

# In-Depth Exploration of SCSI



In this seminar students acquire a significant working knowledge of the SCSI architecture and protocol by participating in instructor-lead demonstrations and discussions. Geared to all levels of user experience, the seminar begins with the most basic concepts of SCSI operations and theory, and ends with the most advanced aspects of the interface.

You will learn how to interpret timing charts on the second and third day of the course, and see practical examples of SCSI BUS operation as you help build and issue commands to a SCSI device.

Every student who attends the seminar will receive a specially designed (and published) Reference Manual. This manual details the SCSI protocol & signalling to bit level and will prove an invaluable resource for years to come.

## **Introduction**

History and Current Status of SCSI  
What is SCSI and Why SCSI

## **Configurations**

SCSI-2 Objectives and Differences Between  
SCSI-1 and SCSI-2  
SCSI System Architecture

## **Physical Characteristics**

Host Adapters and Peripheral Controllers  
Bus Configurations SCSI-1/2/3  
Bus Signals, Values and Sources  
Cable Alternatives, Terminator Power and  
Connector Types  
Logical Characteristics

## **Phases and Phase Sequences**

Connect, Disconnect, and Reconnect  
Arbitration, Selection, Reselection,  
Timeout Procedures & Timing Diagrams  
Information Transfer Phases  
REQ/ACK Handshake of Information  
(Synchronous and Asynchronous)  
Fast/Wide/Ultra/LVD SCSI

## **Message System and Status**

All Message Codes, Formats, Descriptions  
and Rules  
Status Format and Codes

## **Commands**

Command Formats for All Devices  
Command Examples: Direct Access  
Devices, Sequential Access Devices  
Examples of How to Issue and Interpret Commands

## **BUS/Device States and Other SCSI Topics**

SCSI Pointers  
Error Recovery Procedures  
Multi-threading Operations  
Command Control Block  
Attention, Reset, and Unit Attention  
Contingent Allegiance Condition (also  
Extended CAC)  
Linked Commands  
Queued Commands  
SCSI Testing Objectives  
How to Use SCSI Standards  
Advanced SCSI-3  
FAST 80 = ULTRA3 = ULTRA160 (SPI-3)  
FAST 160 = ULTRA320 (SPI-4) Some Topics  
Quick Arbitration  
Information Units  
Data Group transfers

**Who Should Attend:** This In-Depth course is designed for hardware, firmware, software, test and any other engineer requiring an in-depth understanding of SCSI. It is also valuable for those who are responsible for qualifying and supporting any SCSI peripheral or computer that has an SCSI interface. This course provides a thorough understanding of the SCSI communications being carried by the advanced protocol movers like "Fibre Channel" and "iSCSI" and is recommended as a complementary course of instruction to both of these advanced communications mechanisms.

**Prerequisites:** An understanding of current computer interfaces or networks is useful, but not essential.

**Course Length:** 3 Days