

Embedded Operating System Guide: Windows Embedded 7



1.0. Introduction

Windows Embedded 7 is Microsoft's latest operating system designed for embedded use. Windows Embedded 7 provides Microsoft's technical support resources and application support for Windows applications to the embedded level. Windows Embedded 7 runs the complete Win32 API and is capable of being run on any x86 or x64 processor (including the Intel Atom processor line).

Windows Embedded 7 shares many features of its desktop counterpart, Windows 7. Some shared features include:

- [Silverlight](#)
- [.NET Framework](#)
- [ReadyBoost](#)
- [BitLocker Drive Encryption](#)
- [Windows Firewall](#)
- Remote Desktop Protocol 7

1.1. Windows Embedded 7 Resources

Windows Embedded 7 Guide: <http://msdn.microsoft.com/en-us/library/ff794402%28v=winembedded.1001%29.aspx>

Windows Embedded 7 Installation Guide for Atom: <http://edc.intel.com/Software/Installation-Guides/Windows-Embedded-Standard-7/>.

2.0. Installing Windows Embedded 7

Before installing Windows Embedded 7 (WE7) on your machine, make sure it meets the requirements necessary to run WE7. A complete list of these requirements can be found at <http://msdn.microsoft.com/en-us/library/ff793769%28v=WinEmbedded.1001%29.aspx>.

2.1. Windows Embedded 7 Image Creation

An evaluation copy of Windows Embedded 7 can be obtained from <http://www.microsoft.com/windowseembedded/en-us/downloads/download-windows-embedded-standard-7.aspx> (requires a registration). Once you've registered, download the following files:

- Standard 7 SP1 32bit IBW.part1.exe
- Standard 7 SP1 32bit IBW.part2.rar
- Standard 7 SP1 32bit IBW.part3.rar
- Standard 7 SP1 32bit IBW.part4.rar
- Standard 7 SP1 32bit IBW.part5.rar

Place the files into a common directory and run the .exe file. A window similar to that shown in figure 2.0.1 should appear.

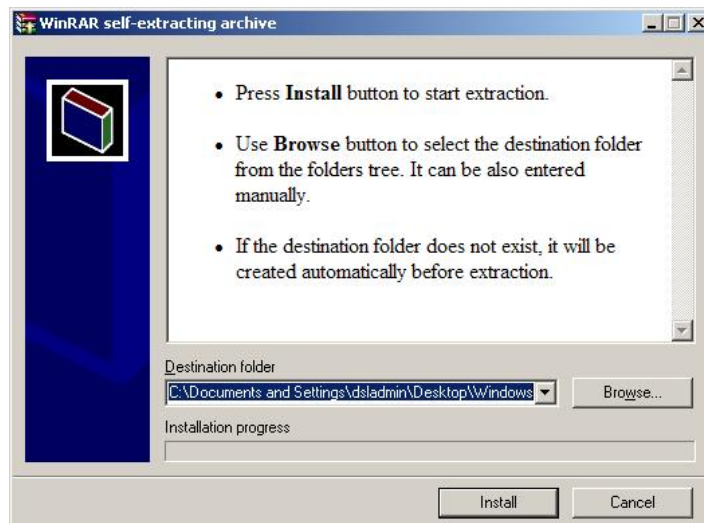


Fig. 2.0.1. WE7 ISO Builder EXE Window

This script builds the WE7 ISO image from the .rar files, and will take several minutes to run. When it's finished, burn the ISO to a DVD (it's a large file, CD's won't work) using your favorite software. The ISO Recorder utility is a freeware software package compatible with Windows XP, Vista, and 7 that can burn ISO images. More details about that software suite can be found at <http://isorecorder.alexfeinman.com/W7.htm>.

2.2. Building a WE7 on the Target System

A USB external DVD drive can be obtained from the ECE477 course staff. Connect this drive to your embedded system, then insert your Windows Embedded 7 DVD and start your system. On the loading screen, press <F11> to select your boot-up device. Select “**USB:MATSHIDA UJDA775**” from the list of items, and boot from your DVD. Windows Embedded 7 will boot up and a screen similar to figure 2.2.1 should appear.



Fig. 2.2.1. WE7 Startup Screen

Select “**Build an Image**”. This will launch the WE7 Image Builder Wizard (IBW), and a screen similar to figure 2.2.2. will appear:

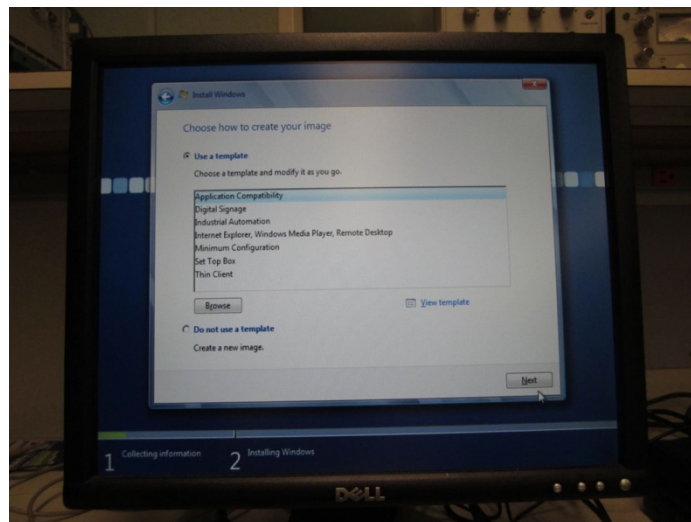


Fig. 2.2.2. Windows Embedded 7 Image Builder Wizard

To install all of the operating system components, select the “**Application Compatibility**” template. As an alternative to the pre-formatted templates, you can select the “**Do not use a template**” option and build your own image from operating system components. For an exhaustive list of the operating system components available in WE7, see

<http://www.microsoft.com/windowseembedded/en-us/develop/windows-embedded-standard-7-os-components.aspx>.

Following that, you will be prompted to select a language for the installation process. Then, a screen will show up with a summary of drivers and operating system features to be installed, as shown in figure 2.2.3.

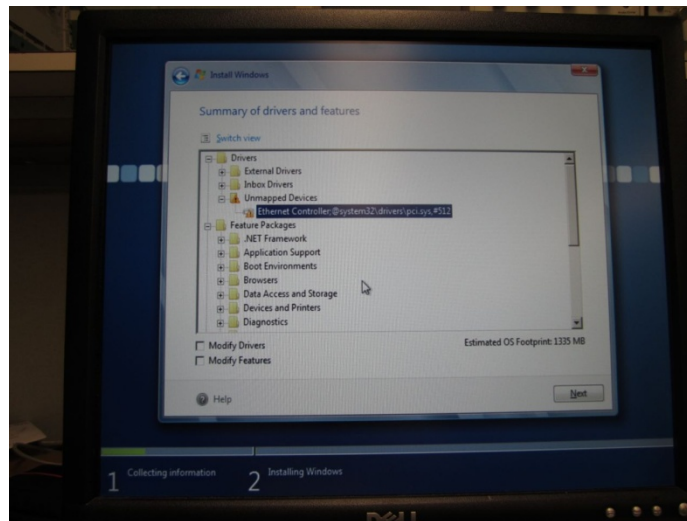


Fig. 2.2.3. Summary of Drivers and Features

You will then be asked to select a system partition to install WE7 on, as shown in figure 2.2.4.

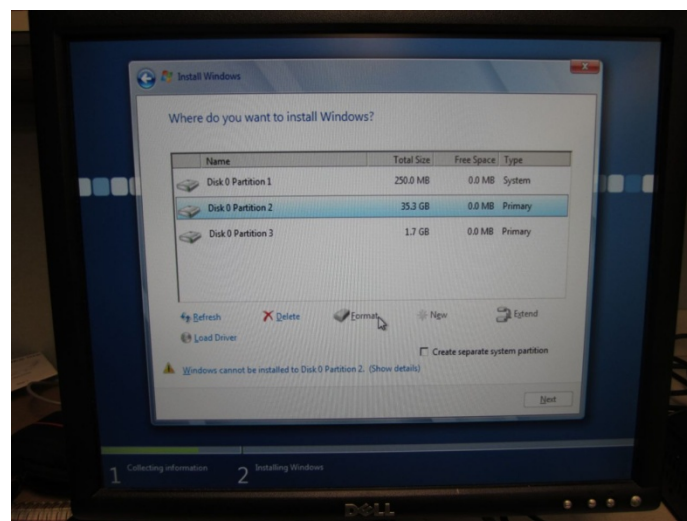


Fig. 2.2.4. Partition Selection Screen

Select your largest partition. You can then delete this partition, creating empty space, or partition this into sub-partitions. Either way, be sure to format the resulting partition to be compatible with WE7. When you're done, select your partition, and continue.

The Windows installation will now commence. This can take over an hour to run. Once the installation is finished the system will restart.

Upon restart, you will be prompted for to create a new username, computer name, and password. Additionally, you will be asked to enter a product key, which should have been obtained as part of the registration process. Once all of these things have been entered, your system is ready to go!

3.0. Windows Application Development Resources

Most applications that run on Windows XP, Windows Vista, and Windows 7 will work on Windows Embedded 7. Occasionally, however, a desired program does not exist; you must create it yourself. To discuss in any level of detail the requirements for developing applications on the Windows platform is beyond the scope of this tutorial. The Windows Developer Center, found here: <http://msdn.microsoft.com/en-us/windows/aa904944>, can help you get started with developing your first (or next) application for Windows Embedded 7.

4.0. Sources Cited:

1. "Windows Embedded Standard 7 Basics". Available online: <http://msdn.microsoft.com/en-us/library/ff794402%28v=winembedded.1001%29.aspx>. [Accessed July 20th, 2011]
2. "Windows Embedded Standard 7". Available online: <http://www.microsoft.com/windowseembedded/en-us/evaluate/windows-embedded-standard-7.aspx>. [Accessed July 21st, 2011]
3. "Windows Developer Center". Available online: <http://msdn.microsoft.com/en-us/windows/aa904944>. [Accessed July 22nd, 2011]