

ALTEN Global Technologies

(Formerly Accord Global Technology Solutions)



Corporate Brochure

ALTEN Global Technologies Private Limited (ALTEN GT) is part of the ALTEN Group of companies with primary focus on Aerospace, Automotive, Embedded & Enterprise Products and Engineering Services.

With strong background in Product Engineering, ALTEN GT has developed many Build-to-Spec Safety Critical Aerospace Products & offers HW & SW Engineering Services to worldwide customers. Our FAA Certified GPS Receiver is flying in more than 10K Aircrafts. Now, we are also contributing to various programs involving Hydrogen Fueled / Electric Aircrafts & UAMs.

Over the years, ALTEN GT has chartered an impressive record of accomplishment in customer satisfaction, innovation, sales & profitability. This is made possible with continuous enhancement of competence in Technology, Quality Processes, Project Management & Customer Focus.



VISION

To build the best Engineering Brand in the world.



MISSION

We shall provide innovative Products and Services to our customers in the field of Aerospace, Automotive, Embedded and other Safety Critical Systems including Commercial Systems.

We shall strive to be the most trusted partner to our customers, consistently exceeding the expectations through Innovation, Commitment and Passion for Excellence.



VALUES

- Innovation
- Nimble
- Social Responsibility
- Passion
- Integrity Fairness
- Reliability & Safety
- Excellence

QUALITY



ALTEN Global Technologies

(Formerly Accord Global Technology Solutions Pvt. Ltd.)

ISO 9001:2015
AS9100:2016 Rev D
CMMI Level 5 V2.2

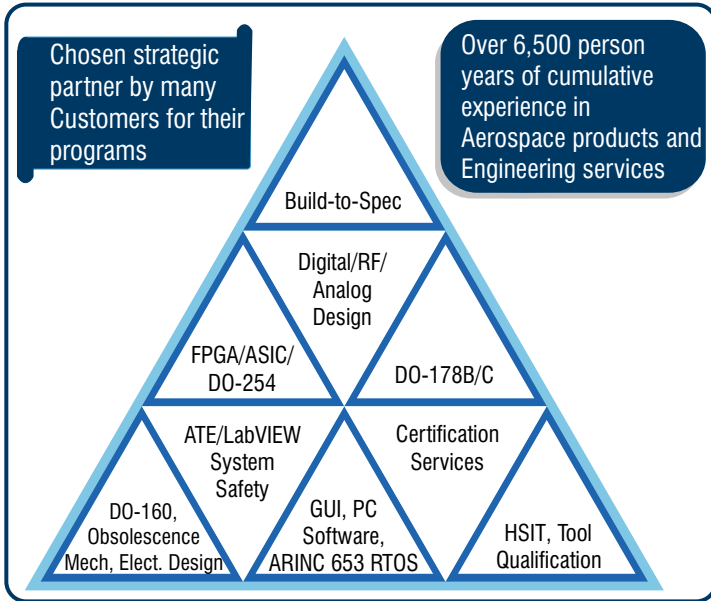
31 Years of Excellence in Product Engineering Services



Our International Presence

Our range of Products & Services

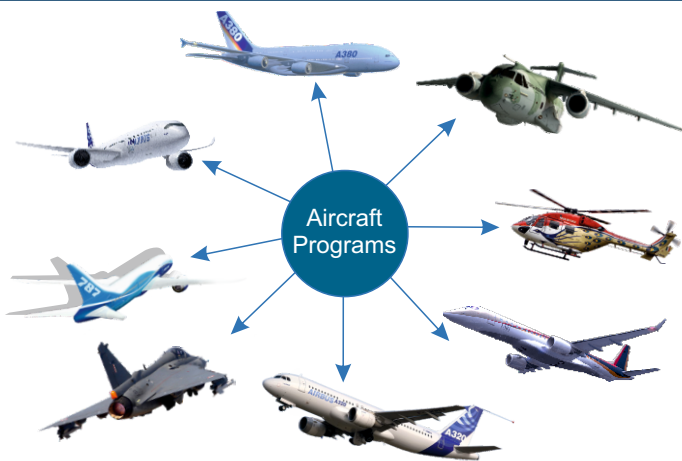




OUR ADVANTAGES

- One-Stop solution for all avionics engineering services
- ALLEN Global undertakes Build-To-Spec (BTS) aerospace products for worldwide customers
- DAL A-D, as per DO-178 B/C, DO-254, DO-160 F/G, FPGA/ASIC
- Avionics product engineering company - Product development team does engineering services as well
- Experience of directly interacting with several ACOs in USA
- Experience of participating in many FAA SOI audits
- Cost Reduction through In-house Tools
- Fast reaction time making extremely short development models a reality
- Proven rapid ramp up in team size & composition
- High retention of talent, including senior key resources, best in the industry

Software Engineering Services - Avionics



ALLEN Global has contributed to many aircraft programs in software development, verification and certification complying to DO-178B/C standards.

- Proven capability to assist you in any or all phases of Software development life cycle
- Engineers trained by FAA DERs
- In-house OpenGL SC compatible library
- In-house ARINC 653 compatible RTOS (OASYS) used in Avionics LRUs of two Rotor craft platforms (CEMILAC certified).

Subsystems

- Mission Computer
- Flight Control Systems
- Slats & Flaps Control Unit
- Wing Ice Protection System
- Navigation Systems
- Landing Gear Control Unit
- Doors & Slides Control
- Communication Systems
- Flight Display Systems
- Steering Control Units
- Integrated Modular Avionics

Aerospace Products

We have FAA TSO-C145c Class Beta 3 GPS-SBAS receiver

- Designed, Developed, Certified and Manufactured by ALLEN Global
- First FAA certification in 2007
- Over 10,000 units delivered for GA, business jets, rotor craft, UAV and other platforms
- Remote Data Concentrators
- DO-229D, DO-178B Level B, DO-254 Level B, DO-160F, DO-301, ARINC 429, ARINC 743A, MIL HDBK 217F, SAE ARP 4754, SAE ARP 4761 compliant
- Platforms: Eclipse 500, Beechcraft, Cessna, Dornier, Pilatus, Piper, BAE Hawk AJT, Bell helicopter and many others

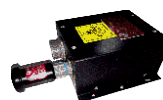


Build-to-Spec Aerospace Products

FAA/EASA certified



UAT Transponder



ARINC 429 Router

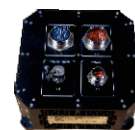


AIBU-Cabin lighting for A320

CEMILAC certified



Control Display Unit



Control Saturation Warning System



Ruggedized Time Distribution Unit

Hardware & RF Engineering Services

- Over 25+ years of experience
- Design & development compliant to DO-160, EMI/EMC, ESD, Lightning open/short circuit protection etc.
- Analog, Digital, Power supply
- RF and Microwave
- Power amplifier
- Up/Down converter
- Power splitter
- Clock distributor



200W Power Amplifier



Aircraft Power Interface Board

FPGA / DO-254/ASIC Engineering Services

- 20+ years of experience
- PLD / FPGA development using VHDL or Verilog
- FPGA to ASIC engineering
- Re-usable IP for ARINC 429, MIL-1553, FFT blocks
- SEU mitigation schemes
- Complete DO-254 life cycle services- Level A, B, C



AST-230



AST-234



AST-GLSRF



AST-GPSRF

ATE / LabVIEW Engineering Services

- Design, Development, Validation & certification, installation of ATE
- LabVIEW, LabWindows, Python, Matlab & Simulink RT, Perl based fully automated application
- ATE for analog / digital discrete I/Os, RF and microwave signals, Audio/Video, Avionics & MIL Interfaces
- Hardware Development Platform PXI/e, VXI, PCI/e cDAQ and custom hardware



ATE for GNSS Receivers



ATE for CDU

Software Engineering Services

- Aerospace software full life cycle per DO-178B/C Level A-E
- Aerospace software partial life cycle V&V per DO-178B/C Level A-E
- Desktop / Web Application Development
- Mobile Application Development
- Tools development and qualification
- Requirement management
- BSP and driver development
- Re-usable and shared component development
- Hardware-software integration testing
- Engineering and process quality assessment services
- Documentation services
- RTOS support

Systems Engineering Services

- "Build-to-spec" FAA-certified product development
- "Build-to-spec" CEMILAC-certified product development
- Hardware design engineering
- RF and Microwave Engineering
- FPGA/ASIC Engineering
- DO-254 Engineering
- ATE/LabVIEW Engineering
- Hardware & Software integration
- Environmental Engineering
- Obsolescence Engineering
- Mechanical CAD design
- Electronic CAD design
- Systems Safety and Reliability Analysis
- "Build-to-print" manufacturing services

Single Board Computers



Low Power SBC
Certifiable to Aerospace
Standards

Key Features

- **Processor**
NXP LS1028A Arm A72 dual core 64-bit CPU operating up to 1.5 Ghz. Available in single and dual core LS1018A and LS1028A configurations
- **Memory**
Up to 8 GB DDR4-1600 memory
- **Software**
U-Boot, Linux BSPs, Accord's ARINC 653 Compliant RTOS "OASYS"
- **Form Factor**
3U VPX Form Factor which is 100mm (W) X 260mm (L)

Software & FPGA IPs



Your Core Application Partitions, managed by our ARINC 653 Compatible OS

Our Graphics Library for Display

Our ARINC 615A Certifiable Data Loader Library

Our ARINC 653 Certifiable OS Library

Our DO-254 Certifiable ARINC 429 Tx/Rx, MIL-1553 Remote/Monitor Terminal, SPI Controllers, UART, Ethernet TX/RX 10/100, VITERBI Decoder, Synchronous and Asynchronous Parallel Bus Interface, AHB Slave, HDLC controller, GNSS Baseband, I2C, ADC data loggers and analysers, Serial protocols: BCD, IRIG and HAVEQUICK on your FPGA

I/O Interface
*Contact us for all the I/O Interface drivers



Communication Protocol Stacks

- ISO 15765 (CAN Communication)
- ISO 14229 (Diagnostics UDS on CAN)
- ISO 14229 (Boot loader on CAN)
- CanOpen
- CAN 2.0B and CAN FD (Driver)

Telematics Systems

- Alerts and SOS Capability
- Shared Mobility
- Online vehicle diagnostics
- Predictive maintenance
- Remote Control Operations
- Secure over the air upgrades (COTA and FOTA)
- Infotainment



AutoSar

- | | |
|---|--|
| <ul style="list-style-type: none"> → System services: <ul style="list-style-type: none"> • ECU Mode manager • Scheduler manager • Comm mode manager • Watchdog mode manager → Memory Services: <ul style="list-style-type: none"> • Flash, EEPROM managers | <ul style="list-style-type: none"> → Communication services: <ul style="list-style-type: none"> • CAN, I2C and SPI communication → IO HW Abstraction: <ul style="list-style-type: none"> • DIO, Port, PWM, ADC • OS: Tasks, Alarms and Events • Runtime environment (RTE) • Sender Receiver and Client Server |
|---|--|

ISO 26262 and 25119 FuSa Service Areas

- Part 3: Concept phase
- Part 4: System level Life Cycle
- Part 5: Hardware level Life Cycle
- Part 6: Software Level Life Cycle
- Part 8: HW&SW Component qualification
- Part 9: Safety analysis

Build To Spec Products

- Auto grade parts
- Assembly in IATF16949 certified EMS
- MISRA compliant firmware
- Production Support
- Quality: ISO-26262/FMEA/
- Static code analysis/MISRA C compliance

Body Control Module

- Doors: Central door locking, Remote key entry
- Wiper: Front and rear Wiper and Wash
- Lamps: Head Lamps, Hazard & Park lamps,
- Running lamp, Illumination Ring, Brake lamp
- Mirror: Outer rear view mirror
- Horn or Siren control
- Ignition control

ATE / LabVIEW Engineering Services

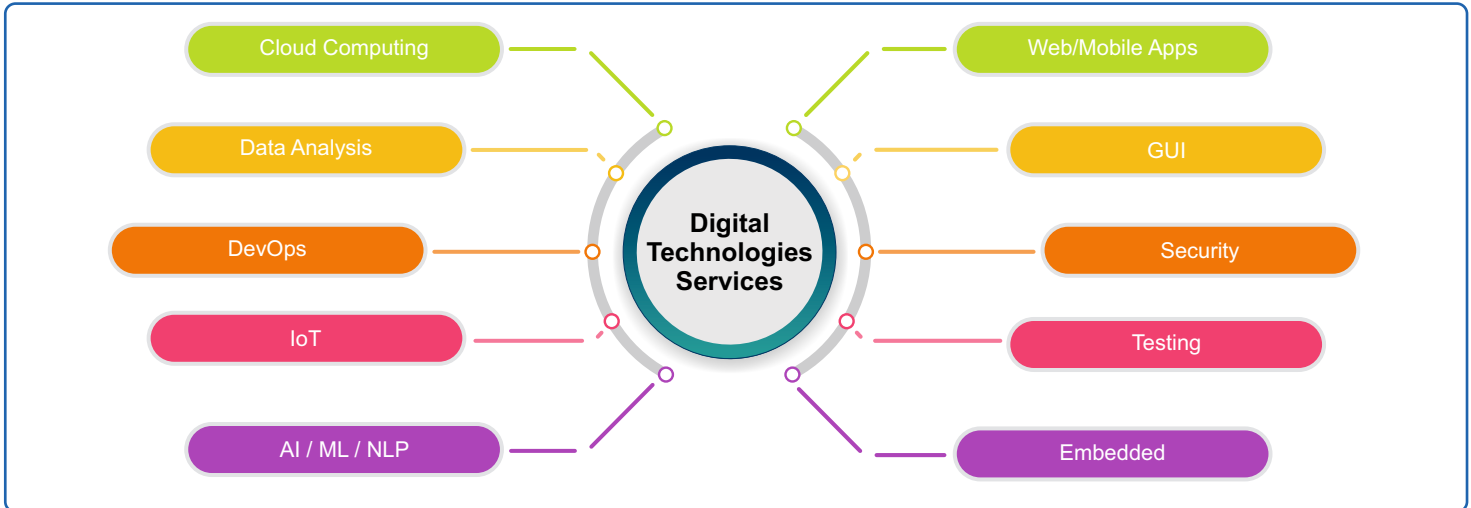
ALLEN Global has expertise in design and development of Automotive ATEs. The salient features of Accord's ATE are:

- Programmable Power Supply
- Digital and Analog IO interface (Configurable Voltage levels and channels)
- ATE built-in-self-test (BIST)
- Communication interfaces
 - USB
 - CAN
 - RS - 232
 - LIN
- Cellular connectivity testing in Non-signaling mode (GSM, LTE, WCDMA)
- Wireless communication testing (Bluetooth, Wi-Fi)
- GNSS simulation and GNSS module testing
- UUT IO protection and signal conditioning
- Interfacing Barcode scanner and label printer
- Report generation and database management



Example Projects Undertaken

- Body control module for tractor (ASIL B)
- Connectivity control unit for vehicles
- GPS Chipsets & Modules to Automotive Industry
- GPS Solutions in the Automotive Market
- NaviTrack-AIS: AIS-140 Compliant VTU



Web and Mobile Applications

- UI UX Modelling
- Full Stack Web Development
- Responsive Web Design
- Security – JWT, OAuth2
- Front end: ReactJS, AngularJS, JSP, JS, BS4, CSS, HTML5
- Backend: NodeJS, Java, PHP
- Native ANDROID (Java/Kotlin)
- Native iOS (Objective-C/Swift)
- Mobile Web

Data Analytics

- Optimized Business Intelligent Engine
- Dashboard Generation
- Data Profiling
- Alerts & Notification
- Automated Report Analysis
- Centralized Data Collection

Embedded Systems

- Embedded Linux Development
- Customized Android Deployment
- Embedded System Security
- Embedded Bootloader Development
- Embedded RTOS based Development
- Embedded Application Development

Cloud Services

- Infrastructure as a service (IaaS)
- Platform as a service (PaaS)
- Private cloud and hybrid cloud
- Test and development
- Data analytics
- File storage Services
- Continuous Integration and Continuous Deployment
- Virtualization and Container Orchestration

IoT and Home Automation

- Device design and development
- Embedded Firmware & RTOS
- Sensors
- Protocol stacks : HTTP/HTTP2/TCP/UDP/TLS
MQTT/RabbitMQ/ZMQ/KAFKA/ZIGBY
- Microservices/API Gateway
- Mobile/Web App
- Big Data Analytics - AI/ML
- Logs – Log4js, Grafana, Prometheus
- Secure Boot, Secure FOTA
- End to End Secure data transfer
- Firmware OTA, L1, L2, L3 Config OTA
- Industry 4.0 Ready

DevOps

- Agile Software development
- Continuous Integration and Continuous Delivery
- Microservices
- Infrastructure as Code

Completed Projects

- Smart Climate Control Systems
- Smart Home Automation Solutions
- Fleet Management Solutions



Life Cycle Tools

- > **Requirements Management**
 - o DOORS
 - o ReMa (ALLEN Global Tool)
- > **Software Design**
 - o Mentor Graphics Case Tool
 - o Rhapsody
 - o Teamwork/Ada
 - o Easy Case
- > **Software Testing**
 - o RTRT
 - o IPL Cantata
 - o VectorCAST C/C++
 - o LDRA
 - o SmartTester for C (ALLEN Global Tool)
 - o SmartAct for assembly (ALLEN Global Tool)
 - o IPL AdaTEST
 - o Logiscope and Lint
 - o TPM (Test Process Management Tool)
 - o National Instruments PXI
- > **Coverage Analysis**
 - o C-Cover
 - o Logiscope
 - o VectorCAST Cover
 - o CodeTrax for C (ALLEN Global Tool)
- > **Project Management**
 - o MS-Project
 - o Smartworks Project Planner(ALLEN Global Tool)
- > **Configuration Management**
 - o ClearCase
 - o CVS
 - o RCS
 - o PVCS
 - o SVN
 - o GIT, Tortoise SVN
- > **Development Environments**
 - o IntelliJ IDEA
 - o Android Studio
 - o Xcode
 - o Visual Studio 2019
(VB, VC++, C#, Asp.net)
 - o NI LabWindows, LabVIEW
 - o Embedded Wizard GUI development Tool
 - o Java Script: React/Angular/NodeJS
 - o Python: Django
 - o Eclipse

- > **DevOps**
 - o Microsoft Azure
 - o AWS CodeCommit
 - o Kubernetes, Docker
- > **Cloud Computing Platforms**
 - > Amazon Web Services (AWS)
 - o AWS Fundamentals : IAM, EC2, Load Balancing, Auto Scaling, EBS, Route 53, RDS, ElastiCache, S3
 - o Deploy an application : AWS Elastic Beanstalk, CICD, CodeCommit, CodePipeline, CodeBuild, CodeDeploy
 - o Infrastructure as code: AWS CloudFormation
 - o Monitoring, Troubleshooting & Audit : AWS CloudWatch, CloudTrail
 - o AWS Integration & Messaging : SQS, SNS, Kinesis
 - o AWS Serverless : AWS Lambda, DynamoDB, API Gateway
 - o Docker in AWS : ECS, ECR & Fargate
 - o AWS Security Best Practices : KMS, Encryption SDK, SSM Parameter Store, IAM Policies
 - > Microsoft Azure
 - > Google Cloud Platform

Microservices

- o JAVA: Spring Boot, Spring Cloud, Spring Data JPA, Hibernate

Software Engineering Tools

- > **RTOS**
 - o GreenHills Integrity
 - o VxWorks
 - o MS-WinCE
 - o DSP-OS
 - o VDK
 - o MicroC/OS
 - o FreeRTOS
 - o Unison RTOS
- > **Compilers**
 - o C/C++/Ada 83 Compilers for various hardware platforms(Power PC, TI DSP, ADSP etc.)
 - o HW Platforms (Renesas, Texas Instrument, Microchip)

FPGA Tools

- > **Front end design**
 - o XST, SynplifyPro, ispLEVER
 - o Eclipse EDK for Zynq Devices
- > **Back end design**
 - o Xilinx ISE
 - o Actel'sLiberio SOC
 - o Altera's QUARTUUS
 - o Vivado
- > **Simulation and Coverage**
 - o Questa-Core
 - o Modelsim PE/SE
 - o Vivado Simulator
- > **Fault Injection testing**
 - o Kaleidoscope from Mentor Graphics

CAN Analyser Tool

- o CANoe
- o BUSMASTER

Issue Tracking Tool

- o JIRA
- o Trac
- o GitLab

Hardware Engineering Tools

- o Python
- o GNSS Constellation Simulator
- o High-density FPGA boards forASIC prototyping
- o High-speed DAC Interfaces
- o Eclipse EDK for Embedded Programming
- o Spectrum Analyzer
- o Signal Generators
- o Logic Analyzer
- o Digital Oscilloscopes
- o Multifunction Counters
- o Development tools and ICE for all ADI DSPs, TI DSPs, ARMProcessor, PowerPC
- o Orcad, Cadstar Viewer, Alegro, PspiceT, Altium
- o Matlab and Simulink
- o Temperature & HumidityChamber
- o Network Analysis
- o Arbitrary wave form generators
- o Automated test equipment
- o PXI based RF testinstrumentation
- o MIL/A429 Tester -(Ballard and Sital)

