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Mattijs Korpershoek

Embedded Linux Kernel/Android Software Engineer

Summary

I am an embedded Linux Kernel/Android Software Engineer with 10+ years of experience. I have contributed to multiple open source projects such as the Linux Kernel, U-Boot, Libcamera, Android Open Source Project (AOSP) and more. I have ported various Android versions (9 to 15) on multiple ARM boards with different SoCs including MediaTek, Texas Instruments and Amlogic.

Open source contributions

- Linux Kernel
- U-Boot
- Meson
- Android (AOSP)
- Libcamera

Technical skills

General

- Linux kernel upstream development
- U-Boot (maintainer)
- Device Tree
- Git and backporting patches
- Code review and mentoring
- System debugging
- CI/CD

Android

- BSP development for various SoC vendors
- Multiple ARM board support from scratch
- Boot flow on ARM boards (U-Boot)
- Android Common Kernel (bazel)
- HALs (including AIDL)
- OTA, multimedia, bringup

Key accomplishments

Speaker at ELC in Open Source Summit Europe 2024

In a 40 minutes talk named "How to Enable Android (AOSP) on Your Developer Board", I walk through what it takes to run a modern Android (14) on the BeaglePlay ARM development board.

U-Boot maintainer/custodian (DFU, usb gadget, Android)

In 2023, after contributing multiple USB fixes, I've been asked to help co-maintaining multiple topics in U-Boot, such as USB gadget, DFU, and some Android related commands. Since then, I've been actively improving the Android support and done lots of testing and reviewing for each U-Boot release.

Founding member of the aosp-devs community

Android BSP developers did not have a neutral public place to hang out, discuss technical issues or share knowledge. I am a founding member of the aosp-devs initiative: a community for AOSP developers with over 300 members.

Android multimedia support on Texas Instruments Sitara boards

Texas Instruments provides Android support for their Sitara AM62X and AM62P SoCs. I have enabled key multimedia features such as CSI camera support and video encode/decode acceleration in Android. I'm also responsible for the Android 15 migration and helped with backporting patches from mainline to the Android Common Kernels (6.6)

Work history

Jan, 2020 – Current

Linux Kernel/Android software engineer, *BayLibre*, Toulouse/remote, France.

- Worked remotely in small teams of 2-3 engineers
- Open-source advocate internally, Android technical leadership
- All-around general-purpose engineering work from bootloaders to apps
- Android BSP development for multiple SoC vendors
- Texas Instruments (Sitara)
  - Main developer for TI's Android SDK
  - Development from scratch (AOSP only)
  - Upstream first strategy, working closely with TI's kernel team
  - Released Android versions 11 – 15
  - Enable new hardware features such as display support, video decoding, CSI camera
  - Keep up to date with latest Android requirements: HAL migration to AIDL
  - Track upstream U-Boot and backport/submit features
  - Android tablet, Android Automotive versions
  - Monitor automated testing and improve CTS/VTS coverage
  - Brought up a community board (BeaglePlay)
- Amlogic
  - Worked on Khadas VIM3 Android reference board
  - AOSP upstreaming and maintenance
  - Upstreamed 30+ patches to U-Boot for implementing Android bootflow
  - Added board support in Android Common Kernel
  - Worked with Android TV team for debugging or new features
- MediaTek:
  - Started MediaTek Genio support from scratch
  - Used ChromeOS kernel as baseline
  - Supported multiple customers to bring out their products using this BSP
  - Started from board bring-up to customer mass-production
  - Provided technical training/support to customers
  - Low maintenance Android BSP, merging most things from upstream
  - Upgraded to major kernel versions multiple times

Feb, 2017 – Dec, 2019

Android platform engineer, *Intel (Celad)*, Santa Clara, USA.

- Android platform engineer on Android Wear products with Intel inside
- Active during entire product life-cycle from the early schematics to the end-user software releases.
- Several roles including platform developer, system debugger, and factory line support.
- Technical skills:
  - Android/Linux device drivers (ASoC), intel platform drivers
  - Android frameworks: audio HALs, other HALs, Treble
  - Android apps: mainly debugging, no development.
  - Production line support, system debugging, hardware bring-ups
  - Linux, C, C++, Java, Git, Python, XML, Bash, Android build system

Sept, 2014 – Jan, 2017

Android platform engineer, *Intel (Celad)*, Toulouse, France.

- Android platform engineer on Android Wear products with Intel inside
- Implemented Android Audio stack (HAL, linux machine driver (ASoC)) for digital microphone (voice recognition)
- Developed a low-power blue-tooth audio playback architecture (A2DP)
- Designed a custom Android ROM used for mass production testing and quality screening in the factory.
- Technical skills:
  - Android/Linux device drivers (ASoC) and DSP (Tensilica cores) Firmware
  - Android frameworks: audio HAL, AudioFlinger, AudioPolicy
  - Production line support, system debugging, hardware bring-ups
  - Linux, C, C++, Git, Python, XML, Bash, Android build system

Apr, 2014 – Aug, 2014

Android Audio developer (internship), *Intel (Celad)*, Toulouse, France.

- Open-sourced the Parameter-Framework, a major component of Intel's Android Audio HAL
- Component is now part of Android AOSP (/external/parameter-framework/)
- Extended audio stack on Intel phone reference platforms (dual sim)
- Technical skills:
  - Linux, C, C++ Git, XML, markdown, Android platform

May, 2013 – Aug, 2013

Windows developer (internship), *24green*, Vlaardingen, The Netherlands.

- Developed a web (REST) API which handles climate control functions in green-houses.
- Created apps to illustrate the API.
- Technical skills:
  - C#, Windows XP embedded
  - javascript, html, CSS, java

Apr, 2012 – Jul, 2012

Linux kernel developer (internship), *IRIT*, Toulouse, France.

- Linux kernel development around performance counters and other hardware metrics
- Modules developed used by research lab for experiments on CPU frequency (power savings)
- Real world testing on a French research grid computing network, Grid'5000
- Technical skills:
  - Linux kernel, device drivers, C, GNU make, Bash

Education

2009 – 2014

CAMSI Master's degree, *Paul Sabatier University*, Toulouse, France.

- CAMSI: Informatics, Systems and Machine Architecture Concepts
- rank 1/18 (Valedictorian)
- overall score $> 85\%$