Course Number 98616B+ 24Y Dedicated

Programming Instrumentation with HP BASIC

Overview

Use HP BASIC to control operation of IEEE-488 instrumentation

Course Overview
Learn to write programs to control instrumentation, strategies to minimize program execution, and how to develop interrupt driven programs. Use the IEE-488.2 communication standard and the Standard Commands for Programming Instrumentation (SCPI) to control test equipment.

What You Will Learn
- Write HP BASIC programs to control instrumentation
- Develop interrupt driven programs
- Strategies to minimize program execution
- Understand and gain experience using the IEE-488.2 communications standard
- Understand and use the Standard Commands for Programming Instrumentation (SCPI) to control test equipment

Specifications
Course Type
User/Application training

Audience
People responsible for developing programs that perform automated test or measurement/control tasks

Prerequisites
Programming with HP BASIC (98616B+24C) or equivalent experience.

Course Length
5 days

Course Format
Course content is 40% lecture and 60% lab. This lab intensive course provides hands-on experience using and applying course concepts to program instrumentation.

Delivery Method
Dedicated (at customer site)
To save you time and travel, many Agilent courses can be delivered at your site. Agilent can provide required equipment, or save money by furnishing your own.

Detailed Course Agenda
Interface Basics
- Computer Interfaces
- Interface Communication
- Keyboard Interface
  - Keyboard Interrupts
- Display Interface

GPIB/IEE488.1
- Interface Capabilities
- Addressing
- Interface Bus Details
  - Bus Protocol

IEEE 488.2
- Introduction
- Data Formats
- Listening Formats/Syntax
- Talking Formats/Syntax
- Common Commands
- Common Queries

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Optimizing Bus Performance
- GPIB Commands
- Service Request
- Explicit Bus Messages
- Bits Over the Bus

Data Representation
- Integers
- Real Numbers
- Attributes
- Free Field Formats
- Separators
- Terminators
- Formatting Output Data
- Entering Data
  - The Number-Builder
  - Entering String Data

Interrupts
- Overview of Event Initiated Branching
- Interrupt Priorities
- Interface Timeouts

Interface Registers and I/O Paths
- Status/Control
- READIO/WRITEIO

I/O Path Registers
- Advanced Transfer Techniques
- Outbound Transfer
- Inbound Transfer
- Buffers

Other Interfaces
- RS-232C
- GP-IO

Standard Commands for Programmable Instruments (SCPI/TMSL)
- Introduction
- General Architecture
- High Level Commands
- Low Level Commands
- Data Types
- Programming Typical SCPI Measurements
  - Source Instrument
  - Sense Instrument
  - Switch Instrument
- Status System
- General Status Register Model
  - Condition Register
  - Transition Filter
  - Event Register
  - Enable Register
- Trigger System
  - Generalized Trigger Model
  - Idle State
  - Initiate State
  - Event Detection
  - Sequence Operation
  - Instrument Actions

Rocky Mountain Basic Keyword Summary

For the latest information on class schedules and locations, visit our website: www.agilent.com/find/tmeducation

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