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Apple Enterprises specializes in custom software and embedded firmware. I develop the embedded firmware, occasionally the digital hardware, the PC control application, the manufacturing and calibration application, and even the installer.

I take a concept and make it a product.

## History

Apple Enterprises was founded in 1981 and specializes in embedded firmware, control software and application software. I have developed more than 50 biotech, medical, industrial controls, semiconductor equipment, video post production and consumer products over the last 30 years for 25 different companies.

I graduated from UC Berkeley with an EECS degree in 1975 after spending 2 years in the US Marine Corps. I am a member of PATCA, IEEE CNSV, IEEE, LinkedIn and a former board member of UC Berkeley Engineering Alumni Society (EAS). I host the South Bay Cal Engineering Alumni meetings.

## Technical Strengths

- Excellent written communication skills
- Proposals, functional specifications, man power and cost estimates
- High level product architectural design - software and hardware
- Hardware/software tradeoffs, computer language selection
- Design of multi-processor hardware, software and firmware
- Design of real time, multi-tasking, interrupt and event driven operating systems
- Top down, modular, structured software design
- Well organized, maintainable, and documented software code
- Microprocessor and digital hardware design
- Expertise in bootloaders, motion control (PID and micro stepping), battery powered, lasers, pumps, set tops and developing software tools.
- C, C++, Assembly, Java, Basic, XML, MFC.
- ARM Cortex, MSP430, ADuCM360, ADuC7060, EFM32, TI CC2540, STM32, Marvell 88MZ100, VIA, SH4, 68HC11, x86 and 8051.
- IAR IDE, Visual Studio 2012, IntelliJ, Windows CE, WICED and Keil IDE.
- Operating Systems: Windows, UNIX, ThreadX, Windows CE and XP Embedded.
- Peripheral interfaces: USB, Ethernet, I2C, SPI, JTAG, 1-wire, RS-232, RS-485, RS-422.
- Sensors: temperature, TEC, pressure, machine vision, sensor signal conditioning and analog-to-digital converters (DACs, ADCs and oversampling ADCs).
- Networks and web: TCP/IP, ASP, SOAP, IIS web server, and sockets.
- Windows drivers, services, DLLs, and Windows CE BSPs.

# Product Development Overview

Developed Medical products: Cryobiology device for Myoscience; Orthopaedic drill for McGinley Innovations; Muscle stimulator for Niveus Medical; EMG biofeedback for Ames Technology.

Designed embedded microprocessor products for: General Electric in nuclear power safety equipment (patent 4,574,068); Pinnacle Systems, Digital F/X and CMX in commercial broadcast equipment; Compumetric and GCA in semiconductor capital equipment; Rainin, Eldex and Critikon (Johnson and Johnson) in pumps; Smitten ice cream machine.

Developed BioTech products: Mass spectrometer for CIPHERGEN and GeneTrace; calibration tools for the Arcturus Laser Microdissection and Laser Capture Instrument; electronic pipettes for Rainin Instrument (patents 7,770,475, 7,788,986).

Developed software tools: MPEG2 tools for Hyundai; VxGdb interface-Sun to PC for Hyundai; 386 operating system and debugger for Digital F/X; Emulator interfaces for Microtec Research's XRAY debugger.

Success indicator - many products for same company: 4 products for New Focus, 4 products for Rainin, 4 products for Light Source, 3 products for GE, 3 products for Digital F/X, 2 products for CMX, 3 products for Compumetric and many products for Microtec Research.