Syllabus

Course Title: PCI Express Bus Architecture and Analysis

Date: Determined by Customer

Time: 6 Hours

Location: Customer Facility

Instructor:

Paul Schur, President of Silicon Control Inc., has been developing computer hardware and software for the past 35 years. He graduated from the University of Illinois at Urbana with a Bachelors of Electrical Engineering degree in 1977. After graduation Paul worked at Northrop Defense Systems designing electronic countermeasures for the F-15, B-1 and other Air Force and Navy aircraft. In 1982 he joined Teradyne Telecommunications developing test equipment for telecommunication switching systems. After 7 years Paul left Teradyne to start Silicon Control designing and manufacturing computer diagnostic test equipment. Over the last 20 years at Silicon Control, Paul has developed advanced analysis tools for many different types of computer bus architectures. These tools include bus analyzers and testers for Multibus, VME, VXI, SCSI, PCI and PCI Express. In addition to product design at Silicon Control, Paul teaches classes in bus architecture and analysis.

Goals:

To obtain an in depth understanding of the PCI Express Bus Specification and the operation of the PCIE850 Bus Analyzer.

Course Description:

This 2 day course presents a comprehensive examination of all aspects of the PCI Express Bus specification and the capabilities and use of analysis tools. The following topics are covered:

1. Architectural Overview
    a. Topology
    b. Devices
    c. Device Layers
    d. Switches
    e. Packets
    f. Specification
    g. Definitions

2. Transaction Protocol
    a. Address Spaces
    b. Routing
    c. Protocols
    d. Quality of Service
    e. Arbitration
    f. Flow Control
    g. Ordering
    h. Interrupts
    i. Error Detection
3. Physical Layer
    a. Electrical Layer
    b. Logical Layer
    c. Link Initialization
    d. Link Reset
4. Power Management
    a. Power States
    b. Entering and Exiting States
5. Miscellaneous Topics
6. Mechanical
    a. Form Factors
    b. PCI Card
    c. AMC
    d. XMC
    e. VXS
    f. VPX
7. Analysis
    a. Analyzer Overview
    b. Analyzer Operation
    c. Applications