I0 - New digital buses

This 1-day seminar aims to describe and compare new digital interconnect standards

Objectives

- Packet switching benefits compared to shared busses are highlighted.
- The course details the operation of new busses and the consequences on system architecture.
- This workshop has been designed for project managers who intend to understand the operation of new buses without fully describing their protocol.
- Many references to exerciser providers and component manufacturers are done in order to explain not only the features of new buses but also their ecosystem.
- Ac6-training offers trainings covering in depth buses such as PCI-X, PCI-Express, RapidIO, IEEE1394a/b, USB2.0, HyperTransport, VME VXS.

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

Prerequisites

- Experience of a digital bus like PCI or VME is recommanded.

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

TRANSITIONNING FROM SHARED BUSES TO POINT-TO-POINT BUSES

- Limitations of the PCI
- Parallel vs serial transfers
- Differential mode
- Packet switching
- Convergence to a common physical layer

ENHANCEMENTS OF EXISTING BUSES

- Intel Hub Link solution
- PCI-X
- VME Renaissance : 2eVME + 2eSST

NEW COMPONENT INTERCONNECT BUSES

- Hypertransport
- Parallel RapidIO
- PCI Express

NEW CALCULATORS INTERCONNECT BUSES

- Infiniband
- Gigabit Ethernet
- Serial RapidIO

NEW BUSES ENABLING CONNECTION TO REMOTE PERIPHERALS

- S-ATA
- IEEE1394b
- USB2.0, USB3.0
- Serial FPDP

Summary

- Detailed comparison between Gigabit Ethernet, Serial RapidIO and PCI Express
- Various criterions are studied in order to clearly indicate the benefits and the disadvantages of these high speed interconnects