When the *Select a Windows CE Device* window appears, select LogicPD DM37x Family SDK 3.0.1 ARMV4I and click "OK." The Remote Registry Editor will download several files to the DM3730 Development Kit and display the registry.
5. If the connection failed, select Target > Connectivity Options > LogicPD DM37x Family SDK 3.0.1 ARMV4I Device in the *Windows CE Remote Registry Editor* window.
6. Click the "Properties" button and make the following changes:
 - a. In the *Transport:* field, ensure TCP Connect Transport is selected.
 - b. In the *Startup Server:* field, ensure ActiveSync Startup Provider is selected.
 - c. Click Test to verify your settings. Click OK to save them.



7. In the main *Windows CE Remote Registry Editor* window, select Target > Connect to start your connection.

6 Build Logic PD's Windows Embedded CE 6.0 BSP

This section will describe how to begin Windows CE development with the DM3730 Development Kit.

6.1 Prerequisites

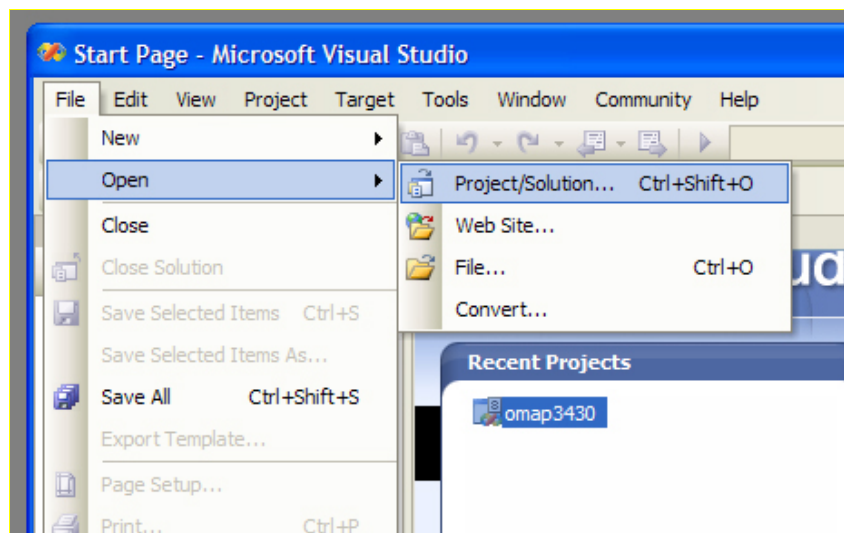
- Tera Term terminal emulator (or equivalent)
- Before installing Logic PD's Windows Embedded CE 6.0 BSP source, please ensure that Visual Studio 2005 and Windows Embedded CE 6.0 Platform Builder are installed on your host PC. This information is covered in-depth in Section 4.
- The most current Windows Embedded CE 6.0 BSP release, as described in Section 2

6.2 Install Logic PD's Windows Embedded CE 6.0 BSP

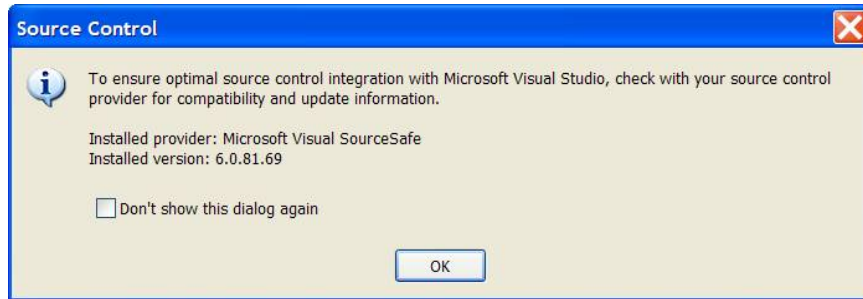
1. Locate the *10xxxxx_LogicPD_WinCE6_BSP_x-x-x.zip* file you extracted in Section 2.
2. Open the *Windows CE Development Prerequisites.txt* file and verify that you have all the QFE patches installed that are required for this release of the source BSP. If you need to install new QFE patches, please do so before continuing.
3. Review the *LogicPD_WinCE6_BSP_x-x-x_Release_Notes.txt* file. This contains important information that applies to this release of the source BSP.
4. Copy the contents of the *.\PLATFORM* directory to the *x:\WINCE600\PLATFORM* directory of the Windows CE installation. **IMPORTANT NOTE:** Before copying these contents, delete the following two folders (and sub-folders):
 - *C:\WINCE600\PLATFORM\COMMON\SRC\SOC\DM37x_TPS659XX_TI_V1*
 - *C:\WINCE600\PLATFORM\LOGIC_SOM_DM37x*
5. Copy the contents of the *.\OSDesigns* directory to the *x:\WINCE600\OSDesigns* directory of the Windows CE 6.0 installation. **IMPORTANT NOTE:** Before copying these contents, move or delete any pre-existing directories that remain from previous BSP installations if they have the same name as the most current release. If an *OSDesigns* directory does not exist in the Windows CE installation directory, create one.

6.3 Build Logic PD's Windows Embedded CE 6.0 BSP

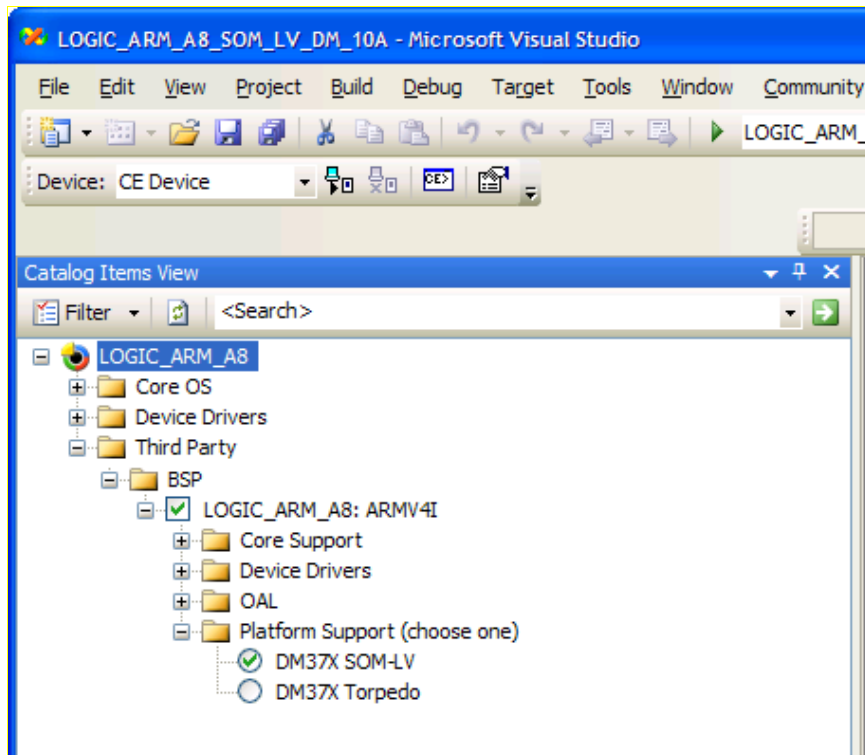
1. Launch Visual Studio 2005. Select File > Open > Project/Solution....



2. Browse to the `.\WINCE600\OSDesigns\<OS Design Name>\` directory.
3. Select the `<OS Design Name>.sln` file and click "Open."
4. The following window may appear; click OK to continue.

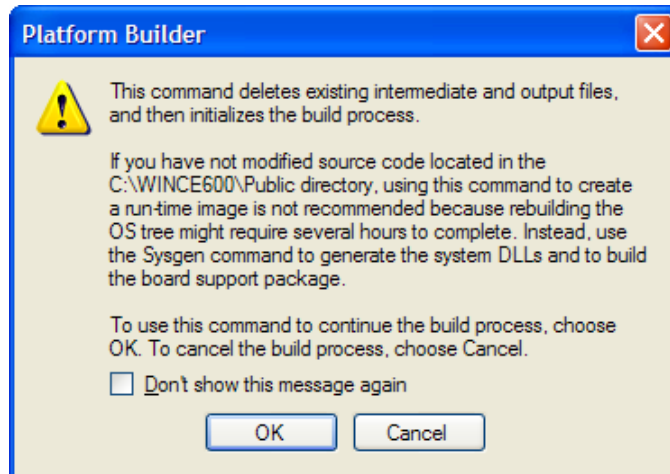


5. Select View > Other Windows > Catalog Items View to show the list of current catalog items. The *Catalog Items View* window displays a "tree" of all features that can be added or removed from your custom Windows CE build.
6. In the *Catalog Items View* window, select the radio button for the platform you are using (i.e., DM3730/AM3703 SOM-LV or DM3730/AM3703 Torpedo™ SOM).



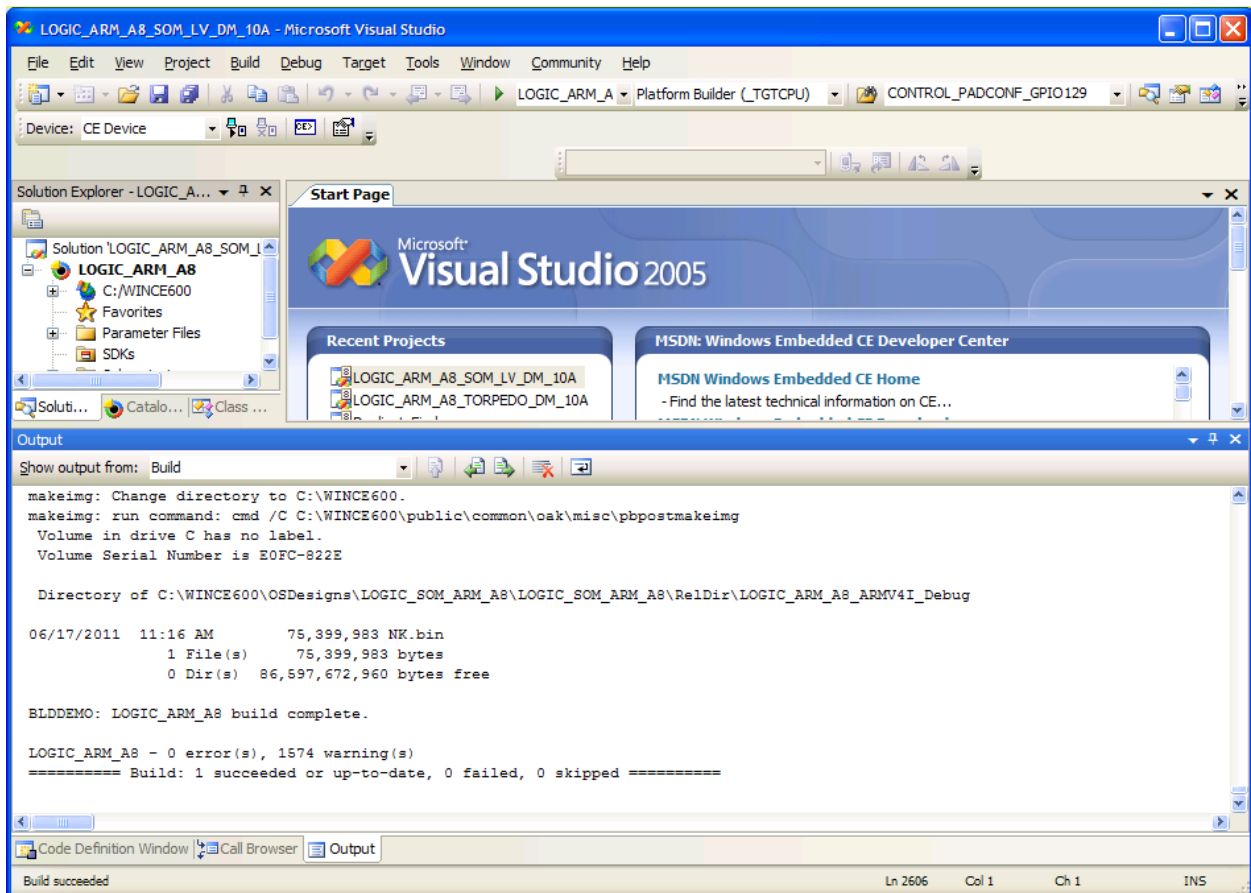
7. To build a solution for the first time in Windows CE 6.0, select Build > Advanced Build Commands > Clean Sysgen.

8. The following window may appear; click OK to continue.



The build will start and messages from the build system will appear in Visual Studio's output window. **NOTE:** This can take an hour or longer, depending on your host PC specifications.

9. The build has finished when you see a *Build succeeded* message in the status window.



6.3.1 Build Option Use Scenarios

Build Options	Usage
Sysgen	Use when Microsoft components have been added or removed
	Selecting new BSP drivers may require additional Microsoft components
	Will also build the BSP source files
Clean Sysgen	Performs a clean prior to Sysgen
Build and Sysgen	Use when any OS source files are modified
Rebuild and Clean Sysgen	Use immediately after installing new QFE package(s)
Build Current BSP and Subprojects	Use when any BSP source files are modified or BSP registry changes have been made
Rebuild Current BSP and Subprojects	Performs a clean prior to "Build Current BSP and Subprojects"

NOTE: In the menu, select Build > Global Build Settings. In the window that appears, make sure that both "Copy Files to Release Directory" and "Make Run-Time Image" options are selected.

6.4 Run Logic PD's Windows Embedded CE 6.0 BSP

Please follow the steps below to download the newly created Windows Embedded CE image to your DM3730 Development Kit (the steps below assume the download is via Ethernet).

1. Connect the DM3730 Development Kit to the Ethernet network.
2. Connect the DM3730 Development Kit to your host PC using the null-modem serial cable included with the kit.
3. Start Tera Term on your host PC.
4. Power on your DM3730 Development Kit.
5. Initialize LogicLoader's TCP/IP stack and obtain an IP address from a DHCP server on the network.

```
losh> ifconfig sm0 dhcp
Starting DHCP on sm0
```

6. Verify the device received an IP address.

```
losh> ifconfig

sm0: up    100M full duplex  (25)
sm0:      mac: 00:08:33:02:38:79  ip: 10.0.5.119
          mask: 225.225.252.0      gw: 10.0.4.1
```

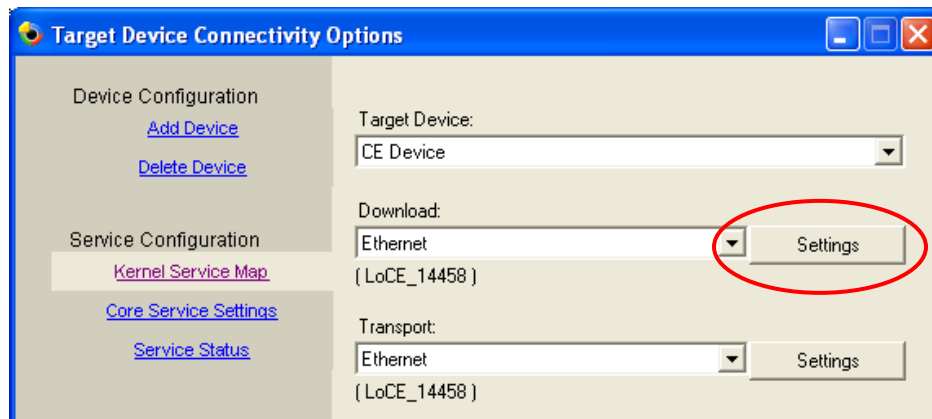
Note that the *ifconfig* command also displays the system MAC address. Occasionally, there is a brief delay before a kit obtains an IP address. Please verify that your development kit has received a valid IP address before proceeding to the next step.

7. Start the download process using the *bootme &* command, which sends UDP packets over the LAN to a host PC. The packets are recognized by Microsoft Platform Builder as coming from a device waiting to download a Windows Embedded CE image. Technically, the command is simply *bootme*; however, the *&* is needed to launch this command in the background so you may still interact with the LogicLoader shell.

```
losh> bootme &  
Device's name is LoCE_14457.  
Sent BOOTME1
```

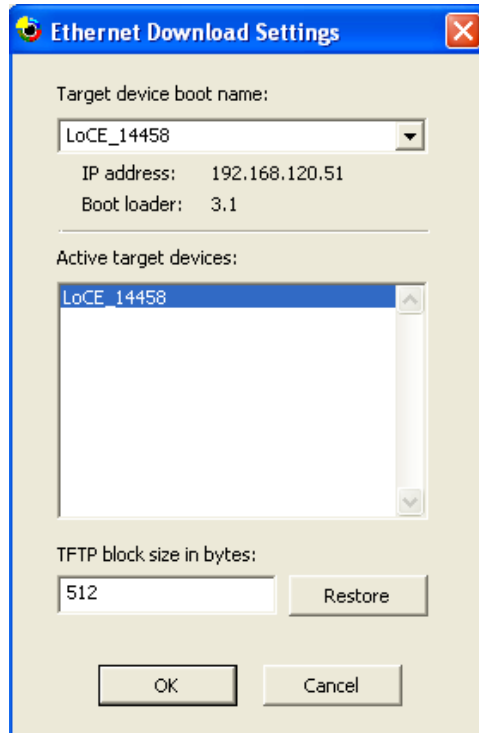
As seen in the output above, the *bootme &* command outputs the name that the device will use to communicate with Platform Builder and then starts outputting network packets.

8. Switch to Visual Studio 2005 and select Target > Connectivity Options.
9. In the *Target Device Connectivity Options* window, select Ethernet in the drop-down boxes for both *Download* and *Transport*.

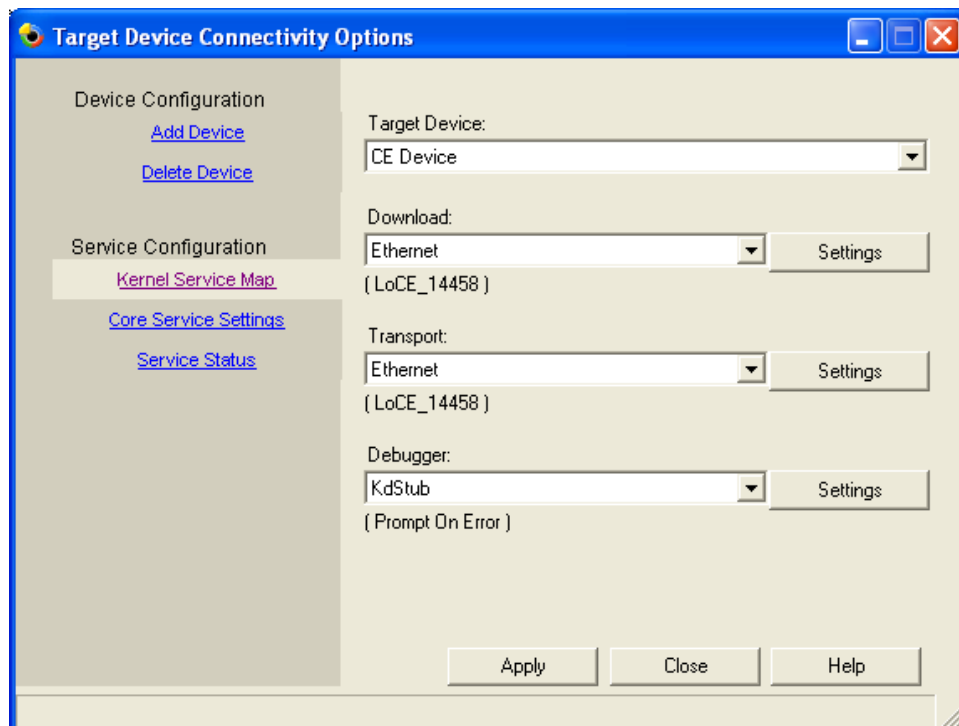


10. Click Settings next to the *Download* drop-down menu.

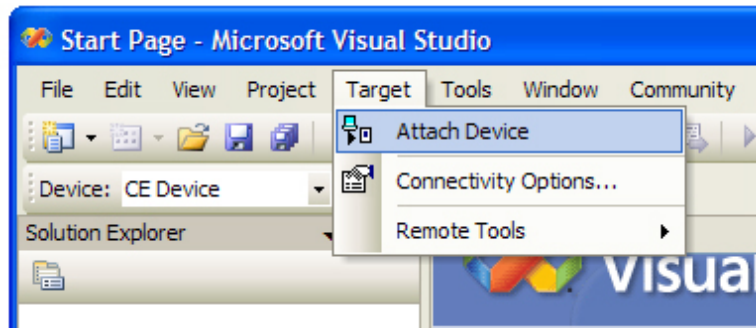
11. Select the device's name from the LogicLoader output in Step 7 above and click OK. It may take several seconds for the name to show up in the *Active target devices* field.
- NOTE:** The name of your device will almost certainly be different than that shown in the image below.



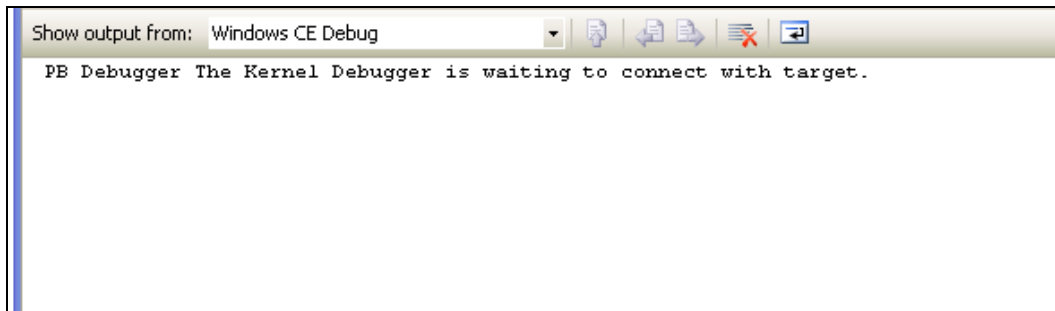
12. In the *Target Device Connectivity Options* window, click Apply then click Close.



13. Select **Target > Attach Device** to download the Windows Embedded CE image to the DM3730 Development Kit.



14. Platform Builder will download the new image to the DM3730 Development Kit. This may take some time depending on the network.
15. When the download is complete, Platform Builder will wait for LogicLoader to connect.



16. Once the image has been transferred, LogicLoader verifies the checksums and then returns to the `losh>` prompt.

[illegible]

17. Boot the image.

```
losh> exec
```

The output you see should look similar to the series of continuous screenshots presented below. Depending on the build options, you may see additional output; if not, wait for the image to boot and proceed to Step 18 below.

[illegible]

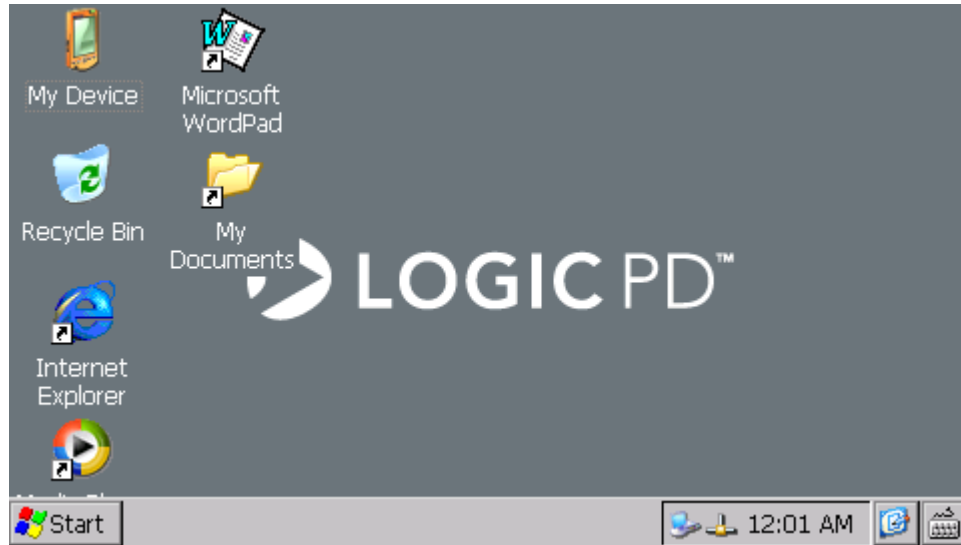


```

Tera Term Web 3.1 - COM1 VT
File Edit Setup Web Control Window Help
DeviceId..... LoCE_
pArgs->flags..... 0x25
pArgs->devLoc.Ifctype.... 0
pArgs->devLoc.LogicalLoc. 0xC000000
pArgs->devLoc.PhysicalLoc 0x0
pArgs->devLoc.Pin..... 0
pArgs->ip4address..... 0
pDevice->Name..... s
pDevice->ifctype..... 0
pDevice->id..... 0xC000000
pDevice->resource..... 0
pDevice->type..... 2
pDevice->pDriver..... 0x8281B018
+OALKitlFindDevice(0/0/ 8x, 0x 8x)
-OALKitlFindDevice(pDevice = 0x 8x((II), PhysicalLoc = 0x 8x)
+OEMKitlInit(0x82859A20)
+OALKitlEthInit(' ', 'LoCE_', 0x 8x, 0x 8x)
xLAN921xInit: SMSC LAN9211 Ethernet controller is detected
Chip Id: 9211 Revision: 0
LAN921x: reset PHY...DONE
LAN921x: PHY id1: 7 id2: c0c3
+LAN921xAutoNegotiate: 0x1
LAN921x: Auto-negotiation complete!
LAN921x: Link is 100 Mbps full-duplex...
MAC Address: 0:8:ee:2:38:7a
-LAN921xInit(mac = 00:08:ee:02:38:7a, rc = 1)
+OALKitlCreateName(' s', 0x 4x, 0x 8x)
-OALKitlCreateName(pBuffer = ' s')
KITL: *** Device Name LoCE_14458 ***
KITL: using sysintr 0x12
KITL: DHCP get/renew device IP: 1
-OALKitlEthInit(rc = 1)
Shared ethernet is enabled!
Initializing VBridge.
VBridge:: built on [May 13 2008] time [11:44:16]
VBridgeInit()...TX = [16384] bytes -- Rx = [16384] bytes
Tx buffer [0xA2850EC0] to [0xA2854EC0].
Rx buffer [0xA2854EE0] to [0xA2858EE0].
VBridge:: NK add MAC: [0-8-EE-2-38-7A]
VBridge initialized. (800 2EE 7A38)
-OEMKitlInit(rc = 1)
Connecting to Desktop
+KitlEthGetDevCfg(0x 8x, 0x 8x->-2105175034)
-KitlEthGetDevCfg(rc = 1)
KITL: Connected host IP: 1 Port: 4147
KeyIndex 0 = -1
KeyIndex 1 = -1
KeyIndex 2 = -1
KeyIndex 3 = -1
KeyIndex 4 = -1
KeyIndex 5 = -4194305
KeyIndex 6 = -4194305
KeyIndex 7 = -1
+KITLRegisterDfltClient, service:0
+KITLRegisterDfltClient, service:1
-OALKitlInit(rc = 1)
-OALKitlStart(rc = 1)

```

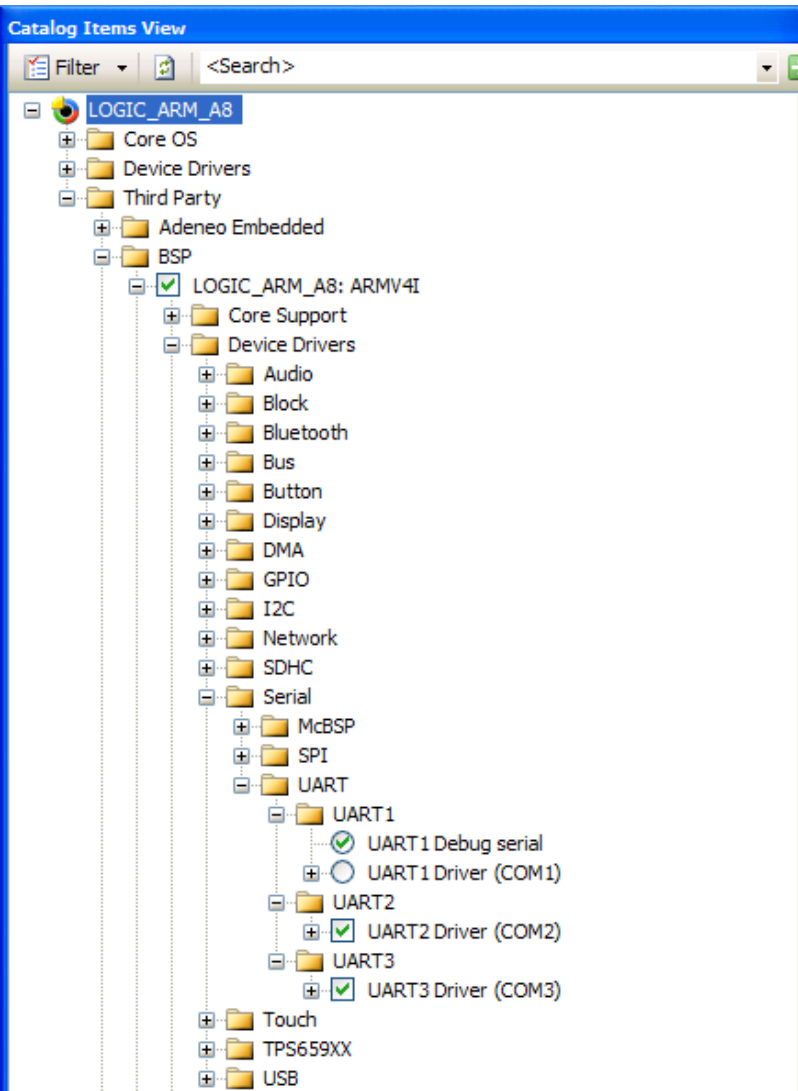
18. The DM3730 Development Kit LCD may ask you to calibrate the screen by using a stylus to touch the center of several crosshairs. Once the screen has been calibrated, tap anywhere on the screen and your DM3730 Development Kit will boot into Windows Embedded CE 6.0.



6.5 Enable/Disable Drivers

The table below provides information on how to enable and disable drivers with the Logic PD DM37x Windows CE BSP. Implementing any driver changes will require you to perform a Build > Advance Build Commands > Rebuild Current BSP and Subproject for the changes to take effect; the only exception is for enabling or disabling VFPU Support which requires a clean Sysgen (Build > Rebuild Solution).

This section will show the basics of enabling and disabling a driver in the DM37x Windows CE BSP by walking through enabling and disabling the UART driver. Please refer to the individual driver documentation (found in the `10xxxxx_LogicPD_WinCE6_BSP_x-x-x\Documentation\` directory of the source BSP) for more details on using and customizing the DM3730 Development Kit drivers.

Driver	Action	Display
UART	<p>Enable Driver: Select catalog item for desired UART(S) under Third Party > BSP > LOGIC_SOM_DM37x: ARMV6I > Device Drivers > Serial > UART</p> <p>UART1 UART2 UART3</p> <p>Disable Driver: Deselect catalog item.</p> <p>NOTE: In this example, you will see that UART1 has a radio button selection for either "UART1 Debug serial" or "UART1 Driver (COM1)."</p> <p>If you choose "UART1 Debug serial," then Windows CE will not have access to COM1 for serial communication.</p> <p>If you choose "UART1 Driver (COM1)," then Windows CE will have access to UART1 as the standard COM1 serial port.</p> <p>Debug serial is used to show debug messages from Windows CE and any of its drivers or applications that are running.</p>	 <p>The screenshot shows the 'Catalog Items View' window. The tree structure is expanded to 'LOGIC_ARM_A8' > 'Core Support' > 'Device Drivers' > 'Serial' > 'UART'. Under 'UART', there are three folders: 'UART1', 'UART2', and 'UART3'. Inside 'UART1', there are two items: 'UART1 Debug serial' (selected with a green checkmark) and 'UART1 Driver (COM1)' (unselected with a radio button). Other items like 'McBSP', 'SPI', 'Touch', 'TPS659XX', and 'USB' are also visible in the tree.</p>

6.6 Customize Windows CE Image

This section describes how to customize Logic PD's DM37x Windows Embedded CE 6.0 BSP with built-in features.

6.6.1 Use Onboard Bluetooth

NOTE: This section only applies to the DM3730 SOM-LV Development Kit; the DM3730 Torpedo™ Development Kit does not support Bluetooth.

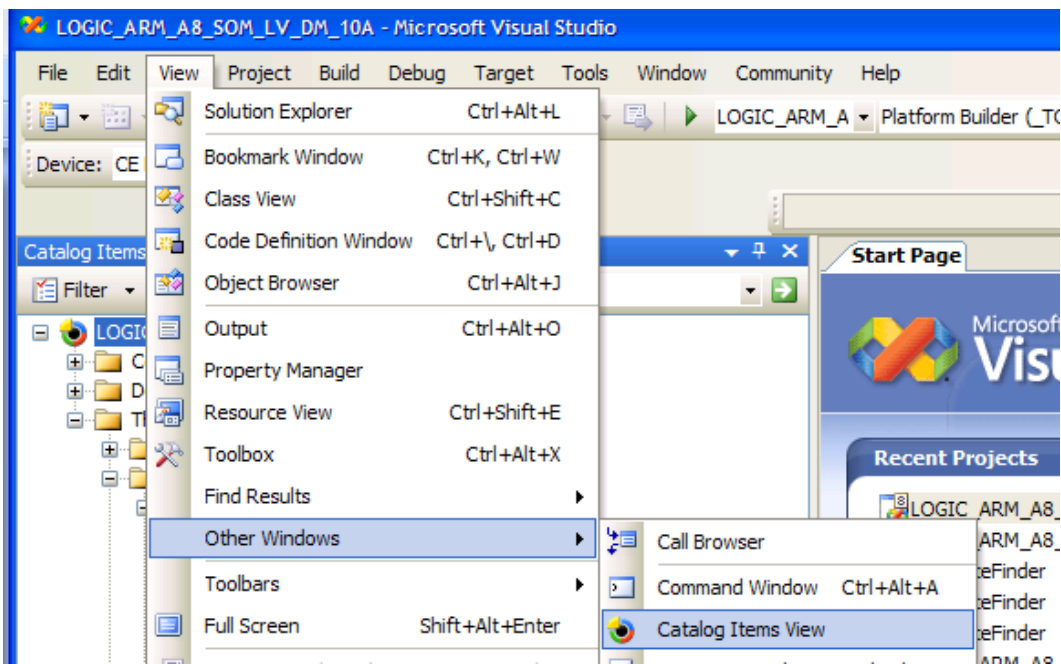
This section will provide an example for how to connect a keyboard and mouse using the onboard Bluetooth module.

6.6.1.1 Prerequisites

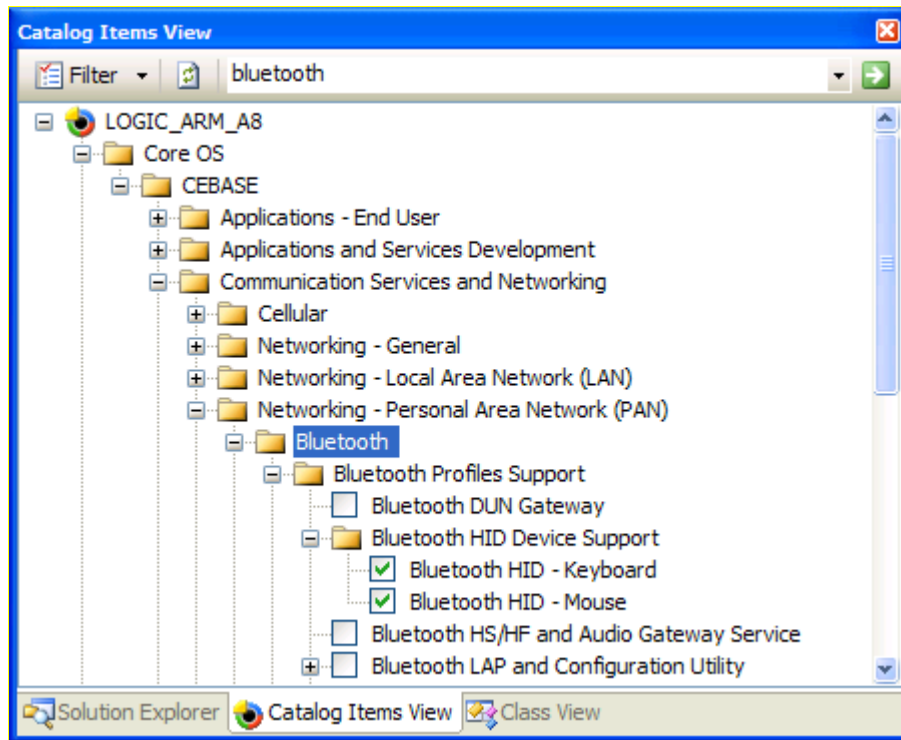
- This example uses the DM3730/AM3703 SOM-LV specific demo image project that is part of the Logic PD DM37x Windows Embedded CE 6.0 release.
- This section assumes the developer is already familiar with building Logic PD's DM37x Windows Embedded CE BSP as described at the beginning of Section 5.

6.6.1.2 Procedure

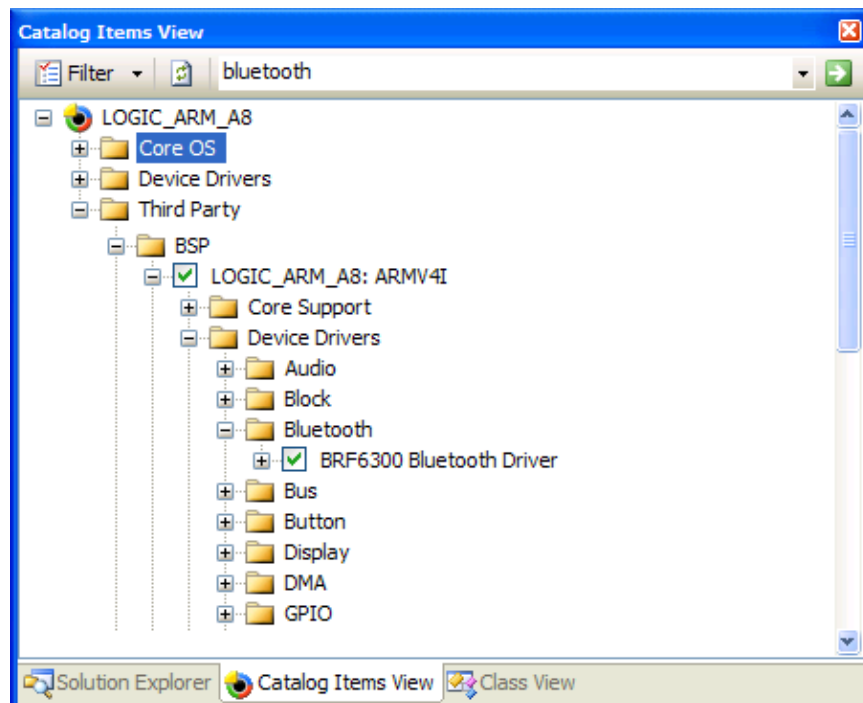
1. Load the *LOGIC_ARM_A8_SOM_LV_DM_10A.sln* solution file into Visual Studio 2005.
2. Select View > Other Windows > Catalog Items View.



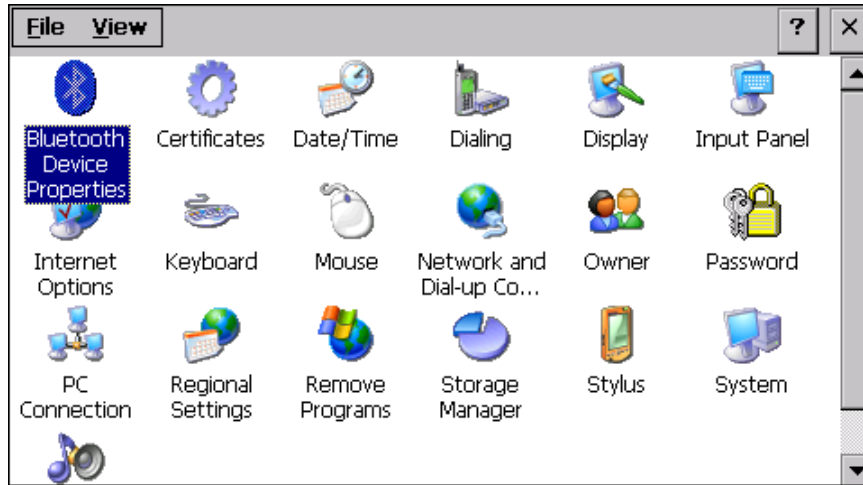
3. Add Bluetooth HID Device Support by selecting the checkbox for the desired features. In this example, both "Bluetooth HID – Keyboard" and "Bluetooth HID – Mouse" are selected.



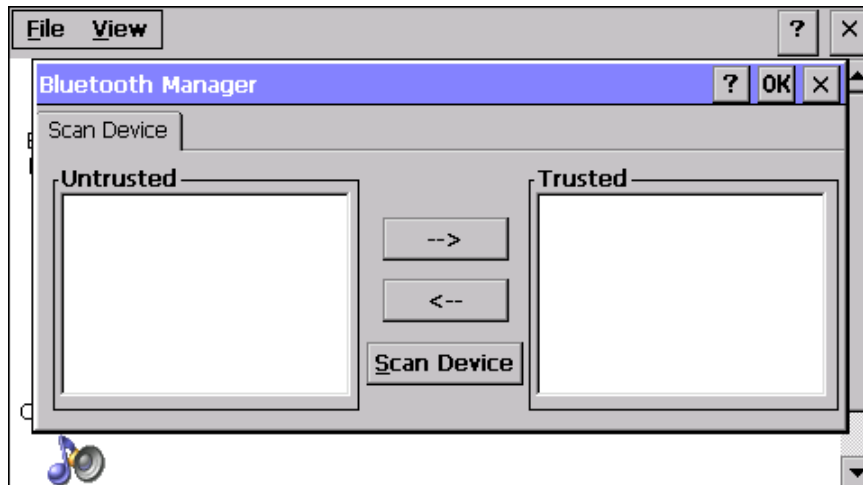
4. Verify that the checkbox for "BFR6300 Bluetooth Driver" within the BSP is also selected.



5. Select Build > Build Solution. **NOTE:** Whenever a change is made in the Core OS Catalog components, a Build Solution is required; selecting "Build Current BSP and Subprojects" will **not** work in this case.
6. Connect the antenna that comes with your DM3730 SOM-LV Development kit to the J3 SMA connector on your DM3730 SOM-LV.
7. After loading your Windows CE image, select Start > Settings > Control Panel.
8. Double-click the Bluetooth Device Properties icon.

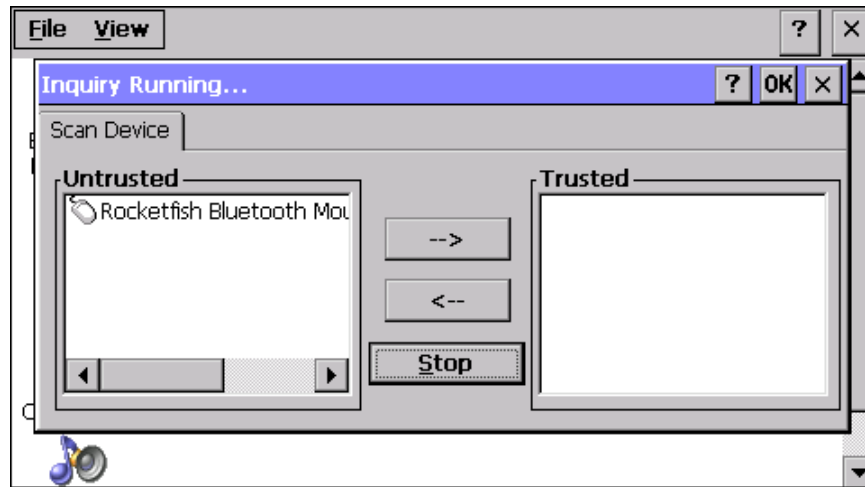


9. In the *Bluetooth Manager* window, click Scan Device.

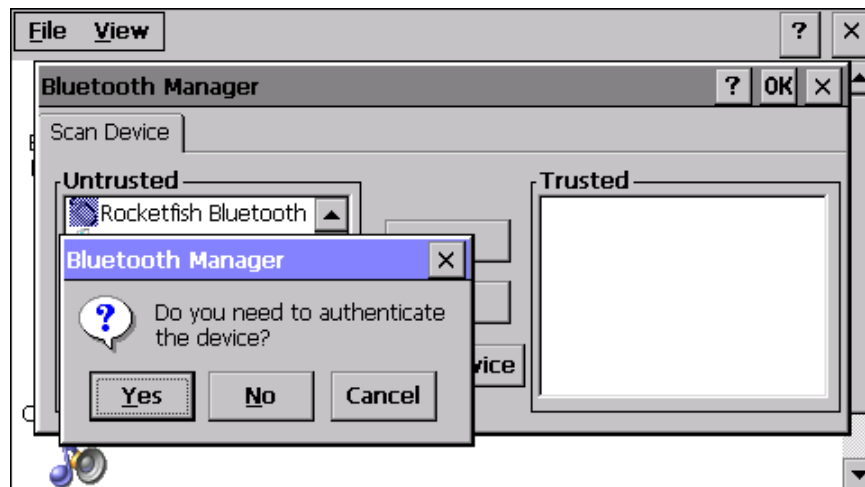


10. On the Bluetooth device you want to connect to your DM3730 SOM-LV Development Kit, click the pairing button.

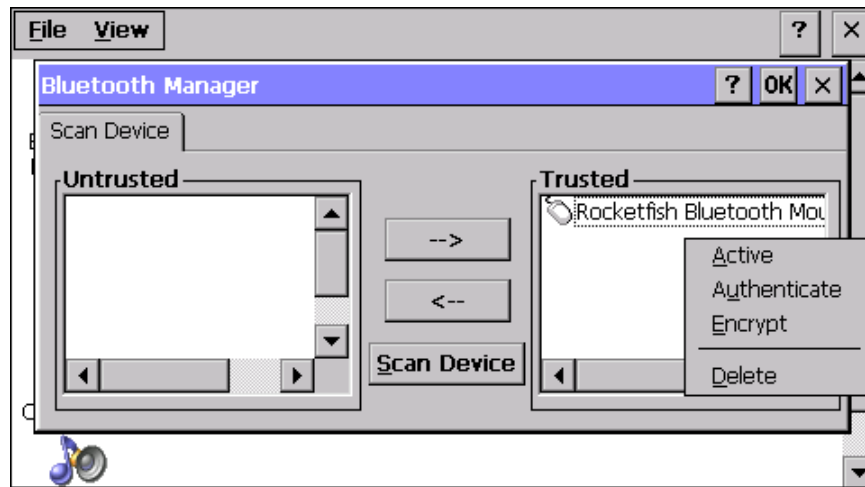
11. Once the Bluetooth signal is detected from the device, it will appear in the *Untrusted* window.



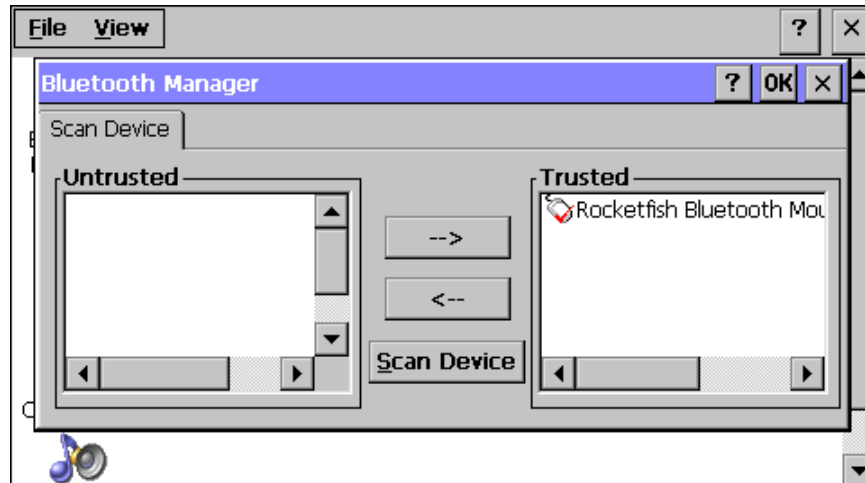
12. Click the '-->' button to move your Bluetooth device to the *Trusted* window. In this example, the device does not require authentication so click No.



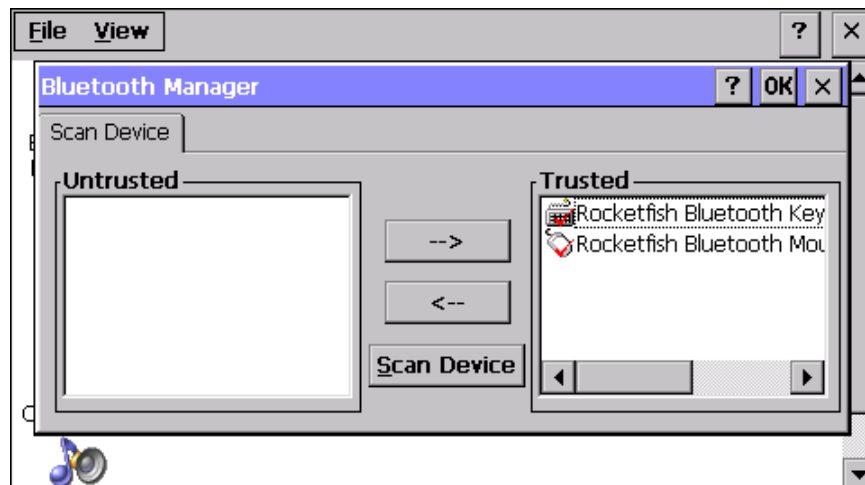
13. Double-click the Bluetooth device in the *Trusted* window and select *Active* to enable the it within Windows CE 6.0.



14. If the device successfully activates, there will be a red check mark on the device icon.



15. To add another Bluetooth device, repeat the instructions above beginning with Step 9. The image below shows both a Bluetooth mouse and keyboard successfully enabled.



6.6.2 Use a USB Bluetooth Dongle

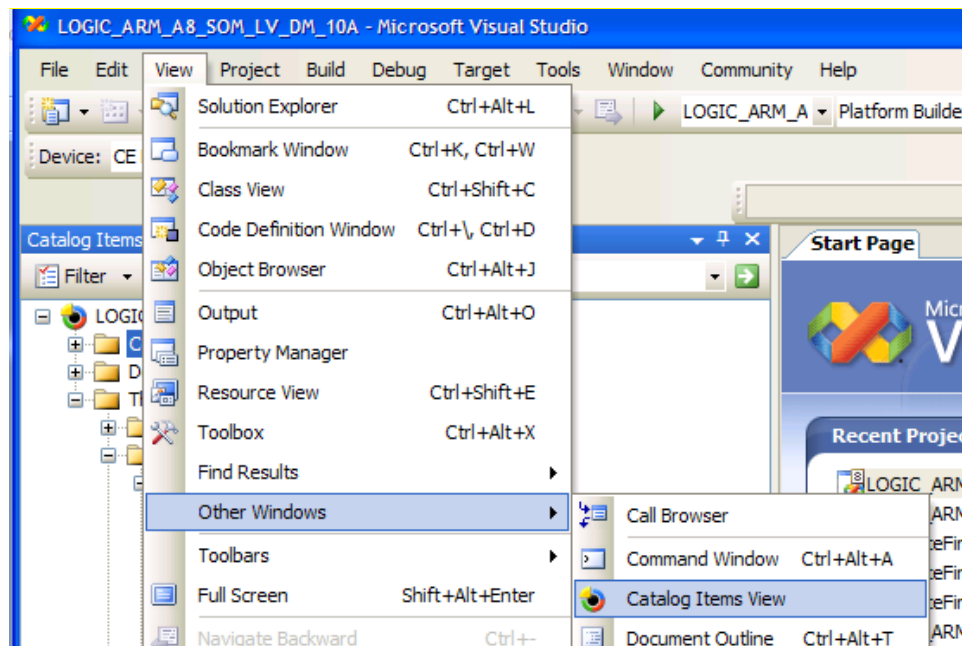
This section will provide an example of how to configure the BSP to use a USB Bluetooth dongle and not the onboard Bluetooth module.

6.6.2.1 Prerequisites:

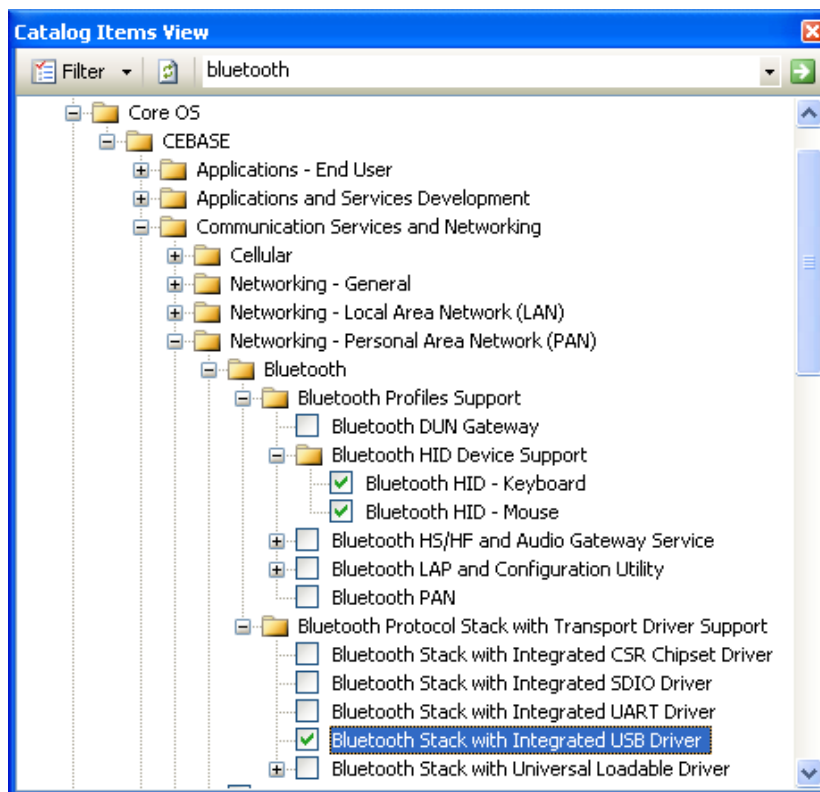
- This example uses the DM3730/AM3703 SOM-LV specific demo images project that is part of the Logic PD DM37x Windows Embedded CE 6.0 BSP release.
- This section assumes the developer is already familiar with building Logic PD's DM37x Windows Embedded CE BSP as described at the beginning of Section 5.

6.6.2.2 Procedure

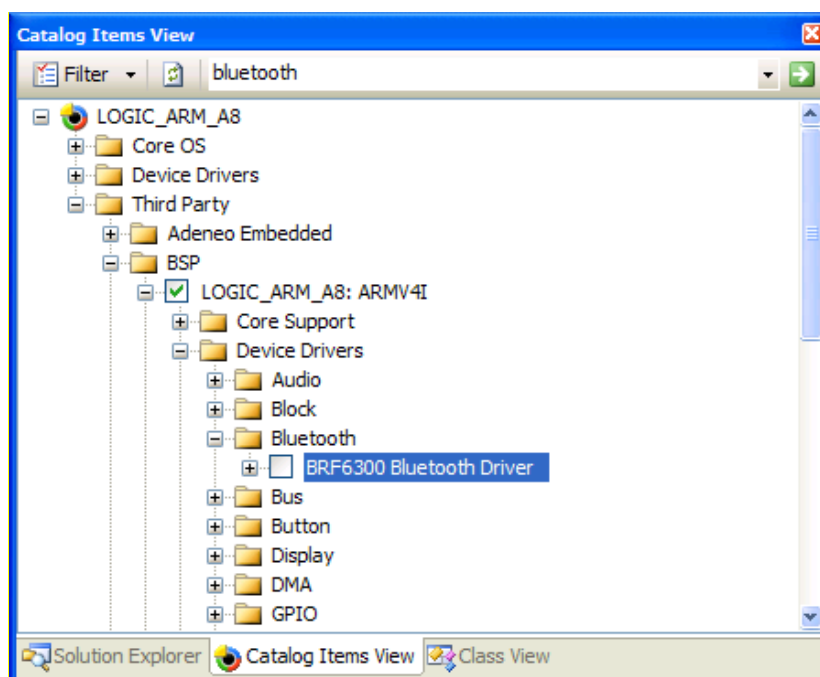
1. Load the *LOGIC_ARM_A8_SOM_LV_DM_10A.sln* solution file into Visual Studio 2005.
2. Select View > Other Windows > Catalog Items View.



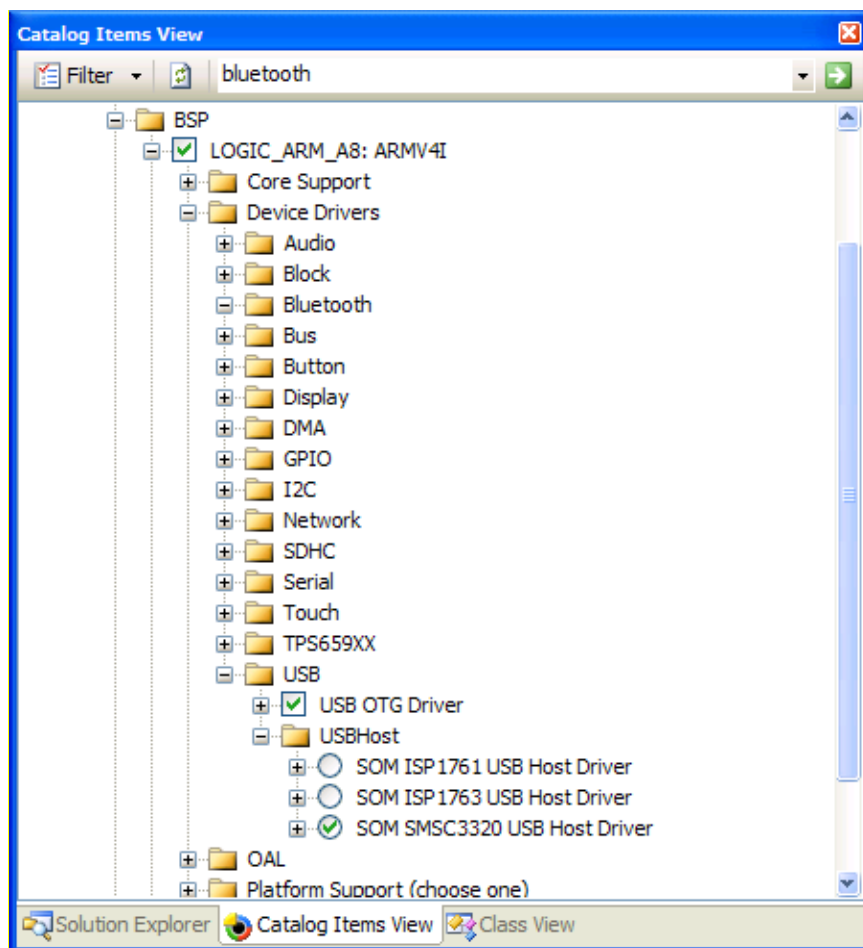
3. Add Bluetooth HID Device Support by selecting the appropriate checkboxes. In this example both "Bluetooth HID – Keyboard" and "Bluetooth HID – Mouse" have been selected. Also select "Bluetooth Stack with Integrated USB Driver," as this is required when using a USB Bluetooth dongle.



4. Verify that the checkbox labeled "BRF6300 Bluetooth Driver" within the BSP is **not** selected; Windows CE 6.0 only supports one Bluetooth controller at a time.

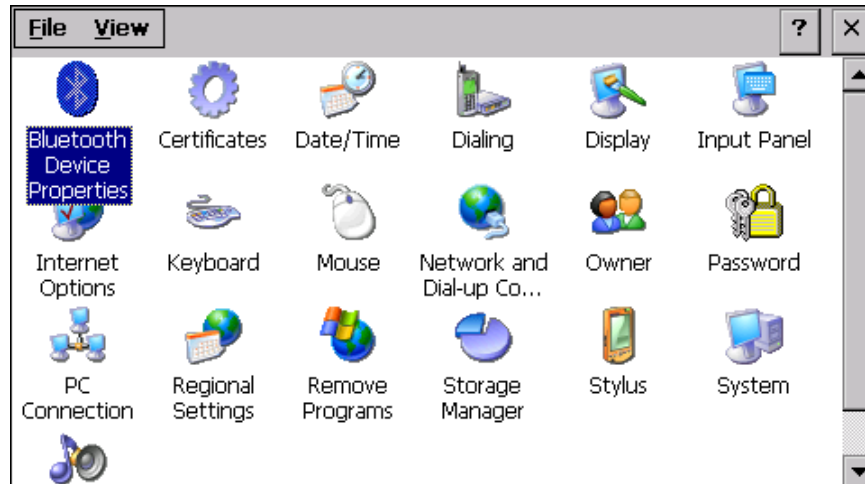


5. Verify that the appropriate USB host driver is selected, if applicable. Refer to the driver documentation to determine the appropriate drivers to select to enable USB Host support for your platform (individual driver documents are located in the *10xxxxx_DM37x_WinCE600_x_x_x_Source\Documentation* directory of the source BSP).

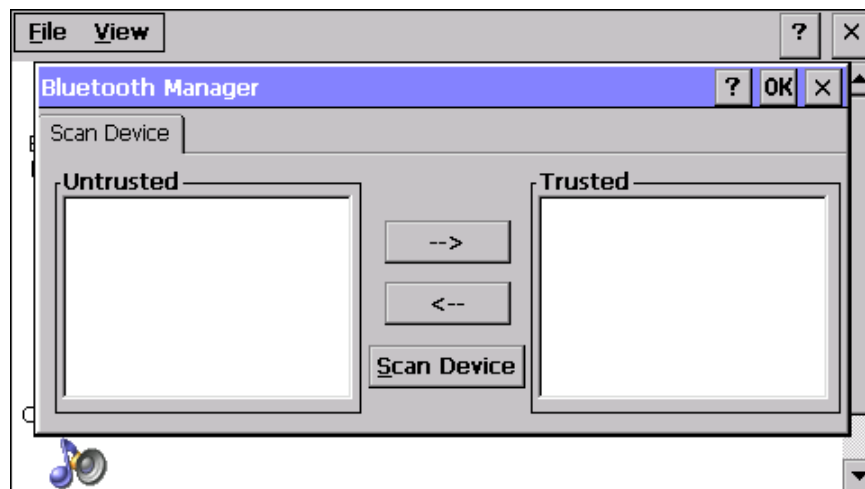


6. Select Build > Build Solution.
7. After the Windows CE image has loaded, connect the USB Bluetooth dongle to the USB host port on the DM3730 SOM-LV Development Kit.
8. Select Start > Settings > Control Panel.

9. Double-click the Bluetooth Device Properties icon.

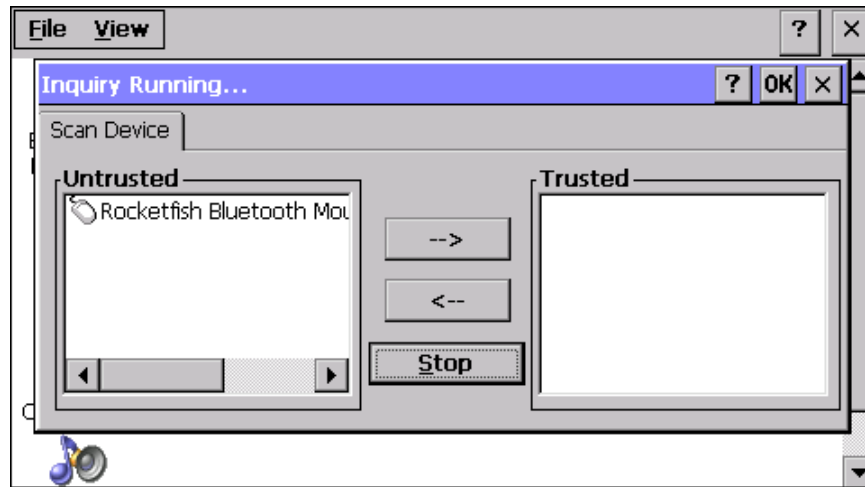


10. In the *Bluetooth Manager* window, click Scan Device.

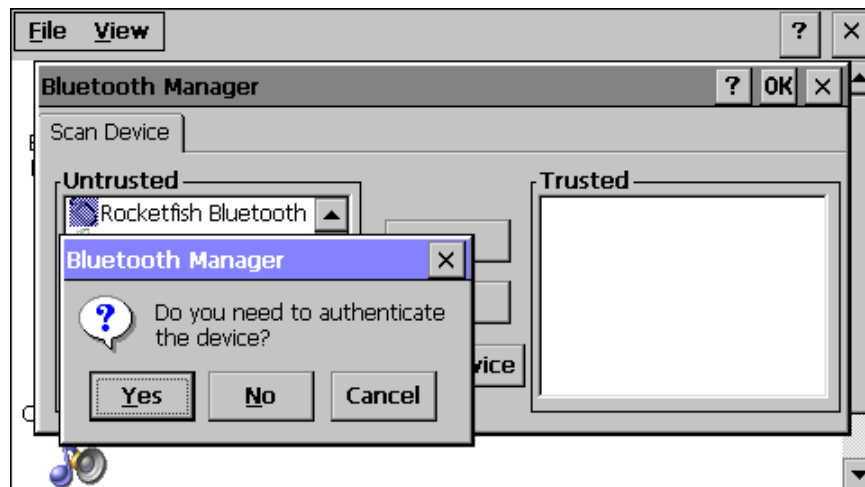


11. On the Bluetooth device you want to connect to your DM3730 SOM-LV Development Kit, press the pairing button.

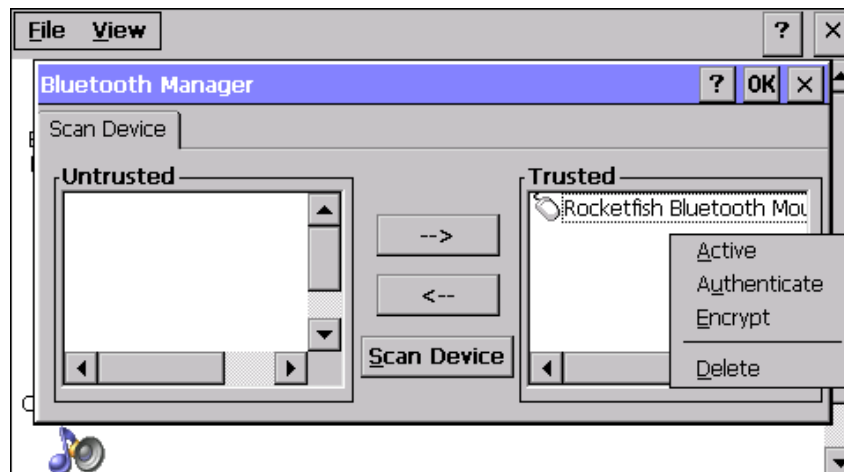
12. Once the Bluetooth signal is detected from the device, it will appear in the *Untrusted* window.



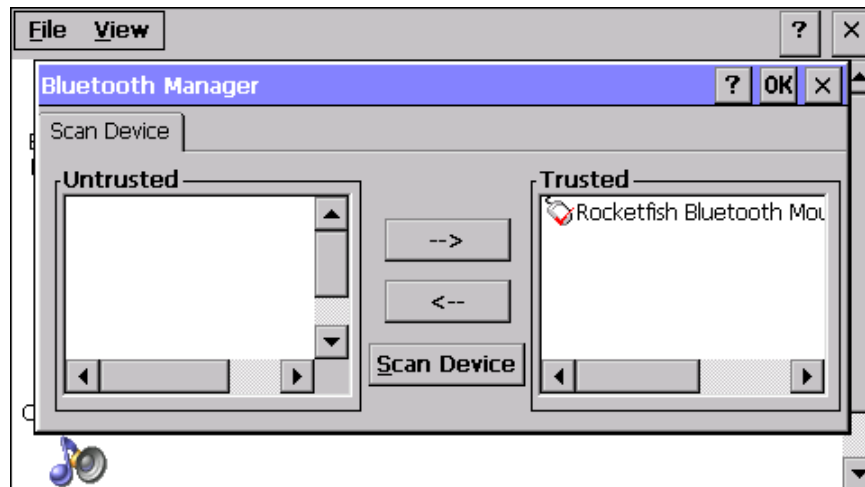
13. Click the '-->' button to move your Bluetooth device to the *Trusted* window. In this example, the device does not require authentication so click No.



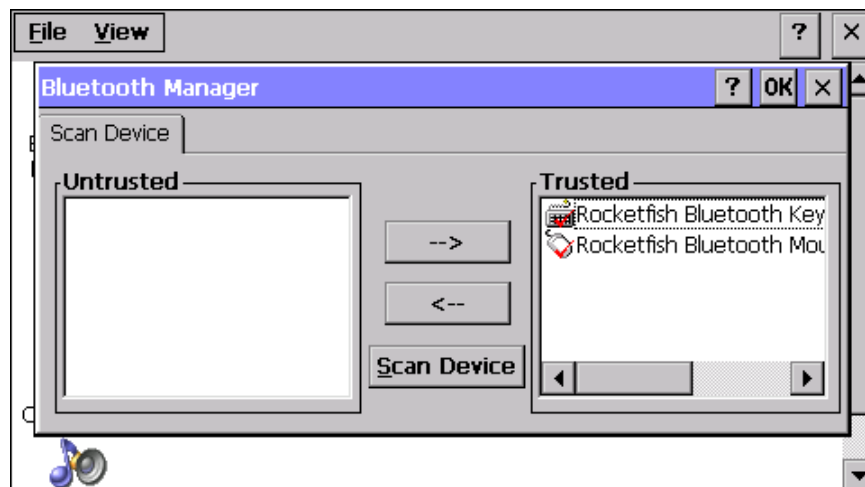
14. Double-click the Bluetooth device in the *Trusted* window and select Active to enable the device within Windows CE 6.0.



15. If the device successfully activates, there will be a red check mark on the device name.



16. To add another Bluetooth device, follow the instructions above beginning with Step 10. The image below shows both a Bluetooth mouse and keyboard successfully enabled.



6.6.3 Change RAM Configuration

Beginning in version 3.0.2, Logic PD's DM37x Windows Embedded CE 6.0 BSP is distributed with the RAM configuration set by default to 256 MB. To change this configuration for the 512 MB SOM, the following two files must be edited:

- `C:\WINCE600\PLATFORM\LOGIC_ARM_A8\FILES\config.bib`
- `C:\WINCE600\platform\LOGIC_ARM_A8\src\inc\addrtab_cfg.inc`

These files contain the configuration settings for 128 MB, 256 MB, and 512 MB options. To select the correct setting for your SOM, uncomment the lines for the desired configuration and ensure the other configurations are commented. The semi-colon (;) is the comment character.

Below are examples of the configuration settings in each file for the 256 MB option (default).

config.bib

```
MEMORY
; Name VA Length Type
; ARGS 80000000 00200000 RESERVED ; 2MB
; DISPLAY 80200000 01000000 RESERVED ; 16MB - Frame Buffer Pointer
; NK 81200000 02000000 RAMIMAGE ; 32MB
; RAM 83200000 12E00000 RAM ; 302MB (512MB HW Configuration)
; RAM 83200000 0CE00000 RAM ; 206MB (256MB HW Configuration)
; RAM 83200000 04E00000 RAM ; 54MB (128MB HW Configuration)
; CMEM_DSP 86800000 01800000 RESERVED ; 24MB
```

addrtab_cfg.inc

```
g_oalAddressTable
; LPD 2.0 Bring up - rename BSP_SDRAM_BANK1_ENABLE appropriately and use it to adjust for
multiple SDRAM ICs.
; LPD 2.0 Bring up - we choose to not set up SGX and L4 EMU
; DCD 0x80000000, 0x80000000, 352 ; SDRAM (512MB HW Configuration)
; ; The reason it's not 512 is because of
; the 160MB of the 160MB of register
; space declared below.
; DCD 0x80000000, 0x80000000, 256 ; SDRAM (256MB HW Configuration)
; DCD 0x80000000, 0x80000000, 128 ; SDRAM (128MB HW Configuration)
; DCD 0x96000000, 0x48000000, 16 ; L4 Core/Wakeup registers
; DCD 0x97000000, 0x49000000, 1 ; L4 Peripheral
; DCD 0x98000000, 0x68000000, 16 ; L3 registers
; DCD 0x99000000, 0x6C000000, 16 ; SMS registers
; DCD 0x9A000000, 0x6D000000, 16 ; SDRC registers
; DCD 0x9B000000, 0x6E000000, 16 ; GPMC registers
; DCD 0x9C000000, 0x40200000, 1 ; 62KB SRAM
; DCD 0x9D000000, 0x5C000000, 16 ; L3 interconnect
; DCD 0x9E000000, 0x0C000000, 16 ; CS1, LAN9221
; DCD 0x9F000000, 0x1C000000, 16 ; CS6, ISP176X USB HC
; DCD 0x00000000, 0x00000000, 0 ; end of table
```

NOTE: The Windows CE OS only supports 512 MB of physical memory. In the 512 MB RAM configuration, there is only an additional 96 MB of RAM actually available over the 256 MB version due to the fact that the 512 MB physical memory allocation limit includes the 160 MB of register space for the DM3730/AM3703 processor. It is possible to gain an additional 15-30 MB of RAM by compressing the register space allocation around the SRAM (0x40200000) and L4 peripheral (0x49000000) register spaces.