

Wind River VxWorks Cert Platform

Wind River VxWorks Cert Platform provides a commercial off-the-shelf (COTS) solution for delivering safety critical applications that must be certified to the stringent requirements of RTCA DO-178B and EUROCAE ED-12B ("Software Considerations in Airborne Systems and Equipment Certification") and IEC 61508 and other related software standards. With VxWorks Cert Platform, developers can take full advantage of technological advances in microprocessors that the VxWorks COTS real-time operating system (RTOS) enables, with the assurance that they will have a strong operating system foundation to meet the most demanding safety certification standards.

COTS Without Compromise

The avionics market has a history of success using standard commercial microprocessors for a variety of flight-critical applications that can directly affect aircraft safety and reliability. To ensure that airborne systems contain a consistent high quality to meet the demands of a variety of safety criticality levels, the global aerospace community developed the RTCA DO-178B and EUROCAE ED-12B airborne avionics standards to provide guidance on creating, certifying, and deploying these devices. These specifications are now uniformly enforced by a wide range of commercial aviation control organizations, including the U.S. Federal Aviation Administration (FAA), the European Aviation Safety Agency (EASA), Transport Canada, and others.

The aviation community reviewed input from every aerospace manufacturer in the world to create this standard that specifies 66 objectives that describe recommended software life cycle and testing guidelines for the aviation industry. Wind River's DO-178B and ED-12B COTS Certification Evidence DVD contains a complete certification package that meets these stringent objectives and therefore enables our customers faster time-to-market and gives equipment manufacturers a competitive advantage in the ability to leverage additional, ready-made technology from Wind River partners.

Similarly, industrial and medical devices have a history of success using standard commercial microprocessors for a variety of applications that can directly affect safety and reliability. To ensure that industrial systems contain a consistent high quality to meet the demands of a variety of safety criticality levels, the IEC (International Electrotechnical Commission) developed the IEC 61508 industrial safety standard to provide guidance on creating, certifying, and deploying these devices. These specifications are internationally recognized. Wind River's IEC 61508 Certification Evidence DVD contains a complete COTS certification package.

Wind River VxWorks Cert Platform

Included Components

- Wind River Workbench 3.2
- VxWorks 6.6
- GNU Compiler
- Wind River Compiler

Optional Components

- TCP/UDP/IPv4 network stack with multicast
- Workbench plug-in for on-chip debugging

Supported Hardware

- Processors
 - MPC7447A
 - MPC8349
 - Intel Architecture Core 2 Duo
- Boards
 - Curtiss-Wright CW-183 BSP (MPC7447A)
 - wrSbc8349 (MPC8349)
 - idp945 (Intel Architecture Core 2 Duo)

Supported Hosts

- Windows XP Professional, Windows Vista (Business and Enterprise)
- Solaris 10
- Red Hat Enterprise Linux, Workstation 4 and 5
- Red Hat Fedora 9 and 11
- OpenSUSE Linux 11.0 and 11.1
- Novell SUSE Linux Enterprise Desktop 10 SP2 and 11
- Ubuntu Desktop 8.04 and 9.04

Integrated Development Environment

VxWorks Cert Platform includes the award-winning Wind River Workbench development suite. Wind River Workbench is an Eclipse-based collection of tools designed to accelerate time-to-market for developers building devices with VxWorks real-time operating systems. From hardware and board initialization to application development, Workbench offers deep capability across the development process in a single integrated environment, with complete platform integration,

Development Suite

Wind River Workbench	
Wind River Compiler	Wind River WDB Debugger
GNU Compiler	Host Shell

Software Partners

Java/Ada	OpenGL Graphics
DO-178B Certification Services	Simulation Platform
Design Tools	Test Tools

Operating System and Middleware

DO-178B Level A/B/C/D Certification Evidence*
DO-178B Certified Network Stack (TCP/UDP/IPv4)*
VxWorks Cert 6.6

*Optional

Hardware Partners

COTS Boards

Services

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

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

In addition to the Workbench Eclipse-based environment, VxWorks Cert Platform provides a full-featured command-line build system and debugging tools for developers who prefer this type of environment. These command-line tools can be easily integrated into a customized build system. The Workbench development environment helps reduce development costs, manage code complexity, ease tools integration, and enable standardization on a common development foundation across the enterprise.

Leveraging the Power of VxWorks 6

VxWorks Cert Platform is based on the standard commercial version of the VxWorks 6.6 operating system. This development environment also includes the Wind River run-time analysis tools: Simulator, System Viewer, and Source Analyzer.

VxWorks 6.6 includes more than 480 kernel mode APIs and 150 user mode APIs, all of which are fully deterministic and deployable under guidelines outlined in the DO-178B safety standards. They include cache, clock, event flag, interrupt, memory management, message queue, ring buffer, semaphore, signal, and task management calls, along with a wide array of C library functions.

Developers can also make use of object-oriented programming using the VxWorks Cert C++ language subset,

which includes basic C++ constructs such as classes, inheritance, namespaces, polymorphism, and virtual functions. User mode applications are supported with real-time processes (RTP) to a safety-certifiable environment. The VxWorks Cert RTP API subset allows applications to take advantage of memory protection, thus simplifying software integration between parallel development groups.

Wind River Cert Network Stack for VxWorks Cert Platform

Wind River Cert Network Stack is an embedded TCP/UDP/IPv4 network stack that can be used in conjunction with VxWorks Cert Platform. This network stack has complete certification evidence, available for DO-178B at the highest level, Level A, and for IEC 61508 SIL3. This network stack uses the same APIs as Wind River's networking stack and supports the BSD sockets API (datagram, stream, and raw sockets), enabling the easy migration of networking software from VxWorks and Linux platforms.

DO-178B and ED-12B Certification Evidence DVD

VxWorks Cert Platform is backed by the industry's most comprehensive set of certification artifacts, which support all RTCA DO-178B and EUROCAE ED-12B Level A requirements. Wind River's DO-178B and ED-12B COTS Certification Evidence DVD contains all of the required DO-178B Level A documentation, the software vulnerability analysis document, full source code, tests, code and test reviews, all test results, and full object-level code coverage listings. All files are fully hyperlinked to enable rapid traceability analysis of certification data, from the requirements, design, source and binary code, and test cases, using a simple browser. With this certification evidence DVD, the review of printed and computer-based certification artifacts at separate locations is no longer necessary.

IEC 61508 Certification Evidence DVD

VxWorks Cert Platform is also backed by the industry's most comprehensive set of certification artifacts, which supports all IEC 61508 SIL 3 requirements. This fully hyperlinked DVD enables rapid traceability analysis of certification data, from the requirements, design, source and binary code, and test case phases, using a simple browser. With this certification evidence DVD, the review of piles of printed and individual computer-based certification artifacts is no longer required. This certification package DVD contains the VxWorks Cert Platform Safety Manual and all required IEC 61508 SIL 3 documentation. It also includes the TÜV certificate for VxWorks Cert Platform.

Commercial-Grade Support and Services

VxWorks Cert Platform includes full access to Wind River's worldwide support organization, with 24/7 product support and training available through multiple channels. We also offer a specialized Safety Critical Services Practice that can deliver safety certification evidence for additional software components. Our services team of engineers has extensive experience delivering design, integration, and optimization

services tailored to the needs of your industry and is fully equipped to provide professional certification services at any level, including certified board support packages (BSPs), middleware, and application software.

Extensive Partner Ecosystem

The right technology partner can greatly increase your odds of succeeding in a highly competitive marketplace. As the industry leader in mobile and embedded software, Wind River has met and exceeded the requirements of our customers and their markets for more than 25 years. More than 4,000 businesses have leveraged our skills, experience, and expertise to successfully deploy and support more than 350 million devices. A vibrant, publicly traded company, Wind River is positioned to stay the course with established device manufacturers and new companies alike.

To ensure a complete range of integrated technologies, Wind River has established the industrial, medical, and A&D industry's widest-ranging partner ecosystem, joining forces with leading hardware and software providers to address such technologies as COTS boards, system modeling tools, development and design tools, test tools, and certification services.

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 VxWorks Cert Platform is offered as an annual, per-developer subscription, applicable across the enterprise. The subscription includes Wind River support and all product updates. VxWorks Cert Platform is also available via our perpetual license model, which provides flexibility for companies desiring project-based licensing.

WIND RIVER

Wind River is a world leader in embedded and mobile software. We enable companies to develop, run, and manage device software faster, better, at lower cost, and more reliably. www.windriver.com

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