

JOSEPH F. BAKER

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OBJECTIVE:

A fast-paced embedded hardware / firmware design position

SUMMARY:

Senior embedded hardware and firmware engineer who gets designs to market on time within budget. Driven to achieve project success by helping others succeed.

EXPERTISE:

Embedded Controller based design	Orcad & Altium schematic/layout
Microprocessor based design	DC to DC point-of-load power
Customer RTOS, multi-tasking firmware	Digital, Mixed Signal, A2D & D2A

HISTORY:

RLA Engineering

Portland, OR

2014 – Now

- Intel Curie based Bluetooth personal emergency device:
 - Ultra low-power HW circuit design
 - FW task supervisor
 - Managed BOM, Procurement and Proto Build
 - Dual-path battery charger
 - Schematic & Layout in Altium
 - Manufacturing test firmware
- Firmware, Digital, Mixed-Signal and Power Conversion for specialty coffee maker
 - Bluetooth SoC with PCB antenna
 - Wrote custom RTOS for PIC32MX795
 - Discrete PID control loop
 - Real-time sensing and control
 - Schematic & Layout in Altium
 - Prioritized task scheduler
 - Stepper & linear motor drivers
 - HW motor protection
- Firmware design for optical diagnostic devices with PIC32MX440
 - Messaging based inter-process, multitasking services, drivers & ISRs for:
 - USB HID & MSD class device
 - D2A, A2D, SPI, I2C, UART, DMA, Parallel
 - SD Card
 - TFT Display & Touch Screen
- Hardware & firmware design of a kAmp-hr sensor/accumulator for plating tanks
 - Real time / interrupt based firmware despite Arduino IDE & framework
 - HW design of Instrumentation Amp interfacing to an over-sampled 10-bit DAC
 - SW Charge Pump control
 - 7-seg LED driver / key switches

Radio System Engineering Consulting

Portland, OR

2008 - 2013

- Designed microwave & mobile radio systems using EDX, ComStudy and Pathloss
- Designed after-market HW to improve TX power; improved selectivity of radio

Family Leave

Coos Bay, OR

2006 – 2007

I paused my career for my former spouse's teaching career in Coastal Oregon

Rosen Aviation Displays **Eugene, OR** **2005 - 2006**

- Root cause identification & resolution of field failures and reliability concerns
- Designed HW motor controller for storing displays on aircraft
- Collaborated with VP Eng. on "Best Practices" manual for future designs
- Mentored and trained an intern who was hired as the hardware engineer

Georgia Department of Education **Atlanta, GA** **2003 - 2004**

- Licensed High School Math Teacher – Class of 2003 's "Most Dedicated Teacher"

Intelligent Optical Amplifiers **San Jose, CA** **2001 - 2002**

- Designed embedded MPC855T and MPC8260 with SDRAM, FLASH, DSP
- Verilog RTL in FPGA's *distributed* logic of 19 bit multiply and signed addition
- All layout, purchasing and manufacturing support for prototype assembly and test

VINA Technologies **San Jose, CA** **1998 - 2001**

- Designed Freescale MPC860 based hardware for a voice/data E1 aggregator
- Designed Freescale MPC8260 based hardware with FLASH, SDRAM, and L2-Cache
- Altera & Xilinx CPLDs for Bus Arbitration, Null Pointer Detection and Chip Selects

Previously **Atlanta, GA** **1990 - 1998**

HW design of very high volume home analog & digital TV receiver product lines:

- Resolved clock jitter bug by designing a transport stream buffer in Altera RTL Verilog
- Video digital to analog conversion & timing for international video formats
- Video overlay generator firmware, hardware and FPGA design
- NXP 8051 firmware and hardware to drive multiple front panel UIs:
 - Rack-mount: Key matrix, character LCD, PWM contrast, downloadable font
 - Consumer: IR receiver, four 7 segment LEDs, I2C interface
- PIC18-based replacement for end-of-life I2C LCD discontinued during production
- Design of a PLD to replace a timing IC that had been discontinued during production
- LNA power supply with variable output, modulated & active short-circuit protection
- Designed In-Circuit-Emulator for secure microcontroller that had not taped-out
- Freescale microcontroller based telephony interface & firmware modem

EDUCATION:

Georgia Institute of Technology

BSEE

East Tennessee State University

BA in Music Education