

WIND RIVER

Wind River Probe

As the amount of code on the average device grows into the millions of lines, how will you ensure reliable and efficient insight into what's happening on the core processor and its peripherals? How well is your processor communicating to its peripherals at the hardware level? How do you know that your code is running smoothly on the system?

Freedom to Innovate

Wind River Probe is a portable USB connectivity solution for developers who want to connect their host development environment to their target under development. Probe enables engineers to see what's happening in the system every step of the way, from board bring-up to integration into the final system. Wind River Probe allows your entire organization to profit from shorter development cycles, higher product quality, reduced cost, and faster time-to-market by standardizing on a common, smart debugging tool. Probe helps you to free engineering bandwidth for product innovation and focus on high-value differentiation.

Wind River Probe uses the on-chip debugging capabilities available in most embedded microprocessors. It allows developers to connect to the target via the JTAG, EJTAG, or BDM interface and communicate information to and from the host PC through a USB 1.x-compliant and 2.0-compliant interface.

Develop and Debug Faster

Combining USB 2.0 compliance with Wind River's JTAG accelerator technology ensures a fast download speed to the target using Wind River Probe as well as an improved ability to use the full JTAG scan chain. This provides developers with a more responsive debug interface, compared with parallel port interface-based probes, permitting more development iterations per day and a more responsive and productive debug experience. The USB connector provides a simple plug-and-play connection method.

Embrace the Future

Wind River Probe can support target device JTAG clock speeds, far surpassing the requirements for any products available today. You can support new silicon from major CPU vendors for years to come. Probe also supports I/O voltage tracking from 1.2v to 3.3v, so it can automatically plug and play from one device to another. New processor support is optionally added through firmware updates and by changing the target selection in the GUI, enabling Wind River Probe to support multiple processor families with one piece of hardware.



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Full Integration with Workbench On-Chip Debugging

Wind River Probe is fully compatible with Wind River Workbench, the industry-leading open and extensible development suite. Wind River Workbench On-Chip Debugging is a feature-rich development suite optimized for the capabilities of JTAG-based debugging, using Wind River ICE 2 and Wind River Probe. Wind River's on-chip debugging solution provides an advanced graphical JTAG development environment that allows organizations to standardize on a common framework of tools for hardware bring-up, kernel debugging, software development (OS, middleware, applications), and system integration.

Full Integration with On-Chip Debugging API

Wind River On-Chip Debugging API allows manufacturing and test engineers to programmatically access devices such as registers, memory, and bit-level detail. Developers can use standard programming languages to create built-to-purpose test harnesses that drive Wind River Probe. It draws out both hardware and software defects that legacy boundary scanners cannot identify and provides predictable and consistent test results.

Features

- USB-based portable debug unit for single-core/single-thread operation
- Full control of target: start/stop/reset, data- and expression-based hardware and software conditional breakpoints, single step through code

- Access to core and peripheral registers and bit-level detail including up to 32 user-defined register groups
- Access to L1 and L2 instruction and data cache (for supported processors)*
- Target board initialization files provided for common semiconductor vendor reference platforms
- Hardware diagnostics scripts to enable validation of address/data bus configurations and memory read/write verification
- Flash programming capability to simplify board bring-up; turnkey algorithms provided for common flash devices
- Support of OS virtual addressing via memory management unit (MMU) support for translation lookaside buffer (TLB)
- Extensible host PC interface** via
 - Wind River Workbench On-Chip Debugging Eclipse-based development suite (Eclipse 3.5)
 - Wind River On-Chip Debugging API for automated test and manufacturing environments
 - Workbench On-Chip Debugging command shell and host shell
- Operating system awareness to provide access to kernel objects to simplify OS and device driver stabilization for
 - VxWorks 5.5, 6.3, and higher (for supported processors)*
 - Wind River Linux (for supported processors)*
 - Wind River Real-Time Core for Linux (for supported processors)*
 - Linux kernels based on open source version 2.4.26 and higher; version 2.6 (for supported processors)*
 - Express Logic's ThreadX 4.0, 5.0 (for supported processors)*
- Internal trace buffer for visibility of code execution and system bus (for supported processors)*
- Static and dynamic boot capability to improve ease of use through automatic loading of multiple target drivers
- User-selectable signal drive strength to assist with heavily loaded JTAG scan chains
- Upgradeable firmware to support Wind River–provided enhancements and support for the newest processors
- Extensible support for a wide range of processors based on ARM, ColdFire, Intel, MIPS, and PowerPC architectures* (see processor list at www.windriver.com/products/OCD/PAM/processor-support)

*Consult your Wind River sales representative for details on current and future supported devices and features.

**Limited host OS support; consult the Wind River Probe product note for supported configurations.

Technical Specifications

Host Operating System Requirements

Specific host OS system requirements depend on the host software connected to Wind River Probe. Refer to product information for Wind River Workbench and Wind River On-Chip Debugging API for more details.

Target OS Support

Wind River Probe provides support for the following target operating systems:

- VxWorks 6.3 and higher
- VxWorks 5.5
- VxWorks 653
- Wind River Linux, Wind River Real-Time Core for Linux
- Open source Linux kernels version 2.4.26 and above, and version 2.6.x.
- Express Logic's ThreadX 4.0 and 5.0

Wind River Services and Support

Wind River provides outsourced engineering services specifically designed to help you meet strict market deadlines while keeping development costs down. Our technical experts have in-depth knowledge of Wind River products and experience assisting customers with customization and product realization across a broad set of vertical industries. We can help you with device design, board support package (BSP) and driver optimization, software system and middleware integration, legacy application and infrastructure migration, and real-time best practices.

Wind River Support works when you do with person-to-person help lines, a broad and deep knowledge base, and Web-based support to solve problems as they arise. Our Online Support site also provides details on Wind River products and services to help you overcome obstacles or find innovative ways to resolve debugging issues quickly and get you out of the lab sooner.

How to Purchase Wind River Solutions

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