AMD
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Designing with the AMD Embedded Development Framework (EDF)

EMBD-EDF (v1.0)

Course Specification

Course Description

This course introduces the AMD Embedded Development Framework (EDF), a unified software framework for AMD adaptive SoC and FPGA platforms. The EDF provides a structured development methodology, pre-built software stacks, and integrated tools to accelerate Linux®-based embedded system development.

The emphasis of this course is on:

- Understanding the supported and recommended development flows for hardware and embedded software
- Identifying different design entry points and mapping role-based development within the EDF workflows
- Simplifying platform-level development by using pre-built embedded software stacks, pre-configured board support packages (BSPs), and open-source tools
- Leveraging the Software Hardware Exchange Loop (SHEL) flow and using tools like SDTGen, Lopper, and gen-machine-conf for hardware software integration
- Exploring the migration guide to use the EDF instead of PetaLinux

The primary focus is to gain hands-on experience with the EDF tools and workflows and learn how the EDF enables rapid prototyping and production-ready solutions through pre-built images.

Level – Embedded Software 4

Course Details

- 1 day ILT or 7 hours On-Demand
- 7 lectures
- 3 labs

Course Part Number – EMBD-EDF

Who Should Attend? – Embedded software developers and system designers working on AMD adaptive SoC or FPGA platforms who want to build Linux-based systems using the AMD Embedded Development Framework

Prerequisites

- Basic understanding of embedded systems and Linux-based development
- Familiarity with Yocto Project® concepts and workflows
- Awareness of hardware/software integration concepts in the AMD ecosystem
- Familiarity with AMD SoCs and evaluation boards is a plus

Software Tools

- Yocto Project
- Vivado™ Design Suite 2025.2
- Vitis™ Unified IDE 2025.2
- Hardware emulation environment:
  - VirtualBox
  - QEMU
  - Ubuntu® desktop

Hardware

- Zynq™ UltraScale+™ MPSoC ZCU104 board*
- Versal™ AI Core Series VCK190 board*
- Versal AI Edge Series VEK280 board*

This course focuses on the Zynq UltraScale+ MPSoC and Versal adaptive SoC architectures. Check with your local Authorized Training Provider for the specifics of the in-class lab board or other customizations.

After completing this comprehensive training, you will have the necessary skills to:

- Build and customize Linux-based platforms using the AMD Embedded Development Framework (EDF)
- Develop and deploy applications using the EDF-provided SDKs, pre-built images, and workflows
- Migrate existing PetaLinux-based projects to the AMD Embedded Development Framework

Course Outline

Day 1

- **Overview of the Embedded Development Framework**
  Provides an overview of the AMD EDF and its role in embedded platform development. {Lecture}
- **EDF Software Stack and Role-Based Development Flow**
  Introduces the software stack, including Linux BSPs, pre-built disk images, tools, firmware, utilities, and reference designs and explains role-based development flows. {Lecture}
- **Application Development and Deployment Using the EDF**
  Introduces software and hardware application development flows and their deployment using the EDF Yocto workflows. {Lecture}
- **Linux OS Integration and Yocto Customization**
  Covers building and customizing the Linux OS using the Yocto Project for AMD SoCs. {Lecture, Lab}
- **Introduction to the Software Hardware Exchange Loop (SHEL) Flow**
  Outlines the Software Hardware Exchange Loop (SHEL) flow as part of the EDF and reviews the key tools used in the flow, such as SDTGen, Lopper, and gen-machine-conf. {Lecture, Lab}
- **Custom Hardware Development Using the EDF**
  Covers custom hardware workflows, including Segmented Configuration and dynamic PL reload. {Lecture, Lab}
- **Migration from PetaLinux to the Embedded Development Framework**
  Explains the migration from PetaLinux to the Yocto-based EDF flow and the mapping of common build and customization tasks. {Lecture}

Register Today

Visit the AMD Adaptive Computing Customer Training Portal to view schedules and register online.

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