

WIND RIVER

Wind River VxWorks Platforms 3.6

The market for secure, intelligent, connected devices is constantly expanding. The key to successful products is to delight your users by matching 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 6.6, Wind River's VxWorks platforms introduce symmetric multiprocessing (SMP) to make the promise of multicore processors real: high performance, lower costs, lower power consumption, faster time-to-market. The VxWorks 6.6 SMP add-on product is available for all VxWorks 3.6 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	RIP/RIPng	Media Library
SSL & SSH	IPSEC & IKE	NAT	Firewall
RADIUS Client	802.1X, 802.11i	Security Libraries	Web Svcs-SEC
SNMP v1/v2/v3	Web Server	CLI/MIBway	Learning Bridge
XML/SOAP	Web Svcs-Interop	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 SMP

Hardware Partners

Reference Designs, Semiconductor Architectures
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Services

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

* Included in VxWorks industry-specific platforms: See documentation for exact contents of each platform

** 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 6.6 SMP

Wind River VxWorks platforms have been enhanced with new 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 6.6 SMP is offered as an optional component to all the VxWorks 6.6-based platforms, with support for the latest market-leading multicore silicon. In addition, the VxWorks SMP-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 SMP 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 and Wind River Workbench, On-Chip Debugging Edition. 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, 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, WiMAX infrastructure, and broadband access devices.

VxWorks Platform Components

Develop: Wind River Workbench 3.0

- Eclipse
 - Eclipse platform
 - C/C++ Development Tools
 - Target Management/Remote System Explorer
 - Device Debugging
- Project System and Build System
- Editor and Source Code Analyzer
- Index-based global text search-and-replace
- Wind River Compiler and Wind River GNU Compiler
- Debugger and target debug agent
- VxWorks Simulator
- Host Shell and Kernel Shell
- VxWorks Kernel Configurator
- Run-time analysis tools
 - System Viewer
 - Performance Profiler (formerly ProfileScope)
 - Memory Analyzer (formerly MemScope)
 - Data Monitor (formerly StethoScope)
 - Code Coverage Analyzer (formerly CoverageScope)
 - Function Tracer (formerly TraceScope)

Run: Wind River VxWorks 6.6

Included in all VxWorks platforms:

- Backward-compatibility with VxWorks 5.5 and all previous versions of VxWorks 6.x
- Memory protection
- Shared libraries and shared memory, distributed shared memory
- Message channels and TIPC
- Error management and power management frameworks
- Processor Abstraction Layer
- Operating system scalability
- Certified POSIX 1003.13-2003 PSE52 conformance, enhanced compliance to PSE 53, PSE 54, and 1003.1 standards
- Networking: TCP, UDP, IPv4/IPv6, PPP, and 802.11 drivers
- Routing: Policy-based routing, ECMP
- File systems: dosFs, TrueFFS, Highly Reliable File System (HRFS)
- VxMP
- TIPC

Included in VxWorks industry-specific platforms (see documentation for exact contents of each platform):

- Networking: Mobile IPv4/v6, VRRP, MPLS data plane
- IPsec and IKE
- Crypto
- Security libraries
- SSL
- SSH
- RADIUS and Diameter client
- Firewall
- NAT
- Wireless Ethernet driver
- Wireless security
- OPC
- DCOM
- CAN
- CLI, Web, MIBway
- SNMP
- Learning bridge
- Media library
- Web Services

VxWorks 6.6 SMP (optional add-on product):

- Support for leading-edge multicore processors and boards
 - ARM11 MPCore (ARMv6)
 - Broadcom BCM1480
 - Cavium OCTEON CN38XX
 - Freescale MPC8641D, MPC8572
 - Dual-Core Intel Xeon processor LV
 - Intel Core Duo T2400
 - Raza XLR 732

Manage: Wind River Device Management (Optional Add-Ons)

- Wind River Field Diagnostics
- Wind River Lab Diagnostics