IC3 - PCI-X 2.0

This course covers the PCI-X bus version 2.0

Objectives

- The course explains the architecture of PCI-X based systems.
- The reset sequence used to select the mode (PCI or PCI-X) and the frequency is detailed.
- The course explains split transactions.
- Transfer protocol is described in details with the assistance of the Lecroy analyser.

A more detailed course description is available on request at formation@ac6-formation.com

Prerequisites

- Knowledge of PCI 3.0: see our course reference IC1 - PCI 3.0course

Course Environment

- Theoretical course
  - PDF course material (in English) supplemented by a printed version for face-to-face courses.
  - Online courses are dispensed using the Teams video-conferencing system.
  - The trainer answers trainees' questions during the training and provide technical and pedagogical assistance.
- At the start of each session the trainer will interact with the trainees to ensure the course fits their expectations and correct if needed

Target Audience

- Any embedded systems engineer or technician with the above prerequisites.

Course Outline

INTRODUCTION TO PCI-X

- PCI restrictions : data rate is not sufficient for Fibre Channel, Ultra SCSI or Gigabit Ethernet applications
- PCI-X technology overview
- Segments and switched fabric
- Relationship between the number of slots and the operation frequency

ELECTRICAL SPECIFICATION

- Register / register approach, effect on the performance
- Current / voltage curves
- Decoupling rules

PCI-X DEVICE HARDWARE CONFIGURATION AT RESET

- PCIXCOMP pin utility
- Behavior of a PCI-X motherboard when a PCI board is present
- Behavior of a PCI-X expansion board when it is plugged in a PCI motherboard

TRANSFER PROTOCOL

- New commands
- Alignment rules
- PCI MEM space address decoding
- Attribute phase
- Split transactions
- Sequence numbering
- Data cachability indication
- Exclusive access
- Arbitration, bus parking

CONFIGURATION REGISTERS

- Capability list PCI-X structure
- New registers description
- Bus error management