

Embedded GNU/Linux System Architecture for DENX in German

Duration 5 days

Format Hands-on

Language German/(English on demand, materials are in English only)

Dates [trainings at DENX](#) or ask for a date

Location [location of DENX](#) or ask for on site visit

Price [info from DENX](#)

Materials ●complementary copy of class text book (in English)

- CD containing Embedded Linux Development Kit
- DVD containing course material
- PC and AMCC Kilauea board for team of two participants for the duration of the class
- Abatron BDI for team of two participants for debugging sessions

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[registration/inquiries from DENX](#)
[inquiries from Reliable Embedded Systems](#)

Description

This 5-day training class uses hands-on exercises combined with instruction to illustrate the concepts of embedded GNU/Linux. It is designed to bring you quickly up to speed. We describe the philosophy, concepts and commands necessary to make effective use of GNU/Linux through a combination of theory and on-the-job training. Don't reinvent the wheel, but learn from our experience and take home a working knowledge of GNU/Linux and the ability to use it effectively in your own embedded development project.

Prerequisites

- Basic familiarity with using a GNU/Linux system as an end user
- Basic familiarity with a command line shell
- Basic C programming knowledge

Who should attend?

Those who are interested in or tasked with developing embedded GNU/Linux like software engineers, field engineers, (project) managers.

Course Outline

Introduction

History of Unix/Linux, Free Software, Unix Philosophy

Host playground

- Play with Linux architecture, shell, permissions, FHS, hard/soft links, real/effective uid/gid, scheduler, process/task/thread, IPC simple/advanced (pipes, signals, message queues, semaphores, shared memory, sockets, select, poll) IPC techniques to avoid
- Host Linux setup ELDK (cross/target tools, libraries, packages), Terminal Emulation, Servers (DHCP, tftp, NFS)

Target playground

- files needed to run something on board JTAG/BDI config, u-boot (checkout, config, build), kernel (checkout, config, build), rootfs, flat device tree, run on board
- various rootfs CRAMFS, ramdisk, MTD, JFFS2, roEXT2, comparison
- debugging simple tools, local/remote, user/kernel, gdb, gdbserver, JTAG/BDI
- profiling gprof, gcov, oprofile

Real-Time

- prerequisites interrupts, reentrant code
- real-time Linux explicit/implicit preemption points, real-time preemption patch, fully preemptive kernel, hard real-time extensions
- Adeos/Xenomai adeos patch, xenomai, patch/config/build kernel, run it on board

SW release

administration, development, how to reproduce a SW release?

Misc

getopt, endianness, cheat-sheets

Thank you for your interest!

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