

WIND RIVER

Wind River Linux

Wind River Linux sets the standard for embedded device development. Our industry-leading, commercial-grade Linux platform enables device manufacturers to develop, run, and deploy devices to market easier, faster, and more cost-effectively than ever before. The Wind River Linux solution is a complete, fully tested and validated distribution based on Linux 2.6 kernel technology, the Eclipse-based Wind River Workbench development suite, and 24/7 global technical support and professional services.

Wind River Linux with its broad range of Board Support Packages (BSPs) optimized for leading CPU architecture, device drivers, and hardware technologies, ensures that your current and future projects will be supported. 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.

Wind River Linux is the latest release that demonstrates our continued commitment to meet the demands of embedded device developers. It is delivered in optimized platforms designed to address the unique needs of aerospace and defense (A&D), networking, consumer electronics, industrial devices, and automotive infotainment developers. Wind River General Purpose Platform, Wind River Platform for Consumer Devices, and Wind River Platform for Network Equipment are the three platforms that Wind River has designed its Linux offerings around to address specific customer needs.

Key Benefits

- Deploy your device quickly and efficiently, reducing time-to-market.
- Lower costs by eliminating the burden of building, supporting, and maintaining your own Linux distribution, allowing you to focus on the applications that you develop, and not on developing the Linux platform.
- Focus limited resources on the essential and critical, thus allowing you to invest in competitive differentiators rather than on platform infrastructure.
- Reduce complexity of your present and future projects by leveraging Wind River Linux cross-build system and layers development methodology.
- Deliver advanced functionality/capabilities with guaranteed real-time performance, advanced networking stacks, and enhanced multiprocessing support, not available from open source.
- Ensure that you have a plan for the long-term with a guaranteed Linux platform roadmap.

Wind River Linux Platforms

Wind River General Purpose Platform

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.

Wind River Platform for Consumer Devices

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.

Wind River Platform for Network Equipment

Platform for Network Equipment, Linux Edition is a Carrier Grade Linux (CGL 4.0) platform. This platform supports popular telecom boards and advanced ATCA architectures 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 system control and data plane software in wireless infrastructure systems, fixed-mobile convergence (FMC) elements, and multiservice switches.

Wind River Workbench Development Suite

The Wind River Linux 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 and powerful tools for debugging, code analysis, and test. Based on the Eclipse framework, Workbench can be extended through in-house, third-party, open source, and commercial plug-ins.

Wind River Real-Time Core for Linux

Real-Time Core for Linux 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 mission-critical applications such as 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 Advanced Networking Technologies

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.

Key Features in Wind River Linux

- 2.6.21 kernel
- GCC 4.x toolchain
- 64-bit user/kernel space application and tools support
- PREEMPT_RT real-time extensions
- CGL 4.0 compliance to meet the availability, scalability, manageability, reliability, and performance needs of networking and telecommunications equipment manufacturers
- Integrated security-enhanced Linux packages for access control, process separation, and protection of confidential information or against malicious processes
- Reduced root file system footprint for flash memory constrained devices
- Accelerated kernel boot time for “instant-on” capability
- Broad number of additional BSPs, including several new BSPs for Real-Time Core
- Wind River Real-Time Core for Linux for guaranteed interrupt response (optional)
- Wind River Advanced Networking Technologies stack integration for additional networking functionality (optional)

Wind River Pristine Source, Cross-Build System, and Linux Layers Methodology

Wind River Pristine Source Code

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.

The Wind River Linux Cross-Build System

All operating platforms start as source code, which must be converted or *compiled* into executable (or binary) code so that the target computer or device machine may operate and function per the programmer’s intent. This process of compiling and appropriately linking source code files and libraries into executable code is managed by what is known as a *build system*.

While traditional Linux build systems may support small projects with few developers, more complex or larger projects with multiple development teams may run into conflicts and problems with this inferior and antiquated method of performing a build. Wind River understands this common scenario may create complications and bugs. In developing the Wind River Linux distribution, we introduced a build system that is optimized for complex software development projects with multiple software development groups. This unique Wind River Linux cross-build system allows developers to organize, store, and manage different parts of the development system and thus more easily understand what parts (layers) of the build may be responsible for performance issues, bugs, or defects.

Wind River Layers Methodology for Development

Flexibility and choice often means the lack of a systematic and structured framework for managing device software components as independent modules. Key to the Wind River Linux platforms and the Wind River Linux build system is the layers methodology for device development. Layers make it easy to locate and review all the changes you (or others) have made, back out of undesirable changes, and neatly share your changes. You could, for example, add packages, remove other packages, and add and remove different kernel features with a single layer. You could then distribute your layer to a group of developers. Other developers can then easily include (or exclude) your layer with a single configure command switch. By leveraging Wind River layers, device developers have available different directories to store different parts of the platform development system, which helps simplify device development.

Global Services and Support

All Wind River Linux platforms include full access to Wind River worldwide 24/7 product support. Wind River also offers an optional Linux Services Practice. Our engineers have wide-ranging experience delivering design, integration, and optimization services tailored to the requirements of the open source community.