

## STEPHEN REAMES

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### ANALOG AND DIGITAL CIRCUIT DESIGN

11925 Greentree Rd.  
Colorado Springs, CO 80908-4125  
voice: (719) 495-0141  
fax: (719) 495-0142  
spr1@diskdrive.com

#### EXPERIENCE:

Disk drive and disk drive test equipment design, Synchronous read channels, Product development, iSCSI and Fibre Channel protocols, Switching power supply design, ASIC design, Analog and digital simulation, CAD tools for hardware design, VHDL, Hardware and software for embedded controllers, Local area networks, Linux, BSD, Windows NT

CONSULTANT, KnowledgeTek Broomfield, Colorado  
Author of and instructor for 2-day iSCSI course. Developed and taught both introductory and advanced courses on the StorageTek SN6000 Virtual Tape Manager. Wrote additional tutorial materials on Solaris, SANs, and Fibre Channel. Co-developed KnowledgeTek course on Fibre Channel Physical Layer.

Oct 1995 - Aug 2000, CARSAN ENGINEERING Lakewood, Colorado  
Director of Engineering. Designed and developed over 15 new switching power supply designs. Performed UL safety and EMI testing. Grew company from 4 to 30 employees. *Inc Magazine* list of top 500 fastest growing companies for 1999 (#308 on list) and 2000 (#349 on list).

CONSULTANT, Quantum, Systems Engineering Group Milpitas, California  
Designed and developed electrical interface and performed system modeling (SPICE) for new drive interface, later known as Ultra-DMA/33. Wrote white paper on transmission line effects in disk drive interfaces, which was later included in the ATA specification.

CONSULTANT, Cirrus Logic, Mass Storage Group Broomfield, Colorado  
Designed and built emulator board for analog half of synchronous read channel. Designed and built 100 Mbps Bit Error Rate Tester for testing of advanced read channels with both HDAs and spinstands.

CONSULTANT, Cornerstone Logic Colorado Springs, Colorado  
Was part of a small startup company developing intellectual property for the disk drive industry. Designed and wrote both structural and behavioral VHDL code for a disk drive Data Path Controller.

CONSULTANT, Gregory Associates San Jose, California  
Built Servowriter for 2 1/2" disk drive product line of large disk drive manufacturer. Debugged analog and digital hardware and system software. System included laser interferometer-based mechanical positioning system, triple servowriting configuration on 3' x 6' granite table, and 20-slot IBM PC with signal generation circuitry. Wrote 100-page theory of operation for Analog Scanner.

CONSULTANT, Cirrus Logic, Mass Storage Group Broomfield, Colorado  
Performed basic reverse engineering on 5 1/4" and 3 1/2" disk drives. Modified drives to permit writing of pulses with arbitrary timing. Captured head read waveforms for further analysis on Sun workstations. Selected and assembled equipment for research-quality spinstand.

CONSULTANT, Digital Equipment Corp., Storage Systems Division Colorado Springs, Colorado  
Designed a 100,000 gate semi-custom CMOS chip to perform system level diagnostics and testing. Assisted with chip architecture and interfacing, wrote behavioral models, and did both behavioral and

structural system simulations. Completed logic design of circuitry. Performed SPICE simulations of chip package to examine potential ground-bounce problems.

Jul 1982 - May 1987 HEWLETT PACKARD COMPANY, Colo. Telecom Div. Colorado Springs, CO  
Research and Development Engineer: Designed and built product to analyze data packets on  
Ethernet/IEEE 802.3 Local Area Networks (HP4971S). Wrote self-test code for hardware (PASCAL).

Apr 1979 - Jul 1982 HEWLETT PACKARD COMPANY, Loveland Instrument Div. Loveland, CO  
Research and Development Engineer: Designed low phase noise frequency reference, low noise linear  
power supply, and 6809-based controller for two-channel signal source (HP3326A).

#### PATENTS AND PUBLICATIONS:

Named inventor on two patents in field of Local Area Network Protocol Analysis. Authored two-part  
signaling tutorial for Communication Age Magazine. Co-author of LAN Protocol Analyzer article for  
Hewlett Packard Journal (July 1986).

#### EDUCATION:

B.S. in Electrical Engineering and Computer Science  
University of California at Berkeley, 1979