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SUMMARY: I have strong problem solving, new product design, and system design capabilities. I can do digital, analog or mixed hardware, write my own firmware, Drivers, BIOS and testing, or do training and customer support. I use **KISS** (*Keep It Simple Stupid*) to provide answers that are easy and can GROW or Evolve. Makes no difference what area, I learn quickly and have strong systems design, development skills and human management expertise. Project or technical leadership has been a usual part of my position. I started Several successful electronic product manufacturing companies, on shoestrings, all successful, so I understand top to bottom the development cycle. I even do my own CAD/CAM, Schematics and PC Board Layout, if needed. I have the ability to translate complex subjects to understandable terms. Moreover, I don't believe the word "*Impossible*", I've done that. Have a close look at my experience, without bounds.

EXPERIENCE:

Processors: 64 BIT: IA-64 Itanium 2, AMD X86-64. **32 bit:** Pentium: 4, AMD XP, Athalon,
Embedded: COLD Fire, 8051, H8, ARM7 or 9, IPX, Mips 32, 68xx, Z80, PIC, 8, 16, 32 bit etc.,
and Various wireless, dedicated, embedded and industrial/commercial control Chipsets, ETC.
Programming Languages: x86, x64, various e m b e d d e d **C, C++, A s s e m b l e r ,**
COBOL, Basic, JAVA, Bin/hex machine languages and various IDEs and debuggers.
BIOS written: Phoenix, AMI, AWARD, ACER, INTEL, DELL and Embedded startup, ACPI, **IPMI** etc.
Programs: primarily **BIOS**, **DRIVERS, CONTROL, FIRMWARE**, Disassemblers, and Simulators etc.
Embedded Programs and drivers for Stand Alone, MS or Linux, etc. systems
CAE/CAD Systems: ORCAD, PADS, VALID, Cadence, Pads 2, Verilog/VHDL, Altera, Futurenet, etc.
Operating Systems: LINUX (full & Embedded), MS (9x, XP, 7), DOS, ZCPR, CP/M, RTOS, etc.

Complete Systems Designs – HARDWARE, FIRMWARE & PC Board Layout:

Tight Audio Systems: TAZ 1 (pre IPOD) Portable Audio/Video Player with LCD, Hard disc Cartridge and MP3 Player. Winner of **2** best design awards **2004 Consumer Electronics Show**.
NETPLIANCE: I-OPENER (pre IPAD) First Commercial Internet appliance TABLET. (WEB Pad) Designed hardware, BIOS, board layout… I was a one man engineering group. (DEBE)
STONER Communications - MANPACK RADIO 284,000 Channel 1.6 to 30 MHz - AM/SSB Backpack portable Transceiver. First use of a *Microcomputer* inside a analog Transceiver.
California Advanced Telecommunications – 100 watt CB mobile Low Noise Amplifier **(LNA)**
Satellite TVRO Technology: one of **8** engineers that **started the TVRO industry, defined** Block Converters, receivers, LNA etc. Receivers used ECL demodulator, **published magazine** etc.
-- AND Many OTHERS—

Publications: ***Satellite TVRO Technology*** - pub (2 yrs+), new projects programs, editorial and news.
Articles: - SPARC RISC etc., plus App Notes and a book "*SPARC RISC Applications Cookbook*"
Machines: Servers, Embedded controllers, Internet Appliances, PCs, Workstations, Mainframes, etc.
Started and ran 6 Businesses.(**DEBE** *Did Everything But Eat*), 2 in Russia, 4 in the USA, all successful, started on a shoestring and sold while operating profitably.

My **INDUSTRY FIRSTS (SOME OF - not complete)**
1. First definition *Plasma Transition process*, demo 1982, my electronic controller, "lost" by greedy who removed it. I **Rediscovered** 2007, **ran tests 2013– Patent** applied for, **published & Blocked**
2. **First** use of "*RF Block Conversion*" now used by every TV Satellite signal or TVRO receiver.
3. **First** use of a Microcomputer (1977) *inside* a portable RF transceiver *(284,000 Channel HF man pack)*.
4. **First** operational in car device to control a repeat DUI offender by Pin number and Breath analysis.
5. **First** *2 Transistor Broadband Mobile* Linear amplifier (*3w in -> 100w out*) still used on CB radios.
x. Many other firsts.. See Below.

EDUCATION: *unimportant* - **NOTE:** Quite honestly, I am what I am from my experience and my ability to quickly learn what I need to solve the problem. I ask you to consider me on my many years of Hardware and Firmware Design, development experience, my successes and my abilities to deliver. I have a history of getting things done, on time, under budget and never impossible. You will be happier with my experience and confidence to get it done, not 50 year old schooling, great start but not me now.

ACCOMPLISHMENTS:

12/1/2014 to current: Plasmic Transition, San Felipe, Baja, Mexico (contract)

http://www.plasmictransition.com/ Consulting engineer DEBE (*Does Everything But Eat***)**

The US Government has banned the development of this very important technology, as a "*Disruptive Technology*" since it would redeploy the wealth. It holds the key to cleaning up our planet, non combustible renewable cheap fuel no use of air, while also flattening the terrible distribution of wealth and the lack of the wealthy to help the poor.

I have been working with persons and groups throughout the world to help them get started developing this technology so that *at worst case* it will simply be "**Not Made In America**". I believe this to be a huge advance for the world and our reversing the current trend of destroying it.

3/15/13 to current RAM Engineering, San Felipe, Baja, Mexico (contract)

http://www.ram-eng.com/ Consulting engineer and DEBE (*Does Everything But Eat***)**

Designed new embedded electronics products, draw schematics, write firmware, layout PC Boards, Stuff PC Boards, Test product against specification, apply for patents of new discoveries, manage and produce

Web Sites, Provide speaking engagements for Alternative energy systems, provide consulting for new business entities or corporations and generally are the Expert with Facts as needed. Specifically I have redesigned the Controllers from Inteligentry to remove or enhance the system for those outside the USA developing the technology. I have also designed and developed a automated Gas Mixer system, and am working on a "DRONE KILLER" to keep drones out of airport of other space they should not be. I am looking for specifically any "remote", outside the USA, or partially project that is fun to do and challenging.

5/19/11 to 3/15/13 Inteligentry, LTD. Las Vegas, NV (contract)
CEO, CTO, and DEBE *(Does Everything But Eat)*

Designed, created Schematic, laid out PC Boards, and created Firmware for all electronics. This included a new Engine *Electronic Control System* (ECS) using multiple 8051 microprocessor controllers to handle Electronic coil Control, timing, engine speed and function control, using MOSFET, IGBT, RF LNA etc. Inter board communication was via CAN buss, Bluetooth for HID, to other controllers in a multiple motor environment or front panel or master control in the case of a vehicle or power generator usage. I designed Hardware, schematic, board layout and testing. ECS Firmware was written in C and assembler. I also developed testing modules, using Generators and water pumps to test and verify and applied Provisional and final patent on the "**Plasmic Transition Process**" hardware, ECS and Firmware to protect the IP and to provide inexpensive, environmentally friendly, quiet, power. This US "Start Up" Company was stopped and killed by the US Government, with help from competitors, as a "*Disruptive Technology*". I ran this company, developing my "discovery", with a small investment, $844,000, and it was ready, at 2 years, with a new 2 Cylinder engine that was to have been shown running, for investors, 3 weeks after the US Government shut us down. Information is being transferred off shore where it can be "developed" and I am free to "enjoy life" and help others, in my spare time, complete the development and provide a better world for us all. Starting & running a company is a lot of work, but rewarding. **See** *http://www.plasmictransition.com/*

12/1/10 to 2/15/11 John Deere Waterloo, IA (contract)
Embedded Control Board, computer, Analysis

I was asked to "evaluate" their new *Embedded System Control* board and provide guidance. They had farmed out the design to their Phoenix Design Team in Fargo ND over a year and a half earlier and was worried about making the *introduction* schedule. I studied the specifications and their schematics and met in Fargo to get complete update. They were very far behind. The new system was to provide Human Interface improvements to their current *John Deere OS* and control, including playing video, Audio, GPS control etc. It was, honestly, a task that a simple inexpensive *Android* tablet system could have handled with a few minor changes, adding CAN buses etc. Instead they had designed their own system using Linux and an Intel processor **COTS** Card without a Video chip. The video was handled by a set of large Programmable Logic arrays, *load at power on* type. My opinion was they would NOT make their schedule. I provided a list of recommendations, including going off shore for an Android variant, and found myself getting bounced between Des Moines, Waterloo, Fargo and Davenport. I had done my job.

3/1/09 to 5/1/11 PlasmERG, Inc. South English, IA (Contract)
CEO, CTO, and DEBE *(Does Everything But Eat)*

Personally filed provisional and final patents for a new engine that used Plasma expansion, generated from Helium, Argon and Neon, as a fuel. Similar to nature's "lightning", for example, in a closed cylinder. The engine provides power similar to a steam engine, lots of torque. It could have required about five dollars to run continual for a year providing 800 FT/Lbs of torque. It had no intake, exhaust, heat or emissions. I designed a single board multiple microprocessor controller to handle motor timing, function control, and HID via CAN buss to the outside world, front panel or master control, if a vehicle, single or networked power generator usage. I designed all Hardware, schematics, P C board layout, assembly and Firmware, written in C and assembler and testing modules, using demo boards from various manufacturers and programmed to test and verify various functions of the controller, simulating the hardware I/O. Company was taken over by a greedy investor via "*Hostile takeover*", to capture it for them. They are still trying to figure out what I know after many years but this man did get the government to kill Inteligentry, GREEDY!

4/26/08 to 2/20/09 Continental Cedar Rapids IA (Contract)
Hardware / Firmware Engineer

Add new features to the "Transit-master", Bus, Train, car system, this was Siemens AG and before that Rockwell Collins. Was part of group redesigning embedded micro controlled or micro processed system, as it was originally designed in 1997, so needed modernization? I Created a *wireless* Remote (RF delivered) firmware code update subsystem. Part of a very good group within Continental.

10/07 to 2/27/08 Cummings Power (Onan) Minneapolis, MN (contract)
Systems Engineer

Cummins was **having** the **programming** of their controllers **done in India** with systems engineers in the US reviewing, testing, code to the system design documents to verify compliance and functionality using both simulators and real hardware. This was a "distributed *load balanced* **Networked** *Power Generation system*", multi Genset, demand. I also was involved in solving some system design changes needed to support another engine type and the modifications needed to the state engines to do it. I reprogrammed the CAN bus to SPI transceiver to make the HC08 (8MHz) work, s t u d i e d changing to faster HCS08 (32MHz) part. This required rewriting the HC08 Code, writing HCS08 Code and writing special test codes. The J1939 CAN standard was being used on this network. It was apparent the offshore firmware persons did not understand how to get optimal speed and code size from 8 bit Microprocessor C/Assembler codes, as I do but they learned. Very interesting project.

7/21/07 to 9/21/07 VentureGES Singapore (Contract)
Sr Hardware/Firmware Engineer

Spent 10 days in Singapore plus 2 weeks in the US, helping them find a way to get the Phoenix BIOS to run thru POST in 3 seconds and then load Linux in 3 seconds. Redesign system Hardware, as needed, and remove unneeded components and recompile Linux and BIOS to get this to work. Speed needed because this is a hand tool control pad, similar to a web pad.

5/11/07 to 7/13/07 SPX, Owatonna, MN (Contract)
Sr. Staff Engineer

Coordinated with international groups, in India, China and Italy contracted by SPX, to develop a new *automotive/ vehicle systems test and programming* machine using the latest CAN, LIN and FlexRay buses. Made many redesign and improvement details and including Microcomputer based hardware elements and their programming. Also started to help with the Phoenix BIOS utilization to try and speed the time to the Linux OS from power on (Shorten POST). Unfortunately the Foreign Contract groups did not get things done, nor adopt the hardware changes I recommended, or others, putting the project into a late condition. Transfer of design to American hands, jumping several benchmarks put us in place to finish close to schedule but company decided to re-evaluate product and all contractors were released. I did learn all about Vehicle systems (CAN/LIN) and on board networking, though. With some luck the company will review the system and change the whole design to a simpler form, using a commercially available Laptop instead of a special pad and better I/O design.

2/12/07 to 4/5/07 Compressor Controls, Des Moines. IA (contract)
Sr. Staff Engineer

Redesign industrial control system to utilize Can bus for all inter processor communications between control and redundant processors, on Input, output and analog control panels, as many as 80 nodes. Designed fully isolated transceivers to handle input and output functions, saving 16 pins.

Put processor DC to DC power on a Daughter board to the hot plug able processor module, reducing size from 3 x 4 to 2.6 x 2.5, separating the production and testing of each component as well.

My CAN bus experience was useful in reworking the hardware to proper specs and the firmware to usable methods. The simple add of the Can "broadcast", to identify the up to 80 units, saves many seconds. I also laid out all 4 PC Boards for the system using Mentor Pads, and updated schematics as well. The processor is the most complex at 8 layers. My experience in PC Board layout is good they will work now.

1/11/07 – 1/24/07 Radisys Corp. Hillsboro, OR (contract)
Sr. Hardware/Firmware Engineer

I was asked to help find a critical Motherboard problem. They thought the problem to be in **Phoenix BIOS**, the most complete and also complex of the BIOS's, but examination of the Phoenix source code they were using and a rebuild, proved it OK. The failure was in the Intel supplied Video driver, in combination with a glitch in a hardware interface chip, that intermittently locked and kept the XP OS from starting after POST. I evaluated a separate serial problem, NOT BIOS or hardware, probably bad customer code. Got a chance to get "hands on" with latest phoenix BIOS code base, and understand why Award was easiest, was upside. No chance to pass any good info or build tricks to their BIOS Guy was downside. BUT… their problem solved..

8/17/06 – 10/13/06 Pivot International Lexana, Ks (Contract)
Sr Hardware EE. (Voting Machines)

The project was new Voting machines, specifically more secure than the DiBolds, used to cheat in Ohio and Florida (per HBO review) with a provable paper trail, for France, Japan, and Germany. I Learned Mentor Pads2 Schematic capture and PC board layout software. Did Schematic for Processor change and designed, did schematic and documentation for intelligent 3 way power switching and charging. I got them back on schedule and past the original Processor design with a replacement that was being produced. These machines are secure and provable. It was a "Fill in" job till they found a perm EE, which they did.

05/06 – 07/06 EZ Automation / Uticore Bettendorf, IA
Sr Research and Design Engineer - New Product Development

I designed 2 8051 based 8 in, 4 Thermocouple, Temperature sensing units for industrial control. These reported temperature back to a display host. I did design, board layout and firmware programming. Considering I knew nothing about Thermocouples and created a great product shows my flexibility.

02/06 – 5/06 Fairchild Controls Frederick, MD (contract)
Sr Embedded Firmware Engineer

Picked up the code for the 8051 part of the new "air tanker refueler" system and restructured/ rewrote it to be more efficient and to pass all tests. In the process, added functionality that brought the system response from ~60ms to less than 20ms by utilizing 8051 resources more efficiently and utilizing the CAN bus more efficiently. Programmed in C and assembler, testing using ICE and JTAG well commented and documented. Mission Accomplished, acceptance test complete with documentation. I learned the CAN Bus.

02/05 – 10/07/05 Rockwell Collins Cedar Rapids, IA (contract)
Sr Engineer Hardware

I was assigned to *Future Combat Systems* (**FCS**). Embedded Systems, System level and component level design and development. Started with a description of what was needed and developed computer platforms, or bought them, to solve the problems. A sub component was Current Force, which is due out soon, was also developed. My specific task was to try and develop a block that would provide very high performance, 3000SpecInts, at a current of 2 watts supporting 2 GB of RAM and another 2 GB of Flash. I was successful in finding a processor that would do the job within the Current restraint. (3000SpecInt is equal to a Dual Core 4400+ AMD 64 bit with 101 watts, so it was a bit unrealistic). I
worked with others to smooth the transition from PPC (Power PC) Processors to X86 based designs. We worked in consultation with General Dynamics and COTS.

06/04 – 11/15/04 Rockwell Collins Cedar Rapids, IA (contract)
Sr Engineer Analog Hardware and Firmware

Debug and fix, Video problems in Hardware and rewrite the BIOS for the **CES** (*Customer Entertainment System*) product line (audio/video for Private and commercial aircraft) including a New Startup (like **BIOS**) for the GEODE processor. etc

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O3/04 – 04/04 Benchmark electronics Winona, MN (contract)
Hardware System Design

System design and schematic capture for a Dual AMD64 Opteron based Server Blade with BMC. I Provided Schematic, BOM, Project description, schedule, BIOS and Linux based bring up plans, also.

03/03 – 02/04 Tight Audio Systems Iowa City, IA (contract)
Chief Engineer (Hardware/Firmware) Developed a I POD prototype etc.

DEBE (*Did Everything But Eat***)** I was the only Design Engineer for hardware and Firmware, drivers and Linux OS.

I was originally approached to design a portable Music Player with a Hard disc inside, similar to the I-Pod. In May the preliminary design specs and 3 weeks later I had a schematics, using the Cirrus 9312 ready and a back up using the 7312 (ARM), as the 9312 was not yet in production.

Over time management changed this from an intelligent Music player to a portable audio and video player. But the design I did was intelligent, Linux OS based, and would adapt. This first spec was complete, by management, in July. At this time I was presented with packaging.

The first mother board I did, used the 9312 and Linux as I was assured it would be ready. Then there was a problem in the 9312 that made it impossible to use.

Management had decided to add HDTV recording and playback to the unit, in addition to the simple S Video and Composite. These made a change of processor necessary and a search for some way to Capture and play HDTV in a Portable hand held unit. I did find the needed components and used the AMD AU1100 (Mips32) Processor and a new schematic was developed, in 5 weeks. I also rewrote the Drivers and Firmware.

This MB had 64 MB of Flash, for program storage and 256 MB SDRAM for data store. The MB also did IDE, USB, and drove a LCD, with Touch Screen, or VGA CRT and it included 10/100 Ethernet and PC97 stereo Audio plus memory mapped was a HDTV Recorder and playback unit and a Battery charger and power management system, all on a 3 x 6 inch board.

This Product won TWO prizes at the CES show. Failure to pay, forced ending, for us all.

08/02 – 03/03 Starvin Engineers Nashua, NH and Iowa City, IA
System Design, Building, shows and sales

My sons and I Built computers and sold them at computer shows. I developed specialized network systems for small businesses and we built and supplied the hardware and firmware for these. I did the Demo and conversation with buyers at the shows, about 8 hours on a Saturday at some location in the New England Area, And In Iowa thru Newspaper ads.

10/01 – 08/02 Celestica Chelmsford, MA. (Contract)
(IA-64 Phoenix BIOS/firmware) BIOS Firmware Engineer
(First Itanium Server) *(Yes we beat Intel!)*

I was responsible for the IA 64 BIOS for a new server design based on the McKinley (now Itanium 2) and the 870 chipset. My direct responsibility was to modify the **Phoenix** Bios (32 bit) to a usable and bootable IA 64 BIOS for this new server design based on the McKinley (now Itanium 2), 870 chipset, IPMI and chipsets.

I learned the IA 64 Assembler and C languages, Architecture and operation of the Itanium 2 processor and chipset, System IPMI and Server control board embedded controllers. I was involved in the early design of the Hardware and then the reduction and modification of the Phoenix Bios to a usable spec and bootable one.

My early responsibility was to act as a hardware designer and specifically make sure that any features specified would be covered in either hardware or firmware, including the (BMC) Board Monitoring Controller (IPMI) functions. Also I did all bring up firmware, the Startup Arium ITP macros and chipset loaders to automate, as much as possible, the early hardware bring up, test and validation.

I also learned the **EFI** Firmware and the **PAL-SAL** workings. This Firmware is a whole new world from the BIOS on an IA-32 bit machine. It took a lot of study and work but it's mastered and worked.

04/01 - 06/01 HDIC Durham, NC Analog Hardware System Design (contract)
Analog / Digital Design engineer

After Analysis of the Analog/Digital system, I Redesigned the Analog section of their prototype Multi loop (16) 13.56 MHz **RF-ID** Receiver panel system that will be used in the store shelf of the future.

My new design reduces the long "tuning" & "tweaking" times required by the first prototype, with ATC, and in the process provides greater reader range, FCC compliance, less cross talk and interference, while maintaining the PIC processor Firmware as was currently written.

I also designed a I2C to Ethernet connection for the shelf ends to replace long I2C runs.

Used Orcad 9.2 for Schematic capture and Board layout plus Pspice and other simulation tools,

plus usual Test equip (scope etc). I was happily surprised at the fact I had not lost my Analog skills nor my ability to do something brand new and the advances in Analog ICs.

This was the first RFID shelf and Checkout system ever designed and built.

10/99 to 03/01 Acer - Advanced Architecture Labs, Temple, TX
Phoenix and Acer BIOS Sr. Hardware/Firmware Design Engineer

I designed *Internet Appliance* and **PC** *(Server and Portable) Computing systems*. These were developed with the **Phoenix** and **Acer *BIOS***, our own firmware and drivers. We also designed new systems, Servers, Laptops, Workstations, for ***DELL*** to sell. The **Dell BIOS** was an *interesting experience.*

I also designed and started development of a "*Quick start*" **BIOS** replacement, written primarily in C, with some Assembler. The design created "*objects*" (System, Support etc) for the chips used in the hardware design. Each Object was created from a "standard" prototype & available, as a binary to a link, created by a HTML and JAVA service to the Hardware Engineer. A new "startup" could be "soft wired" by the Hardware designer to start Linux or Windows (9x, 2k etc). All Legacies was removed. This was meant to be an "**Open BIOS**".

7/99 to 10/99 RAM Engineering Austin, TX (My company)
Sr. Consulting Engineer

I finished a patent application for a project, started 2 years ago, "Wireless Network Switching System" which links a wireless network, through a smart interface, to the Internet, printers or other external elements. This was the First Wireless Hub designed and built.

I designed a Strong Arm based system, as proof of concept. Created a web page on the New system concepts with copyrights.

Teaching ORCAD, assembler and BIOS concepts to other engineers.

Creating AMD based Computers to sell at the swap as competition with Dell..

3/99 to 7/99 NetPliance Austin, TX
Designed New Internet appliance (IPAD forerunner)
Sr. Hardware/BIOS/Firmware engineer (*yup all in just me***)**

As the ONLY hardware, BIOS and Firmware engineer, I reviewed available components and designed 4 Motherboards and the BIOS code for each. Evaluated BIOS Code from **AMI**, **Insyde**, **Award** and **Phoenix**, The final pick was the **AWARD**, as the functionality of the system was very small (486ish) and the BIOS was startup only, the OS was **QNX**. This was the first Commercial **WEBPAD** ever designed and built. Portable computer pad on a wireless internet. They went **IPO**, collected their money, we were all 12 month vested so none for us, sold design and dumped their workers.

2/98 to 3/99 Phoenix Technologies Hillsboro, OR Sr. Engineer BIOS Development
Silicon Enabling - Port new Chipsets to the Phoenix BIOS

I worked with the **Phoenix**, and later **Award**, ***BIOS*** code. I Ported New Chipsets and Silicon, or Standards, components into the **Phoenix** code base. Worked with the New VCM labeling and the proofing of the code bases. Helped make sure that the **Phoenix IA-32** code base was *the Best in the world*, Checked, debugged and tested new code and bug fixes. *Languages: ASSEMBLER, C and C++*.

12/96 to 12/97 INTEL Corp. Mother Board – OPSD Hillsboro, OR (Contract)
Sr. Firmware Engineer – BIOS, BIOS Development

I worked with the **AMI** (Intel version) and **Phoenix** 4.60 BIOS source code. Sustaining, Modifying, adding features, Documentation and releasing BIOS's in support for all board level products (Pent. MMX, Pent Pro, Pent 2) and their custom customer required versions. Also worked with Customers, other hardware engineers, intercompany testing & Intel Technical Marketing Engineers to define problems and prepare fixes, Reprogram as needed and did whatever customizations etc. were needed to fix the problem or fit the customer needs. *Languages - ASSEMBLER, C, C++*.

5/96 to 12/96 INTEL Corp. Server Group - ESG Hillsboro, OR (Contract)
Sr. Firmware Engineer – BIOS, BIOS Development

I worked with the **AMI *BIOS*** Server source code. Primary project was to add IDE CDROM BOOT in all emulation types. This was accomplished with 1100 bytes freed in runtime code area and the Microsoft NT 4 boot bug handled in a way that is now used by several other option card suppliers. The El Torrito spec was not only met but also enhanced. Also researched, fixed and debugged any other repairs needed, ICE and Port 80 debug. Started to look at **Phoenix *BIOS*** Server code, Newer than 4.05 below.

2/95 to 4/96 Texas Micro Systems Houston, TX
Sr. Firmware Engineer New Product design/development

We, a hardware engineer and I, designed a new ***Dual Pentium Pro*** SMP Server system (PCI, EISA, Dual Orion). I also rewrote and replaced, as needed, BIOS code to correct problems in **Phoenix** code for Orion chip, P6 and SMP (1.1 and 1.4) using my own code, based on Intel source.

Tools were **ICE, MASM, C, C++**. One other engineer and I were the whole team Started - 9/95, 1ST Hardware - 11/95, Shown Fall COMDEX, **FULLY OPERATIONAL** Beta - 3/28/96, CANCELED 4/1/96. We completed operating system loads and SMP tests for Solaris, Linux, OS/2, Windows NT 4, also ran network tests and tests of IBM, Microsoft and Netscape Internet server software for NT, Linux, Solaris and OS/2 and benchmarks.

Wrote serial port monitor redirection subsystem (4 remote VT100 or PCXT terminals via com port) as an option contained within the BIOS CODE, portable to any platform, this code is still used today.

I designed and created a new base architecture, and Make files, to better use the Phoenix 4.04/4.05 style code bases, purchased to replace older code. Setup the libraries and helped with portable BIOS on 4.04.

New owners dissolved server, even though we had beaten Intel to the market. Their decision was to remain only "Down hole" provider.

10/94 to 2/95 Various short contract jobs:

Compatibility tests AMD K5 and Compaq portable, small networks etc..

4/94 to 10/94 COMPAQ Computer Houston, TX (contract)
Sr. Engineer BIOS Development

Rewrite of the BIOS ROM CODE for portables to update. Designed a new BIOS system architecture to create a kernel that could rapidly change to fit various hardware implementations, modifications or internationalized messages. Used Assembler, C, C++.

6/93 to 12/93 IBM Corp. Austin, Texas (contract)
Sr. Engineer DOS Driver Development

Wrote DOS int. 13 (hard disk) drivers, TSRs, and support programs to implement DES encryption of hard disk data by user input key for use with portable computing. Used Assembler, C, C++.

3/93 to 6/93 Secure Systems San Jose, Ca. (contract)
Principle Engineer

Researched/Designed & Developed a security product using a 8051, WSI memory/IO interface chip and modem. Laid out, built & tested initial PC Board, currently in production saving lives and maintaining accountable Security Guard reporting. Used Assembler, C for ROM based micro.

12/92 to 3/93 Unisys Corp. San Jose, Ca. (contract)
Sr. Test Engineer

Wrote test/evaluation software for board/machine level testing of PENTIUM based single/multi processor system. Basic processor module PENTIUM, cache controller, cache memory plus special ASICs. Emulation written in Verilog and VHDL on Cadence under UNIX. Test programs written in Assembler.

6/92 to 12/92 RAM Engineering San Jose, CA (Contract)

Installed LAN systems for small businesses under 12 computers. Various operating systems.

6/90 to 6/92 Contec Microelectronics USA San Jose, Ca.
Sr. Staff Engineer - CAE HARDWARE

Design/develop a dedicated system to do circuit analysis, similar to SPICE. Target was 500 MIPS plus range using hypercube of 36 T9000 transputers and 100 MHz FPU. My area was the care and feeding of the 100 MHz FPU through PLA controller logic, SRAM etc. Also the network interface to the host.

Not funded by Japanese parent past 6/30, 1992.

10/90 to 2/92 Smith Vs Jones (fictitious names) (A copyright case)
(contract)
Consultant-Expert Witness (software/hardware)

Smith sued Jones over a supposed copyright violation.

I was given a PROM binary and told what the Microcomputer was and asked to reverse engineer, as far as possible. I converted/combined the PROM dump to a binary program.

1. Wrote a (dis) assembler, disassembled the program.

2. Then wrote a simulator and simulated the program.
3. Determined the external operations test command codes, thus proving my clients case.
4.I then translated the software, generated PLA chips for a new microprocessor, creating a new functionally equivalent operating board.

I am not sure what it is supposed to do, but it does. **Client won suit**.

10/89 to 4/90 RAM Engineering, San Jose CA
WRITER - CONSULTANT - Contractor

Researched, interviewed & wrote "*SPARC RISC Applications Cookbook*".

3/89 to 10/89 Texas Instruments San Jose, CA
Applications Engineer SPARC RISC Circuits

As a Member of SPARC International tech committee, I analyzed Competing products and helped define their RISC processor position.

12/88 to 2/89 AUSTEC (Ryan/McFarland) San Jose, CA (Contract)
COBOL Telephone Customer Technical Support Engineer

Telephone customer tech support for COBOL compiler CP/M, DOS, UNIX, etc.

9/88 to 12/88 *disabled*, back injuries from rear end Auto Accident

5/88 to 9/88 National Semiconductor, San Jose, CA
Graphics Training Manager

In-house/customer training and product show support (SIGRAPH). Ended by Auto accident.

3/88 to 5/88 Raychem - Raytel Div. San Jose, CA (contract)
Test Program software/firmware engineer

Design programs for pre prod. test of Optical networking system using PC/ATs & IEEE-488

4/87 to 3/88 Fujitsu Micro. Inc. San Jose, CA (contract)
Technical Marketing Applications Engineer (SPARC RISC)

Traveled, gave Technical Seminars on the use and aspects of the **Sun *SPARC*** architecture and how to use the chips, developed data sheets, Architecture manual etc. Helped customers Create some unusual implementations.

Seminars given: SPARC RISC Architecture at customer sites & Help in Usage. Worked and enjoyed being a part of the marketing team as I was the Technical side.

8/86 to 3/87 Autosense Corp. San Jose, CA (contract)
Acting Engineering manager

I took over the project, redesigned Firmware, and developed hardware, for the control of persons driving, after being found "Guilty" of one, or several, Driving under Intoxification (**DUI**).

RESULT - **No CAR start if any alcohol!** (*even mouthwash*)..

Rewrote the C firmware, from 48 subprograms down to 3, and
reduced code size from 53k down to 9k in size while adding 300 % more features.
It was 68HC11 based. I also developed rules for EMBEDDED C programming that made sense.

The device required the input of a "user" password and the person blowing into the mouthpiece. It then did an analysis of the breath for alcohol before allowing the starting of the car. The Device was set up with the persons first blow and could tell if it was not that person.

Currently it is in use in several states to control multiple DUI Drivers as the *sentence to* device.

10/85 to 7/86 Everex Systems Fremont, CA.
Advanced Product Development Mgr. - Senior Design Engineer

Created High and very high-resolution graphics plug-in card designs for PCs using 80386 co-processors and Hitachi Graphics chip. Even gave Intel a comparative view lecture of the Graphics design market and the lack of capabilities in their prospective offering. They did not release theirs.

1/85 to 10/85 Quadram Inc. Atlanta, GA
Senior Design Engineer / Asst. Engineering Mgr.

Handled technical matters, fire fighting, training and designed high resolution graphics systems.
Taught the Hardware Engineers Firmware
and the Firmware Engineers Hardware. *The part of "Embedded" college courses miss..*

10/79 to 1/85 Advanced Communications Engineering, West Liberty, IA
DEBE - [*DID EVERYTHING BUT EAT*] ---→ This was my own company.

Designed personal satellite receiving systems, TVROs, layout PC boards, manufacture, test, ship, advertising, and even published a monthly hobby magazine, gave seminars etc.. Just everything it took.

I was one of the founders of the "**backyard TVRO**".

I defined the first use of "**Block Conversion**" in a Personal TVRO system, based on my experience with the Manpack which was also Block aware. This Technique is what made the current home Dish systems workable and are used there today.

My TVRO receivers were unique, my own design, and the FM demodulator was done using reversed Bias ECL Digital components which auto Tracked the IF. Again, a version of this design is still in use today by consumer systems.

I also designed the first Block converter for use at the LNA that was voltage tuned for AFC.

For publication I developed 2 new projects for the Magazine each month for hobbyists to build.

5/77 to 10/79 Stoner Communications Cucamonga, CA
Engineering Manager - Chief Engineer – primary designer
New Product Development

Designed/built portable **284,000** channel HF (1.6 to 30 MHz) in 1 HZ steps, military grade manpack, (Ruggedized) survive 1200 ft drop to ground, Transceiver AM, SSB and CW.

This was the **first transceiver, or ANALOG DEVICE, *ever*** designed and built with an internal microcomputer and digital switching to control frequency, mode or **any embedded control**.

Took less than a year to design and develop. *We were told it would never wor*k, NOR *pass the military tests*. **IT DID!** We sold many to other countries. Before Pres Carter decided it could not be sold outside the USA and that caused the company to get taken over by the bank.

So What if they said It could not be done, **WE DID IT**.

Awarded "Best of show" at *INTERNATIONAL* **AFCEA**. (*Armed Forces Communication Engineering Assoc*.) Show was being tested by the US Military as replacement for US Marines.

10/75 to 5/77 California Advanced Telecommunications Wideband Linear Amplifiers
President - Engineering Manager - Chief Engineer – primary designer

Designed/built HF (1.6 to 30 MHz) mobile Linear amplifier (3 watts in to 100 watts out) Broadband using dual Transistors and Ferrite transformers. This was the first Transistor Amplifier ever designed and built with an internal broadband matching transformer made from **ferrite** materials..

First *100W* 2 transistor **CB linear. It is STILL manufactured and used** by mostly truckers, today. I sold this company.

1/72 to 10/75 Control Data Corp. Honolulu, Hawaii (Top Secret Clearance)
Minicomputer Software Group Manager
Air Force - Seek Data 7 Project

Designed/developed Software for the ***Firebase located Minicomputer*** side of a Data system, back to the Airbase mainframe for FRAC control. This included trips and "live" tests in Viet Nam..

Prior to 11/72 Various M.I.S./NSA research/IBM/misc
Sr. Prog/Analyst, Group Leader, Trainer, Primary Researcher
etc.

I taught IBM Mainframe Assembly, FORTRAN and COBOL Programming and Programming Analysis at a time when if they could spell "programmer" we would try and teach them. I also worked as a COBOL programmer, Project Lead, did code "fire fighting", Designed and developed Advanced Computing and Memory Systems architecture, holographic Memory systems – a Primary Researcher (1962-1971) most is covered by N.S.A. security agreements.

HOBBIES: SCUBA, PRIVATE PILOT, HAM RADIO, DJ., SCCA, Tinkering with New OS's & Processors (x86-64 etc)

ORGANIZATIONS: IEEE, ACM and (formerly SPARC INTERNATIONAL)

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