

# Workshop Embedded Systems Development

The 3-day PLC2 workshop “Embedded Systems Development” teaches you how to develop embedded systems using the Xilinx FPGAs. After a comprehensive introduction to the MicroBlaze and PowerPC design flow, you will learn about GNU-based software development and XMD (Xilinx Microprocessor Debug). The workshop also focuses on hardware and software verification. The workshop language is German.

## Applicable technologies

XILINX FPGAs

## Requirements

Knowledge of FPGA architectures, programming languages VHDL and C are beneficial

## Duration and Cost

Duration: 3 days

Cost: € 1850, – net per person, including detailed training material, drinks in the breaks and lunch.

## Agenda

### Embedded Processor Design

- Embedded Overview
- EDK Processes and Management
- Hardware Design Environment

### Hardware Design

- Buses: Arbiter, Master, Slave  
PLB, OPB, OCM, DCR, LMB
- IP Delivery
- MicroBlaze Processor  
Architecture and Configurations
- PowerPC Processor  
Architecture and Configuration

### Software Design Flow

- ISE: Project Navigator Integration
- XPS: Xflow Integration
- Eclipse IDE Flow

### Creating User IP Peripherals

- Peripheral File Formats
- XPS Directory Structure
- Peripheral Wizard
- IPIF Templates

### Software Development

- GNU Tools
- Interrupt Systems
- Device Drivers
- Libraries
- Board Support Package
- Boot Initialization

### Software Debug

- GDB Functionality
- XMD Functionality

### Hardware and Software Simulation

- SimGen and Simulation Libraries
- Integration within XPS
- Testbenches within ISE
- SMART Models