Drasko DRASKOVIC

108 Rue Lecourbe, 75015 Paris, France
✉ drasko.draskovic@gmail.com ☎ +33 (0)6 73487750

OBJECTIVE

A software engineer position in a results-oriented company that seeks an ambitious and career-conscious person, where acquired skills and education will be utilized toward continued growth and advancement.

EXPERIENCE

Sequans Communications Paris, France
Platform Software Engineer
June 2010 — Present (1.5 years)

Work on platform enablement, system and device drivers for LTE multi-processor SoCs, based on ARM946E-S, MIPS24Kc and Lattice Mico32 architectures with eCos RTOS (for baseband CPU) and Linux (for application CPU) as a systems of choice.

- Board bring-up and HW/SW debugging (JTAG, oscilloscope, logic analyzer, HW modifications)
- Fully developed (from scratch) USIM physical layer driver and transport protocol layers of T=0 and T=1 protocols for Smart Card communication. Used Comprion and Microprossp SC sniffers/analyzers and debugged solution. Debugged ASIC bugs and created workarounds in SW. Debugged HW bugs due to the rising edge timings and voltage levels using oscillosope and logic analyzers. Designed (specification) and implemented low-level API and created a suite of unitary and productions tests.
- Enabled OpenOCD open-source project for ARM946E-S and MIPS24Kc platforms, contributing patches to the community under GPL licence by merging separatly maintained git repositories to the project mainline. Wrote complex shell and TCL scripts for usage of cheap FTDI-based USB JTAG dongles and replacing expensive trhird-partner solutions, which significantly reduced development expenses for the company. Given a support and training to other engineers on using implemented solution.

- Revese-engineered Lattice Mico32 MonitorROM and third-party VHDL code in order to develop support for OpenOCD usage of Layer 1 debugging by JTAG. Adapted UrJTAG for very low-level JTAG communication debugging.
- Fully ported uClinux to SQN3110 SoC application processor based on ARM946E-S.
- Fullty ported Linux for MIPS, OpenWRT distribution to SQN3110 FPGA chip, and re-wrote specific configuration, Makefile, shell and Perl scripts and prepared a series of patches in a build system.
- Fully wrote (from the scratch) scatter-gather zero-copy solution for inter-processor communication based on parallel communication between eCos and uClinux network drivers, using SW circular FIFOs and HW pointers. Developed Linux application to test the implementation by receiving RF packets sent from the eNodeB, sent via eCos driver and received on Linux side, and observed traffic using Wireshark.
- Ported SDIO Linux device drivers for SQN3110 FPGA-based SoC. Created workarounds (driver quirks) for ASIC bugs (misunderstood SDIO specification) of a third-party SDIO controller IP.
- Implemented series of eCos RTOS drivers (watchdog, nework activity GPIO, flash handling...) and low-level services. Modified bootloader code and NVRAM configuration in the binary form.
- Implemented IQ Missmatch driver for calculation phase, gain and offset convergence and correction, and tested solution using tone generator and tweaking Maxim RF chip set-up. implemented AT commands and services for controlling of the solution.
- Implemented driver for reading ISO images stored on the NOR flash and proper handling of sector handling and wear leveling. Implemented unitary test eCos application by creating ISO images on host Linux and turning USB dongles (dev boards) into ISO storage.
- Compiled and prepared toolchains for ARMEB, MIPSEB and LM32 architectures based on Binutils v2.19, GCC v4.5.1 and GDB v7.3. Tested and debugged solutions on all 3 architectures and integrated it into development build process.

Philips (acquired by Pace) Paris, France
Embedded Software Engineer
November 2009 — June 2010 (9 months)

Low level system programming for HD TV WiFi Zapper satelite set-top box solution based on ST7105 SoC with SH4 RISC processor, running embedded Linux as an OS of choice.

- Work on ethernet and USB drivers for U-Boot bootloader
- Bundled Linux image with intiramfs for use on USB key to simulate missing flash memory
- Rewrote U-Boot procedures and changed low-level initialization (poke table) in order to use it with proprietary bootcode with strong security constraints
- Wrote (in assembly language) bootstrap procedure for auto-decompression of system binary in specific format and implemented 29/32-bit addressing mode switch needed to boot Linux image
- Debugged NAND Flash driver in U-Boot. Integrated similar solution in Linux system
- Implemented MAC address detection from NOR Flash and appropriate environment setting in U-Boot and Linux

SPiDCOM Technologies Paris, France
Embedded Software Engineer
December 2008 - November 2009 (1 year)

Firmware design and implementation for new SPiDCOM SPC300 HomePlug AV protocol (powerline communication) compliant SoC. Creation of BSP and Linux (with U-Boot) SW bundle for ARM based chip

- Implemented SDRAM controller configuration under U-Boot bootloader in ARM assembly language
- Designed (specification creation) a custom protocol for firmware update based on Ethernet-type Homeplug AV MME messages and implemented it in C. Wrote PC host client application (based on Linux raw sockets) to test and debug protocol implementation.
- Fully wrote MAC controller (Ethernet) driver and enabled TFTP image boot
- Enabled ARM MMU (caches and pagetable set-up, defined virtual to physical mapping, etc...) under U-Boot in order to enable DCache, which significantly speeded up Linux image transfer and all pre-boot operations
- Designed (specification creation) a custom protocol for FW update based on Ethernet-type Homeplug AV MME messages and implemented it in C. Wrote PC host client application (based on Linux raw sockets) to test and debug protocol implementation
- Implemented (ARM assembly) code for autodetection of parameters stored on flash used on board wake-up and debuged implementation with jtag and GDB. Wrote OpenOCD jtag and GDB scripts to speed up debugging process

- Wrote (in C) Linux image boot procedure that supports dual image booting with candidate selection based on parameters stored in custom image headers. Wrote user space applications for creating these headers and modified Buildroot Makefiles to enable their pre-pending on image build
- Implemented (from scratch) library for manipulating ethernet MME message structures and wrote unitary and functional test for new API using multi-threaded socket applications
- Implemented (from scratch) library for system configuration and wrote unitary and functional tests

Texas Instruments Nice, France
Multimedia Software Engineer
July 2006 - December 2008 (2 year 7 months)

DSP Architecture and Applications Group

Module-level verification of In-Loop DeBlocking Filter and Motion Estimation modules for digital video coding (compliant to several modern standards: H.264, MPEG-4, etc.), part of the IVA Hardware Accelerator for OMAP4 plaform

- Fully wrote C testbenches, embedding them in the reference decoder code (provided by third party vendors) and programmed filter C model; Development done on Windows (MS Visual C++ development environment) and Linux
- Ported all code to Linux and devoloped C interface and synchronization mechanism to enable IPC with Specman RTL simulation tool in order to test Verilog (hardware) code
- Wrote various Perl scripts and created Perl/Tk GUI application to enable automatic running of the tests, automatic logging and report creation.
- Defined and implemented (in C) functional coverage and algorithms to extract minimum set of testng conformance video bitstreams needed for full coverage

GSM/GPRS/EDGE L1 Software Engineer

Layer 1 Non-Regression testing and tool development

- Provided in depth support during GSM/GPRS/EDGE Layer1 Real-time embedded software development
- In charge of MCU and DSP L1 SW non-regression testing spread over several programs that used several TI OMAP platforms with ARM 9 / ARM 11 and TI C55x DSP

- Extensive laboratory experience - proficiency with various modern mobile telephony protocols test equipment (ANITE, RACAL, CRTU, CMU200, CRTP, etc.)
- Analyzed L1 Trace, troobleshooted L1 sofware in case of issues
- Fully developed GSM Voice audio loopback and BER test cases, implemented complete automation of GSM Voice test process for RACAL AIME 6103.
- Developed ANITE/Agilent SW applications (in C) for testing 2G/UMA (GAN) handovers

FNX Solutions Belgrade, Serbia
Software Engineer
August 2005 - July 2006 (1 year)

FNX SIERRA System (system for the management and processing of capital market transactions) development and debugging

- Worked on system coding in C under Solaris within the international team, remotely connected to servers in Philadelphia, USA
- Designed and implemented various business objects and data transfer objects used within a system for database connectivity. Implemented a crucial part of Oracle database port by adapting various libraries used for application/database communication.
- Thoroughly debugged and resolved issues for risk-management applications (system, network and GUI)
- Programmed and designed various database triggers, table and update scripts, stored procedures, etc., in SQL, Transact-SQL and PL/SQL, migrating system from Sybase to Oracle
- Fully wrote various Perl and BASH scripts and successfully implemented automatization of development process

Innovational Centre of School of Electrical Engeneering Belgrade, Serbia
Research Assistant
August 2004 - August 2005 (1 year 1 month)

LINSEC - Linux Security and Protection System, project introducing Mandatory Access Control (MAC) mechanism into Linux (as opposed to existing Discretionary Access Control mechanism)

- Linux kernel hacking (file system domain access control, socket access control)
- Ported the legacy system on 2.6.x "vanilla" kernel and resolved various errors due to GCC incompatibility issues

- Developed enhance for user-space tools for controlling the system patch

EDUCATION

Diploma Engeneer (equivalent to M.Sc.)
School of Electrical Engineering, University of Belgrade
department of Electronics, Telecommunications and Control

Master Thesis in Audiotechnics : *"Analysis of Methodes And Applications for Artificial Reverberation"*, department of Telecommunications, School of Electrical Engeneering, Belgrade, Serbia

Student projects:

- RT application for railroad taffic signaling and organization written in C++ using API of a custom RT kernel
- Retriggerable timer with 7-seg display based on PIC16F84 uC written in assmbley (MPlab IDE)
- 10-band audio equilizer schematic and layout implementation in Protel package
- JK flip-flop VLSI layout done in Magic VLSI tool

PERSONAL INTERESTS

- Music playing (guitar) and sound and video production using GNU tools
- Contemporary and fine art photography, analogue and digital
- Karate (karateka and official member of France Shotokan Federation)
- Film, literature and philosophy