XILINX®

XPERTS XILINX Program for Engineering Resources from Third Parties

PLC2 PROGRAMMABLE LOGIC COMPETENCE CENTER

Workshop
Advanced Embedded Systems Design

Advanced Features and Techniques of Embedded Systems Design provides embedded systems developers the necessary training to develop complex embedded systems and enables them to improve their designs by using the tools available in the Embedded Development Kit (EDK). This course also helps developers understand and utilize advanced components of embedded systems design for architecting a complex system.

This course builds on the skills gained in the Embedded Systems Design course. Labs provide hands-on experience with the development, verification, debugging, and simulation of an embedded system. Labs provide hands-on experience with the development, verification, debugging, and simulation of an embedded system.

Applicable technologies

XILINX FPGAs

Requirements

Basic knowledge of embedded systems

Some HDL experience

Duration and Cost

Duration: 3 days

Cost: € 1.900, – net per person, including detailed training material, drinks in the breaks and lunch.

Agenda

Review EDK
- Review Features and Toolflow
- Multi Processors Projects

Processor Details
- PPC Crossbar Configurations
- DMA Support
- Advanced AXI Concepts
- Advanced Processor and Peripheral Interface Options

Memory Controllers
- IP Cores of Memory Controllers
- Configuration of DDR2/DDR3 Memory Controller
- File Systems: SysACE, MFS

Interrupt Systems
- MicroBlaze and PowerPC Interrupts
- Interrupt Controllers
- Handlers and Initialization

Co-Debugging of Hardware and Software
- Synchronizing Debugger and Chipscope

User Peripherals
- Creating Co-processors (APU, FSL)
- Moving Software to Hardware

Profiling
- Analyzing Software Performance

Simulation
- System HDL Simulation

Board Support Packages
- Third Party OS

Bootloader Initialization
- Applications for External Memory
- Flash Programming

Demo boards which will be used for the labs: Spartan-6 FPGA SP605, Virtex-5 FPGA ML507, or Virtex-6 FPGA ML605 board

Labs
- Building a Complete Embedded System
- SDK Debugging Using ChipScope Pro Analyzer
- Integrating a DDR2/DDR3 memory controller
- Measuring AXI DMA Performance
- Boot Loading from external Memory
- Simulating an Embedded Processor System