

# Workbench On-Chip Debugging Fundamentals for VxWorks

Wind River Education Services enables you to unleash the power of Wind River's technology. Our training and mentoring empower developers with the knowledge and proficiency required to program and manage device software faster and more reliably. Reduce your project risks and shorten your development timelines by equipping your engineers with the right training by our experts.

### Course Description

The Workbench On-Chip Debugging Fundamentals for VxWorks course provides engineers with a fast, cost-effective way to acquire the knowledge necessary to debug applications with Wind River Workbench, utilizing on-chip debugging capabilities.

After this course, participants will be able to do the following:

- Use on-chip debugging views
- Debug bare metal applications
- Debug the VxWorks boot ROM and kernel
- Debug, build, and test custom flash drivers
- Use Wind River ICE, Wind River ICE 2, and Wind River Probe
- Locate root problems for common difficulties, including RAM access, flash programming, and debug mode failures

### Products Supported

- Wind River Workbench
- Wind River Workbench On-Chip Debugging
- Wind River ICE/ICE 2
- Wind River Probe
- VxWorks 6.7
- Earlier product releases available; topics may vary by product release

### Who Should Attend

- Developers who work with Workbench On-Chip Debugging
- New project members on teams using Wind River on-chip debugging products
- Senior engineers who want to evaluate Wind River on-chip debugging technology
- Firmware developers

<b>Course Title:</b>	Workbench On-Chip Debugging Fundamentals for VxWorks
<b>Duration:</b>	Two days
<b>Format:</b>	Instructor-led lectures and hands-on lab sessions
<b>Price:</b>	Contact your local sales representative

### Prerequisite Skills

- One year of C programming
- Basic understanding of hardware design
- Basic understanding of operating systems and debugging techniques
- Functional knowledge of VxWorks

### Prerequisite Courses

- Real-Time Programming for Embedded Systems

### Related Courses and Mentoring

- VxWorks 6.x and Workbench Fundamentals
- VxWorks 5 to 6.x Migration
- VxWorks 6.x Board Support Package
- VxWorks 6.6 to 6.7 Delta
- VxWorks MILS Platform 2.x Fundamentals
- Rapid Integration and Mentoring – Platform Integration OCD Bundle
- Rapid Integration and Mentoring – Installation & Orientation OCD Bundle

### Course Format

- This two-day instructor-led course consists of lectures and lab sessions.
- Participants receive personal guidance from expert Wind River instructors.
- Students use Wind River Workbench On-Chip Debugging, Wind River ICE/ICE 2, Wind River Probe, and VxWorks 6.7 to gain experience with topics presented.
- Lab sessions allow hands-on application of course concepts.

## Global Reach of Wind River Education Services

With more than 20 years of device software experience, we provide education services in every region of the world. You can rely on our expertise—acquired by delivering hundreds of classes each year to thousands of students—to provide a highly effective learning experience, wherever your developers are located.

## Private Classes

Private classes are conducted at your location, scheduled for your convenience. Private classes include the use of a preconfigured laboratory environment that may consist of a connection to a remote lab environment or equipment that we bring to your facility. Private classes can be tailored to your specific needs by adding or removing topics from multiple courses, maximizing the benefit of your time in class.

## Syllabus

### Day 1

#### Introduction

- Software Bug
- Embedded Debugging—A Challenge?
- Hardware and Software Connections
- Monitor/Agent
- In-Circuit Emulator
- Background Debug Mode
- Joint Test Action Group
- Wind River On-Chip Debugging Hardware
- Wind River On-Chip Debugging Hardware—Comparison

#### Wind River Probe Overview and Setup

- Overview
- Adapter Module
- Connecting Wind River Probe
- Creating a Connection
- License Key

#### Wind River ICE Overview and Setup

- Overview
- Personality Module
- Connecting Wind River ICE
- Networking Setup
- Telnet/FTP Setup
- Creating a Connection
- Firmware Update
- License Key

#### Wind River ICE 2 Overview and Setup

- Overview
- Personality Module
- Connecting Wind River ICE 2
- Networking Setup

- Telnet/FTP Setup
- Creating a Connection
- Firmware Update
- License Key

#### Workbench On-Chip Debugging Views

- On-Chip Debugging Perspective
- On-Chip Debugging Views
- Run Control

#### In-Depth Debugging

- CF Options
- Register File
- Flash Driver
- Flash Programming

#### Board Bring-Up Lab

#### Troubleshooting

- Introduction
- Board Initialization
- Flash Programming

### Day 2

#### Custom Flash Driver

- Flash Driver by On-Chip Debugging Command Shell
- Flash Driver
- Custom Flash Driver Template
- Custom Flash Driver Setup

#### Standalone-RAM-Debugging Lab

#### U-Boot Debugging Lab

#### VxWorks Boot ROM Debugging Lab

#### VxWorks Kernel Debugging Lab

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