ANTHONY PALAZZOLO
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Electrical engineer with experience in all phases of embedded system and FPGA/ASIC development, from architecture, design, coding, debug through to final test.

Technical Summary

- **Programming Languages:** C, C++, C#, Assembly, Various Scripting languages(Python, UNIX Shells,etc), Verilog
- **Microcontrollers:** ARM, STM32, MSP430, Atmel
- **Debugging:** Oscilloscopes, Logic Analyzers, I2C/SPI Bus, JTAG
- **O/S:** FreeRTOS, Linux/UNIX and Windows

PROFESSIONAL EXPERIENCE
Senior Electrical Engineer
Cardinal Peak, Lafayette, CO   **03/2015-Present**
- Analyzed Android system running Jellybean to determine the time and resources needed to fully support Suspend to Ram. System was using a TI Jacinto6 processor.
- Wrote firmware for a MSP430F2272. CLI(RS232) interface for audio engineers to adjust filter coefficients. Store and load saved coeff values to an ADAU1761 DSP. Firmware update of the AS3460 over RS232 and I2C.
- Worked on military helmet audio system. System consisted of two STM32L476(one for each ear),which communicated over TDM bus and then switched to a RS485 bus. Wrote driver for NXH2281 NFMI chip. Communication audio could be sent in on multiple inputs and processed with the ADAU1787 DSP chip, then redirected to the appropriate ear.
- Wrote a modular stressor program in python. It was written on a TurboX C610/C410 running Linux.
- Responsible for writing the testing infrastructure for a wearable wireless medical device. The tests were written using the pytest framework. Tests consisted of communicating to the device, over RS232, to set parameters, enable diagnostic mode and force special test modes. Data received over RS232 had to be correlated with entries sent by the device to a cloud server database.
- Worked on multiple sound bars and audio products.
  - Products used their new platform consisting of the qc8017(Quad-core ARM) processor running Linux. Platform was written in C++. System was broken up into multiple services using Google Protobufs for IPC. Wrote the service to handle video output over HDMI. Service had two components, the Linux driver to communicate to the DSI to HDMI bridge chip(ADV7535) and the service which handled the communication from the main controller service.
  - Wrote software updater service for Vipertooth DSP. QC8017 to Vipertooth over TDM interface. Consisted of sender on 8017 and receiver on VT.
  - Worked on service for BT remote.
  - Worked on driver for TFT LCD display over SPI bus.
  - Was part of two person team on a low cost soundbar. STM32L and MAPX DSP.
- Was part of a team working on high end home theater system. Multiple STM32F processors, C, FreeRTOS. Worked on many areas. A few notable areas are wireless speakers, update system, IPC system. Converted repositories from SVN to Git. Converted project from IAR to in-house build system(GCC, CMAKE).
- Worked on aviation telephony system. Intel I7 system running Linux. Wrote Linux PCIx driver to bridge Asterisk to custom FPGA(Xilinx). Pass TDM data to and from the FPGA. Allowed updating of FPGA configuration ROM in the field. Handled other inputs through the FPGA.
- Developed Firmware for motion controlled Bluetooth headset. Atmel D21, MPU-6500 Accelerometer, Blue Creation 127 module.

Senior Electrical Engineer
RealD, Inc, Boulder, CO   **10/2009-12/2014**
- Lead firmware engineer for flagship main theater product 3DXL. The board consisted of a Luminary(now TI) ARM based microcontroller, used to control the timing of the liquid crystal cells in sync with the projector. The device also contains user interface(2x16 LCD, buttons), serial port for configuring/calibrating and a USB port for updating firmware. Has an installed base of over 20k units.
- Developed software application(C#) to tune and measure characteristics of 3DXL units.
- Updated for overseas licensed based distribution. Encrypted the firmware and license files using AES. Created new programming software and procedures, including accessing Salesforce CRM database to generate and store keys. Programming GUI written in C#.
- Wrote firmware for active 3D glasses. Decodes RealD's protocol from the incoming IR signal to control LCD shuttering. Glasses were sold with Vizio's 3D TVs.
- Lead firmware engineer developing 3D active glasses using new ASIC containing a Maxim MAXQ610 microcontroller. Duties included testing RTL on a Xilinx development board, ASIC bring up and verifying functionality. The glasses supported five protocols, with auto-detection.
- Developed a C++ application to automatically align two projectors.
- Designed proof of concept system for controlling lens adjustment(up/down/zoom/focus) on new dual lens system, using a Raspberry Pi and four stepper motor controller board.
- Wrote a C++ driver to control LEDs for auto-stereo 3D tablet.
- Laser Control Module running embedded Linux.
- Converted RealD's TrueImage software over to FPGA/ASIC using Xilinx's HLS tool.

Staff Engineer
Marvell Semiconductors, Longmont, CO   **10/2006-10/2009**
- Built processor subsystems on multiple projects. All projects used ARM processors. The RTL for the ARM cores were synthesized on secure servers. The netlists were incorporated in the rest of the subsystem. Other duties included integrating Marvell memories, designing decode logic for the memories, Trace debug system, formal verification, timing closure, writing functional tests and delivery of subsystem to customers.
- Responsible for integrating ARM R4 processor subsystem into test chip(55nm). The processor subsystem consisted of two ARM R4 sharing an ETM and complete Coresight debug environment, including the SETM. Integrated AXI subsystem with APB3 bridge to access register block,, GPIOs and Coresight APB debug bus.
- Lead designer on the Serial ETM v3 project. The SETM consists of a transmitter and a receiver. Initial prototype was done using two Virtex5 boards. The transmitter was written as IP to be incorporated in any ASIC project needing an ARM SETM. The IP is still being used today in projects. Responsibilities included RTL for both RX and TX, verification, documentation and validation.

Principal Engineer
Syntax-Brillian, Boulder, CO   **09/2003-10/2006**
- Lead firmware engineer on Audio/Visual board for Brillian 65" LCOS high definition television. Board consisted of thirteen video inputs(DVI, VGA, Component HD, S-Video, Composite and RF tuners). Main video processor uses 186 core to control dual video path devices(Muxes, ADCs, filters), OSD, user inputs, etc.
- Wrote firmware for a PIC18F4620 to control fans, lamp and video ASICs on HDTV driver board.
- Wrote C# GUI application to support engineering, test, manufacturing and customers.
- Wrote application for Light Engine test platform. The application interfaces to a Konica Minolta T-10 illuminance meter and a CL-200 chroma meter over RS232.
- Continued on the display controller board project from before the spin-off.

EDUCATION

B.S. in Electrical/Computer Engineering,

University of Colorado at Boulder

REFERENCES

Available upon request.