

System Integration with Qsys Workshop

El Camino
Training - Engineering - Consultancy



Course Description

This class will teach you how to quickly build designs for Altera FPGAs using Altera's Qsys system-level integration tool. You will become proficient with Qsys and will expand your knowledge of the Quartus II FPGA design software. You will learn how to build hierarchical systems quickly by integrating IP and custom logic and also how to optimize designs for performance. Since Qsys makes design reuse easy through standard interfaces, we will dive deep into the Avalon-Memory Mapped and Streaming Interfaces. The class provides a significant hands-on component, where you will gain deep exposure to tool usage as well as system and custom HDL component design.

Skills Developed

- Utilize key features of Qsys, understand the files & how they fit into the Quartus II project hierarchy
- Build electronic systems with Qsys
- Exploit Qsys' hierarchical capability to add flexibility & scalability to your design
- Test systems using ModelSim
- Create custom components with Avalon-MM or Avalon-ST interfaces
- Test custom components with Avalon Verification Suite or BFM
- Perform in-system diagnosis & control via System Console
- Integrate CPU subsystems into a project

Skills Required

- Background in digital logic design
- Working knowledge of the Quartus II design software
- Knowledge of HDL coding methodology (helpful but not mandatory)

Course Length	2 days	
Language	Presentation in German or English Slides and documentation in English	
Platform	PC Windows XP / Windows 7	
Pricing	Public In-House	1050,- EUR/attendee On Request
Dates	See schedule at http://www.elcamino.de	

Exercises

- Introduction to Qsys
- Implement a PCI Express endpoint using Qsys in a Cyclone IV GX device
- Build a Data Path Hardware System in Qsys that Incorporates Custom Logic
- Add a Control Plane to the Design and Test the System
- Testing Custom Components with BFM
- Testing the System with BFM
- Testing the System with System Console
- Qsys Hierarchy
 - Expand system to support four parallel video processing channels
 - Run the four-channel system under Nios II software control

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