

Christopher J (Chris) Hills

Objectives

- To join a small or medium-sized project team, bringing my years of experience in real-time software and firmware development in C/C++, C#, Java and Assembler.
- I will work full-time, part-time or on a contract basis.
- I also bring technical writing skills I have acquired over many years.

Specialties

- Self-motivated, team-oriented, strong work ethic, high attention to detail.
- Full software development life-cycle, from requirements definition, high-level and low-level design, implementation, unit-testing through to integration and release.
- Firmware development on MS Windows, for targets running Windows Mobile, Android, Nucleus and proprietary embedded real-time operating systems (RTOS).
- Customer support by email, telephone and on-site visits, to ensure full and correct functioning of installed products through the acceptance, interoperability and fully-functional on-line deployment phases.
- Microprocessors: Intel 8080, 8085, 8051, Zilog Z80, National Semiconductor NSC800 and Motorola 68030 and ARM9.
- Languages: C/C++ (20+ years), Assembler (10+ years), C#.NET, Java, FORTRAN
- SCADA development (10+ years) in the oil and gas and metropolitan water distribution industries.
- SCADA protocols, including MODBUS, Allen-Bradley, GE. Some experience with I²C. Experience with several proprietary protocols.
- Cellular air-interface protocols: AMPS (TIA/EIA-553), IS-54 (dual-mode), TDMA-136, GSM/GPRS/UMTS, WiMAX (IEEE 802.16e).
- Network Protocols: TCP/IP, PPP, HTML/XML, SOAP
- Development of web service clients in C# and Java
- Programmatic interfacing in C++ and C# with MySQL databases
- Code-Revision tools: Intersolv PVCS, Rational ClearCase, Perforce, Apache Subversion with TortoiseSVN client.
- Development Tools: MS Visual C++, MS Visual Studio 2008, Eclipse (Helios and Indigo) with Android Development Tools, NetBeans 7, Borland C++, C-Cover, PC-Lint, CodeWright editor, PuTTY, various cross-compilers, cross-assemblers, debuggers and linkers.
- Cellular Mobile Test Sets: Marconi (analog), Anite, and Agilent.
- Lab Equipment: Oscilloscopes, Protocol Analyzers.
- Worked in close co-operation with hardware engineers and designers. Experience working with board schematics and device data sheets.
- Developed low-level device drivers and hardware diagnostics. Contributed to the success of the development and deployment of new proprietary hardware platforms.
- Quality technical documentation for the software development process and for end-users, with MS Office tools (Word, Excel, and Visio).

Employment Experience

Aug. 2010 – Present: Praebius Communications Inc. Calgary

Senior Software Developer

- Developing an Android-based custom mobile application for deployment in the public service sector. Java 1.6 with the Eclipse IDE (Helios and Indigo), using the Android Development Tools and Google API plug-ins. Likely deployment to an Android smart phone form factor device.
- Implemented Win32-based multimedia and decoding applications for use in the insertion of advertising material into broadcast television channel programming.
- Upgrade development for a commercial media asset management and distribution application, written in C#.NET using MS Visual Studio 2008. The application was successfully deployed to the end-user, NBC Universal.
- Programmatic interfacing with a commercial web-based Content Information Service (CIS: SCTE Specification 130-4, 2009) and with local MySQL databases.
- Programmatic decoding of MPEG-2 audio/video advertising spot files, creation of WAVE files and the design and implementation of a proprietary multimedia interchange file format.
- Interfacing video and audio playback frames with MS DirectX on the PC, and with low-level drivers on proprietary hardware platforms.

2006 – 2009: Marvell Canada Corp. Calgary Design Center

Embedded Software Developer

This is a division of Marvell Semiconductor Inc., which is based in Santa Clara.

- Member of a software team developing a WiMAX femto-cell base station MAC layer implementation. Responsibilities included implementation of the uplink and downlink data paths, ARQ, mobile availability algorithms and downlink Frame Scheduler upgrades for Mobile Paging. Successfully integrated into the MAC layer implementation with full functionality.
- Integration/release prime for two of the base station code releases, ensuring on-time, complete, and fully-tested releases to Marvell's Santa Clara team.

In early 2009, Marvell suspended its WiMAX development effort and closed the Calgary Design Center.

1999 – 2006: Intel Corporation Calgary Site

Embedded Software Developer

- Continued development of the TDMA-136 digital protocol engine, which was licensed to various cell phone manufacturers for integration into their mobile phone products. This software was successfully integrated into commercial mobile products for Mitsubishi, Panasonic, NEC, Samsung and Motorola.
- Provided technical support to Intel's software integration and release team in Israel. This helped to bring the Israeli engineers up to speed on the coding and features of the TDMA-136 protocol engine.
- Participated as a consultant during acceptance, interoperability and field testing for customer products, providing telephone and email support to Intel's integration/test engineers, as well as technical support to the customers themselves, as the need arose.
- Moved to a larger software team, developing a Windows Mobile "Smartphone" product for a customer in Taiwan. Designed and co-developed a middleware interface layer between the Telephony Application Layer and the third-party GSM/GPRS/UMTS protocol stacks. This enabled the device to work as a fully-featured Windows Mobile telephony product. We filed an Intel patent for the interface API.
- Conformance testing of the Smartphone product, using commercial protocol testing equipment. Provided code fixes and enhancements to the QA team. Increased the number of successful conformance test cases to over 95% (all of the mandatory test cases).

1992 – 1999: Isotel Research/DSP Communications

Calgary

Embedded Software Developer

- First employee of Isotel Research, a start-up company.
- Developed analog and dual-mode cellular mobile protocol stacks for integration into the customer's cellular modem product. Re-implemented the analog stack as a "protocol engine" for integration into any cellular mobile telephony product. This protocol engine and its successors were the company's flagship products for several years.
- Initiated development of a digital cellular mobile protocol engine (TDMA-136) for customer digital cell phone products.
- Created implementation guides, manuals and technical notes for use by customer integration engineers, who would need to implement a software "wrapper" for the protocol engine to run on their platforms.
- Worked with customer integration engineers during the bring-up and integration of the cellular protocol stacks on their commercial telephony hardware platforms.

In 1998, Isotel Research and its workforce were acquired by DSP Communications, to leverage sales of DSP's digital cellular chipset with the already well-established Isotel cellular protocol engine software.

After further development of the TDMA-136 protocol engine, DSP Communications' financial performance improved to the point where the company was itself acquired by Intel Corporation's Cellular Handset Group.

Education

Brighton Polytechnic

Brighton, Sussex, UK

- Completed a four-year B.Sc. Honors degree in Applied Physics, graduating with first class honors.
- Completed a three-year postgraduate Research Assistantship at the same college, leading to a PhD in Applied Solid State Physics.

Brighton Polytechnic is now part of the University of Brighton.

Awards and Accomplishments

- Received four company awards for work excellence
- Filed a US patent (with two other developers) for Intel, related to the software API we developed between the telephony applications and the GSM/GPRS/UMTS protocol stacks.