

Professional Vitis

Online Live

Power Workshop

Applicable Technologies	Requirements	Contact
Xilinx® Alveo™ accelerator cards, SoCs, and ACAPs	Basic knowledge of Xilinx® FPGA architecture Comfort with the C/C++ programming language and software development flow	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

To overcome bottlenecks due to sequential processing in embedded systems, FPGAs provide massive parallelism to create application data path. Xilinx® supports such heterogeneous FPGA and CPU designs with the Vitis™ unified software platform. It allows projects for low-level hardware drivers to be embedded in one platform that can be easily incorporated with the application-level projects that derive tasks to be accelerated in high-level programming languages, e.g., C/C++. The toolchain provides various APIs to control the offloaded functionality from the CPU to FPGA kernels.

This workshop gets the software developer started on the Vitis™ unified software platform by introducing the processing system based on Zynq® SoC and MPSoC architectures. Software development knowledge for the standalone cores is provided to cover the basic operation and low-level services.

Application development on the OS level is combined with insight into driver development that finally defines an extensible platform. Such platforms are provided by Xilinx® for all common development kits, even adding new kernel topologies like Versal® ACAP AI Engines.

This course provides insights into the Vitis™ tools for defining the kernels, setting up the respective connectivity and the system level build to integrate all components. It combines the content of the workshop »Compact Vitis for the Software Designer« and »Compact Vitis for Acceleration«.

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 software development | 10. Software profiling overview |
| 02. Zynq® UltraScale+™ MPSoC architecture overview | 11. Introduction to hardware acceleration |
| 03. Driving the Vitis™ software development tool | 12. Vitis™ execution model and XRT |
| 04. System debugger | 13. OpenCL framework fundamentals and synchronization techniques |
| 05. Standalone software platform development | 14. Introduction to C/C++-based kernels and RTL kernel wizard accelerators |
| 06. Basic Git version control | 15. Optimization methodology |
| 07. Operating systems: introduction and concepts | 16. Vitis™ analyzer tool to interpret reports |
| 08. Linux software application development overview and PetaLinux tool | 17. Vitis™ accelerated libraries |
| 09. Building a Linux application in the Vitis™ IDE | 18. Memory transfer optimization techniques, XDMA vs. QDMA data flow |