Unison Mixed Signal Applications

Flexible, Cost Optimized Test Solutions

Automotive

Mobility

IoT/IoV & Optoelectronics

Computing & Network

Industrial & Medical

Consumer

Course Description

This Unison Mixed Signal Applications training course introduces students to the Unison software development and system operating environment. This is achieved through a combination of lectures, lab exercises, and online learning materials. After completing this class, students will be able to develop and debug digital test programs for IC's using the Diamond Series test systems and Unison software. Students must complete the online pre-course before attending the class. Login information for the online materials will be sent via e-mail after student registration is completed.

Course Outline

- Overview
- Hardware Overview
- Waveform Generators
- Waveform Measurement
- Appendices

Course Structure

- 2.5 days, including classroom and practical exercises

Prerequisites

- Six months test program experience
- Successful completion of online pre-course
- Unison Digital Applications course

Recommended

- C or C++ programming experience
- Familiarity with Unix and Linux operating systems
- English - written and spoken

Who Should Attend

- Test program development engineers
- Test program support engineers

Related Courses

- Unison Digital Applications
- Diamond$_X$ Maintenance

- **Next-gen test system for a wide range of applications**
- **Scalable high-throughput architecture**
- **Flexible configurations and solutions**
- **Small form factor**
- **Air cooled architecture and instruments**
- **Compact low power technology**

Unison Mixed Signal Applications

Course Modules

1 - Overview

The first sections of this course familiarize the student with the common safety procedures and symbols used to identify hazards.

- Introduction
- Personal Safety and Equipment Protection

2 - Hardware Overview

The student will learn the general specifications of the various instruments installed in the test system. These instruments can and will be used to generate the stimulus used in mixed signals testing.

- MultiWave
- SWG
- DIG-HSB
- DigHB
- HDVI
- $PMVI_x$
- VIS16
- DPIN96
- $GX1_x$

3 - Waveform Generators

The Unison operating system uses multiple waveform generation instruments on different products to conduct mixed signal testing. The student will learn which instruments are available on the Diamond Series test systems and their capabilities. Featured instrumentation includes:

- HDVI, VIS16, and Multiwave
- Generating waveform data
- Loading data into instrument's memory
- Sourcing data from instrument's memory

4 - Waveform Measurement

The student will be able to identify the measurement instruments supported by Unison on the Diamond Series test systems. The student will modify and create programs to execute measurements on the available instruments. Featured instrumentation includes:

- HDVI, VIS16, PMVIx, and Multiwave DIG
- Capturing waveforms
- Storing measured data into instrument's memory
- Using the Data Plotter, Analog Waveform Tool, and work spaces
- Analyzing captured data

Appendices

Appendix A - DSP Basics

This provides the student with foundation knowledge of Digital Signal Processing principles used in mixed signal testing.

- DSP Relationships
- Static Tests
- Dynamic Tests
- DAC Testing with Digitizers
- Commonly used formulas
- Sampling theorem
- Spectral leakage and aliasing

Appendix B – DIG-HSB Digitizer

- Specifications
- Hardware overview

Appendix C – SWG Sequenced Waveform Generator

- SWG Specifications
- Hardware overview

Appendix D – API Block Diagrams

- MultiWave specific API statements
- VIS16 waveform generator specific APIs
- HDVI specific API statements

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