

WIND RIVER

Wind River VxWorks Platforms 3.7

The market for secure, intelligent, connected devices is constantly expanding. The key to successful products is to match exciting applications with outstanding hardware performance, all while delivering a high-quality product to market on time. To succeed, companies must optimize their device software across the entire product life cycle: from design through development, from QA to the remote management of deployed devices. They need a Device Software Optimization (DSO) solution that scales. Featuring VxWorks 6.7, Wind River VxWorks platforms introduce asymmetric multiprocessing (AMP) to make the promise of multicore processors real: high performance, lower costs, lower power consumption, faster time-to-market. The VxWorks 6.7 Multiprocessing add-on product is available for all VxWorks 3.7 platforms.

The Wind River VxWorks platforms are complete, flexible, optimized COTS development and run-time platforms that work out of the box and across the enterprise. The platforms provide a powerful, scalable development and on-chip debugging environment built on open standards and industry-leading tools; the industry's most trusted commercial-grade real-time operating system (RTOS); and tightly integrated run-time technologies. This proven technology package is backed by a 25-year track record, an exceptional ecosystem of hardware and software partners, and the industry's most comprehensive support organization.

The Wind River VxWorks platforms are optimized develop-and-run solutions for a range of devices, from aerospace and defense (A&D) applications to networking and consumer electronics, robotics and industrial applications, precision medical instruments, and car navigation and telematics systems. The platforms provide a robust foundation for companies that need to leverage their investment in proprietary intellectual property. VxWorks has been deployed successfully in hundreds of millions of devices worldwide.

The Foundation: VxWorks 6.x

The VxWorks platforms are based on the world's most widely adopted RTOS. Built on a highly scalable, deterministic, hard real-time kernel, VxWorks enables companies to scale and optimize their run-time environment using only the specific technologies required by their device. From the smallest footprint requirement to the highest performance level, VxWorks gives developers the flexibility to build their optimal solution quickly and easily while meeting cost, quality, and functionality requirements.

VxWorks supports POSIX and industry-standard protocols such as IPv6 and TIPC, ensuring maximum code portability and interoperability. VxWorks 6.x is backward-compatible with previous releases, so developers can leverage and reuse existing projects, applications, board support packages (BSPs), and drivers, as well as open source applications. VxWorks 6 includes frameworks for file systems, power

Development Suite

Wind River Workbench

Software Partners

Ada Support	Advanced Flash Support	Advanced Security
Browsers	CAN	Common Internet File System
Databases	Design Tools	Graphics
High Availability	Java	Others

Additional Middleware*

Wireless Ethernet	Mobile IPv4/IPv6	802.1Q VLAN	Media Library
SSL & SSH	IPsec & IKE	NAT/Firewall	IGMP/MLD
RADIUS and Diameter Client	Wireless Security	Crypto Libraries	EAP
SNMP v1/v2/v3	Web Server	CLI/MIBway	Learning Bridge
VRRP	Web Svcs-Interop/SEC	DCOM	CAN/OPC

Base Middleware**

TIPC	Distributed Shared Memory	USB 1.1, 2.0
dosFs	Flash Support (TrueFFS)	Highly Reliable FS
IPv4/IPv6 Network Stack		PPP

Operating Systems

VxWorks/VxWorks Multiprocessing

Hardware Partners

Reference Designs, Semiconductor Architectures
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Services

Education Services and Installation	Platform Customization
System Design	Design Services
Hardware/Software Integration	

VxWorks platform components

* Included in VxWorks industry-specific platforms

** Included in all VxWorks platforms

management, and interconnectivity, as well as comprehensive security capacities that begin at the core operating system level for absolute application and device security.

VxWorks 6.7 Multiprocessing

Wind River VxWorks platforms feature multicore support capabilities within the operating system, network stack, and development tools in order to provide the easiest path for device software developers to the benefits of multicore technology. The multicore-enabling capability of the VxWorks platform is complemented by Wind River's unmatched service and support capabilities.

VxWorks 6.7 Multiprocessing is offered as an optional component to all the VxWorks 6.7-based platforms, with SMP and AMP support for a broad range of multicore silicon. In addition, the VxWorks Multiprocessing-enabled platforms allow customers to do the following:

- Deliver higher performance multicore-powered products with reduced risk and development investment
- Speed time-to-market by using commercially available and supported run-time platforms and developer tools with support for multiprocessing
- Increase productivity by using the same development process and environment as for uniprocessor development, leveraging multiprocessing extensions to existing development tools
- Enable a flexible design approach using Wind River's expertise and broad technology support for multiprocessing

Integrated Run-Time Technologies

VxWorks platforms include comprehensive networking and run-time technologies that have been preintegrated, tested, and validated. Leveraging these standard technologies saves development time and allows you to focus on adding value and differentiating functionality to your device.

Optimized Development Suite

The VxWorks platforms include the industry-leading Wind River Workbench development suite. From hardware and board initialization to application development, the suite offers deep capability across the development process in a single integrated environment, with complete platform integration, including powerful tools for debugging, code analysis, and test. Wind River's technology leadership in debugging multicore processors with its Workbench On-Chip Debugging solutions enables customers to quickly identify problems between the hardware and software using a patent-pending multicore debugging technology. Based on the Eclipse framework, Workbench can be extended through in-house, third-party, open source, and commercial plug-ins.

Global Services and Support

VxWorks platforms include full access to worldwide, 24/7 product support through multiple channels. We offer industry-specific services practices; our teams have extensive experience delivering design, integration, and optimization services tailored to the needs of device software development.

A Proven and Reliable Partner

The right technology partner can greatly increase your ability to succeed in a highly competitive marketplace. As the industry leader in DSO, Wind River has met and exceeded the requirements of our customers and their markets for 25 years. More than 4,000 businesses have leveraged our skills, experience, and expertise to deploy and support more than 350 million devices successfully.

Extensive Partner Ecosystem

The Wind River partner ecosystem delivers the capabilities and expertise of dozens of premier silicon and software companies to your engineering team. Our partners provide such technologies as advanced file systems, level 2 and 3 networking protocols, advanced graphics, reference designs, and BSPs. VxWorks platforms take you out of the operating system and middleware business and also simplify your vendor choice and management issues.

Flexible Business Models

Wind River complements the technical advantages of VxWorks platforms with a choice of proven business models. Under our Enterprise License Model, the platform is offered as an annual, per-developer subscription, applicable across the enterprise. The subscription includes Wind River support and all product updates. Our Perpetual License Model provides flexibility for companies desiring project-based licensing.

Platforms Available in VxWorks Edition

- **Wind River General Purpose Platform:** This versatile platform is used for devices ranging from aerospace and defense, automotive telematics, and small-footprint consumer devices to industrial devices and networking equipment.
- **Wind River Platform for Automotive Devices:** Designed for the development of applications that require high reliability, low power consumption, and a small memory footprint, its targets include both vehicle and security control systems (powertrain, engine, ABS, crash and airbag sensors, window/door entry) and in-vehicle systems (digital dashboard displays, navigation systems, telematics systems, and entertainment systems).
- **Wind River Platform for Consumer Devices:** This offers a fast-boot, small-footprint run-time environment ideal for memory-constrained devices. Platform targets include digital video, mobile handheld, digital imaging, and broadband access devices.
- **Wind River Platform for Industrial Devices:** This provides industrial device manufacturers with essential multimedia and connectivity run-time technologies, including drivers and protocols for connected devices on the factory floor, wireless peripherals, and other devices within the network infrastructure. Targets include industrial automation, building automation, medical, transportation, and test and measurement devices.
- **Wind River Platform for Network Equipment:** This enables customers to rapidly create, test, deploy, maintain, and manage high-quality network infrastructure devices. The platform offers an extensive suite of security protocols to protect network data. It is ideally suited for wireless infrastructure, enterprise network, core networking, network edge, LTE and WiMAX infrastructure, and broadband access devices.

VxWorks Platform Components

Develop: Wind River Workbench 3.1

- Based on Eclipse platform 3.4
- Project system
- Build system
- Index-based global text search-and-replace
- Wind River compilers
 - Wind River Compiler for VxWorks
 - Wind River GNU Compiler
- Debugger
- Target debug agent for VxWorks
- VxWorks Simulator
- Host Shell and Kernel Shell environments
- VxWorks Kernel Configurator
- VxWorks Source Build Configurator
- Run-time analysis tools
 - System Viewer
 - Performance Profiler (formerly ProfileScope)
 - Memory Analyzer (formerly MemScope)
 - Data Monitor (formerly StethoScope)
 - Code Coverage Analyzer (formerly CoverageScope)

Optional Add-on Products

- Wind River Workbench, On-Chip Debugging Edition
- IPL Cantata++ for Wind River Workbench 3.1 (formerly Workbench Unit Tester)
- Datalight FlashFX Pro version 3.3 for NAND flash memory support

Run: Wind River VxWorks 6.7

Included in all VxWorks Platforms

- Backward-compatibility with VxWorks 5.5 and all previous versions of VxWorks 6.x
- Kernel scalability and performance tuning using VxWorks Source Build
- State-of-the-art memory protection
- Memory management
- Error management
- Message channels IPC, including support for multiprocessor and multi-OS messaging using TIPC
- Improved POSIX compliancy, including full support for JTRS SCA AEP 2.2.2 and to POSIX IEEE Std. 1003.13-2003 PSE52
- Power management framework, with CPU power management

- TrueFFS (flash file system)
- dosFs (FAT-compatible file system)
- Highly reliable file system (HRFS) with configurable commit points
- High-speed interconnect framework with PCI and local bus support
- VxMP
- Wind River TIPC
- Wind River Network Stack (dual-mode IPv4/IPv6)
- Wind River PPP
- Wind River USB

Included in VxWorks Industry-Specific Platforms

- Wind River IPsec and IKE
- Wind River Crypto
- Wind River Security Libraries
- Wind River SSL
- Wind River SSH
- Wind River RADIUS and Diameter Client
- Wind River Firewall
- Wind River NAT
- Wind River Wireless Ethernet Driver
- Wind River Wireless Security
- Wind River EAP
- Wind River Mobile IP
- Wind River OPC
- Wind River DCOM
- Wind River CAN
- Wind River CLI, Web, MIBway
- Wind River SNMP
- Wind River Learning Bridge
- Wind River Media Library
- Wind River Web Services

Optional Add-on Product

- VxWorks 6.7 Multiprocessing

Manage: Wind River Device Management

Optional Add-on Products

- Wind River Test Management
- Wind River Lab Diagnostics
- Wind River Field Diagnostics