PCI Express Virtualization with Xilinx Devices

Course Description
By attending this course students acquire working knowledge of how to use virtualization with Xilinx PCI Express® designs. This course offers students hands-on experience with virtualization using a Xilinx PCI Express system within a customer education reference design. With this experience, users can improve their time to market with PCIe virtualization. This course focuses on both, virtualization specification and realization.

Course Duration
• 2 sessions online (VILT)

Who Should Attend?
• Hardware designers who want to learn how to use virtualization in PCI Express

Prerequisites
• Participation in the PCI Express Protocol course or equivalent PCIe knowledge
• Participation in the Designing an Integrated PCI Express Gen3 System course or equivalent design experience
• Knowledge of VHDL or Verilog
• Experience with Xilinx implementation tools
• Moderate digital design experience

Software Tools
• Vivado Design or System Edition (latest major release)

Hardware
• Architecture: UltraScale Series FPGAs/MPSoCs
• Demo board: Kintex®-UltraScale FPGA KCU105 board

Skills Gained
After completing this comprehensive training, you will have the necessary skills to:
• Describe PCIe virtualization options
• Describe Single Root I/O Virtualization (SR-IOV)
• Identify PCIe virtualization capabilities in the configuration space
• Design a PCIe system with virtualization
• Practicing virtualization features in simulation
• Practicing virtualization features on real hardware

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Course Outline

Session 1

• Course Introduction
• PCIe Virtualization Overview
• SR-IOV Overview
• SR-IOV Initialization and Configuration
• Xilinx PCIe Virtualization Solutions

Session 2

• PCIe Virtualization Design Example
• Lab1: Configuring a PCIe Virtualization Design
• PCIe Virtualization Design Practice
• Lab2: Evaluating PCIe Virtualization by Simulation
• Debugging SR-IOV systems
• Lab3: PCIe Virtualization Design Verification on Real Hardware
• Course Summary

Lab Descriptions

Lab 1: Configuring a PCIe Virtualization Design - This lab illustrates how to configure virtualization for the PCIe IP.

Lab 2: Evaluating PCIe Virtualization by Simulation - This lab illustrates how virtualization settings can be verified in simulation.

Lab 3: PCIe Virtualization Design Verification on Real Hardware - This lab illustrates the practical usage of PCIe virtualization running on real hardware.

Register at https://www.xprosys.net/course-registration/

Additional E-Learning courses available online at https://www.xprosys.net/services/vilt/