

CYIENT

# DELIVERING ROBUST AERO SYSTEMS SOLUTIONS

How we are supporting OEMs to design the next generation  
of aero systems



## Aerospace at Cyient

Cyient delivers aerospace engineering solutions from concept to qualification, with system-level ownership for engines, avionics systems, structures, aero systems and interiors. With over 14 years of experience in aerospace engineering, Cyient is engaged in providing product development engineering solutions, integrated product engineering processes, engineering design solutions, and complete test engineering life cycle support for sub-systems in aero interiors, avionics flight management systems, aero engines and aerodynamic aerostructures. Additionally, Cyient expertly manages aftermarket value streams such as repair engineering, reliability engineering, technical documentation and performance monitoring on behalf of OEM's worldwide.

With over 35+ million hours of aero engineering experience, our collaborative approach combines domain expertise, process rigor, design automation, and program management skills to deliver large system-level designs, on time and within budgets.

## Overview

### Engineering advanced aero systems

The present-day business scenario has steered the key players in the aerospace industry to modify their business model in accordance with the ever changing demands of airlines and passengers. Cyient, a key supplier of aero systems solutions to OEMs, recognizes the changing requirements and with its extensive experience in aero systems have emerged as a successful provider of reliable, high-quality engineering solutions to its clients. Cyient has not only enabled its customers to deliver optimized integrated aero systems but also assisted them to respond efficiently to the changing market requirements.

With over 12+ years of experience delivering subsystem – level engineering solutions, Cyient has gained expertise in developing the next generation aircraft systems. Our systems knowledge—combined with our

expertise in design, stress, thermal and CFD analysis have enabled us to provide innovative design solutions optimized for weight and cost.

### Service offerings

- Design
  - Concept/Preliminary design
  - Detailed design
  - Test Rig and tool design
- Analysis
  - Finite Element Modeling
  - Static and Dynamic Analysis
  - Fatigue and Damage Tolerance Analysis
  - CFD / Thermal Analysis
- Test Engineering
  - Qualification Test Procedure (QTP)
  - Preparation of conformity matrix
  - Performance and environmental testing
  - Qualification Test Report (QTR)
  - Safety of Flight (SOF) test and report
  - Qualification by Similarity and Analysis (QSAR)
  - System Integration and certification support
- Post Development Engineering
  - Cost and weight optimization
  - Re-engineering
  - Obsolescence management
  - Reverse engineering
- Manufacturing Engineering
  - Process Planning
  - Should Cost Analysis
  - CNC programming
  - Test Rig and tools manufacturing
  - FAI Reports
  - Vendor management for low-cost manufacturing
  - Manufacturing transition management
- Technical Publications
  - Creation and revision of various manuals like AMM, CMM, SB, CIR, etc.
  - Technical illustration
- Embedded Systems and Software Development
  - Safety Critical Software Design and coding
  - Model Based Software Design and testing
  - Code reviews
  - Software Unit tests
  - Verification and Validation
  - HW/SW Integration testing

- Black-Box testing
- Systems testing
- Tool qualification
- Testing automation
- Reliability and Safety

### Areas of expertise:

- System requirements management
- Software, mechanical and electronics requirements design and management
- Safety critical embedded software design and testing
- Safety critical electronics design and testing
- Mechanical design and testing
- Environmental testing
- Automated test systems design
- Product Life Cycle Management
- Sub system design
- Development and qualification tests for airworthiness approval
- System certification support
- Design Led Manufacturing

### Areas of engagement

Cyient has experience in the following mechanical and sub-system level units of aero systems:

#### Air Management Systems

- CACTCS packs
- Cargo Refrigeration Units (CRU)
- Nitrogen Generation Systems (NGS)
- Secondary/Galley Cooling Units (SCU/GCU)
- Pack Control Unit

#### Electric Systems

- Bus Power Control Unit
- Over Voltage Protection Unit
- Main and Auxiliary Generators
- Power Distribution Units
- Ram Air Turbine (RAT)

#### Engine and Control Systems

- Fuel Metering Unit (FMU)
- Hydro-mechanical valves
- Oil and fuel filters
- Pumps, Gear Boxes
- Air turbine starters

#### Actuation Systems

- Thrust Reverser actuation
- Slat/Flap Control actuators
- Main and Tail Rotor servo actuators
- Deck lock and utility actuators
- Brake Position Sensor Unit

#### Nacelle Systems

- Inlet Cowl, Fan Cowl, Thrust Reverser and Exhaust

#### Landing Gear

- Upper and lower Side Stay
- Attachments at wing and gear (sphere)

### How we have helped our clients:

- Cyient has designed and developed common electrical LRUs, as a part of an electrical system for different aircraft programs. Cyient also supported the complete system integration and validation as a part of qualification/certification (FAA, EASA) at a customer location.
- Cyient has successfully co-filed three patents with customers for improving the retention of APU turbine blades and lubrication design for duplex bearings.

## KEY HIGHLIGHTS

Capable of offering software unit tests as per DO-178 B, level A standard

Expertise in configuration management and version control

Ensure compliant to customer specific process

## About Cyient

Cyient (Estd: 1991, NSE: CYIENT) provides engineering, manufacturing, geospatial, network and operations management services to global industry leaders. We leverage the power of digital technology and advanced analytics capabilities, along with our domain knowledge and technical expertise, to help our clients solve complex business problems. As a Design-Build-Maintain partner that takes solution ownership across the value chain, we empower our clients to focus on their core, innovate, and stay ahead of the curve.

Relationships lie at the heart of how we work. We partner with organizations in ways that best suit their culture and requirements. With nearly 14,000 employees in 21 countries, we combine global delivery with proximity to our clients, functioning as their extended team. Our industry focus spans aerospace and defense, medical, telecommunications, rail transportation, semiconductor, utilities, industrial, energy and natural resources.

Follow news about the company at [www.twitter.com/cyient](http://www.twitter.com/cyient)

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