

Professional Zynq UltraScale+ MPSoC

Online Live

Power Workshop

| Applicable Technologies | Requirements | Contact |
|--------------------------------------|---|--|
| Xilinx® UltraScale+™ MPSoC and RFSoC | Basic knowledge of the programming language C Good understanding of digital embedded systems | Michael Schwarz P. +49 7664 91313-15 E. info@plc2.de |
| Fee (net per person) | Inclusive | Duration |
| OL € 2,800 | Training material | 5 days |
| PW € 3,250 | Plus beverages during breaks Lunch | 5 days |

Workshop

This 5-day course will enable the embedded software developer to get the best possible start on software development for the Zynq® UltraScale+™ MPSoC family.

The Power Workshop is a combination of »Compact Zynq® UltraScale+™ MPSoC for hardware designer« and »Compact Zynq® UltraScale+™ MPSoC for the software designer« and provides the necessary and in-depth knowledge to understand the entire embedded design cycle for the Zynq® UltraScale+™ MPSoC and to safely apply the necessary tools. The workshop first explains the Zynq® UltraScale+™ hardware configuration and then the unified Vitis™ tool suite for the embedded software development. Symmetric and asymmetric OS support, open-source Linux kernel and rootfs build using Yocto and/or PetaLinux, FreeRTOS usage for the realtime processing unit, hypervisor architecture and soft-

ware support and at least mechanisms of individual boot configurations are shown and elaborated in exercises. Debugging in simulation supported by QEMU or debugging on hardware targets—both are important integral parts of methodology. While multiple processors in the UltraScale+™ MPSoC architecture are typically not running simultaneously in full performance mode, the power management of resources is software programmable and so enables power reduction in the runtime system. The last module focuses on boot loading and the flash image build.

Due to accompanying exercises, the course offers in-depth and practice-oriented training. Attendees of the online live course will do the practical exercises in the afternoon on their own.

Agenda

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| 01. Embedded UltraFast™ design methodology | 12. Deploying OpenAMP in a heterogeneous system |
| 02. Overview of embedded hardware development | 13. Linux builds using PetaLinux and Yocto |
| 03. Driving the IP integrator tool | 14. Understanding device drivers |
| 04. Driving the Vitis™ tool | 15. FreeRTOS |
| 05. Zynq® UltraScale+™ MPSoC architecture | 16. Zynq® UltraScale+™ MPSoC software stack |
| 06. The Arm® processing units APU and RPU | 17. Platform Management Unit (PMU) development |
| 07. Creating user peripherals based on AXI | 18. Power management using the PMU |
| 08. Baremetal software platform development | 19. Zynq® UltraScale+™ MPSoC boot and configuration |
| 09. Arm® TrustZone® technology | |
| 10. Zynq® UltraScale+™ MPSoC hardware-software virtualization | |
| 11. Linux application development and debugging | |