Rodney B. Bonser

Embedded System Programming and Engineering:

System Level Firmware Design
Application Firmware Programming
Hardware Test Firmware
C and Assembly Language Programming
Real-Time Operating System (RTOS) Programming and Integration
Embedded Linux Applications
Nucleus Plus, CMX
I/O Drivers
Tensilica Xtensa, ARM, Motorola 68XXX
Software State Machines
GDB and IDE Debugging
Codewright, CodeWarrior
PERL and C Software Utilities
State & Task Diagramming
Firmware Documentation

EXPERIENCE

Please Note: My expertise varies among the following tasks. Please inquire about experience with a particular skill or task.

ALLERO Design Meadow Vista, CA 1/02 - Present
Consulting Engineer

Software:
Embedded Linux on single board computer platform
Temperature and humidity sensor monitoring
PERL and C daemons & utilities

Hardware:
Portable preamp / amp for electric guitar

Luxxon Corporation Mountain View, CA 12/00 - 1/02
Senior Firmware Engineer
Firmware for the LUX2 Multimedia Processor chip

Firmware:
Member of the system level firmware design team
Assembly and C language for Tensilica Xtensa RISC processor
Programming under the Nucleus Plus RTOS

Video / Audio synchronization
Test and design verification firmware for the chip audio subsystem
Debugging with GDB
CodeWright IDE

Software:
PERL and C utilities

Documentation:
Firmware descriptions
State & task relationship diagrams

Wireless Link, Inc. Milpitas, CA 3/99 - 5/00
Consultant
Engineering for cellular telephone products

Firmware:
Assembly and C language for ARM RISC processor
Ported Nucleus Plus RTOS to ARM-based platform
Simulated RTOS port under ARMulator (ARM processor simulator)
CodeWarrior IDE
Assembly and C language for NEC 78K IV microprocessor
Multiple tasks running under CMX RTOS
Remote programming of firmware into FLASH memory
Software state machine for
Telephone ringing
Hook detection
Tone generation
DTMF detection and decoding
CodeWright IDE

Hardware:
Level shifter board for serial communication

Documentation:
Firmware descriptions
State & task relationship diagrams
Schematic

Vista Labs, Inc. San Jose, CA 3/97 - 6/98
Consultant
Engineering for universal controller handling operation and provisioning of a fiber-optic communications system

Firmware:
Object-oriented methodology
Assembly and C language for 80C320 (8031 derivative)

Multiple tasks running under CMX RTOS
Multiple, simultaneous serial port operation
Front panel switch and LED operation
Real-time clock
Modem operation
Remote programming of firmware into FLASH memory,
ASCII command/execution code.
IAR IDE
Code simulation

Documentation:
Firmware descriptions
State & task relationship diagrams

Hardware:
Reviewed existing hardware design to:
Identify design errors on existing revision
Identify areas for improvement on subsequent revisions

Telecom Solutions, Inc. San Jose, CA 1/96 - 12/96
Consultant
Engineering for a precision timing system for digital telecommunications

Firmware:
Assembly and C language for Z180 microprocessor
Multiple tasks running under CMX RTOS
Implemented error-correcting intra-shelf communications protocol
Modified existing code to implement Sync Messaging on a ESF data link

Documentation:
Firmware descriptions
State & task relationship diagrams

Carco Electronics Menlo Park, CA 11/94 - 09/95
Consultant
Engineering for a digital control system for a flight motion simulator

Firmware:
Embedded firmware for an IEEE-488 (GPIB) interface
Partial implementation of the IEEE-488.2 command protocol
Software state machine to handle GPIB signaling and data transfer
Operation under the pSOS+ RTOS
Multi-processor environment.

Raynet Corp. Menlo Park, CA 01/93 - 06/94
Consultant
Programming for a PC-based software product. LOC-View installs and maintains

the Raynet LOC fiber-based telecommunication system

Software:
- TL1 protocol
- Programming in C++ and C
- Windowing user interface
- Integration of Zinc User C++ Library for windowing
- Integration of Greenleaf Comm++ for serial communications

Documentation:
- Software descriptions

Raynet Corp. Menlo Park, CA 11/90 - 08/92
Consultant
Project Engineer & designer of timing generator board for a fiber-based telecommunication system

Hardware Design: Design featured:
- 68302 Multi-Protocol Processor
- Timing circuitry
- PLDs
- Self test circuitry
- Phase-locked-loop-based E1 signal interface
- Board complexity of approximately 100 IC packages
- ViewLOGIC CAD System schematic design
- ViewLOGIC CAD System circuit simulation

Software:
- UNIX utilities associated with PCB design
- PCAD-to-ViewLOGIC schematic back-annotation

Watkins-Johnson Co. San Jose, CA 05/89 - 11/90
Consultant
Engineering for microwave receiving and DF systems

System Software:
- C Language
- Xenix OS operating system calls and
- Xenix OS interprocess communication
- Operator controls

Control Firmware:
- C and 8086 assembly language
- Real-time control firmware for 80186-based tuner boards
- Developed general-purpose tuner control protocol

Raynet Corp. Menlo Park, CA 03/88 - 12/88

Consultant
Software and firmware for automatic circuit board test

Test & Diagnostic Software:
- C Language for PC
- Control of bench test equipment via the GPIB bus
- National Instruments GPIB system

Firmware:
- C and 64180 assembly language
- EPROM resident monitor for CPU board
- Serial communications
- Troubleshooting aids and diagnostics for ASIC
- Circuit board, unit, and system test

TCI Inc. Fremont, CA and Baltimore, MD. 07/87 - 11/87
Consultant
System Engineering
Developed technical sections for two government proposals.

Electronic Support Systems Inc. Fremont, CA. 06/82 - 11/86
Senior Design Engineer/Programmer
General engineering for microwave receiving and signal processing products

Firmware:
- 6809, 6803 assembly language
- Custom development systems
- Devised in-circuit microprocessor test and debug procedures
- Console and disk driver firmware
- Star network HDLC-based communications system
- Microprocessor-based VT-100 emulating keyboards and keypads

Hardware:
- Star network HDLC-based communications system
- Floppy disk controller circuitry
- VT-100 emulating terminal:
  - Advanced video attributes
  - Integral printer
- Microprocessor-based VT-100 emulating keyboards and keypads
- User interfaces including:
  - audio circuits
  - shaft encoders
  - touch panel
  - illuminated buttons
  - audible indicators
  - LEDs

Halcyon Communications San Jose, CA 06/81 - 06/82
Senior Digital Designer/Programmer
General engineering for data link analyzers

Firmware:
- 6802 assembly language
- Bit Error Rate Test (BERT) firmware for data link analyzer

Hardware:
- Multi-protocol serial communications analyzer
- BERT hardware
- RAM board for data link analyzer

Watkins-Johnson Co. Palo Alto, San Jose, CA 04/77 - 06/81
Member of the Technical Staff, Product Development
Hardware and project engineering for microwave receiving systems

Hardware:
- WJ-TN1000 Minceiver:
  - Digital portion of miniature, microprocessor-controlled microwave tuner/synchronizer
- C-10444 Receiver/Antenna Controller
- High-speed math hardware
- Video circuitry

U.S. Air Force 07/69 - 12/72
Electronic Emissions Monitor/Analyst
USAF Security Service

- National Security Agency, Ft. Meade MD
- West Berlin, Germany
- Yokota AFB, Japan
- Osan AFB, Suwan AFB, South Korea
- Shemya AFB ("The Rock"), Alaska

Duties:
- Classified airborne and ground-based missions
- Directed shift missions
- Signals analysis

EDUCATION

California State Polytechnic University Pomona, CA
Bachelor of Science, cum laude, Engineering Technology 1977

Rio Hondo College Whittier, CA
Associate of Science, Electronics 1975