Embedded Software Engineer

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**Summary**

* **10+ years** of experience **delivering production-ready embedded systems** from board bring-up to secure firmware in **global** and mid-size **high-tech hardware-focused** companies,
* Expert in **Embedded Linux** (Yocto, Buildroot), **kernel modules**, drivers, and **low-level debugging**
* **Expert in C** with additional fluency in **C++, Python, Bash,** and **ARM Assembly.**
* Deep understanding of **secure architectures**: TrustZone, secure boot, and memory protection.
* Hands-on with **microcontrollers**, **ARM** (Cortex-A/M, **STM32**), **MIPS**, and **RISC-V** platforms, including **SoC emulation** and **reverse engineering.**
* Skilled in **system performance optimization**, device tree configuration, and custom bootloaders.
* Additional skills include **video processing** (GStreamer, FFmpeg), codec integration (H.264/H.265, VP8), and stream quality analysis.
* Proven ability to **collaborate** across hardware, QA, and firmware teams in fast-paced environments.
* Holds **M.Sc.** in Computational Systems and Networks (Computer Science).

**Experience**

2022 – 2024 **Software Infrastructure Engineer**, RADWIN

* **Developed embedded Linux firmware** using **Yocto** and **Buildroot**, and vendor **BSPs** for wireless infrastructure devices.
* Performed **bring-up** and **low-level debugging** using **gdb, ftrace, perf, JTAG,** and **logic analyzers.**
* Worked on memory management, boot processes, and performance optimization of network devices.
* **Collaborated** with QA and hardware teams to ensure high product quality.
* **Wrote technical documentation** and participated in **code reviews**.
* **Languages used**: **C, C++, Python, Bash scripting.**

2021 – 2022 **Senior Embedded Software Engineer**, NPC ELVEES

* Ported **Trusted Firmware-M** to a custom dual-core **ARM Cortex-M33 SoC** with **TrustZone**.
* Designed secure firmware for **FreeRTOS** and **bare-metal** environments
* **Implemented** boot logic, memory protection, inter-core comms, and low-level **HAL drivers**.
* Built **QEMU model** of the SoC; wrote **bare-metal demo apps** and technical docs
* Performed **reverse engineering** on ARM embedded platforms
* **Languages used**: **C, ARM Assembly.**

2018 – 2020 **Software Engineer**, Sercomm

* **Developed embedded Linux firmware** for routers using OpenWRT and Linux SoCs.
* Optimized **kernel modules** and **drivers** to speed up boot time and boost performance.
* Redesigned internal **RPC** communication to reduce latency and increase responsiveness.
* Identified and **fixed a bug** in a **Realtek network card driver**, contributing the patch upstream.
* **Languages used**: **C.**

2013 – 2017 **Senior Embedded Software Engineer**, EuroTech Communication Ltd

* **Led end-to-end embedded system development** for a real-time H.264 video device over multiple 3G/4G links
* Designed and implemented **Linux kernel modules** and **drivers** (i.MX6Q, ARM Cortex-A9)
* Built user-space video streaming with **GStreamer**
* Developed a **multi-thread** custom **UDP** transport tunnel with retransmission and jitter handling
* Created touchscreen **GUI** in **Lua** for field operations
* Built an embedded **Debian-based Linux system** using vendor **BSPs**
* Performed system bring-up and **low-level debugging** (logic analyzers, network tools)
* Used **C, Bash, Lua**
* Device showcased at Israel HLS & Cyber 2016, ISDEF 2017; officially recognized in **Israel’s national innovation ecosystem**
* Developed **SRTP** for legacy EuroTech VoIP systems (MIPS/Audiocodes)

**Professional Skills**

* **Embedded Linux** (Kernel, Drivers, BSP, Yocto, Buildroot), U-Boot Customization, Device Tree
* **Architectures:** microcontrollers, ARM (Cortex-A/M, STM32), MIPS, RISC-V; historical: PDP-11, 6502, MCS-51 (8051), 8080/Z80, x86
* **System Concepts:** Multithreading, real-time constraints, system bring-up, boot process, interrupt handling, hardware/software integration
* **Security:** Secure Boot, memory protection (TrustZone), VPN, IPSec, cryptographic primitives and protocols
* **Languages:** C (expert), C++, Bash, ARM Assembly, Python, Lua
* **Networking:** TCP/IP, VPN, SRTP, UDP tunneling, firewall integration
* **Peripherals**: SPI, I2C, UART, GPIO, SDIO, USB
* **Debugging:** gdb, ftrace, strace, perf, JTAG, oscilloscopes, logic analyzers
* **Reverse Engineering:** Firmware analysis, binary inspection, system recovery, disassembly, Ghidra
* **Video processing:** GStreamer pipelines (filters, overlays), FFmpeg, RTP transport, codecs (H.264/265, VP8), stream quality analysis (VMAF), real-time bitrate optimization

**Education**

**M.Sc. in Computational Systems and Networks**, Izhevsk State Technical University

**B.Sc. in Information Technology**, Bauman Moscow State Technical University

**Languages**

**English** (Advanced written), **Russian** (Native), **Hebrew** (**Basic**)