FPGA-MAN: FPGA for Managers and System Integrators

FPGA-MAN: FPGA para directores de proyectos e Integradores de Sistemas

Summary of contents: This activity provides a detailed introduction to the FPGA design flow and capabilities. Emphasis is on designing solid FPGA systems and a deep understanding in design flow. These Training is organized in five modules.

Language: The classes are in Spanish, but working material is in English (available also in English for In-Company training).

Who should attend: Managers and non-designers working with FPGA/SoC design teams including embedded software designers, PCB designers, and system integrators. This training is useful also for newcomers to the FPGA technologies that want to evaluate the strengths and potentially of the technology.

Duration: 16h (2 days, 8h / day).

Prerequisite: Digital design Basics.

Topic Covered: This course covers the following topics and concepts.

Module 1: FPGA historical perspective, characteristics, strengths and weaknesses and future trends. These modules incudes economic aspects, main families and sectors, case examples such as complex control loops, signal processing, real-time image processing, machine learning, high performance computing, etc. Evolution from Glue Logic to Adaptable-Inteligence. Programing and computing models for today's complex Systems-on-Chip. How to program and validate complex multidisciplinary systems in a very short period of time.

Modules 2: Designing FPGAs Using the Vivado Design Suite. This module offers introductory training in the Vivado Design Suite and helps you understand the design flow with Xilinx FPGAs. This course teaches how to create an FPGA design, which includes the creation of a Vivado Design Suite project, simulating the design, making pin assignments, applying basic timing constraints, synthesizing, implementing and debugging the design. Finally, the process to generate and download bitstream on a demo board is also covered.

Module 3: Embedded Systems Design with Xilinx FPGA. This module will introduce the possibilities to develop complete embedded systems in FPGA. The features and capabilities of both the Zynq, Zynq UltraScale+ MPSoC, and the MicroBlaze soft processor are covered in lectures, demonstrations, and labs, along with general embedded concepts, tools, and techniques.

Module 4: High-Level Synthesis (HLS) tool and others domain specific tools. The module provides a thorough introduction to the Vivado High-Level Synthesis (HLS) tool and introduce notions of SDSoC, SDAccel, SDNet and SystemGenerator. Additionally, discuss domain specific frameworks for machine learning and computer vision.

Module 5: System-level integration. The purpose of this module is to present the different choices to use FPGA in electronic systems. If the choice is to create a custom PCB, complexity and costs are detailed, as well as

power issues (power supply and thermal management). Alternatives to custom PCB are discussed: System-On-Modules (SOM), which solve the most complex aspects of PCB design (FPGA and memory routing), and add-on boards (typically PCIe).

Material: Each student will have a computer with the development tools, documentation, repository whit exercises (and solutions) and a FPGA development board for exercises that require it.

Related Courses:

VHDL01: Diseñando con VHDL. Síntesis Lógica y Simulación para FPGAs de Xilinx

VIV-ESS: Diseño FPGA de Xilinx usando Vivado Design Suite Essential.

VIV-ADV: Diseño FPGA de Xilinx usando Vivado Design Suite Advanced.

Other Xilinx Technologies courses:

Please visit our web site.

Dates, location and registration:

Visit www.electratraining.org

Prices and Discounts:

FPGA-MAN: 880€

For more than one engineer from same company / institution additional discounts