

Roman Storozhenko

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Summary

- Linux Kernel, Embedded and Firmware developer enabling the latest [RDT](#) HW in SW for Intel® Xeon® CPUs: [Intel RDT utility](#)
- Author [[Exploring ELF files using pyelftools](#)] & [[Core Knowledge That Modern Linux Kernel Developer Should Have](#)]
- Volunteer participating in hackatons and awards as a mentor and judge [[Globee](#)]
- RISC-V enthusiast having certifications [[RVFA](#)]
- Community member in [RISC-V International](#)
- Individual Supporter in [The Linux Foundation](#) organization
- Graduate from the "Linux Kernel Bug Fixing Spring Unpaid 2024" mentorship program [[Graduation confirmation](#)]
- Linux Kernel contributor [[patches](#)]
- Developer enthusiast [[GitHub](#)]
- Industry expert asked on Linux Kernel topics [[Linux Developer Skills: Everything You Need to Know](#)]

Skills

- **Linux kernel:** general knowledge, driver development
 - **Advanced, cloud level technologies:** [Intel® RDT Framework](#) for Intel® Xeon® CPUs: CMT, L2 & L3 cache CAT and CDP, MBM, MBA, I/O RDT, SNC, CBA, etc...
 - **Architectures:** x86, RISC-V, ARM
 - **Performance & Microarchitecture Profiling:**
 - perf, ftrace, eBPF, pmu-tools, libpfm, pcm
 - Intel® VTune™, Intel® SDE, Intel® Advisor, CS Roofline Toolkit
 - heaptrack, Tracy Profiler, FlameScope, uarch-bench, nanoBench
 - **Networking:** Wi-Fi, Ethernet, Bluetooth Low Energy, PCIe drivers for SR-IOV and S-IOV capable devices
 - **Buses and protocols:** PCIe(3.0 and 4.0), UFS, SCSI, I2C, SPI, 1-Wire, MDIO
 - **IO stack:** VFS, block layer, SCSI- and UFS-based device drivers
 - **Kernel special purpose FS:** procfs, sysfs, debugfs, tracefs, resctrl, hugetlbfs
 - **File systems:** Ext-family
- **Hardware:**
 - **Debug tools:** oscilloscopes, multimeters, bus analyzers
 - **Dev boards:**
 - **RISC-V:** Beagle-V Ahead(Alibaba T-Head TH1520 SoC), StarFive 2(JH7110 SoC), Raspberry PI Pico 2 (RP2350), ESP32-C6, Lichee RV Nano-B, Nezha D1(Allwinner D1 SoC).
 - **ARM:** Raspberry PI, Exynos-based. Custom hardware boards
- **Embedded Linux:** Yocto Project, OpenWrt, U-Boot, SWUpdate, etc...
- **Virtualization:** QEMU (virtme-ng, firecracker), KVM, Virtualbox, Vmware Workstation, Docker, Intel® Simics®
- **Linux userspace:** Shell scripts, Python, POSIX
- **Languages:** C(Clang and GCC compilers), ASM(RISC-V, x86, PIC-family), Python
- **Version control:** Git, Mercurial, Perforce, Svn

- **AI tools:** ChatGPT, Gemini, Claude AI, DALL E, MidJourney

Work Experience

Intel

Senior Linux Kernel Developer

Gdansk, Poland

June 2022 - Present

For more than 50 years, Intel and our people have had a profound influence on the world, driving business and society forward by creating radical innovation that revolutionizes the way we live.

Project: Enabling next-generation Intel® Xeon® CPU features within the Intel® RDT software stack

Key Contributions:

- ✓ Designed and implemented kernel-level enablement for upcoming Intel® Xeon® CPU RDT hardware blocks, including integration with resctrl and resctrl2 subsystems
- ✓ Participated in Intel's internal RDT architecture workgroup, providing early-stage technical feedback on upcoming specifications; several of your proposals (e.g., for SNC descriptions) were adopted
- ✓ Maintained and extended Intel's open-source RDT utility ([intel-cmt-cat](#)), supporting post-silicon validation and benchmarking workflows
- ✓ Collaborated with architecture, firmware, and performance validation teams to align software behavior with hardware block definitions
- ✓ Worked in virtualized environments (QEMU/KVM, Simics) and real silicon platforms to validate kernel-space and userspace functionality
- ✓ Followed upstream Linux kernel best practices and contributed with a focus on stability, testability, and architectural alignment

Skills & Technologies: C, Linux Kernel Development, Intel® Xeon® RDT, intel-cmt-cat, resctrl / resctrl2, Post-Silicon Validation, Virtualization (QEMU/KVM, Simics), Systems Programming, Git, Bash, Performance Debugging

Intel

Linux Driver Developer

Gdansk, Poland

October 2021 - June 2022

For more than 50 years, Intel and our people have had a profound influence on the world, driving business and society forward by creating radical innovation that revolutionizes the way we live.

Project: Development of a custom version of [Linux ice driver](#) for smartNICs (Intel E8XX series) and a wide range of pre- and post- production cutting-edge network equipment

Key Contributions:

- ✓ Contributed to feature development and debugging in a custom version of the ice network driver, tailored for internal SmartNIC deployments
- ✓ Implemented VLAN filtering capabilities aligned with advanced switching and packet classification requirements
- ✓ Authored a patch accepted upstream for the Intel® ice driver (VLAN promisc mode fix): <https://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux.git/commit/?id=96e813e34df8b9d7765f42cfaa5466e4>
- ✓ Supported bring-up and validation of SmartNIC hardware across multiple firmware and OS layers
- ✓ Worked in virtualization and hardware-in-the-loop setups for low-level driver testing
- ✓ Collaborated cross-functionally with firmware and networking teams under NDA constraints

Skills & Technologies: C (Linux Kernel & Drivers), Network Drivers (ice), Intel® E8XX SmartNIC, VLAN Filtering, Linux Development, Firmware Interfaces, Virtualization, Bash, Git, Systems Programming

A team of dedicated professionals with a mission to provide the best solution for the smart home.

Project: Developed complete firmware and embedded Linux support for the Homam 64GB smart camera, which included 3 custom PCB designs with distinct peripheral setups.

Key Contributions:

- ✓ Developed 3 firmware stacks (9 images total) from scratch, targeting all PCB variants
- ✓ Built firmware and Linux-level support for peripherals: camera sensor, microphone (2-way audio), speaker, PIR motion sensor, accelerometer, RGB LED, IR LEDs, and microcontroller subsystems
- ✓ Designed a power management system using multi-stage I2C signaling: Linux initiated sleep mode via microcontroller, which then powered down the board and itself, reducing consumption from 1A to microamp levels; system woke on button press
- ✓ Created a custom bootloader and I2C-based update protocol; wrote a Python userspace tool for reflashing
- ✓ Wrote a Linux GPIO driver from scratch to support LED control via userspace
- ✓ Debugged hardware with LEDs, oscilloscopes, and bus analyzers
- ✓ Contributed to a Yocto-based Linux OS (Cortex-A9): refactored recipes, created update scripts, and integrated SWUpdate
- ✓ Maintained and extended proprietary ASoC audio drivers
- ✓ Assisted in Wi-Fi Alliance® certification and Apple HomeKit v3 integration
- ✓ Product featured on multiple platforms:

[Homam 64GB](#)

[Homam 64GB on Amazon](#)

[Homam 64GB Smart Camera Overview](#)

Skills & Technologies: C, Linux, Python, Ftrace, Perf, Ebpf, Embedded development tools, ARM-based SOC, Wi-Fi, Bluetooth Low Energy, Custom Hardware, Bus Analyzers, Oscilloscopes, Multimeters

SK Hynix memory solutions Eastern Europe

Embedded developer

Minsk, Belarus
May 2018 - April 2019

SK hynix memory solutions Eastern Europe is a leading R&D center for flash firmware and software development

Project: Contributed to experimental features and performance tooling for NAND-based storage products, working across Linux kernel and firmware interfaces.

Key Contributions:

- ✓ Participated in a cross-functional research team developing advanced algorithms for NAND-based storage systems; enabled experimentation by modifying Linux kernel drivers and exposing required metadata to firmware
- ✓ Enhanced a custom UFS Linux kernel driver to pass high-level filesystem insights to NAND firmware for smarter internal behavior
- ✓ Designed and inserted tracepoints into the Linux VFS and block layers, supporting real-time access tracing using ftrace
- ✓ Assisted in the creation of a Host Performance Booster-style feature within a custom UFS storage driver
- ✓ Developed userspace utilities in C and Python to analyze and visualize performance metrics from various NAND prototypes
- ✓ Collaborated with firmware, validation, and performance engineering teams to support architectural evaluations

Skills & Technologies: Linux Kernel Development, Filesystem & Block Layer Instrumentation, Firmware Interfaces, NAND Storage Research, UFS Driver Customization, ftrace, Performance Analysis, Python, Bash, Git, Systems Programming

Self Employed
Software Engineer

Taganrog, Russia
Dec 2014 - May 2018

Worked as an independent contractor delivering software solutions for small businesses and early-stage clients. Projects included long-term maintenance, debugging, and implementation of backend features and customer-facing tools.

Key Contributions:

- ✓ Delivered stable and reliable code across multiple client projects
- ✓ Worked independently to meet client needs on long-term contracts

Skills & Technologies: Software Engineering, Debugging, Python, Client Communication, Feature Design, Maintenance & Support

Education

Taganrog State University Of Radio Engineering
Engineering Degree (equivalent to B.S./M.S.) in Computer Science
Faculty of Automation and Computer Engineering
Graduate work: Wavelet transforms based images compression codec

Taganrog, Russia
Sep 1996 - May 2004