WIND RIVER

Wind River VxWorks Platforms 3.8

The market for secure, intelligent, connected devices is constantly expanding. The key to successful products is to match exciting applications with outstanding hardware performance and reliability, all while delivering a high-quality product to market on time. To succeed, companies must optimize their software across the entire product life cycle: from design through development, from QA to the remote management of deployed devices. They need a proven embedded development platform that scales.

Featuring VxWorks 6.8, Wind River VxWorks platforms provide comprehensive multicore processor support, including asymmetric multiprocessing (AMP) and symmetric multiprocessing (SMP) modes, and can be optionally paired with Wind River Hypervisor to make the promise of multicore processors real. VxWorks 6.8 is a proven real-time operating system (RTOS) that ensures high performance, deterministic behavior, and rock-solid reliability. A proven solution with the largest hardware support in the industry means lower costs and faster time-to-market.

Wind River VxWorks platforms are complete, flexible, optimized commercial off-the-shelf (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 RTOS; and tightly integrated middleware. 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.

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.

Development Suite

Wind River Workbench

Software Partners

Ada Support		Advanced Security
Browsers	CAN	Common Internet File System
Databases	Design Tools	3D Graphics
High Availability	Java	Others

Additional Middleware*

Wireless Ethernet	Mobile IPv4/IPv6	802.1Q VLAN	Media Library Graphics
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 MIPC	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 (SMP/AMP)

Hardware Partners

Reference Designs, Semiconductor Architectures

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*

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

VxWorks 6.8 Multicore Support

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

The VxWorks 6.8 multiprocessing capability is included in all VxWorks 6.8–based platforms, with support for the latest market-leading multicore silicon. In addition, 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
- Leverage the powerful Wind River Hypervisor product to enable flexible multicore configurations such as multi-OS, supervised AMP, and combinations of AMP and SMP on the same platform
- Enable a flexible design approach using Wind River's expertise and broad technology support for multiprocessing

Integrated Middleware

VxWorks platforms include comprehensive networking and middleware technology that has 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 and Wind River Workbench On-Chip Debugging. 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.

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 platforms are 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 wanting 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, Wind River Platform for Automotive Devices includes protocols such as Controller Area Network (CAN) and a broad automotive partner ecosystem. Targets for Platform for Automotive Devices 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 middleware, 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—wired and wireless—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, WiMAX and LTE infrastructure, and broadband access devices.

VxWorks Platform Components

Develop: Wind River Workbench 3.2

- Eclipse-based development environment
- Multiple-target OS support, including support for VxWorks 5.5, VxWorks 6.x, and Wind River Linux
- Target processor support for PowerPC, Intel Architecture, ARM, MIPS, and ColdFire

- Powerful multicore debugger with on-chip debugging
- VxWorks host shell
- Dynamic printf() debugging
- VxWorks 6.x Kernel Configurator
- VxWorks Source Build configuration tool
- VxWorks Core Dump Analysis
- Multitarget launch
- Integrated VxWorks Simulator
- Integrated run-time analysis tools
  - System Viewer
  - Performance Profiler
  - Memory Analyzer
  - Data Monitor
  - Code Coverage Analyzer
- Optimizing compilers
  - Wind River Compiler for VxWorks
  - Wind River GNU Compiler

Optional Add-on Products

- Wind River Workbench On-Chip Debugging
- IPL Cantata++
- Wind River Tilcon Graphics Suite
- ADA development environment

Run: VxWorks 6.8

Included in all VxWorks Platforms

- Industry-leading VxWorks 6.8 kernel, with uniprocessor and multiprocessor support with AMP and SMP
- Real-time process (RTP) user space environment
- 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 and memory management
- Error management
- Message channels IPC, including support for multiprocessor and multi-OS messaging using TIPC, and Wind River Multi-OS IPC (MIPC)
- Full support for JTRS SCA AEP 2.2.2 and certified conformance to POSIX IEEE Std. 1003.13-2003 PSE52 (achieved in VxWorks 6.4)
- Dual-mode IPv4/IPv6 network stack, with IPv6 Ready Logo certification
- Wind River PPP
- Wind River USB
- 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
- VxWorks target shell
- Broad processor and BSP support

Included in VxWorks Industry-Specific Platforms

- VPNC-certified Wind River IPsec and SSL
- Wind River IKE
- Wind River Crypto
- Wind River Security Libraries
- 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 Products

- Datalight FlashFX Pro (NAND flash manager)
- Wind River Test Management
- Wind River Test Diagnostics

Global Services and Support

Wind River provides truly global support and services including local language training, support, and professional services. VxWorks platforms include full access to worldwide, 24/7 product support through multiple channels: phone, email, and the Web. We offer industry-specific services practices. Our teams have extensive experience delivering design, integration, and optimization services tailored to the needs of embedded software development.

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, databases, 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.

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 embedded system software, 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 500 million devices successfully.

WIND RIVER

Wind River is the global leader in Device Software Optimization (DSO). We enable companies to develop, run, and manage device software faster, better, at lower cost, and more reliably. www.windriver.com