



WinDriver™ PCI

Version 14.2.0

General Description

WinDriver is a driver development toolkit that simplifies the creation of monolithic device drivers. WinDriver includes a graphical development environment, APIs, diagnostic and debug utilities and samples, which enable you to quickly develop a high performance driver without being a “driver guru”.

Product Features

Immediate hardware access: Access hardware through a graphical user-mode application, without writing a single line of code.

Generation of hardware-specific code: WinDriver’s DriverWizard generates skeletal driver code, customized to your hardware.

- **Easy addition of functionality and logics to the generated skeletal code:** In the user mode and within your favorite development environment.

Performance optimization: Kernel PlugIn enables transfer of user-mode code to the kernel level, thereby achieving optimal performance.

Graphical tools: DriverWizard, an intuitive user-mode application, simplifies hardware access and driver code generation.

Debugging: Graphical Debug Monitor to monitor kernel- and user-mode activity.

Multi operating system support: Supports Windows 10 / Server 2016/ Server 2019/ Windows 10 IoT / 8.1 / 8 / 7 / Embedded Standard 7 / Server 2008 R2 and Linux (x86 32-bit/64-bit)

Cross operating system compatibility: The developed driver is source-code compatible between all supported operating systems without any code modifications.

Samples and code generation for common development environments: MS Visual Studio (including .NET code in C#), GCC, Java, Python 2 and 3, etc.

Hardware independent: Supports any PCI / PCI Express / CompactPCI based hardware.

64-bit data transfer support: On the supported 64-bit platforms (Windows x64 and Linux x86_64) and on Windows and Linux x86 32-bit platforms with a 64-bit PCI bus.

Microsoft certifiable driver (Windows): Digitally sign your driver and certify it by submitting it to Microsoft’s Windows Certification Program (previously known as WHQL).

Product Benefits

Shorter development cycle; easier learning curve; faster time to market

- Isolates hardware bugs from the driver development process.
- No kernel-mode programming.
- Achieve kernel-mode (Ring 0) performance by using the Kernel PlugIn feature.
- No need to master the operating system internals, kernel development tools like the Microsoft WDK, or the bus protocols.
- Write and maintain one driver code base for all supported operating systems.
- Includes diagnostics files and samples for jump-starting your development, including specific support for leading chipset vendors.
- Free, full featured, 30-days evaluation version: The code created with the evaluation version will be ready for commercial distribution upon purchase of a registered product.
- Free, expert technical support, for the duration of the evaluation period.

WinDriver is also available for **USB** based hardware. For further details, refer to www.jungo.com.

DriverWizard to generate code on the supported Windows platforms.

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Technical Specifications

Detection of Plug-and-Play devices installed on a host, including devices residing beyond a PCI-to-PCI bridge.

Provision of data for each detected device: location; vendor ID and device ID; resources, including interrupts, I/O and memory.

Hardware verification and debugging via an intuitive wizard:

- Read/write memory buffers, I/O ranges, and the PCI configuration space.
- Listen to interrupts.
- Define and access new registers.

Windows WDM compliant. Supports Plug-and-Play and power management notification handling.

Generation and installation of *.inf files.

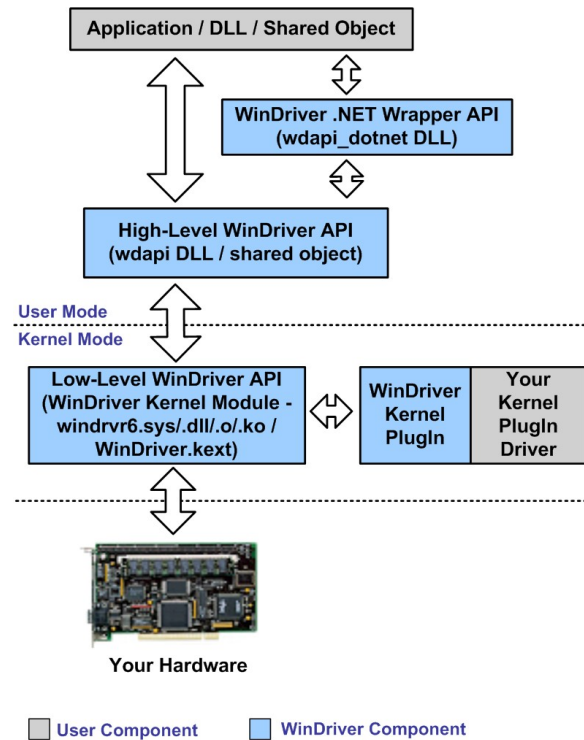
Supports contiguous and scatter gather DMA.

Throughput of up to 100,000 interrupts per second (using the Kernel PlugIn).

Dynamic driver loading.

Supports multiple PCI-bus platforms.

Architecture Diagram:



The device driver developed with WinDriver (yourapp.exe/dll/so) accesses hardware through the WinDriver kernel module (windrvr1420.sys/ko) using WinDriver's API functions.

Performance critical sections (time critical data transfers) are handled in the Kernel PlugIn and are executed in the kernel mode, thereby eliminating overhead.

This architecture enables development and debugging of driver code in the user mode, using the WinDriver functions, and migration of only the performance critical sections of the code to the kernel mode, using the simple Kernel PlugIn mechanism.



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System Requirements

Supported Operating Systems

- Windows 10/Server 2016/8.1/8/7/Server 2008 R2 (x32 & x64)
- Windows 10 IoT Core
- Linux and Embedded Linux 2.6.x-5.x (x86 32-bit & 64-bit, ARM, ARM64)

Note: OS-specific support is provided only for operating systems with official vendor support.

Compiler

- Any appropriate C, VB, C#, Java compiler (e.g., MS Visual Studio or GCC).
- Any Python interpreter

Supported Industry Standards

Designed to comply with

- PCI Local Bus Specification Revision 3
- PCI-X
- PCI-Express

About Jungo

Jungo Connectivity Ltd. is a divestiture of the Connectivity Division of Jungo Ltd.

Jungo Connectivity is a provider of connectivity and multimedia software solutions. Jungo Connectivity's products enable semiconductor companies, device manufacturers, and original equipment manufacturers (OEMs) to easily develop products that intelligently connect with any portable device over various protocols for any application. Jungo Connectivity solutions have been deployed in global markets throughout various industries including the automotive industry, mobile communications, digital TV, point-of-sale, medical equipment, and defense industries.