

# TOM GORDON

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Electrical Engineer with over twenty years experience, specializing in real-time, object-oriented embedded firmware and Windows software design, digital hardware integration and testing.

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## SKILL SET

- Real-time firmware design
- Windows applications
- BIOS development
- C++, assembly, Pascal, Visual Basic, Java, Perl, C#
- CVS, VSS, TFS version control
- FW for low-power designs
- PID control algorithms
- Embedded bootloaders
- Production test fixtures
- Prototyping and simulation
- HTML, Javascript, Java Servlets
- Database design, SQL
- Linux device drivers
- Medical & lab devices
- Time & date algorithms
- Ergonomic design
- Customer relations
- Factory automation
- Encryption

## PROFESSIONAL EXPERIENCE

**Barefoot Software Consulting - Cary, NC**  
Sole Proprietor – Independent Contractor

1993 to present

Collaborate with hardware, mechanical and board layout design firms on original and rework design projects. Work with customers from design concept to final product launch. Provide services as an independent software consultant on both long and short-term projects.

### Key Accomplishments:

- Worked with engineers across multiple disciplines to establish need for internal monitoring of robotic systems, then later designed and established successful integration of internal sensors to meet design mandates for Parata Systems, Inc. Began design for pill vial sensor that resulted in submission for a patent application.
- Designed and built several production test fixtures for Parata Systems that allowed key development schedules to be met for a new robotic system.
- Wrote firmware boot-loader code and PC application that allowed over 100 processor boards to be reprogrammed simultaneously over a multi-drop serial network, speeding firmware development.
- Designed an event-logging architecture for Monitech, Inc. that requires synchronizing backup copies of logs from two separate systems over a slow serial link.
- Have developed C++ classes for handling Windows serial, Winsock and registry interfaces, XML and Motorola/Intel hex file formats, DES encryption and MD5 hash algorithms.
- Wrote a Linux device driver and JNI that allowed a Java application to control a DSP-based turbo-balancer for Mechintel, Inc.
- Principle architect on Windows-compatible BIOS for Pentium single-board PC, derived from 286 BIOS source code, while consulting for SBS Embedded Computers. Development included initialization and support for PCI mezzanine cards.
- Created a Windows-based automated POS system coordinating up to 64 timers, a central database, a 3rd-party credit-card processing application and a web-based UI for Carolina Pride CarWash Systems.
- Designed firmware for single and quad mouse/rat blood-pressure devices for Hatteras Instruments. Later stepped in to support and enhance corresponding PC applications written in both Borland C++ and Delphi.
- Instrumental in creating next generation of substation voltage regulator by porting existing 16-bit firmware to 32-bit for Siemens.
- Worked with a team of software developers to design the firmware for the Floglogic Automatic Water Shutoff System. Responsible for storing time-stamped event messages in a circular buffer in segmented flash memory.

## **TOM GORDON**

**Logical Design Group, Inc.** - Raleigh, NC  
Chief Software Engineer

1987 to 1993

Responsible for BIOS development for PC-compatible VME single-board computers and software support for other VME board products, as well as for design services provided for other companies. Worked closely with board designers to test new board designs and helped with customer support.

### **Key Accomplishments:**

- Developed low-level drivers to allow world's first single-board VME PC-compatibles to communicate over the VME backplane with other Intel and Motorola based cards, including a custom driver for a GE Fanuc VME-based PLC and a cross-backplane virtual disk driver.
- Designed original algorithms and firmware for blood coagulation monitor (TAS, originally "Hermes") unit for Cardiovascular Diagnostics, Inc. Company later went public due to the success of this product (NASDAQ: CVDI).
- Enhanced custom BIOS code to include an embedded PC/VME debugger that allowed interrogation of both PC and VME bus memory, IO locations, CMOS and PCI registers, which aided in initial testing of new boards.
- Wrote an object-oriented BIOS programming utility to facilitate reprogramming of custom BIOS's for the company's line of PC-VME boards. Use of a single utility to identify and adapt to multiple board products and multiple EEPROM BIOS chips greatly simplified updates for development and customer support.
- Contracted to Interface Flooring to rewrite controller for their carpet printer in C and to enhance to support new printing technology, allowing them to print both tile and continuous "web" carpets from virtually any bitmap image.

## **EDUCATION**

**BS in Electrical Engineering**, VIRGINIA TECH, Blacksburg, VA