

## Course Description

This course will teach you how to design in a soft core embedded processor with an Intel® FPGA. The course is focused on the hands-on development of Nios® II processor-based systems using a Nios II Development Kit. You will learn how to integrate a Nios II 32-bit microprocessor and test it in an Intel FPGA. You will configure and compile single and multi-Nios II processor designs using the Platform Designer (Qsys) and Quartus® Prime software tools and run embedded software on them with the Nios II Software Build Tools for Eclipse. You will participate in discussions about the features and capabilities of Platform Designer plus learn to create and test your own custom Embedded IP blocks and add them to your Qsys system. After taking this course you should feel confident tackling your next System on a Chip design.

## Skills Developed

- Configure & compile a Nios II embedded processor design using Platform Designer & Quartus Prime
- Create, compile, run, & debug embedded software projects for the Nios II processor using the Nios II Software Build Tools (SBT) for Eclipse
- Verify design functionality with System Console, ModelSim-Altera simulation software, & Nios II SBT
- Learn to create custom peripherals with memory-mapped & streaming interfaces
- Use Platform Designer to incorporate custom peripherals & instructions into an embedded system

## Skills Required

- Background in digital logic design
- Working knowledge of the Quartus II design software
- Some knowledge of programming in C for embedded systems

## Exercises

- Creating a NIOS II Processor System using Platform Designer
- Software Flow
- Custom Components
- Custom Instructions
- Flash Programmer
- Build and Explore a Multi-Nios II CPU System
- Work with FIFOs, DMA and SignalTap

<b>Course Length</b>	1 day
<b>Language</b>	Presentation in German or English and documentation in English
<b>Platform</b>	PC Windows 10
<b>Pricing</b>	Public: 800,- EUR / attendee In-House: On Request
<b>Dates</b>	See schedule at <a href="http://elcamino.de">elcamino.de</a>