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BACKGROUND SUMMARY:
Over 20 years of state of the art digital circuit, firmware, and system design

EDUCATION:
BACS, University of California, Berkeley, CA 1987

DESIRED JOB DESCRIPTION:
I will create the embedded platform for your product development. With a solid background in both hardware development and software development, I will take product requirements and create whatever elements are needed to complete and deliver your products. Whether you need a hardware platform or software development anywhere from bare metal coding to Linux based development, I will do that. But I don't do Windows. (I can, but would rather not)

SKILL SETS SUMMARY:
- Create system definitions and architectures
- Design of embedded controller systems – Zynq, ARM, Coldfire, x86, MIPS, MC68HC11
- DDR SDRAM, PCI, USB, VME
- C/C++ and assembly programming for applications, OS, and hardware level control
- BIOS Customization, Embedded Linux, Custom Multitasking embedded OS
- Development of Intel Pentium Systems
- Board designs including signals of 3Gbps
- Design of memory systems including 400MHz DDR-SDRAM
- Experience with many interface technologies: SSTL, HSTL, ECL/PECL, LVCMOS, TTL/CMOS, LVDS
- Experience with many networking technologies: Ethernet 10/100/1000 copper and fiber, FDDI, Fibre Channel, VDSL, TCP/IP
- Extensive FPGA/CPLD design using both VHDL and Verilog
- Op-amps
- Knowledge of many CAD tools such as: Altium Designer, Orcad, Innoveda, Hyperlynx, Mentor, Allegro, Pads, Eclipse IDEs, Onshape
- Creating designs that are suited for effective and efficient test and manufacturing
- Project design lead, Team lead

EXPERIENCE HIGHLIGHTS:

Intevac Inc, Santa Clara, CA   2015 to present
  Senior Hardware Engineer
  Responsibilities/Tasks:
  In this role I have designed multiple electronics boards, assemblies, and systems for several low light and night vision systems to meet extreme requirements for size, weight, and power and performance. I coordinated with FPGA and firmware development teams to produce several platforms incorporating Intevac low light video sensor technology in a number of configurations such as binocular and monocular and goggle systems with displays and camera systems without integrated displays.

  I designed the ceramic package for the next generation sensor. I am designing the initial camera system platform for this sensor.

I created the firmware to implement the platform IMU including creating the quaternion library for coordinate system computations.

I have worked on the creation of procedures and processes for effective and efficient design creation and development management.

ZK Celltest Inc, Sunnyvale, CA   2006 to 2015
  Hardware Department – I am the Hardware Department at ZK Celltest Inc
In this role I took on an existing Coldfire based design when I started. This design suffered from a multitude of problems. I significantly cut production test time and down time by creating an automated test system that eliminated the failure points that would cause down time. At this time I also improved yield from 50% to 95%. I also eliminated failure points that had been causing significant infant mortality. I reduced observable EMI problems to levels below problem thresholds.

I developed the next generation platform that further improved on a much more powerful test platform with custom U-Boot based automated test software, and improved yield and reliability. This platform design also expanded the platform with added additional USB interfaces, BC 1.2 capabilities, and portable battery systems, and Ethernet.

A final complete redesign of next generation platform using ARM Cortex A8 and Linux, high speed DDR SDRAM, WiFi, Bluetooth, high port count USB including OTG and BC1.2 charging, 1000TX Ethernet was completed but was cancelled prior to acquisition of PCBAs due to funding issues.

Pixim, Mountain View, CA   2006
  Contract Hardware/Software Engineer
In this role, I worked as a contractor to support the FAE group. Tasks include supporting production build, test, and debug, developing production automation applications; debug, upgrade, and support of embedded Linux and Linux applications. One of my accomplishments was to port the IP camera based platform to the next generation of the Linux kernel as well as debug of the RTP/RTSP transport protocol being used.

Zendex Corp., Dublin, CA   2005 to 2006
  Contract Hardware/Software Engineer
Zendex required an updated replacement for their existing 486 based gaming platform. I designed a platform based on the Pentium M and 855 chipset. I incorporated custom functional blocks specifically required to meet the platform functional, operational, and regulatory requirements. I also created a custom modified BIOS for this platform to run Windows XP Embedded.

AIdentityMatrix, Elmhurst, IL   2003 to 2004
  Contract Hardware/Software Engineer
I worked on a contract basis to develop a platform for electronic toys for a group out of Illinois. This group had developed a proof of concept for their IP on a Windows platform. I developed a complete embedded platform that would host their code base in a standalone embedded system. Based on the needs of that IP, I created an entire ARM7 based platform from scratch as well as creating from scratch a bare metal OS of my own design to host the system. As their code was developed on a PC platform in C++, it was not created in a construction compatible with an embedded platform so I further optimized their code base to function properly in an embedded host environment with preemptive multitasking and semaphore based synchronization and blocking.

Extreme Networks Inc, Santa Clara, CA   2000 to 2003
  Senior Engineer
Design leading edge Ethernet network switches. I was responsible for developing and delivering hardware by working with internal specialists and other departments, external vendors and contractors, and ensuring compliance to various regulatory requirements and internal specifications.

- Lead hardware developer for the design of a 24 port Gigabit Ethernet layer 2/3 switch. The unit is MIPs based and incorporates 250MHz DDR-SDRAM, 250MHz HSTL, and RGMII interfaces in the switch fabric. First article prototypes passed all EMI, signal integrity, and manufacturabilty scans.
- Lead the design of various VDSL products.

L3 Communications-Celerity Systems, Cupertino, CA   1999 to 2000
   Staff Engineer
Design leading edge VME circuit cards for data acquisition systems. I was responsible for developing and delivering hardware designed to customer or product specifications. As the senior engineer of the hardware team, I was responsible technical oversight and support of junior engineers (the "go to guy" for hardware technical issues).

- Lead the design of 1500MHz data acquisition system. Responsible for system architecture and specification. Oversee and provide technical guidance for engineering team developing the system components.
- Developed proof of concept software platform to improve, optimize and measure system transfer rates using DMA across the VME backplane.

Celerity Systems, Cupertino, CA   1995 to 1999
   Staff Hardware Engineer
Design leading edge VME circuit cards for data acquisition systems. I was responsible for developing and delivering hardware designed to customer or product specifications. As the senior engineer of the hardware team, I was responsible technical oversight and support of junior engineers (the "go to guy" for hardware technical issues).

- RAID interface board. Module for interfacing CSI data acquisition and playback systems to high capacity RAID storage devices.
- PEG100 and DigiPEG pulse processor units. Data preprocessor to parameterize pulsed signals for improved storage and processing efficiency.
- ADC750. 750MHz data acquisition card for VME systems. "Most Innovative and Unique New Products", VMEbus Systems, June 1997.
- SYN150 clock synthesizer board.

TRW-ESL, Sunnyvale, CA   1989 to 1995
   Senior Hardware Engineer
Design of state of the art boards, modules and systems for government customers. My responsibilities included system definition and documentation, hardware development and design, team management, and tracking of schedules and budgets.

- Design team lead of the Bus Interface Module (BIM). Module incorporated multiple CCAs designed for conduction cooling. The unit interfaces to FDDI and resides on a Multibus II backplane. The unit includes two R3081 embedded processors. The unit also receives system timing and synchronization signals for use by the host chassis. Also included is an MC68HC11 based general housekeeping and maintenance system.
- Member of team to define and engineer core components and interfaces of the BRITE system hardware infrastructure. The BRITE system is a highly distributed processing system composed of multiple Multibus II chassis. The primary processing modules are quad R3081 processors which are connected to other processing modules via Fibre Channel for high speed data distribution. Each chassis contains a Bus Interface Module (BIM) to provide command, control and timing distribution.
- Design team lead for redesign of existing multiple wirewrap panel system using updated technology to reduce cost and improve reliability.
- Interface to Sony high speed digital tape recorder. Unit adapts ESL and third party units having arbitrary data rate and bit width to the Sony unit. Project was a quick reaction effort that was later productized.

UC Davis, Davis, CA   1987 to 1989
  Research Assistant, Teaching Assistant

- Research Assistant on a project using Quadratic Residue Number Systems for DSP.
- Teaching Assistant for introductory electronics, microprocessor design, and sensor/transducer interfacing.

Lawrence Berkeley Labs, Berkeley, CA   1985 to 1987
  Electronics Technician
  Design of circuits for physics experiments.

- Developed interface to an inertial navigation system for use in a balloon-born system used for cosmology experiments.
- Build test and integrate various electronic circuits for use in physics experiments.

Personal Projects:
- Car build Project Factory Five Racing GTM, platform electronics (Linux, Arduino, Android): distributed control systems, instrumentation, data collection, electronic paddle shifter
- 3D Printing
- TIG and MIG Welding
- Fiberglass and carbon fiber composite fabrication
- Home Automation, Network Server