On-Chip Debugging API for LabVIEW™

The Wind River On-Chip Debugging (OCD) API is integrated and supported for use with National Instruments LabVIEW, providing an integrated development solution for test and manufacturing environments. Wind River and National Instruments have partnered to integrate the Wind River OCD API with National Instruments LabVIEW software development environment, creating an open and extensible environment for test and manufacturing engineers to test their devices and troubleshoot hardware and software issues prior to shipment.

With the integration of OCD API and LabVIEW, developers will be able to easily write software diagnostic and test programs within LabVIEW for Wind River ICE and Wind River Probe, two industry-leading JTAG tools that provide solutions ranging from low-level hardware diagnostics and flash programming to complex debugging with multicore run-control and trace.

As a result of this integration, Wind River has created a LabVIEW-based application, Wind River OCD Utility, which provides a graphical interface to the OCD API.

National Instruments LabVIEW

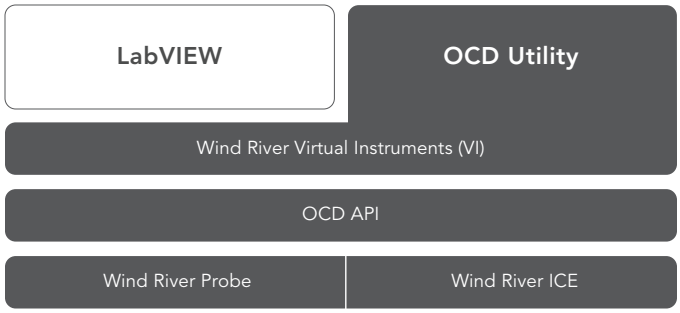
National Instruments LabVIEW is an industry-leading software tool for designing test, measurement, and control systems. LabVIEW provides a graphical programming and simulation environment, enabling developers to easily write programs that can interface with various third-party hardware solutions for the purpose of testing, analyzing, and debugging the performance of a device.

The graphical nature of LabVIEW allows developers to write programs in a simple-to-use flowchart style, generate executables, and create GUIs that can be used to test, diagnose, and analyze a device. The user interface can provide controls for the test environment, as well as capture and display the results.

With the Wind River OCD API integration with LabVIEW, manufacturing and test engineers can write their own test and diagnostic solutions for Wind River's JTAG tools, which in turn enables them to gain access to a target or device under test, write test routines, flash program a device, run diagnostics, and create customized test and analysis environments for their products.

Wind River OCD Instrument Driver

The Wind River OCD Instrument Driver enables developers to use National Instruments LabVIEW with Wind River ICE and Wind River Probe. The OCD Instrument Driver is the integration of the Wind River OCD API into the LabVIEW development environment.



The Wind River OCD API is now a LabVIEW instrument driver

Wind River OCD API

The Wind River OCD API is a C-level API that provides software developers, test engineers, and manufacturing engineers with a rich command set of calls for communicating between the host development environment and Wind River ICE or Wind River Probe. This enables them to take control of ICE or Probe, gaining access to and control over their device under test.

Wind River ICE and Wind River Probe are fully integrated with Wind River OCD API to allow fast and flexible integration of the powerful capabilities of these devices into the LabVIEW environment.

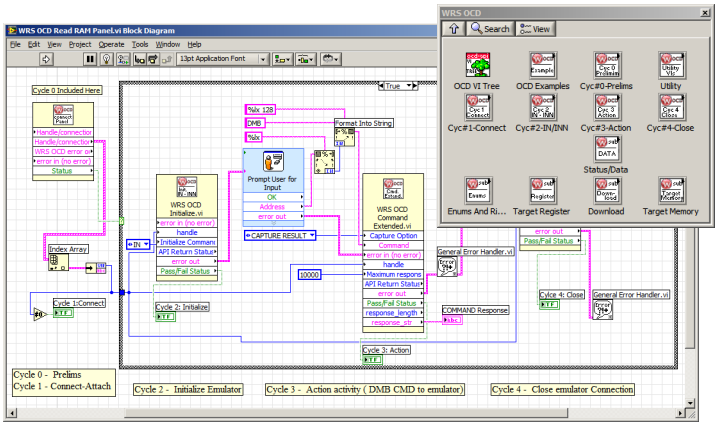
The Wind River OCD API includes:

- Broad host OS support: Windows, Linux, Solaris
- Broad processor support: ARM, ColdFire, MIPS, PowerPC, XScale
- Same command set for both Wind River ICE and Wind River Probe

Virtual Instruments

Wind River has grouped many of the individual commands required by the OCD API to complete an event or execute an instruction into LabVIEW-defined virtual instruments (VIs).

These VIs are provided to the end user as part of the Wind River OCD Instrument Driver, and they enable easier use of the Wind River OCD API and more efficient programming through LabVIEW. They also provide developers with the tools to accelerate and simplify writing target diagnostics, initialization code, and flash programming. This speeds up the manufacturing and test process, resulting in much faster time-to-market.

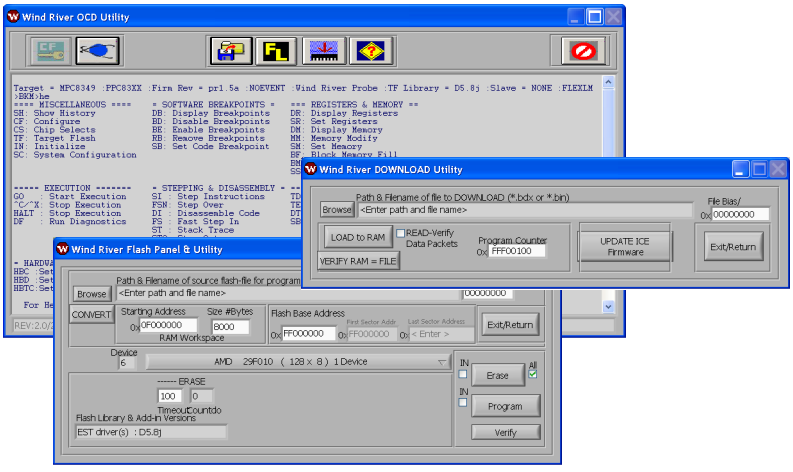


Wind River Virtual Instruments (VI) for LabVIEW is located in the LabVIEW VI tree and handles low-level details of the OCD API

Wind River OCD Utility

Wind River has created a product based on the integration of the Wind River OCD API and LabVIEW called Wind River OCD Utility. OCD Utility is a Windows-based GUI that provides easy access to the Wind River OCD API. OCD Utility, written in LabVIEW, provides developers with a GUI that supports a command line interface (CLI) view for easy command line access to the API. In addition to a CLI view, OCD Utility provides a target connection manager, upload/download capabilities, and a flash programming wizard.

With OCD Utility, Wind River also offers source code for example programs that provide some of the functionality of the OCD Utility product. This source code can be used by customers to create a customized or enhanced OCD Utility solution for their environment.



Wind River OCD Utility was written in LabVIEW and provides easy access to the OCD API

Industry-Leading JTAG Tools

Wind River ICE

- Networked-based emulator with 10/100 Mbps Ethernet interface
- Broad processor support: ARM, ColdFire, MIPS, PowerPC, XScale
- Scalable to include real-time trace and upgrades to Wind River Trace
- Provides leading download speeds and flexibility in the development environment; can be remotely located and accessed via internal IP network and/or the Internet
- Multicore: Enables developers to synchronously debug multiple devices at the same time
- Triggering: Supports trigger in and trigger out for controlling and monitoring external devices
- Integrated with the industry's leading development suite and debugging tools:
  - Wind River Workbench
  - visionCLICK
  - Wind River OCD Utility

Wind River Probe

- High-speed USB 2.0 interface: Download speeds up to 1.5MB/sec
- 100Mhz JTAG clock speed support
- Plug-and-play: No external power supply required
- Broad processor support: ARM, ColdFire, MIPS, PowerPC, XScale
- Integrated with the industry's leading development suite and debugging tools:
  - Wind River Workbench
  - visionCLICK
  - Wind River OCD Utility

WIND RIVER

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