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INTECS Presentation IWES 2018





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FORTY YEARS IN A NUTSHELL



- 1974 - Founded with core business in software controlling advanced Defence systems (Army, Air Force and Navy).**
- 1986 - MATRA Marconi Space takes minority to boost Intecs into Space on ESA Programs (Columbus station, Hermes shuttle, Helios, Spot-4).**
- 1994 - First Italian company to obtain ISO 9001 certification**
- 1999 - ACTIA replaces MATRA to push further Intecs achievements on “civilian” markets: Automotive, Railway and Telecom.**
- 2003 - Major restructuring around Intecs core business: software embedded, real-time and safety-critical**
- 2005 - First Italian company to reach Maturity level 3 of CMM**
- 2009 - Finmeccanica “best global supplier” prize**
- 2014 - Main reorganization with focus on products**

INTECS IS HIGH-TECH SYSTEMS ACROSS ALL MARKETS



**AeroSpace
(25%)**



**Defence
(11%)**



**TrafficControl
& Surveillance
(5%)**



**Railway
(30%)**



**Automotive &
SmartSystems
(25%)**



**Processes &
Safety (4%)**

HIGH-TECH ENGINEERS ALL OVER ITALY and in Paris



About 350 Engineers





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MAIN CUSTOMERS



- ACEA
- Ansaldo STS
- Ansaldo Breda
- ASI (Ag. Spaziale Italiana)
- Biomerieux
- Brembo
- Bureau Veritas
- Coriant (ex NSN Optical)
- CGS
- Cobra
- Dragonwave (ex NSN Microwave)
- Ducati
- Elettronica
- ENI - R&M
- Ericsson
- Eurotech
- ESA (European Space Agency)
- Ferrari
- Fiat Auto
- Indesit
- Italcertifer
- Iveco
- Jeppesen
- Northrop Grumman
- Magna
- Magneti Marelli
- MBDA
- Metasystem
- Octo Telematics
- Piaggio
- Rheinmetall
- RFI (Rete Ferroviaria Italiana)
- Saipem-Snamprogetti
- Selex-ES (ex Comms,ex Datamat)
- Selex-ES (ex Selex Galileo)
- Selex-ES (ex Selex Sistemi Integrati)
- Sistemi Dinamici (Agusta-IDS)
- STMicroelectronics
- Telespazio
- Thales Alenia Space
- Thales
- TUV Monaco
- WASS



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MAIN CERTIFICATIONS



- ISO 9100:2003 since 2008
- ISO 9001 since 1994 (Det Norske Veritas), Vision 2008 since May 2009



- CMMI[®] Level 3 in Pisa in June 2010
- CMMI[®] Level 3 in Rome and Naples in May 2009
- CMMI[®] Level 3 in Naples since 2004
- BOOTSTRAP (european version of CMM) maturity assessment run by SYNSPACE (D), June 1996: top 5% in Europe



- Automotive SPICE[™] level 2 by VOLKSWAGEN in 2006
- SPICE Assessment (ISO15504), "Assessment trials" by CNR in 1996
- Assessments for MUIS-B and ROSETTA run by ESA



- CENELEC Assessor Brandenburg, qualified by SciroTÜV and TÜV Rheinland Berlin



- Assessments: Sx-Galileo (hardware, 2012), FMC (best supplier 2009), Ansaldo STS, Northrop Grumman, ESA, ALENIA (1996), OTE (1996)

STANDARDS



- CMMI, SPICE™ (ISO/IEC 15504), Software Life Cycle processes (ISO12207)



- ESA Software Engineering Standards (PSS-05-0), European Cooperation for Space Standardization (ECSS series), Spice4Space (S4S)



- Department of Defense (DOD Mil-STD-2167A, DOD Mil-STD-498), DO-178B, Arinc



- CENELEC norms for Railways (EN 50128, EN50126, EN 50129), IRIS



- WD26262, Automotive SPICE, AUTOSAR, GENIVI, OSEK-VDX



- ETSI norms, SDL (Telecommunications)



System engineering

- Target system support (eg. Functional assessments, System&Mission design)
- Simulators & ATE (turn-key & fully tested)

Custom Software design

- Applications (turn-key & fully tested) (eg MMI for ATC, GIS)
- Basic software (turn-key & fully tested) (eg. BSP, Firmware)
- Support (eg Reverse engin., Porting, Feasibility, etc.)

Custom Hardware design

- Equipment (eg. MC4)
- Board (turn-key & fully tested) (eg. DSP-5)
- Support (eg PCB layout, thermal analys., FPGA des.&progr., RF, optical, etc.)

Independent Verification & Validation

- Planning&execution of Software Tests (Module, Integration Sw-Sw and Sw-Hw)
- Planning&execution of Hardware Tests (eg. EMC chamber, Thermal chamber)
- Planning&execution of SystemTests (using simulators)

Processes, Safety & RAMT (Sw,Hw,Sys) (eg. train, assess, coach)



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PRODUCTS



SIRIO-LX: is an automatic radar-based system for preventing trains from colliding with obstacles on the track at level crossings. SIRIO-LX is designed to ensure the highest level of safety standard CENELEC SIL 4. Each SIRIO node is composed of 4 radar sensors and an outdoor cabinet, interfacing directly a signaling system and a remote monitoring centre.



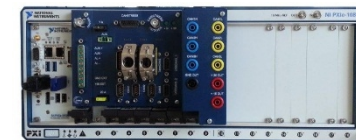
LTAXX: is a turnkey solution for surveillance and environmental monitoring mission through remotely piloted lighter-than-air aerial platforms (i.e. blimps).



DeJamm-R: a monitoring system for the Detection of JAMMING in the Railway networks. The DeJamm-R sentinels are autonomous devices that continuously monitor all the downlink and uplink GSM-R bands, which are used for ETCS Level 2 signaling in high speed rail systems.



DIANA (Digital Instrument for Automatic Network Analysis) is a test bench to automate the validation process of the layers of the ECU CAN bus. HW based on widely used commercial technology. Modular SW architecture permits easily enhancements and adaptations to customer needs.



PROCESS & SAFETY



- ESA Software Engineering Standards (PSS-05-0), European Cooperation for Space Standardization (ECSS series), Spice4Space (S4S), Formal methods



- Department of Defense (DOD Mil-STD-2167A, DOD Mil-STD-498), DO-178B/C, DO-254, ARP 4754, Arinc, RAMS, MDE, Ada, QA



- CENELEC norms for Railways (EN 50128, EN50126, EN 50129)



- ISO26262, Automotive SPICE, AUTOSAR, OSEK-VDX, RAMS, Design Review, QA



- ETSI norms, M2M, SDL (Telecommunications)



- CMMI, SPICE™ (ISO/IEC 15504), Software Life Cycle processes (ISO12207)



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R&D Activities



- Maintenance of state-of-the-art competences thanks to a continuous commitment in R&D activities
- Study of innovative technologies and experimentation of R&D results in close cooperation with major European Universities and Research Centers
- Main funding from:
 - European Community
 - Italian Research Programs at national and regional level
 - European Space Agency
 - Agenzia Spaziale Italiana

R&D Areas



System and Sw Engineering - Applications to the domain of **embedded systems**

- Model Based System Engineering, System and software co-engineering, Model Driven Engineering
- Component model, contract based, correct-by-construction approaches
- Predictability, Dependability, Safety and Security,
- Assurance and Certification
- Reuse and Domain Engineering

Focus on the **Unified Modelling Language (UML)** since 1996, and on other OMG Standards (**SysML**, **MARTE**, etc.)

In addition, INTECS is developing R&D projects on a number of other emerging technologies in domain like

- **Smart Systems**
 - Infrastructures providing value-added services for inter-modal transportation and mobility
- **Communications**
 - Advanced approaches for the management of wireless communication networks
- **Security**
 - Sensors for the surveillance of sensitive areas

System and Sw Engineering Current Projects



- **Cross-layer and multi-objective Programming approach for next generation heterogeneous parallel computing systems (PHANTOM)**, H2020, ICT-4-2015, Customized and low power computing
 - Software development platform for multi-core, heterogeneous hardware platforms managed by a hardware-agnostic, multi-dimensional optimization, hiding complexity from the programmer
- **Safe Cooperating Cyber-Physical Systems using Wireless Communication (SafeCOP)**, ECSEL Call 2015 Project
 - Development and certification approach for safety-related CO-CPS, characterized by use of wireless communication, multiple stakeholders, dynamic system definitions, and unpredictable operating environments
- **Architecture-driven, Multi-concern and Seamless Assurance and Certification of Cyber-Physical Systems (AMASS)**, ECSEL Call 2015 Project
 - Open tool platform, ecosystem, and self-sustainable community for architecture-driven, multi-concerns assurance and certification of software-intensive critical systems
- **MegaModelling at runtime -scalable model-based framework for continuous development and runtime validation of complex systems (MegaM@art)**, ECSEL Call 2016 Project
 - Methods and tools for continuous system engineering life cycle and traceability between design and runtime
- **Aggregated Quality Assurance for Systems (AQUAS)**, ECSEL Call 2016 Project
 - Model-based solutions for Safety/Security/Performance Co-Engineering (CE)



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Job Opportunities in Intecs



- To face the increasing demand from the relevant business markets where INTECS has been operating with professional attitude, INTECS needs to strengthen the technical teams nationwide
- We have open positions for all our branches for candidates holding a Master degree in
 - Computer Sciences and Engineering,
 - Automation and Control of Complex Systems
- We select and provide training to
 - Embedded software programmers
 - Developers of Client/Server application for our domains
 - Model developers
 - System managers and system integration experts, Test and validation engineers
- We offer Theses, Stages and Contract proposals for recruitment at Intecs

- **Contact:**

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THANK YOU !



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