DAVID F. HEPNER
WA7UHT

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SUMMARY: Multiple years in professional management and technical achievements in an Engineering/Scientific research and development environment. Recognized for ability to complete projects on time and under budget.

- Inactive NATO, DoD TOP SECRET, and other clearances based on EBI and SSBI.
- 4 awarded patents out of 8 filed in computer, memory, storage, and power management architecture.
- Specializing in high speed data communications using fiber optics and RF/microwave links.
- Systems design of airborne electronics and RF applications.
- High speed circuit board design and signal integrity.
- Fiber optic network and system design 10Gb/s.
- Project and people management.
- Data encryption technologies for civilian and military applications.
- Designed from conceptual work and functional specification to prototype, H/W bring-up, verification and compliance testing.
- Complex schematic capture and PCB layout with signal integrity of high speed designs.
- Organized and performed detailed design reviews for internal and external customers.
- Switching Power Supply design; Networking, TCP/IP, Fibre Channel, C and C++ programming.

EXPERIENCE:

L.J Gonzer Associates Contracting to IBM Almaden Research 2009 – Present
Hardware Architect Senior Engineer:

- Designed the electronics in support of an ultra high vacuum deposition system.
- Designed the electronics for tape research.
- Designed systems for Atomic force microscopy (AFM).
- Managed the mechanical design of chemical environmental chamber for sample testing.

Avatar Energy – Walnut Creek, CA 2009 - Present
Systems Engineer:

- Designed and implemented a control system for a dairy anaerobic digester to control the function of a generator, separator, and pumps to move material in and out of the digester.

IBM Almaden Research Center, San Jose, CA 2000 - 2009
Hardware Architect Senior Engineer:

- Designed the electronics in support of an ultra high vacuum deposition system.
- Identified technology for 10 Gigabit Fibre Channel and iSCSI (SCSI over TCP/IP) for Host Adapters in an Enterprise Storage System, including protocol ASICs, Optics, and SerDes. Designed the PCB layout and stackup for 10 Gigabit subsystem.
- Performed the schematic entry and PCB architecture of high speed Fibre Channel interface subsystem.
- Developed signal integrity constraints for board designs and implemented the constraints in the board file using Cadence tools.
- Key contributor for a storage controller, developing the requirements for board layout including signal integrity. Supported storage controller testing.
- Coordinated the transfer of the design of the storage system from development to contract manufacturing in Singapore. Supported the product through the bring up process.
- Generated RFQ for iSCSI technology vendors and managed the evaluation of the responses.
- Performed the successful bring up of an interface card for an enterprise storage system.

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- Performed data integrity analysis on a disk pack subsystem containing 16 disks and management logic.
- Managed the construction and setup of the electronics laboratory at Amaden Research Center.
- Managed two co-ops in the lab doing evaluation of storage systems.

Northrop Grumman Mission Systems San Jose, CA (formerly TRW ESL, Sunnyvale, CA) DoD TOP SECRET and other clearances based on EBI and SSBI 1981- 2000

Project Management:

- Lead team of EE, ME and software engineers to design an antenna controller that contained two VME cards and assorted COTS boards that included three PowerPC CPU boards.
- Foreign Reconnaissance system: Performed the bidding of the redesign and manufacture of Airborne Microwave Diplexer Switch LRU's.
- Coordinated the work of the ME's, technicians and manufacturing to have five units redesigned, built and tested. Units were delivered on time and within budget.

System Design:

- Performed system design for system Built In Test (BIT). This involved an understanding of the operation of the system. Output was a System BIT specification that influenced the design of the hardware and software to enable the complete pre-mission test of the system. BIT is capable of isolating faults to the module level.

Digital Design:

- Designed and integrated a Fibre Channel to PCI (PMC) interface board for a Motorola VME PowerPC board. Design incorporated into a system with 40 nodes.
- Member of team that designed Chip set implementing Fibre Channel Standard (FC-1, FC-2).
- Designed two FPGAs using VHDL for a Fibre Channel Repeater.
- Worked with Mentor Graphics, Synplify, and Model Technology ModelSim.
- Remotely Piloted Vehicle Demonstration: Designed the interface for sensor payloads to the data link. Completed on schedule and within budget. The interface was successfully integrated into the RPV and ground system.

Fiber Optics:

- Built a high speed fiber optic link using the state of art components (565 MB/s using LASER transmitter). Designed a fiber optic high speed crosspoint switch. Consulted for proposals bidding fiber optics. Proposed and worked on fiber optics IR&D projects.
- Designed and manufactured a high speed fiber optic data interconnect system for a distributed processing system in a SIGINT payload. Developed requirements for fiber optic data link and written military specifications for the procurement of the components for the data link. Team leader for ESL's Fiber Optic Product/Application/Technology Team (PATT).

RF Subsystem Design and Data link Design:

- Designed the RF distribution for "Trailblazer's" intercept and search systems. This involved using the requirements and properties of the antennas and receivers to write specifications for the filters and amplifiers.
- Oversaw subcontractor in components production. The components were tested and successfully integrated. The task was done under budget.
- Consulted on several proposals for projects requiring data links. Also involved in other programs for data link design and testing.
- Lead engineer on a UAV data link design and integration.

Analog/RF Design:

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- Designed and developed an RF noise source. This subsystem provides pulsed RF, RF modulated with band limited noise, and/or RF modulated with one or two tones. Originally designed for in-house test support, the customer later requested production units.
- Documentation produced with the original unit simplified the reproduction of this subsystem.

Security systems design:

- Established concept for an encrypted data storage for a system using the latest encryption device. Other security activities involve designing in COMSEC equipment into data links and the red/black issues involved with this design.

Development Engineer:
Lear Siegler, Inc. Menlo Park, CA
1977-1981

- Engineering responsibilities included design of digital and analog circuits for telecommunications test equipment; the design, debug, and implementation of a 70 watt, 50 KHz switching power supply; design of support circuits for a microprocessor-based test system; development and conduction of unit level test for the microprocessor-based test system and instruction of factory test personnel in unit level test procedures. Other responsibilities included research into the design of fiber optic test equipment and use of fiber optics in system communications.

Sperry Systems, Benicia, CA with DISCO Secret clearance
1976-1977

- Designed digital control logic, interface and audio circuits for a voice communications system. The system consisted of 24 radios, 8 cryptos, 26 telephones and 11 operator positions, with any operator having access to any or all of the communications units. This system was used to direct air strikes by the Marines. I also developed the layout for the operator position control unit and wrote test procedures for the system.

SGC Inc., Bellevue, Washington
1975-1976

- Designed single side band receiver with noise blanking and squelch system. Built support equipment for the crystal laboratory.

Boeing Aerospace Co. with DISCO Secret clearance
1972-1975
Minuteman Wing V, Cheyenne, Wyoming

- Responsible for system analysis on Operational Minuteman Weapon System Command and Control equipment.
- Isolated problems to major components and identified recurrent trouble areas. Coordinated efforts of problem solving with the Air Force and Boeing Engineering.
- Responsible for the maintenance procedures on Minuteman Operational Ground Support Equipment for Air Force Technical Orders.

PATENTS:
8 patent applications submitted. 4 in file process and 4 awarded.

EDUCATION, Professional Organizations and Affiliations:
Bachelor of Science in Physics, University of Wyoming 1972

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Principal Member of ANSI X3T11 Fibre Channel committee for TRW since 1989 - 2000
Member, Optical Society of America
Amateur Radio license, WA7UHT Extra

COMPUTER SYSTEMS EXPERIENCE and CONTINUING EDUCATION:

DOS/Windows, UNIX/Xwindows, Mac-OS, Linux, C Programming, Networking, TCP/IP, Fibre Channel, C and C++ programming 1998; VHDL design 1997, Microprocessor design; Fiber Optics short courses and Fiber Optic design 1978, 1981, 1987, 1988; Switching Power Supply design; Full Scale Course on Neural Net Technology; ESL 5 day course on system engineering, 1989; In-Depth InfiniBand, 2002; iSCSI Concepts and Solutions, 2002; Project Management Orientation (PMTO), 2001; Linux Device Driver Development, 2001.