Course Description
This 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 and DiamondX test systems and Unison software (VLSI use model).

Students must complete the online pre-course before attending the class. Login information for the online materials will be emailed after registration.

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

Overview
- Introduction
- Personal Safety and Equipment Protection

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
- HDVI
- VIS16
- DPIN96

DSP Send
The student will be able to use the digital subsystem to source a digital representation of a sinusoidal signal. The student will learn various ways of generating sinusoidal signals and converting them to binary format to be executed in a test.

- DSP Send memory hardware implementation

Waveform Generation including:
  - Using Built-In Functions
  - Using Unison Expressions

- Reading data from external files to be used in tests
- Executing DSP Send runtime code and patterns

Applicable Testers
- Diamond and DiamondX

Course Length
- 3 days

Prerequisites
- 6 months test experience
- Successful completion of pre-course
- Unison Digital Testing course

Recommended
- C or C++ programming
- Familiarity with Unix or Linux operating system
- English - written and spoken
**Unison Mixed Signal (VLSI) Testing**

Diamond Series Training Course Syllabus

---

**DSP Capture**
Setting up the digital subsystem to receive data from the DUT (e.g. ADC) and performing signal analysis.
- DSP Capture hardware implementation
- Capture memory management
- Executing Capture runtime code and patterns
- Using Built-In Functions for data conversion
- Use of Expressions
- Writing data to external files to be used in test

**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 AWG
- Generating waveform data
- Loading data into instrument memory
- Sourcing data from instrument’s memory

**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.
- Capturing waveforms
- Storing measured data into instrument memory
- Using the DataPlotter, AnalogWaveformTool, and workspaces
- Analyzing captured data

**Appendices**
Appendix A - DSP Basics
This provides the student will foundation knowledge of Digital Signal Processing principles used in mixed signal testing.
- DSP Relationships

---

**Related Classes**
- Unison Digital Testing - Course #1000

---