Geanix
Embedded | Linux Consultants

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

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

Social Network

- LinkedIn profile
- Github profile
- GitLab profile

Projects

2020 – **Linux developer** — Wind turbine controller
Development of Linux BSP for new ARM based controller board.

2020 – **Rust developer** — Controller for public transportation fleet management
Development of middleware services in Rust for embedded Linux platform.

2020 – **Linux developer** — Platform for wind turbine converter controller
Upgrade of existing embedded Linux platform to new Linux version.

2020 – **Linux developer** — Wind turbine pitch controller
Board-bringup and production of product prototypes. Specification and implementation of production interface for wind turbine pitch controller product. Bugfixing, improvements and release engineering for Linux platform.

2019 – **Linux developer** — Millitary surveilance 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.

Work History

2019 – **Embedded Linux Consultant** Geanix ApS
Co-owner and director. Consultant providing on-site and out-sourcing 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 archiect 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 parrallel 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.

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.