Powering billions of intelligent devices, VxWorks® is the world’s most widely deployed real-time operating system (RTOS). It delivers unrivaled deterministic performance and sets the standard for a scalable, future-proof, safe, and secure operating environment for connected devices in the Internet of Things (IoT). Leading global innovators such as ABB, Airbus, Alcatel-Lucent, BD Biosciences, Boeing, Delphi, Eurocopter, Huawei, Mitsubishi, NASA, Northrop Grumman, Siemens, and Varian leverage VxWorks to create winning, IoT-ready products effectively and efficiently.

VxWorks supports the broadest spectrum of silicon architectures, including ARM®, PowerPC®, and Intel®. Its portfolio of add-on technology profiles and industry-specific profiles, as well as a large ecosystem of validated complementary third-party solutions, enables customers to differentiate their platforms with best-of-breed capabilities, reduce development costs, and accelerate time-to-market.

FEATURES AND BENEFITS

Enabling the Future of Connected Devices

• **Expandable and upgradable architecture**: A modular, future-proof platform, VxWorks can adapt and evolve to match changing market requirements, customer needs, and technology advancements. The VxWorks core kernel is separate from protocols, applications, and other packages, enabling upgrades and new feature additions to be accomplished faster and with minimal retesting of the entire system.

• **Scalable footprint**: VxWorks is the ubiquitous RTOS foundation spanning tiny implantable medical devices, large intelligent systems forming the smart grid, and everything in between. It is scalable to meet a customer project’s unique memory footprint, functionality, and processing power requirements.

• **Uncompromising safety and security**: For over 25 years, VxWorks has been the foundation that enables leading innovators in aerospace and defense, automotive, industrial, and medical industries to create differentiated, certifiable safety- and security-critical systems. The optional Security Profile for VxWorks delivers a comprehensive set of features to efficiently and effectively protect devices, data, and intellectual property. Safety Profile for VxWorks delivers advanced safety partitioning capabilities and an optional IEC 61508 SIL 3 certification evidence package that helps drive down costs and time-to-certification.
• **Proven virtualization technology:** Virtualization Profile for VxWorks delivers a real-time Type 1 hypervisor that enables consolidation of multiple standalone hardware platforms on one multi-core processor, helping reduce bill-of-material (BOM) costs and speed time-to-market.

• **Broad connectivity:** Connectivity is a key requirement for IoT, so VxWorks supports industry-leading connectivity standards and networking protocols out of the box. The optional Networking Profile for VxWorks advances VxWorks’ networking capabilities even further. The modular nature of VxWorks allows customers to add connectivity and networking capabilities after the fact and bring many previously disconnected devices online without reworking the core of their embedded software.

• **Lower risk and faster integration of third-party technology:** VxWorks’ unmatched ecosystem of hardware and software technology partners enables customers to differentiate their product offerings with leading-edge features and capabilities and bring devices to market faster, while reducing risks and development costs.

**Build Better Products with the Industry’s #1 RTOS**

• **Guaranteed real-time performance and reliability:** Capable of dealing with the most demanding time constraints, VxWorks is a high-performance RTOS tuned for both determinism and responsiveness. For example, NASA trusted VxWorks to control the $2.5B Mars Curiosity rover and land it perfectly on a planet 352 million miles away.

• **Better reliability with state-of-the-art memory protection:** Memory management unit (MMU)-based memory protection increases reliability. VxWorks incorporates a process-based model that provides user-mode application execution in addition to its traditional kernel-mode execution.

• **Multi-core benefits, maximized:** VxWorks delivers comprehensive multi-core processor support, including asymmetric multiprocessing (AMP) and symmetric multiprocessing (SMP) OS configurations and hardware-optimized multi-core acceleration. Safety Profile and Virtualization Profile enable even greater flexibility in harnessing the power of multi-core, as well as additional consolidation options to reduce size, weight, and power consumption (SWaP).

**Leverage Your Existing Investment in VxWorks**

Backward-compatible with VxWorks 6.x, VxWorks 7 is designed to ease migration from earlier versions of VxWorks. Most board support packages (BSPs), drivers, and user applications developed for or ported to VxWorks 6.x will run in the VxWorks 7 kernel.

**Develop Smarter with the Workbench Development Suite**

Wind River® Workbench offers best-in-class development, debugging, and analysis tools for optimizing the VxWorks environment. VxWorks simulation and system configuration tools are also included in Workbench.
INDUSTRY AND TECHNOLOGY ADD-ON PROFILES FOR VXWORKS

VxWorks 7 Core Platform

VxWorks 7 is the culmination of a 30-year track record of Wind River leadership in RTOS technology. This versatile operating environment is used as a foundation for creating intelligent devices in industries such as aerospace and defense, automotive, consumer electronics, industrial, medical, and networking. Enhanced with optional industry and technology add-on profiles, VxWorks 7 Core Platform delivers a broad assortment of natively supported capabilities that help customers meet technology and certification requirements specific to their industry. VxWorks delivers more features out of the box, so customers can focus on creating differentiated applications.

Industry-Specific Profiles

- **Aerospace and defense**: Aerospace Profile for VxWorks is a collection of middleware native to VxWorks that helps manufacturers of aerospace and defense systems—from military and civilian aircraft to spacecraft and unmanned surveillance vehicles—create robust, differentiated products, shorten time-to-deployment, and reduce risk. Aerospace Profile enhances VxWorks 7 Core Platform with capabilities boosting safety, security, connectivity, web-based device manageability, user interface, and graphics performance.

- **Consumer electronics**: VxWorks with Consumer Profile provides a fast-boot, small-footprint run-time environment ideal for memory-constrained devices. Consumer Profile augments VxWorks 7 Core Platform with user interface and graphics enhancements, additional web-based device manageability options, and security protocols. Application targets include consumer electronics, home automation, digital imaging, residential gateways, and broadband access devices.

- **Industrial automation**: Industrial Profile for VxWorks helps manufacturers of a broad range of intelligent industrial products—from robotics to energy generation, building automation, transportation, and test and measurement equipment—minimize the amount of time and effort required to create a winning product offering in industrial IoT. Industrial Profile enriches VxWorks 7 Core Platform with additional capabilities to boost safety, security, connectivity, manageability, user interface, and graphics.

- **Medical devices**: Medical Profile for VxWorks adds highly relevant middleware to boost safety, security, connectivity, manageability, user interface, and graphics, and provides an informational mapping guide to help medical device manufacturers create innovative connected medical devices and obtain required approvals.

- **Network equipment**: VxWorks with Networking Profile enables customers to rapidly create, deploy, maintain, and manage high-quality network infrastructure devices, wired or wireless. Networking Profile enhances VxWorks 7 Core Platform with advanced networking features, an extensive suite of security protocols, and web-based device manageability options. It is ideally suited for wireless infrastructure, enterprise network, core networking, network edge, LTE, and broadband access devices.
The optional industry-specific profiles for VxWorks are deployed in conjunction with VxWorks 7 Core Platform. They can be further enhanced with safety and security technology profiles in the same installation.

**Technology Profiles**

- **Safety**: Safety Profile for VxWorks adds advanced time-partitioning capabilities to enable reliable consolidation of multiple applications with different levels of criticality on one platform, single- or multi-core. This consolidation helps customers drive down BOM and maintenance costs. An optional IEC 61508-3 SIL3 certification evidence package helps shorten time-to-certification for the entire system.

- **Security**: Security Profile for VxWorks delivers a comprehensive set of features to safeguard devices, data, and intellectual property in the ever-connected world of IoT. Security Profile technologies—such as secure boot, secure run-time loader, advanced user management, network security, and encrypted containers—protect devices and data at every stage, from boot-up to operation to data transmission to while at rest. Security Profile is a software-based solution that can be reinforced for security-critical applications with the hardware-based CodeMeter® security offering from Wibu-Systems.

- **Virtualization**: Virtualization Profile for VxWorks is a real-time embedded, Type 1 hypervisor that enables the combination of multiple workloads on a single multi-core processor, helping drive down hardware costs and allowing new capabilities to be added more quickly. Optimized for developer productivity and fully integrated into VxWorks, the hypervisor utilizes standard VxWorks workflows to configure, build, develop, and debug.

Safety Profile and Security Profile can be deployed with VxWorks 7 Core Platform with or without industry-specific profiles in the same installation. Virtualization Profile is OS-agnostic; that is, it can run multiple operating systems, including VxWorks (with or without add-on profiles), Wind River Linux, and others, inside their respective virtual machines on the same hardware.

**WIND RIVER PROFESSIONAL SERVICES**

A CMMI Level 3–certified organization, Wind River Professional Services offers consultative thought leadership, deep technical capabilities, and innovative industry solutions to help you overcome your most strategic and pressing development challenges. Our industry specific offerings span the entire project lifecycle, including consulting, architecture, design, development, porting, integration, and maintenance services. For more information, visit [www.windriver.com/services](http://www.windriver.com/services).
WIND RIVER EDUCATION SERVICES

Wind River provides education services that speed the time-to-productivity of your project team. We offer deeply technical, hands-on training led by experienced engineers, mentoring to accelerate technology integration, and on-demand learning. Our services are flexible to meet the learning needs of your team and the constraints of your budget. For more information, visit www.windriver.com/education.

WIND RIVER CUSTOMER SUPPORT

VxWorks is backed by our award-winning global support organization. We offer live help in multiple time zones, the online Wind River Support Network with multifaceted self-help options, and optional premium services, to provide you the fastest possible time-to-resolution. We are proud to have achieved Service Capability and Performance certification, recognized as the gold standard for delivering world-class customer support. For more information, visit www.windriver.com/support.

HOW TO PURCHASE

Visit www.windriver.com/company/contact to find your local Wind River sales contact. To have a representative contact you, call 800-545-9463 or write to inquiries@windriver.com.