Course Description

This course will help software engineers fully utilize the components available in the Zynq™ EPP processing system (PS). This course covers advanced Zynq EPP topics for the software engineer, including advanced boot methodology, the NEON co-processor, programming PS system-level function control registers, the general interrupt controller, the DMA, Ethernet, and USB controllers, and the various low-speed peripherals included in the Zynq processing system.

Level – Embedded Software 4

Course Duration – 1 day

Price – $1600 or 16 Training Credits

Course Part Number – EMBD34000-14-ILT

Who Should Attend? Software design engineers interested in fully utilizing the Zynq extensible processing platform

Prerequisites

- *Embedded Systems Software Design* or equivalent knowledge
- C or C++ programming experience
- Conceptual understanding of embedded processing systems, including device drivers, interrupt routines, Xilinx Standalone library services, user applications, and boot loader operation
- Experience developing software for embedded processor applications

Software Tools

- Xilinx ISE® Design Suite: Embedded or System Edition 14.1

Hardware

- Architecture: Zynq-7000 EPP*
- Demo board: Zynq-7000 ZC702 demo board*

* This course focuses on the Zynq-7000 EPP. Check with Hardent for the specifics of the in-class lab board or other customizations.

After completing this comprehensive training, you will have the necessary skills to:

- Implement an effective Zynq EPP boot design methodology
- Create an appropriate FSBL image for flash
- Identify advanced Cortex™-A9 processor services for fully utilizing the capabilities of the Zynq EPP
- Analyze the operation and capabilities of the DMA controller in the Zynq EPP
- Examine the various Standalone library services and performance capabilities of the Ethernet and USB controllers in the Zynq EPP
- Describe the Standalone library services available for low-speed peripherals that are contained in the Zynq EPP PS

Course Outline

- Advanced Boot Methodology on the Zynq EPP
- Zynq EPP Boot Details
- **Lab 1:** Zynq EPP Boot Memory
- Advanced Cortex-A9 Processor Services
- Advanced DMA Controller Configuration on the Zynq EPP
- **Lab 2:** Configuring DMA on the Zynq EPP
- High-Speed Peripheral Configuration on the Zynq EPP
- Low-Speed Peripherals on the Zynq EPP
- **Lab 3:** Peripheral Programming on the Zynq EPP

Lab Descriptions

- **Lab 1:** Zynq Boot Memory Lab – Explore the principles of creating a bootable flash image based on a First Stage Bootloader (FSBL) project.
- **Lab 2:** Configuring DMA on the Zynq EPP – Program the DMA controller on the Zynq EPP PS and explore the various Standalone library services that support the Zynq EPP PS DMA controller.
- **Lab 3:** Peripheral Programming on the Zynq EPP – Program the Gigabit Ethernet controller on the Zynq EPP and verify in hardware. Explore the various lwip Standalone library services that support the Zynq EPP Gigabit Ethernet controller.

Register Today

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Course Specification

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