Charles E. Patisaul Embedded Software Engineer

Cary, North Carolina, USA
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Objective

To use my low level programming skills developing exciting embedded products; including firmware, operating system, drivers, applications, programmable logic and/or coprocessors.

Education

Bachelor of Electrical Engineering, Cooperative Plan with Honor, Georgia Institute of Technology, 1996
Specializations: Computer Systems and Telecommunications

Skills

- High-level languages: C/C++, Visual Basic, BASIC, HTML, Pascal, and Fortran
- Assembly languages: ARM, M68K DragonBall (68328), M•Core, PowerPC, PIC, and X86
- Knowledgeable in issues related to low-power and mobile devices
- Extensive experience in simultaneous cross-platform development
- Expert at debugging embedded systems with little or no emulator support
- System level software (RTOS, drivers, libraries, and test applications) in embedded environment
- High level hardware and software debugging using oscilloscopes, logic analyzers, and simulators
- Low level software debugging using memory dumps and assembly code tracing
- Operating Systems: Palm OS, WinCE/PocketPC, VRTX, Windows 95/98/NT/2000/XP, Unix and Solaris
- Source/Change Control: PVCS, Perforce, Visual SourceSafe, StarTeam, and Clarify
- Programmable Logic: Xilinx, CoolRunner, and other PLDs
- Electrical soldering (including surface mount components)
- Ham radio operator (KB4WEH, Technician Plus)

Professional Experience

Qualcomm, Inc., Cary, North Carolina
CDMA Technologies
Senior Engineer - June 2004 to Present

Scientific-Atlanta, Inc., Atlanta, Georgia
Digital Subscriber Networks, Headend Embedded Software Team
Staff Embedded Software Engineer - April 2002 to May 2004

- Developed and maintained firmware for Quadrature Amplitude Modulator series of products
- Wrote code for multitasking multi-processor system mixing ARM and PowerPC.
  - Maintained carrier grade reliability.
  - Focused on MPEG-2 Systems Layer and PowerKEY Conditional Access System.
  - Worked closely with Digital Network Controller System and set top groups.

Ratio DesignLab, Inc. (became AppForge, Inc.), Atlanta, Georgia
High-tech Product Development
Embedded Software Engineer - April 1996 to April 2002

- Developed software and firmware for battery powered handheld mobile devices.
- Implemented 32-bit multitasking embedded real-time operating system (RTOS)
  - Written in portable Object-Oriented C (critical portions in assembly).
  - Simultaneously supported on ARM, ARM Thumb, StrongARM, Motorola M68K DragonBall, and M•Core.
  - External modules use position-independent code and data (PIC/PID) for execute in place power savings, flexible configuration, and field upgradability.
  - High-speed direct system and inter-module function calling via a COM like interface, implemented in C.
- Wrote numerous device drivers including UART, (IR, RS-232, and RS-485), graphical LCD, coprocessor, touch screen digitizer, and paging and two-way radios.
- Team lead for development of cross-platform GUI controls using C/C++ code shared between Windows and all

embedded targets, in the AppForge Piedmont Framework.

- Senior team member in design and development of AppForge Piedmont (a cross-platform COM-like framework for embedded systems) SDK and run time, for Palm OS and Pocket PC.
- Wrote and maintained code in programmable logic devices (CPLD and FPGA) and coprocessors to support "zero glue logic and field upgradeable" design philosophy.
- Wrote programmable logic elements and boot and OS code for modular Hardware Reference Platform

NASA, Voice and Navigation Aids Section, Kennedy Space Center, Florida
Electrical Engineering Student Trainee (Co-Op) - May 1991 to September 1995 (alternating quarters)

- Prototyping, engineering support, and UNIX programming for U.S. Space Shuttle ground communications systems.

Patent Pending

"Methods and systems for providing platform-independent shared software components for mobile devices"
United States Patent Application 20030018825, filed 17 July 2001