

CYIENT

OFFERING OUTSTANDING ENGINE SERVICES

How we offer advanced design, analysis and engine test support
to our clients



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 16 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 supports 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 original equipment manufacturers worldwide.

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

Since 2000, Cyient delivers complete product life-cycle engineering solutions to the global aerospace industry. With over 18+ million hours of execution on Aerospace projects, Cyient has gained extensive domain knowledge in Aerostructures, Interiors, Engines, Systems and Avionics. Our Aerospace competencies and business models make us the engineering partner of choice for major aerospace companies worldwide.

Overview

Engine support services you can count on

The overall performance of an aircraft engine relies on design, analysis and development of an optimized architecture with the help of enhanced technological innovations implemented across all components of the engine ranging from the turbines to pressure

compressors, combustor, digital engine control unit, accessory equipment and nacelle. Cyient's extensive experience and domain knowledge in aero engines, is capable of offering next generation engine solutions aided with high propulsive efficiency, low fuel consumption, and low maintenance costs to its customers.

With over 16+ years, Cyient's strategic relationships with aircraft engine OEMs has led to the development of innovative technological solutions for improving fuel efficiency, reducing engine emissions, and noise. We provide concept to certification solutions along with system-level ownership.

Service offerings

Design and Drafting

- Concept design
- Detail design
- CICR
- Parametric modeling
- G&DT
- Instrumentation
- Concession management

Analysis

- Structures and dynamics
- LCF, HCF and Creep
- Thermal
- Lubricant
- Engine Loads
- Rotor Dynamic
- Vehicle System
- Propulsion Systems
- Reliability
- Finite Element
- Computational Fluid Dynamics

Engine Test Support

- Test planning
- Engine test coverage
- Test equipment development
- Environmental testing
- Qualification testing
- Data reduction and calibration



Engine Aftermarket Support

- Forecasting
- Shop event management
- Material provisioning
- Repair engineering
- Engine lease management
- Inventory management

Technical Publications

- Engine Manuals (EM)
- Service Bulletins (SBs)
- Maintenance Planning Guide (MPG)
- Component Maintenance Manuals (CMMs)
- Illustrated Parts Catalog (IPCs)
- Cleaning, Inspection and Repair (CIR) Manuals

Software Application and IT Services

- Application development
- Application maintenance support
- Application migration
- Enterprise application integration
- Testing services
- ERP (SAP) Services
- Engineering tools
- Customisation of CAD /CAE Tools

Manufacturing

- Process planning
- CNC programming
- First Article Inspection (FAI)
- Tool design
- Vendor management
- Vendor transition
- Should Cost Analysis



Areas of expertise:

Cyient possesses extensive domain expertise and is fully committed to cater to all the business requirements of its clients, actively supports aero engine OEMs worldwide in developing innovative technology solutions for commercial Aircraft Gas Turbine Engines.

With over 20 patents filed in aero engines along with our customers, we are recognized as one of the most innovative solution providers with ability to create IP for OEMs. We provide concept to certification engineering for system level design solutions on internal flow, lube, Thermal Management System, loads distribution and rotor dynamics. Similarly, our team has delivered designs with complete ownership of actuation systems, compressor cases, bladed discs, rotors and airfoils. Through our multi-disciplinary design optimization approach to value engineering, we have delivered solutions achieving weight and cost goals at a prototype stage. Cyient has developed processes, tools and technologies to shorten engine design and development cycle time with improved analysis predictability.

For in-service engines, we enhance the engine's reliability by implementing the latest technology and eliminating the root cause of field failures. To enable higher services revenue for our customers, we manage their Aftermarket value streams such as Engine Performance Monitoring, Repair Engineering, Technical Publication and Reliability Engineering.

Building on our engine domain knowledge and process rigor, we partner with our customers successfully to develop advanced technology products and solutions of the future which meet regulatory and airline requirements that are environmentally friendly, safe and cost reliable.

Areas of engagement:

Cyient's expertise across all platforms within the aero engine:

- Fan
 - Cases
 - Hub
 - Shafts
 - Blades
 - IGV
- Compressors (HPC/ LPC)
 - Cases and frames
 - Rotors and shafts
 - Vanes and blades
- Diffuser Cases
- Turbines (HPT/ LPT)
 - Cases and frames
 - Rotors and shafts
 - Vanes and blades
- External
- Fan Drive Gear System
- Bearing Compartments
 - Front
 - Mid
 - Rear
- Internal Flow and CFD at System level
- Thermal Management Systems
- Full Engine Dynamics and Loads

How we have helped our clients:

- Cyient has played a vital role in designing and validating cases, blades, IBRs, rotors, shafts, vanes, actuation systems, fan drive gear, bearings and externals for gear turbo fan engine programs for one of its clients and has assisted them by creating interface control documents, manufacturing drawings, and cost and weight reduction reports.
- Cyient provided full cycle new product development collaboration covering concept design to prototype build and certification of a next generation aircraft engine for commercial jets for one of the leading North American aero engine OEM's. Overall, 22% of the global engineering effort on the engine was delivered by Cyient. 20 patents on component design features were filed (IP owned by Customer) and Cyient enabled its client to achieve 5% productivity improvement over a span of 3 years.
- Cyient's team of experts upgraded engine thrust by 5% incorporating latest technologies, fine tuning aero design, and reducing leaks and material changes.
- Cyient's team of experts in reverse engineering created digital models for the legacy hardware.
- Cyient developed new repair procedures and engine authorizations to salvage the hardware.
- Cyient conducted a VSM in configuration management for the legacy engine and processed an engineering change to reduce the engine inventory.
- Cyient developed automation tools and a knowledge database to answer queries related to hardware quality and assembly.

KEY HIGHLIGHTS

22% of the global engineering effort in PurePower® Engine

200+ design concepts proposed

20 customer owned patents filed

Compliance with FAA and EASA regulations

16

Years experience in aerospace engineering

35+

Million hours of aero engineering experience

20

Customer owned patents filed



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

Contact Us

NAM Headquarters

Cyient, Inc.
99 East River Drive
5th Floor
East Hartford, CT 06108
USA
T: +1 860 528 5430
F: +1 860 528 5873

EMEA Headquarters

Cyient Europe Ltd.
High Holborn House
52-54 High Holborn
London WC1V 6RL
UK
T: +44 20 7404 0640
F: +44 20 7404 0664

APAC Headquarters

Cyient Limited
Level 1, 350 Collins Street
Melbourne, Victoria, 3000
Australia
T: +61 3 8605 4815
F: +61 3 8601 1180

Global Headquarters

Cyient Limited
Plot No. 11
Software Units Layout
Infocity, Madhapur
Hyderabad - 500081
India
T: +91 40 6764 1000
F: +91 40 2311 0352

cyient.com
connect@cyient.com