

John Schell

Electrical engineer specializing in FPGA design including system architecture, DDR memory interface/implementation, video interface and processing, video CODEC design, system integration testing and debug, and processor interface. Experienced in hardware/software interfacing and data movement.

OBJECTIVE

Find part time, challenging FPGA design and debug projects.

EXPERIENCE

Contracting Experience — *FPGA Design Engineer*

2018 - PRESENT

Designed, implemented, verified, and documented FPGA for thermal gun scope including high speed SPI interface, focal plane array interface, video processing and calibration, OLED display interface, I2C interface, and MCU video interface.

Updated FPGA design and documentation for medical device monitor equipment including adding new features and modifying error and warning alarms.

Designed, implemented, verified, and documented multiple FPGAs for industrial laser equipment including high speed ADC interface, high speed asynchronous LVDS interface, laser diode current control with PID controller, extensive warnings and errors detection, safe shut down process, and register interface on Zynq FPGA.

Designed, implemented, and verified FPGA modules for high speed convolver at 625 MSPS with 600 DSP taps and reloadable coefficients.

Designed, implemented, and verified MMU to handle high speed data in Zynq RFSOC including data alignment from multiple high speed ADCs and DACs.

Designed, implemented, and verified variable delay controller to interpolate samples to allow data sample rate change.

Convergent Design Inc., Colorado Springs — *Senior Hardware Design Engineer*

2004 - PRESENT

Part of team that designed 2.4 Ghz wireless audio product.

Principal FPGA architect on 4 generations of video recorder design.

Latest generation video recorder is used on numerous movie and TV productions based on reliability and feature set.

Part of team that developed 4k and multi channel video CODEC FPGA implementation.

Designed high speed MIPI video interface to OLED display panel.

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SKILLS

FPGA VHDL, Verilog, and System Verilog Design, Simulation, and Debug

Xilinx FPGA design experience including ISE, Vivado, Spartan, Artix, Kintex, Virtex, Ultrascale+

DDR/2/3/4 high speed data throughput design

FPGA architecture design, integration, in system debug

HDMI/SDI video interface implementation

Video CODEC design, debug

I2C/SPI interface design, debug

High speed transceiver interface design, debug

MIPI/LVDS interface design, debug

SATA interface design, debug

Processor interface including AXI design, debug

Circuit board design, debug

Power supply design, debug

Other Interests

Playing with my 3 kids (ages 6, 10, and 10)

Highly involved with Cub Scout Pack

Designed high speed, high efficiency DDR3 memory interface to enable 4k and multi HD channel video recording.

Managed engineering team of 8 software and hardware engineers.

Designed high performance SATA interface to enable recording of 4k, multi HD channel, and RAW video.

Agilent Technologies, Colorado Springs — *Electrical Engineer Intern*

June 2000 - May 2004

Designed hardware interface circuit board and FPGA firmware to convert analog video signal to drive LCD panel of different resolution.

Developed FPGA firmware to draw GUI interface from processor commands including text, objects, and multi layer design

EDUCATION

University of Colorado, Colorado Springs — *MSEE*

December 2013

Kettering University, Flint, MI — *BSEE*

May 2004

Magna Cum Laude
Outstanding Thesis Award