

# WIND RIVER

## Wind River Linux

Successful device software development means having the flexibility to choose the right platform and tools for deploying your project. Rapid technical advances in embedded Linux are creating new opportunities to use open-source solutions for a variety of device software projects. Adding to the challenge are increasingly more complex devices that require standards-based platforms and infrastructure. Developers often struggle to build these advanced devices faster, better, and more reliably.

Today's average device deploys with more than a million lines of code, and this number only increases over the course of a product's evolution. As applications increase in size, so do their complexity and the probability of errors—and these large applications are harder and more time-consuming to test and debug. The need for a standard, validated, tested, and supported operating platform has become more critical than ever.

Wind River Linux is a commercial-grade Linux solution for the development and deployment of software for use in a wide range of devices, from aerospace and defense applications to networking, consumer electronics, industrial equipment, and automotive systems. The platform includes a fully tested and validated distribution based on Linux 2.6 kernel technology, the Eclipse-based Wind River Workbench development suite, customer education, 24/7 global technical support, and specialized professional services.

### The Foundation: Commercial-Grade Linux Technology

At the core of all Wind River Linux platforms is a Linux 2.6 kernel implementation, with integrated patches and packages for enhanced networking and security requirements. Wind River offers a "pristine-source" distribution that ensures maximum visibility and flexibility. The transparent source code enables you to see which patches and packages have been included, as well as incorporate new packages as required. The platform's distribution also provides a unique, intuitive build system that makes it simple to install and modify the kernel and root file system.

### Optimized Development Suite

Wind River Linux includes Wind River Workbench, the industry-leading open, extensible development suite. From hardware and board initialization to application development, Workbench offers deep capability across the development process in a single environment, with complete platform integration and powerful tools for debugging, code analysis, and test. Based on the Eclipse framework, Workbench can be extended through in-house,

### Development Suite

Wind River Workbench

### Wind River Linux Cross-Build System

Pristine Open-Source Packages, Transparent Patches, GNU Toolchain

### Partner Software

Applications and Middleware

### Middleware

Networking Protocols and Applications

Storage File Systems and Applications

Security Protocols and Applications

Device Management Protocols and Applications

System Utilities

Guaranteed Real-Time

### OS

Wind River Linux Kernel 2.6.14

### Hardware

COTS Boards, Development Boards, Semiconductor Architectures

### Services

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

### Wind River Linux platform components

third-party, open-source, and commercial plug-ins. Its support for Wind River Linux and VxWorks, as well as multiple architectures and programming languages, provides you with unprecedented enterprise-wide flexibility.

### **Integrated and Validated Run-Time Technologies**

All components of the platform, including the kernel, integrated patches and packages, Wind River Workbench developer tools, and supported hardware architectures and boards, have been exhaustively tested and validated. In addition to our Linux test harnesses, we have performed extensive use-case validation to ensure the platform is optimized for common device applications.

### **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. Wind River has joined forces with these providers to address such technologies as advanced file systems and graphics, reference designs, and board support packages. Wind River takes you out of the operating system and middleware business, simplifying vendor choice and management.

### **Flexible, Royalty-Free Business Model**

Wind River complements the technical advantages of the Wind River Linux distribution with a flexible, royalty-free business model. Under our Enterprise License Model, Wind River Linux platforms are offered on a per-developer, per-year subscription basis applicable across the enterprise, regardless of project, processor, or site location. The subscription includes Wind River Support and all product updates.

Alternatively, Wind River offers a per-project-based licensing model. In this case, the license is tied to a specific processor/project, not to the number of developers. This model benefits customers working on a single small project that may not have an ongoing platform life cycle.

### **Wind River Linux Solutions**

#### **General Purpose Platform**

Wind River General Purpose Platform, Linux Edition, is an optimized Linux develop-and-run solution ideal for use in a wide range of devices, from A&D and industrial equipment to automotive control systems. Many of these applications require a robust, high-performance, highly connected operating system, and they demand the most exacting requirements for embedded platform software. General Purpose Platform offers the right combination of integrated, validated open-source software with the flexibility your company needs to maintain a competitive edge.

#### **Platform for Consumer Devices**

Wind River Platform for Consumer Devices, Linux Edition, is optimized for the development and deployment of software for mobile handhelds, home entertainment devices, digital video devices, and automotive navigation and infotainment

systems. This platform is ideal for customers who require specialized Linux features for memory-constrained, high-performance devices. It is designed for a small footprint, but contains all the Linux capabilities consumer device developers demand, as well as support for leading next-generation processors and reference boards.

#### **Platform for Network Equipment**

Wind River Platform for Network Equipment, Linux Edition, includes a Carrier Grade Linux (CGL) specification, support for popular telecom boards, and a highly productive cross-development infrastructure. Customers can leverage CGL functionality for standards-based ATCA and MicroTCA designs. The platform is well-suited for developing control and management system software in 3G wireless infrastructure systems and IMS, WiMAX elements, fixed-mobile convergence (FMC) elements, softswitches, media gateways, DSLAMs, cable modem headends, and multi-service switches.

#### **Real-Time Core**

Wind River Real-Time Core and Wind River Linux provide device manufacturers with mature, proven technology for developing complex, next-generation Linux-based applications that require guaranteed, microsecond-level interrupt and scheduling latency. Real-Time Core for Linux enables microsecond response times for applications such as single-core feature phones, high-bandwidth IP communications, robotics, and industrial control. This technology is regarded as one of the best, most mature, guaranteed real-time Linux solutions available in the device software industry. Wind River Real-Time Core employs a real-time executive that runs the non-real-time Linux kernel as its lowest priority task and routes interrupts to the Linux kernel through a virtual interrupt layer.

#### **Advanced Networking Add-Ons**

Wind River Advanced Networking Technologies, an add-on to all our Linux platforms, addresses, networking, security, wireless, and mobility requirements in key markets such as wireless infrastructure, network infrastructure, and consumer devices. In particular, IPv6, routing, wireless, and mobility technologies enable device and equipment manufacturers to deliver products to market quickly while offering the latest networking and security capabilities on Wind River Linux.

Complex devices demand industry-proven, quality-tested embedded Linux solutions. Why trust your device development requirements to anyone other than the recognized leader? Wind River delivers the most comprehensive solutions for your application development needs.

## Features and Benefits

- Preintegrated, tested, and validated Linux distribution reduces time-to-market
- Pristine-source code transparency and build system offer maximum flexibility to extend and customize Linux distribution
- Commercial-grade solution eliminates the burden of building, supporting, and maintaining your own Linux distribution
- Comprehensive Linux platform frees engineering resources to focus on competitive differentiation
- Complete, end-to-end development suite enables efficiency, improved productivity, and standardization
- Small footprint and performance optimizations meet consumer device requirements
- CGL-conformant to meet the needs of telecommunications and network equipment providers
- Real-Time Core provides application determinism—performance is guaranteed to the threshold limits of the underlying hardware, with microsecond response times across a broad range of architectures
- Development teams have 24/7 access to a global team of Linux experts through Wind River Professional Services and Support

## Run-Time System\*

- Linux 2.6.14 kernel
- GNU glibc 2.3.6 C library
- RT\_PREEMPT real-time kernel enhancements (*Wind River Real-Time Core available as an option for guaranteed real-time determinism*)
- High-performance file systems (ext2, ReiserFS, XFS)
- Journaling file systems (ext3)
- Full-featured IPv4/IPv6 platform with updated USAGI IPv6 and Mobile IPv6 features
- Networking protocols and applications, including BGP, DHCP, FTP, HTTP, NFSv4, NTP, RARP, RIP, OSPF, PPP, PPPoE, SCTP, Telnet, TFTP, and VLAN
- Network management through SNMP v1/v2c/v3
- Network security through SSL, SSH, firewall, updated IPsec
- Small-footprint BusyBox root file system
- Wind River Real-Time Core (*optional*)
- Wind River SNMP, CLI, Web Management Suite (*optional*)
- Wind River Networking Suite for advanced networking stack and optimized TCP/IP, security, and mobility packages (*optional*)

\* Note: Features listed above may not be supported on certain processors or boards. Please check with your Wind River representative to determine support for a specific board or processor.

## Host Development Tools

- Optimized GNU GCC 3.4.4 cross-toolchain
- Wind River Workbench 2.6
  - Eclipse 3.2.1 framework
  - Project and Build System
  - Editor and Source Code Analyzer
  - Patch Manager
  - GNU Compiler
  - Debugger
  - Target debug agents for Linux
  - Configuration tools:
    - Linux Kernel Configuration Tool
    - Linux User Space Configuration Tool
  - Wind River System Viewer
  - Wind River ScopeTools
    - Wind River StethoScope
    - Wind River MemScope
    - Wind River ProfileScope
    - Wind River CoverageScope
- Wind River Workbench, On-Chip Debugging Edition (*optional*)
- Workbench On-Chip Debugging Hardware (*optional*)
  - Wind River ICE
  - Wind River Probe
  - Wind River Trace
- Wind River Network Management SDK (*optional*)

## Platform Developer Host Support\*

- Red Hat Enterprise Linux (Workstation 3, Update 5; Workstation 4, Update 2) for the Intel x86 platform
- SUSE Linux Enterprise Server 9.3 and 10 for the Intel x86 platform

## Application Developer Host Support\*

- Red Hat Enterprise Linux, Workstation 3 and Workstation 4
- Novell SUSE Linux Enterprise 9 and 10
- Solaris 8 and 9
- Windows 2000 and XP

\* Check with your local Wind River representative for additional support information and the latest board support packages.