Zynq UltraScale+ MPSoC for the System Architect

Embedded System Architect 3

EMBD-ZUPSA (v1.0)

Course Specification

Course Description

This course provides system architects with an overview of the capabilities and support for the Zynq® UltraScale+™ MPSoC family.

The emphasis is on:

- Utilizing power management strategies effectively
- Leveraging the platform management unit (PMU) capabilities
- Running the system securely and safely
- Reviewing the high-level architecture of the devices
- Identifying appropriate boot sequences

What's New for 2021.2

- All labs have been updated to the latest software versions

Level – Embedded System Architect 3

Course Details

- 2 days ILT or 16 hours OnDemand
  - 26 lectures
  - 7 labs
  - 6 ILT demos / 7 OnDemand demos

Price –

Course Part Number – EMBD-ZUPSA

Who Should Attend? – System architects interested in understanding the capabilities and ecosystem of the Zynq UltraScale+ MPSoC device.

Prerequisites

- Suggested: Understanding of the Zynq-7000 architecture
- Familiarity with embedded operating systems

Software Tools

- Vivado® Design Suite 2021.2
- Vitis™ unified software platform 2021.2
- Hardware emulation environment:
  - VirtualBox
  - QEMU
  - Ubuntu desktop
  - PetaLinux

Hardware

- Zynq UltraScale+ MPSoC ZCU104 board*

* This course focuses on the Zynq UltraScale+ MPSoC architecture. Check with your local Authorized Training Provider for the specifics of the in-class lab environment or other customizations.

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

- Effectively use power management strategies and leverage the capabilities of the platform management unit (PMU)
- Identify mechanisms to secure and safely run the system
- Outline the high-level architecture of the devices
- Define the boot sequences appropriate to the needs of the system

Course Outline

Day 1

- **Zynq UltraScale+ MPSoC Overview**
  Overview of the Zynq UltraScale+ MPSoC device. {Lecture, Demo, Lab}
- **HW-SW Virtualization**
  Covers the hardware and software elements of virtualization. The lab demonstrate how hypervisors can be used. {Lecture, Demo, Lab}
- **QEMU**
  Introduction to the Quick Emulator, which is the tool used to run software for the Zynq UltraScale+ MPSoC device when hardware is not available. {Lecture, Demo, Lab}
- **Security and Software**
  Defines what safety and security is in the context of embedded systems and introduces several standards. {Lecture, Demo}

Day 2

- **Power Management**
  Overview of the PMU and the power-saving features of the device. {Lecture, Demo, Lab}
- **System Coherency**
  Learn how information is synchronized within the API and through the ACE/AXI ports. {Lecture}
- **DDR and QoS**
  Understand how DDR can be configured to provide the best performance for your system. {Lecture, Demo, Lab}
- **Booting**
  How to implement the embedded system, including the boot process and boot image creation. Also how to detect a failed boot. {Lecture, Lab}
- **Zynq UltraScale+ MPSoC Ecosystem Support**
  Overview of supported operating systems, software stacks, hypervisors, etc. {Lecture}

Register Today

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