

# WIND RIVER

## Wind River Linux 3.0

Wind River Linux is the standard commercial-grade Linux operating system for embedded device development. Based on Linux kernel 2.6.27 and GCC 4.3.2, Wind River Linux 3.0 provides a flexible and pervasive development environment. This release offers more than 500 software packages, virtualization based on KVM (kernel-based Virtual Machine), and multicore offload capabilities, allowing customers to utilize the potential of modern multicore hardware. Wind River Linux is a complete, fully tested, and validated distribution, allowing device software developers to achieve more with fewer resources. It comes integrated with the Eclipse-based Wind River Workbench development suite and is backed by award-winning 24/7 global technical support and professional services.

### One Linux System Scaling to Your Needs

Wind River Linux 3.0 supports a broad range of hardware platforms and features for all industries, including aerospace and defense, consumer, industrial, networking, and medical. The hardware support covers all leading device architectures, including the newest addition, Sun Microsystems UltraSPARC T2, and many leading commercial off-the-shelf (COTS) and Advanced Telecommunications Computing Architecture (ATCA) boards. Wind River Linux 3.0 complies with the Carrier Grade Linux (CGL) 4.0 specification from the Linux Foundation, a critical requirement for the telecommunications and high-end data networking markets, and is the only commercial embedded Linux distribution offering real-time capabilities, ranging from soft to hard real-time performance.

Jump-starting device-specific development is made easy by a set of preconfigured system profiles for vertical industries. Prior to Wind River Linux 3.0, Wind River's Linux distributions were individually packaged to contain different features and hardware support for each specific vertical market. By consolidating these standalone vertical distributions into a single platform, Wind River Linux 3.0 provides existing and new customers with reduced purchasing complexity and increased development flexibility at no additional cost.

### Real-Time Capabilities

Wind River Linux supports real-time capabilities based on the Linux kernel's PREEMPT features, including a special subset to comply with the CGL 4.0 specification. In addition, the optional Wind River Real-Time Core for Linux add-on provides 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 Internet Protocol 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 Pristine Source Code

Wind River offers all source code in "pristine source" format, cleanly separating the original open source code and any additions or modifications that are delivered as patches. This transparent source code foundation enables you to see which patches and packages have been included as well as incorporate new packages or patches as required. Wind River Linux also provides an open, intuitive build system that makes it simple to install and modify the kernel and root file system.

### Wind River Linux Distribution Assembly Tool

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.

In developing Wind River Linux, we introduced a build system that is optimized for complex software development projects with multiple software development groups. The Wind River Linux Distribution Assembly Tool (LDAT) is a unique open cross-architecture build system that 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.

Key to LDAT 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 different directories available to store different parts of the platform development system, which helps simplify device development.

### Wind River Workbench Development Suite

In addition to a broad and rich set of command-line tools, Wind River Linux includes the industry-leading Wind River Workbench development suite and can be extended with Wind River Workbench, On-Chip Debugging Edition. Workbench provides a truly integrated platform for all phases of the device development life cycle. For hardware bring-up, platform development, application development, and system integration, the Workbench suite offers deep capability across the development process in a single integrated environment. Workbench offers complete platform integration and powerful tools for debugging, code analysis, and test as well as JTAG-based kernel and user-mode debug for uniprocessor and multicore systems. Based on the Eclipse framework, Workbench can be extended through in-house, third-party, open source, and commercial plug-ins.

### Key Features

Wind River Linux 3.0 comes with the following features:

- 2.6.27 Linux kernel (provided in Git repository format)
- GCC 4.3.2 toolchain
- More than 500 software packages, including X.org, GTK+, GNOME, Gstreamer, or OpenGL
- 64-bit user/kernel space application and tools support
- Linux Distribution Assembly Tool (LDAT), an integrated, open, cross-architecture build environment with layer technology for efficient code and build management
- PREEMPT real-time extensions, including real-time capabilities for CGL 4.0-compliant systems and (optional) Wind River Real-Time Core for Linux for guaranteed interrupt response
- Integrated KVM, a full virtualization solution for Linux on hardware containing virtualization extensions (such as Intel VT or AMD-V), and the upcoming Wind River hypervisor product
- CGL 4.0 compliance to meet the availability, scalability, manageability, reliability, and performance needs of networking and telecommunications equipment manufacturers

- New hardware architecture support: Sun Microsystems UltraSPARC T2
- Integrated Security-Enhanced Linux (SELinux) for access control, process separation, and protection against malicious processes
- Reduced root file system footprint for flash memory constrained devices
- Accelerated kernel boot time for “instant-on” capability
- Wind River Workbench development suite
  - Eclipse-based development environment
  - Wind River Workbench, On-Chip Debugging Edition (optional)
  - IPL Cantata++ for Workbench, unit and integration testing (optional)
- Wind River device management (optional)
  - Wind River Test Management, testing automation software
  - Wind River Field Diagnostics, remote device support tools
- Wind River Network Management SDK for Wind River Linux 3.0 (optional)
- Support by upcoming release of Wind River’s newly acquired Tilcon Graphics Suite to enable advanced, graphical user interfaces for Linux-based devices
- Broad support of development host systems, including Fedora, Ubuntu, openSUSE, Red Hat Enterprise Linux Desktop, Novell SUSE Linux Enterprise Desktop, Sun Solaris, and Windows XP and Vista.

### Key Benefits

Wind River Linux is a feature-rich, fully tested, and validated Linux platform, allowing device software developers to achieve more with fewer resources.

A development-ready platform, Wind River Linux 3.0 enables customers to deploy devices quickly and efficiently and allows developers to reduce cost and time-to-market by focusing resources on product differentiation and revenue-impacting activities rather than reinventing noncompetitive base technologies. Wind River Linux provides the foundation for long-term planning with a guaranteed Linux platform roadmap and commercial-grade system maintenance and support.

Get more information at [www.windriver.com/products/linux/](http://www.windriver.com/products/linux/).