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Software Engineer

Key Qualifications

- **Embedded Real-Time Software Systems Development Expert**
- **Hardware/Software Technologist**
- **Development Team Lead – taking projects from inception to on-time system delivery - Architect, design, develop and deploy complex real-world software systems**
- **Vendor Manager**
- **Software Program Manager – Achieve requirements while containing schedule and cost**
- **Natural leader with polished interpersonal relationship skills**
- **Technical Article Co-Author & Professional Seminar Author and Presenter**
- **Strategic Product Planning team member**
- **Software Process Developer**

Core Competencies

- **Expert with C**
- **Proficient with C++ for limited use in embedded systems**
- **OS Experience**
  - **Linux – Device Drivers, Loadable Kernel Modules, Kernel tuning and building, bash and Perl scripting**
  - **RTOS (VxWorks, pSOS, VenturCOM RTX) – Device Drivers and Real-Time System Software**
  - **Windows – Device Drivers, Windows Services, MFC**
- **Networking Software**
  - **TCP, IP, ARP, RARP, ICMP, SNMP and others**
  - **Socket based interprocess communication**
  - **Other interprocessor communication mechanisms, including shared memory access using DMA**
- **Hardware Platforms**
  - **Processors - ARM, Pentium, x86, Atom(CE4200), PPC, Sparc**
  - **Buses – PCI, VME**
- **Source Code Control - Git, SVN, BugZilla, ClearCase**
- **Defect Management – ClearQuest, Jira**
- **Requirements Traceability - DOORS**
- **Object-Oriented Methodologies – UML, OOA, OOD using Rational Rose**

Professional Experience

VeriFone (Employee) **San Jose, California** **September 2011 – April 2014**

- Was responsible for all Vx600 (e255) Verix EVO low-level software applications: Bluetooth SPP Profile, Bluetooth SSP Profile, Barcode Scanner application, Interprocess Communications
- Assisted VeriFone application developers world-wide with e255 applications (New York City, Brazil, Germany, Italy, Israel, China, Philippines)
- Developed PKI encryption based on OpenSSL for barcode data for the Vx600 portable platform.
- Developed 'C' system software and web based software for a pilot program for one of our big customers. I also developed services for this program for our Mx900 family terminals.
- Developed the embedded application for First Data smart cards and contactless cards.
- Developed a service and a shared library for NFC to Bluetooth Handover in accordance with NFC Forum and Bluetooth SIG specifications.
- Developed services for smart card (EMV) transactions and NFC transactions for the 2012 VeriFone NRF demonstration.

Transparent Video Systems (Employee) **San Carlos, California** **May – September 2011**

Responsible for all firmware/software. Implemented a GStreamer-based DLNA Digital Media Player on a Linux-based TVS set top box.

Intel – Digital Home Group (Contract) **Santa Clara, California** **November 2010 – February 2011**

DLNA Firmware Developer. (*DLNA, GStreamer, Linux, C/C++*) Working with Intel's Digital Home Group (DHG). Developed DLNA Commercial Video Profile (CVP) Linux firmware and ported it to prototype platform based on Atom CE4200 processor.

Western Digital – Branded Products (Employee) **San Jose, California** **July 2007 to July 2010**

Firmware/Software Manager. (*PC Client, Embedded Real-time, Firmware, Linux, C/C++*) Managed more than 10 firmware and software vendors whose products are included in or bundled with WD drive and media player products. At times managed as many as 5 vendor programs concurrently.

- Developed assessment criteria for candidate vendors and managed vendor assessment
- Negotiated vendor Statement of Work (SOW) including technical tasks and development schedules.
- Developed detailed requirements specifications including functional use cases within the framework of the SOW.
- Reviewed code personally and led code reviews of vendor code.
- Led debugging sessions both remotely and on-site
- Led troubleshooting of functional issues and bugs with WD test teams and vendor development and test teams.
- Led integration of software components
- Led issue tracking meetings with WD test teams and vendor development and test teams.
- Provided guidance to New Product Introduction (NPI) team to release product software and firmware for deployment to the factory and online distribution teams.
- Managed improvement of NAS performance during update of major Linux modules including Samba and Ethernet drivers.

Palm (Contract) **Sunnyvale, California** **April 2007 to July 2007**
(Embedded Real-Time, Linux, C/C++) Developed Bluetooth Object Exchange middleware for a new line of Linux-based smart phones.

BAE Systems (Contract) **Santa Clara, California** **August 2006 to April 2007**
Software Analysis & Design Modeling. (*Rational Rose*) Analyzed requirements stated as use cases in FCS MGV Common Propulsion SRS. Developed class and sequence diagrams based on FCS modeling rules for the Common Propulsion SRS and SDD.
Software Integration. (*Embedded Real-time, Linux, C++*) Integrated hardware and software integration of the FCS MGV Common Propulsion software. Debugged sub-component software along with developers and test engineers on target hardware.

Spectrum Signal Processing (Employee) **San Jose, California** **February 2005 to August 2006**
Field Applications Engineer. (*Linux, RTOS*) Solved out-of-the-ordinary customer problems, developed system layout using Spectrum Signal Processing (SSP) solutions to satisfy requirements of customers, and provided custom training, system installation, and system integration. Frequently presented overview of SSP and SSP's solutions to customers.

Cubic Defense Applications (Employee) **San Diego, California** **March 2003 to February 2005**
System Software Developer. (*Embedded Real-Time, Linux, C*) Analyzed, designed, implemented, tested, and integrated a real-time embedded bridge from a 50 MB/S synchronous serial interface to 10/100/1000 MB Ethernet.
Team lead / Systems Engineer. (*PC Application Level, Java*) Developed tasking, scheduling, and work product reviews for team members. Developed and presented team status updates to program and technical management and customer personnel. Developed, reviewed, and updated system and subsystem requirements and interface specifications.
JTRS SCA Software Architect: (*Embedded Real-Time, RTOS, C++*) Led design and integration of waveform software with the SCA. Utilized Rational Rose and Spectrum Signal Processing SDR-3000 development platform.

Contract Software Engineer **San Diego, California** **June 1990 to March 2003**

Provided software engineering services under contract to over 30 clients, including Titan Linkabit, Nokia, Qualcomm, SAIC, Sony, Hughes Aircraft Corporation, Scientific Atlanta, Ball Systems Engineering, M/A-COM Government Systems, and Cubic.

- Team Lead. *(Embedded Real-Time, RTOS, C/C++)* Led a team that grew from 4 to 19 developers over a period of 3 years. The team developed a Pentium-based system that is a component for an air traffic control (ATC) digital voice switch.
- System Design / Architecture. *(Embedded Real-Time, RTOS C/C++)* One of a team of 5 system designer/architects for the ATC system mentioned above. Developed system-level design and architecture of a component of the ATC system that provides the communication link control and audio interface for air traffic controllers. Developed system architecture and inter-processor and inter-chassis communication link design for an Anti-Submarine Warfare Operations Center (ASWOC) sonobuoy data imaging system.
- Driver Development. (*Embedded Real-Time, Linux C/C++*) Developed a Linux driver for a proprietary dual-port memory component interfaced with a PPC SBC running Hard Hat Linux. Modified and integrated a driver and developed associated software for a 4 port RS-485 board on a Pentium SBC running Red Hat Linux.
- Service Development. (*Windows Service C/C++*) Developed Windows 2000 service in that runs on workstations that downloads and installs new product software onto workstations using proprietary secure file access mechanisms, uploads and downloads registry configuration data, and uploads status and fault data to the host from workstations. Developed Win 2K/NT service that implemented a distributed SNMP agent that monitors and reports the performance of any number of servers in an enterprise setting. Integrated a proxy RADIUS server into a system that sits in an enterprise DMZ for secure access to servers.
- Real-Time System Development. *(Embedded Real-Time, RTOS C/C++)* Developed a real-time software system that used VenturCOM's RTX to service a 4 port RS-485 board.
- Bare-Board Development. *(Embedded Real-Time, C/Assembly)* Developed bare-board software that interfaced a new pointing device on an ARM9 SBC in Thumb mode. Developed board test software that runs on an ARM9 processor in StrongARM mode to test the Globalstar User Modem (GUM) on Qualcomm Globalstar phones.
- Application and Distributed Component Development. (*Application Level, Linux C/C++*) Developed C++ classes for use of POSIX threads and inter-process communication for Red Hat Linux on a Pentium SBC. Developed AES encryption software for Hard Hat Linux on PPC SBC.
- Board/System Bring-Up/Integration/FAT. (*Embedded Real-Time, Linux, C*) Brought up Broadcom Switch-on-Chip (SOC) Linux driver under Hard Hat Linux on PowerPC processor. Integration manager for the Anti-Submarine Warfare Operations Center (ASWOC) sonobuoy data imaging system mentioned above.
- Factory Acceptance Testing. *(Embedded Real-Time, RTOS C/C++)* Responsible for integration and supporting factory acceptance testing (FAT) of the ATC system air traffic controller component.

Publications

"FPGA-Based SDR Platforms Ease Military Comms Challenges", COTS Journal, July 2006.
(http://www.cotsjournalonline.com/home/article.php?id=100526);
"Tools and Techniques for Compliance with the DoD's Software Communication Architecture", September 2004, Technology Training Corporation Seminar – Presented in Washington, D.C. and Las Vegas, Nevada

Education

University of California at San Diego (UCSD)

M.S. Engineering Science: Estimation theory, Kalman Filter and Square-Root Information Filter, stochastic modeling
B.A. Applied Physics & Information Science: Optimal/Classical control theory, Passive/Active circuit theory, modulation theory, communication theory, numerical analysis, computer science.