SYSTEM CONTROLLER DEVELOPMENT

Aviation

Project Management

Systems Engineering

Electrical Engineering

FPGA CODE DEVELOPMENT FOR AN AIRCRAFT ELECTRIC STARTER GENERATOR

APPROACH

- Assembled a dedicated team with aviation focused engineering experience
- Setup a rigorous multi-phase project compliant to DO-254 DAL A certification
- Collaborated with the client on-site to determine the requirements flow down and to set up systems and engine tests
- Coordinated independent verification engineering

RESULTS

- DO-254 planning documents for project completion (PHAC, HDVVP, HRVVS, HDS, HCMP, HPAP)
- More than 1,000 FPGA validated requirements
- Field-oriented control (FOC) floating point algorithms to fixed point field-programmable gate array (FPGA) code
- VHDL code for the controller that communicates with external systems
- FAA certification on the electric starter generator (ESG) that communicates with a broad set of commercial and military aircraft

KEY TECHNOLOGIES

- Very High-Speed Integrated Circuit Hardware Description Language (VHDL) code
- Hardware-in-the-loop (HIL) testing
- Systems testing on dynamometer
- Aircraft communication protocols: ARINC 429 and MIL-STD 1553

ALTEN TECHNOLOGY