

### Course Description

This two-day course is structured to provide system architects with an overview of the capabilities and support for the Zynq® UltraScale+™ MPSoC family.

**Level** – Embedded System Architect 3

**Course Duration** – 2 days

**Price** – \$1600 or 16 Xilinx Training Credits

**Price with ZCU102** - \$5800 or 58 Xilinx Training Credits<sup>1</sup>

**Course Part Number** – EMBD-ZUPSA-ILT

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

#### Prerequisites

- Suggested: [Zynq Master Training for experienced FPGA designers.](#)
- Familiarity with embedded operating systems

#### Software Tools

- Vivado® Design Suite 2016.3
  - May require special Zynq UltraScale+ MPSoC family license
- Hardware emulation environment:
  - VirtualBox
  - QEMU
  - Ubuntu desktop
  - PetaLinux

#### Hardware

- Host computer for running the above software\*

\* This course focuses on the Zynq UltraScale+ MPSoC architecture. Check with [North Pole Engineering, Inc.](#) for the specifics of the in-class lab board 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 {Lecture, Demo, Lab}
- Zynq UltraScale+ MPSoC HW-SW Virtualization {Lecture, Demo, Lab}
- QEMU {Lecture, Demo, Lab}
- Zynq UltraScale+ MPSoC Security and Software {Lecture, Demo}

#### Day 2

- Zynq UltraScale+ MPSoC Power Management {Lecture, Demo, Lab}
- Zynq UltraScale+ MPSoC System Coherency {Lecture}
- Zynq UltraScale+ MPSoC DDR and QoS {Lecture, Demo, Lab}
- Zynq UltraScale+ MPSoC Booting {Lecture, Lab}
- Zynq UltraScale+ MPSoC Ecosystem Support {Lecture}

<sup>1</sup> While supplies last. DevCard may not arrive until after training occurs. If paying by cash, PO, or credit card, please call (612) 600-6453

### Topic Descriptions

#### Day 1

- Zynq UltraScale+ MPSoC Overview – Overview of the Zynq UltraScale+ MPSoC device.
- Zynq UltraScale+ MPSoC HW-SW Virtualization – Covers the hardware and software elements of virtualization. The lab demonstrate how hypervisors can be used.
- 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.
- Zynq UltraScale+ MPSoC Security and Software – Defines what safety and security is in the context of embedded systems and introduces several standards.

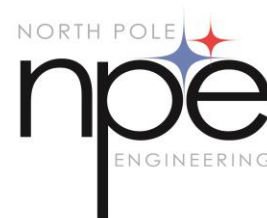
#### Day 2

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

### Register Today

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You must have your tuition payment information available when you enroll. We accept credit cards (Visa, MasterCard, or American Express) as well as purchase orders and Xilinx training credits.

### Student Cancellation Policy

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- Student cancellations received less than 7 days before the first day of class are entitled to a 100% credit toward a future class.

- Student cancellations must be sent [here](#).

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- We regret from time to time classes will need to be rescheduled or cancelled.
- In the event of cancellation, live on-line training may be offered as a substitute.
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- Under no circumstances is NPE responsible or liable for travel, lodging or other incidental costs. Please be aware of this cancellation policy when making your arrangements.
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