

YUOR ENGINEERING PARTNER

QUALITY
RELIABILITY
INNOVATION
HARD REAL TIME
MISSION CRITICAL



SYSTEM ENGINEERING
SOFTWARE ENGINEERING
PROCESS & RAMS CONSULTING
VALIDATION & VERIFICATION
EMBEDDED SOFTWARE



COMPANY PROFILE

INTECS, founded in 1974, is a leading Italian private engineering company that specializes in the design and realization of innovative high-tech electronic systems for the Aerospace, Defense, Transportation, Smart Devices and Financial markets.

INTECS designs and develops applications, tools and software components for complex electronic systems in cooperation with major European and Italian Industries, Organizations, Universities and Research Centers.

The core competencies include:

- System engineering
- Software engineering
- Hardware & Mechanical Engineering
- Process & RAMS Consulting
- Validation & Verification
- Embedded Systems
- Surveillance and command & control systems
- Dependable and safety-critical systems
- Operating systems, drivers, middleware and communications software
- Human computer interfaces
- Simulators and automated test equipment
- Earth observation and geographical information systems



intecs
the brainware company



Today INTECS employs more than 300 employees of whom over 80% are graduates in engineering, computer science or other technical disciplines.

The headquarter is located at TecnoPolo Tiburtino in Rome, while other operating sites are in Pisa, Naples, Milan, Turin, Bari, Genoa, Reggio Emilia and Pittsburgh.

In 1994 INTECS was one of the first software companies in Italy to be awarded the ISO-9001 certification.

In 2005 the Defence Division in Bacoli, Naples, achieved Level 3 certification of the Capability Maturity Model (CMM).

In 2009 it was positively assessed together with the Traffic Control Division achieving Level 3 of the Capability Maturity Model Integrated (CMMI).

The following year the Railway Division was rated at Maturity Level 3.

In 2009 INTECS was also awarded the prize of global "Best Supplier" in Finmeccanica Group (Leonardo).



SPACE & AVIONICS

INTECS has acquired experience in the design and development of high technological solutions for satellite communications in scenarios needing high level of security and strict compliance to environmental requirements.

INTECS is involved in developing GNSS (Global Navigation Satellite System) activities, as well as GNSS Signal Analysis products based on Software- Defined-Radio (SDR).

This solution is capable of receiving GPS, EGNOS and GALILEO signals. In this frame the company took part in several projects, like G-PASSION (Galileo Public Authenticated Server-based Snapshot positIOning), GIASONE (GNSS Integrity and Authentication Services user-Oriented NETwork), COORDINATE (Cooperative Opositioning FOR aiDing NAVigaTion in urban scEnarios) and AGIS4RAIL (Assisted GNSSwith Imaging sensors for Rail applications), co-founded by ESA.

The Aerospace Division has great expertise in the software platform (middleware), developed according to ESA quality and process standards.

INTECS is also a Reference Partner of ESA/ESTEC for the Software/System Engineering studies and the ECSS standards.

This position has been achieved thanks to the many projects and the involvement of the company in ESA working groups for the review and enhancement/improvement of software-related ECSS standards.

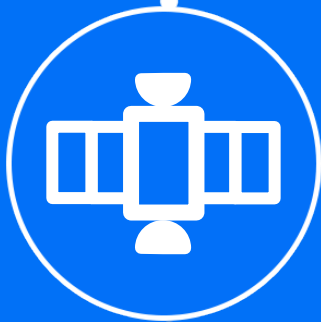
In addition INTECS supports the Space Industry to design, implement and test mission-critical software components, by virtue of its specific competence in developing On-Board Software Subsystems for different spacecraft missions.

The role of INTECS has also been decisive in developing various spacecraft components, such as Star Tracker, Mass Memory Units,

Onboard Computers, GNSS receivers and Pay loads controllers for a number of ESA and/or ASI spacecrafts.

Supporting Aerospace Division has acquired specific expertise in the development of software spanning over the following areas: services to end users (MUIS, Cosmo-SkyMed first and second generation) data warehouse system for reports creation and delivery for ESA user services, SSE (Service Support Environment), Design and implementation of the satellite Data Dissemination System (DDS).

Further competencies have been acquired by INTECS in the Independent Validation and Verification (IV&V) activities, including advanced verification techniques (Copernicus Contributing Mission Entity, EUMETSAT PDP - Sentinel-3, PRISM).



Since the foundation of the company, the team of avionic experts has developed and used knowhow and competences to implement safety critical and mission critical systems. Today INTECS technicians are able to offer customer support in all phases of software development: from user requirements definition to validation and/or certification, following the DOD-STD-2167, RTCA/DO-178 and DO254 guidelines.



RAILWAY

For the last 20 years a team of INTECS experts has been developing and testing fail-safe systems for railway signaling applications conforming to effective standards. (CENELEC EN 50126, 50128, 50129).

Today, the Railway Division focuses on increasingly innovative solutions in this domain, starting from Software development and assurance that is to say, design, development and customization of Automatic Train Control (ATC) and Automatic Train Operation (ATO) Systems. INTECS technicians are also specialized in on-board software layers development: Common Software implementing the procedures to manage Vital Architecture and Safety Communication Layer and equipment specific software implementing the technical requirements and controlling the specific hardware of an equipment.

Further solutions created by INTECS engineers are the porting of proprietary Operating System on different platforms and the development of ad hoc Boot/Loader, drivers for proprietary boards, auto-diagnostic routines, logging utilities and specific software.

In addition, the company can offer specialist solutions at software and system level, as Independent Verification & Validation of safety critical software and systems activities in line with the Norms CENELEC EN 50126, 50128, 50129.

The engineers of Railway Division specialize also in specification and execution of functional system test, integration test, unit test.

Among the solutions proposed by INTECS in the railway domain there is also the independent safety and conformity assurance, as support to a Notified Body.

LABS

INTECS LABS represent an essential part of the development and innovation of the company.

Conceived as cross-market elements, laboratories are made up of experts groups collaborating with management and technical lines of the divisions, dealing with developing customized solutions in line with the modern technological trends: Cybersecurity domain, Artificial Intelligence and big data analysis, Blockchain, satellite navigation, HW design, RAMS analysis.

One of the main achievements of INTECS laboratories is to do research and develop solutions in line with the objectives of each division, using the most innovative technological options available always keeping an eye on emerging technologies.

In INTECS a business ideas may come from many sources: customer requirements or proposals, results of previous R&D projects, an Idea Management Process.

From these, through internal or co-financed projects, the laboratories carry out concepts, prototypes or semi-finished products that will then be used and industrialized by production lines or directly addressed to customers by marketing lines.

Laboratories are coordinated by the CTO, which is responsible for the guidelines definition and for the development of the company vision.

DEFENCE

INTECS operates in the Defence domain on Naval, Terrestrial and Avionic Systems.

It is the very complexity of these systems that makes it the excellence in terms of Quality, Safety and Software Engineering and this is why the company stands out among Italian and European SMEs.

INTECS Defence technicians can work on the design and implementation of many systems, each of specific nature and for different applications domains: Command and Control Systems (C2), Real-Time Embedded Systems, Human Computer Interfaces (HCI), to manage an increasing amount of data types and data items, within well-defined time frames.

Increasingly complex Defence systems, are composed of sub-systems based on real-time embedded software and Digital Signal Processing; INTECS has developed a high specialization in design and development of DSP architectures based on systems on chip (SoC) for sensors and telecommunications systems. In this context, investing in search for comprehensive solutions, is fundamental for INTECS.

In the Defence market, the company can boast strong experience in analysis, design, development and testing of Automatic Test Equipment for RF Radios, RF Missiles sensors and for microprocessor board.

The Defence division know-how also finds application in the Verification and Validation sector using the most common solutions to provide environment on behalf of its customers.

On top of that, this division of INTECS is involved in an innovative path through the R&D program with Italian and European agency as European Defence Agency and Italian Minister of Defence to provide new capabilities on the forefront and disruptive technologies as Artificial Intelligence, Quantum Information Algorithms and Autonomous Robot Systems.



TRAFFIC CONTROL

INTECS has been collaborating with the authorities in charge of Air Traffic Control management for decades. The expertise in this sector allows the company to offer turnkey solutions for many aspects of flow management, both at the airport level and in terms of ATC systems.

INTECS has been involved in major national and international programs for the development of new control systems, also keeping up with technological advancements that now extend the concepts of Air Traffic Control & Management to the world of unmanned aerial vehicles (UAVs), effectively opening the domain of unmanned traffic management (UTM).

The company brought the aeronautical know-how into the naval domain thus acquiring the proficiency to participate in all phases of design and development of Vessel Traffic Control (VTS) systems.



AUTOMOTIVE

INTECS has been creating solutions for the automotive domain as supplier of the leading OEMs and TIERx for 30 years, combining the know-how of engineering, consulting and IT solutions in order to support the client throughout the product lifecycle.

The added value of this work concerns the ability to engage in projects and rapidly adapt delivery formats applying INTECS expertise to all activities necessary for automotive products (Software, Hardware + Software, Verification and Validation).

A team of INTECS technicians specialized in application development is engaged with the AUTOSAR (AUTomotive Open System ARchitecture).

Thanks to its participation in the AUTOSAR consortium, the company has improved the know-how and set up a special technical staff for the definition and implementation of AUTOSAR ECU software. Moreover, the increasing attention of the world automotive market to International Standards for the evaluation of software process, led INTECS to specialize its knowledge towards the industry-specific standard Automotive SPICE.

Due to experience in this domain INTECS was able to develop D.I.A.N.A. the complete solution for the ECU CAN network in compliance with automotive standards.

The test bench has been completely designed and developed by INTECS.

While the hardware is a mix of commercial and custom hardware, the software is completely engineered and devised by INTECS.

Three different standard configurations are available: light, two CAN and three CAN. Starting from these, the system can be customized to meet the client's needs.

The ability to move easily in the rigor of processes compliant with sector regulations makes INTECS the ideal partner to design complex systems according to safety and cybersecurity standards.

Safety-by-design and security-by-design are, in fact, the paradigms perfectly known and applied by INTECS technicians.



SMART DEVICES

INTECS is strongly convinced that Smart Solutions are the new generation of technological innovation and convergence working together innovatively to solve business problems and they definitely are more complex and smart than previous generation of computers.

INTECS technicians are able to operate in all domains where software and connectivity are relevant: Internet of Things, sensor networks, smart devices are the main technologies usually proposed to clients.

INTECS has been able to expand its presence in the industrial domain as a result of the partnership with an important professional electronic player that allowed a faster proposal of solutions to the market.



FINTECH

In recent years the way capital moves within a country's economy has radically changed.

Technological innovation has made it possible to develop systems by which money exchanges no longer occur exclusively in a physical way, but rather through many electronic devices that, thanks to software, can access global networks and make transactions.

Fintech, abbreviation for financial technology, is the business of using new technologies and models to offer financial services in innovative way beyond the traditional sector.

This is why INTECS, from 2020, has expanded its horizons and entered this market, currently considered among the most interesting from a perspective of technological and business growth.

The Fintech division offers solutions for Open Banking, Digital Payment Security, Positional Risk Analysis and e-Commerce. In the field of Opening Banking INTECS, borrowing all the skills, technologies and processes needed to validate a system, has developed a special product, with the highest reliability and safety requirements, for the automatic validation of PSD2/XS2A applications.

It also performs durability/load/stress tests and non regression tests resulting from corrective and/or evolutionary changes.

As regards the Positional Risk Analysis, INTECS has developed solutions to analyze and give a reticular view to the client's network and identify direct and indirect risks. (see Directive EBA/GL/2017/1).



Given the huge growth of online payments, digital transaction security has acquired a fundamental importance.

It is also increasingly necessary to check the ownership of the IBAN before any collection or payment operation.

For this purpose, the IBAN Ownership Control based on Open Banking, is able to verify automatically and in real time that the IBAN of the recipient of the transaction (Debtor/Supplier) results and is correct in order to proceed with the operation.

Basically, it allows you to verify the correct association between IBAN and Tax Code/VAT number of the person making the payment.

As for e-commerce, INTECS offers full integrated solutions for the purchase and electronic payment of goods, also associated with a prize competition in which you can win what you are buying.

The proposed solutions offer multi-platform apps both for merchants and customers, applications for system maintenance, control and configuration, integrations with the most common and available electronic payment platforms.



SOFTWARE TOOLS

- **Requirements Management:** Rational Rose, Doors, Comply-Pro, Dassault Systems Reqtify
- **Modeling:** StarUML, BOUml, HOOD/STOOD, Rhapsody, Enterprise Architect, Artisan Studio, Modelio, Papyrus, Eclipse Acceleo, PolarSys, Dspace Systemdesk
- **DB Modeling:** ER-WIN, Oracle Designer, Oracle Report Builder
- **Component Modeling & Simulation:** MatLab, MatPlotLib, Simulink, Simbuilder, Stage, Simatic wincc e step7, LogicPort Analyzer
- **IDE:** Eclipse, NetBeans, Visual Studio, Qt Creator, Borland C++ Builder
- **Parallel Programming:** Parallel Virtual Machine (PVM), Message Passing Interface (MPI)
- **Developing:** LabWindows, Workbench, TopCased, Mentor Graphics VSX, Elektrobit EBTresos Studio, Vector Da Vinci,
- **Web Application:** Twiki, MediaWiki, Joomla, WordPress, Liferay
- **GIS:** WebGIS, Grass, SevensC, PostGIS, OracleSpatial, OpenLayer, QGIS, GeoServer, MAK VR-Forces, Mak VR-The-World
- **Testing:** Parasoft JTest & C++Test, Bug Detective, LabView, TestStand, IBM Rational, Telelogic, Logiscope, PC-lint, CrystalREVS, Splint, RainCode, Scade, Frama-C, valgrind, Junit, Bugzilla, Jira, Cantata, Tool Vector – CANalyzer, CANoe, CANdela, Dianalyzer, DRC, VALID
- **Logging Analysis:** DIAGERTMS, DIAGSSB, EditorCF, RIM_EVENT_DECODER, dividi Log
- **Space Mission Analysis:** AGI STK, ESA ESOV
- **Product Configuration:** CVS, SVN, Git, PVCS, Serena, ClearCase, SourceSafe, CMS, Cmdbuild, Maven, Ansaldo EDIQL
- **Business Process:** Oracle BPEL Process manager, Oracle WSM, Camunda, Active BPEL Designer & Engine, Microstrategy
- **Grid Computing:** Globus Toolkit, Glite
- **FPGA:** ISE/Vivado per Xilinx (Zynq), Quartus per Altera, Diamond per Lattice, Modelsim, Leon GRLIB / TSIM
- **Office Automation:** KnowledgeTree, Teamwork, Doxygen, Javadoc, DITA

STANDARDS & NORMS

- CMMI, SPICE TM (ISO/IEC 15504), Software Life Cycle processes (ISO12207)
- SIL norms
- OGC (WMS, WFS)
- ESA Software Engineering Standards (PSS-05-0), European Cooperation for Space Standardization (ECSS series), E80, Q40, Spice4Space (S4S)
- Department of Defense (DOD Mil-STD-2167A, DOD Mil-STD-498), DO-178B, Arinc, DO178C, DO278, EN9100 for Aerospace and Defence
- AQAP2210, AQAP160, SELEX-ES IQA
- CENELEC norms for Railways (EN 50128, EN50126, EN 50129), IRIS
- Principle diagrams of the signalling IS, both as regards the ACEI (IO/16, IO/14, IO/19, IO/20, IO/17) that for distancing systems (SBA9, SBA15, etc)
- WD26262, Automotive SPICE, AUTOSAR, GENIVI, OSEK-VDX, ISO26262
- FIAT norms for control unit validation
- implementation and verification of test Commissioning for Vehicles
- ETSI norms, SDL (Telecommunications), ITU-T, RFC, CEI
- ETSI M2M, IEEE V2V – 802.11p, DATEX II – CEN TS 16157

ARCHITECTURES

- Client Server Architectures: (2, 3, Multi Tiers)
- Service Oriented Architectures
- Data Distribution Systems
- Event Driven Architectures
- Simulation Architectures: HLA, DIS, middleware (CORBA)
- Security/Safety Architectures: MILS
- Automotive Architectures: Autosar, Genivi
- Processor Architectures: ARM with macrocell ARM6/7/9
- Grid Architectures
- SDR Architectures

METHODOLOGIES

- Agile Methodologies (SCRUM, TDD)
- Design & Development: OOD, OOP, TDD, Real Time Tech, SW safety
- Analysis Methodologies: Federation Object Model-FOM, Measurement Of Effectiveness-MOE, Measurement Of Performance-MOP
- Model Driven Architecture
- Model Based System Engineering
- RAMS Analysis
- Safety Analysis (FTA ed FMECA)
- Hazard Analysis

SOFTWARE TECHNOLOGIES

- OPERATIVE SYSTEMS: Windows, Unix, Linux, Linux RT, LynxOS, OSEK, RTOS, Virtuoso, RTEMS, pSOS, MicroKernel RT, VxWorks, ALTERA/XILINX, Open VMS, VrTX, FINX, Integrity, PikeOS, Vmac OSX, Android, IOS
- LANGUAGES: Assembler (ARM Risc, X86), ADA 83/95, C, C++, EC++, HTML, PHP, Javascript, HTML5, XML, Java, SCALA, SQL, ActionScript, VHDL, Python, Jython, Perl, C#, J#, VB.NET
- SQL Databases: Oracle, SqlServer, MSSccess, MySql, Postgress, Faircom, SqlLite, Firebird SQL
- No-SQL databases: Solr, CouchDB, MangoDB, CouchBase, Elastic Search
- FRAMEWORKS: EMF, QT, Ilog, Giotto, Cuda, OpenCV, Struts, Spring, Hibernate, Gwt, Jasper Report, Boost, ACE/TAO
- PROTOCOLS & STADARDS: Asterix, Link11, Link16, OthGold, USD, LTE/GSM/GSMR, CoAP, P2P, TCP/IP, UDP/IP, SNMP, NTP, FTP, HTTP, SOAP, Afdx, ARINC429, MIL.1551b, CAN, Spacewire, ECSS/CCSDS Suite, OGC Standards

CONTACTS



Rome	Via Giacomo Peroni 130, I– 00131 Roma
Pisa	Via Umberto Forti, 5, I–56121 Montacchiello - Pisa
Milan	Via Arcivescovo Calabiana, 6 I– 20139 Milano
Turin	Corso Castelfidardo, 22 I– 10128 Torino
Naples	Via Ferrante Imparato, 198 - Isola F, I– 80146 Napoli
Genoa	Via Greto di Cornigliano, 6r I– 16152 Genova
Bari	Via Massaua 18 I– 70132 Bari
Pittsburgh	301 Grant Street, suite 270 Pittsburgh – PA 15219 USA



Tel. +39 06 20 39 28 00
Fax. +39 06 20 39 28 59



info@intecs.it



www.intecs.it



https://www.linkedin.com/company/intecs

