

## **Richard M. Myers**

Dick is Vice President and a Staff Development Engineer at AISD. He provides system level electronics development, IC/FPGA hardware development (Verilog HDL), hardware and software support for simulation and emulation. He is also experienced in operating systems (including real time) and production level C programming. Dick began work with AISD in early September 2000.

### **Summary of Work Experience**

Skilled in Verilog HDL for ICs and FPGAs, C programming, DSP hardware modeling, mixed signal Verilog system modeling, RF systems design, and embedded systems design. Experienced with many bus architectures, and operating systems. Strong system integration skills and experience. Resourceful, creative, can-do attitude, and very strong troubleshooting skills.

### **Skills/Strengths**

- Digital design using Verilog HDL, Verilog system modeling and simulation (mixed signal), IC verification using simulation and/or FPGA emulation. Post place and route simulation and verification. Verilog netlist modifications (metal fixes, etc.)
- C Programming, DSP Modeling, C to synthesizable Verilog, real-time programming, embedded systems, porting code, Pthreads. Some GUI control of hardware experience (several projects).
- Electronics system design. Complex mixed signal board design. PCB layout for signal integrity and RF performance.
- Xilinx FPGA/CPLD flow.
- Strong Computer/OS Skills, Networking, Linux/UNIX/PC System Administration.
- Team Player, work well with others. Detail-oriented.
- Creative, with excellent problem solving and troubleshooting skills. Very mechanically inclined.

### **Work and Experience History**

9/00 - Current. - **Absolute Integrated Systems Developers (AISD)**, Grass Valley, CA - **VP/Staff Development Engineer:**

Worked on jobs for many clients over the years, including developing full systems (hardware, software GUI, firmware, chassis) to IC demo boards to IC verification

platforms to RTL to IC verification testbenches to simulation models (C code) and much more. Some notable projects are:

Lead designer for an 8-channel RF propagation simulator for the 2MHz to 2500 MHz band. The system simulates delay and signal path attenuation between eight radios operating anywhere in the 2MHz to 2500Mz band. Under GUI control, the system can configure any combination of isolated radio networks (4 networks of 2 radios each to 1 network of 8 radios). The simulation environment can place radios anywhere in 3D, up to 2000 miles apart and includes motion (position, velocity and acceleration) in hardware.

Lead digital designer for an AC dimmable LED controller IC (incandescent replacement). Wrote RTL verification environment for 8/64-ch LED backlighting controller IC.

Lead designer for a very complex FPGA-based multidimensional mass spectrometer timing controller. Project included using an off-the-shelf FPGA board and designing a daughter board to implement the many A/D, D/A and digital channels required to control the instrument. Also included USB control with a register interface to set roughly 200 instrument and timing parameters.

Participated in AISD effort to make software development tools consisting of an assembler, simulator, and source-level debugger for a custom power meter IC, which is essentially a custom DSP core along with memory, A/Ds, and other integrated hardware. Used an open source tool to make a cycle accurate software model from the DSP core RTL, and implemented all the associated IC circuitry (clocks, memory, memory-mapped registers, register set, timers, WD, interrupt support, A/D, etc) in software. This was built into a Windows DLL using GNU tools. The DLL, which is a software model of the power meter chip, is called from the custom source-level debugger GUI front end.

Developed C model for custom QPSK modem used in a unique channel/environment, then after testing and characterization, developed a Verilog HDL FPGA modem from C model. Developed the master/slave physical layer protocol, uC I/F, and other features in hardware for specialized QPSK modem.

Developed and tested DSP hardware models in C for Gigabit ethernet subfunctions, including feed forward and decision feedback equalizers, timing recovery, echo canceller, scrambler/descrambler and cable model.

Architect and administrator of AISD's Linux-based server (web, email, intranet, license server) and network of Windows and Linux PCs.

4/99 to 8/00. - **Science Applications International Corporation (SAIC)**, Ocean/Remote Systems Division, San Diego, CA - **Electronics Engineer - (telecommuting consultant)**: Designed, integrated, and programmed the electronics to implement a wide band data link from an ocean buoy to shore. A buoy mounted PC/104 computer running RTLinux (in Flash) acquires real-time wide band data from underwater instruments and transmits it to a shore based

Linux PC over a 2.4 Ghz wireless link (TCP/IP), where it could be stored or streamed (played) to the sound card. Local voltages/temps are also monitored and sent to the shore based PC. The software is written to handle data dropouts, data logging, link transparency, on-the-fly data compression (if compressible), and remote control and monitoring.

7/90 - 4/99 - **SPAWAR Systems Center, RDT&E Div. (formerly NRaD, NOSC)**  
- San Diego, CA **Electronics Engineer**: Worked on the Advanced Off board Surveillance System (AOSS) project. The AOSS system was deployed onto the sea floor where it collected and processed real time data from acoustic, electric field, magnetometer sensors. All collected data was stored locally on large capacity laptop drives. Processed data was transmitted to the surface via an acoustic (wireless) data link, which was also used to send commands to the system. AOSS was based on three networked PC/104 computers running QNX. Responsibilities included system design of all processing hardware, sensor and modem integration, real-time data collection software (QNX), OS system administration, and power system design.

Designed high speed infrared (IR) imaging sensor data collection and processing systems (multiprocessor VME). Wrote C and MATLAB software to manipulate IR image data. Maintained complex and temperamental IR data acquisition system. Administered numerous UNIX and Windows based computers. Designed and built digital hardware to interface Boeing IR sensor to Ampex DCRSi data recorder. Collected IR data during US Navy missile tests off the coast of California and Hawaii.

Designed and built high speed digital interfaces, data simulators, and data acquisition systems to support the testing of prototype acoustic array systems. Performed system design, HW/SW upgrades and modifications, and VME system integration for the development of 68K/i860/Sun based acoustic data recording and real-time processing systems for US Navy sea tests. Participated in at-sea acoustic data collection tests locally and abroad. Supported post processing of collected sea test data. Installed computer hardware, operating systems (DOS, OS/2, SunOS, Linux, VxWorks, Windows), and configured application and networking software on numerous platforms.

Integrated a flux gate magnetometer, E-field sensors, and a DiFar acoustic sensor into an autonomous underwater recording package which was later deployed off the San Diego coast.

Responsible for systems design of an Automatic Link Establishment (ALE) radio exploitation system. Included interfacing considerations with existing signals exploitation systems, writing an ALE data simulator (in C), and operator interface design. Target system was an HP UNIX workstation.

Performed systems engineering for computing portion of prototype UHF/VHF Direction Finding system. Included system design and component selection using off-the-shelf VME/VXI bus boards.

Wrote software to interface embedded C40 based controller to military GPS receiver and UHF receiver. Wrote software to extract/format archived data from raw SCSI drive. Also provided VME systems integration support.

8/89 - 7/90 - **Naval Aviation Depot** - North Island, CA - **Electronics Engineer**

Dec '81 - Oct '85 - **U.S. Air Force** - **Electronics Technician**

### **Professional Interests**

IC/FPGA design, ultra low power and/or remote sensing applications, energy measuring/management, RF mesh network applications, alternative energy.

### **Education**

Bachelor of Science in Electrical Engineering, May 1989 - Washington State University, Pullman WA.

Numerous courses from UCSD Extension in C programming, microprocessor system design, programmable logic devices, and acoustics.

QNX Real-time OS Programming Course, Mercury Computer Systems MC/OS and PowerPC Courses (parallel processing systems),

VxWorks Training Class, Sky Array Processor Programming Course, NRaD Systems Engineering Course.