Tudor **Ambarus**

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ABOUT

Embedded Software Engineer consultant with 13+ years of experience. Use experience and capabilities to architect, design, and implement solutions for businesses worldwide.

Linux Kernel Maintainer for the SPI NOR subsystem and drivers

Contributor to linux kernel, u-boot, buildroot and Yocto Project

Track record of upstream and mainline contributions

Job related skills:
❇ Embedded C programming
❇ Mainline Linux Kernel
❇ 2nd stage bootloaders
❇ Mainline U-boot
❇ Specialized hardware controllers: SPI, QSPI, NAND, DMA, crypto.
❇ Flash memories – expert on SPI NORs
❇ Core architectures: ARM Cortex A5, ARM926EJ-S, ARM Cortex A7
❇ Measurement equipment: logic analyzers, oscilloscopes
❇ Makefile
❇ Scripting languages (bash, python)

Interested in remote work.

WORK EXPERIENCE

Jan 2019 – Present (5 yrs 9 mos)

Linux Kernel Maintainer, Linux Kernel Community

Linux kernel Maintainer for the MTD SPI NOR flash subsystem and drivers. Review and provide directions for contributors around the world.

Accomplishments:
- Re-designed the SPI NOR framework in linux kernel.
- Formed an SPI NOR team, gathered around me two valued contributors and proposed/promoted them to co-maintainer roles.

Check my linux upstream kernel contributions (500+ patches).

Dec 2022 – Present (1 yrs 10 mos)

Senior Software Engineer, Linaro, remote

Bringing Google Pixel6 phone to life in upstream. Check my contributions in linux-next.

Handling Generic Kernel Image (GKI) – merging upstream linux merges to the common kernel, fix build issues and related bugs for the pixel or common drivers.

Android Security (6 months) – Fix bugs reported by syzkaller, a google kernel fuzzer. Fix and backport to all maintained android branches.

Feb 2017 – Nov 2022 (5 yrs 10 mos)

Senior Embedded Linux Software Engineer, Microchip Technology Inc., Bucharest

Writing device drivers for Linux kernel and bootloaders for the Microchip AT91 products.

Owner of various topics from bootloaders (2nd stage bootloader, u-boot) to kernel: MTD (SPI NOR, NAND), SPI Q/OSPI, crypto, DMA. NAND controllers - for all the AT91 SoCs. Handle L3 customer support on these topics.

Roles:

- Developer and maintainer for the Microchip NAND controller driver (bootloaders & kernel).
- Developer and maintainer for the Microchip Quad SPI driver (bootloaders & kernel).
- Maintainer for the Microchip SPI driver (bootloaders & kernel).
- Co-maintainer for the Microchip AT91 DMA drivers (Linux Kernel).
- Author and maintainer for the Microchip ECC crypto driver (Linux kernel).
- Developer and maintainer (acting) for the Atmel Crypto drivers (Linux kernel).
- Owner for the AWS IoT Greengrass and ATECC608A integration in the linux4sam release.

Part of a team of 4 engineers that fully manage the Linux4SAM releases. Handle the Bootloaders, kernel & rootfs (buildroot, yocto project). Gone through all the software stages: development, integration, testing, releasing the images and updating documentation.

- SoCs handled: sam9, sam9x5, sama5d2, sama5d3, sama5d4, sam9x60, sama7g5
- New board support: SAMA7G5 EK, SAM9X60 EK, SAMA5D27 WLSOM1 EK, SAMA5D27 SOM1 EK, SAMA5D2 ICP.
- Boards handled: all from above and SAMA5D2 Xplained, SAMA5D3 Xplained, SAMA5D4 Xplained, SAMA5D2 PTC EK, AT91SAM9X5-EK.

Drive and initiative: made proposals to improve the linux4sam release (better quality and faster release process) which were later on integrated.

Check my contributions:

- linux mainline kernel
- linux microchip kernel

- u-boot mainline
- u-boot-at91
- at91bootstrap (2nd stage bootloader)
- buildroot-external-microchip
- yocto project, meta-atmel

Aug 2011 – Feb 2017 (5 yrs 7 mos)

Senior Embedded Linux Engineer, NXP Semiconductors, Bucharest

Enabled features of the NXP's Cryptographic Acceleration and Assurance Module IP (CAAM) in linux kernel:

- Introduced the public key cryptography driver (RSA).
- Added support for various crypto algorithms: aes-gcm, aes-gmac, rfc4106, rfc4543, hash algorithms.
- Offloaded OpenSSL - TLS Record Layer (TLSv1.0, TLSv1.1, TLSv1.2) from user-space to kernel.
- Developed asm-like descriptors for the crypto accelerator.

EDUCATION

2012 - 2014

Master of Science, Advanced Software Technologies for Communications program, Polytechnic University of Bucharest, Faculty of Electronics, Telecommunications and Information Technologies, 10/10 graduation exam

2008 - 2012

Bachelor of Science, Networking and Software for Communications Polytechnic University of Bucharest , Faculty of Electronics, Telecommunications and Information Technologies, 9.7/10 graduation exam

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PAPERS

1. 2016, Eugen Borcoci, Marius Vochin, Tudor Ambarus, "Multi-criteria based Optimization of Placement for Software Defined Networking Controllers and Forwarding Nodes", the Fifteenth International Conference on Networks, ICN 2016

2. 2015, Eugen Borcoci, Tudor Ambarus, Marius Vochin, "On Multi-Controller Placement Optimization in Software Defined Networking –based WANs", International Journal on Advances in Networks and Services

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Other

Languages: fluent in English, beginner in French

Communication: worked with colleagues from four continents toward the successful launch of AT91 products.

Training: trainer for the Microchip Global AFG Training, Colorado Springs, Jan 2018. Presented “AWS IoT Linux Solution and ATECC508A”.