

Wind River Customer Education Services

COURSE DESCRIPTION

General Purpose Platform 3.0, VxWorks Edition

Wind River Customer Education Services allow clients to unleash the power of Wind River's tools by creating developers skilled in Wind River technology. For developers, Wind River Customer Education Services provide the knowledge you need to meet your commitments, exceed your company's expectations, and excel at developing solutions. With Wind River Customer Education Services, you will develop and run your application software faster, better, at lower cost, and more reliably.

Course Description

The General Purpose Platform, VxWorks Edition 3.0 provides engineers with a fast, cost-effective way to acquire the knowledge necessary to develop real-time applications with Workbench.

After this workshop, students will be able to:

- Take a requirement specification to a working application
- Design, develop, debug, build and test real-time applications with VxWorks
- Efficiently use the tools and functionality of VxWorks

Who Should Attend

- Everyone who will receive Wind River products within 60 days
- Developers who work with Workbench and VxWorks
- New project members on teams already using Wind River products
- Senior engineers who want to evaluate VxWorks technology

Prerequisite Skills

- One year C programming
- Basic understanding of operating systems and debugging techniques
- Functional knowledge of UNIX or Windows NT

Prerequisite Courses

- Real-Time Programming for Embedded Systems

Course Title	General Purpose Platform 3.0, VxWorks Edition
Duration	4 days
Format	Instructor-led lectures and hands-on lab sessions
Price	Contact your local sales representative

Related Courses

- General Purpose Platform BSP and Device Drivers Workshop

Global Reach of Wind River Customer Education Services

- 3,000 students per year
- 320 classes delivered per year
- 34 instructors worldwide
- Access to 250 subject matter experts
- 22 training centers worldwide
- 20+ years device software experience

On-site courses are conducted at your location and include the use of preconfigured laptops and target boards, plus shipping and travel costs. Visit windriver.com/training for registration and schedule information.

Topics

- GPP Component Overview
- Setting Up Cross-Development Environment
- Application Development Perspective Usage
- Real-Time Processes Programming Model Usage
- Managing Projects
- Building Applications
- Using Host Shell Interpreters for Interacting with the Target
- Multitasking Environment Overview
- Task API Usage
- Error Reporting
- Synchronization Solutions
- Protecting Shared Resources
- Intertask Communication
- Inter-Process Communication Using Message Channels
- Memory Management
- Debugging Applications Using Embedded Debug Perspective
- Using System Viewer for Analyzing Applications
- Exception Handling
- Interrupts
- Timers for Periodic Code Execution

Agenda

Day 1

Preface

- Prerequisites
- Objectives
- Table of Contents

Getting Started

- GPP Components Overview
- Available Tools
- GPP Feature Overview
- Directory Structure
- Help Resources
- Setting up the Host Environment
- Booting a Target
- Connecting Host and Target
- VxWorks Simulator

Real-Time Processes (RTPs)

- RTP Overview
- RTP File Generation
- Starting an Application
- Shared Data Usage
- Shared Library Usage

Projects

- Project Navigator Overview
- Building Bootable Projects
- Building and Downloading Kernel Modules and RTP
- Build Specifications

Day 2

Interacting with the Target

- Host Shell
- Kernel Shell

Real-Time Multitasking

- Multitasking Environment Overview
- Task Creation and Deletion
- Other Task APIs (e.g., taskDelay(), task variables, task hooks, etc.)
- Error Reporting API and Error Reporting Framework
- Non-Executable Stack Pages
- NULL Pointer Dereference Detection
- Text Segment Write Protection
- System Tasks

VxWorks Events

- Event Register
- Task Synchronization

Day 3

Semaphores

- Binary Semaphores and Synchronization
- Mutual Exclusion Semaphores

Intertask Coordinating

- Shared Memory
- Message Queues
- Pipes
- Message Channels

Day 4

Memory

- Memory Allocation
- Memory Partitions

Debugging and Analyzing

- Debugger
- Feature Overview
- Configuration
- GUI and Usage Overview (e.g., setting breakpoints, etc.)
- Discussion on Kernel-Space Debugging
- Application-Space Debugging
- System Viewer
- Configuring System Viewer
- System Viewer Log Explanation
- Triggering
- User Events

Exceptions, Interrupts, Timers

- Exceptions
- Using Signals to Recover from Hardware Exceptions/FATAL Errors
- Interrupts
- Interrupt Flow Example
- ISR Stack, ISR Restrictions
- Timers
- System
- Watchdog Interface and Polling
- Aux. Clock for Polling at Higher Speed

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