

# Tudor Ambarus

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## ABOUT

Embedded Software Engineer / Linux kernel engineer/ consultant / contractor / freelancer with 11+ 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

Active contributor to u-boot, linux kernel, buildroot and Yocto Project

Track record of upstream and mainline contributions

Job related skills:

- \* Embedded C programming
- \* 2nd stage bootloaders
- \* Mainline U-boot
- \* Mainline Linux Kernel
- \* 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.

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## WORK EXPERIENCE

Jan 2019 – Present (3 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 and reviewer roles.

Check [my linux kernel mainline contributions](#) (~400 patches).

Feb 2017 – Present (5 yrs 8 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 (2<sup>nd</sup> 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 \(2<sup>nd</sup> stage bootloader\)](#)
- [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.

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## 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".