

**Ben McCrea**  
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## Profile

Dedicated hardware and firmware engineer with over 12 years of experience designing products for the telecommunications, industrial, semiconductor and aerospace industries.

## Career Summary

**Principal Consultant, Gaderbas Embedded Systems, San Francisco, CA - June 2007 - Present**  
Embedded systems analysis, design and development on a contract basis. Work to date has included FPGA and ARM7 projects. Client references available upon request.

**Senior Embedded Software Engineer, Veris Industries, Tigard, Oregon — April 2006 - May 2007**  
Wrote firmware for two revenue-grade power meter products including LCD driver, menuing system, interrupt handlers, device drivers (LCD, ADC, memory, SPI, I2C, UART) and serial communications.

**Project Lead Engineer, Engelhard, Inc (Acquired by BASF 2/05)  
Portland, Oregon — February 2005 - March 2006**  
Lead engineer for design of a multi-channel pyrometer system for high-performance semiconductor processing. Designed the firmware and worked with an outside consultant to complete FPGA and circuit design including a bulk transfer mode USB interface. Worked with end-customer to tune and finalize real-time closed-loop control. Oversaw product through FCC, UL, SEMI and CE certifications.

**Sr. Electronics Engineer, Engelhard, Inc., Portland, Oregon — February 2002 - January 2005**  
Designed firmware for the company's EXACTUS series of temperature measurement products running on TI TMS320 series DSPs. Project included signal processing, custom floating-point algorithms, peripheral drivers (SPI, I2C, ADC, UART) and serial communication protocols (RS-485, Modbus, proprietary). Played key engineering advisory role to management in getting products to market.

**ASIC Design Engineer, PMC-Sierra Inc. — October 1997 - April 2001**  
Design of logic blocks for Gigabit Ethernet and SONET full-custom ASIC products. Developed testbenches, test logic insertion (BIT, JTAG), synthesis and timing scripts (TCL, Perl). Worked as part of team to complete four successful device tape-outs. Cell sizes down to 0.18um, core frequencies up to 400Mhz and SERDES rates of up to 10Gb/s.

**Product Design Engineer, Planar Systems, Inc. — May 1996 - September 1997**  
Designed firmware and circuit boards for a flat panel display targeted at installation in FAA towers. Firmware included serial communications, touch screen driver, temperature monitoring, power and brightness control. Designed battery operated power supply for a portable medical computer.

**Firmware Engineer, Fial Telecom Monitoring Solutions, Portland, OR — June 1994 - April 1996**  
Wrote the embedded software for the company's 3031 Uplink Power Controller. The product uses open-loop control to optimize the amplitude of satellite uplink signals. Design included custom optimized floating point routines, serial communications and drivers for ADC/DAC and control panel. In this role, also developed in-house test and calibration fixtures for cable TV and telecom products.

**Technician, Fial Telecom Monitoring Solutions, Portland, OR — February 1989 - May 1994**  
Responsible for build, calibration, test and repair for most of the company's custom cable TV and telecommunications products. Experience included extensive troubleshooting of digital and analog circuitry using oscilloscopes, logic analyzers and spectrum analyzers.

## EDUCATION

Portland State University, Portland, Oregon — B.S.E.E., Physics, 1996

## SKILLS

<b>Languages</b>	C, Verilog, VHDL, Assembly, C++, Borland Delphi, TCL, Perl, Ruby
<b>Development Tools</b>	Keil uVision, ARM RealView, gcc, TI Code Composer Studio, Altera Quartus, Actel Designer, Altium, Synopsys DC/PC, Mentor DFT, Linux, Emacs
<b>Processors</b>	ARM7, ARM9, 8051, 8052, TMS320 (54xx, 55xx), MSP430, Motorola 56001, 68332, 680x0, PPC, Microchip PIC, Atmel AVR
<b>FPGA</b>	Altera (Cyclone II), Actel (ProASIC3)
<b>Operating Systems</b>	Windows 2000/XP, OS X, Unix (Solaris, Linux)
<b>Project Tools</b>	Subversion, CVS, Synchronicity, Microsoft Project
<b>Protocols</b>	Serial (RS-232, RS-485, RS-422, Modbus), TCP/IP, USB, I2C, SPI, SSP, CAN, JTAG, SERDES, Ethernet, SONET, VME Bus

## AFFILIATIONS

Member, IEEE and Consultants' Network of Silicon Valley

## REFERENCES

Available upon request.