Windows Embedded

Windows® Embedded CE 6.0

Componentized, real-time operating system and powerful tools for building a broad range of small-footprint embedded solutions

New Features

- Smaller footprint
- Supports more concurrent processes
- Integrated development environment
- Unified Kernel
- Greater graphics capabilities
- Enhanced networking

Windows® Embedded can help you turn your vision and ingenuity into superior business results by offering a great combination of the creative tools and technology you need and the support and resources Microsoft® and its partners can provide.

Designed specifically for embedded developers who need to bring new devices to market in minimum time and at the lowest possible cost, Windows Embedded CE 6.0 provides a 32-bit native hard real-time, small footprint operating system, a re-designed kernel, and powerful embedded development tools. CE 6.0 interoperates with industry standards and existing Microsoft desktop and server technologies to help you create differentiated devices for a broad range of device categories, from commercial devices to consumer electronics products.

New Kernel Provides Increased Functionality

CE 6.0 features a re-designed kernel to increase functionality for a richer set of user experiences by enabling a larger number of applications to run simultaneously. CE 6.0 supports up to 32,000 simultaneous processes, with up to 2 GB of virtual memory space for each process. A new file system supports larger storage media, large file sizes and removable media encryption.

Enabling New Business Opportunities

- The **Cellcore Stack** component helps devices establish data and voice connections over cellular networks.
- The **Windows Media Connect** and **Digital Video Recording** components help devices consume media from Windows XP-based PCs and record, pause and rewind live video streams.
- The **Windows Network Projector** component will make it easier for meeting attendees to give a presentation from a Windows Vista-based PC.

Source Code Access

Access to CE 6.0 source code helps you debug, test, and make changes to an operating system image. It lets you modify the operating system software to create differentiated features while helping you maintain control over your intellectual property.

Try Before You Buy

Start building and testing with the evaluation version of CE 6.0 software free for 180 days before making a purchasing decision. To download a trial version or order by mail, visit **www.microsoft.com/windowsembedded/eval/trial.mspx.**

Microsoft

Development Environment

Product Features

Small footprint

- 300 KB footprint/ 700 components
- Scalable with functionality

Supports more concurrent processes

- 32,000 simultaneous processes
- 2 GB virtual memory address space per process

Kernel

- Multi threaded, preemptive kernel
- Multiple processor architectures
  - —ARM
  - —MIPS
  - —SH4
  - —x86

Production-quality device drivers

- Ensures easy portability
  - —Kernel Mode for performance
  - —User Mode for robustness

Graphics

- Win32 GDI
- DirectX®
- Open GL (requires third-party add-ins)

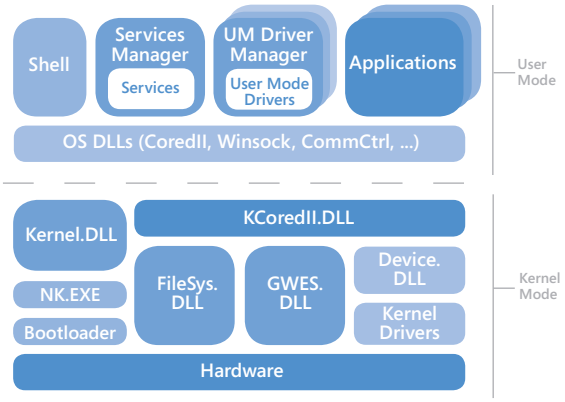
Operating System Development Tools

Platform Builder for CE 6.0 (a plug-in for Visual Studio 2005) is an integrated development environment (IDE) for building customized embedded operating system designs. Visual Studio integration allows for one environment for the development of both application and operating system software. Platform Builder comes with the development tools needed to design, create, build, test and debug.

New additions to Platform Builder include:

- **Run Time Analysis.** Helps you predict the required runtime license and export reports to HTML for better project communication and record keeping. Visit http://www.microsoft.com/windows/embedded/eval/wince/components.mspx for a comprehensive list of components.
- **Device Emulation.** The new ARM-based device emulator integrated into Platform Builder helps make it easy to configure, build and test operating system images.
- **Editors.** Designed for easy syntax highlighting, graphical .bib and registry editors, building, and coding with IntelliSense™ technology.
- **Improved Compilers.** Based on Visual Studio 2005, the latest compilers increase C++ language conformance; provide better libraries; support CRT, ATL and MFC; and offer improved runtime security checks (/GS).
- **Post Mortem Debugging.** Provides improved visibility to diagnose potential problems and optimize performance.

CE 6.0 Operating System Layout



The CE 6.0 OS layout featuring the new unified kernel.

Application Development Tools

You can re-use most of your existing investments in user interfaces and applications developed within previous versions of Windows Embedded CE. CE 6.0 provides continuity of key features and functionality including .NET Compact Framework 2.0 for managed application development and Win32, MFC, ATL, WTL and STL for native application developers.

Middleware

Microsoft provides operating system building blocks for an array of devices to meet the requirements of vertical markets. This lets you focus your development resources on adding product innovation, differentiation and value.

For example, the Windows Media Connect and Digital Video Recording components include built-in middleware that provide the networking, device drivers and codecs needed to develop a networked media device, while helping to minimize time-to-market and development cost.

Compatibility with Existing Microsoft Technologies

Today's embedded devices are increasingly connected, and applications in devices need to be interoperable with network infrastructure. Embedded devices with an operating system based on CE 6.0 can connect with other Microsoft technologies including:

- SQL/Everywhere
- XML Web Services
- Web Browsing
- Media Playback
- Networking

World Class Support

The Microsoft Support Lifecycle Policy guarantees that Microsoft provides five years of mainstream support and five years of extended support for Windows Embedded products after release, for a total of 10 years of support for your embedded operating system.

- Developer Support: **1 (800) 936-5800**
- Online Support: http://support.microsoft.com/

Serviceability and Manageability

Windows Embedded CE 6.0 products supports a variety of in-field servicing options.

- Microsoft Systems Management Server 2003 (SMS) Advanced Client is a manageability tool that makes it possible to perform software inventory and patch management on embedded devices. You can use SMS to manage embedded devices just as you would manage desk top machines and servers. For example, you can use the deployment capabilities of SMS to send security updates to your devices and use SMS to monitor the installation process for success or failure.
- Image Update lets you update a device image with flash.

Business Model of Shared Success

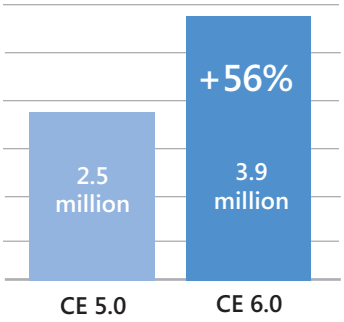
Windows Embedded licensing allows you to make a low up-front investment in operating system development, with the majority expenditure occurring after your device is shipped. Free evaluation software lets you develop your OS image in the evaluation phase. You pay for tools and runtime licenses only when you ship your device using per-unit licenses with tiered volume discounts. This model can help you predict your investment and reduces break-even volume.

- To license Windows CE 6.0 contact a Windows Embedded Authorized Distributor at www.microsoft.com/windows/embedded/license.mspx

The Windows Embedded Family of products provides the leading solutions to help you rapidly develop powerful, reliable and intelligent devices. Whether you're learning, building or shipping— we're here to support you.

Windows® Embedded CE 6.0

More Shared Source



Lines of shared source code available

Features	Benefits
Hard real-time OS	Native real-time OS builds on the real-time capabilities of previous Windows Embedded CE versions
Improved unified kernel architecture	• Improved system performance • Increased security and robustness • High degree of backward compatibility
Support for more concurrent processes and improved virtual memory per-process	• Build devices with more user rich feature sets • Devices can be upgraded as end-user requirements change over time
IP Indemnification	• Reduced litigation risk for device makers • Uncapped monetary intellectual property indemnification by Microsoft
Shared Source Program	Use shared source code to document, debug, test and modify the OS image to create differentiated features
Improved driver support	• Kernel mode drivers for performance • User mode drivers for robustness
Improved tools	Accelerate time-to-market and manage development costs
Integrated board support	Significantly reduce development time

Developer Resources

- The Windows Embedded Developer Center, supported by the Microsoft Developer Network (MSDN), provides detailed technical information, training, and community support: **www.msdn.com/embedded.**
- The Windows Embedded Partner Program includes a worldwide network of resources available during every step of your device project: **www.WindowsEmbeddedPartners.com**
- For general product information, to locate a distributor or review customer success stories visit: **www.microsoft.com/windowsembedded**

Windows Powered Logo

The Windows Powered Logo Program is designed specifically for use with products that are built and licensed with Windows Embedded operating system technologies.

System Requirements for Your Workstation

- Processor: 933 MHz or faster (2 GHz processor recommended)
- Microsoft® Windows® 2000 Professional SP4 or Microsoft® Windows® XP Professional SP2 (English or Japanese recommended)
- 512 MB of RAM (1GB recommended)
- 18 GB of available space required on installation drive
- 1 GB of available space required on system drive
- DVD-ROM drive
- Display monitor with resolution of 1024x768 and high color (16-bit color)

Microsoft