XILINX®

XPERTS
XILINX Program for Engineering Resources from Third Parties

PLC2
Programmable Logic Competence Center

Workshop Advanced VHDL Verification

The workshop "Advanced VHDL Verification" builds up on the skills learned in "Compact VHDL". It's conceived for FPGA developers that already have some experience in programming with VHDL wishing to extend their knowledge and gain more in depth insights.

This workshop emphasizes the verification of chips using VHDL based test benches.

After an initial introduction to the verification concept of VHDL, the participant will infer a variety of different circuits during the practical exercises. These circuits get verified using VHDL source level debugger/ simulator and appropriate verification environments (test benches). Development of simulation models necessary for accomplishing this task is covered, too. To top the content off, a concise introduction to Assertion-Based Verification (ABV) is given.

At a maximum, two participants work on one PC having all necessary tools available. This assures a most realistic working environment.

Of course, it's possible for the exercises to work on tasks brought in by participants.

Applicable technologies

All (independent of technology)

Requirements

Basic VHDL knowledge (e.g. as taught in "Compact VHDL")

Duration and Cost

Duration: 3 days

Cost: € 1.900, – net per person, including detailed training material, drinks in the breaks and lunch.

Agenda

Review of VHDL basics
- VHDL instructions
- Functions and Procedures

Loops
- FOR loops
- WHILE loops
- NEXT/EXIT statements

Verification through High-Level Simulation

Planning of Verification
- Verification Level
- Verification Strategies
- Response Verification
- Timing Verification

Test Bench Architectures
- General Simulation Models
- Monitoring
- Intelligent Test Benches

Attributes and Generics
- Signal and Type Attributes
- Re-usable components

Stimulus and Response
- Discrete, Periodic and complex Stimuli
- Analog Stimuli
- Waveform Generator
- Pseudo Random Generator

Text-I/O
- Read – Reading Stimuli from Text files
- Write – Writing results to Text files

Modeling external Components
- ADC
- Function Generator
- Memory

PC based Exercises