

## Embedded Design with AMD PetaLinux Tools

### GENERAL OBJECTIVE OF THE TRAINING

Learn how to use the PetaLinux tool to create an embedded Linux distribution

### COURSE DURATION



3 days - 21 hours

### 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.
- People with disabilities may have special training needs. Our partner AGEFIPH accompanies us to implement the necessary adaptations related to your disability. Don't hesitate to discuss your requirements.



### PREREQUISITES

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

### NOTES

- Release date: 15/11/2024

### TEACHING STAFF

- **William Duluc, Electronics and Telecoms Engineer, AMD Expert since 2009 and AMD Trainer since 2017 :**
  - Expert AMD FPGA - Language VHDL/Verilog - RTL Design
  - Expert AMD SoC & MPSoC - Language C/C++ - System Design
  - Expert DSP & AMD RFSoc - HLS - Matlab - Design DSP RF
  - Expert AMD Versal - AI Engines - Heterogenous System Architect

## TARGET OBJECTIVES AND SKILLS

- 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

## COURSE CONTENT

### 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 :**
  - Fast Internet connection, webcam, headset
  - Presentation by Webex by Cisco
  - Provision of course material in PDF format
  - Labs on individual Cloud PC by RealVNC
- **Intra-company face-to-face training on customer site : (details to be confirmed prior to training)**
  - Suggested supply by the customer :
    - Training room
    - Video projector
    - Whiteboard
    - Individual PC with AMD tools
  - Provided by MVD Training :
    - Course material in PDF format
    - Practical work on individual PCs (loan of equipment available on request)

## RECOMMENDED COMPUTER HARDWARE

- **Inter-company online training :**
  - Recent computer OS Linux or Windows 64-bits
  - Fast Internet, webcam, headset
  - Software tool WebEx Cisco
  - **AMD remote tools :**
    - Software tool RealVNC Viewer
  - **AMD local tools :**
    - Software tool AMD Vitis and PetaLinux 2022.2
- **Face-to-face training on customer site :**
  - Recent computer OS Linux or Windows 64-bits
  - Software tool AMD Vitis and PetaLinux 2022.2

## TEACHING METHODS AND SUPPORT - ASSESSMENT & RECOGNITION

- **Teaching methods :**
  - Alternating lectures, technical questionnaires and exercises on individual machines.
- **Pedagogical follow-up :**
  - Signed attendance sheet
- **Pedagogical assessment :**
  - Continuous assessment and progress sheet :
    - Technical questionnaire
    - Practical work results
    - Validation of objectives
- **Satisfaction survey :**
  - At the end of training: assessment form completed by the trainee
  - At 3 months: evaluation form completed by the trainee after application to the company
- **Certificate :**
  - Training certificate with assessment of learning provided to trainee
  - Certificate of completion provided to employer

## TECHNICAL, EDUCATIONAL, ADMINISTRATIVE AND FINANCIAL CONTACT

William DULUC, 06 74 52 37 89, info@mvd-training.com