

Workbench On-Chip Debugging Fundamentals for Linux

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 Linux 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:

- Debug U-Boot and VxWorks boot ROM
- Debug the Wind River Linux boot loader, kernel, kernel module, and user mode applications
- Debug, build, and test custom flash drivers
- Use on-chip debugging views
- Debug applications in OS and non-OS context
- 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 On-Chip Debugging
- Wind River ICE/ICE 2
- Wind River Probe
- Wind River Linux 2.0.2

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

Course Title:	Workbench On-Chip Debugging Fundamentals for Linux
Duration:	Two days
Format:	Instructor-led lectures and hands-on lab sessions
Price:	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 UNIX /Linux

Prerequisite Courses

- Real-Time Programming for Embedded Systems
- Introduction to Linux

Related Courses and Mentoring

- Wind River Linux and Workbench Fundamentals
- Wind River Linux Board Support Package
- Wind River Linux 3.0 for Intermediate Platform Developers
- Wind River Linux 2.0 to 3.0 Delta
- 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 Wind River Linux 2.0.2 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 and Wind River ICE 2 Overview and Setup

- Overview
- Personality Module
- Connecting Wind River ICE
- 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

Linux Kernel Debugging Lab

Linux User-Mode Debugging Lab

Linux Kernel Module Debugging Lab

Custom Flash Driver Lab

Wind River World Headquarters

500 Wind River Way
Alameda, CA 94501
USA
Toll-Free: 800-545-9463
Tel.: 510-748-4100
Fax: 510-749-2454
training@windriver.com

Wind River EMEA

Osterfeldstrasse 84
85737 Ismaning
Germany
Tel.: +49 89 962 445 0
Fax: +49 89 962 445 999
emea-training@windriver.com