SATELLITE POWER SWITCHING BOX (PSB)

Aerospace

- Project Management
- Mechanical Engineering
- Electrical Engineering
- Systems Engineering
- Quality Assurance

DEVELOPED ELECTRONICS AND PACKAGING OF A SATELLITE POWER-SWITCHING BOX

APPROACH
- Map client requirements to system requirements
- Perform electronics design, integration, analysis
- Complete an architecture phase, design/analysis phase, and final build/test phase
- Perform structural design and analysis
- Product to be incorporated into five satellite systems currently in development
  > Likely more in the future because architecture is designed with scalability

RESULTS
- Completed electronics design and analysis, including derating to IEEE-INST-002, WCCA, space claims, and power requirements to optimize SWaP
- Created design that is compact with heatsinking and a mechanical card locking system despite challenging size and weight constraints
- Designed seven PCBs featuring
  > Up to 16 layers
  > Blind and buried vias
  > High-speed differential routing
  > Up to 120 A electrical current
  > Rigid-flex design
- Completed structural design and analysis
- Created and updated traceable system requirements
- Tightly coupled electrical and mechanical design to ensure thermal compatibility with mission requirements, including design of eight custom conduction heat sinks for high power system in space environment

KEY TOOLS & TECHNOLOGIES
- Altium
- SolidWorks
- Simcenter Femap with NX Nastran

ALTEN TECHNOLOGY