



Esben Haabendal

Embedded Linux Developer,
System Architect

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Summary

Experienced Linux developer with over 15 years of experience with embedded Linux and system architecture.

Languages

- Danish ●●●●●
- English ●●●●●
- German ●●●●●

Competencies

- C, C++, Python, Perl, Bash, Rust
- Linux kernel, U-Boot, Barebox
- Buildroot, Yocto/OE, OE-lite
- TCP/IP, I2C, SPI, JTAG, PCI/PCI-e, Ethernet, EtherCAT, Modbus
- Git, SVN, GitLab, Buildbot, Jenkins
- System architecture, Software design, Agile Development, CI/CD

Social Network

- LinkedIn profile
- Github profile
- GitLab profile

Work History

- 2019 – **Embedded Linux Consultant** Geanix ApS
Co-owner and director. Consultant providing on-site and outsourcing services.
- 2014 – 2019 **Core Software Designer** DEIF A/S
Architect and lead developer of Linux BSP (board support package) for multiple platforms and products for wind turbine control.
- 2007 – 2014 **Senior Software Designer** DorèDevelopment ApS, Prevas A/S
System architect and embedded Linux developer. Linux platform development, integration and maintenance, using OpenEmbedded and OE-lite. Linux kernel, U-Boot and Barebox development and maintenance. Qt 4 application development. Sales support for Linux sales activities.
- 2003 – 2007 **System Architect / Developer** Siemens, BenQ, Motorola
Development of mobile phone software. Device drivers, WLAN, audio/video streaming and 3GPP progressive DL, DVB-H. System architect for Linux mobile phone platform and core embedded Linux software.
- 2003 – 2004 **Software Engineer** Aalborg University
Linux, ANSI C, Python programming, development of distributed real-time software for parallel radio channel sounder, for 4G antenna measurements.
- 2001 – 2002 **Software Developer** Hewlett-Packard
System integration for telecommunication customer, using Java and WebMethods.
- 2000 – 2001 **Software Developer** Hewlett-Packard
Porting Windows C++ smart card middleware library to Linux/GCC.
- 1999 – 2000 **Software Engineer** Aalborg University / Hewlett-Packard
Development of deployment system for large-scale Linux systems. Linux compatibility testing of Hewlett-Packard IT components.
- 1997 – 2000 **System Administrator** Aalborg University
System administration of Unix and Linux systems. Development of research paper publication system.

Projects

- 2019 – **Linux developer** Military surveillance systems
Upgrade of existing embedded Linux platform. Upstreaming of in-house changes made to open source components. Linux device driver development and maintenance.
- 2009 – **Project leader and lead developer** OE-lite
Open source build system for industrial embedded Linux systems. Derived from OpenEmbedded, with a focus on simplicity, reducing the learning curve, and deterministic build results. <https://gitlab.com/oe-lite>
- 2009 – 2019 **Architect and lead developer** Platform for Wind turbine controllers
Custom PowerPC and ARM platforms and products. Working with hardware design team to specify and design the hardware. Implementation of low-level code from bootloader and production tools, Linux device drivers, user-space middleware, web-interface UI, build systems, system integration, test system, CI/CD setup. CI/CD setup using GitLab, Docker, OE-lite, and Labgrid for automated commit to release procedure for entire Linux BSP.

- 2007 – 2014 **Architect and lead developer** Platform for train information systems
 Custom PowerPC and ARM platforms, with with flexible extension module design. Ground-up implementation of embedded Linux platform providing an up-to-date software platform with quick turnaround for supporting new extension modules.
 Working with system architect and hardware design team to specify and design the hardware. Implementation of low-level code from bootloader and production tools, Linux device drivers, user-space middleware, build system, system integration, test system and CI/CD setup.
- 2012 – 2014 **Architect and lead developer** Platform for solar power inverters
 Development of OE-lite based embedded Linux platform for existing Motorola ColdFire board.
- 2011 – 2013 **System architect and lead Linux developer** Air-conditioning system
 Design and implementation of distributed control system for air-conditioning system, consisting of 4 PCB designs (in a number of different variants), using MQX and Linux as OS, Ethernet, RS485, Modbus, USB, I2C, SPI and a number of custom protocols. Implementation of i.MX28 OE-lite Linux BSP and QT application. Implementation of i.MX28 bootloader. Board bringup. Fail-safe firmware update mechanism.
- 2011 **Lead developer** Linux reference BSP
 Development of OE-lite BSP for TI Sitara reference board, for use as basis for power generator and generator test-bench designs.
- 2008 – 2010 **Architect and lead Linux developer** Internet In Train
 Development of Linux system for Internet In Train pilot project for TDC/DSB. WiFi hotspots in trains, using HSPA uplinks.
- 2008 **Developer** T1 switch for voice mail
 Linux system and device driver optimization. Linux kernel upgrade.

Education

- 1994 – 2003 **M.Sc.E. Informatics** Aalborg University
 Specialisation in Distributed Real time Systems.
- 1998 **Summer Student** CERN
 Summer student programme, setup of LSF cluster for utilizing UNIX workstations for physics simulations.