UTL Advanced Programming Concepts

Unison eLearning Overview
Course # 2800e

Automotive

Mobility

IoT/IoV & Optoelectronics

Computing & Network

Course Description

The eLearning material introduces the student to various advanced topics related to the Unison Test Language (UTL). The eLearning will enable an engineer to understand and use more complex UTL features in the development and execution of a test program on Diamond 10, Diamondx, and X-Series test systems. Use of these features can improve program performance, coding readability and ease of support. On completion of the eLearning, the student will be able to describe the differences and unique contributions between C++ and UTL, understand and use key UTL features, be able to recognize program efficient indexing/iterations techniques, state how LimitStructs can enhance program binning, datalogging and support of ILQA and recognize methods for compiling Unison test programs. This is accomplished by a combination of multimedia presentations and interactive software demonstrations.

Course Outline

- C++ and UTL
- UTL Features
- UTL Indexing / Iterations
- UTL LimitStructs
- UTL Compiling

Industrial & Medical

Course Length
- Self-paced – 3-4 hours typical depending on skill level

Prerequisites
- Three months test program experience
- Successful completion of Introduction to Unison, or Unison Pre-Course

Recommended
- C or C++ programming
- Familiarity with Linux Operating System
- English - written and spoken

Consumer

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

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Course Modules

1 - C++ and UTL

This module provides a high level comparison between standard C++ and the Unison Test Language (UTL) and the numerous advantages UTL provides the code writer. On completion of this module the student will be able to.

- List the unique features of UTL
- Identify key differences between C++ and UTL
- Identify C subset features of C++ supported in UTL
- Describe Smart Copy feature of UTL
- Describe role / uses of Global Structured Variables
- Summarize advantages of using an Application Library
- Identify the use of type casting
- Identify how to call a C++ function from UTL

2 - UTL Features

Using a series of seven individual lessons, this module exposes the student to advanced Structured Variable topics such as Enums, Units, Pin Types, Arrays, Strings and more. On completion of this module the student will be able to:

- Describe the use and declaration of Enums
- Identify role of Units and how to use them
- Describe and use the Pin type variable
- State the use of the Lists and Array Of types
- Demonstrate a working knowledge of String type
- Identify the UTL printing methods

3 - UTL Indexing / Iterations

Under many circumstances Unison can perform operations on multisite variables and arrays without the need for site iteration loops. However, there are situation where looping through the active sites may be required to perform a test or some other hardware activity on one site at a time. This module explores when and how this can be accomplished using UTL indexing and the Iterator Class.

On completion of this module the student will be able to:

- Classify various indexing and iterator techniques available in UTL
- Describe and use site iteration methods
- Describe indexing through multidimensional arrays
- Recognize site / pin indexing methods and their uses

4 - UTL LimitStructs

Similar to an aggregate type, the UTL LimitStruct can be thought of as a container for the definitions of a test including its test number, upper and lower limits, units, test text and more. Use of LimitStructs also enables additional test system capabilities including In-line QA (ILQA) and execution optimization techniques such as test skipping and sampling. On completion of this module the student will be able to:

- Describe the advantages of using LimitStructs
- Recognize the benefits of using a Limits Table vs. storing test program limits internal to program
- Describe how to data log using a LimitStruct
- Demonstrate a working knowledge of Limit Table Editor
- Summarize the fixed and optional fields of a LimitStruct

5 - UTL Compiling

The Unison Test Language is based on C++ and as such requires compiling for code change to take effect. There are various ways to compile a UTL test program. On completion of this module the student will be able to:

- Identify the various methods for compiling UTL code
- Describe the common compile errors due to out-of-date Application Libraries and how to resolve them
- Demonstrate a working knowledge of Method Compiler script
- Demonstrate a working knowledge of compiling using the Test Tool
- Describe the Operator Tool Auto Compile feature

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At the end of each module the student will be required to pass a test, achieving a score of 75% or more. The student is encouraged to take notes throughout the course, and repeat, or pause the presentation as needed.

Related Classes

- Unison Applications Programming
- Unison PAx-AC Applications #0524

Course Viewing Requirements

To view the course, you must have:

- Browser supporting HTML5
- Audio-listening capabilities (such as a headset or speakers)
- Connection speed of at least 600 kbps

Course Cost

- Free of charge for all Cohu Semiconductor Tester Customers

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