

Resume: Douglas C. Morrison

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Summary: Electronics engineer specializing in board-level digital and analog design with application emphasis on instrumentation design, control theory, frequency control and telecommunications. Particular expertise with Xilinx FPGA logic design using Verilog and VHDL tools.

I am currently employed as an independent consultant. Before consulting, I was a senior-level technical contributor and supervisor. Full-time and consulting employment has been mainly in the medical electronics industry. Additionally, my consulting practice has targeted applications in several other industries including telecommunications, semiconductor test and manufacture, electro-optics, scientific instruments and robotics. I consider excellent written and verbal communications and documentation, attention to detail and customer focus to be hallmarks of my practice.

Engineering Skills:

- Robust High Speed Digital Logic (200MHZ+) featuring Xilinx and Altera FPGAs and CPLDs with VHDL/Verilog, using synchronous design methodology.
- Mathematical analysis tools: Matlab, Matlab Simulink, Mathcad.
- Analog and Digital Board-Level systems including:
 - + High Speed Analog Circuits: sensors, amplifiers, filters, D/A, A/D, PLLs, etc.
 - + PCB design, signal integrity (micro-strip, strip line), 50 ohm design rules.
 - + small switching power supplies (<300 watt).
- High Speed and Mixed signal PCB layout using Altium Designer.
- Intelligent closed loop Control Systems and Instrumentation using classical and modern control methods. "Hardware -in -the-loop" simulation & development.
- Microcontroller, Microprocessor and DSP-based Embedded Systems.
- Embedded programming in C (e.g., PIC CCS C, Dynamic C – Rabbit)
- EDA tools for design entry and simulation: Aldec active HDL, Xilinx ISE, Altera Quartus, ModelSim, Altium Designer (Protel), PADS PCB, IsSpice, Mathcad, MATLAB (& Simulink), OrCAD (schematic, PSPICE).
- Computer languages: C, C++, Visual Basic, Matlab Script/Simulink, Java, JavaScript

Industries Served:

Scientific analytical instruments, Medical and Biotech, Telecommunications (T1/E1, DSL, GPS, SONET/SDH, Frequency Control), Disk Drive & Semiconductor ATE, Laser and Electro-Optics, Robotics (motion control, sensors).

Education: MSEE/BSEE w high honors, University of Minnesota Institute of Technology

Affiliations: Member IEEE, PATCA (Professional and Technical Consultants Association, www.patca.org)

Website: www.qedesign.com

History:

1993-Present: Principal, Quintessential Electronic Design (www.qedesign.com)

QED is an engineering consulting business, which I founded in 1993. QED caters to clients requiring rapid development solutions, typically prototypes, follow-on products or test circuitry. Principal industries served include scientific instrumentation, medical electronics, telecommunications, semiconductor and disk drive capital equipment. I provide a full range of electronic design services at the pcb and IC levels including both digital and analog circuit design, product specification, pcb layout and C coding for embedded applications. A particularly strong component of my practice is logic design with FPGA technology, providing customers with digital circuit solutions implemented using mainly Xilinx and Altera FPGAs and CPLDs with clock speeds exceeding 200MHz. We pride ourselves on creating robust logic designs using synchronous design methodology. Specifics regarding other services and capabilities are listed in the bullet points above. To date, we've successfully completed scores of these design projects and our client list now includes some thirty Bay-area companies spanning a broad spectrum of industries and applications.

1991-1992: Senior Engineer, Phoenix Laser Systems, Inc., Fremont, Ca.

PLS was a development-stage company involved in the medical field of laser eye surgery. I contributed to the design of a high performance laser aiming system consisting of dc-servo motor control system, voice coil actuators, and power amplifiers for brushless servos. I also designed an analog pulse energy metering system for measuring energy content of 10ns laser pulses.

1987-1990: Design Engineering Supervisor, Design Engr, MedGraphics Corp. (www.medgraphics.com)

I participated in and supervised design and development of electronic hardware for PC based pulmonary and cardiac diagnostic systems. During one such project, I co-invented a novel Nitrogen gas analyzer for which we were awarded patent no. 4,898,465, "Gas Analyzer Apparatus".

Past Clients and Employers

Agilent (formerly Hewlett Packard), Santa Clara Division
Cellex Bioscience, St. Paul, Mn.
[Centillum Technology](#), Fremont, Ca.
[Clarity Medical](#), Pleasanton, Ca
[Coastcom, Inc.](#), Oakland, Ca.
[Diablo Research](#), Sunnyvale, Ca.
[Dionex Corp.](#), Sunnyvale, Ca.
[Fluke Corp. \(Raytek Division\)](#), Santa Cruz, Ca.
[Fresenius Medical Care](#), Walnut Creek, Ca.
[Intuitive Surgical](#), Mountain View, Ca.
[KLA Tencor](#), San Jose, Ca.
[Larus Corporation](#), San Jose, Ca.
[MedGraphics Corp.](#), St. Paul, Mn.
[MediaQ](#), Sunnyvale, Ca.
[Medical and Biotech Developments Inc.](#), Oakland, Ca.
[New Focus](#), Santa Clara, Ca.
Orchid Technology, Fremont, Ca.
Pathcom, Inc., Fremont, Ca.
Phoenix Laser Systems, Fremont, Ca.
[Radia Communications](#), Sunnyvale, Ca.
[Spectra Physics](#) Laser Data Systems, Mountain View, Ca.
[Spirent Communications](#), Sunnyvale, Ca.
(formerly Zarak Systems Corp.)
Syva / Syntex, Palo Alto, Ca.
[ThermoFisher/LabVision](#), Fremont, Ca.
[Verilink](#), Milpitas, Ca.
[Vina Technologies](#), Newark, Ca.
[Visx Inc.](#), Santa Clara, Ca.
Vysis, Inc., Chicago, Il.

(GPS telecom group)
(Biotech Mfg. Equipment)
(DSL Telephony)
(Instrumentation for Optometry)
(Networking and Digital Telephony)
(Communications Systems)
(Chemical Analysis Instruments)
(Instrumentation)
(Dialysis Products Division)
(Robot Assisted Surgery)
(Semiconductor Inspection ATE)
(T1/E1 Telephony, GPS-Disciplined Timebase)
(Medical Diagnostics)
(Graphics Accelerator ICs)
(Medical/Biotech instrument Design Consulting)
(Optical Networks, High Speed Internet)
(PC Peripherals)
(Medical Laboratory Equipment)
(Medical Lasers - Laser Surgery)
(Wireless Communications)
(Electro-Optics)
(Telecom Test Equipment)

(Pharmacologic Analyzers)
(Medical Laboratory Equipment)
(T1/E1 Telephony)
(Telecom Test Equipment)
(Medical Lasers - Laser Surgery)
(Optical Instruments)