

TYLER ALFORD

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Active DoD Secret Clearance

EDUCATION

LeTourneau University

BS Engineering Conc. Electrical Engineering | Minor in Math *GPA: 3.2*

Longview, TX

Aug 2013 | May 2017

EXPERIENCE

The Boeing Co.

Huntsville, AL

Electrical Design and Analysis Engineer (1 - 4) - PATRIOT Advanced Capability 3 (PAC-3)

Dec 2017 | Present

- Supported production test engineers by troubleshooting digital and analog circuit card issues at both the system level and the card level, using standard lab equipment and automated test equipment.
- Failure analysis and root cause corrective action for several major production issues including component level failures and environmental exposure failures. Worked closely with suppliers and analysis labs to close out issues and implement improved process controls to prevent future problems from occurring.
- Responsible engineer for in-production digital processor circuit card. Responsibilities included production failure support, alternate parts identification and validation, test equipment software development in LabView, and obsolescence extension efforts.
- Helped move the next generation digital processor circuit card from development into production through multiple redesigns.
 - Failure analysis of multiple intermittent and temperature dependent board level issues using lab equipment, automated test software, and custom firmware, working closely with embedded software engineers to identify root causes. Redesigned startup circuitry and updated CPLD firmware to address the failures.
 - Performed initial checkout of the redesigned board. Designed and implemented several temporary fixes for startup issues and later revised the final production design to incorporate all updates.
 - Supported environmental and accelerated life qualification testing and troubleshooting, leading to several design changes to address solder fatigue cracking.
- Updated and maintained Labview based automated test software, including writing new tests, usability and user interface updates, and bug fixes. Additionally, worked with Corelis JTAG tools to implement new in-circuit tests and correct issues with existing tests.
- Supported trade study activities for next generation circuit card designs including power studies, system design, architecture block diagrams, component selection, and circuit card pin-outs, while ensuring that system design will meet customer requirements.
- Designed a four channel 600-MSPS ADC circuit card with 12Gbps JESD204B Subclass 1 data interface. Used Mentor Graphics Xpedition Designer for schematic capture, PSpice, LTSpice, and HyperLynx for circuit simulations. Supported layout and analysis activities for signal integrity, RF analysis, and power integrity analysis. Performed initial checkout and verification of development cards and developed automated test software using LabView and Python.
- Served as an electrical design engineer for next generation digital circuit card. Designed power supplies and clock generation and distribution circuitry for ARM processors and Xilinx FPGAs using LTSpice, LTpowerCAD, and HyperLynx. Performed digital signal integrity analysis using HyperLynx. Supported remote layout and analysis activities across a broad team of engineers. Performed initial electrical checkout and verification of development cards.
- Briefly served as the Processor IPT Responsible Engineer, leading the technical side of a multifunctional group of engineers. Provided technical direction, coordination, and tasking for electrical and mechanical engineers. Supported all life cycles of the processor subsystem including development, production, and sustainment.
- Responsible for the hardware integration of the digital processor card and ADC card with firmware and software. Supported firmware development and integration of multiple interfaces on a Xilinx UltraScale FPGA including DDR4, PCIe, JESD204B Subclass 1, and a custom configuration interface. Supported low level software development on a NXP ARM processor, including generating the PBL and interfacing with DDR4, DDR3, and PCIe.
- Performed troubleshooting and root cause analysis for issues discovered during hardware integration and lead the redesign and analysis efforts to correct issues with DDR4 and DDR3 power integrity.

PartSnap

Grand Prairie, TX

Engineering Intern

Jan 2015 | Aug 2016

- Design and prototype a custom 3D printer for future production.
- Convert 2D drawings to 3D CAD files using SolidWorks.
- Work with clients for design and product development.
- Design and implement a spring manufacturing design tool.

LeTourneau University

Longview, TX

3D Printer Lab Instructor

Aug 2014 | May 2016

- Instruct freshman engineering students through the assembly, tuning, and use of a 3D printer.
- Help students learn the basics of design engineering.

SKILLS

Programming: Python, LabVIEW

Design Software: Siemens Xpedition DxDesigner, Altium CircuitMaker, LTSpice, PSpice, MultiSim, Solidworks

Other: 3D Printing, Linux homelab, Electrical Lab Equipment, Soldering

PERSONAL PROJECTS

Autonomous Lawnmower 2022 - Present

Ongoing personal project for learning ROS (Robot Operating System), Python, and robotics. Using a custom differential drive base with a Linux single board computer for control and sensor fusion of IMU data, wheel encoders, LIDAR, and RTK GPS.

Boeing 2019 and 2020 Engineering Week Electrical Design Competition - First Place

Design and test of a system to encode, transmit, decode, and identify two random frequencies using analog circuitry and a single board computer with Python.

AWARDS

2020 Boeing Stars in Alabama: First Place - Be Empowered

Awarded for technical work on several customer facing issues, facilitating new employee growth, and contributions above and beyond expectations.