RON GROSS
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SUMMARY: Twenty four years work experience in software/firmware design and development for embedded/open systems and applications development, including seven years of software engineering management. Focus is on embedded communications, robotics, and engineering management.

SOFTWARE:

OS:	DOS, Windows (XP, Vista), VxWorks, UNIX, VRTX, Nucleus, C-Exec, Windows CE, Salvo, PharLap TNT, Micrium uCos-II, Linux, Windows Mobile 6
Code:	C, C++, C#, VB.NET, Perl, PHP, MySQL, HTML, Java, CORBA, Assembly, Basic, Ladder Logic, Visual Basic, HART Device Description Language (DDL)
Compilers:	Microsoft Visual C++, Visual Studio .NET/2003/2005/2008, Microsoft Embedded C++, Borland C++, GNU 68k/gcc/g++, Franklin, Keil uVision, Avocet, Hi-Tech, Archimedes, Byte Craft, Introl, MetaWare High C, BSO/Tasking, IAR. Microsoft Visual Basic, MicroChip MPLab, Atmel AVR Studio, WinAVR GCC, Rabbit Semiconductor Dynamic C, Wind River Tornado, Arm-Linux-g++, Avr-gcc, Si-Labs
Assemblers:	Microsoft MASM, Motorola, BSO/Tasking, IAR, MicroChip MPLab, Keil
Tools:	Yourdan Select, Codewright Premia, Paradigm
Source Control:	IBM/Rational ClearCase/ClearQuest (Unix/NT), Intersolv PVCS, Microsoft SourceSafe, CVS/WinCVS, Perforce
Web:	PHP, MySQL, FrontPage, VBScript, ASP, JavaScript
Protocols:	Modbus RTU/ASCII, Modbus/TCP, TCP/IP, UDP/IP, Fieldbus, SECS/GEM, BACnet, LonWorks/LonTalk, Profibus, CORBA, proprietary (slotted-aloha, peer-to-peer, master/slave, patents), HART, HART Device Description Language (DDL)

HARDWARE:

CPUs:	8088/8086/80188EC/80186EC/80386EX, 8051, 68HC05/68HC08/68HC11, V8 RISC, ARClite, M16C, 68000/68010/68020/68060/68332, Z80/Z180, COP888, PIC 16x, HP80/HP200/HP300, TI MSP430, Atmel MegaAVR Atmega128/Atmega169, Philips LPC2112 (ARM7), Z-World Rabbit Semiconductor RCM3400, Atmel ARM7, PowerPC/PPC
Emulators:	Beacon, Nohau, Motorola, Microtek, Metaware, MicroChip, P&E Microsystems, TI JTAG, Atmel ISP, IAR J-Link, Keil, GDB
Analyzers:	American Arium, HP, Tektronix, Acute Logic
Other Hardware:	Galil/Delta-Tau PMAC motion controllers, RadiSys VME, VME MicroSystems, AB/Modicon/Square-D/Schneider PLCs, Keithley-Metrabyte DAS boards, Z-World STD boards, OPTO-22, MCC iPort/AFM, Rockwell Flex I/O, TotalPhase Aardvark I2C, AccesIO DIO-32
Physical Layers:	232, 485, I2C, SPI, Ethernet, Power Line, microWire, Radio, FSK, HART

EXPERIENCE: **The Cheron Group, Inc.**
President/Owner/Software Engineering Consultant
1995 to Present (Contract Positions under my corporation)

SepSensor

Developed 8051-based firmware (Keil uVison3) to monitor grease interceptors (tanks) and transmit data, via radio and phone line, to server. Developed PC application, including proprietary protocol, to communicate with field devices to retrieve raw data and alarms for database. Developing Windows Mobile 6 PDA application (Visual Studio 2008, VB.NET, Compact Framework 3.5) for field configuration/test of devices. Developing XML configuration editor for system configuration (C#, .NET).

Ellacoya

Developed FTP server interface to RADIUS and TACACS+ verification systems. Developed hard-disk reset management algorithms. Enhanced/added-to Command Line Interface (CLI). Debugged MIB interface. PowerPC-based system, running VxWorks, monitors/controls flow of IP traffic.

Walchem

Developed Modbus Master (RTU/ASCII) driver for ARM7 and AVR ATmega128 system. ARM7 runs Debian Linux, with code developed in C++. Used arm-linux-g++ and avr-gcc tools. Developed TCP/IP protocol to communicate between embedded controllers and Linux translator system (Ubuntu), which translates the protocol to HTML formatted requests for storage into a database.

Bel Fuse, Inc.

Developed software for a manufacturing test system for TI TPS2384-based Power-over-Ethernet (POE) modules. Used TotalPhase I2C and AccesIO DIO USB products and developed code using Visual Studio 2005 (VB.NET).

Axcelis Technologies, Inc.

Developed CORBA-based interfaces for communicating between GUIs and the control system (Windows and VxWorks). Developed drivers for new ION/TC gauges and updated the Rockwell Flex I/O interface to support new configurations. Provided support for the control system, in the way of bug fixes and enhancements. Control system is OO-based and developed using VC++ and Tornado.

Texas Instruments

Developed new version of a I2C/RS232-based bootstrap loader and runtime interface for new TI MSP430 flash-based parts using IAR C tools and Visual Basic. Bootstrap loader is used for downloading new code to Power-over-Ethernet (PoE) system for communicating with TI TPS2384 chips. Runtime interface code is for communicating between MSP430 and host system, with GUI-based test system modified to support I2C PC interface card (uses Visual Basic). Developed RS-232 and I2C protocol for communicating with next generation of TPS2384 firmware, with drivers to support both hardware interfaces in same VB and firmware applications.

TimeLab Corp

Developed a WinXP/2000 windows service to monitor system usage to control a new motherboard clock chip (TLC2900) via SMBus. Windows service and configuration application are C++ code developed with Visual Studio .NET.

Greenland, NH Town Website

Developed PHP/MySql-based town website that is completely database driven, using forms to update and add information.

AXTiming Systems

Developing high-speed automobile race timing system using multiple TI MSP430 processors, and a proprietary high-speed wireless network. Developing using IAR C compiler. Investigating using Zigbee or BlueTooth for communications system.

Masoneilan, Dresser, Inc.

Developed test firmware for validation of new hardware designs/production of valve controller running on Philips LPC2112 (ARM7). Developed Visual C++/MFC-based scripting interface for testing of HART interface. Developed BIOS test firmware to validate BIOS performance, running on Micrum uCos-II. Developed HART Device Description using HCF Device Description Language (DDL) using DD-IDE toolkit.

iRobot

Developed doppler radar and gyroscope interface using Z-World Rabbit Semiconductor RCM3400 (enhanced Z180), using Dynamic C. Performed semi real-time sampling of doppler radar (digital inputs) and gyrcoscopic (serial interface) data. Developed software as a TCP-UDP/IP server, for transfer of data/information to a client. Used DHCP and socket communications methods. Developed Visual Basic client to test the serial and TCP/IP communications and allow configuration via the UDP/IP communications.

Texas Instruments

Developed I2C/RS232-based bootstrap loader and runtime interface for new TI MSP430 flash-based parts using IAR C tools and Visual Basic and Visual C++. Bootstrap loader used for downloading new code to Power-over-Ethernet (PoE) system for communicating with TI TPS2383 chips. Runtime interface code is for communicating between MSP430 and host system, with GUI-based test system modified to support I2C PC interface card (uses Visual Basic). Developed RS-232 and I2C protocol for communicating with next generation of TPS2383 firmware, with drivers to support both hardware interfaces in same VB and firmware applications. Uses Micro Computer Control PC-to-I2C bridge product (MCC iPort/AFM). Visual C++ used to develop PC-based downloader and test systems.

TempControl Logic

Developed Atmel AVR ATmega169-based temperature controller for in-home multi-zone remote furnace control. Uses Atmel 'butterfly' system for LCD interface and proprietary RS-485 multi-master protocol for communicating amongst multiple remote displays and controllers. Any display/controller can show and/or control any other zones within the system. Developed using Atmel AVR Studio 4 C compiler and ISP tools. Working on porting the proprietary protocol to BACnet.

Walchem

Developed Modbus/TCP server (TCP/IP based) for current WebMaster product. Uses PharLap TNT OS running on 80386EX hardware. Developed using C++, BSD-type sockets and is multi-threaded, allowing a maximum number of clients to connect without requiring significant processing power.

Nexus/Senea

Enhanced Slotted-Aloha master-slave power-line communications network for communicating with electric power meters. Developed using Hi-Tech C, on proprietary 8-bit RISC microcontroller (based on ARClite processor), using Salvo OS.

MKS Instruments

Managed software development team for recently introduced PICO leak detector, including supporting new product introduction and new features, maintenance of current systems, documentation control establishment of current procedures and sources, and developing fixes and/or new features. Product is multi-processor based, using a Motorola 68332 (in C) and 68HC08 (in C) for control and Windows CE (in C++) platform for the user-interface.

MTL Inc

Ported a real-time distributed industrial I/O product (8051/8086 based) to a 8051/80186-based PCI single board computer with different memory sharing architectures.

Schneider Automation

Developed embedded Modbus, ASCII, and proprietary communications (patent applied for) networks for next generation programmable logic controller (PLC), which is based on Mitsubishi M16C processor.

Axcelis Technologies, Inc.

Worked on very preliminary prototype Java and CORBA based user interface for next generation control system on Ion Implanter.

BinTel Systems

Developed remote inventory control measurement system using strain-gauges, MicroChip PIC 16C773, and RF local area network.

EATON

Developed simulator for Kensington linear robot of high-energy implanter robot end-station. Involved in developing next-generation C++ based control architecture. Provided upgrade/maintenance support for in-house designed flat panel display handling system (robot). Upgraded communications interface software (using SECS/GEM) and installed on-site at Japanese customer. Product developed on UNIX platforms with 'C' code running on VxWorks.

dbi Corporation/Senea

Developed Slotted-Aloha and master-slave power-line communications network for communicating with electronic power meters. Developed, using Hi-Tech C, on proprietary 8-bit RISC microcontroller (based on ARClite processor).. Developed Perl scripts to modify code for embedding code into ASIC and FPGA. Debugged and maintained previous master-slave communications system.

IRIS Graphics, Inc.

Upgraded 80386SX-based control software to support new CPU and print head hardware for new Computer-To-Plate printer. Ported pump control software using state-driven task-implemented methods. Involved in design for next generation architecture. Added diagnostics tools for new print head.

H&L Instruments

Upgraded Z180-based serial-to-fiber SDLC repeater network and enhanced/debugged Visual C++ MFC-based configuration system.

ASTeX – Applied Science & Technology, Inc.

Developed control system software base for atomic flourine generator. Provided I/O drivers for analog and digital I/O, LCD display and serial interface. Developed downloadable system for upgrading FLASH-based product in the field. Provided embedded development training to in-house software engineer.

EATON Corporation

Developed robot control sequencing system for in-house designed flat panel display handling system for laptop displays. Interfaced to Delta-Tau PMAC controller using dual port ram and serial interfaces. Developed multi-tasking, message-based state-machine control tasks on UNIX workstations for multi-board 68020/68010 based control system, running VxWorks. Re-worked state-machine and serial drivers for interface to external Rorze robot.

dbi Corporation

Developed Slotted Aloha communications system, with master-slave and peer-to-peer functionality, for large scale power-line communications system based on National COP888 microprocessor. Debugged and maintained previous master-slave communications system.

H&L Instruments

Provided development support and performed design reviews for Z180-based serial-to-fiber repeater network.

Measurement Technology Ltd.

Developed prototype product based on 80C188 and 68HC05 multi-processor system, with a high-speed Modbus communications interface. Developed specifications for embedded diagnostics, boot-up and downloading functions. Consulted on systems development concepts. Specified development tools, including analyzers, emulators, networking tools, and Nucleus RTOS.

Borst Automation (Limburg, Germany)

Co-developed communications converter for Modbus to Profibus communications protocols.

MTL Inc.

Upgraded Windows hardware driver for interface card. Consulted on new product development. Managed company-wide Novell network. Established version control system using Intersolv PVCS.

Transition Technology Inc./Measurement Technology Ltd.
Manager, Systems Development
1988 to 1994

Developed real-time distributed industrial I/O product (8051 and 80x86 based) and a patented communications protocol. Responsible for software system level design of full product line. Developed custom interfaces to third party hardware/software including Allen-Bradley, Modicon, RadiSys, and VME Micro. Responsible for technical development and applications support with worldwide OEM customers, including IBM and Fischer & Porter. Responsible for porting 80x86 based system to 68020, using OEM customer-developed real-time UNIX. Responsible for meeting with customers for applications support and/or to develop new products based upon customer needs. Worked on developing next generation product using worldwide communications standards such as Fieldbus, ISP, LonTalk, and WorldFIP and large count multi-processor system using 80C188, 68HC11 and 68HC05 based hardware. Developed STD-based software interface to I/O product. Developed driver for interface to OPTO-22 products.

Ionex/HEI
Senior Software Engineer
1987 to 1988

Developed real-time control software for robotic control system running on IBM PCs, using Galil motion controllers, for ion implanters. Developed a real-time communications system for use on a communications controller board (80186 based) for PC to PC and PC to DAS (Z80 based) hardware using fiber optic links. Met with current and future customers to provide applications/installation support and to incorporate customer requirements into product. Developed early prototype for maintenance and diagnostics on VME 68020/VRTX based sub-system. Upgraded current product to touch-screen user interface.

Caterpillar Inc.
Test/Software Engineer
1984 to 1987

Developed data acquisition systems based on IBM PCs (using Keithly-Metrabyte boards) and HP80, HP200, & HP300 systems for in-house & customer tests. Developed prototype 68HC11 based system for next generation control systems, developing extensions for BSO/Tasking compiler on VAX. Designed new security and access control systems for facilities management. Added enhancements to 68000 & 6805 based engine/transmission control systems.

ALCOA Corp., REA Magnet Wire
Control Systems Engineer
1983 to 1984

Developed plant process control systems, using Square-D and Allen-Bradley PLC's and embedded CPU boards, for the nation-wide REA wire plants. Added enhancements to current wire processing systems to triple throughputs.

TECHNICAL: U.S. Patent #5,021,777
Mode-Selectable Communications System

EDUCATION: Indiana Institute of Technology, Fort Wayne, IN
Bachelor of Science in Electrical Engineering