

# Embedded Design with Xilinx™ PetaLinux Tools

3 days - 21 hours

## OBJECTIVES

- After this training, you will have the necessary skills to:
  - 1 - Use open-source embedded Linux components
  - 2 - Use the PetaLinux tool design flow
  - 3 - Configure the Linux environment, the root file system and network components
  - 4 - Create and debug an application
  - 5 - Build the environment and boot the system
  - 6 - Describe the Linux device driver architecture and develop custom hardware and custom drivers

## PREREQUISITES

- FPGA Basic knowledge
- Knowledge/experience with C language and embedded software design

## CONCERNED PUBLIC

- Technicians and Engineers in Digital Electronics
- All our training courses are given at a distance and are accessible to people with reduced mobility.
- Our partner AGEFIPH accompanies us to implement the necessary adaptations related to your disability.



## NOTES

- Release date: 20/12/2021

## CHAPTERS

### DAY 1

- Objective 1
  - Introduction to Embedded Linux {Lecture}
  - Embedded Linux Components {Lecture, Lab}
- Objective 2
  - Driving the PetaLinux Tool {Lecture, Lab}
  - PetaLinux Tool Design Flow {Lecture}
  - PetaLinux Application Development {Lecture, Lab}
- Objective 3
  - Customizing the Project {Lecture}

### DAY 2

- Objective 3
  - Customizing the Root File System {Lecture}

- Networking and TCP/IP {Lecture, Lab}
- Objective 4
  - PetaLinux Application Debugging {Lecture, Lab}
  - Upgrading the Workspace {Lecture}
- Objective 5
  - PetaLinux Booting and Packaging {Lecture}
  - Basic Hardware Design Process with the Vivado Design Suite {Lecture, Lab}

### DAY 3

- Objective 6
  - Linux Device Drivers Overview {Lecture}
  - User Space I/O and Loadable Kernel Modules {Lecture, Lab}
  - Custom Hardware Development {Lecture, Lab}
  - Custom Driver Development {Lecture, Lab}
  - PetaLinux: Advanced Configurations {Lecture}

## TEACHING METHODS

- Inter-company online training :
  - Presentation by Webex by Cisco



- Provision of course material in PDF format
- Labs on Cloud PC by RealVNC



## METHODS OF MONITORING AND ASSESSMENT OF RESULTS

- Attendance sheet
- Evaluation questionnaire
- Evaluation sheet on:
  - Technical questionnaire
  - Result of the Practical Works
  - Validation of Objectives
- Presentation of a certificate with assessment of prior learning

## SUPPORT

- Authorized Trainer Provider XILINX : Engineer Electronics and Telecommunications ENSIL
  - Expert FPGA XILINX - Language VHDL/Verilog - RTL Design
  - Expert SoC & MPSoC XILINX - Language C/C++ - System Design
  - Expert DSP & RFSoc XILINX - HLS - Matlab - Design DSP RF
  - Expert ACAP XILINX - AI Engines - Heterogenous System Architect

## PC RECOMMENDED

- Software Configuration :
  - WebEx Cisco
  - RealVNC Viewer
  - Vitis 2021.1
- Hardware configuration:
  - Petalinux 2021.1
  - Recent computer (i5 or i7)
  - OS Linux 64-bits
  - At least 16GB RAM
  - Display resolution recommended 1920x1080

## PARTNERS



## CONTACT

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