

System/Firmware/Embedded Engineer

Contract or perm.

Expert at real-time problem solutions and fully functional rapid prototyping.
Team leader and excellent collaborator with hardware, mechanical and other engineers.

Ability to communicate clearly with marketing and customers.

Fun to work with.

For more details:

<http://www.absoluterealtime.com/>

Resume

J. R. Rees

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Absolute Real Time, Inc.

San Francisco Bay Area, CA

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Software engineering for real-time, firmware, and embedded systems.

Expert in all phases of software engineering from proposals to field support.

Particularly adept at solving tricky real-time problems and developing fully-functional rapid prototypes.

STRONG

C, Assembly, firmware, device drivers, controllers, datacom/telecom, diagnostics

SDKs: IAR, AVR Studio, Keil, CodeWarrior, MS Visual C++, Sun/Unix, Tornado

Processors: Atmel, TI, ARM, Intel, Motorola, AMD, Mips

Kernels: AVRX, VxWorks, PSos, Windows CE, Chorus, custom

OS's: Windows, Unix, DOS

Protocols: numerous custom

Misc: expert hardware/software integration, excellent communication skills, team leader

EXPERIENCE

2008-present [Adura Technologies](#), San Francisco CA

Firmware for zigbee wireless mesh network to control building lighting and manage energy costs.

2005-2008 Microtech Systems, Belmont CA

Firmware for prototype CD/DVD publication system using Atmel AVR micro to control a printer and stepper motor. Required reverse engineering of printer system.

Enhanced prototype for system integration, quality testing and final manufacture.

2007 Moto Development Group, San Francisco CA

Atmel AVR extremely low power Real Time Clock with UART interface.

Two Wire (I2C) interface for multiple Atmel devices to communicate.

2006 HandHeld Entertainment - ZVUE, San Francisco CA

Debugged Embedded Linux USB and SD driver modules

as well as a variety of other third party BSP problems.

Got "microwindows" platform working to create UI widgets on PC and port directly to device.

2005-2006 BioControl Systems, San Francisco CA
Firmware for Atmel based prototype devices in a Zigbee wireless network.
Applications include adult toys for JimmyJane, bicycle performance monitoring for Soule, and biosignal monitoring for other clients.

2005 Moto Development Group, San Francisco CA
Firmware architecture for ARM based portable music device.
High speed 3 wire IRDA interface for same ARM device.

2004-2005 SensArray, Fremont, CA
Firmware diagnostics and test tools for wafer fab system monitoring equipment using TI MSP430.

2004 VIPMobile, San Francisco/Menlo Park, CA
Wireless RF-tags to track and locate shipping containers using a mesh network.

2004 AMRON, Virginia
Windows serial port interface and demo app for data collection.

2003-2004 BioControl Systems, San Francisco CA
Wireless pod/base combo to transmit biosignals to a PC/PDA using 8051, Chipcon CC1010, Keil tools, Visual C++, PocketPC.

2003 Encirq, San Francisco CA
Ported their embedded data management software from 32 bit to 16 bit HCS12 processor for all 3 memory models (small, banked, large). Integrated with CodeWarrior to work with Encirq's automated testing environment.
Developed custom file management system to work with HCS12 flash memory.

1999-2001 Moto Development Group, San Francisco CA
Product design & development of fully functional rapid prototypes including:
- MEG for Experience Music Project (Paul Allen's Seattle museum)
Video/audio sync app and ADA app for a hand-held user device for museum goers using Casseopia MIPS prototype, IR, HD subsystem, PDA media player, WinCE, network video server.
- IPaq keyboard prototype for Microsoft
IPaq ARM processor with a RIM-type pager keyboard that is inserted into the serial port at the bottom of the iPaq running PocketPC generating virtual key input to all apps.
- WebKey for Casio
A custom plastic character designed to act like a smart card is plugged into a USB dongle where an HID filter driver launches custom web page.
- Futurator
An interactive video kiosk based on a 1950's refrigerator running a PC controlling multiple I/O devices.
- LED Midi Guitar
Midi guitar with LED fretboard interacts with PC software to simplify learning to play the guitar.

1997-99 Panoramic Systems, San Francisco CA
As a member of Panoramic Systems, an international consultancy for real-time embedded products, I have worked on the following projects:
- Dantel, Fresno CA
PPC VxWorks BSP components for alarm and control system for the telecom industry.
- Sun Microsystems, Santa Clara CA
Trouble-shooting high-availability system for 64-bit SUN cPCI architecture running VxWorks.
- Lucent, New Jersey

Analysis of code port from 32-bit to 64-bit processor architecture for a large code base for cell phone switching running VxWorks.

- Applied Microsystems, Seattle WA

Developed drivers for Netrom product to run on Windows CE.

- StorageTek, Denver CO

Trouble-shooting Netrom driver problems in hard disk array application and developed fastdownload solution for data transfer using Netrom.

- Nortel, Ottawa Canada

Trouble-shooting VxWorks problems in cell phone switching application.

- Lucent, Naperville IL

Developed drivers for Netrom product to run on Chorus OS in telephony switching system.

1995-97 Nortel, Santa Clara CA

Created communications between PBX and PC database for PBX network data I/O to replace tty input with Win95 interface and allow automated data tracking.

- Visual C++ and Rational Rose.

- serial port and ethernet com link drivers.

- Win95 GUI for com monitoring.

- team of 10 software engineers.

Development of testbed for new compiler to convert the proprietary PBX programming language to a C base utilizing multiple target processors.

- built VME system running VxWorks to run subset of PBX system.

- built subset of PBX system to run on Sun Workstation.

- built Win95/PC system to install and run new compiler.

- team of 2 software engineers.

Enhanced code patcher tools for C/C++ extensions.

- tool ran on Sun Workstation.

- tool created patches for VxWorks embedded target.

- team of 2 software engineers.

1996-97 Personal Internet Consulting, San Francisco CA

Tutored novice and experienced computer users on the benefits of the internet from basic setup, to ISDN, to videoconferencing.

1992-95 BioControl Systems, Palo Alto CA

Created complete PC interface, libraries, and GUI for BioMuse biosignal processor used to track eye and muscle movements.

- Borland C for DOS.

- Visual C for Windows.

- serial port com link drivers.

- customized packet data protocol.

- TI DSP device drivers.

- DOS and Windows GUI for real-time data display.

- provided customer and developer support.

- team of 1 software and 1 hardware engineer and 1 technician.

1993 Network Equipment Technologies, Redwood City CA

Created boot and diagnostic programs for DSPs on a T1 board.

- C on Sun Workstation.

- Motorola HC11 target processor.

- team of 4 software and 2 hardware engineers.

1991-92 Toshiba America MRI, Inc., South San Francisco CA

Created tuning, control, and diagnostic functions for MRI products including a prototype MRI with GUI for real-time status and input.

1990-91 Real-Time Productivity Management Systems USPS, San Francisco CA

Data acquisition and control for a variety of postal sorting machines

using multiple port serial board and PCs, all Intel processors.

1987-90 Survival Research Labs, San Francisco CA
Microcontrolled robotics system for multi-ton machines in live performance setting. Designed on 8051. Ported to HC11.

1979-89 Bell Northern Research, Mountain View CA
Did it all here. Software team leader on new hardware/software designs for PBX systems.

EDUCATION

1995 Week-long seminar on Object Oriented Programming using Visual C++.
1995 Week-long seminar on Object Oriented Design Tools using Rational Rose.
1975-79 BS Computer Science/Math from the University of Arizona, Tucson.
1971-75 graduated in 3 1/2 years from Alhambra High in Phoenix Arizona.

OTHER ACHIEVEMENTS

Produced first weekly series of improvised music in San Francisco.
Created first computer control for internationally renowned machine artists Survival Research Labs.

RELATED PUBLICATIONS

Scientific American October 1996
BioControl System's BioMuse in "Controlling Computers With Neural Signals"
San Francisco Bay Guardian Dec 1996
improv music story entitled "Around The Bend"
Scientific American August 1988
interviewed in story on SRL entitled "Robots Rampant"