

Carrie Lery

Carrie is a Staff Development Engineer with AISD and joined the company in May, 2008. She provides a strong background in embedded systems firmware design, specifically in the area of telecommunications.

Professional Skills

- Embedded systems design and real time firmware development
- Programming languages: Various assembly languages including ARM7TDMI/940T, MC68x, PICmicro and their development tools, C, C++
- Research and implementation of various communication protocols, specifically in wireline and wireless telecomm: 802.11, UWB 802.15.3 MAC, HomePNA, Wireless USB, VoHpn, Facsimile, V.42/bis
- Extensive lab experience in firmware, FPGA and hardware debug.
- RTOS operating systems include: ThreadX, Spectron IA-SPOX OS, pSOS, MicroC/OS-II

Employment History

KeyEye Communications - 9785 Goeth Rd., Sacramento CA 95827

03/07 – 10/07 Consultant

Firmware development for KeyEye's 10Gb Ethernet PHY. Test/debug performed in Verilog simulation environment.

RFTechnologies Inc. - 3125 North 126th St., Brookfield WI 53005

10/05 – 04/07 MAC Engineer Consultant

Worked on the firmware for RFT's "Seeker" Mobile Locating solution. My responsibility was to help increase the communications reliability between the RFID Tag and Pocket PC RF Receiver. Seeker was released to production and is currently being installed in hospitals for asset tracking purposes.

Provided the MAC firmware development for RFT's battery operated Asset Radio Tag for an 802.11b real time location system (RTLS). Evaluated the architecture for a 3rd party ARM7TDMI-based MAC, and then added a custom RFT embedded host. Various customizations were made to the MAC firmware to aid the low-power requirements of this product. It is currently being demonstrated to potential customers.

Alereon Inc. - 200 Providence Mine Rd., Nevada City CA 95959

08/03 – 02/05 Principal Firmware Engineer

Major contributor in firmware development and architecture for the Alereon 802.15.3 Ultra Wide Band (UWB) MAC. This MAC was demonstrated with Alereon's base-band, AFE and antenna as a complete UWB radio system at the January 2005 CES show in both Alereon and HP booths.

- Alereon UWB 802.15.3 MAC protocol development – main firmware contributor.
- Driver development for UWB MAC hardware, both MAC/Host and MAC/radio sides.
- Wrote low-level drivers for FPGA verification; FPGA HW integration with system firmware; FPGA boot code.
- Worked with Commstack engineers for interface debug of purchased Commstack base-band and Alereon MAC for an early MAC demo.
- Firmware architecting around a ThreadX RTOS using features including: multi-tasking of different MAC components; intertask event handling; interrupt/task interfacing; packet processing; task prioritization.
- Started conceptual design for MBOA MAC and Intel Wireless USB MAC.

AISD Inc. - 10031 Joerschke Drive, Grass Valley CA 95945

10/02 – 8/03 Consultant

Assembler/Linker development. Wrote the assembler/linker tool for a custom DSP processor developed by SliceX Inc. Worked closely with the customer's development engineers, SliceX engineers and the engineers developing the simulator tools. The assembler was written in C and is still in use for this chip.

2Wire Inc. - 333 Crown Point Circle, Grass Valley CA 95945

8/99 – 10/02 Senior Staff Software Engineer

Firmware development of various protocols involving use of Home Phoneline Networking Alliance (HPNA) technology, working closely with the HPNA PHY/MAC developers throughout the development cycle.

- Developed the Voice over HomePNA protocol firmware for 2Wire's VoHpna "PhonePort" product. The PhonePort allowed an ordinary telephone to stream packetized voice (VoHpna) with the 2Wire gateway over a home's internal phone line wiring. Client and server sides were developed to run over Ethernet between two Window's PCs during pre-hardware stage, then ported to the PhonePort's ARM940T platform (client) and the gateway's Trimedia platform (server). 2Wire's PhonePort/gateway voice solution was accepted by major phone companies as their solution for providing VoIP services to their customers.
- Served as a key member of the team that defined 2Wire's VoHpna specification. The HPNA SG10 committee later accepted this as the basis for the formal VoHpna spec.
- Implemented the Collision Sequence Signaling protocol for HPNA devices that use high priority packet transmission. This protocol allowed HomePNA devices with low latency requirements (i.e. VoHpna) to reduce packet collision resolution time.
- Implemented HPNA Rate Negotiation Protocol and Capability/Status Announcement Protocol for 2Wire's PhonePort and early PcPort (USB to HPNA) devices.
- Defined the telephony API for 2Wire customers to use their own codec and SLIC hardware for OEM VoHpna solutions.
- Worked with the developers from a major consumer electronics company to incorporate the VoHPNA software into their product.
- Designed and implemented automatic firmware upgrade protocol for PhonePort. This allowed gateway upgrades from the internet to also upgrade all of the user's PhonePorts over the home's HPNA network.
- Involved in HPNA driver development for 2Wire's custom ASICs.

3COM / U.S. Robotics - 500 Crown Point Circle, Grass Valley CA 95945

12/95 – 08/99: Senior Systems Engineer

- ADSL Project – Worked on performance optimization of the C6201 based ADSL framer/deframer and interleaver code; providing data link layer support for interoperations with additional ADSL ATU-Cs (CO side), and performance testing over various line conditions.
- "Rattlesnake" Portable Modem Supervisor project. Involved in architectural design and development of a modem supervisor written in C and C++, and designed to be easily portable between operating systems. Main development done using the Spectron IA-SPOX OS under Win '95, and the NuMega Soft-ICE debugger. Sole developer, or a large contributor, to various specific functionality including DTE host interface, AT command parser, call progress, Voice, V.42, V.80, V.8bis and Internationalization.

TDK Systems Development Center (TSD) - 136 New Mohawk Road, Nevada City CA 95959

01/91 – 12/95 Senior Systems Engineer – PCMCIA Modem products

TRW Avionics & Surveillance Group - San Luis Obispo, California.

6/86-1/91 Senior Firmware/Hardware Design Engineer – Secure Facsimile and Data products

Education

12/86 Bachelor of Science degree in Electronic Engineering with emphasis in Computer/Digital design.
California Polytechnic State University, San Luis Obispo, California.