

Zachary Schroff

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Skills

Hardware

- Network processors : Hifn 5NP4X, 5NP4G (IBM NP4GS3C), Intel IXP2400/2800.
- 32b general purpose processors : Intel 80386, 80387, 80486, Pentium series, AMD K6, Athlon series.
- 16b general purpose processors : Intel 8086, 80186, 8087, NEC V20/V30.
- 8b general purpose processors : Motorola 6502 series, Hitachi 6303.
- Other processors : Various emulators and virtual machines.
- Other hardware : LCD and CRT controllers, magnetic disc controllers, audio devices. Devices on ISA, EISA, PCI, and AGP busses. Various proprietary hardware devices.

Languages

- Assembly (assembler) : 8086 and following, 5NP4X/5NP4G, 65x2, 6303, V20/V30, IXP2400/2800.
- Machine : 65x2, 6303, 8086, limited coverage on other processors where I have assembly experience.
- C, C++ : ANSI, GNU, Turbo.
- Others : Pascal, Modula-2, OPL, various shell and script.

Operating systems

- Linux, VxWorks, Windows NT series (and descendants), OS/2, DOS, SIBO, Symbian, proprietary ROM kernels, others.

Programming

- POST/Diagnostics and boot process.
- Routing protocol, forwarding control, packet and frame forwarding (on general purpose processors and dedicated hardware).
- System software, including boot managers, drivers, security, and memory management.
- Distributed computing, loosely and tightly coupled parallel processing.
- Utilities, including disc manipulation tools, backup tools, diagnostic tools.

Work experience

Hifn (Morrisville, North Carolina)

June 2004 - June 2006. Staff Software Engineer, Network Processor Software Group

- Wrote microcode and documentation for next generation network processor (5NP4X). Wrote POST, boot, diagnostics, frame/packet forwarding, and data plane management microcode.
- Participated in hardware bring up of prototype next generation network processor. Worked closely with hardware engineers to test and evaluate the initial board spin. Contributed to hardware documentation. Contributed to architectural changes for follow-on generation of network processor.
- Participated in port of current generation network processor (5NP4G) software to newer Linux release.
- Worked with application engineering. Was directly involved in solving problems for major customers on current generation network processor.
- Worked with marketing to discern needs and desires of customers, and evaluate market research.
- Worked with management on project scheduling, project budgeting, and the design of lab, office, conference, and break area space for expansion build-out.

Red Plain Technology

September 2003 - May 2004 (consulting to present). Software Architect and Engineer.

- Designing, implementing, and porting a high performance distributed object infrastructure for embedded systems.

IP Infusion (Cary, North Carolina)

April 2001 - August 2003. Architect, Network Processor Group.

- Reduced feature-to-platform integration time by designing an abstraction layer.
- Improved test and diagnostic coverage by designing and implementing an enhanced memory manager.
- Worked with Intel toward multicast on the IXP2400/2800 network processor with IPI's PIM support.
- Participated in specification of OSI layer two products including: bridging, VLAN, GARP, GMRP.
- Led the company to work on redundancy as a means to higher quality products.
- Participated in the Network Processing Forum (recently merged with the OIF): proposed new targets, standards, and near-term product offerings.
- Provided technical assistance to marketing, sales, and customers.

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- Wrote documentation and specifications.
- Wrote plain English papers explaining features such as virtual routing and redundancy.

Nortel Networks (Research Triangle Park, North Carolina)

October 1999 - March 2001. Software Engineer, Open IP Environment.

- Developed multiple virtual router theory. Implemented reference port for the Intel IXP1200 and Phase2 Networks IP and OSPF. Demonstrated working implementation two months after development started.
- Proposed an industry standard control plane / forwarding plane interface in CPIX/CSIX (now NPF).
- Implemented system with control point using Phase2 Networks IP and OSPF, proposed standard control plane / forwarding plane interface, and a simulated forwarding plane, on VxWorks. Ported it to the reference platforms for several network processors, including Intel IXP1200 and IBM NP4GS3.
- Updated Phase2 Networks RIP and DVMRP to include RFC changes. Ported Phase2 Networks protocol stacks (IP and OSPF) to VxWorks.
- Provided technical support to customers of Open IP Environment / Phase2 Networks products.

db Technology (Cottondale, Alabama)

- Freelance contract work included 8086 and 80386 assembly language (assembler) based modules for use in real-mode Modula-2 based applications.

University of Alabama College of Arts and Sciences (Tuscaloosa, Alabama)

September 1996 - September 1999. Manager, Area Computing Services.

- Managed and administered 10 NetWare servers, 1 IRIX server, 1 WinNT server, hundreds of clients.
- Installed, configured, and administered several Cisco Systems switches and routers. Upgraded a hub-based 10Mb/s network to switched 100Mb/s, with redundant load sharing links between buildings. Terminated fibre-optic cables between several buildings. Managed and implemented software and hardware upgrades of servers and workstations.
- Managed configuration, support, and security of hardware and software on servers and workstations.

Education and Certifications

CCNA Certification

- Obtained in late 1999.

University of Alabama, College of Engineering

- Bachelor of Science in Computer Science, May 1996.

Shelton State Community College

- One year of study toward Industrial Electronics Technology, 1989 - 1990.

Awards and Recognition

Nortel Networks Gold Pride Award

- Awarded 20 January 2001 for my contributions toward the successful delivery of Open IP release 2.1.

Nortel Networks Pride Award

- Awarded 3 March 2000 for my work on the Nortel Open IP Environment / Intel IXP1200 reference port and Multiple Virtual Router demonstration.

Intel Certificate of Excellence

- Awarded 22 February 2000 for my outstanding performance and lasting contribution to the Nortel Open IP Environment / Intel IXP1200 reference port and Multiple Virtual Router demonstration.