

## JOE BAKER

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### OBJECTIVE:

A fast-paced embedded hardware / firmware design position

### SUMMARY:

Senior embedded engineer who gets designs to market on time within budget.  
Strong personal focus on quality through promoting cross-functional success.

### CORE COMPETENCIES:

- Driven to Achieve Team Success
- Rigorous Design Process
- Personal Accountability
- Root-Cause Debugger
- Lean Start-Up Pro
- Quality Results
- Embedded Controller Hardware
- Real-time, multi-tasking Firmware
- Altium Schematic & Layout
- PIC32 / ARM Cortex-M
- Digital, mixed signal & BLE
- DC / DC conversion & DC Motor

### HISTORY:

#### Stanley Hydraulics

Portland, OR 2018

- ARM Cortex Hardware & Firmware design and prototyping of BLDC motor controller:
  - Real-time open-loop firmware
  - high-current power path, battery control

#### Mobile Technologies, Inc.

Portland, OR 2017 - 2018

- ARM Cortex Hardware & Firmware design of smart kiosk stand for tablets:
  - USB HID device
  - SPECK encryption
  - high current battery charging
  - Schematic & Layout in Altium with Subversion
  - git/github for FW
  - Prototypes in 5 wks; DfX skills put design smoothly into off-shore pilot production

#### RLA Engineering

Portland, OR 2014 - 2017

- Bluetooth personal emergency device using Intel Curie SoC:
  - Ultra low-power HW circuit design
  - Dual-path battery charger
  - Managed BOM, Procurement & Proto Schematic & Layout in Altium
  - FW task supervisor in Zephyr
  - BOM, Procurement and Proto Build

## **RLA Engineering (continued)**

**Portland, OR**

**2014 – 2017**

- Bluetooth, Digital, Mixed-Signal, Power and Firmware for specialty coffee maker
  - Bluetooth SoC with PCB antenna
  - Schematic & Layout in Altium
  - Wrote custom RTOS for PIC32MX
  - Prioritized task scheduler
  - Discrete PID control loop
  - Stepper & linear motor drivers
- Firmware design for tester of optical sensors with PIC32MX
  - Messaging based inter-process, multitasking services, drivers & ISRs for:
    - USB HID & MSD class device
    - SD Card
    - D2A, A2D, SPI, I2C, UART, DMA, Parallel
    - 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 ADC
  - 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 & selectivity of mobile radio

## **Previously**

**Atlanta, GA and in SF Bay**

Over a decade in the home video & telecom industries designing hardware, firmware and RTL FPGA verilog for products in volume manufacture for employers including Compression Labs, Antec, Scientific Atlanta and VINA Technologies:

- Video digital to analog conversion & timing for international video formats
- Video overlay generator firmware, hardware and FPGA design
- LNA power supply with variable output, modulated & active short-circuit protection
- Designed In-Circuit-Emulator for secure microcontroller that had not taped-out
- FPGA Verilog RTL in distributed logic of 19 bit multiply and signed addition
- FPGA Altera RTL removed clock jitter bug with an MPEG transport stream buffer
- CPLDs Altera/Xilinx for Bus Arbitration, Null Pointer Detection and Chip Selects
- CPLD design to replace a timing IC that had been discontinued during production

## **EDUCATION:**

Georgia Institute of Technology

BSEE