

JOHAN WESTLUND

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SUMMARY

Embedded software engineer with more than 5 years of C / C++ experience developing firmware, drivers, libraries and applications for many different processor architectures and operating systems.

I have mainly worked with product development in small to medium size agile teams, close to other software and hardware engineers. I am very independent and have no problem working alone as well as working together with other team members. I have good communicative skills and find it easy to talk to people with other professional backgrounds than I have.

Board bring up, documentation and test has always been a part of my work including measurements and soldering. I also have experience with C# and Java creating test software and integrating low level libraries into these languages as well as some experience with electronic design.

WORK EXPERIENCE

Embedded Software Engineer at BitSim AB

2015 - 2016

- Product development consultant
- Firmware, library and application development
- Electronic design

Embedded Software Engineer at Speed Identity AB

2012 - 2015

- Product development and maintenance
- Firmware, library and application development

System Developer at Combitech AB

2011 - 2012

- Software development and maintenance at Ericsson AB working with time synchronization in radio base stations.

EDUCATION

Engineering Physics and Technical Engineering – M.Sc. System on Chip

2005-2011

Master Thesis: Voice Processor on an FPGA

KEYWORDS

C, C++, Micro controllers, Windows, Linux, SVN, GIT, C#

SKILLS AND TOOLS

(2) Some experience (3) Experience (4) Good experience (5) Mentor

Languages

C	4
C++	4
C#	3
Java	2
Assembly	3
Verilog	3

Operating Systems

None	4
Windows XP/7/10	4
Windows XP/7 Embedded	4
Linux	4
ThreadX	3
Android	2

IDEs and Tools

Eclipse	4
Visual Studio	4
GNU Toolchain	4
GDB	3
Altium Designer	3
Eagle PCB	3
MPLABX	2

Libraries and Frameworks

.NET	3
GStreamer	3
OpenSSL	3
SDL	2
Zlib	2
OpenCV	2
OpenGL	2

Architectures

x86 / x64	4
ARM Cortex	3
ARM9 / ARM11	4
8051	3
Atmega32	3
PIC24	3

Communications

UART	4
RS232	3
USB 2.0 / USB 3.0	4
I2C	3
SPI	4
Ethernet	3

Versioning

SVN	4
GIT	3
JIRA	4
TRAC	2

Industries

Industrial	4
Government	3
Data Security	3
Telecom	2

INTERESTS

Image processing, parallel computing, code optimization, hardware acceleration, hardware emulation, sensors fusion, control theory

PROJECT EXAMPLES

- Product key generator and key decryption (AES) for software feature protection, C++ and C#
- RTOS firmware development for super speed USB 3.0 interfacing.
- Video Streaming using GStreamer API on an ARM Cortex A9 (i.MX6). The stream was compressed with h.264 utilizing the i-MX6's hardware VPU.
- Developed a 3D engine on a 16-bit PIC MCU which has 2D graphic hardware acceleration. This was done to demonstrate the capabilities of this MCU and its 2D support.
- C++ library development on Windows for a custom made controller board. Also developed a C# wrapper for easier implementation for the customer.
- Firmware and driver development for a custom lift system including PID regulation. Also with C# support.
- Designed and developed an automated production test software in C# to support the many different hardware devices in a biometric enrolment system.
- Designed and developed an automated production test framework in C# which is modular and scalable in the sense that hardware modules, communication protocols, test equipment and test cases can be configured and loaded at runtime. The purpose was to have a general framework to test several different products with different test equipment as well as adding new test cases without having to change the production test software.
- Developed an Ethernet 10/100 device (PCB) using Altium designer.
- Developed a USB dongle using Altium designer
- Integrated a COM framework into Java using JacoZoom.

COURSES

- .NET Design Patterns – 4 days
- Linux Device Drivers – 2 days
- PSoC Capacitive Sense – 1 day

PROJECT LOGS

Embedded Software Engineer at BitSim AB

2015 – 2016

- Firmware development on ARM9 – USB3 interfacing
- Firmware development on EFM32TG (Cortex-M3)
- Windows and Linux library development (SPI host)
- Test applications for functional testing
- Electronic design, developed a PCB board for Ethernet 10/100 application
- Electronic design (PCB) and firmware design on EFM8UB (USB dongle device).
- Architectural design and implementation of an automated production test framework to support testing of all these products and future products in a production line.
- Software and hardware upgrade on X-ray machine. WES7 image build.
- Product key generator and key decryption for protecting software features

Embedded Software Engineer at Speed Identity AB

2012 - 2015

- Integration of 3rd party drivers/libraries to higher level languages for devices such as cameras, fingerprint readers, signature devices etc.
- Improving camera images of different cameras to get a good picture of a human face both in a biometric perspective but also from an end-customer perspective. The improvements were done by tweaking camera parameters, reduce noise and developing auto-features to adapt to the photographed object and environment changes such as surrounding light conditions.

System Developer at Combitech AB

2011 - 2012

Software development and maintenance at Ericsson AB working with time synchronization in radio base stations. My main responsibility was maintenance and upgrades of GPS as well as the FPGA interface.

Master Thesis – Voice Processor with echo cancelation

2011

- Implementing the soft DSP voice processor on an FPGA from block schematic design
- PCB interface between an ARM11 board and the XILINX FPGA board
- Firmware for DSP processor using numerical machine code (no compiler available)
- Linux kernel module for communication between the ARM host and the DSP
- Demo application for ARM11 to test and demonstrate the DSP