

# Windows® Embedded CE 6.0 R3

Componentized Embedded Systems Platform

## Overview

The easy-to-use Digi JumpStart Kit® for Microsoft® Windows Embedded CE 6.0 combines the feature-rich selection of the Windows high-level software components and applications with complete out-of-box support for Digi module platforms. This enables customers to bring powerful and innovative products to market at a fraction of the time needed as compared to other operating system and hardware platforms.

## About Digi Support for Windows Embedded CE 6.0

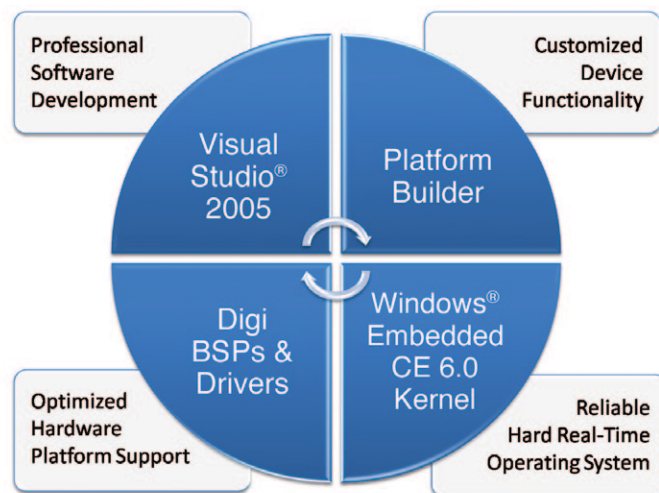
Minimizing development effort and cost, Windows Embedded CE 6.0 provides a 32-bit native hard real-time operating system, a redesigned kernel, small footprint, a complete set of fully tested and production-ready software components, and leading embedded software development tools. With built-in support for key industry standards and existing Microsoft desktop and server technologies, Windows Embedded CE 6.0 is a powerful and scalable platform for embedded product development in a wide variety of applications.

The professional Visual Studio 2005 development tools provide state-of-the-art software development and a unified development environment for Windows Embedded CE 6.0 application and operating system software. Platform Builder for Windows Embedded CE 6.0 allows tailoring the specific feature and footprint needs of the product you are building, and is seamlessly integrated into Visual Studio 2005.

The Digi JumpStart Kits for Windows Embedded CE 6.0 offer a complete set of hardware and software components for immediate product development right out of the box. Each kit includes a Digi core processor module, development board with integrated VGA interface, quick start guide and documentation, Board Support Package (BSP) with source code, a customizable boot loader, Ethernet-based debugging, and a fully functional 180-day trial of Windows Embedded CE 6.0 plus Visual Studio 2005 development tools.

Digi is a certified Windows Embedded Gold Partner and offers complete technical support for all hardware and software components, effectively eliminating the often inefficient and time-consuming interaction with multiple vendors. Working with a single, competent partner dramatically reduces your overall design risk and keeps your product development schedule on track.

 Windows Embedded CE 6.0



## Features/Benefits

Complete out-of-the-box Windows Embedded CE 6.0 development environment

Fully integrated and optimized BSPs for Digi hardware platforms

Feature-complete and scalable Windows Embedded CE 6.0 architecture

Microsoft IP indemnification for Windows Embedded CE 6.0

180-day evaluation license for Visual Studio 2005 and Windows Embedded CE 6.0 included

Digi is the single source for complete hardware and software support

- Immediate, highly accelerated product development with full 10-year product lifecycle commitment
- Requires no additional porting effort for low-level drivers, including boot loader
- Production-quality software components accelerate time-to-market/minimize design risk and eliminate component license cost
- Reduced litigation risk through unlimited legal protection for the intellectual property in Windows Embedded CE 6.0
- Fully functional development environment for product development with small up-front investment
- Eliminates time-consuming and inefficient interaction with multiple vendors

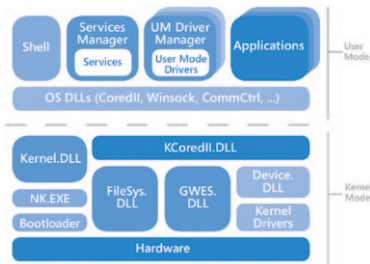


[www.digiembedded.com](http://www.digiembedded.com)



## Features

- Hard real-time kernel
  - Multi-threaded, preemptive kernel
  - 32,000 simultaneous processes
  - 2 GB virtual memory address space per process



- Fully componentized platform
  - 300 KB minimum footprint
  - Over 700 selectable software components through Platform Builder for Windows Embedded CE 6.0: End-user applications, applications and services development, communication services and networking, core OS services, device management, file systems and data storage, fonts, graphics and multimedia, international support, internet client services, security, shell and user interface
- Including video and audio codecs, Silverlight, Flash Lite, Internet Explorer Embedded, Connection Manager, and Microsoft Office/Adobe PDF viewers

Visit <http://www.microsoft.com/windowseMBED/en-us/products/windowse/default.mspx> for a complete component list.

## Microsoft Runtime Licensing

- Per-unit license starting at US\$3
- Tiered volume discounts available
- Licenses available through Windows Embedded Authorized Distributor
- Digi offers delivery option for pre-licensed hardware

## Boot Loader

- U-Boot
  - Boot support for flash, SD/SDHC, USB memory stick, and Ethernet
  - Robust NVRAM system configuration storage with redundant image
  - Flash partitioning command option
  - Digi command extensions
  - Full build environment provided for customization

## Drivers

- Ethernet
- 802.11a/b/g /n WLAN
- UART, SPI, I<sup>2</sup>C, ADC, SD/MMC, PWM, 1-Wire
- GPIO (processor/expander)
- USB host, USB device
- PCMCIA, ATA, SD/MMC
- Camera, audio
- Hardware video codec integration
- Timers, Watchdog
- RTC
- Display
  - CRT: ADI ADV7125 (VGA), ADI AD9389B (HDMI)
  - TFT: Sharp® LQ57Q3DC2 (QVGA), LQ64V3DG01 (VGA), LQ070Y3DG3B (WVGA)
  - Customer-specific displays
- Touch Screen
  - TI™ ADS7843 via SPI
  - Internal
- NAND
  - Stream interface driver
  - Flash file system

All BSP sources are included in the Digi JumpStart Kit. Particular interface availability depends on target capabilities.

## User Documentation

- Quick start guide
  - How to set up the kit
- Online welcome guide
  - Software requirements and installation
- User's guide
- Building your first application
  - How to build your first Windows Embedded CE 6.0 application
- Hardware reference manuals
  - Technical reference information for Digi modules
- U-Boot reference manual

## Visual Studio 2005

- Seamless Windows CE 6.0 Platform Builder integration
- Code editor with IntelliSense® code completion and code snippet support
- .NET Compact Framework, and native code development support
- Microsoft Visual Basic®, Microsoft Visual C#®, Microsoft Visual C++®, and Microsoft Visual J#® programming languages
- XSD and XSLT editing and debugging
- Advanced debugging tools

Visit <http://www.microsoft.com/visualstudio/en-us/products/2005-editions> for additional information.



## Sample Code

- regtool
  - NVRAM registry settings (CLI)
- Reset
  - Issue controlled/hard reset
- run\_debug
  - Debug helper application
- Test\_GPIO
  - Exercise processor GPIO
- Test\_I2C-GPIO
  - Exercise I2C based GPIO
- Test\_Watchdog
  - Software watchdog sample
- Update\_Flash
  - Flash partition maintenance (CLI)
- wificonf
  - WLAN configuration tool (CLI)

## WLAN Security

- WEP (Wired Equivalent Privacy)
  - 64/128-bit encryption
    - RC4
  - Open System Authentication
  - Shared Key Authentication
- WPA/WPA2/802.11i
  - 128-bit encryption
    - TKIP/CCMP (AES)
  - Enterprise mode (802.1X)
    - EAP-TLS, PEAP/TLS, PEAP/MS-CHAPv2, EAP-MD5 CHAP
  - Pre-shared key mode (PSK)

## Target Connectivity

### Image Download

- Platform Builder
- Ethernet (TFTP)
  - Digi TFTP Server provided
- USB (Memory Stick), SD

### Debugging

- Via Ethernet through Visual Studio 2005

## Supported Hardware Platforms

- ConnectCore™ 9C
- ConnectCore™ Wi-9C
- ConnectCore™ 9P 9360
- ConnectCore™ 9M 2443
- ConnectCore™ Wi-9M 2443
- ConnectCore™ for i.MX51