

Designing with Nios & SOPC Builder

Course Length: 1 Day

Course Description

The *Designing with Nios® & SOPC Builder* course will teach you how easy it is to design in a soft-core microprocessor with an Altera® FPGA. This course is focused on the hands-on development of Nios hardware and software using the Nios Development Kit. You will learn how to integrate a Nios 16- or 32-bit microprocessor and test it using an Altera FPGA. You will learn how to configure and compile designs using the Quartus® II software and to write and debug embedded software code. You will participate in discussions about the features and capabilities of the development board. After taking this course, you will feel confident tackling your next system-on-a-programmable-chip (SOPC) design.

Skills Required

You should already have the following skills:

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

Skills Developed

You will develop these skills in the course:

- Knowledge of the capabilities of the Nios embedded processor and the Nios Development Kit
- Knowledge of how to configure and compile the Nios embedded processor using SOPC Builder & the Quartus II software
- Understanding of the software development flow, including:
 - GNUPro compilation tools
 - Nios utilities
 - Debugger utility
 - Project-specific header and library files
- An understanding of the hardware development flow
 - Quartus II software
 - SOPC Builder
 - Simulation using ModelSim
 - Custom instructions