

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 with DO-254 DAL A Certification
- Collaborated with the customer on-site to determine the requirements flow down and to setup 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
- FOC (Field Oriented Control) 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 the dynamometer
- Aircraft Communication Protocols: ARINC 429 and MIL-STD 1553
- Simulink