Arthur C. Edwards
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Objective: Hardware and/or Software Engineering.

Experience Summary: Sixteen years experience developing hardware, writing device drivers and debugging hardware software interoperation problems. Expert in C and assembly languages. Understanding of object oriented design using C and C++. Knowledge of digital signal processing techniques including use of DFT/FFT and digital filtering.

Experience:

CREATIVE LABS MALVERN / ENSONIQ CORPORATION — Malvern, Pennsylvania

Software Engineer — December, 1997 to Present

Developed and maintained software for digital audio devices.

- Device driver development for Windows XP, Windows 2000, Windows NT, Windows 95/98, and MS-DOS Operating Systems. Experienced in WDM, VxD, and Ensoniq's patented[1] MS-DOS driver architectures.
- Implemented direct CD-Audio in DOS driver for SoundBlaster AudioPCI product. This enabled digital audio to be read directly from an audio compact disc and played through the soundcard's D/A. Permitted OEM customers the option of specifying/purchasing lower cost CD-ROM drives without audio circuitry. Also reduced OEM customer assembly and test complexity by eliminating CD-ROM audio cabling.
- Implemented surround-sound support for four channel audio controller.
- Improved code maintainability by converting modules from assembly language to C[2].
- Reduced product returns by implementing software workarounds for ASIC design defects.
- Responsible for analysis of Windows Hardware Quality Labs[3] test failures. Implemented fixes to driver code to retain Windows Logo Program eligibility.

Hardware and ASIC design group support.

- Responsible for testing and evaluation of ASIC prototypes. Developed software used by ASIC design group to test power consumption for qualification of chip vendors.
- Investigated interoperability problems of product with various PC platforms. Recommended and implemented remedial action.

Customer support.

- Visited customer sites to troubleshoot manufacturing and testing problems.
- Assisted with integration of ASICs into customers' embedded designs[4].

Test Engineering group support.

- Continued development of manufacturing test software. Reduced cost of testing by eliminating need for expensive audio measurement equipment by developing self-contained audio tests. These tests use host digital signal processing to analyze performance of the unit under test. Improved testing of AGP video cards by developing utilities to allow hot swapping of unit under test without power cycling the test system.
- Debugged complex test hardware.

Evaluation of new audio delivery technologies

- Investigated feasibility of a "software only" legacy audio hardware emulation scheme under MS-DOS that would use a USB output device.

Test Engineer — March, 1994 to December, 1997

Developed PC based automated functional test systems for embedded DSP products.

- Increased test throughput by designing bed-of-nails test fixtures to simultaneously test 4 and 6 unit panelized assemblies[5]. Was responsible for all mechanical, electrical, and software design.
- Developed software using C, C++, & various assembly languages. Target platforms included Windows and MS-DOS 80x86 systems and 68000 embedded systems. Experienced with DMA & interrupt handlers, 80x86 Real & Protected Mode, TSRs, and VxDs.
- Designed hardware for test systems using TTL, CMOS, PLDs and custom DSP devices.

- Supervised construction of bed-of-nails test fixtures by outside contractor[6].
- Documented test and debug procedures for repair technicians
- Integrated Audio Precision *System One* audio analyzers into test systems.
- Used multitasking kernel, in circuit emulators, logic analyzers, & logic simulation tools.

Education:

TEMPLE UNIVERSITY, Philadelphia, Pennsylvania
Degree: BS Electrical Engineering

Hardware & Software:

Intel 80x86, 8085; Motorola 68xxx; Microchip PIC; Rockwell 6502; Zilog Z8; DEC VAX, PDP-11.

Windows XP, Windows 2000, Windows 98/95, Unix, MS-DOS, C, C++, Assembly Languages, WIN32, MFC, COM, TCP/IP, AutoCAD.

[1] http://members.localnet.com/~snowdog0/Resume/patent.htm
[2] http://members.localnet.com/~snowdog0/Resume/asm2c.htm
[3] http://www.microsoft.com/HWTEST
[4] http://members.localnet.com/~snowdog0/Resume/Cayman.htm
[5] http://members.localnet.com/~snowdog0/Resume/Skunk
[6] http://www.teradyne.com/cgi-bin/atd/part2-b?name=Elect-Test%20Fixtures,%20Inc.